

राष्ट्रीय भूभौतिकीय अनुसंधान संस्थान
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
समाचार पत्रिका



CSIR - NGRI e-newsletter

January-March

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From Director's Desk

Greetings from CSIR-NGRI!

We are pleased to present our first quarterly newsletter of 2013. During this period, we were involved in a variety of activities including those of societal relevance. Workshops for students are particularly noteworthy. One unique workshop is that on near surface geophysics, which was primarily supported by NGRI's internal funds. Students, professors and researchers from different parts of the country participated in the workshop, which involved detailed lectures on some basic and advanced topics followed by field demonstrations of different geophysical methods. One other workshop focussed on training students on the usage of geochemical software package. The training was conducted by professors from Czechoslovakia and France. We have identified the need for training our next generation of scientists and hope to organize similar workshops in future.

I thank the friends and advisors of CSIR-NGRI for their continued support.

A Few Selected Publications

Most Frequently Accessed Paper in JGR-Planets

Gullies and landslides on the Moon: Evidence for dry-granular flows

(Ref: P. Senthil Kumar et al ,**JOURNAL OF GEOPHYSICAL RESEARCH: PLANETS** Volume 118, Issue 2, pages 206–223)

Gondwana Research Best Paper for 2012

Gas hydrates in India: Potential and development

(Ref: Kalachand Sain , Harsh Gupta, **GONDWANA RESEARCH** 22 (2012) 645–657)

Most read (downloaded) papers published in the January issue of BSSA

Fractal and *b*-Value Mapping in Eastern Himalaya and Southern Tibet

Fractal (correlation) dimension and *b*-value are determined from ~1300 well-located earthquakes recorded at 32 seismic stations in eastern Himalaya and southern Tibet during 1993–2003. The spatial correlation of 0.9 is indicative of more clustered events in the region, while a *b*-value of 1.02 implies a highly active seismic region. A detailed study of the frequency–magnitude distribution and fractal dimension as a function of depth is also made. The results suggest structural variability at different depth levels in the Tibet–Himalaya collision zone that reflects highly heterogeneous and high-grade metamorphism in the region.

(Ref: Chandrani Singh, Arun Singh and R.K.Chadha doi: 10.1785/0120090041 **BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA** December 2009 v. 99 no. 6 p. 3529-3533)

Most downloaded papers published in the January issue of GEOPHYSICS

A prestack basis pursuit seismic inversion

Resolving thin layers and accurate delineation of layer boundaries are very important for reservoir characterization. Many seismic inversion methods based on a least-squares optimization approach with Tikhonov-type regularization can intrinsically lead to unfocused transitions between adjacent layers. A basis pursuit inversion algorithm (BPI) based on L_1 norm optimization method can, however, resolve sharp boundaries between appropriate layers. Here we formulate a BPI algorithm for amplitude-versus-angle (AVA) inversion and investigate its potential to improve contrasts between layers. Like the BPI for post-stack case ([Zhang and Castagna, 2011](#)), we use an L_1 norm optimization framework that estimates three reflectivities, namely, R_p , R_s and R_p . High resolution velocities (V_p , V_s) and density (ρ) can be derived from these parameters by incorporating initial models. Tests on synthetic and field data show that the BPI algorithm can indeed detect and enhance layer boundaries by effectively removing the wavelet interference.

(Ref: Zhang, Rui; Sen, Mrinal K.; Srinivasan, Sanjay Source: **GEOPHYSICS** Volume: 78 Issue: 1 Pages: R1-R11 DOI: 10.1190/geo2011-0502.1 Published: JAN-FEB 2013)

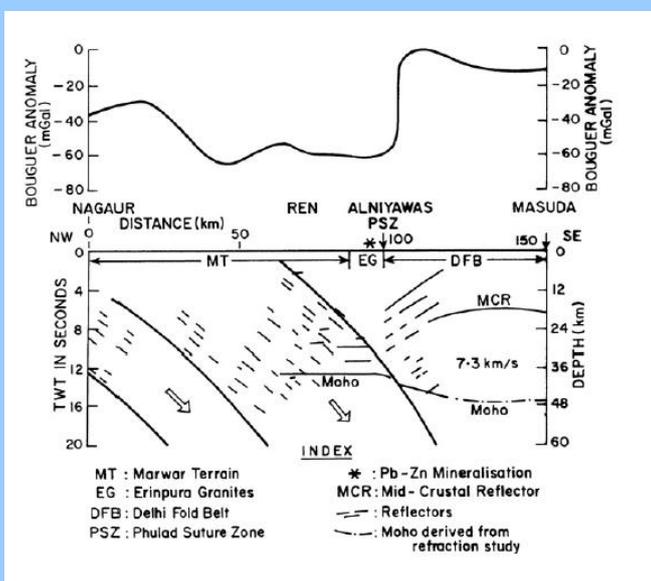
Mantle fluids in the Karakoram fault: Helium isotope evidence

