The IPWG Newsletter

December 2009

Recent activities of the International Precipitation Working Group

www.isac.cnr.it/~ipwg

The International Precipitation Working Group is a permanent Working Group of the Coordination Group for Meteorological Satellites (CGMS) and focuses the scientific community on operational and research satellite based quantitative precipitation measurement issues and challenges.

New IPWG Co-Chairs

The new IPWG Co-Chairs for the 2009-2010 biennium were announced at last year's Fourth IWPG International Workshop in Beijing, China, as Drs. George J. Huffman (SSAI and NASA/GSFC, USA) and Christian Klepp (Univ. of Hamburg and Max-Planck Institute for Meteorology, Hamburg, Germany). Following what is becoming IPWG tradition, the outgoing Co-Chairs, Mr. Ralph Ferraro (NOAA/NESDIS/STAR, USA) and Prof. Christopher Kidd (Univ. of Birmingham, UK) will continue to lend their expertise and advice as the new Co-Chairs take up their duties.



Dr. Huffman has spent a great deal of the last 15 years developing and analyzing global rainfall products based on the combination of various satellite inputs, plus raingauge data. This work has included significant participation in the GPCP monthly and daily products, and the TRMM Multi-Satellite Precipitation Analysis real-time and post-real-time products. He received his Ph.D. in Meteorology at M.I.T. in 1982, taught at the University of Maryland College Park, and has worked on-site at NASA Goddard Space Flight Center since 1988, most of which has been with Science Systems and Applications, Inc. Dr. Huffman recently achieved the unusual distinction of receiving awards for review activities from both the AMS (*Journal of Hydrometeorology*) and the AGU (*Journal of Geophysical Research-Atmospheres*) in the same year.



Dr. Klepp has worked for the last 13 years on water cycle components derived from satellite data with focus on global ocean precipitation. This included significant participation in the development, improvement and validation of the Hamburg Ocean Atmosphere Parameters and fluxes from Satellite data (HOAPS) climatology. He received his Ph.D. in meteorology in 2001 and has taught since 2002 at the University of Hamburg, Germany. Dr. Klepp is currently working at the CliSAP Climate System Analysis and (Integrated Prediction) Excellence Cluster of the University of Hamburg in close cooperation with the Max-Planck Institute for Meteorology. Within CliSAP he is organizing a multiple year field campaign over the Nordic Seas in which Norwegian Coast Guard ships will record in-situ measurements of guantitative liquid and solid precipitation using optical disdrometers to validate and improve satellite retrievals. This work is expected to contribute to GPM-GV as well.

New CGMS Rapporteur

With his retirement in December 2008, we wholeheartedly thank Dr. Jim Purdom for his counsel and dedication as CGMS rapporteur since the start of IPWG. Dr. Volker Gärtner of EUMETSAT has been named by CGMS as their new rapporteur to the IPWG.



Dr. Volker Gärtner studied meteorology in Bonn and afterwards graduated at the Institut für Astrophysik and Extraterrestrische Forschung (also in Bonn) to get his PH. D. In 1985 he joined the European Space Agency and worked in the Meteosat Exploitation Project at the European Space Operation Centre (ESOC) in Darmstadt. in 1995 he changed to the newly created European Organization for Exploitation of Satellites (EUMETSAT). Since 2003 is the Head of the EUMETSAT User Service, responsible for training, user support and the EUMETSAT Data Center.

Meeting Report on the 4th IPWG Workshop in Beijing, China

The Fourth International Precipitation Working Group Workshop was held from 13 to 17 October 2008 in Beijing, China, during one week of continuous sunshine. Hosted by the National Satellite Meteorological Center (NSMC) of the Chinese Meteorological Administration, approximately 70 attendees from nearly 20 nations contributed to this successful meeting making it the largest IPWG workshop to date. The very pleasant atmosphere during the meeting culminated in an unforgettable outing to the Great Wall, including a traditional Chinese meal. We want to extend thanks to our hosts at the National Satellite Meteorological Center of China for their generosity and hospitality in addition to EUMETSAT and the World Meteorological Organization for funding and inkind support to make this workshop possible.

The objectives of this Fourth IPWG workshop where to review the status of current and future satellite missions with focus on precipitation retrievals; to update the current status of operational and quasi–operational satellite-based estimates of precipitation for weather, hydrometeorological and climate applications; to analyze the open issues underlying precipitation retrievals, such as retrievals over complex terrain, light precipitation, and snowfall; to analyze the statistical performance of current satellite techniques over various seasons, rainfall regimes, and space-time scales; to develop strategies within IPWG in the areas of community consensus algorithms, radiative transfer, and cloud resolving models, as well as satellite calibration and inter-calibration; to report on the results of two recent IPWG sponsored workshops – the Pilot Evaluation of High Resolution Precipitation Products (PEHRPP) and the Second Workshop on Space-Based Snowfall Measurement (see previous IPWG Newsletter) and plan for

follow on efforts; and to develop key recommendations for short and long term activities for the CGMS agencies and the IPWG.

