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Poster
Satellite altimetry has revolutionized our understanding of ocean dynamics thanks to high repetition rate and global coverage. Nevertheless, coastal data has been flagged as unreliable due to land and calm water interference in the altimeter and radiometer footprint and high frequency tidal and atmospheric forcing. Our study addresses the first issue, i.e. retracking, presenting ALES, the Adaptive Leading Edge Subwaveform Retracker. ALES is potentially applicable to all the pulselimited altimetry altimetry missions and its aim is to retrack with the same precision both open ocean and coastal data with the same algorithm. ALES selects part of each returned echo and models it with a classic ‘open ocean’ Brown functional form, by means of least square estimation whose convergence is found through the Nelder-Mead nonlinear optimization technique. By avoiding echoes from bright targets along the trailing edge, it is capable of retrieving the majority of coastal waveform up to 2 to 3 Km from the coasts. By adapting the estimation window to the significant wave height, it aims at preserving the precision of the standard data both in open ocean and in the coastal strip. ALES is validated against tide gauges in the Adriatic Sea and in the Greater Agulhas System for three different missions: Envisat, Jason1 and Jason2. Considerations on noise and biases provide a further verification of the strategy.
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