Extraordinary Session of WCRP Joint Scientific Committee

Boulder, Colorado, USA, 29-30 October 2011

Immediately after the Open Science Conference (OSC) on 24-28 October 2011 in Denver, Colorado, USA

The following questions guide the CLIVAR planning process:

- What research should be the focus of an “ocean - atmosphere” project?
- If this is the time to “downsize” CLIVAR, where do some current (broader) activities fit in the restructured WCRP?
- Is it time to change the name of CLIVAR and what are “pros” and ‘cons” of that?
- How to ensure critical and effective interfaces for regional programs (e.g., VACS, VAMOS, AAMP, etc.)?
- How Grand Challenges for WCRP science are defined and which ones should CLIVAR propose?

CLIVAR has proposed seven objectives, which were also called “imperatives”.

They are:

- Anthropogenic climate change
- Intra-to-seasonal variability, predictability and prediction (of climate)
- Decadal variability, predictability and prediction
- Improved atmosphere and ocean components of Earth System Models
- Data synthesis and analysis
- Ocean observing system, and
- Capacity building

These “imperatives” represent top priorities for CLIVAR panels and working groups with a 5-year perspective, and they have specific metrics and deliverables.

The JSC stressed the importance of adequate positioning of WCRP regional activities, which should involve coordination with GEWEX.

The scope of research on climate in Africa goes far beyond the research on monsoons and this has to be reflected in WCRP activities.

Seasonal and inter-annual prediction is a pan-WCRP activity.

Other related issues

Establishment of the WCRP Modelling Advisory Council (WMAC) and WCRP Data Advisory Council (WDAC)

It was agreed that WGSIP and WGCM should report directly to JSC. These groups will no longer be overseen by CLIVAR.

GEWEX Atmospheric Systems Study (**GASS**) as a consolidation and extension of existing atmospheric process modelling activities within GEWEX.

With the formation of GASS as well as the WCRP Modelling Council, in addition to the coordination already provided by WGNE, WGSIP and WGCM, the atmospheric modelling community within WCRP will be well coordinated.

WCRP Regional Activities and Establishment of the WCRP Working Group on Regional Climate Science and Information (WGRC)

Regional activities that are developing under various WCRP projects are going to be coordinated by this group.

The WGRC could help to provide a unifying framework for the regional WCRP projects in South America and Africa.

Important aspects of climate services on the regional level include downscaling of climate model output, development of regional models, and interpretation and evaluation of ensemble predictions, research capacity development, etc.

Some of these activities are coordinated either by Projects or by CORDEX.

WGRC should play a major role in coordinating these activities, and, hence, CORDEX should become an activity within WGRC.

It was recommended that the WGRC consider joint communication activities with RCOFs.

WGRC should address the four near-time priorities of the Global Framework for Climate Services (GFCS) : food, water, human health, and disaster risk reduction.

Regional activities of WCRP Projects including research on monsoons

- The research on monsoons in Asia and Australia (AAMP) is highly focused, addressing specific and feasible “bite size”- chunks of problems.
- The MAHASRI and AMY initiatives helped to coordinate many related activities in Asia but are winding down.
- Cooperation of CLIVAR and GEWEX on AAMP is fruitful and strong, with CLIVAR being the main host but with GEWEX being actively involved and well informed.
- Links of AAMP to climate services can be, nevertheless, strengthened.

Introduction to CLIVAR SSG-19

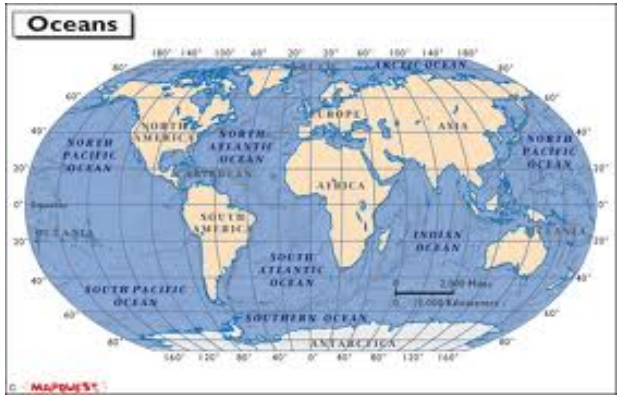
Strategy and Evolution of CLIVAR

Martin Visbeck and Jim Hurrell

Co-Chairs, International CLIVAR SSG

Catherine Beswick and Valery Detemmerman

CLIVAR Project Office and WCRP Joint Planning Staff



CLIVAR Planning Process

Some Guiding Questions:

- What research challenges and capabilities should be the focus of an ocean-atmosphere project?
- If it is time to "downsize" CLIVAR where do broader activities fit into the restructured WCRP?
- Is it time to change the name of CLIVAR?

