Four Different Methods for Dating the Mahuika Impact Event

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Project Summary

The Mahuika impact crater represents a potential historical impact event. Based on the finding of tektites within dredges from SE of the crater, we estimate that the Mahuika impact event occurred within the last 1000 years. There are mega-tsunami deposits in eastern Australia with C-14 ages of 1450±50 A.D. that might be the result of the Mahuika impact. There is also a Ca anomaly in the Siple Dome ice core that might be caused by calcium carbonate from the impact ejecta layer. In addition, there are aligned, buried logs in the vicinity of Bluff on the south island of New Zealand that might represent trees knocked down by the pressure wave from the impact. We have also found layers of high magnetic susceptibility 1.5 to 3 cm down in two different cores from SE of Mahuika crater. These layers may contain tektites from the Mahuika impact. Finally, there are areas with large boulders on top of 50 to 80 meter high cliffs on the southern tip of Stewart Island that could be mega-tsunami deposits from the Mahuika impact event. We wish to constrain the age of the Mahuika impact event using four methods: 1) C-14 dates of buried log fields, 2) C-14 dates of high susceptibility layers, 3) cosmogenic exposure dating of cliff top boulders, and 4) detailed sampling of the Siple dome ice core to better date its Ca anomaly.