



A new tracking mode for altimeters using an on-board digital elevation model

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Original tested on Jason2 mission, Sentinel-3 (S-3) will re-use the coupling of altimeter and onboard navigation solution to track the echoes. With this new mode, altimeter acquisition and tracking loops are inhibited, and therefore the echo received is not analyzed by the altimeter, except for power tracking. The positioning of the reception window is independently calculated from the onboard navigation solution provided by the GNSS receiver and an on-board DEM which contain

the altitudes of the surfaces overflown by the satellite on the nominal track.

This allows to increase the data coverage in coastal area and over inland waters. Unlike Jason-2 where this mode was activated continuously for one complete repetitive cycle, Sentinel-3 will also allow to switch the altimeter tracking mode depending on a predefined mask. This will further optimize the altimeter coverage and allows much more flexibility.

This paper will present the current state of the art regarding the altimeter tracking modes, and the lessons learnt with Jason-2 flight data.