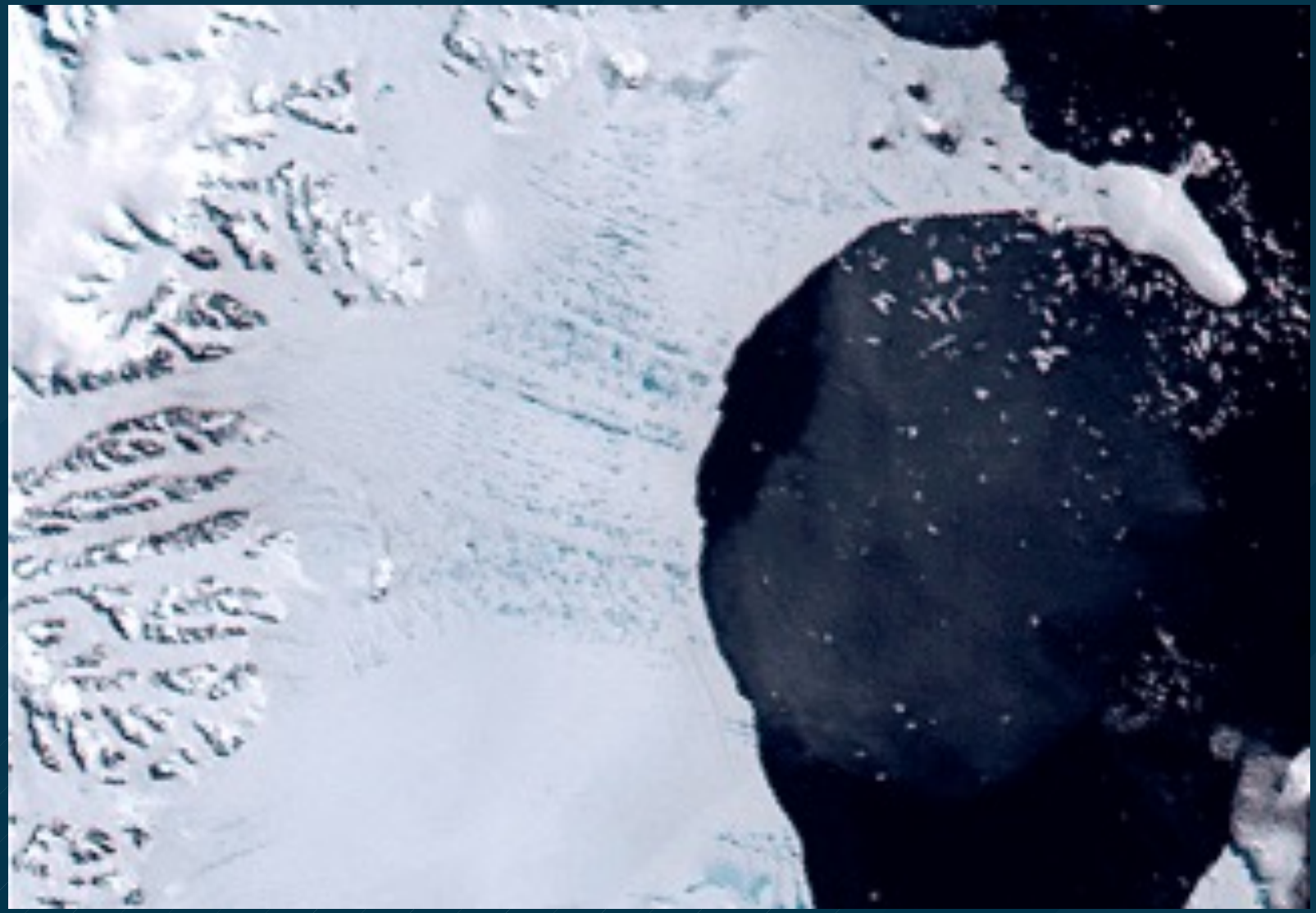
Controls on Lake Formation on Ice Shelves (COOLFISH)

Rebecca Dell, Ian Willis, Neil Arnold

Image modified from NASA Earth Observatory (Lauren Dauphin)

