Calving Front Machine (CALFIN): Glacial Terminus Dataset for East/West Greenland, 1972-2019 Usage Notes

Spatio-temporal Coverage

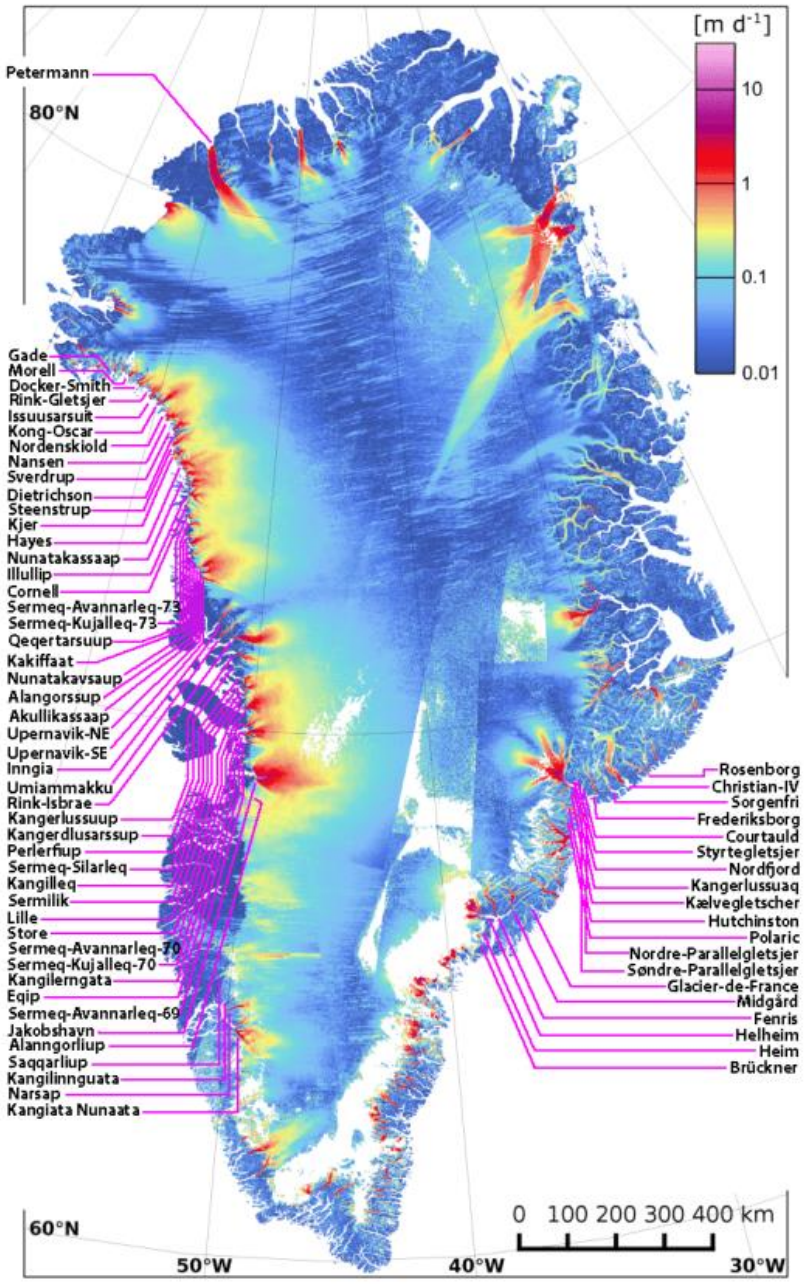


Figure 1. Spatial Coverage Map: Spatial distribution of 66 selected Greenlandic glaciers. The velocity map is taken from Nagler et al. (2015).

