

# 1 **Brief communication: Getting Greenland's glaciers right – a** 2 **new dataset of all official Greenlandic glacier names**

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## 10 **Abstract**

11 Place names in Greenland can be difficult to get right, as the language is a mix of Greenlandic,  
12 Danish, and other foreign languages. In addition, orthographies have changed over time. With this  
13 new dataset, we give the researcher working with Greenlandic glaciers the proper tool to find the  
14 correct name for glaciers and ice caps in Greenland and to locate glaciers described in the historic  
15 literature with the old Greenlandic orthography. The dataset contains information on the names of  
16 733 glaciers, 285 originating from the Greenland Ice Sheet (GrIS) and 448 from local glaciers and  
17 ice caps (LGIC).

## 18 **1. Why Place Names Matter**

19 It goes without saying that referring to a geographical feature with a consistent name saves both the  
20 reader and the author a lot of trouble. However, problems may arise when there is no consensus as  
21 to which feature is being referred to or when the name changed. In Greenland, history has not been

1 kind to the researcher who wishes to get the place names right. The written Greenlandic language  
2 has undergone changes since the first expeditions there, and names have changed over time.  
3 Furthermore, the languages spoken on the east and west coasts of Greenland also differ, causing  
4 further dissimilarities in the names. Therefore, it can be quite a challenge to use the correct place  
5 name in Greenland. There are already databases of geographic place names available, such as the  
6 USA National Geospatial-Intelligence Agency GEOnet Names Server, but it has not been updated  
7 recently and contains errors and place names in the old Greenlandic orthography. While many  
8 researchers have gone to great lengths to get glacier names right (Higgins, 2010; Laursen, 1972;  
9 Rignot and Mouginot, 2012; Weidick, 1995), until now, no complete list of official glacier names  
10 has been presented to the public. It is with this predicament in mind that we wish to share with the  
11 cryospheric community this dataset of official names of all Greenlandic glaciers. Furthermore, we  
12 match the glacier names dataset with the Randolph Glacier Inventory (GRI), the most complete  
13 glacier inventory available (Pfeffer et al., 2014; Rastner et al., 2012)..

## 14 **2. A Brief History of Greenlandic Place Names**

15 The official authority of place names in Greenland is Nunat Aqqinik Aalajangiisartut (NAA)  
16 (<http://www.oqaasileriffik.gl>) and the Danish Geodata Agency (GDA) ([www.gst.dk](http://www.gst.dk)), formerly the  
17 Danish Geodetic Institute. These have been well aware of the problems that may arise from  
18 differing place names and have initiated a formalization of all Greenlandic place names. This is no  
19 easy task in a country of Greenland's size, where humans have lived and traveled for centuries and  
20 named features in the landscape. In addition to names already listed in the official database, names  
21 have also been collected by the GDA and later the NNA from maps, historic literature, and oral  
22 accounts.

1 Traditionally, Greenlandic place names have been more of a description of the place than a name in  
2 the conventional format. This is also the case with many glacier names; however, no complete  
3 translation exists (Geodatastyrelsen, 2013). Danish or foreign names were often given to the  
4 glaciers during expeditions, but these are rarely descriptive of the glacier. Instead, the glacier names  
5 were often given to please funders, family, colleagues, and celebrities.

6 Registration of place names in Greenland became formalized in 1934 when the Greenland Place  
7 Names Committee was formed in Denmark (Kleivan, 1990). Efforts to formalize the place names  
8 were made during the creation of a large map series of the entire coastline. During this process, a  
9 representative from the then Danish Geodetic Institute would travel the coast and record all known  
10 names with the assistance of locals. All sorts of features were recorded, and the geographic location  
11 was pinned down on the map. The place names were thus based on communication with the locals  
12 and the quality of existing maps. This record, along with names from previously published maps  
13 that passed the board of the Greenland Place Names Committee, became part of the official list of  
14 recognized place names. This database, known as the "Berthelsen List", consisted of more than  
15 25,000 entries and was known to contain errors and discrepancies, such as double entries and wrong  
16 coordinates.

17 In 1973, Greenland underwent language reform and the orthography was changed. In 2001, the  
18 NNA implemented the new Danish way of spelling "glacier" (*gletsjer*). As an example, the large  
19 marine terminating glacier, *Kangerlussuaq Gletsjer*, on the southeast coast of Greenland (Wager et  
20 al., 1937) was changed from *Kangerdlugssuaq Gletscher* to *Kangerlussuaq Gletscher* to  
21 *Kangerlussuaq Gletsjer* in the process. However, the pre-1973 orthography is most often used in  
22 the scientific literature (Bevan et al., 2012; Joughin et al., 2008; Khan et al., 2014).

