

Scoping a framework for WCRP regional activities

10-11 October 2016, Hamburg, Germany



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1. Opening and Introduction

The meeting of a scoping group on a framework for regional activities of the World Climate Research Programme (WCRP) opened at 0900 LST at the Climate Service Center Germany (GERICS), Hamburg, Germany, from 10 to 11 October 2016.

Dr Guy Brasseur, chair of the WCRP Joint Steering Committee (JSC) and also chair of this meeting welcomed all participants to Hamburg. He recalled the background and purpose of this meeting: The JSC at its 37th session (2016) assigned a small group of JSC members and invited experts to develop a set of recommendations to JSC on WCRP's regionally-focused activities including guidelines, partnerships and overall structure as appropriate, taking into account current capabilities and financial restrictions.

Dr Brasseur noted the following points to consider in order to develop clear guidance and recommendations on a future course of actions for WCRP on this subject:

- Recognizing emergence of regional issues in all international coordination mechanisms of climate science (e.g. the Sixth Assessment Report of IPCC);
- Noting the primary request of JSC to the team to clarify relationship of WCRP with climate services, and furthermore, to clarify the scope of WCRP science in producing and providing climate information;
- Noting the need to enhance connections among WCRP activities for regions, as well as between WCRP science and information, requirements expressed by users of information, particularly climate services.

All participants introduced themselves, with their visions on WCRP's role in promoting climate science in regions (see the list of participants). The agreed points from this session and following discussion are summarized in the sections below. The summary consists of the recommendations to the JSC-38, responding to the above-noted request. A framework document on this subject, which had been used to stimulate and document the discussion prior to the meeting, served as a baseline to articulate the recommendations.

2. Status and Issues of WCRP Activities in the Regional Context (Problems Statement)

WCRP promotes a vision to play a prominent leading role in supporting and promoting internationally coordinated climate science with global and regional impacts. In the regional context, the focus of WCRP remains on enhancing the scientific basis to understand regional climate and its changes; identifying, quantifying and delivering high quality, reliable and accessible regional climate information, for which needs are identified by regional stakeholders. The scope of WCRP activities does not include climate services, but includes providing science-based, reliable and locally relevant information on which climate services and impact assessments can be built. To address this objective, WCRP should develop a mechanism to bridge the identified gaps between data producers and data users, and between research science and operational services.

In undertaking this, WCRP must establish a clear vision of its scope and boundaries, respective roles and interactions through which WCRP can connect with climate service providers as well as other primary users of climate information, largely regionally-oriented.

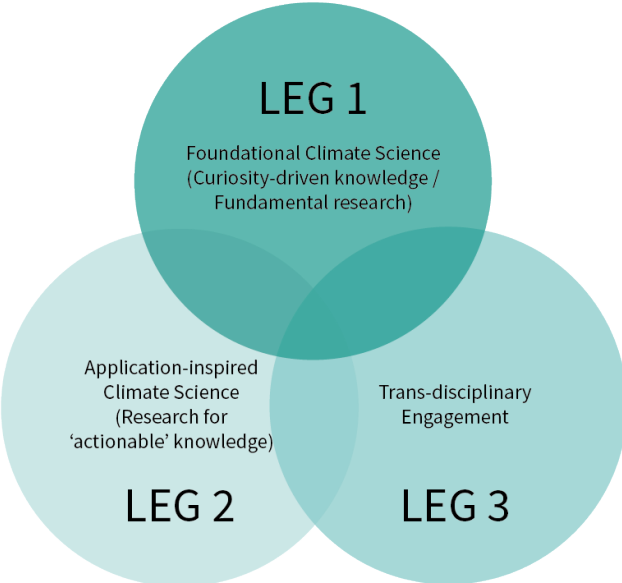
WCRP recognizes urgent demands for relevant climate information that are directly applicable to various societal sectors in local/regional scales. WCRP also clearly recognizes that the landscape for climate science and its applications is rapidly evolving. Under these circumstances, WCRP should offer a framework to encourage and promote opportunities for regionally-oriented activities to address underlying science challenges across a range of climate research, to underpin the development and assessment of climate information for regional applications.

