



Surface elevation change artifact at the NEEM ice core drilling site, North Greenland.

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The NEEM deep drilling site (77.45°N 51.06°W) is located at the main ice divide in North Greenland. For the ice core drilling project, a number of buildings was erected and left on the snow surface during the five-year project period. The structures created snowdrifts that formed accordingly to the predominant wind direction on the lee side on the buildings and the overwintering cargo. To get access to the buildings, the snowdrifts and the accumulated snow were removed and the surface in the camp was leveled with heavy machinery each summer. In the camp a GPS reference pole was placed as a part of the NEEM strain net, 12 poles placed in three diamonds at distances of 2,5 km, 7,5 km and 25 km they were all measured with high precision GPS every year. Around the reference pole, a 1 km x 1 km grid with a spacing of 100 m was measured with differential GPS each year.

In this work, we present results from the GPS surface topography measurements in and around the camp-site. The mapping of the topography in and around the campsite shows how the snowdrifts evolve and are the reason for the lift of the camp site area. The accumulated snowdrifts are compared to the dominant wind directions from year to year. The annual snow accumulation at the NEEM site is 0.60 m. The reference pole in the camp indicates an additional snow accumulation of 0.50 m per year caused by collected drifting snow. The surface topography mapping shows that this artificially elevated surface extends up to several kilometers out in the terrain. This could have possible implications on other glaciological and geophysical measurements in the area i.e. pit and snow accumulation studies.