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The DNSC08MDT Mean Dynamic Topography

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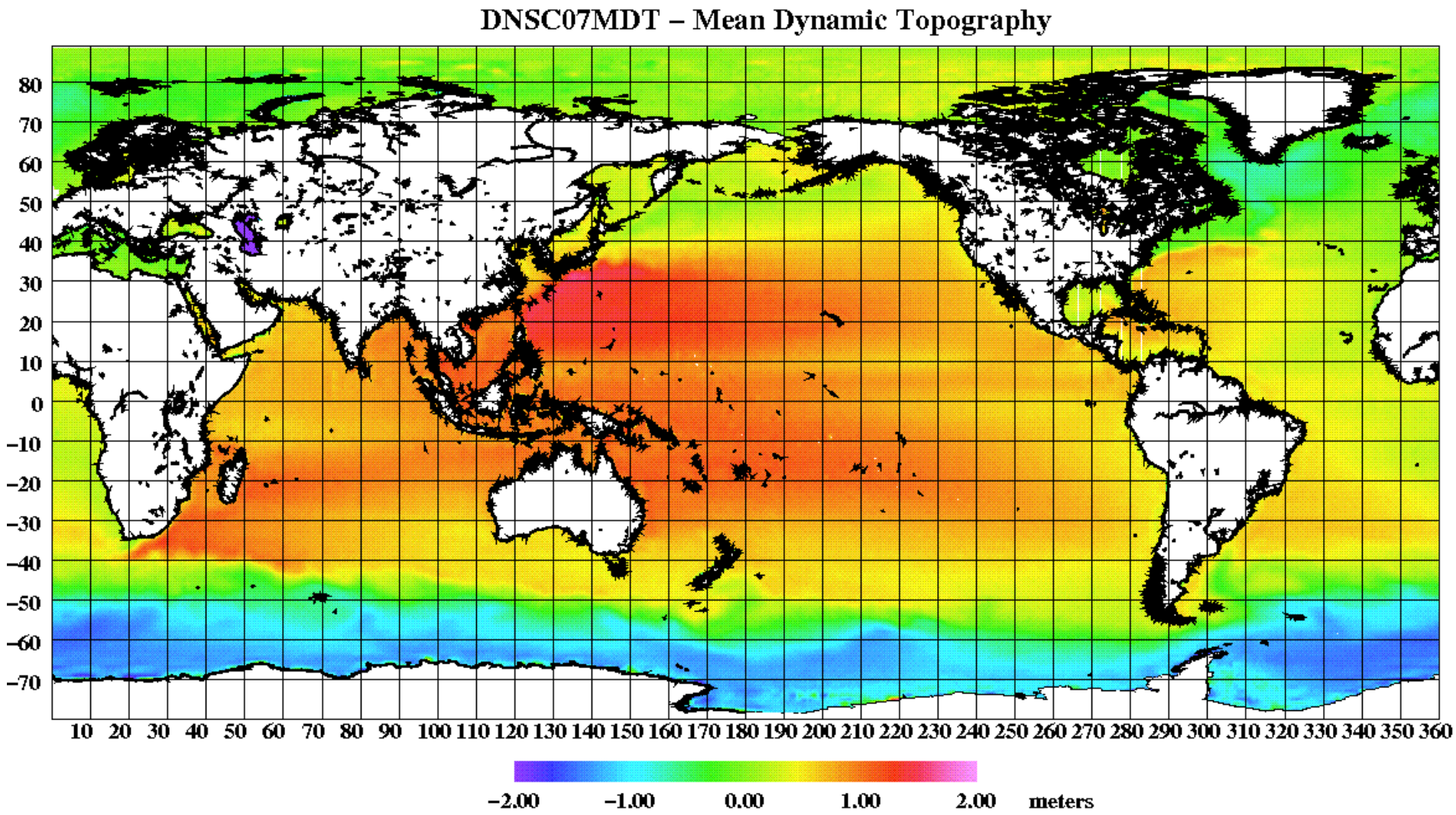
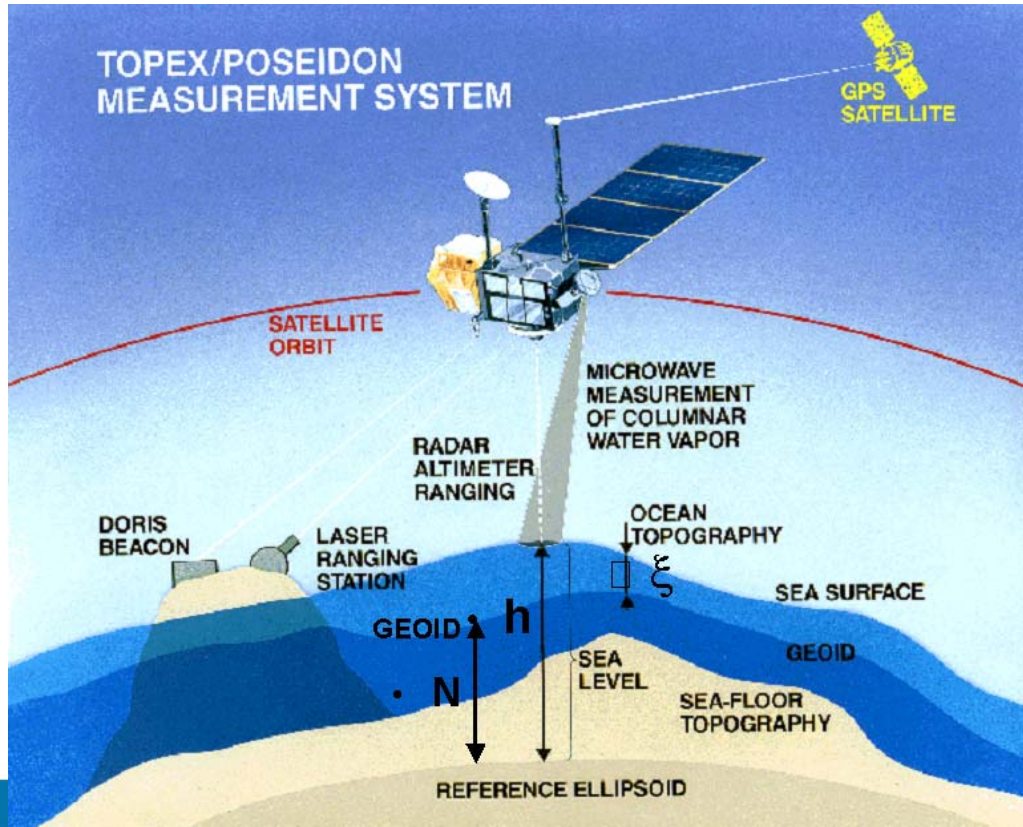
The DNSC08MDT



