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## Spatial variability of surface snow isotopic composition on the East Antarctic Plateau and implications for climate reconstructions

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The reconstruction of past temperatures based on ice core records relies on the quantitative but empirical relationship of stable water isotopes and annual mean temperature. However, its relation varies through space and time. On the East Antarctic Plateau, temperature reconstructions from ice cores are poorly constrained or even fail on decadal and smaller time scales. The observed discrepancy between annual mean temperature and isotopic composition partly relies on surface processes altering the signal after deposition but also, to a great deal, on spatially coherent processes prior to or during deposition. However, spatial coverage over larger areas on the East Antarctic Plateau is challenging. We here present in-situ measurements of the isotopic composition of surface snow with unprecedented statistical quality and coverage. 1m surface snow profiles were collected during an overland traverse between Kohnen station and Plateau Station, covering a 1200km long transect. We explore regional differences of the temperature-isotope relationship and discuss possible mechanisms affecting the isotopic composition in areas with accumulation rates lower than 60mmWEa<sup>-1</sup>.