

NEW ICP-MS NATIONAL FACILITY AT NGRI, HYDERABAD

A new ICP-MS facility funded by DST and CSIR was installed very recently at the Geochemical Laboratory of the National Geophysical Research Institute, Hyderabad.

The ICP-MS installed at NGRI is a quadrupole mass spectrometer with state-of-the-art features, such as Dynamic Reaction Cell (DRC) and performance enhancing axial field technology. These features result in extremely low background noise, better sensitivity and striking improvements in measurement precision. This lowers the detection limits for most of the elements in the periodic table to pg/ml (ppt) and fg/ml (ppq) levels and make interference-free and accurate estimation possible in a variety of geological and environmental materials for various R&D applications. When coupled with appropriate sample preparation techniques, ICP-MS can be effectively utilised for the following:

- Accurate and precise estimation of rare earth elements (REE) and several other trace elements of importance in geochemical, cosmochemical, marine and hydrogeochemical studies;
- When combined with appropriate fire-assay technique (Pb or NiS), ICP-MS can be used for accurate determination of extremely low concentrations of

platinum group elements (PGE), and gold in exploration geochemistry;

- ICP-MS is best suited method of analysis for the estimation of elements such as Cr, Ni, As, Se, Pb, Zn, Hg and a host of other trace elements in a variety of materials for environmental monitoring and research;
- The semi-quantitative analysis by ICP-MS provides a means for rapid (90 sec.) multi-element determination of about 70 elements (Li - U) in a variety of geological and environmental samples with a precision <20% with comparable accuracy. This feature is extremely useful in rapid scanning of a wide spectrum of elements in mineral exploration and environmental appraisal as a first approximation.

Active research groups or individual scientists/research students who are interested in using this facility at NGRI may get in touch with the Director, National Geophysical Research Institute, Hyderabad - 500 007; Tel. 040-27170141; Fax: 040-27170491 or 040-27171564; Email: dimrivp@rediffmail.com. For more details visit our website at: www.ngri.org.in.

National Geophysical Research Institute V. BALARAM
Hyderabad - 500 007

ADVANCES AND LATEST TRENDS IN ENGINEERING GEOLOGY AND GEOTECHNOLOGY

A two-week short-term training programme on "Advances and Latest Trends in Engineering Geology and Geotechnology" sponsored by AICTE-ISTE was organized in the Geology Section, Department of Civil Engineering, National Institute of Technology Karnataka (NITK), Surathkal from 31-12-2002 to 12-1-2003. Mr. G.J. Rao, Dy. Chairman, NMPT in his inaugural address invited the participants to acquire sound knowledge about different topics from the training programme. Dr. T. N. Venugopal, Dy. Director, DMG, released the lecture volume of the STTP. During his address, he stressed that engineering geology and geotechnology play a major role in nation building. The inaugural function was presided over by Prof. H. R. Sreekantiah, Dept. of Civil Engineering, NITK, Surathkal. Participants from various parts of the country attended the

training programme. They included faculty from various engineering colleges and polytechnics and engineers from various industries.

Various external and internal resource persons presented papers in the programme. The course mainly highlighted the latest trends in the concerned topics. Dr. J. Dattatri, consultant in coastal engineering; Sri. P. Balakrishnan, Director, GSI Marine Wing, Mangalore; Sri M.M. Kamath, consultant engineer; Prof. K. R. Subrahmanya and Dr. R. Shankar, both from Marine Geology Dept., Mangalore University; Dr. Nazimuddin, Head, Groundwater Division, CWRDM, Kozhikode; Dr. S. K. Prasad, SJCE, Mysore; Dr. S. N. N. Sharma, Geologist, Dr. B. Ravindra, Geologist, both from DMG, Mangalore were the prominent external resource persons who presented their ideas before the

participants. The internal resource persons included faculty members from the departments of Civil Engineering, Applied Mechanics and Hydraulics, Mining Engineering, Computer Engineering and Nodal Centre of the NITK.

Latest trends in engineering geology, geothermal energy exploration and exploitation, quality assessment techniques of dimensional stone deposits, assessment of active landslides and control measures were some of the topics covered under engineering geology. Lateritic soils, geosynthetics of slopes, liquefaction of soils were some of the topics related to the geotechnical part. Subsurface and submarine exploration, dredging and underwater blasting, rock fragmentation engineering are few from the subjects covered with respect to exploration and mining. Ocean waves, coastal erosion, offshore structures, tectonics and eustatic changes along Indian coast, planning of ports etc. were the subjects covered under coastal engineering. Groundwater related topics such as groundwater development, rainwater harvesting, surface and groundwater relationship, groundwater problem in Civil Engineering etc. were dealt with. In the construction domain the role of structural controls, planning of multi-storied buildings, investigation for bridges and failure of dams were discussed. Remote sensing, GIS and GPS, along with computer application in Civil Engineering, I.T. role in engineering projects were also covered in the training programme. Waste management, environmental magnetism, management information system, role and development of marine resources by GSI marine wing were some topics of general interest, which made the course more attractive to the participants. All the sessions were followed by group

discussions in which the resource persons and the participants actively discussed the problems and proposed solutions.

The subject oriented field visits made the course more useful to the participants. To see the coastal erosion sites and the preventive measures taken to tackle the condition, the group visited Sasihithlu and Ullal areas of D.K. District. Another Field visit was to see the dredging activity by New Mangalore Port Trust. One more field visit took the participants to a bridge construction site near Bantwal. It also included a visit to the water treatment plant, Thumbe, which supplies water to Mangalore Corporation; and a visit to the Kethikal landslide area. The participants were accompanied by the resource persons, which made the visit useful one because of the field discussion.

During the valedictory function participants presented their views about the training programme. They expressed satisfaction on the course-content and its management in a smooth fashion by the course coordinator - Dr. D. Venkat Reddy. The two-week training programme, it is hoped, will bring about a new awareness about Engineering Geology and Geotechnology in this part of the country.

*Geology Section
Department of Civil Engineering,
National Institute of Technology
Karnataka, Surathkal.
P. O. Srinivasnagar- 575025
Mangalore*

D. VENKAT REDDY

WORKSHOP ON X-RAY DIFFRACTION OF CLAYS AND INAUGURATION OF XRD-LABORATORY

To intensify teaching and research in Marine Geology and Geophysics, the Department of Ocean Development (DOD), Government of India has established the Ocean Science & Technology Cell (OSTC) at Mangalore University and has been extending financial support for setting up laboratories and human resource development. As a continued part of this activity, a D8 Advanced X-ray Diffractometer has been installed. Inauguration of the XRD-laboratory and one-day workshop on X-ray diffraction studies on clays were organized by the OSTC in Marine Geology & Geophysics, Mangalore University on 14th January 2003. About seventy participants (including

teachers, professionals, research scholars and post-graduate students) from Research/Academic Institutions and Officers of State and Central Government Departments from south India attended the workshop.

The workshop was inaugurated by Dr. Harsh K. Gupta, Secretary, Department of Ocean Development (DOD). Dr. P.C. Pandey, Vice-Chairman, Management Board, OSTC and Director, National Centre for Antarctic and Ocean Research (NCAOR), Vasco-da-Gama released the workshop volume. Prof. B. Hanumaiah, Chairman, Management Board, OSTC and Vice-Chancellor, Mangalore University presided over the inaugural function. In his address