To be discussed and debated this week …

Goal: to begin to construct the "new" CLIVAR around ocean-atmosphere research challenges/capabilities

JSC Guidance to CLIVAR

Overall:

JSC would like to encourage a fresh look, independent of prior panel names or structure … developing a research agenda that addresses … the grand challenges and imperatives of CLIVAR [and its stakeholders, as well as] the overall WCRP future plan and priorities.

CLIVAR should re-examine its project substructure at SSG-19, including whether elements of CLIVAR may have a better home elsewhere in WCRP, and address the issue of a name change

JSC Guidance to CLIVAR

VACS and VAMOS:

- JSC agreed to request … VACS and VAMOS panels to work with their constituencies to develop a list of research priorities and activities for their respective regions for post 2013
- JSC envisions great opportunities for cooperation and partnership between CLIVAR and GEWEX for both the VACS and VAMOS, or any subsequent activity they may transition to in the future.

WCRP Evolution

What does it mean for CLIVAR?

For Example

Based on SSG-18 and WCRP OSC

CLIVAR Organization

Scientific Steering Group

ICPO

Crosscutting (global) Panels

Observations & Data

- Global Synthesis & Observations Panel
- PAGES / CLIVAR Working Group
- CCI / CLIVAR Expert Team on Climate Change Detection and Indices

Modeling

- Working Group on Seasonal to Interannual Prediction
- JSC / CLIVAR Working Group on Coupled Modeling
- Working Group on Ocean Model Development

Regional Panels

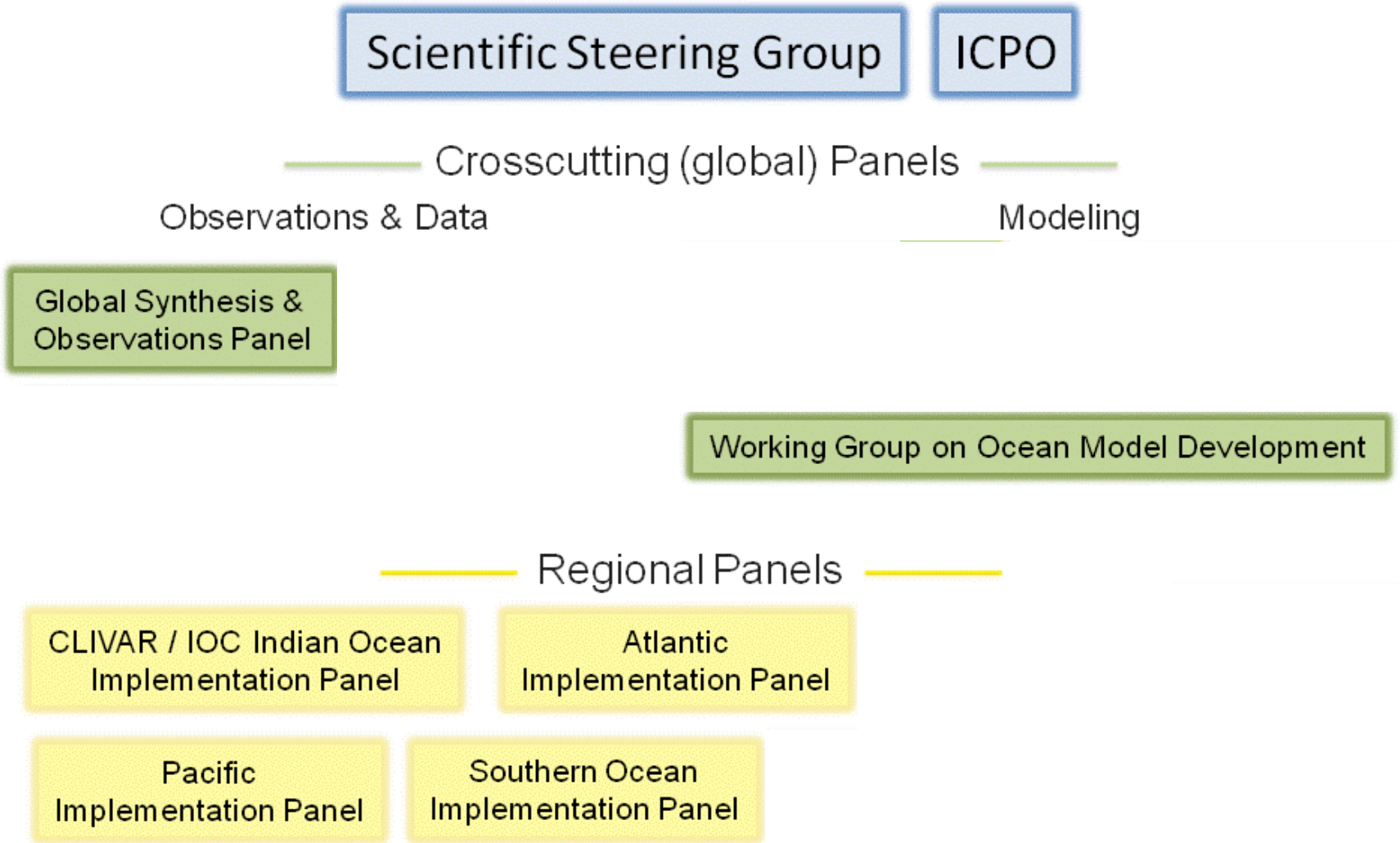
- CLIVAR / IOC Indian Ocean Implementation Panel
- Atlantic Implementation Panel
- Asian-Australian Monsoon Panel
- Pacific Implementation Panel
- Southern Ocean Implementation Panel
- Variability of the African Climate System Panel
- Variability of the American Monsoon Systems (VAMOS)

