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WCRP World Climate Research Programme

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Decisions and Actions

1. Funding Mobilisation and budget

Decisions:

D01. WCRP budget for 2026 approved.

D02. The 47th Session of the JSC in 2026 will be entirely virtual.

D03. A committee will be set up to focus on WCRP fundraising activities.

D04. An additional 30k CHF (2025 financial year) will be allocated to the WCRP/IPCC Workshop on Tipping Points

D05. Create a contingency fund (2026 financial year) for communications, essential travel, funding/resource mobilization etc. with 100k allocated.

2. Strategic partnerships

Decision:

D06. WCRP to re-engage with Future Earth to produce the 10 New Insights in Climate Science (10NICS) in 2026. The engagement level beyond the participation of WCRP experts in the writing of the 10NICS will depend on the WCRP Secretariat's capacity and will be decided after ensuring the process is well defined. The WCRP logo can be added to the 10NICS Report in 2025 following due diligence by the WCRP JSC Chair and the Head of the WCRP Secretariat. A vetting process for communications of the 10NICS will be provided by the WCRP Secretariat if required.

Action:

A01. Engage with UNFCCC to (a) invite UNFCCC representatives to attend and contribute to WCRP-organized scientific workshops, as a way to restart joint capacity-building activities (b) initiate informal discussions between the UNFCCC and WCRP to enable timely planning and coordination for COP and related events (Secretariat; JSC-46B).

3. Science foci and future priorities

Actions:

A02. Determine a process for identifying future science priorities and assessments (e.g., sea-level projections and impacts, artificial intelligence, integrated mountain glacier and hydrological systems, activities), including how to initiate a process for the next strategic plan (JSC; JSC-47)

A03. Initiate a JSC led task team (with clear Terms of Reference (ToR)) to define future science directions for the next WCRP Strategic Plan. Engage with the WCRP community, considering the Kigali Declaration, science foci, and cross cutting future directions (JSC; for JSC47 but Task Team by end of 2025).

A04. Establish a WMO mandate for CMIP forcings (example, historical climate forcings) to help obtain sustainable funding for their continuation (JSC, WCRP Leadership, Secretariat, EC-80)

A05. Complete the current survey on potential changes to the current science foci diagram and report back on findings (Secretariat; JSC-46B).

A06. Continue to work with WMO Climate Services on (a) the State of the Climate reports and (b) WMO WIPPS in order to explore operationalization of some WCRP products (Secretariat, JSC, CMIP, ESMO, WIPPS; JSC-46B).

4. Activities and memberships

Decisions:

D07. ESMO. APARC and RIfS plans all approved.
D08. Guidelines for ToRs of WCRP Bodies approved.
D09. List of JSC liaisons were updated:

- *CliC: Josephine*
- *GEWEX: Amadou and Eleanor*
- *APARC: Tercio, Pang-chi*
- *CLIVAR: Ken, Krishna*
- *ESMO (inc. CMIP): Pierre, Susanna, Masa*
- *RIfS: Ken, Lisa, Roberto*
- *CORDEX: Lisa, Anna*
- *Academy: Kendra*
- *Lighthouse Activities: Not compulsory but can be done on an ad hoc basis.*

An email should be sent to the Secretariat requesting a liaison if the LHA wishes

Actions:

A07. Plan for reviews (including external assessment) of all Core Projects, with the help of the Core Project liaison(s) every 5 years to fit with the strategic plan cycle. The review will need to be supportive and have clear ToRs related to delivery of plans. (JSC and Secretariat; JSC47)
A08. Send out a targeted survey/questionnaire to establish the progress, impacts and timeline of the Lighthouse Activities and report the findings to JSC-47 (JSC Chair/Vice-chair and Secretariat; JSC 46b and 47)
A09. Develop a more formal and structured relationship between CMIP/WCRP and ESGF (JSC leadership, Secretariat, and CMIP/ESMO leadership; JSC47)
A10. ESMO and WGNE ToRs to be approved by email (Secretariat, ESMO; ASAP)
A11. Ask core activities to ensure their ToRs are consistent with the new amended guidelines (Secretariat; JSC 47)
A12. Draft a letter of support to send to the Academy focussed on the IPO and the long-term sustainability plan of the Academy and consider a follow-up meeting to determine a way forward (JSC, Secretariat; JSC-46B)
A13. Revise Guidelines of Membership of WCRP Bodies (Secretariat; JSC-47)

5. Fellowships and EMCR development

Decisions:

D10. Award the 2024/25 African Global Fellowship to the second placed candidate, given that the first placed candidate has rescinded her acceptance (Secretariat; ASAP)
D11. Proceed with Global Fellowship according to established mechanisms but in parallel, work with the Academy and Core Projects with related initiatives to resolve overlaps and synergize resources towards establishing a for efficient structure.
D12. Sunset the Early to Mid-Career Researcher (EMCR) Tiger Team
D13. Maintain an EMCR session at the Annual JSC Session

Actions:

A14. Discuss recommendations from EMCR Tiger Team and decide on any needed changes to WCRP structure or approach, specifically regarding the creation of EMCR advisory group, ToR, composition etc., taking into account human and financial resources (JSC and Secretariat; JSC47)

6. Support to climate science

***Actions**:*

A15. Discuss with WCRP co-sponsors drafting a statement of support for climate science and the value of WCRP science (JSC leadership, C/WCRP and WCRP co-sponsors; ASAP)

7. Communications

Action:

A16. Send out WCRP Brochure and video to WCRP leadership for comment and feedback (Secretariat; ASAP).

8. JSC Guidelines

Action:

A17. Provide onboarding documents for new JSC members e.g. descriptions for liaisons (Secretariat, JSC; end 2025)

A18. Need to ensure there are liaisons for all CPs. LHAs may request liaisons via the secretariat. Need a process in place to decide how this is done e.g. for consideration at JSC46b (JSC, Secretariat; JSC46b)

A19. Reporting to JSC: Need for clearer guidelines for how the annual reporting from activities for the JSC should be written in consensus with the relevant activity. (JSC, Secretariat; JSC47)

9. Carbon Footprint

Decision:

D01. Revisit how to restart the carbon footprint calculation effort in 2026.

Contents

1. Introduction

This report is a summary of the main outcomes from the 46th Session of the World Climate Research Programme (WCRP) Joint Scientific Committee (JSC-46), which took place in Paris, France, from 12-16 May 2025. This report does not reflect all the discussions that took place during the Session. For more detailed reports, detailed presentations, and agenda please refer to the JSC-46 webpage.[1] All Actions and Decisions are listed at the start of this report, noting that Actions/Decisions from the JSC-only meeting (which included an additional two sessions online) are also included.

2. Session opening and objectives

2.1. Welcome

Tim Naish (JSC Chair) officially welcomed the attendees to the Session and introduced representatives from WCRP's co-sponsoring organizations: Ko Barett (Deputy Secretary General of the World Meteorological Organization (WMO)), Karen Evans (Head of the Ocean Science Section, Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO)), and Vanessa McBride (Science Director, International Science Council (ISC)).

Ko thanked IOC-UNESCO for hosting JSC-46 and the WCRP Secretariat and JSC Chair and Vice Chair for arranging and finalizing the meeting agenda. She highlighted the importance of partnerships and applauded WCRP initiatives on topics that are vital to anticipate and address in a changing world. She mentioned the need for WCRP to diversify funding sources and to work in partnership with other organizations, rather than in competition. Ko also introduced Veronique Bouche, the new Director of Science and Innovation at WMO.

Karen welcomed the attendees of JSC-46 to the UNESCO Headquarters. She noted that IOC was established in UNESCO in 1961, with the mandate of promoting international cooperation and coordinating programs in research, services and capacity-building for the protection of the marine environment. IOC oversees two flagship reports - The Global Ocean Report and The State of the Ocean Report.

Vanessa thanked the JSC and WCRP Secretariat for organizing the meeting. She highlighted that ISC is a founding co-sponsor of WCRP and noted that the key principles that led to the establishment of WCRP are still some of the driving principles of the ISC, including using science to make the world a better place. ISC promotes the practice of science in a free, responsible manner. Vanessa invited the WCRP to challenge themselves to work across the scientific and policy landscape to generate actionable results. It is harder to change behavior, but social acceptance and implementation is possible.

Tim thanked the representatives of the co-sponsoring organizations for their interventions and ongoing support. He introduced the JSC Members for 2025 and emphasized that the meeting

[1] https://www.wcrp-climate.org/jsc46-documents

will be based on open and inclusive, positive and respectful, and productive and actionable discussions.

2.2. Financial and organizational sustainability

Tim discussed the present context in which the WCRP operates, noting the geopolitical changes and the threat to evidence-based decision and policymaking. He stressed that one of the jobs of the JSC is to keep the WCRP relevant, strong, and in people's minds, and to grow WCRP's partnerships and funding. WCRP will need to prioritize within current constraints and at the same time remain impactful, relevant and fit for purpose. He highlighted that WCRP is moving with the times and emerging topics and asked if we are doing enough to stay on top of a fast-moving field.

Tim went on to explain that one of the biggest constraints for the JSC this year is finance. When we look at 2026 and beyond, he proposed moving from the usual practice of operating on a year-to-year basis to a model that is more sustainable in the long-term. There are always surprises, such an International Project Office (IPO) losing funding at short notice, where a funding model with built in reliance is essential. He emphasized that the JSC needs to work with the secretariat to bring in new funding to facilitate this.

2.3. Ensuring relevance of activities in addressing emerging issues

Tim highlighted that the current WCRP Strategic Plan will end in 2028 and that the Science and Implementation Plan - as of May 2025 - is with the WCRP co-sponsoring organizations for final approval. He highlighted that we now need to think strategically about whether these plans are fit for purpose.

3. WCRP core activities and the way forward

Tim moderated an open discussion on how WCRP can better prioritize WCRP's many activities and how best to ensure turn-over of WCRP groups and activities, ensuring that key activities continue. The discussion concluded that redundancies exist between some WCRP groups and activities, and a streamlined process should be put in place to address this. There is also a need to identify research gaps and to define a process to address them, where needed. It was also noted that increased opportunities for interactions across the programme, outside of the annual session, would help the core activities work more closely together.

4. The WCRP Academy

Feba Francis (WCRP Academy Scientific Steering Group (SSG) Member) highlighted how the Academy is raising its visibility through targeted newsletters, social media engagement and attendance at regional conferences. They showcased survey results that clearly showed both the needs and challenges related to climate science training (Table 1).

Table 1: Climate science training needs and challenges

"Seeking" community	**Barriers faced**
• Higher percentage of pre-PhD qualified respondents • More Global South respondents wanted training Training on data gathering and management, climatology, and climate modeling	Limited training opportunities due to: • Lack of experts and regional studies • Access to and quality of datasets in the region Funding and language are barriers to accessing training
"Trainer" community	**Inclusion challenge**
• Higher percentage of training providers from the Global North • Training on topics focused on the physical sciences	• Majority of in-person and hybrid events are being organized in Europe • Almost all training events are only available in English

To address the challenges and barriers identified in the survey, the Academy is working on a WCRP Future Leaders Development Workshop (September 2025, Cape Town), aligned with the RIfS/CORDEX Building Actionable Climate Information for Africa Adaptation meeting**,** aimed at establishing best practice for mentoring and capacity development efforts in WCRP, and is documenting WCRP best practices for organizing climate training with input from a number of core activities across the Programme.

Ma. Laurice Jamero (WCRP Support Unit Manager) introduced the WCRP Future Leaders Programme, which aims to build a vibrant community of aspiring climate scientist leaders, increasing opportunities for leadership development in climate science and amplify the visibility and work of the WCRP Academy. Initial discussions have proposed three flagship activities: an Academy Fellowship Programme, a Mentoring Programme and a WCRP Climate Leaders' Summit. The Academy is seeking seed funding of CHF 200k for this initiative.

Laurice also highlighted how the Academy is increasing engagement within WCRP, through efforts such as documenting and sharing best practices from experiences of the Core Projects and Lighthouse Activities, working closely with My Climate Risk (MCR) Education and Early and Mid-Career working groups on various initiatives, aligning and participating with key WCRP meetings and events, contributing to the WCRP Global South Inclusion Task Team assessment.

Laurice highlighted that there is a need for stable funding for the WCRP Future Leaders Programme and requested the JSC's assistance with fundraising efforts. She also sought

feedback from the JSC on the Academy's plan to establish an advisory board composed of Core Project and Lighthouse Activity representatives, as well as EMCRs and other stakeholders, to ensure that this is coordinated in the best way.

Tim acknowledged the Academy's efforts so far and thanked Feba and Laurice for their presentation. He noted that the Academy Support Unit is being financially supported by WCRP, including throughout 2026. However, if the current financial situation continues, he emphasised that financial support for the Support Unit could not be continued. He stated that the JSC would work with the Academy leadership on addressing future funding needs to try and secure the seed funding for the Future Leaders Programme. Nevertheless, he said that it was important for the Academy to be thinking about the long-term sustainability of its work. He also emphasized that discussions would be needed on the Academy's connections with other WCRP activities, on where fellowships sit, and on where we maintain oversight of EMCR trainings in the Programme.

5. Lighthouse Activities

5.1. Safe Landing Climates

Steven Sherwood (SLC co-chair) highlighted recent events and a recent publication in Earths Future [2] that provides an overview of the activity. He detailed plans for 2025-26, which included:

- Thresholds, Irreversibility and Tipping Assessment: A first zero-order draft is expected by November 2025 and submission in 2026 in time for AR7.
- Transient Climate Response to cumulative Emissions (TCRE) Assessment (with ESMO): Further workshops are planned at ESM2025 and the CMIP Community Workshop in 2026, aiming at publication by September 2026 in time for AR7.
- High-risk Cascading Shocks: Building on the Workshop on High-Risk Cascading Shocks (WMO, Geneva, 18-20 November 2024), a review paper is planned.
- Linking Global Climate Risk to Economic Modelling: Building on the Coupled Physical, Economic, and Financial Impact Modelling Workshop (WMO, Geneva. 20-22 November 2024) and a session at New York Climate Week 2024, a paper and follow-up workshop is planned.
- CMIP for Climate Risks, Whatifmip: Development on this MIP which explores the consequences of breaching tipping points (integrated into TIPMIP).
- Water Resources: Exhibition is planned for COP30

[2] Sherwood, S. C., et al. (2024). Uncertain pathways to a future safe climate. Earth's Future, 12. https://doi.org/10.1029/2023EF004297

- Gaming and decision/scenario exploration: A paper is in preparation, building on a session held recently at SRI 2025.
- Tipping Points Discussion Series,[3] This series has provided 32 webinars to date, with more planned for later in 2025.

He noted that some activities were still in an exploration and discussion phase and that Secretariat support was critical to the success of activities.

5.2. Explaining and Predicting Earth System Change

Erich Fischer and Kirsten Findell (EPESC co-chairs) jointly presented EPESC. They highlighted that unprecedented extremes in 2023 and 2024 provided additional motivation to try to understand the drivers of large-scale changes in the Earth system. EPESC consists of three Working Groups (WGs) focused on three themes:

- Theme 1: Observing, modelling, and optimal estimation systems
- Theme 2: Integrated attribution, prediction and projection
- Theme 3: Hazard assessments

WG1 focusses on improving tighter integration of models and observations and includes several ongoing activities:

- Advancing the project on Earth's Energy Imbalance (EEI) trend analysis
- Updating short-lived climate forcing datasets and their implications for A2D
- Assessment of land-atmosphere coupling (with GEWEX GLASS)
- Connections to Theme 1 of the EU Horizon 2020 EXPECT project

Two new activities will be spun up over the next year, including snow process assessment and *in-situ* ocean observations with perspectives on A2D prediction and

WG 2 has an important partnership between EPESC and LEADER (Large Ensembles for Attribution of Dynamically-driven ExtRemes, part of APARC) which looks at the role of single forcing in attribution of extremes on A2D.

WG3 is focused on extreme event attribution and has a new activity looking at common extreme events attribution efforts including possible application of multiple methods to one common extreme event.

