

SUMMEDup EarthCube Tutorial

An introduction to a tool for investigating the SUMup dataset of snow and firn density measurements

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Outline of Tutorial

1. Introduction
2. Overview of SUMUp dataset
3. Overview of SUMMEDup tool
4. Demonstration of SUMMEDup
 - Binder
 - Google Colab
 - Jupyter Notebook

About Me

- BS in Geology and Environmental Science (2017)
 - University of Massachusetts Amherst
- MS in Geology (2020)
 - University of Wyoming
- PhD student in Atmospheric and Oceanic Sciences
 - University of Colorado Boulder
- Research: interactions between atmospheric properties and ice sheet surface processes
- Current manager of SUMup dataset
- 2 field seasons in Greenland extracting firn cores



SUMup Dataset

- Surface Mass Balance and Snow Depth on Sea Ice Working Group
 - Snow and firn density on ice sheets
 - Accumulation rates on ice sheets
 - 10-m borehole temperatures
 - Snow depth on sea ice

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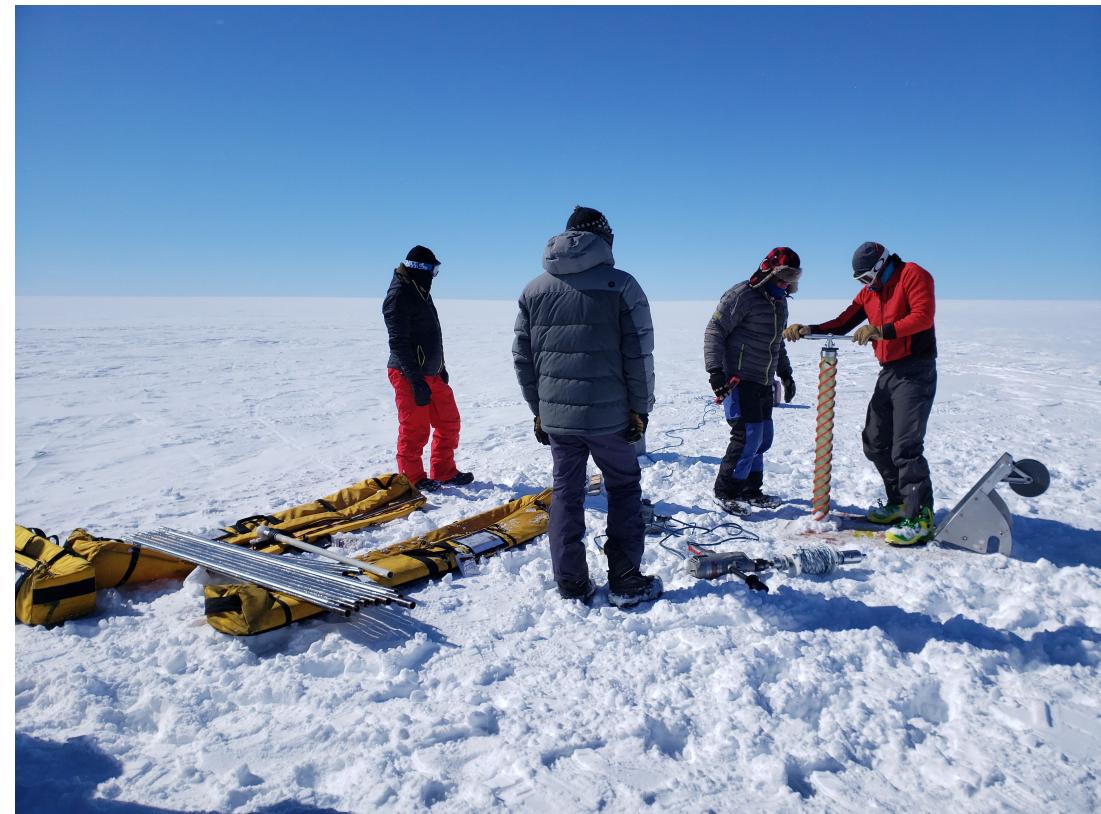
Megan Thompson-Munson, Jan Lenaerts, Lora Koenig, and Lynn Montgomery. 2021. Surface Mass Balance and Snow Depth on Sea Ice Working Group (SUMup) snow density subdataset, Greenland and Antarctica, 1950-2018. Arctic Data Center. doi:10.18739/A2W08WH6N.



