

**REPORT OF THE 8TH MALAYSIAN INTERNATIONAL SEMINAR ON
ANTARCTICA AND ITS ASSOCIATED EVENTS
18 – 20 JUNE 2019, UNIVERSITI PUTRA MALAYSIA, SERDANG**

INTRODUCTION

Malaysian International Seminar on Antarctica (MISA) is a series of biennial event which gathers researchers from Malaysia and other countries to share findings and experiences in polar research and also provide the platform for our scientists to strengthen existing and forge new collaborations. The 8th Malaysian International Seminar on Antarctica (MISA8) was organised by Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), Yayasan Penyelidikan Antartika Sultan Mizan, National Antarctic Research Centre and hosted by Universiti Putra Malaysia (UPM). The seminar carries the theme of “Polar Regions in the Global Climate System” and was held on 18 and 19 June 2019 at the Building of Deputy Vice Chancellor, UPM. YPASM provided financial support of RM50,000 towards the organization of the seminar

Two workshops were also conducted during MISA8 on 20 June 2019 as follows:

- 1) Workshop on the Tropic Antarctic Teleconnections (TATE)
- 2) Workshop on State of the Antarctic Ecosystem (AntECO) with the theme: Microbial Resilience; Emerging Knowledge from Antarctic Ecosystems; and

A total number of 124 participants from Malaysia, New Zealand, Australia, Japan, South Korea and Brazil attended the seminar. The list of participants is attached as **Appendix 1**

OPENING CEREMONY OF MISA8

The Seminar was officiated by His Royal Highness Al-Wathiqu Billah Sultan Mizan Zainal Abidin Ibni Almarhum Sultan Mahmud Al-Muktafi Billah Shah, Sultan of Terengganu and the Patron of YPASM and was held at the Dewan Besar, Pusat Kebudayaan dan Kesenian Sultan Salahuddin Abd Aziz Shah

Also present at the opening of the Seminar were YB Isnaraissah Munirah binti Majilis, Deputy Minister of Energy, Science, Technology, Environment and Climate Change, YAB Dr. Ahmad Samsuri bin Mokhtar, Menteri Besar of Terengganu, Datuk Seri Dr Mohd Azhar Hj Yahaya, Secretary General of MESTECC, YB. Dato' Haji A. Rahman Bin Yahya, State Secretary of Terengganu, Tan Sri Dr Salleh Mohd Nor, Board of Trustee YPASM and YBhg. Prof. Datin Paduka Dato' Dr. Aini Ideris, Vice Chancellor of UPM.

HRH Sultan Mizan presented YPASM Research Grants to Four (4) recipients. The recipients for 2019 YPASM Research Grant are as follows:

- 1) Assoc. Prof. Dr. Siti Aisah Hj Alias from National Antarctic Research Centre, Universiti Malaya and her project title is "Impact of Increasing Rainfall Trend on Atmosphere Reactive Gasses and Microbiota Over the Maritime Antarctic Region". This research project received funding amounting RM150,000;
- 2) Dr. Wan Mohd Rauhan Bin Wan Hussin from School of Fisheries and Aquaculture, Universiti Malaysia Terengganu and his project title is "Mapping Benthic Communities in the West Antarctic Peninsula using Habitat Suitability Modelling". This research project received funding amounting RM150,000;
- 3) Assoc. Prof. Dr. Siti Aqlima Ahmad from Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia and her project title is "Second Stage of Bioreactor Design for Cold-Adapted Bioremediation of Antarctic Soils Contaminated with Diesel Hydrocarbons". This research project received funding amounting RM150,000;
- 4) Dr. Nur Athirah Binti Yusof Biotechnology Research Institute, Universiti Malaysia Sabah and her project title is "Structural and Functional Characterisation of HSP70 as a Biomarker in identifying Resistance and Resilience Towards Heat and Salinity Stress in *Pedobacter cyroconitis* and *Glaciozyma Antarctica*". This research project received funding amounting RM150,000;

HRH Tuanku Mizan also presented the YPASM Berth Support to two (2) recipients. The recipient for YPASM Berth Support 2019 are:

- 1) Dr. Mohd Shahrul Bin Mohd Nadzir from Research Centre for Tropical Climate Change System, Universiti Kebangsaan Malaysia and his project title is “Implications of Isoprene and other Non-Methane from Marine Sources on Ozone Formation over the Signy Station, Antarctica”. This research project received fellowship award amounting RM50,000.
- 2) Dr. Mai Chun Wai From International Medical University and his project title is “Molecular Evaluation of Biogeography and Functional Redundancy Theory in Antarctic rhizosphere Prokaryotic Communities”. This research project received fellowship award amounting RM50,000.

