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World Climate Research Programme

# WCRP Implementation and Transition Meeting

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## 1. Introduction

The World Climate Research Programme (WCRP) [Implementation and Transition Meeting](#) was a 2-day meeting held immediately prior to the [40th Session of the WCRP Joint Scientific Committee \(JSC\)](#) (6-10 May 2019). Meeting attendees (Annex 1) were drawn from across the WCRP community and were tasked with developing and agreeing on the process for production of the new WCRP Implementation Plan, building on the [WCRP Strategic Plan 2019-2028](#). This report outlines the key discussions and outcomes that were taken forward into the subsequent JSC Session. Note that in this workshop report for certain key items (timeline and conceptual framework) the agreed version from the JSC-40 report are included to avoid confusion. **For a full overview see the outcomes around this topic in the 40th Session of the Joint Scientific Committee Report** (WCRP publication: 9/2019).

## 2. Meeting overview

The WCRP Implementation and Transition Meeting was held over 2 days at WMO Headquarters in Geneva. A full meeting agenda is provided in Annex 2.

The meeting began with a welcome by the Chair of the WCRP JSC, Detlef Stammer, Vice-chair of the WCRP JSC Helen Cleugh, and World Meteorological Organization (WMO) Chief Scientist and Director of Research, Pavel Kabat. The objective of the workshop was to develop and agree on the process for producing the WCRP Implementation Plan (IP) and an action plan for implementing the WCRP Strategic Plan (SP). Concretely, this would include the key elements, actions, steps and timeline. What this would mean in terms of a future structure of WCRP and how the Programme would move from where it is now to that new structure, would also be discussed with the optimal outcome being a strawman concept for the future structure and transition period. It was made clear that the SP would not be subject to further alterations and that it was purposely very lean, with the detail being in the accompanying IP.

The key messages from the survey that was sent out to the WCRP Community prior to the meeting, were then presented. The three questions that were asked and the key responses are outlined below:

Q1:

*“What needs to be expanded upon in the Strategic Plan in terms of specific activities? What are the key steps, tasks and actions (and approximate timeline) that are needed for the Strategic Plan to be implemented?”*

1. Gaps identified:
  - Regional climate information and a framework
  - Identifying physics issues with models: model – observations comparisons
  - Outreach and education on climate science and climate change
  - Addressing diversity, inclusion and equity
2. Importance of near-term climate prediction
  - Societal relevance
  - A way to strengthen links to the rest of WMO
3. Importance of supporting CMIP as a "flagship" activity
4. Partnerships, collaboration and consultation
5. Bringing in a social science view?

Q2:

*“What would be an ideal WCRP structure to implement the new strategy? How fit for purpose are the current suite of Core Projects, Working Groups, Grand Challenges etc.? What works well and what should be changed?”*

1. Agree on the need for a “fit-for-purpose” structure to pursue and achieve goals of SP
2. Concern that the current structure is:
  - Cumbersome, complex with many legacies
  - Leads to competition and overlap; not coordination and collaboration
3. A stronger focus on model development?
4. Connections: especially the World Weather Research Programme (WWRP), but also Future Earth and others?
5. Absence of policy and decision-making communities
6. Geographical bias - lack of representation from key regions

Q3:

*“What is needed to successfully transition us from the present state to the new WCRP?”*

We need:

1. Strong leadership to facilitate change; clear strategic vision
2. Consideration to key elements of change management: clear direction; consultation and communication; sponsorship; bringing the community along
3. Funding, resources and willingness to change
4. Clarity about critical partnerships: good engagement and a shared understanding
5. To maintain the vibrancy and strength of the existing community

Each of the three question sets above were then discussed in two breakout groups, run in parallel. Session 3 was eventually held in plenary.

The discussions based on these questions broadly looked at how to determine priority research questions, what a future structure of WCRP might look like, what elements need to be considered to make the Programme fit for purpose and fit for the future and how to transition from current operations to that future structure. The discussions on each of these points is expanded on in Section 3. Throughout the discussions it was clear that terminology is very important, with several different perspectives on the meaning of the terms such as "project", "model", "operational", "climate services" and "geoengineering" (climate altering technologies).

The final part of the meeting brought together all of the key points discussed in preparation for the week-long JSC Session, that began on 6 May 2019. Please see the 40th Session of the Joint Scientific Committee Report for the outcomes of that meeting.

