Geophysical Research Abstracts
Vol. 17, EGU2015-5181, 2015
EGU General Assembly 2015

Correlation of geophysical datasets in rifted margin studies

Gwenn Peron-Pinvidic (1), Per Terje Osmundsen (1), and Jörg Ebbing (2)
(1) NGU Geological Survey of Norway, Leiv Eirikssons vei 39, 7040 Trondheim, Norway , (2) Kiel University, Kiel, Germany

A robust interpretation protocol for defining offshore rifted margin architecture includes interpretation of seismic reflection data supplemented by refraction and/or potential field modeling. In combination, this workflow is believed to provide better constraints on sedimentary, basement and Moho geometries at depth and/or the presence of magmatic material. Interpretation of the new generation of long-offset seismic reflection data shows that conflicts may arise between structural observations made from high-resolution seismic reflection profiles and a simple translation of density and velocity values into specific rock-types. We illustrate variations over this topic using three type-examples from the Mid-Norwegian rifted system.
We show, for instance, that dense sediments wrongly interpreted as crystalline basement, can lead to incorrect mapping of the top of basement and thus to a wrong distribution of crustal and sedimentary material in the margin. This would directly impact margin restoration exercises, modeled plate kinematics and basin analyses. Our examples show that, in the absence of a seismic reflection dataset with good local coverage and high resolution, interpretation of potential field and/or velocity models in terms of structures or lithologies should be handled with care in order to avoid misunderstanding of the margin's tectonic and stratigraphic evolution.