During the Opening Ceremony, Prof Dr Tim Naish, the Director of Antarctic Research Centre, Victoria Universiti of Wellington, New Zealand delivered his keynote address entitled “What Does the Paris Climate Agreement Mean for Antarctica and the Southern Ocean?”. In his keynote address, Prof Naish outline the implications of the 2015 Paris Agreement for Antarctica and the Southern Ocean. The consequences of 1.5°C, 2°C, and more than 2°C of global warming are examined based on the latest international science. He also discussed the future Antarctic research priorities with global reach that address important knowledge gaps of relevance to the Intergovernmental Panel on Climate Changes (IPCC) 6th Assessment Report and the Antarctic Treaty System activities.

After the keynote address, HRH Tuanku Mizan and the VIP Guest have visited the poster and exhibition area which was participated by agency and local universities namely Yayasan Penyelidikan Antartika Sultan Mizan, Universiti Putra Malaysia, Universiti Malaya, Universiti Sains Malaysia, Universiti Kebangsaan Malaysia and Universiti Malaysia Terengganu.

SPEAKERS AND PRESENTATIONS

Beside the Keynote Speech which was delivered by Prof Dr Tim, three speakers were invited to deliver plenary address as follows:

- 1) Dr Gwen Fenton, Chief Scientist from Australian Antarctic Division (AAD), Australia with title of presentation “Surviving and Thriving in Antarctica and the Southern Ocean in a Changing World”;
- 2) Prof Dr Akiho Shibata, Director, Polar Cooperation Research Centre (PCRC), Kobe University, Japan. With title of presentation “future and Challenges of Antarctic Governance”; and
- 3) Prof Dato Dr. Abu Samah, Director, National Antarctic Research Centre (NARC), Malaysia with title of presentation “Malaysian Antarctic Research Program on Antarctic Weather and Climate and its Tele-connection to the Tropics”.

A total number of 84 papers were presented at the seminar under three main areas namely physical, biology and policy. 51 number of papers were presented in oral session while 33 number of papers were presented through poster. During the Closing Ceremony of MISA8 on 19 June 2019, a prize giving ceremony to the best oral and poster presenter was held.

THE TROPIC ANTARCTIC TELECONNECTIONS (TATE) WORKSHOP

The Tropic Antarctic Teleconnections (TATE) workshop was held on 20 June 2019 with the aims to review current understanding on the processes linking the tropics to Antarctic which are not well understood, yet, are key to the future trajectory of Antarctic climate. New ideas on tropical-polar teleconnection, role of tropical variability such as El Niño - Southern Oscillations (ENSO) in influencing the Antarctic climate and sea ice conditions, interaction of tropical forcing with the high latitude variability such as Southern Annular Mode (SAM) and the processes and mechanisms that link the tropics to the Antarctic have been presented in the workshop.

PROGRAMME

0900-0920	Registration	
0920-0930	Welcome and Opening of the workshop	
Session Chair: Assoc. Prof. Dr. Justin Sentian & Dr. Sheeba N. Chenoli		
Time	Title	Presenter
0930-0950	Malaysian contributions to Tropical Antarctic Teleconnection (TATE)	Prof. Dato Azizan Abu Samah, Director, National Antarctic Research Centre, Malaysia
0950-1010	Tropical teleconnections to Antarctica: The role of decadal SST variability	Associate Prof. Ryan L. Fogt, Ohio University.
1010-1030	Role of the South Pacific Convergence Zone in West Antarctic Decadal Climate Variability	Dr. Kyle R. Clem, (Remote talk), The State University of New Jersey
1030-1050	Tropical Antarctic connections from rainfall stable isotope ratios of an explosive cyclone in Southern Brazil	Prof. Francisco Aquino, Universidade Federal do Rio Grande do Sul
1050-1100	Refreshment	
1100-1120	The role of southern annular mode (SAM) on Antarctic climate change	Prof. Seong-Joong Kim, Korean Polar Research Institute
1120-1140	Amazon and Antarctic stable isotope ratios in the 2016 – 2017 Southern Brazilian rainfall	Prof. Francisco Aquino, Universidade Federal do Rio Grande do Sul
1140-1230	Discussion session: <ol style="list-style-type: none"> 1. TATE contribution on Antarctic Climate Now. 2. On the gaps in the knowledge and developing dissemination strategies for a potential project and identifying suitable partnerships and linkages. 3. Workshop report to be published in a ISI journal. 	
1230-1300	Wrap-up and closing	
1300	Lunch	

