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# Glacial changes in the atmospheric circulation pattern over the Mediterranean documented by a Black Sea precipitation record

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As an isolated lake during the last glacial, the Black Sea reacted particularly sensitive to paleoenvironmental changes constituting a unique archive to study past climate variability. The investigated sediment core MD04-2670 was retrieved in the southwestern Black Sea offshore northern Anatolia, next to the Sakarya River mouth. Presently this core is the best-dated Black Sea record available for the Last Glacial Maximum (LGM) and Termination I. The chronology is based on calibrated $^{14}C$ ages and two clearly identified tephra layers. The total core length of 30 meters was scanned with the Bremen XRF core scanner in a 1cm resolution. The finely laminated lower 6 meters of the core that cover Heinrich Event 2 (H2) and a part of the LGM were scanned in ultra high resolution of 500 $\mu$m with an $\mu$-XRF Eagle BKA scanner. Considering the geology of the Sakarya River's catchment area, and the close relation of modern sediment load to the regional rainfall amount, the high resolution XRF-Ca intensity record, reproduced by bulk $CaCO_3$measurements can be translated into precipitation-dependent changes in terrigenous $CaCO_3$ input. Periods of reduced precipitation in the Black Sea record correlate well with the temperature minima as described from the Mediterranean and can be related to Heinrich events H1 and H2. This implies a strong teleconnection between high and mid latitudes and suggests a major role of the atmospheric circulation in transmitting the North Atlantic signal into the more continental regions.

The 500 $\mu$m record closely follows the lower-resolution signal, yet providing detailed

information down to the single laminae. By combining these data with information from e.g. gray scale analysis and microfacies study we aim to reconstruct regional precipitation changes on interannual to decadal timescale for the LGM, in order to asses the role of e.g. AO/NAO-like variability in a climate state very different from today.