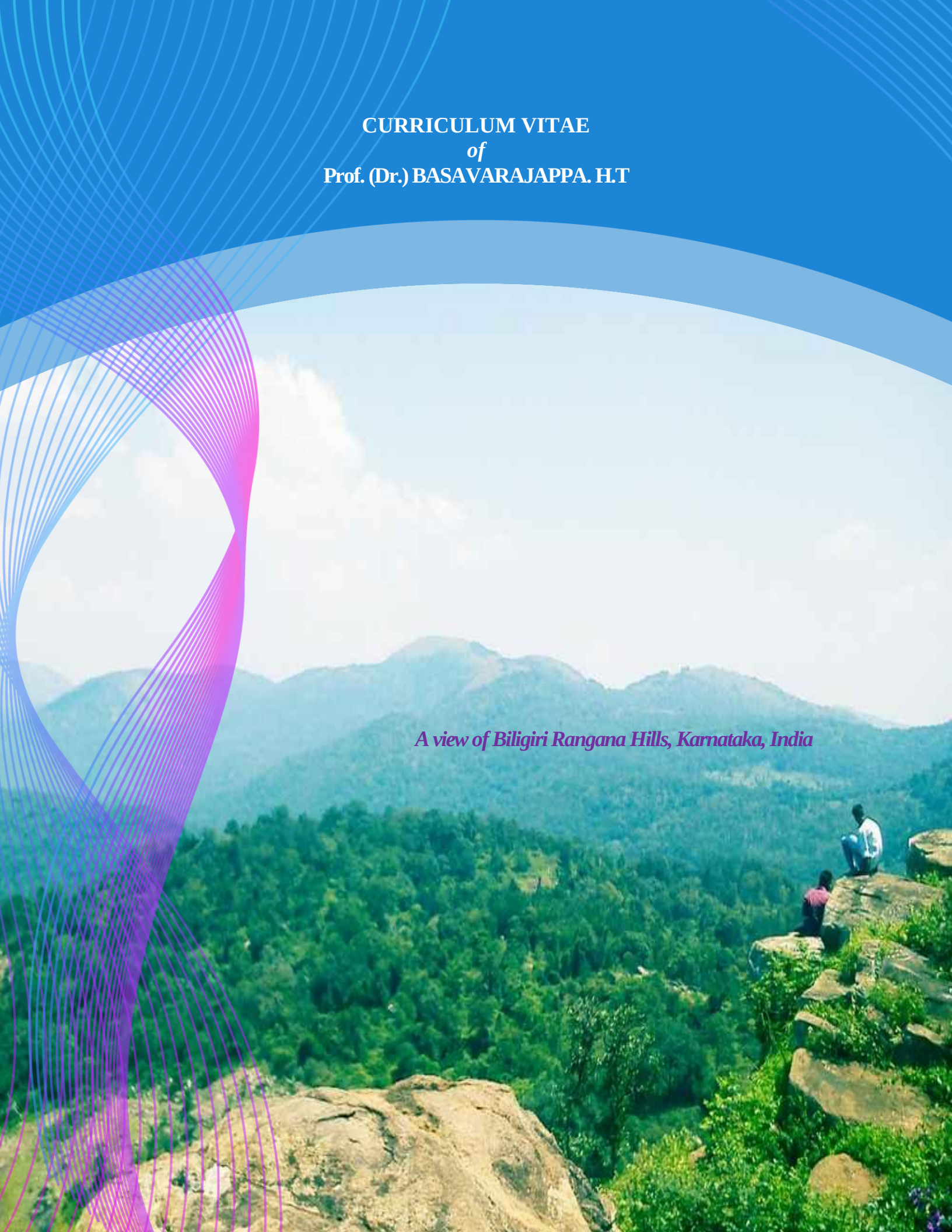
CURRICULUM VITAE
of
Prof. (Dr.) BASAVARAJAPPA. H.T



A view of Biligiri Rangana Hills, Karnataka, India

CURRICULUM VITAE

Dr. BASAVARAJAPPA. H.T

Professor of Earth Science, Former Chairman & Head of the Department, Chairman BOS & BOE (Geology and Applied Geology, UG & PG)Coordinator, CAS-I

DEAN, FACULTY OF SCIENCE & TECHNOLOGY, UNIVERSITY OF MYSORE.

Member of the Academic Council, University of Mysore.

Member of the Planning & Monitoring and Examination Board, Member of NEP, Government of Karnataka.

Advisory committee member of AIU Vice-Chancellors Conference 2022.

Course Coordinator for Earth Science & Disaster Management.

Email: prof.basavarajappaht@earthsci.uni-mysore.ac.in

basavarajappaht@gmail.com

ADDRESS:

Office

Department of Studies in Earth Science,
Centre for Advanced Studies in Precambrian Geology,
University of Mysore, Manasagangotri,
Mysore- 570 006, Karnataka, India.
Mob: +91 **9448800520 – (+91) 9686962261**
+91-821-2419718, 2419730.

Residential

#77, 25th cross, B - block, 3rd stage, Vijayanagara, Mysore-570017,
Karnataka, India. ® +91-821-2412740.

- Date of Birth: 22-07-1961(Twenty second-July-Nineteen Sixty one)
- **Total number of Years' Service in teaching : 38years**
- **As a Professor : 20 years**
- **Administrative experience (Research officer, Co-Ordinator, Chairman DoS, Chairman BOS and Chairman BOE) : 31 years**

Google Scholar h index:	**19**
Google Scholar i10 index:	**26**
Researchgate Score:	**30.57**
Researchgate h index	**19**
Citations:	**1275**
Total number of Publications:	**533**
Peer Reviewed and cited publications:	**175**
Total number Books/ Edited Volumes:	**11**
Abstract published in International/National Seminars:	**130**
Total Publications Impact Factor:	**1020**
Ph.D Successfully Produced:	**14**
Presently working P.hD Students:	**10**

Career Prospect:

Prof. Basavarajappa HT Born in **1961** in remote small village (**then only one house, now it's composed of 60 houses and 300 populations)**, **Bhahaddurghatta-Hosahatty**, Chitradurga dist, Karnataka. **Primary** education Kelagote Govt. School, **Higher Primary** Burajanahatty Govt. School, **Bhapuji High School** and College Education up to degree 1984 (B.Sc) Mysore University in Govt. Science College, Chitradurga.and MSC 1984- 1986. **Prof. Basavarajappa** has about **36** years of Teaching and High Quality Research experience as a **Senior most Professor in the University**, and DOS in Earth Science, at present and Academic Council Member University of Mysore. **Prof. Basavarajappa** got in PG, **Distinction and III place in the Science Faculty and II Rank**.University of Mysore, Department of Studies in Geology. Recipient of Gold medals and Cash awards in PG. He got his P.hD in Jan. 3rd 1994.Prof. Basavarajappa appointed as **Research Officer in 1987 equivalent to Senior Grade Lecturer (BOA), as a Reader in 1994 (BOA) and as a Professor 2003 (BOA). Prof. Basavarajappa** has specialized in Metamorphic Petrology, Field Geology, Field mapping, Geochemical -analytical Studies, Fluid inclusion Studies, Rocks, Mineral, Gems, Ornamental stones and Decorative stones mineral targeting and Prospecting , identification and Chemical analyses, Land scape designing, Maintenance of rock gardens, Applications of Geoinformatics and Remote Sensing, Geomorphological, Slope, Soil, Earth Quakes, Shear Zones, Structural, Geotechnical , Rock stability, Hydrological, groundwaterquality, Rock-water interaction, Urban Planning, Environmental Issues, Lithological classifications, pollution and environmental impacts on Soil and water, Precambrian Orogenic Belts and their mineralization. Hyperspectral studies on targeting the precias gem, strategic, cosmetic and rare metals and PGE group of minerals, advising in **Advanced Education System**. Digitization and Digital Image Processing and Cadastral level thematic mapping of the entire Karnataka state. **Software's Known:** ERDAS, GEOMATICA, MAP INFO, Auto CAD Land Disk, Arc GIS, Vertical Mapper, and Window Movie Maker. Prof.Basavarajappa at the time of his Head ship he has facelifted and changed the Dept. Nominclature based on UGC guidelines, to Department of Studies & Research in Geology to **Department of Studies and Research in Earth Science. Prof. Basavarajappa has brought Centre for Advanced Studies in Precambrian Geology** to DOS in Earth Science. Prof. Basavarajappa has published more than **533** Research papers in peer – Reviewed with high impact Factor National & International Journals.Written edited volumes, Proceeding books, chapters in books and Abstract in the credit. Presented and Published Abstracts and proceedings in conferences and seminars both national and international about **122 Conference** Research papers. Prof. Basavarajappa Adjudicated and evaluated the PhD thesisithrough out India from different Universities about **70** thesis in Diferent aspects of Earth Science and Geology and applied sciences. Prof. Basavarajappa conducted naround **50 conferences Field Work Shops, Field Trainings and Seminars in Earth Science** in national and international as a Convinor, Co-Convinor. **Prof. Basavarajappa** has widely travelled abroad France, Paris and Germany for the international collaboration and Training on EPMA geochemical and mineral chemical analysis. Prof. Basavarajappa received awards for his National & International Research on Granulites of South India. In the bigining his research contribution on Metamorphic petrology like M-1, M-2 M-3 and M-4 with D1, D2,& D3 ,S1 , S2 &S3, F1F2,F3. Then Scientifically he has Recognized and Demarcated **North-South Shear Zone** i.e. **Kollegal Shear Zone (KSZ)** between **Biligirirangan Granulites (Charnockites) and Amphilobite Facies Gneiss in Sargur's of Dharwar Craton his research contribution with his guide Prof.Srikantappa 1992, 1998 oldest granulites of BR hills, and with his colleague & co-researcher Prof. K N Prakash Narasimha first time fluid studies in Proterozoic Sedimentary rocks of Cuddappa basin fluid paths for Euranium deposits and younger Chamundi Granites.** Considering all this in **1998 Karnataka Advanced Applied Sciences (KAAS) Award. 2005 Vijayashree Award** from Inter National Friendship Society, New Delhi. Prof. Basavarajappa established in the Department **Research labs of Remote Sensing and GIS lab, Hyperspectral labduring his Coordinatorship of CAS UGC and Prof Basavarajappa** has setup in the **Department of Studies in Geology Almini Association (DOSGAA)** at present he is heading the **Dean Faculty of Science and Technology,** Co-ordinator for new Course at Academic Year **2022-2023 on M.Sc wo years ESDM** (**Earth Science and Disaster Management**) with PG Diploma 1 & 2. And he is having collaborative research work in India and abrod of NGRI, Madrass University Andhra University, Kuvempu University, Pondicherry University, SRM and Anna University, Chennai.Osmonia University, Kerala University. International collaboration with Germany, Sudan, Iran , Oman ,Yaman Australia and Srilankan lands. Prof. Basvarajappa is the instrumental in part of East block of the Department above the Audtorim, upto economic geology lab first floor now we have 3 class rooms with our Chairman of the Department. .h index =22, i index= 28 , Citation=1275, impact factor =1020

AREA OF SPECIALIZATION:

Precambrian Geology, Metamorphic petrology, Tectonic & Crustal Evolution, Field Geology, Mineralogy, Mineral Chemistry, Mineral Exploration & prospecting, Economic Geology, Geochronology, Groundwater applications, Petrology, Study on Gems & Precious stones, Geochemistry, Structural Geology, Fluid inclusions, Geomorphology, Soil science, Natural Resources, Photogrammetry, Geotectonics, Neotectonics, Microtectonics, Geodynamics, Disaster Management and Natural hazards, Engineering Geology, Waste disposal & Landfill sites selection, Wasteland studies, Sand mining-management and its environmental impact, Climate Change, Hyperspectral Study, Remote Sensing and GIS Applications to Earth & Environmental Science. Presently he is the most popular in the students and research candidates in the field geology and mapping of structures and lithological units in the Precambrian Granulite terrains and green schist belts of Dharwar Craton and Karnataka Cratonic Group of Southern Peninsular India.In the field of Geosciences.

EDUCATIONAL QUALIFICATION:

(Indicate your educational qualifications, starting with latest)

Period	Qualification	University / Institute/ Board	Subject / field
1987/94	**PhD**	University of Mysore Department of Studies in **EARTH SCEINCE And Centre for Advanced Studies in Precambrian Geology** Manasagangothri, Mysore	**Subject:** Geology **Field:** Petrology, Geology, Geochemistry, Structural, Fluid Inclusions on Biligiri-Rangan Hills, Karnataka, India
1984/86	**M.Sc.**	University of Mysore Department of **Earth Science** Manasagangothri, Mysore	GEOLOGY
1981/84	**B.Sc.**	University of Mysore Government Science College Chitradurga	Chemistry Botany Geology

ACADEMIC DISTINCTIONS: Awards/Recognitions

Sl No	Name of the Award	Conferring Agency	Year
1.	Distinction and Rank in M.Sc.	Mysore University	1986
2.	R. Srinivasa Rao cash prize	Mysore University	1986
3.	Rajamunivenkatashetty and Buchhamma Gold medal	Mysore University	1986
4.	L. Rama Rao Gold medal	Mysore University	1986
5.	Fellowship Award	District Social Welfare Dept. Mysore	1986
6.	YOUNG SCIENTIST, KAAS AWARD 1998 (Earth Science) Karnataka	Karnataka Association of Academy of Advanced Science –Bangalore	1998
7.	VIJAYASHREE AWARD-2005- Excellence in Earth science	Indian International Friendship Society, New Delhi	2005
8.	Review Board Member of PUC Text book committee,	PU Board, Govt. of Karnataka	2013
9.	Karnataka Vikaasa Rathna	Karnataka Rajya Okkaligara Vikaasa Vedike	2015

PROFILE OF PROFESSIONAL CAREER/LIFE SKETCH:

- **Born in 1961 in remote small village, Bhahaddurghatta-Hosahatty, Chitradurga dist, Karnataka.**
- **Primary education Kelagote Govt. School, Higher Primary Burajanahatty Govt. School, Bhapuji High School and College Education up to degree 1984 (B.Sc) Mysore University in Govt. Science College, Chitradurga.**
- **In the PG, Distinction and II Rank in M.Sc. And 3rd place in Faculty of Science and Technology ,University of Mysore, Department of Studies in Geology. Recipient of Gold medals and Cash awards during PG.**
- **About 380 publications in the form of Peer Reviewed National and International Papers, Edited Volumes, Proceeding Books, Chapters in Books and Abstracts in the credit.**
- **Visited Abroad - 1991 France, Paris and Germany for the international collaboration and Training on EPMA geochemical analysis.**

AFTER ENTERING THE SAME DEPARTMENT OF STUDIES IN GEOLOGY:

- **1987 Research officer** permanent post and registered for the PhD along with the Research and Teaching work in the PG Department.
- **1994 PhD awarded in Precambrian Geology (Structure, Metamorphic Petrology, Fluid inclusion studies and Geochemistry of Archaean Charnockites around Biligirirangana granulites, Chamarajanagara district by University of Mysore.**
- **1994 Reader** in the Department by Board of Appointment.
- **1998 Karnataka Advanced Applied Sciences (KAAS) Award.**
- **2000- 2001** served as a Chairman, Board of Examiner.
- **2000** -onwards started Research in Geological Remote Sensing and GIS Applications.
- **2002- Professor** by Board of Appointment.
- **2003** to till date, **Chairman** –Indian Geomatic Society Mysore Chapter.
- **2003** to till date **Treasurer**, Mineralogical Society of India.
- **2005 Vijayashree Award** from Inter National Friendship, Society, New Delhi.
- **2006** to **2010, Chairman, Board of Studies** in UG & PG and Research in Geology, Applied Geology, & Earth Science and Resource Management.
- **2007 & 2008, Head and Chairman** of the Department.
- **2008 to till date, President** of Department of Geology Alumni Association.
- **2007 to 2012- Coordinator**, UGC-SAP IV & V phase.
- **2013 to 2018 - Coordinator**, CAS-I phase.
- **2015** – Editorial Manager for IJCIET (International Journal of Civil Engineering and Technology).
- **2015** – Editorial Board Member for IJSET (International Journal of Science Engineering and Technology)
- **2016- Successfully conducted Indian Science Congress in the University in the Accation of Centenary celebrations. ISCA 103**

- **2016** – Sectional Local Secretary for 103rd Indian Science Congress in Earth System Science section. And succesfully completed with 45 scholarly Geo scientists from diferent parts of the world and 200 paperpresentations in the congress.
- **2017** – Editorial Board Member for IJCRT (International Journal of creative research thoughts UGC approved Issn no. 2320-2882).
- **2018-**– Editorial Board Member for UPI (International Journal Engineering and Technology UGC approved)
- **2019**- Sucessfuly copleted the CAS as Cordnator submitted UC SC with the Report.
- **2021-** Charge taken as a Dean, Faculty of Science & Technology, University of Mysore.
- **14 PhDs** Produced in the Earth Science both National & International.
- Publications peer reviewed **439** both National and International.
- Presented and Published Abstracts and proceedings in conferences and seminars both national and international **135.**

NEW FINDINGS: Contributions to Earth Sciences

- Finding of **Kollegal Shear Zone** in Mysore and Chamarajanagara dist, Karnataka India.
- Noticed **D1, D2, D3, & D4 deformational episodes** in the study area and **M1, M2, M3 & M4 Metamorphism** (KSZ).
- Later **Dextral & Sinistral** type of shearing events and **many active fault Zones trending N40^{0}W, N45^{0}E and N60^{0}W. Older BILIGIRI-RANGAN Archaean rocks in Karnataka.**
- **Incipient Charnockite** formation in KSZ is structurally controlled latest stage of Metamorphism in M4 +- 550My.
- **M3**- Rétrogression .**M2**- Granulite formation **M1**-Gneisses formation.
- First-formation is Magmatic origin.
- Regional P-T is **P=5.5 to 8.0 Kb and T= 560^0 to 950^0 C.**
- Fluids present both **High/Low density and saline type.**
- Crustal Thickness is about **30 to 25Km**.
- **Auriferous Quartz Veins** are reported in the study area.
- Gem verity of **Corundum** is reported in the study area.
- **Scapolite bearing Calc Silicates** are reported from the study area.
- Active fault zones are reported at **B.R.Hills temple & Near Hogenakkal** areas.
- **Tectonic Model** has been developed in the study area. An overprint of Southern Granulites Terrain on Dharwar Craton.
- **Very High-Low fluids** are identified and reported at Kollegal Shear Zone.
- **First time**: Fluids from **younger Sedimentary basins** of South Indian terrains are also reported.
- **Latest Incipient un-deformed Charnockite** formation **PAN AFRICAN** TYPE, structurally controlled **+- 550 m.y** have been reported in Kollegal Shear Zone.
- Around 12-14 type of rocks are Igneous, Metamorphic and Metasedimentary rocks also reported in the study area.

- **Detailed** 1.Geological, 2.Geomorphological map, 3. Structural map 4. Contour map, 5. Lineation map, 6.Lithological map 7. Land use land cover maps, 8. Soil maps are also developed.
- Geologically the Biligirirangana terrain confirms to an ancient Achaean terrain and it is also proved a single geomorphic unit.
- Identified the **lineaments are Syngenetic** with the regional structural trend.
- Tectonically Biligirirangana hills can be considered to be the **deformed southern extension** of the Dharwar Craton.
- **Cluster analyses** have been employed to bring out relation ship of assorted metamorphic variables.
- Remote Sensing and Geoinformatics are employed in to the study area
- First time an attempt has been made, paper presented on **Medicinal Geology** in Department of geology, Visakhapatnam Andhra Pradesh from Mysore University.
- Geospatial data acquired on Wastelands studies and its developments in Chamarajanagara and Mysore district.
- Heavy metal analysis and their Environmental impacts assessment through Geochemical and correlation of GIS applications on River water bed sediments of Kabini River. Nanjangud area.
- Applications of Remote Sensing and GIS on **Mysore city Waste disposal site selection, waste management and Environmental impact on ground water prospecting zones. Abstract published** in 39th COSPAR July 2012.
- Recognised the very high concentration and hogh percentage of Manganees horizon in Chitradurga schist belt of karnataka India. i.e. *1 to 86 percent.
- High Thoriam content in Mondya district.
- A revive paper published in Journal of Geological Society of India on Hydrothermal solutions in the labouratory system to hydrothermal alteration zones in the natural system (that is Geology) 2022.
- Around 325 Maps and layers generated using GIS and Remote Sensing softwares.
- Around 300 Precambrain rock samples have analysied from the Spectrol Radiometer instrument and developed Spectral Signatures as an Indian Standards.
- Around 350 data sets have aquired and analysied, and stored for the data users.
- NEW SYNISTRAL SHEAR ZONE cutting the CLOSEPET GRANITES area of between Rayadurga and kalyanadurga gap area is **VEDAVATHI SHEAR ZONE 2022**. Andrapradesh South India.

VISITS ABROAD:

- **Visited as a Scientist for Training in EPMA to America, Paris and France in 1991.**
- **As a Visiting Scientist, Bonn University, Germany, 1991.**

PhDs Awarded;

14 Phds both nationals and Internationals

Achievements in the Department

- **Renovation of the Department building and Electricity at the time of Chairman & Head ship 2007 and 2008.**
- **The Syllabus changed (Applied Geology and Geology) as per the international standard UGC guidelines as a BOS Chairman 2006 - 2010.**
- **Setting of the Remote Sensing and Photogrammetric Lab 2000 &2001.**
- **Setting of the GIS Lab in 2005.**
- **Changed the Department Nomenclature GEOLOGY to EARTH SCIENCE 2009-10.**
- **Upgraded the Seat matrix of M.Sc Geology and Applied Geology. 2007-08.**
- **Admission of PG seats extended outside the university, out of State and out of Country candidates, based on availability of seats on each course, since from 2007 & 2008**
- **Department has been upgraded to Award of Center for Advanced Studies in Precambrian Geology in 2013. As a UGC SAP Co-Ordinator 2004-12.**
- **Upgraded GIS and Remote Sensing Labs with High hand Computers and Software's**
- **Hyper Spectral Research lab setting 2017. Under UGC- CAS.**
- **Fluid Inclusion Research lab setting 2017. Under UGC- CAS.**
- **AAS Research lab setting 2017. Under UGC- CAS.**
- **Developing Open air Museum in the Department.**
- **Successfully completing CAS- Phase-I, 2013-18.**
- **New 2 years MSc course Earth Science & Disaster Management as a Course Coordinator started from 2022-23 with PG Diplom in ESDM-1 and ESDM-2.***
- ***- This PG Diploma -1 for First year M.Sc in ESDM the candidate wants to leave the course he/she will be awarded.**
- ***- This PG Diploma-2 will be for after M.sc degree of Geology/Applied Geology/ ESRM/ MRSA /Geoinformatics and related to Earth Science M.Sc coarse students can offer and eligible for 3rd and 4th Sem of ESDM.**

Scientific Achievements:

1. **1992 New shear zone –Kollegal Shear Zone (KSZ) is Identified and demarcated in southern tip of Karnataka Craton, nearly 545 Millian Years old.**
2. **Younger deformation and metamorphic event .**
3. **Neve incipient Charnockitization in shear controlled o0f Kollegal Shera Zone**
4. **2022 identified and Demarcated, Comparitively younger shear zone in closepet granite gap area around Kallyan durga and Rayadurga age ??**

PAPERS PUBLISHED Total: 515:

Link:https://www.academia.edu/checkout?feature=mentions&trigger=email-paper-claim-mentions&upgraderedirect=//www.academia.edu/mentions

1. 1992: Fluid inclusions in Charnockites, Biligirirangan Hills, Karnataka, in High Grade Metamorphics, Theophrastus Publications A.S.33j., Theologou. Geographies, Athens, Greece, Srikantappa C, **Basavarajappa H.T** & Janardhan A.S, Vol.1, Pp.53-65.IMP F-2

Significance: Charnockites are the predominant rock types occurring in the Biligiri-Rangan hills. Numerous metabasic and metasedimentary enclaves are found within the charnockite massif. The types of fluid inclusions present in charnockites of the Biligiri-Rangan hill and their distribution is reported. Fluid inclusion studies on charnockites show the low density of CO2 rich inclusion (0.83 g/cm3) and H2O-NaCl-bearing aqueous inclusions are seen in samples collected within the shear zones. Such types of inclusions appear to have formed during retrograde metamorphism during shear deformation in the area.

2. 1992: Highly saline fluid inclusions in Chamundi granite, South India. In Current Science, Srikantappa C, Prakash Narasimha K.N, & **Basavarajappa H.T,** Vol. 62, Pp.307-309. IMP F-2

Significance: Fluid inclusions in minerals and rock represent a potentially valuable source of information about the composition and density of fluids present during the formation and evolution of rocks. Our preliminary studies on Chamundi granite have indicated presence of highly saline inclusions (upto 50-60 wt% Nacl equivalent) as well as low-salinity inclusions (8 to 22 wt% Nacl equivalent). Data on temperature of homogenization suggest that they represent remitant fluids of magmatic origin trapped in minerals.

3. 1998: Regional high grade metamorphism of 3.4 Ga Biligirirangan Granulites in the Dharwar Craton, India, Gondwana Research, Srikantappa C and **Basavarajappa H.T,** Vol.8, Pp.92-93. IMP F-9

Significance: Charno-enderbitic to charnockite granulites are the predominant rock types exposed in the Biligiri-Rangan hills with enclaves of basic granulite and minor pyroxenite. Among metasediments, banded magnetite quartzites occur as parallel bands interbanded with quartzites and politic rocks. Sm-Nd, Rb-Sr whole rock and U-Pb zircon data from the Biligiri-rangan granulites (BRG) indicate a protolith age of about 3.4 Ga with regional high-grade metamorphism around 2.5 Ga (Buhl., 1987).Based on Sm-Nd and Rb-Sr whole rock data. All along the western margins of the BRG, a shear zone termed as the Kollegal Shear Zone has been recognized. Along this north-south to north-northeast trending ductile/ brittle shear zone, charnockites as well as basic granulites show evidence of retrogression to middle/ lower amphibolite-facies conditions.

4. 1998: Morphometric response of the geology and structure in and around Biligirirangan Hill ranges. In Journal of Mineralogical Society of India, **Basavarajappa H.T**, Satish M.V, Balasubramanian A and Nagaraj D, Vol. 32, No.1, Pp.21-22. IMP F- 0.5

Significance: Three important crustal blocks namely the northern Archaean Biligiri-Rangan Granulites (BRG), the central Bhavani Gneisses (BG) and the Southern Chennaimalai-Dharapuram granulites (CDG) occur. These blocks are bounded on either side by shear zones which are considered to be part of the crustal scale Palghat-Cauvery Shear System (PCSS). From North to South, these shear zones are referred to as Mettur Shear Zone (MSZ), Moyar-Bhavani Shear Zone (MBSZ) and Chennimalai Shear Zone (CSZ).The Sankari-Tiruchengodu granites, emplaced into yhe MBSZ from these abundant saline inclusions. Addition of aqueous fluids into the MBSZ from these granites has further enhanced hydration and development of

retrograde mineral assemblages in the Bhavani gneiss. **:** Detailed geological mapping in selected areas of the transect corridor approx. 30 Km wide. Petro-mineralogical studies of the meta-igneous and meta-sedimentary rocks.Characterisation of the nature and composition of fluids (eg.CO2, H2O, NaCl, KCL, CH4, N etc.,) in crustal blocks and in shear zones.

5. 1998: Metamorphic evolution of the Biligirirangan Granulites (BRG) Karnataka, India, in journal of the Mineralogical Society of India, **Basavarajappa H.T** and C. Srikantappa. Vol.32, No.1, Pp.54. IMP F- 0.5

Significance: To unravel the metamorphic evolution and fluid regime. Along this traverse, three important crustal blocks namely the northern Archaean Biligiri-Rangan Granulites (BRG), the central Bhavani Gneisses (BG) and the Southern Chennaimalai-Dharapuram granulites (CDG) occur. These blocks are bounded on either side by shear zones which are considered to be part of the crustal scale Palghat-Cauvery Shear System (PCSS). From North to South, these shear zones are referred to as Mettur Shear Zone (MSZ), Moyar-Bhavani Shear Zone (MBSZ) and Chennimalai Shear Zone (CSZ).The Sankari-Tiruchengodu granites, emplaced into yhe MBSZ from these abundant saline inclusions. Addition of aqueous fluids into the MBSZ from these granites has further enhanced hydration and development of retrograde mineral assemblages in the Bhavani gneiss. **:** Detailed geological mapping in selected areas of the transect corridor approx. 30 Km wide. Petro-mineralogical studies of the meta-igneous and meta-sedimentary rocks. Characterisation of the nature and composition of fluids (eg.CO2, H2O, NaCl, KCL, CH4, N etc.,) in crustal blocks and in shear zones.

6. 1999: Retrograde Charnockite-Gneiss relations in the Kollegal Shear Zone (KSZ). Karnataka India. The Indian Mineralogist, **Basavarajappa H.T** and C. Srikantappa. Vol.33. No. 2, pp70-80. IMP F- 0.5

Significance: Within the Kollegal Shear Zone (KSZ) in the Dharwar Craton, charnockitic to enderbitic granulites of the Biligiri-Rangan hills have been highly deformed with the formation of mylonites, ultramylonites and psuedotachylites. Granulites show various retrograde metamorphic reactions with the predominance of epidote-amphibolites facies gneisses in the shear zone. Low to high salinity aqueous fluids predominate (3 to 35 wt% 5% NaCl equi) in the shear zone rocks with low density CO2 –rich (0.76-96 g/cc) inclusions in contrast to high density CO2 inclusions in the BRG (1.00 to 1.09 g/cc). retrogression of charnockite to gneiss is isochemical. IMP 0.5

7. 1999: A major geo-transect corridor across the green stone-granite and granulite –gneiss domains of the south Indian Shield, Deep continental studies in India NEWSLETTER, Srikantappa C, Srinivas G, **Basavarajappa H.T**, Prakash Narsimha K.N and Basavalingu B, Mysore Petrology group. Vol.9, No.2. IMP F-1.5

Significance: Detailed geological mapping in selected areas of the transect corridor approx. 30 Km wide. Petro-mineralogical studies of the meta-igneous and meta-sedimentary rocks.Characterisation of the nature and composition of fluids (eg.CO2, H2O, NaCl, KCL, CH4, N etc.,) in crustal blocks and in shear zones.Major, trace and REE geochemistry of different rock units.Geochronological study, synthesis of data from all the above investigations including the geophysical data.

8. 1999: Diagenetic transformations in Quartz of Kurnool group (Precambrian), Andhra Pradesh., in Journal of Indian Association of Sedimentologist. Harish. V and **Basavarajappa H.T,** Vol. 18. No.1, Pp.52-59. IMP F-2

Significance: Petrographic studies of Kurnool Group reveal medium to fine grained subrounded to rounded detrital grains cemented by silica mostly as secondary enlargements.In most of the cases these secondary enlargement. In most of the cases these secondary enlargements are noticed over the coarser fraction rather than the finer fraction. The effect of pressure solution is distinct and has resulted in the development of point, concavo-convex, suture and tangential type of grain contact. The silica forming authigenic overgrowth was probably derived from the associated shale-siltstones through dissolution of minute quartz grains and pore water. The quartz show well developed overgrowths indicating pressure solution and sea water as the possible source of silica cementation.

9. 2000: Geology, structure, Metamorphism and tectonic setup of 3.4 b.y. old Biligirirangan Granulites, South India. In International geological congress, Brazil. **Basavarajappa H.T** and Srikantappa. C, e-journal. IMP F-4

Significance: Deep Crustal Studies programme of the Department of Science and Technology, to unravel the metamorphic evolution and fluid regime. Along this traverse, three important crustal blocks namely the northern Archaean Biligiri-Rangan Granulites (BRG), the central Bhavani Gneisses (BG) and the Southern Chennaimalai-Dharapuram granulites (CDG) occur. These blocks are bounded on either side by shear zones which are considered to be part of the crustal scale Palghat-Cauvery Shear System (PCSS). From North to South, these shear zones are referred to as Mettur Shear Zone (MSZ), Moyar-Bhavani Shear Zone (MBSZ) and Chennimalai Shear Zone (CSZ).The Sankari-Tiruchengodu granites, emplaced into yhe MBSZ from these abundant saline inclusions. Addition of aqueous fluids into the MBSZ from these granites has further enhanced hydration and development of retrograde mineral assemblages in the Bhavani gneiss. **:** Detailed geological mapping in selected areas of the transect corridor approx. 30 Km wide. Petro-mineralogical studies of the meta-igneous and meta-sedimentary rocks.Characterisation of the nature and composition of fluids (eg.CO2, H2O, NaCl, KCL, CH4, N etc.,) in crustal blocks and in shear zones. Major, Trace and REE geochemistry of different rock units. Geochronological study, synthesis of data from all the above investigations including the geophysical data.

10. 2000: Metamorphic evolution and fluid regime in the Deep Continental Crust along the North South Geo transect from Vellar to Dharapuram, South India, Indian Mineralogist. Srikantappa C, Srinivas G, **Basavarajappa H.T,** Prakash Narasimha K.N. and Basavalingu B, Vol.34, No.1, Pp.32-37. IMP F-2.4

Significance: A traverse along the Vellur-Dharapuram, representing northern part of the Kuppam-KanyaKumari geotransect has been undertaken under the Deep Crustal Studies programme of the Department of Science and Technology, to unravel the metamorphic evolution and fluid regime. Along this traverse, three important crustal blocks namely the northern Archaean Biligiri-Rangan Granulites (BRG), the central Bhavani Gneisses (BG) and the Southern Chennaimalai-Dharapuram granulites (CDG) occur. These blocks are bounded on either side by shear zones which are considered to be part of the crustal scale Palghat-Cauvery Shear System (PCSS). From North to South, these shear zones are referred to as Mettur Shear Zone (MSZ), Moyar-Bhavani Shear Zone (MBSZ) and Chennimalai Shear Zone (CSZ).

The Sankari-Tiruchengodu granites, emplaced into yhe MBSZ from these abundant saline inclusions. Addition of aqueous fluids into the MBSZ from these granites has further enhanced hydration and development of retrograde mineral assemblages in the Bhavani gneiss.

11. 2000. Petrography and Geochemistry of late Proterozoic siliciclastics from Kurnool group, Kurnool sub basin, Andhra Pradesh. Harish V and **Basavarajappa H.T,** Jour. of Indian Association of Sedimentologist, Vol.19, No, 1 & 2. Pp.93-105. IMP F-2

Significance: The Banaganapalle and Paniam siliciclastics of Kurnool Group are medium to fine grained having quartz as the dominant framework constituent with subordinate feldspar and rock fragments. Quartz is represented mostly by monocrystalline non-undulatory variety with a few (<5%) monocrystalline undulatory, polycrystalline and authigenic quartz variety. Grains are rounded to subrounded in nature. Petrographically the siliciclastics are classified as quartz arenites. Chemically the siliciclastics are enriched in SiO2 and depleted in Al2O3, TiO2, Na2O, CaO indicating matured nature of the siliciclastics. From the petrographic and geochemical studies it is suggested that the siliciclastics of Kurnool Group had their source from the Archaean granites, gneisses and lower Cuddapah sediments. Also, from the chemistry an eugeosynclinal passive margin tectonic sedimentation setting is envisioned for the siliciclastics of Kurnool Group.

12. 2001. Earthquake prone areas around Mysore and environmental planning. National Seminar on Environmental hazards priorities and protection in the 21st Century, Mysore, Karnataka state pollution control Board. Srikantappa C, **Basavarajappa H.T** and Shahida Sulthana. N, March 2nd to 3rd, Pp.34-36. IMP F-1

2001. Provenance and depositional environment of late Proterozoic Silica-clastics sequence of Kurnool group, Andhra Pradesh, Harish V and Basavarajappa H.T, Journal of Indian Sedimentalogist Association, New-Delhi, Vol. 20, No.2, Pp.207-222. IMP F-2

Significance: Petrographic studies of the siliciclastic strata of Kurnool group have revealed quartz as the dominant detrital constituent with subordinate feldspar and rock fragments. The sediments are medium to fine grained, very well sorted to well sorted, negatively to positively skewed and platykurtic to leptokurtic in nature. Grain size distribution curves indicate that the sediments are transported mainly as saltation. Environmental interpretations based on various bivariate, multivariate and log log plots of size parametres indicates the deposition of sediments in a beach to shallow marine environment. The surface features of quartz grains reveals marine depositional environment and Archean crystalline source. Primary sedimentary structures like ripple marks and cross stratification indicate the deposition of sediments in shallow water. heavy mineral assemblage suggests that plutonic igneous, metamorphic and reworked sediments formed the ultimate source of heavy minerals for the Kurnool siliciclastics. From the petrographic and textural analysis it is revealed that the siliciclastics of Kurnool group had their source from the Archean granites and gneisses and underlying Cuddapah sediments and deposited in a beach to shallow marine environment.

13. 2002 .Metamorphic evolution and fluid regime in the Deep Continental Crust along the North South Geo transect from Vellar to Dharapuram, South India., Srikantappa C., Sreenivas G, **Basavarajappa H.T,** Prakash Narasimha. K.N. and Basavalingu. B, Journal of Geological Society of India, Vol.3, IMP F-2

Significance: A traverse along the Vellur-Dharapuram, representing northern part of the Kuppam-KanyaKumari geotransect has been undertaken under the Deep Crustal Studies programme of the Department of Science and Technology, to unravel the metamorphic evolution and fluid regime. Along this traverse, three important crustal blocks namely the northern Archaean Biligiri-Rangan Granulites (BRG), the central Bhavani Gneisses (BG) and the Southern Chennaimalai-Dharapuram granulites (CDG) occur. These blocks are bounded on either side by shear zones which are considered to be part of the crustal scale Palghat-Cauvery Shear System (PCSS). From North to South, these shear zones are referred to as Mettur Shear Zone (MSZ), Moyar-Bhavani Shear Zone (MBSZ) and Chennimalai Shear Zone (CSZ).

The Sankari-Tiruchengodu granites, emplaced into yhe MBSZ from these abundant saline inclusions. Addition of aqueous fluids into the MBSZ from these granites has further enhanced hydration and development of retrograde mineral assemblages in the Bhavani gneiss.

14. 2003. Metamorphic evolution and fluid regime in the Deep Continental Crust along the North South Geo transect from Vellar to Dharapuram, South India., Srikantappa. C., Sreenivas. G, **Basavarajappa H.T,** Prakash Narasimha. K.N. and Basavalingu. B. Memoir –50, Geological Society of India, Pp.319-373. IMP F-2

Significance: Massive to banded charnokitic to enderbitic (CEG) are the predominant rock types exposed along the N-S geotransect from Vellar to Dharapuram, Numerous basic granulites occur as enclaves within the CEG. Towards northern part of the geotransect are seen the early Archean (>3.1Ga) massive to banded charnokitic to enderbitic granulites called the Biligiri Rangan Granulites (BRG), and towords south, the late Archean-early Proterozoic (2.51-3.1Ga) Chennimalai-Dharapuram granulites (CDG). The BRG shows a regional N-S structural fabric and is tonalitic to trondhjemitic in bulk composition with numerous basic enclaves, in contrast to CDG that shows N50-60^{O}E trending structures and is quartz-monzonitic in bulk composition. The Moyar-Bhavani Shear Zone (MBSZ) represents a deep seated shear zone (high pressures of upto 12.5 Kbar) in southern India and is interpreted as a suture zone between the BRG abd CDG. The northern margin of the CDG is marked by Chennimalai Shear Zone (CSZ). The northern margin of the CDG is marked by Chennimalai shear Zone. The rocks show ductile to brittle shearing and evidence of middle to lower amphibolite facies retrograde metamorphism in these shear zones.

Micro-textural studies of granulites indicate verious high P-T mineral reactions and retrograde reactions in shear zones. Most of the silicate mineral like orthopyroxene, clinopyroxene, plagiclase and biotite in granulites within the MBSZ exhibit fearures relates to ductile deformation. Based on the mineral chemistry o0f the co-existing phases, the P-T conditions of granulite facies metamorphism are estimated using various Fe-Mg-Ca exchange geothermobarometers and TWEEQU techniques. The rocks in the MBSZ show three distinct metamorphic events viz.., M1, M2 and M3 with an early IBC path followed by late ITD path. The granulites of the CDG exhibit an ITD path with two periods of metamorphism (M1-M2).

Highly hetrogeneous fluids with complex mixtures characterise the rocks along the N-S geotransect. High density CO_2 inclusions (1.17-1.16g/cc) characterise fluids in the BRG and MBSZ. In Chennimalai-Dharapuram granulites, high to moderate density CO2 inclusions (1.09-1.07g/cc) occur. The mixed CO2-H2O inclusions with varying molar proportions of Co2 characteristically occur in retrogressed charnokites, Bhavani gneisses, pegmatites and quartz veins. Moderate to high salinity (15-30wt% NaCl content) fluid inclusions have been recorded in some of the quartz veins. The Sankari and Tiruchengodu granites contain CO2 mixed CO2-H2O and low saline (3-6 wt% NaCl) inclusions. In highly sheared rocks, fluids are released and therefore they are free from any fluids. The fluids inclusion density data corroborate the conclusions derived from thermobarometric data of mineral phases.

