

WCRP

World Climate Research Programme



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International Council for Science

World Climate Research Programme

WGCM 15th session

October 2011

Geneva, Switzerland

Michel Rixen, WCRP JPS, on behalf of

Ghassem R Asrar, Director, WCRP

Antonio J. Busalacchi, chair JSC, WCRP

- WCRP Mission and Objectives
- ICSU Visioning Process, GFCS
- WCRP Future Functions and Structure
- Outcomes from JSC-32
- Key WCRP Activities in 2010-2012
- Open Science Conference

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Mission & Objectives



World Climate Research Programme supports **climate-related decision making** and **adaptation planning** by coordinating research required to improve

- (1) climate predictions and
- (2) understanding of human influence on climate

“for use in an increasing range of practical applications of direct relevance, benefit and value to society”

(WCRP Strategic Framework 2005-2015).

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The Interdisciplinary Nature of Climate Science

- Atmosphere, Oceans and Climate
- Cryosphere and Climate
- Atmospheric Chemistry and Dynamics
- Water, Energy and Climate



Meeting the Information Needs of Society

Activities in Support of Key Deliverables

- Decadal Variability, Predictability and Prediction
- Sea-Level Variability and Change
- Climate Extremes
- Atmospheric Chemistry and Dynamics
- Centennial Climate Change Projections
- Seasonal Climate Prediction



Activities in Support of WCRP Integrating Themes

- Climate-Quality Data Sets and Analyses
- A New Generation of Climate/Earth System Models
- Next Generation of Climate Experts: Developing Capacity Regionally and Globally

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IMPLEMENTATION
PLAN 2010-2015

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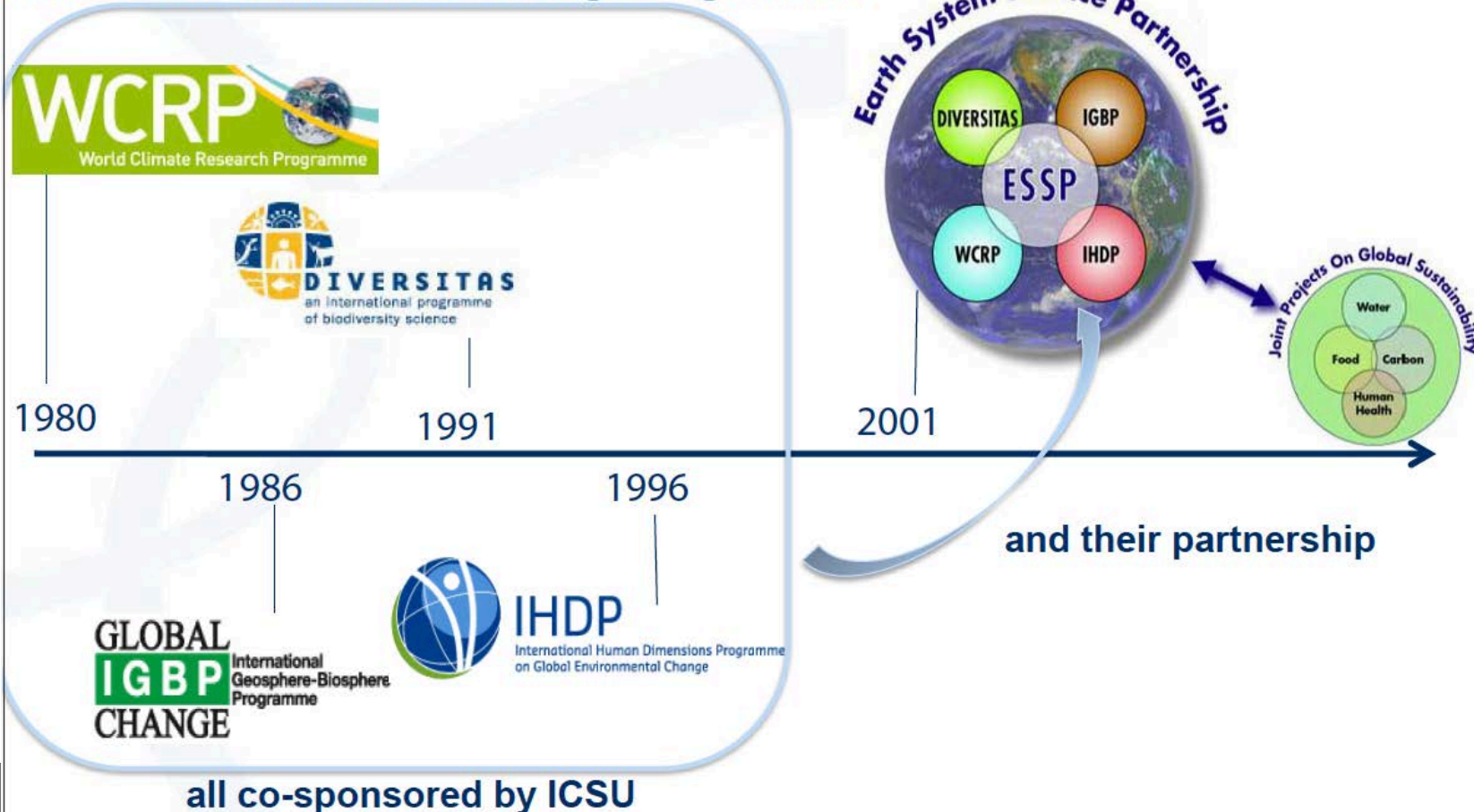