The Karakoram fault (KKF) is the 1000 km-long strike-slip fault separating the western Himalaya from the Tibetan Plateau. From geologic and geodetic data, the KKF is argued either to be a lithospheric-scale fault with hundreds of km of offset at several cm/a, or to be almost inactive with cumulative offset of only a few tens of kilometers and to be just the upper-crustal localization of distributed deformation at depth. Here, we show $^3\text{He}/^4\text{He}$ ratios in geothermal springs along a 500-km segment of the KKF are 3–100 times the normal ratio in continental crust, providing unequivocal evidence that a component of these hydrologic systems is derived from tectonically active mantle. Mantle enrichment is absent along the Indus–Yarlung suture zone (ISZ) just 35 km southwest of the KKF, suggesting that the mantle fluids flow only within the KKF. Within the last few Ma, the KKF must have accessed tectonically active Tibetan mantle northeast of the “mantle suture” which we therefore locate vertically beneath the KKF, very close to the surface trace of the ISZ. Hence, in southwestern Tibet, Indian crust may not now be under thrusting substantially north of the ISZ, even though Miocene under thrusting may have placed Indian crust north of the ISZ in the lower half of the Tibetan Plateau crust. This is insignificant contrast to central and eastern Tibet where under thrust Indian material not only forms the lower half of the Tibetan crust but is also currently under thrusting for ~200 km north of the ISZ. Our new constraint on KKF penetration to the mantle allows an improved description of the continuously evolving Karakoram fault, as a tectonically significant yet perhaps geologically ephemeral lithospheric structure.

Our new data showing no mantle contamination of hot springs on the Indus–Yarlung suture (ISZ) complement our new and existing data showing clear mantle enrichment along the KKF and together imply focusing of the mantle fluids by the strike-slip fault system.

(Ref: Simon L. Klemperer, B. Mack Kennedy, Siva R. Sastry, Yizhaq Makovsky, T. Harinarayana, Mary L. Leech, **EARTH AND PLANETARY SCIENCE LETTERS** 366 (2013) 59–70)

Evidence for the Neoproterozoic Phulad Suture Zone and Genesis of Malani magmatism in the NW India from deep seismic images: Implications for assembly and breakup of the Rodinia



Deep seismic reflection images across the late Mesoproterozoic South Delhi Fold Belt (SDFB), NW India, provide evidence for crustal-scale tectonic imbrication and collisional tectonism. An Andean-type margin with eastward subduction of oceanic lithosphere and subsequent collision of volcanic arc with Mewar craton is responsible for the evolution of the SDFB.

Fig: Line drawing of the seismic stack section along the Nagaur–Masuda segment. Bouguer gravity signature along the segment is superimposed over it. Note the steep gradient at the suture (PSZ). The thick lines and arrows are shown to indicate the nature of dipping reflections (modified after [Vijaya Rao et al., 2000](#)).

Contrasting geophysical (particularly the deep seismic and gravity models) and geological signatures found across the SDFB suggest this as a suture, the Phulad Suture Zone (PSZ) with its extension into the Himalaya. Post-collisional delamination and orogenic collapse are responsible for the equilibrated younger Moho and evolution of Malanimagmatism in the region. The present study envisages an evolutionary model for the Malani volcanics, unambiguously identifying for the first time the SDFB rocks as their basement. This model successfully resolves the ambiguity by correlating the Marwar Terrain with the Rodinia assembly rather than later Pan-African orogeny located further west.

Evolution of the SDFB and Malani magmatism are coeval with the Rodinia assembly and breakup. The South Delhi orogeny, located between the east- and the west-Gondwana fragments, plays an important role for reconstruction of the Gondwana. The present study examines both the collisional and post-collisional tectonic features of an orogenic cycle related to the crustal evolution of one of the orogenic belts of the Indian shield, namely the South Delhi Fold Belt (SDFB).

