

Space Grant 2023 Summer Fellowship Final Report

Annelise Waling

8/10/2023

The New Hampshire Space Grant Fellowship is an invaluable award that granted me additional time to complete analyses that are necessary for publishing my research, as well as time to write a journal article from my master's research. I am grateful for the progress which has been enabled through my receiving this award.

I study atmospheric rivers (ARs) and precipitation from ARs around Greenland using climate models. We care about this question because atmospheric rivers bring warm temperatures and high moisture contents poleward that can facilitate short-duration, high-volume melt events on the Greenland ice sheet (GrIS). My work specifically uses variable-resolution (VR) grids which “zoom in” on the Arctic and Greenland, allowing use to have fine resolution with relatively affordable computational resources. At the end of this 2022-2023 school year, my committee and I found an issue with the method that I have been using for my entire analysis. After finding this issue, we were worried that this might cause problems for me publishing my work, which has been a goal of me and my advisor, Dr. Elizabeth Burakowski, since my time at UNH began. The Space Grant Fellowship allowed me the time to work with my committee to find a solution to my code issue, re-run all my data, and produce more realistic estimations of precipitation around Greenland.

In addition to having the time to fix my analyses, I also worked with my committee, now co-authors, to produce a journal article based on my research. I will be submitting my article titled, “Using variable-resolution grids to model precipitation from atmospheric rivers around the Greenland ice sheet” to the Journal of Advances in Modeling Earth Systems (JAMES) very shortly. Having the time to produce this draft and submit it to JAMES prior to starting my job has been extremely useful. Graduate students often have good intentions after leaving school to publish their work, but time is short, and life gets in the way. Having the summer to prepare this paper and submit it has allowed me to get one step ahead on this and hopefully let my research be useful to the modeling community.

In summary, thank you to New Hampshire Space Grant for giving me the time to complete and publish my research. This is an important part of my career journey of which I am extremely proud.