Annabelle
Ollivier
CLS
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Poster
In 2012, ENVISAT mission was interrupted, after 10 years of altimetric measurements over ocean. While in orbit, Envisat not only ensured the continuity of the observations provided by ERS-1 and ERS-2, but significantly improved the data quality compared to its elder sister mission. The quality assessment of these data was routinely performed at the CLS Space Oceanography Division in the frame of the CNES Segment Sol Altimétrie et Orbitographie (SSALTO) and ESA French Processing and Archiving Center (F-PAC) activities.
This paper presents the main results in terms of Envisat data quality over ocean: verification of data availability and validity, monitoring of the most relevant altimeter (ocean1 retracking) and radiometer parameters, assessment of the Envisat altimeter system performances for the sea level calculation (for several scales : climate, mesoscales, costale areas, high latitudes,…) .
It also traces the improvements of the dataset from 2001 to 2012 thanks to an ever improving ground processing and an accurate validation and performance assessment validation exercise. Indeed, thanks to several improvements of the different terms used for the Sea Level Computation (new orbit, new tide models, new sea state bias, wet tropospheric corrections…), the quality of RA2 system keeps improving. This improvement is sensible in terms of geographically correlated biases, consistency at crossover points and regarding the long-term stability.
This work also includes a cross-calibration analysis of Envisat data with other flying precise altimetric missions (ERS, T/P, Jason-1 and Jason-2 and Cryosat 2). To complete these analyses, in situ external reference is often very useful and enables to give some absolute metrics of drifts and or geographically correlated patterns. These comparisons are essential to assess data quality and performances, as well as for allowing combination of altimeter datasets as required by applications and operational oceanography.
This paper intends to compare the mission performances to other past and current missions. It will also constitute a reference for the expected behavior of the very young or future missions such as AltiKa or Sentinel 3.
OSTS session
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