

The mean dynamic topography model DTU26MDT



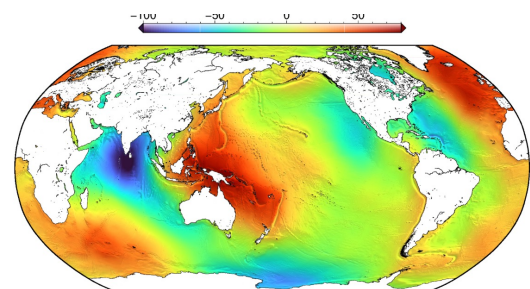
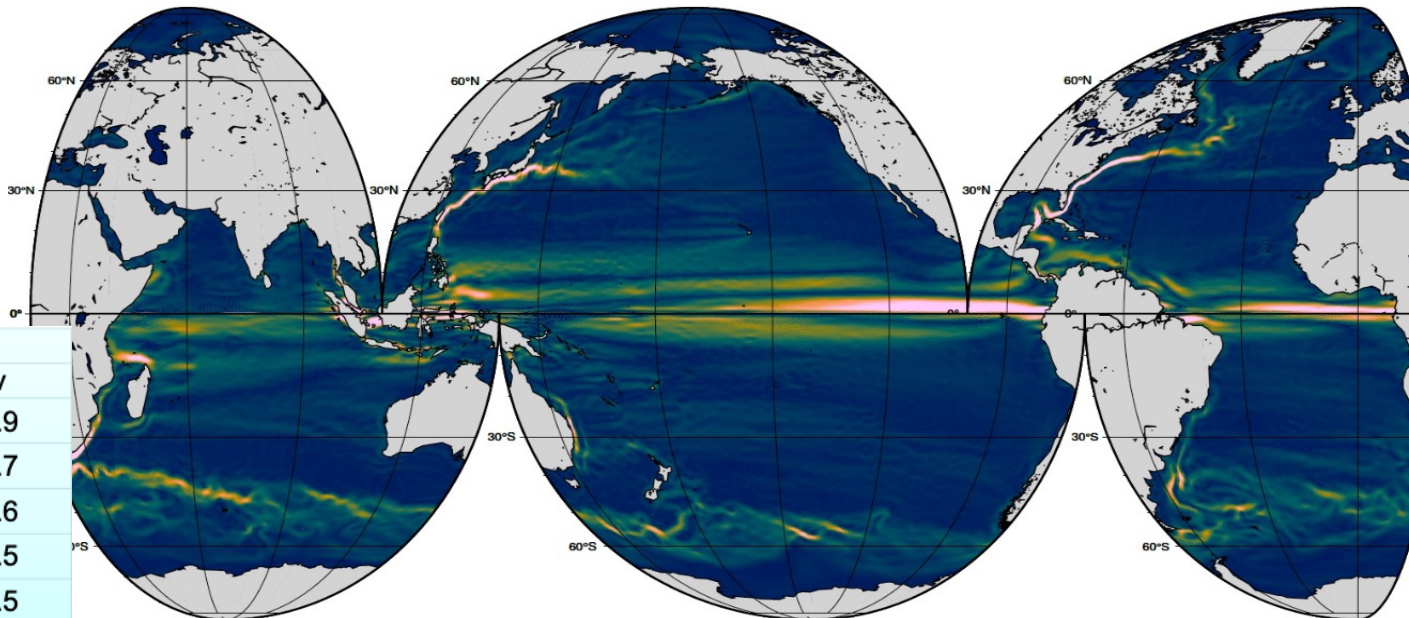
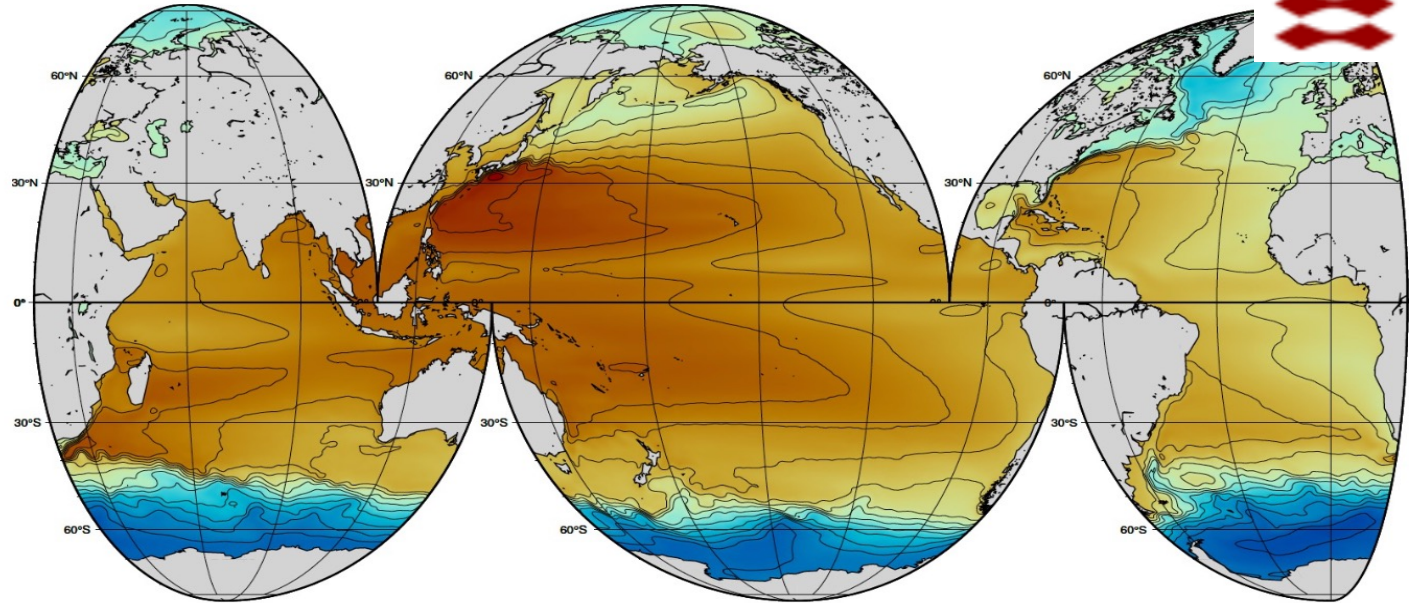
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Abstract

