

Isolating the Eolian Component of Japan Sea Sediments (IODP Site U1430) for Radiogenic Isotope Provenance Studies

C.W. KINSLEY^{1,2*}, D. MCGEE¹, C.H. ANDERSON³, A.G. DUNLEA², R.W. MURRAY³, L. GIOSAN², AND R. TADA⁴

¹Dept. of Earth, Atmos. and Planet. Sci, MIT, MA 02139

(*correspondence: ckinsley@mit.edu)

²Dept. of Geology and Geophysics, WHOI, MA 02543

³Dept. of Earth and Environment, Boston Univ., MA 02215

⁴Dept. of Earth and Planet. Sci, Univ. Tokyo 113-0033

Recent work has proposed that changes to the seasonal meridional position of the Westerly Jet (WJ) in the Asian interior, relative to the Tibetan Plateau, drives hydroclimate change in the East Asian Monsoon (EAM) on millennial- to orbital-timescales [1,2]. Behavior of the WJ can be reconstructed using sediments from the Sea of Japan as the WJ path and intensity determines dust emissions and transport paths from internal Asian dust source areas (e.g. Mongolian and Chinese deserts) which are the primary source of terrigenous material to this marginal sea.

Radiogenic isotopes can be used to fingerprint the provenance of dust downcore in Japan Sea sediments, allowing reconstruction of changing dust source area and thus behavior of the WJ over time. The coupling of dust reconstructions with complementary records reflecting EAM intensity and extent will allow the examination of WJ mean state and variability, and its coupling with the EAM.

Sediments from IODP Site U1430 will be targeted in this study for radiogenic isotope analysis (Nd and Sr) to garner insights into changes in eolian sediment source region and lay a foundation for future work examining millennial- and orbital-scale variability of WJ behavior. As a first step, the eolian component of the sedimentary material must be isolated from other components (e.g. calcium carbonate, organic matter, opaline silica, Fe-Mn oxide coatings) whose Nd and Sr isotopic signals may contaminate the fingerprint of the dust source region. We present results from leaching tests to establish a protocol for preparation of sediments from the Sea of Japan for robust analysis of Nd and Sr isotopes on isolated eolian material for downcore provenance studies.

[1] Nagashima, K. *et al.* (2011) *Journal of Asian Earth Sciences* **40**, 1214-1220. [2] Chiang, J.C.H. *et al.* (2015) *QSR* **108**, 111-129.