Assessment of Recent Revisions to the TOPEX/Jason Sea Surface Height Series

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The Jason-1 verification phase has proven to be a unique and successful calibration experiment to quantify the agreement with its predecessor TOPEX/POSEIDON (TP). Although both missions have now prescribed error budgets, comparison of the mean sea level trends over the entire 14 year time span reveals a strong decadal signature shown in the SSH and SST maps above. Inter-decadal variability is an apparent correlated feature exhibited in both the SSH and SST regional trends is the basin scale polarity (particularly in the tropical and North Pacific) between the two time frames revealing pronounced inter-decadal variability modulated by regional sea surface height trends from TOPEX+Jason altimetry are computed over the last seven years of the 14 year time span. While a persistent high exists in the central Indian Ocean, the Pacific response continues clockwise from the 1993-1999 to the 1999-2005 period, particularly in the tropical and North Pacific. Here, we present a comparison of these recent improvements to the accuracy of the TP/Jason-1 SSH time series via tide gauge validation procedures, global crossover and collinear SSH residual statistical analysis, and evaluate the subsequent impact on global and regional sea level estimates. The Jason-1 verification phase has proven to be a unique and successful calibration experiment to quantify the agreement with its predecessor TOPEX/POSEIDON (TP). Although both missions have now prescribed error budgets, comparison of the mean sea level trends over the entire 14 year period reveals a strong decadal signature shown in the SSH and SST maps above. Inter-decadal variability is an apparent correlated feature exhibited in both the SSH and SST regional trends is the basin scale polarity (particularly in the tropical and North Pacific) between the two time frames revealing pronounced inter-decadal variability modulated by regional sea surface height trends from TOPEX+Jason altimetry are computed over the last seven years of the 14 year time span. While a persistent high exists in the central Indian Ocean, the Pacific response continues clockwise from the 1993-1999 to the 1999-2005 period, particularly in the tropical and North Pacific. Here, we present an assessment of these recent improvements to the accuracy of the TP/Jason-1 SSH time series via tide gauge validation procedures, global crossover and collinear SSH residual statistical analysis, and evaluate the subsequent impact on global and regional sea level estimates.