Motivation



Aims and Objectives

WP 1

Develop a continent-wide dataset of surface meltwater extent on ice shelves (1980's-present day)

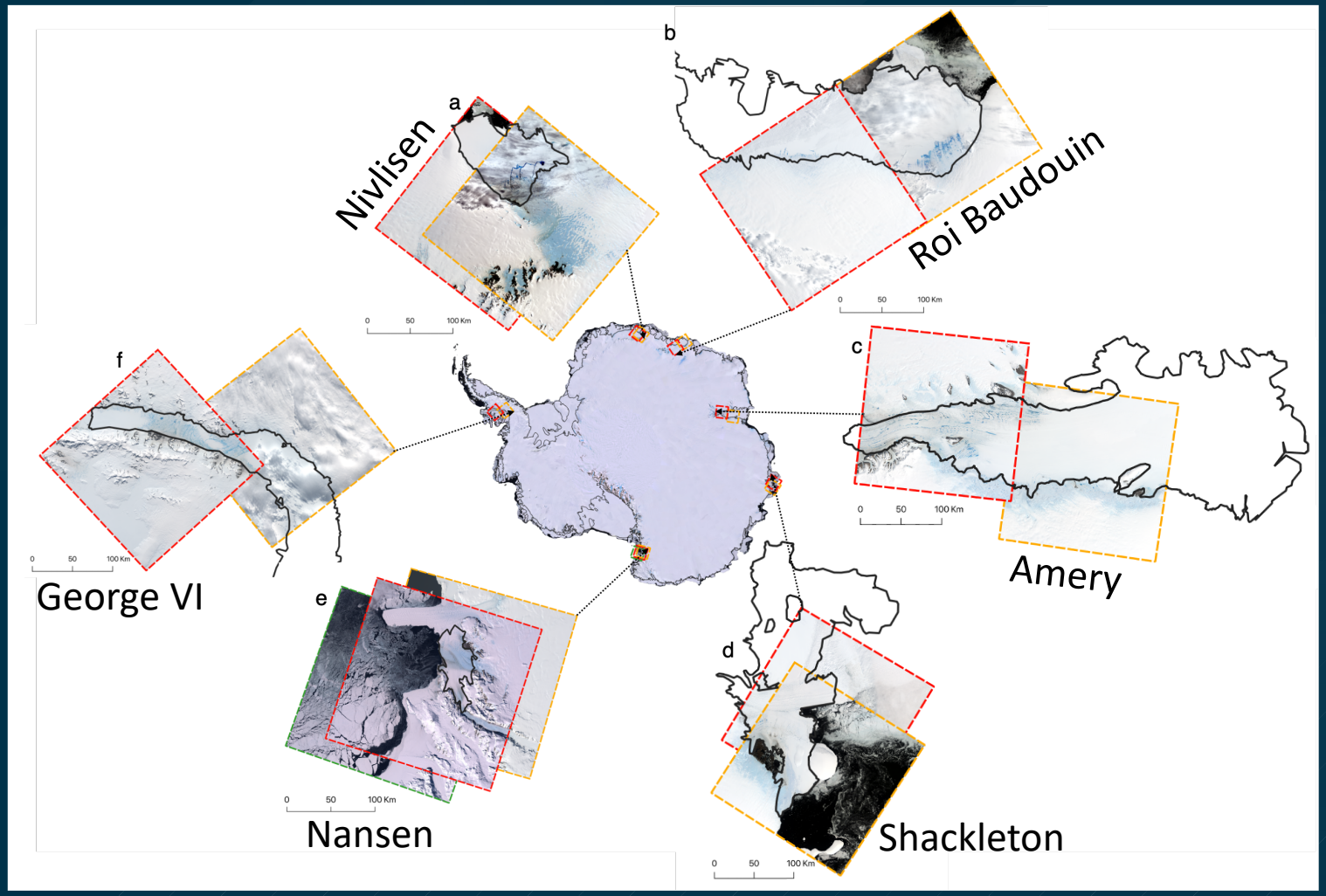
- Do this using classification algorithms in Google Earth Engine
    - Ultimately want to classify two classes: **Ponded Water and Slush**

WP 2

Analyse the observations made in WP 1 with gridded CCI ECVs to:

- Investigate the relationship between surface meltwater on ice shelves and local and regional climate
- Develop predictive models to predict the occurrence of surface meltwater in the future from 21st century GCM ensemble outputs.

