

In Conversation With Polar Maidens

Swati Nagar



Dr Sudipta Sengupta during the 3rd Indian Expedition to Antarctica

DR SUDIPTA SENGUPTA

A geologist by profession and trained mountaineer (trained by Tenzing Norgay, one of the two men to reach Mt. Everest in 1953), Dr Sengupta is one of the first Indian women (along with Dr Aditi Pant) to visit Antarctica as part of the third Indian Scientific Expedition to Antarctica (ISEA) in 1983, when girls were confined to laboratory work in India and discouraged from doing field research.

Her pioneering work in the Schirmacher Hills of East Antarctica – a line of low coastal hills – boosted further study in the area. For her scientific contribution, Prof. (Dr) Sengupta has been conferred with many awards viz., Shanti Swarup Bhatnagar Prize for Science and Technology (so far she is the only woman scientist to receive this award in the category of Earth, Atmosphere and Ocean Sciences); the National Mineral Award; the Antarctica Award, among others. In addition to being a proficient professor and polar scientist, Dr Sengupta has authored many books and articles on Geology in English and Bengali.

INDIAN women are no exception in choosing the road less travelled, especially of extreme environments such as Polar Regions. Women scientists/researchers have been participating in Indian expeditions to Polar Regions being organised by the National Centre

for Polar and Ocean Research (NCPOR) (erstwhile National Centre for Antarctica and Ocean Research, NCAOR), an autonomous body under the Ministry of Earth Sciences. NCPOR provides equal opportunities for women working in polar and ocean realms.

In line with the theme of the International Women's Day 2020, "Generation Equality", we present here excerpts from interviews of three Indian polar women – Dr Sudipta Sengupta, Dr Binita Phartiyal and Dr Jasmine P. – who have evened out the odds to lay down their success stories.

These women broke the ice barrier making a place for women scientists in the Polar Regions, earlier identified as a domain of men. They not only marked history by participating in Indian Polar Expeditions (Antarctica, Arctic and the Southern Ocean) but paved the way for young ambitious girls to explore the edge of the earth to fulfil their dreams.

SWATI NAGAR: *Is there any instance, where you've shown that women are equally competent, whether it's a matter of decision making or any field of research Please also share your experiences of Antarctica.*

SUDIPTA SENGUPTA: I have visited Antarctica twice – the first time in 1983-84 and the second time during 1989-90 (i.e., 3rd and 9th ISEA, respectively).

Before the Antarctic expedition, I had the experience of doing fieldwork in difficult terrains during PhD and post-doctorate. As a PhD student, I carried out fieldwork alone in the jungles of Jharkhand; as a postdoctoral research scholar at the Imperial College in London, I did fieldwork in the remote parts of Scottish Highlands for two field seasons in 1974 and 1975. In addition, I worked in the mountains

of Norway for the Geodynamics Project at Uppsala University, Sweden (from 1976 to 1978). I also trained as a mountaineer and joined two expeditions in the Himalayas. So I had enough experience and training to work in cold conditions and difficult terrains.

However, working in Antarctica is definitely not easy. In addition to low temperature, there was always a strong wind and blizzards were quite often. Doing fieldwork in those conditions was really tough. One has to be both physically and mentally strong.

During the third expedition, we spent nearly six weeks in tents and I was the only female in a group of seven scientists. We all worked equally and did not feel any way inferior to anyone. Since there was 24 hours sunlight in the summer months in Antarctica, we used to carry out fieldwork for more than twelve hours a day which was really physically exhausting. Moreover, at the end of the day, we had to carry heavy loads of rock samples in our rucksack and walk over hilly terrains for many hours.

During my second visit i.e., 9th ISEA in 1989, three of my geologist colleagues died in an accident. It was a traumatic experience and difficult situation both emotionally and physically. However, with

determination, I carried out my fieldwork alone for more than a month and completed my job successfully.

SWATI NAGAR: *It's almost four decades of ISEA, what differences do you find in the early expeditions and now?*

SUDIPTA SENGUPTA: Technology has improved immensely. Both times we travelled to Antarctica by ship both ways. In 1983-84, we stayed in tents in almost primitive conditions. Those days we used a camera with films and always worried about the number of photos we were taking. Now with digital cameras you are free to take pictures to your heart's content. Even movies can be taken with your mobile cameras. Another improvement is in communication. Back then we were allowed three minutes time every fifteen days to talk to our family, now you are free to communicate any time through email. This is a tremendous change. Plus all sorts of technological improvement in every aspect is there.

SWATI NAGAR: *How do you combat negative stereotype opinions about women that sometimes may lead to low self-esteem?*

SUDIPTA SENGUPTA: I always ignore them. I always have the support of my family, so it was easy to ignore criticism of others. I always had confidence in my ability. I stood first in both the BSc and MSc Examinations in Jadavpur University. And I knew I was not inferior to men in any way.

SWATI NAGAR: *You (and Dr Aditi Pant) have inspired many young girls to participate in polar expeditions. Over 60 women scientists/researchers have participated in the Indian Antarctic expedition. Where do you see women in the polar community in future?*

SUDIPTA SENGUPTA: That is very promising. I am happy for them and wish that many more women join this community.



Dr Aditi Pant and Dr Sudipta Sengupta during 3rd Indian Expedition to Antarctica

DR BINITA PHARTIYAL

A dedicated scientist keen to decipher the mysteries of Earth and understand past climate, Dr Binita Phartiyal is a paleoclimatologist from Nainital, working at the Birbal Sahni Institute of Palaeosciences, Lucknow. Her keen interest in paleoclimate and geomorphology has led her to venture to the three poles – Antarctica, Arctic and Himalayas – making her probably the first Indian woman to visit all the three poles.

