

**E³ DTP Overseas Research Visit Fund
Post-visit report
Frazer Christie**

In March 2018, I visited the Department of Earth & Space Sciences at the University of Washington, Seattle (USA), under the auspices of an E³ DTP Overseas Research Visit Fund (ORVF) award. Stemming from an earlier exchange to Washington in 2017, this visit enabled me to broaden my research into the nature of ice, ocean and climate interactions driving glaciological change along the Pacific-facing margin of West Antarctica.

Hosted by Prof. Eric Steig - a world-leading expert in polar climatology, whom I first met during his sabbatical visit to Edinburgh in AY 2014/2015 - my OVRF-enabled research aimed to investigate the mechanisms by which warm circumpolar deep water (CDW) ingresses onto Antarctica's continental shelf, and drives vigorous basal-melting of West Antarctica's coastal ice. Under Prof. Steig's guidance, my research involved the analysis of several state-of-the-art atmospheric and ocean (re)analysis data products, with a view to better constraining the importance of spatial and inter-decadal-timescale variability of CDW access to West Antarctica's ~3500 km long coastline.



My visit was also used to build new collaborative research links with Prof. Cecilia Bitz (Department of Atmospheric Sciences) and Drs. Kyle Armour and Hannah Zanowski (School of Oceanography), whom I briefly encountered during my visit in 2017, and whom hold premier expertise in climate-ocean modelling of the Southern Ocean. Discussions with Bitz/Armour/Zanowski during my visit were used to kick-start exciting new collaborative research aiming to synthesize pre-existing satellite observations of Antarctic coastal change (derived from my earlier Ph.D. research) with novel, very-high-resolution ocean model products capable of resolving the origins and presence of coastal CDW in unprecedented spatial detail.

Overall, I deem my OVRF-enabled visit to have been highly productive, and am certain that the results stemming from my visit will be of significant interest to the scientific community. On this note, I believe this research -combined with findings from my earlier Ph.D. studies- will result in the prompt production of at least one high-impact peer-reviewed article with Prof. Steig, in addition to our current jointly-authored paper in review for *The Cryosphere* (Christie et al., *Cryosphere Discuss.*, 2018). These articles will form the basis of my second and third Ph.D. thesis results chapters, and undoubtedly foster sustained collaboration with my new and pre-existing collaborators at the University of Washington in the months/years to come. Relatedly, Dr. Zanowski will also present some of our collaborative research at the SCAR (Scientific Committee on Antarctic Research) "POLAR 2018" meeting in Davos, Switzerland, later this year.

I am therefore very thankful to E³ DTP for providing me an ORVF award, and for facilitating a highly successful exchange.

Frazer Christie



Upper image: University of Washington campus looking onto the Dept. of Earth & Space Sciences (building on left)
Lower image: Prof Steig (left) and I enjoying a hard-earned break in the Washington snow!