It is an increasing concern that WCRP continuously suffers from limited visibility in the major climate discussions at global and regional levels, requiring immediate attention to review and improve the current coordinating and facilitating mechanisms for outreach.

3. Climate Information for Regions, in the WCRP Context

The Meeting agreed that climate information for regions is the primary issue and need for climate services. In this context, it recalled the difference between “data” and “information” in the context of climate information for regions; information is not data, but is an understanding that builds messages of relevance to the concerned users that are backed by clear and robust physical scientific analyses. The Meeting further emphasized the existing substantial gaps in climate data that constrains the ability to produce climate information needed, particularly in some regions.

While discussing WCRP’s strength, gaps and relevance, the Meeting agreed that it would not be feasible for the Meeting to identify specific scientific challenges in the regional context, bearing in mind the breadth of requirements, difference in the level of scientific development and needs for applications. Therefore the Meeting developed a concept of climate science in three categories as described below, taking into account substantial and necessary overlaps of scientific activities among the categories. This concept is used to develop recommendations for



WCRP's scope and directions in terms of each category ("leg"), for the consideration and endorsement by the JSC.

The Meeting noted that a "region" in the context of this discussion is not necessarily defined as a specific geographic area, but as an area covering respective scientific and socio-ecological interests. For example, in the context of "Leg 1", a region may be defined by the core physical processes that are the objectives of scientific interest. For "Leg 2" and "Leg 3", a region could be a collection of areas that are coherent by some measure, such as a major agricultural region or an economic zone (e.g. A country could be considered a region if the issues being addressed involve national government policy).

3.1. Leg 1: Foundational Climate Science

The first category ("Leg 1") comprises the fundamental science that aims to understand mechanisms of climate and causes of its variability/change, and to produce projections. In other words, it is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and/or observations that may be applied to a range of processes through further development. An example is continuous measurement, simulation and projection of the climate system in order to understand the global circulation and convection at various scales to address questions on precipitation extremes (drought, heavy rainfall, etc.).

A large part of past achievements and current activities of this category have been led by climate scientists under the WCRP umbrella. The Meeting agreed that WCRP should maintain strong leadership in this category, and that the key was to promote a mechanism to coordinate activities with common purposes/challenges in regions, primarily within various WCRP projects and groups. Noting that activities of this nature are often inseparable from those of "Leg 2" (see the next sub-section), coordination of Legs 1 with 2 should be simultaneously sought.

Discussion on Leg 1 converged into the scope of CORDEX, as it contains a framework for "regional climate science", particularly downscaling that yields climate data. The Meeting noted the expressed requests of IPCC Working Group I for CORDEX, to be more active in the CMIP framework and to serve as a proactive coordinating framework providing systematic regional projections (e.g. climate change signals in small scales). Upon reflection, the Meeting noted with caution that CORDEX should be considered as a coordinated network of regional modeling (downscaling) activities in regions rather than a delivery mechanism for climate information. The Meeting noted the increasing effort of CORDEX to strengthen its scientific basis, and agreed that it should maintain focus on the coordination of modeling experiments addressing key scientific challenges it has identified (e.g. added value, regional earth-system processes, precipitation mechanisms, local wind systems, regional human influence on climate), while endeavoring to elevate scientific development in some domains of developing regions. In this context, it was strongly recommended that CORDEX should enhance connections with the WCRP Grand Challenges, Core Projects and modeling groups particularly the CMIP; and undertake efforts to exchange knowledge among studies on physical processes on regional scales (e.g. CORDEX-CLIVAR partnership for Variability of the American Monsoon Systems (VAMOS) in Latin America).

The CORDEX Flagship Pilot Study (FPSs) provides a common framework for looking into scientific questions for not only topic-focused but also region-focused questions (e.g. addressing convection, added value questions such as scale-dependent climate signals or

long-term influence of El-Nino in regions, statistical downscaling over specific regional domains). The Meeting agreed that WCRP should develop mechanisms to develop the research portfolio on regional studies, building on the FPS process.

