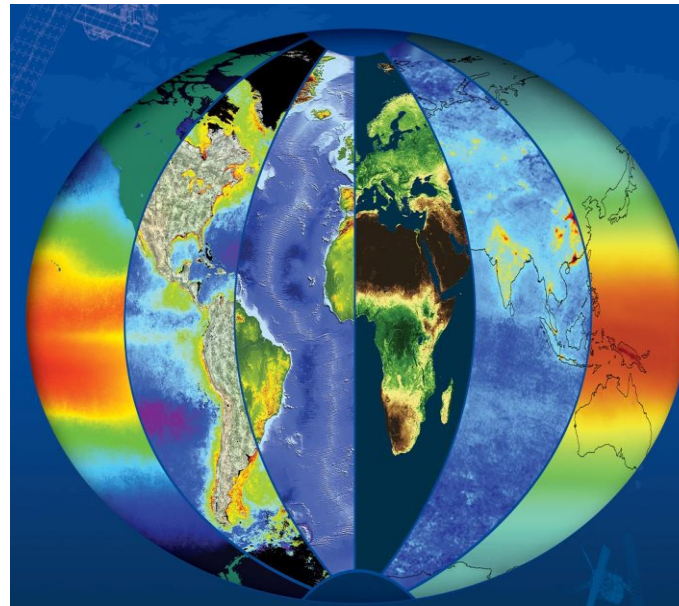


ESA's Earth Observation Toolkit

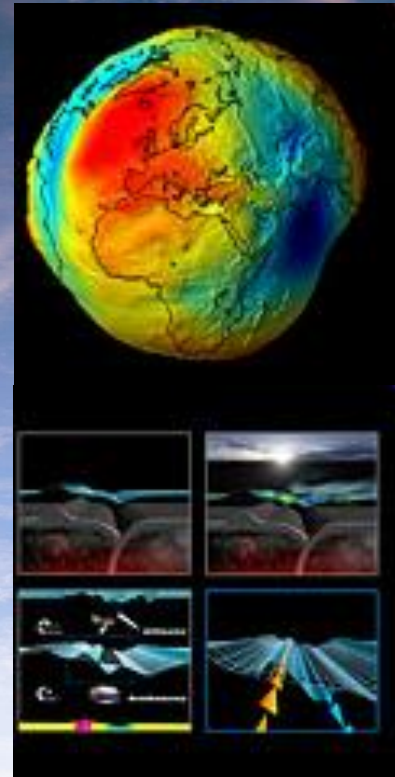
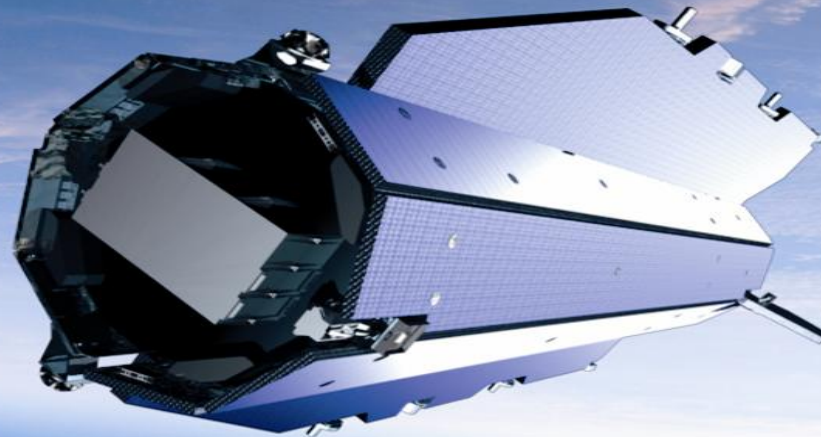


GOCE: ESA's Gravity Mission

www.esa.int/livingplanet/goce



The Gravity field and steady-state Ocean Circulation Explorer (GOCE)



Its objectives are to improve understanding of:

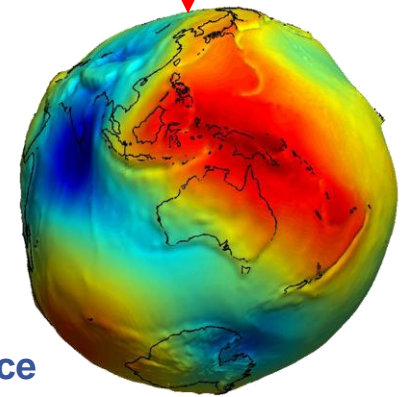
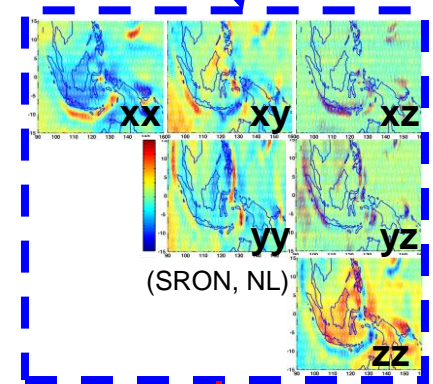
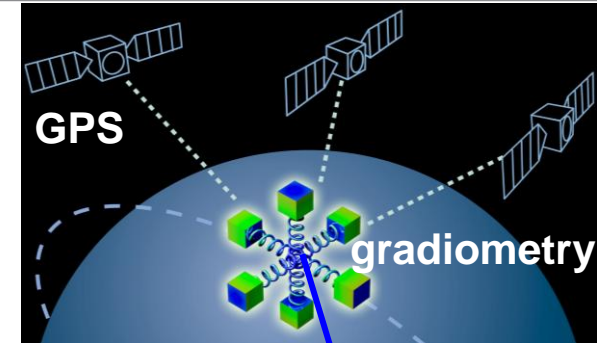
- global ocean circulation and transfer of heat
- physics of the Earth's interior (lithosphere & mantle)
- sea level records, topographic processes, evolution of ice sheets and sea level change

GOCE: Gravity Mission



Approach

- Combination of *satellite gradiometry* and *high-low satellite-to-satellite tracking* at $\pm 260\text{km}$ altitude
- Develop improved model of the static gravity field and geoid to a resolution of 100 km with 1 mGal* 1-2cm accuracy, respectively
- (*1 mGal = 10^{-5} m/s^2 - or 1 millionth of g)



Benefits

- An accurate marine geoid for absolute ocean currents and sea-ice thickness derivation
- Improved constraints for Earth-interior modelling calculation of rates of glacial isostatic adjustment
- Unified global height reference for land, sea, ice and surveying applications