(Ref:V. Vijaya Rao and V.G. Krishna, **Tectonophysics** 589 (2013) 172–185)

New palaeomagnetic and rock magnetic results on Mesoproterozoic kimberlites from the Eastern Dharwar craton, southern India: Towards constraining India's position in Rodinia

New palaeomagnetic and rock magnetic results are reported for 1.1 Ga Mesoproterozoic kimberlites from the distinct fields of Wajrakarur (WKF), Narayanpet (NKF) and Raichur (RKF) occurring within the Eastern Dharwar craton, southern India. In all, 35 oriented block samples were collected from ten kimberlite pipes and our results constitute first of their kind for the kimberlites from NKF and RKF. Palaeomagnetic data reveal that characteristic remanent magnetization (ChRM) directions of the studied kimberlites show a mean declination of 39 and mean inclination of -16 ($N = 4$, $k = 37.6$ and $\sigma = 15.2$) and yield a virtual geomagnetic pole at 44.5°N , 195.4°E ($dp = 8.0$, $dm = 15.6$). This new pole position is identical to the earlier reported palaeomagnetic pole that lies at 36.8°N , 212.5°E for some Wajrakarur kimberlites and other such global results at 1100 Ma from Umkondo dolerites, Kalahari craton, southern Africa. The newly obtained palaeomagnetic pole also correlates well with the virtual geomagnetic pole (VGP) generated from the 1.1 Ga Majhgawan kimberlite, Mahoba dyke and the Bhandar–Rewa sedimentary Group in the Upper Vindhyan sequence within the Bundelkhand craton of Northern India. Our results support a Mesoproterozoic closure age of the upper sedimentary horizons for the ‘Purana’ sedimentary basins and provide evidence for accretion of the northern and southern Indian cratonic blocks prior to 1.1 Ga. Our study also demonstrates that in 1.1 Ga palaeomagnetically based Rodinia reconstructions, India occupies a lower palaeo latitudinal position, was much separated from Australia and that East Gondwana very likely did not form an assembly until the terminal Neoproterozoic.

(Ref: M. Venkateshwarlu, N.V. Chalapathi Rao, **Precambrian Research**, 224, 588– 596.)

Important Events

2nd Hari Narain Memorial lecture

The second Hari Narain Memorial lecture was organized at NGRI on 25th January, 2013 . Sri D.N.Avasthi, Former Board Level Member, ONGC delivered a talk on the topic “Global warming to Climate Change”.

After paying tributes to the legendary figure Prof. Hari Narain, Sri Avasthi started his talk by saying that Climate change, whether warming or cooling, which affects the human civilization and its path of progress, is a matter of concern for the scientists, politicians and industrial magnates. Instead of taking an alarmist view of the change, it makes sense to examine the various terrestrial and extra-terrestrial factors, besides anthropological, which might be causing this change. Then it is possible to devise mechanisms and systems (i) to contain the change within limits to sustain the progress of human civilization as well as (ii) to ward – off any disastrous event that can come up in a manner, which can lead to the devastation of mankind itself. Scientists have noticed climate change in Earth’s past geological history, even when human civilization had not emerged on the scene. Prevention of reaching the critical stage of global temperature change at an accelerated rate (called the “Tipping Point”) is the main concern of these scientists, and for that they are engaged in finding technological solutions.

The main culprits of global warming in GHG are CO₂, N₂O and Black C. The cooling agents are SO₂ and Organic C. N₂O is a product of farming and forest, where due the denitrifying bacteria in the soil, which consumes it, its heat trapping effect, is neutralized to a great extent. Without the cooling aerosols like SO₂, the rise in temperature due to GHG from 1900 to 2100 is predicted to go up to 8° C. With a view to control this rise, warming effect of the GHG like CO₂ has to be controlled by cutting down their emissions. Based on the projection of temperature rise due to CO₂ emission alone over the period 2000 to 2077, IPCC has estimated the volume of CO₂ emission per year to be cut down in eight wedges of progressively increasing volume till 2050. The volume of CO₂ emission to be cut down by 2055 is estimated to be eight billion tonnes per year. Nevertheless, the increase of temperature due to anthropogenic CO₂ emissions could provide the “Tipping Point” towards a hotter planet Earth due to other effects of Earth’s motion and extra- planetary radiations, thereby devastating the human civilization. Toward off such a catastrophe, it is necessary for the mankind to work on appropriately balancing factors, which may prevent the climate change from getting beyond redemption.

