

Interactive comment on “Evaluating the extreme precipitation events using a mesoscale atmosphere model and satellite based precipitation product” by I. Yucel and A. Onen

I. Yucel and A. Onen

iyucel@metu.edu.tr

Received and published: 15 January 2014

Response to the general comment: We thank to the referee that he/she is satisfactory with the scientific content of the manuscript. Minor changes:

A new title should be considered, e.g. “Evaluating a mesoscale atmosphere model and a satellite based algorithm in estimating extreme rainfall events in northwestern Turkey”

We concur with the reviewer that the title of the manuscript is changed to ‘Evaluating a mesoscale atmosphere model and a satellite based algorithm in estimating extreme rainfall events in northwestern Turkey’.

C2314

Page 3 - 3rd line in section “2.1 Study area and data”: Icelandic low is of maritime origin, not of continental origin.

This sentence is changed to ‘continental origin of cold Siberian High and maritime origin of Iceland Low’.

Page 3 – 6th line in section “2.2 WRF modelling system”: “The model was initiated ...”
Is there a rule for the model initiation time for each event? Is WRF initiated on the same day the event starts?

WRF model is initiated for each event using the ECMWF analysis fields appropriate to each event duration. By observing the event duration from rainfall data, WRF model is initiated at least a day earlier from the starting of the event to give the model some spin up time. This sentence is added to the manuscript as a response to the reviewer.

Page 5 – 4th line in section “3.1 General analyses”: “Assimilation provided perfect match” Use “a very good” or equivalent instead of “perfect”.

We concur with the reviewer. We changed ‘perfect’ to ‘a very good’.

Page 6 – 3rd line in the 2nd paragraph in section “3.2 Event- and Station-based analyses”: replace “errors” with “errors”.

We replaced ‘errors’ with ‘errors’. Page 6 – 12th line in the same paragraph as above: “In some cases shown in Figure 7a,b, the assimilation degrades precipitation against observations because of the chaotic status of the atmosphere” This part is not well understood. Could you explain it further? How are the chaotic cases assessed?

We inserted this text ‘These processes influenced by boundary conditions in the model destroy the agreement between modeled and observed fields after data assimilation. These cases showed better agreement with observed rainfall when WRF used without data assimilation.’ as a response to the reviewer.

Page 6 – Last paragraph: Could you include text to explain what the numbers (ranges)

C2315

mean for POD, FAR and CSI?

This text 'For a perfect model, POD = 1, FAR = 0 and CSI = 1.' is inserted into this paragraph right after their description.

Page 6 – Last line on the page: "...confirms an existing of systematic problem..." should be "...confirms the existence of a systematic problem..."

We concur and made this change.

A few references are missing the reference section, e.g., Hong et al (1996), Lim and Hong (2010), Lin (1983). Please check the references thoroughly.

These references are already in the reference list. We checked the list again thoroughly.

Table 4 caption: Please explain what "conditional rain" means in the caption, too.

We have added the text 'Conditional rain represents only non-zero observed precipitation cases.' into Table 4 caption.

Figure 6: Is it possible to make the fonts larger? They look very small.

We made the fonts larger for this figure.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/1/C2314/2014/nhessd-1-C2314-2014-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 6979, 2013.

C2316

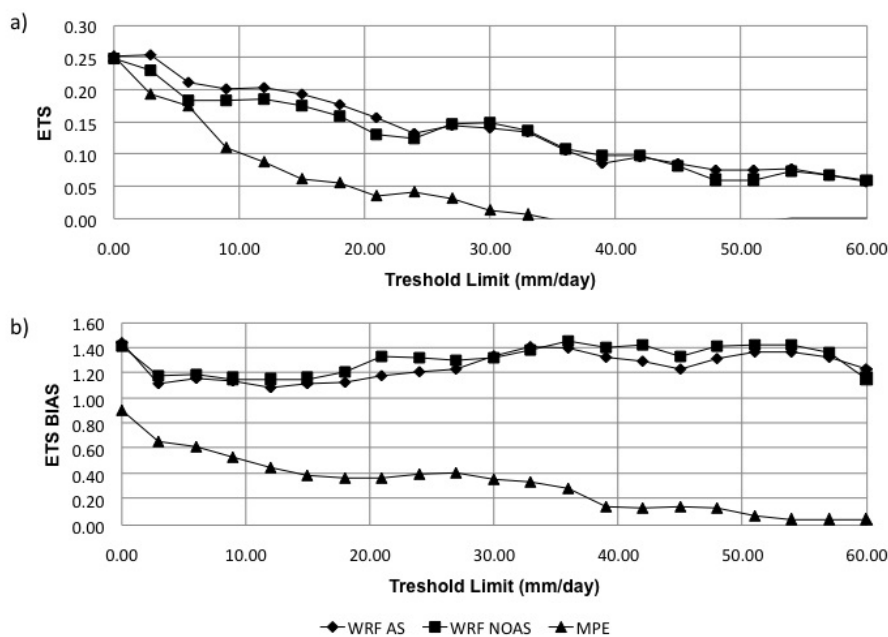


Fig. 1. Fig. 6. ETS and ETS Bias scores of WRF AS, WRF NOAS, and MPE are shown, respectively in (a) and (b) for different daily precipitation threshold values.

C2317