1 In 1984, the responsibility for Greenlandic place names was transferred to the Greenland Home  
2 Rule and NNA. In 1996, single authorization of place names was introduced in Greenland, allowing  
3 only one official name, which is the Greenlandic where applicable. Thus, *Jakobshavn Isbræ*,  
4 Greenland's fastest outlet (Joughin et al., 2014), officially became *Sermeq Kujalleq*. Since then,  
5 more than 6,000 additional names have been added. It is from this list of place names that all glacier  
6 names have been extracted. Furthermore, all glacier entries have subsequently gone through  
7 vigorous quality control: erasing double entries, replacing misplaced data points by manually  
8 checking all entries in the dataset, and comparing their location with that of maps published by the  
9 GDA. Higgins (2010) contains a comprehensive history of Greenlandic place names, which also  
10 includes a long list of both official and unofficial place names in northeast Greenland.

### 11 **3. A New Dataset of Greenlandic Glacier Names**

12 The present dataset is a compilation of the official Greenlandic names of 733 glaciers; 285 glaciers  
13 are outlets or passive margins from the Greenland Ice Sheet (GrIS) and 448 are local glaciers or ice  
14 caps (LGIC). The 448 LGICs represent ~2.2% of the more than 20,000 Greenlandic LGICs  
15 represented in the Randolph Glacier Inventory (RGI). However, the LGICs on this list account for  
16 ~41% of the total area of Greenlandic LGICs in the RGI. Figure 1 provides geographic location for  
17 named GrIS and LGICs glaciers and presents an example of the information available in the  
18 database. The database contains the old and new Greenlandic spellings of glacier names, the foreign  
19 name if one such exists, and the current official place name. The current official place name is the  
20 new Greenlandic name, and when no Greenlandic name exists, the official name is the foreign  
21 name, often with the Danish suffix for glacier *gletsjer*. Many of the Danish glacier name spellings  
22 include the letters, Æ(æ), Ø(ø), and Å(å).

1 For each glacier presented in the database, information on the glacier's ID in the RGI (Pfeffer et al.,  
2 2014; Rastner et al., 2012) is available. The RGI ID was added because this is presently the most  
3 complete inventory of Greenlandic ice bodies. Furthermore, information regarding whether the  
4 name refers to a section or an outlet of the GrIS or is a LGIC is also available. Coordinates are  
5 given as latitude/longitude for the place name location and for the center coordinates of the glacier  
6 polygon in the RGI.

7 By examining the dataset, one might notice that an intensively studied and unofficially named  
8 glacier is missing. This can be explained by the fact that the glacier name in question has yet to be  
9 recognized as having an official name, either because it has not been brought to the attention of the  
10 NNA or because it has been discarded by the authorities in the past. There are several examples of  
11 glaciers that have been widely studied and whose name may appear official but is not. A prominent  
12 example is the most studied local glacier in Greenland, which is known as the *Mittivakkat Gletscher*  
13 (Mernild et al., 2011). The name *Mittivakkat* (formerly spelled *Midtluagkat*) refers to the large  
14 *nunatak* on the glacier and was mapped in 1932, by the Seventh Thule Expedition led by the Danish  
15 explorer Knud Rasmussen (Rasmussen, 1933). Later, the glacier was given its unofficial name by  
16 researchers studying the glacier (Fristrup, 1960; Hasholt, 1976; Larsen, 1959). However, the name  
17 was never authorized by the proper authorities. There are many similar examples along the coast of  
18 Greenland. Another example is the large number of glaciers that were named by Norwegians in  
19 central east Greenland in the early 1930s. None of these names made it onto the official list, as they  
20 were regarded as politically motivated namings (Higgins, 2010), as Denmark and Norway were  
21 fighting over the right to east Greenland.

22 It should be noted that the database of official Greenlandic glacier names is not exhaustive nor  
23 finished; it is a work in progress, and the NAA is continuing the process of registering new and old  
24 place names. In connection with the publication of the present dataset, we strongly urge the

1 scientific community to send suggestions of old and already established glacier names that do not  
2 appear on the list. It is recommended that these should be sent along with the references in which  
3 the glacier name appears. We will then gather all these unofficial place names and submit a single  
4 application to the NNA to have the names considered. Once the glacier names are on the official  
5 list, they will appear, according to map scale and map purpose, on future official maps. This  
6 collaborative scientific effort will clarify the nomenclature of Greenlandic place names and greatly  
7 assist future work.

