



39th Meeting of the Joint Scientific Committee

16-20 April 2018, Nanjing, China



September 2018

WCRP Publication No.: 16/2018

Bibliographic information

This report should be cited as:

World Climate Research Programme, 2018. 39th Meeting of the Joint Scientific Committee, 16/2018, 16-20 April 2018, Nanjing, China.

Contact information

All enquiries regarding this report should be directed to wcrp@wmo.int or:

World Climate Research Programme
c/o World Meteorological Organization
7 bis, Avenue de la Paix
Case Postale 2300
CH-1211 Geneva 2
Switzerland

Cover image credit

Pixabay 2787946

Copyright notice

This report is published by the World Climate Research Programme (WCRP) under a Creative Commons Attribution 3.0 IGO License (CC BY 3.0 IGO, www.creativecommons.org/licenses/by/3.0/igo) and thereunder made available for reuse for any purpose, subject to the license's terms, including proper attribution.

Authorship and publisher's notice

This report was authored by the WCRP Secretariat and approved by the WCRP Joint Scientific Committee.

WCRP is co-sponsored by the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the International Science Council (ISC), see public.wmo.int , www.ioc-unesco.org and council.science.

Disclaimer

The designations employed in WCRP publications and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of neither the World Climate Research Programme (WCRP) nor its Sponsor Organizations – the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the International Science Council (ISC) – concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The findings, interpretations and conclusions expressed in WCRP publications with named authors are those of the authors alone and do not necessarily reflect those of WCRP, of its Sponsor Organizations – the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the International Science Council (ISC) – or of their Members.

Recommendations of WCRP working groups and panels shall have no status within WCRP and its Sponsor Organizations until they have been approved by the Joint Scientific Committee (JSC) of WCRP. The recommendations must be concurred with by the Chair of the JSC before being submitted to the designated constituent body or bodies.

This document is not an official publication of the World Meteorological Organization (WMO) and has been issued without formal editing. The views expressed herein do not necessarily have the endorsement of WMO or its Members.

Any potential mention of specific companies or products does not imply that they are endorsed or recommended by WMO in preference to others of a similar nature which are not mentioned or advertised.



Participants of the 39th Session of the WCRP Joint Scientific Committee, Nanjing, China, 2018.

Contents

General Summary	6
1. Opening	6
2. WCRP Strategic and Implementation Plans 2019-2029	6
3. Reports on the WCRP Core Projects and CORDEX	8
4. Reports on the WCRP Advisory Councils	8
5. Reports on the WCRP Working Groups	8
6. Reports on the WCRP Grand Challenges	9
7. Partners' Reports	10
8. Scientific Workshop	11
9. Information and Business	11
9.1. Partnerships	11
9.2. WCRP Regional Office	11
9.3. Approval and endorsement of projects	12
9.4. Stability of International Project Offices	12
9.5. WCRP bodies' group membership	12
9.6. JSC and Core Project membership	13
9.7. Finances	13
9.8. WCRP Open Science Conference	13
9.9. Plans for the JSC-40 Session	14
10. Closing	14
Annex 1: JSC-39 agenda	15
Annex 2: JSC-39 List of participants	17
Annex 3: Summary of discussion on WCRP Strategic and Implementation Plans	23
Annex 4: Guidelines on membership of WCRP Bodies	27
Annex 5: Actions and decisions from JSC-39	29
Annex 6: Acronyms and abbreviations	33

General Summary

The World Climate Research Programme (WCRP) Joint Scientific Committee (JSC) meets annually to provide scientific guidance to the Programme. The JSC is comprised of scientists selected by mutual agreement of WCRP's three principal sponsors: The World Meteorological Organization (WMO), the International Council for Science (ICSU) (known as the International Science Council (ISC) after July 2018) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

The thirty-ninth session of the JSC took place at Nanjing University of Information Science and Technology (NUIST), Nanjing, China. The major focus of the meeting was the WCRP Strategic Plan, which will determine the strategic direction of WCRP from 2019 to 2029 and initial discussions on how to implement the proposed science strategies. The following summary report highlights the main outcomes and actions resulting from the meeting, grouped by theme. The meeting agenda, list of participants and all actions are summarized in Annexes. Additional documents and presentations are available online on the [JSC-39 website](#). Note that the timing of presentations was not exactly in line with the agenda.

1. Opening

The thirty-ninth session of the JSC (JSC-39) opened at 9:00 (LST) on Monday 16 April 2018, at the conference room of Nanjing University of Information Science and Technology (NUIST), Nanjing, China. The session was opened by Professor Guy Brasseur, JSC Chair, followed by formal addresses by Professor Zhaoyong Guan, Vice President and Vice Chancellor of NUIST, who warmly welcomed session participants to Nanjing, and by Elena Manaenkova, Deputy Secretary-General of WMO.

2. WCRP Strategic and Implementation Plans 2019-2029

JSC-39 was primarily focused on the draft WCRP Strategic Plan 2019-2029, which was the culmination of work by a [JSC writing team](#), drawing on the expertise and views of WCRP leaders, since October 2017. Throughout the meeting there were discussions on all elements of the Strategic Plan (SP), including the Plan's Overarching Objectives (far horizon research objectives), Emphases (fundamental science foci) and Imperatives (tools, resources, and capabilities). Links to the summaries of the breakout group discussions and presentations are available on the [JSC-39 agenda and presentations webpage](#).

On Monday 16 April, Professors Guy Brasseur (JSC Chair) and Amanda Lynch (JSC Vice-chair) introduced the vision, mission and main elements of the WCRP Strategic Plan. An open discussion followed, a summary of which can be found in Annex 3. Note that while, for practical reasons, the development of the Strategic Plan was kept separate from a framework of how it will be implemented, many of the discussions during the meeting contained both science strategy and implementation aspects. On Wednesday 18 April, a [summary presentation](#) was made on the main discussion points regarding the Strategic Plan and an introduction to the process to determine the WCRP Implementation Plan was given. A summary of the open discussion that followed is also given in Annex 3.

On Friday 20 April, in the JSC-only Session, it was agreed that the WCRP Strategic Plan would need to be much shorter and that the main points raised at JSC-39 should also be incorporated. In particular, it was decided that the linkages between science and policy in the Overarching Objectives needed to be better emphasized. A new version of the Emphases section would also be required, and plans were made to undertake this and then circulate it

amongst the JSC and WCRP leaders. The process for public consultation was discussed, including how to make sure agencies and stakeholders are alerted to the opportunity to comment. A simple, two-question, format was preferred for consultation, asking for comments on the Strategic Plan and on how the respondents see their contribution to the high-level strategy (a link to the Implementation Plan). In addition, the idea to organize an American Geophysical Union (AGU) Fall Meeting side event (possible a Town Hall) on the launch of the Strategic Plan was discussed and supported.

The timeline for the Strategic Plan was agreed as:

April 2018:	Discussion on the Strategic Plan
May 2018:	New version based on JSC deliberations
Summer 2018:	Consultations with agencies and other stakeholders
End of 2018:	Final approval of the Strategic Plan
April 2019:	First general discussion on the WCRP Implementation Plan – principles
2019-2020:	More specific discussions and conclusions on the Implementation Plan
2020:	Open Science Conference to conclude Grand Challenge activities and launch the “new WCRP”

Decisions and Actions:

WCRP Strategic Plan

- A1. [Decision/Endorsement] JSC reaffirmed and agreed on the vision, mission and Overarching Objectives of the new WCRP SP (JSC).**
- A2. Compile the SP draft 8 incorporating all comments from the WCRP groups and community & results of JSC-39 deliberation (JSC/Writing Team, May 2018).**
 - a. Incorporate the issue of composition and radiative forcing.**
 - b. Update text based on discussion held at JSC e.g. update Emphasis Section (including figures).**
 - c. Demonstrate stronger connection between science (current O1-O3) and society/policy (current O4); e.g., climate and carbon feedbacks for the Paris Agreement, decadal predication (climate/carbon) for global stocktake, SDGs, etc.**
- A3. Document and share with all JSC “what’s new in the SP (after JSC-39)” (JSC/Writing Team, ASAP).**
- A4. (Adjustment of SP schedule) Proceed with the public consultation, including engagement with key partners and organizations, taking into account discussions held during the JSC (JSC/Writing Team with JPS Support, June-August 2018).**
- A5. Explore possible organization of an AGU side event on the new WCRP SP (JPS with JSC input, ASAP and before December 2018).**

WCRP Implementation Plan

- A6. Develop a timeline to complete the IP 2019-2029 (JPS with input from JSC/Writing team, ASAP).**
- A7. Coordinate mapping exercise (based on the JSC-39 breakout discussions) among the elements of the Strategy, Implementation Plan and the roles of WCRP groups/activities therein (JPS in consultation with JSC/Writing Team, ASAP and before June 2018).**
- A8. Incorporate further clarification/emphasis in the new SP/IP to address science advances, and provide umbrella to address new science questions (including new questions triggered from GCs) in the coming implementation period (JSC Writing Team, ASAP).**
- A9. Identify a suitable home for an attribution study as well as its connection to services & society, in the context of the new IP (relating to the closure of ETCCDI**

and emerging questions from GC-Extremes) in coordination with WMO & partners as well as with the link to a global framework (PA, Sendai framework, etc.) (JSC Writing Team, ASAP).

