NOTES

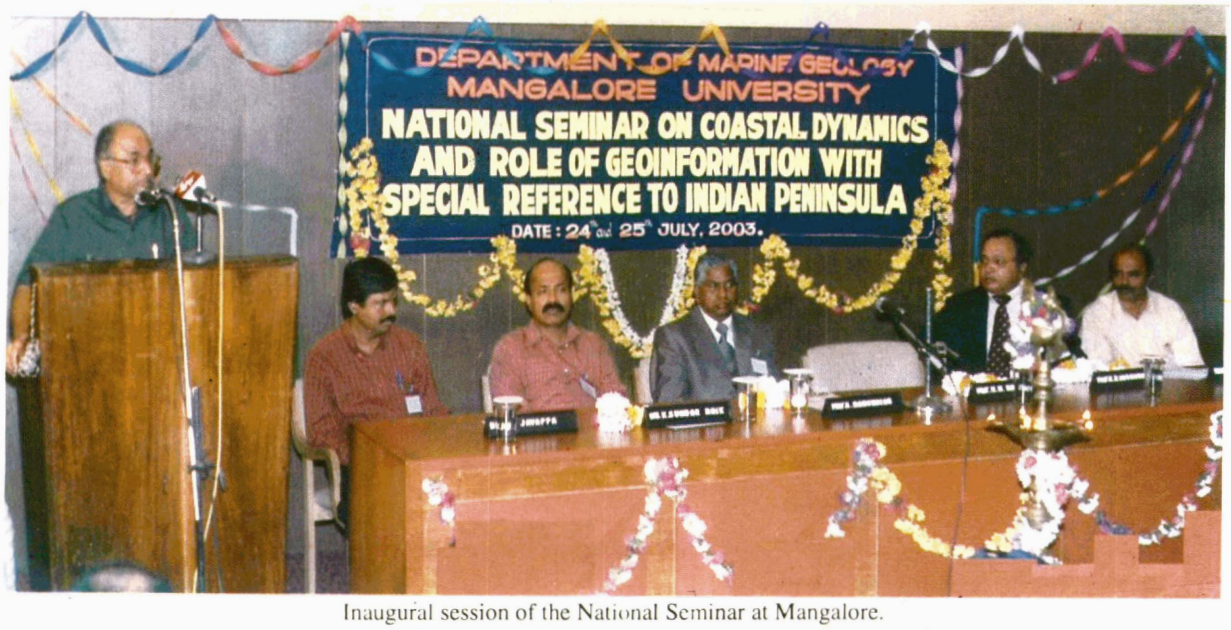
NATIONAL SEMINAR ON COASTAL DYNAMICS AND ROLE OF GEO-INFORMATION WITH SPECIAL REFERENCE TO INDIAN PENINSULA

A two-day National Seminar on the above topic was organised by the Department of Marine Geology, Mangalore University during 24-25 July, 2003. The seminar was inaugurated by Prof. M. M. Kamath, Chief Engineer (Retd.), New Mangalore Port Trust. Prof. B. Hanumaiah, Vice-Chancellor, Mangalore University presided over the function. Inaugurating the seminar, Prof. Kamath expressed that the cost of coastal engineering works was often so great that failure could be disastrous for developing countries such as India. He stressed the importance of obtaining and updating online ocean data to sustain the coastal resources. Rate of changes caused due to human activities are more severe and faster than those produced by nature in the coastal regulation zone, he added.

Prof. B. Hanumaiah in his presidential remarks stated that coastal erosion was a natural phenomenon and the chances of man's success against the forces of nature were bleak in spite of advances in technology. Judicial use of scientific solutions might yield good results, he opined. Prof. K. R. Subrahmanya, the then Chairman of the Department of Marine Geology, explained the objectives of the seminar. He gave an outline of the importance of understanding the coastal dynamics in order to know and estimate the impact of predicted sealevel rise on the coastal population, property and activities. Sri K. Sundar Naik, Registrar, Mangalore University released the abstracts volume. Dr. K. S. Jayappa, Convener of the seminar welcomed the gathering and Dr. H. Gangadhara Bhat, Co-Convener proposed a vote of thanks.

About fifty abstracts were received dealing with coastal and nearshore geomorphology; sea-level changes; coastal erosion and engineering structures; coastal sedimentation, sediment transport and dredging using radiotracer techniques; remote sensing and GIS; and coastal zone management. Proceedings of these technical sessions are summarized below.

