Understanding the ancient glacial history of Canterbury

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# ABSTRACT

There has been significant research into the timing and causes of past glaciation in Canterbury, New Zealand including systematic surface exposure dating and extensive geomorphic mapping. This has improved our understanding of climate change for the region over the last glacial cycle. However, older glaciations associated with the major river valleys in Canterbury, that extended well beyond the mountain front, have not been extensively researched despite the identification of these advances in earlier publications. This project looks at identifying, mapping and interpreting the more cryptic glacial features to develop our understanding of these older advances with a focus on the Rakaia Valley in Canterbury. Geomorphic mapping using high-resolution LiDAR and digital analysis, supported by GPR, drone surveying, and trenching have all been used to investigate cryptic older glacial features on the Canterbury Plains, seaward of Rakaia Gorge. The identification of glacial fluting over the Woodlands Moraine and onto the outwash beyond the moraine suggests a previously unidentified glacial advance that over-ran the Woodlands Moraine sourced from the main Rakaia Glacier but not representing ice coming from Rakaia Gorge. Instead, the orientation of these features suggests ice within the High Peak valley extended over the High Peak hill range and down onto the Canterbury Plains. The latest results will be presented.