WORLD CLIMATE RESEARCH PROGRAMME

41-B Session of the WCRP Joint Scientific Committee

Detlef Stammer and Helen Cleugh (WCRP JSC Chair and Vice Chair)
Session 2: WCRP Implementation Plan and Future Structure

1. Draft structure and elements: Update on progress (Detlef and Helen; 15 mins)
2. Engagement with, and feedback from, partners (e.g. Future Earth, WWRP and GAW) and funders (USGCRP, EC, …) (Detlef, Helen, Mike; 20 mins)
3. Discussion (All; 30 mins)

Break for 10 mins

And then: Session 3
Core Projects review: Progress and discussions (GEWEX and CLIVAR; 80 mins)

Duration: 60 mins for Session 2
Chair: Helen Cleugh
Rapporteur: Narelle van der Wel
Chat Moderator: Michel Rixen
The new WCRP Strategy

The Vision (our aspiration)
A world that uses sound, relevant, and timely climate science to ensure a more resilient present and sustainable future for humankind.

The Mission (what we do, our purpose)
Coordinate and facilitate international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.
WCRP Strategic Plan: Overview

Scientific Objectives

1. Fundamental understanding of the climate system
2. Prediction of the near-term evolution of the climate system
3. Long-term response of the climate system
4. Bridging climate science and society

A hierarchy of simulation tools
Sustained observations and reference data sets
Need for open access
High-end computing and data management

www.wcrp-climate.org/wcrp-sp
1. Foster and deliver the scientific advances and future technologies required to:
   - Advance understanding of the multi-scale dynamics of Earth’s climate system
   - Quantify climate risks and opportunities
2. Develop new institutional and scientific approaches required to:
   • Co-produce cross-disciplinary regional to local climate information for decision support and adaptation
   • Inform and evaluate mitigation strategies
WCRP will prioritize its science and implement its Strategy by pursuing a series of Lighthouse Activities, along with other core research activities, to deliver and achieve critical outcomes over the next decade.
Proposed Lighthouse Activities

Explaining and Predicting Earth System Change

My Climate Risk

Safe Landing Climates

WCRP Academy

Digital Earths

These draw on WCRP’s fundamental science, critical infrastructure and strategic partnerships
<table>
<thead>
<tr>
<th>Proposed Lighthouse Activities</th>
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<tbody>
<tr>
<td><strong>Earth System Change</strong></td>
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<tr>
<td>To design, and take major steps toward delivery of, an integrated capability for quantitative observation, explanation, early warning and prediction of Earth System Change on global and regional scales, with a focus on multi-annual to decadal timescales.</td>
</tr>
<tr>
<td><strong>My Climate Risk</strong></td>
</tr>
<tr>
<td>To develop a new framework for assessing and explaining regional climate risk to deliver climate information that is meaningful at the local scale.</td>
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<tr>
<td><strong>Safe Landing Climates</strong></td>
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<tr>
<td>To explore the routes to climate-safe landing 'spaces’ for human and natural systems, on multi-decadal to centennial timescales; connecting climate, Earth system and socio-economic sciences. Explore present-to-future “pathways” for achievement of key SDGs.</td>
</tr>
<tr>
<td><strong>Digital Earths</strong></td>
</tr>
<tr>
<td>To develop a digital and dynamic representation of the Earth system, optimally blending models and observations, to enable an exploration of past, present and possible futures of the Earth system.</td>
</tr>
<tr>
<td><strong>WCRP Academy</strong></td>
</tr>
<tr>
<td>To establish one or more targeted capacity exchange climate programmes, working with one or more of the other lighthouses and established climate education providers, including universities.</td>
</tr>
</tbody>
</table>
How to improve climate modelling and process understanding?

What is the impact of different forcings?

How can we better understand climate sensitivity?

How can we improve climate predictions?

What opportunities do new technologies provide?

What can we expect in regional climate hotspots?

What is the interaction between climate and development trends?

How can we communicate uncertainty better?

What will happen in the high latitudes?

What will happen to low-lying islands?

How will climate extremes occur in the future?

How will reservoirs change in the future?

What will be the impact of Geoengineering?

Is response action needed?

