

Advancing efficiencies in remote sensing of Ross Sea Adélie penguin populations

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Aim:
Identify an objective method to assess guano area characteristics over the 2009-2021 austral summers for four colonies, to improve this tool toward better assessment of population changes.

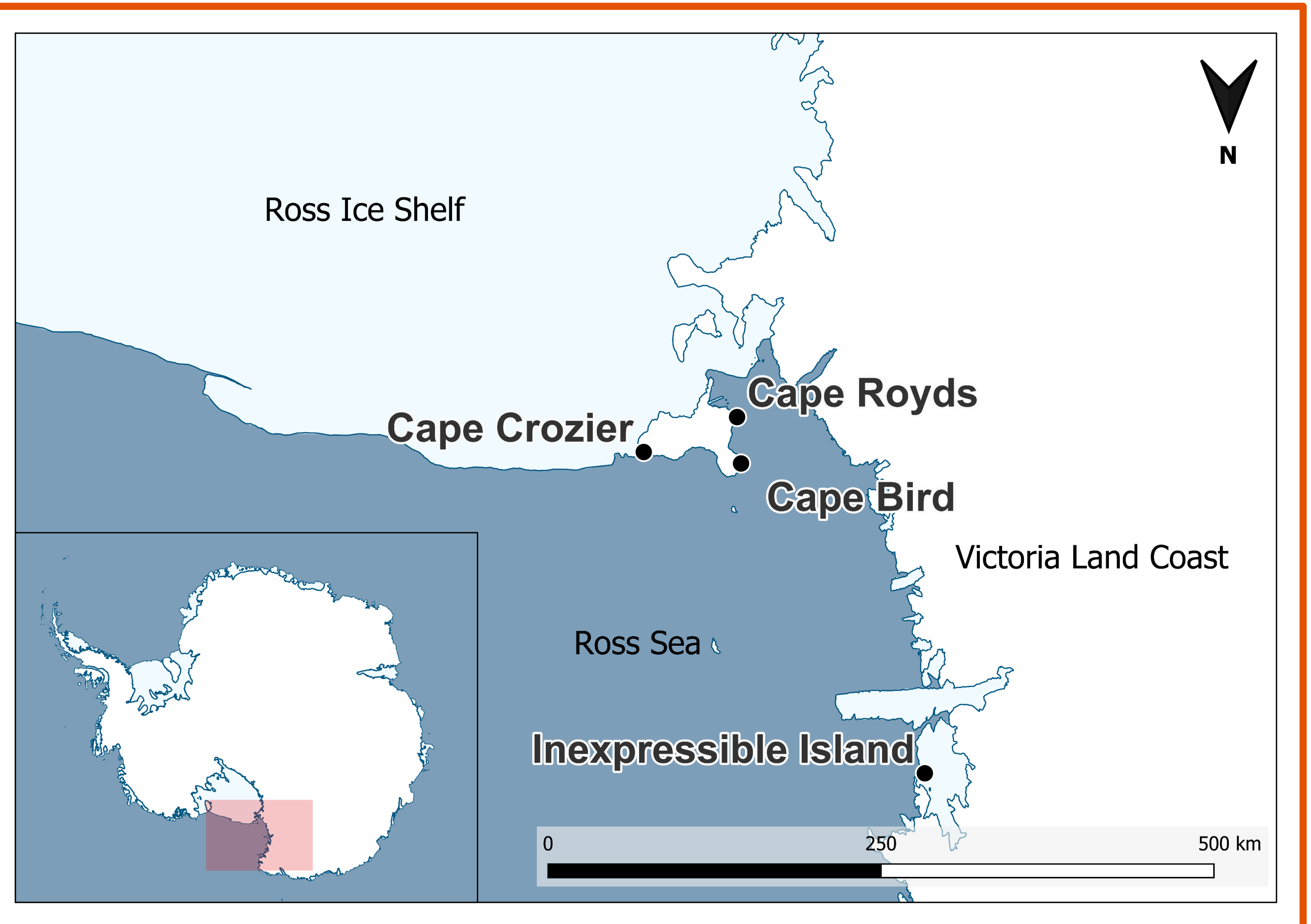


IMAGE CLASSIFICATION



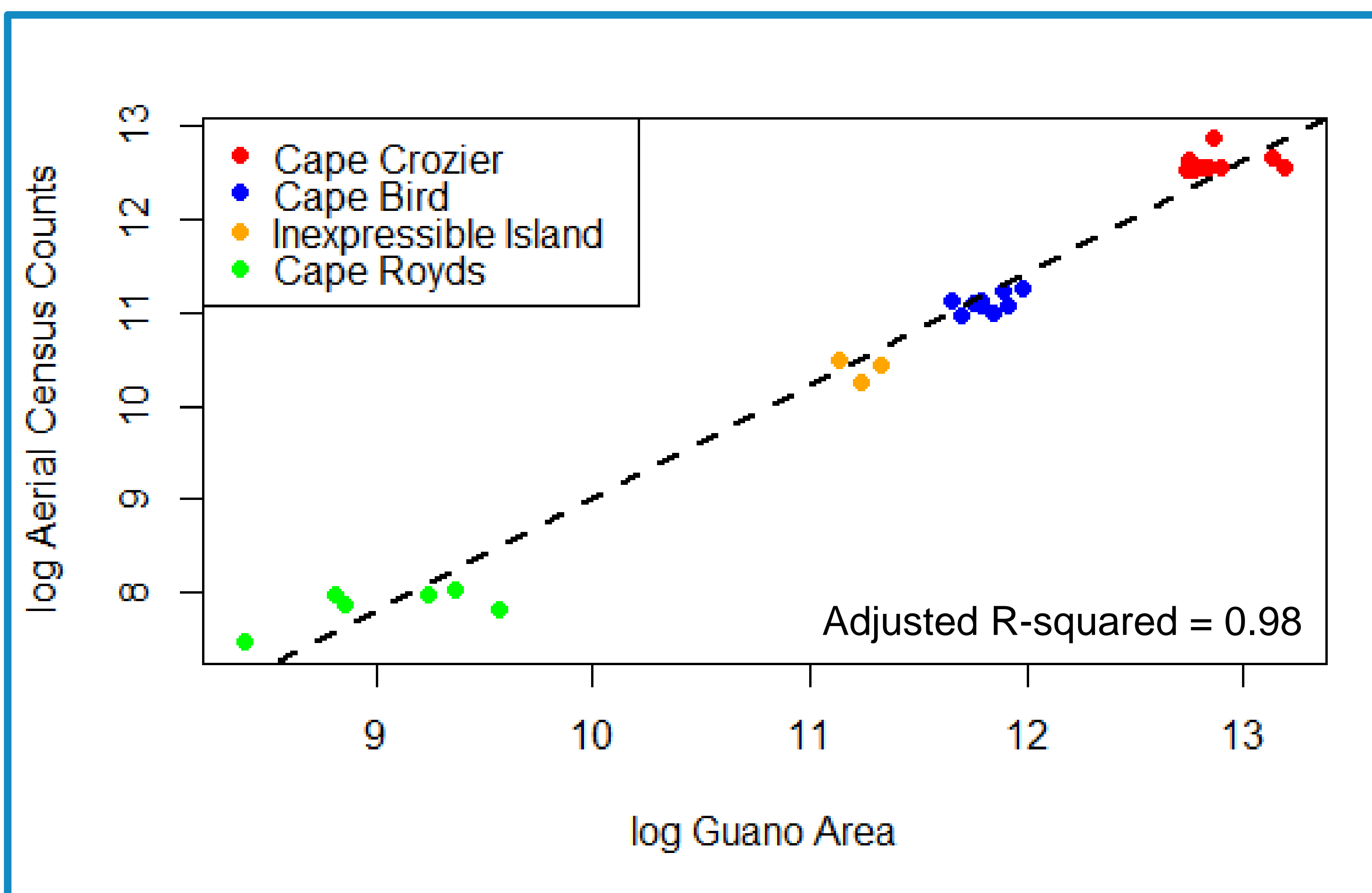
- Supervised*
- Pixel-based*
- Maximum likelihood*
- Less robust
- Less efficient

- Unsupervised
- Pixel-based
- Maximum likelihood
- Less robust
- Less efficient

- Supervised
- Pixel-based
- Machine learning
- Less robust
- Less efficient

- Supervised
- Object-based
