
World Climate Research Programme (WCRP)
WCRP
World Climate Research Programme
WCRP
Implementation Plan
from
Strategy
to
Action
WORLD METEOROLOGICAL ORGANIZATION
United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission
International Science Council

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.

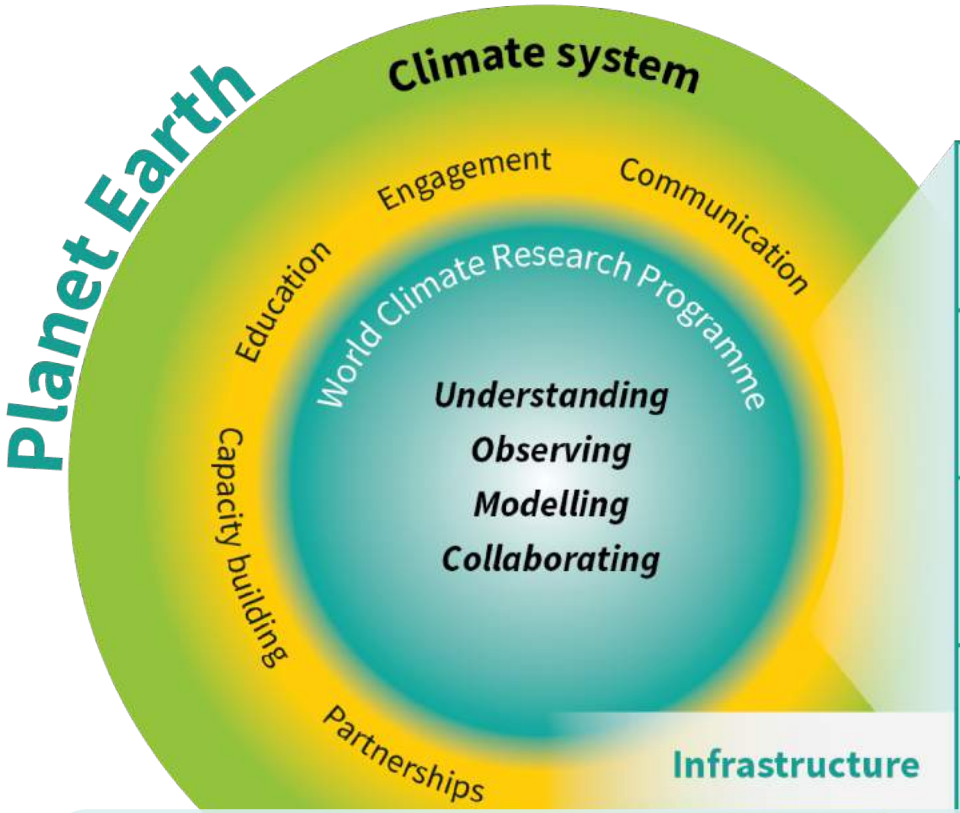
Our Mission

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.

www.wcrp-climate.org/wcrp-sp

WMO UNESCO INTERNATIONAL COUNCIL FOR SCIENCE WCRP World Climate Research Programme

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*

Interactions across spatial and temporal scales

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

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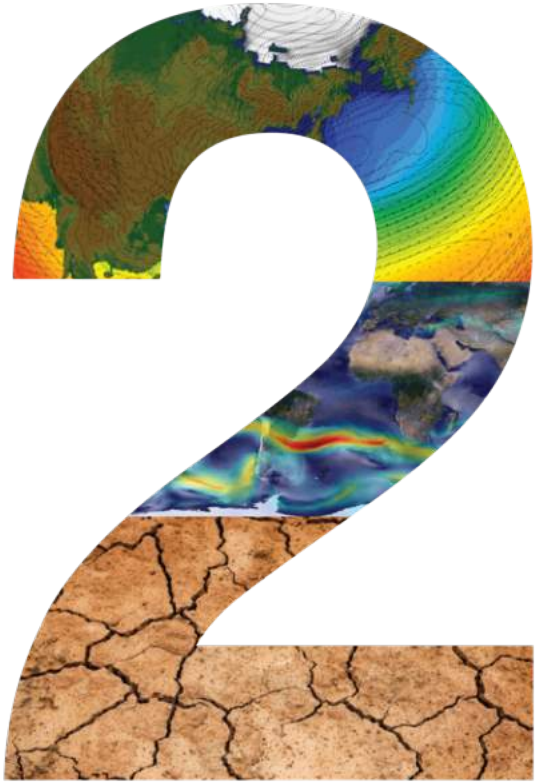
Scientific Objectives