Session I was devoted to coastal and nearshore geomorphology: In this session, eight papers were presented that included annual erosion-accretion process along the beaches of Karnataka coast by Dr. G. C. Suresh (OSTC, Mangalore University); beach profile studies along NITK beach of Karnataka coast by Mr. Radheshyam (NITK, Surathkal); biota of coastal sand dunes by Dr. K. R Sridhar (Mangalore University); significance of geomorphic features in the landform process - a case study from Marakkanam



Inaugural session of the National Seminar at Mangalore.

area, Tamil Nadu by S. Selvaraj (National College, Tiruchirapalli); morphodynamic state of the beaches between Honnavar and Bhatkal by Dr. V. S Hegde (SDM College, Dharward), review of research carried out on geomorphic and neo-tectonics on the central Maharashtra coast by Dr. P. T. Hanamgond (G. S. Science College, Belgaum); aquifer parameter estimation by Ms. R. Naga Priya (NITK, Surathkal) and filtration ponds around Kochi inlets, Kerala by Mr. John Paul (CESS, Trivandrum).

Session II was devoted to sealevel changes: In this session two papers were presented. One by Ms. D. Esther Pushparani (OSTC, Mangalore University) on variation in clay mineral abundance on the SW continental margin of India: implications for provenance, sealevel changes and coastal processes. Another paper by Dr. G. C. Suresh (OSTC, Mangalore University) on Late Quaternary sealevel changes along the Karnataka coast was also presented.

Session III was devoted to coastal erosion and engineering structures: An invited talk and four research papers were included in this session. Invited talk on coastal erosion and protection with special reference to Karnataka coast was delivered by Dr. J. Dattatri, former Professor of NITK, Surathkal and Consultant in Coastal Engineering. His research paper titled 'Seawalls: protection or accelerated erosion - a field study' was incorporated in his special lecture. The other three papers included failure analysis of seawalls along Karnataka coast by Mr. D. H. Raju (NITK, Surathkal); Breakwaters – an innovative hard option for coastal erosion mitigation measures by Mr. Kiran G. Shirlal (NITK, Surathkal).

Session IV was devoted to coastal sedimentation, sediment transport and dredging using radiotracer techniques. In this session four research papers and an invited talk were included. Invited talk on 'sediment transport along the Indian coastlines and dredging problems in the major ports' was delivered by Prof. M. M. Kamath, Chief Engineer (Retd.), New Mangalore Port Trust. The four research papers included textural variation and sediment movement during post-monsoon at Arge beach, west coast of India by Dr. P.T. Hanamgond (G. S. Science College, Belgaum); applications of remote sensing and mike-21 for sediment dynamics off Mangalore coast by Mr. K. Sankar Babu (NITK, Surathkal); effect of hydro-meteorological conditions on sediment transport – a case study in Hugli estuary using radiotracers by Dr. S. V. Navada (BARC, Mumbai); and studies on coastal Gondwana – a floristic perspective by Dr. A. Rajanikanth (BSIP, Lucknow).

Sessions V and VI were devoted to Remote Sensing and GIS integration and its applications. Ten papers were presented in the fifth session. These were on: Delineation of submerged palaeo-shorelines and palaeo-channels using IRS LISS-III data along the southern Karnataka coast by Mr. M. S. Vinaya (Mangalore University); An analysis of mangrove vegetation status along the coastal stretches of Udupi district based on RS and GIS approach by Mr. M. Dinakar Shetty (Mangalore University); Hydrological information system and a spatial database for Calicut corporation area – a GIS application study by Mr. D. C. Kantharaja (KSRSAC, Bangalore); Environmental management studies of Udupi district, west coast of India - a case study using RS and GIS techniques by A. Ganesha (MIT, Manipal); River basin studies of Sita-Swarna and Gangoli composite river basins of coastal Karnataka using RS and GIS techniques by Sri Mohandas Chadaga (MIT, Manipal). Mr. Belle Damodar Shenoy (College of Fisheries, Mangalore) presented a paper on comparison of socio-economic structures and fishing methodologies of Uttara Kannada and undivided Dakshina Kannada districts. Mr. K. Sankara Babu et al. (NITK, Surathkal) presented their work on development of GIS database for Mangalore City Corporation. Satellite based study of short- and long-term shoreline changes in the vicinity of Sharavati River mouth, central west coast of India was presented by Dr. V. S. Hegde (SDM College, Dharward). Mr. N.S. Ananda Rao (MIT, Manipal) made a presentation on modelling surface runoff in undulating topography for spatio-temporal distributions, using Remote Sensing & GIS techniques. Ms. K. Asha Jyothi's (NITK, Surathkal) research paper was on preparation of land use/land cover map using Remote Sensing and GIS techniques as an input to universal soil loss equation.