CLIMAR Organization

Scientific Steering Group

ICPO

CLIMAR Organization



CLIMAR Organization

Scientific Steering Group

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Crosscutting (global) Panels

Observations & Data

Modeling

Global Synthesis & Observations Panel

Working Group on Ocean Model Development

Regional Panels

CLIVAR / IOC Indian Ocean Implementation Panel

Atlantic Implementation Panel

Pacific Implementation Panel

Southern Ocean Implementation Panel

Arctic Ocean Implementation Panel

CLIMAR Organization

Scientific Steering Group | ICPO

Crosscutting (global) Panels

Observations & Data

Modeling

Global Synthesis & Observations Panel

Working Group on Ocean Model Development

Regional Panels

CLIVAR / IOC Indian Ocean Implementation Panel

Atlantic Implementation Panel

Asian-Australian Monsoon Panel

GEWEX WCRP

Pacific Implementation Panel

Southern Ocean Implementation Panel

Arctic Ocean Implementation Panel

CliC

CLIMAR Organization

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Crosscutting (global) Panels

Observations & Data

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Global Synthesis & Observations Panel

Working Group on Ocean Model Development

Regional Panels

CLIVAR / IOC Indian Ocean Implementation Panel

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Asian-Australian Monsoon Panel

VAMOS

Pacific Implementation Panel

Southern Ocean Implementation Panel

VACS

Arctic Ocean Implementation Panel

CLIMAR Organization

Scientific Steering Group | ICPO

Crosscutting (global) Panels

