

Inter-calibration of the ERS-1 and TOPEX/Poseidon range bias through tide-gauge data

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Abstract

Studies of sea-level rise from multiple altimeter missions require careful inter-calibrations if systematic errors such as the bias drift are not be aliased into the result. For concurrent missions this does not present too many difficulties as the crossover and/or repeat pass data from the two satellites can be used to determine any systematic trends. However for missions that do not overlap in time and which may be separated by years the sea-surface variability over the intervening period must be considered. In this study tide gauge data is used to remove sea-surface variability from the dual satellite crossover data to enable inter-calibration of multiple missions. Data is taken from the ERS-1 and TOPEX/Poseidon missions with epochs separated by a year or more to investigate the feasibility of the procedure with the sea-surface variability taken to be the daily values from the WOCE tide gauge network.

Keywords: Inter-calibrations, altimetry, tide gauge