



Coherent GNSS Reflections from Arctic Sea

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GNSS signals reflected from the earth surface can be used for remote sensing. In contrast to an active system a GNSS Reflectometry (GNSS-R) receiver is a passive device using GNSS signals of opportunity. Reflection tracks from multiple GNSS satellites will be distributed in the field of view. For applications of interest i.a. sea ice concentration a high coverage is important. An arrangement of several receivers would increase the surface coverage of reflection tracks. In this respect many approved, integrated GNSS-R receivers are needed. In collaboration with JAVAD GNSS we adapted a commercial GNSS receiver for Occultation, Reflectometry and Scatterometry (GORS) applications. To test the receiver a ground based experiment was set up. Within the GPS-SIDS (Sea Ice Dry Snow) project, the GORS receiver was installed at the coast in about 700m above sea level near Godhavn, Western Greenland. Continuous data was recorded in the winter period 2008/2009. The data includes the in-phase/quad-phase of the signal for frequencies L1 and L2. The observations were restricted to elevation angles below 15 degrees to obtain coherent reflections. The coherence yields an interference of the direct and reflected signal. We expect a difference in the coherent fraction between ice and water. In a first approach we aim to locate the boundary between water and appearing sea ice.