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Poster
Since 2012, the Centre de Topographie des Océans et de l'Hydrosphère (CTOH) is using altimetry data to provide the community with a large collection of tidal constant estimates over more than 23 coastal regions and continental shelves (http://ctoh.legos.obs-mip.fr/products/coastal-products/coastal-products-1/tidal-constants). Taking advantage of the long time series of altimetry data, the regional CTOH Sea Level Anomalies database has been harmonically analysed to derive an empirical tidal correction. It provides tidal experts and coastal modelers with amplitude, phase lags and accuracy estimates for a wide spectrum of tidal constituents, every 6-7 km along the satellite ground tracks. It also takes advantage of the re-processing of coastal altimetry datasets using the X-TRACK processing tool (Roblou et al., 2011).

This presentation aims to highlight the performance of this regional tidal product through various case studies over coastal and shelf seas around the world. The performance of an empirical tidal correction derived from the CTOH along-track tidal constants database is compared to classical tidal corrections (provided by models) in terms of altimetry sea level variance reduction. In the Bay of Biscay, such strategy is expected to improve the observation of a seasonal slope current, the so-called Iberian Poleward Current. The coastal dynamics along the West coast of India, including this empirical tidal correction, is also studied.
Case studies of tidal modeling applications are also presented here. The recently-issued FES2012 global tidal model as well as several regional models have been validated using this independent tidal constants database. It has been used for constraining a regional tidal model using data assimilation techniques and for feeding back direct hydrodynamic modeling.
This tidal constants data base provided a complete set of tidal estimates for prescribing open boundary conditions in local tidal models.
OSTS session

Quantifying Errors and Uncertainties in Altimetry Data