



WORLD CLIMATE RESEARCH PROGRAMME

Detlef Stammer
June 2019
SBSTA, Bonn



INTERNATIONAL
COUNCIL
FOR SCIENCE



Previous Strategic Mission

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



INTERNATIONAL
COUNCIL
FOR SCIENCE



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.



INTERNATIONAL
COUNCIL
FOR SCIENCE



JOINT SCIENTIFIC COMMITTEE (JSC)

WCRP MODELLING ADVISORY COUNCIL (WMAC)

WCRP DATA ADVISORY COUNCIL (WDAC)

WORKING GROUPS ON:

COUPLED MODELLING (WGCM)
NUMERICAL EXPERIMENTATION (WGNE)

SUBSEASONAL TO INTERDECADAL PREDICTION (WGSIP)
REGIONAL CLIMATE (WGRC)



CRYOSPHERE-
CLIMATE



OCEAN-
ATMOSPHERE

GEWEX

LAND-
ATMOSPHERE



SPARC
Stratosphere-troposphere
Processes And their Role in Climate

TROPOSPHERE-
STRATOSPHERE

WCRP
CORDEX

REGIONAL CLIMATE
DOWNSCALING

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

JOINT PLANNING STAFF (JPS)



INTERNATIONAL
COUNCIL
FOR SCIENCE



2019 JSC



Detlef STAMMER
JSC Chair



Helen CLEUGH
JSC Vice-Chair



Lisa ALEXANDER
JSC Member



Tercio AMBRIZZI
JSC Member



Pascale BRACONNOT
JSC Member



**Jens Hesselbjerg
CHRISTENSEN**
JSC Member



Susanna CORTI
JSC Member



Pierre FRIEDLINGSTEIN
JSC Member



James HURRELL
JSC Member



Pedro MONTEIRO
JSC Member



Masahide KIMOTO
JSC Member



Thomas PETER
JSC Member



Krishnan RAGHAVAN
JSC Member



Igor SHKOLNIK
