

# ***Interactive comment on “Spatio-temporal trends in the hydroclimate of Turkey for the last decades based on two reanalysis datasets” by Mustafa Gokmen***

## **Anonymous Referee #2**

Received and published: 18 March 2016

This is a well structured and generally well written paper looking into the trends in temperature and several other hydroclimatological variables over Turkey, using two variants of ERA reanalysis data sets. It is useful for assessing both the long term climate change for the country and how this change manifests itself in large scale gridded data sets.

However, the manuscript misses some major points which, in my opinion, should have been included in the analysis and the discussion.

1) As the Anonymous Referee #1 also pointed out, the data should have definitely been analyzed for seasonal trends as well. Turkey is a Mediterranean country that exhibits a distinct seasonality in most of its climatic variables. Therefore, an annual-only trend

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analysis will obscure possibly stronger seasonal trends, which could have significant implications for climate and hydrology of the country. I advise the author to analyze the data sets for seasonal trends as well (for all variables originally chosen). This may lengthen the paper quite a bit, so the author should be selective in what he discusses and may feel free not to include every figure produced from the new analyses.

2) Again, as the Anonymous Referee #1 wrote, the comparison with the raw meteorological observations could have been done in a more systematic manner, using as many stations as possible. For instance, I would like to see a map of inconsistencies between station data and reanalysis data sets in terms of their long term trends. Which stations (or, parts of the country) differ from the reanalysis in terms of trends? Should there be regionally coherent inconsistencies, conclusions about long term climate change would perhaps be problematic. Again, the author should focus on significant results only.

3) The length of the analysis period can have an effect on the significance of trends. Therefore, I advise to extend the analysis to include recent years as well, if this is possible.

Since these are major points and could change the manuscript remarkably, I am not going to comment on the technical issues at this time.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2016-23, 2016.

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