SUMMARY OF THE WORKSHOP

Teleconnections refer to the climate variability links between non-contiguous geographic regions. An understanding of these teleconnections at these time scales is extremely important since it can provide the possibility of important windows of opportunity for skilful predictions.

Malaysian researchers examine the interannual relationship between the variability of sea ice extent in the Indian Ocean (SIEIO) sector (20°–90°E) and Indian summer monsoon rainfall (ISMR) under the influence of the Mascarene High (MH). Composites of mean sea level pressure (MSLP), 500 hPa geopotential height, and 850 hPa wind anomalies during HIP and LIP also showed that there was a relationship between the SIEIO and the MH, revealing that HIP and LIP correspond respectively to the strengthening and weakening of the MH as well as increases/decreases in ISMR. During the respective HIP and LIP years, positive and negative MSLP anomalies were found respectively, particularly over the MH region associated with the eastwards and westwards shifts of its center from the normal locations. Similar features were also observed at 500 hPa geopotential height anomalies. In addition, 850 hPa wind flow illustrated strong anti-cyclonic and cyclonic anomalies in the MH region, which lead to corresponding strong and weak southwesterlies and thus respective positive and negative ISMR anomalies. Hence, a positive MH anomaly was associated with more ISMR

Another research works carried out under Malaysian Antarctic Research Program attempts to find a possible method in analysing the relationship of polar to equatorial climate of the Northern Hemisphere. Arctic Oscillation (AO) has known to have no direct relationship with the monsoon over the Maritime Continent (MC). An index, Siberian 28 High (SH)-Maritime Continent (MC) Index (SHMCI), is thus developed to represent the mean sea level pressure difference between the Siberian High (SH) and warm pool over the MC. This index indicates a strong linkage with the monsoon circulation. A positive (strong) SHMC is associated with strong meridional winds, intense and frequent cold surge events over the South China Sea.

WORKSHOP ON STATE OF THE ANTARCTIC ECOSYSTEM (AntECO), 20 JUNE 2019.

Workshop on State of the Antarctic Ecosystem (AntECO) with the theme: Microbial Resilience; Emerging Knowledge from Antarctic Ecosystems will be held as well. The workshop aims to review the emerging spatial pattern of Antarctic microbial life, as well as their responses to the environmental variability. Specifically, emphasis will be given on the impact of changing climate pattern (i.e. the pause in the warming of Antarctic Peninsula and the retreat of glacial at West Antarctica) to the biogeographical pattern identified, and the link between the spatial patterns across trophic levels.

Presenters:

1. Prof. Dato Azizan Abu Samah, Director, National Antarctic Research Centre, Malaysia
“Malaysian contributions to Tropical Antarctic Teleconnection (TATE)”
2. Assoc Prof. Ryan L. Fogt, Ohio University
“Tropical teleconnections to Antarctica: The role of decadal SST variability”
3. Dr Kyle R. Clem, The State University of New Jersey
“Role of the South Pacific Convergence Zone in West Antarctic Decadal Climate Variability”
4. Prof. Francisco Aquino, Universidade Federal do Rio Grande do Sul
“Tropical Antarctic connections from rainfall stable isotope ratios of an explosive cyclone in Southern Brazil “
“Amazon and Antarctic stable isotope ratios in the 2016 – 2017 Southern Brazilian rainfall”
5. Prof. Seong-Joong Kim, Korean Polar Research Institute
“The role of southern annular mode (SAM) on Antarctic climate change”