15. 2003. Petrography and P-T conditions of metamorphism of Sargur group of rocks around Hadinaru, Mysore district. **Basavarajappa H.T,** Srikantappa C, Prakash Narasimha. K.N, the Indian mineralogist, Vol. 36, No. 2, & Vol.37, No. 1, Pp.102-109. IMP F-1

Significance: Supracrustal rocks like Calc-silicates, quartzites, banded iron formations interbanded with mafic and ultramafic rocks belonging to sargur group are very well exposed around Hadinaru in Mysore district. Fluid and petrographic study indicate that these rocks have been deformed and metamorphosed. Mineral chemistry of garnet, biotite and amphiboles indicate considerable

16. 2003. Petrography and Fluid Inclusion study on Proterozoic Palnad siliciclastics (Kurnool groups) Andhra Pradesh. Harish V., Prakash Narasimha K.N and **Basavarajappa H.T**, Journal of Geological Society if India. Vol.61, Pp.612-618. IMP F-2

17. 2004. Petrochemistry of basic granulites from the Moyar Shear Zone, Tamil Nadu, India, Journal of Applied Geochemistry, Hyderabad, India, Prakash Narsimha. K.N, Srikantappa. C and **Basavarajappa H.T,** Vol.6, No.1, Pp.113-120. IMP F-2.5

Significance: Basic granulites in the Moyar zone occur as layered dyke like bodies in the charnockite and grey biotite gneiss(retrogressed charnockites), generally parallel to the regional E-W trend. Dunites and Hornblendites are spatially associated with them. Basic granulites on the basis of their mineralogy are classified into three types viz., 1) Two-pyroxene plagioclase rock (Plag+opx+cpx+hbl) 2) Garnet-two pyroxene-plagioclase rock (grt+cpx+opx+plag+hbl+-K-feld) and 3) Garnet-clinopyroxene-plagioclase rock (grt+plag+cpx+hbl) and are olivine to quartz normative and exhibit tholeiitic character, plot of Xmg whole rock Vs Xmg of different silicate minerals suggest that the composition of basic granulites is controlled by bulk composition of the whole rock.

18. 2004. Petrochemical characteristics of Archaean metasediments from the Biligiri-Rangan granulite terrain, Dharwar Craton, The Indian Mineralogists. **Basavarajappa H.T,** Prakash Narasimha. K.N and Srikantappa. C and Vol.38, No.2, Pp.25-38. IMP F-2

Significance: Granulites are important constituents of the middle to lower crust. Metasedimentary rocks such as banded magnetite Quartzite Mn rich metasediments (Qtz+Mag+opx+/-gart), Pelites (silli+grt+stau and bio+/- corundum ; plaig+grt+bio+opx+corundum) and calc-silicates (cal+grt-gr rich-frt+scap+hbl+ca-plagio) occur, forming part of the Biligirirangan granulites and the amphibolite facies gneissic terrain in southern part of the Dharwar craton. Both in terms of major and trace elements geochemistry, the metasediments indicate their precursors to be sediments, despite strong deformation and high-grade metamorphism. The chemistry of the metasediments of Biligirirangan granulites are comparable to the metasediments of older Sargur group of rocks (>3.0 Ga) in the Dharwar craton and indicate to their deposition under epicontinental platform/shelf environment under shallow water and stable tectonic conditions. They represent proto-surperior type sediments.

19. 2005. Land use and land cover studies around Kollegal taluk, Chamarajanagar District using Remote Sensing and GIS techniques, **Basavarajappa H.T** and Dinakar S, the Indian Mineralogists., Special Vol.1, No.1, Pp.89-94. IMP F-1

Significance: The Remote Sensing with its multispectral, multitemporal and synoptic view has the potential to provide accurate spatial and temporal information on land use/land cover of a region in a time and cost effective manner. In the present study an attempt has been made to identify and delineate different

land use/land cover classes on 1:50,000 scale in and around Kollegal taluk of Chamarajanagara district (longitude 77^o 00' to 77^o 15' E and latitude 12^o 00' to 12^o 15' N). Three season satellite data of IRS ID PAN+LISS-III merged data of December 2002, IRS ID LISS-III of October 2003 and IRS ID LISS-III of March 2003 has been used to prepare the land use/land cover map. The base map including the notified forest area has been prepared from Survey of India toposheet on 1:50,000 scale. The land use/land cover was studied by categorizing upto level 2. Major classes considered under level 2 are built-up land, agriculture land, forest, water bodies, wasteland and others. Further 17 sub classes were made in level 2. The present study reveals that land use/land cover like agriculture land occupies about 491.94 km^2 forest covers about 150.35 km^2 waste land 42.68 km^2 and built up land comprising 17.36 km2. Land use plays a significant role in the development of ground water resources. Infiltration and run off are controlled by nature of surface material and land use patttern. Geographical information system (GIS) is found to be very useful in studies because of its capability to incorporte both spatial and non-spatial information in a common Geo-reference framework. Therfore, remote sensing and GIS can effectively be used for land use/land cover studies. Information of land use/land cover categories obtained by using remote sensing and geographical information system techiques will be of great help in water resources and agricultre action plan and other developmental activites.

20. 2008. Quantitative morphometric analysis of sub-water sheds in and around Yelandur Taluk Chamarajanagara District using GIS, Satish M.V, Dinakar S and **Basavarajappa H.T,** Remote Sensing and GIS Applications, Edited Volume, University of Mysore, Vol.1, No.1, Pp.156-164. IMP F-1

Significance: This paper deals with quantitative analysis of sub-watersheds in and around Yelandur taluk using GIS. The study area covers 314.19 km^2 comprising of 6 sub-watersheds Surapura, Kuruburu, Kannahalli, Hanganur, Devarahalli and Toravalli. Quantitative morphometric analysis has been carried out for linear, relief and aerial aspects for all the sub-watersheds. The parameter worked out includes stream length, stream frequency, drainage density, elongation ratio, bifurcation ratio, texture ratio, from factor and circulatory ratio.

21. 2008. Mapping of ground water potential zones through RS and GIS in Yelandur Taluk, Dinakar S, **Basavarajappa H.T,** Nagesh D, Satish M.V and Honnegowda H, Remote Sensing and GIS Applications, Edited Volume, University of Mysore, Vol.1, No.1, Pp.168-178. IMP F-1

Significance: Remote Sensing has come in handy in mapping of geological, geomorphological, structural, land use/ land cover and other related feature that help in assessment of groundwater prospect in a region. In the study efforts have been made to evaluate groundwater potential zones using IRS-1D, PAN+LISS-III geocoded data of year 2001 on 1:50,000 scale. Thematic maps in respect to geology, geomorphology, lineament, land use/ land cover have been prepared by standard visual interpretation techniques. Slope map was prepared by referring Survey of India (SoI) toposheets on 1:50,000 scale. Various thematic maps have been integrated by performing union using Arc Info (GIS software) and the resultant composite coverage was used to classify the area into excellent, good, moderate, and poor groundwater prospect zones based on the weightage values. The study reveals that out of 266. 16 sq.kms., 50.51, 87.21, 123.14, 5.30 sq.kms falls under excellent, good, moderate, and poor groundwater prospect zones respectively.

22. 2008. Morphometric analysis of sub-watersheds of river Suvarnavathi Catchment, using GIS, Chamarajanagara District, Karnataka, **Basavarajappa H.T,** Dinakar S, Satish M.V, Honne Gowda H, Remote Sensing and GIS Applications, Edited Volume, University of Mysore, Vol.1, No.1, Pp.45-53. IMP F-1

Significance: Geographical Information System (GIS) technique is being used in recent times as a effective tool in determining the morphometric characteristics. The study was carried out in Suvarnavathi river catchment of Cauvery basin of Karnataka state using CAD overlay 2000 and GIS softwares such as ARCInfo and ARC view. In all, six sub-watersheds viz., Nitre, Emmehatti, Harave, Haradanahalli, Ummatur and Heggotara in Suvernavathi River catchment have been selected for the study. Quantitative morphometric analysis has been carried out for linear, relief and aerial aspects for all the sub-watersheds excepting Haradanahalli sub-watershed. The morphometric analysis receals that Emmehatti sub-watersheds show lower valve of drainage density, stream frequency, elongation ratio, infiltration number indicating highly permeable sub-soil materials under dense vegetation cover. Except Emmehatti sub-watershed, all the other sub-watersheds showing fractured, resistant, permeable rocks and drainage network seems to be not affected by tectonic disturbances.

23. 2008. Spinifix textured Metabasalts of Sonakana Greenstone Belt, Central India, Deshmuk S.D, Hari K.R, Diwan P and **Basavarajappa H.T,** Journal of The Indian Mineralogist, Vol.42, No.1, Pp.71-83. IMP F-2

Significance: The metabasalts of Baghmara Formation of late Archaean Sonakhan greenstone belt, exhibit spectacular pillow structure and hydrothermal alteration. The presence of spinifex texture, major element concentration and REE data suggest a Komatitic affinity for these metabasalts which is being reported for the first time from this area.

24. 2008. A comparative analysis of DEM generated from SRTM data and digital topographic map; A case study of north east of Hajjah, Yemen, Ali M. Qaid, **Basavarajappa H.T**, Moawad D. M and Omo-irabor O.O, Journal of Geomatics (ISG), Vol. 2, Pp.37-41. IMP F-2

Significance: Digital Elevation Model (DEM) was generated in the present work from topographic map (1:50,000) and Shuttle Radar Topography Mission (SRTM) image of 90m resolution. The original SRTM image contained voids that were represented digitally as -32768; such voids were intially filled for obtaining accurate DEM. Shaded relief maps and slope analysis were executed from the derived DEMs. Examination of topographic profiles in the (NE-SE) directions from the DEM derived from STRM data is approximately equivalent to that obtained from topographic map.

25. 2008. Integration of Geological, Geochemistry and Remote Sensing data for evolution of the Precambrian rocks, north east of Hajjah, Republic of Yemen. Journal of Applied Geochemistry, Ali M. Qaid, and **Basavarajappa H.T.,** Vol.10, Pp.76-91. IMP F-2.4

26. 2008. Morphometric analysis of Rasyan Valley Basin- A case study in the Republic of Yemen using Remote Sensing and GIS Techniques, Mohammed Mansure Almuliki and **Basavarajappa H.T,** journal of Mausam, Govt. of India, New Delhi, Vol.59, No.2, Pp.185-194. IMP F-5

Significance: Remote Sensing and GIS has given more importance for investigation of the geomorphological features based on the morphometric analysis due to the diversity of data information by using digital map characters which help in moderating of data base information to get a different data like distance, area, point, line, polygon and qualitative data. This has decreased the errors which resulted by manual map sources. The main aim of this paper is the study of a morphometric analysis and characteristics of river basin area, basin shape, length, width and the ratio of length to the width, the ratio of rotation and circularity of the basin. It is also a study of relief characteristic, like slope and basin texture hypsometric curve. And also a study of drainage network characteristics like streams, stream order, length, drainage

density, turn ration, bifurcation ratio, weighted bifurcation ratio, type of drainage, and the relationship between all variables that mentioned above with rock types and structural movements of internal and external factors which are represented by relief, climate, soil, type of vegetation along with the human impact on the other hand. Results have been discussed for Rasyan valley basin in the Republic of Yemen using Landsat data.

27. 2008. Application Optimum Index Factor Technique to LANDSAT 7 data for Geological Mapping of north East of Hajja, Yeman Ali. M. Quieed and **Basavarajappa H.T,** American Euratian Journal of Scientific Research, IDOSI Publication. Vol.03 (1), Pp.84-91. IMP F-5.1

Significance: North east of Hajjah represents the southwestern extension of Nabitah belt which is a part of the Arabian Shield. The geology of the area is very complicated and exposed to the different tectonic movements. Landsat-7 Enhanced Thematic Mapper Plus (ETM+) provides six bands with 30 m resolution, one panchromatic band with 15 m and one thermal band with 60 m resolution. Optimum Index Factor (OIF) is one of the most common statistical methods which were applied in order to designate the most favorable three band combinations. It is based on the total variance within bands and correlation coefficient between bands. In this study OIF technique was applied to all bands of ETM+data. A number of 56 band colour combinations were produced and analyzed using OIF. The highest value of OIF is 45.65 with the first rank which is recorded the band combination 5-6-7. The aim of this study is to use OIF technique to rank all the possible band colour combinations of ETM+data for geological mapping of north east of Hajjah. The different analyses of all OIF values and their ranks showed that OIF technique is helpful for selecting the suitable combination for geological mapping of the study area.

28. 2008. Effective factors on water resources in Rasyan valley basin, Republic of Yemen., M. M. Al Muliki and **Basavarajappa H.T,** Journal of Applied Geochemistry, Hyderabad, India, Vol.10, No.1, Pp.122-131. IMP F-2.4

Significance: Republic of Yemen is located in the semi arid tropical area between Latitudes of $12^{o}\ 00^{I}$ to $18^{o}\ 00^{I}$ north and Longitudes $42^{o}\ 00^{I}$ to $54^{o}\ 00^{I}$ west. due to this location Yemen lacks surface water. The Rasyan valley basin, the area of work is considered to be one of the most affected areas in Yeme, facing this problem. Rain which lasts from April to September is the only surface source of water in Yemen and is fast, rapid and short in time (seasons-summer and winter, average temperature - 26^{o} C, average rainfall data of 3 decades- 600mm). Attempts to correlate the relation between the quantity of rain and the natural factors affecting it, particularly, surface land forms, slope, temperature of evaporation, type of soil, vegetation are presented and solutions to make optimum use of surface water sources in the Rasyan Valley basin by "water harvesting" are suggested.

29. 2009. Calibration of ASTER and ETM+ Imagery Using Empirical line Method a case study NE of Hajjah ,Yeman., Ali Ahmad Quieed, **Basavarajappa H.T,** and Rajeendran, Geospatial information Science, ID-1009-5020, Vol.12(3), Pp: 197-201. IMP F-5.1

Significance: This study is aimed at using the Empirical Line Method (ELM) to calibrate advanced spaceborne thermal emission and reflection radiometer (ASTER) and enhanced thematic mapper plus (ETM+) data. Two targets (Amran limestone as light target and quartz-biotite-sericite-graphite schists as dark target) which were widely exposed and easy to identify in the imagery were selected. The accuracy of this method was evaluated from three targets (vegetation cover, Amran limestone and Akbra shale) of the surface reflectance. Analytical spectral devices (ASD) FieldSpec3 was used to measure the spectra of target samples. ETM+ were less influenced by the atmospheric effect when compared to ASTER data. Normalized differences vegetation indices (NDVI) displayed good results with reflectance data when compared with digital Number (DN) data due to its highly sensitive to ground truth reflectance (GTR) most of the difference observed before and after calibration of satellite images (ASTER and ETM+) were observed in the SWIR region.

30. 2009. Application of Principle Component Analysis ASTER and ETM+ data Using for mapping of the Alteration Zones in the North East of Hajjah, Yeman., Ali M. Qaid, **Basavarajappa H.T** and Ranjbar. H, Asian Journal of Geoinformatics, Vol.9, No.2, Pp.15-21. IMP F-5.2

31. 2009. Integration of VNIR and SWIR Spectral Reflectance for Mapping Mineral Resources. A case study North East of Hajjah, Yeman, Ali. M Quieed, **Basavarajappa H.T** and Rajendran S, Photonirvachak, Springer Journal of Indian Remote Sensing Vol.37, Pp.305-315. IMP F-2.4

Significance: laboratory reflectance spectra of 18 rock samples from the Precambrian basement of north-east of Hajjah were measured and analyzed using the instrument of FieldSpec3 with spectral range 0.25-2.5 mm. the aim of the study is to use the spectral reflectance of rocks for mapping the mineral resources in the north east of Hajjah. The altered system in the study area comprises of silicification, sericitification, oxidation, clay minerals and carbonatization. Silicified alteration is not distinguishable in the regions of Visible-Near-Infrared (VNIR) and Short Wave Infrared (SWIR) of the electromagnetic spectrum, due to lack of diagnostic spectral absorption features in silica in this wavelength. Although the arsenopyrite and pyrite are wide spread in the whole study area their features do not appear in any range of spectra because they exhibit trans-opaque behavior and often lack distinction in VNIR and SWIR. The entire spectral reflectance curves of samples show alteration. Based on the examination of laboratory spectra all samples in the study area show promise in the field of mineral resources.

32. 2009. Applications of Wasteland Studies using Remote sensing and GIS of Chamarajanagar District, Karnataka, India, Pushpavathi K.N and **Basavarajappa H.T,** Journal of Environmental Geochemistry, Vol.12, No.1 & 2, Pp.5-12. IMP F-2

33. 2009. Mapping of Geological and geomorphological land forms on Chamarajanagar Taluk, Karnataka, India by Remote Sensing and GIS Techniques, **Basavarajappa H.T,** Pushpavathi K.N and Balasubramanian A, Journal of the Indian Academy of Geosciences, Vol.52, No.1, Pp.1-10. IMP F-2.5

Significance: Geological and geomorphological mapping was carried out in Chamarajanagar taluk, Karnataka through Visual interpretation of IRS-1C PAN +LISS-III false color composite. Various litho units such as Charnockites, granites and gneisses, schists of Archaean age were mapped. The study area is traversed by 3 sets of joints-trending in N-S, NE-WS and E-W direction. 4 sets of lineaments in the study area trending in NNE-SSW, NNW-SSE, NE-SW & E-W. Suggested that the study area was subject to D1, D2 and D3, formation in the past. Major geomorphic units delineated are Denudational hill, Residual hill, Isohydral hill, Pediment, Pediplain, and Valley. Different land forms under each geomorphic units are also mapped.

34. 2009. Heavy Metal Contaminations of Soils and Vegetation in the Nagarthalli Mysore District, Karnataka, India, Azadhe T. Hejabhi and **Basavarajappa H.T**, Journal of Environmental Geochemistry, Vol.12, No.1 & 2, Pp.1-4. IMP F-2

Significance: A survey was conducted to determine the trace metal (Cu, Pb, Zn, Ni, Co, Cd and Cr) status of soils and plants in the Nagarthalli using Atomic Absorption Spectrophotometry (AAS). All values were higher in soil samples compared to plant samples. The average total concentrations of all metals in the soil samples were lower than the permissible limits mentioned in some resources. The heavy metal uptake by plants shows the greatest accumulation of Fe in all plants and it is found that the presence of Ni (161.34 mg/g-1) and Zn (142.24 mg/g-1) in coconut is beyond the limits. Zn, Ni is present in appreciable amounts in the vegetables. The heavy metal content of the soil and their total uptake by plant has the relation: Dc>Zn>Cu survival plant due to agricultural practices of manuring and polluted waters indicates tolerance

to toxic heavy metals. This research is emphasizes in many countries the people use the fruit and vegetables with the accumulation of toxic heavy metals may lead to health disorders.

35. 2009. Benefication studies Manganese ore of Chikkanaikanahalli, Tumkur District, Southern India, Journal of the Indian Academy of Geosciences, Chinnaiah, Sethumadhav M.S, Somashekar K.N and **Basavarajappa H.T,** Vol.52, No.1, Pp.19-24. IMP F-2.5

36. 2009. Remote Sensing and GIS applications for wasteland identification- A case study in Kollegal Taluk, Chamarajanagar District, Karnataka, India, Pushpavathi K.N and **Basavarajappa H.T,** Journal of Environmental Geochemistry (ISSN 0972-0383), Vol.12, No.1 & 2, Pp: 13-18. IMP F-2

Significance: the main aim of the study is to identify the wastelands in Kollegal taluk which is one of the drought prone areas of the Chamarajanagar district in Southern Peninsular India. Unscientific handling of the land resources has resulted in the development of vast stretches of wastelands and also formed one of the major factors of decrease in per capita arable land besides causing ecological imbalances. The major causes of land degradation and subsequent formation of wastelands can be primarily attributed to faculty agricultural practice and indiscriminate deforestation. Faculty agricultural practices include the lack of soil conservation measures and the faculty irrigation practices that often lead to the formation of the salt affected soils.

37. 2009. Geochemistry of Metasedimentary rocks from Moyar Shear Zone, Tamil Nadu, India, Prakash Narsimha K.N, Srikantappa C and **Basavarajappa H.T,** Journal of the Indian Academy of Geosciences, Vol.52, No.2, Pp: 47-50. IMP F-2.5

Significance: Metasedimentary rocks form one of the important lithounits of the Moyar shear zone in the Nilgiri high grade granulite terrane in Southern India. They are mainly composed of Banded Magnetite Quartzite and Psammo-pelitic rocks. Major and trace elements data indicate that the origin of the metasedimentary rocks is due to chemical precipitation admixed with argillaceous deposition.

38. 2010. Structure and Stratigraphy of Manganese Deposits of Chikkanayakana Halli, Tumkur, Karnataka, India, Journal of Indian Academy of Geosciences, Chinnaiah, Sethumadhav M.S, Somashekar K.N and **Basavarajappa H.T,** Vol.53, No.1, Pp. 1-8. IMP F-2.5

Significance: The late Archaean manganese ore bodies occurring in the Chikkanayakanahalli schist belt of Dharwar Super group of Karnataka state, India have been discussed. In the present investigation, characterization of the structural features of metasedimentary and infiltration manganese ores of the Chikkanayakanahalli area. Chikkanayakanahalli schist belt consisting of amphibolite, chlorite schist, gneiss, quartzite, limestone, ferruginous quartzite and iron ores, and dolerite dykes. Contains metasedimentary and lateroid manganese ore formations have been folded into antiform and synform and subjected to green schist to amphibolite facies of metamorphism.

39. 2010. Heavy metal Pollution in Kabini river sediments, Taghinia Hejabhi A, **Basavarajappa H.T,** and Qaid Saeed A.M**,** International Journal of Environmental Research (ijer) Vol.4, No.4, Automn, Pp: 629-636. IMP F-4.3

Significance: The river Kabini which is tributary of Cauvery drains through industrial area at Nanjungud, Karnataka. Out of the sediment load carried by the river, 2 micron the clay fraction was analyzed for total heavy metal contents and advanced statistical techniques such as cluster analysis and correlation matrix were applied in order to investigate the source of heavy metal concentration in the sediments. The river carries natural and anthropogenic pollutants, mainly heavy metal concentration of Cd,

Cr, Cu, Fe, Mn, Ni, Pb and Zn which are released from industrial effluents, agricultural return flows and domestic sewage. The heavy metals find their residence in the colloidal form in water and in 2 micron clay fraction in the river bed sediments. Systematic sampling of the river bed sediments at predefined locations has revealed that the metal accumulation is very close to normal and also beyond threshold limits. Compared with the maximum background values in Kabini river sediments, Pb was the highest in terms of contamination level, especially at point of influx of paper mill effluents, followed by Zn and Cu.

40. .2011. Heavy metal Pollution in water and sediments in the Kabini River, Karnataka, India, Azadhe T. Hejabhi, **Basavarajappa H.T,** Karbassi A.R, Monavari S.M, International Journal of Environment Monitoring Assessment, DOI 10.1007/s10661-010-1854-0, Springer, e-journal, Pp.1-13. IMP F-2.4

Significance: The river Kabini in Karnataka, India carries natural and anthropogenic pollutants, mainly heavy metal concentrations of Cr, Cu, Fe, Mn, Ni, Pb, and Zn which are released from industrial effluents, agricultural return flows and domestic sewage. Kabini, which is a tributary of the Cauvery, drains through the industrial area at Nanjungud, Karnataka, India. Heavy metals were determined in water and sediments (2 mm) of Kabini river. In the present investigation, chemical partitioning studies was carried out to know the association of base metals with various sedimentary phases. The concentrations of heavy metals are higher in loosely bonded fraction than the other studied fractions. Furthermore, the degree of sediment contamination was assessed by geochemical index. It should be pointed out that Cu and Cr show the highest pollution intensity. Cluster analysis was used to know about the intercorrelation amongst the studied metals. It is evident that higher concentrations of metals are found in the vicinity of industrial effluents. The concentrations of Cr followed by Zn and Ni are rather higher than the maximum background values in the Kabini river sediment. This is especially true at the influx of paper mill effluents into the river.

41. 2011. Characteristic levels of Heavy metals in Sediments of the Kabini River in Karnataka, India, Azadhe T. Hejabhi and **Basavarajappa H.T,** Environmental Geochemistry, Vol.14, No.1, Pp.11-16. IMP F-2.5

Significance: Heavy metal concentrations in bed sediment were investigated for distribution and sourced of contamination in the Kabini river. Surface sediment samples were collected from seventeen locations along the main stream of the main river Kabini (Southern part of Mysore, India), heavy metal concentrations of Cd, Cr, Cu, Fe, Mn, Ni, Pb and Zn were determined using Atomic Absorption Spectrometry (AAS) employing HNO3 based digestion. Results show cluster analysis helped to show that groups of elements were significantly interrelated. Furthermore, analysis indicates that Cu was not only due to weathering of parent rocks but also due to anthropogenic effluents of pulp and paper industry and other pollutants contributed to the river. Whereas Zn originated from the discharge at point sources pollutants, along the river, particularly in the industrial area, Pb showed the anthropogenic sources of heavy metal in the sediments. It could have come from non-point sources such as atmospheric deposition and surface draining toxic chemicals within industrial areas.

42. 2011. Sources of Heavy Metals in Bed sediments of Kabini River, Karnataka, India, Azadhe T. Hejabhi and **Basavarajappa H.T**, The Journal of Indian Mineralogist, Vol.45, No.2, Pp.87-95. IMP F-2

Significance: The source of heavy metal (Cd, Cr, Cu, Fe, Mn, Ni, Pb and Zn) concentration has been studied for Kabini River bed sediments. The variations of heavy metal concentration partially depend on lithology of the river basin and partially the anthropogenic activities. The sediments are derived from Sargur Supracrustals, amphibolites, gneisses, carbonates and ultrabasic rocks. The weathering of gneissic and serpentine soils is carrier of natural load of cationic heavy metals. Statistically the Cu, Pb, Zn and Ni formed cluster-A, shows that the sources of Cu content in sediments is from its parent rocks and

anthropogenic effluents of industrial areas. Pb and Cu relationship is demonstrated similar to Zn and Ni, behavior which is affiliating to multiple industrial activities. Cr formed cluster-B, Mn as cluster-C, and Fe forms cluster-D. Cluster-D joins the cluster R and C, which advocates the sources of Fe are different from other heavy metals.

43. 2012. Mapping and Integration of Geology and Geomorphological Landforms of Mysore district, Karnataka, India using Remote Sensing and GIS Techniques, **Basavarajappa H.T,** Pushpavathi K.N. Balasubramanian A and Manjunatha M.C, Frontiers of Earth Science Research, Proceeding/Edited Vol.1, No.1, Pp.164-175. IMP F-2

Significance: Geological and Geomorphological mapping was carried out in Mysore district, Karnataka through visual interpretation of IRS-1C, PAN+LISS-III false color composite. Various litho units such as Charnockites, granites and gneisses, schist's of Archaeans age were mapped. The study area is traversed by 3 sets of joints-trending in N-S, NE-SW and E-W direction. There are 4 sets of lineaments in the study area trending in NNE-SSW, NNW-SSE, NE-SW & E-W. It was suggested that the study area was subjected to F1, F2, and F3 Sargur type of structure and deformational folds and joints formation in the past. Major geomorphic units delineated are Hills, Plataea, Piedmont zone, Plain, Reservoirs, River/stream and settlements. Different land forms under each geomorphic unit are also mapped.

44. 2012. Applications of Remote Sensing and GIS on Mysore city Waste disposal site selection, waste management and Environmental impact on ground water prospecting zones, **Basavarajappa H.T,** Balasubramanian A, Parviz Tazdari and Somashekar K.N, Abstract published in 39th Cospar-Scientific Assembly, Mysore, India. IMP F-2

Significance: Landfill site selection is a complex process involving geological, hydrological, environmental and technical parameters as well as government regulations. As such, it requires the processing of a good amount of geospatial data. Landfill site selection techniques have been analyzed for identifying their suitability. Application of Geographic Information System (GIS) is suitable to find best locations for such installations which use multiple criteria analysis. The use of Artificial Intelligence methods, such as expert systems, can also be very helpful in solid waste planning and management. This method is innovative due to its establishment in general indices to quantify overall environmental impact as well as individual indices for specific environmental components. Since this method requires processing large quantities of spatial data. To automate the processes of establishing composite evaluation criteria, performing multiple criteria analysis and carrying out spatial clustering a suitable methodology was developed.

45. 2012. Mapping and Integration of Geology, Geomorphological landforms of Yelandur taluk, Chamarajanagar district, Karnataka, India using Remote Sensing and GIS, **Basavarajappa H.T,** Pushpavathi K.N. Balasubramanian A. and Manjunatha M.C, Environmental Geochemistry (ISSN 0972-0383), Vol.15, No.2, Pp. 37-41. IMP F-2.5

Significance: Geological and Geomorphological mapping was carried out in Yelandur taluk, Chamarajanagara district, Karnataka State through visual interpretation of IRS-1D, PAN+LISS-III and geocoded data prepared by SOI-year 2001 on 1:50,000 Scale. Various litho units such as peninsular gneisses, dykes and Charnockites of Archean age were mapped using GIS analysis. The general trends of majority of the lineaments are towards NNW and N10-150E. Major identified geomorphic units are denudational hills, pediments, inselbergs, shallow & moderately weathered pediplains and valleys were demarcated. Different land forms under each geomorphic unit were also mapped.

46. 2012. Heavy Metal partitioning in sediments of the Kabini River in south India., Environmental Monitoring and Assessment, Springer, Science+Business media., Azadhe T. Hejabhi and **Basavarajappa H.T,** DOI.10.1007/s10661-012-2631-z-, Springer, e-journal, Environmental Monitoring Assessment, 185, Pp: 1273-1283. IMP F-2.4

Significance: Cu, Cr, Fe, Mn, Ni, Pb, and Zn in the sediments of the Kabini River, Karnataka, India was studied to determine the association of metal with various geochemical phases by sequential extraction. The variations of heavy metal concentration depend on the lithology of the river basin and partly on anthropogenic activities. The Kabini River sediments are dominated by Sargur supracrustals with amphibolites, gneisses, carbonates, and ultrabasic rocks weathering into gneissic and serpentine soils carrying a natural load of cationic heavy metals. The source of heavy metals in the Kabini riverbed sediments is normally envisaged as additional inputs from anthropogenic over and above natural and lithogenic sources. Geochemical study indicates the metals under study were present mostly in the least mobilizable fraction in the overlying water and it is concluded that heavy metals in these sediments are to a great extent derived from multisource anthropogenic inputs besides geochemical background contributions The results show that lead and chromium have higher potential for mobilization from the sediment due to higher concentration at the exchangeable ion and sulfide ion bounded, also Cu and Pb have the greatest percentage of carbonate fraction, it means that the study area received inputs from urban and industrial effluents. Association of the Fe with organic matter fraction can be explained by the high affinity of these elements for the humic substances. Further, Zn and Ni reveal a significant enrichment in sediment and it is due to release of industrial wastewater into the river. These trace metals are possible contaminants to enter into aquatic and food chain.

47. 2012. Beneficiation Studies of the Limestone of Malkhad Areas, Gulbarga District, Karnataka, Chinnaiah, Sunil Kumar R.K, **Basavarajappa H.T** and Madesh P, International Journal of Earth Science and Engineering (IJEE), Vol. 05, No.1, Pp.186-192. IMP F-4.12

Significance: Limestone deposits of malkhed areas were subjected to beneficiation studies for effective utilization of variegated and flaggy limestone. The limestone must be beneficiated to produce uniform raw material for the furnace and cement manufacturing. Careful quarrying and selective recovery are factors in this process, but the chief aspects of beneficiation processes, utilization of low grade limestone (variegated and flaggy limestone) by suitable beneficiation technique will greatly enhance the overall reserves position of limestone deposits. Keeping this in view, in the present investigation, the lowgrade limestone deposits of Malkhed and surrounding area have been subje
cted for beneficiation studies. Such as comminution, sieve analysis, chemical analysis, crushing and grinding, air classification and flotation. Numerous technical and economic problems exist. Llimestone deposit and the rock itself are required for intelligent beneficiation.

48. 2013. "Shear Zone Mapping and Crustal Evolution on Precambrian rocks of Biligiri-Rangan hill ranges, Dharwar Craton, India using Remote Sensing and GIS techniques" International Association for Gondwana Research Conference Series (IAGR), Precambrian Continental Growth and Tectonism (PCGT), **Basavarajappa H.T,** Vol.16, No.3, Pp.24-26. IMP F-8.9

Significance: The structural and tectonically deformed features like lineaments and shear zones of varying lengths are mapped on 1:1,50,000 scales from IRS-1C LISS-IV FCC satellite data were carried out with the help of ERDAS 8.5 version software using digital image processing. In NW & NE part of the hill ranges, cone like small hills are present with pediments and pediplains. The continuation of these lithologies presently termed as Sargur Supracrustal are positively indicates their exists a continuum. The only factor that distinguishes the transition zone terrain and Biligiri-Rangan is that the later in a granulite grade charnockite terrain with mafic pyroxene granulite bodies interbanded with quartzites, politic lithologies with BIF. Based on these works that the granulitic block of Southern India can be divided into two categories a) Post accretional granulitic blocks of BR-hills b) Syn accretional blocks of Nilgiris.

49. 2013. Regional High Grade Metamorphism and Tectonic setup of Precambrian (~3.4 Ga old), Biligiri-Rangan granulites, Dharwar Craton, South India. **Basavarjappa H.T,** Srikantappa C and Raith M, Journal of Indian Mineralogist, Current Trends of Research in Precambrian Geology and Vision-2020, Vol.1, No.1, Pp.35-36. IMP F-2

Significance: Demarcation of Kollegal Shear Zone (KSZ) trending $N15^0E$ with a width of 25-28 Km. CO2-rich fluid inclusions showing a higher density of 1.09g/cm3 and P-T data derived synmetamorphic fluids. High salinity inclusions (upto 35 wt% NaCl). Biligiri-Rangan granulite uplifted represents the deeper part of the Precambrian continental crust exposed in the northern region (7.5 Kb) around Kollegal, where as in the Southern part around Chamarajanagar and Talavadi, Dimbam areas of shallower crustal levels (6.5 Kb) have been exposed. A tectonic regime with early collisional event have been followed by late extentional tectonics have invasaged based on P-T-t paths. The protolith for granulite is 3.4 M.y old and subsequently have been deformed and metamorphosed during collisional tectonic region. These rocks have been intruded by dolerite dykes. Reworking of the early crust, migmatization, magmatism and formation of pink and grey granulites (KSZ and town of Kollegal) took place during an extensional late tectonic regime and upliftment throughout the neo-Proterozoic and Pan-African time clearly shows the emplacement of pegmatitic veins, barren quartz veins, are associated particularly in the Shear zone with syn to post tectonic granitic melts of the study area.

50. 2013. "Delineation of Ground water prospecting zones of Hard rock terrain using Remote Sensing and GIS around Kollegal Shear Zone (KSZ), Chamarajanagar district, Karnataka, India", **Basavarajappa H.T,** Dinakar S, Nagesh D, Manjunatha M.C and Balasubramanian A, International Journal of Earth Sciences and Engineering (IJEE)- Elsevier, ISSN: 0974-5904, Vol.06, No.05, Pp:1185-1194. IMP F-4.1

Significance: Remote Sensing (RS) and Geographic Information System (GIS) are essential tools for mapping & integration of geology, geomorphology, slope, soil, drainage, lineament, land use/ cover and other related features that help in assessing the ground water resources of a region. This paper aims to integrate RS and GIS techniques to delineate groundwater potential zones in the typical hard rock terrain of a region in Karnataka, South India. Efforts have been made to evaluate the groundwater potential zones using the False Colour Composite (FCC) images of IRS-1D (PAN+LISS-III). Slope map was prepared by using Survey of India (SoI) toposheets (year-2001) of 1:50,000 scale. Thematic maps have been prepared by adopting visual interpretation techniques and were integrated by using Arc Info GIS v3.2. The resultant composite coverage was used to classify the area into excellent, good, moderate and poor groundwater potential zones based on certain weightages. The final results highlight the favorable conditions of groundwater potential zones in the hard rock terrain around Kollegal Shear Zone (KSZ) of South India, which is a suitable model for application to similar geological conditions.

51. 2013. Integration of Soil and Lineament on Suitable Landfill Sites Selection and Environmental Appraisal around Mysore City, Karnataka, India, using Remote Sensing and GIS techniques. **Basavarajappa H.T,** Parviz Tazdari and Manjunatha M.C, International Journal of Civil Engineering and Technology (IJCIET), Issue:6, ISSN 0976-6308 (Print), 0976-6316 (Online), **I.F: 5.327,** Vol: 4, Issue: 6, Pp: 177-185.

Significance: Environmental appraisal is a complex process involving the interplay of geological, hydrological and several other environmental parameters including geospatial data of an urban area. This study aims to delineate the suitable landfill sites of municipal & industrial wastes in the city of Mysore, Karnataka, India through Remote Sensing (RS) and Geographic information system (GIS) techniques along with Ground Truth Check (GTC). Mysore urban exhibits flat to gently undulating topography with an elevation varying from 700-725 m above MSL with a gentle slope towards the south. The perennial

Cauvery River flows from west to east direction in the northern parts of the study area. The spectral signature of satellite images (7 bands) of IRS-1D, PAN+LISS-III including geo-spatial data from Survey of India (SoI) toposheet (scale-1:50,000) were processed using GIS (spatial analysis) to classify the study area into two zones i.e., buffer zone and core zone. Mysore is one of the major cities in Karnataka producing nearly 600 tons of solid wastes every day that need more landfill sites in future due to increase in their volume. The existing waste treatment plant in the study area is operating within the core zone above a major lineament affecting the groundwater resource, human health and surrounding environment. The integration of Remote Sensing, GIS analysis and GPS survey demarcates seven alternative locations to the existing landfill site, considering the environmental, biophysical and socio-economical factors.

52. 2013. "Applications of Remote Sensing and GIS on waste disposal site selection and Environmental Impact Assessment around Mysore City, Karnataka, India", **Basavarajappa H.T,** Parviz Tazdari, Manjunatha M.C and Balasubramanin A, International Journal of Earth Science and Engineering (IJEE), ISSN 0974-5904, Vol.06, No.06(02), Pp:1801-1808. IMP F-4.1

Significance: Landfill site selection is a complex process involving the interplay of geological, hydrological, environmental and geotechnical parameters incorporating government regulations. As such, it requires the processing of a good amount of geospatial data. Application of Geographic Information System (GIS) involving the required ground level data is suitable to find the best locations for such identification which use multiple criteria analysis. For the Site Selection of an industrial waste disposal (or) the dumping of and normal daily urban wastes of a city, combining GIS with Analytical Hierarchy Process (AHP) will be more appropriate. The method is innovative and establishes general indices to quantify overall environmental impact as well as individual indices for specific environmental components i.e. surface water, groundwater, atmosphere, soil and human health. To automate the processes of establishing composite evaluation criteria, performing multiple criteria analysis and carrying out spatial clustering, a suitable methodology was developed. The feasibility of site selection in the study area based on different criteria was used to obtain the layered data by integrating Remote Sensing and GIS. This methodology is suitable for all practical applications in other cities.

53. 2013. "Applications of Remote Sensing and GIS on Geology and Geomorphological landforms in Precambrian rocks of Kollegal Taluk, Chamarajanagar District, Karnataka, India", **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, Journal of Environmental Geochemistry, (ISSN 0972-0383), Vol.16, No.1, Pp: 1-10. . IMP F-2.5

Significance: Remote Sensing (RS) and Geographic Information System (GIS) are essential tools for mapping and integration of geology, geomorphology, lithology, soil, drainage, lineament, slope, land use/cover and other related features of a region. This paper aims to integrate RS and GIS techniques helps in the assessment of geology and geomorphological landforms in the typical hard rock terrain of Kollegal taluk of Chamarajanagar district which belongs to Dharwar Craton, adjacent to high grade granulites of Biligiri-Rangan hills in Southern India. Efforts have been made to evaluate the geological units and geomorphological landforms in Precambrian terrain using the visual interpretation and digital image processing of IRS-1C, PAN+LISS-III false color composite (FCC) through GIS analysis. The study area represents the metamorphic rocks such as Gneisses, Charnockite, Pyroxene Granulite exhibiting medium to coarse-grained texture Hornblende Gneiss, Pink Granulites, Migmatites, dolerite dykes and Banded Ferruginous Quartzite's. Different landforms under each geomorphic units are also mapped. The final results highlights the applications of RS and GIS on the assessment of geology and geomorphological landforms in Precambrian rocks of Kollegal taluk, Chamarajanagar district, Karnataka, which is a suitable model for application to similar geological terrain.

