

before 2004 was in June 1998, in New Guinea. The last time a major disaster like Sumatra's happened was on 23<sup>rd</sup> May, 1960. Tsunamis triggered by the great Chile earthquake struck Hawaii. People born after this quake had not got their awarenesses raised, until 26<sup>th</sup> December 2004. No one knows better than Indian Ocean populations that awareness of tsunamis could mean a life or a virtual rebirth. Internet has a lot of sites with tsunami information. The Pacific Tsunami Museum in Hilo, Hawaii, is, however, special. Because it has a human face and a human basis. Hilo was heavily damaged by tsunamis in April 1946 and again in May 1960.

In 1994 the museum was founded to help keep the population prepared and alert. It takes a little extra effort to mobilize people against something they have not experienced. On 26<sup>th</sup> November, 1999, such efforts paid off. A seven magnitude quake struck Vanuatu in south Pacific and a tsunami completely wiped out the village of Baie Martelli. Only five lives were lost. A research team report quoted (from: aboutGeology.com, 11<sup>th</sup> Jan, 2005) says: "The small number of casualties was due to prior education and a

party. Because of a wedding on the day of the earthquake, almost everyone was still up celebrating when the earthquake occurred. A lookout was sent to note the condition of the sea. When he reported that the water was receding. Villagers concluded that a tsunami was coming, and they ran to a nearby hillside to escape the wave. Villagers credited their response to a video of the 1998 Papua New Guinea tsunami, which they had seen a few months before. The only casualties were those too elderly to escape the wave, those who returned for possessions after the passage of the first wave, and a man so drunk on kava that he ignored people who were directing him to safety." Hopefully part of the funds raised now would be used also for tsunami museums in our regions using local dialects and visuals to be more effective.

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## NATIONAL WORKSHOP ON SEQUENCE STRATIGRAPHY

Sequence stratigraphy is now gaining wider attention from geoscientists, geophysicists and geochemists because of its impact as a global productive tool for much needed hydrocarbon discoveries. Hence, this subject has been included in recent years in the academic curricula in the geology discipline in several universities in India. It was felt, instead of relying heavily on text books for imparting knowledge to student community, a National Workshop on Sequence Stratigraphy in collaboration with professionals and specialists to provide an in depth exposure for understanding this branch of stratigraphy was conceived by the Department of Geology, Bangalore University, Bangalore.

The three-day workshop was held from 4 to 6 November 2004 at the auditorium of the Department of Geology, Bangalore University, where a total of thirty participants, mostly research scholars, faculty members and postgraduate students drawn from different universities participated.

On the first day i.e., 4 November, the workshop was inaugurated by Dr. M. Basappa Reddy, Director (Retd.), Department of Mines and Geology, Government of Karnataka and presided over by Prof. C. Naganna, President, Mineralogical Society of India. On inaugurating the workshop, Dr. Basappa Reddy asked the geological community to use different stratigraphic techniques in

exploring various mineral and metalliferous deposits of India particularly in Karnataka. On this occasion Prof. Naganna, erstwhile Chairman of the department also addressed the gathering and recollected the contributions of Prof. L. Rama Rao, S.R. Narayana Rao and Y. Nagappa of this department to Indian stratigraphy.

Prof. Jai Krishna, BHU, Varanasi delivered the keynote address. In the course of his address, he highlighted the close sampling for the mega faunal record particularly ammonites from the exposed Jurassic section of Kutch to bring out a high resolution sequence stratigraphy to the tune of one million years duration. He explained this with field illustrations and mega fauna. Dr. A. Govindan (formerly of ONGC) presented sequence stratigraphic concepts, methodology and applications. He dealt at length on the various sub-branches in stratigraphy such as Ecostratigraphy, Cyclostratigraphy, Chemostratigraphy, Isotope Stratigraphy, Magnetostratigraphy, Seismic Stratigraphy, Biostratigraphy with suitable examples. He elaborated on the application of microfossils and palynofossils to bring out high-resolution biostratigraphy. He also emphasized the need to integrate all the above multidisciplinary approaches to bring out high resolution sequence stratigraphy in a basin/outcrop. Cretaceous outcrop sequence stratigraphy as seen in several open cast mines in

the Trichinopoly/Ariyalur area has been highlighted by Dr. Nagendra of Anna University. With the help of Biozones derived in some of the Indian Ocean ODP sites, Dr. A.D. Singh of Cochin University, stressed on the significance of unconformities/hiatuses in the Neogene sequence stratigraphy of this region.

