



PGK

Petroleum Geologische Kring

NEW MEMBERS

Applications for membership have been received from Swiad Worms (VU Amsterdam), Sanchita Ganguly (Panterra), Martin Galavazi (Fugro), Renaud Bouroullec (TNO), Eric Huisman (Shell), Marcel Rompelman (Windesheim University), A. B. Sarata (Fugro), Helena van der Vegt (TU Delft), Lindsay Lipsey (TNO), Menne Schakel (CGG), Sandro Boschetti (Amsterdam Petroleum Geoscience), Len Paalvast (TNO). If no objections are received prior to or during the next meeting, they will be admitted as member of our society.

Also, we encourage our members to become members of our mother organisation, **KNGMG**. You can check more info here: <http://www.kngmg.nl>

WEBSITE

The link to our website is www.pgknet.nl. Check there for the latest news on meetings, events, excursions, jobs, membership. If you come across interesting websites that may be of use to other members of the PGK, please send the URL to the web master (gijs.straathof@sgs.com), who will share them on the PGK website.

TWITTER

We are now on Twitter @PGKring. The account shall be used to announce events, send reminders for events and occasionally to re-tweet interesting items. So follow us on twitter!

LINKED-IN

We also have a group on linked-in (called PGK), that our members may join. Any member of the group is free to list subjects there. Requests to the secretary for linked-in contacts will be ignored, as the secretary function does not have a linked-in account.

**PROGRAM PGK MEETING WEDNESDAY MARCH 19TH , 2014****Address:** KIVI building, Prinsessegracht 23, Den Haag.

17:00-18:00 drinks

18:00-19:00 lecture

David Bruhn**"Progress in understanding and mitigation of induced seismicity in geothermal operations"**

The project *GEISER* (Geothermal Engineering Integrating Mitigation of Induced Seismicity in Reservoirs) was funded by the European Commission from 2010 until 2013. The project addressed one of the major challenges the development of geothermal energy is facing: the mitigation of induced seismicity related to injection in geothermal operations to an acceptable level. For a better understanding of the actual processes inducing seismicity, two major aspects were investigated in detail:

(1) The analysis of induced seismicity from representative geothermal reservoirs throughout Europe (Soultz, Basel, Gross Schoenebeck, Hengill/Iceland, Campi Flegrei) and other areas of the world (Berlín, El Salvador; The Geysers, USA; Paralana and Cooper Basin, Australia) was focused on the relationship of the induced seismic events with injection parameters, local stress field and geological settings. The datasets of induced seismic events were compared with other project data where injection did not cause significant seismicity.

(2) geomechanics and processes involved in creating induced seismicity were studied, in particular the influence of factors such as temperature, poro-elasticity, fluid injection rate, existing fault segments, and time dependent effects to better constrain the mechanisms involved during fluid injection. A variety of modelling approaches, as well as laboratory experiments were employed for this purpose.

To develop suitable mitigation measures two additional aspects were investigated:

(3) The consequences of induced seismicity were addressed by providing an assessment of the seismic hazard presented by earthquakes triggered through human activity in comparison to hazards triggered by natural seismicity. Results from (1) and (2) were used to quantify the probability of triggering larger earthquakes and to define the potential damage caused by ground shaking. This activity resulted in proposed guidelines for licensing and site development for local authorities and industry. One of the key elements in these guidelines is the setup of an advanced forewarning traffic light concept which combines mechanical models with classic probabilistic seismic hazard assessment methods;

(4) Strategies for the mitigation of induced seismicity were developed. On the basis of the recommendations formulated in (3) and of the results of (1) and (2), strategies for soft injection have been proposed. These include a scenario of cyclic injections compared continuously increasing injection pressures. The optimisation of a monitoring network and a real-time monitoring system were presented to help authorities and operators minimize the seismic hazard and manage the risks during operations and production.



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PROGRAM PGK MEETING FRIDAY APRIL 11TH , 2014

Peat in the Netherlands: geology, production and energy

Lecturers: Kim Cohen (UU), Kay Koster (TNO), Sophie Visser (UU), Aafke Beumer (Natuurmonumenten), Charles Cornelisse (retired Shell)

This PGK Day Trip will be organized on Friday 11 April 2014. The aim of this trip is to get informed about the history of peat in the lowlands in the west of the Netherlands. Why is there so much peat? What does fresh peat look like? How was it produced and how did that affect the landscape as we know it today? How did the energy produced with peat affect the economy of the Netherlands?

The preliminary program for the PGK Day Trip:

8h30 Departure from Gouda train station
8h30-10h30 Bus drive Gouda-Reeuwijk-Bodegraven-Nieuwkoop including short stops
10h30-11h00 Coffee in Nieuwkoop (@ Natuurmonumenten)
11h00-12h30 Lectures on geology and landscape @ Natuurmonumenten
12h30-13h30 Lunch
13h30-16h00 Boat trip Nieuwkoopse plassen
16h00-16h30 Lecture on economy of peat @ Natuurmonumenten
16h30-17h30 Drinks
18h00-18h45 Bus drive to Gouda train station

Cost: €35

SUBSCRIBE: [HERE](#).

The following companies are warmly thanked for sponsoring the PGK:

Argo Geological Consultants -Baker Hughes Reservoir Software-

Chevron Exploration and Production Netherlands

CGG Services - Centrica Energy - Dana Petroleum Netherlands B.V. - dGB Earth Sciences

Dyas - EBN - ENRES International - Fugro - GDF Suez E&P Nederland

Global Pacific & Partners - Hansa Hydrocarbons - NAM - Oranje Nassau Energie

Shell Exploration & Production - Terra Incognita Geoconsultancy and Geobooks

PanTerra Geoconsultants - PGS Geophysical - SGS Horizon

TNO - Total E&P Nederland - Vermilion Energy - Wintershall Noordzee - Xodus Group