WORLD CLIMATE RESEARCH PROGRAMME

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SBSTA, Bonn
The World Climate Research Programme (WCRP) mission is to facilitate the analysis and prediction of Earth system variability and change for use in an increasing range of practical applications of direct relevance, benefit and value to society.

The two overarching objectives of the WCRP are:
• to determine the predictability of climate; and
• to determine the effect of human activities on climate
Past Main Foci and Structure

The main foci of WCRP research are:

1. **observing** changes in the components of the Earth system (atmosphere, oceans, land and cryosphere) and in the interfaces between these components;
2. **improving our knowledge** and understanding of global and regional climate variability and change, and of the mechanisms responsible for this change;
3. **assessing and attributing significant trends** in global and regional climates;
4. **developing and improving numerical models** that are capable of simulating and assessing the climate system for a wide range of space and time scales; and
5. **investigating the sensitivity of the climate system** to natural and human-induced forcing and estimating the changes resulting from specific disturbing influences.
### JOINT SCIENTIFIC COMMITTEE (JSC)

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<tr>
<th>WCRP MODELLING ADVISORY COUNCIL (WMAC)</th>
<th>WCRP DATA ADVISORY COUNCIL (WDAC)</th>
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<td>WORKING GROUPS ON:</td>
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<tr>
<td>COUPLED MODELLING (WGCM)</td>
<td>SUBSEASONAL TO INTERDECADAL PREDICTION (WGSIP)</td>
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<td>NUMERICAL EXPERIMENTATION (WGNE)</td>
<td>REGIONAL CLIMATE (WGRC)</td>
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**GRAND CHALLENGES**

- CLOUDS, CIRCULATION AND CLIMATE SENSITIVITY
- REGIONAL SEA-LEVEL CHANGE AND COASTAL IMPACTS
- CARBON FEEDBACKS IN THE CLIMATE SYSTEM
- WEATHER AND CLIMATE EXTREMES
- NEAR-TERM CLIMATE PREDICTION
- MELTING ICE AND GLOBAL CONSEQUENCES
- WATER FOR THE FOOD BASKETS OF THE WORLD

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**Logos:**
- CliC
- CLIVAR
- GEWEX
- SPARC
- CORDEX

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**WCRP**

World Climate Research Programme
Major achievements in Research

- Observing climate changes
- Simulating Climate Systems
- Climate systems Assessments
- Climate projection, prediction
- Climate sensitivity
- Climate process understanding
- Human influences
2015: A Landmark Year

- Over 190 countries signed up to reduce emissions, with the target to stay within a 2°C world.

- 15-year agreement for the substantial reduction of disaster risk and losses in lives, livelihoods and health.

- 2030 agenda with 17 goals to end poverty and hunger, improve health and education, making cities more sustainable, combating climate change, and protecting oceans and forests.

Understanding and Quantifying Weather and Climate Risk are at the Core of these Actions
Our Vision
A world that uses sound, relevant, and timely climate science to ensure a more resilient present and sustainable future for humankind.

Our Mission
The World Climate Research Programme (WCRP) coordinates and facilitates international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.
WCRP Strategic Plan: Overview

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

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

www.wcrp-climate.org/wcrp-sp
Critical Infrastructure

I. A hierarchy of simulation tools

II. Sustained observations and reference data sets

III. Need for open access

IV. High-end computing and data management
WCRP Mission: Societally-relevant knowledge and information to inform mitigation, adaptation and risk management

Science Questions: Relevance, Innovation, Discovery, Integration

Function: Integration across Earth System (Local to Regional to Global)
Earth System Model Development | Observing system innovation and evaluation | Model – Data fusion Fora and services for Capacity development, Education, Community building

Function: Infrastructure
Simulation tools | Seamless data | Sustained obs. | High-end comp.; data storage & management | Platforms for open access, data sharing, collaboration

Function: Enduring capability and Link to science communities
Water, Energy, Composition, Dynamics, (Biosphere) Ocean, Atmosphere, Cryosphere, Land

Climate System Elements

Stakeholder engagement and dialogue
Partnerships: collaboration and dialogue

WCRP Partnerships: Coordinated Model Experiments and Assessments | Production | Evaluation

[Partnerships] Links to sustained observing systems (e.g. GCOS)
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)**

**Evaluations, Inter-comparisons, Benchmarking, Standards**

**Coordination**
- Educational services and activities
- Stakeholder engagement and outreach
- Capacity building and communication

Enduring capability - people: Climate System Elements Infrastructure and Integration

Jointly through dialogue and co-design
Implementation Plan:

Milestones

**Initial planning and conceptualizing**
- Implementation and Transition Meeting and 40th Session of the Joint Scientific Committee (JSC-40)
  - May 2019

**Consultation regarding new structure and governance**

**Consolidation:**
- Questions and framework
  - Partner & stakeholder consultation
  - Funder and sponsor consolidation

**Drafting Implementation: Phase 1.**

**Agreement on Implementation Plan Phase 1:**
- Science questions and conceptual framework
- Key elements for delivery and engagement
- Science, funding and infrastructure needs.
  - JSC-41
  - April 2020

**“Elements” Workshop:**
- Finalize Phase 1
- Brainstorming for Phase 2
- January/February 2020

**“Science Question” Workshop:**
- Jan/Febr 2020

**AGU: Community consultation of WCRP Framework December 2019**

**Decision on Phase 2 and beginning of transition (JSC-42)**
- April 2021

**Agreement on Implementation Plan Phase 2**
- (JSC-43)
  - April 2022

**Synthesis of core activities**

**Transition**

World Climate Research Programme (WCRP)
Before the end of 2019:

- Task Teams on Regional Activities, Modelling and Data
- Interaction with Future Earth: Landscape discussion
- Interaction with WWRP/GAW and other partners
- Meeting with WCRP Sponsors

Early 2020:

- WCRP High-level Science Questions and Flagship Workshop: February 2020
- WCRP Elements and Structure Workshop: March/April 2020
May/June 2020:
JSC-41: Approval of WCRP Implementation Plan:
• High-level science questions and flagship product
• Elements of the new WCRP
• Collaboration landscape and interfaces to partners
• Governance
• Financial plan

After JSC-41:
• Request from Sponsors for approval of plan
• Writing of WCRP Implementation Plan
• Community and agency outreach, including fundraising
Implementation Plan: Draft Structure

1. Introduction
2. The WCRP Strategy: Vision, Mission and Objectives
3. Engagement
4. Framework
5. Partnerships
   - Identifying key partners
   - Co-designing science questions
   - Identifying common infrastructure
   - Clarifying their role in the Strategy
   - Reaffirming current, and building new
6. Implementation
   - Transition Plan
   - Schedule: Gantt chart, milestones, deliverables
7. Measures of success
8. Risks and contingencies

Phase I (by May 2020)

Phase II (by May 2022)

Fully consultative development
Will include:
- Support functions (including support offices)
- External governance: sponsors, Joint Scientific Committee, Governing Board, Joint Planning Staff (Secretariat)
- Internal structure and governance
- Resources, budgets, finance management
2 year subsequent transition phase to murph into the new structure.