

State of the art and challenges in the use of water stable isotopes in deep ice cores for climate reconstructions

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Integrated tracers of the water cycle, precipitation stable isotope composition has long been used for climate reconstructions. Polar ice cores offer exceptional archives of past precipitation, and cover time scales ranging back to 800 000 years in Antarctica.

I would like to present the state of the art regarding water stable isotope records from deep ice cores in Greenland and Antarctica on time scales ranging from inter-annual variations to glacial-interglacial cycles, to identify gaps in our current use of water stable isotopes, and to discuss key challenges for deep drilling, analytical measurements, studies of post deposition effects, glaciological and climatic interpretation.