

IPWG recent accomplishments and future directions

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Outline

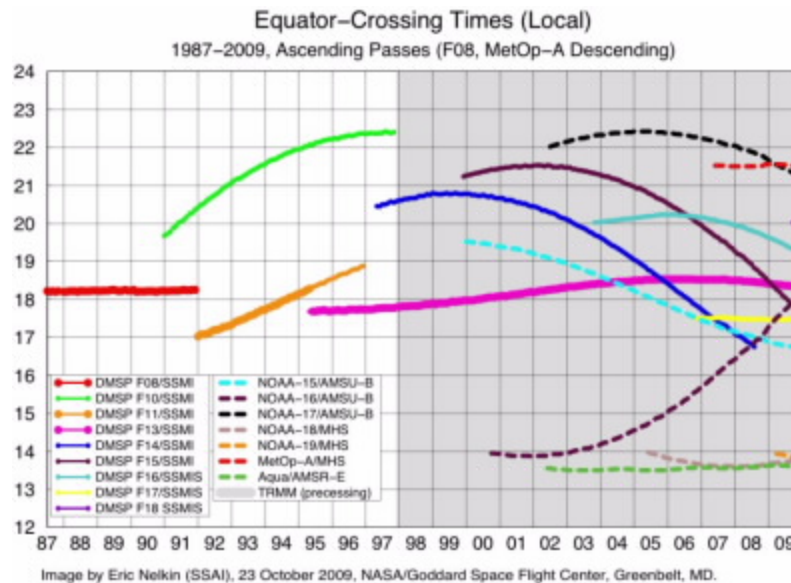
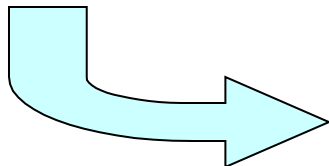
- IPWG Objectives
- Recent Accomplishments
- IPWG-6 Workshop and Training Event
- Recommendations to CGMS

IPWG Objectives

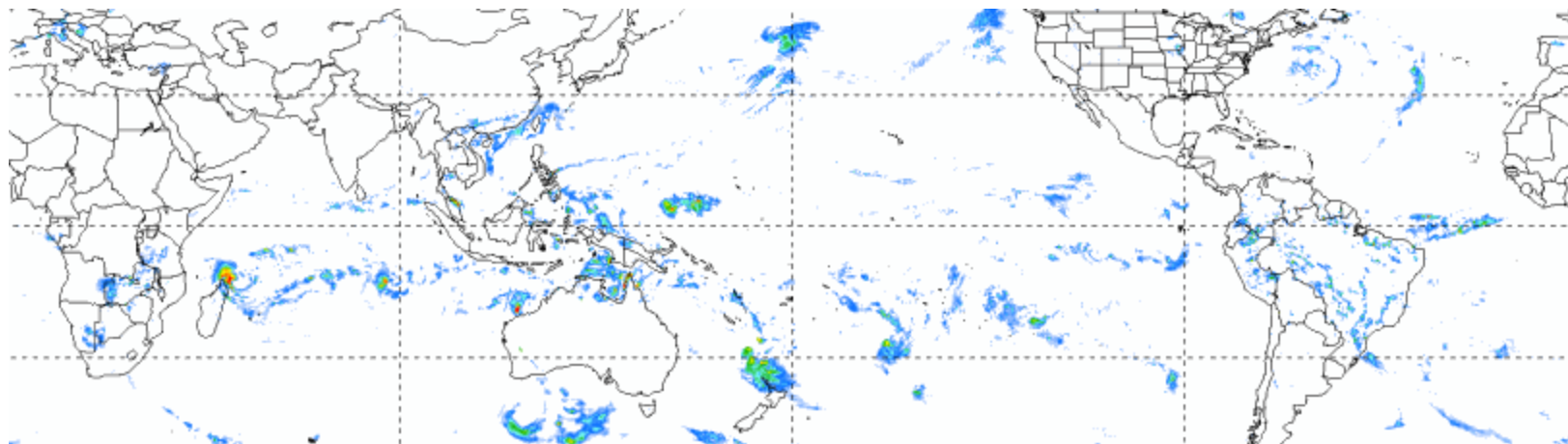
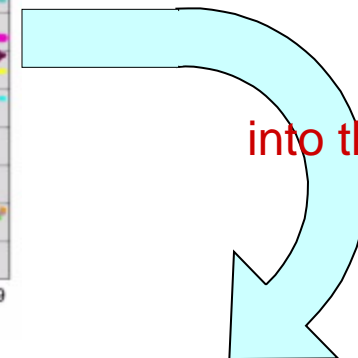
IPWG was established under Coordinating Group on Meteorological Satellites (CGMS) to:

