Geophysical Research Abstracts
Vol. 20, EGU2018-1483, 2018
EGU General Assembly 2018

Palynological evidence of early Guadalupian warming and maximum marine flooding in western Gondwana: The Whitehill event of the Main Karoo Basin (South Africa)

Annette E. Götz (1), Katrin Ruckwied (2), and Alexander Wheeler (3)

(1) University of Portsmouth, School of Earth and Environmental Sciences, Portsmouth, United Kingdom (annette.goetz@port.ac.uk), (2) Shell International Exploration and Production, Houston, TX 77079, USA, (3) The University of Queensland, School of Earth Sciences, St. Lucia, QLD 4072, Australia

The Permian postglacial climate history of Gondwana represents the most prominent climate amelioration in the Phanerozoic from severe icehouse conditions in the Pennsylvanian to extreme hothouse conditions in the Triassic. Here, we present new palynological and sedimentological data providing evidence of a major transgression ("Whitehill event") during the early Guadalupian (Roadian) recorded in black shales and coal deposits of South Africa's Main Karoo Basin. Marine phytoplankton exhibits peak abundance within the Whitehill shales of the southern basin and correlative coal deposits of the north-eastern basin parts. This basin-wide marine signature marks rapid warming and the switch to greenhouse conditions in western Gondwana during Roadian times as documented in the pollen assemblages. In terms of Karoo stratigraphy the Whitehill event provides a powerful tool for cross-basin correlation. Ongoing research aims to refine and integrate existing stratigraphic zonations including climatic signatures to further develop intra-Gondwanan correlation schemes.