NOTES

NATIONAL SEMINAR ON GEOPHYSICAL SURVEYS IN INDIA – PROSPECT AND RETROSPECT

A two-day National Seminar on "Geophysical Surveys in India – Prospect and Retrospect" was organised by Geological Survey of India, AMSE Wing, Bangalore on 26th and 27th February, 2002 as part of the 150th year celebrations of GSI. This was the last of the series of thematic seminars held earlier at various regional head-quarters of the GSI. Fifty-nine research articles were presented at the seminar. A pre-seminar volume containing thirty-three of these articles and an abstracts volume containing all the fifty-nine accepted articles were released on the opening day of the seminar. The seminar, conducted for two days, included inaugural function, oral and poster presentation in six technical sessions (three sessions on each day), a panel discussion, and a valedictory function with a special lecture on geophysics.

The inaugural session was presided over by Dr. A.K. Kundra, Secretary, Department of Mines who called for clearance of all hurdles for aerogeophysical surveys. He lauded the yeomen services rendered by the GSI in identifying country's natural resources. On this occasion, two eminent geoscientists of the country Padmashri Dr. B.P. Radhakrishna and Padmashri Dr. Hari Narain were felicitated. Dr. B.P. Radhakrishna gave a thought provoking lecture on the status of geological studies in the country, their past and future and called for judicious use of natural resources with long term conservation in mind. Dr. Hari Narain delivered a talk on the evolution of concepts in earth sciences since 250 BC to 21st century.

The presentations in the seminar included wide ranging aspects of contemporary interest on the subject. Of the fifty-nine papers, twenty-five presented the summary of research involving application of geophysical methods in search for mineral deposits including those of base metals, gold, diamond, barite and coal. The use of geophysical data (gravity, seismic and magnetic) for geological interpretation

Dr. A.K. Kundra (right), Secretary, Department of Mines, Government of India and Shri P.C. Mandal, Director General, Geological Survey of India (centre), felicitating Dr. B.P. Radhakrishna.

Shri R.L. Munshi, D.D.G., AMSE Wing, GSI, Bangalore delivering his address at the seminar.

and geotectonic modelling was covered in fifteen papers. Another fifteen papers discussed application of geophysical techniques in solving geotechnical problems, study of groundwater, characterizing impact of natural hazards and the rest reviewed the present status of geophysical surveys in different parts of India. Thirty-three of these papers were presented in the oral sessions and the rest as poster presentation.

The technical session I and II with key papers by Dr. S.N. Anand on 'Status of Geophysical Surveys in Geological Survey of India' and Dr. R.N. Mishra on 'Geophysical Interpretation: A study on their self complementing characteristics' discussed recent mineral discoveries by employing geophysical methods. The technical session III opened with a stimulating and erudite address by Prof. B.B. Bhattacharya, Director, ISM, Dhanbad, on the 'Study of Resolution, Sensitivity and Uncertainty for VES and IP soundings'. Dr. Bhattacharya showed the importance of error estimation, correlation and uncertainty calculations in conducting and assessing results of geophysical investigations and offered to share free of cost the software developed for the purpose. Five papers that followed the key paper dealt with integrated geological and geophysical investigations on diamond and gold. The technical session IV began with a highly informative paper by Dr. S. Rajan, Project Director, DOD (NIAO) who underscored the importance and need for geophysical modelling of marine geophysical survey data in unveiling the subsurface characteristics in offshore areas. He mentioned that under the UNCLS international agreement, the EEZ of India could be extended (roughly equal to the land area of the country) if presence of continental crust beneath the ocean can be proved by geophysical modelling techniques away from the Indian coast. The technical papers in this session covered the topic of geological modelling with the help of the geophysical data.

The technical session V started with the presentation of Dr. J.R. Kayal, GSI. He succinctly outlined the essence of tomographic techniques as applied to seismic investigations and demonstrated how such interpretations and modelling could be used for predicting subsurface structural features in earthquake source areas. The contributions during this session mainly discussed seismotectonics, palaeomagnetics and mineral exploration through conventional geophysical surveys. In an important contribution, Sagina Ram and his co-workers showed that higher *b*-value contours in E-W direction in the Bhuj area reflected the maximum stress release zone extending from mid-crust and ending in the crust-mantle boundary.