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Appendix 1

**LIST PARTICIPANTS 8TH MALAYSIAN INTERNATIONAL SEMINAR ON
ANTARCTICA**

NO.	NAME	INSTITUTION
1	Wan Lutfi Wan Johari	Universiti Putra Malaysia
2	Noor Azmi Shaharuddin	Universiti Putra Malaysia
3	Nur Farah Anis Abd Halim	Universiti Putra Malaysia
4	Ahmad Fareez Ahmad Roslee	Universiti Putra Malaysia
5	Mohd Bakri Adam	Universiti Putra Malaysia
6	Raja Noor Zaliha Raja Abd Rahman	Universiti Putra Malaysia
7	Ain Aqilah Basirun	Universiti Putra Malaysia
8	Nur Muhamad Syahir Abdul Habib	Universiti Putra Malaysia
9	Shakirah Abdul Wahab Sha'arani	Universiti Putra Malaysia
10	Hartinie Marbawi	Universiti Putra Malaysia
11	Hiryahafira Mohamad Tahir	Universiti Putra Malaysia
12	Ng Yi Ching	Universiti Putra Malaysia
13	Mansur Abdulrasheed	Universiti Putra Malaysia
14	Salihu Ibrahim	Universiti Putra Malaysia
15	Kavilasni Subramaniam	Universiti Putra Malaysia
16	Haliza Abdul Rahman	Universiti Putra Malaysia
17	Naimah Mohd Fadzir	Universiti Putra Malaysia
18	Motharasan A/L manogaran	Universiti Putra Malaysia
19	Nur Nadhirah Zakaria	Universiti Putra Malaysia
20	Tengku Athirrah Tengku Mazuki	Universiti Putra Malaysia
21	Ashwini A/P Naganthran	Universiti Putra Malaysia
22	Syazani Darham	Universiti Putra Malaysia

23	Aaishah Abd Gafar	Universiti Putra Malaysia
24	Mohd Shukuri Mohamad Ali	Universiti Putra Malaysia
25	Suriana Sabri	Universiti Putra Malaysia
26	Nur Adeela Yasid	Universiti Putra Malaysia
27	Ahmed Baryare Farah	Universiti Putra Malaysia
28	Siti Aisyah Alias	Universiti Malaya
29	Mohd Fadzil Firdzaus Mohd Nor	Universiti Malaya
30	Nuradilla Mohamad Fauzi	Universiti Malaya
31	Sheeba Nettukandy Chenoli	Universiti Malaya
32	Muhammad Hasifullah Ibrahim	Universiti Malaya
33	Goh Hong Ching	Universiti Malaya
34	Siti Syairah Atiqah Azhar	Universiti Malaya
35	Muhammad Yunus Ahmad Mazuki	Universiti Malaya
36	Noraini Mohyeddin	Universiti Malaya
37	Geok Yuan Annie Tan	Universiti Malaya
38	Lim Soon Hong	Universiti Malaya
39	Tan Yong Hao	Universiti Malaya
40	Cheah Wee	Universiti Malaya
41	Fayhearina A/K Yusoff	Universiti Malaya
42	Nurlizah Abu Bakar	Universiti Malaya
43	Anna Tutsilawati Md Komaruddin	Universiti Malaya
44	Wong Hao Jie	Universiti Malaya
45	Mohammed Rizman Idid	Universiti Malaya
46	Abiramy Krishnan	Universiti Malaya
47	Haris Zulfadhli Azman	Universiti Malaya
48	Clemente Michael Wong Vui Ling	Universiti Malaysia Sabah

49	Nur Athirah Yusof	Universiti Malaysia Sabah
50	Ching Xin Jie	Universiti Malaysia Sabah
51	Teoh Chui Peng	Universiti Malaysia Sabah
52	Justin Sentian	Universiti Malaysia Sabah
53	Heo Chong Chin	Universiti Teknologi MARA
54	Mohamad Firdaus Osman	Universiti Teknologi MARA
55	Nur Aliah Natasha Azmi	Universiti Teknologi MARA
56	Nurul Azmiera Zamri	Universiti Teknologi MARA
57	Rafidah Rasol	Universiti Teknologi MARA
58	Jamal Hussaini	Universiti Teknologi MARA
59	Mohd Hafizi Mahmud	Universiti Teknologi MARA
60	Sarabjit Singh	Universiti Teknologi MARA
61	Nur Nafhatun Nd Shariff	Universiti Teknologi MARA
62	Nurul Fathin Ngadiman	Universiti Teknologi MARA
63	Marfiah Ab Wahid	Universiti Teknologi MARA
64	Rozida Mohd Khalid	Universiti Kebangsaan Malaysia
65	Nik Amni Nik Husideen	Universiti Kebangsaan Malaysia
66	Ahmad Bazli Ramzi	Universiti Kebangsaan Malaysia
67	Ahmad Razi Othman	Universiti Kebangsaan Malaysia
68	Norbayah Yusop	Universiti Kebangsaan Malaysia
69	Kuhan Chandru	Universiti Kebangsaan Malaysia
70	Siti Aminah Bahari	Universiti Kebangsaan Malaysia
71	Sulaiman Ali Mohammad	Universiti Kebangsaan Malaysia
72	Mardina Abdullah	Universiti Kebangsaan Malaysia
73	Mohd Riduan Ahmad	Universiti Kebangsaan Malaysia
74	Nur'Izzati Ismail	Universiti Kebangsaan Malaysia

