

# IAMAS 2010 Commission Annual Reports

The major activity of IAMAS and its 10 commissions this past year has been planning for IUGG 2011 in Melbourne, Australia. Meanwhile, 10 commissions also have some interesting activities which promote many aspects of atmospheric and climate research worldwide. A full and detailed report is given to provide an overview of these activities.

1. **The International Commission on Atmospheric Chemistry and Global Pollution (ICACGP)**
2. **The International Commission on Atmospheric Electricity (ICAE)**
3. **The International Commission on Climate (ICCL)**
4. **The International Commission on Clouds and Precipitation (ICCP)**
5. **The International Commission on Dynamical Meteorology (ICDM)**
6. **The International Commission on the Middle Atmosphere (ICMA)**
7. **The International Ozone Commission (IOC)**
8. **The International Commission on Planetary Atmospheres and their Evolution (ICPAE)**
9. **The International Commission on Polar Meteorology (ICPM)**
10. **The International Radiation Commission (IRC)**

This overview was collected from the commissions' presidents and secretaries and competently put together in a coherent fashion by Zheng (Jenny) LIN, assistant secretary general of IAMAS.

Oberpfaffenhofen, Germany 31 January 2011



Hans Volkert  
Sec.-Gen., IAMAS

# ICACGP

## Introduction

The iCACGP comprises a commission of 3 officers (President, Vice President and Secretary), 28 members and 9 honorary members. Its role is to facilitate research of significance for atmospheric chemistry and global pollution.

The current and new commission was elected at the iCACGP meeting within the 12th Scientific Conference of the International Association of Meteorology of Atmospheric Sciences (IAMAS) Commission for Atmospheric Chemistry and Global Pollution (CACGP), which took place Halifax Nova Scotia Canada at Dalhousie University from the 11<sup>th</sup> to the 16<sup>th</sup> of July 2010. The outgoing commission have been thanked for their efforts.

Information about past and present CACGP members and main Conferences is now available at the web site <http://www.icacgp.org/>

## iCACGP Objectives

iCACGP aims to:

- Promote research on chemistry and composition of troposphere related to global pollution and climate change
- Initiate, facilitate and coordinate the research programs in this field, which require international cooperation.

The current challenges of global atmospheric research are:

- to provide a fundamental understanding of the processes that govern the behaviour of chemical compounds in the atmosphere and their impact on climate.
- to contribute with [the partners of the international atmospheric chemistry research community](#) to the development of an integrating framework describing the physical, chemical and biological interactions between the different components of the Earth system
- to improve our ability to predict atmospheric composition over the coming decades through integrating models, with process studies and comprehensive data sets.
- to address societal needs through application of atmospheric chemistry research and development of research that integrates human dimensions into Earth System Science.

In this context iCACGP has co-sponsored the IGBP activities IGAC and SOLAS. The members of CACGP are closely involved with the activities of IGAC and SOLAS. IGACGP is also extending links to ILEAPS.

## iCACGP Activities in 2010

During 2010, iCACGP has as its major tasks the formation of a new commission and

the successful running of the 12th ICACGP Symposium in Halifax Canada 11th to 16th of July 2010.

In addition ICACGP has continued to strengthen the links and common activities with the international research projects IGAC and SOLAS, which the Commission co-sponsors together with IGBP and SCORE and WCRP in the case of SOLAS. IGAC addresses atmospheric chemistry and climate by facilitating the study the troposphere and low stratosphere. SOLAS is focused on the marine environment and the low atmosphere. ICACGP activities aim to develop and improve our understanding of global atmospheric chemistry and pollution.

The ICACGP has achieved its objectives in the past year through the following:

### **A) Facilitation of Scientific Meeting**

In 2010 the Commission members organised the 12th Symposium of the International Commission on Atmospheric Chemistry and Global Pollution (CACGP) jointly with the 11th Science Conference of the International Global Atmosphere Chemistry (IGAC) Project. This took place in Halifax, Canada, July 11-16, 2010. Information on sessions, invited speakers etc, can be found on the web site of the Joint Symposium. <http://www.icacgp-igac-2010.ca/>

The meeting was a great success and the local organising team is to be congratulated. In particular the young scientist programme was considered of great importance. Short reports on this meeting are to be published in the IGAC Newsletters and in the SOLAS newsletters (document attached).

### **B) ICACGP Meetings and related**

- 1) ICACGP Commission members held their meeting in Halifax Nova Scotia at the Lord Nelson Hotel on the 11<sup>th</sup> of July 2010:

A small group of ICACGP met to discuss progress and developments in research direction. The primary activity addressed the preparations for the July 2010 Conference as well as potential Commission scientific publications.

- 2) IGAC and SOLAS SSCs: ICACGP is advising and endorsing SSC changes for the two sponsored activities SOLAS and IGAC coordinated with the other co-sponsors (SCOR, WCRP -WMO and IGBP for SOLAS and IGBP for IGAC). In this context officers from ICACGP attend SSC meetings. In particular, ICACGP President participated at the SOLAS SSC in 2007, 2008 and in April 2010. The president also participated at – being also a member of – the IGAC SSCs, since 2006 including that in 2010.

