

***Interactive comment on* “Multi-satellite rainfall sampling error estimates – a comparative study” by M. Itkin and A. Loew**

Anonymous Referee #1

Received and published: 30 October 2012

Comments on Itkin and Loew manuscript for HESS- 2012-404, “Multi-Satellite Rainfall Sampling Error Estimates – A Comparative Study”

General Comments The authors address random sampling errors that result from a finite number of satellites. They do this in a simulation study using gauge arrays in two locations (mid-latitude and tropical) aggregated for various time scales. There are several points that deserve refinement before the manuscript is accepted. In general, the paper is understandable, but I would advise use of the HESS technical editing to improve the English grammar and usage.

Specific Comments 1. P.11679,L.11 I’d say that “all available” is not applicable to GPCP; “a variety of” captures the sense of “various” that the authors are intending

and could apply to all the products. 2. P.11679,L.24 I'd say "rainfall process" is "observation process". Rainfall intermittency just makes the observational intermittency worse. 3. P.11679,L.27-29 The Huffman (1997) paper on estimating uncertainty has a somewhat different focus than the references cited, but should probably also be mentioned. 4. P.11680,L.9 "biases" should be "additional biases", as the authors correctly state in P.11685,L.13-14. 5. P.11682,L.9-11 The typical time-span of gauge data that matches a satellite snapshot was addressed in Villarini and Krajewski (2007), and indeed an hour is a reasonable span. 6. P.11685,L.13 "regular time intervals" is true in some sense, but in fact every overpass time at a particular spot isn't exactly identical, just in a narrow time range. 7. Tables 4-5 The bias and RMSE are stated as extensive units, which makes it awkward to compare the various time intervals. It would work better to adopt an intensive unit, such as mm/day, so the results are easily comparable. 8. Fig.1 This figure is from last year. Is there a more current version? 9. Fig.2 I strongly prefer putting these maps on the same scale so that it's more obvious how the two arrays compare to each other.

Technical Corrections 10. P.11683,L.13 "conical-scan", right? 11. P.11684,L.14 I think "cross-track imagers" is "conical-scan imagers". 12. P.11684,L.17 A grammar correction the editor might miss – "forth" is "fourth". 13. Fig.5,7 As in Fig.6, I'd say "satellite" should be "simulated satellite".

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 11677, 2012.

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