



Rifting and Volcanism around the Jan Mayen Fracture Zone, NE Greenland

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In 2017, we sailed with the German research vessel *Maria S. Merian* offshore NE Greenland to study the architecture of the rifted continental margin around the Jan Mayen Fracture Zone. The acquired multichannel seismic data provide a structural image of the sediments and crustal architecture. Acquisition was done using BGR's reflection seismic instrumentation with a 4500-m-long digital solid streamer and a G-airgun array with a total volume of 3100 in³.

Key questions are the distribution of volcanism as manifested in seaward dipping reflectors and the continent-ocean transition (COT). From the pinch-out of seafloor spreading anomalies, a margin-parallel COT off East Greenland would indicate an N-S directed opening in the Norwegian/Greenland Sea, i.e. towards the postulated thermal anomaly. A second question is the timing, duration and distribution of magmatism that resulted in the formation of the North Atlantic Igneous Province. Here, we study the amount of magmatism in relation to the distance from the proposed thermal anomaly and the influence of major fracture zones on volcanism. The "volcanic province" offshore NE Greenland turns out to host several shelf basins, either rift basins or pull-apart grabens. The Jan Mayen Fracture Zone is clearly delineated in the oceanic domain and shows a structural continuation onto the continental shelf. However, the continuation of the fracture zone is not a single linear feature but consists of several shorter segments, which are offset in a N-S direction across the shelf.