5.3. Global Precipitation Experiment

Annalisa Cherchi (GPEX co-chair) gave a brief introduction to GPEX, including the history of its formation and its structure. GPEX 's Science Plan is based around four key questions:

Q1: What are the sources and magnitude of uncertainties in quantitative precipitation estimates over global land and ocean, particularly in regions of vulnerable populations and limited observing capabilities, and how can we address them?

[3] https://tippingpointsseries.confetti.events

Q2: How is precipitation produced by complex moist processes and their interactions with atmospheric dynamics and other components of the Earth system?
Q3: What are the sources of precipitation biases in climate models and how can we reduce them to improve predictions and projections of precipitation at different temporal and spatial scales?
Q4: How can we enhance regional and local capacity building for precipitation observations, process understanding, prediction services (e.g., early warning systems), projection, and applications?

The central phase of GPEX is the WCRP Years of Precipitation (YoP) with coordinated global field campaigns focusing on precipitation drivers over different regions and seasons. GPEX has four Working Groups:

WG1: Coordinated field campaigns.
WG2: Precipitation-relevant databases.
WG3: Precipitation Modelling, Prediction, and Process Understanding
WG4: National/Regional Activities and Capacity Development.

Annalisa gave some highlights from each Working Group. She also clarified that GPEX has criteria for the endorsement of "anchor projects", including a roadmap and coordination plan with tangible GPEX objectives (there is ongoing discussion with WWRP on this). In terms of implementation and timeline:

- Pre-YoP Phase (e.g., Years 1-3): YoP planning; seek and encourage large GPEX-endorsed anchor projects for the global field campaigns
- YoP (e.g., Years 4-6): Focus on all four activities
- Post-YoP (e.g., Years 7-9): Focus on activities using new measurements.

5.4. My Climate Risk

Regina Rodrigues and Ted Shepherd (co-chairs) presented the My Climate Risk (MCR) Lighthouse Activity. They reminded participants that one of the key goals of the activity was "to develop and mainstream a bottom-up approach to climate risk, starting from the decision context and scale, bringing in knowledge from across the breadth of the WCRP". MCR works mostly virtually via its (currently) 21 Hubs from around the world, and follows a bottom-up approach. It also has three Working Groups focused on (a) Education (b) Early Career Researchers and (c) Philosophy of Science.

Regina and Ted outlined a number of key activities as well as their future plans, including but not limited to:

- Activities in Brazil around COP30, including an ECR-led workshop on fire and attribution (September 2025)
- An ECR-led Summer School in the South Asia/Indo-Pacific region (late 2025)
- A proposed workshop on Opening up Earth Observations for climate adaptation (December 2025)
- A joint workshop between the MCR Philosophy Working Group and an ad hoc 'Ethics in Climate Adaptation Research' research community (Kenya, in 2026)

Ted highlighted the challenges of working mainly virtually. He noted that the MCR hubs are providing a useful vehicle for entraining a new generation of Global South scientists into WCRP and highlighted that the rapidly changing international landscape is increasing the importance of decentralized, bottom-up approaches to climate risk management at the local scale. Masa asked about the type of climate risk or climate information that they intended to provide. Ted answered that it depends on the focus on the Hubs, but for the Global South it tends to be more focused on shorter term sub-seasonal and seasonal information.

5.5. Research on Climate Intervention

Nadine Mengis (activity co-chair) presented the Research on Climate Intervention Lighthouse Activity, highlighting recent highlights as well as the future plans and priorities of the LHA, for example a joint report with APARC on Stratospheric Aerosol Injection, and a review of existing beast practices on Carbon Dioxide Removal (CDR) and Solar Radiation Management (SRM) research.

Nadine emphasized that the LHA needed to develop a long-term research plan focusing on a number of topics such as monitoring and attribution of climate interventions, governance of climate interventions, and assessment of climate impacts of combined CDR and SRM scenarios. The LHA has faced a number of challenges including the need for expectation management (a lot of requests from different actors) for a topic that is often controversial. She suggested that the LHA needed to clarify its scope and perhaps consider a name change. She also emphasised that they needed to expand the steering group to get critical mass for key topics.

Li Li, Executive Director of SOLAS highlighted that this topic would be a focus of SOLAS' next science plan and it would be good to work together. The point was made that the perception is that the LHA is more focused on SRM than CDR.

5.6. Digital Earths

Andrew Gettelman and Pier Luigi (activity co-chairs) presented the Digital Earths (DE) LHA activity. The main areas of activity of the DE LHA are:

- Fully coupled km-scale regional and global models: Foster a global research network in km-scale modeling of the Earth system and individual components (km-scale = $\Delta x<10$km)
- Data-Fusion for climate: Establish an active community for climate data assimilation and data driven modeling (e.g. Machine Learning/AI methods), expanding on numerical weather prediction and re-analysis
- Beyond the Physical Earth System: Include human interactions on and impacts to human systems in Earth System Models (ESMs)

They highlighted a number of initiatives, including the very successful Hackathon they were both involved in. An important part of this LHA was to ensure integration of the LHA outputs with other WCRP activities such as ESMO, GEWEX, ESMO, CORDEX, and others. This was relatively successful (e.g. coordinating Machine Learning (ML) efforts with ESMO, and urban efforts with CORDEX) but needed additional focus. Since the LHA was 3-4 years into its 10-year lifetime, it was important to develop a roadmap to merge key activities into other WCRP core activities.

The floor was then opened for a general discussion on the Lighthouse Activities. The point was made that sometimes there was quite a bit of overlap between the activities, though it was also pointed out that this was not always a bad thing. Tim commented that we could do better in improving connections between WCRP activities e.g. MCR and RIfS and there is need to explore better ways of connecting.

6. Core Projects

6.1. Atmospheric Processes and their Role in Climate (APARC)

Olaf Morgenstern (APARC co-chair) outlined APARC's primary focus on atmospheric dynamics, trends, and variability. He highlighted ongoing work assessing the climate impacts of the Hunga Tonga–Hunga Ha'apai (HTHH) eruption, with a report forthcoming. A separate study was also examining the influence of chlorinated very short-lived substances (VSLS) on stratospheric ozone. Olaf described the LEADER activity being conducted in collaboration with EPESC, which aimed to quantify anthropogenic and natural forcings in historical climate events.

Amanda Maycock (APARC co-chair) highlighted several upcoming workshops, including a training school focused on climate data analysis and AI for the Global South, which is scheduled to take place in Dakar. She also mentioned that special journal issues were in development, covering topics such as tropical trends in reanalysis datasets and the stratospheric influence on climate and variability. Looking ahead, Amanda said that a Rossby wave workshop was planned for January 2026, and the APARC General Assembly was scheduled to be held in October 2026 in Pune, India. Additional high-level outputs included the HTHH report in 2025, an APARC special report in 2026, and a new CCMi forcing dataset for CMIP7. The team reported multiple linkages with other WCRP activities, including ESMO, EPESC, CLIVAR, Climate Intervention activities, and the GEWEX/CLIVAR Monsoon Panel, as well as work with IGAC, GAW, and SOLARIS-HEPPA.

In the discussion, Eddy Hanna raised questions about the results of the HTHH assessment. Olaf responded that the eruption had injected significant water vapour into the stratosphere, which had since spread through the lower atmosphere. Pierre inquired about connections with AerChemCMIP, and Olaf confirmed close alignment and complementarity with CCMi.

Tim Naish asked whether the current budget constraints would jeopardize the General Assembly; Amanda acknowledged the challenge but stated they were seeking local support to mitigate this.

6.2. Climate and Cryosphere (CliC)

Ed Hanna (CliC co-chair) explained that CliC currently supports four CMIP6-endorsed Model Intercomparison Projects (MIPs) focused on ice sheets, sea ice, and glaciers, along with ten other collaborative research activities. He emphasized that many of these activities were closely coordinated with other WCRP groups. He highlighted the IC-MontC project on mountain cryosphere changes, developed in partnership with the Mountain Research Institute, which would host a joint workshop at the International Mountain Conference in September

2025. He also pointed out that CliC had taken the lead in producing several key publications, including a Science special issue on polar research.

Ed announced plans for a Polar Early Career World Summit (22-24 March, 2025, in Boulder, Colorado, USA) (co-sponsored with APECS, PSECCO and ECOP) and an Open Science Conference in Wellington, New Zealand in February 2026, which has attracted many partners. He discussed ongoing collaborations, particularly on Arctic–mid-latitude linkages with the International Arctic Science Committee (IASC). He mentioned a forthcoming joint paper on mid-latitude blocking patterns, which would be published in Environmental Research journal in December 2024. He also highlighted potential links with mid-latitude climate forcing activities and emphasized the importance of aligning with the UNESCO Decade of Action and the International Polar Year. Ed noted that establishing a sea-level expert group within WCRP would be beneficial to support ongoing cryosphere work in this area.

In response to the JSC 2024 review, Ed reported that the CliC Strategic Plan for the next decade was at an advanced stage, and that the 2026 OSC would help boost CliC's visibility. He noted that the IC-MontC group was reevaluating their approach to human impacts and sea-level issues and that a sea-ice component would be newly incorporated.

During the discussion, Tim Naish commended the positive response to the JSC 2024 review and supported follow-up on sea-ice integration. Amanda inquired about connections to Safe Landing Climates, and Ed confirmed discussions were underway. Xuebin asked whether CliC was involved in cryosphere observational work; Ed confirmed their active involvement. Jan raised interest in atmospheric–cryosphere interactions, particularly in the context of GEWEX. Ed also mentioned that geoengineering thresholds could become a future area of CliC research.

6.3. Climate and Ocean Variability, Predictability and Change (CLIVAR)

Gokhan Ganabasoglu and Francois Engelbrecht (CLIVAR co-chairs) presented on behalf of CLIVAR. Francois started by outlining CLIVAR's objective, which is to tackle urgent and actionable research challenges in climate variability, predictability, and change. He highlighted that over 300 scientists were involved in contributing to CLIVAR's overarching research themes. He noted recent publications, including one on marine heatwaves in the Earth and Environment Journal. He also reported the successful development of a paper under the Tropical Basin Interaction MIP, which is now in preprint and concludes in 2025. He emphasized the breadth of CLIVAR's working groups (WGs) and task teams (TTs), many of which were well linked to other WCRP groups. Examples included AMOC activities, which connect to the Ocean Climate Risk work and the SOFIA Task Team.

New initiatives were also presented. These included addressing observational gaps in the Tropical Pacific BGC–Physical Interactions area and a collaborative ocean data request for CMIP7 with Baylor Fox-Kemper. He also mentioned the work of the Ocean Model Development Panel and RIfS CORDEX TT on regional ocean projections, as well as the CDP TROPICS WG, which seeks to address model–observation mismatches in tropical sea surface temperature. CLIVAR also intends to launch a call for new research foci in three areas: mechanisms of climate variability and change, ocean processes, and climate predictability.

Looking forward, Gokhan noted that CLIVAR is organizing a Pan-CLIVAR Symposium in Bali in September. Due to funding limitations, the event duration will be reduced, and participants are encouraged to self-fund. A summer school agreement is also being explored between Ocean University of China and WCRP-WMO. Additional workshops and training sessions are planned through 2026.

Challenges were acknowledged, particularly the impact of US funding withdrawal, which jeopardizes US CLIVAR operations. Time zone differences were also raised as a barrier to effective virtual engagement.

6.4. Regional Information for Society

Bruce Hewitson (RIfS co-chair) highlighted the four priority foci for 2025-26: (1) Unpacking the breadth of realities of what is entailed in "Climate Information", when understood from the heterogeneous contexts of decision maker's consequential actions (with value to AR7); (2) Engagement with cognate communities to build dialogues about roles and responsibilities, and evolve a common comprehension and climate literacy across the web of actors about issues involved in the generation, analysis, communication, and adoption of climate information for decisions (with value to AR7); (3) Using existing and new "exemplar" end-to-end studies, through cross/trans-disciplinary collaboration in the Global South to explore, evaluate, and test new understanding about climate information through; and (4) Support the evolution and development of CORDEX, GEP, RIfS working group, and task forces/teams on targeted issues.

Bruce provided highlights that included a new RIfS (interim) working group (IWG), which is a product of the RIfS 2024 Expert Meeting on Robustness of Climate Change Information for Decisions. In addition, a new Joint Task Team between RIfS and CMIP on Responsible Data Use, including CORDEX and the Fresh Eyes on CMIP Group. Lastly, a new funded partnership with the CLARE Africa programme (International Development Research Centre (IDRC), Canada + Foreign Commonwealth and Development Office (FCDO) funded), which is initially for 2 years duration (420,000 USD) and includes a science officer, two post-docs and pilot activities in Africa. The aim of this project is to synthesize knowledge from across existing activities on the continent, strengthen collaboration, cross-project learning, and capacity to produce and use climate information, support and develop guidance for new emerging actions, and provide oversight from new RIfS Africa Task Team.

The Global Extremes Platform

Xuebin Zhang presented the highlights of the Global Extremes Platform (GEP). He introduced the new online Global Extreme Indices Data Portal, (globalextremeindices.com), providing indices at regional scale. This allows users to select the region (AR6 region or any rectangle) and generate downloadable data, and to do simple analysis. In addition, he noted that a Working Group on Event Attribution has been established, with objectives to: support activities that will (1) foster extreme events attribution collaboration and research to provide information globally, particularly in an operational context, that is clear, robust, traceable, and consistently interpreted, including development of best practice guidelines and (2) increase the capacity for event attribution in the Global South and underrepresented regions. They are working on a review paper and mapping current event attribution activities, beginning with surveying the community and engaging with relevant activities across WCRP and with partners. GEP are also

developing best practice guidance, beginning with a perspective based on lessons learned from current groups conducting operational event attribution.

GEP are discussing approaches for data sharing and held initial discussions around what could be done to coordinate the generation, distribution, and storage of operationally produced counterfactual datasets. They are also building networks with partners including Copernicus and the WMO State of the Climate report team. Lastly, they are setting up a Contact Group for Weather and Climate Extremes, with a focus on ECRs.

The Coordinated Regional Downscaling Experiment

Silvina Solman (CORDEX co-chair) presented an update from CORDEX. In response to the conference held in 2023, new task forces have been established on: regional ocean modeling and climate projections; convection permitting modelling; machine learning; CORDEX-CORE CMIP6; and preparing CORDEX-CMIP7. Five new Flagship Pilot Studies have been endorsed, on emerging topics: Australasia: Sub-Hourly Extreme Precipitation (SHEP); Micronesian Archipelagos: Convection Permitting projections focused on island processes (FPS-I-Mac); Island Climate - Pacific (IC-Pac); High-Resolution downscaling of Tropical Cyclones in the Caribbean Region (High-Res TC-CAR); and Enhancing climate downscaling at km-scale in sub-tropical South America using machine learning CPRCM-CMIP6 emulators. CORDEX have established additional points of contact in the domains, enlarged their Science Advisory Team, undertaken a large number of workshops and activities in the domains, and conducted a townhall at EGU 2025 together with RIfS and Coupled Model Intercomparison Project (CMIP).

Bruce noted that RIfS plans to start developing a third exemplar study in other parts of the world which would commence in 2026. RIfS will be advancing this year on the previously identified objective of “Mapping Barriers and Challenges” to developing usable regional climate information.

Xuebin explained that there will be an Assessment on Extremes. The main objective will be to produce a retrospective scientific synthesis on annually published extreme weather and climate events over the past year. They plan to examine different precipitation datasets with an aim to identify products for timely assessing extreme precipitation a regional scale. An in-person meeting is proposed for 2025 in Switzerland. There is a plan to conduct a review on climate indices. A task team will be established on this.

Silvina noted that they are planning a special issue celebrating 15 years of CORDEX. The five Task Forces will set out the direction, and the five new Flagship Pilot Studies will address a number of challenges, plans and strategies for their respective focus area. In addition, A new CORDEX Project Office will be established in 2025.

Bruce highlighted issues related to equity in convening the research agenda and North-South collaborations and climate literacy. RifS proposes a cross-WCRP effort to develop a shared understanding of concepts, including the elusive “Information for Society” and “Robust Information” which are widely invoked with widely differing meanings implied and understood.

