

Interactive comment on “Updated world map of the Köppen-Geiger climate classification” by M. C. Peel et al.

M. C. Peel et al.

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The original comment is in *italics* and the response is in **bold**.

Editor Decision: Publish as is

This paper is both interesting and important, and deserves rapid publication. However there are a couple of points to which the authors might like to respond, both referring to Brazilian precipitation data.

(i) The paper remarks (page 5) on the high density of precipitation stations in the Brazilian North-East (shown in Fig. 1 of the paper). This is surprising, so I consulted a Brazilian colleague whose knowledge of the available hydrological records is far more extensive than mine; he was not only surprised but also incredulous. The data used by

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the authors came from WorldClimate, affiliated to the US NCDC, and whilst it is always possible to question the validity of parts of such an extensive data archive, one is led to wonder how far the data in it are completely reliable (the WorldClimate documentation is a bit reticent on matters of data quality control, saying only "Quality Control included visual inspection of graphs of all station time series, tests for precipitation digitized 6 months out of phase, tests for different stations having identical data, and other tests."). However, the authors clearly had to accept whatever data that archive provided, but it might be worth including a sentence stating the obvious: namely, that any climate classification is only as good as the data used to define it.

Agreed and a sentence has been added.

(ii) Later on (page 14) the authors discuss the difficulty I classifying the climate of Aracaju, in the Brazilian state of Sergipe. There seem to be two explanations given for this, one at the end of the first paragraph ("The universal spline settings. . . are not flexible enough to fully capture the local variation [my italics] in precipitation. . .") and the other at the beginning of the paragraph that follows ("... due to the spline settings not flexible enough to adequately represent the high density of precipitation stations [my italics]. . ."). The local variation is the key here; Aracaju is on the well-watered coast, but moving into the interior rainfall can fall from 1100 mm to 400 mm over a distance as small as 50 km. It might be better to avoid reference to the high density of precipitation stations as the cause of the difficulty.

Agreed and a sentence has been modified.

These two points do not in any way detract from a very useful paper.

Thanks.

I do not know whether HESS editorial policy is strict regarding points of English grammatical usage. In a number of places in the text, the authors' meaning is quite clear, but a purist would say that the text contains errors of grammar — particularly split infini-

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tives, two examples of which appear in the above quotations (the purist would say that "to fully capture" and "to adequately represent" are incorrect). Many other instances of split infinitives occur in the paper. Other items which might be considered as needing correction are:

Page 2: "greatest activity" instead of "most activity".

Agreed and changed.

Page 2: "availability of data and computing power to process them" instead of "data availability and computing power to process it" (Data are plural, and it is the data, and not their availability, that are processed).

Agreed and changed.

Page 3: "areas of similar climate" instead of "like climate areas". And two lines down, "output of" should be "outputs from".

Agreed and changed.

Page 4, lines 4 and 5: "though" is repeated. I suggest using "However" instead of the first "though".

Agreed and changed.

Page 5 and Figure 3: a more important point. What does "percentage of stations with a value for a given month" mean? Does it mean "percentage of stations with a value in all months of the year"? If not, what is the "given month"?

Agreed and has been changed to "percentage of stations with a monthly value is".

Page 6: What does "The whole of record approach" mean? Are there some words missing? Or perhaps it should be "The whole-of-record approach"?

Agreed and changed.

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Page 7: "probably indicate" would be better than "likely indicate".

Agreed and changed.

Page 9: "first" would be better than "1 st".

Disagree and no change. 1st is used to be consistent with Table 1.

All of these points, except that concerning Fig. 3, are trivial.

The authors refer to the topic of climate change at two points in their paper (pages 3 and 6). It would be interesting to see whether it would be possible to rerun the authors' analyses, using either a "split-record" approach or a "running mean" approach. The authors quote work by Triantafyllou and Tsonis which, they say, shows that "the Köppen-Geiger climate classification has been found to be relatively insensitive to temperature trends. But the work cited was published in 1994, and probably is the result of work in the early 1990s; would it be worthwhile to update it, in the light of apparently increasing evidence of global warming?"

Yes it would be, but not as part of this paper. The anonymous reviewer indicated a paper by Fraedrich et al, (2001) where a quasi-split sample approach was used for the period 1981-1995. This paper has been added into the revised manuscript (see response to anonymous reviewer for further details).

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 439, 2007.

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