Geochemistry of Marine Particulates Before Deep Sea Burial: What is the fate of ^{231}Pa and ^{230}Th in the Gulf of Eilat/Aqaba, Red Sea?

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The reversible-exchange scavenging of ^{231}Pa and ^{230}Th, decay products of uranium isotopes produced at constant rates in seawater, by marine particulates is largely not understood in the Gulf of Aqaba to date. We present measurements of ^{230}Th and ^{231}Pa in a high- resolution time series of marine particles collected in sediment traps from this oligotrophic marginal basin of the Red Sea alongside the Israel National Monitoring Program's oceanographic data collected at Station A (29°28.955' N 34°56.275' E). This dataset represents the first ever measurements of this kind in the Red Sea and aims to reconstruct productivity and ocean circulation patterns in the Gulf of Aqaba (GoA) over the course of five months from August 2014 to March 2015, which may serve as a microcosm for similar processes in the global ocean. Our data reveals potentially complex circulation at play in this area leading to deficits of $^{231}Pa_{xs}$ as well as increases in total sediment mass flux with depth. Further, despite high percentages of lithogenics and ^{232}Th found in our samples we report a 1:1 ratio of total ^{238}U to total ^{230}Th. This dataset is limited and further sample analysis as well as circulation and carbonate measurements will be necessary to explain the true nature of reversible-exchange scavenging in the Northern Gulf of Aqaba.