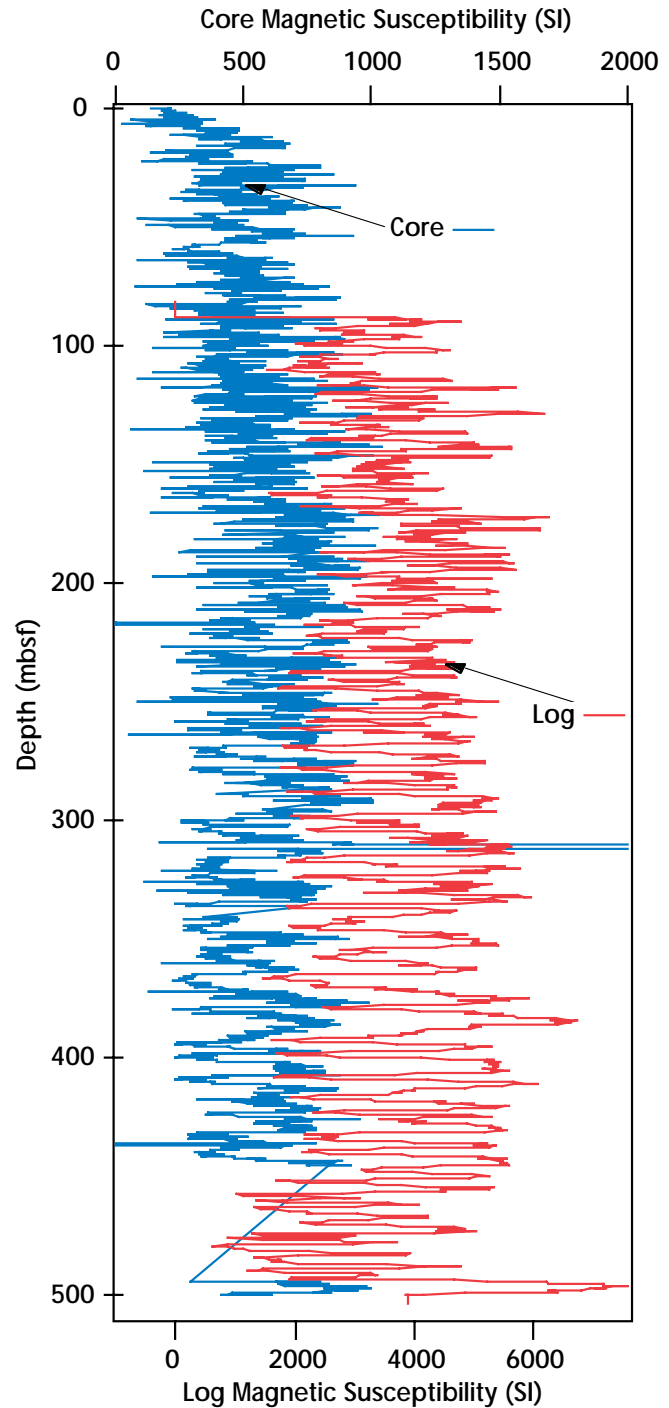


# Leg 162, North Atlantic Gateways II: GHMT Logging Results

Sean Higgins, Lamont-Doherty Earth Observatory, Columbia University

The successful deployment of the Geological High-resolution Magnetometer (GHMT) at Site 984B in the North Atlantic during 1995 yielded a magnetic susceptibility log from 90-503 meters below sea floor (mbsf) that reproduced the susceptibility measured on the cores. The GHMT tool has only been in use since about 1993 and has the ability to provide both susceptibility (at ~25-50cm resolution) and magnetic field measurements that can be combined to produce a magnetic polarity stratigraphy. As can be observed in the figure on the right, every major event recorded in the cores is in the GHMT log as well as data for a long section (440-500 mbsf) where core was not recovered. The potential of this tool to provide continuous, detailed susceptibility and geo-chronologic information make it an invaluable at sites where core recovery is incomplete and other isotopic and bio-stratigraphic data are not available. Both of these problems are typical of high latitude regions of worlds oceans, like the North Atlantic or Antarctic, where use of the GHMT tool could be used to make regional correlations. The GHMT data can also be used to constrain core expansion and stretching problems along with other logging data to help provide better estimates of sedimentation rates.

At Site 984, the stratigraphic control provided by isotopic, biostratigraphical datums, and magnetic polarity data is limited primarily to the upper 270 meters (the last ~2.5 Myr). The whole lower half of the section is without microfossils and the core is too disturbed for reliable paleomagnetic data. By tuning the logging data in the upper section to "known" datums and observed Milankovich cycles, it may be possible to use the GHMT and other logs in the "unknown" lower section (estimated to be 2-3 Myr in length) to provide an orbitally tuned stratigraphy. The GHMT tool also provided important stratigraphic control at two other sites on the Greenland (Site 987) and Svalbard (Site 986) margins.



Leg 162, North Atlantic Gateways II  
GHMT Logging Results  
Site 984B: Bjorn Drift  
Eastern flank of Reykjanes Ridge  
61° N 24° W - 1650 m water depth