ipcc
INTERGOVERNMENTAL PANEL ON climate change

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IMPLEMENTATION OF DECISIONS TAKEN BY IPCC-30

Use the full range of electronic technologies including searchable version of the AR4 (Decisions 10/11) – Progress Report

(Submitted by Mr Thomas Stocker, Co-Chair of Working Group I
on behalf of the Task Group)

(Submitted by the Task Group on Electronic Technologies consisting of J.-P. van Ypersele, T. Stocker, R. Christ Austria, India, New Zealand, Singapore and Uganda)

1.   Introduction

At its 30th Session the IPCC Panel decided to set up a task group to collectively explore using the full range of electronic technologies to enhance the accessibility of approved and accepted IPCC products. This task force is composed of the Representatives from Austria, India, New Zealand, Singapore and Uganda, as well as of J.-P. van Ypersele, Vice Chair IPCC, T. Stocker, Co-Chair of WG1 and R. Christ, IPCC Secretary, and is supported by the 4 TSUs.

2.   The Role of Electronic Material in AR4 and in Previous IPCC Reports

The IPCC Data Distribution Center (DDC), which is overseen by the Task Group on Scenarios for Climate and Impact Assessment (TGICA), has provided data and scenarios, facilitating the work of the scientists and supporting the three working groups since 1997. The DDC also served as a repository for data assessed in the reports. In the preparation of AR4 the Lead Authors had, for the first time, available a model simulation repository established by the Program for Climate Model Diagnosis and Intercomparison (PCMDI), hosted by Lawrence Livermore National Laboratory (USA) which enabled the assessment of a large number of comprehensive climate model simulations submitted by the climate modeling centers.
These data bases are also used by researchers worldwide for scientific work on climate model simulations and intercomparisons. The timely establishment and continuous maintenance of these databases enabled a large number of studies to be available for AR4. The continued existence of these repositories is essential for AR5.
To facilitate access to information on regions and sectors Working Group II developed a "Regional and Subject Database of References" which was attached to the WG II contribution to the AR4.
Since the year 2000 the IPCC has provided the full versions (pdf format) of its reports on the IPCC website and as CD ROM. Fully searchable htm versions of five Special Reports between 1997 and 2000, and of the TAR were published. A fully searchable version of the AR4 is currently being prepared, using more advanced and simpler technology. In addition, all previous Assessment and Special Reports are being scanned and will be provided on the IPCC website in pdf format.

3.   Use of Electronic Technologies in AR5 and Requirements to Assessed Material

Discussions with the WGI scientific community regarding the use of electronic technologies began at the IPCC-WCRP-IGBP Joint Workshop "New Science Directions and Activities Relevant to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change", held in March 2009 and were continued in consultation with individual experts and at several meetings of the WGI Bureau. Various possibilities were discussed ranging from classical data bases to more evolved technologies such as interactive, web-based tools displaying and analysing data.
Development of searchable electronic versions, including links between topics and associated sections, will ease the use of the documents and generate additional value. Specifically, this applies to the Synthesis Report in which links to the underlying information in the chapters of the three reports would be very useful. Further advances in technology should be considered for future IPCC reports, and features such as keywords, could be built into the text. The currently prepared Special Reports may serve as examples to test and collect experience with these technologies.
Today, many tools permit the generation of maps from data bases. They allow the selection of different geometries and scales and may permit the combination of different data, different models, or the creation of derived data sets originating from selected model simulations. Even when the data base is fixed, the possibilities for tailored products are virtually unlimited.

While such systems may be very attractive for the end-user, their implementation poses serious problems with regards to the concept of "assessed material" which is key to the IPCC process. An assessment of a data set, be it an observational data set or results from individual or a number of climate model simulations, involves a careful check of data and model quality, homogeneity and information source. The most important component of the assessment, however, is a final expert judgement of uncertainties and model quality.

In the WGI contribution to the AR4, such an assessment was performed by the author teams individually for each product based on an observation or climate model data set. For example, the global map of multi-model ensemble means of surface air temperature changes requires an entirely different assessment regarding uncertainty and robustness than the global map of multi-model ensemble means of precipitation changes. This is evidenced in the fundamentally different designs of Figures 6 and 7 in the Summary for Policymakers of the WGI contribution to AR4. The assessment procedure remains the task and responsibility of the experts and, hence, the lead author teams of an assessment report and cannot be relegated to the individual user. It is, therefore, not appropriate to replace this expert judgement by an automated tool.

For these reasons the task group is not able to provide guidance on how user-driven production of data and model results could ensure appropriate and correct information regarding uncertainty and robustness. In IPCC this has been the result of an expert assessment followed by a multi-stage review. Only after this elaborate procedure can data published as a figure, either in the report or in the supplementary materials, be termed "assessed". By the same token, this is the very process which gives the unique value to the assessment process and which is recognized by the users of the IPCC products.

Electronic technologies are also useful in many aspects of IPCC work, ranging from the preparation of meetings and reports, distribution of information, and other activities. Phone and web-conferencing are an effective means for small meetings and reduce the carbon footprint of IPCC activities. However, such technology is not yet widely available and ways to facilitate access for developing country/EIT need to be explored.

4.   Proposed Recommendations

The task group offers the following recommendations for consideration by the Panel:

1. All printed products should continue to be publicly available, free of charge, as pdf files which can be accessed and downloaded from the IPCC website. Figures should be embedded in vector format. In addition, formats which permit full content search should be available. The printed versions should be complemented by versions distributed on DVD and other external drives and thus be independent of the accessibility and quality of internet connections. Advanced technologies, which may become widely available during the AR5 cycle and which prove useful, should be explored.

2. Complex maps and graphical information should be accompanied by material which explains the construction of the information and which identifies the data base from which the information has been extracted. Such maps and graphical information may be supplemented with numerical information which permits the exact reconstruction of the assessed material.

3. Electronic data bases and associated software which permit the construction, modification or combination of maps and other information by individuals are not part of the assessed material and, therefore, should not be developed or distributed by IPCC or its Working Groups.