WP 1: Selecting Training Sites

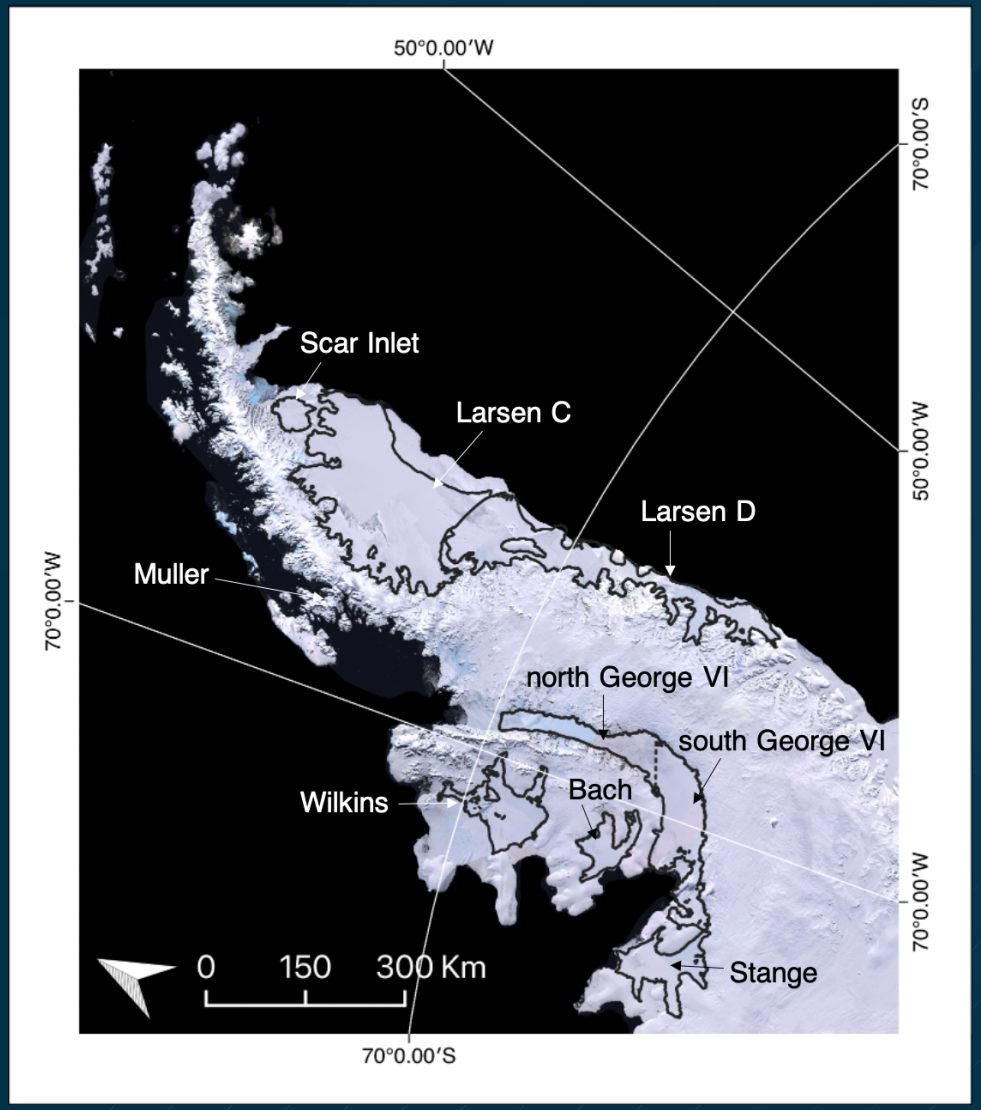


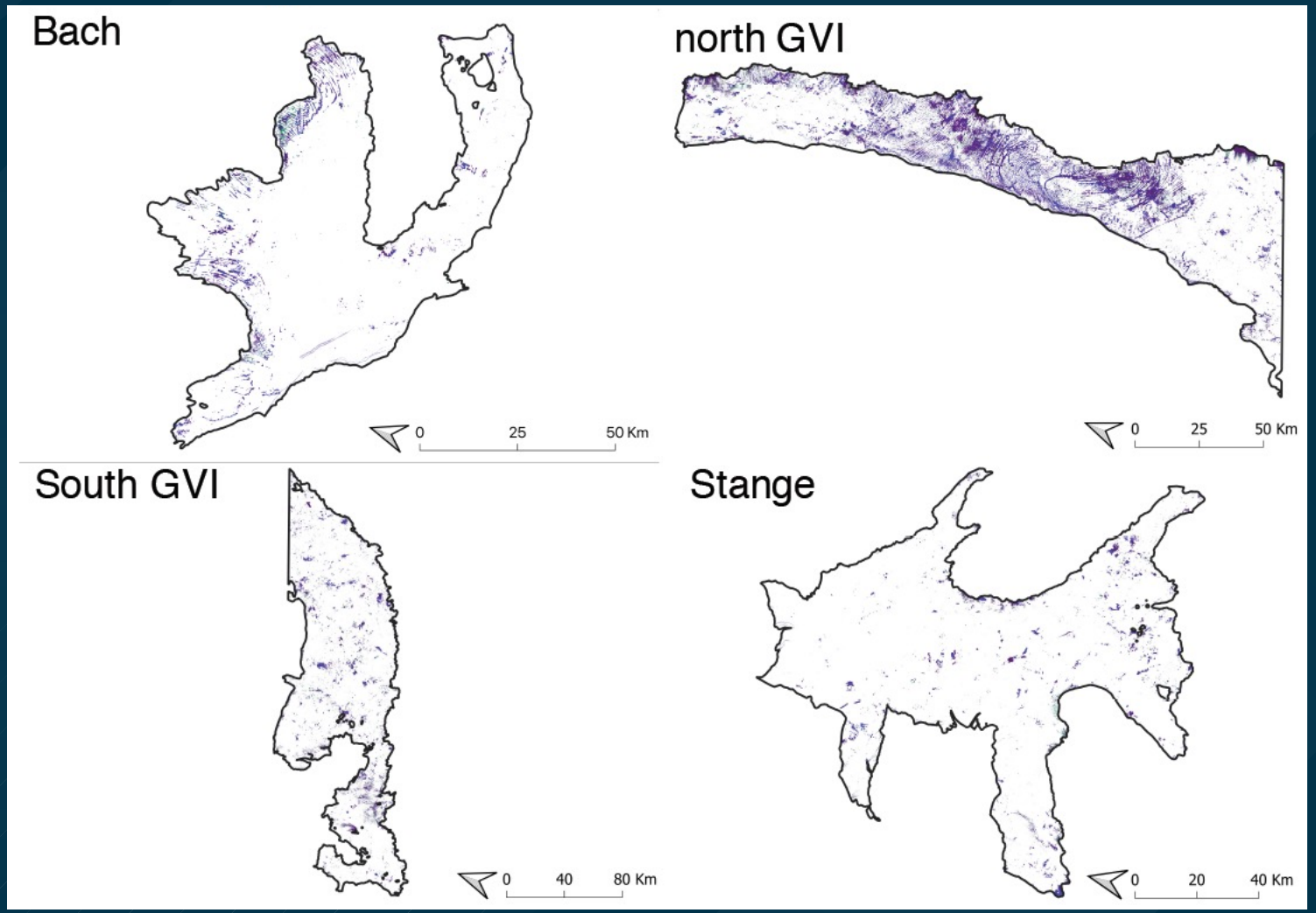
- For each satellite – select suitable training sites and training images.
- The same training sites will be used for each satellite
- Training images have a mix of spectral properties, and are taken from a wide range of dates throughout the melt seasons.

Modified from Dell et al. (accepted)

Dell, R., Banwell, A., Willis, I., Arnold, N., Chudley, T., Halberstadt, R., Pritchard, H., Supervised classification of slush and ponded water on Antarctic ice shelves using Landsat 8 imagery. Journal of Glaciology, accepted

WP 1: Applying the Classifier





What's Next?

WP 2

Analyse the observations made in WP 1 with gridded CCI ECVs to:

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