Geophysical Research Abstracts,
Vol. 10, EGU2008-A-00000, 2008
EGU General Assembly 2008

Relocation of the 1999 seismic swarm along the ultra-slow Gakkel Ridge

C. Riedel(1), V. Schlindwein(1)

Alfred-Wegener-Institut für Polar- und Meeresforschung Bremerhaven

The ultra-slow Gakkel Ridge is the lowest spreading velocity end member of the global mid-ocean ridge system. Still it hosts a number of active vents and volcanoes. During 1999 one submarine volcanic complex at around 85 N, 85 E was home to a series of earthquakes above magnitude 4 which to this day is the best example of a globally recorded swarm at a volcano with more than 200 events registered in the ISC bulletins. In order to better constrain the locations and mechanisms of these events we cross-correlated all of them and introduced inter-event delay times for similar events which were used to update the existing bulletins. Similar waveforms were only found close (i.e. $<$ 3000 km) to the source and vary from station to station. Only 3 events are similar at more than 4 stations at the same time. Using modern global hypocenter location algorithms such as HYPOCENTER from SEISAN, HYPOSAT and NONLINLOC we limited the lateral extent of the swarm, its depth and associated depth errors by varying the velocity model. Most of the events seem to be focussed between 0 and 30 km depth and ascent paths of seismicity and thus maybe magmatic dykes appear to be traceable.