

**FORTY-SECOND SESSION OF THE IPCC  
Dubrovnik, Croatia, 5-8 October 2015**

IPCC-XLII/INF. 18  
(30.IX.2015)  
Agenda Item: 5.11  
ENGLISH ONLY

**REPORTS**

**Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis  
Studies, 15-18 September 2015, São José dos Campos, Brazil**

(Submitted by the Acting Secretary of the IPCC)  
(Prepared by the Co-Chairs of Working Group I)

## REPORTS

### Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies 15-18 September 2015, São José dos Campos, Brazil

The IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies was held at the Instituto Nacional de Pesquisas Espaciais (INPE) in São José dos Campos, Brazil from 15 to 18 September 2015. The support of the Government of Brazil and the assistance of Dr Thelma Krug are kindly acknowledged.

Following the approval of the WGI Proposal (see Annex 1) to hold this Workshop, a Scientific Steering Committee was formed and a call for nominations of experts was sent to all IPCC member Governments from the Secretariat on 24 March 2015, with a close date for nominations of 18 May 2015. The WGI Bureau, assisted by the Scientific Steering Committee, considered the nominations of 290 potential participants, from 97 countries. The selection of experts considered the need for adequate coverage of the scientific and technical areas of expertise defined for the workshop, broad geographic representation, gender balance, the inclusion of young scientists and experts not previously involved in the IPCC, as well as the limitations in overall size and the limited number of trips available for support through the IPCC Trust Fund.

The Workshop brought together 110 experts from 52 countries to discuss regional climate projections and their use in impacts and risk analysis studies. The workshop included experts from the Working Group I and Working Group II communities, including scientists from the climate modelling community, the regional modelling and downscaling community, and the climate impacts and risk analysis communities. The workshop provided an opportunity for the participants to reflect on the assessment of regional climate change projections and the regional projections of climate change impacts and risks in the IPCC Fifth Assessment Report, discuss developments made since the IPCC Fifth Assessment Report, and explored ways to facilitate the collaboration and exchange between the different communities in advance of and during the IPCC Sixth Assessment Report, with the goal to enhance the information IPCC can provide its users and stakeholders. A copy of the final Programme (Annex 2) and Participant List (Annex 3) are attached to this report.

A Workshop Report, including an Information Paper that will provide a synthesis of the scientific discussions including recommendations to the IPCC, is currently being finalized as is expected to be available at the end of November 2015, in time to help inform the scoping of the IPCC Sixth Assessment Report.

### ***Outreach and Communication***

Three outreach events and one media event were held in conjunction with the IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies.

On 14 September 2015, two outreach events, coordinated by Brazil with support from WGI, were held at INPE. They addressed secondary school students and teachers from the area in the morning and the scientific community from the area in the afternoon. The events, the first of which with simultaneous translation in English and Portuguese, included presentations by the WGI Co-Chairs, TSU and Authors, and were attended by about 200 students and 100 scientists, respectively.

On 15 September 2015, following on the positive experience of previous WGI organized meetings, a Media Briefing was held following the Opening Ceremony to provide the local and national media with background information on the IPCC, WGI/WGII, the AR5, and the purpose of the workshop. The Media Briefing also provided an opportunity for a question and answer session for members of the press with the WGI Co-Chairs and WGII Co-Chair, Vicente Barros. The Media Briefing included translation support in Portuguese, English, Chinese and Spanish. The Media Briefing and Opening

Ceremony, as well as a number of individual interviews, were the subject of a variety of media coverage including television, radio, and newspaper reports.

On 18 September 2015, a joint event organized by Brazil through INPE and The Netherlands through the Royal Netherland Meteorological Institute (KNMI), with support from IPCC through WGI, was held at INPE for users and policymakers on efforts toward climate services. The event included presentations by the WGI Co-Chairs and Authors and was attended by a range of participants from government ministries, embassies, scientific institutions

**FORTY-FIRST SESSION OF THE IPCC**  
**Nairobi, Kenya, 24-27 February 2015**

IPCC-XLI/Doc. 13  
(11.II.2015)  
Agenda Item: 5.5  
ENGLISH ONLY

## **FUTURE WORK OF THE IPCC**

### **Proposal for an IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies**

(Submitted by the Co-Chairs of Working Group I on behalf of the Working Group I Bureau)

#### **IPCC Secretariat**

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## **Proposal for an IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies**

***Submitted by the Co-Chairs of Working Group I on behalf of the Working Group I Bureau***

### **Background**

Regional climate change projections provide the quantitative basis for studies of projected impacts from climate change and associated risks, which are essential building blocks for the comprehensive assessment of climate change science by the IPCC. There exist a number of climate modelling initiatives aimed at producing regional climate change projections, but they overall have not yet reached the maturity necessary for their wide spread use by the impacts assessment community and relevant stakeholders. Therefore there is a real opportunity to strengthen the link between regional projections and the assessment of projected impacts and risks by the IPCC. This will enhance the information the IPCC can provide to its users and stakeholders.