Stratospheric water vapour concentrations decreased by about 10% after the year 2000. This acted to slow the rate of increase in global surface temperature over 2000–2009 by about 25% compared to that which would have occurred due only to carbon dioxide and other greenhouse gases. According to the NCCA Report, in 2007, India was 5th in aggregate GHG emissions in the world, behind USA, China, EU and Russia. Interestingly, the emissions of USA and China were almost 4 times that of India in 2007. The talk was preceded by the welcome address by Prof. Mrinal K. Sen , Director and introduction of the speaker by Prof V.P.Dimri, CSIR-Distinguished Scientist.

Workshop on Near Surface Geophysics

Workshop on Near Surface Geophysics was conducted by CSIR-NGRI from 27th to 29th of January, 2013. This workshop was inaugurated by the chief guest Shri P.S Parihar, Director, Atomic Minerals Directorate (AMD). Prof. V. P. Dimri, CSIR-Distinguished Scientist, was the guest of honour and Dr. S. K. Verma, Raja Ramanna Fellow, CSIR-NGRI was the advisor of the workshop. Prof. Mrinal K. Sen, Director, CSIR-NGRI highlighted the need for such kind of workshop on "Near Surface Geophysics" and elaborated on the necessity of geophysical methods and their applications to address the challenges in near surface studies. The main themes covered in this workshop were: theoretical geophysical studies, mineral exploration, ground water studies, engineering geophysics, coastal salinity mapping, mining applications, seismic hazard

zation and waste disposal and monitoring of pollution plumes. Thirty students from different universities such as Kurukshetra University, IIT Kharagpur, Osmania University, Banarus Hindu University, Andhra University, ISM Dhanbad, Cochin University, KIIT University were sponsored by NGRI to attend the workshop and get an exposure of the latest trends in geophysics. Eighteen talks were delivered by eminent speakers from different institutions, NGRI and industries across India. All the scientific presentations were scheduled on 28th January in four sessions. The posters were presented on 28th and 29th January during tea breaks. On 29th January, 2013, a few geophysical equipments were demonstrated and the intricacies involved in the field studies were explained to the students in the NGRI campus. All the students were divided into three groups and then each group participated in the live demonstration of Horizontal Loop Electromagnetic Method (HLEM), Ground Penetrating Radar (GPR), Resistivity Imaging systems, 2-D High resolution Seismic surveys (HRSS) respectively. The workshop concluded with a panel discussion. Dr. T.Seshunarayana, Chief Scientist, CSIR-NGRI proposed vote of thanks.

13th PLANEX Workshop: 6-12 January 2013, CSIR-NGRI, Hyderabad

CSIR-NGRI organized the 13th PLANEX workshop "Impacts on Solar System Objects" from 6 to 12 January 2013 at NGRI Campus, Hyderabad. This workshop was composed of lectures and interactive sessions for four days, and a field visit to Lonar impact crater in Maharashtra. About 35 MSc/PhD/MTech/BTech students from various universities, IITs, engineering colleges attended the workshop. Dr. P. Senthil Kumar, Senior Scientist of CSIR-NGRI and Prof. S.V.S. Murty, Senior Professor of Physical Research Laboratory jointly convened the workshop. The participants spent three days at the Lonar crater where the resource persons illustrated the geology of the impact structure. The participants were given the text book "Planetary Surface Processes" written by H. Jay Melosh, and a copy of the special issue of the Elements Journal on the impact.

Fourteen lectures were delivered covering various aspects of impact cratering processes taking place in various Solar System objects (planets, satellites and asteroids), and terrestrial impacts by experts both from national and international institutions. The participants also pursued a small research project on different aspects of the science of impact craters, mentored by experts.



Prof. J.N. Goswami, Director, PRL, delivered a motivational lecture to the young participants. All the participants were benefitted by the workshop by gaining knowledge and insight on the meteorite impact processes and expressed their deep interest in considering planetary geology for their further research career. Prof. Mrinal K. Sen, Director, CSIR-NGRI distributed the participation certificates to all the participants.

