



PGK

Petroleum Geologische Kring

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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 through the PGK website. The annual fee is €15.-		
Accounts:	ABN/AMRO Bank: 88.65.82.733 (PGK, Den Haag)		

OCTOBER 2011 NEWSLETTER

19TH OF OCTOBER:

The next PGK meeting will be on **Wednesday, October 19th, 2011** at the KIVI building, Prinsessegracht 23, Den Haag.

17:00-18:00 hrs: Social hour

18:00-19:00 hrs: Lecture by: Heijn van Gent

The dynamics of the Dutch subsurface: paleostress and the internal geometry of the Zechstein

Abstract on separate page

NOVEMBER PGK MEETING:

The November meeting takes place on **Wednesday, 16th of November 2011**. Lecture by Harmen Mijnlief on "Palaeotopography-governed sediment distribution - a new predictive model, for the Permian Upper Rotliegend in the Dutch sector of the Southern Permian Basin".

SIDNEY POWERS MEMORIAL AWARD

We congratulate Koen Weber on winning this prestigious award, which is AAPG's highest honour. See http://www.aapg.org/explorer/2011/10oct/honors_awards1011.cfm?zbrandid=4051&zidType=CH&zid=8396275&zsubscriberId=1002333513& for full details.

NEW COUNCIL MEMBERS

We welcome Raik Bachman as webmaster and Geert-Jan Vis as excursion organiser, and thank Adriaan Janszen en Henk Kombrink for the great job that they have done.

NEW MEMBERS

Application for membership has been received from Jinna Ziller (PanTerra). If no objections are received prior to or during the next meeting, she will be admitted as member of our society.

DECEASED

Gerard Lijmbach (1937 –2011)



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Program PGK meeting Wednesday 19th of October 2011**Address:** KIVI Building, Prinsessegracht 23, Den Haag**Social hour:** 17:00 - 18:00**Lecture:** 18:00 - 19:00**The dynamics of the Dutch subsurface: paleostress and the internal geometry of the Zechstein***Heijn van Gent (RWTH Aachen, now at Shell), Janos L. Urai, Stefan Back, Frank Strozyk (RWTH Aachen), Martin de Keijzer (NAM)***Abstract**

With high quality 3D seismic datasets becoming increasingly available for industry and academics alike, we can expect a number of interesting developments in our understanding of the upper brittle crust of the coming years. In this talk, high quality 3D PSDM seismic data from Groningen Block and from the Dutch offshore (all courtesy of the Nederlandse Aardolie Maatschappij), will be used to study paleostress based on subsurface data, as well as the internal dynamics of salt structures.

Reconstruction of the paleostress evolution in the upper brittle crust has a considerable impact on the understanding of its geological evolution, but can also influence the efficiency and safety of hydrocarbon E&P. To date, most paleostress analyses are based on field observations of exposed fault surfaces in outcrops in uplifted areas, rather from inside the basins. In order to develop a workflow to reconstruct paleostress stratigraphies from 3D reflection seismic data, a large seismic data set of the NW corner of the Groningen gas field was studied. Since all paleostress analysis methods require both information on the orientation and slip direction of faults, a work flow is developed to extract slip direction of these faults. For this, both the large scale fault undulations and offset structures from both sides of the fault plan were used. Paleostress results cover over 350 Myr and correspond with published, field-based results from Belgium and the UK.

The ductile Zechstein evaporites cannot be studied using paleostress, since it deforms ductile rather than brittle. It does however contain a brittle anhydrite/carbonate/clay layer (the so-called Zez3 "stringer") which is completely encased in halite and forms an excellent reflector. This or similar stringers play a role in the safe production of hydrocarbons. At the same time, the stability of denser anhydrite blocks in the Zechstein forms a factor in the development of underground storage sites. A first-order description is provided of large-scale structures observed in the complexly folded and faulted internal structure of Zechstein salt bodies in NW-Europe. Structures observed include an extensive network of thicker zones. Later, this template of relatively strong zones was deformed into large scale folds and boudins as the result of salt tectonics. Flow of salt during tectonic phases was rarely plane-strain, producing complex fold and boudin geometries that overprint each other. There are some indications of a feedback between the early internal evolution of this salt giant and the position of later salt pillows, suggesting a further control for the position of salt structures in addition to basement faults. The stringer has a higher density than the surrounding halite, and there is some controversy concerning the rates at which these blocks sink. In this work we observed no structures indicative of sinking, but rather conclude that the present-day position of the blocks can be explained by internal folding of the salt. This conclusion is corroborated by observations from mines, and by better understanding the effect of the distribution of grain boundary water in evaporite microstructures on deformation mechanisms and rates.

This work has shown that the internal geometry of the Zechstein evaporite is extremely complex, but can be studied using high-quality 3D reflection seismic dataset. The internal geometry of salt deposits rivals the internal structure of mountain belts, both in complexity and size.

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Mijn fascinatie Doelgericht innoveren



Project Manager

More information

Core business: Earth, Environmental and Life Sciences

Level of experience: Medior (3 to 10 years)

Location: Utrecht

Field of Education:

Reference Code:

Working Time: Full-time

11-EELS-U-SGE-ProjectleiderCCS-ext. E.

Your expertise

We are looking for a commencing project manager with an affinity for applied earth sciences in the Sustainable Geo Energy research group. We are an enthusiastic, open group of 35 colleagues with expertise in fields like geology, geophysics and risk analysis. We work on projects for (inter)national industry and government, mainly in the field of CCS and ultra-deep geothermal energy. Our activities fall within the broader context of the Energy theme (www.tno.nl/Energie/Olie&Gas). Our projects vary from small-scale (a few man months and several national stakeholders) to complex (multidisciplinary, many man years and a large number of international stakeholders).

Your impact

You will start as project manager for small projects and also work on the intrinsic project components. We will encourage your personal development in this position to help you to achieve a position as senior project manager. You will be responsible for maintaining contact with the customer and delivering the agreed results to full customer satisfaction in line with the contracted price, resources, people, quality requirements and schedules. You will deliver proper after-sales service and (in time) help to actively acquire project continuations.

Your competences

You have a university background in the earth sciences and work experience (minimum of 3 years) as well as the intrinsic stock to make a realistic assessment of the value of your colleagues' expertise. You are geared to achieving results and are able to motivate and inspire people in your project teams. You have excellent communicative skills in Dutch and adequate competence in English, or the willingness to acquire this. Experience as project manager and a relevant network are prerequisites.



Mijn fascinatie Doelgericht innoveren

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