- Machine learning
- Robust
- Efficient

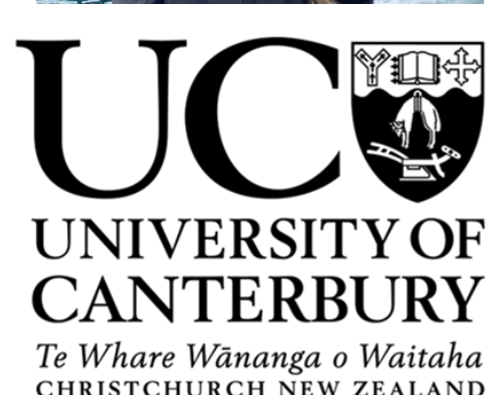
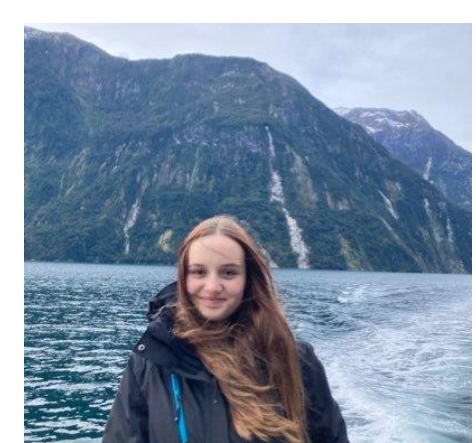
OUTCOME



Classified 30 satellite images in ArcPro.

Colony size (annual aerial census counts) was highly correlated with guano area, indicating an improved remote method to monitor change in Adélie penguin populations.

Part two at the XIII SCAR Biology Symposium 2023!



References:
LaRue, M. A., Lynch, H. J., Lyver, P. O. B., Barton, K., Ainley, D. G., Pollard, A., Fraser, W. R., & Ballard, G. (2014). A method for estimating colony sizes of Adélie penguins using remote sensing imagery. *Polar Biology*, 37(4), 507–517.

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