The technical session VI comprised presentations of geophysical studies related to groundwater and

environmental issues. The topics included (i) delineation of saline water incursion zones; (ii) use of aeromagnetic and satellite data for identification of potential deep fractured/ aquifer zones, (iii) environmental hazards caused by naturally occurring radioactive material along the course of Mahanadi river, (iv) use of hammer seismic surveys in delineation of palaeochannels; (v) usefulness of VES geophysical methods in disposition of fresh and saline/ brackish water zones in the Kolkata metropolis and (vi) methods to delineate shallow and deep aquifers in Hoara area.

An important aspect of the proceedings on both days of the seminar was poster presentations of twenty-six papers that could not be accommodated during the oral sessions. There was an excellent arrangement for poster presentations that were competently manned and generated an enthusiastic response from the various panels.

At the conclusion of the technical sessions, the panel discussion started with the introductory remarks by Dr. R.L. Munshi, Head of AMSE Wing, GSI, who stressed the need for coordination between geologists and geophysicists in conducting geological investigations. Shri A.K. Agrawal, GSI, recollected the central theme of the talks given by Dr. B.P. Radhakrishna and Dr. Hari Narain during the inaugural session and summed up the comments given by chairmen of the technical sessions. He concluded by stating that the consensus of the seminar appeared to be that in this age of competition, the GSI should be equipped with better instruments, be on its toes, aim for deeper mineralized targets and complement airborne surveys with marine geophysical surveys. Prof. B. B. Bhattacharya, ISM mentioned that geology has been silicate-centric and called for more research in correlating physical parameters of rocks and minerals with their geophysical signatures for better interpretation of geophysical anomalies. He also stressed the need of documenting the failures along with the successful investigations, so that one can learn and rectify mistakes in design, conduct and interpretation of scientific experiments. Dr. K.L. Tikoo, AMD, recounted the usefulness of geological knowledge in geophysical interpretations and stressed on sharing of data between different organizations and hailed the seminar as a very successful one. Dr. D.P. Das, MECL complemented GSI for high quality of geophysical work being carried out. Dr. D. Chatterjee, underscored the close interaction between geologists and geophysicists as evident in the presentation of the papers in the seminar and was of the opinion that astrophysics should be considered a part of geophysical investigations. He called for more investigations to concentrate on detection of concealed mineral targets.

The seminar concluded with an inspiring and thought-provoking address by Dr. V.K. Gaur, Indian Institute of Astrophysics (IIAP), Bangalore. Dr. Gaur delivered his scintillating lecture on the need for scientific spirit, creativity and temper in conducting investigations. He called on the need to modernize, revisit and reinterpret old data, apply global models, integrate skills of different disciplines and adopt a rational approach in conducting scientific investigations. Shri P. Suthanandam, Director, GSI and Organizing Secretary of the seminar thanked all the participants for a successful culmination of the seminar.

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ANNOUNCEMENT

GEOMATICS 2002

The Indian Society of Geomatics (ISG) is holding its Annual Convention and Conference on 'IT Enabled Spatial Data Services' at the Centre for Remote Sensing, Bharathidasan University, Tiruchirapalli during 18-20 September 2002.

The Conference shall address the following themes: Application of Geomatics in: Mineral and hydrocarbon exploration; Hill area planning; Urban planning; Rural water supply; Coastal zone management Ocean and meteorological services and Disaster management.For further details, please contact: Dr. SM. Ramasamy, Organising Secretary - GEOMATICS 2002, Professor and Head/ Director, Centre for Remote Sensing, Bharathidasan University, Khajamalai Campus, Tiruchirapalli - 620 023, Tamil Nadu, India. **Phone:** 431-420 667; **Fax:** 0431-422 902; **Email:** smrbard@eth.net/smrbard@hotmail.com