UMS professor creates two records from Antarctica expedition

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KOTA KINABALU: The 2023 Winter Research Expedition in Antarctica 2023 created three records recognised by The Malaysia Book of Records (MBOR).

The three records are categorised under the "the First Winter Research Expedition in the Antartica region"; "The first to carry out a research during winter at the Antartica region"; and "The longest research residency in the Antartica region".

Yayasan Penyelidikan Antartika Sultan Mizan is the recipient for the first record, while the second and third MBOR records went to Ranau-born Professor Dr Justin Sentian from Universiti Malaysia Sabah (UMS) Science and Natural Resource Faculty.

Dr Justin is the first Malaysian to carry out research expedition at the Antartica region during winter for seven months, from March 21 to October 21, 2023, hence making him the first Malaysian to have stayed for the longest duration at the coldest region in the world.

During his residency there, he stayed and carried out his research at the Professor Julio Escudero station owned by Chile which is located at King George Island, Antartica.

The first winter research expedition was organised by Yayasan Penyelidikan Antartika Sultan Mizan (YPASM) with the collaboration of the Ministry of Natural Resources and Environmental Sustainability, Chile Antartica Research Institute (Instituto Antartico Chileno, INACH) and Chile's Embassy in Malaysia.

Professor Dr Justin Sentian

Dr Justin received a special research grant of RM150,000 from UPASM for the project linked to climate change titled "Variations in tropospheric ozone and halocarbons on the Antarctic Peninsula under extreme weather conditions."

During his stay there, he acquired data that recorded variations in the ozone layer concentration and several hydrocarbon gas species such as isoprene during winter in Antartica.

He was also successful in collecting 197 sampes of gas from the atmosphere, snow, sea ice and sea water to research the contents of halocarbon species such as bromocarbon and so on.

During the winter expedition in Antartica, he faced many challenges that tested him both mentally and physically to face the extreme weather condition.

At times, the temperature dropped to minus 44 celcius and the wind velocity together with snow storm reaching 120 km/hour.

The results of this research are expected to have a significant impact on understanding the variations of ozone, hydrocarbon, and halocarbon species under extreme winter weather conditions.

Additionally, it aims to contribute to the generation of new knowledge not only among atmospheric chemistry scientists but also to the broader local and global community, enhancing the understanding of complex relationships with contemporary issues such as climate change and ozone depletion in Antarctica.

When met at the award presentation ceremony held at UMS Chancellor Hall on Monday, Dr Justin shared that his findings will be a challenge to the Montreal Protocol.

"It is a challenge to the protocol because of the emission from natural resources that is depleting the ozone. We need to find out how to balance the emission from these resources," he said.

He added that the production of human-made chlorofluorocarbons (CFCs) and other ozone-depleting substances had already been reduced tremendously, but those produced naturally will be a challenge. He also said that halocarbon is produced everywhere, and especially near coastal areas, including in the coastal areas of Sabah.

"It is particularly high in the east coast (of Sabah)," he said.

As for his study, he said that he hopes to get it published by early next year.