The Geoid, Mean Sea Surfaces and Mean Dynamic Topograpy Splinter.

Chair: Ole B. Andersen, Marie-Hélène Rio

- Six Oral presentations.
- Six Poster presentations.

Geoid (5), MSS (3), MDT (3), Outsiders(2)

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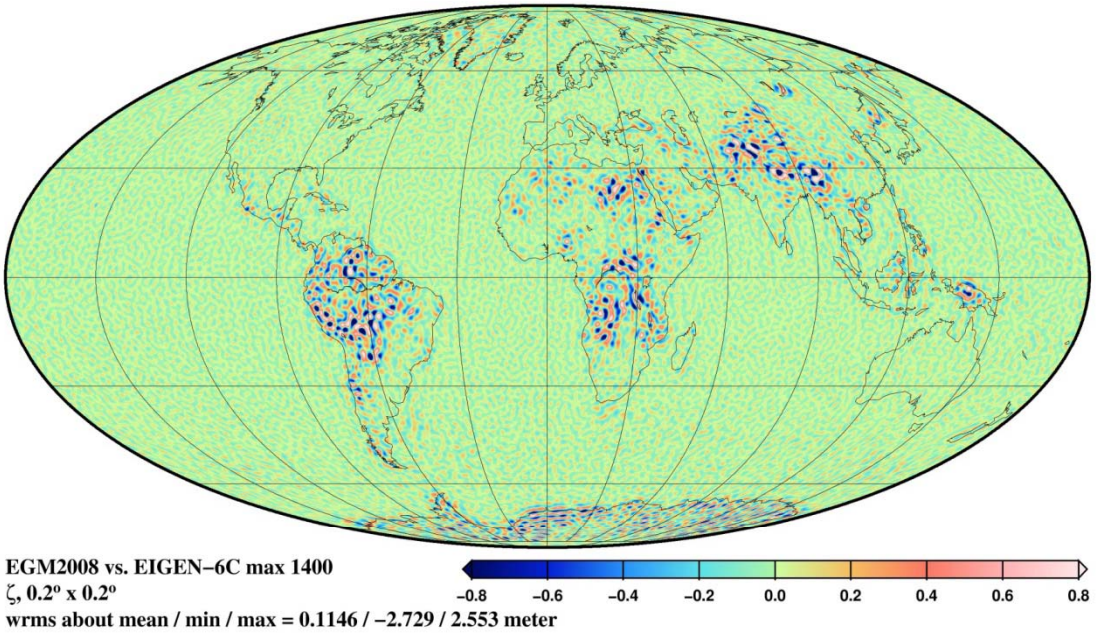
▪The geoid

➢Lots of activity around the ESA GOCE mission

➢The second official release of models is currently being used (6 months of GOCE data). Third release should come very soon.

➢New developed Global combined gravity field EIGEN-6 S/C (oral by R. Biancale) from 6.5 years of GRACE data + 6.7 months of GOCE data



EIGEN-6C „corrects“ EGM2008
→ mainly over continent parts with bad terrestrial data coverage

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- The geoid

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Improvement over EGM2008 in areas with bad terrestrial data coverage

Improves orbit computation compared to GRACE models

For consistency we advise to adopt the same model for orbit computation and geoid reference

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- The geoid
  - Inovative validation using altimetry over large lakes (poster by C.Schwatke) where no dynamics (flat SSH-Geoid signal) is expected .
  - Validation has also been done over the ocean using oceanographic observations of surface currents (poster by S. Mulet)=> Improvements over GRACE seen in the resolution range [100km-250km]

GOCE is doing quite good and it is not finished yet!

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▪Further improving the geoid/gravity field

➢First ever measurement of across track slopes of the marine geoid seen from the SARIN mode of CRYOSAT (oral by N.Galin). After a careful calibration of the interfermeter is performed, the across-track slope estimate of the marine geoid can be estimated with an accuracy of 26 microradians at 10km

➢Impact of Cryosat and geodetic Jason1 orbit for improving the gravity field (oral by D. Sandwell)
Twice better gravity is expected with Cryosat-2
Geodetic Jason1 data expected to improve the East-West slope component of the gravity field

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- The MSS
  - The new CNES/CLS11 MSS was presented (presentation by Y.Faugere), that is an improvement over the previous CNES/CLS10 solution.
    Once the interannual signal is removed, differences between the CNES-CLS11 and the DTU10 MSS of the order of 1 to 3 cm rms, that still needs to be further understood.