Working Group I (WGI) in its contribution to the IPCC Fifth Assessment Report (AR5) did provide a comprehensive assessment of climate change projections from global to regional scales. This assessment, however, relied largely on information derived from large-scale, multi-model initiatives using global climate models. The WGI Atlas of Global and Regional Climate Projections, for example, a new feature of the AR5 that provides maps and regionally averaged time series of annual and seasonal multi-model means, with uncertainties, of changes in surface temperature and precipitation over the 21<sup>st</sup> century for 37 regions covering the entire world, is based entirely on global climate models. Although model data underlying the WGI Atlas is electronically available from the IPCC websites as part of the WGI Supplementary Material of AR5, it is not yet widely used in studies of regional impacts and risks of climate change to human and natural systems around the world. Regional impacts and risks studies would substantially benefit from the inclusion of information coming from regional climate models or from statistical downscaling methods used to drive impacts models (e.g., crop models, hydrology models, etc.).

Since the finalization of the WGI AR5 in September 2013, important activities in the physical science community have evolved which will be crucial for an enhanced interaction between IPCC WGI and WGII in the area of assessing projections of climate change impacts at a regional scale. These concern, for example, the definitional phase of Phase 6 of the Coupled Model Intercomparison Project (CMIP6) which will include the next generation of comprehensive climate models. It is expected that there will be a further increase in model resolution which will provide even more regional details to users and stakeholders from global models. A second area of rapid progress is the Coordinated Regional Climate and Downscaling Experiment (CORDEX) of the World Climate Research Programme (WCRP). The initial focus was on Africa, but currently 14 regional domains around the world are being considered in CORDEX and the data base of this coordinated regional modelling initiative is rapidly growing.

It is therefore timely for the IPCC to convene a Workshop to explore ways how to enhance the convergence of information on projections of climate change and resulting risks and impacts, and to improve the consistent use and application of information in the next IPCC assessment cycle. The Workshop should bring together scientists from both the WGI and WGII communities, i.e., from the climate modelling community (e.g., CMIP5 and CMIP6), the regional modelling and downscaling community (e.g., CORDEX) and the climate impacts and risk community. It is important to hold such a Workshop early, and even before the decision on the scope and outline of the next IPCC assessment cycle, in order to help establish closer links between these communities and to facilitate the IPCC assessment process in the future. This would also be beneficial to the IPCC scoping process and subsequent author nomination and selection, in particular with regard to the regional representation in the WGI and WGII scopes and cross-WG topics, if the Panel decides to carry out a 6<sup>th</sup> assessment cycle.

### **Aims of Workshop**

- Critically reflect on the assessment of regional climate change projections and of regional projections of climate change impacts and risks, and their limitations, in the IPCC AR5;
- Collect views and perspectives on how IPCC assessment of regional projections could be better supported/improved from leading world experts on issues related to regional information from climate model

projections and dynamical downscaling as well as from the broader community of impacts studies and climate risk analyses which use physical climate information;

- Discuss the latest, post IPCC AR5 results from regional climate modelling and downscaling efforts and obtain an overview of the status of information currently available or foreseen on a time scale relevant for the next assessment cycle for all regions of the world;
- Explore ways how the IPCC could facilitate the collaboration and exchange between the climate modelling and impact and risk communities in issues related to projections of climate change, risks and impacts, including ensuring an effective flow and quality control of information and data;
- Identify numerical data requirements (climate variables, derived quantities, proxies, and statistics) by the impacts and risk communities from the climate modelling community that could help facilitate the assessment process in the next IPCC assessment cycle and that would help provide the basis for a comprehensive IPCC assessment.
- Draft an Information Paper covering, inter alia, (i) how the collaboration of the climate modelling and impacts and risk analysis communities could be facilitated by the IPCC, (ii) data quality requirements and perhaps a data protocol to feed emerging data bases, and (iii) potential problems IPCC users and others need to be aware of. If available, a report would also present a few specific case studies in which regional climate model or high-resolution global climate model results are used and successfully applied for impacts studies.