A new global geodetic mean dynamic topography model DTU26MDT is derived using the new SWOT based DTU25MSS mean sea surface. The DTU25MSS model has been derived using nadir and interferometric data including two years of SWOT altimetry. The resolution is 1 km (1/100 degree). The MSS is referenced to the 1993-2012 period (center time 2003.01.0) in agreement with older MSS and MDT models.

The geoid model was XGM2019e complete to d/o 2160 which was transformed into the mean-tide system to include the indirect effect of the permanent tide.



SWOTDTU25
MSS

[cm/s]	lat 10-30		lat 30-50	
	u	v	u	v
DTU15MDT	5	5.9	5	4.9
DTU17MDT	4.9	5.5	4.7	4.7
DTU19MDT	4.8	5.5	4.7	4.6
DTU22MDT	4.7	5.3	4.7	4.5
DTU25MDT	4.7	5.1	4.5	4.5
DTU26MDT	4.7	5.1	4.5	4.4

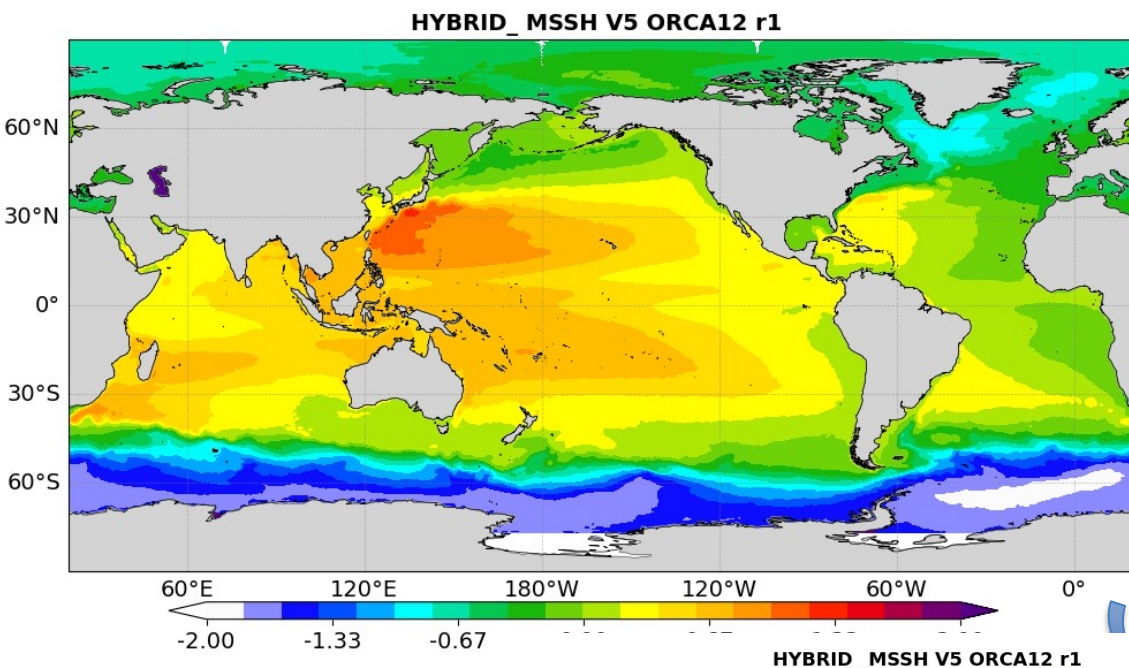
Comparison
with



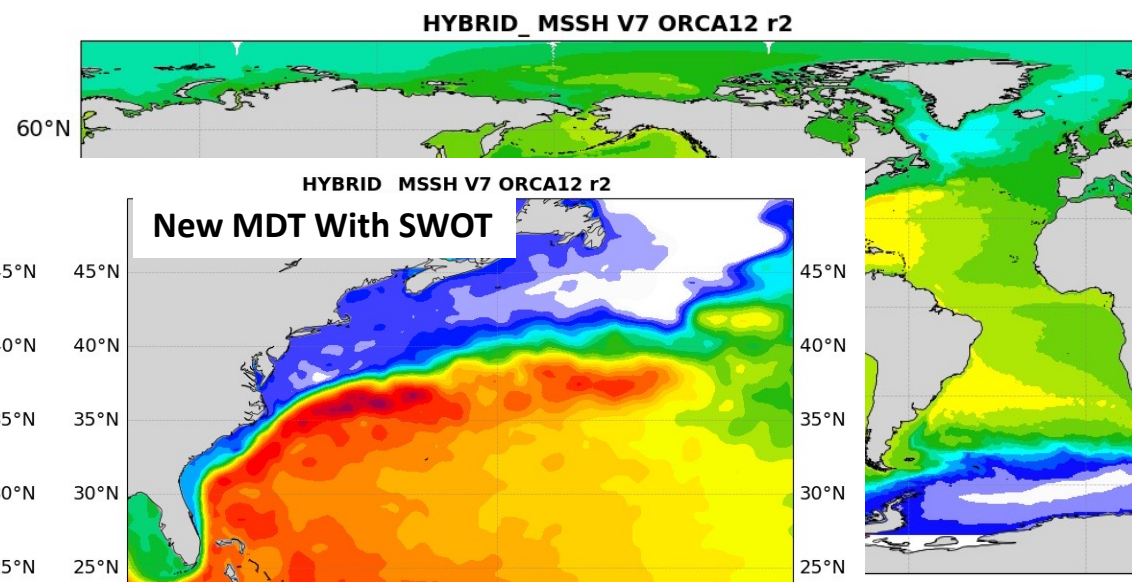
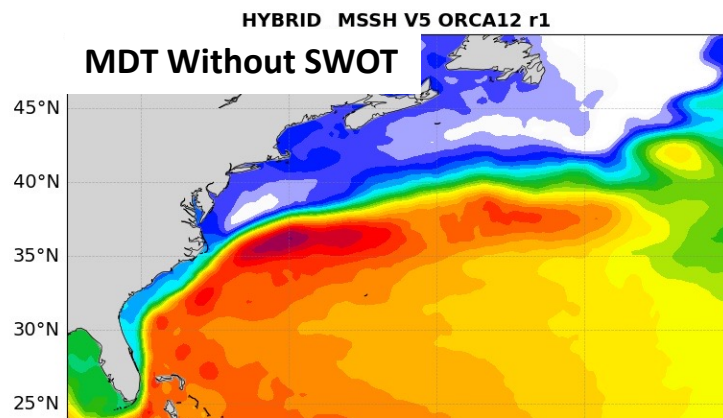
**MERCATOR
OCEAN**
INTERNATIONAL

