

## **Radiogenic isotope fingerprints of sources of windblown material on the North American continent**

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Records of aeolian deposition derived from marine sediments can constrain past changes in continental hydroclimate and atmospheric dynamics, yet interpretations rely on sound knowledge of the provenance of the aeolian fraction. Radiogenic isotopes can fingerprint the provenance of terrigenous silicate dust accumulating in the deep ocean and therefore distinguish between competing hypotheses for dust sources. Multi-million year records of terrigenous material accumulating in the sub-polar North Atlantic Ocean indicate a long-term transition on North America from a relatively warm and humid climate state to a distinctly more arid glacial one, but whether this aeolian material derived from glacial outwash plains or from changes in the aridity, biomes and wind strength south of the ice sheet margin is debated. Here we present new Pb, Sr and Nd isotopic compositions of North American aeolian material to better constrain the signatures of North American dust sources. We report data from both modern dust sources in the arid U.S. southwest and the Peoria Loess, deposited during the last glacial across mid-continental North America. We present maps of these new data together with a compilation of published records across the mid-latitudes of North America to assess the provenance of aeolian material deposited in the North Atlantic Ocean.