3. Reports on the WCRP Core Projects and CORDEX

WCRP has four Core Projects (CPs), each with its own project office and focused on a different aspect of the Earth system. On Tuesday morning each CP discussed their achievements, issues and challenges and their views on the WCRP Strategic Plan:

- **Climate and Cryosphere (CliC)** ([presentation](#) | [report](#))
 - Presentation by Dr. James Renwick
- **Climate and Ocean Variability, Predictability and Change (CLIVAR)** ([presentation](#) | [report](#) | [Draft Science Plan](#))
 - Presentation by Dr. Detlef Stammer
- **Global Energy and Water Exchanges (GEWEX)** ([presentation](#) | [report](#))
 - Presentation by Dr Graeme Stephens
- **Stratosphere-troposphere Processes And their Role in Climate (SPARC)** ([presentation](#) | [report](#))
 - Presentation by Dr. Neil Harris

CORDEX, a major project of WCRP with its own international project office, also presented an update of its activities to plenary:

- **Coordinated Regional Downscaling Experiment (CORDEX)** ([presentation](#) | [report](#))
 - Presentation by Dr William J. Gutowski, Jr.

A [summary presentation](#) on the main points from the CPs and CORDEX reports was also presented.

Decisions and Actions:

CORDEX

A10. [Decision/Endorsement] JSC endorses the plan for the International Conference for Regional Climate 2019 (October 2019, Beijing, China).

4. Reports on the WCRP Advisory Councils

WCRP has two advisory councils, who both reported on the morning of Wednesday 18 April:

- **WCRP Modelling Advisory Council (WMAC)** ([presentation](#) | [report](#))
 - Presentation by Dr. Gerald (Jerry) Meehl (telecon)
- **WCRP Data Advisory Council (WDAC)** ([presentation](#) | [report](#))
 - Presentation by Dr Jean-Noël Thépaut

5. Reports on the WCRP Working Groups

First thing on Tuesday morning the following WCRP Working Groups reported to plenary:

- **Working Group on Numerical Experimentation (WGNE)** ([presentation](#) | [report](#))
 - Presentation by Dr. Keith Williams (telecon)
- **Working Group on Coupled Modelling (WGCM)** ([presentation](#) | [report](#))

- Presentation by Dr. Greg Flato
- **Working Group on Subseasonal to Interdecadal Prediction (WGSIP)** ([presentation](#) | [report](#))
 - Presentation by Dr. William (Bill) Merryfield
- **Sub-Seasonal to Seasonal (S2S) Prediction Project** ([presentation](#) | [report](#))
 - Presentation by Dr. Andrew Robertson

A [summary presentation](#) of the main points from the Working Group Reports was also provided.

6. Reports on the WCRP Grand Challenges

WCRP supports seven Grand Challenges (GCs), each addressing an important topic within climate change research for a finite duration of time. All Grand Challenges reported extended collaboration among the Grand Challenges, Core Projects, Working Groups and external partners, while expressing concerns about limited budgets. Most GCs presented their achievements vis-à-vis set implementation plans, or a revised scope for research in coming years (e.g. GC on Water for the Food Baskets):

- **Regional Sea Level Change and Coastal Impacts** ([presentation](#) | [report](#))
 - Presentation by Dr. Detlef Stammer
- **Weather and Climate Extremes** ([presentation](#) | [report](#))
 - Presentation by Dr. Xuebin Zhang
- **Clouds, Circulation and Climate Sensitivity** ([presentation](#) | [report](#))
 - Presentation by Bjorn Stevens (telecon)
- **Melting Ice and Global Consequences** ([presentation](#) | [report](#))
 - Presentation by Dr. Greg Flato
- **Water for the Food Baskets of the World** ([presentation](#) | [report](#))
 - Presentation by Dr. Jan Polcher
- **Near Term Climate Prediction** ([presentation](#) | [report](#))
 - Presentation by Masahide Kimoto
- **Carbon Feedbacks in the Climate System** ([presentation](#) | [report](#))
 - Presentation by Dr. Tatiana Ilyina and Professor Pierre Friedlingstein (telecon)

Decisions and Actions:

GC-Cloud

A11. [Decision/Endorsement] JSC endorses aerosol forcing assessment (activity + report) as official WCRP activity (JSC).

A12. CPs to support EUREC⁴A (CLIVAR in particular) (CP leaders, ASAP).

GC-Extremes

A13. [Decision/Endorsement] JSC endorses the plan for Summer School (Institute of Advanced Studies in Climate Extremes and Risk Management, Fall 2019, NUIST WMO Training Center, China) (JSC).

GC-Melting Ice

A14. Identify and appoint a new Chair for SG Melting Ice (JSC in consultation with GC Melting Ice team, with JPS assistance, ASAP).

A [summary presentation](#) of the main points from the Grand Challenge Reports was also provided during the meeting.

7. Partners' Reports

Several of WCRP's sponsors and key partners gave brief presentations during the JSC meeting.

On Monday 16 April there was one presentation:

Dr. Salvatore Arico (Head of the Ocean Science Section, IOC-UNESCO) joined the meeting via web link. He discussed the ocean dimension and outlined that a strong WCRP is crucial to IPCC and UNFCCC policy decisions. In this, oceans should feature strongly as part of integrated research. He highlighted the need for a balance between keeping communities together and new roles for science in the future.

On the Tuesday afternoon there were four presentations:

Dr. Carolin Richter (Director, Global Climate Observing System (GCOS) Secretariat) outlined how GCOS is going through a similar process as WCRP in producing a Strategic Plan. GCOS wants to achieve the 'best available science' and would like to manage any long-term data records that the WCRP community has. She also stressed that 'what is new?' is an important question in a strategic plan and that communication tools, indicators and subsidiary indicators are important. ([presentation](#) | [report](#))

Professor Michael Morgan (World Weather Research Programme (WWRP) SSC member) gave an overview of the WWRP structure, Action Areas and discussed how WCRP and WWRP could work together, particularly on Overarching Objectives 1 (Understanding the climate system) and 2 (Advancing predictive skill). He stressed the need to further develop Earth System models and to co-design science activities in support of society. ([presentation](#) | [report](#))

Dr. Greg Carmichael (Chair, Commission on Atmospheric Sciences (CAS)) gave a presentation on 'Science for service in thematic research: a value cycle, or continuum discovery-translation-application'. He discussed the Global Atmosphere Watch (GAW) Implementation Plan (2016-2023) and the WCRP-GAW collaboration space. ([presentation](#) | [report](#))

Dr. Marie-France Loutre (Executive Director, Past Global Changes (PAGES)) gave an update on PAGES activities, including the 2017 PAGES Open Science Conference, and outlined how PAGES and WCRP benefit each other in terms of paleo-information being used to understand climate variability and change and observations being used to validate climate reconstructions. She also presented a few slides on Future Earth. ([presentation](#))

On Wednesday 18 April there were two additional presentations:

Dr. Elena Manaenkova (Deputy Director-General, WMO) talked about the WMO Strategy 2030 and WMO's planned strategic realignment. Her presentation outlined the WMO Strategic Vision for 2030, overarching priorities, core values, five long-term goals and the strategic objectives for 2020-2023. She also explained how the structure of WMO will need to change to meet the needs of the new strategy and showed how that new structure might look. She noted that the value chain is in fact a loop. ([presentation](#))

Victor Dike (Young Earth System Scientists (YESS)) talked about the progress of YESS and the activities and developments in the last years. He discussed upcoming plans and outlined

how WCRP can best support YESS. He also outlined the YESS outlook on the Strategic Plan, noting that early career researchers (ECRs) were currently only mentioned once. ([presentation](#))

8. Scientific Workshop

Thursday 19 April was devoted to a scientific workshop with the title “Future Directions for Fundamental Research on the Climate System”. The participants enjoyed talks on the state-of-the-art climate science in the remit of WCRP activities, presented by the scientific leaders of WCRP groups as well as the leading scientists of China, including Professor Zhaoyong Guan, (Vice Chancellor of NUIST) and Professor Huijun Wang (Chair of the National Committee of WCRP). Please see the [full programme](#) for more information.