The DNSC08 Mean Dynamic Topography

- The DNSC08 is developed from the DNSC08 Mean Sea surface and the EGM2008 Geoid model using the geometrical difference:



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The DNSC08 Mean Dynamic Topography

- The DNSC08 is developed from the geometrical difference between the DNSC08 Mean Sea surface and the EGM2008 Geoid model using the difference:

MDT = MSS – Geoid

- Subsequently the Difference have been smoothed using a gaussian smoother with a halfwidth of 75km.

- Notice: The mean sea surface and the Geoid will consequently coincide for shorter spatial wavelength as the altimetric gravity anomalies are introduced in the derivation of the global geoid.

- Consequently shorter wavelength in the MDT might not be accurately mapped in the DNSC08 MDT

- DNSC08MSS Min and max values are -1.86 m and +1.35 meters. The average is 0.23 meters

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The DNSC08 Mean Dynamic Topography

- The global mean of the difference between EGM2008 and DNSC08MSS is 23 cm integrated over all oceans of the world (but not spatially weighted).
- This difference have not been accounted for in DNSC08MDT which will have a mean of 23 cm. The average of OCCAM 1993-2001 is 18 cm.
- The mean and the MDT is representable for the period 1993-2004.
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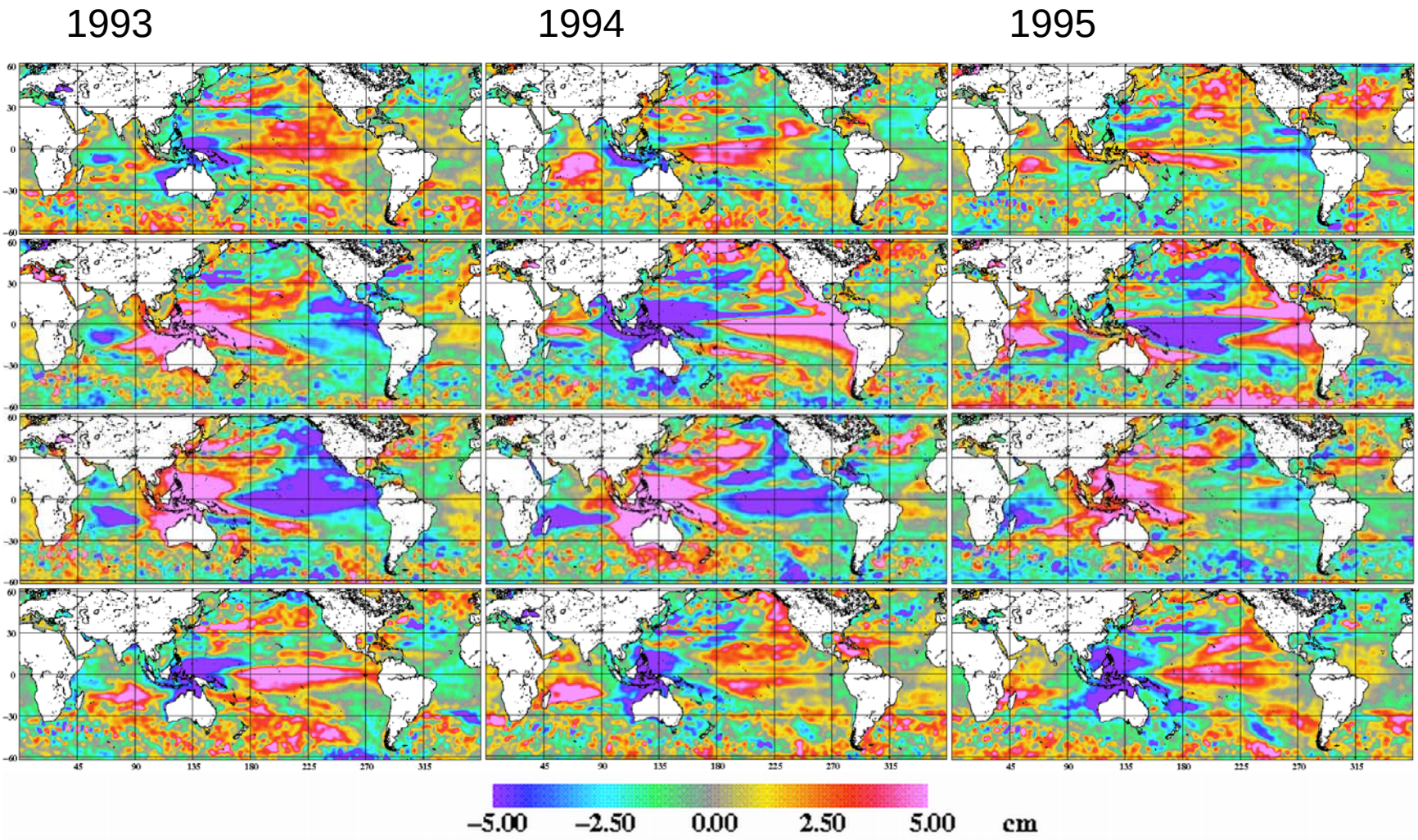
Inter-Annual variation relative to global trend

Annual mean offsets relative to mean and sea level trend over the 1993-2004 period



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Consistent Inter-annual Sea Level variation

Assuming the geoid is stationary

Geoid = MSS – MDT, G (period1) = G (period2)

The MDTs / MSS's adjusted for the inter-annual sea level variations is

MDT(period1) = MDT(period2) + ΔMSS(period1) - ΔMSS(period2)

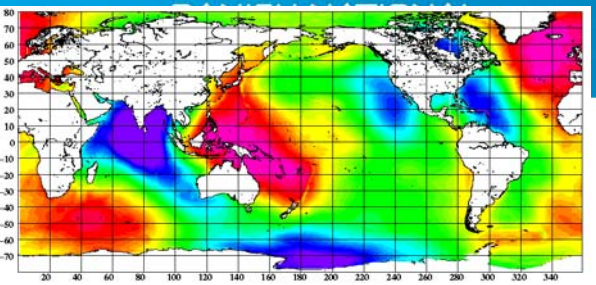
EXAMPLE:

The MDT model represent the period 1993-2001 will then be

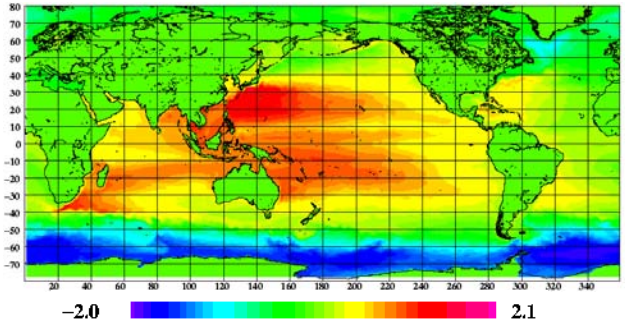
MDT(93-01) = MDT(04-93) - ΔMSS(93-01) **(as ΔMSS(93-04)** = 0)

DNSC08MSS/MDT is provided with a program to perform this correction

DNSC08-OCCAM Synhtetic Geoid Model

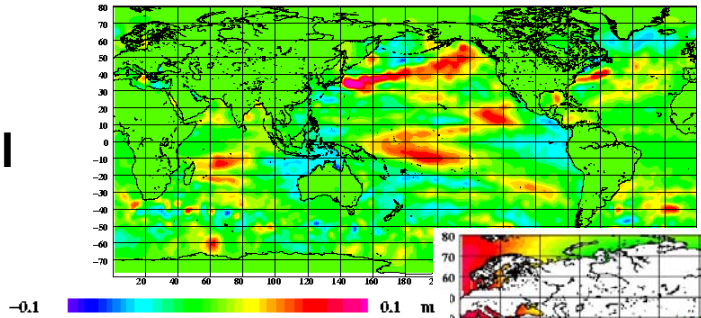


DNSC08 MSS



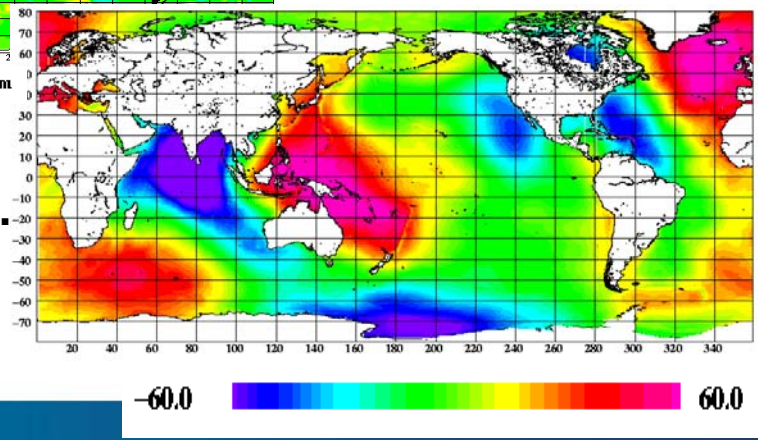
The OCCAM 93-95 MDT

The 93-95 -> 93-01 Interannual Sea Level Anomaly Correction.



DNSC08 MSS - OCCAM MDT synthetic geoid.

Consistent inter-annual SLA modelling



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Summary

- **DNSC08 Suite of Global Fields**
  - **Resolution: 1 minute by 1 minute (2 km by 2 km)**
  - **True global fields (90°S to 90°N)**

- **DNSC08:** ftp.spacecenter.dk/pub/MDT
- **DNSC08 All files:** ftp.spacecenter.dk/pub/DNSC08 (all files)
  DVD: Contact oa@space.dtu.dk

- **Consistent Products available:**
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  - **Altimetric (geometrical) MSS** DNSC08-MSS
  - **Altimetric derived Bathymetry** DNSC08-BAT
  - **Altimetryc derived MDT** DNSC08-MDT
  - **Altimetric Marine Gravity field** DNSC08-GRA

  - **Products also available in Google Earth**