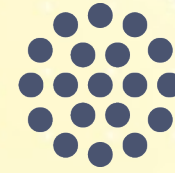


**International
Science Council**

Affiliated Bodies meeting

29 January 2025





**International
Science Council**

Welcome

Motoko Kotani, VP Science & Society





Objectives

- Identifying **synergies** and between ABs, and ABs and the ISC, in setting and delivering the global science agenda
- Using the expertise of ABs to **identify emerging issues**
- Mapping the potential contribution of the ABs within the ISC **strategic plan**
- Learn more about each AB's **priorities** for the coming years
- Identifying **mutually beneficial areas for collaboration** and **methods of engagement** between the ISC and Affiliated Bodies.

Affiliated Bodies

Research Programmes



Data Bodies



Observing Systems



Networks



Scientific Committees



IUCAF





Agenda

Objectives of the meeting – Motoko Kotani

Discussion topics:

1.1 The ISC strategic plan

1.2 Finding and mapping emerging issues

1.3 Discussion

2. Specific areas of collaboration

Coffee Break 10:45 – 11:15



Agenda

Coffee Break 10:45 – 11:15

Methods of engaging

3.1 Post-coffee brainstorm

3.2 Early and mid career scientists

3.3 Discussion

4. Governance approach [15']

Level of support needed from ISC

5. Other [20']

Concluding thoughts – Martin Visbeck

Integrated Research on Disaster Risk (IRDR)



Toward inclusive, safe and sustainable development

ABOUT

Vision

- Promote a better understanding of disaster risk and the effective use of risk science in decision-making.

Mission

- Improve knowledge and understanding of risk and uncertainty
- Promote innovation in research and action, and explore effective solutions in DRR
- Build institutional capacity required under various socio-economic and cultural settings and development

OPPORTUNITIES FOR COLLABORATION

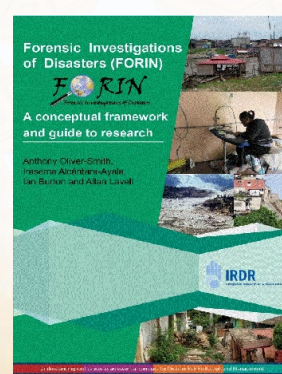
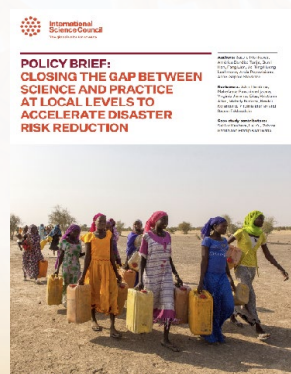
Work Stream and Pilot Study:

- Risk-informed development
- Climate change and public health
- DRR financing
- DRR education
- Citizen Science

Capacity building and training:

- International Centres of Excellence
- Training workshops, lectures and courses
- Empowering youth and young professionals