- ❑ Promote standard operational procedures and common software for deriving precipitation estimates from satellites
- ❑ Establish standards for validation and independent verification of precipitation estimates
- ❑ Foster the exchange of data on inter-comparisons of operational precipitation estimates from satellites
- ❑ Stimulate increased international scientific research and development in this field
- ❑ Provide recommendations to national and international agencies regarding the utilization of current and future satellite instruments on both polar and geostationary platforms
- ❑ Encourage regular education and training activities.

We want to get better at turning this

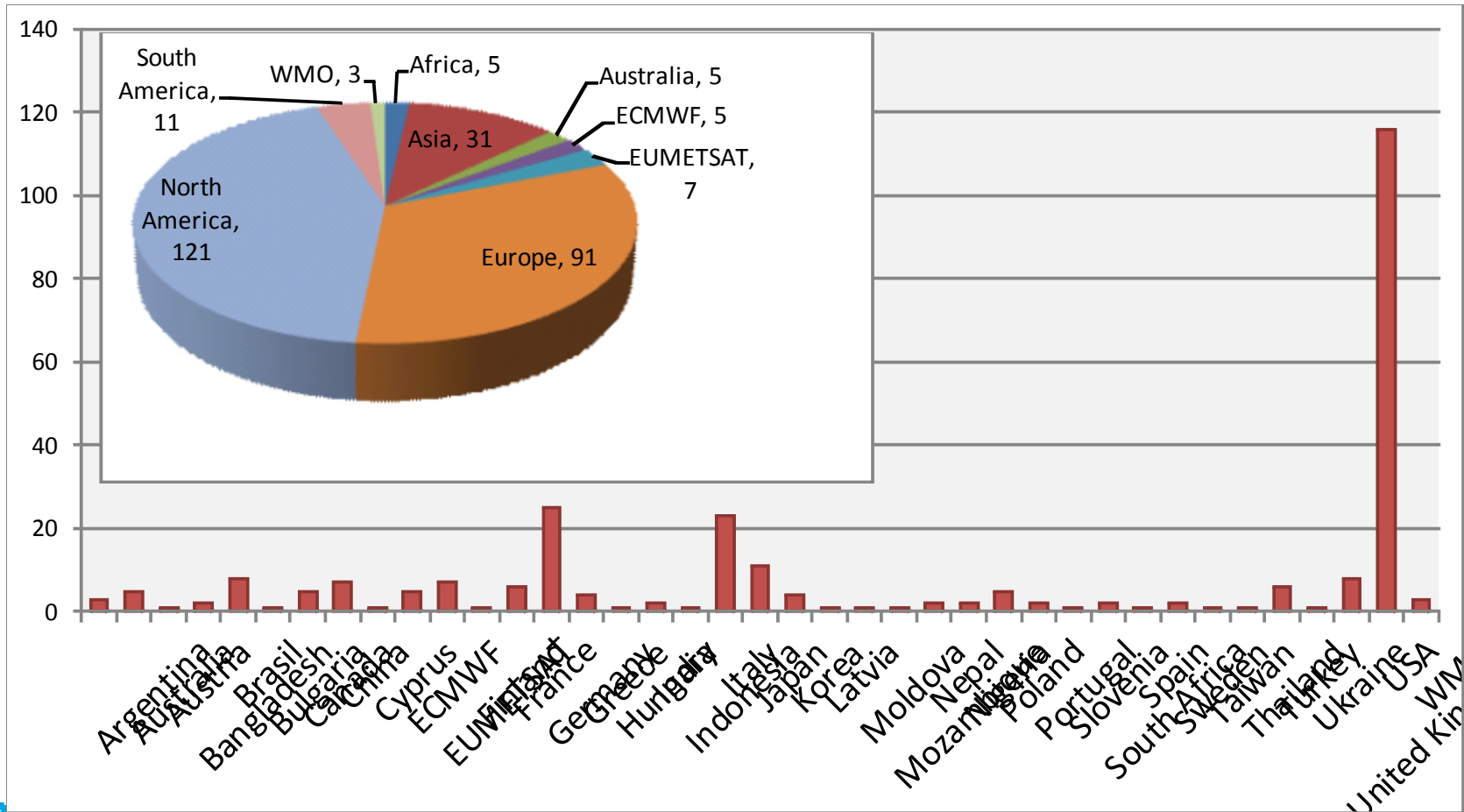


into this



IPWG Membership

- There are about 279 participants from 39 countries and agencies
- Every year new members are joining IPWG.



IPWG recent accomplishments

- Conducting the survey on applications of satellite-derived precipitation products and publishing the list of adequate datasets;
- Survey of different sources of validation rainfall data, according to Recommendation No 3 from IPWG-5 Validation Working Group Meeting;
- Publishing at the IPWG web page the lists of publicly available, quasi-operational and quasi-global precipitation data sets;
- Leadership of Group on Earth Observations (GEO) precipitation subtask;
- Interactions with Working Group on Numerical Experimentation (WGNE) on satellite precipitation validation using NWP generated precipitation estimates;

Global Precipitation Dataset Resources

- Combination datasets with gauge data
- Satellite combination datasets
- Single source datasets