75	Wan Nur Arina Wan Mohd Nor	Universiti Kebangsaan Malaysia
76	Norbayah Yusop	Universiti Kebangsaan Malaysia
77	Harun Azhar	Universiti Kebangsaan Malaysia
78	Kloo Qiao Ning	Universiti Kebangsaan Malaysia
79	Muhammad Asyraf Latip	International Islamic University Malaysia
80	Noor Faizul Hadry Nordin	International Islamic University Malaysia
81	Rashidi Othman	International Islamic University Malaysia
82	Maria Jaafar	International Islamic University Malaysia
83	Zarina Zainuddin	International Islamic University Malaysia
84	Zaima Azira Zainal Abidin	International Islamic University Malaysia
85	Azzmer Azzar Abdul Hamis	International Islamic University Malaysia
86	Muhamad Shirwan Abdullah Sani	International Islamic University Malaysia
87	Zoya Khan	Universiti Sains Malaysia
88	Nur Fadzliana Abdul Rahman	Universiti Sains Malaysia
89	Muhammad Azri Abdul Wahed	Universiti Sains Malaysia
90	Ahmad Faris Ali	Universiti Sains Malaysia
91	Nik Mohd Izham Mohamed Nor	Universiti Sains Malaysia
92	Rashidah Abdul Rahim	Universiti Sains Malaysia
93	Faradina Merican Mohd Sidik Merican	Universiti Sains Malaysia
94	Aminu Surajo Osman	Universiti Sains Malaysia
95	Nur Syazana Mohd Zaki	Universiti Sains Malaysia
96	Wan Maznah Wan Omar	Universiti Sains Malaysia
97	Mohd Rizal Arshad	Universiti Sains Malaysia
98	Ahmad Firdaus Ahmad Shabudin	Universiti Sains Malaysia
99	Kok Yih Yih	International Medical University
100	Hong Wie Sze	International Medical University

101	Dang Nguk Ling	International Medical University
102	Catherine Chong Sze Ling	International Medical University
103	Wong Chiew Yen	International Medical University
104	Amalraj Fabian Davamani	International Medical University
105	Nur Alia Johari	International Medical University
106	Chong Chun Wie	International Medical University
107	Kenny Voon Gah Leong	International Medical University
108	Carolina Santiago	International Medical University
109	Chan Kok Keong	International Medical University
110	Eminour Muzalina Mustafa	Universiti Malaysia Terengganu
111	Wan Mohd Rauhan Wan Hussin	Universiti Malaysia Terengganu
112	Muhammad Hafeez Jeofry	Universiti Malaysia Terengganu
113	Siti Sofo Ismail	Universiti Malaysia Terengganu
114	Muhd Danish Daniel Abdullah	Universiti Malaysia Terengganu
115	Izwandy Idris	Universiti Malaysia Terengganu
116	Farrah Aini Dahalan	Universiti Malaysia Perlis
117	Seong-Joong Kim	Korea Polar Research Institute
118	Francisco Eliseu Aquino	Universidade Federal do Rio Grande do Sul
119	Lee Yu Jen	Universiti Tunku Abdul Rahman
120	Teoh Ming Li	Taylor's University
121	Mohd Riduan Ahmad	Universiti Teknikal Malaysia Melaka
122	Syazana Anuwar	Taylor's University
123	Larysa Samchyshyna	National Antarctic Scientific Center of Ukraine
124	Noor Ashikin Mohamad	Advocate/Solicitor