The Meeting re-emphasized that the WCRP-wide efforts for climate science in regions, especially relating to this category, have been and should be conducted at all places including all the WCRP Core Projects and Grand Challenges.

3.2. Leg 2: Application-Inspired Climate Science

The second category (“Leg 2”) comprises research to gain integrated knowledge or understanding necessary to inform actions to meet a recognized requirement (e.g. analysis on the causes of drought, studies to improve predictability of droughts and heavy rainfall in a specific region). Climate research activities in this category largely inspired by the needs of stakeholders, and highly require processes to identify/develop/document not only the relevant and applicable scientific tools but also the needs in respective application areas, often engaging interactions with experts from different sectors. The outcome of such activities is knowledge (but not actual service products) relevant to the identified socio-ecological challenges, often with strong regional context, and needs to be informed by some high level stakeholders.

The Meeting noted that this is an emerging and maturing field of science, which WCRP climate scientists are actively engaged in¹. Most of WCRP’s Grand Challenges coordinate collective efforts to advance scientific understanding toward the questions of Leg 2. Considering that research activities of this category should not be top-down information delivery, the Meeting highlighted the strong need of clarifying WCRP’s role in this aspect in the regional context. In view of promoting and providing advice for the appropriate use of climate knowledge/information for respective requirements, WCRP should forge excellence of climate science, founded on its strength and leadership in climate system knowledge development that is described in Leg 1 (previous sub-section).

The Meeting noted that WCRP currently plays a partial leadership role in this category. It recognized the ambiguous boundary and large overlap not only between Legs 1 and 2 (see the previous sub-section) but also between Legs 2 and 3. The Meeting concluded that Leg 2 promotes the design and implementation of scientific activities, taking into account and engaging with scientific activities of consolidated and analytical knowledge of the socio-ecological requirements, while Leg 3 focuses on outreach to interact with users for understanding and application of climate knowledge.

The Meeting recommended that WCRP should progressively build a leading role in leveraging and actively promoting Leg 2 research internationally, and join efforts with those entities coordinating initiatives from the other end of the knowledge chain (e.g. Global Framework for Climate Services, Future Earth) to provide scientific guidance. It recalled that the concept of Frontiers of Climate Information (FOCI) developed by the WCRP Working Group on Regional Climate (WGRC) aims to develop a framework for research activities addressing this aspect, and agreed that the FOCI concept should further evolve to lead the development of this portfolio.

¹Brasseur and Gallardo 2016, doi:10.1002/2015EF000338.

3.3. Leg 3: Trans-disciplinary² Engagement

Social and economic sciences, humanities and the arts, stakeholder dialogue, interactions with end-users and service provision are not within the WCRP mission. However, they provide a basis and a context for the update of user interest and needs for climate information. Consequently WCRP research on “Information for regions” needs to be aware of/informed about specific user interests and needs.

Leg 3 comprises all efforts to identify user requirements and needs that may guide research directions, and to determine the implication and relevance of climate knowledge derived from Legs 1 and 2 to applications/services. It naturally leads to systematic trans-disciplinary engagement and to strong communication needs. The Meeting noted the recent effort by JPS to improve communication and outreach, through an update of websites for WCRP (including those of WCRP Core Projects and groups), and development of common presentation material and templates for WCRP, etc. It emphasized the importance of systematic and continuous assistance of this nature, to support delivery of the Programme’s key message and to improve visibility, through more proactive efforts are also needed.

Leg 3 also brings WCRP beyond research activities to engage with primary users of climate information including climate services, and is largely regionally-oriented. It also presents opportunities for WCRP to gain and enhance visibility, and to promote partners’ awareness of WCRP’s climate science. In this context, WCRP can foster close partnerships with “boundary organizations” and clearly identify sustained channels of dialogue, through which regional requirements and translation of WCRP science would be communicated in an efficient manner. The Meeting noted the challenge in identifying such organizations and mechanisms for dialogue, as the definition of climate services/applications varies depending on the perspectives of use/users. Nevertheless, under the present global circumstances, these boundary organizations may include IPCC; GFCS (particularly its Climate Services and Information Systems pillar); FE; global and regional climate service partnerships; WMO as the representatives of met services; WMO’s Regional Climate Centers and Regional Outlook fora; research coordinating entities for vulnerability, Impacts and Adaptation communities, etc.

