

## ***Interactive comment on “Observed variability and trends in extreme rainfall indices and Peaks-Over-Threshold series” by H. Saidi et al.***

### **Anonymous Referee #3**

Received and published: 17 June 2013

**General comments** This reviewer appreciates the trend analysis performed by the authors. Marginally in the same field of the manuscript, this reviewer assumes that the criticisms raised by the other reviewers can be the bases for a decision about this submission. The criticisms by this reviewer are mostly about the quality of the manuscript.

### **Specific comments**

**Title** The title matches with the theme of the study. However, the study area is not mentioned.

**Abstract** This section seems a little too verbose. The authors may want to put less emphasis on qualitative descriptions and more on quantitative results.

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Page 2, line 5. “digitalized”. The term “digitalized” is often referred to on dictionaries (e.g. <http://www.thefreedictionary.com/digitalized>) and also used in the scientific literature (e.g. Brunetti et al., 2004). However, it may appear to have a medical meaning or a use in a technical jargon, e.g. when converting from an analog to a digital signal (<http://forum.wordreference.com/showthread.php?t=338539&langid=6>). The term “digitized” corresponds to standard English.

Introduction Page 3, lines 4-11. "Climate simulations indicate that a warming climate could result in an increase in the proportion occurring in extreme events . . . as well as a decrease in heavy precipitation in at some parts of the world". The authors should update this paragraph with ground on more recent literature, such as IPCC special report on extreme events, published in 2012 (<http://ipcc-wg2.gov/SREX>). The authors may also elaborate on where extreme events are expected to increase or decrease, avoiding generic statements such as “many parts of the world” or “some parts of the world”.

Page 3, lines 14-20. Dating back to as far as 1993 (Iwashima and Yamamoto, line 17), not more recent than 2006 (Brunetti et al., line 20, this paragraph seems outdated. The authors may update it to reflect newly available information.

Page 3, lines 27-29. “Brunetti et al. (2004, 2006) confirmed a strong decrease in precipitation trends over Italy, with a rainfall reduction of about 135 mm in the southern regions during the last 50 yr”. Here and elsewhere, the authors should be accurate in what they write about amounts, intensities, trends. The authors may specify if 135 mm is the cumulative reduction over 50 years, as this reviewers guesses.

Page 4, lines 18-20. “In the Alpine regions the evidence is growing stronger that climate warming is accompanied by an increase in frequency of intense precipitation events”. This sentence should be rewritten because language inaccuracies obscure the meaning.

Page 4, line 27. “. . . 4 different sites . . .”. The authors may omit “different”.

Page 5, lines 3-4. “The implications of changes on the seasonal scale are particularly significant for water resources management processes related to seasonal cycles”. This sentence seems inappropriate to end up the introduction. If this is a general statement, the authors should support it with reference(s). If it is the finding of the analysis performed in this study, it should take place later on the manuscript.

Data Page 5, lines 6-8. “Understanding climate change demands attention towards changes in climate variability and extremes, but knowledge of the behaviour of these variables has been limited by the lack long-term high-resolution data”. A statement as fundamental as this cannot be left unsupported by evidence from published literature.

Page 5, line 18. “Vercelli, Bra, Lombriasco and Pallanza”. A map indicating the localization of the sites is desirable

Page 5, line 20. “... good allocated in the flat total area”. The expression seems inaccurate, and also does not take full account of the orography of the zone of interest. According to Table 1 (page 18), some elevation gain is noticed moving from Vercelli (135 m a.s.l.) to Bra (290 a.s.l.).

Page 6, lines 21-22. “... and comparing them with another independent daily precipitation dataset”. Details are missing here about the dataset used for independent comparison.

Methods Page 7, line 24. “. . . statistic Mann-Kendall test”. It is probably “Mann-Kendall test statistic”.

Page 7, line 24. “. . . 95 % significance . . .”. This wrong. It is “. . . 5% significance”, as correctly written page 8, lines 4-5.

Page 8, lines 6-21. “In this test . . . <0”. This part should be greatly trimmed down, because the Mann-Kendall test is a well-known and established statistical test.

Results and discussion Page 11, line 19. “is situated is in . . .”. The second “is” has to be omitted.

Conclusions Page 13, lines 11-14. “It is well known . . . for analyzing extreme events”. The authors may consider omitting this sentence from the conclusions.

Tables Table 1, page 18. Geographic coordinates can be used to locate sites for readers unfamiliar with UTM coordinates (otherwise a marked map can be useful).

Table 2, page 19. “significant level greater than 95 %”. It is “significant level lower than 5%”.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 6049, 2013.

**HESD**

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