

An early start for melt in Greenland

Melting of the Greenland Ice Sheet in the first half of April is not something you often experience. However, a few weeks ago, around the 11th of April, melting surpassed all previous records. A couple of unusually hot days caused melting to occur over approximately 12% of the ice sheet. This event was clearly observed in the weather station data from the PROMICE network (promice.org and Figure 1).

Measurements from automatic weather stations located on the ice sheet showed temperatures well-above the freezing point on the western part of the ice sheet. The ice sheet margin can occasionally experience short-term melt episodes in April. However, in this case, weather stations high on the ice recorded temperatures above freezing for a period of several days. For example, at the KAN_U, a station 1840 m above sea level, temperatures reached a maximum of 3.1 degrees (Figure 2). This is highly unusual on the Greenland Ice Sheet and is more comparable to a hot day in July than a day in early-April. In fact the maximum temperature during this event exceeded the maximum from July last year by 1.6 degrees. PROMICE weather stations located lower on the western ice sheet recorded maximum temperatures between 3 and 12 degrees (See Figure 2).

A second melt event occurred over the weekend from the 23rd to the 24th of April 2016; this was caused by the influx of warm air from the south. This melt event was not as powerful as the first, but it was clearly observed in the weather station data from the PROMICE network.

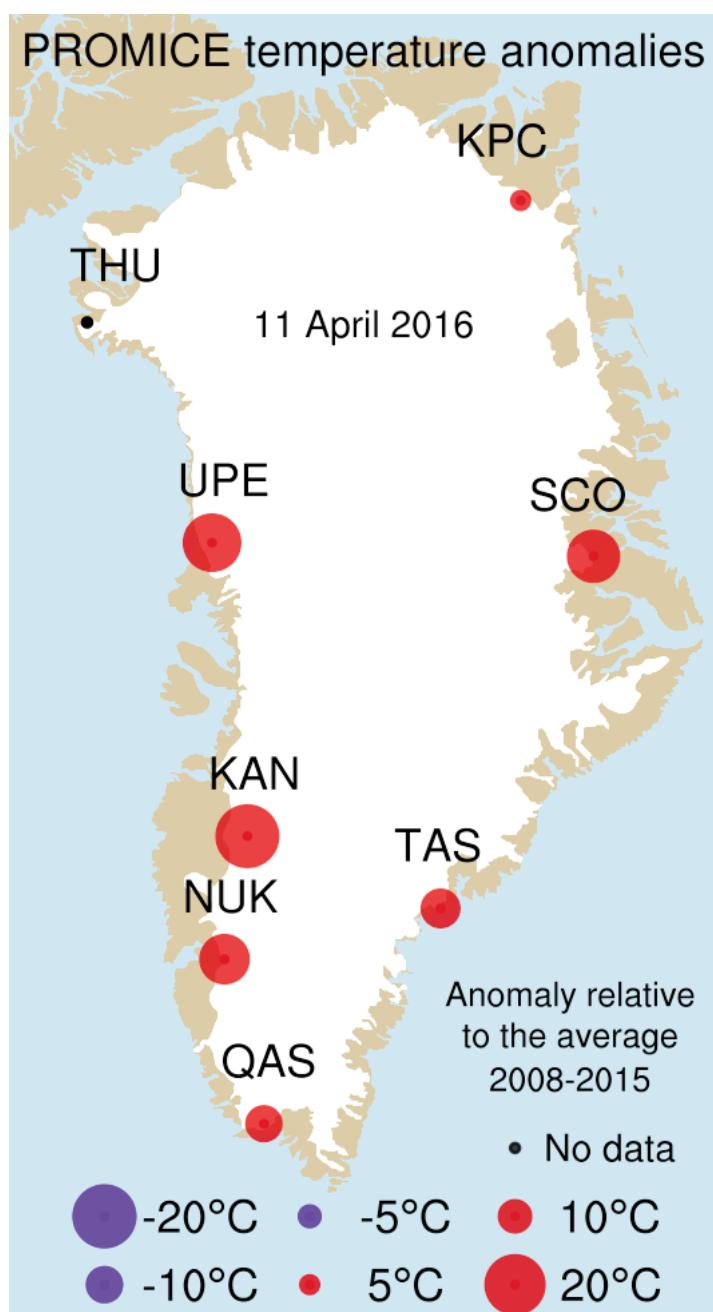


Figure 1: Temperature anomaly relative to the average 2008-2015 value for the month of April.