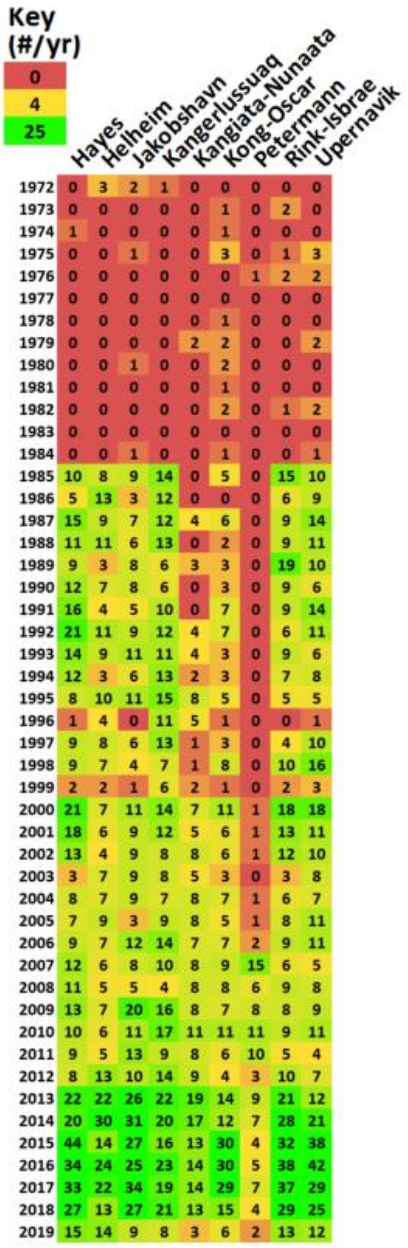


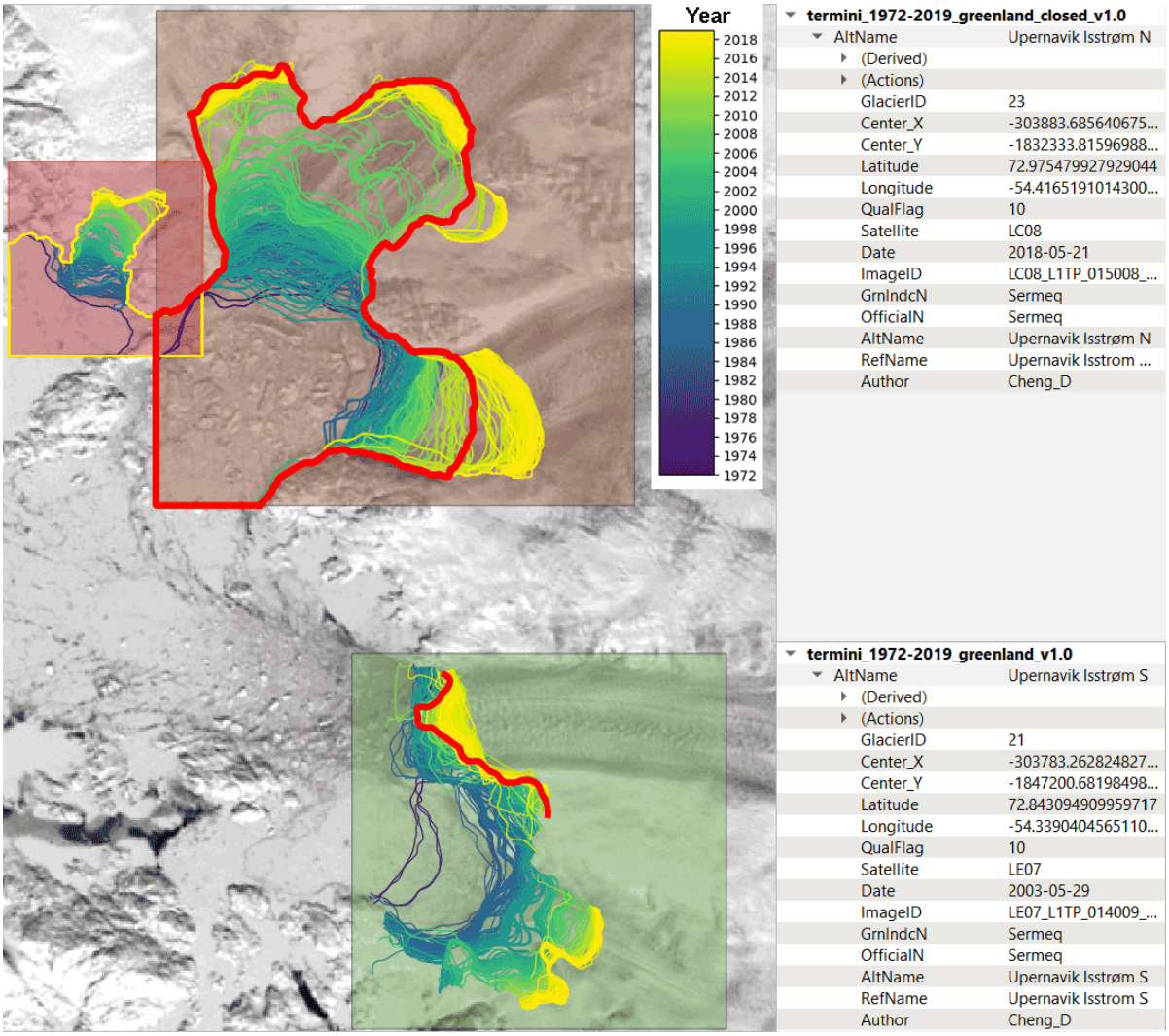
Figure 2. Temporal Coverage Map: Number of fronts per year from 1972-2019 for 9 high-drainage glaciers. For the full temporal coverage map, see attached Supplement, Fig. S1.

