The IPWG Newsletter
November 2005

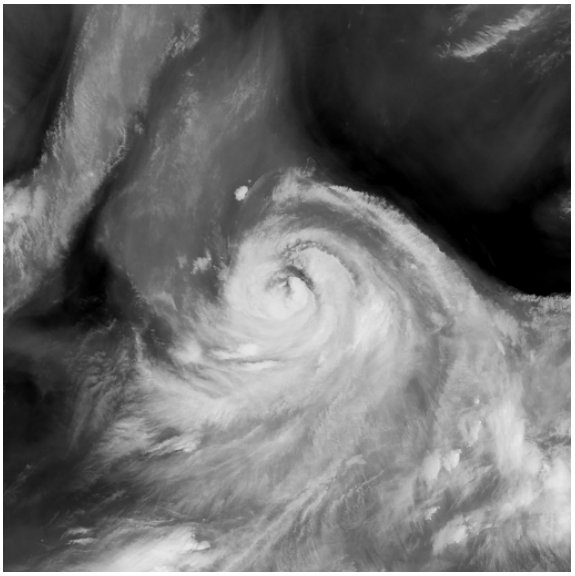
Recent activities of the International Precipitation Working Group http://www.isac.cnr.it/~ipwg

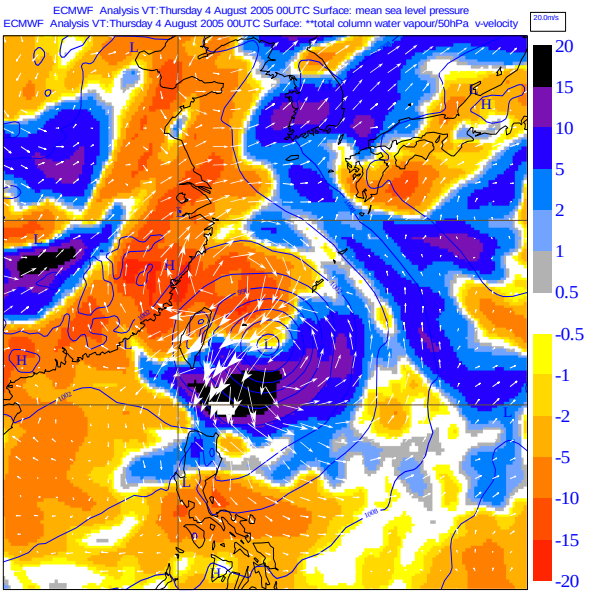
JCSDA Workshop on Assimilation of Cloud and Precipitation Observations

The Joint Center for Satellite Data Assimilation (JCSDA) held a workshop on the assimilation of satellite cloud and precipitation observations in NWP models between 2-4 May, 2005 in Lansdowne, Virginia, to accelerate progress in the field and enhance communication between scientists working in modeling, satellite observations, and data assimilation. The workshop's presentations are available online (http://www.jcsda.noaa.gov/CloudPrecipWkShop) as well as a summary presentation given by George Ohring at the 14th ITSC meeting in Beijing, China, May 25-31. The workshop has produced extensive discussions and a list of recommendations that will be synthesized in a forthcoming article to appear in the Bulletin of the American Meteorological Society. Scientific review papers on key aspects of cloud and precipitation observations, modeling and data assimilation are under development for a special issue of the Journal of the Atmospheric Sciences to appear in 2006.

ECMWF Activates Precipitation Data Assimilation

The European Centre for Medium-Range Weather Forecasts (ECMWF) activated the assimilation of cloud and rain affected SSM/I radiances in their operational model on 28 June 2005. With the upcoming new model cycle, the forecasts will be performed at 25 km spatial resolution and 91 model levels for the medium range up to 10 days. The increase in spatial resolution and the assimilation of rain observations is expected to produce better forecasts of tropical cyclones.





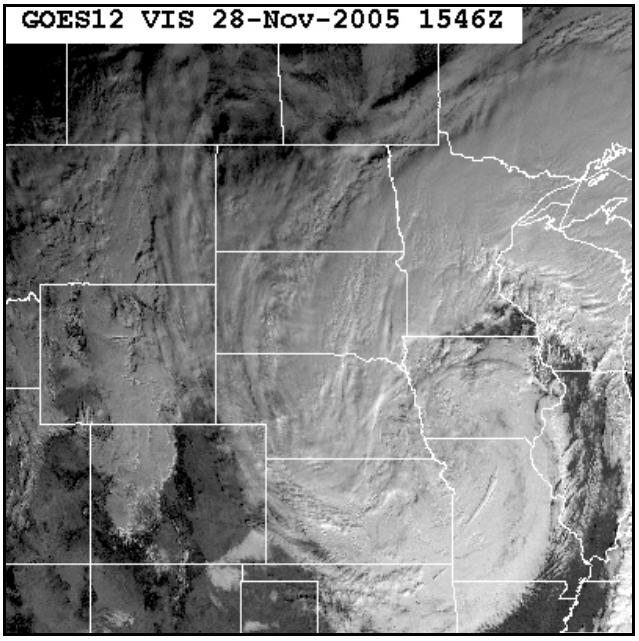
Left: MTS Infrared image of typhoon MATSA approaching Taiwan and Chinese coast on August 4, 2005, 00 UTC. **Right:** 4D-Var moisture increments with rain assimilation (colors in %), 900 hPa wind increments (white arrows), surface pressure (isolines).

