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What controlled the post-depositional changes in chloride, nitrate and MSA in previous interglacial periods?

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Chloride, nitrate and MSA are routinely analysed in ice cores. Chloride is mainly derived from sea salt aerosols, nitrate is linked to the NO_x cycle, and MSA is a tracer for marine biogenic productivity. However, it has been shown that in low-accumulation areas of Antarctica, these substances are heavily affected by post-depositional changes under present-day conditions. All three compounds show elevated concentrations at the snow surface, but the concentrations drop within the uppermost centimetres to metres of snow to much lower levels that are maintained during most of the Holocene. Different factors such as temperature, accumulation rate and concentrations of other impurities have been shown to influence the conservation of the initially deposited concentrations. In this study, we use data from the European Project for Ice Coring in Antarctica (EPICA) drillings to investigate the post-depositional behaviour in previous interglacials and compare this with the insights gained from data of the current interglacial period. An attempt is made to use the current understanding of post-depositional alterations to derive an accumulation rate proxy for interglacial periods from the chemical ice core records.