

# WCRP

World Climate Research Programme



## WCRP Working Group on Regional Climate

The WGRC's mission is to coordinate regional climate research and science-based knowledge development for decision makers

### Co-Chairs:

Clare Goodess, CRU UEA United Kingdom  
Bruce Hewitson, CSAG UCT South Africa



### 11 members, including core project representatives:

Simon Mason (CLIVAR), Jan Polcher (GEWEX).....

### Ex Officio:

#### CORDEX chairs -

Filippo Giorgi ITALY  
Bill Gutowski USA

### WCRP Secretariat

SWITZERLAND:

Roberta Boscolo, Officer

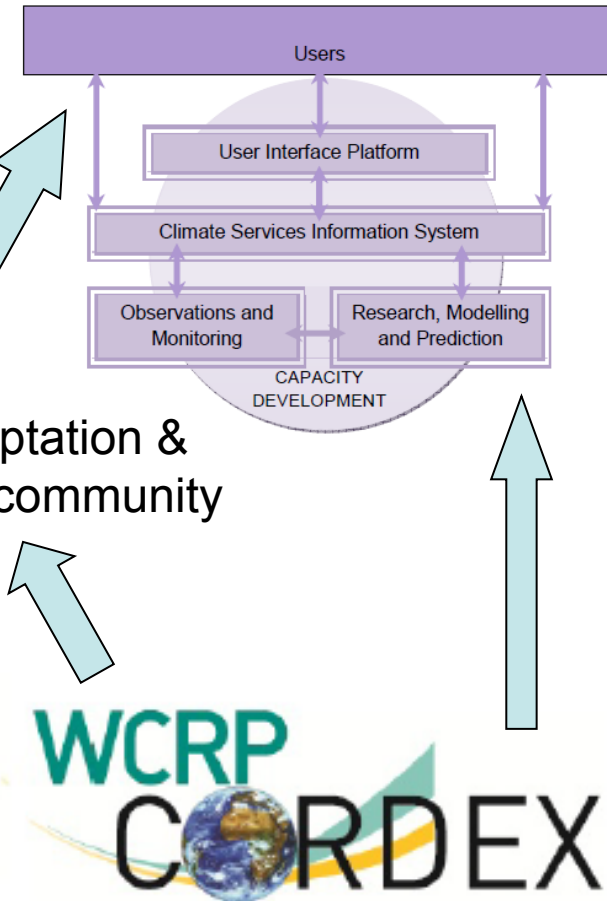


International Council for Science

To foster communication between the WCRP and the GFCS and Future Earth, and to serve as the point of contact between the WCRP and regional climate information/service entities (e.g. WMO Regional Climate Centres, the Climate Services Partnership (CSP) etc)

To oversee and promote specific WCRP regional climate research initiatives including the Coordinated Regional Downscaling Experiment (CORDEX)

Impacts, adaptation & vulnerability community



# Some extreme views on downscaling!

A lot of relevant CLIVAR work/initiatives here, e.g., extremes and large-scale modes of variability, monsoons, proposed climate dynamics panel.....

Garbage in, garbage out – so what's the point of downscaling?

**GEWEX/CLIVAR observations, extremes grand challenge – scaling and model/obs comparisons**

There's lots more detail – so it must be more accurate

Added value of downscaling is a legitimate science question – particularly in the context of climate change projections which can't be verified – it is being addressed – but scope for wider involvement.....

It's like having a meteorological station every 9km, **censored** interpolates data collected from global meteorological stations and orbiting satellites, providing accurate data in detailed 9km grids.

The data available here are climate projections from GCMs that were statistically downscaled and calibrated ... The spatial resolution is 30 arc seconds (~1 km<sup>2</sup>).

# CORDEX Flagship pilot studies

- Motivation: Focused studies to address key questions about the “value” of the CORDEX approach
- What are the questions?
  - High resolution (non-hydrostatic, cloud resolving)
  - Process based analysis
  - Added value
  - Use of multiple downscaling techniques
  - Earth system coupling
  - Regional forcings (landuse, aerosols)
  - Comprehensive comparison with observations
  - End-to-end, climate-to-end user, studies
  - Production of “actionable” information