9. Information and Business

Discussions on finances, memberships and review of actions were partly made in open session and partly during the JSC-only (in camera) session.

9.1. Partnerships

The JSC reaffirmed that partnerships are very important to the WCRP Strategic Plan and its successful implementation. As such, it was felt that a consultation meeting with key partners on the Strategic Plan and a mapping of new potential partners would be beneficial.

It was discussed that the current Memorandum of Understanding (MOU) between WCRP and Past Global Changes (PAGES) requires renewal (signed April 2015). The JSC recognized that the partnership with PAGES has been beneficial to the community and the JSC would like to continue the MOU and continue to collaborate with PAGES on activities of mutual interest that focus on the enhancement of climate and paleoclimate research.

It was also agreed to explore a collaborative agreement with Future Earth.

Decisions and Actions:

- A15. Organize a consultation meeting with key partners on the new Strategic Plan, focused on partnership and plans for collaborative implementations relating to the “SP’s Objectives vs Components” (D/WCRP, ED/Future Earth, Chair/Vice-chair JSC, Anny Cazenave, etc.) (JPS in consultation with JSC Officers / SP writing team, June 2018).**
- A16. Conduct a mapping potential partners vis-à-vis New SP (connected to an action under SP and IP) (JSC (Helen Cleugh to lead, participated with Tom Peter & Amanda Lynch) with JPS assistance, September 2018).**
- A17. Renew MoU with PAGES (JPS with JSC’s advice, ASAP).**
- A18. Explore an extended collaborative agreement with Future Earth JPS with JSC’s advice, ASAP).**

9.2. WCRP Regional Office

The JSC noted with satisfaction the progress in identifying institutional support for coordinating WCRP regional activities, based on the recommendations and decisions at the previous session. Through an open call and assessment (by a task team within the JSC), a joint centre for WCRP regional activities coordination (Germany and Norway) was agreed to be established in the second half of 2018, to be active from January 2019 for three years as an initial

implementation. This joint centre will focus on supporting the JSC to develop opportunities, resources and partners to promote WCRP messages on regional climate science; to stimulate, support, and synergize regional activities within WCRP in cooperation with all WCRP bodies; and to and identify opportunities for cross-regional collaborations for the climate science community in regions.

Decisions and Actions:

- A19. [Decision/Endorsement] Approve the proposal on a joint establishment of regional coordinator following the regional scoping (2016) (JSC).**
a. To invite two hosts (GERICS & Bjerknes Center) to JSC-40 to report on plans (JPS, JSC-40).

9.3. Approval and endorsement of projects

It was determined that there should be a general guideline and/or set of criteria by which the JSC can approve or endorse projects.

Decisions and Actions:

- A20. [Decision/Endorsement] JSC decided that the approval/endorsement of projects should be based on JSC consideration on; 1) the relevance to the (new) SP; 2) (financial/in-kind) contribution to the SP implementation and to the WCRP community, and; 3) exemplary cases for the general WCRP implementation / best practices (JSC).**

9.4. Stability of International Project Offices

It was recognized that the time needed to determine an Implementation Plan and transition to a new structure could lead to uncertainty for the International Project Offices (IPOs) and their current and potential future hosts. The JSC made it clear that these IPOs will continue to be fundamental to WCRP in the future structure of the Programme and any changes to the mandate of the IPOs will be in full consultation with the host organizations.

Decisions and Actions:

- A21. JSC to issue a message/statement (targeting the sponsors/hosts of the IPOs) to advise the direction of the new SP, emphasizing the importance of the IPOs (of all CPs and CORDEX, S2S) as fundamental infrastructure of WCRP, and describing the need to continue/extend support for the IPOs through the implementation period of the new WCRP SP (JSC with JPS' assistance, June 2018).**

9.5. WCRP bodies' group membership

The JSC reviewed the guidelines on membership of WCRP bodies and discussed ways to ensure a transparent, accountable and effective procedure that could help the WCRP community to be fully engaged in the international science coordination. It approved the new procedure, as reproduced in Annex 4.

Decisions and Actions:

- A22. [Decision/Endorsement] Approve the new guidelines on membership of WCRP bodies (JSC).**
a. All the current WCRP bodies - CP SSGs, WGs, etc. – and future bodies to follow the new guidelines on membership of WCRP bodies from the nomination for 2020 membership.

9.6. JSC and Core Project membership

The JSC reported that its membership will face major changes at the end of 2018, as twelve members out of eighteen have completed more than two terms and were anticipated for rotation. The JSC noted that the open call for positions on the JSC resulted in 74 nominations. The JSC agreed to work further to provide advice to co-sponsors' on their deliberation in relation to the 2019 JSC membership.

9.7. Finances

Dr. Deon Terblanche (WCRP Acting Director) presented the summary of WCRP's Joint Climate Research Fund (JCRF) for 2017, 2018 and proposed targets for 2019 and 2020. He stressed that according to the MOU on WCRP (1993), budget estimates for WCRP activities in the following biennium should be prepared by the JSC, and submitted for approval to the executive bodies of WMO, IOC and ICSU. The JSC discussed the general budget situation and projection, and stressed that substantial deliberation would be required in the context of the new WCRP Implementation Plan.

Decisions and Actions:

- A23. [Decision/Endorsement] JSC approved 2017 budget report as submitted. Approved the proposed 2018 budget as narrative. Approved the proposed 2019/2020 categories, with modification, and decided to further deliberate on the budget requirements (JSC).**
- a. JPS to prepare a draft (as part of the new IP) of financial aspects on 1) in support of transition, and 2) budget requirements and implications upon each category, adding a 'conference budget', aligned with WMO and co-sponsors' budget processes, and; 3) current and projected national contributions toward JCRF as well as CPs/activities (JPS, July 2018).
 - b. JPS, in coordination with the Core Projects IPOs, to provide detailed information/report on the budget vis-à-vis approved budget allocations (IPOs, Before end'18 and annually).
- A24. Initiate discussion with ESA, European Commission and/or other relevant partners regarding how to improve funding for science (particularly associated with investments to satellite borne observations) (JPS with advice from JSC and WDAC, before JSC-40).**
- A25. Initiate discussions with national partners and contributors to improve/extend funding and collaborative activities (D/WCRP (D/RES) with JSC's advice, before JSC-40).**

9.8. WCRP Open Science Conference

Plans were discussed for a WCRP Open Science Conference. It was stressed that WCRP leadership was important not only to demonstrate its 40 years' achievements but also to advocate the new directions for climate research in coming decade. At the same time the JSC strongly emphasized the importance of partnerships with WWRP and other research programmes. It was stressed that a two-year lead up to such a large conference would be needed for organization. The ad hoc team developing the WCRP Open Science Conference is Jens C. (lead), Helen C, Martin V., In-Sik K, with YESS involvement and JPS support.

Decisions and Actions:

- A26. Initiate organization of an Open Science Conference (Jens C. (lead), Helen C, Martin V., In-Sik K, with YESS involvement and JPS support, by JSC-40).**

- a. Develop a timeline and outline of the Conference (possibly in 2020 in consultation with the Community and key partners).**
- b. Decide a scope: Sharing new, forward-looking WCRP vision and exploring partnerships with others.**

9.9. Plans for the JSC-40 Session

The JSC agreed that the 40th Session of the Joint Scientific Committee would take place at WMO Headquarters in Geneva, Switzerland, in order to engage partners and contributors in the sessional discussions to the maximum extent. At least half a day should be reserved for JSC-only discussions prior to and after the Session. It was also determined that at JSC-40, more time would need to be made for discussions as opposed to presentations, as it would be focused on how best to implement the WCRP Strategic Plan.

Decisions and Actions:

A27. [Decision/Endorsement] JSC-40 in Geneva, April 2019.

- a. Organize 0.5-day JSC-only (executive) meetings before and after the main session (JPS, JSC-40).**

10. Closing

The 39th Meeting of the WCRP Joint Scientific Committee was closed at 18:00 on Wednesday 18 April 2018. All participants remained for the Scientific Workshop, which took place all day on Thursday 19 April 2018. JSC members held a JSC-only session for the discussion of strategic issues in the morning and early afternoon of 20 April 2018.