### **Organizing Group (about 10 members)**

Dahe Qin (WGI Co-Chair, China)

Thomas Stocker (WGI Co-Chair, Switzerland)

Fredolin Tangang (WGI Vice Chair, CORDEX South East Asia, Malaysia)

Bruce Hewitson (WGII Coordinating Lead Author, TGICA Co-Chair, South Africa)

Filippo Giorgi (WGII Lead Author, CORDEX Chair, Italy)

Geert Jan van Oldenborgh (WGI Lead Author, The Netherlands)

Caroline Vera (SREX Lead Author, Argentina)

Gian-Kasper Plattner (WGI TSU Head, Switzerland)

A Scientific Steering Committee with broad regional representation will be formed.

**Timing:** time window mid-August to mid-September

**Duration:** 4 days

**Location:** TBD

### **Participants**

About 100 expert participants in total. In order to ensure broad international representation, it is proposed that there should be a call for governments to nominate scientific experts to attend the workshop. We envisage an allocation of 40 journeys from the IPCC Trust Fund to support experts from developing countries and countries with economies in transition. This allocation is being requested from the Panel at IPCC-XLI.

### **Expertise**

Global climate modelling (CMIP5, CMIP6), regional climate modelling (e.g., CORDEX), downscaling, extreme events, climate statistics, impact studies, climate risk analysis.

## Annex 2: Programme

### IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies

Instituto Nacional de Pesquisas Espaciais, São José dos Campos, Brazil

15–18 September 2015

#### PROGRAMME

Tuesday, 15 September 2015

<b>08:30</b>	<b>Registration/Poster Set-up</b>
<b>OPENING CEREMONY</b> (Auditório Fernando de Mendonça)	
<b>09:00</b>	<b>Welcome and Opening [Chair: Thelma Krug]</b> Welcome Remarks: <ul style="list-style-type: none"><li>◆ <i>Mr Ricardo Novaes, Director, Department of the Environment, São José dos Campos</i></li><li>◆ <i>Dr Leonel Fernando Perondi, Director, National Institute of Space Research</i></li><li>◆ <i>Mr Everton Lucero, Director, Division of Climate, Ozone and Chemical Safety, Department of Environment and Special Themes, Ministry of Foreign Relations and IPCC Focal Point for Brazil</i></li><li>◆ <i>Dr Márcio Rojas da Cruz, General Coordination for Global Climate Change, Ministry of Science, Technology and Innovation</i></li><li>◆ <i>Prof Qin Dahe, Co-Chair, IPCC Working Group I</i></li><li>◆ <i>Prof Vicente Barros, Co-Chair, IPCC Working Group II</i></li><li>◆ <i>Prof Thomas Stocker, Co-Chair, IPCC Working Group I</i></li></ul>
<b>10:00</b>	<b>Break</b> (Planta Atrium)
<b>10:00</b>	<b>Media Briefing</b> (Auditório Roger Honiat)
<b>INTRODUCTORY PLENARY</b> (Auditório Fernando de Mendonça) [Chair: Qin Dahe]	
<b>10:30</b>	<b><i>Introduction to the IPCC AR5: from WGI and WGII to the Synthesis Report</i></b> (Thomas Stocker) [15 min presentation + 5 min discussion]
<b>10:50</b>	<b><i>Bridging the Gap Between Science and Practice for Information from Regional Climate Projections</i></b> (Bruce Hewitson) [15 min presentation + 5 min discussion]
<b>11:10</b>	<b><i>A Decisionmaker Perspective on Climate Information from Regional Climate Projections</i></b> (Judy Omumbo) [15 min presentation + 5 min discussion]
<b>THEME PLENARY SESSION I: LESSONS FROM THE AR5</b> (Auditório Fernando de Mendonça) [Chair: Vicente Barros]	
<b>11:30</b>	<b><i>WGI Regional Climate Projections: Chapter 14 and Atlas</i></b> (Krishna Kumar Kanikicharla and Geert Jan van Oldenborgh) [15 min presentation + 5 min discussion]
<b>11:50</b>	<b><i>Impact Modelling: General Needs and WGII Experience</i></b> (Linda Mearns) [15 min presentation + 5 min discussion]
<b>12:10</b>	<b><i>Risk Modelling: General Needs and WGII Experience</i></b> (Roger Jones) [15 min presentation + 5 min discussion]

