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Dissolved Pb Isotopes in the Amundsen Sea Region: Data from GEOTRACES GP17-ANT

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Lee et al. (2015) and Kim et al. (2024) observed that the deep waters of the Indian and Pacific Southern Ocean sectors have high $^{206}Pb/^{207}Pb$ ratios ~1.20, significantly higher than upper waters and those further north. They suggested that this observation may reflect the input of high $^{206}Pb/^{207}Pb$ crustal Pb from the Antarctic continent. In 2024, the RVIB Nathaniel B. Palmer sampled in the region of the Amundsen Sea from November 29, 2023 to January 28, 2024 covering both deep water sites and shallower sites on the continental margin and shelf (NSF sponsored GEOTRACES cruise GP17-ANT). We will present dissolved Pb isotope data (0.2 µm Acropak-filtered) from samples from that cruise. Relevant processes that may affect Pb isotopes in this region include dissolved and adsorbed particulate Pb from glacial and sea ice meltwater, reversible exchange with glacially-derived and biogenic particles, regional productivity patterns, Fe/Mn redox cycling on the continental shelf, and volcanic and anthropogenic inputs.

[1] Lee et al. (2015) Geochim. Cosmochim. Acta 170: 126-144.

[2] Kim et al. (2024) Trans. Am. Geophys. Union, OS23H-05