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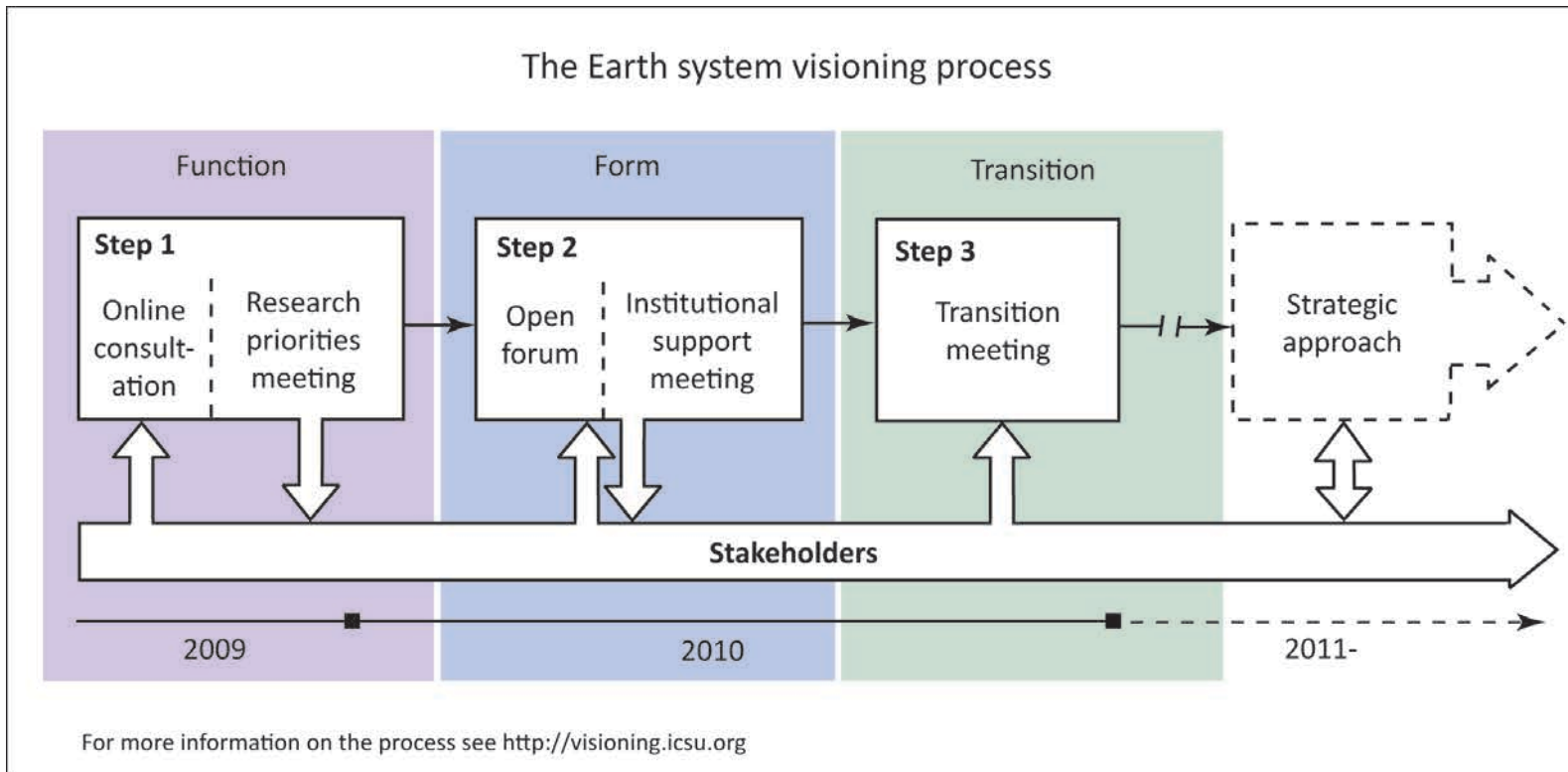
Global environmental change research: a long, successful history