CURRENT/RECENT HIGHLIGHTS



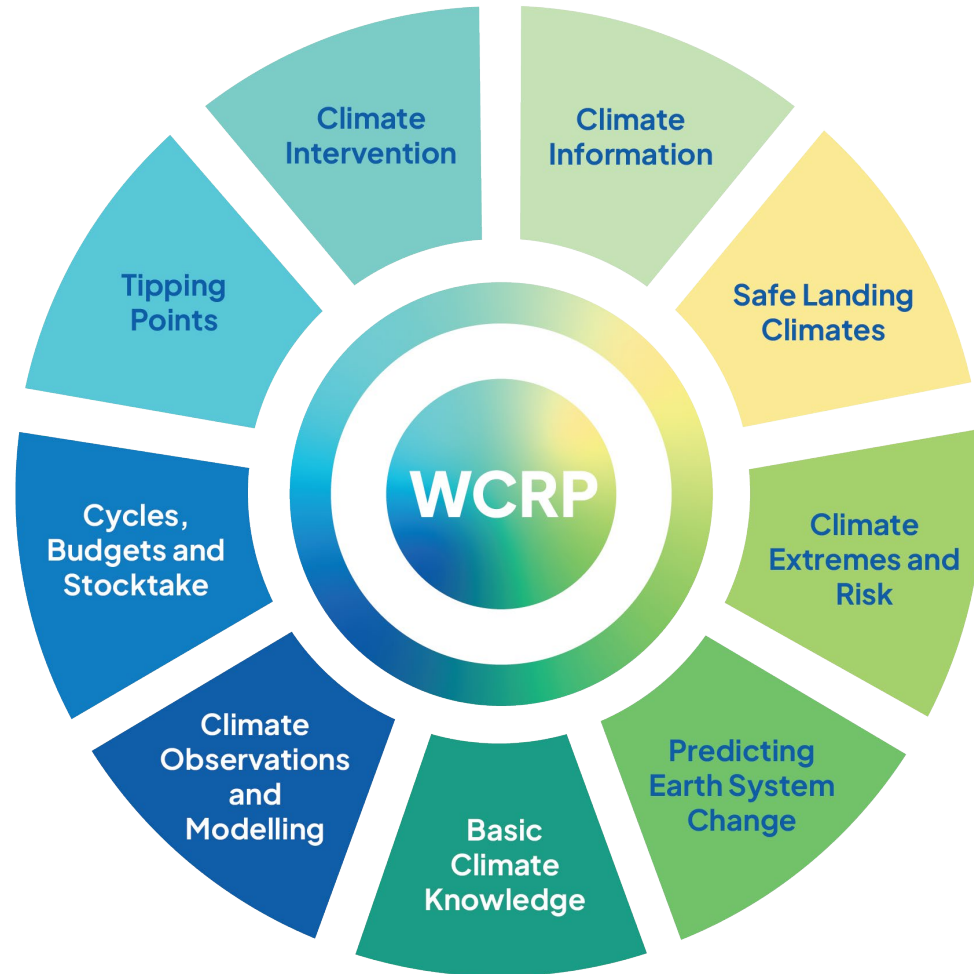
CONTACT

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saini.yang@irdrinternational.org

Fang Lian (Ms.)
Science Officer
fang.lian@irdrinternational.org



WCRP major ongoing Science Foci



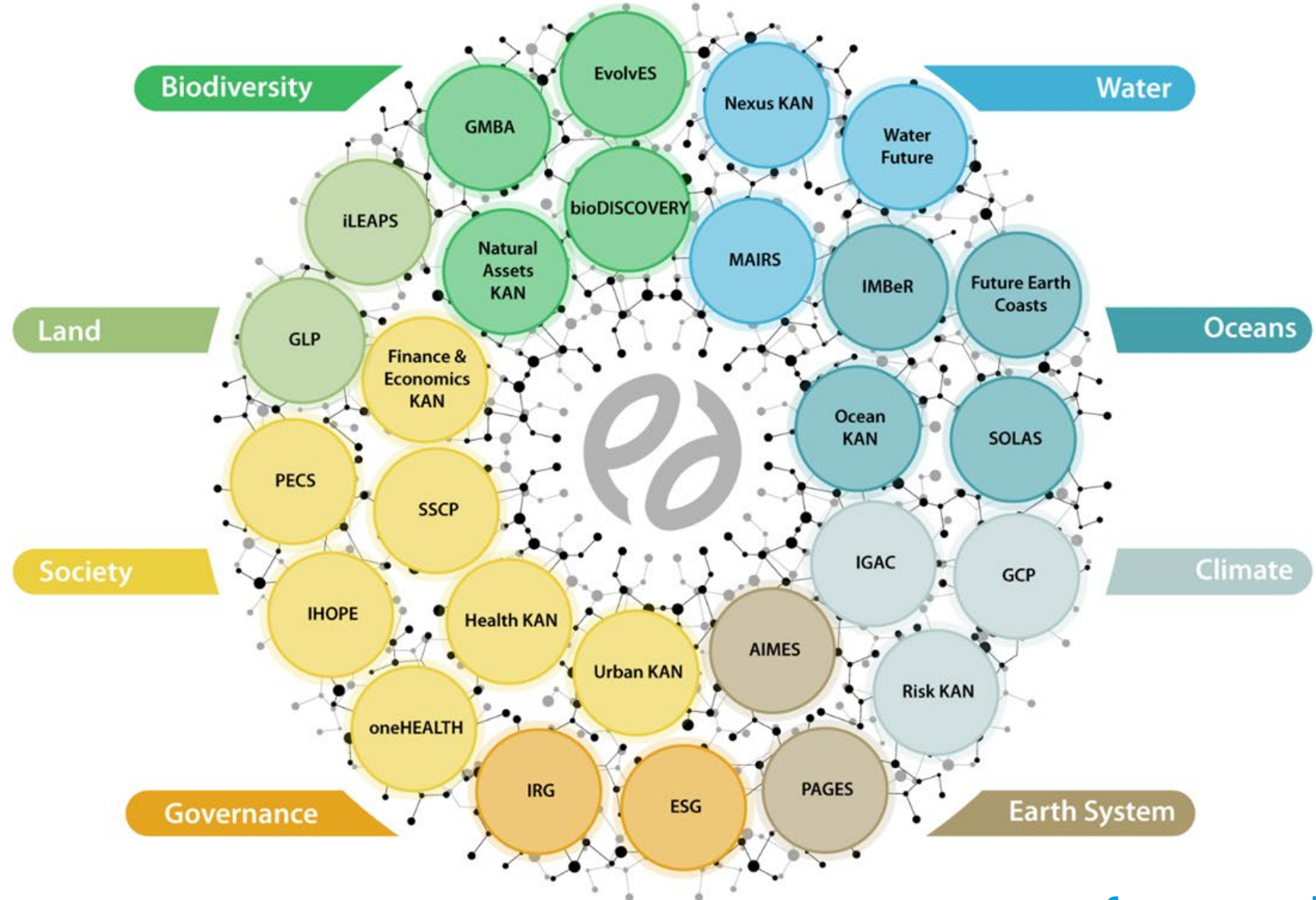
VISION:

A world that uses sound, relevant, and timely climate science to ensure a more resilient present and sustainable future for humankind.

MISSION:

To coordinate and facilitate international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.

Global Research Networks





futureearth

10 NEW INSIGHTS IN CLIMATE SCIENCE



1 Methane le Enforceable reductions

KEY MESSAGES

Atmospheric methane levels are rising due to emissions from human sources, including fossil fuels, livestock and waste. Without natural sinks, these levels are projected to continue to grow, reaching 100 ppm by 2050.

Cuts to emissions from fossil fuels, livestock and waste are feasible to mitigate rising methane levels, but also has significant economic costs.

There has also been a growth in methane emissions from human sources, these natural sinks are likely to continue to grow, reducing the net increase in atmospheric methane.

We have enough information to drive enforceable policies to drive methane emissions down.

It may be short-lived but methane is a potent greenhouse gas, with rising emissions contributing to an increase of 0.5°C in global temperatures since the late 1800s. A plateau in the early 2000s, atmospheric levels have resumed growth since 2006. In the last five years seeing the fastest rise ever since began. Rapid and deep cuts in methane from human activities are vital, alongside to curb carbon dioxide emissions, in order to limit warming within the Paris Agreement goals.

Understanding the main factors behind the rise in methane levels is crucial for developing adequate mitigation strategy. Evidence shows increasing emissions from human activities, from livestock and waste emissions followed by fossil fuel production and use as primary contributors, as well as reductions in methane's atmospheric concentration and a rise in emissions from tropical wetlands. In the decade from 2010, methane from human activities accounted for around two-thirds of total methane emissions.

Insight 5
28

POLICY IMPLICATIONS

- Although El Niño events are periodic, the magnitude and potential economic impacts, should be reflected in defining concrete adaptation plans expected by 2025. It is especially for their agricultural sector to prioritize Adaptation Plans (NAPs).
- The projected macroeconomic warming should add a sense of higher economic losses further.
- The severe costs of El Niño highlight the need for the AMOC slows or collapses. However, the likelihood and timing are uncertain.
- The UNFCCC could request the nomena, including climate tipping points.
- Investments are needed to strengthen indicators relevant to ENSO and climate dynamics to reduce uncertainty through interdisciplinary integration, including climate science.

Insight 3
20

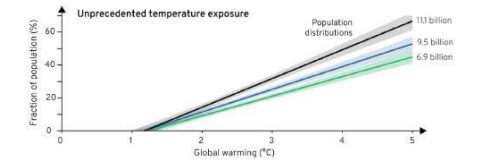
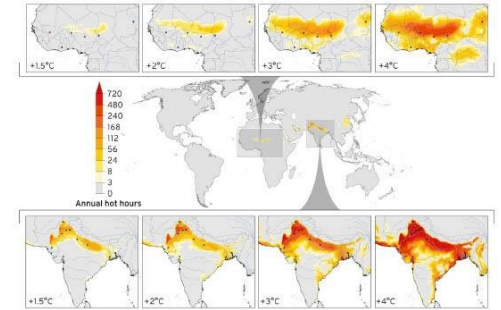


Figure 3. Increasing exposure to prolonged heat at different levels of global warming. Map of present heat-humidity risks to humans with inset projections of the heat-humidity changes for West Africa, as well as a plotted projection of the percentage of humanity exposed to unprecedented temperatures, both under different warming scenarios. Annual hot-hours global map (under 1.5°C warming) and West Africa and South Asia projections (under 1.5°, 2°, 3° and 4°C warming) (Vecellio et al. 2023). Bottom plot: Projection of fraction of humanity exposed to unprecedented temperatures (Lenton et al. 2023). Population (%) exposed to unprecedented heat (mean annual temperature $\geq 29^\circ\text{C}$) for the different population distributions: 6.9 billion (green), 9.5 billion (blue) and 11.1 billion (grey).

