

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

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Abstract

Place names in Greenland can be difficult to get right, as ~~it the language~~ is a ~~big~~ mix of Greenlandic, Danish, and other foreign languages. ~~On top of that~~In addition, orthographies have changed ~~through over~~ time. With this new dataset, we give the researcher working with Greenlandic glaciers the proper tool to ~~finding~~ the correct name for glaciers and ice caps in Greenland, ~~as well~~ as and to locate glaciers described in the historic literature with the old Greenlandic orthography.

The dataset contains information ~~on of the glacier~~ names of 733 glaciers, ~~;~~ 285 originating from the Greenland Ice Sheet (GrIS) and 448 from local glaciers and ice caps (LGIC).

1 Why Place Names Matter

It goes without saying that referring to a geographical feature ~~by the same~~with a consistent name saves both the reader and the author a lot of trouble. However, problems may arise when there is no

consensus as to which feature is being referred to, or when the name has changed in time.

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

2 Aa Brief History Of Greenlandic Place Names

The official ~~Greenlandic~~ authority of place names in Greenland is Nunat Aqqinik Aalajangiisartut (NAA) (<http://www.oqaasileriffik.gl>) and the ~~Danish Geodetic Institute now called the~~ Danish Geodata Agency (~~GDA~~) (~~www.gst.dk~~, formerly the Danish Geodetic Institute). These have been well aware of the problems that may arise from differing place names, and have initiated a formalization of all Greenlandic place names. This is no easy task with in a country of Greenland's size, where humans have lived and traveled for centuries and vigorously naming ed features in the landscape. In addition to names already enlisted in the official data-base, names have also been

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collected ~~by the GDA and later the NNA~~ from maps, historic literature, and ~~from~~ oral accounts ~~by the GDA and later the NNA~~.

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

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

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In 1973, Greenland underwent a language reform and the orthography was changed, ~~and in~~. In 2001, ~~the~~ NNA implemented the new Danish way of spelling "glacier" (*gletsjer*). As an example, the large marine terminating glacier, ~~"Kangerlussuaq Gletsjer"~~ on the southeast coast of Greenland (Wager et al., 1937) ~~was~~ ~~has~~ changed ~~name~~ from *Kangerdlugssuaq Gletscher* to *Kangerlussuaq*

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Gletscher to *Kangerlussuaq Gletsjer* in the process. However, the pre-1973 orthography is most often used in the scientific literature (Bevan et al., 2012; Joughin et al., 2008; Khan et al., 2014).

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

3.1 New Dataset of Greenlandic Glacier Names

The present dataset is a compilation of the all-official Greenlandic names of 733 glaciers; 285 glaciers are outlets or passive margins from the Greenland Ice Sheet (GrIS) and 448 are local glaciers or ice caps (LGIC). The 448 LGICs represent ~2.2% of the more than 20,000 Greenlandic LGICs represented in the [Randolph Glacier Inventory \(RGI\)](#). However, the LGICs on this list do account for ~41% of the total area of Greenlandic LGICs in the RGI. Figure 1 provides geographic location for the GrIS glacier and LGICs and is an example of the information available in the database. The database contains the old Greenlandic spelling of the glacier names, as well as the and new Greenlandic spellings of glacier names, the foreign name if one such exists, and the now-current official place name. The current official place name is the new Greenlandic name, and when no Greenlandic name exists, the official name is the foreign name, often with the Danish

suffix for glacier ~~“gletsjer”~~. Many of the Danish glacier name ~~spellings are spelled~~ include ~~ing~~ the letters, Æ(æ), Ø(ø), and Å(å).

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For each glacier presented in the database, information on the glacier's ID in the ~~Randolph Glacier Inventory (RGI)~~ (Pfeffer et al., 2014; Rastner et al., 2012) is available. The RGI ID ~~was~~ added ~~because as~~ this is ~~the~~ presently ~~the~~ most completed inventory of Greenlandic ice bodies.

Furthermore, information regarding whether the name refers to a section or an outlet of the ~~Greenland Ice Sheet (GrIS)~~ or ~~if it is a local glacier or ice cap (LGIC)~~ is also available. Coordinates are given as latitude/longitude for the place name location and for the center coordinates of the glacier polygon in the RGI.

By examining the dataset, one might notice ~~that~~ an intensively studied and unofficially named glacier ~~is missing from the list~~. This can be explained by the fact that the glacier name ~~under in~~ question has yet to be recognized ~~as an~~ ~~as having an~~ official name, either because it has not been brought to the attention of the NNA or ~~because it~~ has been discarded by the authorities in the past.