four Global Environmental Change Programmes



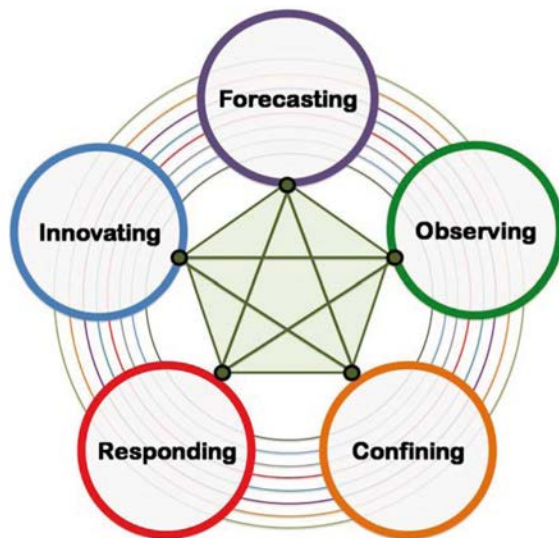
all co-sponsored by ICSU

Three Step Process for an Alliance



Goal: to engage the scientific community to explore options and to propose implementation steps for a holistic strategy on the Earth system research. This strategy will both encourage scientific innovation and address policy needs.

Grand Challenges and a global Alliance



Grand Challenges in Earth System Science for Global Sustainability.
The concentric circles represent the disciplinary research needed in the social, natural, health and engineering sciences and the humanities that must be carried out alongside interdisciplinary and transdisciplinary research in order to address the challenges. The lines linking the grand challenges show that progress in addressing any challenge will require progress in addressing each of the others.