54. 2014. "Integration of Geology, Drainage and Lineament on Suitable Landfill Sites Selection and Environmental Appraisal around Mysore City, Karnataka, India through Remote Sensing and GIS", **Basavarajappa H.T**, Parviz Tazdari, Manjunatha M.C and Balasubramanian A, Journal of Geomatics, Indian Society of Geomatics (ISG), Vol.8, No.1, April issue, Pp: 119-124. IMP F-2

Significance: Urban environmental appraisal is a complex process involving the interplay of geological, hydrological and several other environmental parameters including geospatial data. Mysore urban exhibits flat to gently undulating topography with the elevation varying from 700-725 m above MSL with a gentle slope towards the South. The perennial river, Cauvery flows from west to east in the northern parts of the study area. The spectral signature of satellite images (7 bands) of IRS-1D, PAN+LISS-III and geospatial data from SoI toposheet (scale-1:50,000) were processed by GIS analysis, to classify the study area into two zones i.e., buffer zone and core zone. Mysore is one of the major cities in Karnataka producing nearly 600 tons of solid wastes every day that need more landfill sites. The existing landfill site in the study area is operating within the core zone above a major lineament and affecting the groundwater, human health and surrounding environment. This study aims to delineate the safe disposal sites of municipal & industrial wastes in the city of Mysore, Karnataka, India through Remote Sensing (RS) and Geographical Information System (GIS) along with ground level data. The integration of RS, GIS analysis, GPS survey including Ground Truth Check (GTC), demarcates seven alternative safe locations to the existing landfill site, considering the environmental, biophysical and socio-economical factors.

55. 2014. "Applications of Remote Sensing and GIS in Morphometric Analysis on Precambrian Rocks, Kollegal Shear Zone, Chamarajanagar District, South India" **Basavarajappa H.T,** Dinakar S, Satish M.V, Nagesh D and Manjunatha M.C, International Journal of Earth Sciences and Engineering (IJEE), ISSN 0974-5904, Vol.07, No.01, Pp: 230-241. . IMP F-4.1

Significance: Morphometric studies are a tool in hydrological investigation in developing and management of drainage network. This study focuses to delineate the drainage network in Precambrian terrain around Kollegal Shear Zone (KSZ) of Chamarajanagar district which is belongs to Dharwar Craton, adjacent to high grade granulites of Biligiri-Rangan hills in Southern India. The drainage network was delivered on Geocoded FCC of IRS -1D (PAN+LISS III merged, year-2001) on SOI toposheets of 1:50,000 scales were used as a base map. The values of linear, aerial and relief variables are calculated and GIS analysis accounted using Raster calculator option of spatial analyst. The area (Au) and perimeter (P) of the drainage network has been measured with CAD-Overlay 2000 software by performing clean and build option (i.e., closed polygon, and the values are expressed in sq km). The variation in stream length ratio changes due to change in slope, lithology and topography, while the variation in the values of bifurcation ratio describes the control of lithology/ structure and morphology on the development of network in the study area. The stream order varies from 1-5 with the total number of 7,167 stream orders with their total length of 5,945.56 Kms.

56. 2014. "Assessment of river basin for engineering restoration in Ghataprabha catchments using Geo-informatics applications" Basavaraj Hutti and **Basavarajappa H.T,** International Journal of Computer Engineering and Technology (IJCET), ISSN 0976-6367 (Print), 0976-6375 (Online), **I.F: 6.1302,** Vol:5, Issue:1, Pp: 94-102.

Significance: Geographical design of river basin buffers with long-term vegetation cover for engineering restoration in Ghataprabha catchments needs to assess how much farmland is located in the buffers of a concerned catchment. Traditionally, this assessment was done by field surveying and manual mapping, which was a time-consuming and costly process for a large region. In this paper, geoinformatics which includes remote sensing (RS), geographical information system (GIS) and global positioning system (GPS) as cost-effective techniques were used to develop catchments based approach for identifying critical sites of Ghataprabha catchments buffer restoration. The method was explained through a case study of

Ghataprabha catchments and results showed that only three of the sub-basin catchments were eligible in terms of higher priority for river basin buffer restoration. This research has methodological contributions to the spatial assessment of farming intensities in basin catchments buffers across a river basin and to the geographical designs of variable buffering scenarios within catchments. The former makes the river basin management strategy possible, and the latter provides alternative restoration scenarios to meet different management purposes, both of which have direct implementations to the engineering restoration of river basin buffers in the real world. This study, thus, highlights the great potential of geoinformatics applications to the planning and management of river basin buffer restoration in Ghataprabha catchments.

57. 2014. Application of Geoinformatics on Delineation of Groundwater Potential Zones of Chitradurga District, Karnataka, India, **Basavarajappa H.T,** Manjunatha M.C and Jeevan L, International Journal of Computer Engineering and Technology (IJCET), IAEME, **I.F-8.5328,** ISSN 0976-6375, Vol. 5, Issue 5, Pp.94-108.

Significance: Water is the main source of domestic, engineering, industrial and agricultural uses which affects the surface and groundwater quality and quantity. Geoinformatics encompasses Survey of India (SoI) toposheet, Satellite Remote Sensing (RS), Geographic Information System (GIS) and Global Positioning System (GPS) for mapping & integration of geology, drainage, lineament, soil types, slope category, land use/land cover and other related features in assessing the ground water resources of a region. The present study aims to map, integrate the Geo-informatics application to delineate groundwater potential zones in hard rock terrain of Chitradurga District, Karnataka. Efforts have been made to evaluate the groundwater level contour (in meters) using SoI toposheets (1:50,000) and False Color Composite (FCC) images of IRS-1C/1D PAN+LISS-III (2005-06). Slope map is prepared by using (SoI) topomap (year-2001) of 1:50,000 scale. Thematic maps have been prepared by adopting Visual Image Interpretation Techniques (VIIT) and are integrated using Arc GIS v10 software. The resultant composite coverage is used to classify the area into excellent, good, moderate and poor groundwater potential zones based on certain weightages. This study demonstrates the potentiality of Geo-informatics technique in preparation of more consistent and accurate baseline information on groundwater prospects. The final results highlight the favorable conditions of groundwater potential zones in hard rock terrain in Chitradurga District, Karnataka, which is a suitable model for exploration in similar geological conditions.

58. 2014. Geoinformatic Techniques on mapping and reclamation of Wastelands in Chitradurga district, Karnataka, India, **Basavarajappa H.T** and Manjunatha M.C, International Journal of Computer Engineering and Technology (IJCET), **I.F-8.5328,** IAEME, Vol.5, Issue.7, July, Pp:99-110.

Significance: Wastelands are essentially understood as low-quality land from an agricultural point of view, often referred to as degraded land. Unscientific handling of land resources has resulted in the development of vast stretches of wastelands and also formed one of the major factors of decrease in per capita arable land causing ecological imbalances. The present paper aims to identify the Wastelands of Chitradurga District, Karnataka through hi-tech tools of Geoinformatics. The major causes of land degradation and subsequent formation of wastelands can be primarily attributed to 'faculty agricultural practice and indiscriminate deforestation'. Agricultural practices include the lack of soil conservation measures and irrigation practices that often lead to the formation of the salt affected soils. The study was taken up to map and record the wastelands using Survey of India (SoI) toposheets of 1:50,000 scale, IRS 1D PAN+LISS III satellite data and Google Earth software with limited Ground Truth Check (GTC) and final wasteland layer is generated. The database provides spatial baseline information in distribution, extent and temporal behavior of wastelands in planning and implementation of development strategies in wastelands reclamation of the country.

59. 2014. Sand Mining, Management and its Environmental Impact in Cauvery and Kabini river basins of Mysore district, Karnataka, India using Geomatics Techniques, **Basavarajappa H.T,**

Manjunatha M.C and Jeevan L, International Journal of Civil Engineering and Technology (IJCIET), **I.F-7.9290,** Vol.5, Issue.9, Sept, Pp: 169-180.

Significance: Sand is one of the most important non-living resource/mineral formations on the earth's surface. The sand formation is recorded only in the recent ages of the earth's history. Sand has become a very important mineral resource in our society due to its applications in various fields. Sands of river streams have no substitute for use as building material in reinforced concrete cement. It can be used for making concrete, filling roads, building sites, brick-making, glass industries, sandpapers, reclamations to replace eroded coastline etc. Efforts have been made to evaluate IRS-1D, PAN+LISS-III of False Color Composite (FCC) through Visual Image Interpretation Techniques (VIIT) using GIS software's. The whole study area is drained by Cauvery and Kabini river basins that carry sand from different locations and deposits largely at meandering. Especially, Talakadu area has massive deposits of sands on the windward side of river. It covers sand dunes in the river bank by the fault running through the river Cauvery. Rapid urbanization is the major cause for sand demand and is responsible for unsustainable extraction of sand from dried river paths. Currently sand extraction is permitted up to three feet, but it is being dug up even up to 25-30 ft which later fails the possessing irrigation wells. Production of adulterated sand is a mixture of sand from estuary and coastal land that are gradually increased due to high cost of sand. It is a growing imbalance as prevailing uncontrolled sand mining and its adulteration continues to cause significant environmental damage and socio-economic problems. A complex interaction between economic, demographic, social and political encouragement are required to avoid the adverse effects of sand mining on riverbed environments. The final results highlight the impacts of environment and its management in Cauvery and Kabini river basins of Mysore District, Karnataka, which is a suitable model in similar geological conditions.

60. 2014. "Precambrian Deep Crustal Metamorphism and Fluid Regime in Biligiri-Rangan Granulites, Dharwar Craton, India", **Basavarajappa H.T** and Srikantappa C, The Indian Mineralogists, The Mineralogical Society of India, Mysore, Vol.48, No.2, July-issue, Pp:289-338. IMP F- 0.5

Significance: Massive to banded charnockites and charno-enderbitic granulites exhibiting regional foliation trending N-S with steep dips are the predominant rocks exposed in the Precambrian Biligiri-Rangan hills.

61. 2014. Analysis on Land use/land cover classification around Mysuru and Chamarajanagara district, Karnataka, India, using IRS-1D PAN+LISS-III Satellite Data., **Basavarajappa H.T,** Dinakar S and Manjunatha M.C, International Journal of Civil Engineering and Technology (IJCIET), **I.F-7.9290,** Vol.5, Issue.11, November(2014), Pp: 79-96

Significance: Land is a non-renewable resource and mapping of LU/LC is essential for planning and development of land and water resources in a region of engineering projects under progress. Land is an area of the earth surface, which embraces all reasonable stable or predictably cyclic, attribute of the biosphere including the atmosphere, soil and underlying geology. Hydrology, plant and animal population are the results of the past and present human activity to the extent that significantly influences on present and future LU/LC system. Proper management and development of these lands should be initiated to increase the land productivity, restoration of soil degradation, reclamation of wastelands, increase the environmental qualities and to meet the needs of rapidly growing population of the country. Remote Sensing (RS) satellite data with its synoptic view and multispectral data provides essential information in proper planning of LU/LC conditions of the larger areas. An attempt have been made to delineate the level-1, level-2 and level-3 LU/LC classification system through NRSC guidelines (1995) using both digital and visual image interpretation techniques by Geographical Information Systems (GIS) software's. The classification accuracy is found to be more in case of digital technique as compared to that of visual

technique in terms of area statistics. Efforts have been made to classify the LU/LC patterns using False Color Composite (FCC) data of IRS-1D PAN+LISS-III (Band: 2,3,4) through MapInfo v7.5, ArcView v3.2, Erdas Imagine v2011 and ArcGIS v10. The final results highlight the potentiality of geomatics in classification of LU/LC patterns around Chamarajanagara district, Karnataka, in natural resource mapping and its management which is a suitable model for application to similar geological terrain.

62. 2014. Delineation of Groundwater Potential Zones in Precambrian Hard Rock Terrain of Tumakuru district, Karnataka, India using Geomatics Application. **Basavarajappa H.T,** Jeevan L and Manjunatha M.C, International Journal of Civil Engineering and Technology (IJCIET), IAEME, **I.F: 7.9290,** Vol.5, Issue.2, Dec, Pp: 305-315.

Significance: Systematic planning of groundwater exploitation through modern approach is essential for management and sustainability. Geomatic encompasses Remote Sensing (RS) Satellite data, Geographic Information Systems (GIS), Global Positioning System(GPS) and Survey of India (SoI) toposheets for mapping & integration of geology, drainage, lineament, soil types, slope category and other related features in assessing the groundwater resources of a region. Individual features in all thematic layers have assigned certain weights based on their relative importance in groundwater occurrences using SoI topomap (scale-1:50,000) and False Color Composite (FCC) images of IRS-1D PAN+LISS-III (2008). The thematic layers are finally integrated to generate a groundwater potential zones map through Erdas Imagine v2013. The final result highlights the potentiality of geomatics technique in mapping of excellent, good, moderate and poor groundwater potential zones in hard rock terrain of Tumakuru district, Karnataka.

63. 2014. Spatial Data Integration of lithology, geomorphology and its impact on Groundwater prospecting zones in Gundlupet taluk, Chamarajanagar district, Karnataka, India through Geomatics Technique, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, Journal of Environmental Geochemistry, Vol.17, No.1 & 2, Pp: 73-82. . IMP F-2.5

Significance: Mapping of lithology, geomorphology, drainage, lineament, soil, slope, land use/land cover are carried out in typical hard rock terrain of Gundlupet taluk, Chamarajanagar district, Karnataka which belongs to Dharwar Craton, adjacent to high grade granulites of Biligiri-Rangan hills in Southern India. The present study aims to integrate the geomatics technique in assessing the effects of groundwater prospecting zones. Groundwater resources in hard rock terrain are limited. Hence estimation and development of groundwater in hard rock terrain has to be planned scientifically for a better management. Efforts have been made to evaluate the lithological units and geomorphological landforms in Precambrian terrain using Visual Image Interpretation Techniques (VIIT) and Digital Image Processing (DIP) of IRS-1D, PAN+LISS-III False Color Composite (FCC) through GIS software's. The study area represents the metamorphic rocks such as Gneisses, Charnockite, Pyroxene Granulite, Hornblende Gneiss, Pink Granulites, Migmatites, Dolerite Dykes and Banded Ferruginous Quartzite's. Different landforms under each geomorphic units are also been mapped. The final results highlight the potentiality of geomatics technique in mapping of lithology, geomorphological landforms that help in assessing the impacts on groundwater prospect zones in hard rock terrain of Gundlupet taluk, Karnataka.

64. 2015. Morphometric Analysis on Precambrian rocks in Part of Cauvery Basin, Chamarajanagar district, Karnataka, India using Geomatics Technique, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, International Journal of Civil Engineering and Technology (IJCIET), IAEME, **I.F: 9.1215,** Vol.6, Issue.1, Jan, Pp: 97-112.

Significance: Morphometric analyses are the suitable tool for hydrological investigations in developing and management of land and surface water resources of a larger region. Survey of India (SoI) toposheet, Remote Sensing (RS) Satellite data, Geographic Information Systems (GIS) and Global Positioning System (GPS) are integrated in mapping of stream order, drainage, slope and other related features of a river basin. The present aim is an attempt to map the morphometric parameters and hydrologic

behavior in Precambrian rocks of Dharwar Craton and Northern Granulite Terrains in South India. The drainage network is delivered on geo-coded FCC of IRS-1D, PAN+LISS-III satellite image and merged on SoI toposheets of 1:50,000 scale. The values of linear, aerial and relief variables are calculated and accounted by GIS analysis. The variation in stream length ratio changes due to change in slope, lithology, landforms and topography, while the variation in the values of bifurcation ratio describes the control of lithology/structure and morphology on the network development. These help to delineate the geometry of the basin, drainage network and texture. The final results highlight the applications of geomatics technique in mapping, management and development of surface water resources on hard rock terrain in Southern tip of Karnataka.

65. 2015. Geomatics analysis on Land use land cover Classification system in Precambrian Terrain of Chitradurga district, Karnataka, India, Manjunatha M.C, **Basavarajappa H.T** and Jeevan L, International Journal of Civil Engineering and Technology (IJCIET), IAEME, **I.F: 9.1215,** Vol.6, Issue.2, Feb, Pp: 46-60.

Significance: Earth's land use/land cover (LC/LU) classification provides information particularly on natural resources, mapping and monitoring. There is a significant change on LC/LU across the globe due to the climatic changes, rapid increase in population and over demand of the growing economic minerals. The present aim is to map, implement and monitor the land use/land cover classification using high-tech tools of geomatics in database generation, analyses and information extraction. Land use/land cover maps are prepared using satellite images in conjunction with collateral data like Survey of India (SoI) toposheets of 1:50,000 scale. Remote Sensing (RS) satellite data with its synoptic view and multispectral data provides essential information in proper planning of LU/LC conditions of larger areas. An attempt have been made to delineate the level-1, level-2 and level-3 LU/LC classification system through NRSC guidelines (1995) using both digital and visual image interpretation techniques by Geographical Information Systems (GIS) software's with limited Ground Truth Check (GTC). More accurate classification is observed in case of digital technique as compared to that of visual technique in terms of area statistics. The final results highlight the potentiality of geomatics in classification of LU/LC patterns around Chitradurga district, Karnataka, in natural resource mapping and its management.

66. 2015. Groundwater Quality Analysis in Precambrian rocks of Chitradurga district, Karnataka, India using Geo-informatics Technique, **Basavarajappa H.T** and Manjunatha M.C, ELSEVIER, ScienceDirect, Aquatic Procedia, Vol.4, Pp: 1354-1365. . IMP F-4.2

Significance: Water is the main source for domestic, engineering, industrial, agricultural and multipurpose uses which affects surface as well as groundwater quantity. The study area falls within the semiarid region and frequently facing water scarcity and quality problems. The present study generates the primary data to map the spatial variation of groundwater quality in Precambrian hard rock terrain of Chitradurga District through Geo-informatics technique. Efforts have been made to evaluate a total number of 50 representative groundwater samples (C1 to C50) collected in well points from different parts of the study area during premonsoon period (April-2012) to assess its parameters such as Fluoride (F-), Nitrate (NO3-), Carbonate (CO3-), Chloride (Cl-), Calcium (Ca2+), Magnesium (Mg2+), Sodium (Na+), Sulphate (SO42-), Iron (Fe), Potassium (K+), Total Dissolved Solids (TDS), Potential of Hydrogen (pH) and Total Hardness (TH). Groundwater quality is found to be more controlled by rock-water interaction & residence time of water in aquifers and affected by both anthropogenic and geogenic factors at many locations. Each lithological units, water bodies, agricultural lands and major lineaments are mapped and digitized using IRS-1D, PAN+LISS-III satellite data through GIS software's to evaluate the possible contamination of groundwater quality by rock-water interactions, agro-chemicals and storage & movement of water. This study highlights the potentiality of Geo-informatics technique in preparation of more consistent and accurate baseline information predicting the groundwater quality in Precambrian hard rock terrain of the study area; which is a suitable model in similar geological conditions.

67. 2015. Climate Change and its impact on Groundwater Table Fluctuation in Precambrian terrain of Chitradurga district, Karnataka, India using Geomatics Application, Manjunatha M.C, **Basavarajappa H.T** and Jeevan L, International Journal of Civil Engineering and Technology (IJCIET), IAEME, **I.F: 9.1215,** Vol.6, Issue.3, March, Pp: 89-96.

Significance: The study area falls within the semiarid region and frequently facing water scarcity problems. Rain is a form of precipitation, snow, sleet, hail and dew. The precipitation occurs when separate drops of waterfalls on the earth's surface from clouds. Not all rain reaches the surface, however; some evaporates while falling through dry air, a type of precipitation called Virga. The precipitated water percolates to deeper zones to be stored as groundwater. The present study generates the primary data to map the groundwater table fluctuation in hard rock terrain of Chitradurga District through Geomatics technique. Efforts have been made to evaluate a total of 20 representative raingauge station samples and analyzed the season rainfall variation over a period of 31 years (1981-2011). 47 representative well samples are collected to study the season-wise groundwater fluctuation of about 11 years (2000-2011). Rain gauge stations are plotted on a base map with their respective amount of rainfall. Then the contours of equal rainfall (isohyetes) are drawn using GIS software's. The average rainfall between the successive isohyets taken as the average of two isohyetal values is weighed with the area between the isohyets. The different rainfall intervals obtained (area between the two adjacent lines) are useful in determining the rainfall variation over the study area. The final results highlight the impacts of climatic change over groundwater table fluctuation in typical Precambrian rocks of Chitradurga District, Karnataka, which is a suitable model in similar geological conditions.

68. 2015. Climate change and its impact on Groundwater Table Fluctuation in Precambrian rocks of Chamarajanagar district, Karnataka, India using Geomatics Technique, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, International Journal of Geomatics and Geosciences, Vol.5, No.4, Pp: 510-524. . IMP F-5.2

Significance: Change in climatic conditions directly affects the hydrologic cycle and gradually the groundwater table. Rise in temperature increases the evaporation of surface water and transpiration in wetlands. This results in low precipitation amounts, timings and intensity rates; which impacts on surface water bodies (rivers and lakes) as well as subsurface water bodies (change in volume and distribution of groundwater recharge process) and direct changes in major long-term climate variables such as air temperature, moisture content, precipitation and evapo-transpiration. Geomatics encompasses Survey of India (SoI) Toposheets, Remote Sensing (RS) Satellite Images, Geographic Information Systems (GIS) and Global Positioning Systems (GPS) with limited Ground Truth Check (GTC). Efforts have been made to evaluate the data from 27 representative rain gauge stations and analyzed the season-wise rainfall variation over a period of 26 years (1984-2009). 36 representative well samples are considered to study the groundwater table fluctuation from season to season of about 12 years (1998-2009). The spatial variability of mean annual precipitation depends upon the topographic factors like exposure of station to the prevailing wind, elevation, orientation and slope of the hills/mountains. The average and mean rainfall over the area are calculated using arithmetic mean, thiessen polygon and iso-hyetal methods. Average rainfall is the simple arithmetic mean rainfall measured in the area; while Iso-hyetal method has been adopted for spatial distribution of rainfall with respect to a particular direction. Rain gauge stations are plotted on a base map with their respective amount of rainfall and then the contours of equal rainfall (isohyets) are drawn using Surfer v8.5. The different rainfall intervals obtained (area between the two adjacent lines) are helpful in understanding the variation of rainfall over the study area. The final results highlight the impacts of climatic change over groundwater table fluctuation in typical Precambrian rocks of Chamarajanagara District, Karnataka, which is a suitable model in similar geological conditions.

69. 2015. Geoinformatics Technique in mapping of lithology and Geomorphological landforms in Precambrian rocks of Kollegal Shear Zone (KSZ), Southern Karnataka, India, **Basavarajappa H.T,** Dinakar S, Satish M.V, Nagesh D and Manjunatha M.C, Journal of Geomatics, ISG, Vol.9, No.1, Pp: 129-140. IMP F-2

Significance: Geoinformatics technique is the essential tool in mapping of lithology, geomorphology, drainage, lineament, soil, slope and other related features of a region. The present study aims to map the geology, lithological contacts, weathered layered and geomorphological landforms in Precambrian hard rock terrain of Kollegal Shear Zone (KSZ) which belongs to Dharwar Craton, adjacent to high grade granulites of Biligiri-Rangan hills in Southern India. Geoinformatics encompass Survey of India (SoI) toposheet, Remote Sensing (RS) Satellite data, Geographic Information System (GIS) and Global Positioning System (GPS) with limited Ground Truth Check (GTC). Efforts have been made to evaluate the thematic maps such as lithology, geomorphology, weathered layered, drainage, lineament, soil types, slope categories are derived using False Color Composite (FCC) data of IRS-1D, PAN+LISS-III. Slope and drainage maps are derived from SoI toposheet (2001) of 1:50,000 scale using visual and digital image interpretation techniques through GIS software's. The final results highlights the application of geoinformatics technique in assessment of lithological units and geomorphological landforms on Precambrian rocks of KSZ, Chamarajanagara district, Karnataka, which is a suitable model for application to similar geological terrain.

70. 2015. Mapping and Reclamation of Wastelands through Geomatics Technique in Precambrian Terrain of Mysuru district, Karnataka, India, **Basavarajappa H.T,** Manjunatha M.C and Pushpavathi K.N, International Journal of Civil and Structural Engineering (IJCSE), IPA, Vol5, No.4, Pp: 379-391. . IMP F-9.12

Significance: Wastelands are low-quality land from the agricultural point of view, often referred as degraded lands. The development of vast stretches of wastelands is caused by unscientific handling of land resources which causes ecological imbalance. The present work is undertaken to reclaim the wastelands of the study area through hi-tech tools of geomatics. This study aims to map and record the waste and unutilized lands using Survey of India (SoI) toposheets of 1:50,000 scale, IRS-1D PAN+LISS-III satellite and Google Earth images through GIS software's with limited Ground Truth Check (GTC). The database provides spatial baseline information in distribution, extent and temporal behavior of wastelands in planning and implementation of developmental reclamation strategies. The final results highlight the specific wasteland categories in Mysuru district using geomatics technique considering the environmental, biophysical and socio-economical factors.

71. 2015. Integration of Hyperspectral and Geochemical signatures on Iron ore deposits around Holalkere range of Megalahalli, Chitradurga Schist belt, Karnataka, India, **Basavarajappa H.T**, Manjunatha M.C and Rajendran S, Journal of The Indian Mineralogist, MSI, Vol.49, No.1, Pp: 85-93. IMP F-2

Significance: The advent hi-tech tools of hyperspectral signatures and GPS applications have opened a new vista in exploration and systematic mapping of economic ore deposits. The present study aims to integrate the hyperspectral signatures with major elements of iron ore deposits of Holalkere Range of Megalahalli, Chitradurga Schist Belt, Karnataka, India. The samples collected from field are studied in the laboratory using thin and polished sections under microscope and X-Ray Diffraction (XRD) analysis. Efforts have been made to evaluate the spectral signatures of 4 representative iron ore samples collected from different locations and analyzed through ASD Spectro-radiometer instrument operating in Visible and InfraRed (325 to 2500 nm) region with major elements concentration. The study show that the absorption features of rock samples depends on both major and minor mineral constituents. In this study, the spectral characters of the iron ore samples are studied with spectra of mineral library of USGS, JPL and JHU.

72. 2015. Discrimination of Banded Magnetite Quartzite (BMQ) deposits and associated lithology of parts of Chikkanayakanahalli Schist Belt of Dharwar Craton, Karnataka, India using Remote Sensing technique, **Basavarajappa H.T,** Jeevan L, Rajendran S and Manjunatha M.C, Cloud Publications, International Journal of Advanced Remote Sensing, Vol.4, Issue.1, Pp: 1033-1044. . IMP F-2.4

Significance: Remote Sensing technology has its potentiality in occurrence and mapping of mineral resources on surface of the earth. Study of light interaction phenomenon of Remote Sensing lead several geological investigations in discrimination of banded magnetite quartzite (BMQ) deposits and associated lithology (limestone, greywackes, Mn and Fe rich phyllitic chert, basic Meta basalt and basement granitic gneisses, granitoids and migmatites) in part of Chikkanayakanahalli schist belt, India. In the present study, the deposits and associated different rock types of the region are validated using low-cost medium resolution Landsat Enhanced Thematic Mapper plus (ETM+) Satellite Image. The digital image processing techniques such as Principal Component Analysis (PCA) and band ratios analysis are studied and showed the potential for mapping the surface deposits. The result of RGB images of Principal Components (R: PC1, G: PC2, and B: PC3) and band ratios used in mineral and hydrothermal analysis by discriminating the BMQ deposits and other rock types. The study demonstrates the capability of low-cost satellite image, potentiality of image processing methods.

73. 2015. Spatial data integration and mapping of Groundwater potential zones on Precambrian terrain of Hassan district, Karnataka, India using Geomatics application, **Basavarajappa H.T,** Manjunatha M.C and Basavaraj Hutti, International Journal of Civil Engineering and Technology (IJCIET), Vol.6, Issue.5, Pp: 123-134. IMP F-9.12

Significance: Water is the main source of human's daily life and being used in various fields. Mapping and integration of lithology, drainage, lineament, soil, slope and other related features are useful in assessing the groundwater resources of a larger area. Thematic maps have prepared through Visual Image Interpretation Techniques (VIIT) and integrated by using GIS software's. The present aim is to apply the Geomatics tools to demark the groundwater potential zones of the study area. Efforts have been made to evaluate the groundwater potential zones by assessing the weightage for different thematic layers based on collateral data and digitization. Various litho units such as granites, gneisses, schists and quartzites are encountered during field survey. Soil and lineament form the basic geological structures which are easily identifiable in the Landsat-7 satellite imagery and helps in understanding the nature of lithology in delineation of groundwater prospect zones. Slope map is prepared by using Survey of India (SoI) toposheets of 1:50,000 scale. The final result highlights the favorable conditions of groundwater potential zones in Precambrian terrain of the study area which is a suitable model in similar geological conditions.

74. 2015. Land use/ land cover classification analysis and soil conservation in Precambrian terrain of Chamarajanagara district, Karnataka, India using Geomatics application, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, International Journal of Science, Engineering and Technology (IJSET), Vol.3, Issue.3, Pp: 739-747. IMP F-5.16

Significance: Land and soil management in developing countries like India is very much necessary in better monitoring for future sustainable resources. These resources are over stretched and undergoing degradation at an unacceptable rate due to rapid increase in population. Land use refers to mans activities & various uses which are carried on land; while land cover refers to natural vegetation such as water bodies, rock/soil, artificial cover and other resulting due to land transformations. Although land use is generally inferred based on the cover, yet both are closely related and interchangeable. Soil is a natural body developed by natural forces acting of natural materials. Soil is the loose and weathered rock material that covers the land surface of the earth and supports the growth of vegetation. The present aim is an attempt to classify the land use/land cover (LU/LC) and conserve the fertile upper layers of the study area.

Geo-coded FCC of IRS-1D, PAN+LISS-III satellite image and merged SoI toposheets of 1:50,000 scale are well utilized to digitize the soil map. The final results highlight the Geomatics applications in mapping, management and monitoring of land and soil resources on hard rock terrain in Southern tip of Karnataka.

75. 2015. Suitable Waste disposal sites selection for Tumakuru city, Karnataka, India using Geomatics application, **Basavarajappa H.T,** Jeevan L, Manjunatha M.C and Mohamad Ali M, International Journal of Civil Engineering and Technology (IJCIET), Vol.6, Issue.6, Pp: 133-146. IMP F-9.12

Significance: Waste management problems and issues result from indiscriminate waste disposal which stems from improper planning and implementation. The present study aims to integrate RS and GIS applications to locate the suitable landfill sites in developing city Tumakuru of Karnataka state. Spatial data such as; lineaments, soil, drainage networks and tanks of the study area are extracted from a geo-rectified (25m resolution) satellite image (IRS-1D, PAN+LISS-III), Survey of India (SoI) toposheet (scale-1:50,000) and updated on Google Earth Image. All the thematic layers extracted through Visual Image Interpretation Techniques (VIIT) on-screen digitizing using GIS software's. The newly located disposal sites are geo-located by considering the transportation distance and added as a layer to the map of the study area. The final results delineate the safe disposal sites of municipal & industrial wastes along with hydrological parameters and its environmental impact over existing site. The integration of RS, GIS analysis, GPS survey including Ground Truth Check (GTC), demarcates four alternative safe locations over existing landfill site; considering the environmental, biophysical and socio-economical factors.

76. 2015. Spatial data integration of lithology, geomorphology and its impact on groundwater prospect zones in Precambrian terrain of Chitradurga district, Karnataka, India using Geomatics application, Manjunatha M.C and **Basavarajappa H.T,** Global Journal of Engineering Science and Research Management (GJESRM), Vol.2, Issue.8, Pp: 16-22. IMP F-3.77

Significance: Mapping of lithology and geomorphology are carried out in typical hard rock terrain of Chitradurga district, which belongs to Dharwar Craton, Southern India. Groundwater resources in hard rock terrain are limited which need proper management and developmental programme strategies in its sustainability. Efforts have been made to evaluate the lithological units and geomorphological landforms in Precambrian terrain using Visual Image Interpretation Techniques (VIIT) and Digital Image Processing (DIP) of Landsat-7 False Color Composite (FCC) through GIS software's. Different lithological formations and landforms under each geomorphic unit have been mapped. The present study aims to integrate the geomatics application in assessing the demarcation of groundwater prospecting zones of the study area using bore well data collected during the year 2010. The final results highlight the potentiality of geomatics application in mapping of lithology and geomorphological landforms for groundwater exploration in hard rock terrain of Chitradurga district, Karnataka.

77. 2015. Demarcation and Reclamation Strategies of Wastelands in Precambrian terrain of Gundlupete Taluk, Chamarajanagara district, Karnataka, India using Geomatics application; **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, International Journal of Geomatics and Geosciences (IPA), Vol.6, No.1, Pp: 285-294. IMP F-4.39

Significance: Being Natural resources like land, water, soil, forest, agricultural land etc., have been devastated and degraded to a greater extent due to rapid increase in population. Wastelands are presently laying unutilized due to inherent disabilities related to location, environment, soil as well as current financial constraints. Mapping and integration of lithology, geomorphology, soils are carried out in typical hard rock terrain of Gundlupete taluk in southern tip of Karnataka State. The present study aims to integrate the geomatics technique to demark the wasteland categories of the study area. Efforts have been made to evaluate the lithological units and geomorphological landforms using Visual Image Interpretation Techniques (VIIT) and Digital Image Processing (DIP) on Landsat-7 Satellite image through GIS

software's. The study area exhibits predominantly granites, gneisses with mafic dykes are mainly doleritic, amphibolites, hornblend and two pyroxene granulitic in composition occur as intrusive bodies in granites. Geomorphology represents denudational hills, residual hills, pediment, linear ridge, pediplain, pediplain gullied, structural hills and valley fills. The final result demarks the different wasteland categories observed in hard rock terrain of Gundlupete taluk, Karnataka for further reclamation measures and land developmental programmes.

78. 2015. Lineament extraction analysis for geotectonic implications around Biligiri-Rangan hill ranges in Southern Karnataka, India using IRS-1D, LISS-IV Satellite Image, **Basavarjappa H.T,** Dinakar S, Satish M.V and Manjunatha M.C, Journal of Geomatics, Vol.9, No.2, Pp: 223-231. IMP F-4.39

Significance: Lineaments are linear fracture commonly associated with dislocation and deformation. A lineament is a regional scale linear or curvilinear feature, pattern or change in pattern that can be attributed in analyzing the structural and tectonic aspects of an area. Larger lineaments have larger zone of influence and larger amount of deformation is associated with them. In central parts of the study area represents highly sheared and fissile type of intermixed gneisses with granitoids, migmatitic gneisses with massive retrograde and incipient type of charnockite exposures with mylonites are noticed with basic granulites, younger dolerite dyke rocks are cross cutting all other earlier rock types. Ductile to ductile brittle, dextral and sinistral type of shears are also noticed. The present aim is to study the tectonic activity on Precambrain basement rocks in Southern tip of Karnataka state by lineament extraction through satellite image. Remote Sensing images show best enhancement techniques for the linear features like fracture system and lineaments. These are useful in groundwater, mineral exploration and engineering geological applications. Lineaments are derived by DIP techniques on IRS-1D LISS-III image through GIS softwares. Remote Sensing techniques have been further boosted to lineament studies since the identification and mapping of lineaments become relatively easy using high resolution satellite images. The final results show geotectonic implications around Biligiri-Rangan hill ranges of Southern Granulite Terrain (SGT) of Indian subcontinent.

79. 2015. Rock-water interaction and Chemical quality analysis of Groundwater in Hard rock terrain of Chamarajanagara district, Karnataka, India using Geo-informatics, **Basavarajappa H.T,** Manjunatha M.C and Pushpavathi K.N, Journal of Organic and Inorganic Chemistry, iMedPub Journals, Vol.1, No.1, Pp:1-15. IMP F-8.7

Significance: Groundwater is one of the main natural resources having its application in various fields which affects its quantity. Groundwater pollution occurs when used water is returned to the hydrological cycle. The present study aims to assess the spatial variations of groundwater quality parameters in Southern tip of Karnataka using Geoinformatics technique. Efforts have been made to evaluate a total number of 46 representative groundwater samples (C1 to C46) from different parts of the study area during pre-monsoon period (April-May 2005) to assess its parameters such as F-, NO3-, CO3-, Cl-, Ca2+, Mg2+, Na+, SO_4^{2-}, Fe, K+, pH and EC. Groundwater quality is found to be more controlled by rock-water interaction and residence time of water in aquifers and affected more by anthropogenic factors at many locations. Each Land Use/Land Cover (LU/LC) patterns and major lineaments are mapped and digitized using SoI topomap of 1:50,000 scale and IRS-1D, PAN+LISS-III satellite data through GIS software's. Wide applications of chemicals, pesticides, fertilizers, herbicides in large agricultural and vegetative lands; mining activities are the major factors that are contaminating the soil and leaching through seepage, fractures, faults and joints (lineaments) into the groundwater. The study reveals the potentiality of Geoinformatics application in preparation of more consistent and accurate baseline information predicting the groundwater quality in Precambrian hard rock terrain of the study area.

80. 2015. Spatio-Temporal Variation in Groundwater Quality Analysis on Chitradurga district, Karnataka, India using Geo-informatics Technique, Manjunatha M.C and **Basavarajappa H.T,**

Journal of International Academic Research for Multidisciplinary, Impact Factor: 2.417, Vol.3, Issue.11, Pp: 164-179.

Significance: Most of the villages in India depend mainly on groundwater for domestic purposes which affect its quality. Unsustainable withdrawal/ over exploitation of groundwater in various fields and drought conditions during extreme summer seasons have depleting the water level in the study area. Groundwater quality is contaminated mostly by anthropogenic (agricultural activities) and geogenic substances; are adversely affecting the water at many regions. Efforts have been made to evaluate the seasonal variation (pre & post monsoon during 2011) in groundwater quality parameters of 50 groundwater samples in Precambrian terrain of Chitradurga district. Intensive use of agrochemicals, sewage water, polluted drain water and Municipal waste water has posed a serious threat to groundwater quality through bore/ tube wells and Govt. pipeline water supply. All the samples are analyzed with respect to World Health Organization (WHO) and Bureau of India Standards (BIS). Lineaments are overlaid on land use/ land cover categories using IRS-1D, PAN+LISSIII satellite image through GIS software's to evaluate the possible threats/ locations of groundwater quality such as rock-water interactions, agro-chemicals and storage & movement of water. Ordinary kriging method is utilized in preparation of thematic maps of groundwater quality parameters viz Fluoride (F-), Nitrate (No3), Chloride (Cl-), Potential of Hydrogen (pH) and Total Hardness (TH). The final results highlight the seasonal variation in groundwater quality analysis during the year 2011 in Precambrian hard rock terrain of Chitradurga district, Karnataka, India.

81. 2016. Validation of Derived Groundwater Potential Zones (GWPZ) using Geo-informatics and Actual yield from well points in parts of Upper Cauvery basin of Mysuru and Chamarajanagara districts, Karntaka, India, **Basavarajappa H.T,** Dinakar S and Manjunatha M.C, International Journal of Civil Engineering and Technology (IJCIET), Vol.7, Issue.1, Pp: 141-161. IMP F-9.12

Significance: Groundwater is a most important natural resource of the earth and its demand is rapidly increasing with growing population, agricultural expansion and industrialization. The present study aims to integrate the thematic layers viz., lithology, geomorphology, soil, lineament, land use/land cover, slope, rainfall and other related features to explore the occurrence & movement of groundwater using geo-informatics technique. Integration of various themes is achieved through the development of a models/ assigned weightages which relates and delineates GWPZ and finally to generate a composite map. About 140 bore wells yield data have been collected to quantify the yield from GWPZ map derived from geo-informatics. The final output map is reclassified into four groundwater prospect zones by merging the polygon of same classes using dissolve operation such as Very Good, Good, Moderate and Poor. The final results highlight the high-tech application of Geo-informatics in validating the GWPZ with reference to actual bore well yield data in parts of Upper Cauvery basin in Southern tip of Karnataka State, India.