Assessing the impact of assimilating a new Mean Dynamic Topography in the Copernicus Marine Service global 1/12° analysis and forecasting system

Mounir Benkiran, Jean-Michel Lellouche, Elisabeth Rémy and Pierre-Yves Le Traon
Mercator-Ocean International



Adding Increment with SV



Mean Dynamic Topography used in cmems system:

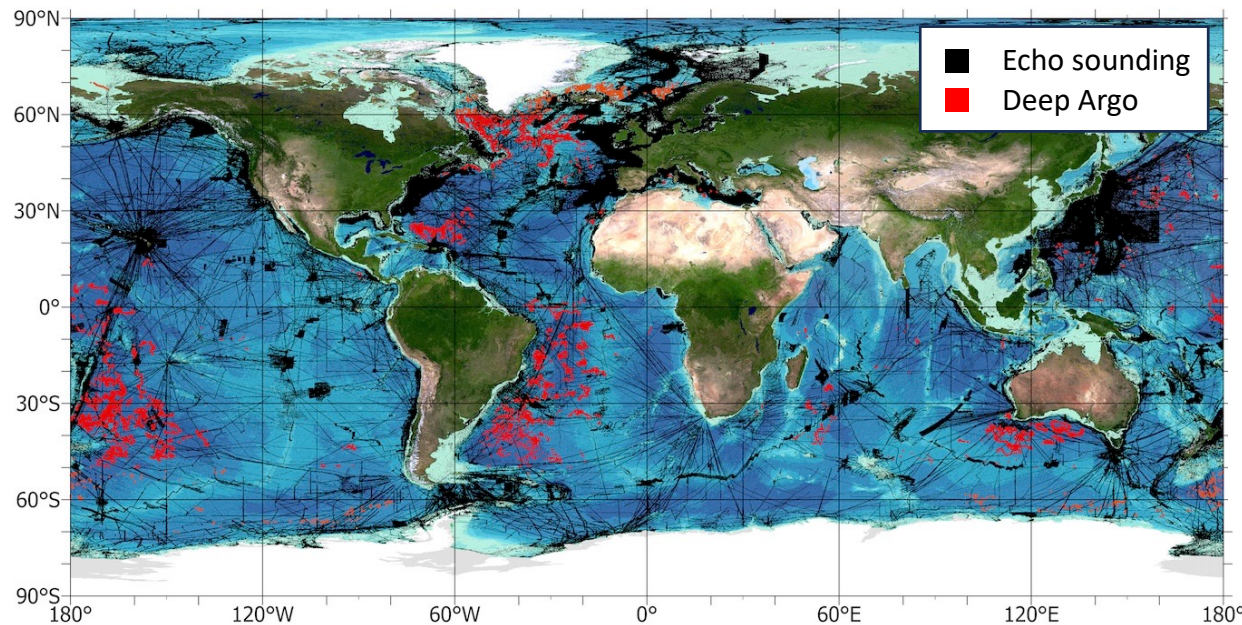
(MDT is a key component of altimeter data assimilation)