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- Accuracy of the different MSS was also assessed looking at the impact of using different altimetric corrections on mean profiles (poster by O. Andersen)

Further improving the MSS

- Including data of missions with new Ground tracks (Envisat drifting Phase, Cryosat, HY2)
- In particular, preliminary work is on going to assess the improvement of the MSS in the Arctic thanks to the use of Cryosat data (poster by O. Andersen)
- Improving the MSS accuracy essential for the optimal use of future altimetric missions on non-repetitive or new orbits.

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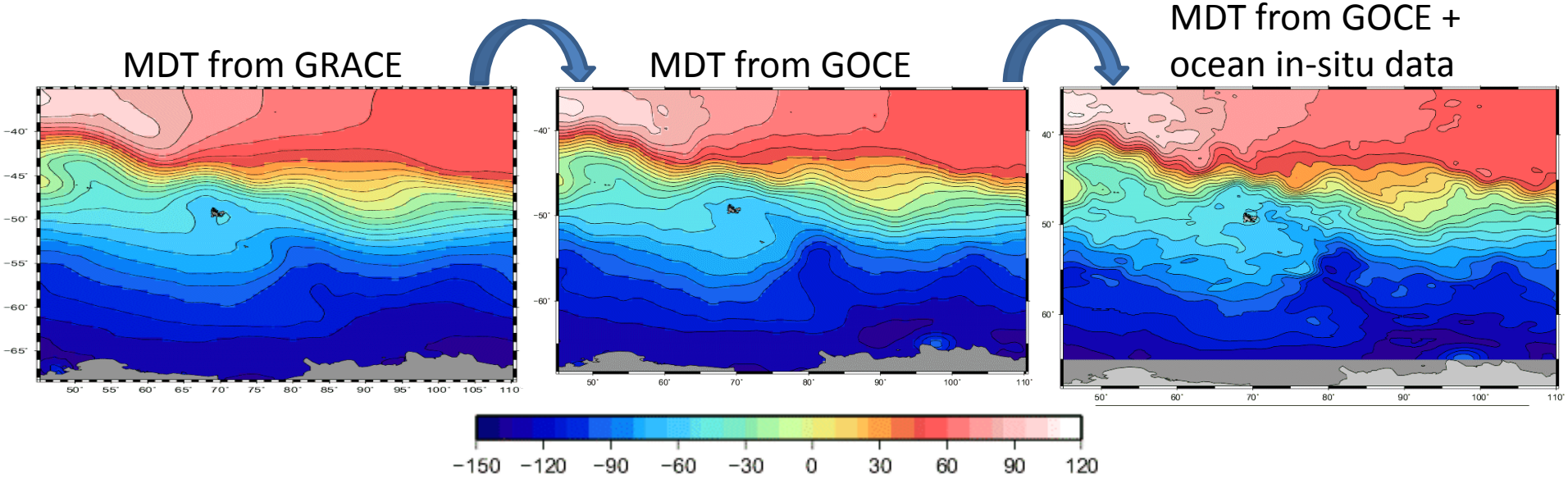
▪The MDT=MSS-Geoid

➢Global MDT from preliminary GOCE model (poster by P.Knudsen and by S. Mulet)
Current status: MDT are filtered at 150-200 km
Maximum resolution expected with the delivery of new GOCE solutions (satellite only): 100km

➢New high resolution MDT (1/8°) computation using GOCE model, altimetric data and oceanographic in-situ data (drifters, T/S profiles) around the Kerguelan Island (presentation by M-H. Rio)



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- Novative approach of along-track Absolute Dynamic Topography computation

ADT=MDT+SLA ➡ ADT=SSH-Geoid

Preliminary results of such a technique were presented

- Using Cryostat2 (poster by A. Horvath)
- Using multimission altimetry (oral presentation by R. Savcenko)