



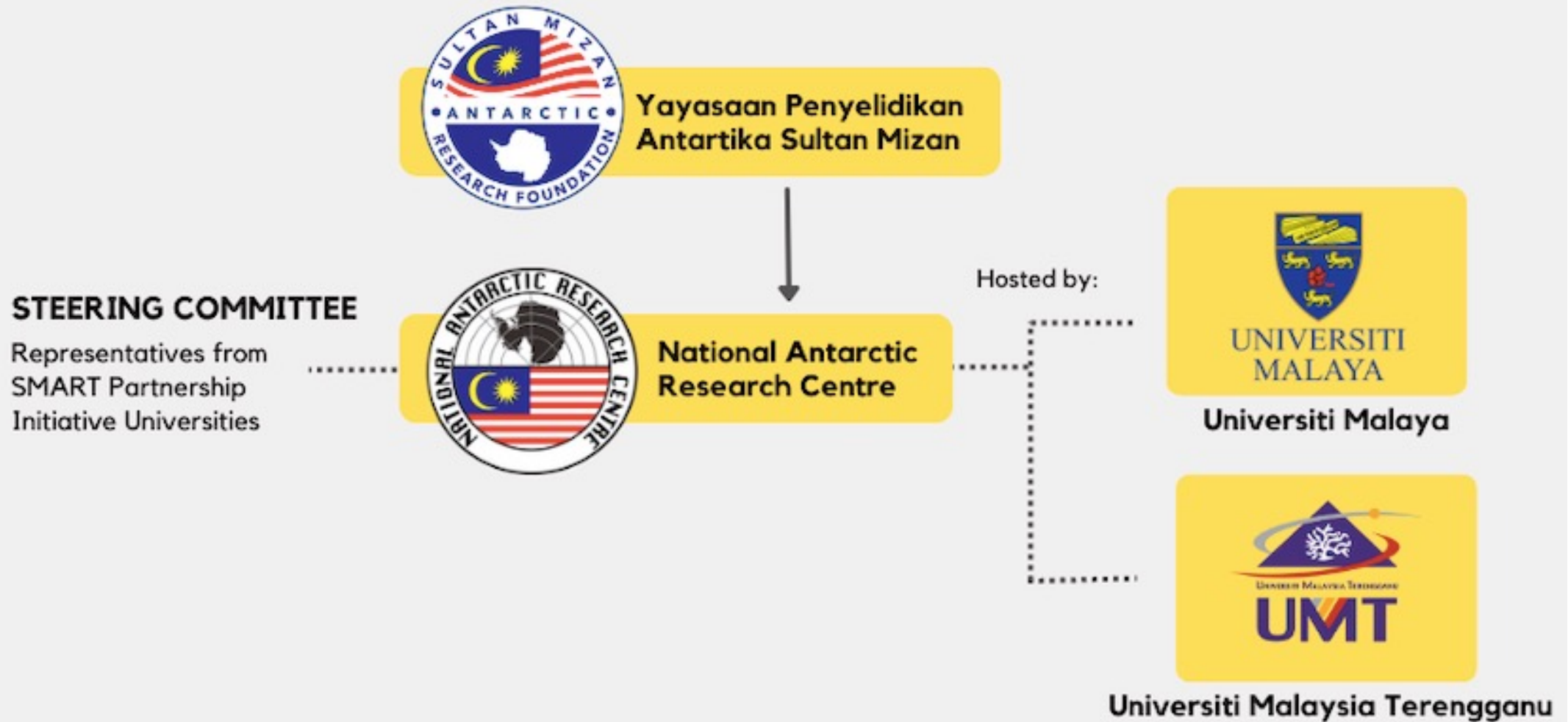
# NATIONAL ANTARCTIC RESEARCH : OPPORTUNITIES AND WAY FORWARD



# Plan of Talk

- Structure, Vision & Mission, Objectives and Roles & Function of NARC
- Priority areas and Polar research that Malaysians are conducting
- International collaboration and field of research in Malaysian expeditions to the Antarctic and Arctic with partner countries
- The Way Forward and Next Milestone
- SCAR and other important opportunities to initiate the research and network

# STRUCTURE OF NARC



# VISION

NARC is committed to addressing climate change issues, conserving the ecosystem, and strengthening polar international cooperation



# MISSION

Undertaking excellent research to strengthen Malaysian polar involvement through streamlining coordination, promoting an inclusive work environment, and acknowledging the interest of stakeholders.



