Atmospheric Measurement Techniques Discussions

Interactive comment on "1 km fog and low stratus detection using pan-sharpened MSG SEVIRI data" by H. M. Schulz et al.

Anonymous Referee #1

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The authors present a well written paper on the potential to apply a fog detection scheme to SEVIRI observations at 1km resolution using a pan-sharpening technique. Besides some minor revisions (see below) I recommend publication in AMT.

specific comments:

p. 4410 L. 17: "quite some time" - it would be better to provide precise years.

p. 4411 L. 1: I recommend to avoid the word "fog types" as the satellite detection method cannot discriminate between different fog development mechanisms. Maybe " fog under various conditions" is a more appropriate formulation.

p. 4411 L. 4: 3km resolution is only true at nadir, i.e. in West-Africa. In Central

Europe the resolution is about 3x7km. Maybe this fact is worth mentioning, as the study focuses on Europe.

p. 4412f L. 21ff: It would be worth (shortly) providing the techniques or thresholds applied for these tests.

p. 4413 L. 7: related to comment above - how are the "entities" tested for stratiformity?

p. 4413 L. 12: add "described below" to the last sentence of the section.

p. 4421 L. 5: How is the value of 200m motivated? Is it only the CTH of 1000m minus the cloud base height of 800m? Is there any physical explanation or motivation for this value?

p. 4421 L. 23: I wonder how a "round" 3x3 pixel window would look like and what would discriminate it from a 3x3 squared window. Is it diamond-shaped (i.e. corner pixels of the 3x3 window not accounted for)? In this case only 5 pixels for the statistical assessment remain... Some more xeplanation would be useful here.

p. 4424 L. 16f: A "strongly benefit" of the mask from a "slightly better" FAR is not convincing at all. Maybe the sentence could be reformulated.

p. 4426 L. 20: It is not really a "newly developed pan sharpening algorithm" which is applied here. Nevertheless it is valid to point out that the method is new and improves previous result. Thus I suggest to reformulate the sentence: " The new method uses an innovative application of a pan-sharpening algorithm..."

Table 1: is "n" the number of occurrence?

Fig. 2 (right): Does it really make sense to compare radiance of solar and thermal channels? I think it would be better to compare reflectance to brightness temperature.

Fig. 3: I miss a colourbar (in units "reflectance" and "brightness temperature").

Fig. 5: As above - why is brightness temperature compared to solar channel radiance

rather than reflectance? Is the 3.9μm channel used at all? How is the thermal fraction of the radiance then accounted for?

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