### **Support of young scientists**

In Europe as a result of the participation of ICACGP members in the EU ACCENT Network of Excellence, ACCENT supported the ICACGP and IGAC recommendations enabling students to attend international science meetings and related activity. <http://www.accent-network.org/>

In 2010 the Commission budget from IAMAS has been used to support young scientists attending the quadrennial iCACGP/IGAC Joint International Symposium in Halifax, Canada in July 2010.

#### **C) President's Activities in 2010**

John Burrows attended and gave a talk at the ESA ILEAPS meeting in November 2010 at ESA ESRIIN. John also Initiated the concept of having regional ICACGP meetings over the next 4 years.

Vice-president's activities: Laura Gallardo has started the organization of a regional meeting about observations networks in South American megacities to be held in Santiago, Chile in September 2011.

#### **D) Liaison to IGAC and to SOLAS**

- Several CACGP members (M. Kanakidou, T. Zhu (IGAC co-chair), J. Drummond, P. Monks (IGAC co-chair), Y. Kondo) are also members of IGAC SSC, liaison has been achieved through this team. Melitta Keywood from the Commission is now elected as a IGAC SSC member.
- Prof. N. Kubilay who has been a member of SOLAS SSC and ICACGP needs to be replaced as the liaison for iCACGP and SOLAS SSC. The newly elected Commission members Prof. Douglas Wallace (actual chair of SOLAS) and Dr. Rowland von Glasow (member of SOLAS SSC) will re-inforce the links to SOLAS community.
- Short communications of the iCACGP office to the SOLAS newsletters have been initiated in 2010 to increase the Commission's visibility to the SOLAS community (see appendix).

#### **E) Evolution of iCACGP Planning**

Scientific Planning

a) Continuing support of IGAC and SOLAS,  
Links to WMO SPARC and IGBP iLEAPS

b) Scientific literature

- Contributions to Megacities synthesis book of IGAC and relevant peer reviewed publications

- Contributions to a book of Tropospheric Remote sensing from Space

- The science document on iCACGP research interests available on web and first written by Akimoto et al in 2002 will be further elaborated in 2011.

- A scientific paper on fires impacts on atmospheric chemistry is being prepared by the Commission members for peer reviewed journal.

c) Web Site: The web site of iCACGP ([www.icacgp.org](http://www.icacgp.org)) was significantly improved in 2010. Further improvements are planned for 2011 in order to develop the science priorities of the Commission.

d) Frank Dentener (secretary) started to prepare, together with Tong Zhu, a workshop bringing the atmospheric chemistry and health communities will together. The purpose is

to have a small-to-medium scale, invitation only workshop, hosted at HEI in Boston, which should produce a vision and hopefully a high impact paper on future directions needed to link atmospheric chemistry and human health research.

The selection of the new commission in 2010 (10 outgoing members from 21) was successfully concluded in July 2010. The new commission has broad strength in all of the major research areas of relevance to iCACGP.

## Annex 1

### ICACGP 2010 to 2014

ICACGP Officers 2010 to 2014

**President: Prof. Dr. J. P. Burrows** M. A.(Cantab) Ph. D.(Cantab)

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**Vice President: Prof. Laura Gallardo Klenner**

Department of Geophysics and Center for Mathematical Modeling, University of Chile

Casilla 170, Correo 3, Santiago, Chile

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**Secretary: Dr. Frank Dentener**

European Commission; Joint Research Centre

Institute for Environment and Sustainability

Climate Change Unit; via Enrico Fermi 1, I-21020 Ispra, TP 290

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### ICACGP Members 2010 to 2014

*28 members (CVs can be found on the Commissions website [http:// www.icacgp.org](http://www.icacgp.org))*

Dr. **Maria de Fatima Andrade** (2010-2014) Brazil, E-mail: [mftandra\(at\)model.iag.usp.br](mailto:mftandra(at)model.iag.usp.br)

Prof. Dr. **John P. Burrows**, (president 2010-2014) (2002-2014) Germany, E-mail: [burrows\(at\)iup.physik.uni-bremen.de](mailto:burrows(at)iup.physik.uni-bremen.de)

Prof. **Frank Dentener** (secretary 2010-2014) (2002-2014) Italy, E-mail: [frank.dentener\(at\)jrc.ec.europa.eu](mailto:frank.dentener(at)jrc.ec.europa.eu)

Prof. **Russell Dickerson** (2010-2014) USA, E-mail: [russ\(at\)atmos.umd.edu](mailto:russ(at)atmos.umd.edu)

Prof. **James Drummond** (2006-2014) Canada, E-mail: [james.drummond\(at\)dal.ca](mailto:james.drummond(at)dal.ca)

Prof. **David Edwards** (2006-2014) USA, E-mail: [edwards\(at\)ucar.edu](mailto:edwards(at)ucar.edu)

Prof. **Sara Feresu** (2006-2014) Zimbabwe, E-mail: [feresu\(at\)ies.uz.ac.zw](mailto:feresu(at)ies.uz.ac.zw)