### **3. Main discussion areas**

Throughout the meeting participants focused on three main discussion areas, related to the questions posed in the breakout groups (Section 2):

1. How to determine priority research questions?
2. How to determine a future WCRP structure?
3. How to transition to a new structure?



### 3.1. Determining priority research questions

The WCRP SP provides a strategy for identifying and prioritizing scientific research within WCRP, but it does not outline specific research questions. Meeting participants agreed that the WCRP IP would need to include a mechanism for identifying research questions and implementing projects based on those questions.

It was thought that the Overarching Objectives of the SP could be divided into three parts, each requiring its own structure in the IP: Objective 1 is about knowledge; Objectives 2 and 3 are about knowledge to action (or tools); and Objective 4 is about dissemination and distribution of knowledge.

Particular activities where meeting participants felt the IP could expand on the SP included:

- Revisiting aggregation and scaling, including processes on a molecular scale
- Process understanding and parameterization
- Aggregation and scaling, including long-term simulations
- Societal needs for prediction and requirements to improve it
- Climate sensitivity
- Geoengineering: assessing the impact
- The evolution of extremes
- Reservoir changes (heat/carbon/water)
- Regional hotspots (what happens in high latitudes)
- Climate interaction with overall development trends, including urbanization.
- The impact of different forcings, including aerosols

It was felt that model development was an important area for the WCRP to include as a strategic priority, noting that there are still important advances to made, progress may be abrupt and as there is currently a disconnect from science. Other aspects mentioned included: long time scale processes, deep convection, seasonal forecasts, model predictability and variability, shifts in climate regimes, feedbacks and paleoclimate.

It was mentioned in both breakout groups that at a [WCRP 'Out of the Box' Workshop](#) held in 2016, three scientific questions were identified and later published (Marotzke et al., 2017), namely:

- Where does the carbon go?
- How does the weather change with climate?
- How does climate influence the habitability of the Earth and its regions?

These questions continue to resonate with meeting participants.

The preferred type of research question was also discussed. First, the questions should be those that are too difficult or complex for any one institute or country to undertake. The questions could be outcome focused or be integrative science questions. The need for integrative science was felt very strongly, both in the sense of integrating WCRP science across time and space scales and in the sense of eliminating boundaries to cooperation and co-design. We should ensure that the most pressing science questions are identified, with possible use of a science traceability matrix to measure outcomes. There was a strong feeling that science questions would best be generated using a bottom-up process. There was also recognition that there needs to be a tighter connection between the operational and research communities.

### 3.2. Determining a future WCRP structure

Potential new structures for WCRP were discussed in depth, with some meeting participants gravitating towards a more traditional structure and others toward something more aligned to the SP Objectives. Participants considered both the WCRP SP and the independent WCRP Review. The discussion centered on the following principles:

- Any new structure needs to have logic, purpose and value.
- The structure should be largely bottom-up, but set up to ensure that we achieve the objectives outlined in the SP.
- It is important to ensure that the funding landscape evolves with WCRP by working closely with funding agencies on any proposed structural changes.
- Mechanisms for integration, including interdisciplinary interactions and cooperation, are needed.
- Science questions could be addressed through activities (for example via research projects) that have a defined purpose and finite lifetime with sunset dates. Their timeframe would be generally too short to organize a structure around, but they could allow flexibility within a structure.
- Some groups within WCRP require a long-term focus, such as those involved in building infrastructure and/or scientific capability and knowledge.
- If there is a change in structure, activities need to either map into the new structure or shut down.
- Observation and modelling communities should not be separated, as integrated knowledge production is a priority for the WCRP's science.
- Partnerships are very important and may need to be implemented at different levels to ensure that research questions can be answered.
- The regional focus should not be lost in the structure.

There was much discussion regarding whether there needs to be 'groups' that do not have a sunset date, where the community is located. Some saw this as fundamental, in terms of being a place where intellectual capacity resides. Others saw this as counter-productive to true integration and that the community should organize itself around shorter-term research questions and projects.

How to organize the community was a central discussion point - should there be top-down organization, or can the community organize itself? Organizing the community around the four Overarching Objectives of the SP was proposed, but this seemed difficult as the community is not naturally organized that way. In addition, while Objectives 2 and 3 are projects, Objective 1 is to understand and Objective 4 is bridging and these should occur everywhere.

