

of a laboratory does not lie in the quantity of information that it generates or the current trend that it aligns with. It is an indication that high quality scientific research speaks for itself and that it is not essential to work in a 'high profile' area to get noticed.

The message that comes across from all this is undoubtedly positive. There still

are enough people who are interested (and willing to put in the effort) to push the cause of world class research. A network of this kind helps to sift through the deluge of papers that are published in order to uncover meaningful or thoughtfully done work. This compendium is also an invaluable source of information for all those who want to keep abreast of scien-

tific literature without taking the trouble of participating in journal clubs. (To access the website, log onto www.facultyof1000.com.)

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Deep lake sampling in Antarctica using helicopters

Antarctica plays a significant role as driver of global climate, and its marine and lake sediments contain proxy indicators of global climate changes as well as changes in biological communities. There exists an impressive list of studies that can be performed on relatively undisturbed lake sediment cores. It includes palynology, radiocarbon dating, diatom analysis, particle size analysis, inorganic and organic geochemistry, microfossil analysis, moisture content, pigment analysis and other environmental studies.

The process of coring and analysis has come a long way in recent years. Scientists have applied various innovative methods to obtain sediment cores from lakes. Here we describe a method of sediment coring from lakes in Antarctica and provide an overview which gives the benefits of core acquiring in short term with

the help of helicopter. The process of acquiring the core using a helicopter is robust. The process eliminates requirement of a boat and requires less manpower. At the same time in the Antarctica's harsh conditions, where the objective is to acquire multiple cores from many lakes in a short term of stay, this methodology has proved to be optimal. In the coming years utilizing the same methodology, cores will be acquired from various lakes around Maitri station, India's permanent scientific base in Antarctica.

Maitri is located in the Schirmacher oasis of Droning Maud land at 70°45'53"S lat. and 11°44'03"E long., at an elevation of 117 m amsl. It is surrounded by around 105 lakes of varying sizes and depths. Priyadarshini lake is located just in front of Maitri station, which was chosen for the acquisition of core sample discussed here.

Bathymetric study of the Priyadarshini Lake was carried out in 1987 and later during the XIX Indian Scientific Expedition to Antarctica in 1999, the depth of the lake was measured using scaled nylon rope and position of the point was recorded using GPS. These bathymetric data were utilized to identify suitable coring locations.

During the XXIII IASE, three deep-lake samples were obtained from the Priyadarshini Lake using a gravity corer attached with the 10 m long sling under a helicopter. This coring instrument was designed indigenously by Norinco Pvt Ltd, Chennai.

An attempt was made to acquire sediment core from the lake by inserting the corer into the lake bed by its own weight. The corer had a barrel length of 1 m and a total weight of 50 kg.

Above certain predefined points, the helicopter was made to hover in the air and was slowly lowered above the lake surface. Extra care for the stability of the helicopter was taken due to the abnormal climatic conditions.

A paddle boat was also utilized to guide the chopper to put the corer exactly over the predefined place. Scientists and the pilot were at the line of sight to give proper indication to each other. As soon as it was seen that the corer sling was slack indicating that the corer had touched the lake bed, the corer was lifted up and transferred to the land.

Although the corer could not penetrate the lake bed due to sandy lake bottom, our three attempts in Priyadarshini Lake yielded a remarkable algal-mat succession from the lake bed. The core lengths obtained during the three operations were 0.8, 0.65 and 0.6 m respectively. These cores are under further analysis of the NCAOR laboratories.



A hovering squirrel helicopter

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