

Summary of Highlights and Request for Guidance from IPWG-7

Presented to CGMS43, Plenary, agenda item G.3.4

Overview – Summary of IPWG-7

- Previous IPWG-6 held in Brazil, October 2012
- 125 participants, over 20 countries
 - 49 oral presentations
 - 57 poster presentations
- 28 attendees at training course
- 5 working groups
 - Research
 - Oper. Applications
 - Validation
 - Data Assimilation
 - New Technology

Hosted by JAXA in Tsukuba, Japan
17-21 November 2014



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IPWG-7 Workshop Goals (1/2)

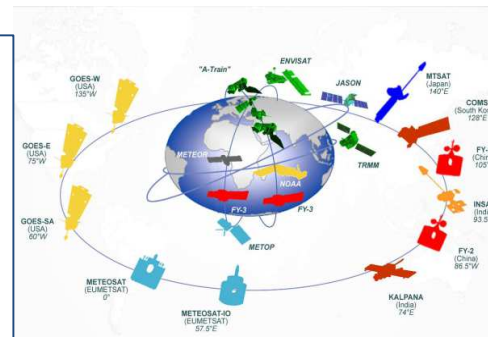
- Review the status of current and future satellite missions focused on precipitation retrieval.
- Update current status of operational, quasi-operational, and experimental satellite estimates of precipitation for climate, weather, hydromet. applications.
- Analyze the open issues underlying precipitation retrievals, such as retrievals over complex terrain, warm rain, light precipitation, and snowfall.
- Analyze the statistical performance of current satellite techniques over various seasons, rainfall regimes, and space-time scales, together with similar analyses of numerically-generated estimates.
- Evaluate new strategies to evaluate precipitation retrievals and NWP forecasts including physical and statistical validation and verification techniques.
- Discuss the need for satellite precipitation products for societal benefit applications.

IPWG-7 Workshop Goals (2/2)

- Develop strategies within IPWG in the areas of satellite radiance calibration, precipitation product inter-calibration, sensor cross-calibration and joint use of observations and numerical products.
- Ensure the long-term continuity of conically-scanning microwave imagers, as well as space based radars.
- Develop key recommendations for short- and long-term activities for the IPWG and for other components of the CGMS.
- Continue developing areas of collaboration with other Working Groups such as data assimilation, joint numerical and observational product validation, land surface emissivity, radiative transfer, satellite calibration, and surface turbulent fluxes over the global oceans for combined freshwater flux estimates.
- Continue with the training course on the satellite precipitation retrievals for young scientists and engineers, in particular, from developing countries.

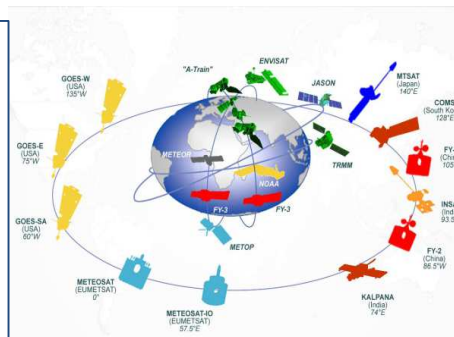
TO BE CONSIDERED BY CGMS (1/2)

- For all CGMS Members - Ensure continuity of geostationary coverage (over Indian Ocean) and data access over the current METEOSAT-7 coverage area.
- For CMA and IMD - Provide institutional support to develop IPWG validation sites over China and India.
- For all CGMS Members - Continue an operational constellation of conically-scanning microwave platforms to guarantee sustained support for the current level of capability. *Concerns: GCOM-W follow-on, SSMIS F20 & DMSP follow on, GMI#2, MWI on EPS-SG*
- For ITWG, ICWG (and other ISWG's) as well as CGMS Members – To foster more close collaboration on common topics, subgroups and parallel group reports should be shared at respective subgroup meetings, as well as potential specialty meetings (i.e., emissivity, snowfall, data assimilation) and other meetings of opportunity (e.g., AGU, EGU, etc.).
- For all CGMS Members – IPWG encourages cross-agency coordination of satellite assets into A-train-like convoys of instruments with sensitivities to distinct aspects of precipitation processes IPWG requests plans for such coordination (e.g., CloudSat, EarthCare, GPM, etc.).