There was a discussion on organizing the community around disciplines, as with the current Core Projects, or cycles (water/carbon/energy), but the lesson learned there is that integration is not always easy across these groups. One possible mechanism to encourage integration could be new initiatives, but this was seen as potentially similar to the current Grand Challenges. It was suggested that an independent review of the Grand Challenges be conducted, to ascertain what worked well and what presents ongoing challenges.

There was recognition that WCRP must be nimble and able to quickly respond to requests for scientific information. Many participants thought that in the future the WCRP structure should be more flexible, with activities coming and going on individual timeframes (and sunset dates). Practical ways in which to work flexibly, such as workshops, JSC conference calls and rapid

response funds were discussed. It was also emphasized that WCRP should consider and be transparent in terms of its carbon footprint, ensuring that core face-to-face meetings are held strategically (e.g. held when outcomes justify the travel and aligned with other meetings) and that full use is made of video conferencing.

Integration was a key theme that came up time and again during discussions. It was thought that annual meetings and conferences could provide a mechanism for integrating, but that we need to consider how these would differ from European Geosciences and American Geophysical Union meetings. The New York WCRP Grand Challenge meeting on sea level rise was seen as a good example of the type of meeting to pursue, as it was about the right size (around 400 people) and had a clear deliverable (a resolution). The term 'forum' was preferred to that of conference or meeting. An annual science conference could replace the existing JSC Session, with WCRP leaders being the organizing committee and also meeting at the same time.

The visibility of WCRP was also discussed. In many cases members of the science community identify themselves more with one of the Core Projects (or a project within them) than with WCRP. There was a feeling that the fragmentation of the WCRP-family identity does not serve it well in terms of brand visibility in countries or in the wider science community. It was also thought that strong cross-cutting projects, such as the Coupled Model Intercomparison Project (CMIP) and the Coordinated Regional Climate Downscaling Experiment (CORDEX), should be highly visible and not be lost in any new structure. There was some discussion about how to resource large projects such as CMIP.

### **3.3. Transitioning to a new structure**

In transitioning to a new WCRP structure it will be imperative to give clear messages regarding implementation plans to WCRP activities and outline a concise roadmap so that they can plan for the future. It should not be forgotten that WCRP has an existing structure and productivity must continue. Meeting participants recognized that there must be enough time for existing activities to plan and transition, but not an overly long transition period, which may introduce gaps in productivity and an uncertain funding environment. It was thought important to map all of those activities that are being considered important to continue in the future in detail onto the new structure to ensure that nothing that is essential is left behind.

The whole transition should take less than five years and include extensive community consultation and public communication. As part of the transition the WCRP Core Projects could also produce a synthesis of their activities, the timing of which would need to be further discussed.

It was recognized that during the transition process, while we are developing the roadmap for transition, we should also be responding in a visible way to the outside world. It was proposed that in a parallel process several new initiatives could be undertaken. This requires further discussion.

## **4. Outcomes**

### **4.1. Conceptual framework**

A draft conceptual framework was produced over the two days as a way of understanding how WCRP should work to deliver the WCRP SP Objectives (Figure 1). Beginning at the bottom of the framework there is the interdisciplinary science community (enduring capabilities) (light blue

box) and the modelling, observing and integrative activities of the community, including critical infrastructure (green box). Important to this community and its activities are partnerships for sustained observations (left green arrow) and coordinated model experiments and assessments (right green arrow). These communities work together on projects that address key research questions (purple box) that are prioritized and assessed based on the Overarching Objectives of the WCRP SP (four yellow boxes, with the box number corresponding to the SP Objective number), with box four placed above the other three boxes to show that this is the mechanism by which knowledge and information flow to society to inform adaptation and mitigation responses (dark blue box) in consultation and cooperation with partners and stakeholders. From the bottom of the framework to the top there is increasing integration.

There was a lot of discussion about which boxes in the conceptual framework are permanent and in which boxes the people sit, with some participants seeing the community existing solely in the blue and green boxes and others seeing them as also sitting in the yellow boxes (conducting delivery of information, for example). In other views, the boxes are not independent, with the yellow boxes being the aspirational objectives of the Programme and the green and light blue boxes being the work done, with the green box being the integration needed to get to the yellow boxes. The key science questions could also be framed as outcomes. In addition, it was thought that the regional focus should be more visible in the framework.



Figure 1: The conceptual framework for implementing the WCRP Strategic. The version above is taken from the end of the WCRP JSC-40 Session. The Conceptual Framework as at the end of the Implementation and Transition Meeting is provided in Annex 6.