Annex 1: JSC-39 agenda

	Monday, 16 April	Tuesday, 17 April	Wednesday, 18 April	Thursday, 19 April	Friday, 20 April
09:00 -10:30	09:00 Opening (Chinese Host rep. Co-Sponsors reps JSC Chair) 09:30 Vision & Setting (JSC Chair/Officers)	09:00 Report back from WGs on relevance to SP (by JSC leads and rapporteurs. Reporting 15 min.max) 9:30 Reports by Core Projects and CORDEX (30 min.each) CORDEX SPARC	09:00 Report back from GCs on relevance to SP (by JSC leads and rapporteurs. Reporting 15 min.max) 09:30 WDAC Report (20 min.) 09:50 WMAC Report (20 min. telecon) 10:10 WMO Strategy 2030 and Strategic Re-alignment	08:30 – 18:00 Scientific Workshop	(JSC and JPS only) 09:00 – 09:45 JSC-only meeting 09:45 JSC-JPS Follow-on to JSC-38 decisions/actions Requirements for JSC membership etc.
10:30 -11:00 Break					10:30 -11:00 Break
11:00 -12:30	11:00 Summary of Review recommendations (Co-sponsors, 10 min) 11:10 Overview of draft new WCRP Strategic Plan (JSC Chair/Vice-chair, 20 min) 11:30 WCRP SP Session 1: <i>How well are the science-related recommendations embedded in the co-sponsors review reflected in the draft Strategic Plan?</i>	11:00 Reports by Core Projects and CORDEX (cont'd.) (30 min. each) GEWEX CLIVAR CLIC	11:00 YESS Report 11:30 Summary and decision on the next steps for New Strategic Planning		11:00 Business Finances Partnerships Information
12:30 -14:00 Lunch Break					12:30 -14:00 Lunch Break
14:00 -16:00	14:00 WCRP SP Breakout sessions: Overarching Themes Emphases	14:00 Report back from CPs+CORDEX on relevance to SP (by JSC)	14:00 WCRP Implementation Steps (JSC Chair)		14:00 JSC-JPS meeting (if required)

	Monday, 16 April	Tuesday, 17 April	Wednesday, 18 April	Thursday, 19 April	Friday, 20 April
	Imperatives Regions 15:30 Report back to Plenary	leads and rapporteurs. Reporting 15 min.max) 14:30 Partners' Reports (15 min. each) GCOS WWRP GAW PAGES 15:30 Grand Challenges Reports (15 min. each) GC-Sea Level GC-Food Baskets	14:30 Breakout Discussions: <i>Implementation Step & draft Implementation Plan</i>	(18:30 reception at the Jinling New Town Hotel)	
16:00 -16:30 Break					
16:30 -18:00	16:30 Working Groups Reports (20 min. each) WGNE via telecon WGNE WGCM WGSIP S2S	16:30 Grand Challenges Reports (cont'd. 15 min. each) GC-Extremes GC-Ice GC-Cloud (telecon) GC-NTCP (telecon) GC-Carbon (telecon)	16:30 Report back to Plenary: <i>Implementation Step & draft Implementation Plan</i> 17:00 Summary of Implementation Plan Aspects 17:30 JPS report 18:00 closing of the open JSC meeting		

JSC lead, rapporteurs, and presenters may organize working sessions in the following time slots to produce 1 pager ppt summarizing relevant points for the new WCRP Strategic Plan:

- Monday evening (after the WG reports)
- Tuesday lunchtime (after the Core Projects and CORDEX reports)
- Tuesday evening (after the Grand Challenge reports, and after the Partners' reports)
- Wednesday morning break (after the Advisory Councils' reports)
- Wednesday lunchtime (to prepare the report for final approval)

Possible side meetings on Thursday 19 April:

- High-level meeting on national/regional contribution to WCRP
- Discussion on strategic plan / implementation plan

Annex 2: JSC-39 List of participants

JSC Members

Prof. Guy P. Brasseur (Chair)
Max Planck Institute for Meteorology
Bundesstr. 53
D 20146 Hamburg
Germany
Tel: +49 40 41173209
Mobile: +49 171 2876106
E-mail: gpbrasseur@gmail.com
guy.brasseur@mpimet.mpg.de

Prof. Amanda Lynch (Vice-chair)
Director, Institute at Brown for
Environment and Society
Department of Earth, Environmental and
Planetary Sciences
Brown University
Providence, Rhode Island 02912
USA
Tel: +1 401 863 3032
E-mail: amanda_lynch@brown.edu

Dr Anny Cazenave (officer)
Laboratoire d'Etudes en Géophysique et
Océanographie Spatiales (LEGOS)
Centre National d'Etudes Spatiales (CNES)
18 av. Edouard Belin
31401 Toulouse Cedex 9
France
Tel: +33 5 61 33 29 22 (office)
E-mail: anny.cazenave@legos.obs-mip.fr
anny.cazenave@gmail.com

Prof. Hong Liao (officer)
School of Environmental Science and
Engineering
Nanjing University of Information Science
& Technology
Nanjing 210044
China
Tel: +86 25 58731371
E-mail: hongliao@nuist.edu.cn

Prof. Mauricio M. Mata (officer)
Institute of Oceanography
Federal University of Rio Grande (FURG)
Rio Grande, RS
Brazil 96203-900
Tel: +55 53 32336861
E-mail: mauricio.mata@furg.br
mauricio.m.mata@gmail.com

Prof. Martin Visbeck (officer)
Physikalische Ozeanographie GEOMAR
Helmholtz-Zentrum für Ozeanforschung
Kiel und Christian- Albrechts
Universität zu Kiel
Duesternbrooker Weg 20
24105 Kiel
Germany
Tel: +49 431 6004100
E-mail: mvisbeck@geomar.de

Prof. Jens Hesselbjerg Christensen
The Niels Bohr Institute
University of Copenhagen
Juliane Maries Vej 30
DK-2100 Copenhagen Ø
Denmark
Tel: +45 39157428
E-mail: hesselbjerg@nbi.ku.dk
Dr Helen Cleugh
CSIRO Climate Science Centre
GPO Box 1700, ACT 2601
Australia
Tel: +61 2 62818246
E-mail: helen.cleugh@csiro.au

Prof. In-Sik Kang
School of Earth Environment Sciences
Seoul National University
Seoul 151-742
Republic of Korea
Tel: +82 10 5388 6718
E-mail: insik.kang1@gmail.com

Prof. Masahide Kimoto
Atmosphere and Ocean Research
Institute
The University of Tokyo

5-1-5, Kashiwanoha, Kashiwa-shi
Chiba 277-8568
Japan
Tel: +81 4 71364386
E-mail: kimoto@aori.u-tokyo.ac.jp

Mr Rodney Guillermo Martínez Güingla
Centro Internacional para la Investigación
del Fenómeno de El Niño (CIIFEN)
Escobedo 1204 y 9 de Octubre
PO Box 09014237
Guayaquil
Ecuador
Tel: +593 4 2514770
E-mail: r.martinez@ciifen.org

Dr Carlos Nobre
Rua Joao Justo Pereira, 80
Sao Jose dos Campos 12244-590
Brazil
Tel: +55 12 99666-2758
E-mail: cnobre.res@gmail.com

Prof. Thomas Peter
Chair, Department of Environmental
Systems Science
ETH Zurich, Institute for Atmospheric and
Climate Science
Universitatstrasse 16, CHN O12.1 CH-8092
Zurich
Switzerland
Tel: +41 44 6332756
E-mail: thomas.peter@ethz.ch

Dr James Renwick
Professor of Physical Geography School of
Geography, Environment and Earth
Sciences
Victoria University of Wellington
VUW Kelburn
New Zealand
Tel: +64 4 4634719
E-mail: james.renwick@vuw.ac.nz
(also co-chair for CliC)

Prof. Soroosh Sorooshian
Director, Center for Hydrometeorology and
Remote Sensing (CHRS)
Engineering Hall (Building #308)
Suite 5300
University of California, Irvine E-4130
Engineering Gateway

Irvine, CA 92697-2175
USA
Tel: +1 949 824 8825
E-mail: soroosh@uci.edu

WCRP International Project Office Chairs and Directors

CliC

Mr Lawrence Hislop
Director
Norwegian Polar Institute
CliC International Project Office
Fram Centre
Postbox 6606 Langnes
9296 Tromsø
Norway
Tel: +47 48 500514
E-mail: lawrence@climate-cryosphere.org