The Meeting emphasized that WCRP in general does not own or lead Leg 3 activities or dialogue/fora, but seeks opportunities for partnership and/or synergetic participation. In doing so, WCRP would continue identifying and reviewing appropriate boundary organizations as partners with whom to pursue Leg 3 activities.

The Meeting agreed that WCRP should make immediate and systematic efforts to build and convey clear and coherent WCRP messages on climate science for regional applications/services, both for in-reach (among WCRP groups, projects and activities) and outreach (influence the UNFCCC process for National Adaptation Plans, implementation of Sendai Framework for Disaster Risk Reduction, International Drought Management Plan, etc.). Such high level messages should be developed and continuously reviewed by WCRP leaders, and supported the JPS for communication and delivery.

² Clin Invest Med. 2006 Dec; 29(6):351-64: “...Multidisciplinarity draws on knowledge from different disciplines but stays within their boundaries. Interdisciplinarity analyzes, synthesizes and harmonizes links between disciplines into a coordinated and coherent whole. Transdisciplinarity integrates the natural, social and health sciences in a humanities context, and transcends their traditional boundaries. The objectives of multiple disciplinary approaches are to resolve real world or complex problems, to provide different perspectives on problems, to create comprehensive research questions, to develop consensus clinical definitions and guidelines, and to provide comprehensive health services. Multiple disciplinary teamwork has both benefits and drawbacks.”

4. A Way Forward: Facilitating WCRP's regional activities

A role WCRP can play to facilitate regional activities is to develop best practices and guidelines from successful experiences. The Meeting agreed that an efficient way to evolve WCRP regional activities would be a series of successful regionally-focused activities (e.g. pilot studies founded on/leveraging existing activities such as the GEWEX Regional Hydroclimate Projects) that deliver output within a few years which can be used to provide best practices and good examples for future initiatives.

In this context, the Meeting strongly recommended that WCRP's supporting mechanism for regional activities should be based on existing infrastructure (e.g. WCRP organization as a network of Core- and co-sponsored projects and cross-cutting initiatives) and furthermore, on the identification of new resources to empower integration and synergetic coordination for the regionally-focused activities. To this end, the Meeting *proposed an international call to seek an offer from entities of climate science and application, to establish "a coordinator for WCRP regional activities" to lead coordination of WCRP scientific activities for regions.* Under the guidance of JSC, the incumbent would work closely with all WCRP groups, project offices and the JPS in stimulating, supporting and seeking synergies among different regional initiatives conducted under Legs 1, 2 and 3. The incumbent would also support developing clear WCRP messages on regional climate science, and communicate them to appropriate strategic planning and other efforts of relevant fields.

The Meeting reaffirmed that the CORDEX/FPS could be a common framework for Leg 1 initiatives, and the FOCI for Leg 2 initiatives. The Meeting therefore recommended that WCRP recognize CORDEX for its prominent status within WCRP in leading scientific coordination for regions, reporting directly to the JSC. It encouraged CORDEX to strengthen its links with all core projects and working groups of WCRP, taking into account the emerging requirements for scientific advancement as well as for improved coordination with/among global and regional modeling.

The meeting recommended that the FOCI concept be further developed and revised in order to be inclusive of overall WCRP research activities addressing Leg 2, and to clarify processes for implementation.

It noted that the WGRC, with further clarified focus to address issues around Leg 2, could coordinate this effort. A re-scoped WGRC (that may be, with the approval of JSC, re-named as a Working Group on Information for Regions: WGIR) should engage expertise of direct relevance to Leg 2 and strengthen collaboration with all Core Projects, Grand Challenges and other WCRP groups. In coordination with and supported by a coordinator for WCRP regional activities (once the incumbent and related resources are identified), this working group should focus on further developing the FOCI concept, issuing and organizing calls for FOCI initiatives/projects, and facilitate integrative research on information for regions.