JSC Member



Ken TAKAHASHI
JSC Member



Martin VISBECK
JSC Member



Huijun WANG
JSC Member

Major achievements in Research



INTERNATIONAL COUNCIL FOR SCIENCE



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



INTERNATIONAL
COUNCIL
FOR SCIENCE



WCRP Strategic Plan 2019-2028



- Developed 2017-2019 with extensive consultation
- Approved June 2019

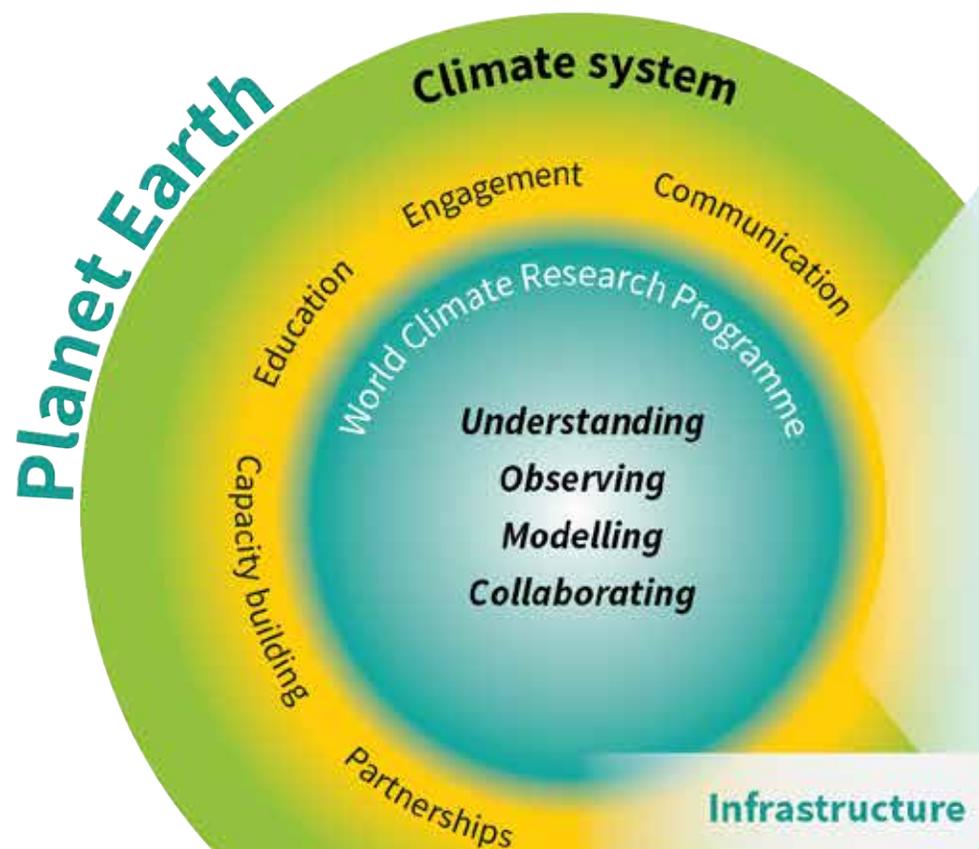
Our Vision

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

Our Mission

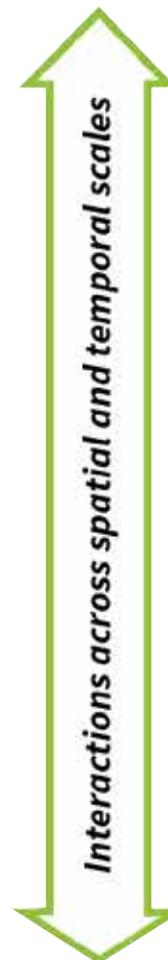
The World Climate Research Programme (WCRP) coordinates and facilitates international climate research to develop, share, and apply the climate knowledge that contributes to societal well-being.

WCRP Strategic Plan: Overview



Scientific Objectives

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



- 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



INTERNATIONAL
COUNCIL
FOR SCIENCE



Critical Infrastructure

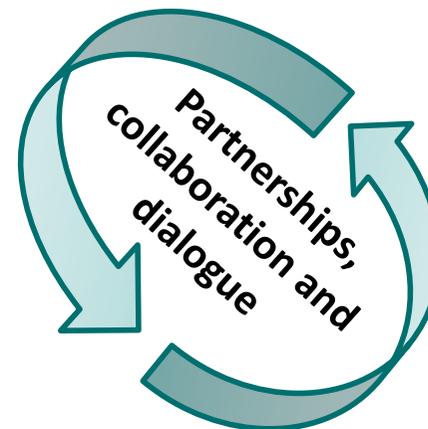
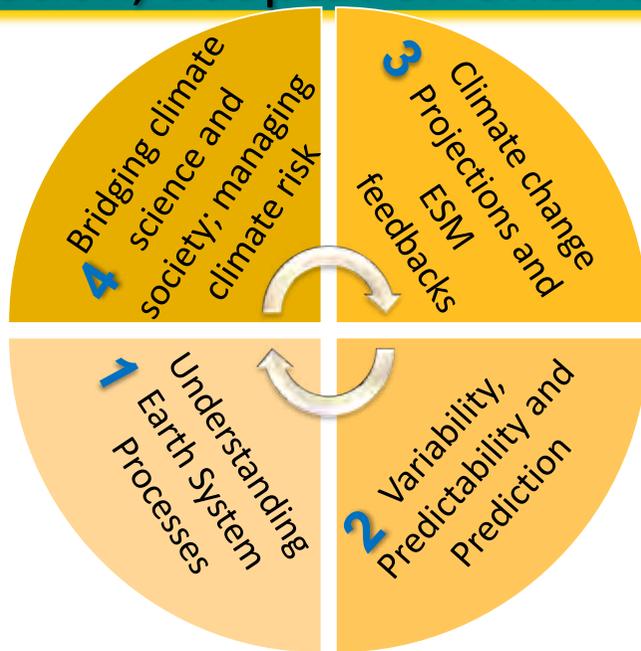
- I. A hierarchy of simulation tools
- II. Sustained observations and reference data sets
- III. Need for open access
- IV. High-end computing and data management



INTERNATIONAL
COUNCIL
FOR SCIENCE



WCRP Mission: Societally-relevant knowledge and information to inform mitigation, adaptation and risk management

