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The United States Naval Oceanographic Office (NAVOCEANO) is upgrading its shipboard mission systems to support use of the vertical component of global positioning system (GPS) for vertical control of hydrographic survey data. Preliminary datasets have recently been acquired near Gulfport, Ms., and off of Saipan. Use of GPS measurements for vertical control offer advantages in minimizing the need for shore based infrastructure for water level measurements, and present challenges in needing to define the separation between the Ellipsoid and the required vertical datum. GPS based vertical control also offers the potential for a more seamless vertical datum from deep water through shallow water and up onto shore. Precise Point Positioning (PPP) techniques use GPS satellite clock and orbit corrections freely available within 24 hours of data acquisition and acquired via the internet. Positioning accuracies of 20 cm horizontal (95% confidence) and 30 cm vertical (95% confidence) have been demonstrated with PPP techniques using commercial off-the-shelf (COTS) software packages. Examples of common dataset survey data where the L1 and the L2 raw GPS observables have been acquired will be processed using PPP techniques. The results achieved using PPP positioning will be compared with the results achieved using conventional water level, tidal zoning techniques. The GPS based time series of vertical displacement will be compared with the tide gauge based water levels, and the motion of the survey vessel. The results of processing the bathymetry data using conventional techniques will be compared with the results of processing the bathymetry using the GPS based vertical control techniques.