

REPORT ON THE 4TH INTERNATIONAL CONFERENCE ON GAS HYDRATES

The fourth International Conference on Gas Hydrates was recently held at Yokohama, Japan, between 19-23 May 2002 following the earlier conferences held in USA (1993,1996,1999). The main objective of the conference was to bring together the International gas-hydrate workers and to facilitate research. This conference, the first of its kind held in Asia had attracted delegates from all over the world.

The conference was organized under the chairmanship of Prof. Dr. Y.H. Mori, Keio University, Yokohama, Japan, under the guidance of International Scientific Committee consisting of Drs. T. Austvik (Norway), P. Englezos (Canada), R. Matsumoto (Japan), J-P. Monfort (France), C.K. Paull (USA), J. Ripmeester (Canada) and D. Sloan Jr. (USA).

The conference was divided into several thematic sessions. The first session was devoted to the topic - exploration, resources and environment (oral presentations of 8 papers and posters of 47 papers). The posters were subgrouped into environmental issues, fluid migration and seep, marine hydrates, technology, permafrost and lake hydrates, and lastly CO₂ hydrates.

The key note lecture by Prof. R. Matsumoto on "Comparisons of marine and permafrost gas hydrates: examples from the Nankai and Mackenzie Delta" and on the topic of exploration, resources and environment by E. Jones, Lars Zuelsdorf, Fredrick Colwell and Mathew Davie, C.K. Paull, S.R. Dallimore, Y. Masuda and T.S. Collett, were very interesting and thought provoking. Excellent posters were displayed on Nankai Trough, using DTAG seismic survey in Nankai Trough (Shimizu), migration velocity analyses (Hato), distribution of BSR and possible fluid migration in Nankai Trough (Morita), high resolution 2D and 3D seismic surveys for methane hydrate exploration in eastern Nankai (Morita), velocity structure of double Gas hydrates related BSR within the eastern

Nankai accretionary prism, Japan.

A poster by Dr. Ussler's on gas hydrates was quite interesting for our future work in India on gas hydrates, wherein the process of estimating *in situ* sediment gas concentration in ODP holes by continuously monitoring temperature during core recovery was lucidly presented.

A session was devoted to topics on fundamentals: Thermodynamic aspects and kinetics (oral 8 papers and posters of 46 papers of which 25 on thermodynamic aspects and 21 on kinetics). Dr. Sloan's work on next generation of hydrates was quite interesting and informative. Similarly other posters by Dr. Ripmeester on the application of MRM (Magnetic Resonance Microimaging) to monitor the formation of gas hydrates. Dr. H. Kono gave a talk on the modelling of gas hydrate formation process by controlling interfacial boundary surfaces.

In the evening at a banquet talk, Dr. Raj Bishnoi, an eminent researcher from Canada, stressed the need of multidisciplinary research on gas hydrates. Following additional topics - Fundamentals covering structural studies and physical properties, multiphase mechanics and heat/mass transfer (oral 11 papers and poster 46 papers of which structural studies 12, physical properties 16 multiphase mechanics and heat/mass transfer 18) were also presented.

In the morning session, we were able to listen to more about the fundamentals; structural and physical properties, multiphase mechanics and heat/mass transfer aspects on gas hydrates. Important speakers of this session were Drs. Sloan, Ajay Mehta, and Markov.

Later Dr. Kuznetsov gave a talk on CODATA project activities which is purely on the information system on gas hydrates. Later Dr. Moon talked on computer modeling of gas hydrate formations, while Dr. L. Stern presented new insights into the phenomena of anomalous or self-preservation of gas hydrates.

Posters on hydrate formation and prevention in pipelines and hydrate based technologies (total of 30 posters of which 12 in hydrate formation and prevention in pipelines and 18 in hydrate based technologies, were displayed, while in oral category five presentations under hydrate formation and prevention in pipelines and 3 papers under hydrate based technologies). An interesting paper on the importance of hydrate phase measurements in flow assurance and energy storage was presented by Ramesh Kini of the Colorado School of Mines, USA, who described that gas hydrates were the major problem in flow assurance.

At the end of the conference, a tour to Nikko (a historical place where the first Shogun of Edo period is enshrined)

was organized. The entire conference material of both the oral and poster presentations (containing one keynote address and 204 general papers) from 19 countries were combinedly into a two proceedings volumes.

It is hoped that deliberations of this conference will give a new fillip to further research on gas hydrates in India by adopting an integrated and interdisciplinary approach.

It was decided to hold the next International Conference on Gas Hydrates in 2005 at Trondheim, Norway.

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