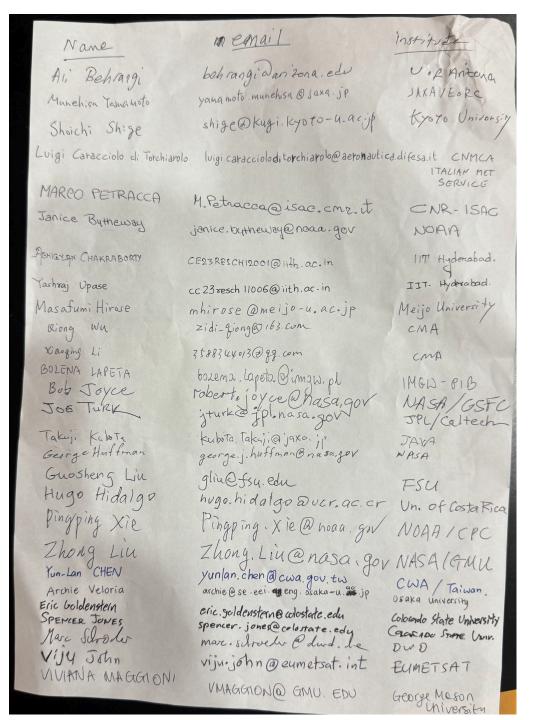# The Multi Satellite precipitation Working Group (MSWG)

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WG Rapporteur: Viviana Maggioni
Number of participants: 27

Sorry if I missed your name (let us know)

- **Users Survey:** we discussed the survey for user needs from product developers that also emphasizes the type of uncertainty information that user would like to see
    - there are two parts in the survey: (1) general needs (2) uncertainty. If user does not care about uncertainty, he/she can skip the uncertainty section.

  Action item and delivery: The multi-satellite WG will finalize the survey together with the GPM team and will distribute to a wide range of users

- **Uncertainty Focus group:** Based on the discussion about the uncertainty and complications related **to spatial and temporal averaging of uncertainties**, the multi-satellite WG recommends a new IPWG Focus Group on Uncertainty in Satellite precipitation products to focus on uncertainties, deliverable products, and methods for uncertainty integration and representation.

- Participants also discussed that producers should be mindful of the EOD: e.g., when providing Daily accumulated products, potentially provide:
    - 00z-00z
    - Based on local EOD definition

Uncertainty testing/assessment activities:
We will keep and eye and discuss new efforts for adding uncertainties to the precipitation products.
To start **(Action item),** Jackson Tan (IMERG) agreed to update us on the outcomes of a new efforts (in progress) for adding uncertainties to the next version of the IMERG. We would love to be updated about other uncertainty efforts/methods considered for inclusion in the precipitation products.

GEO-Ring:

❑ There were lots of discussions about the importance of GEO-Ring and the features that IPWG members (especially product developers) are interested in.

❑ To make the discussion more effective, we decided to come up with a list of requirements that can be recommended to CGMS. (see the next slide)

❑ We are lucky to have <u>Viju John</u> in our WG. Viju is heavily involved in the development of GEO-Ring and we anticipate lots of interaction with him in the near future.

Recommendations to CGMS:

(1/2) Importance of GEO-Ring for IPWG:

We need:

- Filling the current gap in historical time series over Indian ocean is critical
- 30 min product, but if not possible definitely better than 3-hours
- 4 km (more or less)
- IR, Water Vapor, Visible (other channels are useful but priority goes to these 3 channels for now)
- Globally uniform gridding with zenith angle correction, sensor intercalibration, parallax correction, and navigation and calibration as needed
- "short" latency – it must be "reasonable" near-real-time value, like 3 hr, if not possible to have near real-time, like 15 min.
- the usual ancillary fields, like satellite identifier
- it would be really cool to have the GridSat gridding system for the analysis-ready Level 3 data, which provides a first layer of the smallest zenith angle data, then a second layer with the second-smallest zenith angle data, where it exists, and optionally a third layer with the third. This allows you to reconstruct individual satellite disks where that's useful, like cloud tracking.
- The exemplar of how the top layer should look is the current CPC Global 4 Km Merged IR, but extended to 3 channels and the entire GEO-Ring record.
- Considering the shift to an approximately-equal-area grid, likely a cube sphere, which the global models tend to use, or a tessellated sphere.

Recommendations to CGMS:

(2/2) **the need for maintaining a high-quality satellite in space**
The need for continuing a publicly accessible GPM-like (but preferably more advanced) satellites to "guide" and/or "coordinate " the constellation of all sort of existing/emerging types of spaceborne sensors (including small sats, CubeSat, etc.).

If so,
Preferably we need also an advancement over GPM, not just a copy of GPM
to continue the improvement ....(TRMM→GPM→ XM)
Areas of improvements ...
- W band ?
- Higher frequency channels ...