We will support and facilitate the advancement of sciences that enable an integrated and fundamental understanding of the climate, its variations and its changes, as part of a coupled physical, biogeochemical, and socio-economic system.

Emphases:

- **Climate dynamics**: past and future global and regional changes in oceanic and atmospheric circulations
- **Reservoirs and flows**: radiative, hydrologic, cryospheric and biogeochemical changes to the reservoirs and flows of energy, water, carbon, and other climate-relevant compounds

Scientific Objectives



We will push the frontiers of predictions and quantify the associated uncertainties for sub-seasonal to decadal time scales across all climate system components.

Emphases:

- **Advancing prediction capabilities** of component systems and their coupling: Deterministic, statistical and machine learning approaches. Data assimilation, complex networks, and ensemble generation
- **Predicting extreme events**: regional climate hotspots and potential for crossing thresholds. Interactions between fast and slow extremes

Scientific Objectives

We will quantify the responses, feedbacks, and uncertainties intrinsic to the changing climate system on longer (decadal to centennial) timescales.

Emphasis:

- **Simulation capabilities:** Development of integrated models that account for the slowly varying interactions and highly non-linear processes. Representation of the complex interactions between aquifers, vegetation and soil carbon, permafrost, glaciers, and ice sheets, and human activities

Scientific Objectives

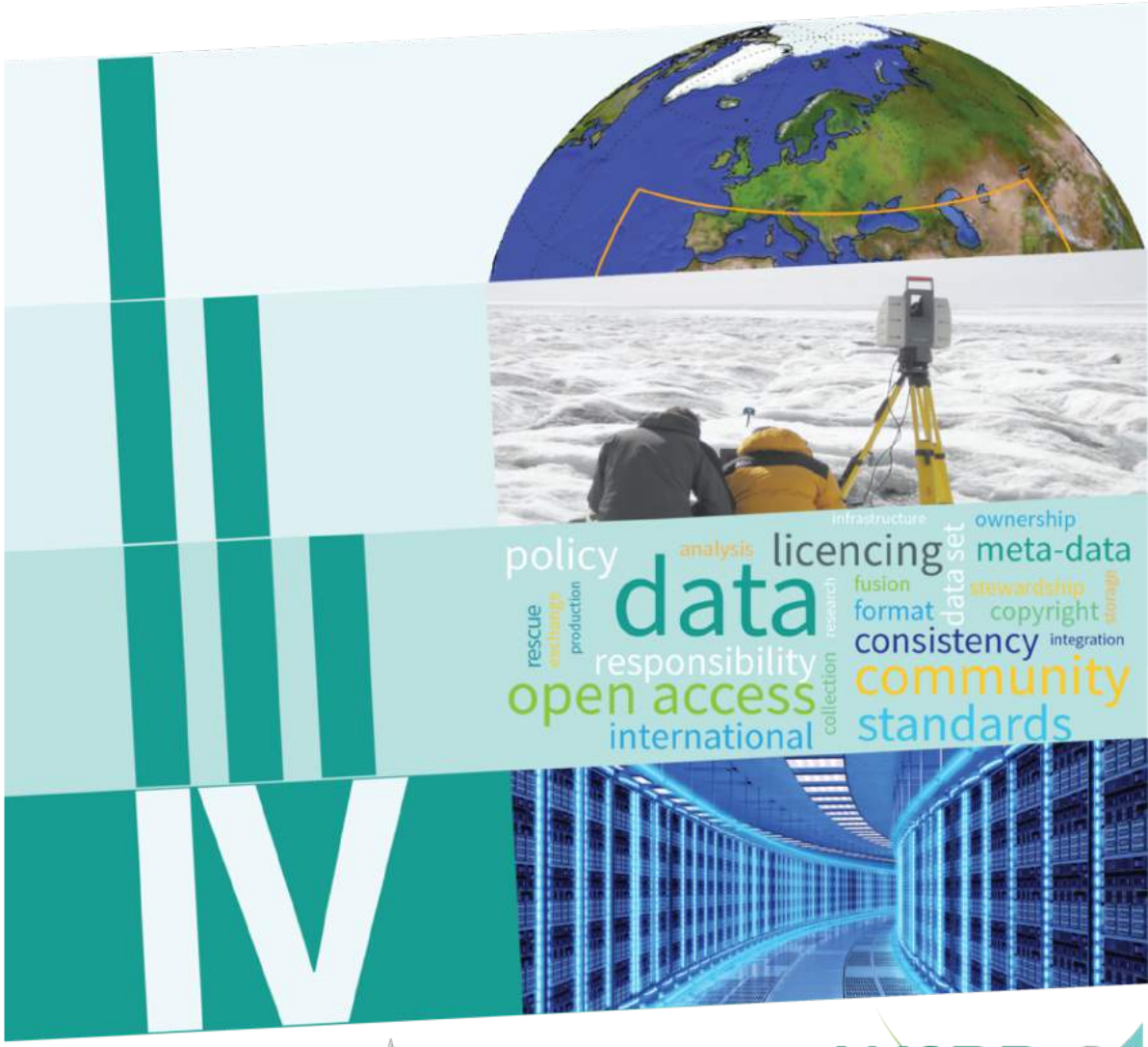
We will support innovation in the generation and delivery of decision-relevant information and knowledge about the evolving Earth system.