6.5. Earth System Modelling and Observations

Susann Tegtmeier (ESMO co-chair) presented an update for ESMO. This included the establishment of a new Working Group on Observations for Researching Climate (WGORC),

co-hosting the Transient Climate Response to cumulative carbon Emissions (TCRE) Assessment activity with Safe Landing Climates Lighthouse Activity, scoping a WCRP-wide Carbon Cycle activities coordination, initiating a task team on Climate Emulators, scoping a catalogue of climate datasets, and contributing to the reanalysis community efforts (e.g., maintaining the reanalysis.org portal).

Susann gave an overview of recent meetings, including an ESMO Kick Off meeting in Hamburg (March 2024), together with the WGCM (Working Group on Coupled Modelling) annual meeting. There was also a joint WGNE39-WGSIP25 meeting in Toulouse (Nov 2024), including the Working Group on Numerical Experimentation (WGNE) and the Working Group on Subseasonal to Interdecadal Prediction (WGSIP). They also co-coordinated the WCRP Global Hackathon with Digital Earths Lighthouse Activity. ESMO convened a joint Town Hall at EGU 2025 with RIfS and CORDEX.

Susann provided highlights from the Working Groups:

WGSIP/DCPP: WGSIP engagement in WMO Operational Climate Prediction Conference has led to a BAMS paper. There is a Volcanic Response Readiness activity collaboration with APARC's Volcanic Response activity, also leading to a BAMS paper. Guidance is being provided on "Good Practices for the Development of Subseasonal, Seasonal and Decadal Forecast Multi-model Ensembles (MME)." A shared initiative with ET-OPCS (the Expert Team on Operational Climate Prediction System) will be finalised soon. Future plans for WGSIP include the establishment of an S2S Panel within WGSIP and continued engagement with ET-OPCS (Expert Team on Operational Climate Prediction System). They will continue supporting concrete aspects of the WMO Regional Climate Outlook Forums: e.g., collaboration with ICPAC on Greater Horn of Africa Climate Outlook Forum (GHACOF), African Centre of Meteorological Application for Development (ACMAD), and there is potential collaboration with Regional Climate Centers in South America. DCPP will Continue to develop DCPP CMIP7 protocol. They will finalise the DCPP CMIP7 protocol in 2025, which will be part of the CMIP7 special issue.

WGNE The Weather Prediction Model Intercomparison Project (WP-MIP) is a public database of predictions from the full spectrum of artificial intelligence-based (AIWP), physically based (NWP) and hybrid systems. A WP-MIP White Paper is in preparation and there is a systematic errors survey for EW4All (Early Warnings 4All). There is also the South American Regional Model Verification Pilot project, which aims to enhance the assessment of regional forecasts to contribute to the EW4All initiative –jointly with JWGFVR.

In the future, WP-MIP will have participation of Joint Working Group on Forecast Verification (JWFVR) and WGSIP. A paper is in preparation. They plan to extend the EW4All survey to more centers and longer timescales. They are also preparing for WGNE workshop on systematic errors (interactions with DE-LHA and WGCM/CMIP) and a Summer School on prediction across timescales.

Establishment of WGORC will identify and address research gaps in climate observation data and act as a facilitator for collaboration across diverse research and industry sectors. There is a focus on advancing use and development of reanalysis, initialization and prediction (RIP) data to improve climate models and enhance forecasting capabilities. WGORC will explore how emerging technologies (ET), such ML/AI and km-scale models and observations, can enhance

the use and application of climate data. obs4MIPS, as a WGORC panel, enhances accessibility to observational data for climate model evaluation, development, and research by aligning datasets with CMIP standards. Data set proposal submission and review workflow have been established. There is support for non-gridded data sets (e.g. site-based *in-situ*) and many new datasets are in preparation. Obs4MIPS supports the data requirements of the CMIP7 Rapid Evaluation Framework (REF). There will be an update of the obs4MIPs data specifications.

Susann highlighted that they are establishing a Climate Emulators Task Team, with a taxonomy paper in preparation. ESMO plans to revise and reframe WGCM objectives and purpose, and reinforce ESMO's engagement with the km-scale community and expand connections with the Global South community for further engagement in ESMO panels and activities. She also noted that it would be good if there was WCRP-coordination on initiatives related to data rescue, to prevent gaps in data acquisition linked to the situation in the US.

The Coupled Model Intercomparison Project

Helene Hewitt, CMIP Co-chair, highlighted that there are two special issues in Geoscientific Model Development (GMD) on forcings and CMIP7. The CMIP7 DECK forcing data has been delivered, and the JSC have endorsed the CMIP7 proposed scenarios and processes. Development of the CMIP7 harmonized data request is underway. They have developed a Rapid Evaluation Framework (REF). There is the ECR Fresh Eyes on CMIP, with 184 ECRs involved and a subsequent workshop planned..

Helene shared emerging CMIP science questions focused on patterns of sea surface change, changing weather, the water-carbon-climate nexus, the Earth response to human efforts to manage the carbon cycle, and Tipping Points.

Helene highlighted that CMIP are focused on building a resilient infrastructure. The WIP is working hard, together with WIP Task Teams and ESGF partners, to ensure the CMIP7 infrastructure is developed in open-access public GitHub repositories, and is ready and fit for purpose, including an ESGF Next Generation (ESGF-NG) infrastructure that is expected to be ready in July 2025. The Controlled Vocabularies (CVs) TT is developing, designing and implementing an improved framework for recording and managing vocabularies that can serve CMIP and related WGCM and ESMO activities. CMIP7 experiment registrations are taking place in the CMIP7 CVs GitHub. The joint WIP-ESGF Quality Assurance/Quality Control WG is developing a tool (leveraging Copernicus activity).

Helene noted that climate information is often needed more regularly than phases of CMIP provide. A scoping of sustained mode of delivery for limited parts of CMIP is underway.

A CMIP Community Workshop will be held in March in 2026 (Kyoto, 9-13 March 2026) hosted by the Japanese modelling community, the first time a major CMIP workshop has been held outside US/Europe. The workshop will include science sessions, an ECR hackathon, policy, user and funder engagement session, and networking opportunities. The CMIP Panel and WIP are keen to ensure participation from across WCRP CPs and LHAs.

CMIP is keen to investigate the possibility of a mandate and discuss governance options for the informal consortium producing the climate forcings datasets to support proposed delivery of regular updates. Some initial discussions have taken place with WMO Climate

Infrastructure Task Team (chaired by INFCOM president) and suggestions of possible approach similar to WMO annual to decadal forecast (under SERCOM).

Delivery of CMIP data is dependent upon publication and accessibility of the model output and associated input data on the Earth System Grid Federation (ESGF). Financial and human resources are constrained across the globe, putting open access to CMIP and CORDEX data at risk and limits potential to address evolving data access needs and equitable provision of analysis capability. A more structured relationship between CMIP/WCRP and ESGF consortium would also be beneficial. We might want to also consider a mandate that enables broader global contribution.

6.6. Global Energy and Water Exchanges

Xubin Zeng, co-chair of GEWEX, started with introducing GEWEX's structure of four panels—GDAP (data-focused), GHP (regional hydroclimate), GASS (process understanding), and GLASS (land–atmosphere interactions)—supporting 35–40 projects with increasing cross-panel and cross-program collaboration.

GDAP is advancing multi-source assessments of Earth Energy Imbalance (EEI), with particular focus on ocean heat content and uptake. A community-wide assessment report is currently under preparation. The TEAMx project is conducting field campaigns in Europe to study mountain–atmosphere interactions through integrated observations, process understanding, and modelling, while similar efforts under INARCH, ANDEX, and regional hydroclimate projects over Asia were also noted. Under the UTCC-PROES initiative, upper-troposphere cloud processes are being examined in collaboration with APARC, resulting in a significant number of publications. GLASS has explored kilometre-scale land surface modelling over semi-arid regions in Spain, revealing resolution-dependent hydrological patterns and emphasizing the need for improved land–atmosphere coupling in Earth system models, which is also a common issue for Digital Earths.

Xubin introduced GEWEX's recent efforts in capacity building and training. The GEWEX 9th Open Science Conference held in Japan in 2024 brought together over 900 participants from 46 countries, including 40% early-career researchers. The event featured real-time English–Japanese translation to facilitate dialogue between scientists and stakeholders, a pre-conference workshop with travel support for ECRs, and a dedicated Early-Career Day organized in partnership with space agencies from the US, Europe, Japan, China, and South Korea, which included competitions and awards. GEWEX has also launched the ML4LM (Machine Learning for Land Modeling) initiative, featuring webinars and collaborative activities aimed at exploring how machine learning can enhance physical modeling; an upcoming session by ECMWF will focus on the complementarity between machine learning and land surface modeling.

In terms of partnerships and emerging directions, Xubin mentioned that GEWEX maintains close and active collaboration with both internal and external partners including other core projects, WMO Hydrology, space agencies in the US, Europe, Japan, and other regions (which serve as key anchors for observational and application-oriented initiatives), etc. A new coastal zone initiative is currently under development, aiming to explore coupled hydrological, oceanic, and ecological processes in collaboration with CLIVAR and Digital Earths. Additionally, the River Experiment (RivEx) which focuses on surface water, and the Global

Groundwater Network (GGN), which focuses on ground water data, has been launched under GHP.

Despite this expanding scope, Xubin pointed out that GEWEX faces challenges in managing its growing project portfolio, particularly in ensuring meaningful collaboration across WCRP core projects. The heavy reliance on volunteer efforts, combined with limited and declining financial resources, raises important questions about the long-term sustainability of GEWEX's activities and the need for more structured coordination mechanisms within WCRP.

6.7. General Discussion: WCRP Core Activities and other issues

Tim opened the discussion by noting that while much attention has been given to challenges within WCRP's core and lighthouse activities, it's important to also acknowledge what is working well—successes that may be taken for granted. He emphasized that the JSC is listening and will take forward the issues raised, and proposed a short, targeted survey of the Lighthouse Activities (LHAs) to better understand their current status, ambitions, and possible sunset timelines. This will not be a formal review, but a light information-gathering effort to support future planning. He noted that most core projects appear to be functioning and that the key challenge is maintaining strong foundational work while remaining flexible and responsive to new directions. The session then moved into a guided discussion using a set of high-level questions.

Q1: What are the major issues and concerns across WCRP activities?

CORDEX raised the concerns about the feasibility of conducting downscaling activities after CMIP7, especially in regions with limited availability of financial and computational resources such as Africa and South America, or in regions where geopolitical constraints do not allow support of scientific activities. Helene Hewitt responded that WCRP should build global resilience and avoid dependence on any single country or region.

Ted Shepherd noted that the MCR operates under a different model, where hubs are expected to develop their own science plans. This approach inherently requires a degree of decentralization, raising the question: Is WCRP ready to relinquish some level of control? Tim agreed, highlighting ongoing conversations with private funders, especially in the climate risk space, but cautioned that such partnerships come with trade-offs.

Jan Polcher stressed the growing gap between kilometre-scale modelling and observational capabilities. Monitoring the Earth and how it evolved was essential for society and that one must work towards that. He also noted that private sector funding is unlikely to fill this need. He suggested that each WCRP panel follow GEWEX's practice in identifying key observational requirements. Cristiana agreed with this but noted that WCRP cannot cover everything and should consider partnerships with observation-focused initiatives. Jan emphasized the need to strengthen the observing system, pointing out that it is essential to ensure we have the necessary data to evaluate how models perform. Tim agreed, stating that interaction between the modeling and observational communities should be a natural and automatic part of the process. However, Ted Shepherd observed that this integration is still lacking, and that

modeling groups are often not engaging effectively with the observational community. Cristiana suggested that initiatives like Obs4MIPs might help bridge this gap, though Jan clarified that Obs4MIPs focuses on existing observations, and does not address the broader need to identify and prioritize missing or future observational requirements.

Susann Tegtmeier added that coordination of observational needs across WCRP is lacking and that a unified voice on data gaps and quality would be helpful.

Regina Rodrigues raised the issue of publicly funded data being used by private companies for free, citing ERA5 from Copernicus as an example. She called for WCRP to show the importance of public funding data and their relevance. Tim supported this and referenced CMIP as a case where public data underpins high-value private sector applications, with little return to the scientific community.

Q2: How are the linkages between the activities, in particular for the WCRP Academy and how might these be improved?

Ted Shepherd mentioned the proposed Future Leaders programme as an example that overlapped with other activities in WCRP, though he appreciated the necessity of such a programme. He emphasized that education and research are inseparable. He viewed the Academy as still in an early phase and urged a thoughtful approach, allowing time to determine where centralized efforts add the most value.

Amanda Maycock stressed the need to recognize increasingly diverse career paths for early-career researchers. She proposed that WCRP consider training opportunities in science coordination and communication, such as internships within IPOs and partnerships with the private sector, drawing on models like finance- and insurance-linked internships in the UK.

Ma. Laurice Jamero, representing the WCRP Academy, emphasized the real and growing demand for training, particularly in the Global South. She clarified that the Academy is not duplicating existing capacity building programmes, but rather focusing on highlighting in-house WCRP training opportunities. She encouraged Core Projects and Lighthouse Activities to continue inviting the Academy to their events, and noted recent collaborations with ESMO, CORDEX, and CLIVAR. She also stressed the importance of maintaining a centralized training catalogue, which now also serves as a monitoring tool for tracking inclusiveness across regions. She also mentioned they will show analytics regarding the usage of catalogue tomorrow, responding to Cristina's inquiry.

Tim concluded by echoing Amanda's point: WCRP needs a clear strategy for early-career development. The Academy doesn't have to do everything, but it should be part of a broader, better coordinated approach across the WCRP community.

Q3: Are there any high-level assessments or publications we should focus on in the future?

Pierre Friedlingstein observed that while some projects clearly plan to deliver assessment reports, many long-standing activities do not currently aim to produce high-level syntheses. CPs don't have the obligation to do so, at least not immediately.

Wendy Broadgate (Future Earth) pointed out that a high-level assessment on AMOC is crucial. She also introduced the annual "10 New Insights in Climate Science" initiative— a peer-reviewed, policy-relevant synthesis that feeds into COP discussions. She extended a formal invitation for WCRP to rejoin this partnership at the institutional level. Tim welcomed this idea and expressed interest in continuing the conversation.

Eleanor Blyth emphasized the need to raise awareness about the lack of flux tower observations, especially in regions like Africa. She proposed a publication linking observational gaps to model failures and offered to help develop such a piece.

Pascale pointed out that the objective of WCRP-led assessments remains vague. She called for a process to redefine what WCRP assessments should target, suggesting that a workshop could help clarify needs and priorities across the programme. Tim agreed that assessment should be defined by a need.

Nadine Mengis highlighted the limitations of current models and observations, especially regarding carbon dioxide removal (CDR). She noted that overconfidence in outputs from integrated assessment models can be problematic, and there is a strong need to communicate uncertainties and observational limitations more effectively, whether through formal assessments or targeted publications.

Q4: Is there a need for further internal reviews for the Core Projects or other WCRP activities (as was done with CliC)?

Ed Hanna reflected on the previous internal review of CliC, describing it as "tricky" considering how it was carried out. While acknowledging that useful insights emerged, he noted challenges related to transparency and stakeholder representation. He emphasized the importance of carefully considering how reviews are structured and how feedback is collected. Keith Alverson agreed that reviews can be helpful, but only if they are carried out objectively, professionally, and with a clearly defined goal.

Xubin Zeng pointed out that the core issue is not whether to conduct reviews, but how to do them optimally. He emphasized that reviews should not be approached as a judgment by the JSC over the Core Projects, but rather as a collaborative process. He stressed the need to learn from WCRP's 40-year history and avoid repeating past mistakes. Tim agreed that regular reviews are healthy and necessary. He emphasized that reviews should not feel like a courtroom but rather be supportive and purpose-driven. Future reviews should be based on clear terms of reference and handled in a transparent and professional manner.

Amanda Maycock highlighted the importance of ongoing engagement through JSC liaisons, suggesting that more consistent and active liaison roles could help prevent misunderstandings and better support the Core Projects. She noted that the success of such roles depends both on JSC commitment and Core Project openness.

Q5: How can WCRP and partners work to ensure historical, current and future data streams are maintained?

