

EGU21-16084

<https://doi.org/10.5194/egusphere-egu21-16084>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



A new high resolution Mean Sea Surface (DTU21MSS) for improved sea level monitoring

Ole Baltazar Andersen¹, Adil Abulaitjiang¹, Shengjun Zhang², and Stine Kildegaard Rose¹

¹DTU Space, Geodesy, Lyngby, Denmark (oa@space.dtu.dk)

²Northeastern University, China

A new Mean Sea Surface (DTU21MSS) for referencing sea level anomalies from satellite altimetry is presented. The major new advance leading up to the release of this MSS the use of 5 years of Sentinel-3A and an improved 10 years Cryosat-2 LRM+SAR+SARin record including retracked altimetry in Polar regions using the SAMOSA+ physical retracker via the ESA GPOD facility.

A new processing chain with updated editing and data filtering has been implemented. The filtering implies, that the 20Hz sea surface height data are filtered using the Parks-McClellan filter to derive 1Hz. This has a clear advantage over the 1 Hz boxcar filter in not introducing sidelobes degrading the MSS in the 10-40 km wavelength band. Similarly, the use of consistent ocean tide model for the Mean sea surface improves the usage of sun-synchronous satellites in high latitudes.

The presentation will also focus on the difficult issues to consolidating Cryosat-2 and Sentinel-3 onto a past 20 year mean sea surface. This is implemented using simultaneous estimation of the mean, sea level trend and annual and semi-annual variations in sea level.