# NARC - OBJECTIVES

- Facilitating and coordinating Malaysian scientific efforts in the areas of global sciences
- Fostering Malaysian polar researchers' capability and capacity at the national and international level
- Promoting and sustaining Malaysia's presence as a significant player in Polar research.

# ROLE AND FUNCTION OF NARC

- Coordinating Polar research activities
- Establishing networking and collaboration
- Identifying and coordinating research funds/projects
- Planning and organizing events e.g. conferences, symposiums, seminars, training, and outreach activities
- Advising the Malaysian Government on polar-related policy and governance

# DIRECTOR, DEPUTY DIRECTOR & STEERING COMMITTEE (SC)

## Director

Assoc. Prof. Dr. Siti Aisah Alias



## Deputy Director

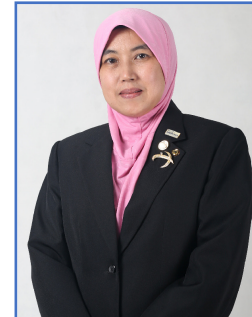
Dr. Wan Mohd Rauhan Wan Hussin



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Wan Omar  
(USM)



Prof. Ir. Dr. Mardina  
Abdullah  
(UKM)



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(UMS)



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(UMP)



Assoc. Prof. ChM. Ts.  
Abdul Hafidz Yusoff  
(UMK)



Assoc. Prof. Dr. Siti  
Aqlima Ahmad  
(UPM)



Dr. Wong Chiew Yen  
(IMU)



# HEAD OF GROUPS

## 1. BIOLOGICAL SCIENCES

Prof. Dr. Clemente Michael Wong

Vui Ling (UMS)



## 2. PHYSICAL SCIENCES

Dr. Sheeba Nettukandy Chenoli

(UM)