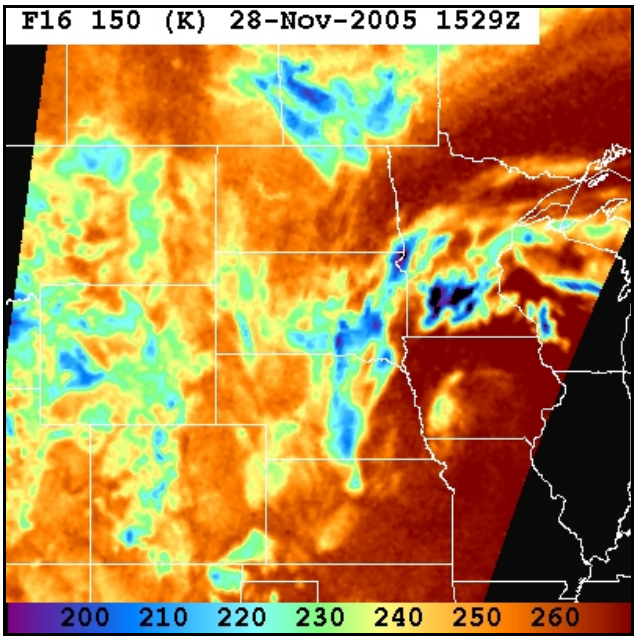
Workshop on Passive Microwave Modeling and Retrieval of Snowfall

The IPWG along with the GEWEX Radiation Panel (GRP) and NASA's Global Precipitation Measurement Program (GPM) recently co-sponsored a workshop on passive microwave modeling and retrieval of snowfall at the University of Wisconsin-Madison during 11-13 October 2005. The workshop reviewed the state of the art in passive microwave modeling and retrieval of falling snow over both land and ocean and to develop future directions and requirements for algorithm development, implementation and validation of applications ranging from short-term weather forecasting to climate data set generation. Workshop presentations and reports are available under the "Meetings" link on the IPWG website. We acknowledge the workshop organizers, Ralf Bennartz of the University of Wisconsin-Madison and Ralph Ferraro of NOAA/NESDIS.

New Environmental Satellite Datasets Released

In June 2005, the science data from the first Special Sensor Sensor Microwave Imager Special (SSMIS) imager onboard the Defense Meteorological Satellite Program (DMSP) F-16 satellite was released by the DMSP Space Program Office after an extensive calibration/validation phase. The SSMIS is the first of several planned instruments and extends the capabilities of the heritage SSMI instrument with additional channels providing temperature and moisture sounding capabilities, with applications to precipitation sensing. Also, the NOAA-N (NOAA-18) primary afternoon satellite was declared operational in August, marking the beginning of the NOAA-EUMETSAT Initial Joint Polar System (IJPS) agreement. The IJPS project comprises two NOAA satellites (NOAA-18 and N') and two EUMETSAT satellites (Metop-A and Metop-B). Precipitation and related products from NOAA-18 are now available from the NESDIS Microwave Surface and Precipitation Products System (MSPPS) online website at http://www.orbit.nesdis.noaa.gov/corp/scsb/mspps/main.html.





Left: GOES-12 visible image on 28 November 2005 at 1545 UTC during a snowstorm in the midwestern United States. **Right:** SSMIS 150H GHz image (Kelvin) from the DMSP F-16 overpass approximately15 minutes earlier.

Pilot Evaluation of High-Resolution Precipitation Products (PEHRPP)

The work efforts of the Pilot Evaluation of High Resolution Precipitation Products (PEHRPP) have begun following a June 2005 planning meeting at the University of California-Irvine. PEHRPP is divided into four suites: (1) Regional site comparisons, typically for daily totals and 0.25^{o} spatial resolutions, (2) High resolution time series observations from the CEOP (Coordinated Enhanced Observing Period) sites, TOGA and IMET buoys, and Pacific atoll gauges, (3) High quality/resolution, but limited duration observations associated with field programs such as NAME, LBA, KWAJEX, SCSMEX, (4) Validation of large-scale quantities and characteristics (e.g. thousands of kilometers and monthly), such as comparison of monthly mean maps of accumulated precipitation to established products such as GPCP, CMAP, and model forecasts. An intial evaluation will be presented during the 3rd IPWG workshop in October 2006. For more information, contact the IPWG co-chairpersons (listed below).

