

Cave System Mapping C.H. Ostenfeld Nunatak North-East Greenland

In preparation for expedition looking for cave deposits

Expedition carried out 2-18 August 2023

Evaluation of application

Thank you to the NoR team @ ESA for providing sponsorship in
reference to the request ID 2b25fc: Cave system mapping
Project supported by ESA Network of Resources Initiative

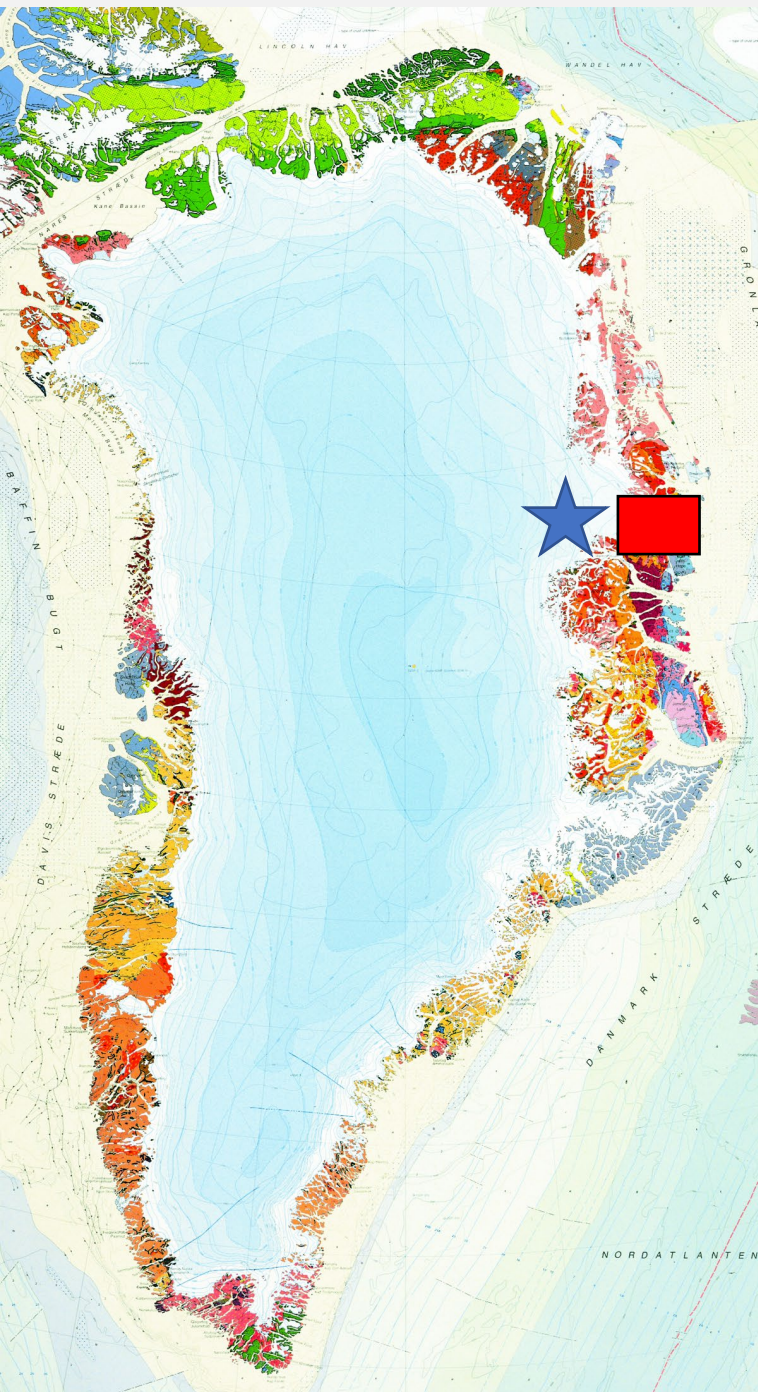


Cave System Mapping - request ID 2b25fc

- Aim of study: With an initial visual inspection of images it will be explored if image processing potentially can detect and/or delimit the areas of interest for further exploration for cave development. The visual or automated recognition of cave entrances in the size range of 1 to 5 m requires hi-resolution images, and preferably also images from different passes with different sun-angle in order to evaluate the shadow size and shape changes to assess cave entrance penetration and in order to distinguish any shadows from being just an effect of edges or notches in the rock surfaces.
- In conclusion it has unfortunately not been possible to acquire a suitable image set for carrying out the detailed study. However, the obtained images have been very helpful in the preparation phase for the reconnaissance expedition.