Dr Binita is the first woman participant of the Indian Arctic Expedition in the year 2008 when Indian Arctic research base ‘Himadri’ was inaugurated. For her contribution in palaeoclimatology, Dr Binita has been conferred with the INSA Bilateral Exchange Award-2014, Dr P.N. Srivastava Medal-2015, and others.

SWATI NAGAR: *You were one of the woman participants in the 25th Antarctic (2005-06) and the 2008 Arctic Expedition. Please share your experience of the expeditions.*

BINITA PHARTIYAL: As a team member of the 25th ISEA, I have experienced the “roaring 40s and the furious 50s” while crossing the Southern Ocean. With good teamwork, I completed lake sampling in the Schirmacher oasis.

In the Arctic, it was a five-member team with different research objectives so had to act single-handedly. I had collected loads of samples (sometimes 25-30 kg) in the freezing cold environment and carrying back those samples was exhausting. But the contentment of doing a good sampling job used to take away all the tiredness once we reached Himadri, the Indian Research Base in the Arctic.

SWATI NAGAR: *You have worked in Antarctic, Arctic and the Himalayas. Which area is more challenging?*

BINITA PHARTIYAL: Fieldwork in both Arctic and Antarctic is hectic

and challenging. One has to be very lucky to get good weather days for fieldwork, but mostly one has to be out in the bad weather with a bone chilling wind. The hands freeze and sample collection gets difficult. And to bring loads of it, on your way back with a rifle and pistol (loaded, in the Arctic), the way back of kilometres is really tough. But the satisfaction of the sample collection and the view of the pristine heavenly land energize you and make you forget the woes, the pain of the numb fingers, the wet shoes and socks, the strenuous walk over the snow, water, mosses, and shattered rocks and you only remember the good times.

In the Himalayas, the high altitude and the low oxygen package is challenging. One has to be acclimatised well before proceeding to the field in locations at more than 4000 m asl. The work is arduous and afternoons get windy.

SWATI NAGAR: *Is there any instance, where you’ve shown that women are equally competent, whether it’s a matter of decision-making or field research.*

BINITA PHARTIYAL: Many times. I led my team to the remotest of villages in the border areas and difficult terrains. Women are equally competent of taking good decisions and to carry out field research. The menfolk have started recognising this talent of women and are changing too and this is a welcome change indeed.

SWATI NAGAR: *What advice would you like to give to the girls who want to work in the Polar Regions?*

BINITA PHARTIYAL: My advice is don’t be sceptical at all, just venture into it, follow your heart, your research objectives and live every moment. Risks do come but there are means to handle them calmly without panic. The Polar moments will be the best moments of your life.

DR JASMINE P.

Having experienced the extreme weather of the Southern Ocean is an act of bravery in itself. Besides being one of the women participants of the first Indian Southern Ocean Expedition (ISOE), Dr Jasmine P. has also visited the Arctic thrice (2017, 2018 and 2019).



Dr Binita during 25th ISEA, Antarctica



Dr Jasmine P during Indian Arctic Expedition



Dr Jasmine is a scientist and Officer-in-Charge of Protozoology Section in the Zoological Survey of India, Kolkata. Her research focuses on the various aspects of zooplankton (Spatio-temporal variations in diversity; its role in the pelagic food web and studies on bioluminescence). She also worked as an expert in Biological Oceanography in the Marine Fisheries Research Centre, Ministry of Fisheries, Sultanate of Oman, from 2009 to 2011. With more than 400 days on-board experience, Dr Jasmine has worked in the extreme environment of the Polar Regions.

SWATI NAGAR: *You are one of the women participants in the 1st Indian Southern Ocean Expedition. Please share your experiences of the expedition.*

JASMINE P: I was one of the woman participants in the first Indian Southern Ocean expedition. While it was a once in a lifetime experience and a good opportunity for further research, it was with its own brand of perils. During the expedition, I could collect zooplankton from all the stations throughout the proposed transect, but also experienced some difficult times as we got stuck in a cyclone at 56 °S.

SWATI NAGAR: *What type of challenges did you face while*

onboard the research vessel especially in the 'Roaring 40s, Furious 50s and Screaming 60s'?

JASMINE P: Roaring 40s, Furious 50s and Screaming 60s' are still nightmare scenarios for me. At 56 °S, we were stuck in a cyclone and felt as if the ship would sink. Many instruments and chemicals were damaged due to the high wind and heavy rolling. Besides, one power generator also got damaged. During that time, everyone, irrespective of gender, was scared.

SWATI NAGAR: *How do you combat negative stereotype opinions about women which may lead to low self-esteem?*

JASMINE P: Of course, there are always negative stereotype opinions when a woman is active or hardworking. My opinion is negative stereotype opinions/criticism is the driving force for us to go ahead and oppose the obstacles and face the challenges in life or research.

SWATI NAGAR: *Today, many women participate in the Indian Southern Ocean expeditions. Where do you see women in the polar community in the future?*

JASMINE P: I think women are equally competent for any role in research or fieldwork in extreme environments. When I went for a

pilot expedition to the Southern Ocean, only two women were there including me. Nowadays, I could see ~50% women participation in the Indian Southern Ocean or Arctic expeditions. I hope in future, many more hardworking women scientists from India join the polar expeditions.

SWATI NAGAR: *What advice would you like to give to the girls who want to work in Polar Regions but a bit sceptical to the hardships that one may face in the extreme environment?*

JASMINE P: As a researcher, working in polar environments, we should be strong enough to face any situation and should be determined to achieve the goals through hard work and perseverance.

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