Matthew D. Tankersley

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Dear Innovation Award Subcommittee,

I am writing to express my interest in applying for the Innovation Award for Cryospheric Sciences. Throughout my Ph.D. studying Antarctica's Ross Ice Shelf, I found there were parts of my research workflow that were inefficient, consuming valuable time. These tasks included manually downloading and archiving various Antarctic datasets, performing common geospatial analysis techniques, and creating figures. To help me conduct my research more efficiently, I decided to write Python code to accomplish these tasks. I found this Python code significantly increased my research productivity, reproducibility, and quality. To share these benefits with other Antarctic researchers, I published this code as an open-source Python package called *Antarctic-Plots*. It is hosted on GitHub (`https://github.com/mdtanker/antarctic_plots`) and has extensive documentation and tutorials (`https://antarctic-plots.readthedocs.io/en/latest/`).

The *Antarctic-Plots* package contains five core modules. *Fetch* handles the download, storage, and retrieval of many commonly used Antarctic datasets, eliminating the need to remember file paths or re-download datasets. *Regions* has pre-defined geographic boundaries of commonly studied areas, enabling easy investigation into a specific region without having to remember coordinates. *Maps* and *Profile* provide functions for creating publication-quality figures. *Utils* contains a collection of functions, such as filtering, resampling, or detrending geospatial data.

I have presented this Python package at several conferences, receiving two poster awards and many thanks from fellow researchers who use the software. Antarctic-Plots has been a side project that I have developed in my personal time. While the package is already publically available, there is much more work needed to add thorough testing to the code, add more datasets and features, and promote the package at conferences and workshops.

Funding through the Innovation Award will help me to spend more time developing this tool which I believe will be well-used by a wide community of Antarctic researchers.

Sincerely,

Matt Tankersley