

RESULTS FROM THE DECADE OF GEOPOTENTIAL RESEARCH AND FUTURE PROSPECTS

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The Decade of Geopotential Field Research, inaugurated in 1999 with the launch of the Danish satellite Ørsted on 23 February, was designed as an international effort to promote and coordinate continuous monitoring of geopotential field variability in the near-Earth environment. The CHAMP, GRACE, SAC-C, and most recently, GOCE, satellites have combined to generate an unprecedented wealth of data on Earth's magnetic and gravity fields. Interpretation of the new magnetic data from the Decade has led to improvements in our knowledge of the fast changing small scales of the Earth's magnetic field, and given us the first World Digital Magnetic Anomaly Map. The data, and associated theory and modeling work, also led to the discovery of new processes with satellite magnetic signatures, amongst them oceanic tides, ionospheric pressure gradient currents and the magnetic signatures of ionospheric plasma irregularities, and serpentinized mantle overlying subduction zones.

Swarm, Ørsted, CHAMP

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