#### 8 **4. Using This Dataset**

9 The dataset presented is available online in a spreadsheet, as an ArcGIS shape file, and as a KML  
10 layer. The dataset can be accessed at *Figshare* where it will be updated and stored under a Creative  
11 Commons (CC0) license (<http://dx.doi.org/10.6084/m9.figshare.1449148>).

12 To avoid further confusion regarding the use of the correct names, we suggest that the official  
13 glacier name be used whenever referring to a Greenlandic glacier. However, as many glaciers have  
14 been studied in the past, but the literature refers only to the Danish/non-Greenlandic name, we  
15 suggest that both names are mentioned in cases where a glacier's unofficial foreign name has  
16 become widely accepted within the scientific community. When using this dataset, please reference  
17 this publication.

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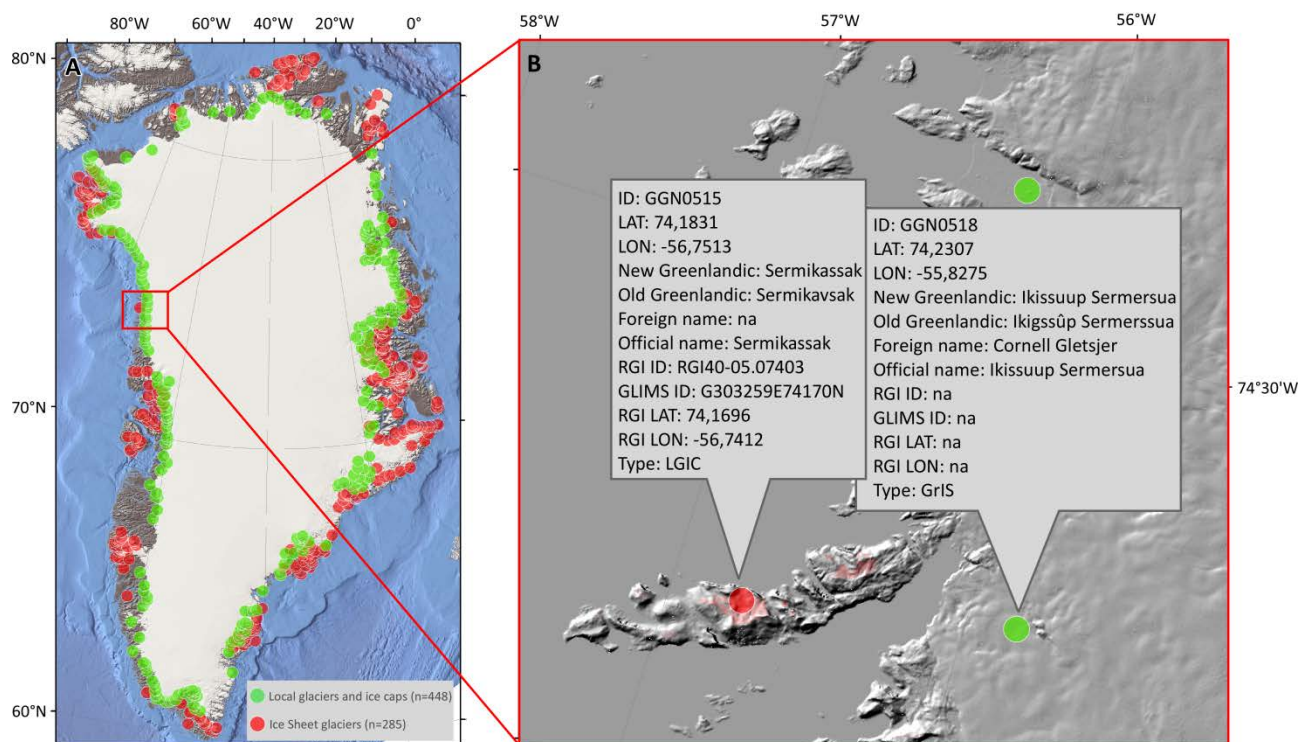
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3 Figure 1. Distribution of official glacier names in Greenland and contents of new palace name  
 4 dataset. Local glaciers and ice caps (LGIC) are in green, glaciers from the Greenland Ice Sheet  
 5 (GrIS) are in red. A) The spatial concentration of glacier names is high in the populated areas and in  
 6 areas that have been extensively explored – however, there are still fairly large stretches of coastline  
 7 with no named glaciers (eg. the southeast and north coasts) Background image: IBCAO ver3.0  
 8 (Jakobsson et al., 2012). B) A zoom in on the Melville Bay in northwest Greenland with examples  
 9 of the contents of the new glacier name database. Background images is a GIMP hillshade (Howat  
 10 et al., 2014).