It must be stressed that Figure 1 should in no way be confused with a structural/organizational diagram. This figure, regardless of version, is intended to describe the purpose and function of WCRP rather than a structure. A test of its utility is whether our stakeholders, both within and external to the WCRP community, see their links into WCRP and/or the purpose and goals of WCRP.

## 4.2. WCRP Implementation Roadmap

The first step in implementing the WCRP Strategic Plan is to develop a WCRP implementation roadmap. This includes:

- Consultation with each and all WCRP activities, partners, and stakeholder groups to ensure their engagement and possible places in or related to the new structure
- Identifying groups that have outlived their purpose to decide their sunset/transition and transformation into the new structure
- Creating any structural elements with timeline and sunset dates, in agreement with sponsors/partners
- Determining a few condensed key science questions, that would provide an umbrella for projects addressing key research areas
- Defining core principles to complement communication during the transition process, including:
  1. Continuity of business during the transition process
  2. Clear and timely communication
  3. An Implementation Plan supported by:
    - The WCRP science community
    - Funding agencies
    - The three WCRP sponsors – WMO, ISC, IOC-UNESCO
    - National science agencies and academies
  4. Effective governance and a structure that enables/supports the WCRP conceptual framework
  5. Consistency with the WCRP Strategic Plan

The WCRP Implementation Plan will consist of two parts: 1) the WCRP implementation roadmap and 2) the WCRP structural overview. A draft overview of the components of each part of the plan is given in Annex 3.

When designing the Implementation Plan, we should ensure that it:

- Results in a Programme that is fit for purpose and fit for the future
- Nurtures the WCRP community
- Prioritizes integration (internal and external and across scales)
- Anticipates upcoming science challenges
- Encourages co-design and cooperation, including with social scientists
- Provides a clear picture of WCRP's remit
- Brings together global and regional research and modelling communities
- Ensures robust scientific outcomes and clear explanations of uncertainties
- Is flexible and able to react quickly to calls for scientific information
- Provides ways to engage with partners and stakeholders
- Clearly articulates what observations are needed



- Prioritizes science questions with societal relevance and that align with the SP Overarching Objectives, while not forgetting curiosity-driven science
- Ensures clear internal communication pathways
- Increases WCRP's visibility and raises its voice
- Builds capacity, especially with early career researchers and in developing countries/regions

### 4.3. Timeline for implementation

During the meeting it was decided that the timeline for implementation should not exceed 5 years and that it must:

- provide adequate time for community and stakeholder consultation
- give the project offices adequate time to transition, while not introducing uncertainty
- consider the timelines of WCRP co-sponsors and current and potential future funders of the International Project Offices.

A draft timeline was put together *and then modified during the JSC-40 meeting* to:

**From now to April 2020** (41st Session of the JSC, JSC-41)

- Refine science questions and conceptual framework
- Refine key elements for delivery and engagement
- Identify science, funding and infrastructure needs

**Beginning of 2020 (Jan-Feb) – pre JSC-42**

- An “elements” Workshop

**From now to April 2022 (JSC-43): 3 years to evolve, specifically:**

- Consultation
- Development of a structure and governance
- Completion of the Implementation Plan (draft structure in Annex 3, updated from the Implementation and Transition Meeting)
- WCRP commitment to Core Projects and Project Offices
- Initiation of new, joint activities
- Nurture and leverage partnerships for mutually beneficial outcomes

It was also agreed to send a communication out to the community, including early career researchers, as soon as possible outlining the outcomes of the Implementation and Transition Meeting and JSC-40.

### 4.4. Elements of the new WCRP Framework

There are a number of ways that we can meet WCRP's new Scientific Objectives. Respective elements are listed in Figure 2.

When designing research projects, we need to ensure that they:

- Connect people, models and infrastructure, with an integrative focus to address critical questions

- Identify joint activities with partners that are project-oriented as well as workshops and governance
- Have approaches and delivery mechanisms that enable WCRP to be nimble and agile; so that it can respond to contemporary science priorities
- identify the important roles of WCRP in:
  - coordination and standard-setting
  - capacity building (early career researchers, other nations, etc.)
  - education

## 5. Summary

The Implementation and Transition Meeting was the first meeting of the community to discuss how to implement the WCRP Strategic Plan. In a very constructive and positive way, participants from across the entire WCRP community worked together to determine a first conceptual framework to deliver the new WCRP, a provisional timeline, an outline for the plans and a series of discussion points that were then taken forward into the JSC-40 Session.

