Monitoring Changes in Mean Sea Level Across the Arctic with Tide Gauges and GPS Receivers

Teresa Herrett, Mike Craymer, Andre Lezyack and Carol Robinson

Abstract: The Canadian Hydrographic Service (CHS) is currently using a combination of tide gauges and GPS receivers for monitoring relative sea level (RSL) change. There are currently locations in Alert, Ulukhaktok, Tuktoyaktuk and Nain where data are received from two Sutron 8210 data loggers installed in bulkheads and one Ashtech CGRS MicroZ GPS receiver (Figure 1). Absolute changes in sea level can be determined. These stations need to operate continuously for long enough to be able to observe changes in the movement of the earth’s crust.

The data are processed and used to determine vertical movement of the earth’s crust. Combined, the two measurements provide data for monitoring vertical movement of the earth’s crust.

The GPS data are retrieved by NRCan, Geodetic Survey Division, every 24 hours by the GPS loop (Figure 2). The GPS data are used to determine vertical movement of the earth’s crust. The GPS data are used to determine vertical movement of the earth’s crust.

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