The meeting included both oral and poster sessions on various topical issues, and two days of working group breakout sessions to track action items established during the third workshop in Melbourne and to develop key recommendations on future issues. The working groups covered the established topics of research, applications, and validation, and a new group on new technology/techniques.

The resulting Fourth IPWG meeting proceedings, containing all extended abstracts and the summaries of these subgroup recommendations, can be downloaded via **http://www.isac.cnr.it/~ipwg/meetings/beijing/beijing2008.html** as a 391-page pdf file. A conference DVD, sponsored by EUMETSAT, is being sent to the participants. Our thanks go to Volker Gärtner and Meryem Uz for making the DVD possible.





JAMC IPWG Special Collection Issue

Following the Fourth IPWG meeting in Beijing, about 30 peer review contributions were submitted to a special collection issue of the *Journal of Applied Meteorology and Climatology (JAMC)* in April 2009. Publishing of the articles is expected within the next six months. Once all of the submitted papers have been published in a regular issue of *JAMC*, we will assemble a hard-bound issue of the IPWG papers.

JMSJ Special Issue on "Precipitation Measurements from Space" Online

Dr. Kazumasa Aonashi from the Meteorological Research Institute in Tsukuba, Japan, supplied access to the online version of the JMSJ special issue on "precipitation measurements from space" via:

http://www.jstage.jst.go.jp/browse/jmsj/87A/0/_contents

Joint Precipitation Intercomparison Activities between IPWG and WGNE

In 2006, the IPWG initiated the Program to Evaluate High Resolution Precipitation Products (PEHRPP) to perform a detailed evaluation of the quality of the high resolution satellite-based precipitation datasets that were becoming increasingly available. Scales of interest range from 3-hourly, 0.25° latitude/longitude estimates which are verified against very high quality datasets that may be limited in time and/or space, to daily time scales for which many years of reference data are available, to monthly low-resolution validation performed mainly as a "sanity check". The PEHRPP web site http://essic.umd.edu/~msapiano/PEHRPP/index.html gives further details of the project.

At the same time, short-range Numerical Weather Prediction (NWP) forecasts of precipitation have continued to improve over the past several years and are an increasingly important source of precipitation information, particularly in places where satellite estimates are traditionally limited (e.g., over frozen surfaces). A few models have been included in PEHRPP where available, but the difficulty of obtaining high time/space-resolution operational model forecasts has hindered a more complete analysis. In November 2008, the framework for a joint collaboration between the IPWG and the Working Group on Numerical Experimentation (WGNE) was established as a mechanism for IPWG members to obtain NWP data for the purposes of validation at high resolutions. The membership of WGNE encompasses the major NWP centers of the world and this collaboration presents a unique opportunity for both groups.

A data requirements document has been developed which has been distributed to modeling centers. Commitments have been received from several centers, and it is hoped that new model short-range forecasts will soon be available for evaluation by the IPWG/PEHRPP community. The data will initially be archived on the PEHRPP website and will be freely available (except where prohibited by the modeling center). Those wishing to be notified of updates to this new archive should email Matt Sapiano (msapiano@atmos.colostate.edu) or Chris Kidd (C.Kidd@bham.ac.uk) for details.

Venue and Date of the fifth IPWG Workshop

As our fourth workshop in Beijing was one year ago, it is time to plan ahead for the upcoming fifth IPWG meeting. This workshop will be hosted by the Clisap Excellence Cluster of the University of Hamburg and the Max-Planck Institute for Meteorology in Hamburg, Germany from 11 to 15 October 2010. A registration and accommodation announcement will be made well in advance. We expect a large number of attendants as this location is easily reached by European participants. An embedded satellite data training event is envisaged, sponsored by EUMETSAT and the German Weather Service.



The Centre for Marine and Atmospheric Sciences (ZWAW) building in Hamburg represents an institutionalized cooperation between the University of Hamburg and the Max-Planck Institute for Meteorology.



Aerial view of the ZMAW building with the roof of the Geomatikum in front.

CGMS reports

IPWG Action Items for CGMS-36:

- * Continue to provide and update the inventory of routinely produced precipitation estimates, either operational or experimental/research, to the IPWG Co-chairs;
- Provide information to the IPWG Rapporteur on areas for future consideration by the IPWG;
- * Appoint a new CGMS Rapporteur to the IPWG;
- * Confirm the new Co-chairs for the IPWG;
- * Continue to provide data necessary for global, 4-km IR data products in a timely manner to precipitation product producers;
- Establish with the WMO Space Programme, the IPWG through its Co-chairs, and the WMO Hydrology Programme a small team to investigate the feasibility of "Mainstreaming the Operational use of Satellite Precipitation Data and Products" for Meteorological and Hydrological Services;
- * Consider ways to assure utility of datasets for use by IPWG Members, as discussed in connection with data issues at the IPWG-4 Workshop;
- * Consider ways to provide additional support for attendance at CGMS Science Working Group Meetings, particularly for those from developing and least developed countries;
- * Provide support as needed to help defray publication charges for the "Special edition" of the AMS *Journal of Applied Meteorology and Climatology*.