Tim raised the question of what kind of support the JSC could provide to help maintain critical data streams. He referred to examples discussed in earlier sessions, such as CMIP and GEWEX. Helene pointed to a model used in WMO, where a small group of countries formally commits to funding and maintaining a regular data product. This approach, she suggested, could be adapted to WCRP activities, particularly if a few countries are willing to underwrite key services, effectively embedding the cost into national budgets. She noted that while WCRP itself cannot operate or maintain datasets, it can help enable such models by advocating for the importance of ongoing data services.

Naomi Goldenson emphasized that the challenge is not just data preservation, but ensuring continuous updates and long-term maintenance of core observational products. She suggested WCRP can play a unique role by drawing attention to the essential nature of these services and making a clear case to large stakeholders and funders.

Regina cited CLIVAR's role in supporting a review of ocean observation systems in the tropical Pacific, Atlantic, and Indian Oceans through TPOS, TAO and IndOOS. She suggested CLIVAR could conduct such reviews more frequently as ten years ago. Note that CLIVAR has IndOOS Phase 2 and has also recently published an article on the COVID impacts of Indian Ocean Observing system.

7. Session linking WCRP with local French Scientists

Pascale opened the session and thanked French colleagues for participating in this special WCRP session. She provided an introduction to WCRP, followed by an overview of future science directions from Tim Naish. Tim thanked IOC-UNESCO for hosting their meeting and IPSL for their local support of the JSC Session. He highlighted the outstanding contribution of French scientists to WCRP and IPCC over the years. He stressed the importance of partnerships, especially through the three co-sponsoring organizations: ISC, ISC-UNESCO and WMO, noting also the importance of WMO's support in hosting the WCRP Secretariat, who are critical to the work of the Programme. He provided an overview of the WCRP science foci, noting that there may be some gaps, especially in areas such as sea level and Artificial Intelligence (AI).

Nicolas Arnaud (CNRS/INSU Director) gave and overview of National Institute for Earth & Space Sciences (INSU), which has a mission to develop and coordinate national and international research in the sciences of the Earth, continental surfaces and interfaces, the ocean, the atmosphere and astronomy. There are four pillars of action: foresight exercises, programs, research infrastructures, and observatories – in support of scientific excellence. This includes

access to an extensive research infrastructure. The CNRS-INSU Ocean and Atmosphere foresight effort (2024-2029) is very closely aligned with the WCRP Core Projects, which is not an accident but because there has been very close alignment with WCRP by French scientists over the years. He highlighted a variety of research topics relevant to the WCRP Core Projects. He also gave an overview of the TRACCS research program (2023-2030) that aims to accelerate the development of climate models to meet societal expectations in terms of mitigation and adaptation to climate impacts and risks. Lastly, he gave an overview of the CNRS-INSU Continental Land & Ecosystems (Critical Zone) foresight exercise (2024-2028), which aims at understanding and predicting the impacts of global changes on the Critical Zone, adapting and mitigating the impacts, with and for society, at the territorial scale.

He noted that given the rapid pace of change in critical environments, it is essential to continue the acquisition of continuous, long-term measurements through a co-located approach integrating *in situ* and remote sensing observation, experimentation, modeling and the harmonization of analytical protocols at the national level. The analysis of increasingly numerous and complex data and its interpretation will require new approaches, relying on the use of machine learning (AI) methods (e.g., AI-assisted automation, database creation, etc.), while retaining and modernizing analysis techniques that are experiencing declining skill levels (e.g., palynology, pedology, organic petrography, etc.).

To improve our understanding of these processes, it will be necessary to strengthen the linkage of models of climate, erosion, transport, deposition, biogeochemical, diagenetic, hydrological, and ecological nature, as well as those specific to land-sea interfaces, such as hydrodynamic models (marine submersion), those specific to solid earth/surface, surface/atmosphere, and climate, as well as social sciences. The output data from global/national models (climate including extreme events, socio-economic trajectories) will serve as input data for territorialized models co-constructed with decision-makers in order to establish scenarios for the impact of human societies (and their trajectory) on the exchange of materials and assess the vulnerability and resilience of (coastal, urban, agricultural) socio-ecosystems.

Susann Tegtmeier gave a presentation on ESMO, including how the modelling community, the Couple Model Intercomparison Project (CMIP) and the observation communities are structured. There are new challenges and opportunities for observation-model synergies, which has led to the creation of a new Working Group on Observation for Researching Climate (WGORG).

Masa Kageyama talked about the TRACCS (TRansformative Advances in Climate modelling for Climate Services) research programme. The objectives are to (1) foster the co-design of actionable climate change information by the scientific community and relevant stakeholders; (2) Improve knowledge and tools on climate change processes, impacts and risks, from the global to the local scale; (3) train the next generation of professionals in model development, data distribution, climate service co-production, use and support of climate services. This has led to 10 Core Projects; four on fostering the exploitation of climate science data and the development of climate services (including one on extreme events); and six on addressing scientific and technical bottlenecks in climate modelling. She highlighted some recent academic papers, noting that some training could be relevant to the Academy.

Gabi Hegerl gave an overview of the WCRP strategic action and collaboration with IPCC on tipping points and high impact events. It was motivated by the severe climate change impacts that we have been encountering and an awareness that we are not always prepared for surprises. She noted that the research community is split on evidence for and concern about tipping points as a concept and consensus building is needed ahead of AR7. There was a writing meeting in New York the week before this meeting and the aim is to submit the assessment to Reviews of Geophysics at the end of summer 2026. She gave a brief overview of all the Assessment paper sections, which collectively now have over 90 authors.

Camille Lique gave a presentation highlighting the need for a better understanding of high latitudes in the climate system. Large uncertainty on future changes in the Arctic remains, that translate into uncertainty in climatic, economic, political, and social impacts. This is due to a lack of understanding of the key processes setting up the physical ocean and sea ice conditions in the Arctic and a poor representation of these key processes in state-of-the-art Earth System Models. Part of these missing processes corresponds to ocean-sea ice interactions occurring at small scales, particularly in the Marginal Ice Zone. At the pan-Arctic scale, sea ice vorticity carries the signature of the atmosphere and the ocean mesoscale eddies (especially in summer), with possible impacts on the evolution of the sea ice conditions. Understanding the changes in the polar regions requires to consider all the components altogether (ocean, atmosphere, sea ice, ice sheet). There is also a growing recognition that similar processes are at play in both poles, despite an historical disconnection between the communities. She highlighted that there has been a pledge by the French polar science community towards a unified polar program, which is an effort (incl. as part of WCRP) to bring the bipolar community together.

Sandrine Bony gave a presentation on how clouds organise on the mesoscale. Cloud mesoscale organization matters in terms of modulation of the Earth's radiation budget; precipitation extremes; and the role in climate change at global and regional scales. With the new global km-scale resolution models, we can explore convective organization, including response of cloud clustering to global warming as this depends on model and resolution and possibly also insights into physical processes. Observations are needed to test insights from modelling studies and theories. She discussed some early results and highlighted the EUREC4A, ORCESTRA and MAESTRO (Mesoscale organisation of tropical convection) field campaigns. Several WCRP activities are connected to this topic (GEWEX/GASS, Digital Earths, CLIVAR, WGNE and others).

7.1. Round table: Global South research and society

The round table discussed the different perspectives of working on climate risk from a Global South perspective. Regina Rodrigues (My Climate Risk Lighthouse Activity) highlighted the importance of bottom-up science, which is the way that the My Climate Risk Lighthouse Activity works; Silvina Solomon (RIfS/CORDEX) noted that it isn't just about climate information; it's about need and the context is region dependent. In RIfS they realized that robust and actionable climate information is critical. Megha Sud (International Science Council (ISC)) highlighted that they are very much aware of the diversity of ISC members, and this is emphasized in the work of ISC; including transdisciplinary research and science for policy as well as science diplomacy. Juliette Mignot (Institut de Recherche pour le développement (IRD)), highlighted that they facilitate research focused on the Global South, including climate science but other disciplines as well. The work aims to co-design research, and they are now

moving to climate services and would be interested to learn what is specific about developing research and climate services in the Global South. Amadou Gaye (JSC) gave an overview of how WCRP can integrate more Global South scientists and work on the issues that the Global South is dealing with. He said we want to change the way we do science. For historical reasons there is a lot of bias in how the WCRP projects are set up and that maybe the LHAs need to help WCRP to change this. We need to accelerate change and have more interaction between disciplines.

The panelists were asked how they would you characterize Global South research priorities and how is it different from the priorities in the Global North.

Juliette shared her story from working in Senegal. In Senegal it is a small community, and you can directly speak to high level people without so much of a barrier as in Europe. Megha asked if she things that this is because she is French and comes with resources. Juliette said that it could be the case. Megha noted that maybe knowing these relationships can help. Regina noted that Brazil is a big country, and it isn't so easy to reach a high level, but she noted that all proposals must be relevant to society. However, we lack the infrastructure to link scientists to policy makers. Silvina said that it is also dependent on who is in the government. Olaf noted that to make our science relevant is hard, as some of the biggest questions we face are a bit remote from societal impact. Amadou said that we need to solve the problems, and climate science is still very new in some places in Africa. There are not a lot of people who can answer the questions. There are many climate issues, such as drought and flooding, that we need to address. Regina noted that there is a disconnect between the funders and science.

Ted asked why actional climate science isn't given more respect? Can we raise the reputation of things like dealing with uncertainty. Silvina said that today we talked a lot about 'new' things and that is a problem when you are creating new information. It is needed to be careful when dealing with uncertainty, but we need to include the decision makers in the discussion and conversation. Megha said that working with stakeholders is hard and it is also our publication system and the reward systems of universities (institutional infrastructures).

Research is context-dependent – how can institutions support this diversity of approaches? Regina said that in Brazil they can now be rewarded by the policies they generate. Silvina said that RIfS are trying to set up different groups in different continents. Megha said that they will work with affiliated bodies, such as WCRP. Juliette said that working with groups focused on the Global South is useful. Amadou said that we need cooperation to build communities.

8. WCRP Science Foci

The session began with a review of the WCRP Science Foci Figure, which forms part of the WCRP Science and Implementation Plan. Narelle explained that while the scientific themes had been developed in consultation with the community, the figure itself had not undergone widespread discussion. Narelle provided background on the development and noted that further iterations may be needed based on feedback. She emphasized the importance of the figure as a communication tool to help external audiences understand WCRP's work. Narelle highlighted the need to identify specific products or outcomes that the community could aim to deliver, reinforcing that the figure's purpose was not only communicative but strategic.

Several suggestions were made. Ed Hanna and Regina Rodriguez proposed conducting a poll among the broader community to gather input on key science priorities and perceptions of WCRP's scope. It was unanimously agreed that the figure should be refined to reflect clear, long-term scientific themes while ensuring relevance to societal challenges and external communication. It was agreed that this was the beginning of a broader process to continue after the 46th JSC, incorporating further community engagement and strategic alignment

9. Co-Sponsor Discussions

Tim opened the session thanking and welcoming the co-sponsors and the JSC members. The co-sponsors were invited to introduce themselves and briefly address the expectations and wishes from WCRP.

Karen Evans from IOC-UNESCO introduced herself with a mention that she served as the IOC focal point for WCRP and its related activities since early 2025. Acknowledging the vastness of WCRP and its interesting activities, she emphasized IOC's continued support for WCRP. IOC is looking to strengthen connections with a better understanding and efficiently despite the challenges faced in the past.

Veronique Bouchet, the new Director of the SI department in WMO thanked the JSC for the opportunity and spoke of her interest in understanding WCRP's importance within the context of WMO. She acknowledged the challenges in WCRP's vast capacity development related activities that have been working on bringing together a large community. However challenging, these showed WCRP's strength in ensuring communities come together to advance on the research questions. In this current financial situation, it would be crucial to work together on how all these can feed into the process of convincing funders so they can continue to fund. It would also be important to work on how WCRP science can translate into early warning systems, adaptation etc.

Vanessa McBride from the ISC noted that with new leadership across all co-sponsors in the past three years, there's an opportunity to identify how each can support WCRP and its communities. WCRP is foundational to the ISC's science legitimacy as the works of ISC can build on what comes through WCRP. The focus should be on increasing support through communication, networking, policy, strategic, and governance efforts. Additionally, efforts should be made to avoid duplication, emphasizing and profiling WCRP's unique strengths instead of replicating them. Megha Sud, from ISC described the JSC meeting as a highly informative experience. She highlighted the potential for developing high-level messages that can be understood by a broader audience beyond WCRP. She also called for greater involvement of social scientists and stronger inclusion of perspectives from the Global South.

In the discussion, Ken raised a question about the expectations from WCRP's co-sponsors in a rapidly changing world. Tim acknowledged it as a significant question and, suggested that efforts should aim at complementarity rather than duplication. Ken clarified that his question was particularly directed at WMO, given his role as a former WMO Permanent Representative. Veronique emphasized the importance of the knowledge produced by WCRP in supporting climate adaptation and population protection. She questioned how communication could be strengthened across the entire chain—from scientific research to societal impact—stressing the critical link between science and services. She also highlighted the need to integrate

regulatory governance structures since WMO talks to regulatory bodies and ensure that the value of WCRP is both visible and well understood. Mike Sparrow, Head of the WCRP Secretariat, noted that WMO has an advantage in terms of day-to-day interactions since the WCRP Secretariat is hosted there. He emphasized the need for better coordination with ISC and IOC.

Eleanor highlighted the need for better integration between science and policy, noting that the "raw material" of scientific research is often too unrefined for practical use. She emphasized the importance of understanding how science can influence societal decision-making and asked whether the ISC could offer training or guidance to help the scientific community engage more effectively with policy processes. Vanessa responded that such input is very valuable and aligns with ongoing efforts within the ISC. Karen agreed that further discussion on this topic is essential, citing the IOC's mandate to translate marine science into policy. She stressed the need to transform scientific findings into tangible outcomes, such as multilateral agreements, and to influence frameworks like the UNFCCC to drive meaningful change. Karen also underlined the importance of simplifying complex scientific information into accessible formats that can be used in education, particularly for enhancing ocean literacy in schools.

Anna Sorensson pointed out the need to strengthen the connection between WCRP science and its societal applications, noting that WCRP currently struggles with this and suggesting that co-sponsors could share their experiences, particularly regarding Global South inclusion. Roberto Sanchez echoed Eleanor's earlier concern about the science-policy interface, emphasizing the importance of capacity development for young scientists and citing examples like the IAI's frequent seminars for both scientists and decision-makers. He noted that ISC has relevant experience from which WCRP could benefit. Vanessa observed that such interactions are often deprioritized in the scientific community because they don't directly lead to jobs or promotions, and she called for clarity on what WCRP specifically aims to achieve in this area. Tim added that ISC already produces policy briefs, including a recent one on sea level submitted to the UN Secretary-General, and suggested this as an example of where WCRP could be more actively engaged.

Tim emphasized the importance of renewing the WCRP Co-Sponsors' agreement. Karen from the IOC suggested identifying key high-level areas for collaboration among co-sponsors and proposed using the agreement as a dynamic, adaptable document that can evolve as priorities shift—citing IOC activities that could link to WCRP. She stressed that updates should happen regularly rather than waiting for years. Veronique from WMO echoed Karen's point, highlighting challenges in public trust toward climate science and reinforcing the need for a flexible agreement. Vanessa added that while the Science and Implementation plan already incorporates some of this adaptability, it is crucial that the Joint Scientific Committee (JSC) leads in defining scientific priorities.

Masa raised a question from the WMO perspective about the relationship between WCRP and WWRP, noting potential overlap in areas such as the attribution of weather extremes, weather risk information, and disaster mitigation. He suggested there may be opportunities for cooperation between the two programmes. Veronique responded affirmatively, stating that scientists are actively engaged across both programmes and that collaboration is not only sensible but encouraged. She emphasized that overlaps should be welcomed and further improved. Cristina added that she is a member of the SSG of SAGE and mentioned the

successful cooperation with ESMO and the S2S initiative as an example. Mike also noted that there are many interactions among the three programmes, with WWRP members participating in various WCRP activities and vice versa.

Lisa described WCRP as a community of individuals who primarily conduct fundamental research as part of their daily jobs, making it challenging to connect their work to societal needs. This disconnect is particularly problematic given that one of WCRP's core objectives is to bridge climate science and society. Lisa stressed that this is an area where WCRP struggles the most and where additional support from co-sponsors is needed.

