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Editorial

Special issue on 7th Malaysian international seminar on Antarctica (MISA7): "Connectivity between Polar and Equatorial Climate and Biosphere: From the poles to the tropics"

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ABSTRACT

The Malaysian International Seminar on Antarctica (MISA) is a series of the biennial event, which gathers researchers from various countries across the globe to share findings and experiences in polar research and also provides a platform for our scientists to strengthen existing and forge new collaborations. MISA also provides opportunities for local researchers and students who are interested in pursuing their career in polar sciences especially global sciences. The theme of MISA7 is "*Connectivity between Polar and Equatorial Climate and Biosphere: from the Poles to the Tropics*". The theme is in line with the rationale that the Poles are an integral part of the global Earth system and as the origin of important climatic, biological, and physical processes that can influence the tropics. Conversely, processes in the tropics could also influence the polar region. This connectivity issue becomes critical in the Anthropocene Era where climate change and anthropogenic activities have significant impacts on the environment. This crucial topic requires attention and collaboration between various disciplines and field of research. The link between polar process and tropics may reveal results that may provide an early warning precursor of important global changes that may affect both regions. This Special Issue of Polar Science is a collection of selected papers delivered at this seminar.

The MISA7 seminar was held in the beautiful town of Kuala Terengganu, Malaysia on the 15th to 17th August 2017. It was officially opened by His Royal Highness Sultan Mizan Zainal Abidin, the Ruler of the State of Terengganu.

MISA7 addressed three major areas of Antarctic research such as Biological Science, Physical Science and Policy and Governance. The Biological Science session of the seminar covered multifaceted aspects of Antarctic science pertaining to the knowledge of life sciences in the Antarctic, sub-Antarctic and Southern Ocean, and their links to lower latitudes, all of which are facing urgent challenges of climate change. MISA7 also provided an excellent platform for the researchers to interact on timely on critical topics such as ice, ocean, land and atmosphere interactions, transport of aerosols that influence the ozone layer as well as to understand the linkages within the global climate system and explore their connectivity in the global scale.

The Protocol on Environmental Protection to the Antarctic Treaty since 1991 has been a significant step forward for the protection of the Antarctic environment. The scientific world is fast becoming interdisciplinary, but the biggest interdisciplinary leap needed is to know and to connect the worlds of science with policy and politics' to ensure that the international community's work is focused on addressing the key issues on the protection of the Antarctic environment. MISA7 provided policy-makers and operators and other stakeholders to discuss the greater and effective ways in strategizing the national implementation of the Protocol.

In this Special Issue, a total of eleven papers were selected for publications. A number of the articles deal with a comparative study of the latitudinal response of various microbes ranging from algae, microfungi and bacteria in the tropics and polar region response to stressors such as ultraviolet radiation and cold and freeze stresses (Lai et al., 2019 and Latip et al., 2019). One of the papers in the biological session discussed potential impacts of Heavy metal pollution in Antarctica (Chu et al., 2019).

An article reports on isoprene hotspot that was discovered during the Malaysia Antarctic Scientific Expedition Cruise (MASEC'16) (Nadzil et al., 2019). Yusop et al. (2019) examined cloud-to-Ground lightning observations over the Western Antarctic region.

A unique aspect of MISA is a session on policy and social science research and one article was selected that discuss on how Malaysian Antarctic expeditions influence the public awareness on Antarctica (Goh et al., 2019).

The Malaysian Antarctic Research Program without national logistic and research base cannot sustain its research activities without the support of the international Antarctic community. This special issue is a great example of the support that we got from our international partners.

At the national level the Ministry of Science and Innovation (MOSTI) now restructured as the Ministry of Energy, Science, Technology, Environment & Climate Change (MESTECC) had been supportive in granting three flagship research grants with a broad title of "Connectivity between the Equatorial and Polar Regions: from global warming to environment and microbial community changes". The program addresses rapid polar warming and other associated environmental changes linked to global warming and the connectivity of these changes to lower latitudes and the equatorial region. It also set out to assess how warming will impact the ecosystem in the polar regions, in particular focusing on that of the microbial communities.

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