

SBSTA 40 RESEARCH DIALOGUE

Saturday, 7 June 2014, 15:00-18:00

Summary Report by the SBSTA Chair

The sixth meeting of the SBSTA research dialogue was held on Saturday, 7 June 2014, from 15:00 to 18:00, at the Hotel Maritim in Bonn, which I had the pleasure to chair with the assistance of the co-facilitators of the informal consultations on research and systematic observation.¹

This SBSTA 40 research dialogue brought together approximately 70 participants, representing all major Parties' groups. Parties were presented with a wealth of information on scientific developments relevant to the Convention and were able to engage in a fruitful dialogue with representatives from the research community during the question and answer and discussion sessions.

Prior to the meeting, four Parties and two groups of Parties submitted their views on possible items for consideration as part of the research dialogue.² These views and the conclusions of SBSTA 38 on this matter³ provided the basis to develop the agenda of this year's research dialogue.

Regional and international research programmes and organizations active in climate change research made significant contributions prior to the dialogue, by providing information on their research activities relevant to the needs of the Convention.⁴

The dialogue was consisted of three main parts:

- I. Recent developments in global climate information
- II. Emerging scientific findings: Polar Regions
- III. Needs for climate change research and developments in research-related capacity building

The dialogue benefitted from contributions and presentations made by the climate change research community, including from the Intergovernmental Panel on Climate Change (**IPCC**), the International Geosphere-Biosphere Programme (**IGBP**), the World Climate Research Programme (**WCRP**), **DIVERSITAS**, the Inter-American Institute for Global Change Research (**IAI**), the Global Climate Observing System (**GCOS**), the Caribbean Community Climate Change Centre (**CCCCC**), the Asia-Pacific Network for Global Change Research (**APN**), and the **START International**. It featured presentations from the **European Commission** and **Japan**.

Each part included a questions and answers session, allowing Parties to provide feedback and communicate to the research programmes and organizations their views on needs and priorities for climate change research. The following briefly summarizes the contributions made at the research dialogue.

Part I: Recent developments in global climate information

A representative from the IAI presented on the adaptive capacity of tropical dry forests. He noted the resilience of these ecosystems despite large scale altered hydroclimatic conditions and their importance

¹ The agenda, presentations and related information on the SBSTA 40 research dialogue is available at: <http://unfccc.int/6793.php>.

² Submissions from Parties can be found at:

<http://www4.unfccc.int/submissions/SitePages/sessions.aspx?showOnlyCurrentCalls=1&populateData=1&expectedsubmissionfrom=Parties&focalBodies=SBSTA>.

³ FCCC/SBSTA/2013/3, paragraph 67.

⁴ Submissions received by regional and international research programmes and organizations can be found at: <http://unfccc.int/7482.php>.

for climate change prediction. He underlined that literature of tropical dry forest is much more scares than that on rainforest, while stressing that under increased warming, a process of desertification is projected for these ecosystems in Latin America, leading to a food crisis with significant adaptation costs.

A representative from IGBP presented on new patterns in climate extremes and attribution. While noting the challenges of modeling extremes, she emphasized that extreme temperatures continue to rise and that the land area subject to these extremes is also increasing. She pointed to improvements in the anthropogenic attribution of these events, calling for improving models in precipitation, especially at the tropics.

A representative from the GCOS presented a report from the Joint GCOS/ Global Observation for Forest Cover and Land Dynamics (GOFCL/GOLD) Workshop on 'Observations for Climate Change Mitigation', which was held in Geneva, Switzerland, in May 2014. She explained that the workshop identified evolving data needs for different sectors, noted that current ECV activities not targeted for land based mitigation, and called for a revision of ECV actions and potential amendment. She underlined that coordinated comprehensive observations are “the nervous system” of any Earth information system; that observations are needed by the global and regional models to support and verify climate models to reliably assess present extremes; and that data-driven analysis and synthesis using an agreed framework such as the IPCC GPG, is an evolving requirement for ECV monitoring in the context of mitigation.

A representative from Japan addressed new approaches in climate prediction for better adaptation, with a focus on near-term prediction and high-resolution ensembles. He described the limitations of conventional global circulation models, noting recent developments in breaking uncertainties related to clouds with the global cloud resolving model. He added that while some observations show that global mean temperature has not been rising as predicted recently, ocean data shows a continuous warming, which implies that the lack of observed warming in global mean temperature is related to a redistribution of heat.

Responding to a question on how long it would take for the new break-through in reducing uncertainties in climate sensitivity to feed into the IPCC cycle, the representative from Japan replied that the scientific community should be able to take on these new findings in the next IPCC cycle. In response to a question on the availability of climate services, the GCOS indicated that this will be addressed in the whole framework for climate services.

Part II: Emerging scientific findings: Polar Regions

A representative from IPCC WGI presented on warming and polar amplification, permafrost, and sea ice changes. He highlighted the main findings of WGI relating to: the loss of mass in the ice sheets and glaciers; the decreasing trends in Arctic sea ice and northern hemisphere spring snow cover; and the likelihood of these impacts intensifying as global mean surface temperature rises.

