



Analyses of altimetry errors using Argo and GRACE data

Pierre Prandi (1), Jean-François Legeais (1), Michael Ablain (1), and Nicolas Picot (2)

(1) CLS, Ramonville, France (pprandi@cls.fr), (2) CNES, Toulouse, France

Since the first altimeter missions and the improvements performed in the accuracy of sea surface height measurements from 1992 onwards, the importance of global quality assessment of altimeter data has been increasing. Global Cal/Val studies are usually performed by the analysis of internal consistency and cross-comparison between all missions. In this study, the steric and mass contributions to the sea level provided by Argo profiling floats and the Gravity Recovery And Climate Experiment (GRACE) mission respectively are used as independent sources of comparison to analyze the altimetry errors.

Argo profiling floats are spread out over almost the global open ocean since 2004. However, they measure temperature and salinity vertical profiles, providing only the steric contribution to the total sea level content measured by altimeters. The missing mass contribution is derived from the GRACE data set from 2003 onwards.

The comparison is performed with the first objective of detecting global and regional altimeter mean sea level drifts. A second goal is to assess the impact of new altimeter standards (orbit, geophysical corrections, ground processing) and new versions of altimeter merged products such as the 2014 AVISO reprocessing or the Sea Level CCI data set. We also focus our work on sensitivity analyses of the method of comparison to various parameters. In particular, we determine to which extent the altimeter quality assessment is affected by a different pre-processing of altimeter data, a sub sampling of the Argo network and a change of the reference depth used to compute Argo dynamic heights.