National Report - Denmark

Kristian Evers

Agency for Climate Data

New name, new strategy

Klimadatastyrelsen – Agency for Climate Data

- *The new name reflects the tasks that the agency performs and the value that the agency's work creates for society*
- *As a society, we face a wide range of challenges related to climate change adaptation, the green transition, and security*
- *Data and digital solutions are important contributions to addressing these challenges*
- *The telecommunications area has been transferred to the Agency for Digital Government*


A Climate Resilient Denmark
A Secure Denmark
A Green Denmark
Digital Solutions
Mapping
Infrastructure

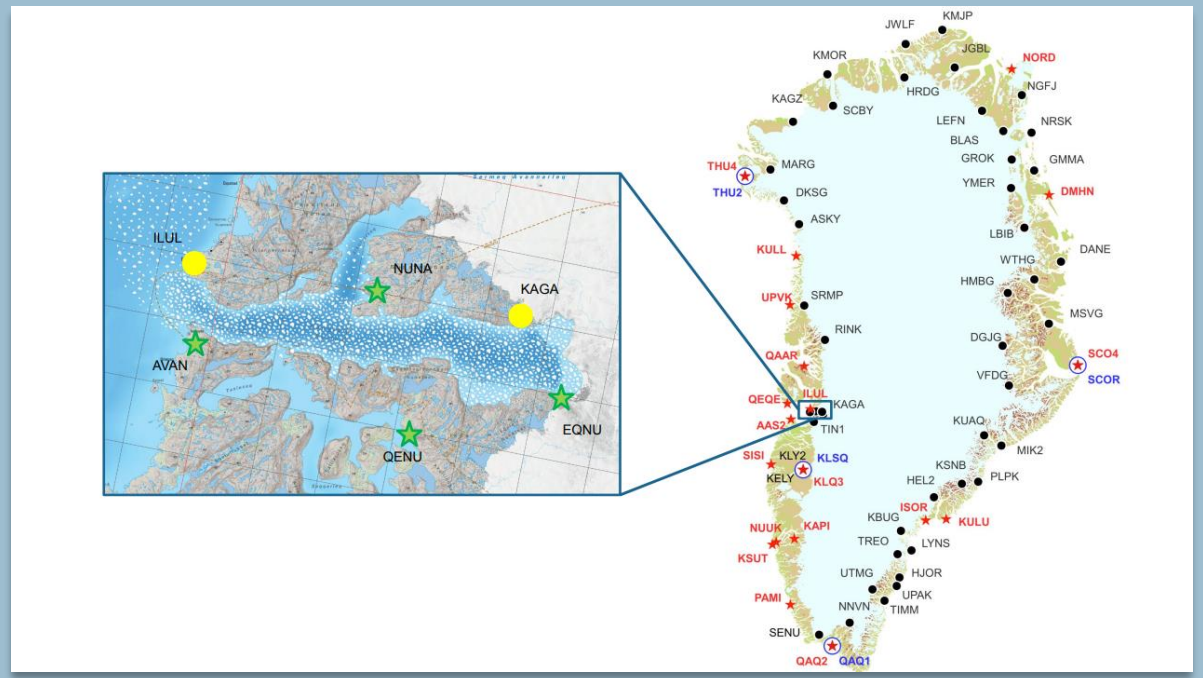
New CORS station in Hanstolm

Regulation of private GNSS positioning services providers

- New guidelines published
- First revision since introduction in 2008
  - Three accuracy classes
    - A: 1.0 cm, 2.0 cm
    - B: 2.0 cm, 4.0 cm
    - C: 2.5 cm, 5.0 cm
  - Coverage map
  - New procedures for validation of reported accuracies

Greenland

- GNET
  - Four stations at Ilulissat
  - Two on the east coast
  - Data link (Iridium) uncertain. Various initiatives to maintain realtime communication is investigated
  - Article in Nature based on GNET data
- New realization of GR96 expected in 2025
  - Based on 2021 campaign
  - GNET stations included in the realization
  - Initial transformations will not include intra-plate deformations



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Vertical bedrock shifts reveal summer water storage in Greenland ice sheet

Jiangjun Ran, Pavel Ditmar, Michiel R. van den Broeke, Lin Liu, Roland Klees, Shfaqat Abbas Khan, Twila Moon, Jiancheng Li, Michael Bevis, Min Zhong, Xavier Fettweis, Junguo Liu, Brice Noël, C. K. Shum, Jianli Chen, Liming Jiang & Tonie van Dam

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Abstract

The Greenland ice sheet (GrIS) is at present the largest single contributor to global-mass-induced sea-level rise, primarily because of Arctic amplification on an increasingly warmer Earth[1,2,3,4,5]. However, the processes of englacial water accumulation, storage and ultimate release remain poorly constrained. Here we show that a noticeable amount of the summertime meltwater mass is temporally buffered along the entire GrIS periphery, peaking in July and gradually reducing thereafter. Our results arise from quantifying the spatiotemporal behaviour of the total mass of water leaving the GrIS by analysing bedrock elastic deformation measured by Global Navigation Satellite System (GNSS) stations. The buffered meltwater causes a subsidence of the bedrock close to GNSS stations of at most approximately 5 mm during the melt season. Regionally, the duration of meltwater storage ranges from 4.5 weeks in the southeast to 9 weeks elsewhere. We also show that the meltwater runoff modelled from regional climate models may contain systematic errors, requiring further scaling of up to about 20% for the warmest years. These results reveal a high potential for GNSS data to constrain poorly known hydrological processes in Greenland, forming the basis for improved projections of future GrIS melt behaviour and the associated sea-level rise[6].

Agency for Climate Data