## CORAL REEFS AND MANGROVE HABITATS

There is a perceptible increase in the concern for environment among geoscientsists Till recently, more often, studies were made on the degeneration and damage to environment only after it was done by human (mining, for instance) or natural (erosion) agencies Earlier data base was not available in most areas to compare the quantum and rate of degeneration of any environment But now, thanks to the availability of the aerial photographs of different areas taken at different times together with remote sensing data through satellites acquired during the recent decades, it is now possible to study these variations in certain areas

The Marine and Water Resources Group of the Space Applications Centre (ISRO) at Ahmedabad has recently released (December 2003) two Scientifc Notes, one on Ecomorphological Zonation of Selected Coral Reefs of India using Remote Sensing data (40 figures, 17 tables, 26 photographs, 109p ) and another on Community Zonation of Selected Mangrove Habitats of India using Satellite data (25 figures, 18 tables, 31 photographs, 92p) These studies have been funded by the Department of Ocean Development, Government of India and quite a number of organisations in other parts of the country were also involved in gathering data and passing on to the Group at Ahmedabad As only to be expected, the mapped ones with all the subdivisions/ characteristics/features of any specific area belong to a particular period ranging from 1998 to 2001 in both the cases All are IRS data only The reproductions are excellent in pleasing colours One commendable feature on the fairly

detailed descriptions is the mention in each case the accuracy estimates, which usually range between 80 to 90% Not all the areas studied could be visited for ground truth

In the case of coral reefs, the zonation was based on their morphological and ecological characteristics The areas studied were of those in Gulf of Kachchh (Gujarat), Malvan reef (off Maharashtra), Lakshadweep, Gulf of Mannar and Andaman and Nicobar Islands Histograms and Pi diagrams have been used to explain the areal distribution of different units

In the case of mangroves, they have been mapped up to genus level The classification system evolved has taken into consideration the influence of substrate, tides and geomorphology in the distribution of different mangrove communities There have been many publications in this field on mangroves in our country and one of them which shows the areal variation over time in different parts of the coastal regions of the east coast is the one published in Memoir 22, Geological Society of India, 1991, pp 243-263, along sections of Ganges, Mahanadi, Godavan, Krishna and Cauvery deltas

Though these are specialized publications in a narrow field, they deserve attention from those interested in coastal geomorphology and natural vegetation and are bound to serve as data base for future studies in these fields

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## USER INTERACTION MEETING ON ACCELERATOR MASS SPECTROMETRY OF RADIOCARBON

A user interaction meeting on "Accelerator Mass Spectrometry (AMS) of Radiocarbon" was organised by the Institute of Physics (IOP), Bhubaneswar on 26-27 August 2004 Dr R K Choudhury, Director of the Institute welcomed the participants and initiated the meeting In his welcome speech, he gave a brief background about this equipment and recounted the formidable scientific, technical and administrative hurdles that were surmounted in translating the idea into a reality at IOP The Meeting began with an introductory talk by Dr K Gopalan (NGRI, Hyderabad) on 'Why AMS for Radiocarbon Dating?' This was followed by details on the AMS facility at IOP by Dr G V Ravi Prasad About 30 participants from Physical Research Laboratory (PRL), Ahmedabad, Birbal Sahani Institute of Paleobotany (BSIP), Lucknow, Wadia Institute of Himalayan Geology (WIHG), Dehradun, National Geophysical Research Institute (NGRI), Hyderabad, National Institute of Oceanography (NIO), Goa, Archeological Survey of India, Nuclear Science Centre, New Delhi, Rock Art Society of India, Agra, Andhra University, Visakhapatnam, Ocean Science & Technology Cell, Mangalore University, Indian Institute of Technology, Kanpur took part in the meeting Totally 20 papers were presented in 5 technical sessions

On first day, two technical sessions and a visit to laboratory were arranged The presentations made in two technical sessions were pertaining to sample preparation methods for radiocarbon dating, Paleoseismological and Paleoclimatic studies conducted in the Himalayas using cosmogenic radionuclide dating, Use of AMS dating in paleoceanography, ocean-atmospheric variability and archaeological studies. In the afternoon, during the visit to the laboratory, Dr G Rajagopalan, Visiting Scientist, IOP, explained the advantages of AMS over the other conventional techniques, type of materials which can be dated and preparation of sample (amorphous carbon or graphite) Prof V K Gaur, distinguished Scientist, IIAP, Bangalore, gave an interesting talk on Theory of Plate Tectonics and posed a few burning questions pertaining to the importance of dating the samples

On day two, three technical sessions were held in which the following papers were presented and discussed AMS programme at Nuclear Science Centre, New Delhi, Potentials of exposure ages using cosmogenic nuclides, Importance of AMS radiocarbon dating facility for revealing high-resolution climate history and monsoon variability, Palaeoenvironmental and palaeoclimatic studies from sediment cores, AMS application to gas hydrate studies, Ocean circulation and air-sea CO<sub>2</sub> exchange, Shallow subsurface studies in the Ganga plains, <sup>14</sup>C AMS dating of Indian rock art, Radiocarbon AMS applications in archeology, Substantiation of AMS dates for sea level rise and for primary calibration of organic geochemical indices in paleoceanographic investigations

In the concluding session, Prof U R Rao, Chairman of the AAMS Committee rightly remarked that there is large number of users in the country and we can make a break through using AMS He recollected the full support extended by Profs VS Rama Murthy, D P Mahapatra and the present Director R K Choudhury The sincere efforts put in by Profs B L K Somayajulu, VK Gaur, Drs G Rajagopalan, K Gopalan and G V Ravi Prasad were lauded Extending his suggestions, Dr Rao stressed on the following two points (1) The AMS facility should not remain as a monument but to be continuously used by the scientific community, and (2) A core group of scientists shall be created to generate and analyse the data and this group should build a synergy with other institutes like WIGH, PRL, NIO, NGRI etc

Prof Rama Murthy, Secretary, DST, New Delhi, congratulated the members involved in setting up of AMS facility at IOP and appreciated the marvelous work done by them He opined that the facility without people has no value He too appealed to the users as well as the IOP authorities that there is an urgent need of creation of working groups and networking of National and International Institutes involved in AMS dating

At the end, in the feed back session, the suggestions given by the participants are summarized as follows

- 1 There should be 3-4 laboratories in different institutes for sample preparation,
- 2 Scientists at IOP should have close interaction with the users of AMS facility,
- 3 People from various disciplines should come together to make use of AMS facility and they should work in association with the Scientists of IOP (otherwise IOP Scientists alone may not take much interest after some time),
- 4 Suitable man power has to be provided for sample preparation, data generation and interpretation as well as for maintenance of the equipment,
- 5 Department of Science & Technology may encourage setting up of sample preparation labs,
- 6 Workshops, Summer/Winter Schools may be conducted for young researchers, and
- 7 DST, DAE, ISRO and CSIR should be associated in monitoring the working condition of the facility

Dr K R Gupta, Advisor, DST, New Delhi, reacted positively to the last two points

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