- Precipitation gauge analyses

*Example Table:
Combination datasets w/
Gauge Data*

Algorithm	Input data	Space/time scales	Areal coverage/start date	Update frequency	Latency	Producer (Developer) URL
CAMS/OPI	CMAO-OPI, gauge	2.5°/daily	Global/1979	Monthly	6 hours	NOAA/NWS CPC (Xie)[1]
CMAO	OPI, SSM/I, SSMIS, GPI, MSU, gauge, model	2.5°/monthly	Global/1979 - Oct. 2010	Seasonal	3 months	NOAA/NWS CPC (Xie)[2]
	OPI, SSM/I, GPI, MSU, gauge, model	2.5°/pentad	Global/1979 - Oct. 2010	Seasonal	3 months	NOAA/NWS CPC (Xie)[3]
	OPI, SSM/I, GPI, gauge	2.5°/pentad-RT	Global/2000	Pentad	1 day	NOAA/NWS CPC (Xie)[4]
GPCP One-Degree Daily (Version 1.1)	SSM/I-TMPI (IR), GPCP monthly	1°/daily	Global - 50°N-50°S/Oct. 1997 - Sept. 2009	Monthly	3 months	NASA/GSFC 613.1 (Huffman)[5]
GPCP pentad (Version 1.1)	OPI, SSM/I, GPI, MSU, gauge, GPCP monthly	2.5°/5-day	Global/1979 - 2008	Seasonal	3 months	NOAA/NWS CPC (Xie)[6]
GPCP Version 2.1 Satellite-Gauge (SG)	GPCP-OPI, gauge 1/79-6/87, 12/87 SSM/I-AGPI (IR), gauge, TOVS 7/87-4/05 except 12/87, AIRS 5/05-present	2.5°/monthly	Global/1979 - 2010	Monthly	2 months	NASA/GSFC 613.1 (Adler & Huffman)[7]
TRMM Plus Other Data (3B43 Version 6)	TCI-TMI, TCI-SSM/I, TCI-AMSR-E, TCI-AMSU, MW-VAR (IR), gauge	0.25°/monthly	Global - 50°N-S/Jan 1998	Monthly	1 week	NASA/GSFC PPS (Adler & Huffman)[8]
TRMM Plus Other Satellites (3B42 Version 6)	TCI-TMI, TCI-SSM/I, TCI-AMSR-E, TCI-AMSU, MW-VAR (IR), gauge	0.25°/3-hourly	Global - 50°N-S/Jan 1998	Monthly	1 week	NASA/GSFC PPS (Adler & Huffman)[8]
RFE	GPI, NOAA SSM/I, gauge	10 km/daily	Africa/Oct. 2000	Daily	6 hours	NOAA/NWS CPC (Xie)[9]
		10 km/daily	South Asia/April 2001	Daily	6 hours	NOAA/NWS CPC (Xie)[10]