Kendra raised questions about how the WCRP Academy could increase its engagement with IOC and whether there could be systematic mechanisms to bring in expertise from co-sponsors to enhance WCRP's efforts. Karen responded that the IOC has an Ocean Teacher Global Academy, which generates numerous training opportunities and connections with other providers as well as the Ocean Portal. She highlighted the reciprocal nature of these collaborations and noted that IOC works with various expert groups that, while not part of WCRP, undertake similar activities and offer capacity development and training. This presents many opportunities for synergy. Vanessa added that the ISC also has a training initiative in development, and sharing this through the Academy would be beneficial. She also mentioned the EMCR (Early- and Mid-Career Researchers) programme managed by a communications officer and suggested it would be valuable to explore how it could connect with WCRP EMCR activities.

In discussing financial challenges, Tim acknowledged that co-sponsors are also experiencing financial strain and asked for thoughts on the issue. Karen explained that a major review of UN agencies is being conducted by a key donor country, prompting UNESCO to implement a 30% budget reduction as a precautionary measure until the review concludes. The final review report is expected in August, with outcomes shared in September. Any resulting decisions will need to be addressed at the UNESCO General Assembly in November, like the WMO's Assembly in October. She emphasized that no significant changes could occur until these processes are complete. Veronique added that WMO has enacted similar due diligence budget reductions and is working along the same timeline as UNESCO. She noted efforts to diversify funding sources and emphasized the importance of a coordinated approach to avoid overburdening frequent donors. Additionally, she stressed the need to review activities to minimize duplication.

Tim raised the topic of WCRP approaching ISC countries for funding, prompting Megha to emphasize the importance of risk and scenario planning before seeking support. Vanessa pointed out that ISC's own budgets are uncertain, and Mike clarified that while ISC doesn't provide funding directly, WCRP does approach individual ISC member countries. Cristina noted that several institutions appear to be facing existential crises and questioned whether ongoing reviews might lead to similar crises for IOC, ISC, and WMO. Karen referenced GOOS, highlighting NOAA's significant contribution and raising concerns about its future viability amid an ongoing existential crisis. Veronique stated that WMO is in a somewhat different position due to its central role in weather forecasting, which its members depend on. While not facing a full existential crisis, WMO is likely to undergo structural changes, and it will be important to ensure that the Science and Innovation department remains part of its evolution.

10. IPCC-WCRP Collaborations

Pascale noted that WCRP is an Observer to IPCC and has a role to nominate participants to the IPCC sessions. There have been many interactions from the core science to the model scenario runs. She highlighted the Tipping Points workshop "endorsed" by IPCC and the joint work being done on the topic, noting there is a plan for a joint workshop in November 26-28.

Robert Vautard introduced the AR7 Assessment cycle, noting that there will be a synthesis report by late 2029 but there isn't yet a timeline for the AR7 report. Robert continued by focusing on the outline and challenges for the WG1 report. Chapter 8 will include tipping points. Robert also noted that the WGII report would include a chapter on the role of finance (Chapter 6). Robert summarised how he felt WCRP could help:

- Produce Review and Assessment papers.. TCRE will help chapter 5. Overshoot and effect of CDR would be important topics .
- Need help with Chapter 4 and the processes – need more topical papers on the advances of physical processes e.g. sub-daily extremes.
- Important that WCRP are involved in meetings with authors.
- There may be emerging topics and need for WCRP to be responsive to this

Ted pointed out that WG 1 and 2 have different definitions of climate change and asked how this might be managed? Storylines? Robert answered that this was a very important topic to address, particularly at the regional scale. Not only Chapter 10 but all the regional focused ones e.g. chapter 8.

Erich highlighted that it was great to see so much innovation. Chapters on Tipping points often have elements beyond the physical system: How will this be dealt with? Robert answered that they have not yet discussed in depth but we do need to have a workshop on this for WG1 and 2. How this will be split still has to be discussed.

Anna gave a debrief on her role as an Observer at IPCC, highlighting the importance of informing and interacting. For example, there was a lot of discussion on whether a Tipping Points meeting would be approved officially, which it was not in the end, but would be organized jointly. Timeline for IPCC is also important to WCRP. CMIP and CORDEX were also key topics, and discussions with them prior to meeting, was beneficial. Many other Observer organizations didn't know much about WCRP – so outreach important.

A discussion was held on key topics for which new information is needed from WCRP, e.g., through assessment papers and connections with WG II and WG III (all)

Jan suggested water resources and water cycles. Robert replied that in WG II there is a water chapter. Physical processes in WG 1 though.

Naomi noted that WG 1 focuses on regional information. She asked how IPCC saw this and where was the regional info coming from? Robert said that regional info is asked for by many countries. In chapter 4 as well as 3 and 7. Naomi followed up to ask if the focus was more on global drivers or on regional scale? Robert – mindset is rigour orientated. What are the questions that countries and policy makers have?

Robert noted that there may be emerging topics and it would be good for WCRP to be responsive to this.

11. Interactions with UNFCCC and COP

Heather N. Maseko-Msyale from the UNFCCC secretariat began by explaining how climate science is treated within the UNFCCC framework. The UNFCCC engages with the scientific community through multiple workstreams, particularly under the Subsidiary Body for Scientific and Technological Advice (SBSTA). Key scientific inputs feed into discussions on mitigation, adaptation, transparency, and means of implementation. Heather emphasized the need to identify the best approaches for integrating science into negotiations and policy.

Among the main workstreams are the Research and Systematic Observation (RSO) agenda and the collective progress mechanisms, including the Periodic Review and the Global Stocktake. These streams aim to support decision-making by providing the best available science and by encouraging dialogue between scientists and parties. She emphasized that science has a role not only in informing decisions but also in forward-thinking processes—identifying upcoming issues and knowledge gaps early. In engagement for policy and action, Heather highlighted three major platforms for this interaction: negotiations, the Research Dialogue held during the June sessions, and Earth Information Day held during COPs. These events provide opportunities for scientists to present their work directly to policymakers and help inform climate action, such as national adaptation plans and nationally determined contributions (NDCs). She focused in particular on the upcoming 17th Research Dialogue, scheduled for 17 June. This is the primary platform where direct exchanges between scientists and parties occur. The session will be three hours and five broad themes have been identified: a growing interest in climate attribution science, especially regarding ongoing and extreme events; requests for support in developing equitable climate pathways; the need to harmonize methodological and accounting approaches; continued focus on adaptation and loss and damage science, particularly at regional scales; and increasing attention to biodiversity and ecosystems, including questions about resilience and tipping points under different warming scenarios. Heather noted that many of these themes overlap with WCRP's research priorities, such as attribution, tipping points, monsoons, and downscaling, and expressed interest in continued collaboration.

Heather also outlined several recurring issues that influence party engagement and shape negotiations. One key challenge is data accessibility. Parties have raised concerns about regional sensitivity, transparency, and availability of observations and datasets. She stressed that there is a growing demand for regionally relevant data and clearer data-sharing frameworks.

Socio-economic considerations are another area where integration of science into policy proves difficult. While parties recognize the value of scientific research, aligning it with national development priorities remains a challenge. There is also a desire for more regionally specific, localized scientific outputs that can address country-specific circumstances.

Geographic representation in scientific processes continues to be limited, especially for the Global South. Heather underscored the importance of ensuring that local knowledge and perspectives are reflected in both global science and policy discourse.

Heather also mentioned that while innovation is welcomed—particularly emerging technologies such as artificial intelligence—there are concerns about the risks and ethical implications involved. Parties seek more clarity on how these technologies influence scientific outputs and whether their use introduces unintended biases or gaps. Heather noted the misalignment between the IPCC report cycles and the annual rhythm of COP negotiations. Parties have indicated that they would like to engage with scientific findings earlier and more frequently. This opens space for WCRP to help socialize emerging outputs and findings before formal IPCC releases.

In terms of recurring scientific needs, Heather highlighted continued requests for input on topics such as carbon dioxide removal (CDR) and associated methodologies. There are also areas where confidence in the science remains low or where knowledge is lacking altogether, and parties are looking to the research community to help identify and address these gaps.

Beyond the Research Dialogue, Heather described two major upcoming opportunities for scientific engagement. The first is the periodic review of the long-term temperature goal, which resumed last year and continues in Brazil this year. This process involves reassessing whether the 1.5°C/2°C target remains appropriate in light of the latest science and geopolitical developments. The second is the follow-up to the Global Stocktake, which offers the scientific community a chance to reflect on lessons learned and contribute to the planning of the next cycle. These processes provide a significant entry point for WCRP and other science partners to inform high-level decision-making.

Heather gave a preview of COP30, noting that science will feature prominently. Two opportunities for engagement are already emerging: the high-level thematic event on Earth Information, which will present updates on systematic observations, and a negotiation track focusing on systematic observation commitments. She encouraged submissions from stakeholders for topics to be discussed at Earth Information Day, with a deadline of 28 August 2025.

In closing, Heather posed several reflective questions on how to enhance collaboration between WCRP and the UNFCCC process. She asked whether platforms for engagement can be better mapped, whether coordination with the IPCC can be strengthened, and whether upcoming WCRP outputs can be brought to parties' attention earlier. She also suggested exploring opportunities for joint capacity-building efforts. These reflections, she noted, are meant to open a deeper dialogue on how the science-policy interface can continue to evolve through mutual engagement and collaboration.

Mike welcomed the renewed connection between WCRP and the UNFCCC, noting WCRP's past participation in research dialogues via the WMO delegation. He highlighted the challenge of late invitations, often before an agenda is set, which makes planning difficult. He suggested earlier informal discussions with the WCRP Secretariat to better coordinate WCRP's involvement.

Regina Rodrigues provided an update on preparations for COP30. The president and CEO of COP30 have recently been announced, with André Corrêa do Lago taking on the president and Ana Toni as the CEO. The President has emphasized that science should be at the center of COP30, and there is interest in organizing a large, central science pavilion that could include WCRP, ISC, WMO, and IPCC. There are additional logistical challenges as the host city has limited capacity, and political dynamics in Brazil add further complexity. Hosting COP in the Amazon region is intended as a symbolic choice, but it also carries risks. While it presents the opportunity to highlight deforestation and emissions from land-use change, it could also place Brazil under pressure from fossil fuel interests and business sectors.

In terms of WCRP-related contributions, Regina mentioned two science events being developed pre-COP30. One is a photo exhibition on extreme events, in collaboration with the Safe Landing Climate, which will include images and brief information linking events to climate attribution science. The other is a workshop organized with the BASE initiative, focusing on the science of attribution. She expressed concern about how the newly approved Loss and Damage Fund will be accessed, particularly by Global South communities, once operational. There are unresolved questions about whether local communities will have the scientific or institutional capacity to attribute climate impacts in ways that meet the evidentiary thresholds required for accessing funds. Regina stressed the importance of addressing these gaps now, including what kinds of evidence will be accepted, and called on the scientific community to be proactive in ensuring equitable access.

Mike confirmed that WCRP usually goes to COP30 as part of a delegation under WMO, who is also under discussion about whether to host a pavilion. Typically, WCRP is allocated just one person due to cost constraints.

Pierre welcomed the idea of broader scientific participation and pointed out that in the past, universities often had limited passes to the blue zone. He is concerned about how COP organizers expect more science involvement without enabling scientists to attend. Heather explained that access policies have changed over time and are shaped by quota systems and national-level decisions. Representation remains a challenge, and while many scientists collaborate with party delegations or attend under NGO or IGO badges, the number of available passes remains limited.

Karen asked whether WCRP participates in pre-COP dialogues on the ocean, emphasizing that such engagement can shape the outcomes of COP itself. She explained that UN agencies are invited to submit short information notes for the Ocean and Climate Dialogue and encouraged WCRP to take advantage of this. She stressed that this type of interaction with policymakers is becoming more urgent and suggested WCRP needs to think about how to go forward, both strategically and inclusively. Amadou added that pre-COP dialogues could help WCRP sharpen its objectives and deliver more actionable, useful science, particularly aligned with the needs of countries. He noted the continued lack of Global South scientists in these processes.

Heather mentioned that past WMO and IPCC reports have helped shape negotiations and that many countries make recurring data requests, which WCRP could help meet. Pascale concluded by noting that attribution science is becoming increasingly urgent, particularly given questions of responsibility between countries. She encouraged the community to prepare better and engage earlier with legal and political aspects of climate attribution.

12. The Financial Landscape and Opportunities

Cristina opened the discussion on the financial landscape and funding opportunities. Tim followed with introductory remarks emphasizing the importance of identifying financial opportunities and ensuring long-term sustainability to effectively manage future finances.

12.1. Overview of expenditure and budget for 2026

Mike Sparrow gave an overview of WCRP's financial situation and the proposed budget for 2026. He noted that challenges persist due to the incomplete rollout of the new WMO finance system and expressed gratitude to WCRP activities that accepted budget cuts for 2025. For 2026, the best-case income scenario is CHF 950k, assuming all expected funds are received (which was unlikely). The finance task team is planning based on a worst-case scenario—CHF 380k—assuming limited contributions from WMO and no funding from sources like NSF. In this scenario, only 38% of requested funds could be allocated, prompting a need to minimize non-science expenses such as travel, in-person meetings, and communications. Mike also outlined the budget allocation principles, with initial draft. allocations of around CHF 40k for Core Projects (CPs) and CHF 15k for Lighthouse Activities (LHAs)

12.2. Approaching additional sources of funding

Tim Naish outlined WCRP's current efforts to diversify its funding sources. These include outreach to ISC member countries, governments such as New Zealand, the EU, and the UAE (via WMO), institutions such as the UK Met Office and CNRS, and philanthropic foundations.

Tim proposed the formation of a resource mobilization/fundraising committee under the JSC. He suggested this committee consider multiple approaches—clubs, foundations, and individual sponsors—and include experts like Daniel Kull (WMO) and Kevin Bourne (private sector). The JSC will explore this potential and determine the next steps.

12.3. Insights from Daniel Kull – WMO Development Partnerships

Daniel Kull, Director of Development Partnerships at WMO, provided an overview of WMO's resource mobilization. He explained that WMO secures funding through implementation of projects and flagship initiatives, with member country support playing a significant role. Currently, WMO manages 59 active projects valued at approximately 135 million CHF, primarily funded by CREWS, the Adaptation Fund, and foundations such as the Rockefeller Foundation and the Welcome Trust.

He outlined several funding avenues:

- **Climate Funds** (e.g. GCF, CREWS, Adaptation Fund): Offer medium funding for research, but require WMO accreditation and involve complex administrative processes.
- **Bilateral Donors (ODA)**: Medium support potential with relatively accessible processes.
- **Multilateral Development Banks (MDBs)**: Small, highly targeted, and often unpredictable in access.

- **Major Foundations**: Substantial, programmatic funding is possible if there is a foundation of trusted relationships.

12.4. Insights from Kevin Bourne – Head of Markets, Vyzrd

Kevin Bourne presented how financial markets assess climate risk through physical, liability, and transition risk categories. He detailed how investment decisions incorporate scientific data—especially 'WCRP' data—into risk and pricing models, using emission curves, temperature projections, and physical risk assessments.
He emphasized that scientific data already drives global price and risk calculations. He encouraged WCRP to recognize the role financial markets could play and to explore how collaboration might benefit both parties.

Tim highlighted the idea of funding "clubs" rather than individual sponsors. Kevin supported this, seeing potential in group sponsorship.

13. Ensuring diversity and establishing future leaders

13.1. How to ensure Early and Mid-career scientists and Global South Scientists are better integrated in WCRP

Pascale outlined the objectives of the Early and Mid-Career Researchers (EMCR) Engagement Tiger Team. This included enhancing EMCR visibility, representation in WCRP core activities, highlighting EMCR achievements, considering the possibility of awards, webinars on their research, and a possibility of a catalogue with contacts. Pascale also presented on the current WCRP Global Fellowship, including the history behind the concept. The objectives of the fellowship programme were:

- To give early to mid-career scientists from the Global South the benefit to develop their own WCRP related research activity, thereby boosting climate research activities in their own Global South region.
- Fellowship topics can address a wide range of scientific questions addressed in the WCRP Science and Implementation Plan as formulated through priorities of WCRP activities (Core Projects and Lighthouse Activities).