In the future, many regions will experience an increased frequency, duration and magnitude of heatwaves in addition to higher average temperatures. South Asia and the Persian Gulf are already experiencing deadly heat as the world approaches 1.5°C of warming. Global analyses predict that in general, heat extremes will be concentrated in low-latitude regions, which disproportionately include many Global South countries (Figure 3). The impacts of heat will not just be unevenly distributed globally, but also within the local populations of affected regions. Outdoor workers, older people,

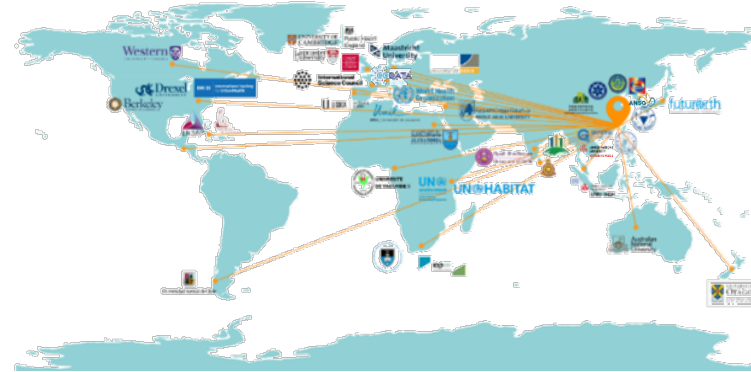
young children, people with pre-existing illnesses, and those with cognitive or physical impairments are particularly at risk in extremely hot and humid conditions. Different communities experience heat impacts differently; cities, for example, experience higher temperatures compared to rural surroundings because of the urban heat island effect.

Humans have adopted a wide range of individual, social and structural adaptations that enable them to thrive outside of the ideal climate niche. These adaptation measures will be critical as more regions

URBAN HEALTH AND WELLBEING (UHWB)

Past Highlights:

- International academic exchanges
- Talent training and capacity building
- UH knowledge publicity



Future Strategies:

	Networking	Cooperation	Training	Publication
Global Level	<ul style="list-style-type: none"> UN-Habitat: MOU ISUH Membership 	<ul style="list-style-type: none"> UN-ESCAP UNEP WHO UH Dept. 	<ul style="list-style-type: none"> USS Lectures MOOC on Urban Health 	<ul style="list-style-type: none"> UN Report WHO Report Journal & Podcast
Regional Level	<ul style="list-style-type: none"> ISC Regional Offices Regional Centers of UHWB 		<ul style="list-style-type: none"> The Belt and Road Alliance of Urban Environmental Health 	<ul style="list-style-type: none"> Policy Brief and consulting reports with SC Members and global partners
Local Level	<ul style="list-style-type: none"> Guangzhou International Award for Urban Innovation 		<ul style="list-style-type: none"> Mayors Forum Guangzhou, ICLEI Demonstration Project: Urban Health Check 	

- Creating healthy and sustainable 'lives' for both people and the planet.
- Improve global impact and promote SDGs.

Connecting data and people to advance science and to improve our world!

Three strategic priorities:

- 1. Making data work for global grand challenges:** policy guidance and technical recommendations for interdisciplinary research.
 - Growing suite of **WorldFAIR+** projects implementing, refining and extending the **Cross-Domain Interoperability Framework (CDIF)**.
- 2. Promoting data policy:** encouraging the adoption of principles, policies and practices for FAIR data and trustworthy, equitable and transparent science.
 - **International Data Policy Committee** and UNESCO-CODATA WG on **Data Policy for Crisis Situations**.

- 3. Putting data science and AI in service of science:** guidelines for transparency and reproducibility.
 - Developing a **position paper on AI for Science**, projects and partnerships on data and AI.
 - TGs on Fundamental Constants, Digital Representation of Units of Measure, DRR, Data Skills, Citizen Science...

Growing the organisation!

- Expanding resources (12 members of staff, recruiting 1-2 more in 2025). **Expanding membership!**

International Data Week, SciDataCon and CODATA General Assembly, October 2025

- Call for sessions and papers, deadline 15 April.



