Geophysical Research Abstracts
Vol. 18, EGU2016-16466, 2016
EGU General Assembly 2016

Structural development of the Jan Mayen microcontinent (JMMC): An update of its role during the rift transition from the Ægir Ridge to the Kolbeinsey Ridge, and effects on the formation of the Greenland-Iceland-Faroe ridge complex.

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This study presents results of an ongoing PhD research project and proposes a revision of the Jan Mayen microcontinent′s Cenozoic evolution with a special emphasis on the structural relationship to the Greenland-Iceland Faroe ridge complex. Recently acquired and publicly available geophysical and borehole data collected offshore Iceland since the early 1970s, facilitate a thorough review of Tertiary rift systems and their association with the Jan Mayen microcontinent, updating recent kinematic modelling that details the timing of the North Atlantic opening along the Jan Mayen transfer systems, and the Iceland-Faroe-Greenland transfer system bordering the Greenland-Iceland Faroe ridge complex, which covers a large area of thick crust that stretches across the North Atlantic Ocean between the central East Greenland and the North-West European margins.

The established regional reflection seismic dataset interpretations and plate tectonic reconstructions indicate that the microcontinent may represent the southern extension of the East Greenland Jameson Land basin, suggesting a similar structural trend as the Faroe-Shetland basin. The Cenozoic structural evolution of the Jan Mayen microcontinent and surrounding oceanic crust includes six main phases that correlate to several major unconformities and related structures. Important events include the pre-break-up unconformity, the break-up to drift phase, a drifting phase and establishment of the Ægir Ridge seafloor spreading during the early Eocene, oblique seafloor spreading direction east of JMMC during mid-Eocene caused the formation of transform systems and uplift along the southern flank Jan Mayen microcontinent forming the Iceland Plateau Rift (Brandsdóttir et al. 2015), accompanied by igneous activity along the northeastern margin of the Blosseville Kyst (Larsen et al. 2014), ridge relocation via a southeast to northwest en-echelon ridge system transition from the southern extent of the microcontinent during the early Oligocene, and seafloor spreading cessation in the Norway basin around 22 Ma (Gernigon et al. 2015) followed by the final break-up along the Jan Mayen microcontinent western margin during the early Miocene and northward propagation of the fully established Kolbeinsey Ridge.