

PETROLEUM GEOLOGISCHE KRING



KONINKLIJK NEDERLANDS GEOLOGISCH MIJNBOUWKUNDIG GENOOTSCHAP **PGK**

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Venue:	PGK's monthly meetings are held at the KIVI building, Prinsessegracht 23, Den Haag. Drinks are served from 17:00 hrs; the lecture starts at 18:00hrs.		www.pgknet.nl
Membership:	Apply for membership by contacting the secretariat. The annual fee is €15.-		
Accounts:	Fortis Bank: 88.65.82.733 (PGK, Den Haag)		

MARCH 2010 NEWSLETTER

17th MARCH:

The next PGK meeting will be on **Wednesday, March 17th, 2010**. The programme will be as follows:

17:00-18:00 hrs: Social hour

18:00-19:00 hrs: Lecture by Jens Greinert (Royal Netherlands Institute for Sea Research)
"Gas Hydrates and Seeps"

Abstract on separate pages

APRIL PGK MEETING

The April meeting takes place on **Wednesday, 21th of April 2010**. There will be a lecture given on **"Unconventional gas resources in the Netherlands"** by Harald de Haan (EBN).

NEW MEMBERS

Applications for membership have been received from Serge van Gessel (TNO), Paul Janssen (Shell International Exploration and Production), Babette van Gessel (Global Pacific & Partners).

If no objections are received prior to or during the next meeting, he/she will be automatically admitted as member of our society.



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ANNUAL MEETING

During the meeting on the 17th of February the Annual PGK Meeting and board renewal took place. Herman Darman presented the activity summary for 2009/2010, Nabil Chouch the financial situation, and Douwe van Leverink the summary on excursions.

We take the opportunity to thank the 2009/2010 boardmembers for their work and to welcome the new board.

PGK Board 2010/2011:

- President: Gitta Zaalberg (Fugro)
- Vice President: Bas van der Es (Shell)
- Secretary: Christian Derer (Wintershall Noordzee)
- Treasurer: Wiebe van Driel (PanTerra)
- Excursion Coordinator: Henk Kombrink (TNO)
- Web Master: Adriaan Janszen (TU Delft)

PGK Board 2009/2010

- President: Herman Darman (Shell)
- Vice President: Gitta Zaalberg (Fugro)
- Secretary: Wieske Paulissen (TU Delft)
- Treasurer: Nabil Chaouch (PanTerra)
- Excursion Coordinator: Douwe van Leverink (TNO)
- Web Master: Adriaan Janszen (TU Delft)

INVITATION:

Friday 19rd March 2010

Aula (Auditorium/3rd floor) Technische Universiteit Delft, Mekelweg 5 te Delft

Symposium ter ere van het emeritaat van Salomon Kroonenberg

Symposium in honour of Salomon Kroonenberg's retirement

The theme of the symposium is Salle's 40 years research career. Scheduled presentations are, amongst others, on the Amazon basin, the Caspian Sea, geological modeling, geochemistry and climate. The program starts at 9 AM with coffee and will finish at 1 PM with lunch hosted by the Department Geotechnologie of Delft University of Technology.

At 3 PM Salle's farewell speech will commence.

Please register for the symposium and lunch before March 4th with:

Secretariaat Afdeling Geotechnologie TU Delft, Faculteit CiTG

Antwoordnummer 10191, 2600 VB Delft

e-mail: m.j.m.ammerlaan@tudelft.nl

phone: 015 278 1423



Monthly meeting: Wednesday 17th March 2010
Address: KIVi building, Prinsessegracht 23, the Hague
Social hour: Between 17:00 and 18:00 hrs
Lecture: 18:30-19:00

“An overview of gas hydrate and cold seep research along the Hikurangi Margin, New Zealand (2006 & 2007)

By Jens Greinert et al.

J. Greinert (1,3), K. Faure (2), L. Naudts (3), M. De Batist (3), J. Bialas (4), P. Linke (4), I. Pecher (2), and R. Rowden (5)

(1) Royal NIOZ, PO.Box 59, 1790 AB, Texel, NLD (greinert@nioz.nl), (2) GNS Science, PO Box 31-312, 6009, Lower Hutt, NZL, (3) Renard Centre of Marine Geology, Ghent University, Ghent, BE, (4) IFM-GEOMAR, Wischhofstr. 1-3, 24148, Kiel, DEU, (5) NIWA, Private Bag 14901, 6021, Wellington, NZL

Prior to 2006, the knowledge about cold seeps around New Zealand was based mainly on accidental recovery of seep fauna or methane-derived carbonates by fishermen and the detection of flares in fish-finding sonars. Lewis and Marshall (1996; NZJGG) compiled these findings, providing the first details on 13 seep sites. Four of those are located at the Hikurangi Margin along the east coast of New Zealand's North Island.

Since then, three international cruises in 2006 and 2007 enhanced our knowledge considerably about methane seepage along the Hikurangi Margin, an area which has widely distributed and in places very strong BSR. Two cruises on the RV TANGAROA (led by GNS Science and NIWA, NZ) in 2006 focused on extensive reconnaissance work (multibeam mapping, seismic surveys, flare imaging, visual observations) as well as fauna sampling, geochemical pore water analyses and CTD casts including water sampling for methane analyses. Several new seep sites were discovered during these cruises. Using these data, very detailed investigations in four main working areas could be performed during a 10-week expedition with RV SONNE (SO191, led by IFM-GEOMAR, Germany). All research topics currently discussed in the scientific community were addressed using state-of-the-art equipment (e.g. deep-tow side-scan, TV-guided sampling, lander and ROV-deployments).

Fourteen institutes from seven countries were involved (Australia, Belgium, Germany, New Zealand, United Kingdom, United States, Switzerland).

Echosounder and sidescan surveys unmistakably revealed active seep sites by detecting bubbles in the water column and carbonate precipitation at the seafloor forming massive chemoherm complexes. These complexes are associated with typical seep fauna like tube worms, bivalve mollusk species (*Calyptogena*, *Bathymodiolus*), and bacterial mats. At the fringe of these chemoherms dark sediment patches were observed which exhibit a novel seep habitat dominated by dense beds of two new species of heterotrophic ampharetid polychaetes. Bubble release was visually observed at several sites and recorded in the backscatter of various acoustic devices. At one site (680m water depth) very strong, pulsing outbursts could be observed repeatedly with methane fluxes of 20 to 25 l/min (60 to 74 mol/min). Intense CTD sampling and onboard methane analyses revealed that at least three of the areas are actively venting methane with an upper boundary at about 500 m, due to a density barrier. ADCP data indicate tide-dependent changes in current speed and direction. Delta 13C values of dissolved methane range from -71 to -19 permil, reflecting bacterial oxidation of methane in the water column, with a removal rate of 38 nM/day (or 11 to 19).



Extensive pore-water measurements, including in situ measurements during lander deployments, were aimed at evaluating flux rates of dissolved geochemical species and free gas. These measurements revealed that the dark sediment patches represent a remarkable seep habitat because of its very high methane fluxes and total oxygen consumption rates. Detailed seismic and controlled-source electromagnetic surveys allowed quantification of gas hydrates and regional estimates of fluid-flow focusing and the impact on the gas hydrate stability and BSR occurrence. Furthermore, the geophysical data imaged fluid pathways under seeps and indicated that more seep sites could be found at the seafloor. In 2006 and 2007, 23 new seep sites have been identified and visually observed, which resulted in a total of 31 seep sites for the Hikurangi Margin. With more cruises proposed, this number is likely to increase.

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