TO BE CONSIDERED BY CGMS (2/2)

- For all CGMS Members – Provide specific plans (e.g., sensors, timelines, etc.) and user requirements regarding the reprocessing of all L1 radiance data, L2/L3 derived precipitation products, and their intercalibration (i.e., SCOPE-CM, NOAA CDR, etc.).
- For all CGMS Members – To the extent possible, provide free and open access to satellite data/products to IPWG members with minimal latency.
- For all CGMS Members - Coordinate crossing times of precipitation relevant satellites in an effort to improve the temporal sampling of the diurnal cycle, convective system lifecycles and severe storms. This might include aging satellites that serve in backup mode.
- For all CGMS Members – There are emerging new technologies that can enhance precipitation retrievals by improved measurement of physical properties related to precipitation, in particular, cloud properties. IPWG requests that specific plans for any new sensors (e.g., Doppler radar, cloud radars, GEO MW sensors, etc.) be made available, including those relevant to ICWG.



Key issues of relevance to CGMS – Primary IPWG Comments on HLPP (1/2):

- Section 1.1 – Coordination of Observing Systems (for discussion in WG-III) -
 - Identify potential precipitation observation gaps and ensure appropriate contingency measures are on place. Continue an operational constellation of conically-scanning microwave platforms to guarantee sustained support for the current level of capability
 - Coordinate crossing times of precipitation relevant satellites in an effort to improve the temporal sampling of the diurnal cycle, convective system lifecycles and severe storms. This might include aging satellites that serve in a backup mode.
- Section 1.1.1 (for discussion in WG III) – IPWG would like to see MW imagers included in this statement
- Section 1.3 – Radio Frequency Protection (for discussion in WG-I) – IPWG has concerns with the potential degradation of protected frequencies with long histories in precipitation and water vapor monitoring (like 19, 22/23 and 31/37 GHz)

Key issues of relevance to CGMS – Primary IPWG Comments on HLPP (2/2):

- Section 3.1 – GSICS calibration across CGMS agency instruments (WG-II) – IPWG would like to see a new item added to explicitly include MW window and water vapor channels, critical to precipitation measurement
- Section 3.6.3 – Precipitation visualization tools (WG-II) – IPWG requests discussion on this topic to further clarify the intent and role for IPWG
- Section 3.7 – Radiative transfer (WG-II) – IPWG recommends that a new subsection be added – “Through coordination with ITWG and ICWG, continue to improve microwave radiative transfer models to include complex surfaces (e.g., snow, desert, etc.) and scattering atmospheres (e.g., frozen hydrometeors) to support improved algorithm development for current and future sensors.”
- Section 3.8 – Trade studies for passive sounding sensors (WG-II) – IPWG would like to see this expanded to include both passive MW imagers and active MW sensors.

IPWG-7 Workshop – Other items of relevance to CGMS

- We thank the past contributions of outgoing co-chairs, Kazumasa Aonashi (JMA, Japan) and Nai-Yu Wang (Univ. of Maryland, USA)
- We would like confirmation of the newly selected co-chairs, Remy Roca (CNES, Paris, France) and Tufa Dinku (IRI, Columbia Univ., New York, USA)
- Tentative plans for IPWG-8: Fall 2016 – Africa or CNR/Bologna
- There are several logical linkages between IPWG and ICWG
- Joint workshop on Data Assimilation/Clouds and Precipitation Focus to be jointly hosted by JCSDA and ECMWF
- Special journal (AMS, Journal of Hydromet. issue for IPWG-7 (J. Turk, editor)
- Arthur Hou Special Session held at IPWG-7
- Verbal commitments by China & India to contribute to routine IPWG validation