Shale Gas Workshop 2: Preliminary PROGRAMME

(Daily allocations are fixed : fieldtrip 1st , workshop follow thereafter, details to be ammended)

DAY 1: Field Trip and Core Lab *(Wed 15/2)*

08:00 **Core Lab *(note location : map)***

- meet at back of NMMU Geosciences Department, Summerstrand Campus
- to examine core from borehole drilled last year through the Lower Ecca Group, near Jansenville in the Karoo

Field Trip Departure (directly afterwards)

- **35-seater bus** to depart from PE
- to visit
  - relevant outcrops of Lower Ecca Group rocks
  - drill site of a second borehole planned to recover core mainly from the Whitehill and Prince Albert Formations
- bus return to PE - late afternoon, back approx. 18:00

DAY 2: WORKSHOP *(Thurs 16/2)*

- *NMMU **Indoor** Sport Centre : Conference Facilities **(note location : map)***

08.00 **Registration**

9:00 – 10:30 **Introduction to shale gas**

Definition; energy supply and demand
Global development of shale gas
The exploitation debate
Security of supply, job creation, affordability, sustainability, safety, ownership
Gas-in-place and fracturing
Environmental boundary conditions
Assessing risks from expert perspective
Assessing public opinions

Break

11:00 – 13:00 **Geological elements**

Richness, quality, maturity of organic matter
Effects of weathering
Gas generation – biogenic and thermogenic
Phase behaviour, expulsion and adsorption
Mineralogy and diagenesis
Petrophysical properties
Fracturing

Lunch

14:00 - 15:00 **What goes on, what goes in and what comes out**
Fracturing strategies – case histories
Fracturing fluids
Produced waters
Microbial control
Induced microseismics
Stable isotope monitoring
Greenhouse gas footprint

15:00 – 17:30 **South Africa in focus**
Tectonostratigraphy/Geodynamics of the Karoo Basin
Prince Albert and Whitehill Formations
Estimating the Karoo Basin's shale gas resource
Geohydrology and potential chemical impact of hydraulic fracturing in the Karoo
Published information on organics, rock matrix, thermal history
Current scientific investigations – GFZ/NMMU/PASA/UFS
Database and data management

17:30 **Open Discussion**

DAY 3 Case Studies, Methods Workshop *(Fri 17/2)*

CASE STUDIES:

09:00 – 10:30 **1. Lower Jurassic Posidonia Shale** (Germany)

11:00 – 13:00 **2. Cambrian Alum Shale** (Sweden)

***Topics include**:*

- *Depositional environment, sedimentology, diagenesis*
- *Organic material characterization*
- *Thermal maturity and burial history*
- *Gas generation: from biogenic to late gas*
- *Porosity development*
- *PVT modelling*
- *Well planning*
- *Practical experiences from drilling activities*

Lunch

14:00 – open end **3. Insights into methods and application**

- Organic geochemistry and basin modelling
- Mass balances
- Organic petrology
- Mineralogy

4. Drinks and Debate