Prof. **David Fowler** (2010-2014) UK, E-mail: [dfo\(at\)ceh.ac.uk](mailto:dfo(at)ceh.ac.uk)

Prof. **Laura Gallardo** (vice-president 2010-2014) (2006-2014) Chile, E-mail: [lgallard\(at\)dim.uchile.cl](mailto:lgallard(at)dim.uchile.cl)

Prof. **Laurens Ganzeveld** (2010-2014) The Netherlands, E-mail: Laurens.Ganzeveld(at)wur.nl  
Dr. **Christian Georges** (2010-2014) France, E-mail: christian.george(at)ircelyon.univ-lyon1.fr  
Dr. **Roland von Glasow** (2010-2014) UK, E-mail: R.Von-Glasow(at)uea.ac.uk  
Prof. **Sergey Gromov** (2010-2014) Russia, E-mail: gromov.igce(at)gmail.com  
Prof. **Sachiko Hayashida** (2010-2014) Japan, E-mail: sachiko(at)ics.nara-wu.ac.jp  
Prof. **Maria Kanakidou** (ex-president 2006-2010)(1998-2014) Greece, E-mail: mariak(at)chemistry.uoc.gr  
Dr. **Melitta Keyword** (2006-2014) Australia, E-mail: Melita.Keyword(at)csiro.au  
Prof. **Yutaka Kondo** (2006-2014) Japan, E-mail: kondo(at)atmos.rcast.u-tokyo.ac.jp  
Prof. **Nilgun Kubilay** (2006-2014) Turkey, E-mail: nkubilay33 (at) gmail.com  
Prof. **Shaw Liu** (2010-2014) Taiwan, E-mail: shawliu(at)rcec.sinica.edu.tw  
Prof. **Paul Monks** (2006-2014) UK, E-mail: P.S.Monks(at)leicester.ac.uk  
Dr. **Manish Naja** (2010-2014) India, E-mail: manish(at)aries.res.in  
Prof. **Kobus JJ Pienaar** (2006-2014) South Africa, E-mail: kobus.pienaar(at)nwu.ac.za  
Dr. **Nicole Riemer** (2010-2014) USA, E-mail: nriemer(at)uiuc.edu  
Dr. **Andreas Stohl** (2010-2014) Norway, E-mail: ast(at)nilu.no  
Prof. **Barbara Turpin** (2010-2014) USA, E-mail: turpin(at)envsci.rutgers.edu  
Prof. **Douglas Wallace** (2010-2014) Germany, E-mail: dwallace(at)ifm-geomar.de  
Prof. **Jason West** (2010-2014) USA, E-mail: jjwest(at)email.unc.edu  
Prof. **Renyi Zhang** (2010-2014) USA, E-mail: zhang(at)ariel.met.tamu.edu  
Prof. **Yuanhang Zhang** (2010-2014) China, E-mail: yhzhang(at)pku.edu.cn

***ICACGP Honorary members 2010 to 2014***

Prof. Hajime Akimoto, Japan, E-mail: akimoto (at) jamstec.go.jp  
Prof. Paul Crutzen, Germany, E-mail: crutzen (at) mpch-mainz.mpg.de<<Nobel Prize in Chemistry in 1995>>  
Prof. Robert Duce, USA, E-mail: rduce (at) ocean.tamu.edu  
Prof. Ian Galbally, Australia, E-mail: ian.galbally (at) dar.csiro.au  
Prof. Phillip Goldsmith , E-mail: Ppggold (at) aol.com  
Prof. Mario J. Molina, USA, E-mail: mmolina (at) mit.edu<<Nobel Prize in Chemistry in 1995>>  
Prof. Henning Rodhe, Sweden, E-mail: rodhe (at) misu.su.se  
Prof. F. Sherwood Rowland, USA, E-mail: rowland (at) uci.edu<<Nobel Prize in Chemistry in 1995>>  
Prof. Anne Thompson, USA, E-mail: anne (at) met.psu.edu

## partner project



The International Commission on Atmospheric Chemistry and Global Pollution (iCACGP) [www.icacgp.org](http://www.icacgp.org) is an International Commission of the International Association of Meteorology and Atmospheric Sciences (IAMAS), an association within IUGG (International Union of Geodesy and Geophysics) under the International Council for Science.

Founded in 1957 as the Commission on Atmospheric Chemistry and Radioactivity, the Commission has been renamed CACGP in 1971. Founded in 1957 as the Commission on Atmospheric Chemistry and Radioactivity, the Commission was later renamed iCACGP. In 1988, iCACGP initiated the planning and formation of the International Global Atmospheric Chemistry research project (IGAC) which it now sponsors jointly with the International Geosphere- Biosphere Programme (IGBP). In 2001, iCACGP endorsed SOLAS together with IGBP, SCOR (Scientific Committee on Oceanic Research) and WCRP (World Climate Research Programme).

iCACGP aims to spread scientific knowledge; initiating, promoting, stimulating and coordinating research requiring international cooperation, on atmospheric chemistry, global pollution and climate change related to the land, biosphere, ocean - atmosphere – climate interactions and feedbacks.

iCACGP provides a permanent international scientific forum and continuous support for research in all fields relevant to atmospheric chemistry. iCACGP oversees and supports its sponsored international projects, co-organizes Quadrennial International Symposia, facilitates international research and outreach on atmospheric chemistry and contributes to IUGG and IAMAS Jointed Symposia.