Emphases:

- **Interactions with social systems**: Social processes and emergent behaviour in the Earth System. Interactions and feedbacks between climatic and socioeconomic systems
- **Engaging with society**: Actionable climate information, scientific assessments, educational approaches and public communication strategies

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



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WCRP Implementation Plan: Background

What is an Implementation Plan?

- It will put the WCRP Strategic Plan into action
- It will include: resources, structures, milestones, deliverables, measures of success, risk assessment

Development of the Implementation Plan must:

- Be a transparent «bottom-up» approach involving the entire community
- Include consultation with the scientific community, agencies, academies, sponsors and other stakeholders
- Ensure a fit-for-purpose structure, an effective governance, required resources, budgets and finance management.

WCRP Implementation Plan: Timeline

Phase I: From now to April 2020

- Refine science questions and conceptual framework
- Refine key elements for operations, delivery and engagement
- Identify science, funding, and infrastructure needs
- Undertake consultation
- Produce the first draft of the Implementation Plan by the time of the 41st Session of the JSC, April 2020

Phase II: April 2020 to April 2022

- Undertake further consultations and evolution of the Implementation Plan
- Develop structure and governance model
- Clarify the future of Core activities and Project Offices
- Initiation of new, joint activities
- Expand and consolidate partnerships for mutual benefits
- Adopt Implementation Plan and agree on Transition Approach by the 43rd Session of the JSC, April 2022

WCRP Implementation Plan: Progress

Implementation and Transition Meeting, 4-5 May 2019

Representatives of the WCRP community discussed how to implement the WCRP Strategic Plan, starting with the:

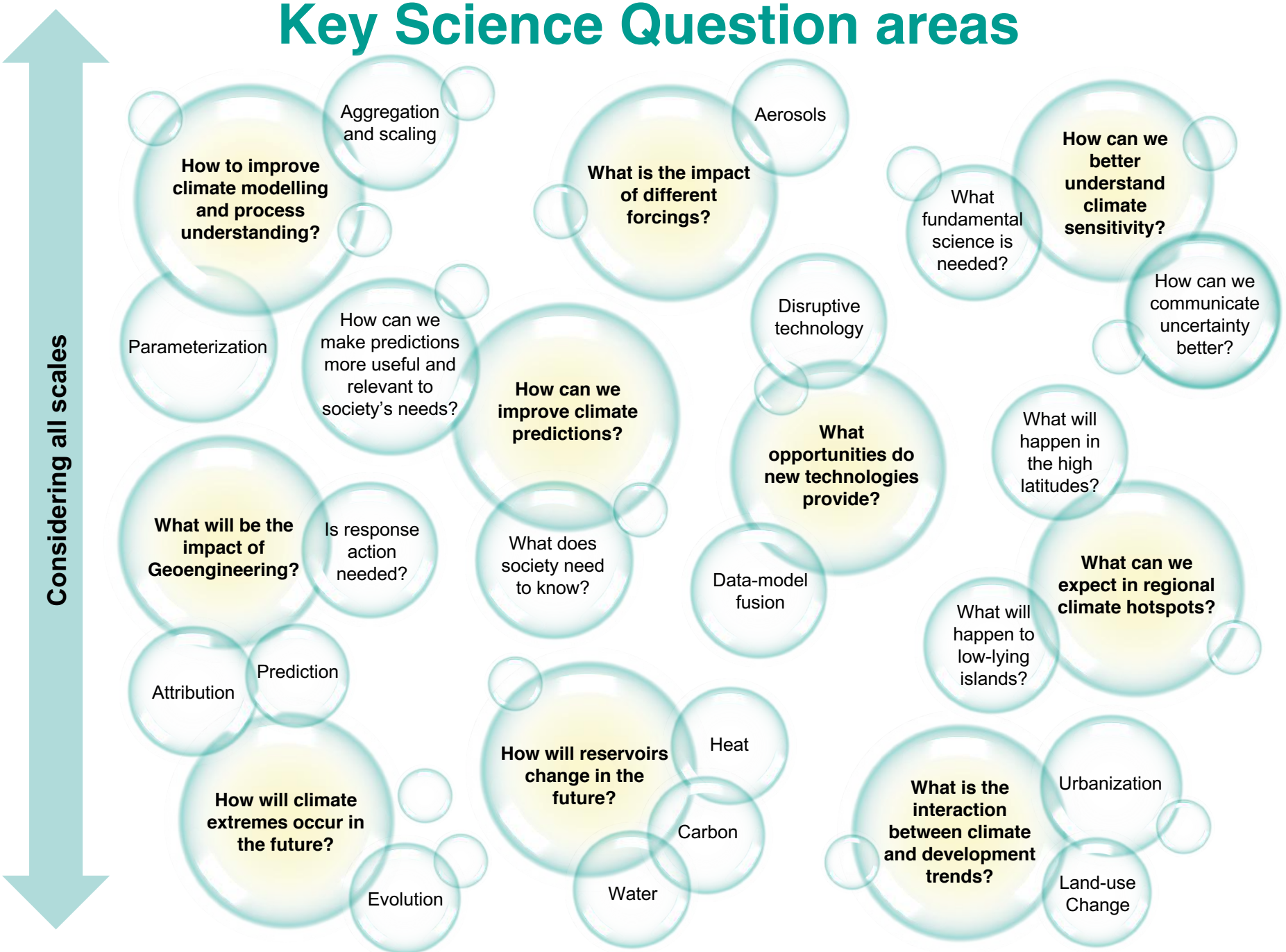
- WCRP Strategic Plan
- Feedback from the WCRP Review
- Responses to an on-line survey

WCRP Joint Scientific Committee Session (JSC-40), 6-10 May 2019

Further discussion and refinement, with the main outcomes of:

- Engagement, dialogue and discussion: community-building and a community effort
- Development of draft Key Science Question areas and key elements
- A “Conceptual Framework” for implementing the WCRP Strategic Plan

