**Arctic Wave Glider data processing and correction**

Sea temperature data from two Arctic Wave Gliders (WG-1 and WG-2) have been processed and corrected using the method described here.

These data have been sub-sampled at 10-minute intervals. The 1-minute interval raw data are also available, but given the equilibration time for the thermistors is on the order of 45 minutes due to the insulating effect of the polyurethane tether they were embedded in they do not represent a true 1-minute sampling rate.

The thermistors on the Wave Gliders were batch calibrated at the time of manufacture. To achieve credible accuracy we compared the thermistors to well-calibrated SeaBird (SBE-3) temperature sensors at six set points between -1.0° C and 9.0° C both before and after deployment. A linear (least squares) correction was derived from both pre- and post-deployment calibration data for each level and applied using the following formula:

$$T_{corr} = 1 - \frac{t_x}{7868}\left[\frac{(T_{obs} - b)}{m}\right]_{PRE} + \frac{t_x}{7868}\left[\frac{(T_{obs} - b)}{m}\right]_{POST}$$

After correction the difference $T_{corr}$ - $T_{ref}$ does not exceed 0.006° C.

The drift in calibration over the deployment was small (-0.0132° C average), with the exception of the -4.5 meter thermistor on WG-1. The drift in this case exceeded -0.15° C at the low end of the temperature range. We have nevertheless applied proportional corrections to all of the data based on time and with the assumption that all of the sensor drift (if any) occurred during this period.

Temperature values obtained by the near-surface thermistor (-0.5 m) agrees very well with MODIS sea-surface temperature (SST) retrievals.

There are two gaps in WG-1 10-minute data (23 August 0430 UTC – 25 August 1948 UTC and 19 September 1910 UTC – 20 September 1820 UTC). There are three gaps in WG-2 data (23 August 0429 UTC – 25 August 2100 UTC, 11 September 0939 UTC – 12 September 0240 UTC, and a single line on 22 September at 0539 UTC).