What does society need to know?

How can we make predictions more useful and relevant to society’s needs?

What opportunities do new technologies provide?

What is the impact of different forcings?

How can we improve climate predictions?

What is the fundamental science needed?

How can we communicate uncertainty better?

What will happen in the high latitudes?

How can we make predictions more useful and relevant to society’s needs?

How can we make predictions more useful and relevant to society’s needs?
Implementation: soft transition from ...
... new WCRP Structure

Joint Scientific Committee

WCRP Secretariat

Lighthouse Activities
Major experiments, high visibility projects, infrastructure building blocks
Ambitious and exciting

Ongoing and additional activities and fora

Fixed-term Projects

Conferences and Workshops

Reference Datasets, Evaluations and Benchmarking

Diversity- and Capacity-building: ECRs, Regions

Rapid Updates, Syntheses Assessments, Gap Analyses

Communications and Outreach

International Offices

WCRP Communities
Enduring Capabilities, Homes for Expertise

- Climate and Cryosphere
- Climate and Ocean Variability, Predictability and Change
- Global Energy and Water Exchanges
- Stratosphere-troposphere Processes And their Role in Climate
- Earth System Modelling and Observational Capabilities (new)
- Regional Climate Information for Societies (new)
Soft Transition

JSC-41
• Consultation on proposed WCRP structure and elements
• Assessment of all existing WCRP activities

JSC-42
• New “homes” decided and in place
• Lighthouse Activities initiated
• Old elements fade out

JSC-43
• New WCRP structure in place
• Implementation plan written and continuously updated

2020
WCRP Extraordinary Session Late 2020

2021
Sunsetting WCRP Grand Challenges and activities

2022

JSC-n = WCRP Joint Scientific Committee Sessions (meetings)
Ahead of us: Transition into a new WCRP

JSC-41
- Homework to be performed until end of 2020
- Consultation with partners and co-sponsors
- Regional consultations

JSC-41B
- Begin Soft transition
- New "homes" in place
- LHAs activated
- Old elements fade out

JSC-42
- New structure in place
- Implementation plan written and continuously updated

JSC-43
2nd WCRP Conference
- Celebrate past results and achievements
- Roll out of new WCRP

2020
Now: Extraordinary WCRP family

2021
Begin sun-setting of Grand Challenges (GCs)

End of 2022
All GCs sun-setted
Over the past months, WCRP was consulting with the global community on its strategy, new activities and proposed new structure.

We started discussions on new “homes” for modelling and observations and for regional climate information for society.

Lighthouse Activities and other core research activities started to co-designed with our community and partners to ensure that the outcomes meet the urgent needs of society.
Our Joint Climate Future

WCRP’s community stands ready to work with co-sponsors and partners, and support Nations, to ensure that society can access the climate knowledge and information needed.

To achieve this, WCRP engages with the next generation of scientists and interacts with sponsors and funders.
Cooperation with Agencies

• There is mutual benefit arising for the development of the highest quality climate science and the alignment of fundamental and user-inspired research to maximize the impact on policy and applications.

• The integral role of WCRP in developing knowledge of the climate system will result in an increased understanding of the Earth system, including the complex interactions between the physical environment and human society.

• The four scientific objectives presented in the WCRP Strategic Plan 2019-2028 and the identified “Lighthouse Activities” are closely aligned with the thinking of leading scientists and funding agencies.
Regional Consultation

JSC-41 ACTION: Put necessary steps in place to “roll out” regional consultations on WCRP evolution.

- There needs to be an identified regional “lead” to make it happen; i.e. establish the process, establish a team from across the JSC/WCRP family to be the local leads, etc.
  - It is intended to draw upon the networks of JSC members, current WCRP Core Projects and core activities, and also YESS
- Chair and Vice Chair to attend these regional consultations to provide a consistent message
  - A package of materials will be developed to support these consultations
- Outcome: consultation outcomes will refine the Lighthouse Activities, their research program as well as the thinking process about WCRPs future structure.