Applications of Satellite-derived Precipitation Datasets

- Valuable input from the IPWG community (ongoing process)
- A BAMS publication is being drafted that summarizes the wide-range of applications
 - Kucera, P. A., E. E. Ebert, F. J. Turk, V. Levizzani, D. Kirschbaum, F. J. Tapiador, P. Xian, A. Loew, and M. Borsche, 2012: Precipitation from Space: Advancing Earth System Science. **Bull. Amer. Meteor. Soc.**
- A few examples shown below:

Floods/Landslides

http://trmm.gsfc.nasa.gov/publications_dir/potential_flood_hydro.html



Current Heavy Rain, Flood and Landslide Estimates

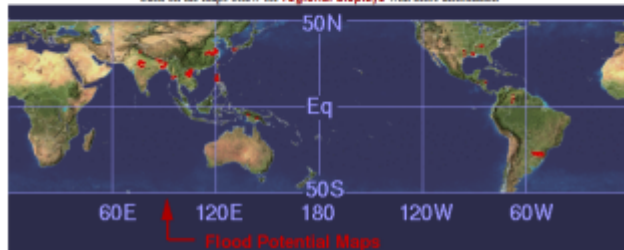
See TEXT REPORT of areas with estimates of heavy flooding near weather station locations

25 JUN 2011 0000 UTC
(Observation Time of Last Data Processing)

Panel A: Obs. 24 HR Rain
Panel B: Obs. 24 HR Rain
Panel C: Obs. 24 HR Rain

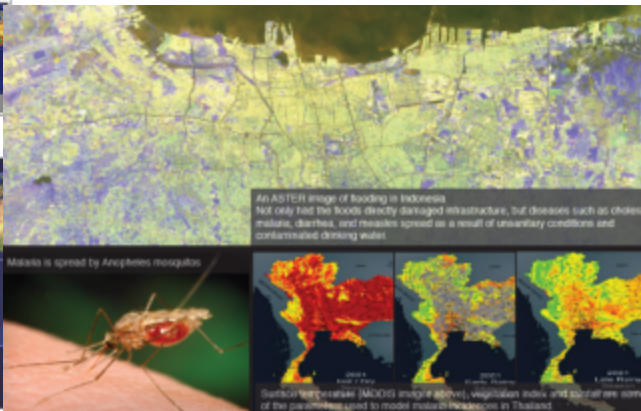


Click on the maps below for regional displays with more information



Disease Monitoring

<http://appliedsciences.nasa.gov/pdf/Project1P/08-Malaria.pdf>



Drought Monitoring

<http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>

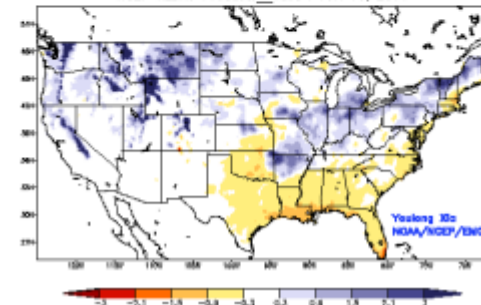
NLDAS Drought Monitor
Total Runoff

NOTE: This page is best viewed with a screen resolution of at least 1024x768
DISCLAIMER: Any data provided on this server should be used for research or educational purposes only.
This data should NOT be relied on for any operational use as data gaps can occur due to hardware failure and/or model upgrading procedures.