The meeting was very successful in launching an initial thought process. It also underscored the need for an intense community consultation that would engage the WCRP community at large, but also partner programs, funding programs and sponsors to assure that a consensus is being reached regarding the future role of WCRP in delivering core science results and climate information required for tackling future sustainability challenges together with partner programs. However, it was also recognized that a respective transition and implementation phase does take time and that caution needs to be taken to assure that the excellent ongoing work and functionality by WCRP is not being interrupted while getting fit for the future.

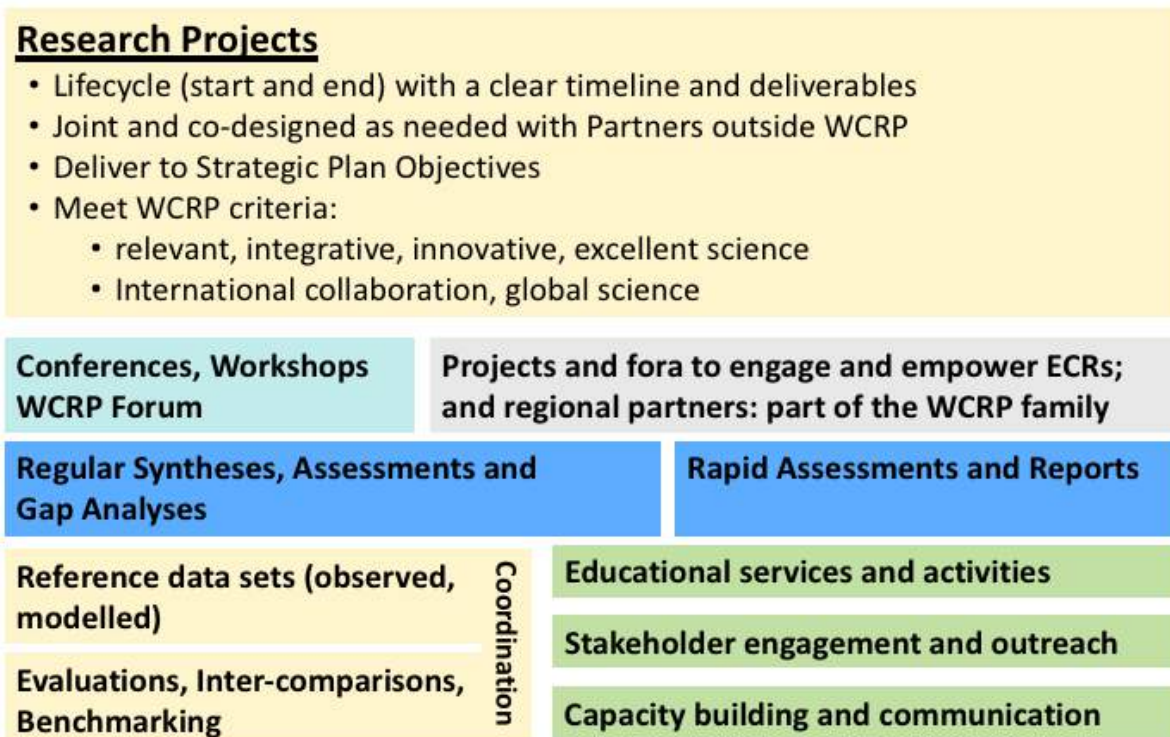


Figure 2: Ways in which we might meet WCRP objectives and address research questions





## Annex 1 - List of participants

WCRP Implementation and Transition Meeting (4-5 May, WMO Building, Geneva)

First Name	Last Name	Position	Group Representing	Email Address
Adam	Scaife	Co-chair	GC Near term Climate Prediction	adam.scaife@metoffice.gov.uk
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Helen	Cleugh	vice-chair	JSC	Helen.Cleugh@csiro.au
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Xuebin	Zhang	Leader	GC Climate Extremes	xuebin.zhang@canada.ca

## Annex 2 - Implementation and Transition Meeting Agenda

### WCRP Implementation and Transition Meeting

4-5 May, WMO Building (Press Room), Geneva

#### Day 1 (4<sup>th</sup> May): 09:00-18:00

##### **09:00-10:30 Plenary (Press Room)**

- Welcome (Detlef, Helen, Pavel)
- Logistics (Mike, Narelle, Pepi)
- Objectives of the Workshop (Detlef, Helen)
- Introduction to the WCRP Strategic Plan (Detlef, Guy)
- The WCRP Implementation Plan (Detlef, Helen)
- The need for a Transition Plan (Detlef, Helen, Pavel)