Observations & Data

Global Synthesis & Observations Panel

Modeling

WCRP

Seasonal to Interannual Prediction

WCRP

Working Group on Coupled Modeling

Task Force on Decadal Predictability

Working Group on Ocean Model Development

Regional Panels

CLIVAR / IOC Indian Ocean Implementation Panel

Atlantic Implementation Panel

Asian-Australian Monsoon Panel

VAMOS

Pacific Implementation Panel

Southern Ocean Implementation Panel

VACS

GEWEX WCRP

REDEFINE

Arctic Ocean Implementation Panel

CliC

CLIMAR Organization

Scientific Steering Group | ICPO

Crosscutting (global) Panels

Observations & Data

Global Synthesis & Observations Panel

PAGES / CLIVAR Working Group

Modeling

Seasonal to Interannual Prediction

Working Group on Coupled Modeling

Task Force on Decadal Predictability

Working Group on Ocean Model Development

Regional Panels

CLIVAR / IOC Indian Ocean Implementation Panel

Atlantic Implementation Panel

Asian-Australian Monsoon Panel

VAMOS

Pacific Implementation Panel

Southern Ocean Implementation Panel

VACS

Arctic Ocean Implementation Panel

CLIMAR Organization

Scientific Steering Group | ICPO

Crosscutting (global) Panels

Observations & Data

- Global Synthesis & Observations Panel
- PAGES / CLIVAR Working Group
- CCl / Expert Team on Climate Change Detection and Indices — ETCCDI

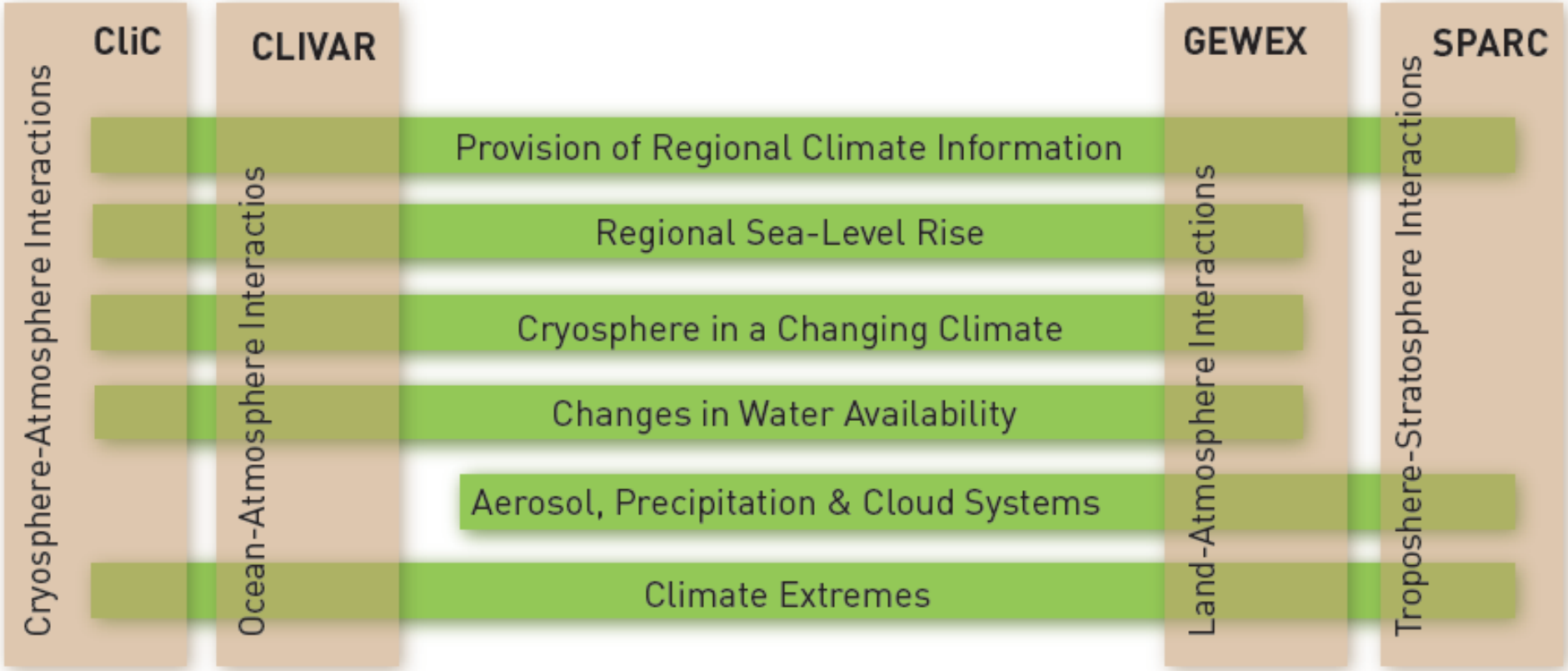
Modeling

- Working Group on Seasonal to Interannual Prediction
- Working Group on Coupled Modeling
- Task Force on Decadal Predictability
- Working Group on Ocean Model Development

