

The WCRP Conference for Latin America and the Caribbean:
Developing, linking, and applying climate knowledge

Towards constructing a knowledge network between climate research and decision-making at the regional level

Concept note

During the last WCRP-Open Science Conference it has been made clear that the climate research community is facing a complex challenge that includes improving our knowledge on the climate system, the interactions among its components and the limits of predictability. The challenge also involves enhancing our ability to interact with other disciplines, particularly decision makers (including those who elaborate policy) and social scientists in order to translate climate knowledge into actionable information.

This challenge exhibits important regional characteristics, including different socio-economic levels of exposition, vulnerability and adaptability to a variable and changing climate. These peculiarities should be clearly identified to effectively accomplish the goal of promoting the research needed to underpin the generation of relevant climate information and skillful climate predictions, thus providing the rationale for the *WCRP Conference for Latin America and the Caribbean (WCRP-LAC)*.

The main goal of this Conference is to identify gaps and ways to overcome limitations in the chain of knowledge going from basic to applied climate science and to informing policy and decisions that are particularly relevant for LAC. This will imply building interdisciplinary capacity, fostering the participation of decision and policy makers, climate and social scientists, and key intermediary institutions. Moreover, it is also expected that the *WCRP-LAC* could contribute to the discussions on the emerging provision of regional Climate Services.

Objectives

The *WCRP-LAC* should aid in defining the research agenda needed to contribute to the provision of effective, problem-oriented and demand-driven climate services. This will necessarily require a balance between (i) research focused in improving climate monitoring and predictions at regional and local scales; (ii) research oriented by the

demands of socio-economic sectors sensitive to climate, and (iii) research on the process of informing policy and decision-making in the different socioeconomic sectors.

The specific objectives underlying these main research strategies are to:

1. Identify research themes critical to improve our understanding of sources and intrinsic levels of predictability on intraseasonal, interannual, decadal and longer time scales
2. Identify strategies to narrow the gap between current predictive capabilities in the region and estimated limits of predictability
3. Improve understanding and assess predictability of climate extreme events, and evaluate their impacts on key environmental services and on society
4. Assess regional capabilities for monitoring the climate system and extreme climate events, including those of natural and anthropogenic origin.
5. Discuss and plan how to establish a research framework oriented to identify climate-related information, products and tools needed in the different socioeconomic sectors, and to explore communication strategies to improve the flow of knowledge throughout the information networks and contribute to the establishment of a “system of knowledge”
6. Promote discussions across WCRP emerging initiatives relevant to LAC such as grand challenge on regional climate, grand challenge on water availability, and CLIVAR Monsoon activities
7. Contribute to the identification of knowledge needed to establish relevant regional climate services with the advances in the above research topics

It is evident, however, that there is a diverse range of socioeconomic sectors sensitive to climate in Latin America and the Caribbean. Therefore, *WCRP-LAC* activities will be focused in the following thematic areas: water and energy, agriculture and ecosystems, human health, coastal zones and urban environments. In LAC there are national, regional and international experiences in integrated studies focused on water resources and agriculture. The WCRP Conference will provide an opportunity to initiate and/or expand the dialog with stakeholders of those specific socio-economic sectors in order to plan new relevant research activities.

The *WCRP-LAC* objectives matched with expected outcomes are listed below

Specific Objective	Expected outcome
1. Identify research themes critical to improve our understanding of sources and intrinsic levels of predictability on intraseasonal, interannual, decadal and longer time scales	Definition of research priorities undertaking the themes that constrain predictability in LAC, with especial emphasis on those more relevant to provide effective climate services.
2. Identify strategies to narrow the gap between current predictive capabilities in the region and estimated limits of predictability	Development of combined strategies of statistical and/or dynamical models based on currently available global coupled model forecasts, and regional predictability levels associated to ENSO/MJO/SAM in order to provide skilful predictions at the regional level.
3. Improve understanding and assess predictability of climate extreme events, and evaluate their impacts on key environmental services and on society	Identification of limitations in their prediction and definition of priorities to reduce their impact on society
4. Assess regional capabilities for monitoring the climate system and extreme climate events, including those of natural and anthropogenic origin.	Identification of critical monitoring gaps in LAC and elaboration of recommendations on how to enhance the monitoring system in view of the provision of climate services
5. Discuss and plan how to establish a research framework oriented to identify climate-related information, products and tools needed in the different socioeconomic sectors, and to explore communication strategies to improve the flow of knowledge throughout the information networks and contribute to the establishment of a "system of knowledge"	Improved interactions between the climate science community, intermediary institutions/individuals, and decision makers (including policy makers) from the public and private sectors and definition of lines of research needed to improve effective communication and to incorporate climate knowledge into actual decisions and policy
6. Promote discussions across WCRP emerging initiatives relevant to LAC such as grand challenge on regional climate, grand challenge on water availability, and CLIVAR Monsoon activities	Better synergy between WCRP global initiatives and regional activities
7. Contribute to the identification of knowledge needed to establish relevant regional climate services with the advances in the above research topics	Leverage climate, sectorial and social researchers participation in developing regional climate services

