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Marine gravity from satellite altimetry has become a primary tool for investigating the tectonics of the remote ocean basins as well as unexplored continental margins. Gravity field accuracy depends on three factors: spatial track density, altimeter range precision, and diverse track orientation. Recently two new non-repeat altimeter data sets have become available, resulting in a factor of 2-4 improvement in maps of the global marine gravity field. In June 2013, Jason-1 completed its 406-day geodetic phase. Given its relatively low inclination, the data from Jason-1 have increased the accuracy of measuring the marine gravity field's E-W component. Meanwhile, the nearly polar orbit of the ongoing Cryosat-2 mission has provided 3 years of non-repeat profiles so far, which have dramatically refined the marine gravity field's N-S component. The combined result is a spectacular improvement in the 12 to 40 km wavelength band, which is of interest for investigation of seafloor structures as small as 6 km. The current version of the altimeter-derived gravity field has an accuracy of 1.6 mGal in the Gulf of Mexico and 2.4 mGal in the Canadian Arctic. (1 mGal corresponds to a slope of 1 microradian or 1 cm per 10 km.) Unlike terrestrial gravity where coverage is uneven, these accuracies are available over all marine areas and large inland bodies of water. At the meeting we will present the latest gravity model and discuss new tectonic features revealed by Jason-1 and CryoSat-2. A global poster is available at:
ftp://topex.ucsd.edu/pub/global_figs/grav_gradient_V22.jpg
OSTS session
The Geoid, Mean Sea Surfaces and Mean Dynamic Topography
Meeting name
Ocean Surface Topography Science Team (OSTST) Meeting
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