Regional Panels

- CLIVAR / IOC Indian Ocean Implementation Panel
- Atlantic Implementation Panel
- Asian-Australian Monsoon Panel
- VAMOS Variability of the African Climate System (VAMOS)
- Pacific Implementation Panel
- Southern Ocean Implementation Panel
- VACS Variability of the African Climate System
- Arctic Ocean Implementation Panel

WCRP Grand Challenges



WCRP Grand Challenges

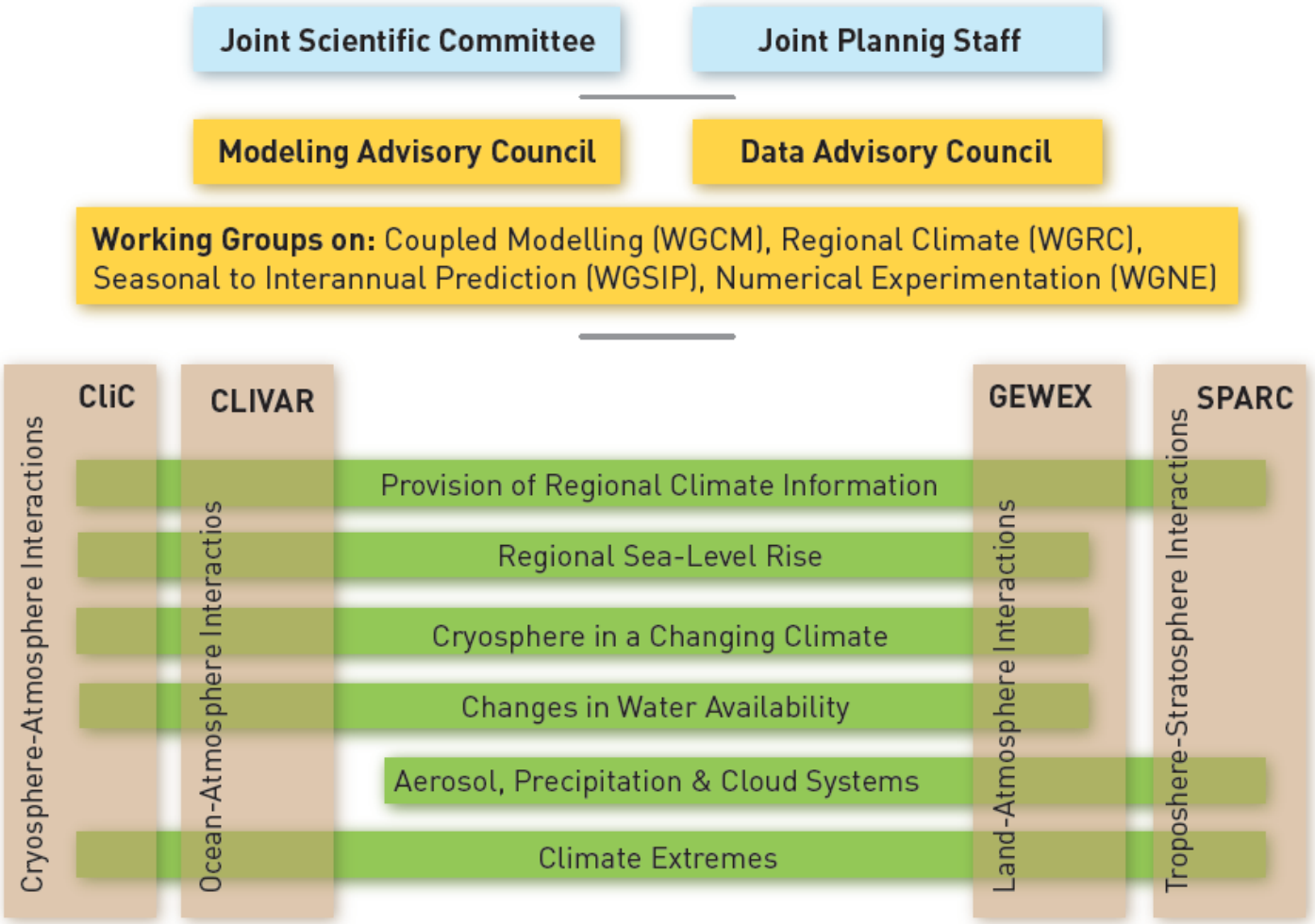
(from the JSC perspective CLIMAR relevant)