##### **10:30-11:00 Coffee Break**

##### **11:00-12:30 Breakout groups (1)**

Two breakout groups will discuss in parallel the following topic:

*“What needs to be expanded upon in the Strategic Plan in terms of specific activities? What are the key steps, tasks and actions (and approximate timeline) that are needed for the Strategic Plan to be implemented?”*

- Group 1: Press Room (ground floor)
- Group 2: 0L:08 ground floor next to Press Room)

##### **12:30-13:30 Lunch (provided at WMO)**

##### **13:30-15:00 Breakout Groups (2)**

Two breakout groups will discuss in parallel the following topic:

*“What would be an ideal WCRP structure to implement the new strategy? How fit for purpose are the current suite of Core Projects, Working Groups, Grand Challenges etc.? What works well and what should be changed?”*

- Group 1: Press Room (ground floor)
- Group 2: 0L:08 ground floor next to Press Room)

##### **15:00-15:30 Coffee break**

##### **15:30-16:30 Plenary:** Brief Summary of Breakout Groups (1) and (2)

##### **16:30-18:00 Breakout Groups (3)**

Two breakout groups will discuss in parallel the following topic:

*“What is needed to successfully transition us from the present state to the new WCRP?”*

- Group 1: Press Room (ground floor)
- Group 2: 0L:08 ground floor next to Press Room)

**Day 2 (5<sup>th</sup> May): 09:00-14:00**

**09:00-10:30 Plenary (Press Room)**

- Discussion of Breakout group (3) outcomes
- General discussion on progress

**10:30-11:00 Coffee Break**

**11:00-12:30 Plenary (Press Room)**

- Discussion of possible transition possibilities
- Conclusions
- *Next Steps: Writing Assignments, timeline etc. – depending on available time*

**Requirements in Advance of the Meeting:**

Each WCRP activity (core-projects, working groups), whether attending the meeting or not, will be given the opportunity to provide a short (max 2-pages) statement or bullet points to stimulate discussion in advance of the breakout group discussions:

1. *“What needs to be expanded upon in the Strategic Plan in terms of specific activities? What are the key steps, tasks and actions (and approximate timeline) that are needed for the Strategic Plan to be implemented?”*
2. *“What would be an ideal WCRP structure to implement the new strategy? How fit for purpose are the current suite of Core Projects, Working Groups, Grand Challenges etc? What works well and what should be changed?”*
3. *“What is needed to successfully transition us from the present state to the new WCRP?”*

Website for meeting: <https://www.wcrp-climate.org/wcrp-ip-overview>

## Annex 3 - Draft structure of the WCRP Implementation Plan

### Part 1: April 2020

1. Introduction
2. The WCRP Strategic Plan: vision, mission and objectives
3. Conceptual framework and science questions
4. Transition plan
5. Partnerships
  - Identifying key partners
  - Clarifying their role in the Strategic Plan
  - Reaffirming current, and building new
  - Gant chart, milestones, deliverables
6. Implementation schedule
7. Engagement – stakeholders, service organizations
8. Measures of success – key performance indicators
9. Risks and contingencies

### Part 2: April 2022

10. Support functions (including support offices)
11. External governance: sponsors, JSC, Governing Board, JPS
12. Internal structure and governance
13. Resources, budgets, finance management

## **Annex 4 - Key actions for WCRP leadership and community**

Note the below “actions” are carried forward as appropriate into the final JSC-40 report.

1. Produce a review of the Grand Challenges to determine how cross-cutting projects might best function in the future
2. Provide the JSC with information, as needed, to determine how CMIP should operate in the future
3. Map all current WCRP activities
4. Send out a communication regarding the outcome of the Implementation and Transition Meeting and JSC-40 to the community and early career researchers as soon as possible
5. Include early career researchers in the consultation process

