

Combined contributions from IAMAS commissions collected by the Assistant Secretary General Zheng (Jenny) LIN

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ICACGP Report to IAMAS (2009)

1) Contributions to the IGBP Congress 5-9th May 2009

The 4th IGBP Congress took place in Cape Town, South Africa, 5-9 May 2008. About 380 participants from 65 countries were welcomed to share their research and knowledge of global environmental change science and contribute to the development of IGBP's scientific agenda for the period 2008-2013. ICACGP participated in this meeting providing a poster, talks and participation in the development of IGBP; cf. <http://www.igbp.net/>

2) 12th iGAC Symposium Halifax Nova Scotia Canada, 11-16th July 2010

The 12th Symposium of the International Commission on Atmospheric Chemistry and Global Pollution (ICACGP) and the 11th Science Conference of the International Global Atmosphere Chemistry (IGAC) Project will take place in Halifax, Canada, July 11-16, 2010, cf. <http://www.icacgp-igac-2010.ca/>

ICAE Report to IAMAS (2009)

Activities of ICAE 2009

- 1) ICAE published 2 issues of newsletters.
- 2) ICAE organized two symposiums for IAMAS 2009 Montreal conference.
- 3) ICAE website was regularly updated.
- 4) One formal and one informal steering committee were held.
- 5) Preparation for 14th ICAE conference was made.
- 6) ICAE colleague mailing list was expanded from 600 to 650.

Plan for 2010

- 1) Two issues of newsletter
- 2) Regular update of ICAE website
- 3) One steering committee
- 4) Continuous preparation for 2011 10th ICAE
- 5) Continuous expansion of ICAE colleague mailing list

ICCL Report to IAMAS (2009)

Funding:

ICCL received no funding from IUGG or IAMAS in 2009.

Expenses in 2009 were on the order of 10,000 US dollars, including maintenance of the website, travel of the president and executive secretary to the business meeting and MOCA joint Assembly, and provision of refreshments at the business meeting. These costs were covered by the president and executive secretary's grants.

ICCL is currently going through a process of re-design and development of its website. This activity has been ongoing through the latter part of 2009. ICCL has requested IAMAS/IUGG funding to support this activity, but is still hopefully anticipating funding from our parent organization(s) of \$1500 in order to complete this task.

2009 ICCL activities:

ICCL held its biennial business meeting on the 23rd of July in Montreal during the IAMAS/IAPSO/IACS Joint Assembly "Our Warming Planet, MOCA-09". The meeting considered revitalization of the ICCL membership list and adopted a set of proposed ICCL sponsored, or co-sponsored, symposia for the next IUGG congress in Melbourne, 2011. The ICCL Biennial Report (July 2007-June 2006) was an additional output of the business meeting, and is attached as an annex to this report.

ICCL was active in as co-convening organization, and ICCL members were active as participants, in a large number of scientific symposia at the MOCA-09 Assembly. 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 Holbrook is on the Scientific Program Committee for IUGG 2011 and attended an all-day Scientific Planning meeting in Melbourne on 12 October 2009 to discuss and help prepare for the next IUGG conference. The Executive secretary also attended the IUGG Launch at CSIRO Marine and Atmospheric Research in Aspendale (Melbourne) the following day, on 13 October. At this meeting, the Priestly Lecture by IAPSO president, Lawrence Mysak, was also presented.

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 to replace its leadership. It is envisioned that both the President and Executive Secretary will be renewed.

2009 Climate Update:

2009 was an exciting year for the climate science community. ICCL president attended several UN Framework Convention on Climate Change (UNFCCC) meetings in the runup to COP15 in Copenhagen (December), including the 28th Subsidiary Body on Scientific and Technical Issues meeting in Bonn (June) and an intergovernmental preparatory meeting in Bangkok (October). He also hosted the annual meeting of the scientific steering committee for the Global Climate Observing System (GCOS) in Paris in October. In August, he attended the World Climate Conference 3 hosted by the World Meteorological Organization, which developed a high level statement advocating the development of a global framework for provision of climate services.