A number of lessons were learned from the experience of the first fellowship:

- Need dedicated support for the evaluation phase (prepare documents, interface with the candidates and with the recruitment panel).
- Large number of applications. Suggests that we should propose either a region (preferred by the task team) or topics (to be define broad enough).
- The overall agenda (dates of committee meeting, dates of interviews) should be known in advance
- The 2024 platform for applications can be used for new calls
- Need to better organise the contacts between the candidates and the WCRP community during the preparation of the project
- Better anticipation of potential conflict of interest.

- To note that applications were of good quality with good candidates and was a way to identify leadership potential.

Cristina continued the conversation by presenting on the IAI (Inter-American Institute) STeP fellowship scheme – a possible partner for a future WCRP fellowship.

13.2. Contributions leveraged from RIfS' Africa Initiative

Naomi presented on a new collaborative effort with CLARE on the "Robust Information for Decisions: Africa Climate change focus" initiative. This is contracted funding between IDRC (on behalf of CLARE project) and the RIfS International Project Office (IPO) with benefits for donor management and reducing institutional overheads. The African host organizations will be based on best addressing the placement needs of the personnel. The RIfS SSG Africa Task Team (Africa membership and chairs), will establish the science framing, set objectives, and oversee the programme and activities. The goals of this initiative are:

- Building a synthesis of Africa knowledge and lessons learned from across the CLARE projects and other major actions in Africa
- Fostering (new) collaboration and partnerships around frontier research on the generation, analysis, construction, and communication of robust climate change information aligned with and shaped by the stakeholder and decision-maker contexts
- Developing climate and context literacy across the web of all actors (scientists included) and enhancing capacity for managing climate risk and building resilience to climate impacts
- Building an Africa Community of Collaboration with a visible and recognized identity around transdisciplinary approaches to climate and society

If this initiative is successful, RIfS would see it as a potential model for learning how to organize hubs of activity in other parts of the world.

13.3. Ensuring Global South Inclusion in WCRP leadership

Anna outlined the history and reasoning behind the Global South Inclusion Task Team (GSITT) i.e. the Global South has:

- Greater vulnerability to climate change
- Less influence on global decisions
- Less representation in international climate science

The terms Global North and South capture the dimensions and implications of global asymmetric power relationships and is therefore richer and more useful than economic indices such as GDP. The example was given that in the JSC the Global South is historically underrepresented especially in the leadership positions.
The GSiTT is tasked to provide recommendations to the WCRP leadership at the JSC 2026. The recommendations will be based on evidence from well-designed activities during the coming year.

14. WCRP working in partnership with others

14.1. IOC-UNESCO

Karen Evans of IOC-UNESCO gave a presentation for potential areas of partnership with the WCRP. She identified four programmatic areas that have potential for deeper partnerships with WCRP moving forward.

Influencing observations of the ocean and cryosphere
There are 2 areas that IOC is supporting and providing secretariat support: The Global Ocean Acidification Observing Network focuses on understanding and tackling the problem of ocean acidification. GCOS, or the Global Climate Observing System, is focused on essential ocean variables. Variables are designed such that if there is a need to focus efforts, there are a range of variables that can be observed. GCOS is built on the back of regional and national alliances, and there are regional and national observing systems located across 76 countries. Observing networks focus to define and respond to system needs and develop standards and best practices.

Partnering with active research networks
Karen mentioned three research networks: GO2NE (Global Ocean Oxygen Network) the International Partnership for Blue Carbon, and the Integrated Ocean Carbon Research Program. GO2NE is an expert working group established in 2016 to provide a multidisciplinary view on what state of oxygen is in the ocean. The International Partnership for Blue Carbon is currently developing tools (blue carbon finance toolbox) to support carbon accounting. In the Integrated Ocean Carbon Research Program, there are elements of WCRP already contributing to this ocean group (SOLAS, CLIVAR). Their first report was released last 2021 and they are now working on second report for release mid-2025.

Contributing to scientific assessments
WCRP can potentially work with GESAMP (Group of Experts on the Scientific Aspects of Marine Environmental Protection). It is currently supported by 10 UN Agencies. It can also contribute to the State of the Ocean Report (sister to the SOC report released by WMO). There are two Working Groups (WGs) of relevance:

WG41: Ocean interventions for climate change mitigation (focuses on marine mCDR techniques); and
WG45: Climate change on greenhouse gas related impacts on contaminants in the ocean (focuses on the physical and chemical changes in the ocean, effects of climate change and pollutants to marine and human systems)

For the State of the Ocean Report, there is potential in helping IOC identify policy and management priorities and focus areas for research.

Collaborating on expanding and sharing capacity
One of the flagship outputs of the IOC is the Ocean teacher Global Academy. It co-develops modules with various partners, so content is targeted and delivered where necessary. The academy is supported by regional and specialized training centers. It is always partnering to build and design training modules and to deliver them through the platform and to the ground.

14.2. ISC: Current and Future areas of cooperation

Megha Sud explained how the International Science Council (ISC) plays a coordinating role, aiming to reduce overlap and build strong, mutually beneficial relationships among its partners. This coordination lends global legitimacy to the policy issues ISC raises and ensures a neutral, high-level platform not bound by national interests. She outlined ISC's strategic priorities for 2025–2028, which include promoting freedom, responsibility, and inclusivity in science; setting the international science agenda; supporting the evolution of science; advancing evidence-based policymaking; and engaging in science diplomacy at both multilateral and national levels. ISC is especially focused on identifying emerging global concerns, enhancing the science-policy interface, and promoting collaboration among its affiliated bodies—including WCRP—as models of effective international cooperation. Potential areas of discussion where WCRP could contribute and work closely with ISC include:

Policy Advice to Multilateral Systems: There is a strong interest in enhancing ISC's role in delivering science-based policy advice to global institutions such as COP and UNFCCC, ensuring that scientific knowledge shapes international decision-making.

Coordination Among ISC-Affiliated Bodies: ISC aims to facilitate greater exchange, capacity sharing, and possibly coordinated action between its affiliated bodies. This would help strengthen collaboration, reduce duplication, and amplify collective impact across scientific domains.

WCRP as a Model of Collaboration: The WCRP was identified as a successful example of international scientific cooperation. Its involvement in large-scale initiatives like the International Polar Year illustrates how structured, cross-institutional collaboration can address major global challenges. There is an opportunity to use WCRP as a case study for replicating this model in other thematic areas.

The discussion emphasized the need for regular updates and coordination between the WCRP and ISC secretariats. Narelle highlighted the importance of consistent communication, while Tim acknowledged the overwhelming volume of ideas and called for a panel discussion to determine how to proceed without overburdening either side.

A key recommendation was to strengthen WCRP's connection to ISC to engage with emerging issues around the ethics of AI and the broader evolution of science. Megha added that ISC is already conducting multicounty studies on how science systems are adapting to AI, reinforcing the relevance and timeliness of this collaboration.

Cristina emphasized the importance of collaboration between ISC and WCRP in setting the international science agenda. She expressed a desire to make WCRP's science more actionable by leveraging ISC's networks and communication channels. Cristina also asked how ISC works with other organizations to translate scientific findings into practical, impactful outcomes. Megha responded that the affiliated bodies are often quite different in structure and working style, which can complicate collaboration. She noted that while it's easier to collaborate when there are clearly defined outputs, that is not always the case. Still, there is untapped potential for deeper collaboration by requesting expert input and aligning more closely with the bodies. Cristina concluded by stressing that maintaining clear and regular communication between WCRP and ISC is key to advancing this partnership effectively.

14.3. Future Earth

Wendy Broadgate introduced Future Earth (FE), a global initiative co-sponsored by ISC, UNESCO, and the Belmont Forum, aimed at advancing research that supports global sustainability transformations. The FE Secretariat operates through nine global hubs and engages members across 145 countries, with over 30,000 people involved globally. She also gave a brief history of the initiative's development. In terms of governance, WCRP holds observer status on the Future Earth Governing Council, reinforcing its connection and oversight role within the broader sustainability science framework.

Wendy also provided a concise introduction to the Tipping Points Modelling Intercomparison Project (TIPMIP), an international effort to assess the likelihood and impact of crossing critical Earth system thresholds.

She highlighted AIMES (Analysis, Integration, and Modeling of the Earth System), which is a global research network actively collaborating with WCRP on various initiatives. In addition to joint activities with WCRP, AIMES also works closely with PAGES (Past Global Changes) and IGAC (International Global Atmospheric Chemistry). Ongoing projects include multi-disciplinary assessments, such as modelling the interactions between climate, biodiversity, and society.

Wendy also introduced the Water Futures Project, a sister initiative to iLEAPS that works on large-scale water resource challenges in partnership with the European Commission. This led Eleanor to propose the idea of a dedicated initiative on water within the broader theme of safe landing of climate, recognizing widespread interest in the topic but also noting its complexity and the number of stakeholders involved. Tim acknowledged the collaborations between ISC and WCRP and suggested that it would be beneficial to formally re-engage, especially considering upcoming discussions at the JSC. Tim proposed that this could be an opportunity to reflect on the partnership and explore new ways to contribute meaningfully to similar science-policy efforts in the future.

15. WMO Activities

15.1. Climate Services

Chris Hewitt emphasized the importance of climate information in delivering tailored climate services to meet user needs across multiple timescales—from historical data to future projections at monthly, seasonal, annual, and decadal scales. Applications span various sectors including hydrology, health, and agriculture. He outlined the structure of the Climate Services Information System (CSIS), which operates at global, regional (e.g., RCOFs), and national levels (via National Meteorological and Hydrological Services - NMHS).
Key activities are driven by the Global Framework for Climate Services (GFCS), focusing on:

- Strengthening NMHS capabilities
- Supporting climate policy and finance
- Developing standards and quality systems
- Enhancing the climate services value chain
- Increasing GFCS visibility and effectiveness

Chris highlighted ongoing challenges and opportunities, particularly the need for research data and scientific knowledge to inform climate services. He also noted the importance of attribution science (e.g., extreme events, warming conditions) and WCRP's contribution to global topics like sea level rise and the cryosphere.

15.2. Hydrology

Stefan Uhlenbrook discussed how hydrological services can be improved through better observations, data management, modelling, and forecasting. He emphasized the role of WMO in establishing frameworks and fostering collaboration in hydrology. He provided an overview of the Task Team on Hydrology Research under the Research Board, which is updating the WMO Hydrology Research Strategy (last issued in 2021). Key areas for WCRP contributions include:

- Precipitation analysis and forecasting
- Human-water interactions
- Hydrological predictions and projections
- Digital innovation in operational hydrology
- Co-creation of hydrological services

He also noted GEWEX's contributions to the *State of Global Water Resources* report and highlighted potential synergies with GEWEX. Keith suggested CliC could contribute to the *State of Glaciers* section of the global water report, which Stefan welcomed.

15.3. GCOS

Caterina Tassone gave an overview of the Global Climate Observing System (GCOS), created to support a coordinated global climate observation system. She presented GCOS's mission to strengthen observations for climate services, particularly through improved measurement, data flow, and regular updates. She noted that GCOS oversees three main domains: atmospheric, oceanic, and terrestrial observations and has currently defined 55 Essential Climate Variables (ECVs), with regular rationalization and updates via an upcoming open community review. A key role is identifying observational gaps, especially related to monitoring global energy changes.

Caterina noted that GCOS maintains reference networks such as GRUAN, currently with 35 sites. The only mandatory ECVs for the Reference Network are temperature and precipitation. She highlighted ongoing collaborations with WCRP, including contributions to the WMO Ocean Panel, participation in the ESMO-led Climate Infrastructure Task Team, and joint initiatives like Earth Cycles.

15.4. WIPPS

Francois presented the WMO Integrated Processing and Prediction System (WIPPS). This is part of a data exchange system that also includes WIGOS (WMO Integrated Global Observing System) and WIS (WMO Information System). WIPPS is a worldwide network of operational centres operated by WMO Members. The aim is to make defined products and services operationally available to WMO Members and relevant operational organizations.

Francois gave an overview of the Web Portal for WIPPS Designated Centres (timescale is currently nowcasting to annual to decadal prediction) and WIPPS activities. There are eight strategic components in WIPPS, aimed at consolidating research and innovation into Earth system modelling and predictions. Francois highlighted the roadmap for incorporating AI into WIPPS, which aims to provide WMO Members with guidance regarding the potential and limitations of new AI technologies and to identify good approaches for integrating these technologies into their operational practices. Key issues and challenges identified will be addressed through pilot projects. Each of these pilot projects will serve as a proof of concept for broader AI integration into WIPPS and will be designed to test the scalability and effectiveness of AI solutions in operational settings:

- AI for Nowcasting Pilot Project (AINPP)
- Global to local data-driven predictions in a common framework (Bris)
- ECMWF/WMO AI Weather Quest
- WGNE Models Intercomparison Project (WGNE-MIP)
- UNESCAP /WMO Typhoon Committee initiative on AI Applications in Tropical Cyclone Analysis and Prediction
- Pilot for global riverine flood prediction

Francois noted the potential interactions between WIPPS and WCRP. This includes WIPPS activities linked to climate forcing data on sub-seasonal, seasonal and annual to decadal prediction. There is potential to use the full suite or subsets of CMIP6 forcings (greenhouse gases, ozone, tropospheric aerosols, volcanic aerosols and solar forcing) in hindcasts and forecasts and to align with the update frequency of CMIP forcing datasets, typically every 5 to 7 years. He asked if WIPPS should facilitate an annual update. He also noted that CMIP modelling groups can potentially become WIPPS endorsed 'climate change projection centres and ESGF data servers can potentially become WIPPS-endorsed infrastructure. He asked whether we need WMO (WIPPS) endorsed attribution centres noting that conditional extreme event attribution modelling essentially makes use of NWP technologies. The WMO WMCs can potentially generate 'standardized' attribution simulations. This can facilitate 'equal access' to attribution simulations in the Global South. WMO standardization and frequent RRRs can strengthen the uptake of attribution science.

15.5. GAW

Paolo Laj, Chief of the Global Atmosphere Watch (GAW) highlighted four key pillars:

- Monitoring Infrastructure: provision of atmospheric composition data from GAW network of stations.
- Scientific assessments: advance scientific understanding coordinating assessments on the state of the atmospheric composition

- Science-for-Service Initiatives: engage with user communities for supporting Services, Policies, and Treaties
- Capacity building and education initiatives: provide training opportunities for GAW users from all regions

With the monitoring infrastructure, GAW also works to have better coverage for monitoring, through promoting cooperation. The scientific assessments are conducted through expert teams to promote use of information from the GAW stations including community publications, assessments and bulletins. The science for services initiatives includes a GAW Integrated Global Greenhouse Gas Information System (IG3IS), Global Air Quality Forecasting and Information system (GAFIS), Vegetation Wildfire and Smoke Pollution Warning and Advisory System (VFSP-WAS), and the Sand and Dust Storm Warning and Advisory System (SDS-WAS). Paolo gave an overview of GAW partnerships and noted that there are number of activities that are connected to WCRP. Mainly this is through APARC on chemistry and climate and long-term records for climate understanding. There are also potential connections with ESMO, with the Working Group on Observations for Researching Climate. He emphasised that we should try and avoid duplication across the programmes, favouring cross-participation of experts in working groups.

15.6. WWRP

Estelle De Coning, Chief of the World Weather Research Programme (WWRP) gave an overview of the working groups and projects of WWRP. She noted the Working Group on Forecast Verification Research is joint with WGNE.

Polar Coupled Analysis and Prediction for Services (PCAPS)
The aim of this project is to enhance environmental services, enable informed decision-making to enhance human safety and mitigate environmental risk, provide more accurate and reliable analyses and predictions, strengthen partnerships through transdisciplinary coordination and cooperation, provide inclusivity and capacity development, enable a wide range of actors to participate in and benefit from PCAPS. She noted that Andrew Orr from WCRP/Polar CORDEX is involved in this project.

