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0.1 Tectonic processes in the Jan Mayen Fracture Zone based on earthquake occurrence and bathymetry

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Jan Mayen is a small volcanic island situated along the mid-Atlantic Ridge. It is closely connected with the geodynamic processes associated with the interaction between the Jan Mayen Fracture Zone (JMFZ) and the slowly spreading Kolbeinsey and Mohns Ridges. In spite of the significant tectonic activity expressed by the frequent occurrence of medium to large earthquakes, detailed correlation between individual events and the causative faults along the JMFZ has been lacking. Recently acquired detailed bathymetric data in the vicinity of Jan Mayen has allowed us to document such correlation for the first time. The earthquake of April 14, 2004 (M_w=6), which occurred along the JMFZ, has been studied in detail and correlated with the bathymetry. Interactions between various fault systems are demonstrated through aftershock locations. This gives an insight into the processes occurring along the divergent plate boundary in the North Atlantic associated with the interaction between the JMFZ and sea-floor spreading along the Mohns Ridge.