ICCP Report to IAMAS (2009)

1. The 18th International Conference on Nucleation and Atmospheric Aerosols was held in Prague, the Czech Republic in August 2009. The representative of the ICCP to the conference was Dr. Paul DeMott from Colorado State University. He is currently the co-chairman of this committee. The conference was a great success with about 240 submitted papers on a number of topics related to the formation of aerosols, nucleation of drops and ice in clouds.

2. In 2009 a book entitled: Aerosol Pollution Impact on Precipitation; a Scientific Review, edited by Levin and Cotton with contribution from members of the cloud physics community was published by Springer. This scientific review which was sponsored by the IUGG, IAMAS and the WMO received the Atmospheric Science Librarians International (ASLI) 2009 Choice Honorable mention for an authoritative, well-organized, forum-based approach to the evaluation of the problem.

ICDM Report to IAMAS (2009)

The International Commission on Dynamical Meteorology (ICDM) was sole sponsor of five symposia in MOCA-09 in Montreal, sponsored two jointly with other IAMAS commissions, and was involved with three MOCA-09 joint symposia. All the symposia have received a decent number of submissions and were well attended. In response to urgings by the Secretary General, we have proposed larger, broader symposia for the 2011 IUGG general assembly in Melbourne.

The ICDM has not recently sponsored any conferences outside of the biennial IAMAS and IUGG meetings, but we are discussing the possibility of sponsoring a workshop on large-scale dynamical and climate influences on high-impact weather. We are envisioning 50 or so participants, including leading scientists and young scientists. The workshop is tentatively planned for China in summer 2012. We will work with THORPEX leaders in developing the scientific program. We will seek funding from various potential sponsoring agencies.

The ICDM is also considering ways to take advantage of modern electronic communications to conduct scientific exchanges over the Internet in a manner complementary to regular conferences. While regular conferences have the advantage of face-to-face meetings, they are expensive for the participants and are rarely carbon-neutral. Electronic scientific discourse would be accessible to scientists in developing countries and to the broad student community. We would welcome collaboration on this activity from other commissions.

The regular biennial meeting of the ICDM took place at the MOCA-09 symposium on Wednesday 22nd July 2009. Following the meeting, four new members were elected to the Commission: Craig Bishop, Jianping Li, Olivia Martius and David Nolan.

ICMA Report to IAMAS (2009)

1) Conference in 2009

ICMA sponsored four symposia in the IAMAS-IAPSO-IACS Joint Assembly (MOCA-09)

Date: July 19-29, 2009

Place: Montreal, Canada

Symposia:

M01 Middle Atmosphere Science

M02 Climate Processes in the Upper Troposphere and Stratosphere

M03 The Impact of Solar Variability on Earth

M05 Stratosphere-Troposphere-Ocean Coupling in Climate - Top Down or Bottom Up?

2) Workshop in 2009

ICMA co-sponsored the 9th ICMA Workshop on Layered Phenomena in the Mesopause Region (LPMR)

Date: July 12-15, 2009

Place: Stockholm, Sweden

3) Plan for 2010

ICMA will co-sponsor Solar-Terrestrial Physics Symposium (STP-12)

Date: July 12-16, 2010

Place: Berlin, Germany

ICPAE Report to IAMAS (2009)

1. Activities of ICPAE during 2009

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 were highly represented at our 2009 Symposia.

The major activity this past year has been planning for the MOCA09: IAMAS-IAPSO-IACS Joint Assembly-2009 in Montreal, Canada, July 19-29, 2009. ICPAE had two symposia for 3 days total. J20: Atmospheres and Ices of Terrestrial Planets and M18: Comparative Atmospheres of the Giant Planets and their Satellites. Additionally, some time was devoted to the presentation of results from laboratory experiments and model simulations, which were extremely important in interpreting the space-based observations. An invited talk on Astrobiology by Prof. H. Vali in J20 was also very successful this year. Furthermore, a talk by G. Orton on the cometary impact on Jupiter, which had just occurred was highly appreciated.

