Long term changes of altimeter range and geophysical corrections at altimetry calibration sites - DTU Orbit (17/01/2019)

Accurate sea level trend determination is fundamentally related to calibration of both the instrument as well as to investigate if there are linear trends in the set of standard geophysical and range corrections applied to the sea level observations. Long term changes in range corrections can leak into the observed sea level record and be interpreted as part of the sea level trend. Particularly if these exhibit anomalous trend close to the satellite calibration sites. Long term changes in the routinely applied TOPEX/Jason corrections as well as their changes in coastal regions are investigated at four altimetry calibration sites: Bass Strait, Corsica, Gavdos and platform Harvest. Furthermore, alternative corrections are tested to investigate if the use of a different set of corrections will lead to different local and regional sea level changes at those sites. The results show that no significant linear trends in the sum of range corrections are found for the calibrations sites both for local scales (within 50km around the selected site) and for regional scales (within 300km). However, the geophysical corrections accounting for atmospheric pressure loading and high frequency sea level variations (dynamic atmosphere correction) that is frequently applied to in situ gauge and the altimeter observations should be considered with care for calibration with in situ observations. Over the 18 years (1993–2010), the dynamic atmosphere correction shows a regional trend close to 1mm/year at both Mediterranean sites (Corsica and Gavdos).

General information
State: Published
Organisations: National Space Institute, Geodesy
Contributors: Andersen, O. B., Cheng, Y., Pascal Willis
Pages: 1468-1477
Publication date: 2013
Peer-reviewed: Yes

Publication information
Journal: Advances in Space Research
Volume: 51
Issue number: 8
ISSN (Print): 0273-1177
Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.63 SJR 0.569 SNIP 1.067
Web of Science (2017): Impact factor 1.529
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.63 SJR 0.575 SNIP 1.196
Web of Science (2016): Impact factor 1.401
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.61 SJR 0.584 SNIP 1.322
Web of Science (2015): Impact factor 1.409
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.61 SJR 0.709 SNIP 1.271
Web of Science (2014): Impact factor 1.358
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.56 SJR 0.657 SNIP 1.268
Web of Science (2013): Impact factor 1.238
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.2 SJR 0.575 SNIP 1.047
Web of Science (2012): Impact factor 1.183
ISI indexed (2012): ISI indexed yes