Abstract

We present 16 years of continuous altimeter calibration results from the dedicated in-situ experiment hosted on the PXP Harvest Oil Platform. These results provide a basis for the absolute calibration of the long-term sea-level record from the combined TOPEX/POSEIDON (1992–2006), Jason-1 (2002–), and OSTM/Jason-2 (2008–) missions. Located about 10 km off the coast of central California near Point Conception, the Harvest platform sits in 200-m of water near the western entrance to the Santa Barbara Channel. Originally developed in 1991 as the NASA prime calibration site for TOPEX/POSEIDON (TP), the Harvest Experiment features carefully designed collocations of space-geodetic and tide-gauge systems to support the absolute calibration of the altimetric SSH and its constituent measurements. Our evaluation of the Jason-1 data focuses on the latest version (C) of the Geophysical Data Records (GDR). Using initial releases of the GDR-C data and associated correction files, we find that the Jason-1 GDR-C SSH measurements at Harvest are erroneously high by 99 ± 2 mm (one standard error, N = 200, σ = 31 mm). The long-term drift in the SSH measurements is +1 ± 1 mm/yr, and is thus statistically indistinguishable from zero. We also report early results from the initial OSTM/Jason-2 overflights of the platform, the first of which occurred on July 13, 2008. Based on the interim GDRs, these results indicate that the Jason-2 SSH measurements at Harvest are erroneously high by 200 ± 10 mm (N = 10, σ = 29 mm).