- **Provision of skillful future climate information on regional scales (includes decadal and polar predictability)** Filippo Giorgi, Carolina Vera, Fred Semazzi, **CLIVAR**, SPARC, WMAC
- **Regional Sea-Level Rise** Konrad Steffen, WCRP/IOC Task Force on Sea Level Variability and Change, **CLIVAR**, CliC
- **Cryosphere response to climate change (including ice sheets, water resources, permafrost and carbon)** Vladimir Kattsov, CliC, GEWEX, Greg Flato, Sarah Gille, WGCM, **WGOMD**
- **Improved understanding of the interactions of clouds, aerosols, precipitation, and radiation and their contributions to climate sensitivity** Terry Nakajima, Hong Liao, Graciela Binimelis de Raga, GEWEX, SPARC, WGCM, WGNE
- **Past and future changes in water availability (with connections to water security and hydrological cycle)** Kevin Trenberth, Pius Yanda, Hervé le Treut, GEWEX, **CLIVAR**, WGCM
- **Science underpinning the prediction and attribution of extreme events** David Karoly, **CLIVAR**, GEWEX, Modeling Council, ETCCDI, Fred Semazzi

WCRP Evolution

Other JSC Decisions

WCRP Organization



WCRP Evolution

WCRP Modeling Advisory Council (WMAC)

Mission: to coordinate high-level aspects of modeling across the WCRP, ensuring cooperation with main WCRP partners such as IGBP and WWRP, and act as a single entry point for all WCRP modeling activities

Membership (not final?)

John Mitchell	Chair	Stephen Klein	GEWEX, WDAC
Christian Jacob	VC, WGNE	Theodore Shepherd	SPARC
Francisco Doblas-Reyes	WGSIP	Michel Deque	WGRC
Sandrine Bony	WGCM	Peter Cox	IGBP
Helge Drange	CLIVAR	Masahide Kimoto	
Greg Flato	CliC	Maria Assunção Faus da Silva Dias	

WCRP Evolution

WCRP Data Advisory (WDAC)

Mission: to act as a single entry point for all WCRP data, information, and observation activities with its sister programmes, and to coordinate their high-level aspects across the WCRP, ensuring cooperation with main WCRP partners such as GCOS and other observing programmes.

Membership (not final?)

Otis Brown	Chair	Adrian Simmons	GCOS AOPC
Toshio Koike	VC	Eric Lindstrom	GCOS OOPC
Pierre-P. Mathieu	CLIVAR	Jean-Noel Thepaut	WMAC
Joerg Schulz	GEWEX	David Schimel	IGBP
Walter Meier	CliC	Brian Ward	SOLAS
Kaoru Sato	SPARC	Mark Dowel	CEOS
Han Dolman	GCOS TOPC	Michael Bosilovich	

WCRP Evolution

Working Group on Regional Climate (WGRC)

- Within the context of the GFCS, the WCRP is taking steps to ensure that its research is informed by and responsive to the needs of climate service providers and the users they serve.
- Following from these deliberations, it was agreed that the WCRP should institute a working group dedicated to this topic.
- This would serve to prioritize and coordinate regional climate research within the WCRP and serve as the conduit for two-way information exchange between the WCRP, the rest of the GFCS, and the various institutions and coordinating bodies that provide climate services in various regions.

WCRP Evolution

Working Group on Regional Climate (WGRC)

Terms of Reference

1. Facilitate coordination of WCRP research activities relevant to the provision of regional climate information and related climate services.
2. Ensure that the research needs of end users are understood and that new developments in climate science are communicated to users. This is fundamentally a two-way communication and development activity.
3. Provide advice to the WCRP regarding prioritization of research activities directed at supporting and improving regional climate science and prediction
4. Provide advice regarding the provision of information for impact assessment, decision making and climate services, particularly as related to water, health, food and disaster risk reduction.
5. Oversee specific WCRP regional climate research initiatives such as the Coordinated Regional Downscaling Experiment (CORDEX), and other activities as may be established in the future, either independently or in collaboration among the WCRP Projects or with other sister research programmes (e.g. IGBP, IHDP, WWRP, etc.).
6. To ensure that regional climate science is a visible activity within the WCRP and that research results are communicated effectively to climate service institutions. This may involve preparation of web-based information, publication of reports, targeted workshops, etc.
7. To liaise as appropriate with other relevant weather, oceanographic, climate and global change research programmes sponsored by the WMO, IOC, and ICSU, and communicate science priorities to funding agencies, NGOs and development agencies