82. 2016. Land use/land cover change detection analysis in Hosadurga taluk of Chitradurga district, Karnataka, India using Geoinformatics technique, **Basavarajappa H.T,** Manjunatha M.C and Maruthi N.E, Journal of International Academic Research for Multidisciplinary, Vol.4, Issue.2, Pp: 304-314. IMP F- 2.4

Significance: Land is one of the non-renewable resources and mapping of land use/ land cover (LU/LC) is essential for planning and development of land, water resources of a region with suitable technology. The present aim is to detect the changes in LU/LC patterns and its extent due to different socio-economic factors in the study area. Efforts have been made to evaluate the LU/LC patterns using SoI topomap (1:50,000) with limited field visits; geo-coded FCC of IRS-1D, PAN+LISS-III multispectral, multi-temporal satellite image and updated on Google Earth image through GIS software's. Different classes of vegetation activities affect the surface flow of run-off water leading to maximize infiltration. There is a significant change on LC/LU across the globe due to the climatic changes, rapid increase in population and over demand of the growing economic resources. Land use systems need thorough systematic monitoring and management in maintaining food security, minimizing the deforestation,

conservation of biological diversity and protection of natural resources. The final results highlight the LU/LC change detection analysis and its extent in the study area using geoinformatics technique.

83. 2016. Delineation of Groundwater Potential Zones in Mysuru district, Karnataka, India using Geoinformatics technique., Vahid Sharifi, Srikantaswamy S, Manjunatha M.C and **Basavarajappa H.T,** Journal of International Academic Research for Multidisciplinary, Vol.4, Issue.2, Pp: 315-328. IMP F- 2.4

Significance: Water is one of the main natural resources that essential for human's daily life, domestic, industrial and other various fields. This needs periodic assessing and monitoring for its sustainability. Mapping and integration of lithology, geomorphology, drainage, lineament, soil, slope, land use/land cover and other related features had carried out in Southern tip of Karnataka State using GIS techniques in assessing the groundwater prospect zones. The present study aims to predict the good, moderate, poor and very poor groundwater prospects zones using water level measured in available dug/bore wells of the study area collected during the year 2014. Each lithological units and geomorphological landforms are mapped during limited field visits and digitized using Visual Image Interpretation (VIIT) and Digital Image Processing (DIP) on Satellite Remote Sensing data through GIS's software. The final results highlight the potentiality of GIS application in mapping of groundwater prospect zones and its periodic monitoring and exploration in Southern tip of Karnataka State.

84. 2016. Rainfall Variation and its impact on Groundwater table fluctuation in Mysore taluk, Karnataka, India using GIS analysis, Vahid Sharifi, Srikantaswamy S, Manjunatha M.C and **Basavarajappa H.T,** Journal of Environmental Science, Computer Science and Engineering and Technology, Vol.5, No.2, Pp: 137-152. IMP F- 5.87

Significance: Precipitation is an important factor in hydrological cycle that acts as the major source of all water resources on earth. Rise in temperature increases the evaporation of surface water bodies & transpiration in wetlands. Groundwater in hard rock aquifers is essentially confined to fractured and/or weathered horizons which need thorough understanding, management and periodic monitoring. Groundwater is the invisible and ultimate indicator of the atmospheric anomalies in the hydrological cycle. The present aim is to analyze the rainfall variation impacts on groundwater table fluctuation in the study area through GIS potentiality. Selection of observation well points relies heavily on traditional methods; need a proper systematic approach which is lacking. Groundwater level data provides direct value of groundwater occurrences below ground level (bgl). Aquifers have the capacity to store large volumes of water and are naturally buffered against seasonal changes in temperature and rainfall. A sincere attempt has been made to evaluate 6 rain gauge stations data of 11 years (2001-11) in determining the rainfall fluctuation; while 9 observation well points are considered to determine the groundwater table fluctuation of the same 11 years. Arithmetic mean, theissen polygon and iso-hyetal methods are well utilized in the present study in digitization of spatio-temporal maps using field data collection through GIS's software. The final results highlight the capability of GIS tool in mapping, management and period monitoring of rainfall variation and groundwater table fluctuation in Mysore taluk, Karnataka, India.

85. 2016. Geomatics application on climate change and its impact on Groundwater table fluctuation in parts of upper Cauvery basin (Mysuru and Chamarajanagara districts), Karnataka, India, Basavarajappa H.T, Dinakar S and **Manjunatha M.C,** Journal of Environmental Science, Computer Science and Engineering and Technology, Vol.5, No.2, Pp: 153-166. IMP F- 5.87

Significance: Analyses of season-wise rainfall variations have been analyzed using 31 years (1971-2001) rainfall data. Rainfall trend alters the hydrological cycle and directly affects the surface & sub-surface water conditions. The spatial variability of mean annual precipitation depends upon the topographic factors like exposure of station to the prevailing wind, elevation, orientation and slope of the mountain. 13 years of Groundwater level has been recorded to study its fluctuation from 1990-2002. The average and

mean rainfall & subsurface water level over the area are calculated using Arithmetic mean, Thiessen polygon and Iso-hyetal methods. Average rainfall, water level is the simple arithmetic mean measured in the area; while Iso-hyetal method has been adopted for rainfall & groundwater fluctuation analysis. Rain gauge stations are plotted on a base map with their respective amount of rainfall and then the contours of equal rainfall (isohyets) are drawn using Surfer software and same groundwater levels. The different in rainfall & groundwater intervals obtained (area between the two adjacent lines) are helpful in understanding the variation of rainfall; groundwater over the study area. The final results highlight the impacts of climatic change over groundwater table fluctuation in parts of Upper Cauvery basin in Karnataka state, which is a suitable model in similar geological conditions.

87. 2016. Mapping and Reclamation of Wastelands in Yelanduru Taluk of Chamarajanagara District, Karnataka, India using Geo-Informatics Technique, Basavarajappa H.T, Pushpavathi K.N and **Manjunatha M.C,** International Journal of Scientific Research in Science and Technology (IJSRST), Vol.2, No.3, Pp: 91-98. IMP F- 5

Significance: Wastelands mapping and its reclamation analyses has been applied on Yelanduru taluk in Southern tip of Karnataka using high-tech tools of geoinformatics. With the increasing population the natural resources like forest, agricultural land etc., have been devastated and degraded to a great extent. Unscientific handling of land resources in a region causes ecological imbalance & vast stretches of wastelands. The present study aims to propose appropriate management strategies to reclaim the wastelands in the study area. Efforts have been made to evaluate the unutilized lands using Survey of India (SoI) topomap of 1:50,000 scale, IRS-1D PAN+LISS-III satellite and Google Earth images through GIS software's with limited Ground Truth Check (GTC). This reveals the spatial baseline information in distribution, extent and temporal behavior of each wasteland categories for better planning and developmental reclamation strategies. Major identifiable wasteland categories are barren rocky; land with scrub; mining wasteland and salt affected area. The final result specifies each wasteland categories in the study area using geoinformatics technique considering the environmental, biophysical and socio-economic factors.

88. 2016**.** Geoinformatics application on land use/ land cover classification analysis in Kollega taluk of Chamarajanagara district, Karnataka, India **Basavarajappa H.T**, Pushpavathi K.N and Manjunatha M.C, Global Journal of Engineering Science and Research Management 112(6):112-122. **IMP F- 3.77**

Significance: Land resources planning and its development is an important issue in the present era. Major changes in any part of earth's surfaces will significantly influences the environmental factors such as atmosphere, soil, topography, vegetation, underlying geology, hydrology, plant & animal population. The present aim is to classify the Land Use/ Land Cover (LU/LC) categories based on NRSC' standards (1995) to increase land productivity, restoration of soil degradation, reclamation of wastelands and increase the environmental qualities. An attempt have been made to evaluate the level-I, level-II and level-III LU/LC classification system using IRS-1D PAN+LISS-III through GIS. The classification accuracy is found to be more in case of digital technique as compared to that of visual technique in terms of area statistics. The final results demonstrate the accurate mapping of classified LU/LC categories for implementation, management, mapping, measurement and monitoring through geoinformatics techniques.

89. 2016. PCA on Lineament Enhancement for Groundwater Significance in parts of Upper Cauvery Basin, Southern tip of Karnataka, India using IRS-1D, LISS-III Satellite image, Basavarajappa H.T, Dinakar S and Manjunatha M.C, Journal of Environmental Science, Computer Science, and Engineering & Technology, Vol.5, No.4, Pp: 721-735. IMP F- 5.87

Significance: Principal Component Analysis (PCA) analyzing the patterns in high resolution on satellite data is an Advent Statistical Technique (AST) that shows its application in enhancement of linear features. PCA works on basic assumptions such as, linearity, pattern recognition, large existing variances & extraction of linear relationship among a set of variables. The present aim is to enhance the linear features

using PCA technique on IRS-1D LISS-III image. PCA plays an important role in Remote Sensing for geological information extraction of fault, fissures, joints etc. Efforts have been made to evaluate the PCA analysis on all bands of Visible and Near-Infrared and Short-Wave Infrared of Indian Remote Sensing (IRS) satellite image using GIS software's. The results show the ability to enhance the lineaments focusing on groundwater investigations in Southern tip of Karnataka State.

90. 2016. Mapping and Reclamation of Wastelands in Chamarajanagara Taluk, Southern Tip of Karnataka, India using Geoinformatics Technique, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, Global Journal of Engineering Science and Research Management (GJESRM), Vol.3, Issue.10, Pp: 95-110. IMP F- 3.77

Significance: Land and water are the most valuable natural resources which has importance in human's daily life. Mapping and demarcation of wastelands was carried out in Chamarajanagara taluk, Karnataka, using geoinformatic techniques for proper maintenance in future use. The present aim is to map and reclaim the wasteland categories available in the study area for several implementation programs. Efforts have been made to evaluate these categories through Visual Image Interpretation Techniques (VIIT) on IRS-1C PAN+LISS-III in False Color Composite (FCC) and updated using Google Earth Image. Various litho units such as gneisses, charnockite, two-pyroxene granulite, amphibolite, migmatites and hornbled schists of Archean age were mapped. Geomorphological landforms were represented by denudational hills, residual hills, pediment, pediplain moderate, pediplain shallow weathered and valley; while each type of soils were also mapped. The final output highlights the demarcation and reclamation strategies of the study area for its sustainability using geoinformatics techniques

91. **2016 Demarcation of Kollegal Shear Zone (KSZ) and Neo-Metamorphism in precambrian terrain of Biligirirangan hill ranges, Southern Granulites, Karnataka, India. Basavarajappa H.T ISC Jan 7th 2016.**

Significance: Summarizing the continental crustal thickness of Biligiri-Rangan hills varies between 35-40km and are exposed. recent works of valdiya et al,. 2001 also involves Neo-tectonic movements. valdiya based on geomorphology, drainage patterns of the Cauvery river has also concluded that the thrusting and upliftment of the Biligiri-Rangan hills has taken from 550Ma to Holocene.

91. **2017** Determination of Spectral Characteristics on Archaean Komatiites in Ghattihosahalli Schist Belt (Gsb) of Kumminagatta, Chitradurga District, Karnataka, India. **Basavarajappa H.T,** Manjunatha M.C, Rajendran S and Jeevan L, International Journal of Advanced Remote Sensing and GIS , Volume 6, Issue 1, pp. 2416-2423. IMP F- 1.97

Significance: Komatiites contain economic important nickel, chromium, titanium and copper deposits and their spectral absorption characters are highly important in the remote sensing technique to map and explore such deposits bearing rocks. This study integrates hyperspectral signatures; petrological and geochemical characters of serpentinite bearing ultramafic komatiite rock noticed at the Ghattihosahalli Schist Belt (GSB), near Kumminagatta village, in the Chitradurga district of Karnataka, India and demonstrate specific spectral absorptions of the rock. The measurement of spectral signatures of the rock using spectroradiometer produced significant absorptions near 700, 900 to1100, 1400, 2300, 2380 and 2470 nm in the 350-2500 nm wavelength. The spectral absorptions depend mainly on the optical and physico-chemical characters of the rock and are studied with the spectra of mineral library of USGS and JPL and characterized. This study can be used in the remote sensing technique to map similar rocks and bearing mineralization of the remote areas.

.

92. **2017** Land use/Land Cover change detection Analysis in Holalkere Taluk of Chitradurga District, Karnataka, India using Geoinformatics. Manjunatha M.C, **Basavarajappa H.T** and Maruthi N.E, Journal of Environmental Science, Computer Science and Engineering and Technology Vol,6 Issue, 3 Pp291 to 301. IMP F- 7.22

Significance: Land resource is one of the highly sensitive systems that offers sustainability to all forms of life on earth. The present aim is to focus mainly on planning and management of land resources for environmental and socio-economical outcome for sustainable use to meet the future needs. Mapping of LU/LC Change Detection Analysis (CDA) was analyzed using SoI topomap; geo-rectified multi-spectral and multi-temporal image of IRS-1D PAN+LISS-III through GIS software's. There is a significant rise in agricultural land as well as in built-up land that affecting other LU/LC categories such as mining, dumping and water crisis. Geo-informatics is one of the advent high-tech tools in analyzing the causes, rates, magnitude, patterns, trends in local scales ecosystem for better mapping and monitoring. The final results highlight the change detected on land surface features for better land utilization

93. **2017** Geomatics Technique on Climate Change and its impact on Groundwater table Fluctuation in Mysuru District, Karnataka State, India. Manjunatha M.C and **Basavarajappa H.T.** Journal of Environmental Science, Computer Science and Engineering and Technology Vol,6 Issue,4 Pp404 to 420. IMP F- 7.22

Significance: Average global temperatures are higher than they have ever been during the past millennium and the levels of CO2 in the atmosphere have crossed all previous records. The earth's climate is most affected by difference in temperatures on land, sea, water and topography. Climate is the average weather conditions with a minimum period of 30 years including temperature, rainfall, and wind. The present study aims to generate the primary data to map the rainfall trends and its impact on groundwater level fluctuation through geomatics techniques. Efforts have been made to evaluate a total of 40 representative rain gauge station samples and analyzed the seasonal rainfall variation over a period of 32 years (1983- 2014). 50 representative groundwater well samples are collected to study the season-wise groundwater fluctuation of about 14 years (2001- 2014). Rain gauge stations are plotted on a base map with their respective amount of rainfall, and then the contours of equal rainfall (isohyetes) are drawn using GIS software. The average rainfall between the successive isohyets taken as the average of two isohyetal values is weighed with the area between the isohyets. Climate change and certain human activities threatened directly the groundwater resources globally. The final results highlight the capability of geomatics technique in analyses of impacts of climate over groundwater level fluctuation in typical Precambrian rocks of Mysuru District, Karnataka, which is a suitable model in similar geological conditions.

94. **2017** Hyperspectral Signatures and Field Petrography of Corundum Bearing Litho-Units in Arsikere Band of Haranahalli, Hassan District, Karnataka, India. **Basavarajappa H.T,** Maruthi N.E and Manjunatha M.C. INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS.VOL,5 ISSUE, 4 PP 3791-3798. IMP F- 5.97

Significance: Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green stone & Schist Belts, younger granites and granitoids of Dharwar Craton. Corundum is a rock-forming mineral occurs in igneous, metamorphic and sedimentary rocks which represent rich amount of Aluminium oxides (Al_2O_3) in hexagonal crystal structure. The extreme hardness

of corundum makes an excellent abrasive for industrial uses. The present study aims to characterize the spectral behavior of Corundum and associated rocks using Spectro-radiometer instrument calibrating in between 400-2500 nm wavelength. Spectro-radiometer instrument records 10 nm resolution data to bring out diagnostic features on lithological contacts for better discrimination of gemstones and altered minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping and exploration in similar terrains of Karnataka State.

95. **2017** Geoinformatics Technique on Land Use/Land Cover Classification Analysis in Yelanduru Taluk of Chamarajanagara District, Karnataka, India**. Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C Journal of Environmental Science, Computer Science and Engineering & Technology, Vol-7. Issue- 1. Pp40-53. IMP F- 7.22

Significance :Land embraces all reasonable stable or predictably cyclic, attribute of the biosphere including the atmosphere, soil and underlying geology. Mapping of Land Use/ Land Cover (LU/LC) is essential for planning and development of land and water resources of engineering projects under progress. An attempt have been made to delineate the level-I, level-II and level-III LU/LC classification system through NRSC guidelines (1995) using both Digital Image Processing (DIP) and Visual Image Interpretation Techniques (VIIT) through GIS software's. Efforts have been made to classify the LU/LC patterns using False Color Composite (FCC) data of IRS-1D PAN+LISS-III (Band: 2, 3, 4) through ERDAS Imagine v2011 and ArcGIS v10. The classification accuracy is found to be more in case of digital technique as compared to that of visual technique in terms of area statistics. Remote Sensing (RS) satellite data with its synoptic view and multispectral data provides essential information in proper planning of LU/LC conditions of the larger areas. The final results highlight the potentiality of geoinformatics in LU/LC classification in Yelanduru taluk, Karnataka, in natural resource mapping and its management.

96. **2018.** Petrochemical characteristics and Hyperspectral signatures on Corundum bearing Precambrian lithounits of Varuna area, Mysuru district,Karnataka, India. **Basavarajappa H.T,** and **Maruthi N.E** INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS.VOL,6 ISSUE,1 PP 998-1009. IMP F- 5.97

Significance: Varuna area of Mysuru District, in Dharwar Craton is composed of precambrian dynamic geological settings is prospects of nearly four kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of ultramafics, amphibolite schist with gneiss and granitoids. The study carried out by using advent high-tech tools of Spectro-Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. Four types of random samples were collected such as gneiss, granitoids, ultramafics and corundum bearing amphibolite schist in the field along with quartzite ridge through GTC (Ground Truth Check). The spectral signatures of the collected samples were derived in a closed laboratory environment to achieve better accuracy. Hyperspectral (350-2500 nm) signatures were developed as the modern technology & works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. Spectro-radiometer instrument provides a high spectral resolution data of 10 nm to bring out diagnostic features on lithological contacts for better discrimination of gemstones bearing litho-units. The present study aims to apply the advent techniques of hyperspectral signature in mapping, exploration of corundum bearing litho units in Varuna area of Mysuru district in Precambrian basement rocks of Karnataka State.

97. 2018. Geoinformatics technique on land use/land cover and change detectionanalysis in mulshi taluk of western ghats, india. , Basavarajappa H.T Reza Ravanshad, and David Rodrigues. INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS.VOL,6 ISSUE,1 PP 2221-2232. IMP F- 5.97

significance: The land cover of Mulshi taluk in Pune district over the last two decades, due to infrastructural development. Mulshi taluk in the Western part of Maharashtra encompasses the Western Ghats of India, which are one of the hotspots of biodiversity of the world. Over the last two decades, this area has seen many infrastructural changes urban develop along with the creation of lake cities, extension of highways leading to the coastal areas and development/sale of land. This increase in the urbanized area has put a strain on the water resources of Pune City. The objective of this paper is to detect the change in the land-use/cover of the Mulshi taluk and understand the drivers of change in the rural landscape. This study will help in identifying measures that need to be taken for sustainable development using geoinformatics. Post classification change detection has been performed between two images of the area from (1992 and 2011). The drivers of this were determined by field surveys and interviews with the local people. A future land cover scenario for the year 2020 has been predicted using Idrisi's Land Change Modeller (ILCM). The unplanned expansion of the built up areas into the surrounding parts will have a direct impact on the rural environment. The changes in agriculture indicate a trend towards a migration from traditional crops to cash crops like sugarcane.in other economically important crops in the study area.

98. 2018. Physico-chemical charectristics and Hyperspectral signature study using geomatics on gem verity of Corundum bearing Precambrian litho-units of Mavinahalli area, Mysuru district, Karnataka, India. **Basavarajappa H.T, Maruthi N.E, Jeevan L and Manjunatha M.C . International Journal of Computer Engineering & Technology (IJCET)** Volume 9, Issue 1, Jan-Feb 2018, pp. 102–112, IMP F- 9.35

Significance: Mavinahalli area of Mysuru District, within amphibolite facies South of the Dharwar craton unity of sargur supracrustal rocks contain ultrabasic enclaves. The study area consist of major 5 kinds of litho-units and with economicaly viable minerals including gemstones varities main rock types in contact zones of ultramafics, fuchsite quartzite with kayanite, Amphiolite and hornblende schist with crystaline limestone, Banded iron formation with high grade metapelites and grey migmatite granodiorite tonalitic banded gneiss. the study carried out by petrochemical study and spectral signature study using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. the present study aims to charactrize the spectral behavior of Corundum and associated rocks. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of gemstones and altered minerals. The final results Highlight the spectral characters of corundum and associated rocks for better mapping in similar terrains of Karnataka State.

99. **2018**." Hyperspectral signature studies on Pricambrian rock types of Southern part of Chitradurga schist belt, Dharwar Craton, Karnataka, India" **JEEVAN L and BASAVARAJAPPA H T.** INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS.VOL,6 ISSUE,1 PP 758-763. IMP F- 5.97

Significance: Precambrian rocks of southern part of Chitradurga schist belt host economic minerals like Limestone, Dolomite, Iron, Manganese and Gold mineralization, hence the author is tried to build few spectral library of the altered and unaltered rocks of the study area by understanding the spectral properties of the minerals.Hyper-Spectral signatures are the representation of the spectral response of certain features in a graphical manner as a function of wavelength and reflectance measured by the ASD instrument. The Visible near Infrared – Short wave Infrared (VNIR-SWIR) regions of electromagnetic domain is characterized by the absorption resulted either due to the electronic process or vibrational process and these features delineates the mineral occurrences, the spectral character of the most of the minerals occur within a complex describes the spectral behavior of the rock.The intimate mixture (i.e. rock) of major minerals is identified mainly by above said two process, one the electronic process at less than 1.0 µm to delineate Fe^{2+} and Fe^{3+} and another process between the wavelength 1.0 to 2.5µm SWIR region of EMS shows

diagnostic mineral features of AL-OH, Mg-OH, Fe-OH, Si-OH, CO3 NH4 and SO4. The spectral analysis resulted in the determining the physico chemical properties of the mineral. The chemical analysis (XRF) and petrographic study of the Precambrian rocks given the parallel supports for the results of spectroradiometry.

100. 2018 Hyperspectral Signature study finds Corundum alters to Diaspore influence of climate change of Dharwar craton Arasikere Band of Haranahalli, Hassan District, Karnataka, India. **Basavarajappa H.T, Maruthi N.E.** Journal of Environmental Science, Computer Science and Engineering & Technology. VoL,7 Issue,2 Pp 238-246.IMP F-7.22

Significance: Arsikere of Hassan District, western Dharwar Craton is composed of Precambrian basement rocks and active dynamic geological setting with prospects of many different kinds of economic mineral deposits, including variety of gemstones particularly in different Cratanic Archaean group of lithological contact zone of Green Schist belts and younger granites and granitoids of the Karnataka. Corundum is a rockforming mineral occurs in igneous, metamorphic and sedimentary rocks.Corundum (Al2O3) is a different precious and rare mineral species with high water content influence of climate change due to airid condition in nature Corundum alters to Diaspore [Al(OH)O]. its defect-induced weaknesses such as fragility, splintering, and cracking become apparent since the temperature of the mineral species may be increased to high temperatures during the process. These deformations may be broadly related to water loss (molecular(H2O) andhydroxyl(OH)group). In this study thermal properties and thermal stability as dehydratial behaviors of gemquality diaspore, including some associated mineral inclusions, were studied by petrochemical and spectral signature study using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, Thesepatterns indicated that the weight losses of the diaspore were due to the water loss only and that these losses occur in the temperature ranges between about about 5920C and 7180C in diaspore. The present study aims to charactrize the spectral behavior of Diaspore and associated rocks. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of gemstones and altered minerals. The final results Highlight the spectral characters of corundum and associated rocks for better mapping in similar terrains of Arsikere band of Haranahalli on Precambrian basement rocks of Karnataka State.

101. **2018** Hyperspectral Signatures on Corundum Bearing Litho-Units Of Precambrian Basement Rocks Around Closepet Granite Pavagada Area, Karnataka. Maruthi N.E, Basavarajappa H.T, Bevan .L and Siddaraju M.S **International Journal of Computer Engineering & Technology (IJCET)** Volume 9, Issue 3, May-June 2018, pp. 86–94, IMP F- 9.35

Significance. Minerals are important natural, finite and non-renewable resources essential formankind. Minerals are the treasures of the state, therefore systematic, scientific and sustainable harnessing of minerals wealth should be the cornerstone of development objectives of the state. The utilization of these minerals has to be guided by long term goals and perspectives. All these goals and perspectives are dynamic and responsive to the economics in scenario, the Karnataka mineral policy has to evolve. The study area Pavagada comes to Tumkur District. The district exposes mainly rock types belonging to the Peninsular Gneissic Complex (PGC), schistose rocks of Chitradurga and Dharwar super group, younger intrusives (Closepet Granite and basic dykes) and thin patches of quaternary gravels. The PGC occupy two-thirds of the area and is represented by migmatite, gneiss and other granitoids. The high grade schistsequelent toSargur group occur as continuous bands, small enclaves within the PGC and comprise amphibolites, ultramafics and banded ferruginous cherts with pelite zones. The study carried out by using advent high-tech tools of Spectro-Radiometer instrument, ViewSpec Pro and GIS software's. Four types of random samples were collected such as gneiss, granitoids, and corundum bearing amphibolites politic schist along with quartzite ridge through GTC (Ground Truth Check). The spectral signatures of the collected samples were derived in a closed laboratory environment to achieve better accuracythe study carried out by petrochemical study and spectral signature study using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR- 3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physicochemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks. Spectral radiometer instrument bring out diagnostic features on lithological contact for better *discrimination of gemstones and altered minerals. The final*

results Highlight the spectral characters of corundum and associated rocks for better mapping in similar terrains of Pavagada area of Tumkur district in Precambrian basement rocks of Karnataka State.

102. 2018, Petro – Chemical And Spectral Signatures On Corundum Bearing Precambrian Amphibolites In Sullia Area, Dakshina Kannada District, Karnataka, India **Basavarajappa H.T** and Maruthi N.E, Journal of Emerging Technologies and Innovative Research. Vol-7 Issue 3, Pp 75-83, Impact factor 5.87.

Significance. Corundum deposits and occurrences are typically associated with Amphibolite schist in Sullia area. Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green stone & Schist Belts, younger granites and granitoids of Dharwar Craton. Corundum is a rock-forming mineral occurs in igneous, metamorphic and sedimentary rocks which represent rich amount of Aluminium oxides (Al2O3) in hexagonal crystal structure. The extreme hardness of corundum makes an excellent abrasive for industrial uses. The study area Sullia comes to Dakshina Kannada District. The district exposes mainly rock types belonging to the Precambrian Peninsular Gneissic Complex (PPGC), schistose rocks of Sargur group and Dharwar super group. Random samples were collected such as gneiss, granitoids, and corundum bearing amphibolite schist through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of gemstones and altered minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping in similar terrains of Sullia area of Dakshina Kannada district in Precambrian basement rocks of Karnataka State.

104. 2018 "Hyperspectral And Petro - Chemical Signatures Study On Shear Zone Controlled Corundum Bearing Pelitic Rocks Of Budipadaga Area, Chamarajanagara District, Karnataka, India."Basavarajappa H.T, Maruthi N.E, Ijrar - International Journal Of Research And Analytical Reviews (Ijrar), E-Issn 2348-1269, P- Issn 2349-5138, Volume.5, Issue 3, Page No Pp.906-913, Impact factor 5.75

Significance: Corundum deposits and occurrences are typically associated with pelitic rocks in Budipadaga area. Corundum is a rock-forming mineral that is found in igneous, metamorphic, and sedimentary rocks. It is an aluminum oxide with a chemical composition of Al2O3 and a hexagonal crystal structure The extreme hardness of corundum makes an excellent abrasive for industrial uses. The study area Budipadaga comes to Chamarajanagara District. The district exposes mainly rock types granitic gneiss, charanockite, metapelites basement gneiss with corundum and garnet, banded amphibolites, and metasedimentry rocks of Precambrian age either exposed at the surface are covered with thin mantle of residual and transported soil. Granulites are comparable to the older Sargur group of rocks in the Dharwar craton and indicate to their deposition under shallow water sedimentary basin. Random samples were collected such as gneiss, and corundum bearing pelitic rocks through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones high grade Archean granulites. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered

minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping of Budipadaga area of Chamarajanagara district in Precambrian basement rocks and similar terrains of Karnataka State.

105. 2018 Hyperspectral and Petro - Chemical Signatures study on Corundum Bearing Amphibolite Schist of Magadi Area, Ramanagara District, Karnataka, India Basavarajappa H.T and Maruthi N.E RESEARCH REVIEW International Journal of Multidisciplinary. ISSN: 2455-3085, Vol 3 issue 9, Pp 773-779, Impact factor 4.18

Significance: Corundum is best known for its gem varieties, Ruby and Sapphire. Corundum is a very hard, tough, and stable mineral. For all practical purposes, it is the hardest mineral after Diamond, making it the second hardest mineral. Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green stone & Schist Belts, adjesent to younger granites and granitoids of Dharwar Craton of southern Karnataka. Magadi area comes to Ramanagara district, it has three kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of ultramafics, amphibolite schist with gneiss and younger granites. Random samples were collected such as gneiss, and corundum bearing Amphibolite schist through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping of Magadi area of Ramnagara district in Precambrian Amphibolite schist rocks and similar terrains of Karnataka State.

106. 2018 Hyperspectral and Petro -Chemical Signatures Study on Corundum Bearing Litho-Units around Sringeri Area, Chikmagalur District, Karnataka, India. Basavarajappa H.T and Maruthi N.E RESEARCH REVIEW International Journal of Multidisciplinary. ISSN: 2455-3085, Vol 3 issue 10, Pp 899-904, Impact factor 4.18

Significance: Most extensively sought after gem stones are the varieties belonging to the mineral groups of corundum and beryl. Ruby and variously colored sapphires are next only to diamond in properties and beauty. In fact, many connoisseurs value ruby much higher than diamond, as large, flawless and intensely colored rubies are much rarer in nature than large diamond. Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. Sringeri area comes to Chikmagalur district, it has six kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of ultramafics, Banded iron formation, amphibolite schist with gneiss and metabasalt & amphibolite-metagabbro. Random samples were collected such as amphibolite, gneiss and corundum within basement crystalline rocks through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro-Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered minerals. The final results highlight the spectral characters of corundum in economic mineral industry and associated rocks for better mapping of Sringeri area of Chikmagalur district of Precambrian rocks and similar terrains of Karnataka State.

107. 2018 Temporal Mapping Of Forest Resources In Hosadurga Taluk Of Karnataka State, India Using Geo-Informatics. Manjunatha M.C, Maruthi N.E, Siddaraju M.S and Basavarajappa H.T. Journal of Emerging Technologies and Innovative Research. Vol-5 Issue 11, Pp 124-132, Impact factor 5.87.

Significance: Forest resources are the most diverse and widespread ecosystem that provides clean air, water, timber, food, fuel, fodder, medicinal plants, agricultural implements, construction materials and recreational opportunities on earth. Hosadurga taluk is classified as one of the Hot Spots of Indian Flora & Biogeographic zone of this study area falls under the Deccan Peninsula Zone. According to 1999 assessment of the Karnataka Forest Department, Hosadurga taluk holds 14% spread of forest cover which includes forest plantations; degraded forests; moist & dry deciduous forests and scrub types. There is a significant change in forest cover around the globe due to rapid rise in population, land use, forest fire, demand for economic mineral deposits, depletion of rainfall, climate change and global warming (?). The present aim is to focus mainly on planning and management of forest cover for environmental and socioeconomic outcome to meet future needs. Mapping of forest cover and its Change Detection Analysis (CDA) is prepared using Survey of India (SoI) topomap of 1:50,000 scale; geo-rectified multi-spectral and multi-temporal satellite images of IRS-1C/1D PAN+LISS-III of 5.8m resolution through GIS software's. The study area endowed with 5 State Reserved Forests which covers total area of 201.62 Km 2 (1975-78) which has been degraded due to human intrusions through agricultural patterns, depletion of rainfall, illegal mining etc. The final results highlight change detection in forest cover using multi-temporal satellite image using geo-informatics for its monitoring and sustainability.

108. 2018 Hyperspectral Signatures And Petro - Chemical Charectistics Study On Corundum Bearing Litho-Units Of Sargur Area, Mysuru District, Karnataka, India. Maruthi N.E, and Basavarajappa H.T, Ijrar - International Journal Of Research And Analytical Reviews (Ijrar), E-Issn 2348-1269, P- Issn 2349-5138, Volume.5, Issue 4, Page No Pp.65-74, Impact factor 5.75

Significance: Ruby and sapphire formation occurs deep in the lithosphere in a regime of extremely high pressures and temperatures. Although it is known that most of these gem stones, classified as corundums, were torn from the Earth's crust by a magma generated in the mantle before being transported towards the surface, their exact origin is still uncertain. Corundum is a rock form mineral its gem varieties, Ruby and Sapphire. Corundum is a very hard, tough, and stable mineral. Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green stone and Schist Belts, adjesent to younger granites and granitoids of Dharwar Craton of southern Karnataka. Sargur area comes to part of Mysuru district, having major five kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of ultramafics, metapelites and amphibolite schist. Basement gneiss and acid volcano rocks also impact the study area. Random samples were collected such as gneiss, metapelites and corundum bearing Amphibolite schist through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral Radiometer bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping of Sargur area of Mysuru district in Precambrian Amphibolite schistose rocks and similar terrains of Karnataka State.

109. 2018 Hyperspectral And Petro - Chemical Signatures Study On Corundum Bearing Litho-Units Of Precambrian Basement Rocks Around Closepet Granite Madhugiri Area, Karnataka, India. Maruthi N.E, and Basavarajappa H.T, Journal of Emerging Technologies and Innovative Research. Vol-5 Issue 12, Pp 619 - 628, Impact factor 5.87.

Significance: Granitic rocks which, are exposed in the Precambrian Shields (PCS) throughout the world have evoked considerable debate, discussion, and controversy among a host of eminent petrologists and geochemists. the Closepet granites which are exposed in the southern portion of the Archeaen Complex (AC) of Karnataka are not an exception to this. The granites and the associated rocks of the Koratagere - Madhugiri area, which forms the central portion of the Closepet granite belt, have so far not been studied by any investigators on modern lines which can result in giving a unified picture of the geology of the area. Ruby and Sapphire formation occurs deep in the lithosphere in a regime of extremely high pressures and temperatures. Corundum is a rock form mineral its gem varieties, Ruby and Sapphire. Corundum is a very hard, tough, and stable mineral. Precambrian basement rocks of Karnataka composed of active and dynamic geological settings with economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green stone and Schist Belts, adjesent to younger granites and granitoids of Dharwar Craton of Southern Karnataka. Madhugiri area comes to part of Tumakur district, having major four kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of pink granite and amphibolite schist. Basement gneiss and acid volcanic rocks also impact the study area. Random samples were collected such as gneiss and corundum through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical, optical properties and Petrographic study of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral Radiometer bring out diagnostic features on lithological contact for better discrimination of verity gemstones and other minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping of Madhugiri area of Tumakur district and similar terrains of Karnataka State.

110. 2019 Aster Mapping of Limestone Deposits and Associated Lithounits of Parts of Chikkanayakanahalli, Southern Part of Chitradurga Schist Belt, Dharwar Craton, India. H. T. Basavarajappa, L. Jeevan, S. Rajendran and M. C. Manjunatha. Journal of the Indian Society of Remote Sensing (SPRINGER) ISSN 0255-660X, pp 1-11 Impact factor 0.81

Significance: Economically viable limestone deposits are mostly formed by calcite minerals, and these minerals are widely used in manufacturing of cement, mortar, fertilizer and flux for smelting of iron ores, and mapping of such deposits is significant and important in scientific research. This study examines the capability of Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) with the wavelength range visible–near-infrared and short-wave infrared spectral bands to map such limestone carbonate deposits and associated lithounits occurred in and around of Chikkanayakanahalli, southern part of the Chitradurga schist belt using minimum noise fraction (MNF) and decorrelation stretching methods. The study results that (1) the RGB image of MNF (R: B1; G: B2; B: B3) of ASTER is capable of discriminating the limestones and associated different rock types, namely banded magnetite quartzites (BMQ), graywackes, Mn- and Fe-rich cherts, metabasalts, granitic gneisses, granitoids and migmatites and (2) the decorrelation stretch image of ASTER bands 8, 3, 1 of the ASTER delineated clearly the limestones and associated rocks of the study area. Study of spectral signatures of field samples of such economic limestones in the wavelength of 350–2500 nm using Fieldspec3 Spectroradiometer showed the spectral absorption near 2.32 lm due to the presence of calcite minerals in the rocks. The results of study are cross-

verified in the study area and confirmed through petrological and chemical analyses of the samples. This study bespeaks the potential of ASTER sensor and application of image processing methods to map the economic limestone deposits and associated rocks of the study area.

111. 2019 Charecterisation And Association Of Molybdenum With Iron Ore Deposit Through Petro-Chemical, Sem And Eds In Rayadurga To Kalyandurga Gap Area Of Closepet Granite Dharwar Craton Anantapur District, Andra Pradesh , India. Siddaraju M.S, Maruthi N.E and Basavarajappa H.T. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 1, Page No pp.1077-1087, January 2019, Impact factor 5.75.

Significance: Molybdenum is a silvery-white metal that is ductile and highly resistant to corrosion. It has one of the highest melting points of all pure elements only the elements tantalum and tungsten have higher melting points. Molybdenum is also a micronutrient essential for life. Its density is only 25% greater than iron's. Its coefficient of thermal expansion is the lowest of the engineering materials, while its thermal conductivity exceeds all but a handful of elements. Precambrian basement rocks of Darwar craton Andhra Pradesh composed of active and dynamic geological settings with economic mineral deposits. These deposits were noticed all along the lithological contacts of Basin and Schist Belts, adjesent to younger granites and granitoids of Dharwar Craton of Andhra Pradesh. Gap area comes to Ananthapura District, having five kinds of litho units with economically viable minerals including Molybdenum and Iron particularly in zones of pink granite, gray granite, hornblende Gneiss, politic gneisses and dyke rocks of the study area. Random samples were collected such as Hornblende gneiss, pink granite, gray granite and iron ore deposits through GTC (Ground Truth Check). The study carried out by geological, petrochemical and SEM, EDS using advent high-tech tools of Hitachi S-3400N scanning electron microscope with energy of 5.00?kV model EVO LS15. The Energy-Dispersive X-ray Spectroscopy (EDS) is an analytical technique used for the elemental analysis or chemical characterization of a sample. The present study aims to characterize and presence of Molybdenum associated with Iron ore deposits of the gap area of closepet granite in Dharwar craton. The final result highlights the Energy-Dispersive X-ray spectroscopy characters of Molybdenum and associated rocks for better detailed mineral mapping of Molybdenum in Gap area of Ananthpur district.

112. 2019 Monitoring And Estimation On Drought Prone Areas Of Tumkur District By Using Gis And Standardize Precipitation Index (Spi) For Tumkur District, Karnataka. Reza Ravanshad, Maruthi N.E and Basavarajappa H.T. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 1, Page No pp.1529-1543, March 2019, **Impact factor 5.75.**

Significance: Drought is a natural phenomenon that has occurred in all ages of Earth and its effects have become more evident in recent years, with population growth, raising the water consumption and urbanization and globalization. Drought is one of the natural disasters that is the results of shortage rainfall lower than normal range or expected rainfall. If this shortage rainfall persists for a long period, such as one season or many years, due to this reason the Aquatic needs are not able to provide related to human activities and the environment. A large historical dataset are required for the study of drought which involves complex communication between the meteorological and climatological data. Tumkur had been suffering from an epic drought in 2016 drought in this area affected to Agriculture crops, vegetation pattern and ecology. Therefore, the present study has been conducted to find the drought variation from the year 1996 to 2016 and climate changes indexed in Tumkur district by using the data sets of rainfall, humidity, temperature and wind speed values. The study has been analyzed different method of statistical-probability based on GIS and SPI for Tumkur district.

113. 2019 Hyperspectral Study And Integration Of Petro-Chemical Signatures On Corundum Bearing Litho-Units Around Maddur, Mandya District, Karnataka,

India. Maruthi N.E, Basavarajappa H.T, Manjunatha M.C, and Harshavardhana A.S. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 1, Page No pp.897-903, January - March 2019, Impact factor 5.75.

Significance: Corundum is one of the stable gemstone mineral and second hardest after diamond. the mineral unreacted by acids. Granitic rocks are exposed throughout the world in the Precambrian Shields which have evoked considerable debate, discussion and controversy among eminent Petrologists and Geochemists. Precambrian basement rocks of Karnataka composed of active and dynamic geological setting with economic mineral deposits and variety of gemstones. Corundum is a rock form mineral its gem varieties, Ruby and Sapphire occurs deep in the lithosphere in a regime of extremely high pressures and temperature conditions. These gemstones were noticed all along the lithological contacts of Green stone and Schist Belts, adjacent to younger granites and granitoids of Dharwar Craton in Southern Karnataka. High Aluminium oxide (85%) containing Corundum Gem varieties bearing lithounits were collected in contact zones of pink granite and amphibolite schist around Madduru taluk of Mandya district. Basement gneiss and acid volcanic rocks were also noticed around these gem varieties. The present research to integrate the geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and ArcGIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Physico-chemical and optical properties of the collected samples were observed through Spectral signatures studies; while Petrographic study reveals the detailed description of lithological contacts and mineralized zones. The present study aims to characterize the spectral behavior of Corundum and associated rocks of the study area to bring out diagnostic features and better discrimination of gemstone verities and other minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping around Madduru taluk of Mandya district and similar terrains of Karnataka State.