- CNES-CLS18 (Mulet et al 2021)
- Adjustment using CMEMS reanalysis (Lellouche et al. 2021)
(Sla (Nadirs), T&S profiles and SST assimilated)

➤ **Poster presents the impact of this new MDT on data assimilation and ocean forecast quality.**
The new MDT improves the consistency between observations and model analyses.

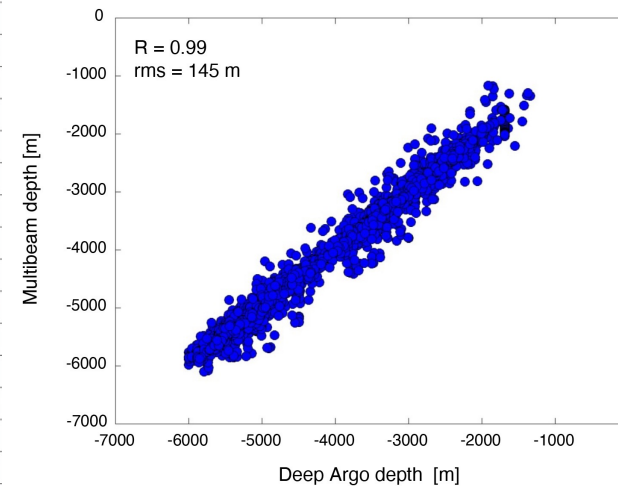
Collaborative efforts between Deep Argo and the Nippon foundation-GEBCO Seabed2030 Project to improve charts of ocean bathymetry

Locations of echo sounding and Deep Argo measurements in the GEBCO_2026 bathymetry grid

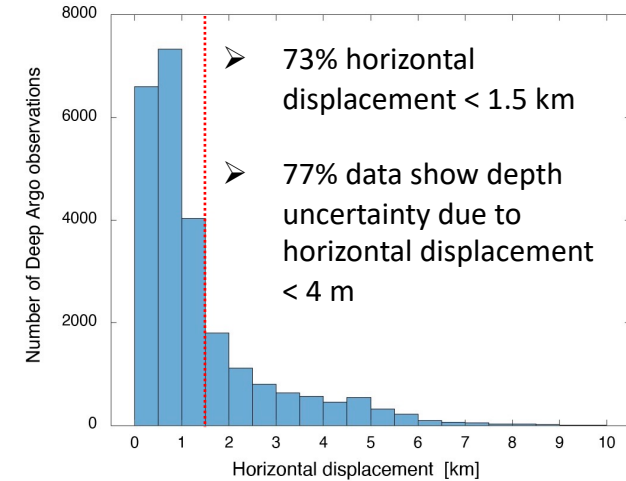


- **Only 28.7% of the seafloor is mapped**
- Deep Argo floats have access to the deepest and most remote regions of the ocean interior
- Argo Bathymetry Sensing (ABYSS) product is freely available
<https://library.ucsd.edu/dc/collection/bb1378477w>

Deep Argo comparison with multibeam measurements within 5 km



Horizontal displacement between Deep Argo bathymetry measurement and GPS position



- Deep Argo-based ocean bathymetry (0.065-0.1%, 1.5 km) has higher vertical accuracy but increased horizontal uncertainty compared to multibeam echo sounding (0.2%, 100-400 m)
- **Typical improvements associated with the integration of Deep Argo in GEBCO grids are within 50-200 m range and concentrated where echo sounding data are not available**

(Zilberman et al., In Prep)