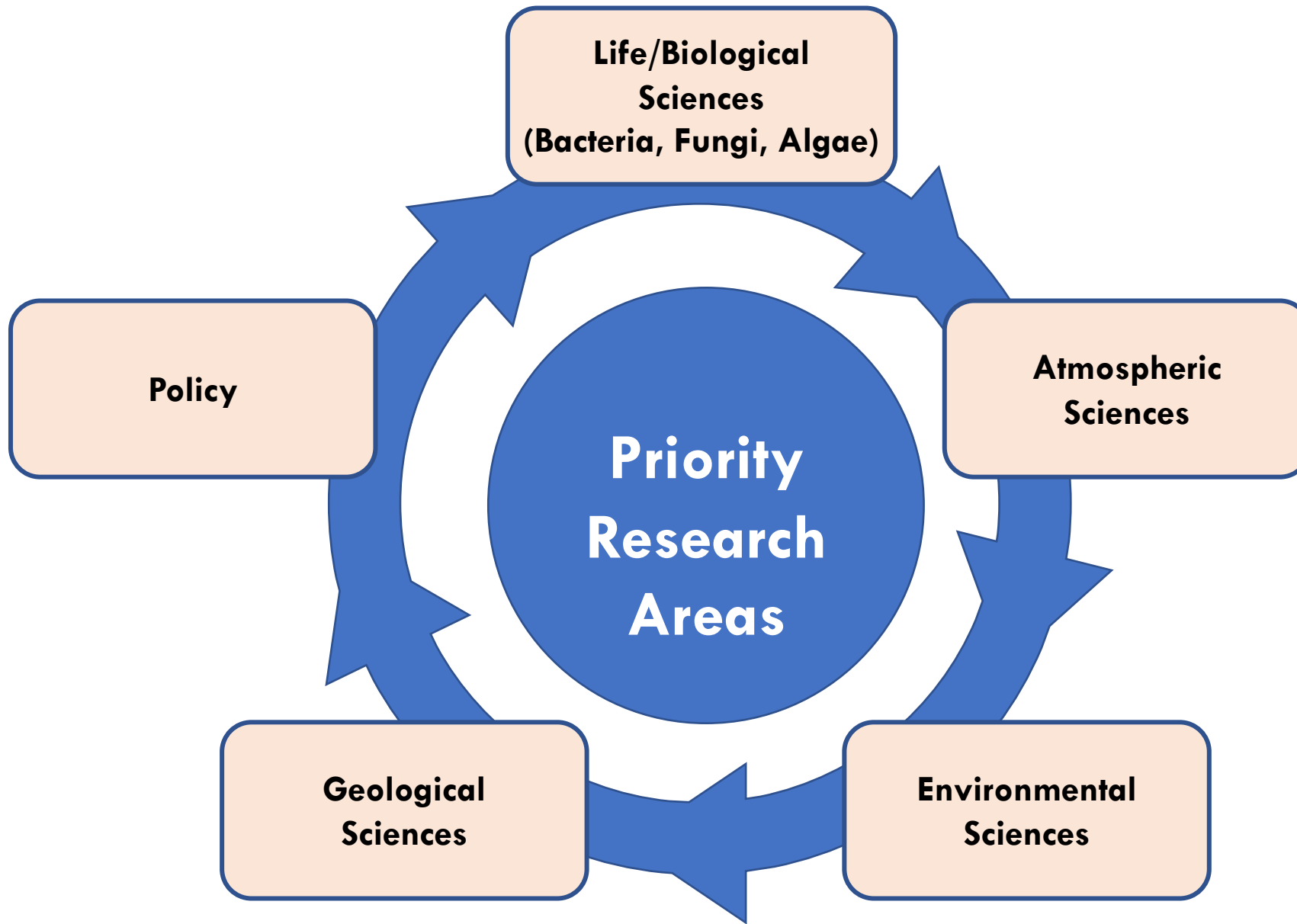


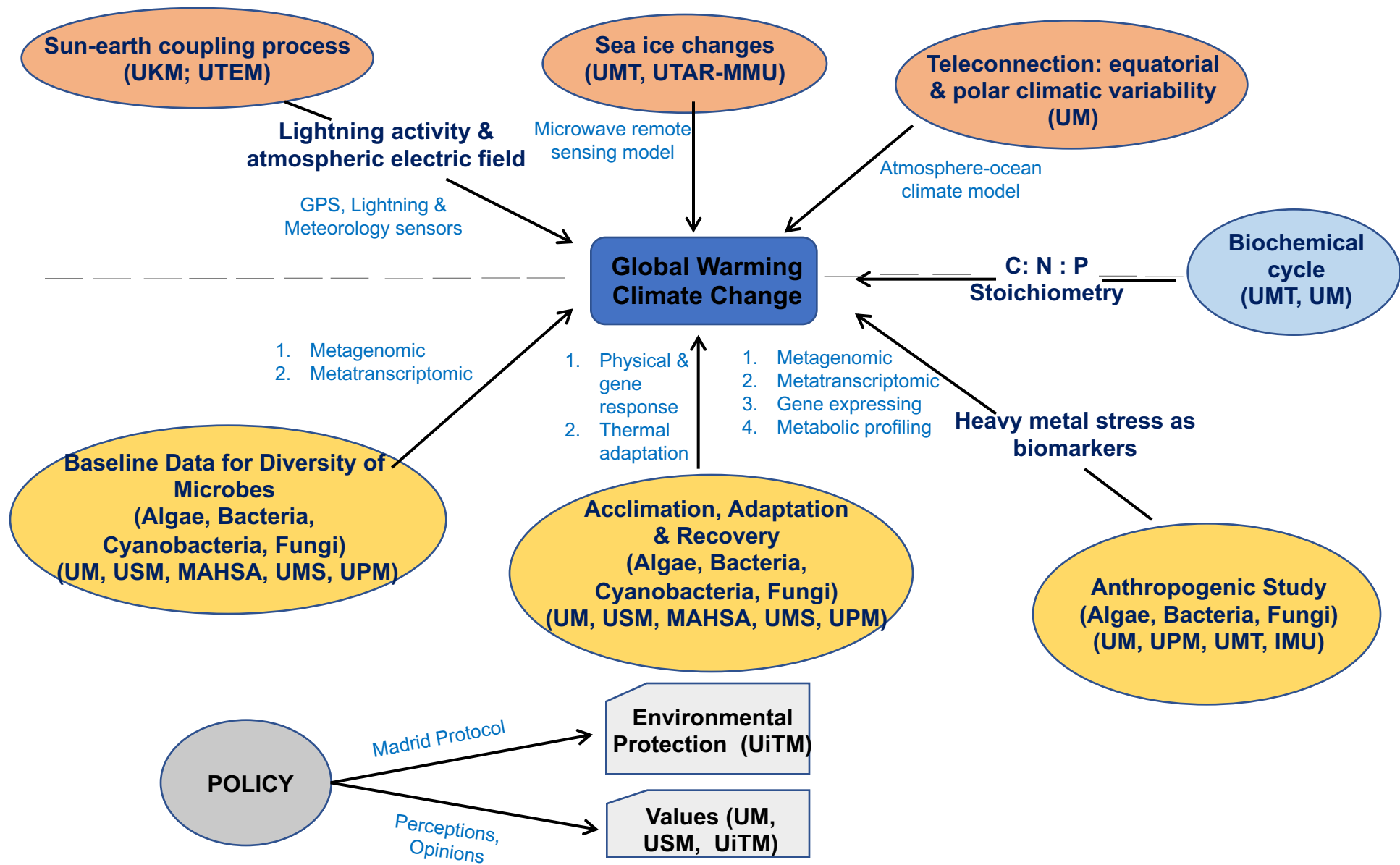