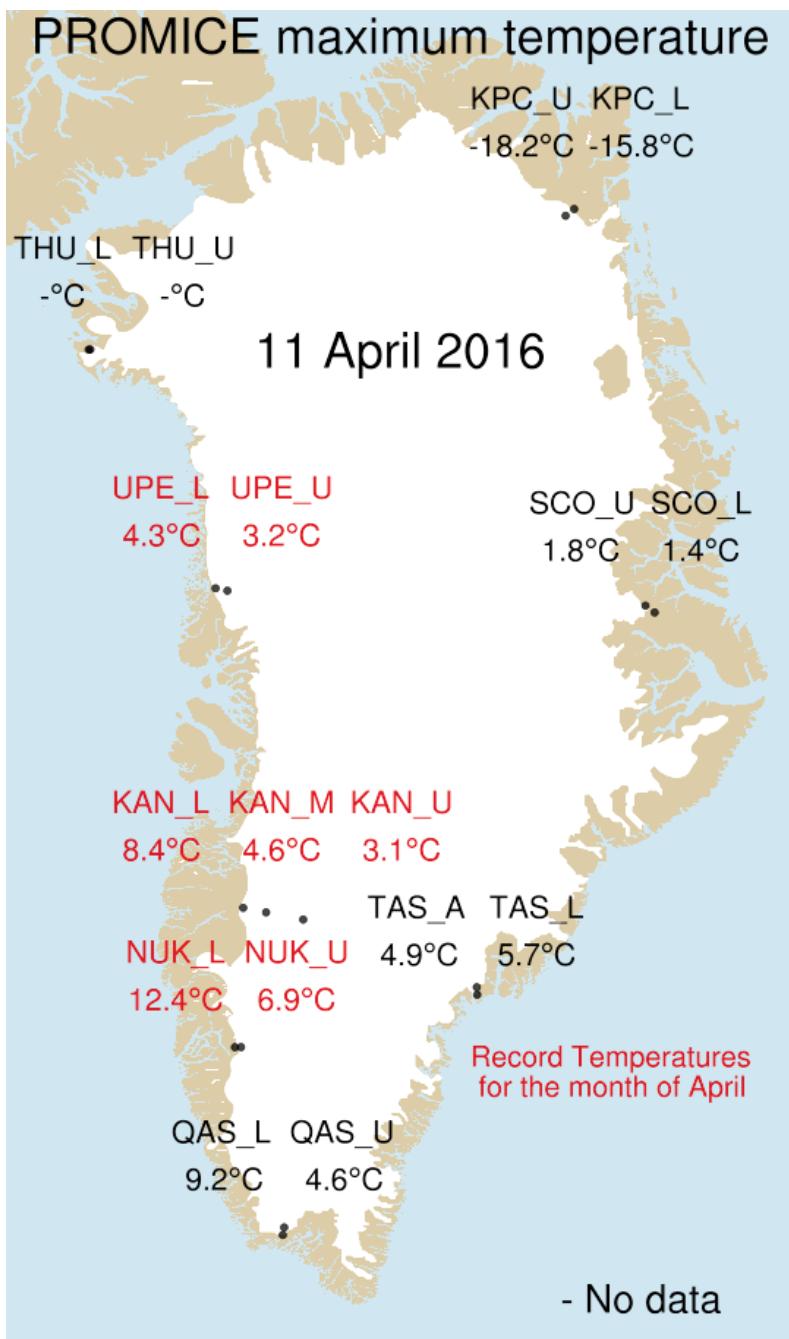


Figure 2: Maximum temperatures measured on the 11th of April. Red numbers indicates record temperatures for the month of April.

Melt events this early in the year do not necessarily have a direct influence on the total summer mass loss, but it could contribute to faster ice sheet melt in the coming summer melt season. These unusual melt episodes are something we are increasingly experiencing. The last time the ice sheet experienced unusual melt events was the summer of 2012; this resulted in an extraordinarily large mass loss.



Promice measuring station in Greenland

PROMICE

PROMICE is financed by the Ministry of Energy, Utilities and Climate through the climate support programme DANCEA (Danish Cooperation for Environment in the Arctic), which is managed by the Danish Energy Agency.

- The purpose of PROMICE is to monitor the mass loss of the Greenland ice sheet, both the melting on the surface and the volume of icebergs discharged into the sea

- PROMICE is headed in Denmark by GEUS in cooperation with DTU Space and Asiaq in Greenland. Furthermore the programme collaborates with the Danish Meteorological Institute and foreign universities and authorities.
- Read more about PROMICE on promice.org, where you can find photos and videos, get direct access to measuring data from the ice sheet and the PROMICE outreach material. On the website you can also subscribe to our newsletter.
- Information can also be found on polarportal.org a new website where Danish research institutions display the results of their monitoring of the Greenland ice sheet and the sea ice in the Arctic.

Further information

<http://www.promice.dk>
<http://www.undergroundchannel.dk/an-ice-lid-more-greenland-meltwater>

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