Workshop/Training Course on “Geochemical Modelling in Igneous Petrogenesis:

A four day DST sponsored National Workshop/Training Course on “Geochemical Modelling in Igneous Petrogenesis: An Introduction to GCD Kit and R-Language” was organized at CSIR-National Geophysical Research Institute during 12-15 January, 2013. The training was offered by renowned computational experts and GCD kit code developers Prof. Vojtech Janousek from Czech Geological Survey and Charles University, Prague, Czech Republic, and Prof. Jean-François Moyen from Université Jean Monnet, Saint-Etienne, France. About 52 members including research scholars and a few young staff members from universities/R&D organizations from across the country attended this workshop. Training was imparted on the fundamentals of R-language, application of GCD kit in handling geochemical data sets, mass balance/mixing calculations, modelling the behaviour of trace elements and modelling strategies.



Laptops with wi-fi connections provided to individual participants rendered the course effective in offering this hands-on-training program. Renowned geochemists who have widely studied Indian rocks also added flavour to this program by imparting their studies on geochemical modelling to the participants.

Prof. Rajamani (JNU, New Delhi) dwelt on Geochemical modelling in Igneous Petrogenesis while Prof. Mihir Deb (Delhi University) gave a detailed view on the application of geochemical data in metallogenic studies with special emphasis on gold mineralization. Prof. Santosh Kumar (Kumaun University, Nainital) delivered a lecture on viable models in magmatic processes and Prof. K. Vijaya Kumar (SRTM, Nanded) extensively dealt on the mantle melting mechanisms using geochemical tracers. Course completion certificates were awarded to all the participants by Prof. Mrinal K Sen, Director, CSIR-NGRI, in the presence of Prof. S K. Tandon (Delhi University) and Dr. Umesh Sharma (DST, New Delhi).

Training Programme on Remediation Technology and Modeling of Assessment of Groundwater Contamination



CPCB sponsored Training Programme on *Remediation Technology and Modeling of Assessment of Groundwater Contamination* was organized at the CSIR-National Geophysical Research Institute (NGRI), Hyderabad during January 21-25, 2013. Professionals working in the field of environmental sciences including

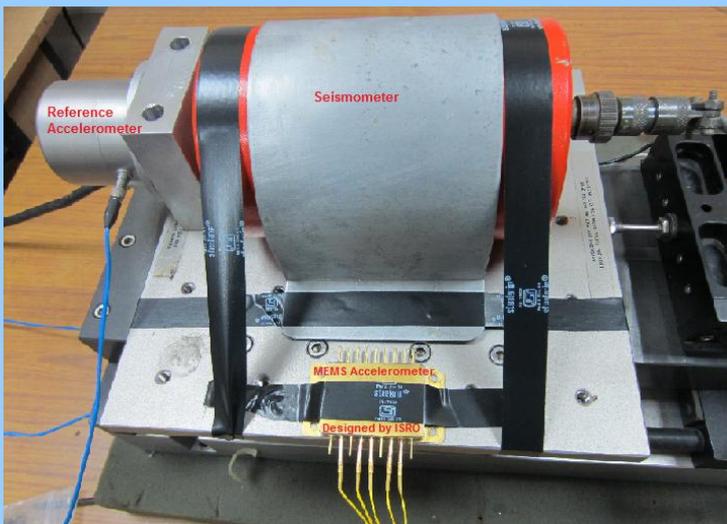
control, monitoring, legislative bodies and NGO's were trained to enhance their abilities of working knowledge and skills.

The participants were mainly scientists, Environmental Engineers, Scientific/Field Officers of Pollution Control Boards from different states. The objectives of the Training Programme were to explain about various remedial technologies, modelling and assessment of groundwater contamination due to organic and inorganic pollutants. Speakers from various academic institutes (i.e. IITs), Universities and R&D organizations including CSIR-NGRI Scientists were the resource personnel.

Prof. Mrinal K. Sen, Director, CSIR-NGRI, in his inaugural address, emphasized on the need of the training on advanced aspects of assessment of groundwater contamination remediation and modelling. He has also spoken on the various projects of NGRI towards societal application apart from R & D activities. The training programme comprised of distinct lectures on remediation technologies and modeling of groundwater contamination followed by practical on lab-scale remedial methods, modelling and GIS mapping.