Progress on this Action
- Regions defined and Regional Focal Points (RFPs) appointed
- Initial discussions with all RFPs, except Europe and Western Asia – which are planned for January 2021
- Plans for holding these initial WCRP-hosted “Climate Research Forums” are in hand and progressing
- Tune in on Day 4 of JSC-41B for more ...
Lighthouse Activity Development Task Team

**JSC-41 ACTION:** Create a Task Team (TT) with a mandate to put the “flesh” on the Lighthouse Activity (LHA) “bones”, including consideration of: What do we need, what is missing?

- **Membership:** WCRP core activities to propose names from their membership to join this, along with those who originally wrote the LHA proposal text.

- **Key Steps**
  - The TT will develop a potential plan and then report back to the core activity leads and JSC.
  - The LHAs then will evolve in an iterative way, with the JSC and core activity leads taking on the responsibility of carrying the process forward to next levels.
  - Importantly this will include brainstorming about external engagement and exploring partnerships.

**Progress on this Action**

- “Science Plan Development” teams established, along with interim Leaders, for all LHAs

- Leaders will present their ideas and progress at JSC41B

- This will include addressing not just the science questions and challenges, but also discussions about how to:
  - Strengthen the diversity of the teams
  - Communicate, and facilitate engagement, with the WCRP family, allied Partner programs, funders, and users of the science
  - Ensure effective and clear links to WCRP Core Activities and Regional Consultations
Engagement with Partners and Funders

Update on Progress

1. Future Earth Joint Statement [Detlef]
   - MoUs as needed with Future Earth Programs (SOLAS, AIMES, PAGES et al)

2. START [Helen]
   - Assist WCRP in enhancing diversity in our membership
   - Exploring opportunities for collaborative activities and projects in Africa

3. USGCRP Discussions [Detlef]
   - Proposal to USGCRP [Detlef]
   - Engagement with LHAs
   - Co-Sponsorship - one of the North America Regional Consultations

5. Other....
Concluding Comments and Discussion

- We have a “blueprint” for a new WCRP in terms of structure and elements
- While turning this “blueprint” into a fully functioning WCRP will take some time, our soft transition effectively begins this week
  - **Revised and new Core Projects**: enduring capabilities or “homes”
  - **Lighthouse Activities**: new science and activities to meet the most pressing challenges of the coming decade
  - **Climate Research Forums**: for consultation and dialogue with our WCRP family, research partners, funders and users
  - **Ongoing activities**

Discussion points for now and the week ahead:
- **Points of clarification**
- **Budgets**
- **Governance**
- **Anything overlooked**
- **Concerns**
- **New ideas**
- ..........
End of Session 2
Alignment between Lighthouse Activities, Implementation Priorities and Scientific Objectives (DRAFT still under construction)

1. Foster and deliver the scientific advances and future technologies required to:
   - Advance understanding of the multi-scale dynamics of Earth’s climate system
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2. Develop new institutional and scientific approaches required to:
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   - Inform and evaluate mitigation strategies

1. Fundamental understanding of the climate system
   - Safe Landing Climates
   - Explaining and Predicting Earth System Change
   - Your Climate Risk

2. Predicting the near-term evolution of the climate system
   - Digital Earths
   - Explaining and Predicting Earth System Change

3. Long term response of the climate system
   - Safe Landing Climates
   - Explaining and Predicting Earth System Change
   - Digital Earths

4. Bridging climate science and society
   - WCRP Academy
   - Your Climate Risk
   - Digital Earths

Fundamental understanding of the climate system
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## Implementation Plan Elements

### Research Projects
- Lifecycle (start and end) with a clear timeline and deliverables
- Joint and co-designed with Partners outside WCRP
- Deliver to Strategic Plan Objectives
- WCRP attributes: Integration; Scale; Relevance; Climate Change; Discovery and Innovation

### Conferences, Workshops, WCRP Forum

### Projects and fora to engage and empower ECRs; and regional partners: part of the WCRP family

### Regular Syntheses, Assessments, Gap Analyses, Rapid Assessments and Reports

### Reference data sets (observed, modelled)
- Educational services and activities
- Stakeholder engagement and outreach
- Capacity building and communication

### Evaluations, Inter-comparisons, Benchmarking, Standards
**WCRP Mission:** to coordinate and facilitate international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.