

**INTERNATIONAL SEMINAR ON
PROSPECTS OF MARINE SEDIMENTS AS RESOURCE
BASE FOR THE GROWTH OF MANKIND**

5 – 9 OCTOBER, 2009



(Estd. 1926)



Organized by
**DEPARTMENT OF GEOLOGY
ANDHRA UNIVERSITY
VISA KHAPATNAM – 530 003
INDIA**

THE DEPARTMENT OF GEOLOGY, ANDHRA UNIVERSITY

The Department of Geology (1941) is one of the oldest departments of Andhra University, which is situated on the East Coast of India at Visakhapatnam, midway between Kolkata and Chennai. The Geology Department has been a pioneer in research into Marine Geology in India having initiated research activity on the Bay of Bengal Sediments as early as 1952 under the able leadership of Late Dr. E.C. La Fond (USA). The Department of Geology has continued its high level of academic and research activity during the last 67 years, and currently offers three different courses leading to M.Sc (Geology), M.Sc (Tech) Applied Geology and M.Sc (Marine Geology). Recently a new course M.S (Five year Integrated) Geology was initiated. The Department of Geology has received funding (Special Assistance Programme for Marine Geology as Major Thrust Area Research) since 1972 from the University Grants Commission, New Delhi.

FOCUS OF THE INTERNATIONAL SEMINAR

The organizers of International Seminar “Prospects of Marine Sediments as Resource Base for the growth of the mankind” (ISMS) solicits participation of young and dynamic people, working in both oil industry and academic institutes, to discuss and formulate new ideas and relevance of marine sediments as a great resource for future Exploration Programmes. *The seminar deals with several important ocean related aspects like marine minerals, petroleum occurrences, marine biota, ocean currents, ocean geophysics, climate modeling and marine pollution and scientists working in ocean realms are welcome to contribute worthy contributions.* The research papers shall be reviewed by the experts and Proceedings volume shall be brought out and would be made available at the time of the seminar. Selected international Earth Scientists will be invited to deliver keynote lectures as per the focal themes of the Seminar.

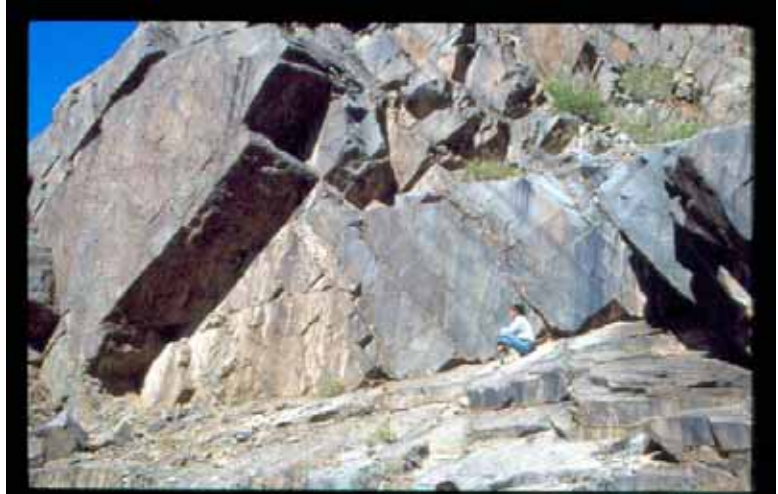
India is bestowed with vast marine environment in Asia and need to focus on the marine sediments as the future resource base for the sustainable development of

economy. The Indian Ocean provides major sea routes connecting the Middle East, Africa, and East Asia with Europe and the Americas. It carries a particularly heavy traffic of petroleum and petroleum products from the oilfields of the Persian Gulf and Indonesia. An estimated 40% of the world's offshore oil production comes from the Indian Ocean.

Bay of Bengal is considered as one of the best marine environment for exploring gas hydrates and frontier research is leading to produce excellent scientific data sets. Recent findings indicate that the East Coast Deltas of India (Godavari, Krishna and Mahanadi) are promising zones for Gas and Oil exploration. Arabian Sea also provides good opportunity for oil exploration programmes as evidenced from the Bombay High.

INTERNATIONAL SEMINAR ON MARINE SEDIMENTS (ISMS)