<b>12:30 Lunch</b> (INPE Restaurant)
<b>THEME PLENARY SESSION II: COORDINATED MODELLING PROJECTS</b> (Auditório Fernando de Mendonça) [Chair: Fredolin Tangang]
<b>14:00 CMIP and Applications</b> (Veronika Eyring) [20 min presentation + 10 min discussion]
<b>14:30 CORDEX and Applications</b> (Filippo Giorgi) [20 min presentation + 10 min discussion]
<b>15:00 Coordinated Impacts and Risk Modelling Projects</b> (Sonali McDermid) [20 min presentation + 10 min discussion]
<b>15:30 General Discussion</b>
<b>16:00 Break</b> (Planta Atrium)
<b>POSTER SESSION I</b> (Auditório Fernando de Mendonça) [Chair: Gian-Kasper Plattner]
<b>16:30 Poster Presentations</b> [2 min presentation with one ppt slide]
<b>17:00 Poster Viewing</b> (Planta Atrium)
<b>18:00 Adjourn</b>
<b>18:00 Welcome Reception at INPE</b> (Sponsored by Working Group I/Government of Switzerland)



**Wednesday, 16 September 2015**

**THEME PLENARY SESSION III: FROM SCIENCE TO PRACTICE** (Auditório Fernando de Mendonça)  
[Chair: Thomas Stocker]

**08:30** *Feedback from the IPCC TGICA Expert Meeting on Decision-Centered Approaches to the Use of Climate Information* (Bruce Hewitson) [5 min presentation]

**08:35** *Perspective Presentation I* (Heike Huebener) [5 min presentation]

**08:40** *Perspective Presentation II* (Satoshi Watanabe) [5 min presentation]

**08:45** *Perspective Presentation III* (Benjamin Lampert) [5 min presentation]

**08:50** *Perspective Presentation IV* (John Charlery) [5 min presentation]

**08:55** Discussion

**09:25** *Perspective Presentation V* (Kathleen McInnes) [5 min presentation]

**09:30** *Perspective Presentation VI* (Suwanna Rongwiriyanich) [5 min presentation]

**09:35** *Perspective Presentation VII* (Petra Tschakert) [5 min presentation]

**09:40** *Perspective Presentation VIII* (Ines Camilloni) [5 min presentation]

**09:45** Discussion

**10:15** Break (Planta Atrium)

**POSTER SESSION II** (Auditório Fernando de Mendonça) [Chair: Gian-Kasper Plattner]

**10:45** **Poster Presentations** [2 min presentation with one ppt slide]

**11:15** **Poster Viewing** (Planta Atrium)

**12:15** Lunch (INPE Restaurant)

**THEME PLENARY SESSION IV: PREPARING THE SCIENCE FOR AR6** (Auditório Fernando de Mendonça)  
[Chair: Jean Jouzel]

**13:45** *Decisionmaking under Uncertainty* (Robert Lempert) [20 min presentation + 10 min discussion]

**14:15** **Introduction to Breakout Groups and Workshop Deliverables** (Thomas Stocker and Qin Dahe)

**14:30** *Issues* (Kathleen McInnes, Linda Mearns and Judy Omumbo) [10 min presentation + 5 min discussion]

**14:45** *Requirements* (Taikan Oki, Jose Marengo and Fredolin Tangang) [10 min presentation + 5 min discussion]

**15:00** *Recommendations* (Carolina Vera, Filippo Giorgi and Bruce Hewitson) [10 min presentation + 5 min discussion]

**15:15** **General Discussion**

**15:30** Break (Planta Atrium)

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**BREAKOUT GROUP SESSION I**

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**16:00 Breakout Groups:**

**BOG1: *Linking Coordinated Climate Model Projection Efforts with Impacts and Risk Modelling Efforts***  
(Auditório Roger Honiat) [Chair: Jana Sillmann; Rapporteur: Tereza Cavazos]

**BOG2: *National/Regional Assessments: How to Optimize Climate Information for Use by Decisionmakers at Regional Scales*** (Meeting Room I) [Chair: Andrew Tait; Rapporteur: Kiyoshi Takahashi]

**BOG3: *Dealing with High Risk–Low Probability Events: What Climate Scientists Can Provide and What Decisionmakers Need to Deal with Climate/Weather Extremes and Natural Disasters (including bias corrections)*** (Meeting Room II) [Chair: Erich Fischer; Rapporteur: Sara Pryor]

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**18:00 Adjourn**

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**18:30 WGI Bureau and Scientific Steering Committee Meeting** (Golden Tulip Colinas Hotel Esplanada Meeting Room)

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**Thursday, 17 September 2015**

**STOCKTAKING PLENARY** (Auditório Fernando de Mendonça) [Chair: Thomas Stocker]

**08:30 Reports from Break-Out Groups (BOG Chairs)**

**08:45 General Discussion**

**THEME PLENARY SESSION V: FROM GLOBAL TO NATIONAL – REGIONAL ASSESSMENTS**  
(Auditório Fernando de Mendonça) [Chair: David Wratt]

