

## Kolloquium:

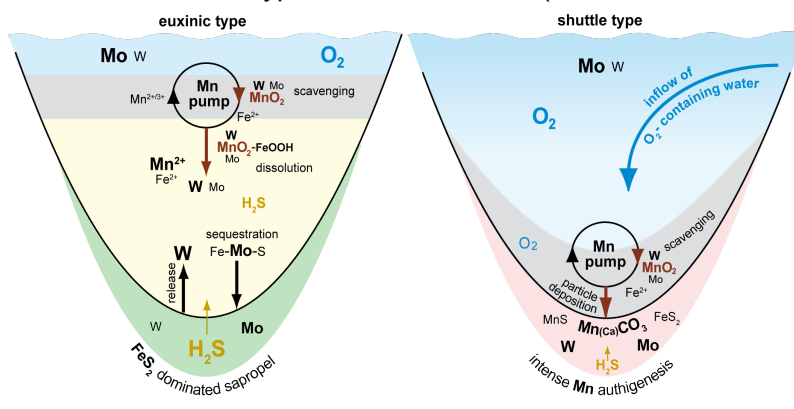
### Manganese cycling and its effect on transition metals: The potential of stable W isotopes as a new paleo redox proxy

**Date:** Monday, 14 October 2019, 16:15

**Location:** Institut für Geologie, Baltzerstrasse 3, 3012 Bern,  
Studer Auditorium, 2.OG

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The concentration and isotope composition of redox-sensitive trace metals are powerful tools for the reconstruction of past redox conditions in aquatic ecosystems. One of the most prominent examples is molybdenum (Mo). In oxic settings manganese (Mn) is known to affect Mo cycling and the marine Mo isotope composition via preferential scavenging of light Mo isotopes. In highly sulfidic settings Mo forms particle-reactive thiomolybdates which are quantitatively scavenged (no net isotope fractionation). Tungsten (W) is similarly scavenged by Mn oxides but shows an opposed behavior in sulfidic waters, because thiotungstate is well-soluble. In the first part, we present some findings about the general behavior of Mn in hypoxic/euxinic basins (Black and Baltic Seas) with a special focus on element



transformations at pelagic redoxclines as well as sedimentary mineral formations including their impact on Mo and W. In the second part it will be illuminated how the above mentioned processes affect the stable isotope composition of W and if the combination of Mo and W isotopes can help to better reconstruct the redox conditions of paleo marine environments.