IPWG's Potential Role in a Snow Hydrology Mission

International Precipitation Working Group

Chris Kidd
The University of Birmingham
Birmingham, United Kingdom

Ralph Ferraro
NOAA/NESDIS
College Park, MD USA

Peter Bauer
European Center for Medium Range Weather Forecasting (ECMWF)
Reading, United Kingdom

Joe Turk
Naval Research Laboratory
Monterey, CA USA

Prepared by Ralph Ferraro
NOAA/NESDIS, College Park, MD USA

IPWG Objectives

1) Promote standard operational procedures and common software for deriving precipitation measurements from satellites

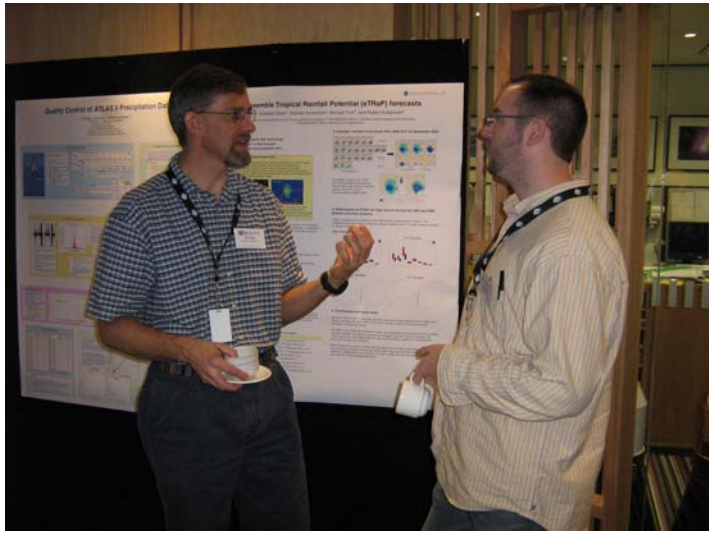
2) Establish standards for validation and independent verification of precipitation measurements

3) Foster the exchange of data on inter-comparisons of operational precipitation measurements from satellites

4) Stimulate increased international scientific research and development in this field

5) Provide recommendations to national and international agencies regarding the utilization of current and future satellite instruments on both polar and geostationary platforms

6) Encourage regular education and training activities



The Third Workshop of the International Precipitation Working Group

Joe Turk and Peter Bauer, *Exiting IPWG Co-Chairpersons*
Beth Ebert, BMRC, Australia, *IPWG-2006 Organizer*

CGMS IPWG

Bureau of Meteorology Research Center
Melbourne, Australia
23-27 October 2006

Relevant Accomplishments for Snowfall Retrievals with IPWG Involvement

- Support for addition of High Frequency channels (166 and 183 GHz) to the GPM Microwave Imager

- Univ. of Wisconsin (October 2005): "Workshop on Global Microwave Modeling and Retrieval on Snowfall"
  - IPWG-3 recommends follow on – Greg Tripoli, March '08?

- Participation on Geostationary Microwave Sensor workshops

- Participation and endorsement of the CEOS Precipitation Constellation

- Participation and endorsement of GPM passive MW common calibration study

Some of the Recommendations from the 2005 Workshop

- Encourage the generation of community Cloud Resolving Model (CRM)/Numerical Weather Prediction (NWP) model profile databases that represent natural variability. A parallel effort for databases generated from observations or combined model simulations and observations is also encouraged.
- Establish a modeling chain that links cloud models with improved models on cloud microphysical information (e.g., shapes, phase) that can be used for the development of parameterizations for general use in cost-driven applications.
- Develop high-latitude surface emissivity products (10-200 GHz) including error estimates.
- Encourage the development and further refinement of inexpensive ground-based remote sensing instruments for snowfall. In particular, vertically pointing micro radars and microwave transmission links that measure attenuation due to snowfall are of interest.
- Encourage the use of combined active (with sensitivity of 5 dBZ or less) and passive (including high frequency measurements, and oxygen and water vapor absorption bands) satellite data for light rainfall and snowfall detection/retrieval.
- Missions such as CloudSat, GPM and EarthCare will be extremely helpful.
- Provide high level coordination of international ground validation programs for snowfall (e.g., through GPM, GEWEX, IPWG), which is urgently needed to advance the current state of snowfall retrievals.

IPWG's Potential Role …

- Organize/Endorse follow-on to 2005 workshop in coordination with this groups efforts
  - Raise awareness through workshop report, series of articles through other organizations (e.g., GEWEX, GPM, etc.)
  - Raise awareness through WG discussions at IPWG-4 (Beijing, Fall 2008)
- Promote advances in both space based and surface based measurements of snowfall
  - Request short and long term plans for snowfall monitoring and validation from CGMS space agencies
  - Develop new component to IPWG Web Site?
- Expand IPWG validation efforts to focus on cold season precipitation?
  - Prototype is W. Europe site maintained by C. Kidd
  - Many of the pieces are already in place…
- Others – we are willing to help!