## 3. HUMANITIES & SOCIAL SCIENCES

*Tpr.* Dr. Goh Hong Ching

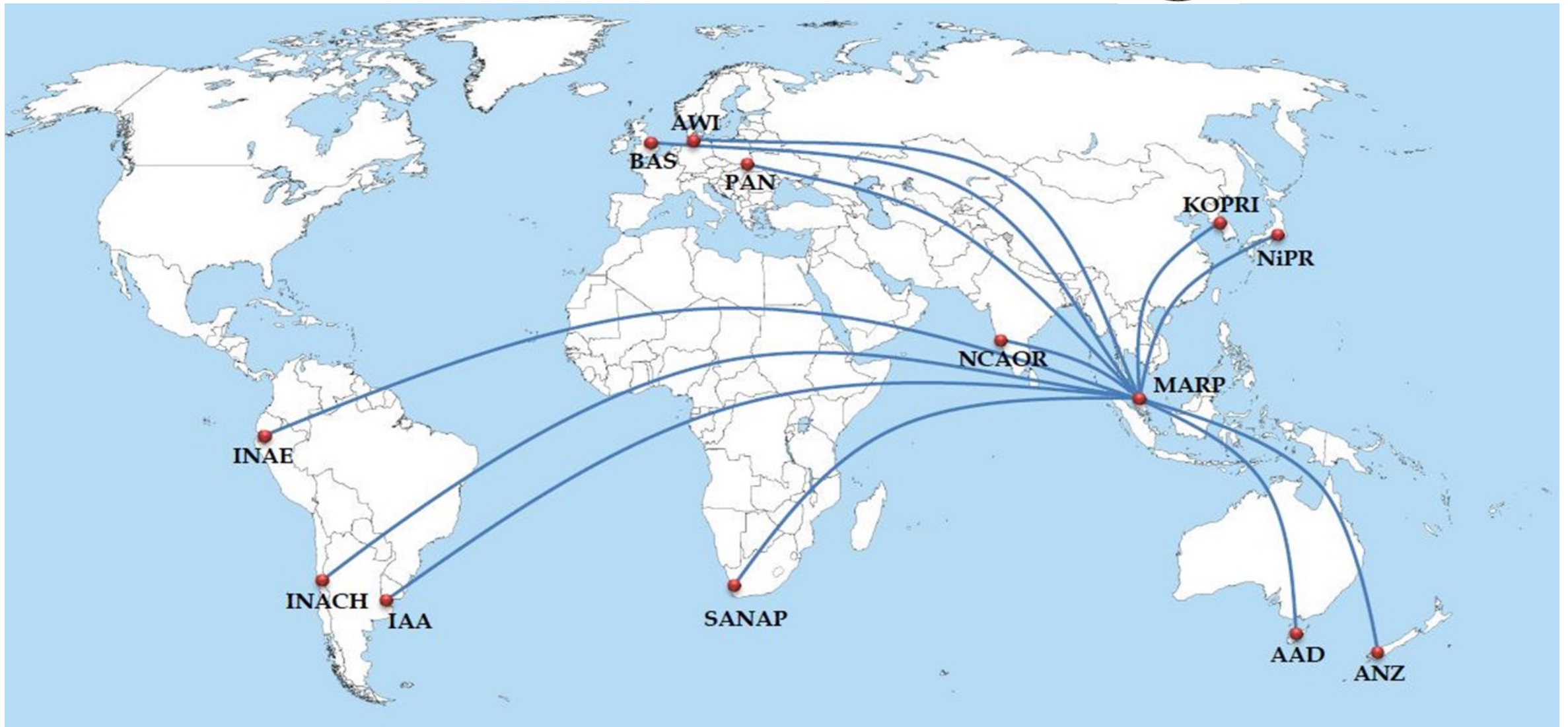