Integrated Prediction of Precipitation and Hydrology for Early Actions (InPRHA)
This project aims to engage with the diversity of the international communities of researchers, forecasters, practitioners and other stakeholders; foster collaboration between research and operations, within national meteorological and hydrological services (NMHSs) and beyond; bring together knowledge from different disciplines (meteorology, hydrology and the social sciences) and cultures with consideration for the most vulnerable and least developed communities; and to rethink the flood warning process, in a non-stationary system, by taking into account anthropogenic influences and changes on climate, land and water, as well as societal interactions, considerations and perceptions. She noted that Jan Polcher is on the steering group.

Sub-seasonal Applications for Agriculture and Environment (SAGE)
Estelle highlighted that this project is a follow on from the S2S project and that it has a focus on agriculture, energy, disaster risk reduction, and health sectors. The project aims to advance our understanding of how and where sub-seasonal to seasonal forecast information is and can be used to support decision-making; advance our understanding of the skill and uncertainty and their sources in impact relevant sub-seasonal to seasonal forecasts; and develop methods for incorporating sub-seasonal forecasts and their associated uncertainty into decision-making and evaluating the worth of forecast information. She noted that Yuhei Takaya WCRP/ESMO (WGSIP) is involved in this activity as is Cristina Stan (JSC vice-chair).

Progressing EW4All Oriented to Partnerships and Local Engagement (PEOPLE)
This project is inclusive of early warning systems, asking how we can involve and identify the needs of a range of people to be effectively and adequately engaged in the design, planning, and implementation and evaluation of early warning systems. It looks at barriers and enablers: What are the barriers and enablers to design socially inclusive early warning systems, delivered urgently and at scale inter-alia including multi-level governance, resources (human and financial), spectrum of impactful events, culture, context, trust, etc. It looks at context-driven and evolving risk: How can context-appropriate EW systems be optimized, sustained and adapted to evolving weather and climate-induced risks and socio-economic structural dynamics? She noted that Kendra Gotangco (WCRP/My Climate Risk) provides a link to WCRP.

Urban Prediction Project
This project focusses on the accessibility and relevance of information related to urban areas. It aims to assess and provide guidance on the accessibility and cultural relevance of diverse urban data and information to contribute to an actionable EWS process for place-specific preparedness and response. In terms of prediction and early warning systems across spatial scales, where it seeks to understand the role of spatial scale and recommend benchmarks in predicting and providing effective multi-hazard early warnings for diverse urban populations and decision-makers. In terms of advancing modelling techniques and the utilization of emerging datasets, the project seeks to understand how the integration of advanced physical models, observations, AI technologies, and diverse multidisciplinary urban data can enhance prediction and early warning systems in different urban environments. Lastly, in terms of knowledge sharing and capacity building, the project explores place-specific, diverse knowledge and capacities among key actors in urban areas to prepare and respond to weather-related risks using data and information. This project is linked to WCRP through Fei Chen from WCRP/My Climate Risk.

Aiding Decision-making in Vulnerable Africa with Nowcasting of ConvEction (ADVANCE)
This is a collection of projects endorsed by WWRP, linked to a CREWS projects in East and Central Africa, Weather and Climate Information Services (WISER): Early Warnings for Southern

Africa (EWSA) and Advancing Nowcasting with Deep Learning techniques (ANDel). The WCRP/RifS activities may be relevant to these projects.

15.7. The WMO Research Board

Amanda Lynch presented an overview of the WMO Research Board, which plays a central role in aligning global research efforts with WMO's strategic priorities and ensuring that scientific advances contribute meaningfully to operational services. She explained that the Board does not guide science directly but provides oversight and aims to ensure that research activities around the globe feed into WMO's operational and service-oriented goals. The Board translates the strategic aims of WMO and decisions from the Executive Council and Congress into overarching research priorities. It also supports coordination across WMO's three main research programmes: WCRP, WWRP, and GAW. The Board currently comprises 27 members including representatives from all regions, infrastructure and service commissions, and experts in physical and social sciences.

Amanda introduced several task teams which are established under the Research Board to address emerging needs, including those focused on AI for weather (reporting to Congress in October 2025), data exchange between operations and research, early warning for all, hydrology, and social sciences. The Board maintains liaison with other WMO bodies such as the Scientific Advisory Panel and Polar and High Mountain groups to align research with operational goals and horizon scanning. Amanda herself participates in the Polar and High Mountains panel (EC-PHORS).

Amanda also introduced the three constituencies the Board serves: research programmes, regional associations, and technical commissions. She gave an example of helping regions recognize and build scientific capacity, by responding to a request from Bangladesh for guidance on sea-level rise for which the Board connected them with the chairs of CliC. It also works to make research more visible to operational actors and vice versa.

Amanda highlighted recent WCRP contributions including the Kigali Declaration, CLIVAR's 30th anniversary, and progress toward CMIP7, etc. She emphasized that WCRP is producing significant advances, particularly in areas like subseasonal-to-seasonal prediction and integrating social science with climate science. Looking ahead, she mentioned upcoming strategic areas such as COP30, AR7, integration of Indigenous and traditional knowledge, the upcoming International Polar Year (involves both WCRP and WWRP), WMO's unified data policy, applications of AI/ML, and the Global Greenhouse Gas Watch (G3W).

15.8. The Global Carbon Project

Pierre Friedlingstein delivered a detailed overview of the Global Carbon Project (GCP), focusing on its historical development, operational structure, scientific outputs, and potential avenues for renewed collaboration with the World Climate Research Programme (WCRP).

Pierre described the GCP's operational model, which is built around a Scientific Steering Committee (comprising 12–15 members) and a large number of Activity Leaders responsible for coordinating specific research outputs. GCP's work is highly decentralized and largely volunteer-driven, supported by funding from national and European Union sources, institutional backing, and collaborative contributions from the broader scientific community.

The scientific scope of the GCP is broad and outcome-oriented. A flagship effort is the production of annual global greenhouse gas budgets, beginning with carbon dioxide (CO_2) and expanding to include methane (CH_4) and nitrous oxide (N_2O). Additionally, the GCP is leading the Regional Carbon Cycle Assessment and Processes (RECCAP) initiative. RECCAP Phase 2, which concludes in 2025, involves comprehensive regional GHG assessments, including focused work on permafrost regions. Phase 3, launching in 2026, will shift toward national GHG budgets and enhanced regional specificity. The GCP is also launching new efforts on global hydrogen and black carbon budgets.

Pierre underscored the GCP's impact through its contributions to scientific literature and policy reports. Its outputs regularly appear in high-profile journals such as Nature and Earth System Science Data, and inform global climate assessments by the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC), WMO's United in Science reports, collaborations like the 10 New Insights in Climate Science series. The GCP also plays a visible role in public engagement and policy communication, with data and findings presented at UN climate conferences (COPs), featured in major media outlets worldwide, and made openly accessible through platforms like the Global Carbon Budget website, the Global Carbon Atlas, and Our World in Data.

Lastly, Pierre highlighted the strong scientific links between GCP and WCRP's Core Projects (CPs) and Lighthouse Activities (LHAs). These include collaboration with the Earth System Modelling and Observations (ESMO) core project on carbon cycle simulations and observations; with Safe Landing Climates (SLC) on transient climate response to cumulative emissions (TCRE) and tipping points; with CLIVAR on ocean carbon and heat content; with GEWEX on land carbon and water coupling; with APARC on methane and black carbon; and with CIIC on permafrost carbon feedbacks.

16. Partnerships with other organizations

16.1. International Global Atmospheric Chemistry (IGAC) Project

Langley DeWitt provided an overview of the IGAC project, which facilitates international coordination in atmospheric chemistry research using a bottom-up, community-driven approach. IGAC's main outputs include biennial science conferences (which are open to competitive bidding), regionally focused working groups, and community-based strategic initiatives. IGAC's scientific activities span multiple focus areas, including: Polar and atmospheric chemistry (PACES), Chemistry-Climate Model Initiative (CCMI) and Measurement and observation programs. There are six active regional working groups, such as ANGA (Africa) and MANGO (Monsoon Asia and Oceania), which support community building and regional science. IGAC also runs various Early Career Researcher (ECR) programs, including webinars, short courses, travel grants, and newsletters.

16.2. UNESCO Intergovernmental Hydrological Programme (IHP)

Abou Amani presented an overview of the UNESCO Intergovernmental Hydrological Programme (IHP), explaining its evolution as a member state-led initiative designed to meet national hydrological needs. He emphasized IHP's alignment with UNESCO's broader goals in

social, cultural, and environmental domains. The current IHP IX phase is organized around five key thematic pillars and three cross-cutting themes relevant to WCRP: Hydrological extremes, Groundwater and human settlements and Ecohydrology and water quality.

Amani outlined several flagship initiatives under IHP, which include programs on drought, hydrological cycle modelling, climate change impacts on groundwater recharge, and water quality. He also described the Ecohydrology Platform, which facilitates localized engagement to identify and solve water-related issues.
Some of the user-oriented tools developed under IHP include: the Flood and Drought Monitoring Platform, the Climate Risk-Informed Decision Analysis (CRIDA) framework. These have been implemented in multiple countries to address climate-related water resource challenges.

In line with UNESCO's Open Science commitment, IHP has launched several digital and technological initiatives: Open Hydrology and a Citizen Science toolbox, pilot projects utilizing the Internet of Things (IoT) for flood and drought monitoring, applications of Artificial Intelligence (AI) in flood forecasting and the IHP-WINS information platform and a new Open Learning Platform. Amani also highlighted UNESCO's role in the 2025 International Year of Glacier Preservation, which will focus on glacier protection and climate action.

16.3. SOLAS

Li Li gave an update on SOLAS (Surface Ocean Lower Atmosphere Study). She highlighted that WCRP has been a co-sponsor of SOLAS during the period their two last science and implementation plans. SOLAS' mission is to achieve quantitative understanding of the key biogeochemical-physical interactions and feedbacks between the ocean and atmosphere, and of how this coupled system affects and is affected by climate and global change. It is a global study, with an International Project Office in Xiamen, China with 34 national and regional networks, and 1200 core member scientists.

The scientific structure up until 2025 has been centred on five core themes: (1) Greenhouse gases and the oceans; (2) Air-sea interface and fluxes of mass and energy; (3) Atmospheric deposition and ocean biogeochemistry; (4) Interconnections between aerosols, clouds, and marine ecosystems; and (5) Ocean biogeochemical controls on atmospheric chemistry. SOLAS also has three cross cutting themes on integrated topics (e.g., upwelling systems, Polar & Indian Oceans), climate intervention; and science and society. She gave an overview of collaborations and of the new scientific structure for 2026-35, which is very much orientation around science for discovery, solutions and capacity building. In terms of the future, Li Li asked how SOLAS can align with WCRP's missions, complement WCRP's projects and asked whether SOLAS should even be part of the WCRP structure.

16.4. SCAR

Chandrika gave a presentation on the Scientific Committee on Antarctic Research (SCAR). SCAR initiates, develops and coordinates high quality international scientific research in Antarctica and the Southern Ocean. It also provides objective, independent scientific advice

to the Antarctic Treaty System including the ATCM, CEP, and CCAMLR and engages with other international organizations including UN bodies.

SCAR has four Scientific Research Programmes (SRPs) (each lasting for 8 years), aimed at addressing major, priority, scientific issues of global or fundamental importance, at the cutting edge of the science, requiring substantial fieldwork and/or observations in the Antarctic:

- INStabilities and Thresholds in ANTarctica (INSTANT) - 2020-28
- Near-term Variability & Prediction of the Antarctic Climate System (AntClimnow) - 2020-28
- Integrated Science to Inform Antarctic and Southern Ocean Conservation (Ant-ICON) - 2020-28
- Antarctic Geospace and Atmosphere Research (AGATA) – NEW

INSTANT aims to quantify the Antarctic ice sheet's contribution to past and future global sea-level change, from improved understanding of climate, ocean and solid Earth interactions and feedbacks with the ice, so that decision-makers can better anticipate and assess the risk in order to manage and adapt to sea-level rise and evaluate mitigation pathways. INSTANT has close links with WCRP/CliC.

AntClimNow is enhancing understanding of the Antarctic climate system in the near-term (1-30 years) with themes on: (1) Antarctic climate variability and linkages to the global climate system; (2) Present-day climate trends in Antarctica; (3) Predictability of the Antarctic climate system; (4) Global and regional cross-disciplinary impacts; and (5) Communication of results to stakeholders. Antarctic Climate Indicators aims to provide a central place that jointly displays or documents iconic climate variables relevant to Antarctica and the Southern Ocean. This is a collaborative project with CliC and a 'beta' test version of ACIs is available via SCAR's website (https://scar.org/science/research-programmes/antclimnow/climate-indicators).

The Expert Group on Ice Sheet Mass Balance and Sea Level (ISMASS) facilitates coordination amongst different international efforts, proposes directions for future research, integrates observations and modelling efforts, distribution and archiving of the corresponding data, and contribute to knowledge dissemination to wider audiences. This is co-sponsored by SCAR, the International Arctic Science Committee (IASC) and CliC. The Expert Group on Operational Meteorology in the Antarctic (OpMet) aims to establish and nurture links between groups working in the area of operational meteorology in Antarctica, such as the Antarctic Meteorological Observation, Modelling, and Forecasting Workshop Group, and the WMO EC-PHORS (Panel of Experts on Polar and High Mountain Observations, Research and Services), helping to facilitate monitoring of the meteorological observations that come from Antarctica.

The Southern Ocean Regional Panel (SORP) Expert Group aims to coordinate the discussion and communication of scientific advances in the understanding of climate variability and change in the Southern Ocean, and advise CLIVAR, CliC, and SCAR on progress, achievements, new opportunities and impediments in Southern Ocean research. This group is co-sponsored by CLIVAR, CliC and SCAR.

The Action Group on Tropical Antarctic Teleconnections (TATE) aims to promote international collaboration, enhance coordination, and encourage participation in improving our current understanding of the mechanisms of tropical-Antarctic teleconnections.

Chandrika highlighted that SCAR has been an official Observer to the Antarctic Treaty since 1987 and provides independent, objective scientific advice in a variety of fields, particularly on environmental and conservation matters. WCRP participates in the Antarctic Treaty meetings under the WMO umbrella, often working in close partnership with SCAR. Chandrika also gave an overview of the Antarctic Environments Portal (environments.aq) and highlighted plans for the 2026 SCAR Open Science Conference Business and Delegates Meetings, taking place 8-18 August 2026 in Oslo, Norway.

16.5. IAI

Omar Lopez Alfano gave a presentation on Inter-American Institute for Global Change Research (IAI). IAI focuses on scientific excellence, international and multilateral collaboration, and open sharing and exchange of scientific information. The objectives are to promote regional cooperation for transdisciplinary research on global change, conduct regional-scale investigation that cannot be carried out by any individual state, and provide scientific information to governments for the development of public policies.

There are three pillars for IAI: science programmes; governance and policy; capacity building and outreach. The scientific agenda is focusing on global environmental change: transdisciplinary research and multi-national research. They host and support the Belmont Forum. They are in the second year of launching the Science Diplomacy Centre. This includes science and technology as a tool to foster dialogue and cooperation between nations, with the aim of addressing global challenges, diplomacy to facilitate international scientific cooperation, and scientific cooperation to improve international relations.

Omar gave an overview of the IAI Science, Technology and Policy Fellows Program (STeP), which facilitates the training future scientific advisors. It aims to strengthen human and institutional capacities in IAI member countries and support the provision of scientific information to inform decision-making in the public and private sectors. It also facilitates incorporating scientific knowledge into policy and decision-making; while increasing policy awareness of scientific contributions (two-way) and it empowers future leaders of the Americas to engage at the science-policy interface, supported by professional development. It is a low-cost, high-impact program with over 100 fellows currently.

17. Communication and information management

17.1. Demonstration of WCRP collaborative Platform and WCRP database

Carlos Montoya (WCRP Secretariat) presented the new WCRP Database and the collaborative Platform.
The database is a means of building an accurate and comprehensive record of WCRP's scientific community. It will allow us to:

- Showcase the true scale and diversity of WCRP's global efforts
- Improve inclusivity and ensure a stronger, more balanced scientific network
- Register members in the new WCRP workspace and mailing lists, creating a more connected and collaborative community
- Better communicate WCRP's scale and significance to stakeholders and funding organizations

The WCRP Workspace is a central hub to connect, collaborate and share and allows:

- Centralized Information: Easily find important details about each group
- Event & Document Sharing: Access, upload, and share events and documents
- Integrated Communication: Direct access to Microsoft Teams channels for real-time chats
- Quick Links: Fast access to websites and resources for each group

Carlos also showed the draft WCRP video and brochure.

