

Regional Climate Information

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Initially established as 3 time-scaled frontiers with a 4th frontier on how to transform this knowledge into decision relevant information

Frontier 4: Informing the risk management and decision making space

Frontier 1: Intraseasonal and seasonal predictability and prediction

Frontier 2: Decadal variability, predictability and prediction

Frontier 3: Reliability and value of long-term regional climate change projections

In order to bring cross-WCRP expertise together in an integrated way it is proposed to:

- Consider the issues in Frontiers 1, 2 and 3 through the ‘lens’ of ***informing the risk management and decision making***,
- Adopt a focus on cross-regional and cross-timescale issues
- Seek to provide information that constitutes a solid and targeted basis for decision making concerning risk management with active and two-way involvement with stakeholders.

Six questions of the list:

Q1: What gaps in our scientific understanding and information, if addressed, would maximise the value content of regional climate information at all time scales of interest to a wide range of stakeholders?

Q3: How can we define the best ways to post-process climate data to provide the targeted regional information required for impact, adaptation and vulnerability (IAV) applications within the context of risk management? This implies that climate data is not climate information and includes how to best use information from ensembles of simulations to provide trustworthy uncertainty estimates.

Q5: How to best convey credibility and uncertainty in its multiple forms to users of regional climate information?

Q6: What new approaches are needed to understand the sources of uncertainty at the regional level as a function of methods, scales and processes? Is it possible to disaggregate the contribution from local, regional and remote processes, including the co-behaviour of processes?

Q10: Can we define the role(s) of high-quality regional observations, including historical and proxy observations?

Q11: How to draw on and bring added value to initiatives and work undertaken in other grand challenges without duplicating them?

How to improve regional climate information from IPCC?

- Improve the quality of the data
 - Improve the models
 - Improve the observational datasets, used for validation and verification
 - Improve communication on the role of variability (esp. decadal variability)
 - Provide higher resolution information (??)
- Improve the accessibility of the data (models and observations)
- Improve the understanding (science, use of the data, interpretation of results)
- Improve the coordination/collaboration between climate scientists and other expert communities to translate climate data into useable climate information

IPCC Q1. What are the major gaps in the domain covered by your BOG (revealed by the IPCC AR5 process) in our understanding of the climate system, and what are the best strategic approaches to address these scientific issues in the next 5-8 years?

- Gaps
 - Lack of good observational data in developing countries
 - Clear understanding in changes of regional phenomena and drivers of variability → how to prioritize efforts to increase understanding
 - Role of and mechanisms behind teleconnections in the spatial disaggregation of uncertainty
 - Lack of framework to translate climate data and output into climate information/guidance
- Strategic approach
 - Design a mechanism for the Regional Climate GC to work with the other GCs, the core projects and the IAV community to identify information relevant to regional scale climate
 - Provide a regional laboratory for facilitating capacity building and the use of data/modelling resources, integrated with other capacity building initiatives

IPCC Q2. How could the community focusing on the topics discussed by your BOG contribute to key scientific questions, uncertainties and research issues raised/identified by IPCC?

- Provide a regional laboratory for facilitating capacity building and the use of data/modelling resources, integrated with other capacity building initiatives
- Enhance communication channels to achieve mutual benefit from regional expert knowledge (e.g. RCOFs, regional climate scientists)
- Enhance the understanding of the contribution of local and regional processes to the regional climate response (e.g. land-surface feedbacks under the influence of large-scale forcings)
- Foster the transferability of methodologies (e.g. intraseasonal variability, coupled regional modelling) between regional communities and programmes to enhance cross-regional understanding and synergies
- Understand sources of model uncertainty from a regional perspective, including feedback from users (large range)

IPCC Q3. What are the inadequacies/requirements of the current/future observing system in relation with the objectives of your BOG?

- Needs to provide error estimates and go beyond temperature and precipitation; high quality should be user determined/defined
- Evaluating models, especially high resolution, is a challenge; need to improve understanding of processes to include in ESMs; motivation to building/improving reanalyses
- Observations should be used to provide information on local climate changes/early warning signs of climate changes/impacts; use the characterisation of past and current climate variability
- Increase its use in metrics, bias correction and statistical downscaling; helps communicating/convincing about accuracy/reliability of a product

IPCC Q4. How could WCRP contribute efficiently to the preparation of the next IPCC assessments? Should WCRP produce some specific synthesis papers in preparation to these IPCC assessments and if so, on which topics?

- Expand the scope of both regional phenomena and regional climate assessments. Bridge the gap between global and regional activities to increase the visibility of the regional activities in the IPCC process, including a better assessment of regional modelling, observations and downscaling in the context of the much-needed enhanced dialogue between WGI and WGII
- Identify literature gaps, prepare review/synthesis papers and commission expert meetings on: partitioning variability and change in models and observations, separation of the local and remote contributions to regional variability, contribution from downscaling, distillation of multi-model multi-method predictions and projections, advance knowledge taking advantage of climate research targeting different time scales

Some random thoughts

- Responsibility
- Sensitivity
- Credibility
- Liability