114. 2019 Methods Of Estimation, Control And Analysis Of Water Leakage By Using Seep/W Software From Bazman Dam, Iran. Reza Ravanshad, Habibul rahman Masoumi, Maruthi N.E and H. T. Basavarajappa. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 2, Page No pp.893-901, May 2019, Impact factor 5.75.

Significance: The issue of leakage is an important subject in the Earth's dams, The general definition is the volume of water lost from the reservoir of a dam goes and cannot be used and managed, which if there is an excessive amount of water leakage from dam it may possibility of failure in the dam structure(1). Therefore, many software has been developed to predict and calculate leakage discharge, which requires less time and cost than leakage models and analysis to compare the traditional methods.To analyse leakage and measure the discharge of water from the bottom and body of the Dam and study the different methods and appropriate option, recommend to use the Seep / w software.The use of a mixture of clay and bentonite with a layer of geomembrane in the body and clay blanket on the tank floor is an appropriate and recommended option for leakage control, which uses this method to reduce the volume of leakage to a very low level and acceptable, so that the amount of leakage from the amount (544.444 m3 / day to the value) is reduced to 333.84 m3 / day.

115. 2019 Spatial And Temporal Drought Analysisby Using Gis And Spi in Raichur District, India. Reza Ravanshad, Maruthi. N.E and H.T. Basavarajappa. Journal of Emerging Technologies and Innovative Research. Vol-6 Issue5, Pp 411 - 422, Impact factor 5.87.

Significance: Drought is a natural phenomenon that has occurred over the years from the life of the earth, and it is always happening due to natural and artificial factors, and its effects have increased in recent years with population growth, increasing water use, deforestation, urbanization and growth of population on the

earth. Drought is one of the natural disasters that result in less than normal rainfall or expected precipitation, and it depends on how low this rainfall is for several years and continues to indicate the severity of droughts. To monitor the drought, a variety of data, including historical meteorological data, satellite imagery and create metadata is required. Raichur is effected by the drought in the past few years with losses to agricultural products and water resources. Therefore, the present study was conducted to find drought from 1996 to 2016 and climate change indicators in the Raichur area using data sets such as rainfall, humidity, temperature and wind speed. This study has been analysed with different methods such as statistical probability based on GIS and SPI with the help of satellite imagery and NDVI preparation for the area. The reason for the use of many different methods is to compare them with each other, as well as obtaining precise results of drought.

116. 2019 Comprehensive Study Of Hyperspectrl Signatures, Petrography And EDX Analysis On Gold Bearing Litho Units Of Kempinakote, Nuggihalli Schist Belt, Dharwar Craton, Karnataka, India. **Abrar Ahmed, Maruthi N.E and H.T. Basavarajappa. International Journal of Computer Engineering & Technology (IJCET)** Volume 10, Issue 3, May-June 2019, pp. 45–59, IMP F- 10.5167

Significance: The Archean Green Stone Belts (AGSB) having enormous metalliferous deposits like gold , copper, silver, iron and other precious gem stones which are also called as schist belts of Dharwar Craton. The study area Kempinakote lies in southern most part of Nuggihalli Schist Belt of Hassan district. The schist belt consists commonly two rock types Amphibolites and Ultramafics with their variants. Gold is occurring at or near the amphibolite-ultramafic contact. The Study area comes to Hassan district, Random samples were collected such as Gold bearing Amphibolite schist, Amphibolite, Diorite, Gabbro through GTC (Ground Truth Check). The study carried out by Geological, Petrological, Ore microscopic, SEM-EDX and Hyperspectral signatures using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho unit which help in mapping of gold mineralization at lithological contacts and mineralized zones of amphibolites and ultramafic rocks. The final results highlight the gold specks were noticed through ore microscopy and presence of gold is confirmed through SEM-EDX studies and also spectral characters of Gold bearing amphibolites schist and associated rocks for better mapping of Kempinakote area of Hassan district in Precambrian basement rocks and similar terrains of Dharwarcraton.

117. 2019 Hyperspectral And Petro-Chemical Signatures Study On Corundum Bearing Litho-Units Of Precambrian Rocks Around Bangarpet area, Kolar District, Karnataka, India**.** Maruthi N.E, **BasavarajappaH.T** , Reza Ravanshad and HabibulRahman Masoumi. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 2, Page No pp.795-804, May 2019, **Impact factor 5.75.**

Significance: Precambrian basement rocks of Karnataka Dharwars are composed of the active and dynamic geological settings with enormous economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green Schist Belts, younger granites, Granodiorites and granitoids of DharwarCraton. Minerals are important natural, finite and non-renewable resources essential for mankind. Minerals are the treasures of the state, therefore systematic, scientific and sustainable harnessing of minerals wealth should be the cornerstone of development objectives of the state.Bangarpet area comes to Kolardistrict; it has Six kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of ultramafics,metabasalt, metagabbro, amphibolite schist with gneiss and younger granites. Random samples were collected such as gneiss, and corundum bearing Amphibolite schist through GTC (Ground Truth Check). The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures

of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered minerals. The final results highlight the spectral characters of corundum and associated rocks for better mapping ofBangarpet area of Kolar district in Precambrian Amphibolite schist rocks and similar terrains of Karnataka State.

118. 2019 Mapping And Land Use Land Cover Classification Analysis Of Gundlupete Taluk, Karnataka, India Using Geoinformatics. **Basavarajappa H.T, Pushpavathi K.N, Manjunatha M.C and Maruthi N.E.** Journal of Emerging Technologies and Innovative Research. Vol-6 Issue6, Pp 963 - 973, Impact factor 5.87.

Significance: Land is a non-renewable resource and mapping of Land Use/Land Cover (LU/LC) is essential for planning & development of land and water resources in a region of engineering projects under progress. Land is an area of the earth surface, which embraces all reasonable stable or predictably cyclic, attribute of the biosphere including the atmosphere, soil and underlying geology. Remote Sensing (RS) satellite data with its synoptic view and multispectral data provides essential information in proper planning of LU/LC conditions of the larger areas. An attempt have been made to delineate the level-I, level-II and level-III LU/LC classification system through NRSC guidelines (1995) using both digital and visual image interpretation techniques by Geographic Information Systems (GIS) software's. The classification accuracy is found to be precise in case of digital technique as compared to that of visual technique in terms of area statistics. Efforts have been made to classify the LU/LC patterns using FCC data of IRS-1D PAN+LISS-III (Band: 2,3,4) through Erdas Imagine v2011 and ArcGIS v10. The final results highlight the potentiality of geoinformatics in natural resource mapping and its management which is a suitable model for application to similar geological terrain.

119. 2019 Hyperspectral And Petro-Chemical Signatures Study On Corundum Bearing Litho-Units Of Precambrian Basement Rocks Around Chitradurga District, Karnataka, India. Maruthi N.E, **Basavarajappa H.T** and Siddaraju M.S. International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.6, Issue 2, Page No pp.242-250, June 2019, Impact factor 5.75.

Significance: The Precambrian basement rocks of Chitradurga supracrustals have composed of verity of Gem stones like Corundum sapphire among corundum is the most precious and occurs in mainly amphibolites. Corundum is a rock forming mineral composition of aluminium oxide, Al2O3. Minerals are important natural, finite and nonrenewable resources essential for mankind. Precambrian basement rocks of Karnataka Dharwars are composed of the active and dynamic geological settings with enormous economic mineral deposits and variety of gemstones. These gemstones were noticed all along the lithological contacts of Green Schist Belts, younger granites, Granodiorites and granitoids of Dharwar Craton. The study area Ullarti and Kyadigunte comes to Chitradurga District. The district exposes mainly rock types belonging to the Peninsular Gneissic Complex (PGC), schistose rocks of Sargur group and Dharwar super group, younger intrusives (Granite and basic dykes) and thin patches of quaternary gravels. The PGC occupy two-thirds of the area and is represented by gneiss and other granitoids. The high grade schists equelent to Sargur group occur as continuous bands, small enclaves within the PGC and comprise amphibolites, ultramafics and banded ferruginous cherts. The rocks of Dharwar super group are exposed in two parallel belts belonging to southern continuation of Chitradurga and Javanahalli schist belts with granites, granitoids and basic dykes. The Study area covers six kinds of litho units with economically viable minerals including gemstones varieties particularly in contact zones of Ultramafics, Gneiss, Sillimanite, Iron stone, Dolerite, Amphibolite schist with Gneiss and younger Granites. Random samples were collected such as Gneiss, Granite and corundum bearing Amphibolite schist through GTC (Ground Truth Check).

The study carried out by geological, petrochemical and Hyperspectral signature using advent high-tech tools of Spectro- Radiometer (Spectral Evolution SR-3500) instrument, DARWin SP.V.1.3.0 and GIS software's. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Hyperspectral (350-2500nm) were developed as works mainly on physico-chemical and optical properties of the litho units which help in mapping of precious gemstones at lithological contacts and mineralized zones. Spectral radiometer instrument bring out diagnostic features on lithological contact for better discrimination of verity gemstones and altered minerals. The present study aims to charactrize the spectral behavior of Corundum and associated rocks of the study area. The final results highlight the spectral characters of corundum and associated rocks for better mapping of Ullavarti and Kyadigunte area of Chitradurga district in Precambrian Amphibolite sand similar terrains of Karnataka State.

120. 2019 Petro – Chemical Characteristics And Crustal Evalution Around Rayadurga Area, Eastern Dharwar Craton, Ananthpura District, Andhra Pradesh, South India. Siddaraju M.S, **Basavarajappa H.T** and Maruthi N.E. Journal of Emerging Technologies and Innovative Research. Vol-6 Issue6, Pp 390 - 405, Impact factor 5.87.

Significance: The Dharwar Craton in Southern India is divided into two parts- the Western Dharwar Craton (WDC), Estern Dharwar Craton (EDC) separated by the Closepet Granite which was emplaced during the assembly of the EDC and WDC at -2.5 Ga and also the Dharwar craton is noticed in the centre of the craton where in adjacent all along the granites have melted during the emplacement of granite and granitoids along with the Chitradurga throust fault zoneis called Central Dharwar Craton (CDC). The formation and evolution of granitic provinces and batholiths are being increasingly studied, because of their importance for crustal evolution. Rayadurga area comes to Ananthapura District, having five kinds of litho units with economically viable minerals including Iron particularly in zones of gray granite, hornblende Gneiss, pegmatite and dyke rocks. Study area generally consist of several contemporaneous intrusions displaying common or similar geochemical and petrological features that are interpreted as cogenetic, but showing continuous batholith structures in Root zone to intrusion zone. The Closepet Granite has long been recognized as a unique magmatic body. However, most work was focused on its southern part of Closepet granite, near the amphibolite-granulite transition and less work has been performed on its central part which the area of Gap between Rayadurga and Kalyandurga area, this area is focused on not only granitic intrusion and composed of metamorphosed gneissic rocks, Amphibolites, Pegmatites and Pilitic zones, migmatites and Iron formations with lot of soil cover in Precambrian basement rocks of Darwar Craton. The study area belonging to the Andhra Pradesh composed of active and dynamic geological settings with economic mineral deposits. These deposits were noticed all along the lithological contacts of Basins and Schist Belts, adjesent to younger granites and granitoids of Dharwar Cratonin parts of Andhra Pradesh. The final result of this paper highlights the petrochemical Characteristics, better discrimination and detailed Geological mapping and geochemical signatures interprets the crustal evolution including evolution of Granitic rocks in the study area.

121. 2019. Physico-Chemical Charecteristics And Hyperspectral Signatures On Steatite Deposit Around Andale Village, Dharwar Craton, Karnataka, India. Abrar Ahmed, Basavarajappa H.T, Manjunath M.C, Maruthi N.E, Siddaraju M.S, Journal of Emerging Technologies and Innovative Research. Vol-6 Issue 6, Pp 473 - 480, Impact factor 5.87.

Significance: Steatite occurrence and deposit around Andale village have been identified and demarcated. Steatite (or Soapstone) is a compact, often impure variety of talc. Steatite is widely being used as industrial natural resource material due to good workability and heat retention characteristics. It is used in cookware, cook tops, oven floors, masonry heaters, fireplace liners, carvings, beads, mold and electronic insulator etc. Precambrian rocks of Karnataka hosts many economic valuable mineral deposits in that steatite is one among them. Fresh samples of steatite and Peninsular gneiss were randomly collected in the field through GTC (ground truth check). Rock samples were studied under transmitted light microscope, SEM-EDX and Spectro-Radiometer. Spectral signatures were studied by Spectro-Radiometer (Spectral Evolution SR-3500) instrument, DARWinSP.V.1.3.0 and ArcGIS software. Petrography helped to know the other

minerals which are associated with steatite, SEM-EDX studies helped to know the high Mg elemental percentage present in the given steatite sample. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Spectral signature curves of steatite and other samples were derived based on their physico-chemical and optical properties. The final results highlight the spectral characters of steatite for better mapping in similar terrains around Andale village of Hassan district of Karnataka State.

122. 2020 Hyperspectral Signatures And Petrographic Studies Of Steatite Deposit Within Ultramafic (Pyroxenite) Rock Of Dharwar Craton, Around Karigaala Area, Mysuru District, Karnataka, India. Abrar Ahmed, **Basavarajappa H.T,** Maruthi N.E, Siddaraju M.S. International Journal of Advanced Research in Engineering and Technology (IJARET) Volume 11, Issue 2, February 2020, pp. 124-135, Impact factor 10.22

Significance: India as subcontinent is rich in mineral resources. Steatite deposits are one among the leading deposits in Precamrian rocks of Dharwar Craton, Southern India. Steatite occurrence and deposit are associated with Ultramafic (Pyroxenite) rock around Karigaala area, Mysore district, Karnataka. Random samples collected in the field with ground truth check were studied primarily to demarcate Steatite and to understand the field relation with their associated litho units. Steatite is a metamorphic rock which consist majority of talc mineral along with other minor minerals. Steatite has lot of uses like it is used to produce monuments, slabs, surface plates, oven floors, masonry heaters, fireplace liners, carvings, beads, mold and electronic insulators etc. The study area confirms to Sargur Group of rocks comprising granitic-gneiss, metapelites, banded amphibolites, pyroxenites, meta ultramafics, and meta-sedimentary rocks of Precambrian age. The present study aims to study the petrological, geochemical and spectral behavior of steatite and associated lithological contacts occurring in the study area. Petrography helped to know the other minerals which are associated with steatite, SEM-EDX studies helped to know the high Mg elemental percentage present in the given steatite sample. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. It is observed that the pyroxenites of the study area altered to workable deposit of steatite occurring around Karigaala area of Mysore district. It is also observed that spectral signatures of chrysotile mineral belongs to a variety of Asbestos in Steatite rock occurring in study area suggests harmful effect for human beings lungs if they inhale or exposed to it for longer duration.

123. 2020. Hyperspectral And Geochemical Signatures Study Of Indutrial Steatite Deposit Around Bhahaddurghatta-Hosahatty Village Of Chitradurga Taluk, Karnataka, India, **Basavarajappa H.T,** Abrar Ahmed and Manjunatha M.C. International Journal of Engineering Research in Mechanical and Civil Engineering, Vol.5, Issue.6, Pp: 14-22. Impact factor-3.85

Significance: Precambrian rocks of Karnataka with their wide range of mineral composition endowed with a variety of economical valuable mineral deposits. Occurrence of Steatite deposit around Bhaddurghatta Hosahatty village have been identified and demarcated. This deposit occurs to be linear shaped with almost NNW-SSE direction. Steatite as industrial natural resource material has lot of uses. Industries using major quantities for their products include ceramics, paint, paper, plastics, and roofing. Smaller quantities go into textiles, rubber, lubricants, cosmetics, and other uses. Fresh samples of Steatite with Quartzite, Dolerite Porphyry, Limestone, Metabasalt and Pegmatite Gneiss were randomly collected in the field through GTC (ground truth check). Rock samples were studied and analyzed. Transmitted light microscope helped to

know the other minerals like iron oxides which are associated in Steatite; Reflected light microscope helped to know the presence of Magnetite and Pyrite mineral; SEM-EDX studies helped to know the high Mg elemental percentage present in the given steatite sample along with presence of lesser Cr element; Spectro-Radiometer (Spectral Evolution SR-3500) instrument with DARWin SP.V.1.3.0 software, the spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Spectral signature curves of steatite were derived based on their physico-chemical and optical properties. Chromite mainly found in Mafic-Ultramafic Igneous intrusions and are also sometimes found in Metamorphic rocks. The occurrence of Cr in steatite rock sample clearly says its parental material is of Mafic to Ultramafic in origin.

124. 2020. Land Use Land Cover Mapping And Its Change Detection Analysis In Chitradurga Taluk Of Karnataka State, India Using Geospatial Technology. Manjunatha M.C and **Basavarajappa H.T**. International Journal of Science, Technology, Engineering and Management - A VTU Publication, Vol.2, Issue.2, Pp: xxx. IF4.1

Significance: Land is one of the non-renewable resources and mapping of Land Use/ Land Cover (LU/LC) is essential for planning and development of land, water resources of a region with suitable technology. There is a significant change in LC/LU across the globe due to the climatic changes, rapid increase in population and over demand of the growing economic resources. The present aim is to detect the changes in LU/LC patterns and its aerial extent due to different socio-economic factors in the study area. Efforts have been made to evaluate the LU/LC patterns using SoI topomap (1:50,000) with limited field visits; geo-coded FCC of IRS-1D, PAN+LISS-III multispectral, multi-temporal satellite images. Spatial, spectral and temporal analysis type of approach has greater importance in mapping of specific LU/LC patterns and its change detection over time and coverage areas calculated using ArcGIS v10. Supervised classification using Maximum Likelihood Classifier (MLC) is applied to prepare LULC maps using NRSC guidelines (1995) through GIS software's. Different classes of vegetation activities affect the surface flow of run-off water leading to maximize infiltration. The final results highlight the capability of geospatial techniques to bring out the real changes observed in LU/LC patterns and provide meaningful information in proper planning and developmental strategies for land sustainability.

125. 2020. Manjunatha M.C and **Basavarajappa H.T** (2020). Assessment Of Land Use Land Cover Classification Through Geospatial Approach: A Case Study Of Mysuru Taluk Of Karnataka State, India, Journal of Environment and Waste Management, Premier Publishers, Vol.6, Issue.5, Pp: 327-399 I F 6.7

Significance: Earth's land use/land cover (LC/LU) classification provides valuable information particularly on natural resources, mapping and its monitoring. There is a significant change on LC/LU across the globe due to the climatic changes, rapid increase in population and over demand of economic natural resources. Remote Sensing (RS) satellite data with its synoptic view and multispectral data provides essential information in proper planning of LU/LC conditions of larger areas. The study aims to map and monitor the existing LU/LC classification scientifically using geospatial tools in database generation, analyses and information extraction. Thematic maps of the study area are prepared using satellite images in conjunction with collateral data Survey of India (SoI) toposheets, forest and wasteland maps. An attempt have been made to delineate the Level-I, Level-II and Level-III LU/LC classification system through NRSC guidelines (2011) using both Digital Image Processing (DIP) and Visual Image Interpretation Techniques (VIIT) by GIS software's with limited Ground Truth Check (GTC). More accurate classification is observed in case of digital technique as compared to that of visual technique in terms of area statistics. The final results highlight the potentiality of geospatial technique in optimal and sustainable land use planning of natural resource and its management.

126. 2020. Manjunatha M.C and **Basavarajappa H.T** and Madhu S.P. Sustainable Land Mapping And Its Change Detection Analysis In Molakalmuru Taluk Of Karnataka State, India Using Geospatial Technology. Journal of Environment Science, Computer Science and Engineering & Technology, Premier Publishers, Vol.9, No-3, Pp: 575-585 IF5.6

Significance: Land is one among the non-renewable resources and its mapping is a crucialdecision in designing and development of land and water resources of our country. Major modification in land use patterns have been observed due to urbanization, industrialization, construction of dams, expansion of mining areas, global warming (?) etc. The present study attempts to extract valuable information of land mapping and its changes occurred over the decade from 2000 to 2010. Topomap of 1:50,000 scale from Survey of India (SoI) have been acquired as a base map, georectified and digitized each individual Land Use/ Land Cover (LU/LC) themes through GIS software's. Systematic management of these lands will fulfill the needs of the atmosphere qualities, land productivity, reclamation of wastelands, restoration of soil degradation and others. Satellite based data with its multispectral and multitemporal information provides specific design of land classes of the larger areas. Supervised classification analyses had performed on IRS-1D, PAN+LISS-III of 5.8m resolution in representing the location, extent and better synoptic view of specified LU/LC classes in Molakalmuru taluk. The final results reveal the potentiality of geospatial approach in mapping and Change Detection Analysis (CDA) of LU/LC patterns for sustainable land resources and management.

127. 2020. Manjunatha M.C and **Basavarajappa H.T** . Mapping of Land Units and its Change Detection Analysis in Chitradurga Taluk of Karnataka State, India Using Geospatial Technology. International Advanced Research Journal in Science, Engineering and Technology Vol. 7, Issue 7, July 2020 Pp. 61-68 I F 1.52

Significance: Land is one among the non-renewable resources and mapping of Land Use/ Land Cover (LU/LC) is vital for designing and development of land, water resources with appropriate tools. There is a significant change in LC/LU across the globe due to the climatic changes, rapid increase in population and over demand of the growing economic resources. The present aim is to detect the changes in LU/LC patterns and its aerial extent due to different socio-economic factors in the study area. Efforts have been made to evaluate the LU/LC patterns using SoI topomap (1:50,000) with limited field visits; geo-coded FCC of IRS-1D, PAN+LISS-III multispectral, multi-temporal satellite images. Spatial, spectral and temporal analysis kind of approach has bigger importance in mapping of appropriate LU/LC categories and its change detection over time period and coverage areas calculated using ArcGIS v10. Supervised classification using Maximum Likelihood Classifier (MLC) is applied to prepare LULC maps using NRSC guidelines (1995) through GIS software's. Various categories of vegetation activities have an effect on the surface flow of run-off water resulting in maximize infiltration. The final results highlight the capability of geospatial techniques to bring out the real changes observed in LU/LC patterns and provide meaningful information in proper planning and developmental strategies for land sustainability.

128. 2020. Manjunatha M.C, **Basavarajappa H.T**, Siddaraju M.S and Maruthi N.E Anthropogenic Pressure on Forest Resources in Chitradurga Taluk of Karnataka State, India using Geospatial Technology. International Advanced Research Journal in Science and Technology Vol. 7, Issue8, pp-99-106. 2020 Impact factor - 6.5

Significance: Forests are predominantly made of thick vegetation, medicinal plants and huge number of vegetation types and other forest economic products. These products boost the economy by providing food, fibre, timber and maintain a healthy environment by sequestering the carbon through regulation of gaseous and nutrient cycling. Geological landforms, climatic conditions, water regime, soil erosion are widely controlled by forest resources. Each forest type has its own uniqueness and together supports various socio-economic, ecological, cultural and spiritual functions. Forest cover is associated with other land surface features which need immediate monitoring for its sustainability. Forests management, conservation and developmental strategies are an utmost important to meet demand and supply of environmental needs for upcoming generations. The study area holds 7.8% spread of forest cover which includes open deciduous; dense/closed deciduous; forest plantations and scrub forest according to 1999 assessment of the Karnataka Forest Department. The present study aims to map forest types and it's Change Detection Analysis (CDA) from 1978 to 2019 through geospatial technology. Thematic maps are prepared using Survey of India (SoI) topomap of 1:50,000 scale; geo-rectified multi-spectral & multi-temporal satellite images of IRS-1C/1D PAN+LISS-III of 5.8m resolution and Sentinel-2A of 10m resolution. The present study reveals the change detection in forest cover of over 4 decades using geospatial techniques for sustainable management of forest goods and services.

129. 2020. Manjunatha M.C, Abrar Ahmed and **Basavarajappa H.T** Artificial Recharge structures for Groundwater Augmentation in Mysuru taluk of Karnataka state, India Using geospatial Technology , Journal of Environment Science, Computer Science and Engineering & Technology, Premier Publishers, Vol.9, No-3, Pp: 575-585 IF5.6

Significance: Groundwater is an essential component of the environment and economy which sustains the flow in our rivers and plays an important role in maintaining the fragile ecosystems. The groundwater dependence of agrarian states like Karnataka is high. Major water sources are under serious threat due to gradual increase in population, climatic change, over withdrawal of groundwater, immense agricultural practices, deforestation and from other sources around the world. Recent studies indicate that 26% of the area of Karnataka State is under over exploited category and number of blocks is under critical category. Within the state, the irrigated agriculture planking further stress on the groundwater system and desires appropriate management of the resources. The present study aims to augment groundwater resources in stressed areas of Mysuru taluk for groundwater sustainability. Survey of India (SoI) topomap, IRS-1D, PAN+LISS-III and ASTER G-DEM satellite data are effectively utilized through GIS environment. Efforts have been made to evaluate the thematic layers of geology, geomorphology, drainage density, lineament density, soil, slope, land use/ land cover, rainfall and overlay weightage analysis using GIS environment. The derived thematic layers have been assigned suitable ranks and weightages using Analytical Hierarchy Process (AHP) depending on the features priority to derive suitable sites for Artificial Recharge Structures (ARS). The final results show better perspective for planning groundwater management using ARS analysis.

130. 2020. Manjunatha M.C, Siddaraju M.S and **Basavarajappa H.T** (2020). High Resolution Digital Elevation Model For Chamundi Hill Of Mysuru City, Karnataka, India Using Geospatial Technology. International Journal of Engineering and Science, Vol.10, Issue 10 Oct 2020, Pp 64-71. Impact factor - 1.65

Significance: : A DEM is a quantitative model of a topographic surface in digital forms. The term Digital Elevation Model or DEM is frequently referred as digital representation of topographic surfaces or regular grid of spot heights. The study aims in derivation of high

resolution analysis of elevation characteristics of hilly terrains such as contour, slope, aspect and hillshade using Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) DEM of 30mts resolution in GIS environment. The derived output is considered as input in ArcGIS to achieve slope, aspect and hillshade data of 12.4 mts resolution in the present study. The slope and aspect results show that the area has steeper slope in the western and northwestern directions. Thus high resolution DEM data has immense application in economic designing of railway tunneling, bridge constructions especially in hilly terrains and highly useful for the natural disaster management studies.

131. 2020 **Manjunatha M.C, Maruthi N.E, Siddaraju M.S and Basavarajappa H.T** Pre-monsoon Groundwater Trend Analyses in Mysuru Taluk of Karnataka State, India using Geospatial Technology, Journal of Chemical, Biological and Physical Sciences November 2020 –January 2021 Vol-11 issue-1, pp 51-61 I.F 1.45

Significance: Water is the most critical, scarce, precious and replenishable natural resource which cannot be created in the earth's ecosystem and majorly affected by global warming. Groundwater (GW) is the essential part of hydrological cycle and valuable natural resource providing the primary source of water for agriculture, domestic, and industrial uses in many countries. These factors are directly affecting the current availability and future sustainability of groundwater resources. Rise and fall in groundwater table depends on variability in topography, aquifers characteristics, vegetation dynamics as well as human activities which need thorough understanding, management and periodic monitoring. The present study aims to generate the primary data to map groundwater level trends during pre-monsoon seasons using geospatial approach. In order to discuss spatial and temporal variation in groundwater levels, 7 representative observation well points pre-monsoon data have acquired over a period of 16 years (2003 - 2019). Pre-monsoon GW level data had acquired to avoid the seasonal recharges due to rainfall in the present study. Groundwater levels are plotted on a base map with their respective amount of depths, and then the contours of equal values are drawn using Inverse Distance Weighted (IDW) method in ArcGIS. Groundwater planning and development of a region will be a great importance in the field of environmental and socio-economic management. The final results highlight the sustainable groundwater management and sustainability analysis for future needs in the study area, which is a suitable model for similar geological conditions.

132. 2020 Basavarajappa H.T, Abrar Ahmed, Manjunatha M.C, Maruthi N.E and Siddaraju M.S. Hyperspectral Signatures And Petro-Chemical Study On Steatite Deposit Around Vadrahalli Village, Dharwar Craton, Karnataka, India. Journal of Emerging Technologies and Innovative Research. Vol-7 Issue 12, Pp 1148 - 1157, Impact factor 5.87

Significance: Dharwar Craton composed of large diversified litho units. The rock formations of Karnataka in the geological history are largely confined to two oldest eras the Archean and the Proterozoic, the rest of the great periods from Cambrian to resent. Most of the economical valuable mineral deposits are associated with Precambrian rocks. Steatite is a compact metamorphic rock with much of it talc mineral along with other minor impurities. Due to their unique heat resistant and other physical properties they are used in ovens, masonry heaters, fireplace liners, cookware, electronic insulator and carvings etc. Occurrences and good workable deposit of Steatite around Vadrahalli village of Hassan district have been identified and demarcated. Fresh samples of steatite, metabasalt, basic dyke and pegmatic gneiss were randomly collected in the field through GTC (Ground Truth Check). Rock samples were studied under transmitted light microscope, Reflected light microscope, SEM-EDX and Spectro-Radiometer.

Spectral signatures were studied by Spectro-Radiometer (Spectral Evolution SR-3500) instrument, DARWinSP.V.1.3.0 and ArcGIS software. Petrography helped to know the minerals which are associated with steatite, SEMEDX studies helped to know the high Mg and Cr elemental percentage present in the given steatite sample. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. Spectral signature curves of steatite were derived based on their physico-chemical and optical properties. The present work is aimed for studying the petro-chemical signatures and hyperspectral signatures of steatite and their associated litho units. The final results highlight the spectral characters of steatite for mapping and demarcating the deposit in the study area and also for better mapping in similar terrains around Precambrian terrains, Dharwar Cratonic group of Karnataka State.

133. 2020. Manjunatha M.C and **Basavarajappa H.T** (2020). Geospatial Technology for Sustainable Groundwater Management in Mysuru taluk of Karnataka State, India, International Journal of Science, Technology, Engineering and Management - A VTU Publication, Vol.2, Issue.2, Pp: xxx. I F 1.52

Significance: Water scarcity issues may arise in upcoming years due to its demand especially in industrial sectors of Bengaluru city, low rainfall conditions, rapid evapo-transportation due to extreme summer seasons and global warming (?). The present work deals with the utilization of GIS based Analytical Hierarchy Process (AHP) technique to delineate best sites to modify surface run-off through limited field visits. SoI toposheet, IRS-LISS-III and ASTER DEM data are collected to achieve present aim. All the important thematic layers have been digitized and overlaid one above the other to produce desired output in GIS environment. Each generated thematic maps have been assigned suitable weightages using AHP depending on the features priority to derive suitable sites for groundwater augmentation. The final results highlight the best sites for Artificial Recharge Structures (ARS) in decision making process which is a suitable model for similar geological terrain using AHP approach.

134. 2020. Abrar Ahmed Manjunatha M.C, Maruthi N.E and Siddaraju M.S. and **Basavarajappa H.T** (2021). Hyperspectral Signatures, Elemental mapping and Petro-chemical charecteristics of Steatite deposit around Panditanahalli village, Dharwar Craton, Karnataka, India. Journal of Emerging Technologies and Innovative Research, January 2021, volume 8, Issue 1, pp: 497-508 I F 5.87

Significance: Dharwar Craton is structurally controlled and highly deformed terrain which is rich in varied mineral deposits. It is known for mineral deposits like iron, gold, copper, manganese, chromium, uranium, asbestos, corundum, garnet and talc. Occurrences and good workable deposit of steatite around Panditanahalli village of Hassan district have been identified and demarcated. At present there is no mining activity but it was believed that the first attempt of steatite mining at Panditanahalli was done by Cholas dynasty. Steatite is a talcose rich compact metamorphic rock. They are well known for their heat resistant and other physical properties so it's been used in fireplace liners, cookware, electronic insulator, ovens, masonry heaters, and carvings etc. Fresh samples of steatite, hornblendite, gabbro and pegmatite gneiss were randomly collected in the field through GTC (Ground Truth Check). Rock samples were studied under Transmitted light microscope, Reflected light microscope, SEM-EDX and Spectro-Radiometer. Petrography helped to know the minerals which are associated with steatite, SEM-EDX studies helped to know the high Mg elemental percentage present in the given steatite sample. Spectral signatures of rock sample were studied by Spectro-Radiometer (Spectral Evolution SR-3500) instrument. The spectral signatures of the collected samples were derived in laboratory environment to achieve better accuracy. The present work

is aimed for studying the petrological, geochemical and hyperspectral signatures of steatite and their associated litho units. The final results highlight the minerals present in steatite and spectral characters of steatite for mapping and demarcating the deposit in the study area and also for better mapping in similar areas around Precambrian terrains, Dharwar Cratonic Group(DCG) of Karnataka State.

135. 2021. Abrar Ahmed and **Basavarajappa H.T** (2021). Elemental Mapping, Hyperspectral Signatures And Petro-Geochemical study of Thorium bearing Titanite in Pegmatites of Kommenahalli village, Krishnarajpet, Mandya District, Karnataka. International Journal of Research in Engineering and Science. Volume 9 Issue 3 pp: 72-80. IF 4.2

Significance: Geological, Petro-Geochemical and Hyperspectral Signatures for titanite (sphene) mineral was carried out which are fully crystallized around Kommenahalli village. They form part of the early Archean Greenstone Belt of Krishnarajpet Schist Belt, Dharwar Craton. During the course of field investigation it was observed crystals of titanite which are dark brown to black, faceted with considerable sizes were embedded in the pegmatite rock. Titanite (sphene) with chemical formula CaTiSiO5 has commercial value as a source of titanium, used in pigments. In titanite sometimes where calcium may be partly replaced by thorium. Fresh samples of titanite (Sphene) in Pegmatites were randomly collected in the field through GTC (Ground Truth Check). Rock samples were studied under Transmitted light microscope, SEM-EDX and Spectro-Radiometer. The final results highlight the spectral signatures of Titanite derived in laboratory and compared with USGS Spectral library. Also by EDX studies got to know the presence of thorium in Titanite. The occurrence of titanite (sphene) around Kommanahalli area adds academic economic importance not only by the presence of thorium in it but also the wedge or diamond shape of this grain which in many rocks it is not in common.

136. 2021 Abrar Ahmed and **Basavarajappa H.T.** Elemental Mapping, Hyperspectral Signatures And PetroChemical Signatures Study On Steatite Deposit Occuring Around Doddenahalli Village, Bageshpura Area, Hassan District, Karnataka. International Journal of Research in Engineering and Science. Volume 9 Issue 3 pp: 20-29. IF 4.2

Significance: Steatite deposit around Doddenahalli village which is close to Bageshpura have been identified and demarcated. Steatite which is also called as soapstone is a rock with major talc mineral showing massive in texture. They are usually formed from the alteration of deep seated ultramafic rocks. They have industrial and commercial uses. They are used mainly for carving and sculptures. They have special property that can resist and retain high heat so the other uses are in making electronic insulators, ovens, masonry heaters, fireplace liners, cookwares, etc. The investigated area forms part of the Archean –Greenstone Terrain (AGT) in the western part of the Dharwar Craton (WDC). Steatite in the study area occurs as enclave in the banded gneiss trending in NNW-SSE to NW-SE direction. The present study aims to examine and to study the minerals which are associated with steatite by Petrography, Scanning Electron Microscopy (SEM-EDX) and Hyperspectral Signatures. Petrography helped to know the minerals which are associated with steatite, SEM-EDX studies helped to know the high Mg elemental percentage present along with elemental mapping of different elements present in the given steatite sample. Spectral signatures of rock sample were derived and studied by SpectroRadiometer instrument to know the purity of minerals which are present in steatite. From the above studies carried out it suggests that steatite around Doddenahalli village is an important economic non-metallic mineral deposit

137. 2021 Artificial Recharge Structures For Groundwater Sustainability In Krishna Raja Nagara Taluk Of Karnataka State, India Using Geospatial Technology. **International Advanced Research Journal in Science, Engineering and Technology.** Vol. 8, Issue 7, pp- 335- 366 IF- 5.8

Significance: The water levels in Krishna Raja Sagara (KRS) reservoir depended mainly on the southwest monsoon over Karnataka, especially at the Cauvery catchment area and its inflow. The Krishna Raja Sagara (KRS) reservoir with the gross capacity of 49.45 thousand million cubic feet (tmc ft) and maximum water level is 124.8 ft that quenches major cities of Bengaluru, Mysuru, Mandya and other 47 towns and 625 nearby villages for their daily needs. With water levels drastically receding during extreme hot conditions in the Cauvery basin, Bengaluru is more likely staring at severe drinking water shortage. Water scarcity issues may arise in upcoming years due to its demand especially in industrial sectors of Bengaluru city, low rainfall conditions, rapid evapo-transportation due to extreme summer seasons and global warming (?). The present work deals with the utilization of GIS based Analytical Hierarchy Process (AHP) technique to delineate best sites to modify surface run-off through limited field visits. SoI toposheet, IRS-LISS-III and ASTER DEM data are collected to achieve present aim. All the important thematic layers have been digitized and overlaid one above the other to produce desired output in GIS environment. Each generated thematic maps have been assigned suitable weightages using AHP depending on the features priority to derive suitable sites for groundwater augmentation. The final results highlight the best sites for Artificial Recharge Structures (ARS) in decision making process which is a suitable model for similar geological terrain using AHP approach.

137. 2021. Manjunatha M.C and Basavarajappa H.T Land classification analysis using Geospatial approach in Nanjangud.International Advanced Research Journal in Science, Engineering and Technology. vol 8, Issue 6, pp-629- 638. If-1.8

Significance: Specific group of land categorization on a satellite image is a fundamental task to determine the spatial knowledge and its importance. Several image classification techniques are produced to create standardized Land use and Land cover (LULC) maps that facilitate analysis on ecological processes and human activities. Mapping land use/land cover changes at regional scales is essential for a wide range of applications including landslide, erosion, land planning, global warming etc. LULC alterations by human intrusions negatively affect the patterns of climate, the patterns of natural hazard and socio-economic dynamics in global and local scale. The present study aims to map the existing LU/LC classification scientifically using geospatial tools in database generation, analyses and information extraction. Thematic maps of the study area are prepared using satellite images in conjunction with collateral data such as Survey of India (SoI) toposheets, forest and wasteland maps by GIS software's. An attempt is created to extract Level-I, Level-II and Level-III LU/LC classification through NRSC guidelines (2011) using both Digital Image Processing (DIP) and Visual Image Interpretation Techniques (VIIT) with limited Ground Truth Check (GTC). The present study helps in understanding various land use and land cover patterns for efficient environmental monitoring and effective water management.

138. **2021** ASTER Spectral Reflectance for Lithological discrimination in Central Parts of Chitradurga Schist Belt (CSB), Karnataka, India, International Journal of Geology and Mining. Vol, 7 Issue,1 pp, 356-366. IF- 5.8

Significance: Dharwar Craton comprises of Chitradurga Schist Belt with enormous economic ore deposits that can be efficiently mapped using multispectral ASTER data in GIS environment. By understanding of spectral absorptions features of based on their optical and physico-chemical characters is significant in Satellite Remote Sensing technique to map and explore the economic important minerals of the rock. Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) sensor imagery, played an important part in lithological discrimination. This present study aims to develop new band ratioing in differentiating the iron ores and associated lithology of granitic-gneiss region using ASTER Principal Component Analysis (PCA). To discriminate the iron ore deposits of the study area, the ASTER spectral bands are processed by band ratio [(1+3)/2, (3+5)/4, (7+9)/8] imaging process using Envi 4.8 software by reviewing the revealed scientific literatures. The resulted image clearly discriminated the iron ore deposits and mapped the occurrence and spatial distribution of associated rocks of the area. This study highlights ASTER capability in discrimination of the iron ore deposits from associated lithologies and appropriate for similar geological terrain of Southern India.