The iCACGP community faces scientific challenges including:

- Improving understanding of the fundamental mechanisms that control and determine atmospheric composition and its impacts on ecosystems and climate,
- developing an integrated framework describing the physical, chemical and biological interactions between the different components of the Earth system, integrating the human dimension.
- developing improved predictive capabilities, through integrating models with process studies and comprehensive data sets, focusing on the protection of the environment.
- applying atmospheric chemistry knowledge to Earth System science to provide the knowledge needed to solve societal issues, including air pollution and climate change that affect water supply, food production and human/ecosystem health.

Prof. Maria Kanakidou (President 2006-2010)

2010-2014 iCACGP Officers: Prof. Dr. J. P. Burrows (President), Prof. L. Gallardo (Vice President), Dr. F.J. Dentener (Secretary).  
For full Commission membership see [www.icacgp.org](http://www.icacgp.org).



# **ICAE**

ICAE released two editions of ICAE-newsletter, which are available from <http://icae.jp/>. ICAE held one committee meeting in 2010 and is preparing for IUGG2011 and 14th International Conference on Atmospheric Electricity.

# ICCL

## **Funding:**

ICCL received no funding from IUGG or IAMAS in 2010.

Expenses in 2010 were on the order of 10,000 US dollars, including travel to and participation by the president and executive secretary at relevant climate meetings, and the re-design and development of the ICCL website,. These costs have been covered by the president and executive secretary's grants.



## **2010 ICCL activities:**

ICCL holds biennial business meetings thus no meeting was held in 2010. The last meeting was held on the 23rd of July 2009 in Montreal during the IAMAS/IAPSO/IACS Joint Assembly” and the next will be on the 5th July in Melbourne alongside the IUGG congress.

The ICCL president has continued to participate in the IAMAS statutes revision committee chaired by past president Mike MacCracken. The president has been active in the development of a Global Framework for Climate Services being led by WMO. He attended several high profile climate related meetings in 2010 including:

- Intergovernmental Meeting for the High Level Taskforce (HLT) on the Global Framework for Climate Services (GFCS), 11-12 January, WMO Headquarters, Geneva.
- WMO Executive Council Working Group on WMO Integrated Observing System and Information System (WIGOS/WIS) 23-26 March, WMO Headquarters, Geneva.
- Interagency consultation meeting for the Global Framework for Climate Services, 18 May, WMO Headquarters, Geneva.
- Global Climate Observing System 18<sup>th</sup> Steering Committee Meeting, 28 September – 1 October, WMO Headquarters, Geneva.
- Group on Earth Observations Plenary and Ministerial, 2-5 November, Beijing China.
- United Nations Framework Convention on Climate Change COP-16, Cancun, Mexico.

The ICCL Executive Secretary, Neil Holbrook, has been actively working with the IAMAS Secretary General, Hans Volkert, on preparing for the IUGG Conference in Melbourne in 2011. Neil is also National (Australian) Co-Convenor of IUGG 2011 - reporting within the Scientific Program Committee meetings for IUGG. Neil is also Co-Convenor of Symposium J-M08 'Predictability of the Coupled Climate System, Climate System Feedbacks and Sensitivity to External Forcing' to be convened at IUGG 2011 in Melbourne. Neil is currently leading the redesign and development of the ICCL website.

Both the Executive Secretary (Neil Holbrook) and President (Keith Alverson) participated in the Global Oceans Conference 2010 (GOC2010) held at UNESCO in Paris from 3-7 May 2010 – this being the Fifth Global Conference on Oceans, Coasts, and Islands [[www.globaloceans.org](http://www.globaloceans.org)]. More than 800 delegates from 80 countries world-wide participated in GOC2010. Delegates represented all sectors of the global oceans community including governments, international agencies, nongovernmental organisations, industry, scientific groups, academia, museums and aquaria. The conference involved a mixture of presentations, panel sessions and discussion sessions.

A fundamental goal of the forum is to address the major policy issues affecting the oceans at global, regional, national and sub-national scales, and to make progress in advancing the global oceans agenda. Global Oceans Conference 2010 focused on three interlinked themes – one of which was entitled ‘Ensuring Survival: oceans, climate and security; and major issues in mitigation and adaptation’. Draft recommendations were prepared as a result of the presentations, panel sessions and discussions held at GOC2010 – the first recommendation (of three) is relevant to climate change ...

**Recommendation:** Launch a comprehensive ocean and climate initiative within and outside UNFCCC negotiation process. [Such an initiative could include elements of mitigation, adaptation, capacity development, public education and awareness, and measures to address possible displacement of coastal populations associated with climate change.]