UNESCO-
CODATA
DPTC



SciDataCon
Call for
Sessions and
Papers



The World Data System

WDS Mission

...is to enhance the capabilities, impact, and sustainability of our member data repositories and data services by:

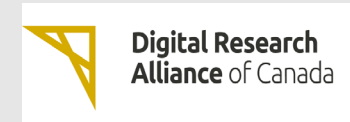
- **Creating** trusted communities of scientific data repositories
- **Strengthening** the scientific enterprise throughout the entire lifecycle of data and all related components creating first-class data that feeds first-class research output
- **Advocating** for accessible data and transparent and reproducible science

2025-2027 Action Plan

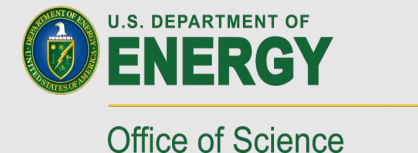
1. Provide services and support to member repositories
2. Advance the value narratives of WDS members
3. Demonstrate global leadership in data governance
4. Advocate for quality, trustworthiness, equitability, and FAIRness of data and data repositories worldwide

Structure & Function

2018 - ITO created, based at Ocean Networks Canada, University of Victoria



2021 - IPO moved from Japan to the UTK / ORNL, United States





International Network
for Governmental
Science Advice

Presentation of INGSA

**By Prof. Rémi Quirion, President of INGSA
and Québec Chief Scientist**

The International Network for Governmental Science Advice

INGSA

INGSA is a collaborative platform for exchange, capacity building & research on knowledge-to-policy systems at all level of society and governance.

- Established in 2014.
- Over 6,200 members in 120 countries.
- Presided by Prof. Rémi Quirion
- Led by Secretariat (NZ and Canada)
- Grass-roots semi-autonomous Regional Chapters (Africa, Asia, Latin America & Caribbean and Europe) & Thematic Divisions (Foreign Ministries, *Réseau International Francophone en Conseil Scientifique*).
- Governed by a Board of representatives of chapters, members, president & vice-presidents.
- Highly collaborative.

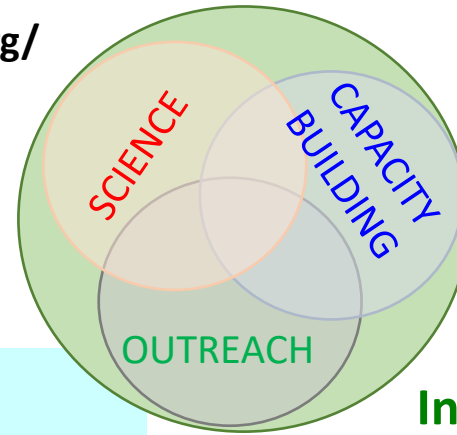
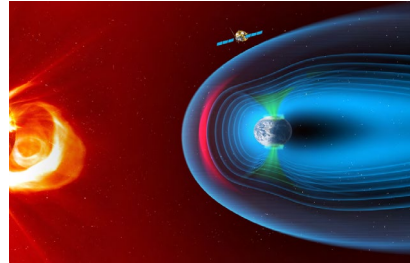
Projects and activities

- Capacity development workshops & workshops for individuals and institutions.
- Triennial conferences (Rwanda in 2024 & Kuala Lumpur in 2027).
- Research Projects from Chapters (Ex : INCLUSIVE Project by the European Chapter)
- Joint training & training material programs (Ex : ISC-INGSA Modules)
- Usage of network for projects & dissemination (UN-SAB participation & Global Evidence Synthesis project)



Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

Presenter: Kazuo Shiokawa, President <https://scostep.org/>



SCOSTEP Bureau consists of representatives of eight participating bodies, which are ISC bodies, i.e., **COSPAR, IAGA, IAMAS, IAU, IUPAP, SCAR, URSI, and WDS**

