

Figures demonstrating the relationship between the different sources of vertical data during the August/September, 1999, multibeam survey.

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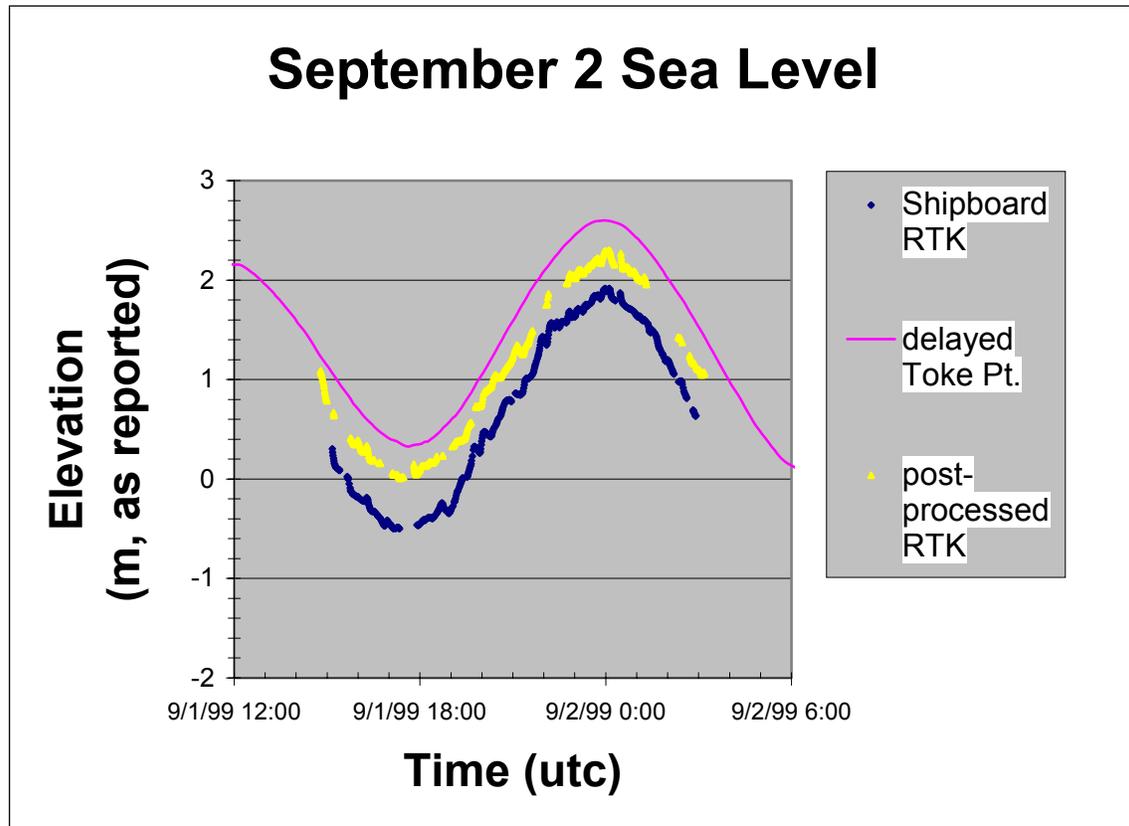


Figure 1: Example plot sea level elevations calculated from shipboard RTK, post-processed RTK, and the Toke Point tide gauge (plotted values are those reported by each instrument). Both RTK measurements have been corrected to the ship's waterline, and the Toke Point tide-gauge measurement has been time-shifted by 45 minutes. There are nearly continuous RTK measurements for this day. Note that the time-shifted Toke Point tide curve matches the RTK elevation data in timing of the high and low tide and (except for an offset) in the tide range. This result is typical for days with sufficient RTK data.

