

## **Hawaiian peats record glacial-interglacial dust cycles**

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Mineral atmospheric dust is an essential component of climate and earth system dynamics. Environmental records (peat and ice cores) suggest large fluctuations in atmospheric dust over geological times. Peatlands store dust particles over time, and therefore constitute a powerful archive of dust-climate-human interactions over thousands of years and can therefore be seen as 'green ice caps'. Tropical island peatlands have been overlooked despite being widely distributed across key locations and being local carbon hot spots that are ecologically-sensitive to dust inputs. Peatlands located on those islands are therefore natural 'scientific buoys' to investigate continent-atmosphere-ocean interactions such dust and wind dynamics, iron fertilization and carbon sequestration through dust fertilization.

In this study we present preliminary geochemical results on an Hawaiian peatland dating back to 35kys. We use Sc/Ti concentration ratio to fingerprint local (Hawaiian volcanism) to distal (Asian deserts) dust sources. We also contribute to the spatial coverage of dust record by providing a direct atmospheric record from a peatland in the middle of the Pacific Ocean, an area where, while numerous sea-floor-based data exist, land-based direct atmospheric records are scarce. We also provide one of the rare dust records in peat that goes beyond the Holocene and covers glacial-interglacial cycles, therefore providing a valuable alternative and proxy validation to remote ice records in geographical areas where the latter are not available.