



## **Effects of precipitation weighting on temperature time series in present day and glacial climates**

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The effects of precipitation weighting when calculating annual average temperatures at Greenland ice core locations are studied. Output from century-long integrations with an atmospheric general circulation model run in present day and last glacial maximum (LGM) configurations is used. We find that the intermittent sampling associated with the precipitation weighting leaves interannual variations in time averaged vs. precipitation weighted surface temperatures virtually uncorrelated. The same holds for time averaged surface temperatures vs. precipitation weighted in-cloud condensation temperatures. On larger geographical scales and on present-day-to-LGM climatic timescales, the time averaged and precipitation weighted quantities are, however, strongly correlated. This correlation on climatic scales is what permits the use of stable water isotope ratios as paleotemperature proxies.