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KlimaCampus Colloquium

Valérie Masson-Delmotte

From water molecules to climate: making sense of Greenland and Antarctic ice core records

Records of water stable isotope ratios in ice core records are commonly used as qualitative proxies for past changes in temperature and moisture source characteristics, and I have worked to extract quantitative signals.

Recent findings have emerged from new methodologies to monitor water vapour stable isotopes. They challenge the classical interpretation of ice core records as precipitation signals, and the ability of atmospheric models equipped with water stable isotopes to correctly capture the spatial structure of boundary layer vapour isotopic composition in the North Atlantic.

Greenland ice core records have been used to characterize the spatio-temporal climate response to major volcanic eruptions of the last millennium. Antarctic water stable isotope records spanning the last 200 years have been combined with short instrumental records to characterize the full range of natural climate variability, and assess recent trends.

Reconciling temperature anomalies inferred from Antarctic and Greenland ice core records during the last interglacial period with orbitally-driven climate simulations calls for better understanding of ice sheet-climate interplays.

Valérie Masson-Delmotte from the LSCE, France is invited by Jochem Marotzke and Bjorn Stevens, MPI-M.

Bundesstraße 53, Room 22/23 (ground floor)