While the conference was both fascinating and vibrant, at the same time it was also very serious endeavouring to tackle some of our greatest global challenges related to the ocean in a changing climate. Early in the conference, the President of Kiribati, H.E. Mr Anote Tong, speaking on behalf of small island developing countries, pointed out that not only does climate change remain the greatest moral challenge of our time, but for small atoll nations rising no more 2m above the ocean surface (including Kiribati and Tuvalu), this is also an emotional challenge with the relocation of the nations’ people likely this century as these nations submerge under sea level rise.

**Planned ICCL activities:**

The next ICCL biennial business meeting will be held during the 25th General Assembly of the IUGG in Melbourne, 28 June – 7 July 2011. At this meeting ICCL will hold an election on 5 July 2011 to replace both of its executive positions – President and Executive Secretary.

**2010 Climate Update:**

2010 was an exciting year for the climate science community. At the UNFCCC COP16 meeting in Cancun the parties meeting under the Kyoto Protocol agreed to continue negotiations with the aim of ensuring there is no gap between the first and second commitment periods of the treaty and \$30 billion in fast start finance was pledged by industrialized countries to support climate action in the developing world up to 2012.

# ICCP

The ICCP activities during 2010 were mostly related to the next conference. We are preparing the ICCP international conference to be held in Leipzig in July 2012. Last September I (president) and Prof. Andrea Flossmann (vice President) visited the conference site where we were shown the facilities and the local organization. The conference will be held on the University of Leipzig's campus with the expectation that about 450 people will attend it.

During this year we decided to sponsor the following sessions in the IUGG conference in Melbourne 2011 and selected the conveners:

M03 Aerosol-Cloud-Precipitation-Radiation-Interactions (Graham Feingold, Ilan Koren)

M06 Bioaerosols in the Earth system (Cindy Morris, Ulrich Pöschl )

M11 Ice in the Atmosphere: Formation, Measurement, Modeling and Impacts (Andrew J. Heymsfield, Paul J. DeMott )

M13 Mineral dust: Its impact on the atmosphere and the ocean (Jen-Ping Chen)

# ICDM

The ICDM main activity has been preparation for Melbourne 2011. ICDM is also looking to organising a dynamical meteorology workshop in 2012 - the first such activity for many years.

# ICMA

## Symposium and workshops

ICMA co-sponsored

- 6th IAGA/ICMA/CAWSES-II workshop “Long Term Changes and Trends in the Atmosphere”

June 15-18, 2010 at NCAR in Boulder, Colorado, USA

<http://www.hao.ucar.edu/TREND2010/index.php>

- SCOSTEP's Symposium STP12

July 12-16, 2010 at the Seminaris Campus Cube in Berlin, Germany

<http://www.iap-kborn.de/SCOSTEP2010/>

and will co-sponsor

- AGU Chapman conference “Atmospheric Gravity Waves and Their Effects on General Circulation and Climate”

February 28-March 4, 2011 at the Imin International Conference Center at the East-West Center in Honolulu, Hawaii, USA

<http://www.agu.org/meetings/chapman/2011/ccall/>

- The 4th IAGA/ICMA/CAWSES-II TG4 Workshop “Vertical Coupling in the Atmosphere-Ionosphere System”, February 14-18, 2011 at Hotel Globus in Prague, Czech Republic, [http://www.ufa.cas.cz/html/conferences/workshop\\_2011/index.php](http://www.ufa.cas.cz/html/conferences/workshop_2011/index.php)

## Report on the 6th IAGA/ICMA/CAWSES-II workshop “Long Term Changes and Trends in the Atmosphere” (TREND 2010)

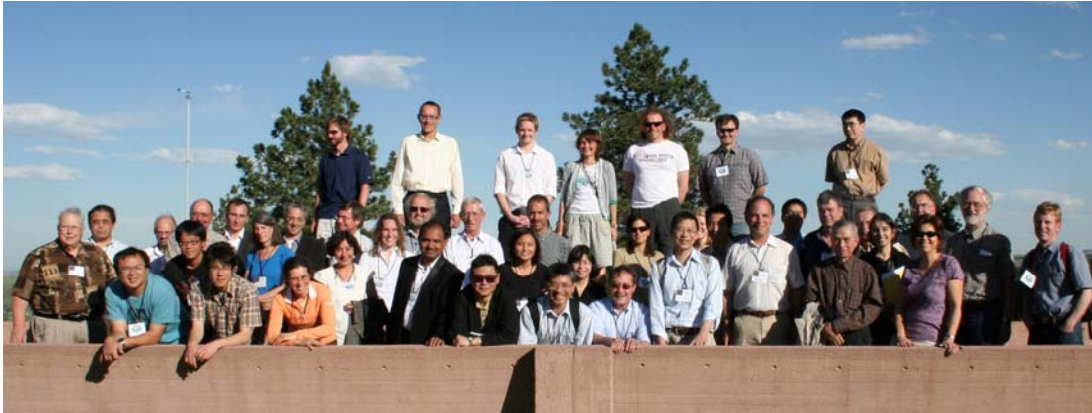
Summary: The overall number of participants was more than 50. 39 oral papers were presented (8 others not presented due to health and visa problems of participants). Selected papers will be published in a special issue of Journal of Geophysical Research. More info at: <http://www.hao.ucar.edu/TREND2010/> Next workshop: Buenos Aires, Argentina, 2012.

