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# IAMAS Newsletter



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## Steady course towards IUGG2011 in Melbourne

IAMAS as a whole and its ten International Commissions are actively preparing for their participation at the *XXV General Assembly* of IUGG, which will take place in Melbourne, Australia in six months from now. The framework of Union symposia, joint Inter-Association and specialized Inter-Association symposia are now finalised (see [www.IUGG2011.com](http://www.IUGG2011.com)). Abstracts for prospective participants wishing to be part of the oral and poster sessions should be submitted at the web site by the end of January 2011. Invited speakers will be a particular feature of Union Symposia, which cover a range of themes of concern to the eight participating Associations.

During the assembly the executive committee of IAMAS will meet twice for the discussion of matters including updates of the statutes, reports by the President, Secretary-General and Commission Presidents. Also, a number of officer positions will be decided by vote, for which our past President Michael MacCracken is compiling a list of candidates (interested persons should send an e-mail to [mmaccrac-at-comcast.net](mailto:mmaccrac-at-comcast.net)). A number of the commissions will have their regular business meetings as well.

During 2010 members of the IAMAS Bureau regularly communicated by e-mail and in direct dialogue through a number of tele-conferences. The secretary-general had very informative informal meetings with commission officers and his colleagues from other associations within IUGG during the assemblies of EGU (May in Vienna, Austria) and CO-

SPAR (July in Bremen, Germany). He also joined a regular meeting of the Swiss National Organisation Committee (August in Zurich, Switzerland) for the earlier planning of the joint Davos Assembly of Cryospheric and Atmospheric Science in summer 2013 (DACA-13).

At the time of writing the Scientific Programme Committee (SPC) for IUGG-2011, chaired by Peter Manins, is actively working to assist the Local Organising Committee in fine tuning the programme and website for a truly global assembly "down-under" in Melbourne. I want to invite all scientists engaged in IAMAS affairs and beyond to seriously consider participation at IUGG-2011. IAMAS is ready to provide partial assistance (mainly by paying the registration fee), especially for early career colleagues and scientists from 'developing countries'. I look forward to meeting many of the broad IAMAS community in Melbourne.

With my best wishes for a successful and happy new year,

Hans Volkert,  
Secretary General, IAMAS.





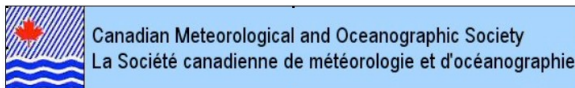
IAMAS will join the eight scientific associations of IUGG at the 25th General Assembly - Earth on the Edge: Science for a Sustainable Planet. This will take place in Melbourne with the scientific programme running from 28 June through 7 July 2011. There are 27 IAMAS symposia and joint symposia covering a broad range of topics. There will also be a workshop on the eruption of Eyjafjallajökull held jointly between the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) and IAMAS.

#### Deadlines:

Abstracts for grant applicants: 17 Jan 2011

Abstracts for all others: 01 Feb 2011

Full information can be found at [www.iugg2011.com](http://www.iugg2011.com).



It has been announced that the 45th CMOS, "Ocean, Atmosphere and Changing Pacific", will take place from June 5th to 9th 2011 in Victoria, Canada. The scientific programme will include over 30 sessions in disciplines including atmospheric science, climate science, oceanography, cryospheric science, hydrology, biogeoscience and interdisciplinary science.

The deadline for abstract submission is 11 February 2011.

See [www.cmos.ca/congress2011](http://www.cmos.ca/congress2011) for more information.

## Upcoming meetings

### 2011

**IUGG General Assembly**, 28 June - 7 July 2011 in Melbourne, Australia.  
**ICAE, International Conference on Atmospheric Electricity**, 8-12 August 2011 in Rio de Janeiro, Brazil.

### 2012

**IRC, International Radiation Symposium**, 5-12 August 2012 in Berlin, Germany.  
**IGAC meeting**, September 2012 in Beijing, China.

