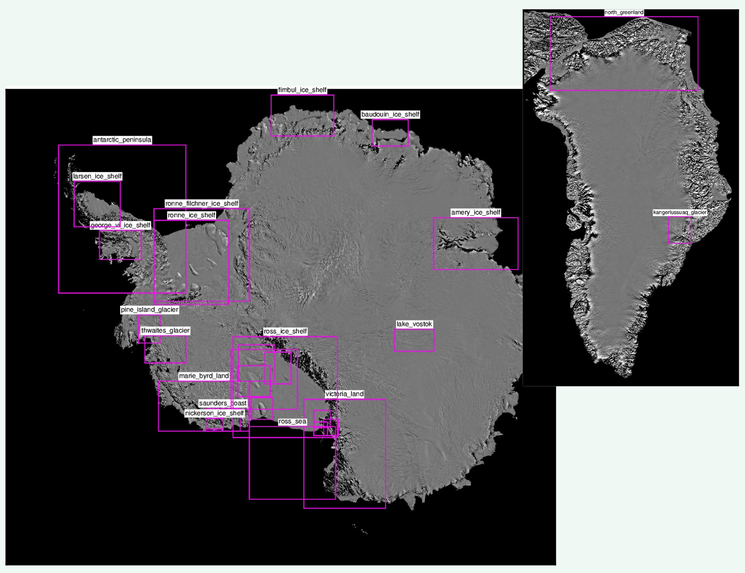
1) from polartoolkit import regions

Pre-defined or interactively chosen geographic regions used in functions throughout, such as subsetting data or specifying areas to plot.

```
# get pre-defined region for Kangerlussuaq Glacier
print(regions.kangerlussuaq_glacier)
>>>(380000.0, 550000.0, -2340000.0, -2140000.0)
```



2) from polartoolkit import fetch

Easily download and cache data sets to your computer, and perform common raster data manipulations. This module uses ***Pooch*** to managed the download, storage, and retrieval of data, and ***PyGMT*** for grid manipulations. Below are some of the currently implemented datasets:

- **Imagery:**
  - LIMA
  - MODIS MoA and MoG
- **Topographic data:**
  - BedMachine
  - Bedmap
  - REMA
  - ETOPO
  - geoid models
  - IBCSO
- **Glaciological data:**
  - basal melt
  - ice velocity
  - mass or height change
- **Geophysical data:**
  - gravity
  - magnetics
  - geothermal heat flux
  - glacio-isostatic adjustment
- **Derived data:**
  - basement topography
  - crustal thickness
  - sediment thickness
  - moho depths
- **Shapefiles:**
  - GeoMAP faults / outcrops
  - grounding / coast lines
  - ice shelf / catchment boundaries

```
# download and resample data
grid = fetch.bedmap2(
    layer = "icebase",
    spacing = 10e3,
    region = regions.mcmurdo_dry_valleys,
    reference = "ellipsoid",
)
# print out grid info
info = utils.get_grid_info(grid, print_info=True)
```

Overview

PolarToolkit is a Python package developed to help with conducting science related to **Antarctica**, **Greenland** and the **Arctic**. It consists of 5 modules each providing a unique set of tools to help with a variety of common tasks.

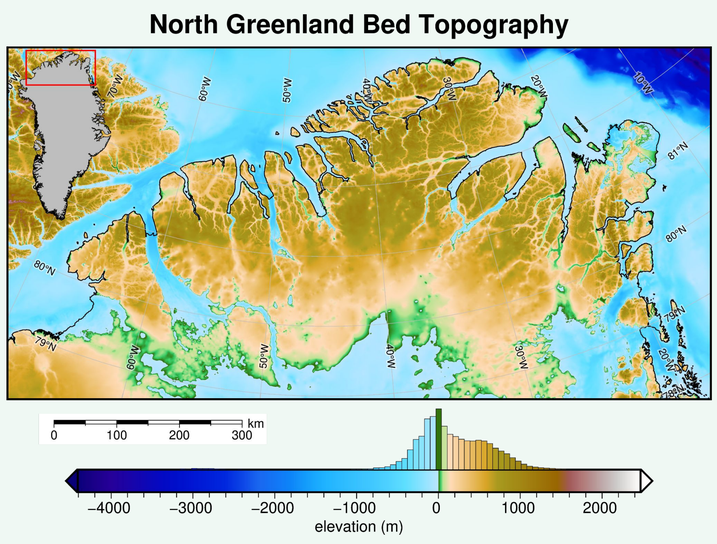
- Download polar datasets
- Create maps and cross-sections
- Perform common geospatial tasks
- Streamline your workflow by combining data download, processing, and figure creation all into Python!