On the second day, Dr. M.R. Rao of BSIP, Lucknow elaborated on the impact of palynological studies by bringing out a biostratigraphic zonation in a coastal environment as noticed in the bore holes in Tertiary sections of Kerala basin. It was followed by Dr. Nathaniel, ONGC, Chennai elucidating seismic sequence stratigraphy, its principles and depositional/structural elements seen in the seismic record. Some suitable examples from Indian basins were shown for a better understanding of seismic signatures. He then gave couple of exercises of seismic record for hands on exposure on seismic interpretation.

On the third day Dr. L.M. Bilwa of Mysore University brought out the role of palynomorphs for inferring the

climatic cycles in coal bearing sequence stratigraphy of Bander coal fields. The workshop was concluded with a presentation on Dharwar Stratigraphy delivered by Dr. H.S.M. Prakash, Geological Survey of India, Bangalore. He explained with field maps, the shear between the eastern and western blocks of Dharwar Craton and various lithologies mapped and geochronological aspects.

The workshop concluded with a valedictory function on the evening of 6 November, presided over by Dr. B.C. Prabhakar, Chairman, Department of Geology and Prof. B. Mahabaleswar of the department delivered the valedictory address. Dr. A. Govindan presented a brief summary of the workshop proceedings. The participants received the certificates and lecture notes.

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## INTERNATIONAL CONGRESS ON ENVIRONMENTAL MICROPALAEONTOLOGY, MICROBIOLOGY AND MEIOBENTHOLOGY

The 4<sup>th</sup> International Congress on Environmental Micropalaeontology, Microbiology and Meibenthology (EMMM) was organized by the Department of Geology, Engineering and Architecture Faculty, Suleyman Demirel University, Isparta, Turkey from 13-18 September 2004. Prof. Aziz Ertunc (Dean of Engineering and Architecture Faculty) was the President while Prof. Dr. Muhittin Gormus was the Secretary of EMMM 2004. Prof. Valentina Yanko-Hombach (Avalon Institute of Applied Science, Winnipeg, Canada) was the Executive Director of EMMM 2004. She is also the President of the International Society of Environmental Micropalaeontology, Microbiology and Meibenthology. During the congress, Prof. Dr. Metin Lufti Baydar, Suleyman Demirel University Rector, was the honorary President of the congress. The main objectives of the EMMM 2004 were:

1. To continue the discussions initiated during the previous three symposia and enhance further exchange of ideas.
2. To promote innovative multidisciplinary research in recent and fossil micro and meioorganisms.
3. To bring together specialists with geological, biological and environmental backgrounds from different countries to discuss in a collaborative manner the

environmental problems of global and regional changes.

4. To introduce the utilization of micro and meioorganisms to a broader audience and to bridge the gap between science, industry, national governments and international organizations and
5. To increase knowledge in the environmental field and awareness of the world's environmental problems.

The previous congresses of the EMMM were held in 1997 (Tel Aviv, Israel); 2000 (Winnipeg, Canada) and 2002 (Vienna, Austria).

Participants came from 28 countries. The number of contributors with their special interests were: 105 Micropalaeontologists, 77 Microbiologists; 11 Meibenthologists; 2 Structural Geologists; 3 Mathematicians; 5 Chemists; 3 Mechanical Engineers; 3 Sedimentologists and 2 Mineralogists. If the microorganism groups are taken into consideration, the subjects were related to foraminifers, bacteria, spores and pollens, radiolariana, diatoms and calcaerious algae. The majority of the presentation dealt with recent organisms. The congress included 500 oral and 66 poster presentations. Among the presentations, six of them were key note lectures.