Strengthening international science for the benefit of society

A global Alliance for a new 10-year initiative

BELMONT FORUM | **ICSU** International Council for Science

Earth System Sustainability Initiative

ISSC International Social Science Council

UNEP United Nations Environment Programme

IGFA International Group of Funding Agencies for Global Change Research

United Nations University

United Nations Educational, Scientific and Cultural Organization

Note: WMO is an observer to ESSI

WCRP: global & regional information, prediction and impact of CC



C. Core Service Delivery Mechanisms For Forecasts/Predictions



Earth System Science

B. Research Communities Meet



A. Mix of Research & Operations

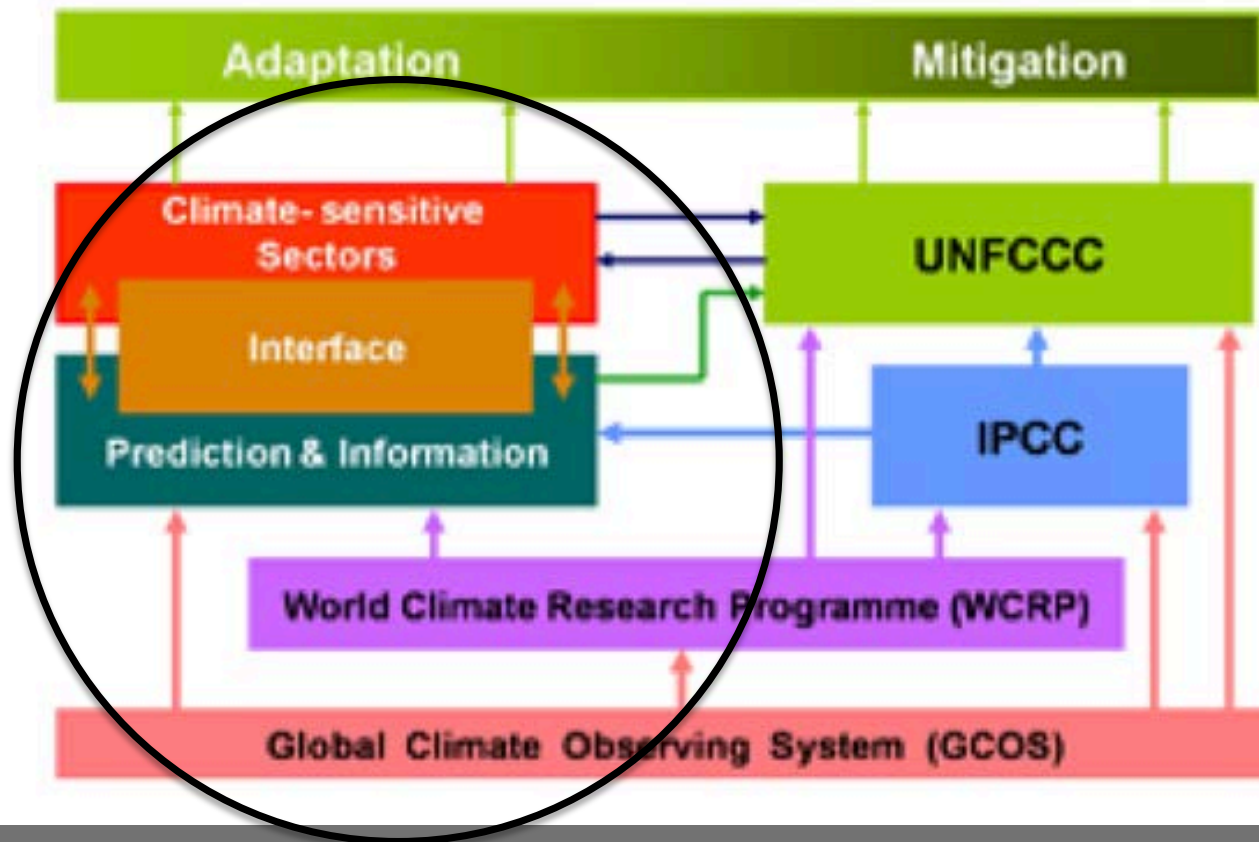


Nowcasts Day to Month Weather Forecasts Seasonal/Inter-annual Prediction Decadal Prediction Decadal To Century

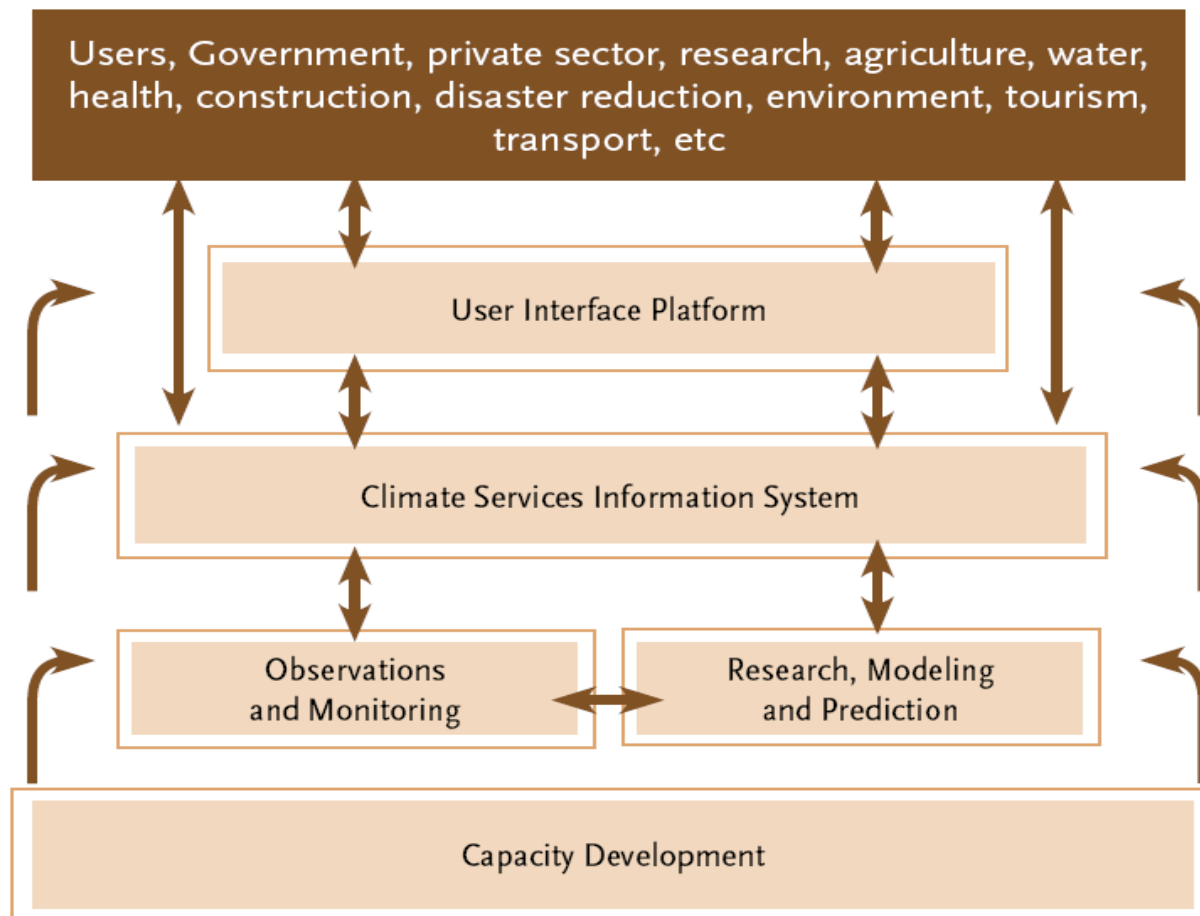
Time Scale Dependence Of Three Different Characteristics Of Weather, Climate, Water and Environmental Prediction Activities

