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In situ calibration insures regular and long-term control of the altimeter sea surface height (SSH) time series through comparisons with independent records. Usually, in situ calibration of altimeter SSH is done at the vertical of a specific CalVal site by direct comparison of the altimeter data with the in situ data.

However, for more than ten years, Noveltis has been developing a regional CalVal technique, which aims at increasing the number and the repeatability of the altimeter bias assessments by determining the altimeter bias both on overflying passes and on satellite passes located far away from the calibration site. The strong interest of this principle is to extend the single site approach to a wider regional scale, thus reinforcing the link between the local and the global CalVal analyses. It is also a mean to keep on calibrating a mission when good-quality in situ data happen to be missing at its dedicated calibration site.

The regional method was initially developed at the Corsican calibration sites of Senetosa and Ajaccio. The method was used to compute the biases of Jason-1, Jason-2 and Envisat (before and after the orbit change in 2010) at both sites, and proved its stability and generality through this cross-calibration exercise.

In 2013, the regional method was successfully implemented at the Californian site of Harvest, in close collaboration with JPL. This study gave the first Envisat absolute bias estimates in the Pacific Ocean, which showed high consistency with the analyses of the global CalVal teams. These results highlight the numerous advantages of this technique for monitoring missions on any orbits such as SARAL/AltiKa, CryoSat-2, HY-2A or the future Sentinel-3, Jason-3 and Jason-CS missions.
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