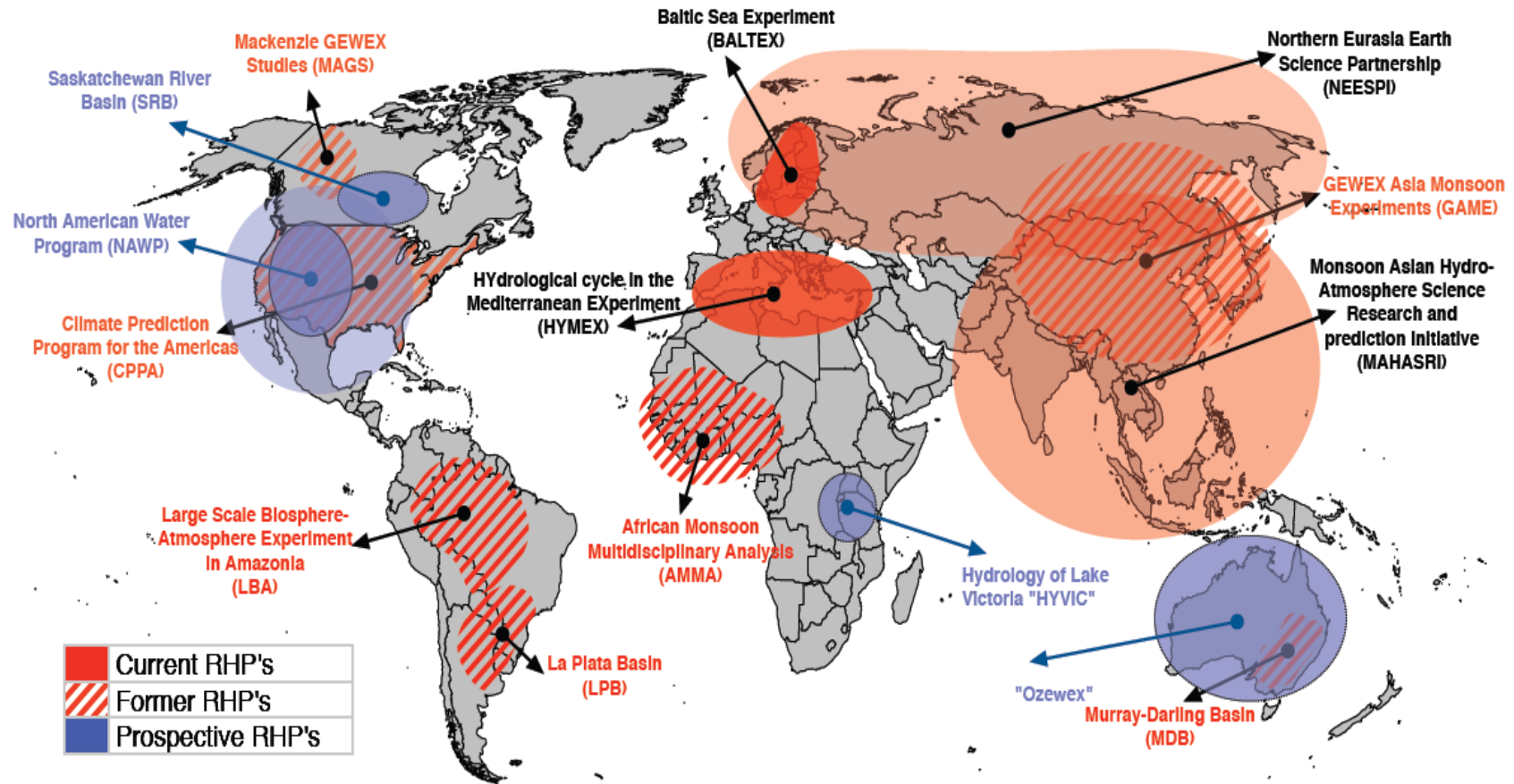
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## ID card of GHP within GEWEX

The GEWEX Hydrometeorological Panel aims to address the GEWEX science questions from a regional and integrated perspective.

- ★ Only at the regional scale can the water cycle be addressed from its physical to human and socioeconomic aspects.
- ★ The Regional Hydrological Projects (RHPs) are an essential tool in this endeavor as they bring together various disciplines on the water issues.
- ★ The Cross-Cut projects allow GHP to propagate knowledge from one region to the other and synthesize results at the global scale.
- ★ At the regional level, applications built with the new understanding GEWEX has produced, can be tested and evaluated (actionable science).

# GEWEX REGIONAL HYDROCLIMATE PROJECTS





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# Objectives of Cross-cut projects

- ★ Push GEWEX grand science questions at the regional scale.
- ★ Cross-cut projects should also test and evaluate applications of the knowledge produced in RHPs.
- ★ CC projects are a tool for collaborations between RHPs and with other GEWEX and WCRP activities.
- ★ **Active Cross-Cuts:**
  - ★ Sub-daily precipitation
  - ★ Phase transition precipitation
- ★ **Ideas for new Cross-cuts:**
  - ★ Mountain precipitation and hydrology
  - ★ Seasonal stream-flow forecasting
  - ★ Climate change and water resources





In order to take forward the Regional Climate Information Grand Challenge a small steering group has been set up:

- Lead contact: Clare Goodess (WGRC)
- Steering group members: Francisco Doblas-Reyes (WGSIP), Lisa Goddard (CLIVAR), Bruce Hewitson (WGRC), Jan Polcher (GEWEX & WGRC) supported by Roberta Boscolo (WCRP)
- In the next few months we will work to identify a limited number of specific and tractable research initiatives (which might be expressed as scientific questions)
- Identify champions and leaders for these initiatives
- Produce a new, restructured White Paper, along with a shorter document to engage and galvanise the wider research and funding communities (finalised by end of year)





## The question for yesterday's break out group

“What gaps in our scientific understanding and information, if addressed, would maximise the value content of regional climate information?”

1. how to deal with regions with no baseline data? how to handle data gaps? How to fuse different data from different sources?
2. co-exploration of data; stronger bidirectional interaction with the users – understanding the impacts of communication pathways;
3. Understand the sources of uncertainty as a function of methods, scales, processes;



4. Disaggregating the contribution from local, regional and remote processes including the co-behaviour of processes
5. Understanding the context into which the climate information is communicated
6. Understanding timescale nature of anomalies – differentiating natural and deterministic signals
7. Identify “iconic” case studies
8. Study extremes on a regional basis? Extremes depends on local and remote processes.
9. Ethics of producing climate information

***The Regional Climate Information grand challenge provides an opportunity to integrate the other grand challenges - & hence to link CLIVAR/GEWEX etc etc***