33th Session of WCRP Joint Scientific Committee

Beijing, China, 17-20 July 2012

Important goal of the meeting refine the WCRP grand challenges first identified at the extraordinary JSC session in Boulder, October 2011.

Further aims were to review the activities and structure of the four WCRP projects –CLIVAR, GEWEX, SPARC, and CLiC- and move to a decision on project names and future directions within the context of an evolving WCRP.

CORE Project name

Consistent with the discussion at SSG19, CLIVAR **will keep its acronym** but change the series of words, in consultation with the CLIVAR leadership.

CLIVAR Specifics

1. CLIVAR Structure

A new structure based on a matrix of core capabilities on one axis and research challenges on the other to ensure a more integrative approach.

CLIVAR research challenges:

1. Intraseasonal, seasonal and interannual variability and predicatability of monsoon systems.

   ➢ CLIVAR will lead this aspect within the WCRP Regional Climate Information grand challenge and contribute to the Changes in Water Availability grand challenge.

2. Decadal variability and predictability of ocean and climate variability.

   ➢ CLIVAR will lead this aspect within the WCRP Regional Climate Information grand challenge

CLIVAR Specifics
1. CLIVAR Structure

CLIVAR research challenges:

3. Trends, nonlinearities and extreme events

   ➢ CLIVAR will contribute to the Prediction and Attribution of Extreme Events grand challenge

4. Marine biophysical interactions and dynamics of upwelling systems.

   ➢ This will entail strong links with IMBERs.

5. Dynamics of regional sea level variability

   ➢ CLIVAR will lead the WCRP Regional Sea Level grand challenge.

CLIVAR Specifics

1. CLIVAR Structure

Core Capabilities:

1. Improving ocean system models.
2. Improving ocean observing systems.
3. Ocean data, synthesis and information systems.
4. Knowledge transfer and stakeholder feedback.
5. Education capacity building and outreach.

CLIVAR Specifics
2. Regional activities

CLIVAR and GEWEX are to form a **single monsoon panel** that would have overall responsibility for monsoon research in all regions. The panel will have appropriate representation from AAMP, VAMOS, VACS, GEWEX, SPARC, and major modeling groups.

The current VAMOS and VACS portfolios would be **separated by function**;

- monsoon dynamics would fall under the new monsoon panel, and
- certain efforts (e.g. VACS atlas, summer schools) continue under the new CLIVAR panels on knowledge exchange and capacity building,

A **pan---Latin America and Caribbean workshop** is being organized to identify priorities for the region (along the lines of the conference being planned for Africa).

CLIVAR Specifics

3. Follow-up for CLIVAR

The grand challenges (particularly where CLIVAR is to lead) will be organized by the core projects as a supplement to their core activities. Project leads are to work with the white paper authors to develop an outline of an implementation strategy by the first week of September.

The proposed CLIVAR research challenges and capabilities shall now be advance and fleshed out in the context of the JSC discussion and in consultation with CLIVAR panels and working groups, and the wider community, with a view to implementation in 2014. Position papers will be developed for each of these research challenge areas, to be discussed at the next SSG meeting in June 2013, Kiel, Germany.

Some CLIVAR SSG / GEWEX SSG comments for this panel meeting

Nothing will change formally in 2013. BUT we – CLIVAR/GEWEX SSG - develop a joint white paper with all parties how a pan WCRP monsoon panel could be structured, circulate and debate that and then decide on it towards the end of 2013.

The new panel will then be kicked of with a **pan WRCP workshop on monsoons in early? 2014.**

One pan-WCRP Panel but that it should have subpanels, which may be regional (and thus extensions of those already in place) but could and should also be topic driven (MJO, decadal modulation, etc.).

Some emphasis is needed on this aspect to allay fears of groups being disenfranchised. So long as a group is active and making progress, it should have a home.