## Call for nominations: IAMAS officers for the period 2011-2015

An election of IAMAS officers will take place at the upcoming IAMAS General Assembly that will be held in conjunction with the IUGG General Assembly in Melbourne. The election is for members of the IAMAS Executive Committee as set out in the Association's Statutes. The positions on the Executive Committee are as follows:

- **President:** Elected for one four-year term and not eligible for immediate re-election.
- **Two Vice-Presidents:** Elected for one four-year term and can be re-elected for a second four-year term.
- **Five At-Large Members:** Elected for one eight-year term and cannot be immediately re-elected.
- **Secretary General:** Elected for one eight-year term and can be re-elected for one additional four-year term.
- **Deputy Secretary General:** Appointed at the discretion of the Executive Committee for a four-year term. Can be re-appointed.

The following positions will be up for election at the upcoming General Assembly: President, two Vice-Presidents, and two Members-At-Large. In addition, suggestions can informally be made for appointment to the post of Deputy Secretary-General. **Nominations should be received by the end of February 2011.** Please send the nominations to Dr. Michael MacCracken as chair of the Nominating Committee ([mmaccrac@comcst.net](mailto:mmaccrac@comcst.net)) and copy to Dr. Hans Volkert, Secretary General of IAMAS ([hans.volkert@dlr.de](mailto:hans.volkert@dlr.de)) and/or to other members of the Nominating Committee. See [www.iamas.org](http://www.iamas.org) for more information.

#### The IAMAS Newsletter

We welcome short reports from the individual IAMAS Commissions at any time.

Dr Tom Bracegirdle ([tjbra@bas.ac.uk](mailto:tjbra@bas.ac.uk)).

The large number of IAMAS joint symposia planned for IUGG 2011 illustrates the multidisciplinary approach that is often required when assessing the impacts of changes in weather and climate on society. In the Antarctic there has been a major surface warming over the Antarctic Peninsula, disintegration of parts of the Larsen Ice Shelf and the development of the 'ozone hole'. These physical changes have had a profound impact on the biota, with a 'greening' of the Antarctic Peninsula, exposure to higher levels of UV-B radiation and changes in ocean circulation and salinity.

Research has shown that the Antarctic is a critically important part of the Earth system with the climate, physical and biological properties of the continent and the surrounding ocean being closely coupled to other parts of the global environment through both ocean and atmosphere circulation and CO<sub>2</sub> exchange. Antarctica contains 90% of the world's ice and 70% of the world's fresh water, which is enough to raise sea level by 63 m. It also holds high resolution records of past climate change and sensitive biological indicators of contemporary change. However, separating natural variability from anthropogenic influence is not always easy.



### ANTARCTIC CLIMATE CHANGE AND THE ENVIRONMENT

A contribution to the International Polar Year 2007-2008

Edited by:  
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Colin Summerhayes, Scientific Committee on Antarctic Research

The Scientific Committee on Antarctic Research (SCAR) is an ICSU body that leads and coordinates research over the Antarctic and Southern Ocean. Its work spans astronomy, oceanography, meteorology, terrestrial and marine biology, and geosciences. Research in the Antarctic is becoming increasingly cross-disciplinary and to help develop links across the science areas recently undertook a study on Antarctic Climate Change and the Environment (ACCE). The goal was to examine natural climate variability in the pre-industrial era using proxy data. Determine physical and biological changes in the relatively data rich period since the IGY of 1957-58. And to examine how the physical environment and biota of the Antarctic may evolve over the next 100 years under a range of greenhouse gas emission scenarios.

The result has been the preparation of a 500 page book that was published in 2009. Ten key points that came out of the study were:

1. For the last 30 years the ozone hole has shielded the bulk of the Antarctic from the effects of 'global warming'.
2. The Southern Ocean is warming – The ecosystem will change.
3. There has been rapid expansion of plant communities across the Antarctic Peninsula.
4. Parts of the Antarctic are losing ice at a rapid rate.
5. Sea ice has increased in extent around the Antarctic over the last 30 years as a result of the ozone hole.
6. Paleoclimate studies in Antarctica show the current shock to global climate is unusual.
7. Marine ecosystem components linked to the sea ice show a clear response to climate change.
8. Assuming a doubling of greenhouse gas concentrations over the next century, Antarctica is expected to warm by around 3°C.
9. West Antarctica could make a major contribution to sea level rise over the next century.
10. Improved representation of polar processes is needed in models to produce better predictions.

The full ACCE report is available for download without charge from [www.scar.org](http://www.scar.org).

John Turner, British Antarctic Survey.