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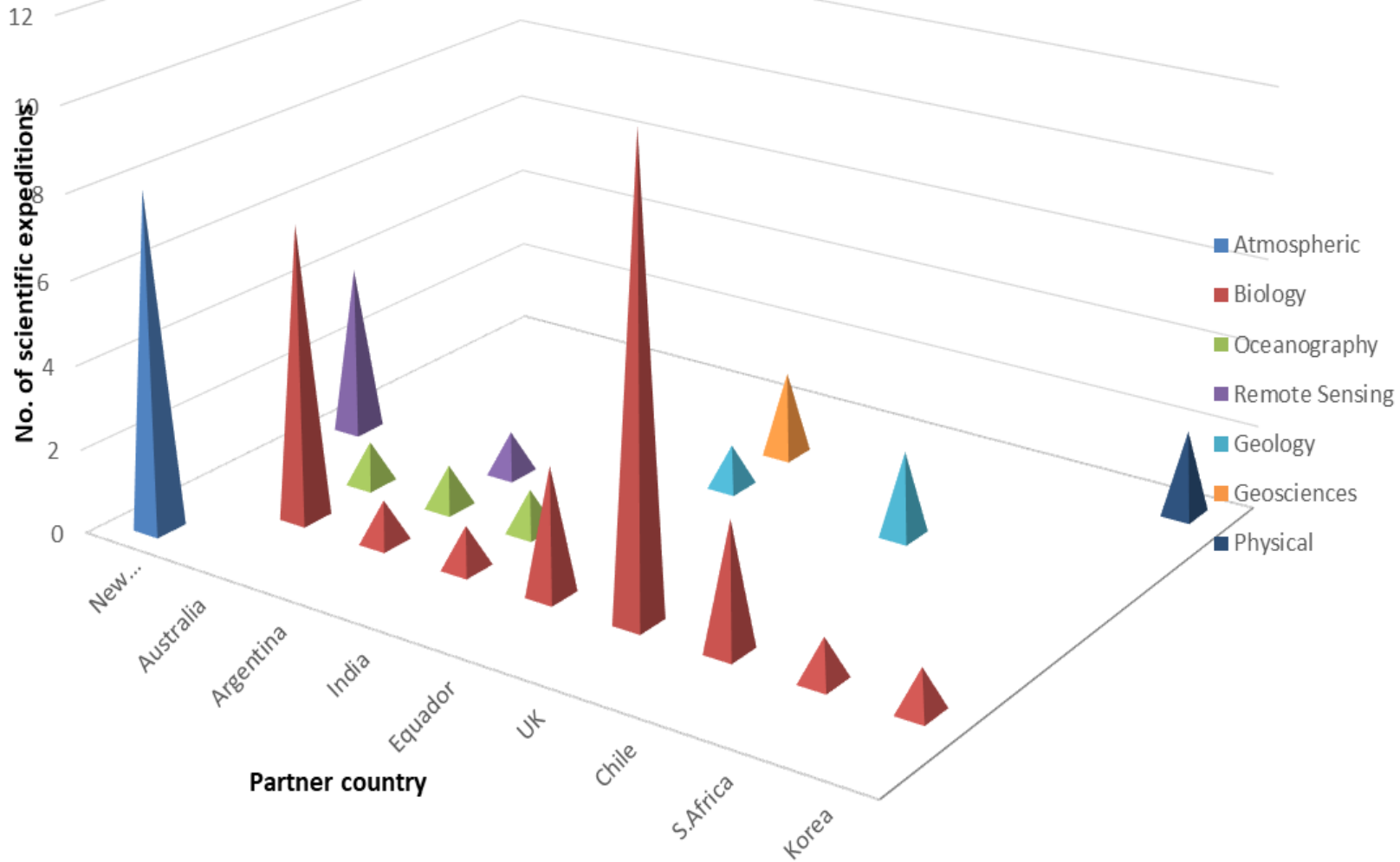