On permafrost, he mentioned that there is high confidence that permafrost temperature have increased in most regions since the early 1980s and it is virtually certain that near surface extent at high northern latitudes will be reduced as global mean surface temperature increases. He also explained that the annual mean Arctic sea ice extent decreased over the period 1979 to 2012 with a rate in the range 3.5 to 4.1 per cent per decade.

A representative from IPCC WGII addressed the ecosystem impacts of ocean warming and acidification. He highlighted the main findings of WGII focusing on impacts on fauna as a result of warming trends and discussed the differences in the resilience and variability of the Arctic and the Antarctic systems. He explained that ocean warming has resulted in a displacement of fish and

improved fisheries productivity towards high latitudes, while reduced precipitation has exacerbated ocean acidification leading to increased risks for mollusks and crustacean fisheries and coral reefs. He also pointed out that ocean acidification is likely to result in the Arctic marginalization of high polar systems.

A representative from the EU provided an update on the ICE-ARC (Ice, Climate, Economics – Arctic Research on Change) project of the EU, which aims to assess the social and economic impact of Arctic sea-ice loss. He highlighted the observed changes in the Arctic since 1970s especially in relation to the reduction of ice thickness and regime shift (moving from a predominantly multi-year ice dominated regime to an annual change). He emphasized that the impacts are multifaceted affecting the way of life of indigenous peoples, and resulting in large coastal erosion that leads to ecosystem pressures and loss of habitat of polar bears. The exploration of the Arctic (oil and gas extraction, fisheries and tourism) affects the economics of the region. Given the complexity of the system, he called for a holistic, multi-sectoral approach involving all countries and stakeholders. He provided an overview of the EU Arctic programme ICE-ARC, which aims to provide a better understanding of the impacts, associate costs and uncertainties of Arctic change.

A representative from IGBP, on behalf of DIVERSITAS, presented a new global biodiversity scenario analysis, highlighting win-win situations for climate and biodiversity. She explained the main features of a new set of socioeconomic scenarios that aim to integrate climate change, biodiversity and meeting human development goals while securing food and energy for all. She highlighted that although the modeling results are preliminary, they show that by combining all three elements it is possible to identify win-win situations across international agreements.

Questions posed to the four presenters related to the impacts on the Arctic and the Antarctic. Responding to a question relating to the possibility of formation of new peatlands as result of ice melting, an expert indicated that such a possibility exists, but the timeframe is likely to be long given the slow rate of melting. On the status of observation capacity in the Arctic, it was highlighted that there is a need for the scientific community to collaborate with industry on observations. In relation to the projected and observed rates of summer sea ice extent in the Arctic, it was noted that observations indicate a constant slow loss rate of sea ice. The presenters also highlighted the slow melting of glaciers in the Antarctic, as well as the absence of evidence of tipping points on sea ice disappearance. Regarding the impacts of climate change on the Antarctic, the presenters highlighted large modeling uncertainties.

Part III: Needs for climate change research and developments in research-related capacity building

A representative from the IPCC outlined knowledge gaps identified in the AR5, noting that each chapter contains a dedicated section on knowledge gaps. After highlighting some gaps identified in each of the three Working Group reports, she listed some required modeling efforts across communities, stressing the need for: coordinated model inter-comparison projects across topics of three WGs ; more comprehensive integration of results from Earth system modeling, integrated assessment modeling, and impact, adaptation and vulnerability communities; a broader set of socioeconomic and technology storylines; increased focus on alternative formulation of climate goals; integration of mitigation and adaptation; new, improved representations of regions; and coupling of economic models.

A representative from the Caribbean Community Climate Change Centre (CCCCC) presented on the Regional Climate Centre for the Caribbean Institute of Meteorology and Hydrology (CIMH), which was launched in March 2014, and is supported by the World Meteorological Organization. He described the research and development agenda of the CIMH, highlighting support to development through the improvement and delivery of operational climate products and services, the strengthening of regional partnerships, and international partnerships.

A representative of the European Commission provided an update on the new activities on climate change research and innovation in Horizon 2020. She explained that this new EU programme, which was launched in January 2014, couples research and innovation, with 35% of the funding available earmarked for climate change research. She noted that the programme is open to actors from all over the world.

A representative from the Asia-Pacific Network for Global Change Research (APN) presented a new capacity building programme on adaptation, disaster risk reduction and loss and damage. He explained that the programme will focus on some regional aspects, such non-economic loss and damage, slow onset and extreme weather events, and the impacts of climate change on patterns of migration and human mobility.

A representative from START described its African Climate Change Fellowship Program (ACCFP) program.

In the ensuing discussion, Mali underlined the need to identify research needs related to health. Algeria suggested some research gaps identified by the IPCC AR5 could be considered by Future Earth.

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