

# ***Interactive comment on “Assessment of small-scale variability of rainfall and multisatellite precipitation estimates using a meso-rain gauge network measurements from southern peninsular India” by K. Sunilkumar et al.***

## **Anonymous Referee #2**

Received and published: 9 December 2015

### General Comments

This paper is focused on presenting results from a dense rain gauge network located in the southern peninsula of India. The study uses three years of rain gauge data from the network to characterize the precipitation variability with the southwest monsoon and northeast monsoon that impacts the region. The authors use these data to evaluate four multi-satellite precipitation estimates (CMORPH, TMPA, GsMAP, and PERSIANN) ability to capture the rainfall characteristics over the dense network.

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The paper is well-organized. The authors provide a good supporting background in the introduction, a good overview of the study region and rain gauge network, and provide good supporting discussion of the analysis and results. The evaluation of the satellite precipitation products in the context of the precipitation characteristics is particularly interesting. The results should provide insights on the limitations and possibly what to focus on for improving the satellite precipitation products for monsoon precipitation observed over land.

Overall, I think this is an important contribution to the community, I have few specific comments to improve the manuscript, which are provided below. I recommend a minor revision.

#### Specific Comments:

1) Page 10391, line 12: It would be good if the authors could include other references to applications, especially for satellite applications. A good reference to read (and references therein) is: Kucera, P. A., E. E. Ebert, F. J. Turk, V. Levizzani, D. Kirschbaum, F. J. Tapiador, P. Xian, A. Loew, and M. Borsche, 2013: Precipitation from Space: Advancing Earth System Science. Bull. Amer. Meteor. Soc., doi: BAMS-D-11-00171.1. 2) Page 10391, lines 20-25: It would be useful to the reader to put the references with the MPE dataset discussed, not at the end of the discussion. 3) Page 10394, lines 15-19: I think the readers would benefit from further discussion of the impacts of cyclone precipitation on the overall precipitation characteristics in the NEM. 4) Page 10394, line 22: the authors need to describe Megha-Tropiques in more detail and properly reference the project. 5) Page 10394, line 26: the authors need to specify the manufacture and model (and reference) of the tipping bucket rain gauges to allow the reader to compare uncertainties of that type of gauge with other gauges available. 6) Page 10395, line 4: define GPRS. 7) Page 10412, line 10: I don't find the result that missing rain is found to be significant at higher resolution. Please expand why you find this surprising. 8) Figure 1: The authors should place the network map into a large-scale map of India to put in context of the geographical location.

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Editorial comment: 1) The paper could be improved in terms of readability if it was reviewed by an English editor. The sentence structure made it difficult to understand the context of the discussion without reading it several times. 2) Please make sure all acronyms are defined in the paper.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 10389, 2015.

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