5. Closing and Follow-Up

Dr Brasseur thanked all participants for their valuable input to the scoping exercise of WCRP regional activities. Dr Brasseur conveyed the gratitude on behalf of WCRP to Dr Daniela Jacob, Director of GERICS, for hosting this important meeting; and to GERICS and US NOAA for providing support for participants jointly with the WCRP Joint Planning Staff (JPS).

The Meeting agreed to consolidate the summary of discussion including the recommendations to JSC before the end of October, seeking the endorsement of JSC and following actions to commence before the end of 2016.

The meeting of a scoping group on a framework for regional activities was closed at 1330 LST on 11 October 2016.

Annexes: 1. List of Participants

2. Agenda

3. Recommendations to the WCRP Joint Steering Group

(As agreed by the scoping team at the meeting, and to be reviewed and revised through consultation with JSC)

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Annex 2: Agenda

Monday 10 October	
09.00 - 09.15	Opening (Guy Brasseur)
09.15 - 09.30	Brief introductions (Guy, JPS)
09.30 - 10.30	<p>Objectives / problem statement</p> <ul style="list-style-type: none"> • Common definition of regional climate products & information? • Objectives of discussion <ul style="list-style-type: none"> – Do we want to address fundamental questions regarding regional climate science (downscaling, representation of high resolution processes, etc.?) – Do we want to develop an interface between the WCRP science and the needs of users/stakeholders (not just information for regional applications)? – Do we want to address new methods to communicate scientific information?
10.30 - 11.00	Coffee break
11.00 - 12.30	<p>What has WCRP to offer? (Continuing discussion from the above presentations, and to gain familiarity with regionally-relevant activities across WCRP)</p> <ul style="list-style-type: none"> • Maximum 3-5 minutes pitch per participant of other successful and less successful examples • Identify ongoing and potential WCRP activities and products that bring relevant WCRP science to users' needs, in view of initiating an inventory • Identify ways to stimulate connections and synergies among those activities <p>(Starting points for an inventory:)</p> <ul style="list-style-type: none"> – GEWEX regional hydrology projects, past and future; – The <i>CORDEX Flagship Pilot Studies</i>, among which imply strong potential impacts to/by regions; – The <i>hi-res MIP and the CORDEX diagnostic MIP for CMIP6</i>, again both with open access publication of their plans and expected products; – Grand Challenge on Water for Food Baskets of the World, with its three initial focus areas; – Grand Challenge on Near-Term (decadal) Climate Prediction and its good connections to GSFC; – <i>Grand Challenge on Regional Sea Level Change and Coastal Impacts</i>, with strong regional components and big conference upcoming in NYC; – German climate service and IMPACT2C; – <i>Africa Climate Atlas</i> (following the model of IMPACT2C), proposal (hopefully) by the host country at COP22 in Marrakech;

	<ul style="list-style-type: none"> - <i>Copernicus</i> (the climate service, not the satellite programme) and its energetic efforts on data services (and strong connections to WCRP and GCOS); - One group (from Alaska) starting to share and publish their regional downscaling methods and results in open access scientific literature
12.30 - 14.00	Lunch
14.00 - 15.30	<p>Climate Science for Regions: Scientific Challenges</p> <p><i>What are the main scientific challenges in the context of climate science for regional applications?</i></p> <ul style="list-style-type: none"> - (building on the list of scientific challenges in the scoping document, and suggestions from the team members:) • to better understand climate phenomena and their variability, changes and feedbacks for regions; <ul style="list-style-type: none"> - geographically specific (e.g. Arctic, Amazon, etc.) - scale specific (e.g. between 4km and 25 km); - type specific (e.g. coastal, desert, etc.); • to improve climate downscaling models and statistical techniques to achieve the above goals; <ul style="list-style-type: none"> - The role of nudging in downscaling GCMs (various degrees of nudging are applied) - Lower (i.e. SST and sea ice) boundary conditions from e.g. anomaly fields (the PRUDENCE approach) - Adjusting GCM boundary conditions with regard to re-analysis (e.g. as suggested and applied by Patricola and Cook, 2010) • to improve usability and portability of regional climate modeling; <ul style="list-style-type: none"> - using regional climate modeling as a testbed for GCM parameterizations on high spatial scales (and ensuring feedback to GCM development); - exploring validity of results from one domain for other domains; - exploring validity of model climate (i.e. RCM precipitation statistics .vs. real precipitation patterns) - selection of a domain in regional climate modelling <p><i>Can CORDEX enlarge its portfolio to take some of above scientific challenges?</i></p> <ul style="list-style-type: none"> • How do we get the CORDEX initiative better recognized in the GCM community? • Is the 3D matrix (RCM/GCM/RCP) a relevant matrix to study? • Enhanced linkage between CMIP and CORDEX? • Which relevant scientific down scaling questions cannot be addressed with CORDEX? • Who wants CORDEX?
15.30 – 16.00	Coffee break
16.00 – 18.00	<p>Connections and synergies among WCRP regional activities and scientific challenges</p> <ul style="list-style-type: none"> • Identify ways to stimulate connections and synergies among those activities (e.g. among GCs, among GCs and WMAC/modeling groups)