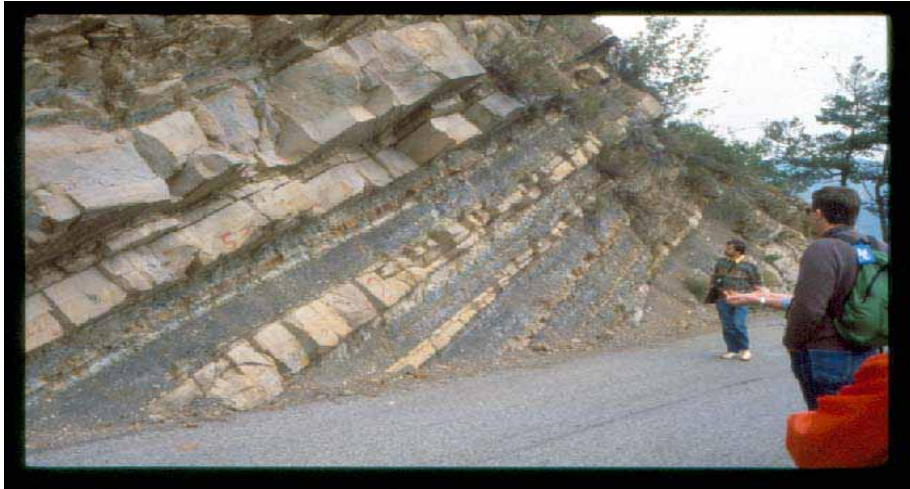
The development of society from ancient times to the modern era has benefited enormously from our ability to discover and exploit natural resources. Indeed, our ability to utilize such resources has become so successful that we have begun to affect even the global environment. Energy resources, both conventional and unconventional, have proved an essential ingredient for economic development through the 20th Century, as evidenced by Europe and North America in particular. Many other countries are currently following this kind of rapid-growth path, with both China and India emerging as the fastest growing economies of recent decades. Both energy and other natural resources play a critical role in the development and the growth of the economy in terms of agriculture and industrialization.



As global population increases and land-based resources become over-exploited, nations are turning with ever more urgency to the oceans. Marine geo-resources include a wide range of industrial minerals (aggregates, lime, sand, phosphorites), metallic minerals (placers, heavy minerals, manganese nodules), and energy resources (oil and gas). With this in mind, it is evident that countries surrounding the Indian Ocean, Bay of Bengal and Arabian Sea, have an important opportunity and role in assessing the potential geo-resource base of the Indian Ocean, Bay of Bengal and Arabian Sea and in the careful management of these resources once discovered. Recent estimates suggest that reserves of hydrocarbons for India may suffice for up to another two decades. New discoveries of potential resources in the marine environment and their exploration and exploitation are the need of the hour.

Knowledge related to the sedimentary basins in quest of petroleum occurrence and exploration has become significant in the recent past and the seminar would focus on three basic premises: (1) that hydrocarbons will continue to be the primary and vital source of energy for mankind until viable alternative sources of energy are developed; (2) that deepwater sedimentary systems throughout the world are and will remain the primary target for new petroleum exploration and development; and (3) that the results of a considerable global research effort in

this area needs regular summary and dissemination to those involved at the 'frontline'.



There are many issues that disturb the marine environment, both man-made and natural. Oil spills, toxic wastes, garbage disposal, the discharge of waste water, chemical pesticides, and fertilizers are all major sources of pollution in the ocean. Marine environmental pollution is especially relevant for marine living resources, particularly fish populations and their growth and abundance. Marine benthic organisms and communities have commonly been used as a focus of monitoring programs and of research into the effects of human activities in the marine environment. Pollution such as hydrocarbon contamination is considered to decrease meiofaunal species diversity. Among benthic organisms, study of meiofaunal assemblages might be of great help as they are small, abundant, easily maintained, short life cycle, sediment bound throughout their life history and they respond quickly to the changes in environment.

Marine biota can be classified broadly into those organisms living in either the pelagic environment (plankton and nekton) or the benthic environment (benthos). Some organisms, however, are benthic in one stage of life and pelagic in another. Controls and relevance of Marine sediments to the growth and abundance of marine biota is very important aspect which can be discussed at length during the

seminar. Many living species in the Amazon basin are fastly vanishing and the recent studies suggest loss of biodiversity will be much greater by 2030 due to global warming. World Wide Fund for Nature (WWF) report signifies the dwindling population of birds, fish and other animals during the last 50 years. Living Planet Index (LPI) is on considerable decline and particularly the Marine LPI sharply dropped during 1995-2005 due to population booms and loss of biodiversity denotes the health of the planet which is directly proportional to the human activities on the planet Earth. The Living Planet Index data of WWF further reveals that species are dying out at a rate not seen since the age of the dinosaur.

Chemical investigations into the carbon cycle are vital to climate research; the fate of carbon dioxide, methane and other trace gases added to the system by human activity, involves exchange across the sea surface and in river outflows. By examining the stratified sediments of the sea floor, and stratified ice layers in Greenland and Antarctica, paleo-climatologists can trace millions of years of climate evolution.

The Seismic Data Processing and Interpretation needs specialized 2-D and 3-D seismic reflection data processing and interpretation using state of the art hardware and software for the Energy Resources Program. In ocean geophysics, sea floor processes is being studied with recording instruments, and in future fiber-optics cable may become operational in the form of a permanent observational network to connect the entire globe that might be a greatest asset to the scientists of ocean science. Seismic waves from earthquakes and test explosions are being widely used to study the structure of the solid Earth, such as hot spots along mid-ocean ridges where upwelling of heat and magma occurs.

