

SONIC: Schirmacher Oasis Nippon (Japan) India Coring Expedition (2019-2020)

There is an alarmingly high trend in the increase of air temperature of Antarctic Peninsula to the extent of 3°C as reported by Intergovernmental Panel on Climate Change (IPCC) which is 5 times the mean rate of global warming. This reveals the sensitivity of Antarctica to the global warming. To carry out a research on the effects of climate change on the ice-sheet dynamics, **India and Japan jointly launched a research expedition to the Schirmacher Oasis during early March, 2019.**

Schirmacher Oasis was first spotted during an expedition launched by Germany in 1939. **Richardheinrich Schirmacher** who was piloting a Dornier hydroplane spotted the oasis on **3rd February 1939** between between latitudes 69°10' S and 76°30' S and longitudes 11°30 W and 20°00' E and **Schirmacher named it after himself.**

A SONIC [**Schirmacher Oasis Nippon (Japan) India Coring Expedition (2019-2020)**] team of five scientists from the National Center for Polar and Ocean Research (NCPOR), Manipal Academy of Higher Education (MAHE), National Institute of Polar Research (NIPR), Chiba University and Shimane University returned to India after a successful 45-day operation during early summer of 2019 (November-December) at Maitri, Schirmacher Oasis.

The major objective of the SONIC exploration is to understand the ice sheet variability at the Schirmacher Oasis to examine East Antarctic Ice Sheet sensitivity and its response to glacial-interglacial cycles. The team consisted of five scientists (Dr. Mahesh Badanal - NCPOR; Dr. Anish Warriar - MAHE, Dr.Yusuke Suganuma - NIPR, Dr.Heitara Kaneda - Chiba University; Dr. Kota Katsuki – Shimane University) supported by the 38-ISEA winter over team.

Working in sub-zero temperature and strong winds, the team was able to collect more than 15 sediment cores from over 8 lakes across Schirmacher Oasis. The team was able to retrieve few long sediment cores which hopefully would improve the past-environmental history associated with the ice-sheet dynamics in the Schirmacher Oasis. The team targeted all the three lakes viz., proglacial, periglacial and epishelf lakes. The longest sediment core retrieved from a peri-glacial lake is 3.1 m while the longest from a proglacial lake is 2.4 m. For the first time, an epishelf lake sediment core was retrieved and is incidentally the longest (8 m).



Schirmacher Oasis





SONIC Team at work

From the samples collected, preliminary study would be carried out at Kochi Core Centre in Japan which would help the team to focus on reconstructing the past-climate using combination of various physical-biological-chemical proxies to decipher the climate. This would further improve the understanding of the ice-sheet dynamics around the Schirmache Oasis.

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