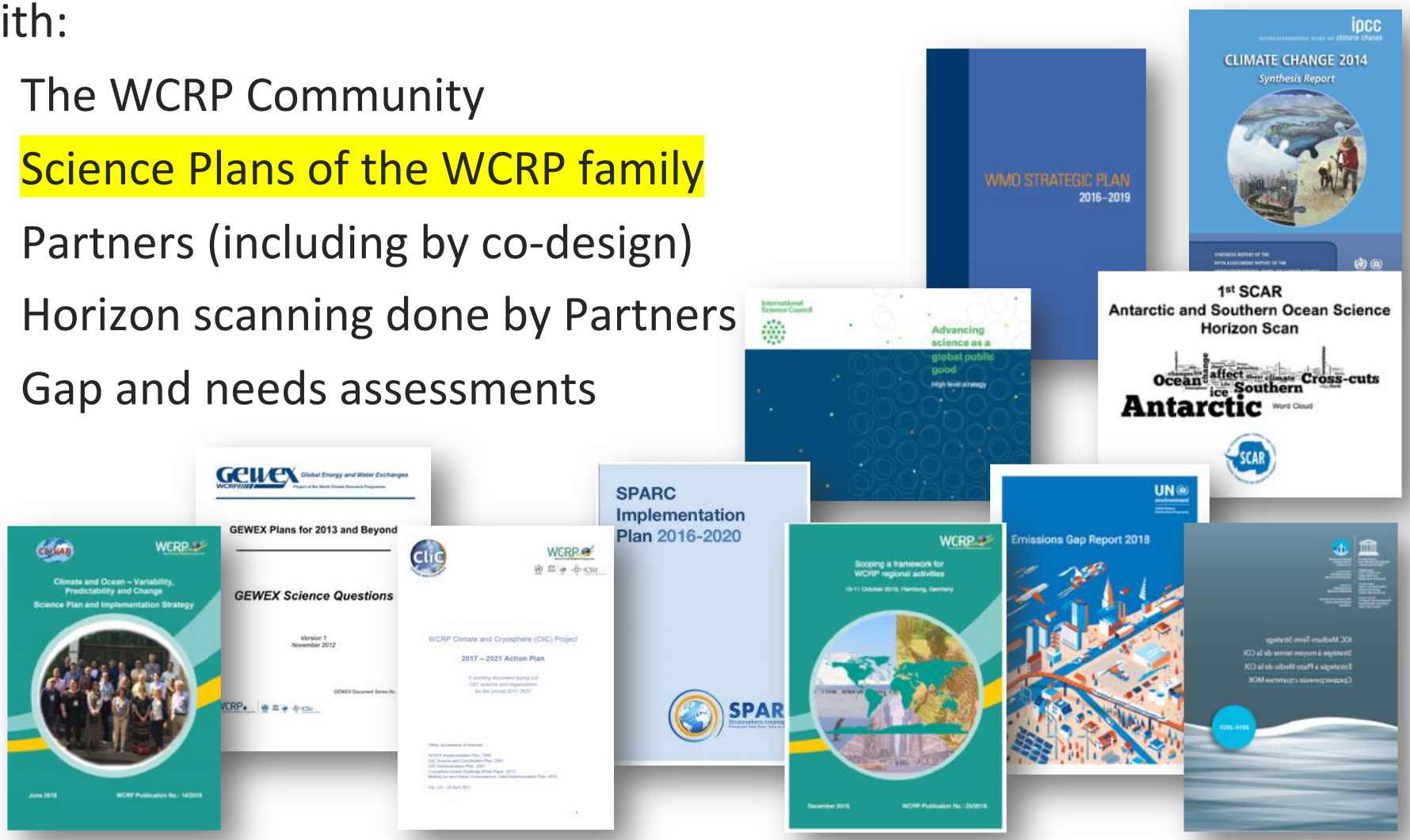
Key Science Question areas



Refining Key Science Question areas

We will refine science question areas via consultation with:

- The WCRP Community
- Science Plans of the WCRP family
- Partners (including by co-design)
- Horizon scanning done by Partners
- Gap and needs assessments



Implementation Plan Elements

Jointly through dialogue and co-design

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

Enduring capability - people: Climate System Elements Infrastructure and Integration

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)

