



Climatic controls on winter water vapour stable isotopes at Lhasa, southern Tibetan Plateau

Jing Gao, Tandong Yao, Hans Christian Steen-Larsen, and Valerie Masson-Delmotte

Water stable isotopes from Tibetan ice cores provide important climate information. However, the archived climate signal is an integrated signal of precipitation processes and post-deposition processes. Only very limited datasets of direct Tibetan precipitation and snowfall measurements are available so far. The isotopic composition of atmospheric water vapour traces directly the key physical processes of hydrological cycle, providing the potential of enhancing our knowledge of the climatic explanation from Tibetan ice cores. Thus, Continuous, in situ measurements of water vapour stable isotopes have been conducted at Lhasa, southern Tibetan Plateau, since October 2014, using an integrated cavity output spectroscopy analyser (LGR analyser) and a LGR water isotope standard source (WVISS) to calibrate and drift-correct the outputs. Combined with local meteorological data, TES data and simulations from the LMDZiso model, the climate controls of water vapour at Lhasa are explored at daily scale.