Selected results: Scenario of long-term trends and changes in the upper atmosphere and ionosphere, established in the first version in 2006, has further been developed. Some contradictions and/or inconsistencies with global scenario were removed or explained (e.g., discrepancy between NLC and PMC trends).

Trends in mesospheric and mesopause region temperatures based on very recent data seem somewhat differ from those based on older data (e.g., slightly negative instead of no trend in the mesopause region). The hypothesis of stratospheric ozone trend turnaround to be responsible for these changes of temperature trends is investigated.

Even though the increasing greenhouse gas concentration is the main trend driver, there are several more or less important other trend drivers: stratospheric ozone concentration changes, water vapor concentration changes, long-term changes of atmospheric dynamics and wave activity, long-term change of geomagnetic and solar

activity. Since most of these trend drivers are substantially changing in time and space, we cannot expect stable long-term trends; the trends must be changing.



Group photo of TREND 2010

# IO3C

## Meetings

An IO3C meeting was held at the European Geosciences Union General Assembly organized in May 2010. The main topics of the meeting were (1) the geographical representation of IO3C and (2) the organization of the 2012 Quadriennial Ozone Symposium. The proposal made by Dr. Tom McElroy of Environment Canada to hold the Symposium in Toronto (Canada) was discussed and was accepted by the whole Commission after the meeting.

## Activities

- **Ozone Absorption Cross-sections:** The "ACSO" committee ("Absorption Cross Sections of Ozone") established in spring 2009 as a joint ad hoc commission of the Scientific Advisory Group (SAG) of the Global Atmosphere Watch (GAW) of WMO and IO<sub>3</sub>C was invited to a second ozone theme meeting by WMO in Geneva in March 2010. The objective of the meeting was to evaluate the sensitivity of various measurement types (ground-based or satellite) to a change in ozone absorption cross-section. More information on this activity can be found in <http://igaco-o3.fmi.fi/ACSO/index.html>. The final report of ACSO committee will be published in 2011.
- IO<sub>3</sub>C Members were strongly involved in the 2010 WMO Ozone Assessment, which was published on January 2011. The Ozone Assessment is available at [http://www.unep.ch/ozone/Assessment\\_Panels/SAP/index.shtml](http://www.unep.ch/ozone/Assessment_Panels/SAP/index.shtml). A summary of the Assessment was written by the IO3C office for the latest 10<sup>th</sup> issue of the IAMAS newsletter (December 2010).
- The IO3C annual press statement on the state of the ozone layer was released on the "Ozone Day" on September 16<sup>th</sup> 2010:  
[http://ioc.atmos.illinois.edu/press/IO3C\\_OzonePressRelease2010\\_Final.pdf](http://ioc.atmos.illinois.edu/press/IO3C_OzonePressRelease2010_Final.pdf)



# ICPAE

## **1. Introduction/Purpose of the Commission**

The International Commission on Planetary Atmospheres and their Environments and Evolution (ICPAE) is one of the ten commissions of the International Association of Meteorology and Atmospheric Sciences (IAMAS), which is in turn part of the International Union of Geodesy and Geophysics (IUGG). ICPAE focuses its activity on the study of environmental conditions in the gaseous envelopes of planetary objects and their evolution. Its scope includes also tenuous planetary atmospheres (exospheres) and cometary comas.

The ICPAE primary functions are: (1). to promote scientific work in the field of planetology in general and atmospheric sciences in particular by maintaining liaison among active research workers; (2). to organize symposia on the ICPAE subjects at the biannual meetings of IAMAS; (3). to co-ordinate contacts and research exchange among related associations such as the Division of Planetary Sciences (DPS of AAS), the European Geophysical Union (EGU), the Asia and Oceania Geophysical Society (AOGS) and to co-sponsor meetings and workshops during the Assemblies.

## **2. Administration**

The ICPAE consists of scientists actively working on the field of planetary atmospheres. It currently includes about 50 members including the President, the Vice-President, and the Secretary (A. Coustenis, D. Titov, D. Strobel respectively). The Bureau was re-elected for four years during the recent 2009 business meeting.

## **3. Activities of ICPAE during 2010**

The ICPAE Commission activities have benefited from important breakthroughs from space missions and ground-based data. Great progress has been made in our study of the planetary atmospheres and their inter-comparison. We have advanced significantly in our understanding of planetary atmospheres due to the scientific results from extremely successful space missions, in particular, CASSINI-HUYGENS, MARS EXPRESS, VENUS EXPRESS, and MARS RECONNAISSANCE ORBITER. Many of the ICPAE members are involved in these space missions and have been extremely active in working on the data obtained from these missions. These missions are expected to be highly represented at our 2011 Symposia.