## Annex 5 - References and acronyms

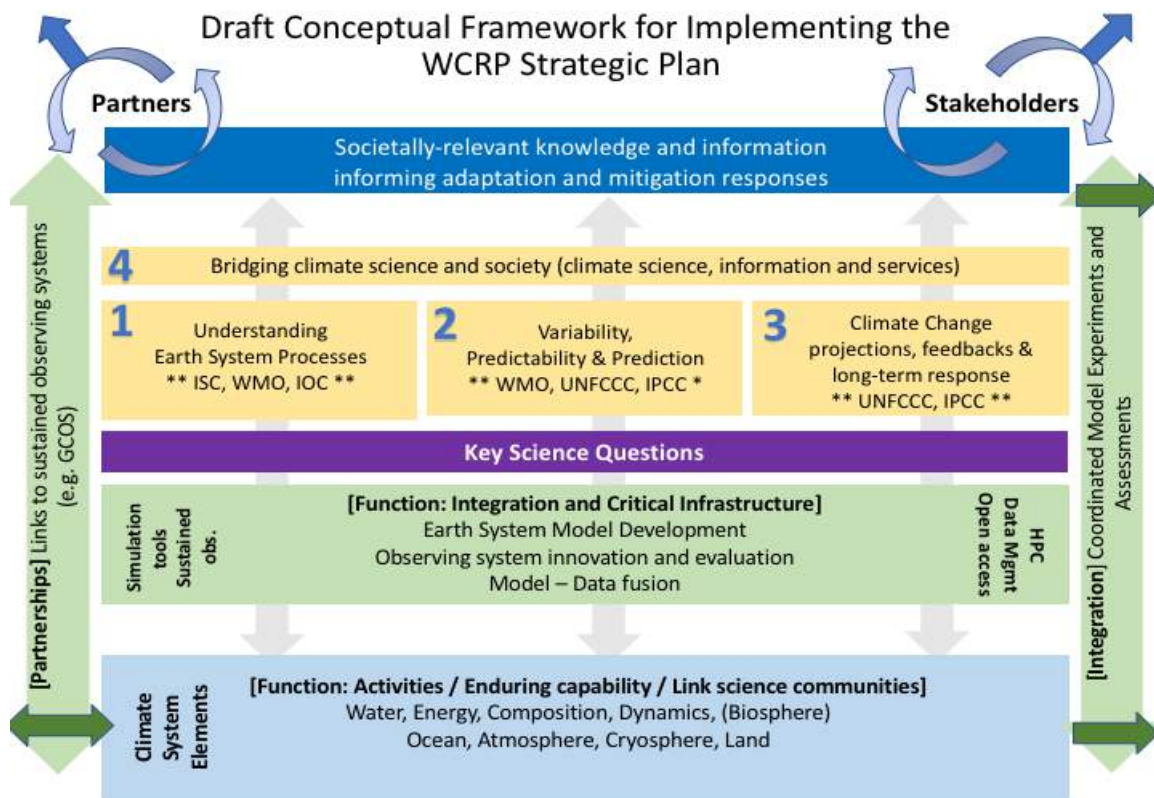
### References

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### Acronyms

ASAP	As Soon As Possible
CLiC	Climate and Cryosphere (WCRP)
CLIVAR	Climate and Ocean Variability, Predictability and Change (WCRP)
CMIP	Coupled Model Intercomparison Project
CORDEX	Coordinated Regional Climate Downscaling Experiment
GC	Grand Challenge (WCRP)
GEWEX	Global Energy and Water Exchanges (WCRP)
IOC-UNESCO	Intergovernmental Oceanographic Commission of UNESCO
IP	(WCRP) Implementation Plan
ISC	International Science Council
JPS	(WCRP) Joint Planning Staff
JSC	(WCRP) Joint Scientific Committee
JSC-40	40th Session of the JSC
JSC-41	41st Session of the JSC
JSC-42	42nd Session of the JSC
JSC-43	43rd Session of the JSC
JSC-45	45th Session of the JSC
S2S	Subseasonal to Seasonal Prediction Project
SP	(WCRP) Strategic Plan
SPARC	Stratosphere-troposphere Processes And their Role in Climate (WCRP)
WCRP	World Climate Research Programme
WDAC	WCRP Data Advisory Council (WCRP)
WMAC	WCRP Modelling Advisory Council (WCRP)
WMO	World Meteorological Organization
WWRP	World Weather Research Programme

## Annex 6 – Draft conceptual framework as proposed during the workshop



The first draft of a conceptual framework for implementing the WCRP Strategic Plan (as at 5 May 2019). Note that this should not be confused with a WCRP organizational/structural diagram, but rather as a way of thinking about how WCRP might implement the Strategic Plan. **IMPORTANT:** This framework was further modified during the JSC-40 Session.

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