**09:00 *Perspective Presentation I* (Jose Marengo)** [5 min presentation]

**09:05 *Perspective Presentation II* (Penny Whetton)** [5 min presentation]

**09:10 *Perspective Presentation III* (Panmao Zhai)** [5 min presentation]

**09:15 *Perspective Presentation IV* (Carolina Vera)** [5 min presentation]

**09:20 Discussion**

**09:45 *Perspective Presentation V* (Joanna Wibig)** [5 min presentation]

**09:50 *Perspective Presentation VI* (Gemma Teresa Narisma)** [5 min presentation]

**09:55 *Perspective Presentation VII* (Joseph Kanyanga)** [5 min presentation]

**10:00 *Perspective Presentation VIII* (Philip Mote)** [5 min presentation]

**10:05 Discussion**

**10:30 Break** (Planta Atrium)

**BREAKOUT GROUP SESSION II**

**11:00 Breakout Groups:**

**BOG1: *Linking Coordinated Climate Model Projection Efforts with Impacts and Risk Modelling Efforts***  
(Auditório Roger Honiat) [Chair: Jana Sillmann; Rapporteur: Tereza Cavazos]

**BOG2: *National/Regional Assessments: How to Optimize Climate Information for Use by Decisionmakers at Regional Scales*** (Meeting Room I) [Chair: Andrew Tait; Rapporteur: Kiyoshi Takahashi]

**BOG3: *Dealing with High Risk–Low Probability Events: What Climate Scientists Can Provide and What Decisionmakers Need to Deal with Climate/Weather Extremes and Natural Disasters (including bias corrections)*** (Meeting Room II) [Chair: Erich Fischer; Rapporteur: Sara Pryor]

**13:00 Lunch** (INPE Restaurant)

**POSTER SESSION III** (Auditório Fernando de Mendonça) [Chair: Gian-Kasper Plattner]

**14:30 Poster Presentations** [2 min presentation with one ppt slide]

**15:00 Poster Viewing** (Planta Atrium)

**16:00 Break** (Planta Atrium)

**BREAKOUT GROUP SESSION III**

**16:30 Breakout Groups:**

**BOG1: *Linking Coordinated Climate Model Projection Efforts with Impacts and Risk Modelling Efforts***  
(Auditório Roger Honiat) [Chair: Jana Sillmann; Rapporteur: Tereza Cavazos]

**BOG2: *National/Regional Assessments: How to Optimize Climate Information for Use by Decisionmakers at Regional Scales*** (Meeting Room I) [Chair: Andrew Tait; Rapporteur: Kiyoshi Takahashi]

**BOG3: *Dealing with High Risk–Low Probability Events: What Climate Scientists Can Provide and What Decisionmakers Need to Deal with Climate/Weather Extremes and Natural Disasters (including bias corrections)*** (Meeting Room II) [Chair: Erich Fischer; Rapporteur: Sara Pryor]

**18:00 Adjourn**

Friday, 18 September 2015

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**SYNTHESIS PLENARY** (Auditório Fernando de Mendonça) [Chair: Thomas Stocker]

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**08:30** *Synthesis Presentation: BOG1: Linking Coordinated Climate Model Projection Efforts with Impacts and Risk Modelling Efforts* [Chair: Jana Sillmann; Rapporteur: Tereza Cavazos; SSC Members: Filippo Giorgi, Judy Omumbo, Fredolin Tangang] [10 min presentation + 5 min discussion]

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**08:45** *Synthesis Presentation: BOG2: National/Regional Assessments: How to Optimize Climate Information for Use by Decisionmakers at Regional Scales* [Chair: Andrew Tait; Rapporteur: Kiyoshi Takahashi; SSC Members: Bruce Hewitson, Jose Marengo, Carolina Vera] [10 min presentation + 5 min discussion]

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**09:00** *Synthesis Presentation: BOG3: Dealing with High Risk–Low Probability Events: What Climate Scientists Can Provide and What Decisionmakers Need to Deal with Climate/Weather Extremes and Natural Disasters (including bias corrections)* [Chair: Erich Fischer; Rapporteur: Sara Pryor; SSC Members: Kathleen McInnes, Linda Mearns, Taikan Oki ] [10 min presentation + 5 min discussion]

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**09:15** General Discussion

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**10:00** Break (Planta Atrium)

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**SYNTHESIS PLENARY CONTINUED**

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**10:30** General Discussion on Recommendations

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**11:45** Closing Remarks (Qin Dahe and Thomas Stocker)

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**12:00** End of Workshop

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## Annex 3: Participant List

### IPCC Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies

Instituto Nacional de Pesquisas Espaciais, São José dos Campos, Brazil

15–18 September 2015

#### PARTICIPANT LIST

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