Due to restrictions on "foreign" travel by NASA scientists and certain categories of NASA funded scientists this current fiscal year, the number of abstracts submitted is approximately one-third of the actual number of papers given at the ICPAE meeting in Perugia. Nevertheless, the symposia were very successful and well attended (about 50 people for each). The results presented

included recent advances in the field of planetary research and event breaking news on the Jupiter impact.

The year of 2009 was marked as the Year of Astronomy. The ICPAE members actively participated in the event by giving public lectures, publishing articles and contributing to press and web releases planetary research, habitability and extrasolar planets.

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

The following International conferences in 2009 were organized/co-sponsored by ICPAE:

- EGU2009 (Vienna, Austria, 19-24 April)
- International Conference on Comparative Planetology: Venus-Earth-Mars (ESTEC, The Netherlands, May 11-15, 2009)
- AOGS 2009 (Singapore, 11-15 August)
- EPSC 2009 (Potsdam, 14-18 September)

Upcoming:

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

Our connexion with COSPAR was recognized during the Business meeting of the whole IAMAS on Monday, 20 July, as a potential link between the two associations.

Scientific Programmes, Projects, Publications

ICPAE sponsored : Special issue in the Journal of Planetary and Space Sciences, vol. 57, 2009.

Contributed to the special section of Journal of Geophysical Research (Planets) "Venus Express: Results of the Nominal Mission" (2009); special issue on Cassini results, etc. Additionally, we note the publication in December: The Scientific Exploration of Mars » (Cambridge University Press, 2009) by F. Taylor.

In 2009 ICPAE members significantly contributed to the Decadal Survey in US.

2. Business Meeting

The President, Athena Coustenis, conducted the Business Meeting of ICPAE following the symposia during the IUGG Assembly in Montréal, Canada, beginning at 17:45 and ended at 18:30 pm on Thursday, 23 July 2009.

Some of the members present: A. Coustenis (President), D. Titov (Vice-President), D. Strobel (Secretary), S. Atreya, D. Huestis, P. Lavvas, M. Flasar, G. Orton, V. Vuitton, etc

The following items were covered during the meeting.

1) Election of the new Office

The current officers (Coustenis, Titov, Strobel) were re-elected for a new 4-year term.

2) New ICPAE members were nominated and approved. A list of the current and new members

was attached with the August report.3) Promotion of planetary science internationally through ICPAE: Some discussion was held on how ICPAE could be more helpful in promoting planetary science, in addition to holding regular ICPAE meetings during IAMAS and IUGG General Assemblies. Besides the bi-annual IUGG/IAMAS assemblies, other workshops could be organized with some support – if requested – from IAMAS.

Also, 2009 was the International Year of Astronomy and ICPAE members were encouraged to register their activities with the ICPAE office. Furthermore, an outreach branch of the Commission could be established to record E/PO activities of ICPAE members. Finally, members involved in the Decadal Survey (panels, white papers) were asked to notify the Office of their activities.

The meeting adjourned at 18:00.

3. Planned Future Activities/Announcements

Future activities were discussed and formulated at the ICPAE business meeting for IAMAS 2011 in Melbourne, Australia (27 June- 8 July). ICPAE is actively pursuing 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). 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 (Trace Gases Orbiter), Venus (European Venus Explorer, SAGE (NASA and the Outer planets (Europa- Jupiter System Mission, (ESA-NASA)) . ICPAE is very well represented in these studies.

ICPM Report to IAMAS (2009)

1) *Symposia* .

ICPM symposia in Montreal:

J01. Observations of High Latitude Climate Change with Matthew Lazzara was a great success, spread over 4 sessions and posters. This symposium generated a lot of interest.

J02 is also a symposium originally suggested by ICPM and looks like being a very successful session.

ICPM suggested symposia for IUGG Melbourne 2011.

