

*A link between climate and volcanism in Southern Chile?*

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**Abstract.**

It has been proposed that strong causal links exist between the Earth's climate and the frequency and mass output of volcanic eruptions. The basis of this coupling is the loading and un-loading of the lithosphere by large ice-sheets, which has been argued to modulate volcanism on a global scale. This process involves a positive feedback between a warming climate causing increase volcanism leading to increased emissions of volcanic CO<sub>2</sub> and further warming. However, observational evidence for this process remains weak, particularly at volcanic arcs where ~90% of the Earth's subaerial volcanoes are found. To test the climate-volcanic link I aim to study the generation and eruptive history of a series of lavas in Southern Chile to investigate whether local ice removal affected mantle melting processes and/or timing of eruptions. The novel approach taken by this project first requires assembling a preliminary dataset of geochemical and geochronological analyses, which will form the basis for further detailed analysis. For this proposal I intend to use an existing samples to construct such a geochemical and geochronological database. This will allow these lavas to be placed in a temporal and chemical context and will form the basis for further targeted work.