



Extracting optimum value from the PSMSL sea-level data: Combining tide gauge and satellite altimeter data

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In recent years there has been increasing interest in estimating global-mean and regional sea level for the 20th and latter 19th century. We have used an "EOF reconstruction" method to do this using the PSMSL data and modern satellite altimeter data. This method gives a time series of global- and regional-mean sea level and also estimates of errors which are consistent with other techniques using tide gauge data and with the geological data. It has also lead to better appreciation of the decadal variability in the signal and reconciled some differences in sea-level rise estimates from different regions. We have tested the technique, and its perceived shortcomings, by using it with ocean model data (The Hadley Centre HadCM3 model, "all250" run). The results from the EOF reconstruction are much less sensitive to the choice of EOFs than is often believed. This, and other, results, will be presented.

The technique has also been applied to ocean heat content data and the sea level budget for the latter part of the 20th century. Some results will be presented.

We also explore the value of the technique for addressing uncertainties in estimates of current global- and regional-sea level from satellite altimeter data (due, for example, to reference frame-related uncertainties, instrument calibration and inter-satellite differences).