139. 2021. Basavarajappa H.T and Manjunatha M.C (2021) Hyper spectral and Geochemical signatures study on late Archean of Indian High Grade Manganese deposits in Halekal Band of Bhahaddurghatta-Hosahatty Village, Chitradurga Schist Belt(csb), Karnataka, India. Journal of University of Shanghai for Science and Technology, volume 23, issue 3, pp- 603- 610. IF- 5.8

Significance: Manganese is one of the most widely distributed elements in the earth's crust and mapping of these deposit are of high economic interest. Manganese occurs as diverse genetic types that is vital for iron and steel production. It occurs usually in the form of oxide, hydroxide, carbonate and silicate which is an important raw material for iron, steel industry, chief manufacturer of chemicals and dry cells in the form of manganese dioxides. Advanced analysis of hyperspectral signatures and GPS applications have opened a newest approach in exploration and systematic mapping of economic ore deposits. The present study aims to integrate the hyperspectral signatures with major elements of manganese ore deposits of Halekal band in Bhahaddurghatta-Hosahatty village of Chitradurga Schist Belt. The samples collected from field are studied in the laboratory using thin and polished sections under microscope and X-Ray Diffraction (XRD) analysis. Efforts are created to assess the spectral signatures of four representative random ore samples collected and analyzed through ASD Spectro-radiometer instrument operative in Visible and InfraRed (325 to 2500 nm) region with concentration of major elements. This study clearly demonstrated and documented the spectral absorption features of the selected rock samples in the study area mainly depend on the optical and physico-chemical characters of the rock and major elemental composition as well as mineral constituents of the samples.

140. 2021. Manjunatha M.C, ABRAR AHMED and Basavarajappa H.T (2021) An approach to deliniate Land use/ Land cover classification analysis through Geospatial Technology: A case study of Krishna Raja Nagara Talukh of Karnataka state, India. International journal of Science Engineering and Technology, pp-2 to 9. IF- 3.8

Significance: Land is one among the non-renewable resources and its mapping is vital in land and water resource development. Land is a part of earth surface that supports all attributes of regions together with the atmosphere, soil and underlying geology. Hydrology, plant and animal population are the results of the past and present human actions to the extent that considerably influences on land patterns sustainability. Remote Sensing (RS) satellite images with its synoptic reading and multispectral information embrace essential data for scientific handling of LU/LC

conditions of the larger areas. Efforts have been made to classify the LU/LC patterns using False Color Composite (FCC) data of IRS-1D PAN+LISS-III (Band: 2,3,4) through ArcGIS v10. An attempt have been made to delineate the level-I, level-II and level-III LU/LC classification analysis through NRSC guidelines (1995) using both digital and visual image interpretation techniques in GIS environment. The classification accuracy is found to be more precise in case of digital technique as compared to that of visual technique in terms of area statistics. The database provides spatial baseline information in distribution, extent and temporal behavior of specific land pattern in planning and implementation of development strategies in the country.

141. 2021, Manjunatha M.C and **Basavarajappa H.T.** Forest Mapping And Its Change Detection Analysis In Molkalmuru Taluk Of Karnataka State, India Using Geospatial Technology. **International Advanced Research Journal in Science, Engineering and Technology** Vol. 8, Issue 8, August 2021 Pp- 513-521.

Significance: Geospatial approaches address cost-beneficial, convenient and genuine data moreover by temporal domain for natural resource management and developmental planning. Forest conservancy and its impact on environment have gained importance in national and international program. Extreme changes on forest cover around the globe had recorded by fast jump up in population, varying in land use activities, forest fires, pressure on economic mineral deposits, reduced rain conditions and climate change. Forest degradation is a matter of grave concern and prime focus that immensely required for forest sustainable management through systematic planning. According to 1999 assessment of the Karnataka Forest Department, Molakalmuru taluk holds 21% spread of forest cover which includes open deciduous; dense/closed deciduous; forest plantations and scrub forest. The study focuses on timely designing & management of forest lands to satisfy future desires. Mapping of forest lands and its detection is explored using topographic maps of 1:50,000 scale; geo-rectified satellite data of IRS-LISS-III and Sentinel-2A through GIS software's. The ultimate output outlines the forest land exploitation using geospatial tools for its sustainability.

142. 2021. Manjunatha M.C and **Basavarajappa H.T.** Comprehensive Model on Major Litho-Units in Central Part of Chitradurga Schist Belt of Dharwar Craton, Karnataka, India for Indian Spectral Library Generation. International Journal of Geo-informatics and Geological Science,Volume 8 Issue 2, Pp, 89-105, May-Aug, 2021.

Significance: Precambrian basement rocks of Chitradurga Schist Belt (CSB) in Dharwar Craton comprises of enormous ore deposits, lithological contacts and mineralized zones. Spectral signatures of a mineral/ rock/ ore have opened a new vista in their scientific exploration and systematic mapping. In present study, 14 random samples of iron, manganese, limestone, komatiite, gneiss, fuchsite quartzite, conglomerate, biotite-granite, metagabbro, copper ore, dolerite, auriferous quartz, quartz vein and actinolite-tremolite schist are collected from central part of the Chitradurga Schist Belt of Dharwar Craton. These major rocks and minerals are studied as thin section under microscope, ICP analysis and ASD FieldSpec3 Spectro-radiometer to construct a model to map such resources successfully. This study synthesized the relationship of spectral absorption features of the rock/ mineral samples with the major and minor mineral constituents and compositions. Comprehensive model is a theoretical constructed design in the present study to seek more information under one platform to construct a spectral library for the selected samples along with their modified geological succession. This model also refers the spectral signatures of minerals, the rocks available in the USGS, JPL and JHU spectral library, in the vision to develop a spectral library of minerals of India.

143. **2021.** Manjunatha M.C and **Basavarajappa H.T** (2020). Geospatial Technology in Sustainable Forest Management of Molakalmuru taluk, Chitradurga district, Karnataka, India, Remote Sensing and GIS for policy decision support, Springer International Publishing house, Pp: 263-276. IF 2.67

144. **2021.** Manjunatha M.C and **Basavarajappa H.T** (2020). Land Use/ Land Cover Change Detection Studies in Molkalmuru taluk of Karnataka State, India using Geospatial Technology, Journal of Geomatics. IF 1.52

Significance: Geospatial approaches address cost-beneficial, convenient and genuine data moreover by temporal domain for natural resource management and developmental planning. Forest conservancy and its impact on environment have gained importance in national and international program. Extreme changes on forest cover around the globe had recorded by fast jump up in population, varying in land use activities, forest fires, pressure on economic mineral deposits, reduced rain conditions and climate change. Forest degradation is a matter of grave concern and prime focus that immensely required for forest sustainable management through systematic planning. According to 1999 assessment of the Karnataka Forest Department, Molakalmuru taluk holds 21% spread of forest cover which includes open deciduous; dense/closed deciduous; forest plantations and scrub forest. The study focuses on timely designing & management of forest lands to satisfy future desires. Mapping of forest lands and its detection is explored using topographic maps of 1:50,000 scale; geo-rectified satellite data of IRS-LISS-III and Sentinel-2A through GIS software's. The ultimate output outlines the forest land exploitation using geospatial tools for its sustainability.

145. **2022.** K. Namratha, M.B. Nayan, K. Byrappa, P. Madesh, **H.T. Basavarajappa.** Impact of industrial effluents on the ground water contamination around industrial areas of Nanjunagud, Mysore district, India, and an effective strategy to treat using advanced oxidation process. International Journal of Advanced Research in Science, Engineering and Technology Vol. 9, Issue 1, January 2022. IF-6.7

Significance: Nanjangud is a fast-growing industrial hub in Mysore district, India, with a huge number of diversified industries. The impact of industrialization has a profound effect on the environmental parameters especially water and soil. A systematic study of the Impact of industrial discharge on ground water contamination around industrial areas of Nanjunagud has been studied in detail with respect to the significant variation in the physico-chemical characteristics of the groundwater from a pure geological and environmental perspective. Both the geology of the area and industrialization have played a vital role in the deterioration of the environmental parameters, especially the groundwater that has become rich in TDS, EC, more acidic, increased total hardness, and so on. The authors have carried out the study related to the understanding of such a deterioration of groundwater quality and an effective treatment of the groundwater by the advanced oxidation process using hydrothermally synthesized zincite nanomineral particles in the presence of sunlight.

146. 2022. K. Namratha, M.B. Nayan, M.S. Darshan, H.T. Basavarajappa , P. Madesh and K. Byrappa. Hydrothermal – From Geology to Technology (Part 1). Journal Geological society of India. Volume 98, March 2022, pp 353-362 IF- 2.3

Significance: The term hydrothermal is of geological origin. A great variety of crystals, minerals, ores and rocks have hydrothermal origin and occur as bulk, fine, ultrafine, and nanosized

geologic materials. Hydrothermal refers to the action of water and other solvents at elevated temperature and pressure conditions in bringing about changes in the earth crust leading to the formation of rocks, minerals, crystals and ores. It also refers to the post-magmatic and pre-metasomatic stages. In the hydrothermal processes, a variety of volatiles also play an important role in the chemistry and geochemistry of hydrothermal solutions. The origin of a variety of metal deposits in deep-seated submarine hydrothermal eco systems link with the origin of life on the earth. Today, hydrothermal has become one of the most important experimental methods of understanding the natural systems leading to the crystallization of rocks, minerals and ore deposits. Similarly, it has become one of the environmentally most benign techniques to synthesize a great variety of technological materials with desired functional properties. The technique has advanced so much that under laboratory conditions a wide range of pressure-temperature conditions can be created using specially designed hydrothermal autoclaves, PT sensors and controllers. In the present review, the authors discuss the evolution of hydrothermal process from geology to technology to develop technological materials in different sizes with specific functional properties. Also, the review describes some characteristic natural systems under hydrothermal conditions leading to the formation of some important geologic materials, the influence of different volatiles in the formation of various rocks and mineral deposits. Also the current trends in hydrothermal technology has been discussed with reference to the lowering of temperature and pressure conditions for the synthesis of high melting compounds like alkali rare earth tungstates, vanadates, diamond, etc. in this article.Imf.2.1

147. 2022 Slow Death Of lakes In The Heritage City Of Mysuru, Karnantaka State, India Through Geospatial Approach, IARJSET, Vol. 9, Issue 11, November 2022 , Manjunatha M.C, Inchara C.S, Prabhavathi M.C and Basavarajappa H.T.

SIGNAFICANCE: Lakes of urban regions contribute greatly towards ecological protected zones and true indicators for urban developmental strategies and its sustainability. Mysuru is the second bigg3est city in Karnataka blessed with dozens of lakes and attracts varieties of migratory birds, water folws with lush green and being tourist destinations. The city is one of the tire II in the state and is a hub of industrial activities due to salubrious climate and availability of natural resources. Mysuru is known for its memorable annual Dasara celebrations which is an unforgettable event in the History of Karnantaka. The Notable waterbodies are karanji, Kukkarahalli, Lingambudhi, Dalvoy, and Devanoor lakes. Most of the streams belong to first order and few belong to second and third orfer. The study area portrays decent greenery shelter and lakes enhance the beauty of the heritage city and also improved the groundwater table. Mysuru had over 30 lakes few decades ago, but at present only few lakes are surviving. During Maharja's rule of 19th century, most of the lakes were builtto fulfil the purpose of water supply for domestics, industries, irrigation and other works through urban runoff and rainwater as main source. The present study aims in the mapping of spatio-temporal detection of Mysuru lakes through manual and digital extraction of data in GIS environment. An attempt have made to analyze the changes of lakes coverage area using SoI toposheet, LISS-III, Sentinel-2A and Google Earth image by adopting Visual Image Interpretation Techniques.(VIIT) through Erdas Imagine software. This study demonstrates the change detection and deterioration of lakes in Mysuru city due to human pressures and for future implementation strategies.

CONFERENCES PAPERS (Attended / Paper Presented):

1.1988. Retrogression of Charnockites along Moyar and Bhavani Shear belt, Tamil Nadu, 75th Indian Science Congress, Held at Puna, India, Ashamanjari K.G, Srikantappa. C, **Basavarajappa H.T,** and Prakash Narasimha K.N.

2.1988. Fluid inclusions in Charnockites from the Biligirirangan Hills., NATO Advance Research Workshop, 5-9th Sept-1988. France. (Srikantappa C, **Basavarajappa H.T** and Janardhan A.S.).

3.1990. Petrology and Geochemistry of Archean Granulites from Kollegal, Karnataka. National Seminar on Precambrian Geology 14-16th 1990. University of Madras. Pp.39-40., (**Basavarajappa H.T,** Srikantappa.C).

4.1995. P-T-X Fluid conditions of 3.4 B.Y old Biligirirangan Granulites from Karnataka, South India., and Second South-Asian Geological Congress. Colombo, Srilanka. 1995. 19-24Jan. (Srikantappa.C **Basavarajappa H.T,**).

5.1996. Retrograde Charnockite- gneiss relations in the Kollegal Shear Zone, Karnataka, India, International Symposium on Charnockite and Granulite Facies rocks, Geologist Association, Tamil Nadu. Madras. (**Basavarajappa H.T,** Srikantappa.C)

6.1996. P-T-X-Fluid inclusion studies of 3.4 B.Y. old Biligirirangan Granulites from Karnataka India. Tenth convention of Indian Geological congress, Dhanbad. Feb1-3 pp.09 (Srikantappa. C **Basavarajappa H.T,**).

7.Geotectonic Signatures in the Biligirirangan hills, Karnataka, South India., National Seminar on Neotectonic Movements and their Geo environmental impacts, Dec. 27th –28th 1996. Pp3-4 (**Basavarajappa H.T,** Srikantappa.C)

8.Tectonic frame work of Sedimentation in Kurnool Basin (Precambrian), Andhra Pradesh. Pp.14 National Seminar on Neotectonic Movements and their Geo environmental impacts, Dec. 27th -28 1996. (**Basavarajappa H.T** Srikantappa.C, Harish.V)

9.P-T Constraints on Granulite Facies Metamorphism in the Biligirirangan Granulite-Gneiss complex around Chamarajanagar, Karnataka, India. Pp. 31 The 1st Convention of Mineralogical Society of India and National Seminar Nov 27th and 28th 1997 (**Basavarajappa H.T,** Srikantappa.C) at Karnataka University, Dharwar.

10. Sedimentalogical Studies and Environmental Significance of Bagalkot formation, Karnataka Pp. 47. The 1st convention of Mineralogical Society of India and National Seminar Nov 27th ad 28th 1998 (**Basavarajappa H.T,** Shivanna) at Karnataka University, Dharwar.

11. Sedimentalogical Studies of Quartzites of Kurnool groups of rocks and environmental significance, pp.7-8, 11th convention of Indian Geological Congress Feb 4th to 6th 1998 (Harish.V, Basavarajappa H.T). University of Mysore, Mysore.

12. Sedimentation of Northeastern part of Kaladgi Basin (Precambrian) Bijapur district, Karnataka. Pp.8-9. 11th convention of Indian Geological Congress Feb 4th to 6th1998 (Shivanna). **Basavarajappa H.T,** University of Mysore, Mysore

13. Incipient Charnockitization from Migmatized Granitic Gneisses in Kollegal Shear Zone, Karnataka, India. Pp 31-32. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th2000 at Mangalore University, Mangalore. (**Basavarajappa H.T** A.S.Janardhan, Srikantappa.C, Meenakshi.K).

14. Chitradurga Granite Fluid inclusion Studies. pp 32. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th 2000at Mangalore University, Mangalore. (**Basavarajappa H.T,** Prakash Narsimha.K.N).

15. Geology of Commercial Granites in and around Chamarajanagara District, Karnataka, India. Pp 52-51. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th 2000at Mangalore University, Mangalore. (**Basavarajappa H.T,** Jagadisha.D.J).

16. Low Density Carbonic inclusions from the Bhavani Shear Zones, Bhavani, Tamil Nadu, pp39-40. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th 2000at Mangalore University, Mangalore. (Sreenivas.G, **Basavarajappa H.T,** and Srikantappa.C).

17. Fluid Regime in the deep continental crust around Bhavani, Tamil Nadu, Southern India. Pp 53-54. 3rd Convention of the Mineralogical Society of India and National Seminar on Challenges in Precambrian Geology in the new millennium Jan 17th to 18th, 2001 Mysore (Srikantappa.C, Sreenivas.G, **Basavarajappa H.T,** Basavalingu.B, Prakash Narsimha.K.N).

18. Earthquake prone areas around Mysore and environmental planning. National Seminar on Environmental hazards priorities and protection in the 21st Century, Mysore, Karnataka state pollution control Board. March 2nd to 3rd, 2001 Pp 34-36 (Srikantappa.C **Basavarajappa H.T,** and Shahida Sulthana.N).

19. Geomorphological and Neo-Tectonic responses of the Biligirirangan hill ranges, Southern Karnataka. Proceedings, Vol. Of National Seminar in Tanjaure in Tamil Nadu August 23&24th2002. at Anna University Chennai **Basavarajappa H.T and Srikantappa.C**

20. Structural and Neo-Tectonic constraints on Remote Sensing applications of the Biligirirangan hill ranges, (**Basavarajappa H.T,** M.V.Sateesh) National Seminar on Mineral exploration and Management current status and future trends and Fifth Convention of MSI, 21-22nd 2002 at Anna University Chennai.

21. Metamorphism and tectonic Events of Biligirirangan Granulites: South India. (C. **Basavarajappa H.T,** Srikantappa) National Seminar on Mineral exploration and Management current status and future trends and Fifth Convention of MSI, 21-22nd2002 at Anna University Chennai.

22. Geological Field experience in Veerappan Terrain. (**Basavarajappa H.T,** C.Srikantappa) National Seminar on Mineral exploration and Management current status and future trends and Fifth Convention of MSI, 21-22nd2002 at Anna University Chennai.

23. Metasomatism and wall rock alterations during late Charnockite formations in Kollegal Shear Zone, Karnataka, India. (**Basavarajappa H.T,** C.Srikantappa) National Seminar on Mineral exploration and Management current status and future trends and Fifth Convention of MSI, 21-22nd 2002 at Anna University Chennai.

24. Land use / land cover studies around Kollegal taluk Karnataka India, Using Remote Sensing and GIS techniques. International Seminar on Earth resources and Remote Sensing**,** at Kuvempu University 2003. **Basavarajappa H.T** D. Dinakar.

25. Lithological and Structural studies of using Remote sensing studies of Bilig irirangan Hill ranges, Karnataka India. International congress on Remote Sensing and Arial Photo interpretations. At ISTANBUL TURKY. AUG. 24th to 27th 2004. **Basavarajappa H.T,** C.Srikantappa

26. Retrogression of Charnockites along Moyer and Bhavani Shear belt, Tamilnadu , 75th Indian Science Congress, Held at Poona. India **Basavarajappa H.T,and Srikantappa C**.1988 (Ashamanjari.K.G, and Prakash Narasimha.K.N.)

27. Fluid inclusions in Charnockites from the Biligirirangan hills., NATO advance research workshop,5-9th Sept-1988. France. (Srikantappa.C **Basavarajappa H.T**, A.S. Janardhan).

28. Petrology and Geochemistry of Archean Granulites from Kollegal Karnataka. National Seminar on Precambrian Geology 14-16th 1990. University of Madras. Pp.39-40., (**Basavarajappa H.T** and Srikantappa.C).

29. P-T-X Fluid conditions of 3.4 B.Y old Biligirirangan Granulites from Karnataka, South India., and Second South-Asian Geological Congress. Colombo, Srilanka. 19-24J in 1995. (**Basavarajappa H.T** Srikantappa.C).

30. Retrograde Charnockite- gneiss relations in the College Shear Zone, Karnataka, India, International Symposium on Charnockite and Granulite Facies rocks, Geologist Association, Tamil Nadu. Madras. 1996. (**Basavarajappa H.T** Srikantappa.C)

31. P-T-X-Fluid inclusion studies of 3.4 B.Y. old Biligirirangan Granulites from Karnataka India. Pp.9Tenth convention of Indian Geological congress, Dhanbad.Feb1-31996. (**Basavarajappa H.T** Srikantappa.C).

32. Geotectonic signatures in the Biligirirangan hills, Karnataka, South India pp.3-4., National Seminar on Neotectonic Movements and their Geo environmental impacts, Dec. 27th –28th1996 (**Basavarajappa H.T** Srikantappa.C)

33. Tectonic frame work of Sedimentation in Kurnool Basin (Precambrian), Andhra Pradesh. Pp.14 National Seminar on Neotectonic Movements and their Geo environmental impacts, Dec. 27th -281996 (**Basavarajappa H.T** Srikantappa.C, Harish.V)

34. P-T Constraints on Granulite Facies Metamorphism In the Biligirirangan Granulite-Gneiss complex around Chamarajanagar, Karnataka, India. Pp. 31 The 1st convention of Mineralogical Society of India and National Seminar Nov 27th and 28th 1996 (**Basavarajappa H.T** Srikantappa.C) at Karnataka University, Dharwar.

35. Sedimentalogical Studies and Environmental Significance of Bagalkot formation, Karnataka Pp. 47. The 1st convention of Mineralogical Society of India and National Seminar Nov 27th ad 28th 1998. (**Basavarajappa H.T** Shivanna) at Karnataka University, Dharwar.

36. Sedimentalogical Studies of Quartzites of Kurnool groups of rocks and environmental significance of pp.7-8, 11th convention of Indian Geological Congress Feb 4th to 6th1998. (**Basavarajappa H.T** Harish.V). University of Mysore, Mysore.

37. Sedimentation of Northeastern part of Kaladgi Basin (Precambrian) Bijapur district, Karnataka. Pp.8-9. 11th convention of Indian Geological Congress Feb 4th to 6th 1998. (**Basavarajappa H.T** Shivanna). University of Mysore, Mysore

38. Incipient Charnockitization from Migmatized Granitic Gneisses in Kollegal Shear Zone, Karnataka, India. Pp 31-32. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th at Mangalore University, Mangalore2000. (**Basavarajappa H.T** A.S.Janardhan, Srikantappa.C, Meenakshi.K).

39. Chitradurga Granite Fluid inclusion Studies pp 32. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th 2000at Mangalore University, Mangalore. (**Basavarajappa H.T** Prakash Narsimha.K.N).

40. Geology of Commercial Granites in and around Chamarajanagara District, Karnataka, India. Pp 52-51. 2nd Conventio n of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th2000 at Mangalore University, Mangalore. (**Basavarajappa H.T** Jagadisha.D.J).

41. Low Density Carbonic inclusions from the Bhavani Shear Zones, Bhavani, Tamil Nadu, pp39-40. 2nd Convention of the Mineralogical Society of India and National Seminar on Earth Resources. Jan 10th to 11th2000 at Mangalore University, Mangalore. (**BasavarajappaHT** Sreenivas.G and Srikantappa.C).

42. Fluid Regime in the deep continental crust around Bhavani, Tamil Nadu, Southern India. Pp 53-54. 3rd Convention of the Mineralogical Society of India and National Seminar on

Challenges in Precambrian Geology in the new millennium Jan 17th to 18th, 2001Mysore (Srikantappa.C, Sreenivas.G, **Basavarajappa H.T** , Basavalingu.B, Prakashnarshima.K.N).

43. Earthquake prone areas around Mysore and environmental planning. National Seminar on Environmental hazards priorities and protection in the 21st Century, Mysore, Karnataka state pollution control Board. March 2nd to 3rd, Pp 34-36 2001 (**Basavarajappa H.T** Srikantappa.C and Shahida Sulthana.N).

44. Geomorphological and Neo-Tectonic responses of the Biligirirangan hill ranges, Southern Karnataka. Proceedings, Vol. of National Seminar in Tanjaure, Tamil Nadu, August 23&24th2002. Basavarajappa and Pushpavati K.N.

45. Mapping of groundwater potential zones in hard rock terrain through remote sensing and GIS, yelandur taluk, Chamarajanagar district, Karnataka. **Basavarajappa H.T.,** S Dinakar [1], D Nagesh[2], H Honne Gowda [1]2004 International Seminar on Remote sensing and GIS Applications Mysore.

46. Morphometric analysis of sub-watersheds of river suvarnavathi catchment, chamarajanagar district, Karnataka using GIS **Basavarajappa H.T** S DINAKAR [1], H. HONNE GOWDA 2004 [1] International Seminar on Remote sensing and GIS Applications Mysore.

47. Natural resources of Biligirirangan hill ranges using applications of remote sensing and GIS techniques **Basavarajappa H.T** Pushpavathi.K.N and D. Nagesh International Seminar on Remote sensing and GIS Applications Mysore

48. Lineament study through remote sensing and gis application of Biligirirangana hill ranges Sathish. M **Basavarajappa H.T**.V and D. Nagesh 2004 International Seminar on Remote sensing and GIS Applications Mysore

49. Neotectonic Responses, A Case Study around Biligirirangana Hill Ranges through Remote Sensing and GIS Techniques **Basavarajappa H.T** Sathish. M .V and D. Nagesh International Seminar on Remote sensing and GIS Applications Mysore 2004

50. Geomorphological studies of Biligirirangan hill range through Remote Sensing and GIS Applications **Basavarajappa H.T** Sathish.M. V, Raghavan.B.R, Nagesh. 2004

51. Land mitigation hazard zones in Biligirirangana hill ranges using Remote Sensing and GIS applicati Basavarajappa H.T ons Dharmaraju.R, A.Balasubramanian, [1]Pushpavathi.K.N. 2004

52. Mapping of Kukkarahalli Lake of Manasagangothri using GPS and GIS techniques. **Basavarajappa H.T** Nagesh. D, Suresh Kumar, Pushpavathi.K.N, and A.Balasubramanian 2004.

53. 3D model of Chamundi hill, Mysore, using GPS and GIS. Co authors, Nagesh., D Dinakar D., Balasubramanian, A. MSI convention and National seminar , Thanjaure Tamilnadu.

54. Waste land studies using remote sensing and GIS around Chamarajanagar, Karnataka. **Basavarajappa H.T** Nagesh.D, Suresh Kumar, Pushpavathi.K.N, and A.Balasubramanian.MSI convention and National seminar, Thanjaure, Tamilnadu. 2005

55. The effective factors on water res ources in Rasyan valley basin, Republic of Yemen., M.M.A.Al Muliki, and **Basavarajappa,HT** Society of Applied Geochemistry Journal Vol.6.No.1 pp.113-120. 2005, Hyderabad, India.

56. Morphometric analyses of Rasyan Valley basin using remote sensing and GIS techniques Republic of Yemen., co-author, M.M.A.Al Muliki. Geographical congress, Bangalore in Dec. **Basavarajappa H.T** ., 2005.

57. Hydrothermal Alterations Zones study Using hyperspectral studies using GIS of Yeman Rocks.Ali M Quieed., **Basavarajappa H.T** National Workshop Annamalai University, Chidambaram 2008.

58. Hydrothermal Alterations Zones study Using hyperspectral studies using GIS of Yeman Rocks.Ali M Quieed., National Seminar at .Hyderabad Osmania University 2008. 60. Hydrothermal Alterations Zones study Using hyperspectral studies using GIS of Yeman Rocks.Ali M Quieed., **Basavarajappa H.T** National seminar at Hyderabad, AMD/NGRI Division .2008.

59. International Conference at Yeman Secretareates Yeman on Climate Changes Al Muliki, **Basavarajappa H.T**., 2009.

60. Waste Land identification using remote Sensing and GIS in Kollegal taluk, Chamarajanagar, Karnataka, India, **Basavarajappa H.T** ., K.N.Puspavathi, national Seminar, Anna university, Chennai, Tamil Nadu. 26 -28th November 2009.

61. Hydrothermal Altrations Zones study Using hyperspectral studies using GIS of Yeman Rocks. **Basavarajappa H.T**and Ali M Quieed., National WorkShop at Mysore University, Feb 26 and 27th 2009.

62. Attended the **international Seminar** on **Crystal growth** at Mysore University FEB.2009.

63. Indian Natural Resources Management A case Study in the International Seminar on Indian Geographers Meet. Banagalore 2010 Jan-19-20. **Basavarajappa H.T** Azadhe Hezabe.

64. Indian Natural resources Management A case Study in the International Seminar on Indian Geographers Meet. Bangalore 2010 Jan-19-20. Azadhe Hezabe. and **Basavarajappa H.T**

65. Heavy metal assessment in Kabini river bed sediments Nanjangud taluk, Mysore Azadhe Hezabe. **Basavarajappa H.T** dist, National seminar on March 2011, University of Mysore.

66. Attended the National Work shop on Sedimentary terrains and mineralization with Golden Jubilee Celebrations and Alumni meet, 2011, Sept. 28th 729TH AT dos IN Earth Science, University of Mysore.

67. Attended the National Seminar on Good Governance, Human rights and Judiciary organized by the National Human Rights Commission, New Delhi, University of Mysore, at Department of Studies in Political Science, University of Mysore, Mysore held on 3rd and 4th October 2011.

68. Attended the National Seminar on Biodiversity and Geospatial studies of Western Ghat, DoS IN Earth Science, University of Mysore, April 29th and 30th 2012.

69. Mapping of Geological and geomorphological land forms Using remote Sensing and GIS Applications, on Mysore District, Karnataka, India, National conference on Frontiers of Geosciences, at Gulbarga Central University, on May 5th to 7th 2012.

70. Applications of Remote Sensing and GIS on Mysore city Waste disposal site selection, waste management and Environmental impact on ground water prospecting zones. Cospar international conference July 14th - 22 2012 at INFOSIS, Mysore.

71. Regional High Grade Metamorphism and tectonic setup of Precambrian (~3.4 Ga old), Biligiri-Rangan Granulites of Karnataka, Dharwar Craton, South India. **Basavarajappa H.T**, Srikantappa.C and Raith .M., XIII Convention of Mineralogical Society of India and National Seminar on "Current Trends of Research in Precambrian Geology and Vision-2020", Department of Studies in Earth Science, University of Mysore, Mysore.

72. Linking the spatial data infrastructure: Karnataka state, using Geoinformatics, XIII Convention of Mineralogical Society of India and National Seminar on "Current Trends of Research in Precambrian Geology and Vision-2020", at Department of Studies in Earth Science, University of Mysore, Mysore on 20th -21st March/2013.

73. Integration of Soil and Lineament on landfill site selection and environmental appraisal, using Remote Sensing and GIS around Mysore City, Karnataka, India. **Basavarajappa H.T,** Parviz Tazdari and Manjunatha M.C, XIII Convention of Mineralogical Society of India and National Seminar on "Current Trends of Research in Precambrian Geology and Vision-2020", at Department of Studies in Earth Science, University of Mysore, Mysore, on 20th -21st March/2013.

74. Mapping of iron ore formation on Belagal Range of Sandur Schist Belt, using Remote Sensing and GIS. XIII Convention of Mineralogical Society of India and National Seminar on "Current Trends of Research in Precambrian Geology and Vision-2020", at Department of Studies in Earth Science, **Basavarajappa H.T** University of Mysore, Mysore, on 20th -21st March/2013.

75. Applications of Remote Sensing and GIS in Morphometric Analysis on Precambrian Rocks, Kollegal Shear Zone (KSZ), Chamarajanagar District, South India. **Basavarajappa H.T,**

National Seminar on Advances in Water Resources Development and Management (AWRDM-2013), at Centre of Advance Studies, Panjab University, Chandigarh on 23rd - 27th Oct/2013.

76. Applications of Remote Sensing and GIS on Morphometric Analysis of Precambrian Rocks, Chamarajanagar District, Karnataka, India, National Symposium on Remote Sensing and GIS for Environment, **Basavarajappa H.T** at Andhra University, Visakhapatnam, on 4th to 6th December/2013.

77. Shear Zone Mapping and Crustal Evolution on Precambrian Rocks of Biligiri-Rangan hill ranges, Dharwar Craton, India using Remote Sensing and GIS techniques, 3rd International Conference on Precambrian Continental Growth and Tectonism (PCGT-2013), **Basavarajappa H.T** at Department of Geology, Institute of Earth Sciences, Bundelkhand University, Jhansi on 23-26 November/2013.

78. Magmatism-Metamorphism-Migmatization and Tectonic Set-up of Precambrian rocks around Biligiri-Rangan hill ranges, Karnataka, India, in International Seminar on Magmatism, Tectonism and Mineralization (MTM-2014), Organized by Department of Geology, Kumaun University, Nainithal, India on 27-29th March-2014.

79. Impact of Climate Change on Groundwater level fluctuation in Precambrian rocks of Chamarajanagar district, Karnataka, India using Geomatic Applications, **Basavarajappa H.T,** Pushpavathi K.N and Manjunatha M.C, Two-Day National Seminar on "Population, Environment and Sustainable Development: issues and Challenges held at Department of Geography, Rani Parvathi Devi College of Arts and Commerce, Belgaum on 12th & 13th Sept-2014.

80. Environmental Impact of Sand mining and its management in Cauvery and Kabini river basins of Mysore District, Karnataka, India using Geoinformatics Techniques, **Basavarajappa H.T** and Manjunatha M.C, in National Seminar on Sand Mining Impact on Environment, organized by Department of Studies and Research in Environmental Science, Tumkur University, Tumkur on 22nd Sept-2014.

81. Sand mining impact on Land use/land cover change in and around Tumkur district, Karnataka, India through Remote Sensing and GIS, **Basavarajappa H.T,** Jeevan L and Manjunatha M.C, in National Seminar on Sand Mining Impact on Environment, organized by Department of Studies and Research in Environmental Science, Tumkur University, Tumkur on 22nd Sept-2014.

82. Mapping and Reclamation of Wastelands in Precambrian rocks of Mysore District, Karnataka, India using Geomatics Techniques, **Basavarajappa H.T,** and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad-2014.

83. Morpho-tectonic setup in Precambrian rocks of Male Mahadeshwara Hill Ranges, Chamarajanagar district, Karnataka, India using Remote Sensing and GIS, **Basavarajappa H.T,** Satish M.V, Edwin Precilla S and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad-2014.

84. Mapping and Integration of Lithology and Geomorphological Landforms in Precambrian rocks of Gundlupet Taluk, Chamarajanagar district, Karnataka, India, using Remote Sensing and GIS, **Basavarajappa H.T**, Manjunatha M.C, Jeevan L and Pushpavathi K.N, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad - 2014.

85. Petrology, Geological Settings, Geochemistry and Ambient Air Quality Monitoring on Iron Ore exposed in Laxmipura village, Devadari Gudda Range, Sandur taluk, Bellary district, Karnataka, India, **Basavarajappa H.T,** Manjunatha M.C and Jeevan L, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad - 2014.

86. Morphometric Analysis in parts of upper Cauvery basin in Precambrian rocks of Chamarajanagar district, Karnataka India using Geomatics Techniques, **Basavarajappa H.T,** Manjunatha M.C and Pushpavathi K.N, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

87. Mapping and Integration of Lithology and Geomorphological Landforms in Precambrian rocks of Chitradurga district, Karnataka, India using Geomatics Technique, **Basavarajappa H.T** and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

88. Delineation of Groundwater Potential Zones in Piriyapatna basin, Mysore district, Karnataka, India using Remote Sensing and GIS, Manjunatha M.C and **Basavarajappa H.T,** in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

89. Applications of Remote Sensing and GIS in Landuse/Land cover Classification in Precambrian rocks of Chitradurga district, Karnataka, India, **Basavarajappa H.T** and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

90. Petrography and Geochemistry on High Grade Manganese deposits in Precambrian rocks of Halekal Band of Hosahatty village, Chitradurga taluk, Chitradurga district, Karnataka, India, **Basavarajappa H.T** and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

91. Geomatics Technique in Land use/Land Cover classification analysis in Precambrian rocks around Chamarajanagar district, Karnataka, India, **Basavarajappa H.T,** Dinakar S and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

92. Geomatic Techniques on Delineation of Groundwater Potential Zones in Precambrian rocks of Tumkur district, Karnataka, India, Basavarajappa H.T, Jeevan L and Manjunatha M.C, in National Seminar on Emerging Trends in Geosciences, Department of Geology, Osmania University, Hyderabad -2014.

93. Basavarajappa H.T and **Manjunatha M.C,** 2015. "Groundwater Quality Analysis in Precambrian rocks of Chitradurga district, Karnataka, India using Geo-informatics", International Conference on "Water Resources, Coastal and Ocean Engineering", Department of Applied Mechanics and Hydraulics, National Institute of Technology Karnataka, Surathkal, Edited Vol.01, Pp: 83.

94. Manjunatha M.C, Basavarajappa H.T and Jeevan L, 2015. Integration of Hyperspectral Signature and Geochemistry on Komatiite in Ghattihosahalli band of Kummanagatta, Chitradurga Schist Belt, Karnataka, India, in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru, Abstract Vol.01, Pp: 39.

95. Jeevan L, Basavarajappa H.T and Manjunatha M.C, 2015. ASTER-GDEM and ETM+ data for discrimination of Lithological units on Precambrian Terrain in Southern parts of Chitradurga Schist Belt, Dharwar Craton, India, in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru, Abstract Vol.01, Pp: 40.

96. Edwin Precilla S, Jeevan L, Manjunatha M.C and Basavarajappa H.T, 2015. "Geomatic Techniques on Morpho-tectonic Study around Malai Mahadeshwara Hill Ranges of Northern Granulite Terrain, Southern India", in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru, Abstract Vol.01, Pp: 41.

97. Maruthi N.E, Siddaraju M.S, Jeevan L, Manjunatha M.C and Basavarajappa H.T, 2015. "Application of Hyperspectral Signatures on Corundum bearing litho-units in Arsikere band of Haranahalli, Hassan district, Karnataka, India", in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru, Abstract Vol.01, Pp: 42.

98. Siddaraju M.S, Maruthi N.E, Harshavardhana A.S and Basavarajappa H.T, 2015. "Geological Setting and Petrographic Study of Rayadurga to Kalyanadurga Eastern Dharwar Craton, South India", in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru, Abstract Vol.01, Pp: 11.

99. H.T. Basavarajappa, 2016. Demarcation of Kollegal Shear Zone (KSZ) and Neo-Metamorphism in Precambrian terrain of Biligiri-Rangan Hill Ranges, Southern Granulites, Karnataka, India, 103rd Indian Science Congress, Earth System Sciences, University of Mysore, Mysuru, Proceedings vol.1, Pp: 101-104

100. Basavarajappa H.T, Manjunatha M.C, 2016. Anthropogenic pressure on Forest cover and it's change detection analysis in Holalkere taluk, Chitradurga District, Karnataka, India using Geoinformatics. National Seminor held on Biological Science Departments Kuvempu University, Shankaraghatta, Shivamogga. Pp:80

101. Basavarajappa H.T, and Ahmed Abrar 2016. Field Petrography and Mineral Characterization of Gold bearing Rocks around Gadag Schist belt, Karnataka, India. XL Indian Social Science Congress December 19-23, 2016. DoS in Earth Science, Manasagangothri University of Mysore, Mysuru, Karnataka.Vol Pp 413.

102. Basavarajappa H.T, Manjunatha M.C. and Rajendran, S. Comprehensive model using Petrography, Geochemistry and Hyperspectral Signatures in central part of Chitradurga District, Karnataka, India. XL Indian Social Science Congress December 19-23, 2016. DoS in Earth Science, Manasagangothri University of Mysore, Mysuru, Karnataka.Vol Pp 413.

103. Maruthi N.E, Jeevan. L, Manjunatha M.C and Basavarajappa H.T, Hyperspectral Signatures on Corundum Bearing Litho-Units in Varuna area, Mysuru District, Karnataka, India. XL Indian Social Science Congress December 19-23, 2016. DoS in Earth Science, Manasagangothri University of Mysore, Mysuru, Karnataka.Vol Pp 416.

104. Siddaraju M.S. Basavarajappa H. T and Manjunatha M.C. Geological Studies of the Gap area in Closepet Granite, Dharwar Craton, India Using Digital image Interpretation on Landsat-7 ETM+ image. XL Indian Social Science Congress December 19-23, 2016. DoS in Earth Science, Manasagangothri University of Mysore, Mysuru, Karnataka.Vol Pp 419.

105.) Jeevan L and Basavarajappa.H.T. 2016. ASTER-Image processing approach for mapping carbonate deposits and associated lithounits in southern part of Chithradurga Schist Belt, Dharwar Craton, India. . XL Indian Social Science Congress December 19-23, 2016. DoS in Earth Science, Manasagangothri University of Mysore, Mysuru, Karnataka.

106.) Basavarajappa H.T, Maruthi N.E, Jeevan. L, Manjunatha M.C And Siddaraju M.S, 2017. Hyperspectral signatures on Corundum bearing litho-units of precambrian basement rocks around closepect granite Pavgada area, Karnataka. Two days National Seminar held on Department of Geology Govindram Seksaria Science College, Tilakwadi, Belagavi. Abstract Vol.01, Pp: 31&32.

107.) Basavarajappa H.T, Manjunatha M.C, Siddaraju M.S, Maruthi N.E and Jeevan. L 2017. Spectral signature studies on Colubmite bearing pegmatite of Karigatta Schist belt, Mandya district, Karnataka, India. Two days National Seminar held on Department of Geology Govindram Seksaria Science College, Tilakwadi, Belagavi. Abstract Vol.01, Pp: 24-26.