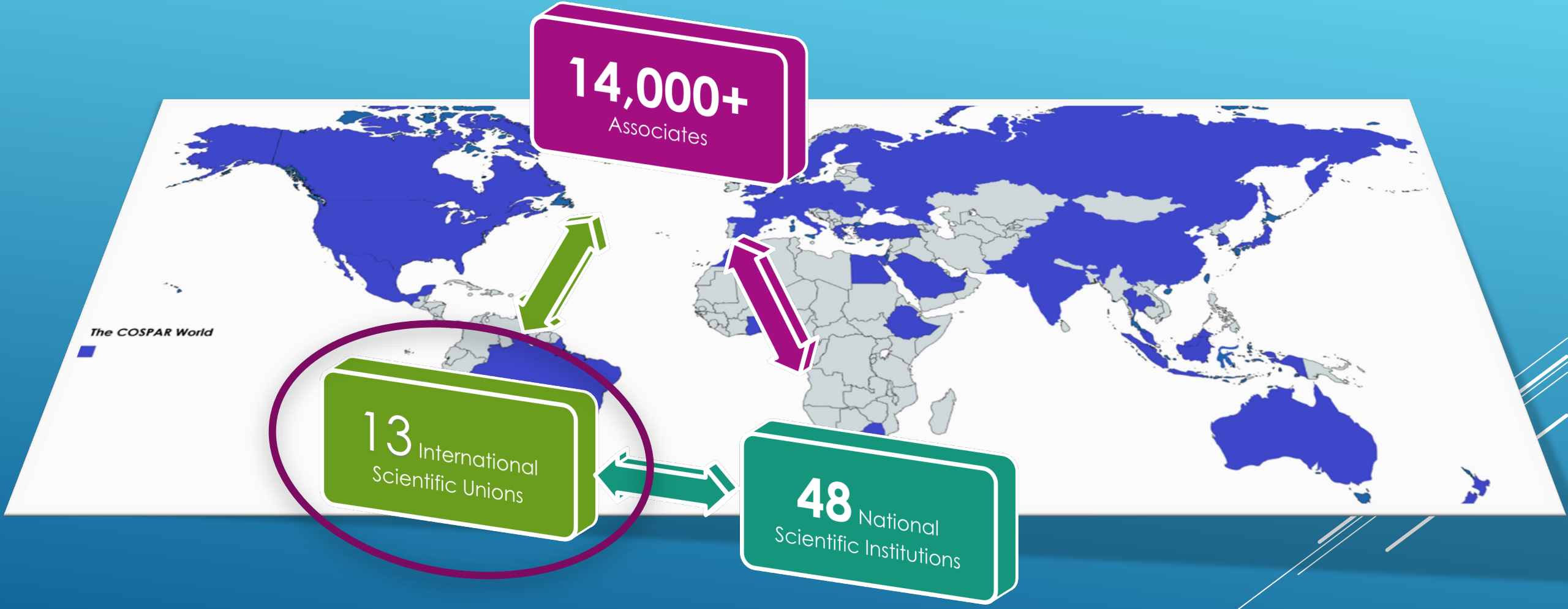
- An affiliated body of the International Science Council (ISC) and a permanent observer at United Nations Committee on Peaceful Uses of Outer Space (UN COPUOS)
- Runs **long-term (4-5 years) international interdisciplinary scientific programs** of solar terrestrial physics
- Engages in **Capacity Building** activities such as the Space Science Schools and comic book distributions.
- Disseminates new knowledge on the Sun-Earth System and how the Sun affects life and society, as **outreach activities**

International interdisciplinary programs in solar-terrestrial physics operated by SCOSTEP

- 1976-1979: **IMS** (International Magnetosphere Study)
- 1979-1981: **SMY** (Solar Maximum Year)
- 1982-1985: **MAP** (Middle Atmosphere Program)
- 1990-1997: **STEP** (Solar-Terrestrial Energy Program)
- 1998-2002: **Post-STEP** (S-RAMP, PSMOS, EPIC, and ISCS)
- 2004-2008: **CAWSES** (Climate and Weather of the Sun-Earth System)
- 2009-2013: **CAWSES-II** (Climate and Weather of the Sun-Earth System-II)
- 2014-2018: **VarSITI** (Variability of the Sun and Its Terrestrial Impact)
- 2020-2024: **PRESTO** (Predictability of the Variable Solar-Terrestrial Coupling)
- 2026-2030: **COURSE** (Cross-scale Coupling Processes in the Solar-Terrestrial System)



COSPAR
COMMITTEE ON
SPACE RESEARCH



Scientific Commissions, Panels and Task Groups

COSPAR works through 8 Scientific Commissions, each focusing on various fields of space science:

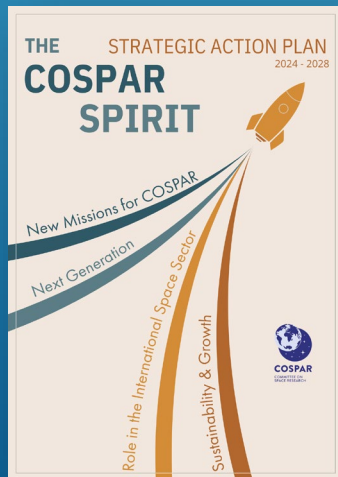
-  **Commission A:**
Space Studies of the Earth's Surface, Meteorology, and Climate
-  **Commission B:**
Space Studies of the Earth-Moon System, Planets, and Small Bodies of the Solar System
-  **Commission C:**
Space Studies of the Upper Atmospheres of the Earth and Planets Including Reference Atmosphere
-  **Commission D:**
Space Plasmas in the Solar System, Including Planetary Magnetospheres
-  **Commission E:**
Research in Astrophysics from Space
-  **Commission F:**
Life Sciences as Related to Space
-  **Commission G:**
Materials Sciences in Space
-  **Commission H:**
Fundamental Physics in Space

COSPAR Panels focus on more specialized areas:

-  **Technical Panel on Satellite Dynamics (PSD)**
-  **Panel on Technical Problems Related to Scientific Ballooning (PTSB)**
-  **Panel on Potentially Environmentally Detrimental Activities in Space (PEDAS)**
-  **Panel on Radiation Belt Environment Modelling (PRBEM)**
-  **Panel on Space Weather (PSW)**
-  **Panel on Planetary Protection (PPP)**
-  **Panel on Capacity Building (PCB)**
-  **Panel on Education (PE)**
-  **Panel on Exploration (PEX)**
-  **Panel on Interstellar Research (PIR)**
-  **Panel on Innovative Solutions (PiS)**
-  **Panel on Social Sciences and Humanities (PSSH)**
-  **Panel on IDEA (Inclusion, Diversity, Equity, and Accessibility) Initiative (PIDEA)**
-  **Panel on Establishing a Constellation of Small Satellites (PCSS)**
-  **Panel on Machine Learning and Data Science (PMLDS)**

COSPAR Task Groups are:

- URSI/COSPAR Task Group on the International Reference Ionosphere (IRI)
- COSPAR/URSI Task Group on Reference Atmospheres, including ISO WG4 (CIRA)
- Task Group on Reference Atmospheres of Planets and Satellites (RAP5)
- Task Group on the GEO (TG GEO)
- Task Group on Establishing an International Geospace Systems Program (TIGISP)



EXPLORE

- ▶ Established by ICSU in 1958 (London), first Assembly in 1960 (Nice)
- ▶ Representing space scientists worldwide, neutral forum
- ▶ Biennial Scientific Assemblies and Symposia
- ▶ Guiding compliance with the provisions laid out in UN Outer Space Treaty 1967 (planetary protection, space weather, detrimental activities in space, space navigation, mission planning)
- ▶ 8 Scientific Commissions, 15 Panels, 5 Task Groups (including Education and SSH) spanning all areas of space research
- ▶ Roadmaps, guiding decision-making (sustainable exploration, climate change, space weather, small satellites for science, education)
- ▶ Capacity Building (23 years, 48 workshops) in space accessing countries
- ▶ Support to young and early career scientists and participation in ERASMUS+ projects (space for the classroom)

IUCAF In a Nutshell

Scientific Committee on Frequency Allocations for Radio Astronomy & Space Science

- Now an Affiliated Body, formed in 1960 by IAU & URSI as The **I**nter-**U**nion **C**ommittee on **A**llocation of **F**requencies to secure radio spectrum regulatory protection for the H I line at 1420 MHz = λ 21cm
- Since 1972 draws ~10 members+support from IAU, URSI, COSPAR
- Works as a Sector Member at ITU-R to achieve regulatory protection for passive radio science

- **Satellite coordination**

**Coordination Agreement between
the European Space Agency (ESA)
and**

**the Scientific Committee on Frequency Allocations for Radio Astronomy and
Space Science (IUCAF)**

on the mutual planning procedure for EESS (active) cloud profile radar operations
with radio astronomy service observations in the band 94-94.1 GHz
between EARTHCARE* and IUCAF

