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Titel des Beitrags: Coastal altimetry products in the Strait of Gibraltar

Abstract: This paper analyzes the availability and accuracy of coastal altimetry sea level products in the Strait of Gibraltar. All possible repeats of two sections of the Envisat and AltiKa ground-tracks were used in the eastern and western portions of the strait. For Envisat, along-track sea level anomalies (SLAs) at 18-Hz posting rate were computed using ranges from two sources, namely, the official Sensor Geophysical Data Records (SGDRs) and the outputs of a coastal waveform retracker, the Adaptive Leading Edge Subwaveform (ALES) retracker; in addition, SLAs at 1 Hz were obtained from the Centre for Topographic studies of the Ocean and Hydrosphere (CTOH). For AltiKa, along-track SLA at 40 Hz was also computed both from SGDR and ALES ranges. The sea state bias correction was recomputed for the ALES-retracked Envisat SLA. The quality of these altimeter products was validated using two tide gauges located on the southern coast of Spain. For Envisat, the availability of data close to the coast depends crucially on the strategy followed for data screening. Most of the rejected data were due to the radar instrument operating in a low-precision nonocean mode. We observed an improvement of about 20% in the accuracy of the Envisat SLAs from ALES compared to the
standard (SGDR) and the reprocessed CTOH data sets. AltiKa shows higher accuracy, with no significant differences between SGDR and ALES. The use of products from both missions allows longer times series, leading to a better understanding of the hydrodynamic processes in the study area.

Stichworte: Coastal altimetry; Strait of Gibraltar (SoG); data screening; retracking; tide gauge; validation

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