	<ul style="list-style-type: none"> • How could or should the proposed Foci activities fit within this array? • Identify best practices /stories to recommend
Tuesday 11 October	
9.00 - 10.30	<p>Climate Information for Regions: Interface, communication, stakeholders</p> <p><i>Seeking improved ways to produce and disseminate information with/to interface organizations and help society to build climate resilience</i></p> <ul style="list-style-type: none"> • Who are the users of climate information generated by WCRP? <ul style="list-style-type: none"> – Identifying “boundary/interface” organizations (e.g. IPCC, Climate Services (GFCS), Met Services, ECMWF, Future Earth, ...) • Successful / less successful examples of science-society interfaces, and lessons learnt <ul style="list-style-type: none"> – Top-down/Dialogue/Co-production & co-design/Capacity building/Knowledge-Action networks/Open networks..? • WCRP’s way to approach interface organizations and promote science / climate information for regional applications <ul style="list-style-type: none"> – Consideration on level of organizations to approach: how to promote partnership for research leading toward useful regional climate products? – Pilot projects? – E.g. an annual WCRP message with focus on the need of users?
10.30 – 11.00	Coffee break
11.00 - 12.30	<p>Implementation & organization of WCRP's regional activities (“A way forward”)</p> <p><i>How should we organize ourselves to reach our objectives?</i></p> <ul style="list-style-type: none"> • Considering a new group, to amplify WCRP efforts for regions, and to take positive WCRP-wide message forward? • Initiating (and re-furbishing) a place for dialogue and promotion, to highlight WCRP’s emphasis to use science for the benefit of society – enhancing communication by WCRP/JPS? • a few concrete fast-track initiatives, associating stakeholders and WCRP scientists? • a regular WCRP message - an authoritative science-based document of relevance for decision makers in regions?
12.30 - 14.00	Lunch break
14.00 - 16.00	Implementation & organization of WCRP's regional activities (“A way forward”), cont’d.
16.00	Adjourn

Annex 3: Recommendations to the WCRP Joint Steering Group

(As agreed by the scoping team at the meeting, 10-11 October 2016, Hamburg/Germany)
(To be reviewed and revised through consultation with JSC)

Recommendations for “Leg 1”

WCRP will build on past and ongoing studies by the climate research community to advance knowledge on climate change and variability, and project trajectories of associated changes in different regions of the world.

- 1.1 WCRP will facilitate research on and application of methodologies to integrate the knowledge produced by its different projects (e.g., Core Projects, Grand Challenges, CORDEX, CMIP) for enhanced understanding of the regional climate system.
- 1.2 CORDEX will be an integral part of the process to develop the WCRP research portfolio on regional studies, including the development of a range of CORDEX Flagship Pilot Studies (FPSs) that explore key regional processes.

Recommendations for “Leg 2”

WCRP will seek to advance fundamental understanding of the climate system relevant to regional socio-ecological challenges, by working with experts from different natural science disciplines.

- 2.1 WCRP will endorse, promote and develop the evolving areas of research that integrate the user and decision maker context into the co-design and development of regional climate-system science.
- 2.2 WCRP will facilitate the development of the Frontiers of Climate Information (FOCI) initiative. A Working Group on Information for Regions (WGIR) will take the lead on developing this portfolio. (see Recommendations for a way forward.)