The Montreal Protocol, signed in 1987, has been ratified by all nations. The UN Secretary General considers it as the most successful international agreement for environmental protection. As part of the protocol, a scientific assessment of the state of the ozone layer is carried out every four years.

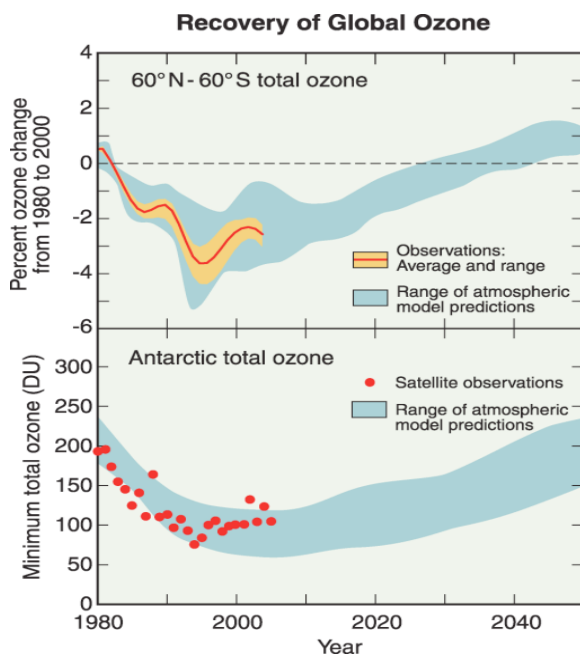
The 2010 Ozone Assessment includes 5 chapters: chapter 1 deals with all issues related to Ozone Depleting Substances (ODSs) and their replacements. In particular, it covers the trends and abundances of the replacements that are greenhouse gases but not ODSs, such as hydrofluorocarbons (HFCs). Chapter 2 deals with all observations of ozone and surface UV to date and our understanding of these observations. Chapter 3 focuses primarily on the future of the ozone layer in an effort to focus on the question: what should one anticipate for ozone layer depletion and its recovery? Chapter 4 focuses on the two-way connection between stratospheric ozone change and climate change. Chapter 5 includes policy options available for further action and other information relevant to the Parties to the Protocol.

Main findings of the Assessment are the following:

1. Abundances of ODSs in the troposphere and in the stratosphere have been decreasing since the late 1990s. However the hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons replacements are greenhouse gases and are growing

rapidly with potential future effects on climate.

2. Global ozone columns are showing a leveling off since the late 1990s. Average total ozone values in 2006-2009 have remained at the same level for the past decade, about 3.5% and 2.5% below the 1964-1980 averages respectively for 90°S-90°N and 60°S-60°N. Similarly, the Antarctic ozone hole is no worse than in the late 1990s. Both global ozone and the Antarctic ozone hole continue to vary from year to year due to atmospheric variability through processes that are relatively well understood. As reported in earlier Assessments, there is no discernible ozone depletion over the tropics.
3. Even though some details of chemical and dynamical processes are still uncertain, atmospheric models are generally successful in reproducing the observed temporal and spatial ozone variability. In Polar Regions and particularly over Antarctica, large changes in UV are clearly associated with ozone hole conditions. The observed changes in surface UV levels are consistent with the long-term variability of ozone, clouds, aerosols and air pollution.
4. Climate change influences the stratosphere through cooling of the middle-to-upper stratosphere due to well understood increases in carbon dioxide. Cooling trends have been seen in air temperatures at these heights, which influence ozone loss rates, stratospheric dynamical processes and stratosphere-troposphere interactions. Climate models projections indicate also a strengthening of the Brewer-Dobson circulation (BDC) over the 21<sup>st</sup> century. The BDC acceleration would reduce the atmospheric lifetimes of long-lived ODSs and other trace gases. There is new stronger evidence for more direct links between stratospheric change and specific changes in surface climate. In particular, the Antarctic ozone hole has accelerated the surface eastward winds over Southern Hemisphere high latitudes especially during the austral late spring and summer seasons.



Observations and model predictions of global ozone. Source: Scientific Assessment of Ozone Depletion: 2010, WMO/UNEP, Geneva, 2010

Sophie Godin-Beekmann, Richard Stolarski, Christos S. Zerefos (IAMAS, International Ozone Commission).

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