

2010 Core Data

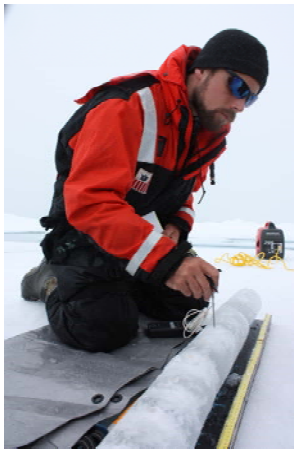
Equipment: 10 cm diameter fiberglass corer powered by an electric drill.

Location: Approximately 1 km SW of the 2010 observation site. Holes created during coring have been observed to drain substantial amounts of meltwater, significantly altering the area melt ponds. To avoid altering the primary sites, this secondary site, with ice of the same character as the primary site, was selected for all coring.



Extracting a Core
Photo: Chris Petrich

Processing: Cores used for salinity and isotope measurements were cut into 5 cm or 10 cm sections (indicated in data profiles) with a handsaw and bagged immediately after extraction to minimize brine drainage. Temperatures were measured out



Measuring core temperature.
Photo: Kathryn Hansen/
NASA

of direct sunlight at the center of a second adjacent core by inserting a temperature probe into holes drilled into the core within a few minutes of extraction. Samples collected for salinity and isotope measurement were melted in double sealed bags at room temperature. A sample from the well mixed bag was taken in a glass vial for later isotope analysis, then salinity measurements were made with a YSI 30 conductivity probe having stated measurement error of 1% of bulk salinity. Isotope samples were sent to the University of Utah Stable Isotope Ratio Facility for Environmental Research for measurement on a PICARRO Wavelength Scanned Cavity Ring-Down Spectrometer. Standard uncertainty determined from laboratory standard samples is 1.6 δ ²H and 0.1 δ ¹⁸O.

Data Format: Data files are excel sheets. The filename indicates the date collected. Headers indicate the type of ice cored (BI = bare ice, MP = ponded ice), and the available data types. The first column is the depth of the top of the core segment, as measured from the ice surface, in cm. Columns for each core may include temperature, salinity, δ ²H stable isotope reading, and δ ¹⁸O stable isotope reading. Missing values indicate that a data type was not collected.