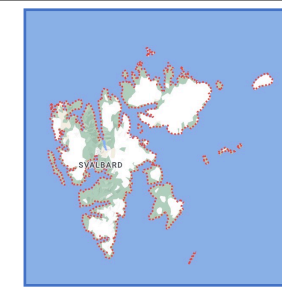
# International Collaboration under NARC



## Field of Research in Malaysian Expedition to Antarctica With Partner Countries



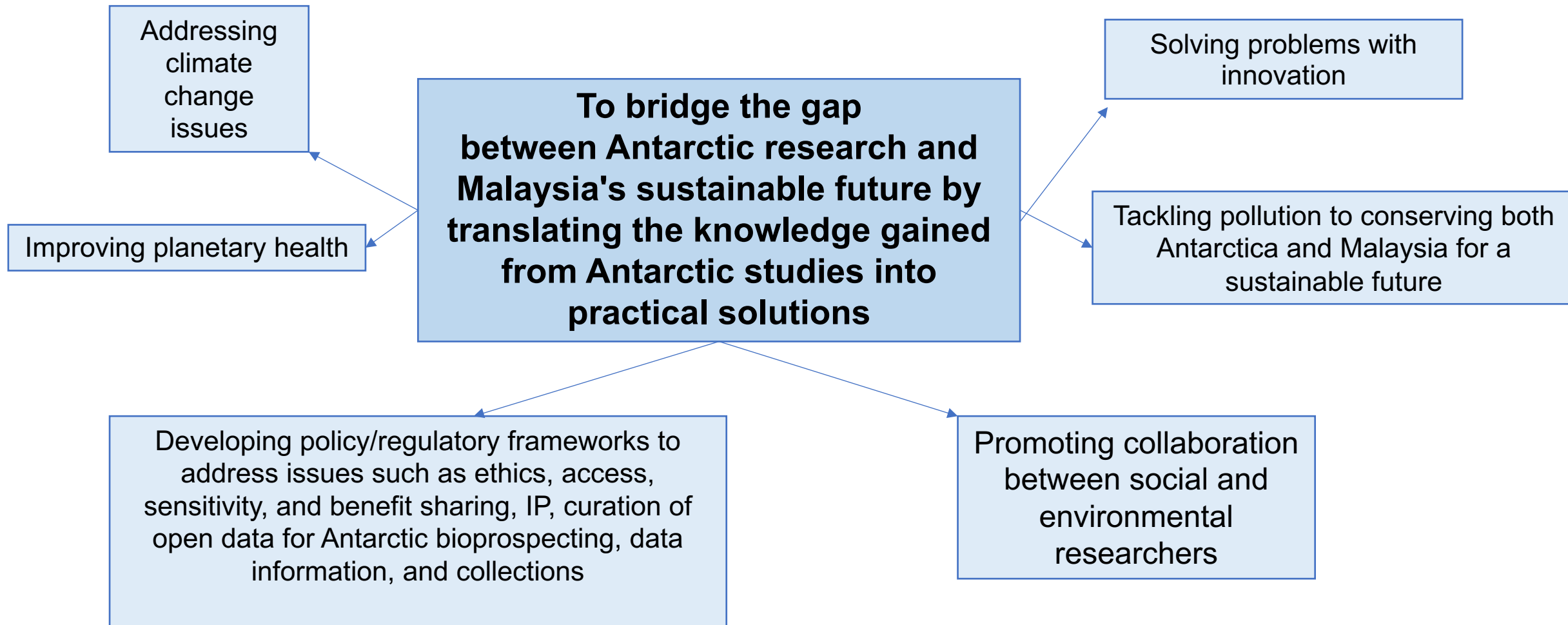
Arctic Expedition  
South Korea  
**Biology**



# The Way forward and Next Milestone

- Align with (YPASM)' objective & function: promote scientific research programs in the polar region based on the importance of the polar region and environmental sustainability
- Align our research direction in line with international efforts (SCAR, The Horizon Scan; International Polar Year)
- Get more Malaysians involved in SCAR Standing committees and Expert Group.

# 2023 Theme (YPASM Grant Proposal): ADVANCING POLAR RESEARCH FOR SUSTAINABLE FUTURE





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The Scientific Committee on Antarctic Research (SCAR) created in 1958. An interdisciplinary Scientific Body of the International Council of Science (ICSU).

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SCAR provides objective and independent scientific advice to the Antarctic Treaty Consultative Meetings and other organizations such as the UNFCCC and IPCC.

---

SCAR is charged with initiating, developing and coordinating high quality international scientific research in the Antarctic region (including the Southern Ocean), and on the role of the Antarctic region in the Earth system.