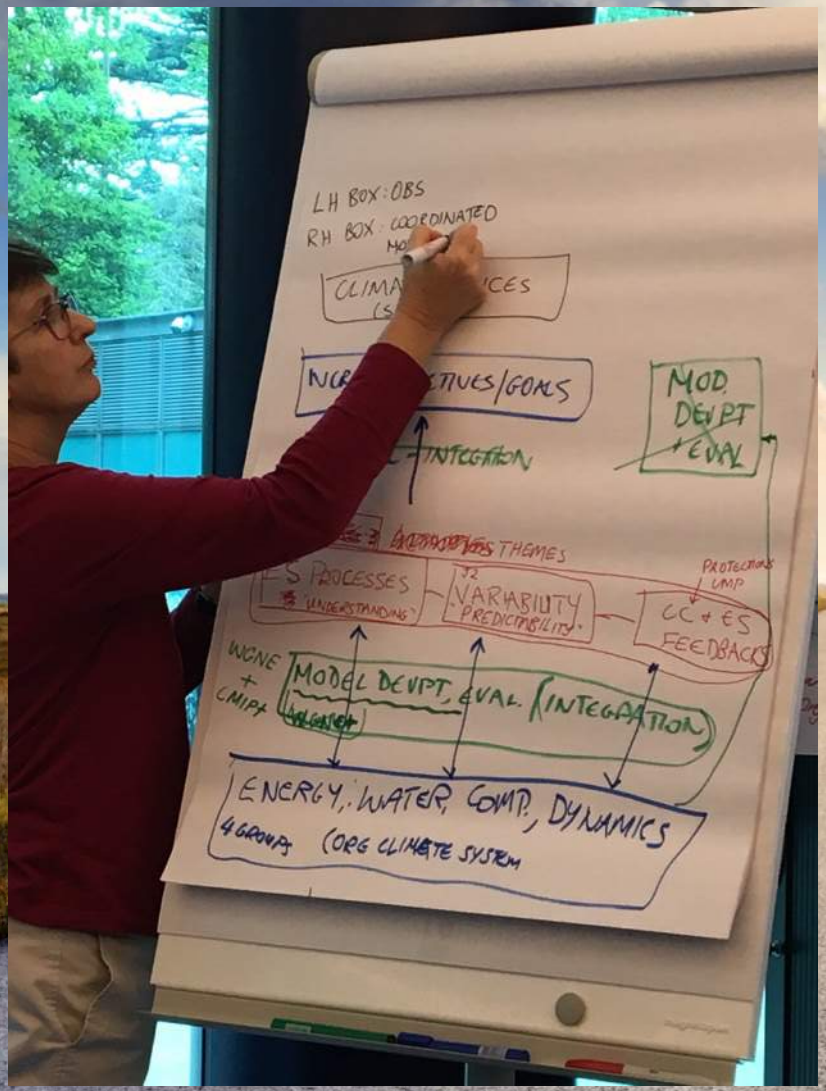
Evaluations, Inter-comparisons, Benchmarking, Standards

