

THE STRAITS TIMES

Arctic data could help NTU scientists better predict rising sea levels in S'pore



The expedition comes amid a surge in interest to quantify and mitigate climate change's impacts on the Republic. ST PHOTO: LIM YAOHUI



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SINGAPORE - The Arctic may be far from Singapore but the melting ice there from global warming has a close connection to understanding rising sea levels here.

That is why a team from the Earth Observatory of Singapore (EOS) flew to Longyearbyen in Norway – one of the northernmost human settlements in the world – in July to tap know-how and data from Norwegian scientists.

The data will possibly lead to more accurate and precise models of how sea levels will rise in Singapore, said Dr Dhrubajyoti Samanta, a senior research fellow at EOS who spent a month in Norway.

“For simulations, we need to set up a region-specific model,” he said.

He added that how water mixes worldwide, among other factors, affects sea levels differently across different regions – which sea level models need to account for.

“So I tried to learn how we can better implement those processes or schemes in the model that we are going to use in South-east Asia.”

Two other scientists were on the team from Singapore: EOS director Benjamin Horton, who led the expedition, and doctoral student Trina Ng.



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The EOS is an autonomous research institute housed at Nanyang Technological University.

A 30-minute documentary chronicling the expedition premiered on Tuesday, in an event attended by several EOS collaborators from Norway, here to learn from their Singapore counterparts for the Norway-Singapore Science Week, Norwegian diplomats and EOS staff.

Titled Polar Impact Asia, the documentary will be free to watch on video streaming platform YouTube.

“The overarching vision and narrative was to show the connection of two places that were 10,000 miles away and that the Arctic region has a very big impact on South-east Asia,” said documentary director Liz Courtney.

She added that the two biggest challenges she faced directing the film was having to work remotely as she could not travel with the three researchers, as well as conveying how connected Singapore and the Arctic is.

“I wanted... to try and make people have a broader awareness about the intensity of research that needs to happen and that is happening, and why it is important to forge collaborative research partnerships across the world.”

Professor Horton said of the melting of the polar ice sheets of Greenland and Antarctica: “We need to understand the processes that control those ice sheets, and then we need to think about their impacts – and the only way Singapore’s going to do that is through international collaborations.”



(From left) Norwegian Polar Institute special adviser Kim Holmen, documentary director Liz Courtney, EOS senior research fellow Dhruvajyoti Samanta, EOS director Benjamin Horton, and The Arctic University of Norway's pro-rector of research and development Camilla Brekke. ST PHOTO: ALPHONSUS CHERN

In the documentary, Prof Horton, who was host, outlined the processes that shape how melting polar ice raises sea levels in different regions.

This ranges from the intuitive – like a greater volume of liquid water – to the complex, such as the impact of diluting seawater with melted fresh water and the uneven effect of gravity on oceans worldwide.

The expedition comes amid a surge in interest to quantify and mitigate climate change's impacts on the Republic, which aims to be carbon neutral by 2050.

In July, the \$23.5 million Climate Impact Science Research Programme was launched to uncover the long-term impacts of climate change on Singapore and to help guide policies to tackle these issues.

The \$10 million National Sea Level Programme was launched in 2019 to better understand sea levels around Singapore and help develop more robust sea level rise projections, but EOS funded the expedition itself.

Professor Camilla Brekke, who is pro-rector of research and development at The Arctic University of Norway, was among the Norwegian scientists who attended the premiere.

The polar satellite imagery expert said the university hopes to expand its partnership with Singapore universities, to provide opportunities for study and research in the Arctic for students.

Said Prof Brekke: “We’re talking about student exchange, faculty exchange and also potential research collaboration.