

Sea Level Observation with GPS buoy at Syowa station, Antarctica

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At Syowa station, Antarctica, where sea ice melts during short summer, sea level variations have been observed with pressure gauges by Hydrographic and Oceanographic Department of Japan Coast Guard (Odamaki et al., 1991). In addition, GPS observations were also carried out on the fast ice near Syowa station since 1998 and it was concluded that GPS is a powerful technique for monitoring sea level variations (Aoki et al., 2002). To implement the full-year sea level observation with GPS, we introduced GPS buoy observation system. Kinematic GPS observations were made intermittently from February to May in 2005. The sampling interval was set to be 1 second. The variations derived from GPS buoy were similar to that from pressure gauges (sampling interval: 30 seconds) while high frequency fluctuations and irregular disturbances were also noticeable. In summary, GPS buoy was considered an effective means of the sea level (tidal) observation in the seasonal ice covered area. Further works are underway to clarify the availability of the sea level observation using GPS buoy.