In the sixth session five papers related to Remote Sensing and GIS applications were presented. An invited talk pertaining to this theme i.e. on 'Application of Remote Sensing and Geographical Information System in Geology and Environmental Sciences' was delivered by Dr. Ganesh Raj, ISRO, Bangalore. Dr. Srinivas Madabhushi (GSI, Bangalore) presented his paper on GIS-based bathymetric model of inner shelf off Gundalakamma River. Mr. B. Naveenchandra (Office of Principal General Manager, Telecom district, Bangalore) made a presentation on GPS/GIS integration for location based mobile services and modern positioning technologies. Mr. G. T. Vijaya Kumar's (Mangalore University) research paper was on coastal landforms and shoreline changes along the coastline of Dakshina Kannada and Udupi districts based on Remote Sensing techniques. Ms. Rakshitha Richard (Bangalore

University) presented on hydrographic condition of the nearshore water off Honnavar and its environmental implications. Mr. Prasanna Kumar's (Bangalore University) paper was on change detection of the coastal wetland between the region of Honnavar and Bhatkal for environmental management using RS and GIS.

Session VII was devoted to Coastal Zone Management: Two papers were presented in this session. The first paper was on Miramar (Goa) beach management project: lessons learnt from a geological perspective by Dr. Antonio Mascarenhas (NIO, Goa) and second one was presented by Mr. C. P. Priju (CUSAT, Cochin) on coastal landforms changes in and around Cochin and their implications in Coastal Zone Management. In the concluding session, some recommendations were made based on papers presented and discussed in different technical sessions; concluding remarks of the Chairmen and Co-Chairmen of the technical sessions; and opinion of the experts who gave invited talks. Salient among these recommendations were:

1. Remote Sensing and GIS techniques have to be integrated for efficient coastal zone management (CZM).
2. For beach nourishment 'do nothing' or 'soft option' in place of 'hard structures' be popularized, and 'hard option' is opted only to restore the places where cost is not the criteria.
3. Construction of seawalls be made based on cost benefit analysis.
4. More data on onshore and offshore be generated to reconstruct the sealevel curve for the Indian coast.
5. CRZ be implemented rationally and strictly.
6. Stake holders' participation in CZM is warranted and more participation of NGOs and scientific community be encouraged.
7. Imported technology for beach protection needs to be assessed from the points of view of efficiency and economics before implementation.
8. NITK (formerly KREC), Surathkal and Marine Geology Department, Mangalore University be made nodal agencies for monitoring coastal processes and protective measures of Udupi and Dakshina Kannada districts.
9. Collaboration among various institutions involved in coastal processes study be encouraged, facility be shared and data be integrated.

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BASIC AND APPLIED RESEARCH ON HYDROGEN AS THE NEW AGE FUEL

The U.S.Department of Energy has issued a *Grand Challenge* to the scientific community on research, development and demonstration of hydrogen storage materials and technologies. America is aiming to lead the world in developing clean, hydrogen-powered vehicles to place Hydrogen as the new age fuel for mankind as spelt out by the U.S. President in his State of the Union Address of January 2003. The announcement (*Physics Today*, August 2003, v.56, no.8, p.1) further states that:

> Based on the recommendations from a group of expert "Think Tank" scientists, including four Nobel laureates, the Department of Energy (DOE) is issuing a *GRAND CHALLENGE* to the scientific community to solicit applications for research, development and demonstration of hydrogen storage materials and technologies.
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> In addition to applied R&D, a major focus will be on multidisciplinary basic research to better understand the physics of hydrogen storage in solid materials. The mechanisms of sorption, the presence of atomic or ionic hydrogen in the crystal lattice (or amorphous materials), and how defects and nano-scale effects can improve storage capacity – are just some of the issues to be studied. Cryogenic liquid storage and storage as a high pressure gas will also be investigated.
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> A total of $150 million, subject to congressional appropriations, will be invested through the *Grand Challenge* over the next 5 years, covering a broad range of ideas, including metal hydrides, chemical hydrides, carbon, new materials, compressed and liquid hydrogen, and both on-board and off-board hydrogen storage technologies.

For more information on the above subject, readers may visit: http://WWW.eere.energy.gov/hydrogenandfuelcells/

M.S.RAO