



IUGG Commission on Climate and Environmental Change

Report to IUGG Executive Committee for the period 1 July 2012 to 30 June 2013

The Union Commission on Climatic and Environmental Change (CCEC) was established by the Executive Committee of IUGG in June 2012 in order to promote the advancement of scientific understanding of climatic and environmental change, to boost research in reducing uncertainties in climate and environmental models, to define criteria for collaborative trans-disciplinary research on climate and environmental change, to fulfill the objectives of IUGG and its associations, to provide an all-Union perspective on climatic and environmental change, and to make available the knowledge and insights developed through scientific research to the benefit of society and planet Earth, including consideration of the science of global change, related vulnerability and impacts, and potential responses.

CCEC provides a focus for IUGG scientific expertise in climate and environment related areas across the breadth of all IUGG disciplines and associations. CCEC enables the breadth of IUGG expertise to be brought to bear at the global level through collaborating with, and underpinning the work of ICSU and other international organizations. It also enables the geographic spread of IUGG expertise to be brought to bear at the local level through involvement with national bodies in the organization of meetings and other activities.

Objectives

- To build scientific capacity for responsibly addressing the broad, multi-disciplinary issues involved in climatic and environmental change;
- To provide useful information, understanding, and support to the public and governmental organizations;
- To interact and cooperate with outside activities that would benefit from the capabilities and resources of the IUGG Associations; and
- To strengthen links across the Scientific Associations within IUGG, to build new external links to organizations outside IUGG, to strengthen existing links to external organizations and to promote IUGG's contribution to global change research.

The following are current officers of the Commission:

Chair: Tom Beer (Australia)

Vice Chair: Jianping Li (China)

Secretary-Treasurer: Keith Alverson (USA)

Administrative activities during 2012 included approval of a logo (as above) and the development of a web site at:

<http://ccec-iugg.org>

that was launched on 14 January 2013. Information about CCEC is also available on the main IUGG web page at:

<http://www.iugg.org/about/commissions/ccec.php>

but we note that there is yet no link from the IUGG web page about CCEC to the official CCEC web page.

Keith Alverson attended the UNFCCC Conference of the Parties in Doha in late November and early December, and thus represented the CCEC at this forum.

In August 2012 CCEC officers Jianping Li and Tom Beer met with Neil Holbrook, Chair of the ICCL (International Commission of Climate of IAMAS) to discuss the role of each commission and how to co-operate and not compete. It was noted that ICCL is an existing commission of IAMAS with an established membership that arranges activities and meetings that concentrate on the meteorological and atmospheric aspects of climate. CCEC is a new commission of IUGG. The intention is to focus on aspects of climate that correspond to the interests of the wider IUGG and/or ICSU community and thus it was suggested that the first area of activity be related to food security.

The conclusions of the meeting and subsequent e-mail correspondence, was that ICCL and CCEC have different missions and objectives. ICCL mainly focuses on the atmosphere and interacts with oceanographers on cross-disciplinary subjects, such as air-sea interaction, or how mountain ice modulates monsoon climate, etc. These studies are mainly from the perspective of how ocean or cryosphere (or other systems) affect atmosphere and climate variability rather than focus on how ocean or cryosphere (or other systems) themselves run. CCEC, however, focuses on both climate and environmental change and its advantage is in coordinating trans-disciplinary research.

The climate system has five components: atmosphere, hydrosphere (ocean), cryosphere, land surface, and biosphere. An important CCEC objective is “to provide an all-Union perspective on climatic and environmental change”. This CCEC objective is a much broader scope than that of ICCL. With the establishment of CCEC, it becomes possible for volcanologists and atmospheric scientists together to answer questions concerning future climate change scenarios involving volcano eruption. Such enquiry is outside the scope of ICCL activities.

Moreover, CCEC will “bring the Union’s research expertise to bear on some of the most challenging and important environmental and societal challenges of the 21st century”. Food security is obviously one of these challenges though CCEC intends to aim at other challenges that are also important and urgent and that IUGG has strength in. ICCL does not have the capacity to coordinate the efforts of eight associations but it has its own strength in coordinating climate research.

Furthermore, ICCL and CCEC organize different activities. Until 2012 ICCL had not organized workshops for many years because there are many climate workshops around the world. In 2012

ICCL designed a workshop that focused on Decadal Climate Variability and Cross-Scale Interactions, to determine the “next good research question”. The workshop was held in Beijing, China in 2013.

CCEC, on the other hand, intends to involve the efforts all eight associations and, if necessary, ancillary international scientific unions to concentrate on the broad theme of climatic and environmental change.

Weather, Climate and Food Security (WeatCliFS).

CCEC was instrumental in persuading a consortium of international scientific unions to undertake an initiative on weather, climate and food security.

WeatCliFS intends to catalyse an integration of activity of many existing programs on hydrometeorology, on natural hazards and extreme events, on agriculture and food security and on disaster risk reduction to develop a research program through networking. To this end, specially targeted advanced research workshops and symposia held in each of the geographic areas covered by the ICSU Regional Offices, will draw together experts working on relevant issues (see *Table 1*).

Table 1. A list of scientific meetings that incorporated, or will incorporate WeatCliFS.

Location	Theme	Linked to	Date
Symposium Cancun, Mexico	Weather, Climate and Food Security : American and Global Perspectives	AGU Meeting of the Americas http://moa.agu.org/2013/	14-17 May 2013
Workshop Nairobi	Weather, Climate and Food Security : African and Global Perspectives	First Africa Food Security Conference http://www.foodsec.aaknet.org/	20-21 August 2013
Workshop Brisbane, Australia	Weather, Climate and Food Security : Regional and Global Perspectives	AOGS Annual Meeting http://www.asiaoceania.org/aogs2013/	24-28 June 2013
Open Forum Granada Spain	Weather, Climate and Food Security : Global Perspectives	General Assembly of IUNS http://www.icn2013.com/	20 September 2013

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Figure 1 –
Speakers at the WeatCliFS Session at the AGU Meeting of the Americas – 1020 to 1230 Friday 17 May 2013.
Alik Ismail-Zadeh, Jaime Fucugauchi, Brian Toon, Katya Kontar, Tom Beer, Mark Pagani

At the WeatCliFS session (U52A) of the AGU Meeting of the Americas the quality of the speakers and of their papers was outstanding, and the session was attended by an audience that varied from 50 to 70 people. The paper on Ancient Mayan Agriculture, presented by Mark Pagani, was the highlight of the session.

The WeatCliFS session (IG12) of the AOGS Annual Meeting in Brisbane was convened by James Terry (National University of Singapore) and Tom Beer. This was scheduled for 1100-1230 Friday 28 June. Papers were given by Albert McGill, representing IUFoST, the International Union of Food Science and Technology; and Mark Howden of the CSIRO Climate Adaptation Flagship and Tom Beer (CCEC). A panel discussion was held following the three presentations. Audience participation was excellent (about 25 people attended)