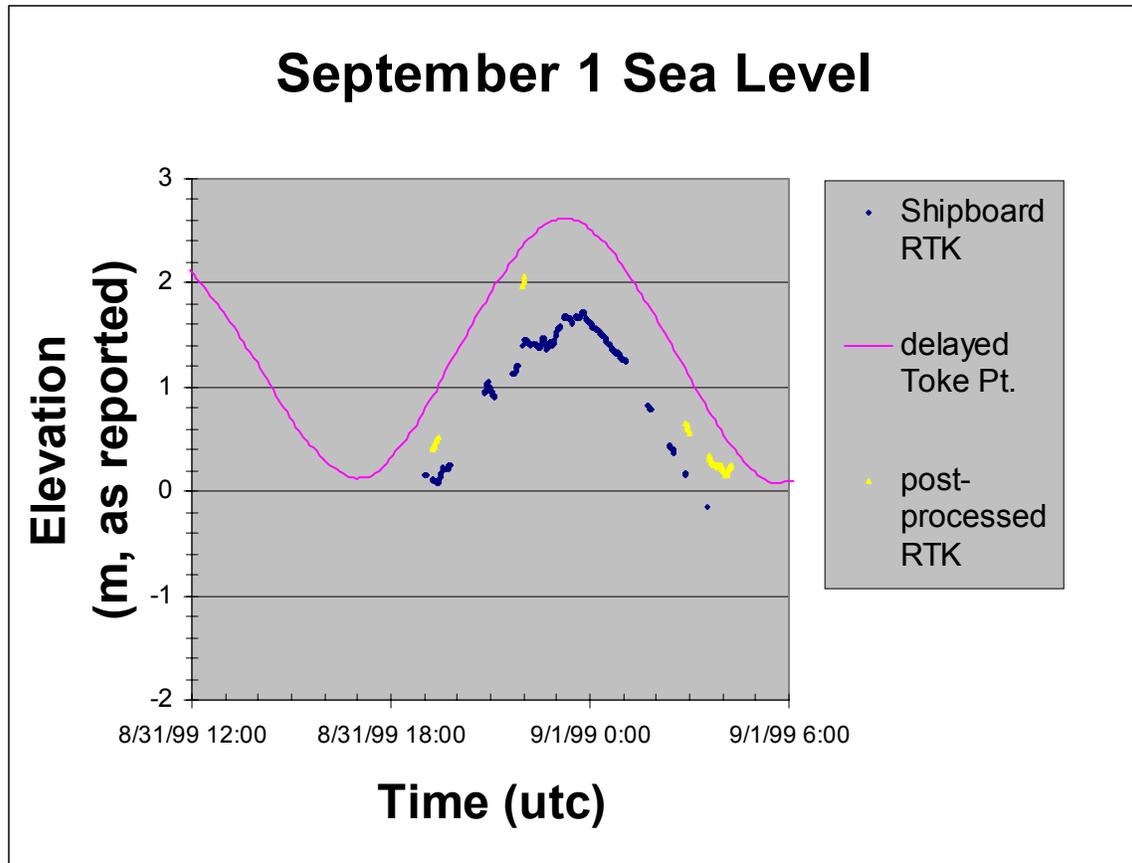


Figure 2: Example plot of sea-level elevations determined by shipboard RTK, post-processed RTK, and the tide gauge at Toke Point. On this day there are a number of time gaps with both RTK data sets (note: survey data starts about 1500 hrs, not at 1900 when the RTK data starts). Fitting a line to the RTK data alone would not result in a satisfactory sea-level curve for days with RTK data of this quality. This data set is typical for days with poor vertical control from RTK data.

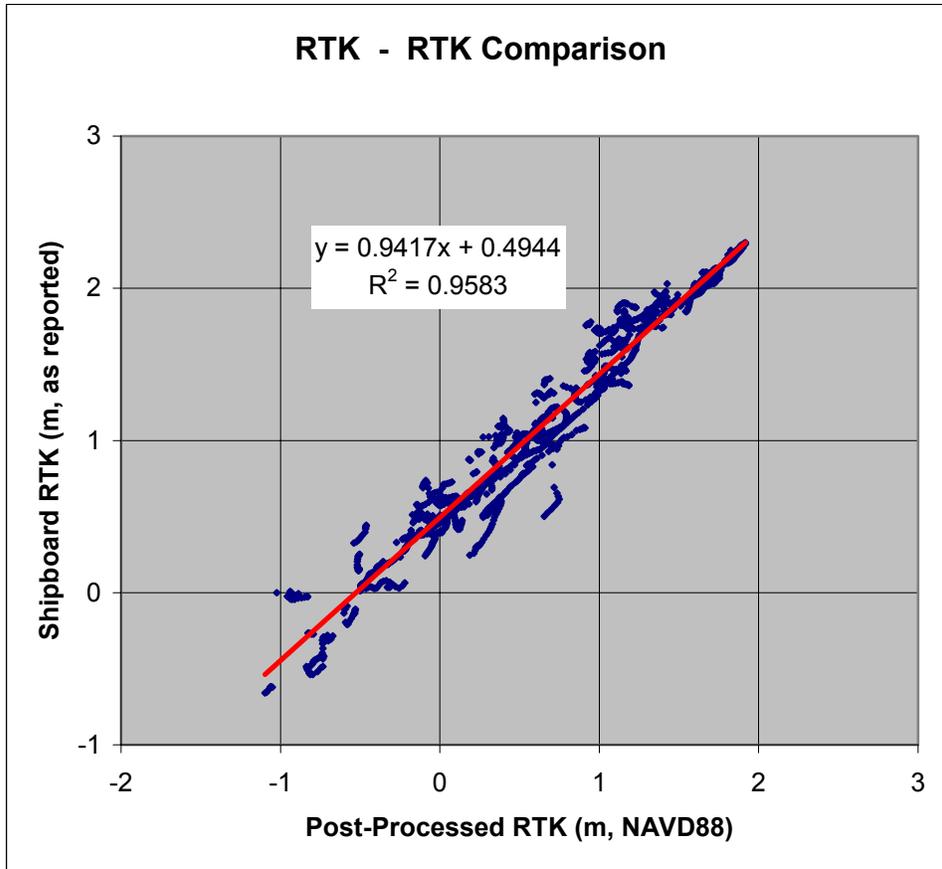


Figure 3: Comparison of sea-level heights reported by shipboard RTK and by post-processed RTK. Both elevations have been corrected to sea level based on the ship roll, pitch and heave. The shipboard RTK is about 0.5 m lower than the post-processed RTK (see also Figures 1 and 2). [NOTE: THE AXIS LABELS ARE REVERSED! This will be fixed...]