The major activity this past year has been planning for IUGG 2011 in Melbourne, Australia. The initial invitations to speakers have been issued and a large percentage of acceptances have been received. This is gratifying as we had concerns that many speakers would want to participate, but would have problems with securing the necessary travel funds. There are still restrictions on "foreign" travel by NASA scientists and certain categories of NASA funded scientists.

The ICPAE, through its President and other members, have sponsored other meetings to promote Planetary Atmospheres and their Environments.

The following International conferences in 2010 were organized/co-sponsored by

#### ICPAE:

- EGU 2010 (Vienna, Austria, 2-7 May)
- AOGS 2010 (Hyderabad, India, 5-9 July)
- COSPAR 2010 (Bremen, 18-25, July)
- EPSC 2010 (Rome, Italy, 20-25 Sept)
- DPS (3-8 October, Pasadena)
- AGU 13-17 December

#### *Scientific Programmes, Projects, Publications*

ICPAE sponsored: In 2009-2010 we have sponsored the publication of two special issues in Planetary and Space Sciences (volumes 57, Issue 13 and volume 58, issue 13):

- Coustenis, A., Atreya, S., Castillo, J., Coll, P., Nov. 2009 : Surfaces and atmospheres of the outer planets, their satellites and ring systems: Part V, Volume 57, Issue 13, p. 1523-1524.

- Coustenis, A., Atreya, S., Castillo, J., Coll, P., Nov. 2010 : Surfaces and atmospheres of the outer planets, their satellites and ring systems: Part VI, Volume 58, Issue 13, p. 1665-1666.

ICPAE members played a leading role in putting together and editing of the special issue of Journal Geophysical Research “Venus Express: results of the nominal mission” that included more than 40 original papers and was published in 2010 as a book. More than 20 papers are submitted to the special issue of Icarus “Advances in Venus Science” to appear in 2011. Members have published a great number of scientific papers and books. Some of them include:

1. Coustenis, A., Tokano, T., Burger, M. H., Cassidy, T. A., Lopes, R. M., Lorenz, R. D., Retherford, K. D., Schubert G., 2010. Atmospheres/exospheres characteristics of icy satellites. *Space Sci. Rev.* 153, 155-184.
2. Dalton, B., Cruikshank, D., Stephan, K., McCord, T., Coustenis, A., Carlson, R., Coradini, A., 2010. Chemical composition of icy satellite surfaces. *Space Sci. Rev.* 153, 113-154.
3. Grasset, O., Coustenis, A., Durham, W. B., Hussmann, H., Pappalardo, R. T., Sasaki, S., Turrini, D., 2010. Preface. Satellites of the Outer Solar System: Exchange Processes Involving the Interior. *In* “Moons of the Outer Solar System: exchange processes involving the interiors”. O. Grasset, M. Blanc, A. Coustenis, W. Durham, H. Hussmann, R. Pappalardo, D. Turrini, Eds. ISSI Book series. *Space Sci. Rev.* 153, 5-9.
4. Coustenis, A., Lellouch, E., Sicardy, B., Roe, H., 2010. “Earth-based perspective and pre-Cassini-Huygens knowledge of Titan”, Chapter *In Titan from Cassini-Huygens*, Brown, R. H., Lebreton, J.-P., Waite, H., Eds., Springer Verlag (Dordrecht), pp. 9-34.
5. Dougherty, M., Coustenis, A., Lorenz, R., 2010. “Titan beyond Cassini-Huygens”, Chapter *In Titan from Cassini-Huygens*, Brown, R. H., Lebreton, J.-P., Waite, H., Eds., Springer-Verlag, New York, 535 pages, pp. 479-488, ISBN-10: 1402092148.

6. Coustenis, A., Raulin, F., 2010. "Titan Astrobiology". Chapter *in the Encyclopedia of Astrobiology*, M. Gargaud, R. Amils, J. Cernicharo, H. J. Cleaves II, K. Kobayashi, D. Pinti, M. Viso (Editors), Springer, in press.
7. Coustenis, A., 2010. "The Cassini-Huygens mission". Chapter *in the Encyclopedia of Astrobiology*, M. Gargaud, R. Amils, J. Cernicharo, H. J. Cleaves II, K. Kobayashi, D. Pinti, M. Viso (Editors), Springer, in press.
8. Titov, D. and H. Svedhem, 2010. Venus Express: a fascinating journey to our planet-neighbour. Transactions of Japan Society for Aeronautical and Space Science Journal, in press.

In 2010 ICPAE members significantly contributed to the Planetary Science Decadal Survey in the US. As of October 15, the draft report had entered the peer review process with an anticipated delivery date in early Spring 2011.

Also, ICPAE members are participating in proposals and studies for future space missions to planetary objects from the space agencies (NASA, ESA), such as EJSM-Laplace, TSSM, TAE, Saturn Probes, EVE, etc.

