Contribution ID: **52** Type: **not specified**

A structural and geochemical analysis of the Karoo sedimentary rocks along dolerite dyke and sill contacts with implications on shale gas potential

Wednesday, 1 October 2014 10:10 (10 minutes)

The main Karoo basin sedimentary sequence covers an approximate area of 700 000km2, and attains a thickness of more than 5Km. The emplacement of the Karoo Large Igneous Province (LIP) through dolerite dykes and sills, and lava flows (ca 183Ma) led to extensive devolitilization, metasomatism, and out-gassing of approximately 2000Gt of carbon dioxide and methane into the atmosphere. The effects of these intrusive rocks challenges shale gas reserves in Karoo Basin.
The purpose of this study is to address the effect of dolerite intrusions on the Karoo sedimentary strata along contact aureoles, so as to understand the Pressure-Temperature (P/T) conditions that prevailed at the time of contact metamorphism and ultimately the effect on shale gas content. Field mapping and sampling of contacts will be conducted along a transect from the Eastern Cape coastline to the basaltic outcrops. The changes in mineralogy of the host rocks, thermal maturity, and fluid inclusion chemistry will be investigated using analytical techniques such as SEM, TEM, and fluid inclusion microthermometry on samples collected along contact aureoles.
The results of this study will assist in quantifying the effects of dolerite intrusions on the Karoo sediments in the Eastern Cape Province; it will also shed light to P/T conditions prevailing at the time of magmatic activity and the subsequent effects on shale gas potential.

KEY WORDS: Karoo Basin, dolerite dikes and sills, contact metamorphism, gas content.

Primary author: Ms NENGOVHELA, Vhuhwavhohau (Nelson Mandela Metropolitan University)

Co-author: Prof. DE WIT, Maarten (NMMU AEON)

Presenter: Ms NENGOVHELA, Vhuhwavhohau (Nelson Mandela Metropolitan University)

Session Classification: Shale Gas

Track Classification: Oral and Poster Presentation