Data Product Description

We provide two levels of data products.

- Level 0 products consist of fjord boundary GeoTiff masks, the domain Shapefiles used for subsetting, a glacier names reference Shapefile, and the Landsat scene name ID list.
- Level 1 product consists of LineString Shapefiles with 22678 total features, and Polygon Shapefiles with 17,771 total features.
    - level-1_shapefiles-domain-termini-closed.zip
        - Polygon Shapefiles from 1972-2019, separated by glacial domain
    - level-1_shapefiles-domain-termini.zip
        - LineString Shapefiles from 1972-2019, separated by glacial domain
    - level-1_shapefiles-greenland-termini-closed.zip
        - Polygon Shapefiles from 1972-2019, containing all features in one file
    - level-1_shapefiles-greenland-termini.zip
        - LineString Shapefiles from 1972-2019, containing all features in one file
    - Both Shapefile types are separated by domain, and share the following schema with that used by MEaSUREs:
        - 'geometry': 'str' #'LineString', 'Polygon'
        - 'properties': {
            'GlacierID': 'int', #(as defined in MEaSUREs NSIDC-0642)
            'Center_X': 'float',
            'Center_Y': 'float',
            'Latitude': 'float',
            'Longitude': 'float',
            'QualFlag': 'int', #0: manually digitized; 3: manually digitized w/ L7SCE; 10: auto digitized; 13: auto digitized w/ L7SCE
            'Satellite': 'str',   #LM01, LT05, LE07, LC08, etc
            'Date': 'str',   #YYYY-MM-DD
            'ImageID': 'str',
            'GrnlndcN': 'str', #See Bjørk et al., 2015
            'OfficialN': 'str',
            'AltName': 'str',
            'RefName': 'str', #Non-authoritative CALFIN reference name
            'Author': 'str'}
        - Spatial extent: 66 Greenlandic glacial basins, including Petermann, Upernavik, Rink Isbrae, Jakobshavn, Helheim, Kangerlussuaq, Kangiata Nunaata, Kong Oscar, Hayes, and other nearby basins.
        - Time Series: Sept. 1972 - June 2019
        - Temporal resolution: sub-seasonal
        - Spatial resolution: 30 meters
        - Spatial accuracy: <90 meters
        - Projection: EPSG:3413 (WGS 84 / NSIDC Sea Ice Polar Stereographic North)

Sample Data Record Usage



Example usage of the consolidated Polygon and LineString Shapefiles in QGIS.