

## **The distribution of dissolved Zinc in the northern and subtropical Indian Ocean waters**

VENKATESH CHINNI<sup>1</sup> NAMAN DEEP SINGH<sup>1</sup> SUNIL KUMAR SINGH\*<sup>1,2</sup>

<sup>1</sup>Physical Research Laboratory, Ahmedabad–380009, India  
(venkatesh@prl.res.in, namandeep@prl.res.in, sunil@prl.res.in)

<sup>2</sup>CSIR-National Institute of Oceanography, Goa–403004, India (Correspondence\*-sunil@nio.org)

Zn is an essential trace element for phytoplankton growth in the open ocean waters. Sparse observations in the Indian Ocean limit our understanding on the Zn cycle. Here, we report an unprecedented data set for dissolved zinc (dZn) in the Indian Ocean region comprises of the Arabian Sea, Bay of Bengal, Andaman Sea and subtropical Indian Ocean to unravel the various controlling processes on the Zn cycle. The dZn profiles in the region display typical nutrient type behaviour. A strong linear correlation with respect to the major nutrient Silicate (Si) is observed which is consistent to other oceanic basins. Global Zn-Si relationship is found to be consistent in the subtropical Indian Ocean region. However, decoupling of Zn and Si in the intermediate waters of the northern Indian Ocean compared to subtropical Indian Ocean/global waters is observed implying the dominant control of oxygen minimum zone on the Zn cycle in the northern Indian Ocean. Release of Zn from the sediment resuspension is observed along the continental margins. Our results suggest that hydrothermal vents situated in this region may not be a significant source for dZn. These findings will improve our knowledge on Zn cycle in the Indian Ocean.