#### **4. Business Meeting – None in 2010**

#### **5. Planned Future Activities/Announcements**

Our current focus is on the IUGG 2011/ IAMAS 2011 Conference. At our planned ICPAE business meeting during the Conference, future activities will be discussed and formulated. ICPAE will continue to actively pursue topical symposia at future meetings by co-sponsorship of sessions with the Division of Planetary Sciences (DPS of AAS), the European Geophysical Union (EGU), the Asia and Oceania Geophysical Society (AOGS), and European Planetary Science Congresses (sponsored by the European Planetology Network and the EGU). The Commission's mission is to disseminate our understanding of planetary atmospheres and environments through meetings, mission planning, and publications. There are currently several ongoing studies for missions in the Solar System for Mars, Venus, and the Outer planets, on which ICPAE is very well represented.

# ICPM

**Reported by David Bromwich**

The primary activity of ICPM in 2010, in conjunction with other organizations, was to sponsor and organize the International Workshop on Antarctic Clouds (<http://polarmet.osu.edu/workshops/iwac/>) that was held at the Byrd Polar Research Center of The Ohio State University, July 15-16, 2010. The goal was to evaluate what (little) is known about Antarctic clouds and suggest what future efforts are needed to dramatically improve their understanding. A report that will outline the next steps recommended by workshop participants is being prepared and should be ready for distribution to the community by March 2011. The workshop presentations (online at the above website under Program) are being turned in a review manuscript for the Reviews of Geophysics with a submission date of April 1, 2011.

# IRC

At present the IRC is composed of 42 members from 18 countries. The Commission has eight active working groups and three associated groups. A regularly updated, detailed Web site provides information on IRC News and Meetings, Organization, Working Groups and their reports, Symposium, Business Meetings and other Resources at <http://www.irc-iamas.org/>.

Financial Report: As of January 2011, the IRC account balance is approximately US\$25K. IRC requests continued support from IAMAS at a similar level as in the previous 4-year term. This support is needed to enable IRC to continue to widen participation. The IRC will submit an application for a 2012 IUGG grant this year, to be used for student travel to the IRS 2012 which will be held in Berlin.

At the 2010 Annual Business Meeting held on 22 July 2010 in Bremen, Germany during COSPAR, IRC members voted to hold the 2012 International Radiation Symposium in Berlin, Germany, 5-12 August 2012.

Reports from the following seven active working groups/associated groups were received in 2010 and posted on the IRC Web site: ASA (Atmosphere Spectroscopy Applications)/Hitran, Rothman and Barbe, Co-Chairs; 3DRT (Three Dimensional Radiative Transfer), Marshak and Widlowski, Co-Chairs; CIRC (Continuous Intercomparison of Radiation Codes), Oreopoulos and Mlawer, Co-Chairs; ITWG, (International TOVS WG) Larar, English and Huang, Co-Chairs; GEB (Global Energy Balance), Wild and Loeb, Co-Chairs; UV, (UltraViolet Radiation) Groebner and Blumenthal, Co-Chairs; and BSRN (Baseline Surface Radiation Network), Koenig-Langlo and McArthur, Co-Chairs. Stefan Kinne accepted an invitation to be the new Rapporteur for Clouds and Radiation. Reports can be selected using this link: <http://www.irc-iamas.org/groups/>.

The IRC paid tribute to four preeminent researchers of the community who passed away in 2010 and late 2009: Jack Eddy 1931-2009; Joanne Simpson 1923-2010; Stephen H. Schneider 1945-2010; Hal Woolf 1940-2009.

The tentative date for the 2011 IRC Business Meeting to be held at IUGG-Melbourne is 30 June 2011. Four sessions at IUGG 2011 sponsored or co-sponsored by the IRC are: 3Dimensional Radiative Transfer in the Atmosphere, Lead Convenor: A. Marshak, Co-Convenor: B. Mayer; The Impact of Solar Variability on Earth, Lead Convenor: U. Langenmatz, Co-Convenors: W. Schmutz, L. Hood, V. Fomichev, J. Haigh, and T. Woods; Solar UV Radiation, Lead Convenor: M. Blumthaler, Co-Convenor: J. Groebner; and Aerosol-Cloud-Precipitation-Radiation Interactions, Lead Convenors: G. Feingold and I. Koren, Co-Convenors: G. Stephens, V. Martins and S. Siems. Detailed

information on the sessions can be found at <http://www.iugg2011.com/program-iamas.asp>.

The IRC submitted five reviewer/author nominations for IPCC AR5: Herbert Fischer, IMK/KIT; Johannes Orphal, IMK/KIT; Hua Zhang, China Meteorological Administration; Brian Soden, University of Miami; Tadahiro Hayasaka, Tohoku University.

Other Meetings and Activities:

ITSC-17 (International TOVS Study Conference), 14-20 April 2010, Monterey, CA.

11th BSRN Scientific Review and Workshop, 13-16 April 2010, Queenstown, New Zealand

The Eleventh Biennial HITRAN Conference (united with the 10<sup>th</sup> ASA Conference), 16-18 June 2010, Cambridge, Massachusetts.

AMS Joint 13<sup>th</sup> Conference on Cloud Physics and 13<sup>th</sup> Conference on Atmospheric Radiation, 28 June-2 July 2010, Portland, Oregon.

3<sup>rd</sup> Asia Pacific Radiation Symposium, Seoul, 25-28 August 2010.