Dr James Renwick
Professor of Physical Geography School of
Geography, Environment and Earth
Sciences
Victoria University of Wellington Cotton
206, VUW Kelburn
New Zealand
Tel: +64 4 4634719
E-mail: james.renwick@vuw.ac.nz

CLIVAR

Dr Jose Luis Santos
Executive Director
International CLIVAR Project Office
State Oceanographic Administration
First Institute of Oceanography
6 Xianxialing Road
Qingdao 266061
P.R. China
Tel: +86 5328889
E-mail: jose.santos@clivar.org

Dr Annalisa Bracco
Co-chair, CLIVAR Scientific Steering Group
School of Earth and Atmospheric Science
Georgia Institute of Technology
311 Ferst dr.
Atlanta GA 30332
USA
Tel: +404 8941749
E-mail: abbracco@gatech.edu

Dr Detlef Stammer
Co-chair, CLIVAR Scientific Steering Group
Oceanography and Remote Sensing of the
Earth System
Director, Center für Erdsystemforschung
und Nachhaltigkeit - CEN
Universität Hamburg KlimaCampus
Hamburg Bundesstr. 53
20146 Hamburg
Germany
Tel: +49 40 428385052
E-mail: detlef.stammer@uni-hamburg.de
(also Grand Challenge leader for Regional
Sea-level Change and Coastal Impacts)

GEWEX

Dr Peter J. Van Oevelen
Director, International GEWEX Project
Office 425 Third St. SW
Suite 605
Washington DC 20024
USA
Tel: +1 202 527 1827
E-mail: gewex@gewex.org
(also Grand Challenge leader for Water
Availability)

Dr Graeme Stephens
Co-Chair, GEWEX Scientific Steering
Group JPL
California Institute of Technology
4800 Oak Grove Drive
Pasadena, CA 91011
USA
Tel: +818 3931176
E-mail: graeme.stephens@jpl.nasa.gov

SPARC

Dr Mareike Kenntner
Coordinating project scientist
SPARC International Project Office
Deutsches Zentrum für Luft- und Raumfahrt
Institut für Physik der Atmosphäre
Münchener Str. 20
D-82234 Weßling
Germany
Tel: +49 8153 28 1597
E-Mail: sparc-office@dlr.de

Dr Neil Harris
Co-chair, SPARC Scientific Steering Group
Centre for Environmental and Agricultural
Informatics
Cranfield University
College Road
Cranfield MK43 0AL
United Kingdom
Tel: +44 (0) 1234 758155
E-mail: Neil.Harris@cranfield.ac.uk

CORDEX

Dr Irene Lake
Director, International Project Office for
CORDEX (IPOC)
SMHI / Swedish Meteorological and
Hydrological Institute
Folkborgsvägen 17
SE - 601 76 NORRKÖPING
Sweden
Tel: +46 (0)11 495 83 19
E-mail: irene.lake@smhi.se
ipoc@cordex.org

Dr William J. Gutowski, Jr.
Co-chair, CORDEX Science Advisory Team
3021 Agronomy Hall
Dept. of Geological & Atmospheric
Sciences
Dept. of Agronomy Iowa State University
Ames, Iowa 50011-1010
USA
Tel: +1 515 294 5632
Email: gutowski@iastate.edu

Grand Challenge leaders

Melting ice and Global Consequences

Dr Gregory Flato
Canadian Centre for Climate
Modelling and Analysis
Environmental Canada
c/o University of Victoria
P.O. Box 1700
V8W 2Y2 Victoria
Canada
E-mail: greg.flato@canada.ca

Climate Extremes

Dr Xuebin Zhang
Climate Research Division
Environment Canada
4905 Dufferin St
Toronto, ON M3H 5T4
Canada
E-mail: xuebin.zhang@canada.ca

Regional Sea-level Change and Coastal Impacts

Dr Detlef Stammer
Oceanography and Remote Sensing of the Earth System
Director, Center für Erdsystemforschung und Nachhaltigkeit - CEN
Universität Hamburg KlimaCampus
Hamburg Bundesstr. 53
20146 Hamburg
Germany
Tel: +49 40 428385052
E-mail: detlef.stammer@uni-hamburg.de

Water for the Food Baskets of the World

Dr Jan Polcher
Laboratoire de Météorologie Dynamique du CNRS
Tour 25, 5eme étage, Case 99
4 pl. Jussieu,
75252 PARIS cedex 05
France
Tel: +33 1 44274763
E-mail: Jan.Polcher@lmd.jussieu.fr

Advisory Council leaders

Dr Jean-Noël Thépaut
Co-chair WDAC
Head Copernicus Climate Change Service
ECMWF, Shinfield Park
Reading, Berkshire, RG2 9AX
United Kingdom
E-mail: jean-noel.thepaut@ecmwf.int

Working Group Chairs

Dr William Merryfield
Co-chair WGSIP
Canadian Centre for Climate Modelling and Analysis
Environment and Climate Change Canada
c/o University of Victoria

P.O. Box 1700
V8W 2Y2 Victoria, BC
Canada
E-mail: bill.merryfield@canada.ca

Dr Gregory Flato
Co-chair WGCM
Canadian Centre for Climate Modelling and Analysis
Environment and Climate Change Canada
c/o University of Victoria
P.O. Box 1700
V8W 2Y2 Victoria BC
Canada
E-mail: greg.flato@canada.ca

Dr Andrew Robertson
Co-chair S2S
International Research Institute for Climate Society (IRI)
Columbia University
Palisades, NY 10964
USA
E-mail: awr@iri.columbia.edu

Sponsors

Dr Elena Manaenkova
Deputy Director-General
World Meteorological Organization
7 bis, avenue de la Paix
Case Postale 2300
CH-1211 Geneva 2
Switzerland
Tel: +41 22 7308300
E-mail: emanaenkova@wmo.int

Other Invitees / Agencies

Dr Jack Kaye
Associate Director for Research of the Earth Science Division (ESD)
Science Mission Directorate (SMD)
National Aeronautics and Space Administration (NASA)
300 E Street Southwest
Washington, DC 20546

USA
Tel: +1 202 3582559
E-mail: jack.kaye@nasa.gov

Dr Wayne Higgins
Director
NOAA Climate Program Office
1315 East-West Hwy, SSMC-3, Rm 12124
Silver Spring, MD 20910
USA
E-mail: wayne.higgins@noaa.gov

Dr Jin Huang
NOAA Climate Program Office
1315 East-West Hwy, SSMC-3
Silver Spring, MD 20910
USA
E-mail: jin.huang@noaa.gov

Dr Guiling Zhang
Representing SOLAS
China
E-mail: guilingzhang@ouc.edu.cn

Dr Marie-France Loutre
Executive Director, PAGES - Past Global
Changes
International Project Office
Falkenplatz 16
3012 Bern
Switzerland
Tel: +41 31 631 56 08
E-mail: marie-
france.loutre@pages.unibe.ch

Mr Victor Dike
Representing YESS
China
E-mail: asldikvin@yahoo.com

WMO Commissions

Dr Oystein Hov
President CAS
University of Bergen
Department of Meteorology
Allegaten, 70
Bergen

Norway
E-mail: oystein.hov@met.no

Dr Greg Carmichael
Chair CAS
EPAC Scientific Steering Committee
University of Iowa
USA
E-mail: gregory-carmichael@uiowa.edu

Prof. Michael Morgan
Representative WWRP
University of Wisconsin - Madison
Department of Atmospheric and Oceanic
Sciences
1225 West Dayton Street Madison
WI 53706
USA
E-mail: mcmorgan_at_wisc.edu

WMO Secretariat

7bis avenue de la Paix
CH-1211 GENEVA
Switzerland

Dr Deon Terblanche
Director, Research Department
E-mail: dterblanche@wmo.int

Dr Pavel Kabat
Director general and Chief Executive
Officer
International Institute for Applied Systems
Analysis (IIASA)
Schlossplatz 1
A-2361 Laxenburg
Austria

and

Incoming Director, Research Department
E-mail: kabat@iiasa.ac.at

Dr Carolin Richter
Director, GCOS Secretariat
E-mail: crichter@wmo.int

WCRP Joint Planning Staff



WMO
7bis avenue de la Paix Ch-1211 GENEVA
Switzerland

Dr Boram Lee
Senior Scientific Officer
E-mail: blee@wmo.int

Dr Michel Rixen
Senior Scientific Officer
E-mail: mrixen@wmo.int

Dr Mike Sparrow

Senior Scientific Officer
E-mail : msparrow@wmo.int

Ms J. Potter
Administrative Assistant
E-mail: jpotter@wmo.int

Dr Narelle van der Wel
Consultant
E-mail: nvanderwel@wmo.int

Annex 3: Summary of discussion on WCRP Strategic and Implementation Plans

The following is an overview of discussions of members of the WCRP community and partners on the WCRP Strategic and Implementation Plans. It should be viewed as a consultation and exchange of ideas, rather than the eventual content of either of the plans. The JSC will take this discussion, alongside the upcoming public consultation of the Strategic Plan, into consideration in the development and finalization of both plans.