Looking for caves and speleothems

C.H. Ostenfeld Nunatak in the Wordie Gletscher, due west of Clavering Ø



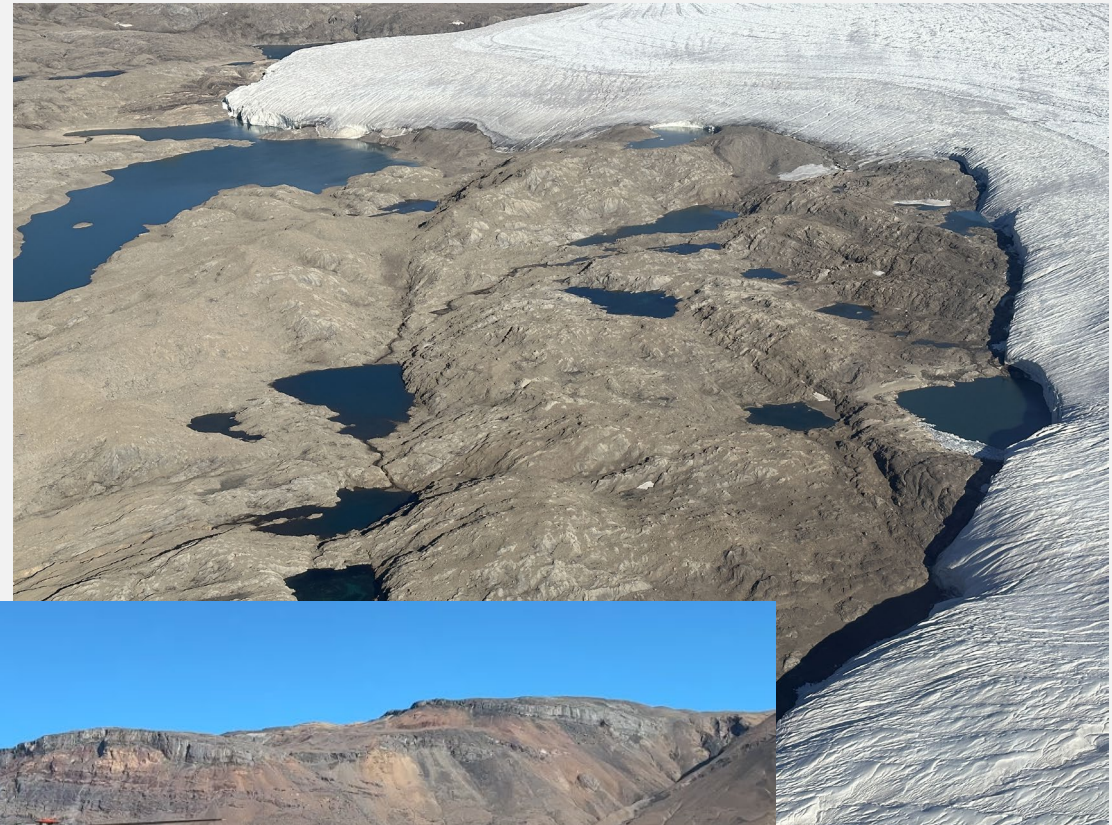


A reconnaissance expedition in August 2023 has provided positions of cave entrances as potential calibration points

None of these can be recognised on the available images

Expedition made possible by generous contribution from Aage og Johanne Louis-Hansens Fond and an additional support from Aase og Jørgen Münters Fond.

Transport to the very isolated locality with Twinotter and AS350 helicopter

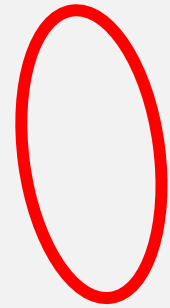




Cave entrances mainly in the vertical cliff faces

Therefore difficult detection on vertical imagery

Shadows can be mixed with that caused by fractures or rock pillars



Cliff face
of
interest



Same limitations as previous example

The planned use of different images with different sun-angle in order to differentiate between various features has not been successful

The study has been handicapped by lack of resolution and lack of useful images

Cliff face
of
interest