3rd World Climate Conference (WCC-3), 2009

Global Framework for Climate Services

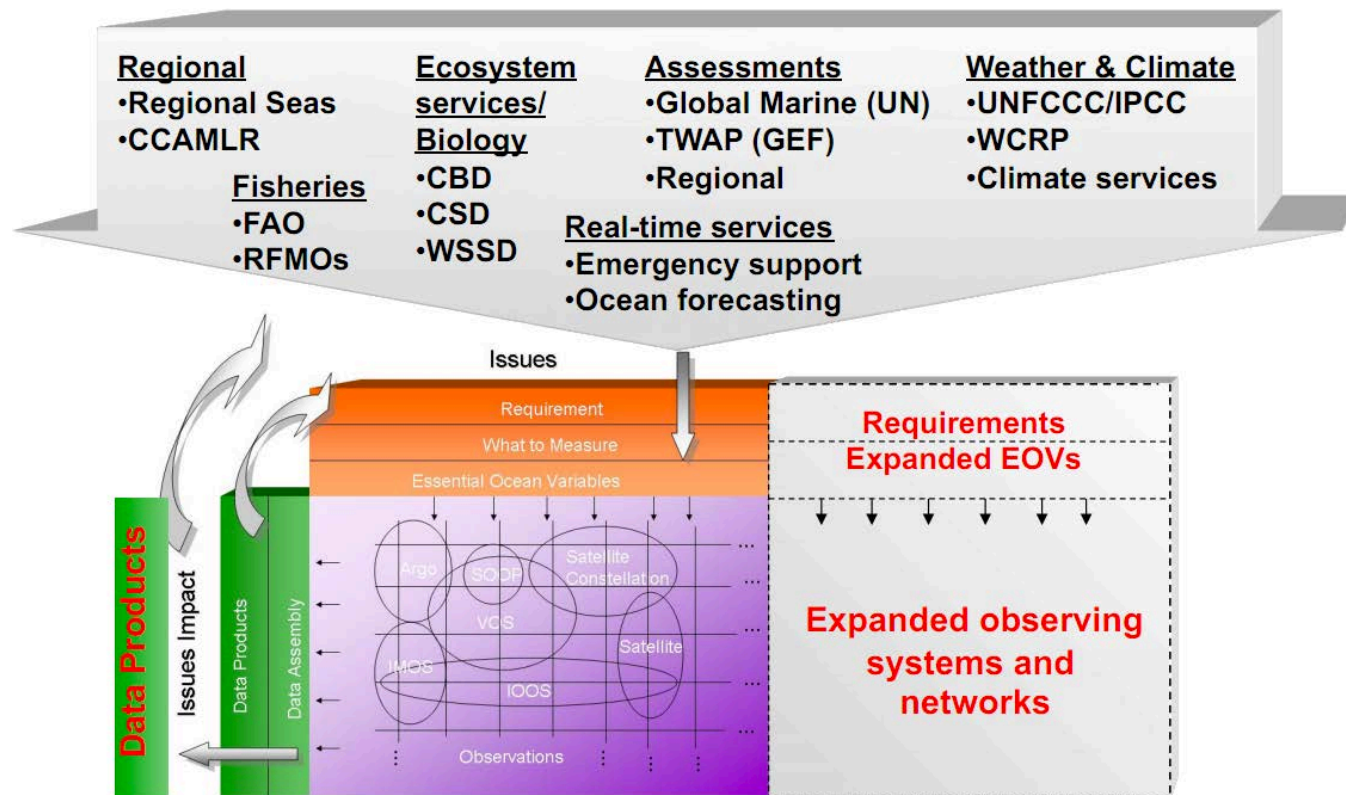


Global Framework for Climate Services (GFCS)