- Is anthropogenic forcing and natural forcing being manifested in the Antarctic climate system? (Final title to be decided) Joint session between ICPM-IAMAS, IAPSO and IACS. Conveners David Reusch and Siobhan O'Farrell. 2-3 days and 100 people.
- Mesoscale and synoptic scale meteorology in the Arctic and Antarctic. Conveners Tom Lachlan-Cope and Matthew Lazzara. 2 days 70 people.

3) *ICPM involvement with the IPCC 5th assessment report (AR5).*

ICPM will try and join with SCAR to have some input into the AR5. Various options exist: being recognized as an interested party; influencing content of chapters and lead authors; contributing expert material; and participating in the review process.

4) *Workshop on Polar Clouds.*

ICPM will hold a workshop on Polar Clouds in 2010.

IO3C Report to IAMAS (2009)

IO3C activities in 2009

1. A Letter of Agreement between IO₃C and WMO was signed for the establishment of an ad hoc expert team that will assess ozone absorption cross sections used in atmospheric observations. An ozone theme meeting on ozone absorption cross-sections organized jointly by WMO, IGACO-O3/UV, IO₃C and the Network for Detection of Atmospheric Composition Changes (NDACC) took place at WMO Headquarters in Geneva on May 11-13 2009. An ozone theme meeting on ozone absorption cross-sections organized jointly by WMO, IGACO-O3/UV, IO₃C and the Network for Detection of Atmospheric Composition Changes (NDACC) took place at WMO Headquarters in Geneva on May 11-13 2009. This activity was planned within the frame of the “Ozone Theme Meetings”, aiming at providing a platform for scientists working in atmospheric ozone science. These meetings aim at promoting discussions among scientists engaged in different communities, such as NDACC, GAW and the satellite community. The aim of the 2009 Ozone Theme Meeting was to discuss the possible replacement of ozone absorption cross sections (and the related temperature dependencies) of Bass and Paur (1985) in the Huggins band. It was found, that these data are not optimal for processing TOMS satellite data.
2. Publication of the volume “Twenty years of ozone decline”, *Springer*, C. Zerefos, G. Skalkeas, G. Contopoulos (eds.), 2009. This book includes articles presented by leading scientists in the ozone field at the *Symposium for the 20th Anniversary of the Montreal Protocol*, jointly organized by the United Nations Environment Programme (UNEP), the International Ozone Commission (IO3C), the Academy of Athens and the Mariolopoulos-Kanaginis Foundation, held in Athens in September 2007.

Plans for 2010 are the following:

1. IO3C co-sponsors with WMO the 2010 Ozone Theme Meeting on Absorption Cross Sections of Ozone that will take place in Geneva in March 2010. As mentioned in the biannual report, IO3C, with WMO, has set up a committee for "Absorption Cross Sections of Ozone"* *(ACSO)*. *The mandates of ACSO is the following:

- * Review the presently available ozone absorption cross sections.
Priority on Huggins band.
- * Determine the impact of changing the reference ozone absorption cross sections for all of the commonly used (both ground-based and satellite) atmospheric ozone monitoring instruments.
- * Recommend whether a change needs to be made to the presently

used WMO/IO3C standard ozone absorption cross section data (by Bass and Paur, 1985).

First reports of ACSO activity will be made at the Ozone theme meeting in Geneva.

2. An IO3C interim meeting is scheduled to take place during the EGU in Vienna in May 2010.
3. IO3C members are actively involved in the preparation of the 2010 Ozone Assessment that will be finalised in July 2010.

IRC Report to IAMAS (2009)

Early in 2009 the officers introduced a new IRC website (www.irc-iamas.org) developed in open source php code by webmaster Paul Przyborski of USA. The new site allows members to login and update their personal and working group information, as well as add items of news and events to share with the community.

IRC sponsored 4 sessions at IAMAS MOCA-09 meeting, and has issued a call for sessions at IUGG 2011 (Melbourne).

The next IRC Business Meeting will be held in summer 2010, at a site being voted on.