A3.1 Discussion on the WCRP Strategic Plan: Monday 16 April 2018

The Monday Session began with Professors Guy Brasseur (JSC Chair) and Amanda Lynch (JSC Vice-Chair) introducing the vision, mission and main elements of the WCRP Strategic Plan 2019-2029. An open discussion followed, beginning with how to get broader community support for the Strategic Plan. Amanda Lynch confirmed that the Strategic Plan will take 2-3 years to implement and Dr. Wayne Higgins (NOAA Climate Program Office) highlighted the importance of defining where the Programme is going in order to get there. Professor Soroosh Sorooshian (JSC Member) stated that it is very important for the WCRP leadership to clarify what the role of WCRP projects will be in the future, so that funding can be established. Mr. Rodney Martínez Güingla (JSC Member) went on to say that we need to take care of finances at the start to ensure that the Strategic Plan can be implemented. He highlighted that more efficient partnerships with the internal and external community are key and noted that regions and climate services are the entry point to funding, which is crucial to the sustainability of the Programme.

There was a general discussion about changing the organizational structure of WCRP, including how the proposition was made before (7-8 years ago) and was not supported by the community. Professor Thomas Peter (JSC Member) reminded the session that at that time a questionnaire to the Core Projects found that they were happy with the structure, which contrasts with recommendations of the recent WCRP review. Dr. Graeme Stephens (Co-Chair, GEWEX Scientific Steering Group) commented that the review was talking about the Programme as a whole being too unwieldy. Professor Guy Brasseur reiterated that first we need to identify what science objectives we want to do and then we will see if our current structure will address them.

As well as WCRP community discussions, Professor Guy Brasseur asked key partners for their views on the draft Strategic Plan and on how their organizations would use it. Dr. Øystein Hov (President CAS) found that the Strategic Plan made a lot of sense, with the objectives being logical and helpful and the plan very much in line with WMO. He stated that joint goals are not independent of the world around us, and that it is no longer 'science to service', but rather 'science for services'. Dr. Greg Carmichael (Chair GAW) also found the draft Strategic Plan valuable and stated that GAW was very much about developing measurement and observing systems — areas where we need to pin the science down. Professor Michael Morgan (representing WWRP) could see linkages and exciting opportunities between WWRP and WCRP in the Strategic Plan and supported an integrated approach of 'science for services'.

Professor Guy Brasseur then asked community leaders about whether or not they were comfortable moving from the previous WCRP mission to the new one and to the four Overarching Objectives that concentrate on fundamental processes that are not well understood and also connecting to services and regional elements that were not previously part of WCRP strategy. Professor Soroosh Sorooshian supported the proposed way forward, but cautioned that there needs to be a limit to growth by way of sunset dates for projects. Professor

Guy Brasseur confirmed that all future projects would need sunset dates, with reapplication possible.

Dr. Wayne Higgins brought up the subject of stakeholders, as changes in the stakeholder community equate to changes in capabilities. He highlighted the need for WCRP to articulate the unique values of the Programme and then convene the community around key issues versus doing the science. Professor Martin Visbeck (JSC Officer) reminded the Session that WCRP was created because understanding climate and human impact on it was something that no nation could do alone. He stated that WCRP should focus on things that cannot be done at a national level, including things at a regional level that cannot be done without a world level programme. Dr. Jan Polcher (Grand Challenge on Water for the Food Baskets of the World) countered that not all nations can do basic climate sciences or have climate sciences to advise them.

Dr. Gregory Flato (Co-chair WGCM) moved the discussion to partnerships, stating that we need to keep big stakeholders such as UNFCCC, IPCC (the link to CMIP is highly visible), including the 5-year Global Stocktake where the Parties will be measuring progress of the Paris Agreement making them consumers of WCRP products. Professor Guy Brasseur added that the research community is also a stakeholder, as we need to connect researchers worldwide to do things like improve models. Professor Martin Visbeck highlighted IPCC as an important stakeholder, and also the Global Framework for Climate Services (GFCS), with the work WCRP does on seasonal forecasting. The NOAA representatives noted the expected growth in the need for information to support services.

There was then much discussion regarding the Strategic Plan Emphases. A summary of the concerns is that the current version did not map well to the Overarching Objectives, that it was perhaps too explicit to link to the Implementation Plan and that it was a fall back on the current structure - the components of the Earth system. Dr. Jack Kaye (NASA) said that he understood that people need to have a home, which is what the Emphases give, but that systems science can't be defined this way. It is important to consider that the arrows in the climate system point both ways. Suggestions for improvement included rewriting or removing the Emphases section. Dr. Annalisa Bracco (Co-chair, CLIVAR Scientific Steering Group) stated that the two things in the Emphases section that must stay are the flow of energy and carbon and the regional effort. Professor Guy Brasseur added that the importance of spatial and temporal scales must also be retained. Dr. Helen Cleugh (JSC member) supported reframing the Emphases section as a bridge to the Implementation Plan.

The conversation then moved to the future structure of WCRP. Professor In-Sik Kang (JSC Member) stated that it might be difficult to incorporate the recommendations of the WCRP review. Dr. Peter van Oevelen (GEWEX Director) said that while we can separate the scientific structure with how we do things, there needs to be a discussion on how to do this in a new framework, with a support structure and finances. Dr. Helen Cleugh stated that we need a structure and operating model that is fit for purpose to our goals and objectives. Professor Guy Brasseur confirmed that financial support could be more strongly stated in Section 7 of the Strategic Plan.

Professor Guy Brasseur then turned the discussion to regional aspects. Dr. Jan Polcher commented that there were links between global processes and local scale feedbacks. Professor Martin Visbeck highlighted three areas where WCRP can contribute in regions: global aspects that impact on regions, where the regions have no capacity to look at this; regional capabilities; technical aspects that can be applied in regions and the world and possibly communicating information practices, but maybe this is more the work of GFCS. Dr. William (Bill) J. Gutowski, Jr. (CORDEX Co-chair) suggested 2-way communication with GFCS, since there are impacts of human activities on a regional scale and regional hotspots have

global implications. Dr. Neil Harris Co-chair (SPARC Scientific Steering Group) agreed, but cautioned that there is a limit to what we can do on regional scales due to regional atmospheric variability. Dr. William (Bill) Merryfield (WGSIP Co-chair) said that we can expand on seasonal sources of information and their interpretation. Mr. Rodney Martínez Güingla outlined that there are many relevant connections, where the GFCS research component could become more prominent and formal. We need greater emphasis on how we become relevant to countries and regions. Dr. Andrew Robertson (S2S Co-chair) pointed out that there is lots of science involved in the post processing of model output related to forecast systems, which is relevant at a user and regional level. Professor Martin Visbeck agreed that regions are an engagement opportunity for the entire Programme, particularly in relation to funding. Better (more formal) integration with GFCS would be welcome. Dr. Gregory Flato pointed out that IPCC is focusing more on regions, with the Regional Atlas and IPCC and Regions. The recognized importance of regional aspects led to a fourth break out group being formed during the Monday afternoon session.

A3.2 Discussion on the WCRP Implementation Plan: Wednesday 18 April 2018

On Wednesday 18 April there was a dedicated discussion on the implementation of the Strategic Plan. This began with a discussion on the time frame of the Implementation Plan. It was decided that the Implementation Plan should be 10 years because we may not have the resources to review it again in 5 years and the transition to a new structure will take a number of years to implement.