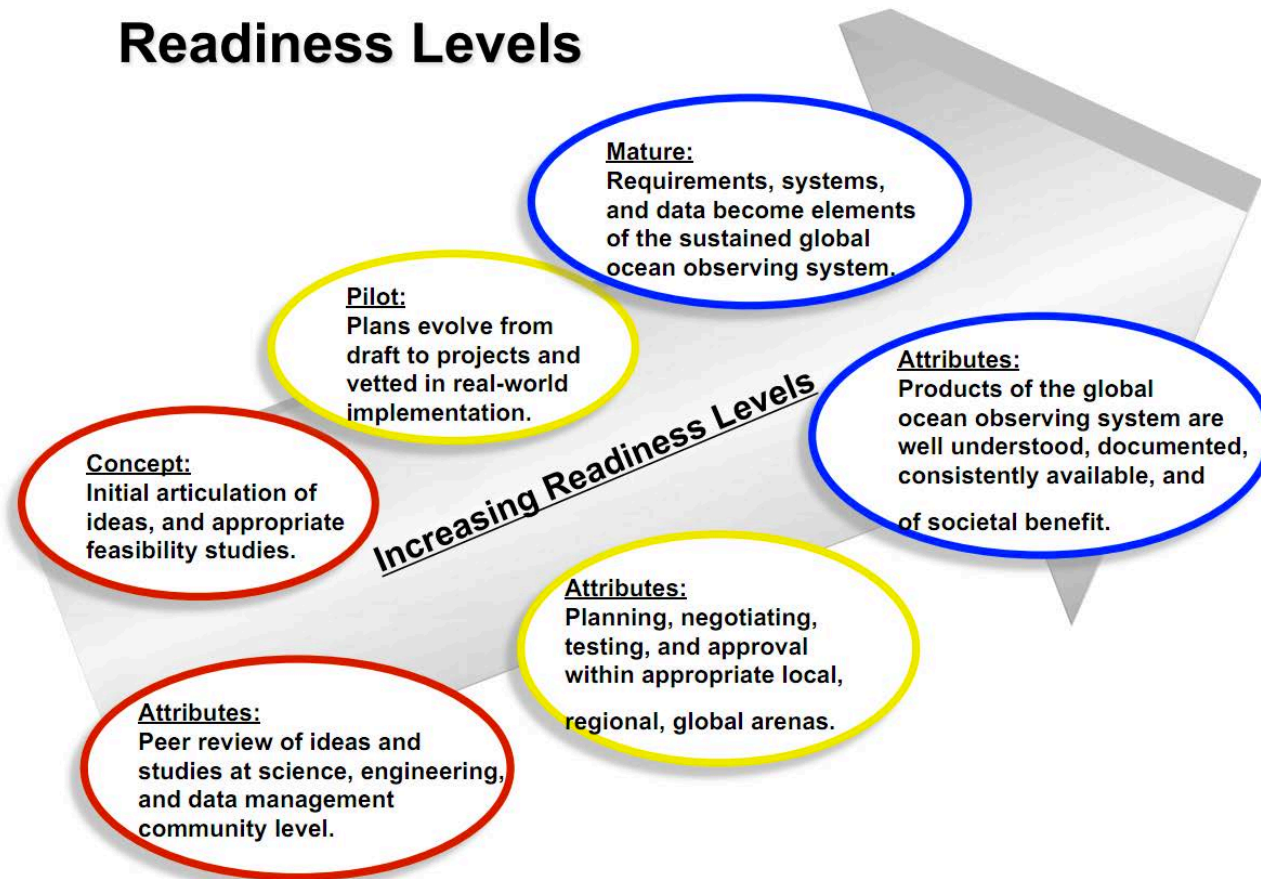
OO'09: Framework for Ocean Observing

Framework: Societal Drivers Next Decade



Concept of the Framework

Readiness Levels



Emerging structure Post-2013

- The WCRP will be based on four fundamental *interactions* of the Earth/climate system:
 - Ocean-atmosphere
 - Land-atmosphere
 - Stratosphere-troposphere
 - Cryosphere

WCRP Overarching/Unifying themes:

Observation and Analysis

Process understanding

Modeling development, projections and prediction

Climate Information and Application

Responding to new challenges: preparation

- WCRP Modelling Coordination Meeting
- Role of WCRP Research in Climate Services, Task Team
- Transition Plan from WOAP to a WCRP Data Council, Task Team

WCRP Modeling Coordination Meeting Recommendations:

- Modeling Council: facilitate coordination and integration between WCRP projects/panels, IGBP, WWRP, etc
- Not meant to replace existing groups
- Major topics:
 - Use of observations for evaluation and analysis
 - Model development (e.g. seamless, downscaling, sub-seasonal)
 - Uncertainties (risk quantification, ensembles)
 - Applications/services (training, capacity building, GFCS)
- Grass roots approach, avoid duplicates