Validation Experiments For Chandrayaan – II

Under the Chandrayan II program, NGRI has carried out validation experiments on indigenously developed MEMS accelerometers by Indian Space Research organization (ISRO) with an objective to measure inertial



variations of current and future spacecrafts and to measure moonquakes and vibrations of moon at landing site during February 7-8, 2013.

The experimental setup was designed in *Testing and Calibration Lab* headed by Dr H V S Satyanarayana, Senior Principal Scientist. The team comprised of Mr. Thandan Babu Naik R, Mr. Raghavan R V, Dr. Srinagesh D and R S K Srinivasulu from NGRI and Mr. Gaurav Saxena and Mr. Selvaraj from ISRO.

National Science Day



To commemorate the National Science Day, 25 selected research students of NGRI presented their work through posters which was well attended by the scientists and students of the Institute. A fascinating lecture was delivered by Prof. Raghavendra Gadagkar from Center for Ecological Sciences and Center for Contemporary Studies, IISc Bangalore on 'Science Education Indisciplined'!

Starting with the telling story of the Ant and the Grasshopper through a short Walt Disney film, he expanded on the development of different models of Knowledge Evolution in human society through time. Through

examples from past and present, he explained how knowledge development and dissemination methods have gone from initial phases of anonymity and oral rendition to highly stylised documentation with formal credits and patents and is currently moving into the phase of cooperative contribution through crowd sourcing and other avenues.

Prof. Raghavendra has developed his theory (in five themes) on the basis of studies conducted on social insects like ants, bees and wasps, to highlight the interconnections and interdependencies of the physical world around us. Thus, he extolled the breaking down of formal boundaries among different disciplines of science and indeed all other forms of knowledge including humanities and arts. This concept forms the strong basis of his novel teaching methods, which targets the holistic understanding and provides opportunities to the students to use their imagination and make up their own constellation of disciplines and thus their own tree of knowledge.

Prior to the talk, Prof Mrinal K.Sen, Director, NGRI addressed the gathering and spoke on the significance of “National Science Day”. Dr. G.Parthasarathy, chief scientist, introduced the chief guest to the gathering. The chief guest presented cash prizes to Mr R.Rajesh, Ms. Mehnaj and Ms. Karabi Talukdar for their best poster presentations. The function ended with a vote of thanks by Dr Kusumita Arora, Principal Scientist

Extension of MoU between CSIR-NGRI and Powergrid Corporation of India Limited (POWERGRID)



CSIR-NGRI and POWERGRID have been collaborating for the past nine years for geophysical investigations of various earth electrode station (EES) sites for High Voltage Direct Current (HVDC) transmission in India. The collaboration between the two organizations has further been strengthened by extending the MoU for a period of another two years. This MoU was signed on January 15, 2013 by Shri M.M. Goswami, General Manager, (Engg.-HVDC), POWERGRID and Prof. Mrinal K. Sen, Director, CSIR-NGRI.

Awards and Honours

Lifetime Achievement Award for Dr.Vijaya Rao



Dr.Vijaya Rao, chief Scientist, Controlled Seismic Studies group, NGRI received the “**Lifetime Achievement Award**” for his significant research contributions towards in Geophysics, from Indian Institute of Oriental Heritage (IIOH), Kolkata. The award was presented by Prof.Satyanarayan Chakrabarty, Chancellor, IIOH. Dr Rao carried out studies of the continental crust using seismic refraction / wide-angle reflection and multifold deep crustal near-vertical reflection studies in different parts of the Indian shield.

He has also developed new methodologies for modeling complex structures and waveforms and published 50 research papers in national / international journals and 17 technical reports.

National Geoscience Award-2011 to Dr. Prakash Kumar



Dr Prakash Kumar, Principal Scientist, Seismology group, CSIR-NGRI, Hyderabad has been honoured with the National Geoscience Award-2011 in the Applied Geophysics category for his significant contributions in the field of Seismology and Geodynamics. He has published papers on seismological mapping of the hitherto elusive Lithospheric-Asthenospheric boundary using converted waves, a state-of-the-art seismological approach, using data from continent and ocean bottom. The seismological evidence inferred by their study supports a thin Indian plate vis-a-vis other Gondwana fragments and explains the faster drift of

Indian plate during the Cretaceous period. Dr. Kumar also contributed to various theoretical aspects of active and passive seismology. His research articles have been published in the highest rated journals like Nature and Science. Earlier, Dr. Prakash Kumar received CSIR Young scientist award and IGU Krishnan Gold Medal.

