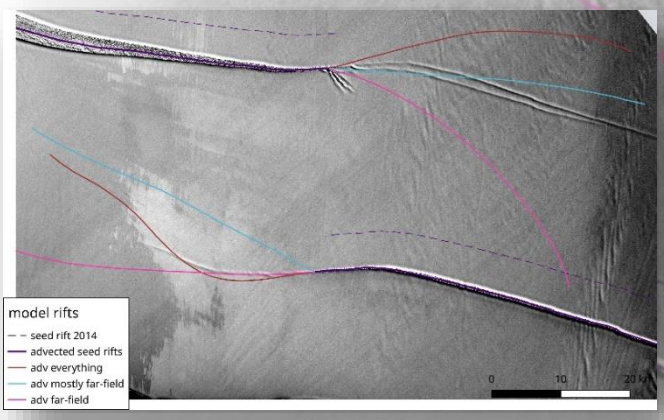
School of Surveying Te Kura Kairūri

Lunchtime Seminar Series

University of Otago
Te Whare Wānanga o Otāgo
New Zealand

Ross Ice Shelf rift interaction study (RISRIS)

Martin Forbes, PhD Candidate (Surveying/Geology)

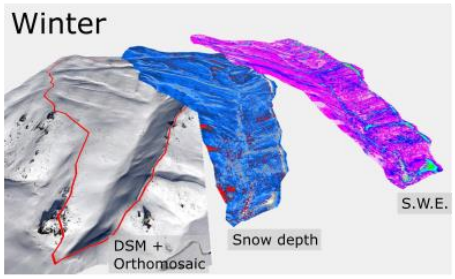


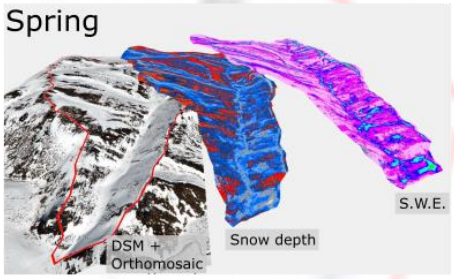
ABSTRACT: Two rifts at the front of the Ross Ice Shelf provide a classic example of tip interaction. As they interact, their propagation directions deviate in response to near-field modifications to the far-field, glaciological, stress field. The tips initially propagate away from each other and then turn back toward the original propagation direction. Ability to reproduce this pattern demonstrates that we can correctly simulate how rifts modify their stress field environments.

Insights into seasonal snowpack process from high resolution drone photogrammetry

Todd Redpath, PhD Finalist (Surveying/Geography)

ABSTRACT: There is an increasing demand in the field of snow hydrology for high resolution, spatially continuous observations of snow depth. This is because the distribution of snow depth is highly variable in space and time. Improved characterisation of spatio-temporal variability of seasonal snow offers potential to improve the quantification and modelling of snow water resources. Now that we can successfully map snow depth from remotely piloted aircraft systems (RPAS) using photogrammetry, the next step is to understand what high-resolution maps of snow depth can tell us about seasonal snow. This talk will present the results from two seasons of snow depth mapping in the Pisa Range, Otago.





These results highlight the importance of the spatially structured distribution of snow, whereby most water is stored in relatively small areas of maximum snow depth, an effect that is enhanced during spring. Regression tree analysis reveals the relative importance of physical controls (including wind exposure, elevation, exposure to solar radiation and vegetation) on snow depth and demonstrates the impact of varying wind regimes between years. The high-resolution observations provided by RPAS photogrammetry identify the limitations of regression tree analysis, which has historically been a popular tool for assessing controls on snow depth distribution but performs only modestly at reconstructing observed spatial structure. Ultimately, these observations provide new insights into New Zealand's under-observed seasonal snow and will help to guide ongoing efforts to improve snow modelling in New Zealand.

School of Surveying Te Kura Kairūri

Thursday 16th July 2020 (12pm – 1pm)

L1 Lecture Theatre | School of Surveying, 310 Castle Street

OR Join remotely: https://zoom.us/join (ID: 329 427 2033, P/W: 310310)