# How Does SCAR Accomplish its Mission?

- Standing Scientific Groups
- Expert Groups
- Action Groups
- Planning Groups
- Standing Committees
- Scientific Research Program
- Partnerships
- Open Science Conference
- Thematic Symposia/Workshops



Geosciences

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Life Sciences

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Physical Sciences

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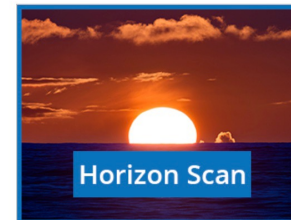
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Scientific Research Programmes

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Horizon Scan

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Data & Databases

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SCAR Library

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## National Representatives in the Life Sciences Group



## National Representatives in the Physical Sciences Group:



# THE HORIZON SCAN



- World's leading Antarctic scientists, policymakers, leaders, and visionaries to identify the most important scientific questions that will or should be addressed by research in and from the southern Polar Regions over the next two decades.
- The **80** most important scientific questions as identified by the Scan.
- Concluded in 2014



The questions identified fall broadly into six themes/Scientific Priorities:

1. Define the global reach of the Antarctic atmosphere and Southern Ocean.
2. Understand how, where and why ice sheets lose mass.
3. Reveal Antarctica's history.
4. Learn how Antarctic life evolved and survived.
5. Observe space and the Universe.
6. Recognize and mitigate human influences.

# THE HORIZON SCAN

Some example of questions..



1. How is climate change and variability in the high southern latitudes connected to lower latitudes including the Tropical Ocean and monsoon systems?

2. How do Antarctic processes affect mid-latitude weather and extreme events?

3. Will there be release of greenhouse gases stored in Antarctic and Southern Ocean clathrates, sediments, soils, and permafrost as climate changes?

4. What is the genomic basis of adaptation in Antarctic and Southern Ocean organisms and communities?

5. How will next-generation contaminants affect Antarctic and Southern Ocean biota and ecosystems?

6. What is the exposure and response of Antarctic organisms and ecosystems to atmospheric contaminants (e.g. black carbon, mercury, sulphur, etc.), and are the sources and distributions of these contaminants changing?

7. How can temporal and spatial "omic-level" analyses of Antarctic and Southern Ocean biodiversity inform ecological forecasting?

8. How can natural and human-induced environmental changes be distinguished, and how will this knowledge affect Antarctic governance?

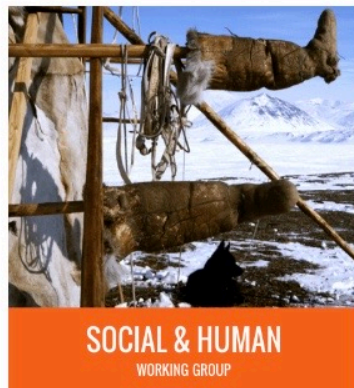
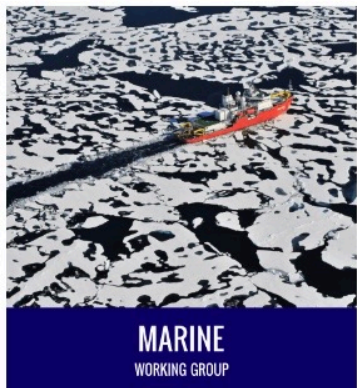
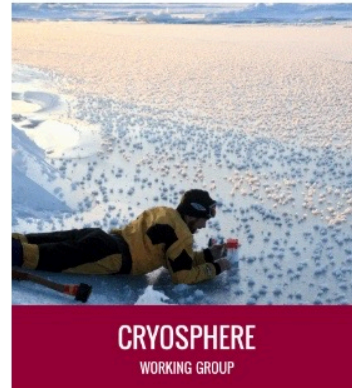
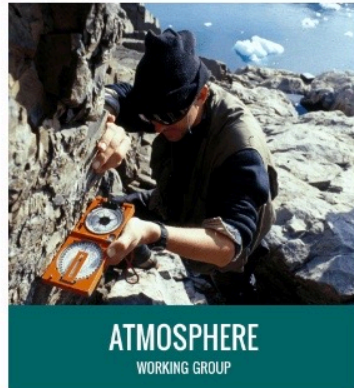
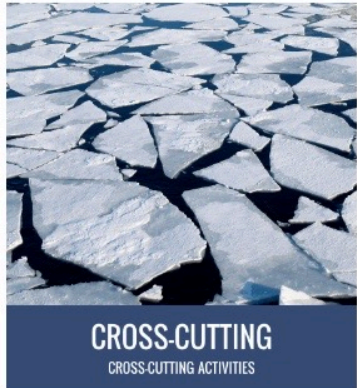
# International Polar Year - **5th International Polar Year (IPY) 2032-33**



*Joint statement from IASC and SCAR*  
**Planning for the 5th International Polar Year (IPY)**  
**2032-33**

- International Arctic Science Committee (IASC) and Scientific Committee on Antarctic Research (SCAR) are pleased to confirm that preparatory work has started for a **5th International Polar Year (IPY) in 2032-33**.
- Urgent need for coordinated international research to tackle the biggest challenges of polar research for the polar regions and the world as a whole.

