

Geological Survey of India, Trivandrum (formerly in palaeomagnetism laboratory of CESS) joined the resource personnel for the fieldtrip and subsequent laboratory work. Dr. A. D. Singh, Department of Marine Sciences, Cochin University introduced the participants to the sedimentary sequences.

While Dr. Avasthi gave a lead to the program by inaugurating it, Shri T. M. Mahadevan chaired the valedictory function on the last day of the contact program. He gave a lecture on "The Indian Lithosphere: the Geology and Evolution" stressing upon the significance of thermal events in crustal evolution and its implications in Palaeomagnetism. He then conducted an interactive session inviting the views and reactions of the participants on the program. A feedback pro-forma collected from the participants was also discussed. It is quite pleasing to note

the overwhelmingly positive response from the participants. They expressed in unanimity that the program benefited them and would be useful in their research programs. A few participants felt that additional practical component could have benefited them more. Finally all the participants expressed the desirability of conducting similar courses and also an advanced course by covering more case histories and by increasing the laboratory practical component. The Chairman emphasized the need for large interactive research projects jointly by the participants in areas of common interest and the participants reacted positively to the suggestion.

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WORKSHOP ON GRAVITY METHOD FOR GEODYNAMIC STUDIES AND RESOURCE EXPLORATION: NEW TRENDS AND INNOVATIONS

The above workshop was organized by the National Geophysical Research Institute as part of CSIR Diamond Jubilee Celebrations. Dr. V. P. Dimn, Director, NGRI welcomed the guests and participants of the workshop and described the various activities undertaken by NGRI as part of CSIR Diamond Jubilee Celebrations. Dr. D. C. Mishra, the then Project Leader, Gravity Group highlighted the installation of an Absolute Gravimeter in NGRI and preparation of a revised Bouguer anomaly Map of India on 1:2 million scale with 5 mGal contour interval as a collaborative project between NGRI and the Geological Survey of India (GSI). The workshop was inaugurated by Dr. H. K. Gupta, Secretary, Department of Ocean Development (DOD) who also inaugurated the Gravity Observatory constructed for housing the new gravimeter. This new gravimeter is acquired under a collaborative program between Council of Scientific and Industrial Research and DOD. On this day, the draft copy of the revised Bouguer Anomaly Map of India was also released by Dr. P. C. Mandal, Director General, GSI and Dr. Han Narain released the abstract volume. During the inaugural session, a brief presentation on the highlights of this instrument which can measure the absolute value of gravity field at a site to an accuracy of 2 microGal with a precision of 1 microGal at quiet site. The future programs related to this gravimeter as (I) establishing gravity bases in India and Antarctica, (n) crustal deformation studies and (in) study related to

sea level changes along west and east coasts of India were also explained.

During the course of the workshop, twenty six invited presentations were made by scientists from different geoscientific organizations of the country. The presentations were broadly classified into five groups: (i) Theoretical Developments, (n) Gravity Map of India and its Applications, (in) Marine Gravity and its Applications, (IV) Gravity Method and Geodynamic Studies, (v) Gravity Method for Hydrocarbon and Mineral Exploration.

Five presentations were made in group (I). They were basically related to spectral and coherence estimation by different methods and their comparative study with special emphasis on use of multi-taper windows. Application of fractals using scaling distribution function and its application to field data was presented. The application of stabilized analytic signal in potential field based on Tikhonov's regularization method was discussed. A joint computational scheme for computation of gravity and magnetic fields due to arbitrary shaped bodies and inversion of gravity anomalies using SVD due to a fault model and its application over field data was also presented. In group (n), four presentations were made related to Indian geology through images of potential fields and their geodynamical aspects. In this regard, special emphasis was made to identify past tracks of plumes and hotspots based on gravity anomalies and their relation to seismicity. Based on modeling gravity

data across various mobile belts in India and their integration with other geophysical and geological data, signatures of Archaean-Proterozoic collision was identified and their role on evolution of various cratons and their structures were highlighted

In group (in), three presentations were made highlighting role of satellite altimetry for marine gravity. Sea floor spreading magnetic anomalies in conjugate Arabian and Somali basins, were identified and stages of ridge propagation and formation of oceanic crust during magnetic chron 28-21 (62.5 Ma- 48 Ma) was provided. A combined crustal section computed along 17th parallel across Arabian Sea, Indian continent and Bay of Bengal is presented based on free air anomaly in oceans from satellite altimetry and Bouguer anomaly over the continent to highlight the differences in crustal structures under these three distinct units. Structure and evolution of continental margins of India and 90 East Ridge were also discussed.

In group (IV), five presentations were made related to density and magnetic structures along selected profiles across Himalayas and rheology of Himalayas and Peninsular Shield including effective elastic thickness and thickness of lithosphere and their significance to geodynamics. Seismotectonics related to Bhuj earthquake of January 26, 2001 and changes in elevation and gravity field before and after this earthquake and causative fault model computed from them was presented and discussed. As gravity field is intrinsically related to geology and tectonics of an area, an overview of geology and tectonics of Peninsular shield with special reference to mafic and ultramafic volcanic rocks of greenstone belts of Dharwar craton and western Himalaya were presented.

In the last group (v), nine presentations were made

highlighting the role of gravity method for hydrocarbon and mineral exploration. Role of isostasy and modern approaches to Regional-Residual separation were also discussed in this session. Participants from ONGC discussed the role of gravity surveys for exploration of hydrocarbons in Himalayan fold belts (western part). They suggested that it is one of the most viable geophysical method which can be used in these regions. Participants from GSI projected the role of gravity surveys in mineral exploration and presented some case histories where it has been successfully applied. NGRI gravity group presented the results of their investigation for hydrocarbon exploration in Saurashtra and Kutch. They also suggested a low density body in upper mantle under eastern Saurashtra and Cambay basin based on regional gravity field separated from the observed Bouguer anomaly in these regions. In the end, future programs and collaborations between different geo-scientific organizations were discussed in a Panel Discussion. It was suggested that as NGRI and GSI collaborate to bring out a revised Bouguer anomaly map of the country and more such collaborative ventures between different organizations should be taken up. Collaboration between Universities and National Institutes was suggested by several participants to help the continuity of research programs in Universities. Participants from ONGC and NGRI agreed to formulate a collaborative program of hydrocarbon exploration in frontal basins of Himalayan fold belts.

The workshop coincided with the superannuation of Dr. D. C. Mishra, who was felicitated by his students and colleagues.

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B. SINGH

NATIONAL SEMINAR ON COAL SCIENCE AND TECHNOLOGY - VISION 2020

The National Seminar was organized at C.F.R.I., Dhanbad on 20th and 21st April, 2003, as a part of the CSIR Diamond Jubilee celebrations. This note highlights and summarises the scientific presentations at the Seminar brought out as an abstracts volume.

The list of papers for presentation has been classified and grouped into five Technical Sessions: 1A Exploration - Coal; 1B Exploration - Coal Bed Methane; 2A Coal Petrology - Basic Coal Petrology and Applied Coal Petrology; 2B Coal Characterisation; 3 Coal Beneficiation,

4 Environmental Issues and Waste Management; 5A Carbonization and Carbon Artifacts, and 5B Combustion, Gasification and Conveyance.

A total of 100 papers including invited papers were abstracted. They emanated from various governmental organisations, public and private sector undertakings, National Laboratories, Academic Institutions dealing with coal science and technology.

Various aspects for developing Coal Bed Methane