Dr. Anny Cazenave (JSC Officer) pointed out that as a first step to implementation we need to evaluate whether the Core Projects respond to the Strategic Plan objectives. Dr. Graeme Stephens stated that if we do not have the Core Projects, then we do not have a strategic approach. Prof. Amanda Lynch highlighted that WWRP kept the same structure, but built a layer on top. Dr. Detlef Stammer (Co-chair, CLIVAR Scientific Steering Group) stated that the Core Projects keep the community together in a home. He stated that there needs to be a role in the new structure such as the Core Projects have right now, with no sunset date.

Professor Amanda Lynch put forward that there is a spectrum: on one end we make four new Core Projects based on the Overarching Objectives and at the other end you ask the Core Projects how they will arrange themselves to address the Overarching Objectives; or, somewhere in the middle. It would be unwise to pull the Core Projects apart, so how can we adjust them? Dr. Detlef Stammer responded that he is not sure about the new structure and that it needs time to be developed. Mr Rodney Martínez Güingla thought that it would be best to keep the Core Projects, but find mechanisms to integrate them. Professor Amanda Lynch suggested a more regular science conference. Dr. Graeme Stephens recommended to have a structure built around the work, rather than the reporting.

Professor Jens Christensen pointed out that there is lots of disciplinary research that we have to respect - this is a benefit of our current structure. The shift to interdisciplinary is slow. Dr. Anny Cazenave cautioned that we need to respond to the Overarching Objectives, or they will not work. Professor Amanda Lynch added that then the funding lever would not work outside of WCRP. Dr. Graeme Stephens added that a lack of funding will lose the goodwill built up over decades. Dr. Detlef Stammer stated that a strong link with Programme Managers is needed.

A question was asked as to how we meet the Overarching Objectives if we do not change the Core Projects? Professor Amanda Lynch asked why we need seven groups for modelling and whether it is working, as she had heard that it could be improved. Dr Jin Huang (NOAA) suggested one big group with different competencies. Dr. Michel Rixen (JPS) said that there

are historical reasons for the current structure, but maybe in the future structure a more seamless approach is needed. Dr. Detlef Stammer pointed out that multiple groups define their own science (plans).

Professor Amanda Lynch asked if modelling needs to be in one group or embedded in other groups. In the WMAC report it was said that they cannot oversee all the activities. Maybe they do not need to? Dr. Michel Rixen (JPS) agreed that WMAC does not need to manage every modeling effort but rather provide high level guidance on those issues. Dr. Graeme Stephens outlined that model development is what WCRP can bring to the table. Do we need to do the other modelling? Modelling centres do this work anyway.

Dr. Jack Kaye stated that the Core Projects can be separate from targeted short-term activities (perhaps some longer fieldwork campaigns). It was suggested that perhaps the Core Projects can evolve over time and the Grand Challenges, because they are short term foci, can be managed by one Core Project. Dr Jin Huang from NOAA said that they support research to improve modelling, predictions and applications. It is better to link observations to modelling and keep the structure as simple as possible, so we know who to talk to.

Annex 4: Guidelines on membership of WCRP Bodies

Approved at the JSC-39 session, 20 April 2018

Goal:

- To set in place a transparent, accountable and effective procedure that honours the commitment and contribution of volunteering individuals
- To ensure balanced and effective scientific advisory bodies taking into account all values for international science coordination
- To align WCRP decision making processes with the approval and endorsement cycles of the WCRP co-sponsors as well as those of the key partners

Lengths of appointment:

- Initially 4 years, up to two 2-year extensions possible.
- When moving up to chair/co-chair the clock is reset.
- For an outgoing chair a 1-year extension as a panel member is possible.

Review and approval cycle by JSC: every year alongside with the annual JSC sessions

Timeline (in the year of JSC review and approval):

- -9 months (of JSC session): SSGs/WGs publish an open call for available slots in the respective groups (for 4 months). The result from this call needs to be documented.
- -3 months: all WCRP working bodies (either through their dedicated coordination office or directly from the current co-chairs/leaders) send JPS and respective liaison member of JSC nominations for members to be renewed/extended/stepping down, with documentation of the results from the call, and when possible two candidates for each slot (a primary and an alternative). Reasons for a ranking or the impossibility to find an alternate should be briefly stated.
- -3 to -1 months period: consultation of the nominations (e.g. by teleconference) among JSC liaisons, respective bodies' leaders and JPS to arrive at a balanced proposal.
- -1 month: JPS submits a consensus summary document to JSC Officers, which provides nominations and associated information required for JSC review and endorsement.
- 0 month (JSC session): JSC decision/endorsement/recommendation.
- Before/up to +3 month: JPS issues all membership letters (invitation, extension, separation).

Documentation:

- -1 month: Letter from WCRP working bodies' leadership explaining the current situation and the reasons for the proposed slate.
- -1 month: WCRP working bodies send CVs in standardised form for the proposed members and the alternates.
- -0.5 month: JPS produces a summary table, including:
Name; Gender; Year of PhD obtained; Affiliation, Country; Citizen Country; Expertise; Member since & until (year); Membership recommendation; with statistics per group/body of: Gender, Year of PhD obtained, and region of origin.

Template for nomination:

Nomination for [Appointment/Extension] Nominated for:

As:

1. DETAILS OF CANDIDATE NOMINATED
 - Title:
 - First Name:
 - Last Name:
 - Gender:
 - Year of birth:
 - Year of PhD (or the final academic degree) obtained:
 - Nationality (citizenship):
 - Residing country:
 - Main working languages:
 - Affiliation:
 - Postal address:
 - E-mail Address:
 - Telephone:
 - Nominee's professional homepage or website:
2. MEMBER SINCE & UNTIL (year, in case of extension)
3. Expertise vis-à-vis the role of the [WCRP body](maximum of 8 lines):
4. Academic Background (maximum of 8 lines):
5. Positions held (maximum of 8 lines):
6. 5 most relevant publications
7. Why is this individual particularly suited to this [WCRP body]? (maximum of 5 lines)
8. Submitted by
 - Title:
 - First Name:
 - Last Name:
 - Organization:

[Name of the WCRP body]

[role of the nominated person, e.g., co-chair, member...]

Annex 5: Actions and decisions from JSC-39

Agenda / issues	ACTION	By/responsible	Deadline
SP	<p>A1. [Decision/Endorsement] JSC reaffirmed and agreed on the vision, mission and Overarching Objectives of the new WCRP SP</p> <p>A2. Compile the SP draft 8 incorporating all comments from the WCRP groups and community & results of JSC-39 deliberation</p> <ul style="list-style-type: none"> a. Incorporate the issue of composition and radiative forcing b. Update text based on discussion held at JSC e.g. update Emphasis Section (including figures). c. Demonstrate stronger connection between science (current O1-O3) and society/policy (current O4); e.g., climate and carbon feedbacks for the Paris Agreement, decadal predication (climate/carbon) for global stocktake, SDGs, etc. <p>A3. Document and share with all JSC “what’s new in the SP (after JSC_39)”</p> <p>A4. (Adjustment of SP schedule) Proceed with the public consultation, including engagement with key partners and organizations, taking into account discussions held during the JSC</p> <p>A5. Explore possible organization of an AGU side event on the new WCRP SP</p>	<p>JSC</p> <p>JSC/Writing Team</p> <p>JSC/Writing Team</p> <p>JSC/Writing Team with JPS support</p> <p>JPS with JSC input</p>	<p>Done</p> <p>May’18 (before the public consultation)</p> <p>ASAP</p> <p>June-August’18</p> <p>ASAP and before Dec’18</p>
IP	<p>A6. Develop a timeline to complete the IP 2019-2029</p> <p>A7. Coordinate mapping exercise (based on the JSC-39 breakout discussions) among the elements of the Strategy, Implementation Plan and the roles of WCRP groups/activities therein</p> <p>A8. Incorporate further clarification/emphasis in the new SP/IP to address science advances, and provide umbrella to address new science questions (including new questions triggered from GCs) in the coming implementation period</p>	<p>JPS with input from JSC/Writing team</p> <p>JPS in consultation with JSC/Writing Team</p> <p>JSC/Writing Team</p>	<p>ASAP</p> <p>ASAP and before end of June’18</p> <p>ASAP</p>