There are several examples of glaciers that have been widely studied and whose name may appear official, ~~yet this is not the case but is not~~. A prominent example is the most studied local glacier in

Greenland, ~~which is~~, known as the ~~“Mittivakkat Gletscher”~~ (Mernild et al., 2011). The name ~~“Mittivakkat”~~ (formerly spelled ~~“Midthuagkat”~~) refers to the large ~~nunatak~~ on the glacier, and was

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mapped in 1932, by the 7th ~~Seventh~~ Thule ~~E~~-expedition led by the Danish explorer Knud Rasmussen (Rasmussen, 1933). Later, the glacier was given its unofficial name by researchers studying the glacier (Fristrup, 1960; Hasholt, 1976; Larsen, 1959). ~~H~~however, the name was never authorized by the proper authorities. There are many similar examples along the coast of Greenland.

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Another example is the large number of glaciers ~~the that~~ were named by Norwegians in central east Greenland in the early 1930s. None of these names made it ~~onto~~ the official list, as they were

regarded ~~as~~ politically motivated namings (Higgins, 2010), as Denmark and Norway were fighting over the right to east Greenland.

It should be noted that the database of official Greenlandic glacier names is not exhaustive nor finished;— it is a work in progress, and the NAA is continuing the process of registering new and old place names. In connection ~~to~~ with the publication of the present dataset, we strongly urge the scientific community to send suggestions of old and already established glacier names that ~~does~~ not appear on the list ~~to the corresponding author~~. It is recommended that these should be sent along with the references in which the glacier name appears. We will then gather all these unofficial place names and submit a single application to the NNA, ~~after which the~~ to have the names ~~will be~~ considered. Once the glacier ~~s~~ names are on the official list, they will appear ~~on~~ official maps in the future— ~~according to map scale and purpose~~. This collaborative scientific effort will ~~greatly assist and ease future work in this area of the world and~~ clarify the nomenclature of Greenlandic place names and greatly assist future work.

4 Using This Dataset

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

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

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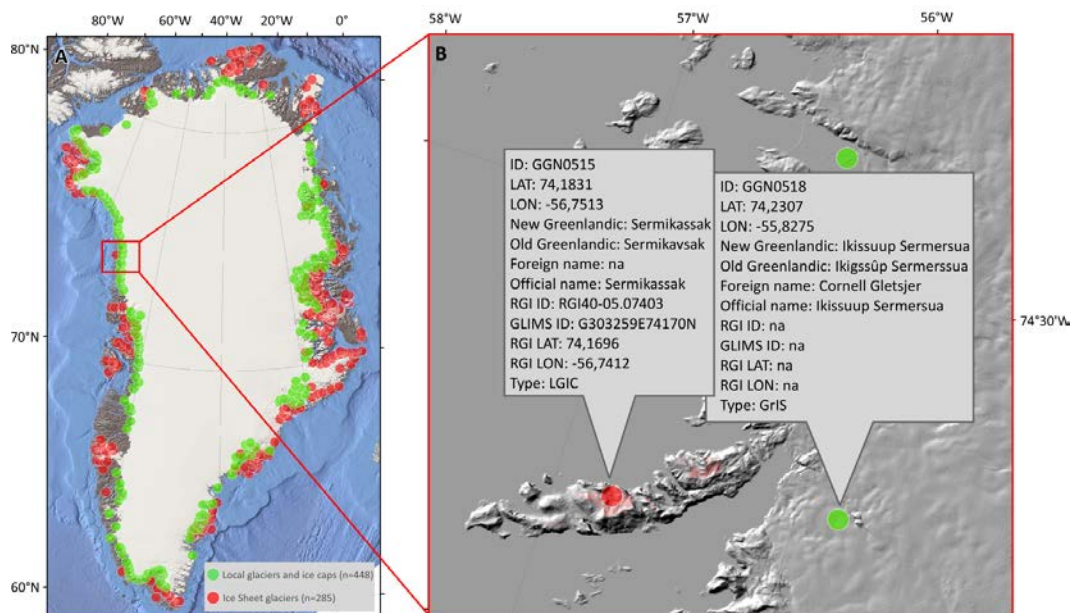


Figure 1. Distribution of official glacier names in Greenland and contents of new glacier name dataset. Local glaciers and ice caps (LGIC) are in green, glaciers from the Greenland Ice Sheet (GrIS) are in red. A) The spatial concentration of glacier names is high in the populated areas and in areas that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