# International Arctic Science Committee (IASC)



- A non-governmental, international scientific organization.
- IASC is to pursue a mission of encouraging and facilitating cooperation in all aspects of Arctic research, in all countries engaged in Arctic research, and in all areas of the Arctic region.
- Promotes and supports leading-edge interdisciplinary research for a greater scientific understanding of the Arctic region and its role in the Earth system.



**IASC**

## **ACTION GROUPS**

*e.g., Geoscience, Science Policy, Indigenous Involvement*

## **WORKING GROUPS**

*Atmosphere, Cryosphere, Marine, Social & Human & Terrestrial*

**ExCom  
COUNCIL  
Secretariat**

**Strategy**

**Science**

**Implementation**

**INSTRUMENTS TO  
SUPPORT SCIENCE DEVELOPMENT**

*Workshops,  
Assessments,  
Science Planning,  
Long-term Programs,  
Observer Activities, Fellows & more*

# Association of Polar Early Career Scientists (APECS)

- Association of Polar Early Career Scientists (APECS)

The screenshot displays the APECS website interface. At the top, a blue navigation bar contains the APECS logo (a snowflake icon followed by the text 'APECS') and a menu with the following items: Home, WHO WE ARE, GET INVOLVED, NEWS, EVENTS, CAREER RESOURCES, MENTORS, RESEARCH, and OUTREACH. Below the navigation bar is a horizontal gallery of four photographs showing groups of people at various events. To the right of the gallery is a vertical blue sidebar with three menu items: 'APECS Materials' with a downward arrow, 'Support APECS' with a downward arrow, and 'Contact Us'. Below the gallery is a section titled 'APECS National Committees Contact Info' featuring a world map. The map uses orange shading to indicate the geographical locations of APECS National Committees across North America, South America, Europe, Asia, and Australia. A legend in the bottom-left corner of the map shows an orange square next to the text 'APECS National Committees'. The text 'Created with mapbox.com' is visible in the bottom-right corner of the map area.

# Opportunities to initiate the research and network in Polar Science – for grant application / networking

- Visit [scar.org](http://scar.org) for SCAR research program and research areas.
- Research questions and link to Horizon Scan SCAR.
- NARC for Polar research scientists, scientific areas, and resources (genetic/relevant resources).
- YPASM for research that requires an expedition – Malaysia has some logistic support from National programs such as INACH (Chile), NASC (Ukraine) ,BAS (UK), KOPRI (S.Korea), NIPR(Japan), AAD(Australia), PRIC(China), etc.





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# 10th Malaysian International Seminar on Antarctica

“Polar Research for Sustainability & Planetary Health”

14 – 16 May 2024

Bangi Resort Hotel & Universiti Kebangsaan Malaysia, Bangi, Selangor

11th SCAR Open  
Science Conference.  
Pucon, Chile. 19-23  
August 2024

**SCAR-IASC Polar  
Conference in  
2030.**



ANTARCTIC SCIENCE: CROSSROADS FOR A NEW HOPE

SCAR BIENNIAL MEETINGS PUCÓN-CHILE 2024



# Some Polar Research can be undertaken without going to Antarctic or Arctic.

- Some polar research need not have fieldwork in the Antarctic or Arctic.
- A good example is doing simulation or modelling of atmospheric processes in the Antarctic where data is taken from READER data set.
- Teleconnection where ERA5 data set and global CMIP6 data set can be use.
- Remote sensing using satellite imageries + simulation.
- Bioprospecting using the vast microbial samples collected by previous polar microbiologists.

# Polar Research that need fieldwork

- Need to search for potential collaborators at the targeted National Polar program that you intend to carry out your research (YPASM and NARC can assist in trying to get your co-researcher or better you can identify your co-researcher for YPASM and NARC)
- Need to plan about 1 year before you intend to undertake your field work
- Need to research on the bureaucracy of Custom clearance, transfer of your equipment and permit for biology issue of bio-security and import of soil/rocks or microbe into Malaysia.

# Other Research Supports and opportunity

- YPASM Smart partnership
- AFOPS (Asian Forum on Polar Sciences)
- KOPRI International Fellowship (Korea Polar Research Institute)
- NIPR (National Institute of Polar research)
- SCAR Fellowship Grants
- APECS Early Career Fellows and Experienced Co-leads



# *Thank you*



Hosted by:



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