108.) Basavarajappa H.T, Jeevan L, Manjunatha M.C, Maruthi N.E and Siddaraju M.S 2017. Spectral signatures of Nontronite mineral in Precambrian meta basalts around Nandihalli, Hosahatti band Chithradurga schist belt. Two days National Seminar held on Department of

Geology Govindram Seksaria Science College, Tilakwadi, and Belagavi. Abstract Vol.01, Pp: 26&27.

109.) Basavarajappa H.T, Manjunatha M.C Jeevan L, , Maruthi N.E and Siddaraju M.S 2017. Hyperspectral Signature Studies on Chrysotile mineral in ultramafics of Kadakola area of Mysuru District, Karnataka, India. Two days National Seminar held on Department of Geology Govindram Seksaria Science College, Tilakwadi, Belagavi. Abstract Vol.01, Pp: 27&28.

110.) Maruthi N.E and Basavarajappa H.T. Hyperspectral And Petro - Chemical Signatures Study On Corundum Bearing Amphibolite Schist Of Magadi Area, Ramanagara District, Karnataka, India. Two days National seminar on Strategies for Mineral Development in the Country, held on Department of Geology, Bangalore University, Bangaluru. Abstract Vol.01, Pp-60. 2018.

111) Siddaraju M.S and Basavarajappa H.T. Petrochemical Study on Gap Area of Closepet Granite (Kalyanadurga to Rayadurga). Two days National seminar on Strategies for Mineral Development in the Country, held on Department of Geology, Bangalore University, Bangaluru. Abstract Vol.01, Pp-59. 2018.

112) Harshavardana A.S and Basavarajappa H.T. Shear zone controlled Incipient charnockite formation around Biligirirangan Hills, Karnataka, India. Two days National seminar on Strategies for Mineral Development in the Country, held on Department of Geology, Bangalore University, Bangaluru. Abstract Vol.01, Pp-83. 2018.

113). Jeevan L and Basavarajappa H.T. Aster Global Dem Applications in automatic Lineament Extraction around Chikkanayakanahalli schist belt, Dharwar craton India. Two days National seminar on Strategies for Mineral Development in the Country, held on Department of Geology, Bangalore University, Bangaluru. Abstract Vol.01, Pp-84. 2018.

114). Abrar Ahmed, Basavarajappa H.T, Maruthi N.E and Siddaraju M.S. Hyperspectral and Petro-Chemical Signatures of Gold Bearing Lamprophyric Litho Unit of Kempinakote area, Hassan District, Karnataka, India. Two days National seminar on Strategies for Mineral Development in the Country held on Department of Geology, Bangalore University, and Bangaluru. Abstract Vol.01, Pp-86. 2018.

115). MaruthiN.E, Manjunatha M.C, Harshavardhana A.S and Basavarajappa H.T,."Integration of Hyperspectral and petro-chemical signatures study on Corundum bearing litho- units around Maddur Taluk of Mandya District, Karnataka, India", international conference on *"Advanced Functional Materials for Energy Environment and Health Care (AFMEEHC)"* held at Centre for Materials Science and Technology University of Mysore, Manasagangothri, Mysuru, from 18th to 20th March 2019.

116). Maruthi N.E, Basavarajappa H.T and Siddaraju M.S, "Hyperspectral and petro Chemical signatures study on Corundum bearing litho-units of Precambrian Rocks around Chitradurga area, Karnataka" Two days National Seminor on Earth Resources Conservation and Management, held at Department of Applied Geology, Kuvempu University, Shivamogga, from 1st and 2nd July 2019.

117). Siddaraju M.S, Basavarajappa H.T and Maruthi N.E, " Geological Setting And Petro – Chemical Study Around Rayadurga Area, Eastern Dharwar Craton, Ananthpura District, Andhra Pradesh, South India" Two days National Seminor on Earth Resources Conservation and Management, held at Department of Applied Geology, Kuvempu University, Shivamogga, from 1st and 2nd July 2019.

118). Abrar Ahamed, Basavarajappa H.T, Maruthi N.E, Siddaraju M.S and Mnajunatha M.C, "Field petrography, EDX analysis and Hyperspectral signatures of satealitte deposit around Andale village, Belur Taluk, Hassan District, Karnataka, India" Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru.

119). Basavarajappa H.T, Manjunatha M.C and Harshavardhana. A.S, "Basic dykes swarms from deep crustal granulites around Biligirangan hill ranges of Chamarajanagara District, Karnataka, India" Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru.

120). Manjunatha M.C, Basavarajappa H.T, "Groundwater trend analysis in Chitradurga district of Karnataka state, India using Geoinformatics" Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru.

121). Manjunatha M.C, Maruthi N.E, Siddaraju M.S, Abrar Ahamed, Basavarajappa H.T, "Mapping of forest resources and its change detection analysis in Molakalmuru taluk of Karnataka state, India using Geoinformatics" Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru.

122). Manjunatha M.C, Basavarajappa H.T, "Prediction of groundwater levels in Mysuru taluks of Karnataka state, India using SPSS" Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru.

123). Abrar Ahamed, Basavarajappa H.T, Maruthi N.E, Siddaraju M.S,"Petro-chemical and hyperspectral signatures and SEM-EDX study on Steatite deposit of Karigaale village, Mysore district, Karnataka state, India" Two days 8th UGIT's International conference on Natural disaster Management - Geospatial solutions, date 11th-12th November 2019 at the ICC, Kuala Lumpur, Malaysia.

124).

CONFERENCES/SEMINARS ORGANIZED:

CONDUCTED:

1. Organized and conducted Four weeks **Environmental Education Training program/ e-fresher course organized** as a member and resource person at Dept. of geology UOM, **1997.**

2. Organized and Conducted **National Seminar on Neo-tectonics** organized, successfully conducted, paper presented as organizing secretary at Dept of geology, UOM ,1996.

3. Organized and **National Seminar on Petrology and Mineralogy with MSI convention** working member of IGC-1998 at Mysore University.

4. Organized and **Conducted III convention of MSI-2001** as organizing Secretary at Mysore. Third convention of Mineralogical society of India and **NATIONAL SEMINOR** ON Challenges in Precambrain Geology in the New Millennium Jan 2001.paper presented and organized as a organizing secretary at DOS in Geology, UOM.

5. Conducted as a coordinator, One Day **Remote sensing exhibition /workshop** for the awareness of Remote sensing studies for the benefit of Mysore University Teachers and students Jayalakshmivilas Mansion on 3rd may 2002.

6. Organized and Conducted the Inter **National Seminar on Geoinformatics** - 2004 as Organizing Secretary -2004 Dec. 13 and 14 at Mysore**. DOS in Geology**

7. Organized and conducted the work shop on **MAP INFO** by OMCAD Ltd. – Bangalore at Dept. Geology, university of Mysore, Manasagangothri Mysore. 2005

8. Conducted the work shop on **ERDAS** by Licon Ltd. – Bangalore at Dept. Geology, university of Mysore, Manasagangothri Mysore. 2006

9. Organized and conducted the Two days work shop on Mineral **exploration** at Dept. Geology, university of Mysore, Manasagangothri Mysore.2009.as a convener.

10. Organized and conducted the Two days National Seminar and MSI convention As a Co-convener march 17and 18. Dept. Geology, university of Mysore, Manasagangothri Mysore.2009

11. Organized and conducted the work shop / Training Programme on **ERDAS** by Licon Ltd. – Bangalore with the collaboration of main ERDAS Kolkata, for the all staff members at Dept. Geology, University of Mysore, Manasagangothri, and Mysore- 2006.

12. Organized and Conducted the Professional Training Programme on Software **GEOMATICA by PCI Geomatica Ltd. New Delhi , with the collaboration of main Geomatica, Netherlands** for the Final Year Pg Students of **2007-08**, at Dept. Geology, University of Mysore, Manasagangothri Mysore.

13. Organized and Conducted the **Professional Training Programme** on **Field Geological Training** at the Chitradurga, Field training center, Geological Survey of India, Govt. of India

for the Final Year PG Students of **2006-07**.With the collaboration of Hyderabad and Bangalore GSI.

14. Organized and Conducted the **Professional Training Programme** on **Field Geological Training** at the Chitradurga, Field training center, Geological Survey of India, Govt. of India for the Final Year PG Students of **2007-08** with the collaboration of Hyderabad and Bangalore GSI.

15. Organized and Conducted the **ANNUAL TOUR** and **Field Geological Training** for the Final Year PG Students of **1988-89**. South India., Parts of Karnataka, Tamil Nadu and Kerala.

16. Organized and Conducted the **ANNUAL TOUR** and **Field Geological Training** for the Final Year PG Students of **1992-93**. South India, Parts of Karnataka, Tamil Nadu and Kerala.

17. Organized and Conducted the **ANNUAL TOUR** and **Field Geological Training** for the Final Year PG Students of **1998-99**, South India, Parts of Karnataka, Tamil Nadu, Goa and Kerala.

18. Organized the **Study trip** for the PG Students attended and participate in the Lecture Series Seminar at Dharwad, Karnataka University, 2006.

19. Organized the **Study trip** for the PG Students attended and participate in the Lecture Series Seminar at Kuvempu University, 2007 at Applied Geology Department.

20. Organized the **Study trip** for the PG Students attend and participate in the Lecture Series Seminar at Mangalore University, 2008 at Moraine Geology Department

21. Organized the **Study trip** for the PG Students attended and participate in the Lecture Series Seminar at Bangalore University, 2009 at Geology Department.

22. Organized and conducted the golden jubilee workshop and Alumni meet 2011 department of earth science on sedimentary basinal study on Indian rocks.

23. Organized and conducted the International Work Shop on MAGMATIC ORE Deposits (PGE, Ni-Cu-Sulphides, Cr, Ti, &V) 2012 Department of Earth Science University of Mysore. on 1st - 8th December, 2012.

24. Organized and conducted the XIII convention of Mineralogical Society of India and National Seminar on Current trends of Research in Precambrian Geology and Vision 2020. 2013, Department of Earth Science University of Mysore.

25. Organized and conducted the DST PASCE., Project expert committee meeting2013 Department of Earth Science University of Mysore.

26. Organised and conducted the field work programme on field geology and structural studies aruond Chitradurga Schist belt, in chitradurga training centre. Precambrian terrain for 40 students of Geology and Applied Geology, April 2013.

27. Organized Two days Geological field workshop to Post Graduate Students along with Staff Members of the Department on Southern Granulite Terrain of Biligiri-Rangan Granulites, Karnataka, Dharwar Craton and Bababudan Schist Belt in Chikmangalur district, Karnataka; held from 20th & 21st March-2014.

28. Organized and conducted One day National workshop on Precambrian Geology, Department of Studies in Earth Science, and Centre for Advanced Studies in Precambrian Geology, University of Mysore, Mysore-570006 on 29th March-2014.

29. Organized One day Training programme on "Surveying using Total Station" at Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, Manasagangothri, University of Mysore, Mysore, on 10th May-2014

30. Organized Post Graduate Earth Science Special Lecture Series at Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysore, Sponsored by Karnataka Science and Technology Academy, Bangalore, from 29th -31th Oct-2014.

31. Organised and conducted the field work programme on field geology and structural studies aruond bettadabeedu, Northern part of Surgoor Schist belt, Precambrian terrain for 20 students. of Geology and Applied Geology, Februry 2014

32. Organized One-day Prof M.V. Vishwanathaiah Special Endowment Lecture series held on 20th March-2015, in Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysore, sponsored by UGC-CAS, New Delhi.

33. Organised and conducted the field work programme on field geology and structural studies aruond bettadabeedu, Northern part of Surgoor Schist belt, Precambrian terrain for 20 students of Geology and Applied Geology, Februry 2015.

34. Organized in One-Day XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India, organized by Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru on 31st March-2015, sponsored by University of Mysore, UGC-CAS-I, New Delhi and Mineralogical Society of India (MSI), Mysore.

35. Organized Two-Day Seminar on Benefits of Nuclear & Material Sciences in Day-to-Day life (BNMS-2015) on 21st & 22nd Aug-2015, at Rani Bahadur Auditorium, University of Mysore, organized as part of Centenary Celebrations of University of Mysore and in association with Indian Nuclear Society, Mysore.

36. Organized Four-Days of 103rd Indian Science Congress as a Local Sectional Secretary for ESS section in Department of Studies in Earth Science, CAS in Precambrian Geology, University of Mysore, Mysuru from 4th Jan to 7th Jan -2016.

37. Organized Three Day "**Field Workshop on Precambrian Geology**" held at Department of Studies in Earth Science, Centre for Advanced Studies (CAS) in Precambrian Geology, sponsored by UGC-CAS-I & University of Mysore, Mysuru during 26th, 27th and 28th March-2016.

38. Organised and conducted the field work programme on field geology and structural studies aruond bettadabeedu, Northern part of Surgoor Schist belt , Precambrian terrain for 20 students of Geology and Applied Geology, Februry 2017.

39. Organized Prof. M.N Vishwanathaiah Endowment Lecture on "Dharwar Craton: Geological setting and Tectonic evolution held at Department of Studies in Earth Science, Centre for Advanced Studies (CAS) in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru – 570 006 on 6th June -2016. Organized Two-Day Seminar on Challenges and Opportunities in Earth Science Education and Research on 29th & 30th Jan-2018, at Rani Bahadur Auditorium, University of Mysore, organized Under the UPE- Scheme of UGC.

40. Organised and conducted the field work programme on field geology and structural studies aruond Karighatta Schist belt, Southern part of Chitradurga Schist belt, Precambrian terrain for 25 students of Geology and Applied Geology, Februry 2018.

41. Organised and conducted the field work programme on field geology and structural studies aruond bettadabeedu, Northern part of Surgoor Schist belt, Precambrian terrain for 20 students of Geology and Applied Geology, Februry 2019.

42. Organized Three - Days International Conference on Advanced Functional Materials for Energy, Environment and Health Care (AFMEEHC) on 18 to 20 March 2019 at Center for Materials Science and Technology, Vijnan Bhavan, University of Mysore, organized Under UPE - Scheme of UGC and University of Mysore.

43. Organized Three days Field Workshop and Special Lectures on Precambrian Geology on 25 to 27 March 2019 at Department of Studies in Earth Science, Centre for Advanced Studies (CAS) in Precambrian Geology, University of Mysore, Manasagangothri, Mysuru – 570 006, organized Under UGC-CAS and University of Mysore.

44. Organized Two days National conference on science and Technology: Rural development, date 17th and 18th October 2019 Vijnana Bhavana, manasagangothri, University of Mysore, Mysuru

45. Organized as advisory committee member of three days ALL INDIA V_C s conference in 2022.

Research projects completed:

1. Integrated geological Studies in the Kuppam - Kanyakumari transect across the deep Continental crust of South India, DST, (Rs. 21 Lakhs) as a Co-PI from 2001-04.
2. Medicinal geology from UoM, UGC (Rs. 10,000/-) as a PI in 2001.
3. Structure and Tectonic study using Remote Sensing and GIS around Biligiri-Rangan Hill Ranges, Southern India, UGC (Rs. 10.46 Lakhs) as P.I from 2004-07.
4. Study on **CORBAN FLUX** interaction on Atmosphere, Water and Rock by ISRO International Project as a Co-PI (Rs. 30 Lakhs) from 2013-16
5. "Application of Hyperspectral Remote Sensing and GIS on Iron Ore Deposits and Precambrian rocks of Chitradurga district, Karnataka, India" UGC-MRP, New Delhi as a P-I (10.55 lacks) from 2013-16.
6. CAS Phase-I, Centre for Advanced studies in Precambrian Geology for a period of 5 years, (1.5 Crore). 2013 -2018. Success fully completed and account settled.

Research projects on going:

Number of PhD candidates successfully completed : National -09 + Foreign-04 = 13

Number of PhD candidates currently working : 07 + 02 = 09

BOOKS/EDITED/ ABSTRACT /PROCEEDINGS VOLUME:

Sl. No.	Author/s	Title	Publisher	Year	Page No.
1.	Chief Editor and organizer	Remote Sensing And Gis Applications	Bellur Kamalamma Publications, Mysore	2007-08	1-199
2.	Editor & organizer	Abstract Volume On Neotectonics National Seminar Abstract Volume On Mineralogy And Petrology And Iii Convention Of Msi	Department of Studies in Earth Science, University of Mysore	1996	1-109
3.	Editor and organizer	National Seminar Abstract volume on Precambrian studies through New Millennium 2000	Department of Studies in Geology, University of Mysore	2001	1-99
4.	Editor and organizer	National Seminar Abstract Volume On Remotesensing And Gis	Department of Studies in Geology, University of Mysore	2004	1-98
5.	Editor and organizer	Applications National Seminar Abstract volume on Recent trends in Mineral Exploration (Mineral, water and fuel)	Department of Studies in Geology, University of Mysore	2009	1-99

6.	Editor and Co-conveners	Abstract Volume "XIII Convention of Mineralogical Society of India and National Seminar on "Current Trends of Research in Precambrian Geology and Vision-2000"	Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology,	2013	1-156
7.	Editor	Prof. C. Srikantappa Volume, A Special Volume of XIII Convention of MSI and National Seminar on Precambrian Geology	Journal of The Indian Mineralogist, Mineralogical Society of India	2014, Vol.48 , No.2	151-350
8.	Editor	Prof .C. Naganna Volume, A Special Volume of XIII Convention of MSI and National Seminar on Precambrian Geology	Journal of The Indian Mineralogist, Mineralogical Society of India	2014 Vol.48 , No.2	1-150
9.	Editor	XIV Convention of Mineralogical Society of India and National Seminar on Recent Advances in Research on Precambrian Terrains in India	Journal of The Indian Mineralogist, Mineralogical Society of India	2015 Vol.1	1-50
10.	Editor	103rd Indian Science Congress	Department of Studies in Earth Science, Centre for Advanced Studies in Precambrian Geology,	2016 Vol.1	1-235

POST DOCTORAL STUDIES: and PhDs Awarded

- **SEDIMENTALOGICAL AND GEOCHEMICAL STUDIES OF KARNOOL GROUP (PRE-CAMBRIAN), ANDHRA PRADESH, SOUTH INDIA: 1995 Dr. Harish V. Professor in east point Engineering college Bangalore**

Achievements:

- Geological mapping.
- Carbonates revealed that calcite and quartz are the dominant constituents by X-Ray diffraction.
- Chemistry of Kurnool sediments revealed that they were deposited in a marine environment.
- Petrographic study to understand the genesis of sediments and environmental significance. The results obtained indicated that the sediments were brought and deposited in a beach to shallow marine environment.
- The macro and micro stylolites associated with the carbonates have been studied to understand the probable tectonic influence in the area.
- Pre and post diagenetic effects in the area were studied in order to reveal the environment of deposition.

- **LITHOSTRATIGRAPHY, MICROFACIES AND DEPOSITIONAL ENVIRONMENT OF NORTH-EASTERN PART OF KALADGI BASIN, KARNATAKA, SOUTH INDIA. 1997. Dr. SHIVANNA . Professor and Head in Mangalore University**

Achievements:

- Geological mapping.
- Study of macro and micro structures revealed that the sediments are deposited in a beach to shallow marine environment.

- The shale is deposited in a marine alkaline environment inferred by the argillites by X-Ray diffraction.
- The facies analysis is based on parameters such as lithology, grain size, geometry, primary physical structures and microscopic study. Five facies are identified and forms the fining upward sequence.
- The study of pre and post diagenetic effects contact between the different grains and arethogenic quartz over growth around the detrital quartz grain has been carried out.

- **GEOMORPHOLOGICAL IMPACTS OF TECTONIC MOVEMENTS IN AND AROUND BILIGIRIRANGAN HILL RANGES KARNATAKA, INDIA.2003. Dr. Satis M.V . Scientist in Rolta India Ltd Remotesensing and GIS wing . in Mumboy.**

Achievements:

The Geomorphological field investigations and the survey of literature, it could be concluded that there exits continuity between the eastern Dharwar Craton and parts of Biligirirangana hills. Thus Biligirirangan hills form a structurally complex terrain showing at least three periods of deformation, shearing events and active faults trending $N40^0W$ and $N60^0W$.

Tectonically Biligirirangan hills can be considered to be the deformed southern extension of the Dharwar Craton, which was subsequently exhumed during thrusting over the Dharwar craton.

Quantification in terms of morphometric attributes of a drainage basin is pertinent to appreciate morphometric variables involved as variable systems. Cluster analysis has been employed in detail (ward, 1963), to bring out relationship of assorted morphometric variables. Using lithologic and morphologic controls which twenty-three morphometric variables have been subjected to cluster analysis of the entire order sub basins, sixteen morphometric variables have been subjected to cluster analysis on two distinct lithologic clans, viz., Charnockite terrain and peninsular gneisses and sixteen morphometric variable have been subjected to cluster analysis on two distinct morphological clans, viz. highland area and lowland area, here morphometric systems and sub-systems have been established.

- **PETROLOGY, GEOCHEMISTRY AND FLUID INCLUSION STUDIES IN KOLLEGAL SHEAR ZONE (KSZ) AND MIGMATITIC GNEISSES AROUND CHAMARAJANAGAR, KARNATAKA, INDIA. 2005 Dr. K Meenakshi In politics.**

Achievements:-

This Kollegal shear zone is deformed and disturbed by metamorphisms of mainly 4 types (M1, M2, M3, and M4). The younger granitoids are formed at the time of M4 by crustal collision Fig. with very low temperature and pressure i.e. 4 to 5 kb and 550 to 650oC with formation of pan African type of charnockitization is a significant investigation by the author in this study. A tectonic region of early collision followed by a late stage extensional tectonics is envisaged based on P-T-t path in the study area. Reworking of early crust along shear zone, the migmatisation, magmatism and intrusion of younger rocks took place during the extensional tectonic regime, during Neo-Proterozoic to Pan African types, (M4).

The earliest syn-metamorphic fluids are reserved in quartz and garnet and in matrix of plagioclase is granulites and gneisses of the Kollegal shear zone. The CO2 monophase inclusion

of high density appears to have been derived from mantle sources. Occurrence of high-density CO_2 inclusions indicates extensive magmatic under plating below the crust.

Fluid inclusions suggest that most of the CO2 inclusions to be post-peak metamorphic with reference to M2 and their CO_2 density data pass mineral P-T box for M2 indicating fluids are synmetamorphic with earlier lower density of M1, P-T box of gneisses with lower density of hydrous inclusions.

Fluids in retrogression represents M3 and finally very low density fluids fall on M4 i.e. Pan African type.

- **MEDICINAL VALUES OF MINERAL SPECIES AND THEIR POTENTIAL AVILABILITY IN KARNATAKA STATE, INDIA. Mr. Mahesh Babu (discontinued) Registrar in Bangalore University**

Significance:

This proposed research study is an inter disciplinary work provides data with regards to the sources of raw materials, their availability, potential usage manufacturing distribution and consumption by population this advanced approach in earth science would be beneficial to the people working in this field and beneficial to the state of Karnataka for meeting the future requirements of chemicals and in medicine manufacture.

- Natural minerals used.
- Mineral groups, medicines and their therapeutic categories.
- Potential availability of minerals.
- Evaluate the economic viability of extraction, in particular, Ayurvedic system.

- **PETROLOGY, GEOCHEMISTRY, AND FLUID INCLUSION STUDIES AROUND KOLLEGAL SHEAR ZONE, CHAMARAJANAGARA DIST. KARNATAKA, SOUTH INDIA. 2003 Dr. Dinakara. Geologist in MGD, G0vt. of Karnataka.**

Significance:

- Field geology and field mapping of Kollegal Shear Zone (K S Z) rocks.
- Fluid inclusion studies of KSZ.
- Geochemistry.
- Mineral chemistry.
- Tectonic Structural mapping and interpretations.
- Groundwater Prospecting Shear Zones in the study area.

- **GEOMORPHOLOGICAL AND LAND USE LAND COVER STUDIES USING REMOTE SENSING AND GIS APPLICATIONS ON KOLLEGAL SHEAR ZONE , CHAMARAJANAGARA DIST. KARNATAKA, SOUTH INDIA. 2005 Dr. Pushpavathi. Geologist in MGD, G0vt. of Karnataka.**

Significance:

- Land cover/ land use.
- Geomorphology.
- Structural.
- Lineaments.

- Morphometric analysis.
- Tectonic study.
- Ground water prospecting zones in shear zones.

➢ **GEOMORPHOLOGICAL LAND AND MORPH METRIC ANALYSIS AND WATER HARVESTING TECHNIQUES ON RASYAN VALLEY BASIN (RVB) OF YEMEN. FOREIGN NATIONAL. 2008. Momhad All Muluki ., in Iron Professor of Geography.**

Significance:

- Land cover/ land use.
- Geomorphology.
- Morphometry.
- Structural.
- Lineaments.
- Tectonic study.
- Ground water prospecting zones in shear zones.
- Surface Rain water harvesting.

➢ **HYDROTHERMAL ALTERATION ZONES ON MINERAL EXPLORATION USING REMOTE SENSING AND GIS TECHNIQUES OF YEMEN. FOREIGN NATIONAL.2009 Qauid ali saidh. Director, Geological Survey of Yeman. Govt. of Yeman.**

➢ ***Significance:*** **Geologist in MGD, G0vt. of Karnataka.**

- Remote sensing Applications on Mineral exploration using Hyperspectral analysis
- Calibration of ASTER and ETM+, SRTM –Shuttle Radar Topography Mission, LANDSAT-7 Images.
- Spectral Signatures.
- Optimum Index Factor Study.
- Study of NDVI.
- Creation of DEM.
- SRTM DEM.
- ELM- Empirical Line Method.
- PCA-Principal Component Analyses.
- Band Ration analyses.
- Lineaments extractions.
- GIS and GPS Applications, ASD –Analytical Spectral Devices-Field spec-3.

➢ **WASTE LAND STUDIES USING GEOMORPHOLOGY AND REMOTE Geologist in MGD, G0vt. of Karnataka. Dr. Pushpavathi**

➢ **. *Significance:***

- Geomorphology
- Land use Land cover
- Morphometric analysis
- Soil study and mapping

- Geology and structure
- Lineaments
- Waste Land studies.

- **GEOCHEMISTRY AND HEAVY METAL ANALYSIS AND ENVIRONMENTAL IMPACT ON KABINI RIVER BED SEDIMENTS AROUND NANJANGUD AREA MYSORE DISTRICT.2012 Dr. AZADE TAGINIA> Iron. Working as CEO Isthanbul TURKY**

- Geochemistry
- Heavy metal analysis
- Environmental pollution
- Environmental impact
- Correlations
- GIS analysis

- **APPLICATIONS OF HYPERSPECTRAL REMOTE SENSING AND GIS ON NE-SW TRANSECTS OF CHITRADURGA DISTRICT, KARNATAKA, INDIA. 2017 Dr. Manjunatha. C . Working as Professor in JSS Medical Collage in Mysuru.**
    - Geology, Geomorphology, Lithology, Drainage & structure, Lineament
    - Land use Land cover, Soil, Slop aspects
    - Groundwater & Wasteland studies
    - Morphometric analysis
    - Groundwater quality assessment
    - Climate and Groundwater table fluctuation
    - Petrography
    - Remote Sensing, GIS and GPS Applications in mapping of Iron ore deposits
    - Integration of Hyperspectral analysis and Geochemistry

- **APPLICATION OF HYPERSPECTRAL REMOTE SENSING AND GIS TECHNIQUES FOR MAPPING OF HYDROTHERMAL ALTRATION ZONES OF PRECAMBRIAN ROCKS IN PARTS OF CHITRADURGA SCHIST BELT, DHARWAR CRATON, INDIA. 2018 Dr. Jeevan L Geologist working in MGD . Mysuru.**

Significance:

- Remote sensing Applications on Mineral exploration using Hyperspectral analysis
- Calibration of ASTER and ETM+, SRTM –Shuttle Radar Topography Mission, LANDSAT-7 Images.
- Spectral Signatures.
- Optimum Index Factor Study.
- Study of NDVI.
- Creation of DEM.
- SRTM DEM.
- ELM- Empirical Line Method.
- PCA-Principal Component Analyses.

- Band Ration analyses.
- Lineaments extractions.
- GIS and GPS Applications, ASD –Analytical Spectral Devices-Field spec-3.

➢ **HYPERSPECTRAL AND GEOCHEMICAL SIGNATURES ON CORUNDUM BEARING ROCKS PART OF SOUTHERN KARNATAKA, INDIA. 2019 Dr. Maruthi N. working as a Assistant Professor Yuvarajacollege Myuru.**

➢

Significance:

- Remote sensing Applications on Mineral exploration using Hyperspectral analysis
- Calibration of Topography Mission, LANDSAT-8 Images.
- Spectral Signatures.
- Optical properties Study.
- Geochemical Study.
- Hyper spectral Signatures.
- Gem industries.
- Medicinal Values.
- Ayurvedic usage.
- Electrical conductivity.
- EDS analysis shows purity of the mineral (60% Oxygen present in the Corundum).
- GIS and GPS Applications, Spectral evolution (SR-3500) Spectral Radiometer.

➢ **SPATIO - TEMPORAL DROUGHT MONITORING ASSESSMENT IN PARTS OF KARNATAKA STATE, INDIA USING REMOTE SENSING AND GIS.2020 Reiza mansure working at Pune as a teacher.**

Significance:

- **Assesses in the drought risk management**
- **indices and techniques used for assessment of drought**
- **Drought indicator and Drought detection**
- **decade index and Z index**
- **Palmer drought severity index**
- **Normalized positive indicator**
- **Normalization of the negative index**
- **Spatio - temporal detection**
- **Application of satellite drought monitoring**
- **Vegetation satellite indicator for drought monitoring**
- **NDVI vegetation condition index**
- **Relation b/w NDVI and Rainfall**
- **Software used ERDAS imagin, Arc GIS**
- **Data and spatial information**
- **Website (droughtkarnataka.com)**

- **STRUCTURAL ANALYSIS AND MICROTECTONIC STUDY OF KOLLEGAL SHEAR ZONE (KSZ), NORTHERN GRANULITE TERRAIN (NGT), KARNATAKA, SOUTH INDIA**
    - Detailed Structural mapping
    - Petrography, Micro-structure and Textural analysis.
    - Geochemistry and Mineral Chemistry
    - Geochronology

- **PETROCHEMICAL STUDIES OF RAYADURGA TO KALYANDURGA GAP AREA OF CLOSEPET GRANITE, DHARWAR CRATON**
    - Geological mapping and structural aspects
    - Mineral assemblages, reaction textures of closepet granite
    - Geochemical behavior of major, trace and REE
    - Physico-chemical conditions and mineral chemistry
    - Estimation of Radiometric ages based on suitable geochronological method.
    - Major Mile stone is that gap area is Identified SHEAR ZONE

    - **POST DOCTORAL STUDIES ON-GOING:**

- **NEOTECTONIC STUDIES USING GEOINFORMATICS TECHNIQUE OF MALAI MAHADESHWARA HILL RANGES OF SOUTH INDIA**
    - Geomorphological features using satellite images
    - Delineation of Tectonic features
    - Understanding the cause of change in Cauvery river course.
    - Evaluation of Neotectonic features using satellite data coupled with GIS analysis.
    - Collection of base line information, field mapping, structure analysis, shear and paleochannels using GPS.
    - DIP using ASTER GDEM and SRTM using ArcGIS v10.

    - **GEOLOGICAL FACTORS AND GEOTECHNICAL ASSESMENT OF DAM SITE SELECTION AROUND MEKEDATU USING GEOINFORMATICS, KARNATAKA, SOUTH INDIA**
    - Store the water for the drinking purpose and power generation
    - Geomorphological features using satellite images
    - Delineation of Tectonic features
    - Understanding the cause of change in Cauvery river course.
    - Evaluation of Neotectonic features using satellite data coupled with GIS analysis.
    - Collection of base line information, field mapping, structure analysis, shear and paleochannels using GPS.

- Analysis and calculating the water spared area
- Engineering properties of Rock, soil, structures of the study area
- To Know the disadvantages and advantages of the Research problem

➢ **HYPERSPECTRAL SIGNATURES, PETROLOGICAL AND GEOCHEMICAL STUDY ON STEATITE AND THEIR ASSOCIATED LITHO UNITS IN PARTS OF SOUTHERN KARNATAKA INDIA**

- Remote sensing Applications on Mineral exploration using Hyperspectral analysis
- Spectral Signatures.
- Optical properties Study.
- Geochemical Study.
- Hyper spectral Signatures.
- Industrial application
- EDS analysis shows purity of the mineral.
- GIS and GPS Applications, Spectral evolution (SR-3500) Spectral Radiometer.
- Detail mapping using mapping of Steatite deposits using Arc GIS software

➢ **HYPERSPECTRAL REMOTE SENSING ON MINERAL MAPPING AND TARGETING OF SARGUR GROUP OF ROCKS, OF HOLENARASIPURA SCHIST BELT DHARWAR CRATON, KARNATAKA, INDIA.**

➢ **ROCK WATER INTERACTION AND WATER QUALITY STUDIES OF PRECAMBRIAN TERRAIN AROUND MANDYA DISTRICT.**

➢ **CLIMATE CHANGE AND GLOBAL WARMING IN SOUTHERN PART OF INDIA.**

DISSERTATIONS GUIDED:

*Nearly about **72 Dissertations** and **65 Field projects** have been guided for the M.Sc students on*

1. Structure and Neotectonic landforms around M.M Hills, Eastern Dharwar Craton, India.
2. Dam and Reservoir selections
3. Geophysical survey
4. Flood zone assessment and Hazards
5. Seismic Zones / earth quakes studies
6. Waste management and site selection for the Mysore city waste Disposal

7. Field mapping and uranium mineralization in late Archean (Precambrian) Proterozoic Sedimentary rocks.
8. Environmental Issues in Precambrian terrain of Dharwar Craton
9. Soil pollution and Soil Erosion using Remote Sensing and GIS Applications
10. Applications of Parcel level study using remote Sensing and GIS
11. Geomorphology, Geology, Land Use/Land Cover, Soil mapping of the Mysore district
12. Hyperspectral Remote Sensing on Soils of Karnataka
13. Applications of GIS of Soils study in Karnataka.
14. Arsenic contamination and Environmental Impact on Soils of Raichur district.
15. Field mapping and study of Uranium deposits Jharkhand area
16. Geological Field work on Donimalai, Sandoor, Bellary dist.
17. Geological Field work and face mapping of Donimalai, Sandoor, Bellary dist.
18. Geological and Mapping of mining around Kumara swami mine, Sandur, Bellary.
19. Geological mapping of iron ore deposits of Keshawapura in Chitradurga district, Karnataka, India.
20. Geological mapping on underground mine of Hutti Gold Mine Ltd.
21. Geological mapping of iron ore deposits of Donimalai, Narayan mines, Sandur schist belt, Bellary (Dist), Karnataka, India.
22. Geological Mapping using GIS and Comparitive studies between Hyperspectral Signatures and Petrography of rocks of Bettadabeedu area, Sargur Schist Belt, Dharwar Craton, India.
23. Geological Study and Mapping of Kanchiganahal, Ingaladhal and K.M Kere Block of Chitradurga Schist Belt, Karnataka, India
24. Geological Study and Processing of Iron ore Production of Donimalai Iron Ore Mine and Phase Mapping along 2w (North Block).
25. Delineation and interpretation of Byramangala Reservior Watershed Kengeri, Bangalore urban district, Karnataka, using GIS Techniques and field investigation.
26. Geological Study area of Chitradurga Schist Belt, Dharwar Craton, India.
27. Geological study and mapping of Bettadabeedu area, Mysuru district, Dharwar Craton.
28. Geological Study and mapping of Hutti Gold Field, Raichur, Karnataka.
29. Geological study and mining aspects of Uranium exploration in Singbhum thrust belt.
30. Seismic interpretation and Well logging techniques.
31. Petrography and Geochemistry of the around Marutavmalai, Nagercoil Granulite block, Tamil Nadu.
32. Geological study, processing and face mapping of 2W (North block) of Donimalai Iron ore mine.
33. Flood assessment studies of Cauvery and Kapila river course around T.Narsipura and Nanjungud taluk of Mysore district, using Remote Sensing and GIS.
34. Field geology and petrographic study of Sargur group of rocks around Hadinaru village, Mysore district, Karnataka.
35. Application of Remote Sensing in Land use/land cover studies of Chamarajanagar taluk.
36. Data based GIS analysis of Mysore University, Manasagangothri campus, Mysore.
37. Geomorphological and geological studies around Srirangapatna taluk, using GIS and Remote Sensing techniques.

38. Paleo-environmental Reconstruction in Mangrove Sedimentary core using Mineral Magnetic techniques.
39. Geological mapping of Ingaldhalu and Kanchiganahalu block of Chitradurga Schist Belt.
40. Petrochemical and Geochronological signatures of Rayadurga and Kalyandurga Gap area of Closepet Granite.
41. Iron Ore deposits of Lakshmipuram village, Sandur Schist Belt, Bellary district, Karnataka, India.
42. Mapping and validation of Iron ore deposits and associated mineralized zones of lithological contacts in Chitradurga district, Karnataka, India using High Resolution and Hyperspectral Remote Sensing and GIS.
43. Hyperspectral Remote Sensing and GIS study on Mapping of Hydrothermal alteration zones of Precambrian rocks on parts of Chitradurga Schist Belt, Karnataka, India.
44. Application of Remote Sensing and GIS in Landfill (Waste disposal) site selection and environmental impacts around Mysore, Karnataka, India.
45. Sandstone type Uranium Mineralization carried out at the Cretaceous Mahadek sediments of Wahkut area in the Meghalaya Plateau, India.
46. Petrographic studies of Gold Mineralization in Gadag Schist Belt, Gadag, Karnataka, India
47. Geological Mapping, Petrology and Uranium mineralization in Tummalapalle area, Cuddapah district, Andhra Pradesh, India.
48. Geological Mapping, Mining Methods and Mineral Exploration of Iron Ore Mine, Vyasanakere, Hospet, Bellary, Karnataka.
49. Morphometric Analysis of Chittar Watershed, Neyyar River Basin, Trivandrum, Kerala using GIS.
50. Medicinal Minerals in geology.
51. Saline Soils Of Mysuru District
52. Mineral Resources of Mysuru District.
53. A case study of Saron Veng Landslide, Aizawl, Mizoram
54. Land use Land cover Studies on part of B.R.Hills.
55. Ascertaining the tectonic activities in Ladhiya River basin of Kumaun Himalaya.
56. Landslide hazard Zonation of Kuttiady area, Kozhikode District, Kerala using remote sensing and GIS.
57. Study on Mafic Dyke rocks around Gundlupete.
58. Study on Dolostone around Tummalapalli area.
59. Exploration and Mining Methods in Ramagundam Coal belt Godavari Vally Coal field, Telangana India.
60. Geological Mapping and Petrological Studies along Hudli-Gujanal mallapur Tract of Kaladgi Basin in Belgaum District, Karnataka.
61. Petrochemical and Hyperspectral/ Multispectral Remotesensing of Gold Mineralization of Southern part of Hammisana area, Red Sea Hills, Sudan.
62. Instrumentation Technology Involved in Geological Aspects of Mysore University.

63. Geomorphology, Grain size Variation and Depositional Environment of Karli River Estuary, Sindhudurg, Maharashtra, West Coast of India.
64. Building Material Testing for Samples from Khartoum State - north central parts of Sudan.
65. Mineral Seperation Techniques, Zircon Morphological Studies and Whole rock Geochemistry of Granitods from Rayadurga, Ananthapur District.
66. Study of Soils and its Analysis Around Vajmangala Village, Mysore Taluk, Karnataka Using Remote Sensing and GIS.
67. Field Setting and Petrographic Study on Chromite Bearing Ultramafic Rocks around Kadakola area, Mysuru District.
68. Petrographic Studies on Laterite, Leptinite, Charnockite and Garnetiferous Biotite Gneiss in Kollam District - Kerala State.
69. Petro - Chemical Analysis of Iron and Manganese Ore of Narayan Mines, Sandur Area, Dharwar Craton.
70. Study of Geology and Hydrology of Neyveli Lignite Fields in Neyveli, Tamil Nadu.
71. Timing of UHT metamorphism in the Biligirirangan Hills and Potential heat source During the Archean crustal evolution.
72. Study of Neyveli Lignite Fields in Neyveli.
73. Geological Study of Hutti Gold Field, On Arsenorpyrite.
74. Geological Study of Hutti Gold Field, On Pyrite Bearing Quartz.
75. Geological Study of Hutti Gold Field, On Chlorite Biotite Schist.
76. Detailed Study of Primary Volcanic Structure In Ingaladahalu Block.
77. Geological Study of Hutti Gold Field, On Gray Quartz.
78. Geomorphology, Lithology, Geothctonics, and Mineralisation of a Part of Kushtagi-Hungund Schist Belt of Precambrian Terrain of Dharwar Craton Using Remote Sensing and GIS.
79. Geological Study of Hutti Gold Field, On Biotite Schist.
80. Petrological Study on Sittampundi Layered Complex.
81. Geological Study of Hutti Gold Field, On Metabasalt.
82. Vanivilas Formation in Chitradurga Schist Belt.
83. Basic Dykes and Other Rock Types of Chitradurga Schist Belt.
84. Hiriyur Formation in Chitradurga Schist Belt, Chitradurga.
85. Granitic Rocks of Chirtadurga Schist Belt.
86. Study of Bababudan Group of Dharwar Super Group.
87. Peninsular Gneissic Complex in and Around Chitradurga Schist Belt.
88. Stratigraphy of Chitradurga Schist Belt.
89. Gattihosalli Schist Belt in Chitradurga.
90. Meta-Volcanics and Meta-Ultramafites of Chitradurga Schist Belt.
91. Types of Quartzites in Chitradurga Schist belt.
92. Ingaldhal Formation in Chitradurga Schist belt.
93. Amphibolites and Other Mafic Rockes of Chitradurga Schist belt.
94. Structure and Tectonic set up of Biligirirangan Hills.
95. Structure and Tectonic set up of Malai Mahadeshwara Hills.
96. Structure and Tectonic set up of Biligirirangan Hill Ranges.
97. Structure and Tectonic set up of Marcera Hills.
98. Structure and Tectonic set up of KOLLEGAL SHEAR ZONE.