The role of any scientific theory is to simplify complex problems, and provide a basis for new observations; it plays a game of 'leap-frog' with observational oceanography. Ocean and atmosphere are coupled together in 'climate models'

and 'circulation models' and their interaction has profound influence on the lives inhabited on the earth. Establishment of fundamental dynamic processes, mapping of the state of the ocean today, observing and modelling atmosphere/ocean interaction, and assessment of the oceanic ecosystems is an urgent scientific goal.

Environmental changes due to breakup of ice blocks in the Antarctica, Arctic and Greenland regions have come into focus in the modern times and the present situation rings greatest alarm to the mankind and the Earth Science Community need to debate to develop policies that need to be implemented by different nations so as to reduce the risks associated with rise of sea level.

Sandy coasts associated with moderate to strong wave exposure, infilling of material due to littoral drift may impose navigational problems apart from huge dredging costs. Such problems may be minimized through proper alignment of the access channel and careful design of the coastal structure. In tidal inlets, estuaries and lagoons, harbours and navigation channels are frequently subject to heavy sedimentation of fine material. This poses serious problems to harbour authorities as the dredged material may be contaminated and can only be deposited under strict regulations after a thorough Environmental Impact Assessment.

In addition, deep-sea sediments can reveal much about the last 200 million years of Earth history, including seafloor spreading, the history of ocean life, the behaviour of the Earth's magnetic field, and the changes in the ocean currents and climate. According to recent research, deep-sea sediments could provide a virtually unlimited and permanent reservoir for carbon dioxide, the gas that has been a primary driver of global climate change in recent decades. It has been estimated that seafloor sediments within U.S. territory are sufficient to store the nation's carbon dioxide emissions for thousands of years to come.

Themes of the International Seminar:

Part – A: Marine Sedimentary systems:

Marine Minerals and Petroleum occurrence
Sedimentological, geochemical and biostratigraphic aspects
Deepwater building blocks – facies and processes
"Coastal processes and geo-techniques"

Part - B: Marine Geophysical aspects

Morpho-dynamic controls and basin configuration
Seismic studies of Marine Sediments
2-D and 3-D seismic data interpretation and processing techniques

Part : C Paleo-Oceanographic Studies

Climate Models and Sea-Level Rise Implications
Carbon and nitrogen cycles of Marine Sediments
Paleo-Oceanographic Proxy indicators (*clay minerals, geochemical and biostratigraphy*)

Part D: The marine environment:

Marine Biota, Biological Productivity and upwelling
Modeling atmosphere / ocean interaction, 'circulation models', Ocean currents
Environmental Impact of Breakup ice continents (Antarctica, Greenland and Arctic)
Marine pollution through natural and anthropogenic sources
Dredging implications of Navigation Channels and Harbours

General Information

The International Seminar is scheduled between 5th and 9th October 2009 at the Department of Geology, Andhra University, Visakhapatnam. The weather during this period is very good and pleasant. Visakhapatnam is a modest touring place which has a Major Port bestowed with a natural Harbour, Major Steel Plant and several other establishments.

Accommodation and Travel:

Accommodation for participants will be provided very close to the University in a clean and modest hotel for delegates. Visakhapatnam is situated on the east coast of India, approximately midway between Chennai (Madras) and Kolkata, and is well connected by Road, Rail and Air links. All payments (either by Cheque or Demand Draft) must be made in the name of Director, International Seminar on Marine Sediments. Participants

may contact for further assistance: Prof.C.V.Raman, Director, International Seminar on Marine Sediments, Department of Geology, Andhra University, Visakhapatnam – 530 003, India. Contact Tel: 91-0891-2844709 (office) 91-0891-2500384 (Residence). Mobile: 98858 96620. cvraman8@yahoo.co.in or cvraman8@rediffmail.com

Sponsorship of International Seminar:

Sponsorship for International Seminar by industries and as well as funding agencies located in India and abroad is solicited. Those who contribute above one lakh (US \$2500) shall be given good advertisement in the Proceedings Volume (Back and Front cover pages) to be brought out on the occasion and prominent displays of their Logo will be made at the Venue. Sponsoring Agencies can depute one or two participants for whom registration fee will be waived. All payments (either by Cheque or Demand Draft) must be made in the name of Director, International Seminar on Marine Sediments.

IMPORTANT DATES OF THE PROGRAMME:

<i>INFORMATION FROM PARTICIPANTS</i>	:	<i>STIPULATED DATES</i>
Submission of abstracts		on or before 15 th May 2009
Full Research papers		On or before 15 th June 2009
Submission of Registration form along with fee	:	on or before 15 th August 2009
Room Reservation Request	:	50 days before the start of the Programme.

Registration form will be sent in May 2009 to those who express interest to participate.