SCIENTIFIC COMMITTEE
ON
FREQUENCY ALLOCATIONS
IUCAF FOR
RADIO ASTRONOMY
AND
SPACE SCIENCE

- **Outreach&Education**



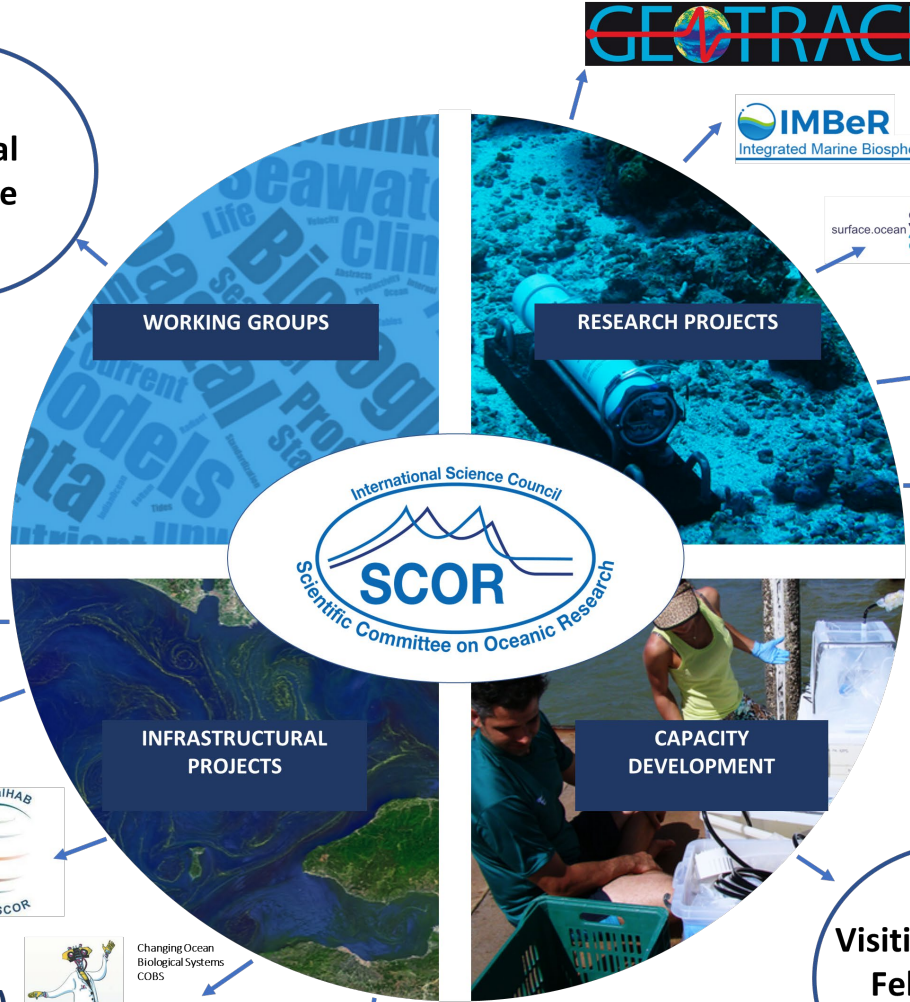
Stellenbosch, SA March 2020



Scientific Committee on Oceanic Research

International cooperation and capacity building in ocean sciences

172 Total
14 Active



GEOTRACES – trace elements and isotopes



Integrated Marine Biosphere Research (IMBeR) project



Surface Ocean-Lower Atmosphere Study (SOLAS)



International Quiet Ocean Experiment (IQOE)



Second International Indian Ocean Expedition (IIOE-2)

Partnerships include



International Ocean Carbon Coordination Project (IOCCP)



Southern Ocean Observing System (SOOS)



Global Harmful Algal Blooms (GlobalHAB)



Changing Ocean Biological Systems (COBS)



Changing Ocean Biological Systems COBS

Visiting Scholars
Fellowships
Travel support
RGNO

**New Executive Director
June 2023:
Emily Twigg**



Joint Committee on Seawater (JCS)



Joint Committee on Seawater

Scientific Committee on Antarctic Research (SCAR)



ABOUT SCAR

- Established in 1958 to coordinate **international scientific research in the Antarctic region**
- Provides **objective and independent scientific advice** to policy-making bodies, including the Antarctic Treaty Consultative Meetings, UNFCCC and IPCC
- Fosters **collaboration across disciplines** and nations for cutting-edge Antarctic research

GET INVOLVED!

- Join our **Scientific Research Programmes or Expert/Action Groups** exploring topics like climate, biodiversity, geospace, or polar law
- Contribute to the **Antarctic Environments Portal** – a page linking Antarctic science to policy
- Apply for **capacity-building initiatives**, including annual fellowships, visiting scholarships, and discipline-specific opportunities
- Get involved in the planning for the **International Polar Year (IPY) 2032–33**
- Attend **SCAR meetings**, such as our biennial Open Science Conference, symposia and other events

CONTACT US

Website: www.scar.org

Email: info@scar.org

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[SCARAntarctic](https://www.facebook.com/SCARAntarctic)

Learn more about selected projects:



A mutualistic relationship

- Established in response to a need for coordination on issue of global concern
- Provide a foundational legitimacy to issues that ISC can raise in policy dialogues
- ISC provides a high level “home” and the absence of country-specific agendas

ISC Strategic Priorities 2024 - 2028

1. Freedom, Responsibility & Inclusivity in Science

2. International science agenda setting

3. The evolution of science

4. Evidence-based policymaking

5. Science diplomacy

ISC Strategic Priorities 2024 - 2028

2. International science agenda setting

- Identifying & acting on emerging issues of global concern
- The sustainability agenda
- Human & societal development
- Fundamental science as a route to development

ISC Strategic Priorities 2024 - 2028

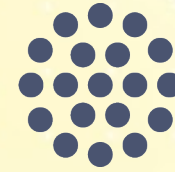
4. Evidence-based policymaking

- Delivering science advice to the multi-lateral system
- Enhancing the science advice capabilities of ISC Members
- Shaping the science-policy interface

ISC Strategic Priorities 2024 - 2028

5. Science diplomacy

- Multi-lateral science diplomacy
- Regional and country-level science diplomacy

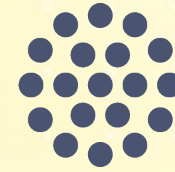


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29 January 2025





**International
Science Council**

Summary

Martin Visbeck, ISC Governing Board