Ensemble Mean LSM OUTPUT:

Past Month Total Runoff Anomaly

Ensemble-Mean: Past Month Total Runoff Anomaly (mm/day)
NCEP NLDAS Products Valid: JUN 19, 2011



IPWG recent accomplishments

- Promoting IPWG, expanding membership and updating the membership database;
- IPWG focused publications:
 - IPWG-5 summary in the AMS Bulletin (Huffman, G.J., and C. Klepp, 2011: Meeting Summary: Fifth Workshop of the International Precipitation Working Group. Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00030.1);
 - IPWG-5 Proceedings (Klepp, C. and G. J. Huffman, 2011: 5th International Precipitation Working Group Proceeding, Hamburg, Germany, 15 October 2010, Hamburg, Germany, Berichte zur Erdsystemforschung, 100, 2011);
 - paper on highlighting the variety of applications using satellite precipitation products (Kucera, P. A., et al., 2012: Precipitation from Space: Advancing Earth System Science. Bull. Amer. Meteor. Soc. (in press))
- Representation at 8 meetings.



6TH WORKSHOP OF THE INTERNATIONAL PRECIPITATION WORKING GROUP

SÃO JOSÉ DOS CAMPOS, 15-19 OCTOBER, 2012



- Hosted and sponsored by CPTEC/INPE, Brasil.
- 55 Participants from 14 countries (Argentina, Boliva, Brazil, China, France, Germany, Italy, Japan, Poland, South Africa, South Korea, Switzerland, United Kingdom, United States).
- Five oral sessions (42 presentations).
- Two poster sessions (23 posters).
- Two Working Groups sessions (Research&New Technologies, Validation, Aplication).
- Special session on Megha-Tropiques.
- Discussion about the future of IPWG and next activities.

IPWG 6 Training event

NOAA Training on “New and Emerging Technologies, Sensors, and Datasets for Precipitation”, 15-17 October 2012.

➤ 15 participants from 10 countries (Argentina, Brazil, Columbia, Guatemala, Costa Rica, Peru, Poland, Nigeria, Uruguay, United States).

➤ Lectures on:

- New and Upcoming Satellite Sensors;
- New and Existing Precipitation Products;
- Satellite Precipitation Product Applications and Applications for Improved NWP Predictive Capabilities;
- New and Existing Validation/Verification Techniques;
- Regional Focus: Precipitation in South America.

IPWG future activities

- To continue and expand validation activities:
 - Foster improved availability of validation data from data sparse regions: Africa;
 - Prepare guidance document for precipitation validation techniques and issues;
 - Encourage validation of precipitation datasets in hydrological models;
 - Collect datasets for snow validation.
- To continue with training activities and establish the training devoted section at the IPWG web site.
- To establish an ad-hoc Area-Average Special Interest Group to share information, processing concepts, and best practices on shapefile-averages for countries, other political subdivisions, stream basins, as well as to work toward providing data products in GIS-standard format.

Selection of New Co-chairs

The new IPWG co chairs have been nominated during IPWG 6 Workshop:

- Ms. Nai-Yu Wang from University of Maryland, USA
- Mr. Kazumasa Aonashi of JMA , Japan.

IPWG 6 CGMS Recommendations

- For products derived by operational and quasi-operational satellite algorithms based on multiple platforms and channels (VIS, IR, WV), CGMS members should set up the necessary archives of historical data together with the relevant algorithm versions. Those should be kept for a minimum of two years to facilitate intercomparisons and enable graceful transitions to the new algorithms.
- The archive infrastructure should enable routine access to and assembly of channels from GEO and LEO satellites to provide consistent generation of multi-channel satellite records supporting a range of precipitation-related applications.
- The infrastructure should also allow an efficient reprocessing of products for climate data record generation.

IPWG 6 CGMS Recommendations

- IPWG recommend to CGMS to ensure the long-term continuity of conically-scanning microwave imagers, as well as space based radars, consistent with the CGMS baseline and the WMO Vision for the Global Observing System in 2025.
- Furthermore, the coordination of satellite overpass times has to be ensured including non sun- synchronous platforms with a minimum temporal resolution of 3 h.
- CGMS members and WMO should provide adequate support to ensure active participation at international meetings and training events.
- To ensure the optimum use of satellite-based precipitation products more training is necessary. Satellite agencies are invited to cooperate in this endeavor with IPWG experts and the WMO/CGMS VLab.

IPWG 6 CGMS Recommendations

- CGMS-40 is invited to confirm Nai-Yu Wang from University of Maryland (USA) and Kazumasa Aonashi of JMA (Japan) as the new IPWG Co-chairs.

Thank you