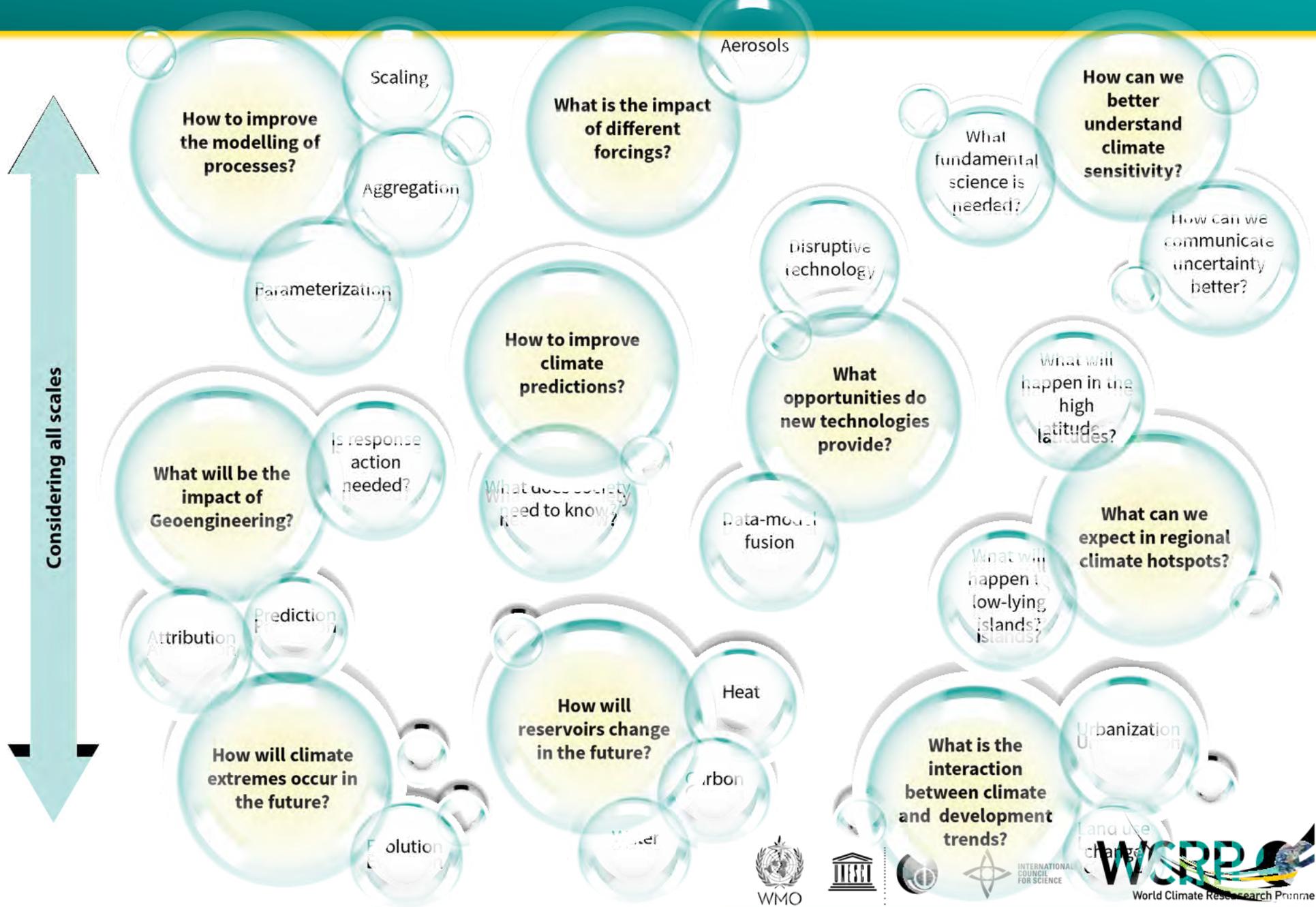


[Partnerships] Links to sustained observing systems (e.g. GCOS)

[Partnerships] Coordinated Model Experiments and Assessments | Production | Evaluation

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

Key Science Question areas



INTERNATIONAL COUNCIL FOR SCIENCE



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

Jointly through dialogue and co-design

Conferences, Workshops, WCRP Forum

**Enduring capability - people:
Climate System Elements
Infrastructure and Integration**

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

Implementation Plan: Timeline

Initial planning and conceptualizing

Implementation and Transition Meeting and 40th Session of the Joint Scientific Committee (JSC-40)

May 2019

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

Drafting Implementation: Phase 1.

AGU: Community consultation of WCRP Framework
December 2019

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

Consultation regarding new structure and **governance**

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

April 2021

Synthesis of core activities

Agreement on Implementation Plan Phase 2
(JSC-43)

April 2022

Transition



INTERNATIONAL
COUNCIL
FOR SCIENCE



Implementation Plan: Roadmap

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



INTERNATIONAL
COUNCIL
FOR SCIENCE



Implementation Plan: Roadmap

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



INTERNATIONAL
COUNCIL
FOR SCIENCE



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



INTERNATIONAL
COUNCIL
FOR SCIENCE



**2 year subsequent
transition phase to murph
into the new structure.**



INTERNATIONAL
COUNCIL
FOR SCIENCE