Ph.D. Thesis Adjudicated:

1. Doctoral degree of ***Dr. V. Harish*** on Sedimentology and Sedimentary Petrology and Geochemistry of Cuddapah and Kurnool basin, Andhra Pradesh, Department of Geology, University of Mysore, Mysuru, 1995.
2. Lithostratigraphy, Microfacies and depositional environment of north-eastern part of kaladgi basin, Karnataka, South India, Osmania University, Andhra Pradesh, 1997.
3. Doctoral degree of ***Dr. Shivanna*** on Sedimentology and Sedimentary Petrology and Geochemistry and investigations on stromatolites of North - Eastern part of the Kaladgi basin Karnataka, Department of Geology, University of Mysore, Mysuru, 1998.
4. Doctoral degree of ***Dr. M.V. Satish*** on Geomorphological structural studies Using visual interpretations of Remote sensing and GIS applications of Biligirirangana hill ranges, Karnataka, India, Department of Geology, University of Mysore, Mysuru, 2000.
5. Doctoral degree of ***Dr. Meenakshi K,*** on Petrology, Geochemistry and Fluid inclusion studies in Kollegal Shear Zone (KSZ) and Migmatitic gneisses around Chamarajanagar, Karnataka, India; Department of Geology, University of Mysore, Mysuru, 2002.
6. Remote Sensing and GIS Techniques on integrated Coastal zone management and its environmental impact in Goa State, Goa, 2004.
7. Doctoral degree of ***Dr. Dinakar S,*** Geological, Geomorphological and Land use/land cover studies using Remote Sensing and GIS around Kollegal Shear Zone, South India, Department of Geology, University of Mysore, Mysuru, 2005.
8. Ground water resource evaluation by geochemical and geophysical methods using GIS and Remote Sensing, Zaheerbad area, Medak district, Andhra Pradesh, Hyderabad, Department of Applied Geochemistry, Osmania University, 2006.
9. Geochemistry of carbonates from Aryalur-Pondicherry sub-basin of Tamil Nadu department of applied geochemistry, Osmania University, 2006
10. Doctoral degree of ***Dr. Mohammed Mansoor Abdo Mohammed Almuliki,*** Geomorphological studies using Remote Sensing and GIS techniques of Rasyan valley basin (Republic of Yemen), Department of Geology, University of Mysore, Mysuru, 2007.
11. Surface geochemical indicators and their application in hydrocarbon prospecting: a study from Jamnagar area, Saurastra basin, Gujarat, India, Department of applied geochemistry, Osmania University-2007.
12. Doctoral degree of ***Dr. Ali Mohammed,*** Qaid Saeed, Appliation of Remote Sensing and GIS Techniques in mapping of Hydrothermal alteration zones in North East of Hajjah, Yemen, Department of Geology, University of Mysore, Mysuru, 2008.
13. Near shore morphodynamics and sediment process-using remote sensing data of Gahirmatha inlets, Orissa, east coast of India., department of geology., Osmania University, 2008.
14. Costal dynamics and coastal zone management in central Karnataka coast- a remote sensing and GIS approach., department of Marian geology, Mangalore University, 2008.
15. Geomorphological land and Morph metric analysis and water harvesting techniques on Rasyan Valley Basin (RVB) of Yemen, Foreign National, 2008.
16. Hydro and Pedo Geochemistry of Patancheru Industrial Area, Medak District, Andhra Pradesh. Applied Geochemistry Department: Department of Applied Geochemistry, Osmania University, 2008.

17. Microbial prospecting studies for hydrocorbon exploration in Jamnagar sub basin, Saurastra Gujarat, Department of Applied Geochemistry, Osmania University-2008.
18. Integrated hydrogeological and environmental investigations for groundwater characterization in hard rock terrain, Maheshwaram water shed, Ranga reddy district, AP. department of geology, Osmania University, 2008.
19. Hydrothermal Alteration Zones on mineral exploration using Remote sensing and GIS techniques of Yemen, Foreign National, 2009.
20. Hydro and Pedo-geochemistry in relation to land use/land cover in and around Machera, Guntur district, Andhra Pradesh - a Remote Sensing and GIS approach department of applied geochemistry, Osmania University, 2009.
21. Mapping irrigated areas of India using terra aqua MODIS time - series through ideal spectra generation, spectral matching techniques and hyperspectral, vegetation indices, Department of Applied Geology, Kuvempu University, 2009.
22. Doctoral degree of ***Dr. Pushpavathi K.N,*** Integrated, Geomorphological study using Remote Sensing and GIS for development of Wastelands in Chamarajanagar district, Karnataka, India, Department of Earth Science, University of Mysore, Mysuru, 2010.
23. Environmental impact assessment a control measures in mining-a study of lime stone mines in Ranga reddy district, Andhra Pradesh Department of geology, Osmania University, 2010.
24. Integrated assessment of geomorphological and hydrological studies using RS and GIS around Kuderu halla, T. Narsipura taluk, Bangalore University in 2010.
25. Hydro and Pedo Geochemistry in Relation to Land use and Land cover in Mungi village, Nyalkal Mandal, Medak district, Andhra Pradesh – Remote Sensing and GIS approach, Department of Applied Geochemistry, Osmania University, Hyderabad, 2010.
26. Hydrogeological studies of Muguru Addahalla Watershed in Chamarajanagar and Mysore districts using Remote Sensing and GIS techniques, Department of Geology, Bangalore University, Bengaluru, 2010.
27. Microbiological Studies in Conjunction with different geochemical methods for the evaluation of Hydro Carbon Prospects in Sagar District of Vindhyan basin, India, Department of Applied Geochemistry, Osmania Univeristy, Hyderabad, 2010.
28. Doctoral degree of ***Dr***. ***Azadhe Taghinia Hejabi,*** Geochemistry, Heavy metal pollution and environmental impact of Kabini river sediments using GIS, Nanjungud, Karnataka, India, Department of Earth Science, University of Mysore, Mysuru, 2011.
29. Structural constraints and isotope geological study around Bastar Craton, India, Jadavpur University- 2011.
30. Environmental impact assessment a control measures in mining-using GIS and Remote Sensing a study of lime stone mines in Ranga reddy, Andhra Pradesh department of geology, Osmania University, 2011.
31. Environmental impact assessment a control measures in mining-area of using GIS and Remote Sensing a study, Andhra Pradesh, Department of geology, Osmania University., 2012.
32. Isotope Geochemistry and Surface Geochemical Studies of Mesozoic Kutch sedimentary basin, Gujarath, western India: Implications to Hydrocarbon prospects, Osmania University, Applied Geochemistry, 2012

33. Stratigraphic Position of the Quartzite Outliers Located South of Muddanuru, Cuddapah District, Andhra Pradesh, India using Remote Sensing and GIS, Department of Geology, Osmania University, 2012.
34. Integrated Geological and Environmental Studies in Kothur Industrial Area, Mahaboobnagar District, Andhra Pradesh, Department of Geology, Osmania University, 2012.
35. Exploration of Iron Ore Deposits in parts of Northern districts of Tamil Nadu State, India using Multi & Hyperspectral Remote Sensing data and Geo-spatial Techniques, Priest University, Vallam, Thanjavur, 2012.
36. Land and Water Resource Evaluation in Karanjavagu Watershed of Manjira River, Medak District, Andhra Pradesh - A Remote Sensing and GIS Approach, Department of Applied Geochemistry, Osmania University, Hyderabad, 2013.
37. Geochemistry of fluoride bearing groundwater, Kalwakurthy area, Mehaboobnagar district, Andhra Pradesh, Department of Applied Geochemistry, Osmania University, Hyderabad, 2013.
38. Impact of Pollution on Groundwater in parts of Ranga Reddy district, Andhra Pradesh, India, Department of Geology, Osmania University, Hyderabad, 2013.
39. Ground- and Image-Based Hyperspectral Sensing to characterize Carbonate mineral resources of Salem, Namakkal and Ariyalur Districts, South India, Department of Faculty of Science and Humanities, Anna University, Chennai, 2013.
40. Geochemical Investigations for Uranium Mineralization in the outliers - NNW of Cuddapah Basin in the parts of Nalgonda and Mahaboob Nagar Districts, Andhra Pradesh, Department of Applied Geochemistry, Osmania University, Hyderabad, 2013.
41. Hyperspectral Remote Sensing and GIS on Mineral Resources of Crystalline Limestone and Carbonate rocks, Department of Information Science and Technology, Anna University, 2013.
42. Hyperspectral and multispectral approaches for exploration and characterization of certain deposits of Bauxite, iron ore and limestone in south India, Faculty of Science and Humanities, Anna University, Chennai, 2013.
43. Tectono-Metamorphic Evolution of the Moyar Shear Zone, South India, University of Kerala, Thiruvananthapuram, Kerala- 2015.
44. Comparison of Heuristic, Analytical Hierarchical process, Artificial Neural Network and Frequency Ratio Models for Landslide Susceptibility mapping in Kothagiri taluk, Southern India", by Mr. M. Kartic Kumar, Department of Civil Engineering & Technology, SRM University, Tamil Nadu – 2015.
45. Sea water intrusion along East and West coasts of South Andaman island through Geophysical and Geochemical techniques, by Mr. Vazeem Iqbal, Department of Disaster Management, Pondicherry University, (A Central University), Brookshabad, Port Blair Campus, Andaman-744112 – 2015.
46. Geochemistry of Groundwater in and around Mangampeta Barite Deposit, Kadapa District, A.P, by Mr. K. Ashok, Department of Applied Geochemistry, Osmania University, Hyderabad, Andhra Pradesh – 2016.
47. Hydro geological studies in parts of Govindrao pet Mandal Warangal District, Telangana, India. By Mr. Sammaiah Banoth, Department of Geology

48. Geochemistry of urban dust in Hydrabad city India. by Nikhat Anjum, Department of Applied Geochemistry, Osmania University, Hyderabad - 2017
49. Leachate and its impact on ground water quality around Jawaharnagar municipal dumpsite, Medchal district, Telangana, India. by B. Soujanya Kamble Department of Environmental Science Osmania University Hyderabad - 2017.
50. APPLICATIONS OF HYPERSPECTRAL REMOTE SENSING AND GIS ON NE-SW TRANSECTS OF CHITRADURGA DISTRICT, KARNATAKA, INDIA. *M C Manjunath. D*epartment of Earth Science, University of Mysore, Mysuru, 2017
51. APPLICATION OF HYPERSPECTRAL REMOTE SENSING AND GIS TECHNIQUES FOR MAPPING OF HYDROTHERMAL ALTRATION ZONES OF PRECAMBRIAN ROCKS IN PARTS OF CHITRADURGA SCHIST BELT, DHARWAR CRATON, INDIA. *L Jeevan*. Department of Earth Science, University of Mysore, Mysuru. 2018
52. Remote Sensing and Hydrogeochemistry A Case Study of Tummalapalle area, Cuddapah District, Andhra Pradesh, South India. by Y. Sreedhar, Department of Geology S.V.U. College of Sciences Sri Venkateswara University Tirupati-517502, Andhra Pradesh, India.
53. Assessment of Groundwater Quality and evaluation of untreated and treated sagoeffluent in Rasipuram Taluk of Namakkal District, Tamilnadu state, India. by R. Jayakkodi Department of Civil Engineering & Technology, SRM University, Tamil Nadu – 2018.
54. GIS Approach for Groundwater Quality Studies and Bioremediation for Removal of Heavy Metals in and Around Sipcot, Erode District, Tamil Nadu, India. By S. Durgadevagi, Department of Civil Engineering & Technology, SRM University, Tamil Nadu – 2018.
55. HYPERSPECTRAL AND GEOCHEMICAL SIGNATURES ON CORUNDUM BEARING ROCKS PART OF SOUTHERN KARNATAKA, INDIA. *Maruthi N.E.* Department of Earth Science, University of Mysore, Mysuru. 2019.
56. Geochemistry of Paleoproterozoic Grey and Black Shale Overburden of the Mangampeta Barite Deposit, Cuddapah Basin, Andhra Pradesh. by N Anitha, department of Applied Geochemistry, Osmania University Hyderabad - 2019.
57. Delineation of High Fluoride Bearing Groundwater Zones by Hydrogeochemical Investigations in Gangadhara and Adjoining areas of Karimnagar District, Telangana. By Shankar Sagarla, department of Applied Geochemistry, Osmania University Hyderabad - 2019.
58. Study on the charecteristics of water, leachate and microbial activity in semi urban solid waste dumpsite. K. Prasanna Department of Civil Engineering, Institute of science and Technology, SRM University, Chennai Tamil Nadu. 2019

59. SPATIO - TEMPORAL DROUGHT MONITORING ASSESSMENT IN PARTS OF KARNATAKA STATE, INDIA USING REMOTE SENSING AND GIS. *Reza Ravanshad. Iron.* Department of Earth Science, University of Mysore, Mysuru . 2019.

60. LONGSHORE SEDIMENT TRANSPORT AND ITS IMPACT ON THE COASTAL ZONE OF KARNATAKA, INDIA. Atheeth Shetty. Department of studies in Marine Geology, Mangalagangothri, Mangalore University 2021.

61. Hydrogeochemistry and evaluation of groundwater quality in and around Yerraguntla mandal, Y.S.R District, A.P. using GIS techniques B. Suvarna Department of Geology Yogi Vemana University, Cadappha University 2021.

62. Impact of Mission Kakatiya On Quantity And Quality Of Groundwater And Its Impact On Agriculture In Vemulawada Mandal, Rajanna Sircilla District, Telangana State **Using** Remote Sensing And Gis. Sreenivas. Department of Applied Geochemistry Osmania University, Hyderabad 2021.

63. Landslide Susceptibility Mapping (LSM) along Badethi – Uttarkashi National Highway (NH-134 & NH-108) and its adjoining areas, Uttarkashi District, Uttarakhand, India. Aravind S Nair. Department Of Geology ,Centre For Advanced Studies University Of Delhi 2021.

64. Ore Geology , Metamorphism, and Plate Tectonic Implications of the Banded Iron Formationsof the Nilgiri Block with in Kerala with Special Reference to their Environment of Formation.UNIVERSITY OF KERALA . 2022.

65. Nuemarical Modellingof Storm Surges and Wave climate associated with a Very Severe Cyclonic storm over Andamon Islands and Cyclone Disaster Risk Assessment of Port Blair South Andoman using Geo-Spatial techniques. Pondichery University, Andaman. 2022.

66. PETROCHEMICAL STUDIES OF RAYADURGA TO KALYANADURGA GAP AREA OF CLOSEPET GRANITE , DHARAWAR CRATON. Department of Studies in Earth Sciences, Center for Advanced Studies in Precambrian Geology , University of Mysore . 2022.

TEACHING EXPERIENCE: 36 years of teaching experience in the field of Petrology, Geochemistry, Structural geology, Mineralogy, Photo geology, Remote Sensing and applications, Geoinformatics, Geomorphology, Applied Geomorphology, Shear Zones and Geo-tectonic applications with respect to the Remote Sensing and GIS Environment aspects of Earth Science division.

RESEARCH EXPERIENCE: 36years Research experience in thrust areas of national and international Geological aspects, in the field of Petrology, Geochemistry, Fluid Inclusion studies, Structural Geology, Applied Geomorphology, Geotectonic, Remote Sensing, GIS, GPS applications and Geo-environmental aspects. Shear zone studies, Natural hazards by geological actions and earthquake studies and seismological tectonic events. Hyper Spectral Remote Sensing and detection of Precambrian Rocks and minerals. **Remote Sensing and GIS** and GPS**, Field Geology** techniques and experiences of Field mapping and knowledge of Structural studies and analysis in field Geology. Surface and sub surface geological exploration and economic mineral deposits identification through the high resolution and hyperspectral studies. Economically viable and strategic mineral torgetting through the Hyperspctral signatures through Remote Sensing.

FIELD OF SPECIALIZATION: Precambrian Geology - Remote Sensing and GIS, Petrology, Geochemistry, Fluid Inclusion studies, applied geomorphology, structural geology, field mapping techniques, EPMA, ICP Techniques, Remote Sensing and GIS applications, Geotectonic and shear zone applications and Medicinal geology, Seismo tectonic studies of Southern India. Geomatic studies, Geo-modelling tectonic modelling involved in deep crustal studies including Neo-proterozoic and Neotectonic studies on Dharwar Craton in South Indian terrain and other parts of India high grade rocks of Granulites terrains. Hyper Spectral Remote Sensing and detection of Precambrian Rocks and minerals.

TECHNICAL EXPERIENCE: EPMA, ICP, AAS, DTA, XRD, Remote Sensing and GIS, GPS, Field Geology techniques and experiences of field mapping and knowledge of structural studies, field geology and total station survey. Surface and sub surface geological exploration and economic mineral deposits identification through the high resolution and hyperspectral studies.

EPMA Analytical Training at France, Paris:

1. Fluid inclusion studies has been carried out on metamorphic, Igneous and sedimentary rocks, using the instruments CAIXMECA and LINKAM micro thermometry till extracted significant data from the work and published research paper (Trained in Mysore University).
2. The major and trace element analyses is studying in AAS new model by Precloric acid and Hydrofluoric acid and digestion method (Trained in Mysore University).
3. Experience of rare earth elemental analysis in the ICP (trained in IIT, Mumbai).
4. P-T estimation and Mineral Chemistry has been carried out by using Electron Micro Probe Analyzer (trained in France and Germany).
5. Experienced in using instruments like X-ray diffraction (XRD) differential Thermal Analyses (DTA) Scanning Electron Microscope (SEM).

ACADEMIC DUTIES PERFORMED:

CHAIRMAN/MEMBER OF AUTHORITY/COMMITTEE ETC:

1. **Former Chairman and Head**, Department of Studies in Geology (**2007/08).**
1. **Chairman BOS** Department of Studies in Geology (**2006/10**).
2. **Coordinator UGC SAP IV** Phase (**2007 to present**).
3. **Chairman** of the Indian Society of Geomatics, Mysore **Chapter**. Mysore (**2003/11).**
4. **Editorial Board Executive council member** of the Journal of applied geochemistry, Hyderabad **2008/11.**
5. **Member** of the Board of studies and BOE in Geology, Mysore University (2000 **to Present).**
6. **Member** of the Board of studies and BOE in Geology, **Bangalore and Mangalore, Karnataka, Kuvempu Universities.**
7. **Life member** of Mineralogical Society of India, Mysore.
8. **Acting Executive council member** of the Mineralogical Society of India, Mysore.
9. **Treasurer** of Mineralogical society of India.

10. **Life member** of Indian Geomatic, Space science Center, Ahmadabad.
11. **Life member** of India International Friendship Society, New Delhi.
12. **Executive Council Member** of the Dept. DOS in Geology.
13. **Founder member** of Environmental Awareness, Environmental Society of Mysore.
14. **Executive Council Member** of the Faculty of Science and Technology, University of Mysore, Mysore.
15. **Doctoral committee Counseling member** of the Anna University, Chennai.
16. **Doctoral Committee counseling member** of the DOS in Geology, University of Mysore, Mysore.
17. **Doctoral Committee counseling member** of the Kuvempu University.
18. **Doctoral committee Counseling member** of the Bangalore University.
19. **Member of the PG Council** of University of Mysore.
20. **Member** of the Standing / equivalence committee for SC/ST CELL UOM.
21. **Board of Studies in Geology and Applied geology,** Bangalore University.
22. Member of Text Book Review committee (Geology) of Pre-University Board, Govt. of Karnataka.
23. **Managing Editor,** International Association of Engineering and Management Educaiton (IAEME), Open accessed International Journals, Chennai.
24. **Academic Council** member University of Mysure w.e.f. 2018 to 2020.
25. **Planning and Monitoring Board** member University of Mysore w, e,f, 2019 to 2021.
26. **Examination Board Member** University of Mysore, w,e,f, 2019 to 2021.
27. **Member** of the Board of Studies in Geography and Geoinformatics, Mysore University.
28. At Present working as a **Acadamic Faculty Dean, Faculty od Science & Technology, UOM.**
29. **Member** of the Board of Studies in Board of stidies in Earth Science & Disaster Management, Mysore University.
30. Course Coordinator for MSc in Earth Science & Disaster Management, Mysore University.

RESEARCH INTERESTS:

Field Geology, Field mapping, Geochemical -analytical Studies, Fluid inclusion Studies, Rocks, Mineral, Gems, Ornamental stones and Decorative stones Prospecting identification Chemistry, analyses, Land Scape designing, Maintenance of rock gardens, Geoinformatics and Remote Sensing, Geomorphological, Slope, Soil, Earth Quakes, Shear Zones, Structural Geotechnical , Rock stability, Hydrological, Urban Planning, Environmental Issues, Lithological classifications, advising in Advanced Education System. DIGITIZATION and Digital image processing and Cadastral level thematic mapping of the entire Karnataka state. Remote sensing and GIS techniques in Mineral exploration using Hydrothermal Alteration zones of Precambrian rocks in India and around the World**.** For the Earth and Environmental Science, Reservoir constructions, irrigational activities, Slope and Slope parameters, Lineament Studies, Shear Zone Studies, Plate tectonics, Earthquake studies, Seismo tectonics.

Technical experience :

EPMA, ICP, AAS, DTA, XRD, XRF, Spectral Radimetre, GPS, TOTAL Station and other Surveying equipment's. Softwares

EPMA Analytical Training at France , Paris, Uerope

- Fluid inclusions studies has been carried out on metamorphic, Igneous, and Sedimentary rocks, using the Instruments **CAIXMECA and LINKAM** micro thermometry till extracted significant data from the work and published research paper. (Trained in Mysore University).
- The major and trace element analyses are studied in **AAS** new model by Percloric acid and Hydrofluoric acid and digestion method. (Trained in Mysore University).
- Experience of rare earth elemental analysis in the **ICP** (trained in IIT Mumbai).
- P-T estimation and Mineral chemistry has been carried out by using Electron Micro Probe Analyzer (trained in France and Germany).
- Experienced in using instruments like X-ray diffraction (XRD) differential Thermal Analyses (DTA) Scanning Electron Microscope (SEM).
- Newly involved in the Geophysical, Seismic and Earth quake studies, Applied Geomorphology, Photo geology Remote sensing Application and Geo-and Neo-tectonic studies, Deep Crustal Studies, Medicinal geology through Ayurvedic Sciences.

FIELD EXPERIENCE: Experience in Field Mapping and Structural studies in Igneous, Sedimentary, and Metamorphic terrain, regularly conducting field workshops around Sargur rocks Low and high grade Granulite terrain of South India., Geomorphotectonic studies and Geomorphometric analyses, Waste land studies and its developmental activities including Geomatics of the South Indian Rocks.

GSI –ONE- Month Training at Chitradurga GSI TRAINING CENTRE

TRAINING/ SHORT COURSES ATTENDED:

Technical Training:

- Electron Micro Probe Analyzer (EPMA) Training at CAMECA, Paris, FRANCE. (1991).
- Induction Coupled plasma Spectrophotometer Earth Science Dept. IIT Mumbai (1991).
- Field Mapping and Structural aspects in Dharwar Supracrustals of Chitradurga. Field training conducted jointly by GSI and DST at Chitradurga training center, 1994.
- *Remote sensing, Image interpretation, Digitization and GIS applications on Geological Studies, UNESCO sponsored training at Anna University, Chennai, and IIRS in Chennai. 2002 Trained on ERDAS imagine, Geomatics, Arc GIS, CAD, AutoCAD Land disk.
- Remote sensing, Image interpretation, Digitization and GIS applications on Geological and Environmental studies its Applications Training, Department of Studies in Geology, in GIS lab- bY the Experts from ERDAS India Pltd, Bangalore and Kolkatta.,
- Map Info and Vertical Mappe- from Omcad pltd, Bangalore.
- Geomatica-10 by New Delhi Assisted by the Netherlands.
- Internet and Website training at Mysore University
- Finance and Accounts Training at Mysore University
- One day workshop on "Surveying using Total Station Instrument"
- Hyperspectral studies through Spectral Radiometre.

EXPERTISE IN:

- Field Geology, Field mapping, Geochemical -analytical Studies, Fluid inclusion Studies, Rocks, Mineral, Gems, Ornamental stones and Decorative stones Prospecting identification Chemistry, analyses, Land scape designing, Maintenance of rock gardens, Geoinformatics and Remote Sensing, Geomorphological, Slope, Soil, Earth Quakes, Shear Zones, Structural Geotechnical , Rock stability, Hydrological, Urban Planning, Environmental Issues, Lithological classifications, advising in Advanced Education System. DIGITIZATION and Digital image processing and Cadastral level thematic mapping of the entire Karnataka state. Remote sensing and GIS techniques in Mineral exploration using Hydrothermal Alteration zones of Precambrian rocks of India and out side India**.** Mining aspects, rain water harvesting, wasteland studies, Neotectonics, Environmental applications, Analysis of Shear zone aspects. Visual and digital interpretation of Aerial photographs and Satellite images of Low and High resolution. Hyperspectral studies through Spectral radiometre. Life size models of Live Volcano and other geological models for science exhibitions.

SOFTWARE'S KNOWN:

ERDAS, GEOMATICA, MAP INFO, Auto CAD Land Disk, Arc GIS, Vertical Mapper, and Window Movie Maker. ENVI.

RESOURCE PERSON: For the Earth and Environmental Science. Related to the Petrology, fluid inclusions, Geochemistry, Structural geology, field geology, Remote Sensing, Geoinformatics, Geomorphology, Photo geology and Photogrammetric, GPS Surveying, Land use/Land cover and Waste land studies and its Developments, Reservoir constructions, irrigational activities , Slope and Slope parameters, Lineament Studies, Shear Zone Studies, Plate tectonics, Earthquake studies, Seismic tectonics, Hyperspectral study.

SURVEYING EQUIPMENTS KNOWN:

Compass, GPS and Total Station Survey Instrument.

LABORATORY EXPERIENCE:

Mineral analysis and rock analysis with EPMA, ICP, XRD, XRF, FTIR Petrology and Fluid Inclusion study of different rocks on IGNEOUS, SEDIMENTARY and METAMORPHIC Photogrammetric, Image analysis and image processing.Spectral radiometer.

APPRECIATIONS RECEIVED:

SPECIAL INTERVIEWS FOR T.V PROGRAMME:

- In future, Global tectonics, Earthquake in South India, Petroleum deposits in India and Pralaya concept, by Journalism AVRC Mysore University 1999-2000 to **Chandana TV-Dooradarshan, ZEE News channel, Cauvery News, Asia Net, Feb,2001.**
- All India Radio Programme in the Mysore AkashVani Mysore radio station Scientific Programme on **Talakadu Sand Dune** origin July 11 2008.
- Public awareness about **Sand Mining** in the Mysore District News Paper Scientific Environmental Statement 16 July 2008.
- Invaited Telivision talks on Earthquake related, sand mining, stone mining & qurring, Lakes, Dams and Reservoirs conservations.
- 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 , 2018, 2019, 2020, 2021, Ashia Net, Mysore-1, Power TV , ND TV, TV-5 and all National and State including local news papers on environmental , sand mining rock quarying issus.

SPECIAL LECTURES/ KEY NOTE/ INVITED TALKS DELIVERED:

- Award lecture on **Kollegal Shear Zone**, Biligirirangana Hill ranges, Karnataka, India, 1998, at Dept of Geology, Bangalore University.

- A lecture on **Earthquakes of South India and Karnataka** in Mandya district 0ffice-1997.

❖ A field excursion and lecture on **Earth quakes studies in Coorg District**, Karnataka, 2001.
❖ TV Interview and Phone in Programme in City media of Mysore and Bangalore in UMN and CITY cable.
❖ Environmental Impact of Sand mining and its management in Cauvery and Kabini river basins of Mysore District, Karnataka, India using Geoinformatics Techniques, **Basavarajappa H.T** and Manjunatha M.C, in National Seminar on Sand Mining Impact on Environment, organized by Department of Studies and Research in Environmental Science, Tumkur University, Tumkur on 22nd Sept-2014.
❖ 103 Indian Science Congress 2016 Key note delivered on Demarcation of Kollegala Shear Zone in Southern granulite terrain
❖ Indian Scocial Science Congress 2016. Key note delivered on Hyperspectral studies through Remote Sensing.
❖ Indian Scocial Science Congress 2016 Key note delivered on Structure and Tectonic setup of Precambrian rocks of Biligirirangan Hill ranges.
❖ 3rd International STEM Conference 2017 Key note delivered on Climate change and Global worming
❖ Interaction with the public and experts, planners on quarying of rock materials around Bebibetta near KRS reservoir on environmental impact. Live discussion on Mysore -1. T V program. 2018 and 2019.
❖ Interaction with the public and experts, **planners on against to the PROPOSAL of DISNY LAND near KRS** reservoir on environmental impact. Live discussion Mysore-1. T V program. 2019. ,2020.,2021.,2022 frequvently.

❖ A SECIAL LECTURE delaverd in the contest of Earth Quacke , land mitigation and Quarying around reservoirs and its Environmental Impact to farmors in Mondya. About 5000 people wer gathered . 2022.

MEMBERSHIP OF PROFESSIONAL BODIES

REFEREE TO THE FOLLOWING JOURNALS:

CONTRIBUTION TO: Editorial Boards and Scientific Journals:

1. **JOURNAL OF INDIAN MINERALOGIST (MINERALOGICAL SOCIETY OF INDIA, MYSORE)**

➢ Since from the **20** years working for this scientific journal as a executive member of the this international publication

➢ As a Treasurer **16** years working and improving the membership for the publications

➢ Improving in all respect to this journal actively involved in the publication

➢ Continuously every year organizing the national seminars and conventions of the society in all over the India.

2. **INTERNATIONAL JOURNAL OF SCIENTIFIC AND RESEARCH PUBLICATIONS**

- Member of Peer Review committee.

3. **INDIAN SOCIETY OF GEOMATICS, AHAMADABAD (MYSORE CHAPTER-2003)**

➢ Since from the 7 years working for the Mysore Chapter**, Chairman and as life member** of the this society

➢ As a **member and Chairman** of the society working and improving the membership

➢ Actively involved in all respect of the Mysore Chapter and Society of Geomatics

➢ conducted the work shops in the name of the Society and the Mysore Chapter

4. **JOURNAL OF APPLIED GEOCHEMISTRY (SOCIETY OF APPLIED GEOCHEMISTRY, HYDERABAD)**

➢ Since from the year 2008-2011 Editorial **Board Member** of the Society.

➢ Working and improving the membership for the publications and the Society.

➢ Conducted the workshops in the name of the Society.

5. **DEPARTMENT OF STUDIES IN GEOLOGY ALUMNI ASSOCIATION (DOSGAA) (DOS in Geology University of Mysore, Manasagangothri, Mysore)**Since from the year 2008 **President and founder member of DOSGAA**.-Under this ACADEMIC organization.

6. **IAEME – International Association for Engineering and Management Education**

➢ **Editorial Manager** for IJCIET – International Journal of Civil Engineering and Technology

7. **Reviewer for Journal of King Saub, Iran**

8. **Reviewer for IJSRP – International Journal of Scientific Research and Publications**
9. **Reviewer for AJGS – Arabian Journal of Geosciences**
10. **Reviewer for IJCRT- International Journal of Creative Research Thoughts**.
11. **Editorial board member of the journal of Journal of Architectural Science and Civil Engineering of Gnome Publications.**

CONSULTING SERVICES:

- Petrological Study and identification of different rocks in Granite industry
- Ground Water exploration in hard rock terrains.
- GPS survey
- Total station survey
- Geological field investigations
- Black granite investigations
- **On line Groundwater survey**
- **Spectral Signatures.**

COMMUNITY SERVICES:

- Motivating the Earth Science and Environmental hazards in the public's, School children and colleges.
- Giving the awareness on Remote Sensing and GIS, GPS applications.
- Inspiring the Earth Science Students community to join the different NGOs and GOs.

Putting Efforts in Upgrading the Department to DRSA -IV Level to CAS-I:

- Since from 2000 - 2012 compiling the achievements, publications developing the different laboratories finally Submitted the proposal and Successfully presented in front of the Expert committee to reviewed the Department At New Delhi- and finally succeeded to achieve the goal on Upgrading the Department to CAS first in Karnataka Geology Departments, and First in the history of Mysore University and South India.
- Planning for continues training centre for Earth Science community in different aspects.
- Planning for training on Remote Sensing and GIS applications to School and College Teachers of Karnataka.
- Planning for motivation on Disaster Management cells and Training Institutes for all Education, Administrative, Planning & Implementation and Societal needed Organizations throughout Karnataka.
- Planning for introduce Earth Science subject compulsory in the BED course.
- Planning for introduce Earth Science subject compulsory in the +12 and PUC level
- Planning for introduce Earth Science subject compulsory in the all engeneering
- Planning for introduce Earth Science subject compulsory in high school level

Department awarded Center for Advanced Studies (CAS) in Precambrian Geology 2013-2018 Grant Received Recurring and Non-Recurring Grant 1.50 Crores As a Co-ordinator of the programme in the department.

- Developed and New Instruments purchased AAS lab for geochemical analysis.
- Fluied Inclusion lab New Instruments purchased for Fluied Inclusion studies in Minerals.
- Spectral Radiometer for mineral targeting & Developed Hyperspectral Laboratory for Indian Spectral Library
- Computer & Software purchased for Remote Sensing study and upgraded Remote Sensing Laboratory for teaching purpose
- GIS lab upgraded with the purchase of GIS software Arc GIS

Putting Efforts in Upgrading the Department to DRSA -IV Level to CAS-I

Succesfully compleeted the periad of five years in CAS programme as a Coordinator of the programe and achieved the many objective oriented prablems in the programe published the work during this programe.

Collaboration/linkages with other (National/International) institutions.

- Department of Earth Sciences, College of Science, Sultan Qaboos University, Muscat, Oman, Iran with **Prof. Rajendran S.**
- Institute of mineralogy and petrology, Germany. Federal Institute for Geosciences and Natural Resources in Hannover, University of Hannover with **Prof. Denial Scientist.**
- Anna University, Chennai- ISRO-NRSC project collaboration with **Prof. Nagendra, Prof. S.Sanjeevi and Prof. Elangovan.**
- NGRI Hyderabad with **Dr. Prabha Reddy, Dr. S.S.K Babu.**
- SRM University, Chennai with **Prof. Anna Dorai.**
- Geological Survey of Yaman with **Dr.Mahamad Ali Quaid.**
- **Agricultural University Raichur, Prof. G. Sreenivas.**
- **Dr. S.K Vashist. DGM , Hindustan Zinc ltd. Rajastan**
- **Successfully opening the Two years M.Sc.course of Earth Science and Disoster Management. In 2022-23 acadamic year.**

Future Plans

- **Departmen to be upgraded to Department of Excelence under CAS phase II**
- **Opening the new course on M.Sc in GEOPHISICS under CAS phase –II**
- **Opening the new course on M.Sc in GEOCHEMISTRUY**

Hyper Spectral Remote Sensing of Dharwar Creaton in Southern part of India particularly for mineral targetting like PGE group of elemental content in the minerals (Platinum, Palladium, Rhodium, Ruthenium, Iridium and Osmium) Thorium, Uranaium, Titanum, Vanidum, Gold, Silver, Copper, Nikel, Chromium, Collemubite & tantalamite, REE and other minerals.

Vision:

My social commitment and vision for education is to promote education for all irrespective of the economic barrier. Particularly promote girl's education in rural background which reaches our country 2020 vision. My ambition is that like me everybody in our system to be educated which is the primary step in the development of our social system and economic growth. The one person education in the rural family makes them to understand and to go with rural India.

I take this responsible opportunity to contribute the society and growth of education in every possible aspect of my limits, uttermost humanity.

My ultimate vision is "To render quality service in Science & Technology, that the steps I take and the University I serve for will be globally recognized. Quality Education, Research, Administration and overall development of all sectors of the University is considered to achieve greater heights and compete globally".

This academic vision and social commitment I appeal to the Ministry of Higher education, Government of Karnataka to give me an opportunity to workin any of the University in Karnataka and India.. I am confident that I will contribute to society and growth of education in our soil.

<><><><><>

Signature

VISION

My social commitment and vision for education is to promote education for all irrespective of the economic barrier. Particularly promote girl's education in rural background which reaches our country 2020 vision. My ambition is that like me everybody in our system to be educated which is the primary step in the development of our social system and economic growth. The one person education in the rural family makes them to understand and to go with rural India. I take this responsible opportunity to contribute the society and growth of education in every possible aspect of my limits, uttermost humanity. My ultimate vision is "To render quality service, that the steps I take and the University I serve for will be globally recognized. Quality education, research, administration and overall development of all sectors of the University are considered to achieve greater heights and compete globally". Rising financial assistance (Grants) to develop the University in National and International sectors. This academic vision and social commitment I appeal to the Ministry of Higher education, Government of Karnataka, to give me an opportunity to work as any of the Administrative work in the Government and Higher Education sector. I am confident that I will contribute to society and growth of education in our soil.

I, hereby, declare that all the statements/ particulars made/furnished in this application are true, complete and correct to the best of my knowledge and belief. I also declare and fully understand that in the event of any information furnished being found false or incorrect at any stage, my application/candidature is liable to be summarily rejected at any stage and if I am already appointed, my services are liable to be terminated without any notice from the Administrative post as per Act/ Statutes etc. and other applicable rules.

1. Uplifting the University to World class.
2. Creating better infrastructure for Teaching and Research.
3. Individual Department try to uplift to the Department of Excellence in World wide.
4. Throughout the Campus Green revolution.
5. Changing the landscape building along the roads.
6. Rising the Funds from Govt., Private & Corporate sectors both in National & International Level.
7. Creating better Transportation facilities to the University Campus.
8. Formation and bringing the School concept among different Faculty in the University.
9. Starting the New Courses with the IIT's & IISc in equal to World Class University.
10. Implementing Swatch Bharat Abhiyan in the Centers of the University.
11. Converting all the Class Rooms into Smart Class Rooms in the University.
12. Applying and bringing more projects such as UGC, DST, MHRD, ISRO-NRSC to generate funds.
13. Uplifting the Technology based research in the University.
14. Implementing more and more incentives like Appreciation of better Researcher, Teachers and Students.
15. Creating Better Research facilities.
16. Reforming the Academic and Research rules & guidelines as per the UGC & our Govt.
17. Implementation on Museums and tourist attraction in the Campus.
18. Publications mandatory among P.G students, Research Scholars and Faculties in the University.
19. Instituting the Training institute (TI) for the lower to higher educations.
20. Implementing new Courses in all the Faculty as per with IITs and IISc in the Country.
21. Department of Remote Sensing and GIS applications.
22. Department of Mining and mineral exploration.
23. Department of Climatology and Oceanography.
24. Department of Natural Disaster Management.
25. Earth Science, Botony and Zoology - National Museum.
26. University Medical College for MD
27. University Engineering College - M.S & M.Tech.
28. Space Application Centre - M.S & M.Tech.
29. Department of Soil and Agricultural Sciences - M.S/ M.Tech
30. Fuel and Energy Department - M.S & M.Tech.
31. Geophysics and Meteorological Department - M.S/ M.Tech.
32. Material Science and Nanotechnology Department - M.S/ M.Tech.
33. University B.Ed & M.Ed course Department.
34. Officers Training Institute.
35. Introducing Earth Science in all Engineering collages in Karnataka and all PU collages as a subject (Geology PCMG, CBZG).