

Investigating the Quaternary Architecture of the Lower Pohangina Valley, New Zealand.

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The geology and stratigraphic architecture of the Lower Pohangina Valley, Manawatu has been documented recently by Rees (2015). A geological map has been compiled at 1:30,000 scale, allowing east-west trending cross sections to be constructed across the Pohangina valley. Data gathered from this study are used together with GIS and Leapfrog Geo modelling software to build a 3D geological model. The Quaternary geology of the Lower Pohangina Valley is dominated by regional structures including the Pohangina Faulted Monocline and underlying shallow blind reverse faults which bound the western margin of the Ruahine Range. Basement rock is composed of highly shattered and sheared Torlesse terrane greywacke. Overlying Quaternary succession, up to 500 m thick, records marginal to shallow marine deposition within the eastern Whanganui Basin. Regional uplift and drag tilting of the overlying Plio-Pleistocene sediments has resulted in an active, young landscape with steep stream gradients, deeply incised stream channels and high erosion rates. Modelling software is a powerful tool which can be used in combination with traditional 2D mapping techniques to help visualise and refine geological interpretation. 3D geological models also create important frameworks which allow for the integration of a wide variety of datasets. A combination of stratigraphic logging, mapping and 3D modelling is used in this study to help visualise and understand the spatio-temporal distribution of geological units and structures.