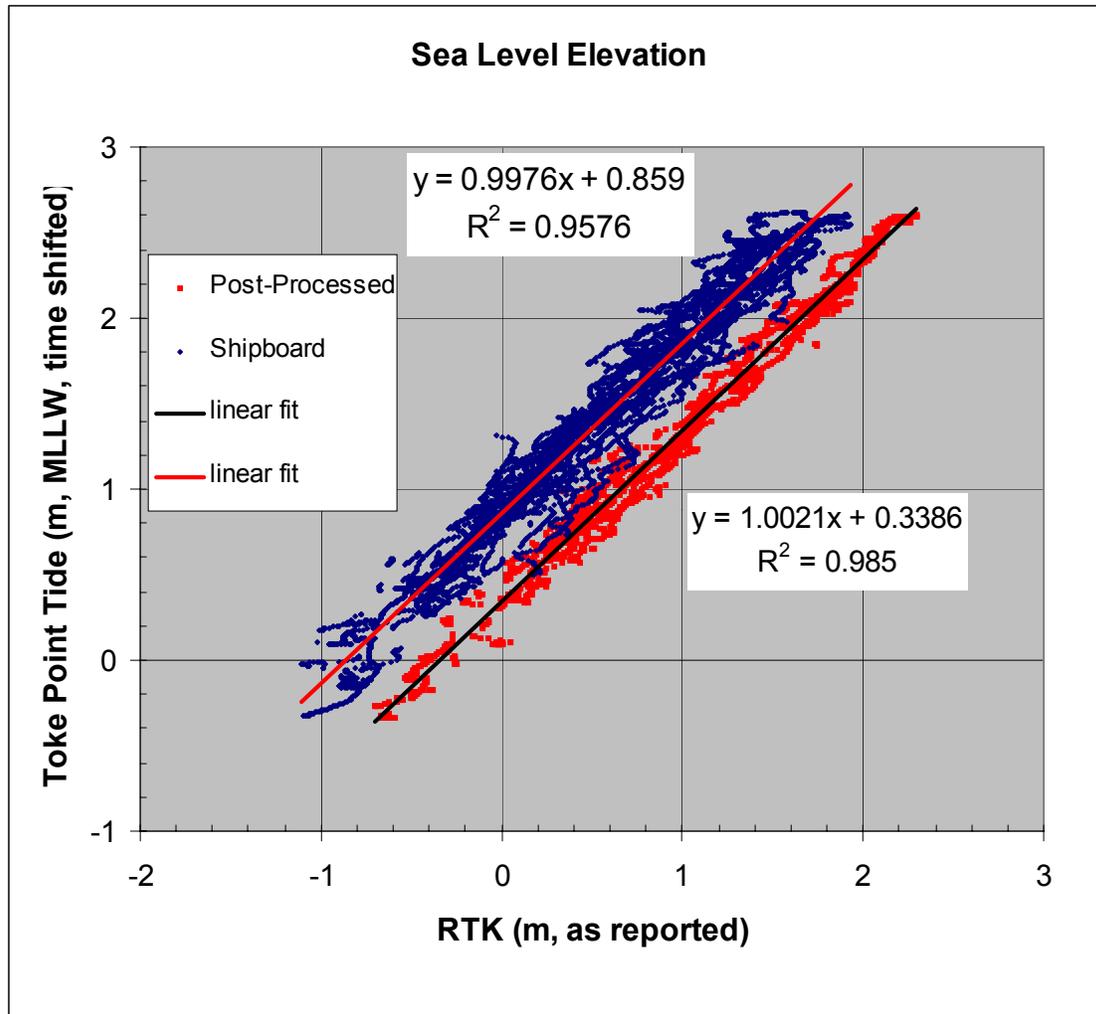


Figure 4: Comparisons between sea level as determined by shipboard and post-processed RTK (offset to sea level) and the time-shifted tide record at Toke Point. Regression suggests that shipboard RTK data is about 0.85 m lower than the Toke Point tide record, and that the post-processed RTK data is about 0.35 m lower than the Toke Point tide record. As a result of this analysis, a tide record for the area was constructed by time-shifting (advancing) the Toke Point tide record by 45 minutes and by subtracting 0.35 m. The transformed tide record thus closely corresponds to the post-processed RTK elevation.