

Berne, 25 June 2010

Recommendations concerning the communication of uncertainties in IPCC AR5 SPMs

Prior to the IPCC meeting concerning the handling of uncertainty and risk in IPCC AR5, ProClim- (an organization of the Swiss Academy of Sciences, whose role is to establish continuous links between the Swiss research community and the government) has organized a workshop with Swiss experts representing multiple disciplines and journalists, where the communication of uncertainties in the IPCC Summary for Policymakers (SPMs) was discussed.

Participants of the workshop:

Thomas Bernauer (ETH Zurich; political science, environmental decisions), Lukas Denzler (journalist), Andreas Fischlin (ETH Zurich; coordinating lead author AR4 WGII; ecology), Heinz Gutscher (Univ. Zürich; perception and communication, psychology); Martin Läubli (journalist), Axel Michaelowa (Univ. Zürich; lead author AR4 WGIII; political economy and development), Urs Neu (ProClim-), Gian-Kasper Plattner (AR5 TSU WGI; physics), Christoph Ritz (ProClim-), Rolf Wüstenhagen (Univ. St. Gallen; economy)

Contributors: Martin Beniston (Univ. Geneva, Vice-Chair SAR WGII), Thomas Stocker (Co-Chair IPCC WGI AR5)

After discussing a variety of aspects concerning communication of uncertainties in the IPCC reports (TAR and AR4) as well as the experiences related to perception of climate issues by the public, the panel agreed on the following **recommendations concerning the communication of uncertainties in the SPMs in AR5**:

Preliminary remark:

Most users are not familiar with uncertainties and often have difficulties to deal with them, although it is always an important element in decision-making. Scientific honesty makes it imperative to communicate uncertainties openly and in detail. This has been done in IPCC assessments since the Third Assessment Report in 2001 using so-called calibrated language. Communication of uncertainty, and the explanation of the process to quantify uncertainty, is a continuous duty of science in general and IPCC in particular. This is especially needed to reestablish trust in the IPCC after recent questioning by the public and the media (e.g. "climategate", Himalaya glacier projections).

Recommendations:

1. **To maintain the three forms of communication of uncertainty** listed in the guidance notes on addressing uncertainties for AR4 lead authors (tables 2, 3 and 4).

Reason: These forms have been increasingly adopted and accepted by users in recent years. It might be useful to reconsider the use of the expression "evidence", because there is a broad range of possible meanings in everyday language (from "clue" to "proof"). A definition might be helpful.

2. **To extend the explanation of these definitions.** An introductory chapter discussing uncertainty, preferably identical for all three WG SPMs, is strongly recommended. It should explain the different meanings of the forms of language through specific examples, and highlight the relevance of uncertainties and their impacts on decision making.

Reason: The difference between the forms is not easy to understand for people not familiar with scientific everyday work. It is for example not obvious to understand the meaning of "much evidence" but "low understanding" for a certain process. The discussion using an example might improve the understanding by readers. Explanations only in footnotes seem to be assimilated with difficulty by many readers.

3. **To explain the different sources of uncertainties for the most important conclusions** (core messages) in the text, i.e. list the sources and their importance for the outcome. To discuss possible low probability / high risk evolutions (e.g. rapid disintegration of ice sheets etc.) or the possibility of surprises in the climate system.

Reason: It is crucial that decision makers obtain a correct impression of the causes of the uncertainties (e.g. model vs. socioeconomic uncertainty) and possibilities of alternative outcomes, especially for key messages. The separation of model and scenario uncertainties in global temperature projections in AR4 is a good example.

4. **To establish a cross cutting group of independent 'proof-readers'**, who would read draft versions of SPMs and individually report if they appraise the communication of uncertainties and risks to be appropriate, and how they interpret a number of specified key messages (to assess if the messages are interpreted by readers as intended by the authors).

Reason: It is well-known that the interpretation of certain expressions might be different for different readers and might be different for different cultures, contexts, languages, etc. This problem cannot be avoided. However, independent readers might reveal potential misinterpretations that experts might not be aware of. This model has been successfully applied for the FAQs embedded in the WGI contribution to AR4 (check for clarity of drafts by professional science editors). This procedure was very well received by the scientists and has considerably improved the final product.