WCRP JSC 32 Agenda

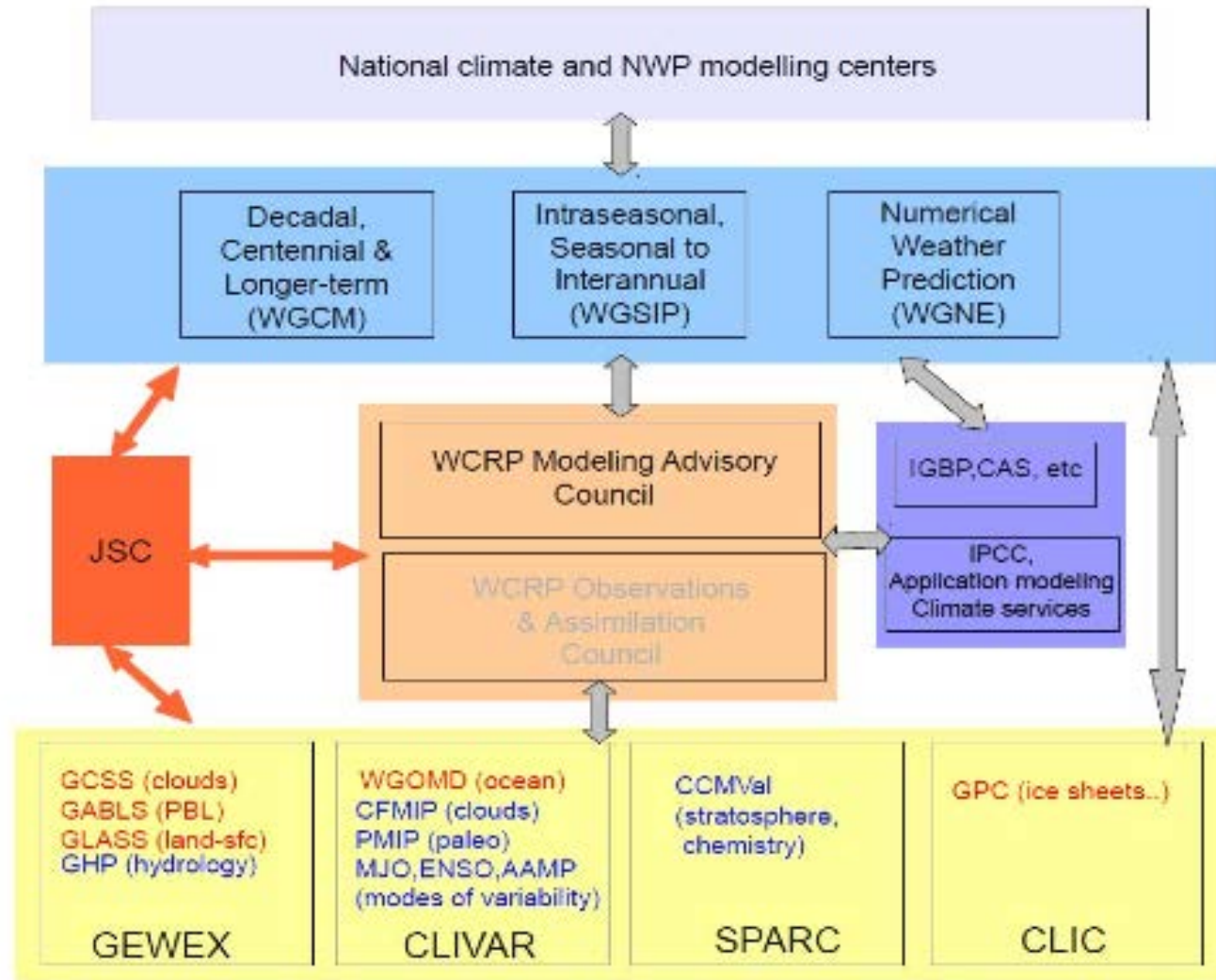
UK Met Office, Exeter, April 4-8, 2011

Expectations and Outcomes

- Define the transition/evolution of the core projects over the next 12 months
- Define the role of the OSC and its outcome in finalizing the future functions and structure of the WCRP

JSC 32 outcomes

- Modeling Council Approved – ToR developed
 - Activities, functioning, membership composition
 - Call for nominations soon
- Observations Council Approved– ToR developed
 - Re-focus: analysis, interpretation and exploitation
 - Membership composition: call for nomination soon
- Next:
 - finalize ToR, membership
 - 1st meeting in conjunction with JSC33 (TBC)



JSC 32 outcomes

- WG on Regional climate science and information
 - Focus change from ACC Office to CORDEX support
- Extremes – unpack to specific topics for further action, e.g. droughts
- Drought workshop – JSC endorsed workshop recommendations
- Rio+20 – Chairs & Directors to develop WCRP position and participation

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JSC-32 Outcomes –WGCM related

- WGCM & WGSIP – engage core Projects in analyses of non-stationary modes of climate variability, using CMIP5 results
- African monsoons – CLIVAR & GEWEX to develop strategy using CORDEX as a model/framework
- CORDEX and GEWEX to coordinate the assembly of observational datasets needed to validate regional models
- Tropospheric-stratospheric interactions: consider pan-WCRP dimension

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New developments

- CORDEX South-Asia in preparation (w/START): following CORDEX-Africa model, importance of capacity building
- WWRP-THORPEX/WCRP Planning Group for a “Sub-seasonal prediction research project” established (MJO TF, stratosphere processes, land IC, coupling and DA, parameterization & uncertainties, GHG, YOTC, etc)
- WWRP-THORPEX/WCRP Steering Group for a “Polar Weather Prediction Research Project” being established (leveraging IPY legacy)

Key events

- WWRP-THORPEX/WCRP Polar Predictability Workshop (Oct 10)
- GEWEX Modeling and Prediction Panel (Oct 10)
- WCRP Modeling Coordination Meeting (Nov 10)
- WWRP-THORPEX/WCRP Sub-seasonal to seasonal Prediction Workshop (Dec 10)
- WCRP Drought workshop (March 11)
- 1st international conference on CORDEX (March 11)
- WCRP/JCOMM Wave Climate Projections (April 11)