Agenda / issues	ACTION	By/responsible	Deadline
	A9. Identify a suitable home for attribution study as well as its connection to services & society, in the context of the new IP (relating to the closure of ETCCDI and emerging questions from GC-Extremes) in coordination with WMO & partners as well as with the link to a global framework (PA, Sendai framework, etc.)	JSC/Writing Team	ASAP
CORDEX	A10. <i>[Decision/Endorsement]</i> JSC endorses the plan for the International Conference for Regional Climate 2019 (October 2019, Beijing, China)	JSC	Done
GCs	<p>GC-Cloud</p> <p>A11. [Decision/Endorsement] JSC endorses aerosol forcing assessment (activity + report) as official WCRP activity</p> <p>A12. CPs to support EUREC4A (CLIVAR in particular)</p> <p>GC-Extremes</p> <p>A13. <i>[Decision/Endorsement]</i> JSC endorses the plan for Summer School (Institute of Advanced Studies in Climate Extremes and Risk Management, Fall 2019, NUIST WMO Training Center, China)</p> <p>GC-Melting Ice</p> <p>A14. Identify and appoint a new Chair for SG Melting Ice</p>	<p>JSC</p> <p>CP leaders to coordinate/communicate</p> <p>JSC</p> <p>JSC in consultation with GC-Melting Ice team, with JPS assistance</p>	<p>Done</p> <p>ASAP and continuous</p> <p>Done</p> <p>ASAP</p>
Partners	<p>A15. Organize a consultation meeting with key partners on the new Strategic Plan, focused on partnership and plans for collaborative implementations relating to the “SP’s Objectives .vs. Components” (D/WCRP, ED/Future Earth, Chair/Vice-chair JSC, Anny Cazenave, etc.)</p> <p>A16. Conduct a mapping potential partners vis-à-vis New SP (connected to an action under SP and IP)</p>	<p>JPS in consultation with JSC Officers / SP writing team</p> <p>JSC (Helen Cleugh to lead, participated with Tom Peter & Amanda Lynch) with JPS assistance</p>	<p>By the time that the SP draft 8 (and the matrix – see an action under “IP”) is ready (no later than 1 June’18)</p> <p>ASAP and until Sep’18</p>

Agenda / issues	ACTION	By/responsible	Deadline
	A17. Renew MoU with PAGES	JPS with JSC's advice	ASAP
	A18. Explore an extended collaborative agreement with Future Earth	JPS with JSC's advice	ASAP
Business	<p>A19. <i>[Decision/Endorsement]</i> Approve the proposal on a joint establishment of regional coordinator following the regional scoping (2016)</p> <p>a. To invite two hosts (GERICS & Bjerknes Center) to JSC-40 to report on plans</p> <p>A20. <i>[Decision/Endorsement]</i> JSC decided that the approval/endorsement of projects should be based on JSC consideration on; 1) the relevance to the (new) SP; 2) (financial/in-kind) contribution to the SP implementation and to the WCRP community, and; 3) exemplary cases for the general WCRP implementation / best practices.</p> <p>A21. JSC to issue a message/statement (targeting the sponsors/hosts of the IPOs) to advise the direction of the new SP, emphasizing the importance of the IPOs (of all CPs and CORDEX, S2S) as fundamental infrastructure of WCRP, and describing the need to continue/extend support for the IPOs through the implementation period of the new WCRP SP.</p> <p>A22. <i>[Decision/Endorsement]</i> Approve the new guidelines on membership of WCRP bodies.</p> <p>a. All the current WCRP bodies - CP SSGs, WGs, etc. – and future bodies to follow the new guidelines on membership of WCRP bodies from the nomination for 2020 membership.</p> <p>A23. <i>[Decision/Endorsement]</i> JSC approved 2017 budget report as submitted. Approved the proposed 2018 budget as narrative. Approved the proposed 2019/2020 categories, and decided to further deliberate the budget requirements.</p> <p>a. JPS to prepare a draft (as part of the new IP) financial aspects on 1) in support of transition, and 2) budget requirements and implications upon each category, adding a 'conference budget', aligned with WMO and co-</p>	<p>JSC</p> <p>JPS</p> <p>JSC</p> <p>JSC with JPS' assistance</p> <p>JSC</p> <p>JSC</p> <p>JPS</p>	<p>Done</p> <p>JSC-40</p> <p>Done</p> <p>ASAP and before Jun'18</p> <p>Done</p> <p>Done</p> <p>ASAP and before July'18</p>

Agenda / issues	ACTION	By/responsible	Deadline
	<p>sponsors' budget processes, and; 3) current and projected national contributions toward JCRF as well as CPs/activities.</p> <p>b. JPS, in coordination with the Core Projects IPOs, to provide detailed information/report on the budget vis-à-vis approved budget allocations</p> <p>A24. Initiate discussion with ESA, European Commission and/or other relevant partners regarding how to improve funding for science (particularly associated with investments to satellite borne observations)</p> <p>A25. Initiate discussions with national partners and contributors to improve/extend funding and collaborative activities</p> <p>A26. Initiate organization of an Open Science Conference</p> <p>a. Develop a timeline and outline of the Conference (possibly in 2020 in consultation within the Community and key partners)</p> <p>b. Decide a scope: Sharing new, forward-looking WCRP vision and exploring partnerships with others</p> <p>A27. <i>[Decision/Endorsement] JSC-40 in Geneva, April 2019</i></p> <p>a. Organize 0.5-day JSC-only (executive) meetings before and after the main session</p>	<p>JPS aided by IPOs</p> <p>JPS with advice from JSC and WDAC</p> <p>D/WCRP (D/RES) with JSC's advice</p> <p>Jens C. (lead), Helen C, Martin V., In-Sik K, with YESS involvement and JPS support)</p> <p>JPS</p>	<p>Before end'18 and annually</p> <p>ASAP and before JSC-40</p> <p>ASAP and before JSC-40</p> <p>ASAP and to report back to JSC-40</p> <p>JSC-40</p>

Annex 6: Acronyms and abbreviations

AGU	American Geophysical Union
CAS	Commission for Atmospheric Science (WMO)
CCI	Commission for Climatology (WMO)
CLiC	Climate and Cryosphere (WCRP)
CLIVAR	Climate and Ocean Variability, Predictability and Change (WCRP)
CMIP	Coupled Model Intercomparison Project (WCRP)
CORDEX	Coordinated Regional Downscaling Experiment (WCRP)
CP	Core Project (WCRP)
ECR	Early Career Researcher ESGF Earth System Grid Federation
ESA	European Space Agency
ESD	Earth Science Division (NASA)
ETCCDI	Expert Team on Climate Change Detection and Indices (CCI/WCRP/JCOMM)
GAW	Global Atmosphere Watch (WMO)
GC	Grand Challenge (WCRP)
GCOS	Global Climate Observing System
GEWEX	Global Energy and Water Exchanges (WCRP)
GFCS	Global Framework for Climate Services
ICSU	International Council for Science (ISC from July 2018)
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IPCC	Intergovernmental Panel on Climate Change
IP	Implementation Plan (WCRP)
IPO	International Project Office (WCRP)
ISC	International Science Council, previously ICSU
JCOMM	Joint Technical Commission for Oceanography and Marine Meteorology (WMO/UNESCO-IOC)
JCRF	Joint Climate Research Fund (WCRP)
JPS	Joint Planning Staff (WCRP)
JSC	Joint Scientific Committee (WCRP)
JSC-38	38th Session of the JSC
JSC-39	39th Session of the JSC
JSC-40	40th Session of the JSC
LST	Local Standard Time
MOU	Memorandum of Understanding
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NUIST	Nanjing University of Information Science and Technology
PA	Paris Agreement (UNFCCC)
PAGES	Past Global Changes (Future Earth)
S2S	Subseasonal to Seasonal Prediction Project
SDGs	Sustainable Development Goals (UN)
SMD	Science Mission Directorate (NASA)
SP	Strategic Plan (WCRP)
SPARC	Stratosphere-troposphere Processes And their Role in Climate (WCRP)
SSG	Scientific Steering Group (WCRP)
UNESCO	United Nations Educational, Scientific, and Cultural Organization (UN)
UNFCCC	United Nations Framework Convention on Climate Change (UN)
WCRP	World Climate Research Programme (ICSU-IOC-WMO)
WDAC	WCRP Data Advisory Council (WCRP)
WGCM	Working Group on Coupled Modelling (WCRP)
WGNE	Working Group on Numerical Experimentation (WCRP-CAS)
WGSIP	Working Group on Subseasonal to Interdecadal Prediction (WCRP)



WMAC WCRP Modelling Advisory Council (WCRP)
WMO World Meteorological Organization (UN)
WWRP World Weather Research Programme (WMO)
YESS Young Earth System Scientists Community

**The
World Climate
Research Programme
(WCRP)**

*facilitates analysis and
prediction of Earth system change
for use in a range of practical
applications of direct relevance,
benefit and value to society.*

