Impact of OMZ on the distribution of redox sensitive trace elements in Arabian Sea

Vineet Goswami*, Sunil K. Singh and Ravi Bhushan
Physical Research Laboratory, Ahmedabad, India
*(*vineetg@prl.res.in)*

Seawater samples from Arabian Sea were analyzed to assess the effect of denitrification on the distribution of redox sensitive elements such as Re, U and Mo in the water column of the Arabian Sea. The sampling was done in Nov. 2008 within the intense oxygen minimum zone (OMZ) of the Arabian Sea during winter monsoon onboard FORV Sagar Sampada (Figure 1). The samples were filtered and acidified using ultrapure HCl. The Re, U and Mo concentration in samples were measured by isotope dilution using Thermo X-Series-II ICPMS.

The Re, U and Mo concentrations in the vertical profiles of Arabian Sea vary from 37 to 43 pmol/kg, 12.91 to 14.83 nmol/kg and 103.4 to 119.3 nmol/kg respectively within a salinity range of 32.4 to 36.7 ă .

All the seven vertical profiles of Re, U and Mo in the Arabian Sea show their conservative nature having respective average values of 40.2±0.4 pmol/kg, 13.8±0.1 nmol/kg and 112.3±1.2 nmol/kg, similar to those reported elsewhere[1],[2]. The vertical profile of Re, U and Mo do not show any trend with dissolved oxygen in the water column. Thus, the results in this study illustrate that the process of denitrification does not affect the distribution of redox sensitive elements Re, U and Mo in water column of Arabian Sea.

Keywords: Denitrification, OMZ, Redox sensitive elements.

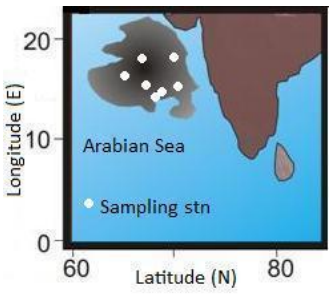

Figure 1. Sampling location in the Arabian Sea. Gray area represents intense OMZ.

References

[1] Rengarajan, et al.. *Oceanologica acta,* **26**, pp. 687 (2003).
[2] Anbar et al, *Geochimica et Cosmochimica acta*, **56**, 4099 (1992).