ISAG Award to Dr. M. Satyanarayanan



Dr. M. Satyanarayanan, Scientist, CSIR-NGRI, received “Smt. Mathripragada Sita Devi-Sri Rama Rao Medal” for Best contribution in the field of Analytical Geochemistry during the last ten years (2002-2012) by the Indian Society of Applied Geochemists (ISAG), Hyderabad. The award was conferred on him by Prof. Dr. Pushpati Nath Razdan, Vice-Chancellor, Dr. D. Y. Patil Vidyapeeth (DYPV), Pune, in the presence of Dr. K. K. Dwivedi, President (ISAG, Hyderabad) and Prof. K. Surya Prakash Rao, Secretary (ISAG, Hyderabad), during the Annual General Body Meeting (AGM-2013) and National Seminar on

“Synergy of Geochemistry, Geology, Geophysics towards natural and energy resources, environment and health”, at University of Pune.

Indo Australian Visiting Scientist Fellowship



Dr. P.V. Sunder Raju, Principal Scientist of CSIR-National Geophysical Research Institute, Hyderabad was awarded “**Indo Australian Visiting Scientist Fellowship**” by Australian Academy of Sciences and Govt. of India to carry out advanced studies/research on REE, precious metals like Gold and Platinum group elements at Centre of Excellence in Ore Deposit Research in Australia. CODES, ARC.

Visiting Professor at University of Tokyo



Dr. Abhey Ram Bansal, Principal Scientist, CSIR-NGRI, Hyderabad has been selected as a visiting Professor of University of Tokyo, Tokyo Japan, in recognition of his significant contributions in the field of earth sciences. Presently, Dr. Bansal is working on earthquake studies.

Lectures Delivered By Distinguished Visitors

Date	Name of the Visitor	Title of the Talk
01-01-2013	Shri. Ravi Sharma Vivekananda Kendra, Hyderabad	Swami Vivekananda's call to the Nation
10-01-2013	Prof. Ashok Sahni FTWAS	The Physics of Small Things: The Calcite Eye and other Biomineral Marvels
11-01- 2013	Prof. J F Moyen, University of Saint-Etienne, France	Archean granites: Records of tectonic setting
22-01-2013	Prof. Simon Harley, FRSE, University of Edinburgh, U.K.	The Hottest Crust: The nature and significance of granulites and ultrahigh temperature metamorphism?"
23-01-2013	Shri D.N. Avasthi, President, SPS Consultants, New Delhi	From Global Warming to Climate Change
7-02-2013	Dr Vladimir Cermak Geophysical Institute Academy of Sciences of the Czech Republic Prague	Monitoring Subsurface Temperature for Past Climate Change
18-02-2013	Prof. Ulrich R. Christensen, Max-Planck Institute for Solar System Research, Katlenburg-Lindau, Germany	Dynamos in the Earth and other planets
22-02-2013	Prof. A. J. W. Gleadow University of Melbourne, Australia	Revealing the Secret lives of rocks: Low Temperature Thermochronology and the long-term History of Uplift and Erosion in the Upper Crust
07-03-13	Mr.Matin Crooks	Exploration and Production- Challenges and their solutions by PARADIGM

25-03-13	Dr. Michael Weidenbeck	Objectives of the SIMS (Cameca 1280 HR) facility at Postdam, Germany
26-03-13	Sri.Narendra Luther	The Romance of Hyderabad (A Presentation on History of Hyderabad)

Superannuated Staff Members

Mr. M.A. Khadar	Lab Assistant	Dr. D. Indira Nagubai	Sr. Prin. Scientist
Mr. K.V. Anjaiah	Sr. Technician (2)	Mrs. V. Valli	PTO
Mr. M.A. Razak	Lab Assistant	Mr. A. Malla Reddy	Safaiwala (Acp)
Mr. Ramachander	Lab Assistant	Mr.B. Venkatnarsaiah	ASST. (F&A) GR. I

Obituary

Mr. Basheer Ahmad - Lab Assistant
Mrs. M. Jangamma - Safaiwala

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