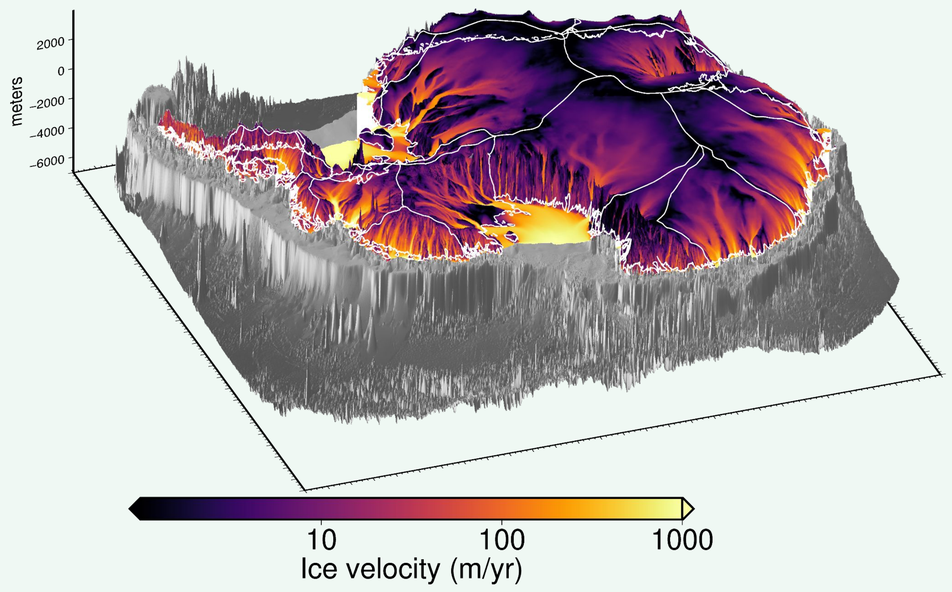
- Have a dataset you want include?
- Add your study region?
- Want some additional mapping features?

Raise an issue/feature request on GitHub!

3) from polartoolkit import maps

Create high-quality maps, suplots, and 3D figures using ***PyGMT*** with functions specifically tailored to polar settings.



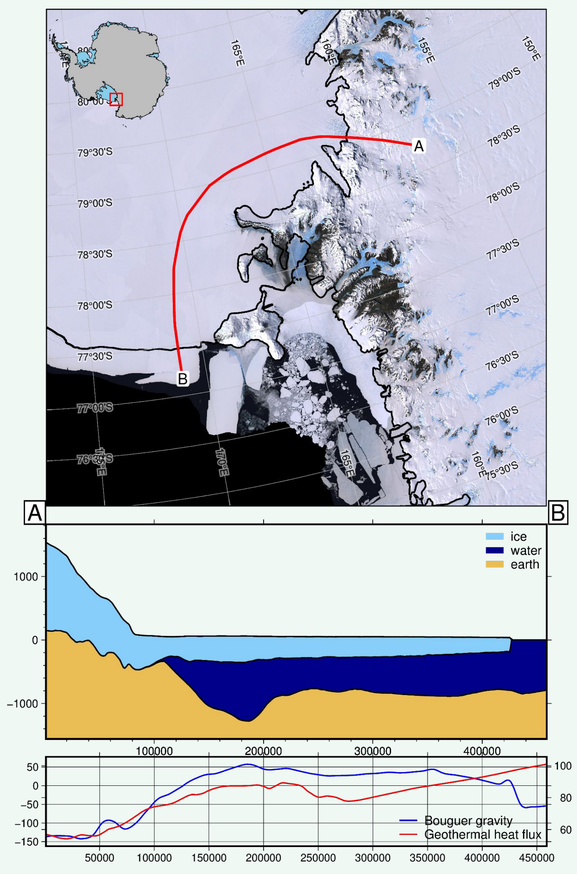


4) from polartoolkit import profiles

Define a line, sample layers & data along it, and plot the results.

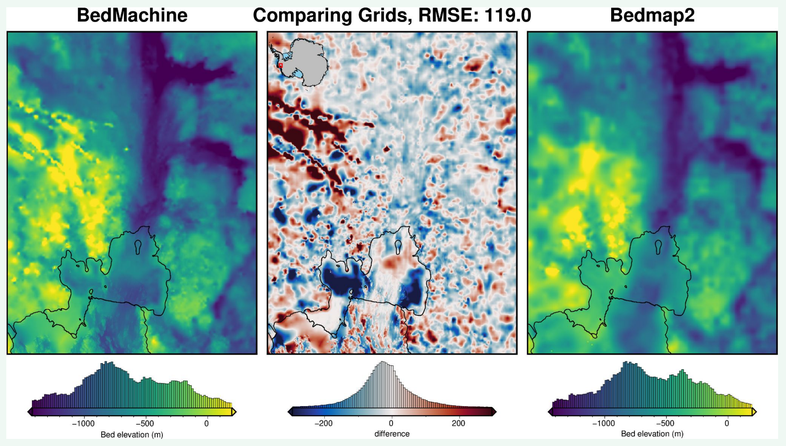
3 methods of defining a line:

- straight line between 2 points
- interactively draw a line
- shapefile



5) from polartoolkit import utils

Useful functions for common tasks: coordinate conversion, grid comparison, masking, de-trending.



Try on your phone:
Open a Binder environment

Get the poster!

Checkout the website:

Matt Tankersley

matt.d.tankersley@gmail.com