Atmos. Meas. Tech. Discuss., 6, C4334–C4336, 2014
www.atmos-meas-tech-discuss.net/6/C4334/2014/

Atmospheric Measurement Techniques Discussions

Interactive comment on "The large-scale spatio-temporal variability of precipitation over Sweden observed from the weather radar network" *by* A. Devasthale and L. Norin

Anonymous Referee #2

Received and published: 11 February 2014

General comments:

This paper presented information regarding large-scale spatial and temporal variabilities of precipitation in Sweden. The information was based on analyses of 10-year radar-based precipitation estimates. The objective was clearly defined. The results are complimentary to previous findings from gauge data and may provide useful information to the climate modeling and hydrological communities. However, the presentation of methods and data information needs refinements and clarifications are needed for some figures (see detailed comments below). I would recommend the paper being accepted for publication after the following issues are addressed.

Detailed Comments:

1. Line 60: Zhang et al. “2013” or “2011”?

2. Line 94: It would be helpful to show the 80km radar range rings in Fig.1.

3. Line 136-141: On what time scale (e.g., 1hr or 3hr accumulations) was the gauge adjustment applied?

4. Line 144: “filer” or “filter”?

5. Line 173: What are “the pixels around an individual radar station”?

6. Line 210-212: Please describe how the “absolute precipitation frequency” in Fig.2 was calculated.

7. Line 214-218: There appear to be some “outliers” in Fig. 2 (e.g., radar #11 in winter, #1 and #9 in summer, and #12 in autumn). What could have caused the differences for these radars?

8. Line 236-237: Are there any physical reasons behind the timing and geographical distributions of the bin 8 events? The information would be helpful to readers since these events may have large impacts.

9. Line 297: Spell out ECMWF and ERA.

10. Line 318-319: Radar #1 seemed to be an exception (Fig.7). What could be the reason?

11. Line 321: In Fig.7, the confidence level appeared to be low in the high-intensity category of radars #8, 9, and 10, especially for the correlation with “NAO” index. What could be the reason?

12. Line 351-352: Over what time period were the PDFs derived? Were the wind direction and wind speed averaged over the radar domain (80km umbrella) or just from one point at the radar location?

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13. Line 365-366: Please specify how the relative contribution in Fig.10 was calculated, otherwise the statement in line 369-370 is not clear. Also, there is an inconsistency between the Fig.10 caption (“average daily”) and the text in line 366 “average seasonal”).

14. Line 384-385: See comment #13. This statement is not clear without a description of how the contributions in Figs.10 and 11 were calculated. Also, what defines a “precipitation occurrence” (see Fig.11 caption)? Was it a radar domain-averaged 3hr accumulation of greater than 0.1mm?

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 10699, 2013.