Key events

- Observations: GCOS/WCRP AOPC+OOPC, GCOS/WCRP WS on ECV (April 11)
- Model Uncertainty and Errors in Prediction Models (June 2011)
- WGSIP (Sept 11), WGNE, WGCM (Oct 11)
- WCRP Open Science Conference (Oct 11)
- Sub-seasonal to seasonal Planning Group kick-off meeting (2-3 Dec 11)
- Polar Prediction Project kick-off meeting (30 Nov-1Dec)
- CMIP5 (March 12)
- Physics of Climate Models (March 12)
- Global Drought Early Warning System (April 12)
- WCRP Polar Climate Initiative (April 12)
- 4th reanalysis conference (May 12)
- Observations and Modeling Councils (TBD), in conjunction w/ JSC33 in Beijing?

WCRP Open Science Conference

24-28 October 2011

Denver, Colorado, USA

<http://conference2011.wcrp-climate.org>

Promoting, Facilitating and Coordinating

Climate Research in Service to Society



WCRP Open Science Conference

- Assembly of WCRP affiliated researchers and partners (~1700 participants)
- Exclusive opportunity for exchange and collaboration across diverse research communities (e.g., WCRP, WWRP, IGBP, IHDP, ...) working to advance understanding and prediction of climate variability and change across scales

The Conference will:

- Appraise current state of climate science (→ IPCC AR5)
- Identify most urgent scientific issues and research challenges
- Ascertain how WCRP can best facilitate research and develop partnerships critical for progress
- Facilitate growth of future, diverse workforce

<http://conference2011.wcrp-climate.org>

WCRP Open Science Conference

International Scientific Committee

- Jim Hurrell, **Chair**, NCAR, USA
- Ghassem Asrar, WCRP, Switzerland
- Sandrine Bony, LMD/IPSL, France
- Tony Busalacchi, ESSIC/U. Md, USA
- Christian Jakob, Monash U., Australia
- Rik Leemans, ESSP Chair, Netherlands
- Jerry Meehl, NCAR, USA
- Terry Nakajima, U. Tokyo, Japan
- Carlos Nobre, IGBP Chair, Brazil
- Ted Shepherd, Univ. Toronto, Canada
- Julia Slingo, MetOffice, UK
- Koni Steffen, Univ. Colorado, USA
- Kevin Trenberth, NCAR, USA
- Carolina Vera, Univ. Buenos Aires, Argentina
- Martin Visbeck, IFM-GEOMAR, Germany

<http://conference2011.wcrp-climate.org>



WCRP Open Science Conference

	Monday 24 October	Tuesday 25 October	Wednesday 26 October	Thursday 27 October	Friday 28 October
7:30		Students Breakfast - by Invitation			
8:30	Plenary Session A1	Plenary Session A3	Plenary Session A4	Plenary Session A5	Plenary Session A6
Coffee Break					
10:30	Plenary Session A2	Poster Viewing Sessions: C2, C13, C14, C15, C16, C17, C17, C19, C20, C21, C22, C23, C24	Poster Viewing Sessions: C3, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34	Poster Viewing Sessions: C4, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45	Plenary Session A7
Lunch break on your own			ECS Lunch & Panel Discussion - by Invitation	Lunch break on your own	End of Conference
13:30	Parallel Sessions: B1, B2, B3	Parallel Sessions: B4, B5, B6	Parallel Sessions: B7, B8, B9	Parallel Sessions: B10, B11, B12	
Coffee Break					
16:00	Parallel Sessions: B1, B2, B3	Parallel Sessions: B4, B5, B6	Parallel Sessions: B7, B8, B9	Parallel Sessions: B10, B11, B12	
After 18:00	Poster Viewing Sessions: C1, C5, C6, C7, C8, C9, C10, C11, C12 & Reception	Business Needs for Climate Info	Conference Gala	Special Session/Meeting	

WCRP Open Science Conference

Daily Conference Themes – Integrative aspect of WCRP

Monday (early AM): **Climate Research in Service to Society**

Monday (late AM): **The Climate System Components and their Interactions**

Tuesday: **Observation and Analysis of the Climate System**

Wednesday: **Assessing and Improving Model and Predictive Capabilities**

Thursday: **Climate Synthesis and Assessments**

Friday (early AM): **Translating Scientific Understanding of Climate System into Climate Information for Decision Makers**

Friday (late AM): **The Future of WCRP**

<http://conference2011.wcrp-climate.org>

WCRP Open Science Conference

Sponsors



1700 registered participants of which:

- 300 students
 - 200 early career scientist
of which 250 are sponsored
- 2100 abstracts submitted
190 oral presentations, // sessions
20 plenary presentations
84 countries represented



Thank you for your attention!

<http://www.wcrp-climate.org>

