**Abstract**

The Bass Strait site, under descending pass 088, is the sole in-situ calibration facility for TOPEX/Poseidon and Jason-1 in the Southern Hemisphere.

Our calibration activities include the regular deployment of two GPS buoys approximately 60 km from Burnie. Data from each buoy deployment has been used to solve for the vertical datum of an oceanographic mooring array, which was deployed for the duration of the Jason-1 calibration phase. The GPS buoy constrained mooring SSH time series allows the computation of absolute bias on a cycle by cycle basis. The continuous mooring SSH time series has been used to correct the Burnie tide gauge, effectively translating the tide gauge time series to the comparison point. This methodology has been extended to allow comparison with TOPEX/Poseidon from 1992 to the orbit manoeuvre in August 2002, and Jason-1 from launch to present.

**TOPEX/Poseidon altimeter processing, MGDR-B data with all path-length corrections:**
- TMR brightness temperature calibration and yaw state correction
- TMR wet troposphere correction extrapolated inshore because of near-shore contamination
- Ionosphere correction (smoothed)
- Dry troposphere
- Sea-state bias
- Centre of gravity

**Jason-1 altimeter processing, GDR data with all path-length corrections:**
- JMR wet troposphere correction extrapolated inshore because of near-shore contamination
- Ionosphere correction (smoothed)
- Dry troposphere
- Sea-state bias

**Oceanographic processing**
- Atmospheric pressure (adjusted to comparison point) removed from pressure gauge pressure
- Pressure converted to SSH using density profile

**GPS processing – two main processing stages**
- Absolute positioning of the GPS reference sites in a global terrestrial reference frame using GAMIT/GLOBK in a regional network solution
- Kinematic positioning of the GPS buoys on an epoch-by-epoch basis using MDTK software. Independent GPS buoy solutions were produced allowing some level of quality control of the resulting sea surface height time series
- IERS2000 standards were used for loading corrections (earth body tides, ocean loading, etc)

**Conclusions**

The data from the period when the oceanographic instruments were deployed (the same as the initial Jason-1 calibration period) has improved our knowledge of the geoid slope and of the height differences between the coastal tide gauge and the off-shore comparison point, allowing us to produce better long-term estimates of bias. Our results are slightly different from the results from the other dedicated sites. While these differences are of similar magnitude to the error bars, they are also consistent with geographically correlated differences seen in other analyses.

**Acknowledgements**

CSIRO EDC
Burnie Port Authority
Michael Hardy, Stanley, for boat charter
JPL
Aviso
Bruce Haines, JPL
National Tidal Facility, Australia

1 University of Tasmania, Centre for Spatial Information Science
2 CSIRO Marine Research
3 Antarctic Climate and Ecosystems CRC
4 Geoscience Australia, Space Geodesy Analysis Centre

Contact: Neil.White@csiro.au