



# Using trace metal isotopes to study marine biogeochemistry: studies on marine Fe and Zn cycles

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<https://stockholmuniversity.zoom.us/j/67062085505>

Trace metals are required for numerous processes in phytoplankton, who controls marine primary production – the foundation of marine food web. Among different metals, iron receives most attention because it can limit the growth of phytoplankton in around 30% of the global ocean. The second important one, Zinc, is used intensively in human's daily life and also a bio-essential metal, so Zn can be an ideal metal to trace anthropogenic activities. Studying trace metals thus can improve our understanding of material cycling in the ocean and help us to investigate the impact of human's activities on the ocean. In the past decade, the successful GEOTRACES program have significantly advanced our knowledge about the distributions of trace metals and their isotopes in the ocean. Combining trace metal concentrations, metal isotopic composition can be a very useful proxy to obtain further information to understand marine trace metal cycling. During my talk, I will show you how I use metal isotopes to study the sources and internal cycling processes of trace metals in the ocean: 1) Using Zn isotopes to investigate the impact of anthropogenic aerosols on the trace metal cycles in the Northwestern Pacific Ocean; 2) Using Fe isotopes to study sedimentary Fe input, an important but underestimated source of Fe to the ocean.

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