Recommendations for “Leg 3”

WCRP will work with multi-disciplinary communities to engage in a dialogue with high-level boundary organizations that need climate and related information. The purpose of the engagement is to strengthen awareness and dialogue about WCRP science in the regional context; to empower research opportunities; and to enhance WCRP’s awareness of the regional climate information needs of services and users. The proposed coordinator of the regional activities and WGIR (see Recommendations for a way forward) will take responsibilities to coordinate efforts to develop appropriate modes of engagement, and the construction of information for regions.

- 3.1 WCRP will develop key messages on fundamental climate science in the regional context, and proactively seek outreach opportunities in partnership with high-level boundary organizations.

- 3.2 WCRP will organize and participate in fora and gatherings on specific topics in order to identify potential synergies and opportunities for joint studies, and to develop bridges/interactions between climate science, policy and decision-making.
- 3.3 WCRP will promote its visibility (primarily through key messages on fundamental climate science) of regionally relevant WCRP research activities, for example, by highlighting these in outreach materials and the websites, to demonstrate WCRP leadership in this domain.
- 3.4 WCRP will publish periodic reports on the state of the climate-related science of relevance for society.

Recommendations for Way Forward

- 4.1 WCRP will organize an international call to appoint a coordinator for WCRP regional activities, as soon as possible. The incumbent will lead coordination of scientific activities of WCRP for regions under the guidance of JSC, and working closely with all WCRP groups, project offices and JPS. Main duties should include;
 - stimulating, supporting and seeking synergies among different regional initiatives conducted under Legs 1, 2 and 3;
 - support developing clear WCRP messages on regional climate science, and;
 - communicating these messages to various strategic directions and plans of relevant fields.
- 4.2 WCRP will engage with existing regional infrastructure on the development of WCRP's regional efforts.
- 4.3 WCRP will promote the work of the groups and panels of WCRP on information for regions, through adequate financial resources for their meetings and workshops.
- 4.4 CORDEX will extend its linkage and seek opportunities for collaboration with WCRP Core Projects, Grand Challenges, CMIP and other activities in promoting regional coordination for climate science, with the direction and guidance of JSC.
- 4.5 WCRP will sharpen the focus and scope of the WGRC deemed appropriate, by reformulating a Working Group on Information for Regions (WGIR) from the WGRC, to lead facilitation of regional research activities addressing Leg 2. A new WGIR can take the lead on the development of Leg 2 portfolio, in part by continuously developing a FOCI framework, developing and organizing calls for FOCI projects. It also can continue efforts to;
 - facilitate coordination of WCRP research activities relevant to the provision of regional climate information in support of climate services, and;
 - integrate the user and decision maker context into the design and development of regional climate science through two-way communication and co-production activities;
 - contribute to WCRP's activities related to Leg 3.

Annex 4: Acronyms and Other Abbreviations

CLIVAR	Climate and Ocean – Variability, Predictability, and Change (WCRP Core-Project)
CMIP	Coupled Model Intercomparison Project (WCRP)
CORDEX	Coordinated Regional Climate Downscaling Experiment (WCRP)
FE	Future Earth
FOCI	Frontiers of Climate Information (WCRP)
FPS	Flagship Pilot Study (FPS)
GERICS	Climate Service Center Germany
GEWEX	Global Energy and Water Cycle Exchanges (WCRP Core-Project)
GFCS	Global Framework for Climate Services
ICSU	International Council for Science
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IPCC	Intergovernmental Panel on Climate Change (WMO, UNEP)
JSC	Joint Steering Committee (WCRP)
NOAA	National Oceanic and Atmospheric Administration (USA)
UNFCCC	United Nations Framework Convention on Climate Change
WCRP	World Climate Research Programme (WMO, IOC and ICSU)
WGIR	Working Group on Information for Regions (WCRP, to be approved)
WGRC	Working Group on Regional Climate (WCRP)
WMO	World Meteorological Organization

**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.*