High-Frequency Capability on GPM Microwave Imager (GMI)

The National Aeronautics and Space Administration (NASA) formally approved the incorporation of the high frequency (HF) capability on both Global Precipitation Mission (GPM) microwave imagers (GMI) in September 2005. This includes channels at 165.5 GHz and 183.31 GHz, providing the ability to measure light rain and detect snowfall at mid and high latitudes in cold seasons and makes GPM truly a global measurement mission. GPM is looking to the IPWG community to build upon HF research to make effective use of the DPR and GMI to improve GPM precipitation products over both land and oceans.

TRMM Operations Extended

On 29 September 2005, NASA Headquarters officially directed Goddard Space Flight Center (GSFC) to extend nominal Tropical Rainfall Measuring Mission (TRMM) science operations through September 2009, with further extension possible at that time via the next NASA Senior Review process. The new TRMM operating plan eliminates the requirement for a controlled re-entry. Without this decision for extension, full science data would have stopped very soon. The use of the remaining onboard fuel for orbit maintenance/science operations is estimated to potentially take TRMM to about 2012, allowing for a possible overlap with GPM. TRMM science instruments and spacecraft systems remain in very good condition after nearly eight years of on-orbit operation.

IGeoLab Initiative for a Demonstration Microwave Mission in Geostationary Orbit

The concept of an International Geostationary Laboratory (IGeoLab) had been introduced at the 32nd session of the Coordination Group for Meteorological Satellites (CGMS-XXXII, Sochi, Russia, 17-20 May 2004). The IGeoLab concept is based on a partnership and the sharing of benefits from geostationary demonstration mission(s) across several space development agencies, operators of operational meteorological satellites, and satellite data users. The WMO Space Programme is acting as a catalyst to further the IGeoLab concept. An IGeoLab Task Team was convened in Geneva on 13-14 December 2004 and prepared a recommendation for presentation at the 5th session of the WMO Consultative Meetings on High-level Policy on Satellite Matters (CM-5, Geneva 24-25 January 2005). CM-5 strongly supported the IGeoLab concept and established two Focus Groups, for GIFTS (Geostationary Imaging Fourier Transform Spectrometer) and GOMAS (Geostationary Observatory for Microwave Atmospheric Sounding). The first meeting of the GOMAS Focus Group (FG-1) was held in Washington DC on 7 June 2005. The second meeting (FG-2) was held in Rome, 24-25 October 2005, and was devoted to reviewing and consolidating the scientific knowledge acquired on

millimetre-submillimetre wave sounding and precipitation sensing from geostationary orbit. The purpose was to collect and understand experiences, identify and consolidate items on which consensus is collected, and define follow-on work. A final report is being prepared.

At the CGMS-XXXIII meeting in Tokyo, 1-4 November 2005, CGMS noted with satisfaction the progress of the GOMAS project (now renamed "GEO-Microwave") and adopted the following recommendation:

Recommendation 33.01 - It is recommended that CGMS encourages its Space Agency Members to provide continuity of funding for the scientific studies, pending the establishment of a consolidated study programme once a space agency has accepted the role of the lead space agency in the implementation of the IGeoLab GEO-Microwave project.

The status of IGeoLab and CGMS Recommendation 33.01 will be reported by WMO to the next Consultative Meetings on High-level Policy on Satellite Matters (CM-6, in Buenos Aires, January 2006).

Upcoming Presentations and Meetings

23-26 October 2006: **Third IPWG Workshop**, Melbourne, Australia.
29 Jan-2 Feb 2006: **AMS Satellite Meteorology and Oceanography Conference**, Atlanta, USA.
12-16 June 2006: **EUMETSAT Meteorological Satellite Conference**, Helsinki, Finland.
29 Jul-4 Aug 2006: **Int. Geoscience and Remote Sensing Symposium** (IGARSS), Denver, USA.

Interested in becoming involved with the IPWG?

If you or your organization can benefit from the IPWG activities, or you are interested in becoming involved, please contact the IPWG co-chairpersons. If there are any relevant activities that you would like posted in this newsletter, also please let us know. We plan to update this newsletter several times per year. Please forward it to your colleagues or others who may be interested in the IPWG.

For further information, contact the current IPWG co-chairpersons:

Dr. F. Joseph (Joe) Turk
Naval Research Laboratory
Marine Meteorology Division
7 Grace Hopper Ave.
Monterey, CA 93943 USA
turk@nrlmry.navy.mil
Phone: (831)-656-4888
FAX: (831)-656-5025

Dr. Peter Bauer
European Center for Medium Range Weather Forecasts
ECMWF
Shinfield Park
Reading, Berkshire RG2 9AX UK
peter.bauer@ecmwf.int
Phone: +44 118 949 9080
FAX: +44 118 986 9450

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