Summary of CGMS-36 actions related to IPWG:

CGMS-36 noted the success of the Fourth IPWG Workshop, 13-17 October 2008, Beijing, China. The workshop was attended by 75 scientists from 20 countries and discussed topics concerned with operations and research on precipitation estimation techniques. A new subgroup on technology was formed within IPWG and the two new co-chairs Drs. George Huffman and Christian Klepp were confirmed. Furthermore, the activities of the Second Workshop on Space-Based Snowfall Measurement and the First Workshop on the Programme for the Evaluation of High Resolution Precipitation Products (PEHRPP) were positively seen, in addition to the ongoing IPWG validation activities. Finally, CGMS-36 thanked Dr. James Purdom for his outstanding support as rapporteur from IPWG and nominated Dr. Volker Gärtner as the new rapporteur.

IPWG Action Items for CGMS-37:

- * Confirm Co-Chair G. Huffman as the Point of Contact for the GEO Precipitation Activity;
- Request funding from CGMS members to assemble the "Special Collection Issue" of papers arising from IPWG-4 in the AMS *Journal of Applied Meteorology* and Climatology;
- * Provide support for attendance at the next IPWG Meeting 4-8 October 2010 in Hamburg, Germany, for six scientists from developing and least developed countries.

The IPWG Recommendations for CGMS-37 are:

- Request CGMS operators to provide IPWG current and archived instrument metadata and information regarding instrument health for sensors used to estimate precipitation;
- Request CGMS operators to undertake reprocessing of L1 radiance data and L2 precipitation data sets when significant calibration corrections are developed and algorithm improvements are implemented into operations;
- Request CGMS operators to contribute in a timely fashion to the open archive of the international constellation of precipitation-relevant sensors, for example, for use in GPM.

IPWG Participates in GEO

The Group on Earth Observations (GEO) is coordinating international efforts to build a Global Earth Observation System of Systems (GEOSS). The goal is to interconnect a diverse and growing array of instruments and systems for monitoring and forecasting changes in the global environment. This "system of systems" supports policymakers, resource managers, science researchers and many other experts and decision-makers. These overall goals are supported by a set of "work plan task sheets" on different administrative and scientific topics. Late in 2008 CGMS suggested that IPWG provide leadership of the Precipitation subtask (labeled WA-08-01d), which falls under WA-08-01: Integrated Products for Water Resource Management and Research, together with other water cycle components. As noted above, Co-Chair George Huffman agreed to serve as the official Point of Contact for this activity. The first order of business was to inform GEO of current precipitation activities, following a prescribed template. The current topic of discussion within GEO is how the various components of WA-08-01 are coordinating activities to capture the entire water cycle. Precipitation specialists are encouraged to contact Dr. Huffman with updates on activities that advance precipitation or water cycle studies.

Recent Meetings with IPWG representation

• EGU 2009, 14-19 April 2009, Vienna, Austria, Session AS 1.3 on Precipitation: Measurement, Climatology, Remote Sensing, and Modeling. http://meetings.copernicus.org/egu2009/

•The 8th GPM International Planning Workshop, 16-18 June 2009, Paris, France. http://gpm.ipsl.polytechnique.fr/

• Joint GEWEX and iLEAPS Conference , 24-28 August 2009, Melbourne, Australia, on Water in a changing climate: Progress in Land-Atmosphere Interactions and Energy/Water Cycle Research.

http://www.gewex.org/2009gewex_ileaps_confvenue.html

Upcoming Conferences, Workshops and Meetings

- 18-20 November 2009, Earth Observation and Water Cycle Science, Frascati, Italy.
- 14-18 December 2009, AGU Fall Meeting, San Francisco, USA.
- 17-21 January 2010, AMS Annual Meeting, Atlanta, USA.
- 02-07 May 2010, EGU Meeting, Vienna, Austria.
- 25-30 July 2010, IGARSS, Honolulu, USA.
- 08-13 August 2010, Joint AGU Meeting, Iguassu Falls, Brazil.
- 20-24 September 2010, EUMETSAT Satellite Conference, Cordoba, Spain.
- 27 September-1 October 2010, AMS Satellite Conference, Williamsburg, USA.
- 11-15 October 2010, Fifth IPWG Meeting, Hamburg, Germany.
- 13-17 December 2010, AGU Fall Meeting, San Francisco, USA.
- 23-27 January 2011, AMS Annual Meeting, Seattle, USA.

For more, see the GEWEX Calendar at: http://www.gewex.org/gewex_meetings.html

Joining IPWG and becoming involved

If you or your organization can benefit from or contribute to the IPWG activities, please contact the IPWG co-chairpersons and become a member of our growing community. Short summary descriptions of IPWG-relevant precipitation and closely related topics (i.e. freshwater flux) may be submitted to this newsletter as one easy means of communicating your work with colleagues. Feel free to forward this newsletter to your colleagues or others who may be interested in the IPWG.

For further information, contact the current IPWG co-chairpersons

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This fifth newsletter along with all back issues can be obtained via

http://www.isac.cnr.it/~ipwg/newsletter.html