

InterRidge Student and Postdoctoral Fellowship Program 2017

Report by Dr. Surya Prakash Lankalapalli

ESSO-National Centre for Polar and Ocean Research, Goa, INDIA

I'm really thankful to the InterRidge for considering my project for funding for second time also. In 2009, my project on "Helium isotope studies in hydrothermal plume over Carlsberg Ridge" was selected for the funding and I worked with Dr. John Lupton, NOAA-PMEL, Newport. Recently in 2017, I have applied for the same fellowship again for my second project titled "**Dissolved trace metal studies of hydrothermal plumes over 23°-25° S, Central Indian Ridge, Indian Ocean**". The proposed work has been completed under the guidance of Dr. Joseph A. Resing, NOAA-PMEL, Seattle. The objective of the present proposal is to study the dissolved manganese concentrations to confirm the hydrothermal plume signatures and to understand the chemical nature of the plumes. Two hydrothermal plumes were identified in the southern Central Indian Ridge (between 23°-25° S) during our expeditions onboard R/V MGS Sagar in 2017 & 2018. From these plume layers, seawater samples were collected, filtered and acidified (to pH less than 2.0) with ultrapure nitric acid for dissolved trace metals study. During my stay in Seattle, I learned the flow injection technique for analyzing the dissolved manganese in the seawater samples. The acidified seawater samples were pre-concentrated onto 8-hydroxyquinolin which was immobilized onto a vinyl polymer gel and the Mn(II) was eluted by acid. The concentration of dissolved manganese was determined by spectrophotometric detection of malachite green formed with Mn(II). The results of this project has confirmed the presence of hydrothermal plumes in the deep waters and also provided new location for hydrothermal activity on the southern Central Indian Ridge to the Ridge community.

I am very fortunate to work with Dr. Joseph A. Resing and I would like to thank him for giving his valuable time and good hospitality in Seattle. I would like to thank Dr. R. Bundy, Uni. of Washington for providing the laboratory space. I had a good time in Seattle and this opportunity has allowed me to learn new technique and meet new people. I also thank my group director Dr. John Kurian for his continuous support. I acknowledge the support received from the Director, National Centre for Polar and Ocean Research (NCPOR), Goa and the Ministry of

Earth Science (MoES), Government of India. Finally I gratefully acknowledge the InterRidge Program for providing me this opportunity to work at Uni. of Washington by means of their fellowship.

Photo: from left Surya Prakash, Sharon Walker and Joseph Resing at NOAA-PMEL, Seattle.



Photo: Surya Prakash analyzing the seawater samples with Flow-injection technique for dissolved manganese concentrations at Uni. of Washington, Seattle.

