



SAADAN! The South Atlantic Anomaly Danish Magnetic Field Project

J. Matzka (1), **N. Olsen** (2), C. Fox Maule (1), A. Kuvshinov (3), T. J. Sabaka (4)

(1) Danish Meteorological Institute, (2) DTU Space and Niels Bohr Institute of Copenhagen University, (3) ETH Zurich, (4) Geodynamics Branch, GSFC/NASA

The South Atlantic Anomaly (SAA) is the most prominent core field anomaly of the Earth's magnetic field. Its shape influences the near-Earth space environment and its temporal evolution is an important key towards the understanding of core dynamics. Only a combined analysis of geomagnetic observations from satellites and from ground allows the separation of various geomagnetic field contributions (core, crustal, ionospheric, magnetospheric, induced) on a regional scale, and hence a geophysical interpretation of the measurements. However, the South Atlantic presents one of the largest gaps in geomagnetic observatory coverage, and surrounding observatories located at the continental coasts are subject to complicated induction effects due to the contrast in conductivity. Geomagnetic ground observations on the island Tristan da Cunha (37° S, 12° W) in the SAA would therefore be an important addition to a satellite based approach to study the SAA.

We have received funding to establish a magnetometer station on Tristan da Cunha at the beginning of 2009, and to operate it for at least 7 years in support of the *Swarm* satellite mission. Due to its low geomagnetic latitude (32° S), such a station is ideal to separate ionospheric and magnetospheric contributions, which are roughly perpendicular to each other. Data from Tristan da Cunha will be used as input to Comprehensive Modelling and to study the *S_q* geomagnetic daily variation current system in the SAA.