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# Heat flow inferred from satellite magnetic data over the Antarctic

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We have previously (Fox Maule et al., Science, 2005) developed a method using satellite magnetic data to estimate the heat flux underneath the Antarctic ice sheet. The geothermal heat flux is an important factor for ice sheet stability and its response to climate change, the distribution of subglacial hydrologic systems, and the stability of methane hydrates. Our previous study was based on a lithospheric model (MF-3) with a resolution of 440 km which had significant contamination by external fields, especially in the polar regions. The latest model (MF-6), based on the CHAMP satellite, has a resolution of 330 km, and external field effects in the polar regions are now less pronounced. The previous study found below average heat flux in the central part of East Antactica, and elevated heat flux along the East-West Antarctic boundary, and around the Siple Coast, Victoria Land, Oates Land, and George V Land. We will discuss results from MF-6, and review results from the final months of the CHAMP mission, prior to its re-entry, as it captured the highest resolution global views of the earth's magnetic lithosphere, and discuss plans for acquiring higher resolution data during the Swarm mission