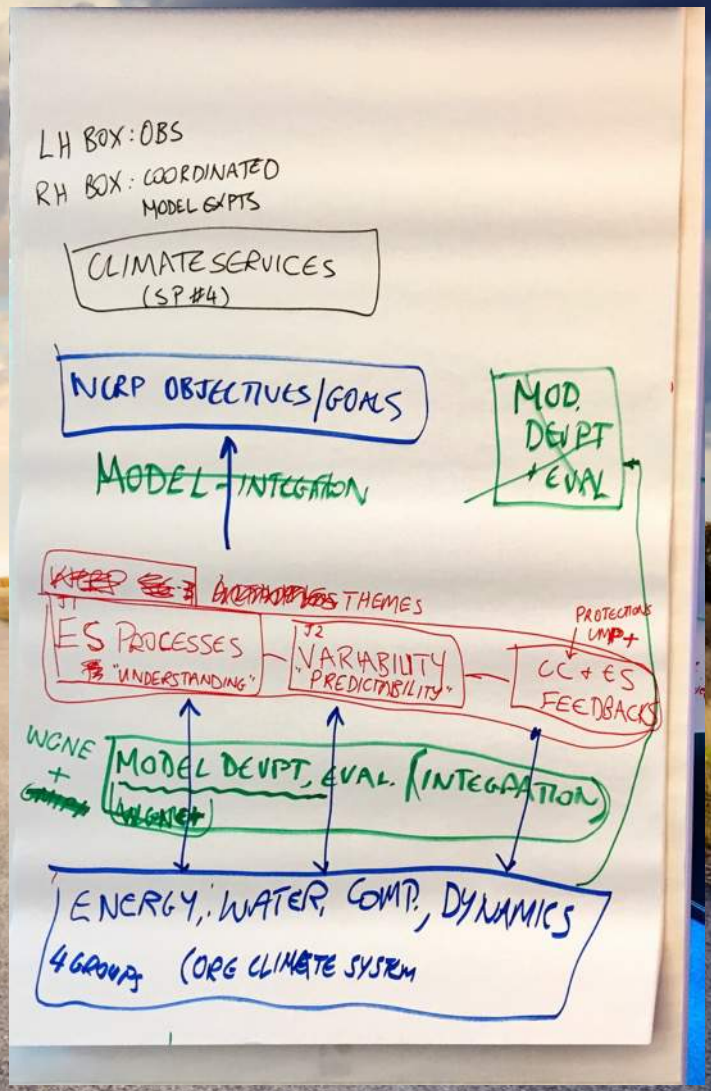
Coordination

Educational services and activities

Stakeholder engagement and outreach

Capacity building and communication





Conceptual Framework: from this to…

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

Climate System Elements

Function: Enduring capability and Link to science communities

Water, Energy, Composition, Dynamics, (Biosphere)
Ocean, Atmosphere, Cryosphere, Land

Global and Regional

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

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

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 April 2020)

Phase II
(by April 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

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Implementation Plan: Actions

1. Develop task teams on:

   a) **WCRP Structure** - Reviews WCRP structures, needs, gaps and coordination, including: model development and infrastructure; seamless data; data management and links to GCOS; regional activities: CORDEX, CORA, WGRC, ETCDDI, CMIP and others. WCRP activities mapped to the Conceptual Framework

   b) **WCRP IP Consultation** - Develops the engagement and consultation process. Present at AGU Fall Meeting 2019 for feedback and initiate in 2020.

   c) **WCRP Landscape Map** - Co-designs a “landscape” map and schematic with Future Earth

Implementation Plan: Actions

2. **WCRP Secretariat** (JPS) to conduct an inventory, provide a nomenclature, and suggestions for streamlining and clarifying definitions for WCRP activities
3. **JSC Working Group+** on partnerships: to develop a process for exploring and exploiting shared opportunities with partners, including the Belmont Forum, Future Earth, GCOS, WWRP, GAW…
4. **WCRP Core Projects (and others)** to consider the utility (or not) and timing of writing a Synthesis
5. **Co-chairs** to take the joint project idea forward
   - Come back to the JSC in early 2020 with a plan
   - Look to IPCC 6th Assessment Report for gaps and priorities

Implementation Plan: Milestones

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**

"Elements" Workshop:
Finalize Phase 1
Brainstorming for Phase 2
January/February 2020

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

Consultation regarding new structure and **governance**

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

Synthesis of core activities

Transition

Agreement on Implementation Plan Phase 2
(JSC-43)

April 2022


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Thank You
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International Science Council

Background slides

Implementation Plan: Milestones

Phase 1: 2019-2020

May 2019 Implementation and Transition Meeting and JSC-40, Geneva
~~*June 2019* Determine IP Task Teams and Partnership Working Group~~

November 2019
- Partnership Working Group Report due
- Draft Implementation discussion document for AGU Fall Meeting
- Transition process finalized

December 2019
- Task Team 1 (WCRP Structure) draft report due
- Task Team 3 (WCRP Landscape Map) draft map due
- Task Team 2 (WCRP IP Consultation) - engagement at AGU FM 2019

February 2020 "Elements" Workshop

April 2020 (JSC-41)
- Task Team 2 (WCRP IP Consultation) Phase II Consultation Plan due
- Draft of Phase I of the WCRP Implementation Plan approved (JSC)

WCRP Implementation Plan Phase I approved (Sponsors) in June 2020

Implementation Plan: Milestones

Phase 2: 2020-2022

December 2021	Task Team 1 (WCRP Structure) final report due
January 2022	WCRP Core Project / activities syntheses published
April 2022	Draft of Phase II of the WCRP Implementation Plan approved (JSC) (JSC-43)
June 2022	**WCRP Implementation Plan Phase II approved (Sponsors)**