

## **Organic carbon fluxes and Nitrogen isotopes in the oligotrophic Gulf of Aqaba**

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With the goal of better understanding and quantifying the carbon pump in the large oligotrophic parts of the global ocean, we present the first measurements of sinking organic carbon fluxes and stable nitrogen isotopes in the deep oligotrophic Gulf of Aqaba, northern Red Sea. The study is based on daily- and monthly- resolution sediment traps deployed at several depths between 2014-2016, and nearby sediment surface samples.

Sinking organic carbon fluxes vary seasonally with elevated values in winter water and lower values during the summer stratification period. They show a strong decline with depth in the water column. Temporal patterns in fluxes and nitrogen isotopes are examined in the context of (a) seasonal hydrographic changes such as stratification and mixing, and (b) shorter events such as dust storms and flash floods. The daily-resolution trap sampling provides insights into the seasonal increase in export production during the winter and early spring. Rather than a smooth seasonal cycle, the increase is driven by only very few short events, lasting no more than a few days, during which export production increases significantly times above baseline. We investigate whether the 'Martin equation' adequately describes sinking organic fluxes in the water column of the Gulf of Aqaba, and how the local remineralization profile compares to other oligotrophic regions. Sediment surface measurements help quantify how much of the sinking organic carbon is preserved on the sea floor.