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Files in this dataset Package: resource_map_doi:10.18739/A2W08WH6N

Name	File type	Size	Download All
Metadata: Surface_Mass_Balance_and_Snow_Depth_on_Sea_Ice.xml	EML v2.2.0	21 KB	60 views Download
sumup_density_2020_v060121.nc	More info netCDF-3	105 MB	15 downloads Download
SUMup_Snow_Density_dataset_readme_v060121.pdf	More info PDF	188 KB	13 downloads Download



SUMMEDup

- Python tool that downloads, processes, and displays density data from SUMUp
- Available on GitHub with instructions for use in Binder, Google Colab, or as a regular Jupyter Notebook

Instructions for using SUMMEDup

Jupyter notebook that shows how to use SUMMED up

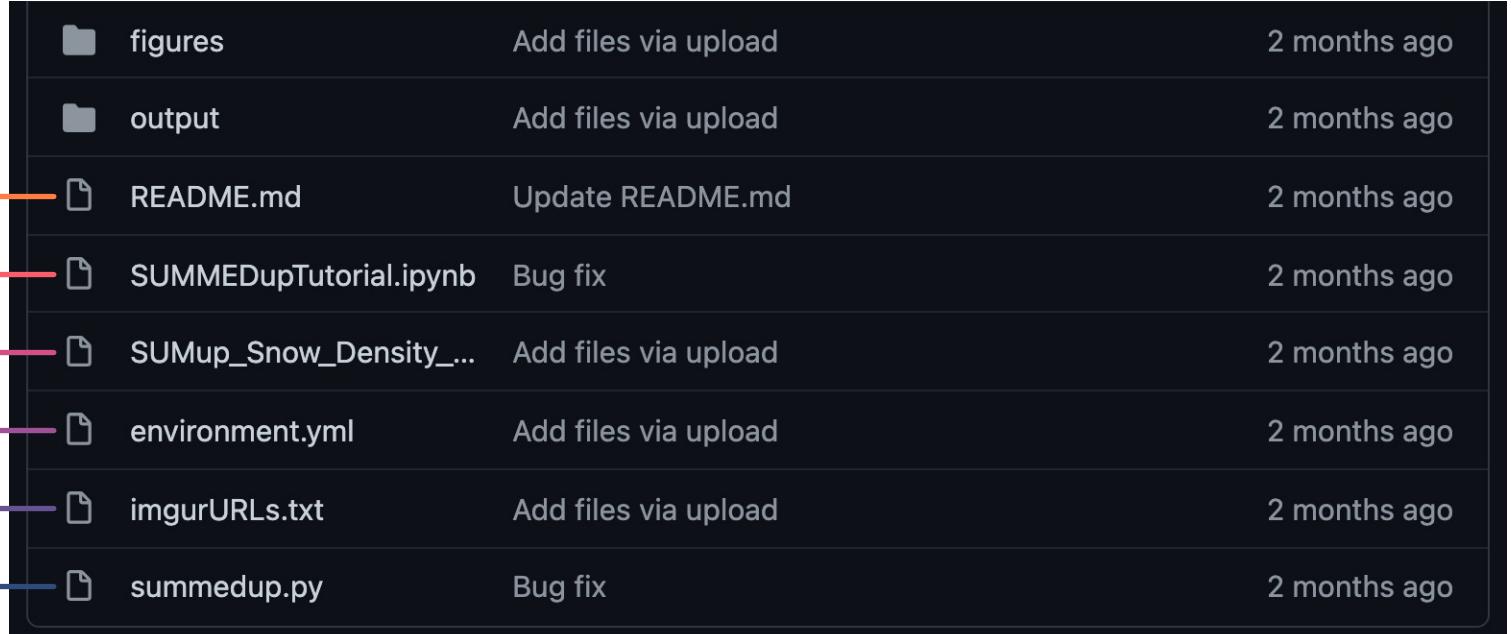
Information about the SUMUp density subdataset

Python dependencies (for use on Binder)

List of URLs pointing to plotted density profiles housed on imgur

Python package with the bulk of the code

github.com/MeganTM/SUMMEDup



File	Action	Last Updated
figures	Add files via upload	2 months ago
output	Add files via upload	2 months ago
README.md	Update README.md	2 months ago
SUMMEDupTutorial.ipynb	Bug fix	2 months ago
SUMUp_Snow_Density_...	Add files via upload	2 months ago
environment.yml	Add files via upload	2 months ago
imgurURLs.txt	Add files via upload	2 months ago
summedup.py	Bug fix	2 months ago

SUMMEDup

- Excellent for **researchers** who use (or plan to use) SUMup snow and firn density measurements
 - Simple enough to use as a **teaching tool** in undergraduate or graduate courses
-
- SUMMEDup is ever-evolving—expect new versions with new SUMup releases!
 - I encourage you to reach out with:
 - Questions
 - Ideas for new features
 - If you'd like to contribute data to the SUMup dataset
 - If you find any bugs in the code!



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