18. General questions to the JSC

Tim asked the attendees for any questions or comments. Several items were discussed including:

- There was a feeling that there was still too much emphasis on reporting and not enough time to
  Discuss cutting-edge research during the JSC meeting
- On media requests the secretariat clarified that they work closely with WMO media in terms of who best to engage, depending on the topic e.g. WMO Secretariat staff or WCRP Experts
- On the need for a clear communications strategy, bearing in mind WCRP Secretariat constraints it was suggested that rather than trying to redraft a new strategy that the secretariat focus on an annual plan
- There were several comments that online meetings were not as effective, but this had to be balanced against cost and carbon footprint of face-to-face meetings

19. WCRP Community Session

19.1. Discussion on ToRs for WCRP activities

Tim and Cristina opened the session by providing a brief overview of the proposed Terms of Reference (ToRs) for WCRP activities. They noted that the ToRs are expected to become the formal structure guiding WCRP business moving forward. The goal is to provide broad guidance, within which each activity would define its own specific references, aligned with the overall scope and objectives of the WCRP and the relevant activity. Tim invited the audience to reflect on whether the current draft ToR adequately covers what is needed, and whether anything critical is missing. He acknowledged that feedback from ESMO's experience in drafting its ToR had informed the process.

Mike clarified that Narelle and the WCRP Secretariat had reviewed and synthesized existing ToRs from different activities and ensured that key elements were incorporated into the draft under review. Narelle then proposed that the team should consider recording comments from the room, and more broadly soliciting feedback from the WCRP community before finalising the document, to ensure it meets the needs and expectations across projects.

Eleanor highlighted the importance of reviewing the Membership Terms of Reference (ToR) to clarify expectations and processes. The secretariat confirmed that the ToRs for WCRP activities would be updated first and the Membership guidelines would be updated later.

19.2. Discussion on future reviews of the Core Projects

The Joint Scientific Committee (JSC) revisited the idea of conducting reviews for Core Projects and other WCRP activities. It was acknowledged that past discussions have shown general openness to reviews, but there is a clear need to define the review process to ensure it would be constructive. The overarching aim should be to support improvement, enhance the functioning of activities, and strengthen collaboration across WCRP components. The reviews needed to be carefully planned and follow clear guidelines.

Cristina noted that WCRP is approaching the end of its current strategic plan and suggested that it would be timely and valuable to take stock of what goals have been achieved. She emphasized that this reflection should be approached constructively—not as a critique, but as a way to recognize progress, identify lessons learned, and inform the development of future strategies.

Pascale stressed the need to clarify what kind of reviews are expected—whether internal or external—and how these should be defined. She highlighted concerns over the potential workload involved and suggested the development of focused review questions to streamline the process. Cristina agreed and posed the key question: Do we need external reviews, or should internal ones suffice?

Keith observed that the current system of annual reporting already provides a solid internal review mechanism. However, he suggested that an external review might be appropriate at the conclusion of an activity or LHA, especially when they are completing a decade-long strategic plan. Amadou cautioned against relying too heavily on external reviews, citing the blurred line between internal and external evaluation and questioning whether the current liaison structure

is suited to performing such roles. He also expressed concern over the unclear authorship and community involvement in annual reports and proposed internal reviews as a solution to enhance transparency and engagement.

François recommended introducing a rotational system for external reviews, noting its effectiveness in other programmes. While he acknowledged the workload involved, he felt that with a well-crafted ToR, such a system could be highly beneficial to WCRP.

Amanda supported Keith's and François's perspectives, recalling the 2018 external review of WCRP as a positive example. However, she expressed reservations about applying external reviews to individual CPs and LHAs, citing the practical challenges of doing so. If external reviews are adopted, she recommended conducting them at the end of a science or implementation plan rather than mid-cycle, which could be disruptive. She also emphasized the need to strengthen the role of JSC liaisons, proposing regular communication and clearer guidance as more sustainable alternatives to large-scale reviews.

Ken raised the point that the review process at the end of 2028 should be handled differently than regular annual assessments. He reflected on his role as a liaison, noting that he had uncertainty about what was expected and how to contribute meaningfully. To improve the utility of annual reports, Ken suggested that these documents should focus less on listing events like workshops and instead emphasize substantive scientific contributions and progress towards the objectives outlined in science plans.

Mike expressed agreement and noted the relevance of this conversation, particularly since several Lighthouse Activities (LHAs) are approaching their mid-term point. He emphasized the importance of the Joint Scientific Committee (JSC) actively reviewing progress at this stage, with a focus on evaluating connectivity and strategic development across activities.

Building on this, Xubin emphasized that all Core Projects should be able to easily compile five-year review material by aggregating their annual reports. He supported the idea of using existing reporting to streamline longer-term reviews. He also acknowledged that external perspectives or "fresh eyes" still have value. To strengthen the process, he proposed that after the submission of annual progress reports, the liaisons could provide a brief written response, followed by a short window for the Core Project or activity to clarify or reply. This would help maintain a clear and responsive feedback mechanism.

Tim summarized the key points around how WCRP might approach review processes moving forward. He acknowledged the need for some form of annual assessment but stressed it should remain lightweight and manageable. A practical approach could involve liaison-led responses to annual reports, offering the Joint Scientific Committee (JSC) a streamlined way to monitor progress. In contrast, more in-depth reviews should be strategic and timed—for example, taking place at the end of a strategic plan, guided by a well-defined Terms of Reference (ToR). These more rigorous reviews could include external input to ensure alignment and accountability.

Eleanor revisited the issue of liaisons and the structure of Core Projects (CPs). She asked for clarification on what exactly defines a CP, especially in terms of its role in delivering scientific work. For liaisons to be effective in reviewing progress, she emphasized the need for clear definitions and boundaries of what each CP encompasses. Tim responded that any review

should be anchored in the science plan of the CP, with assessments measuring whether activities are aligned with and advancing those strategic goals.

Cristina raised a concern about public communication, noting that while reports are published online, they often fail to convey the actual scientific impact of the activities. She highlighted that for external audiences, the reports often read as a list of workshops or events without a clear narrative of what was achieved or published, suggesting a need to improve how outcomes are communicated.

Pascale suggested that reporting could be simplified by focusing on clear highlights of what was accomplished within each activity. She emphasized the need for a balance between simplicity and quality, ensuring that reports remain useful without being overly burdensome.

Mike agreed, stressing that a list of publications should be a key component of reports, and that it would be helpful to show how each activity contributes to the relevant science plan. Pierre echoed this sentiment, supporting the inclusion of outputs linked directly to scientific objectives.

19.3. Open discussion on budget and finance

Cristina opened the session noting that a decision on budget allocation would need to be finalized during the upcoming JSC-only session. The conversation focused on whether to proceed with the budget allocation proposed by the JSC finance task team, taking into account the current financial situation.

Amanda asked whether the task team would revisit budget requests if the worst-case funding scenario turns out better than expected. Mike responded that more clarity on the funding is expected around September, while the next JSC meeting is not until early December. Given this timeline, there would be an opportunity to revise allocations before the next meeting. He added that the goal is to simplify the fund request process by moving away from rigid allocations. Tim asked how WCRP should respond if the financial situation improves significantly. Mike confirmed that the JSC could reassess funding at its next meeting and make adjustments accordingly.

Narelle stressed that waiting until early December might delay essential planning and recommended that the task team convene a meeting immediately once the funding update is available. This would allow activities to adjust or replan upcoming events in a timely manner. Pascale noted that a best-case scenario has already been identified, and if the financial outlook is positive in September, WCRP can proceed with additional allocations. The team is aware of where extra funding could be directed, enabling quick action. Pierre added that since requests from Core Projects have already been submitted, WCRP could distribute additional funds efficiently if more money becomes available. Fanny concluded by highlighting the importance of timely budget decisions, as organizing events requires lead time and certainty on available funding.

Keith expressed strong support for the draft budget, emphasizing the importance of maintaining a robust reserve, especially in the context of potential new funding in the fall. He noted that such a reserve would be useful to support IPO transitions and other unplanned priorities.

Cristina thanked the team and raised a point about adopting a flexible budget model. Jan echoed this, agreeing with Keith that WCRP must plan ahead strategically, and questioned whether allocating very small amounts for events like conferences or general assemblies is effective, given their high overall costs. In response, Fanny highlighted the inclusive value of even small allocations, noting that they can enable participation from underrepresented regions, such as the Global South.

Naomi advised against spending too much time discussing hypothetical situations and asked whether the strategic fund was included in the current figures. Tim confirmed that the strategic fund request is included, but clarified that the JSC will not prescribe how those funds should be spent, aside from its own strategic allocation.

Amadou inquired whether a global fellowship programme was part of the 2026 budget. Tim responded that no such provision has been considered.

Xubin expressed appreciation that the JSC is not attempting to micromanage how smaller amounts are used. He supported the idea that if more funding becomes available, some of it could go towards cross-activity collaborations, while the remainder should be placed in the reserve.

Silvina raised a concern about the CORDEX budget, now positioned under RIfS. She noted that the budget for CORDEX-specific activities has significantly decreased and urged the JSC to reconsider this issue to ensure adequate support for those efforts.

Tim emphasized that if any activity faces a critical funding shortfall, particularly where external funds cannot be raised, the JSC must be informed immediately. This is especially important for activities that are due for assessment in 2025, so that the JSC can intervene if necessary to support continuity.

Jan requested clarification regarding the funding for the IPCC-related workshop, suggesting that such funding should ideally come from the IPCC. In response, Pascale clarified that while the event is being organized in collaboration with the IPCC, it is not an official IPCC meeting, which is why funding must be secured through other channels. She noted that a JSC strategic allocation has already been made to support the event, but additional resources are still required. She also mentioned that another strategic allocation is planned for work related to tipping points and TCRE. Tim explained that the IPCC is not providing funding because the event was not approved at the plenary as an official IPCC meeting. Nevertheless, he emphasized that there remains a clear need to move forward with the initiative, given its scientific relevance and alignment with WCRP objectives.

Jan pointed out that over the past 6–8 years, the number of budget lines has doubled, which could be diluting the impact of available funding. He suggested revisiting this structure, so that remaining activities could receive more concentrated support. Keith agreed, emphasizing that the budget is currently spread too thin. He supported Jan and Xubin's suggestion to reduce the number of budget lines as a step toward better focus and sustainability. Silvina echoed these concerns and observed that there is significant overlap in some areas of the budget. She argued that activities with similar objectives should be streamlined to improve efficiency and resource use. Tim acknowledged the feedback and affirmed that WCRP must

indeed focus on prioritizing its efforts to align with funding realities. However, Pascale raised a note of caution. She expressed concern about limiting the number of budget lines, warning that doing so might overlook the diversity and breadth of valuable ongoing activities.

Tim and Cristina formally closed the open part of the meeting. Decisions and Actions, including from the JSC-only part of the meeting are summarized at the beginning of this report.

Annex 1 – List of Participants

(Not a detailed list – keep simple: Name and Affiliation)

#	First Name	LastName	Function/Affiliation
1	Tim	Naish	JSC Chair
2	Cristina	Stan	JSC Vice-Chair
3	Krishna	Achutarao	JSC Member
4	Amadou Thierno	Gaye	JSC Member
5	Eleanor	Blyth	JSC Member
6	Lisa	Alexander	JSC Member
7	Tercio	Ambrizzi	JSC Member
8	Pascale	Braconnot	JSC Member
9	Susanna	Corti	JSC Member
10	Pierre	Friedlingstein	JSC Member
11	C. Kendra	Gotangco Gonzales	JSC Member
12	Pang-Chi	Hsu	JSC Member
13	Ken	Takahashi	JSC Member
14	Josephine	Khaoma Ngaira	JSC Member
15	Anna	Sorensson	JSC Member
16	Roberto	Sánchez-Rodríguez	JSC Member
17	Masahiro	Watanabe	JSC Member
18	Edward	Hanna	CliC co-chair
19	Francois	Engelbrecht	CLIVAR co-chair
20	Gokhan	Danabasoglu	CLIVAR co-chair
21	Jan	Polcher	GEWEX co-chair
22	Xubin	Zeng	GEWEX co-chair
23	Amanda	Maycock	APARC co-chair
24	Karen	Rosenlof	APARC co-chair
25	Olaf	Morgenstern	APARC co-chair
26	Susann	Tegtmeier	ESMO co-chair
27	Baylor	Fox-Kemper	ESMO co-chair
28	Bruce	Hewitson	RIfS co-chair
29	Silvina	Solman	RIfS & CORDEX co-chair
30	Pier-Luigi	Vidale	Digital Earths
31	Regina	Rodrigues	My Climate Risk
32	Ted	Shepherd	My Climate Risk
33	Erich	Fischer	Explaining and Predicting Earth System Change
34	Kirsten	Findell	Explaining and Predicting Earth System Change
35	Melissa	Hart	WCRP Academy
36	Feba	Francis	WCRP Academy (rep)

37	Gabi	Hegerl	Safe Landing Climates
38	Steven	Sherwood	Safe Landing Climates
39	Annalisa	Cherchi	GPEX
40	Robert (Jeff)	Trapp	GPEX
41	Nadine	Mengis	Climate Intervention
42	Keith	Alverson	Director CliC IPO
43	Agus	Santoso	Director CLIVAR IPO
44	Peter J.	Van Oevelen	Director GEWEX IPO
45	Rolf	Muller	Director APARC IPO
46	Irene	Lake	Director CORDEX IPO
47	Eleanor	O'Rourke	Director CMIP IPO
48	Ines	Tritscher	APARC IPO
49	Naomi	Goldenson	Director RIfS IPO
50	Ma. Laurice	Jamero	Manager, Academy Support Unit
51	Fanny	Adloff	Director ESMO IPO
52	Michaela	Hegglin	Director, Julich Institute (APARC IPO host)
53	Ko	Barrett	Deputy Secretary General WMO
54	Karen	Evans	IOC-UNESCO
55	Megha	Sud	ISC
56	Josefina	Bunge	WMO
57	Helene	Hewitt	CMIP co-chair
58	John	Dunne	CMIP co-chair
59	Jose Manuel	Gutierrez	CORDEX co-chair
60	Daniela	Jacobs	CORDEX co-chair
61	Xubin	Zhang	GEP co-chair
62	Sonia	Seneviratne	GEP co-chair
63	Paul	Durack	WIP co-chair
64	Matt	Mizielinski	WIP co-chair
65	Kevin	Bourne	Independent
66	Wendy	Broadgate	Future Earth
67	Erica	Key	Future Earth
68	Marie-France	Loutre	PAGES
69	Hannah	Liddy	AIMES
70	Li	Li	SOLAS
71	Christa	Marandino	SOLAS co-chair
72	Bill	Miller	SOLAS Co Chair
73	Abdus	Salam	IGAC
74	Langley	DeWitt	IGAC
75	Jack	Kaye	NASA
76	Jin	Huang	NOAA
77	Brian	Leung	USGCRP

78	Philippe	Tulkens	EU
79	Paolo	Ruti	EUMETSAT
80	Jim	Skea	IPCC Chair
81	Heather	Maseko	UNFCCC
82	Belen	Martin- Miguez	GCOS
83	Amanda	Lynch	RB
84	Daniel	Kull	WMO Development Partnerships
85	Chris	Hewitt	WMO (GFCS/Services)
86	Stefan	Uhlenbrook	WMO Hydro
87	Yuki	Honda	Chief, Earth System Prediction Section
88	Veronoque	Bouchet	WMO (SI)
89	Chandrika	Naith	SCAR Director
90	Linda	Stevenson	APN
91	Michael	Sparrow	Head WCRP Sec.
92	Catherine	Michaut	IPSL
93	Narelle	Van der Wel	SO/WCRP
94	Maureen	Wanzala	SO/WCRP
95	Hindumathi	Palanisamy	SO/WCRP
96	Lian	Xue	JPO
97	Carlos	Montoya	ASO
98	Lora	Batino	Intern