**Atmospheric
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Interactive
Comment

Interactive comment on "Solar radiation trend across China in recent decades: a revisit with quality-controlled data" *by* W.-J. Tang et al.

Anonymous Referee #2

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I should say first that I have read the comments of Referee 1 after writing and submitting my own, so that to avoid any bias.

Having now read these comments written from the atmospheric science view point, I can see that most of my own views on this manuscript complement those of Referee 1.

Because of the lack of rigour in the manuscript, various interpretations of the results are clearly possible. It would be for instance more difficult to criticise the paper for the choice of input variables if the statistical significance of these inputs and parameters related to them was evaluated and turned out to be significant.

From First Referee's comments it seems that even some of the input data are not fully specified, a serious ommission if the paper is to provide others with a chance

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to replicate these results with their own data. This is also an important issue when we require clarity, transparency and openness in scientific communications in order to preserve our credibility.

Furthermore, if statistical uncertainty bounds were provided and indicated no significant difference between the model outputs and the data, then this would be an unquestionable result. Plotting a pair of noisy series is entirely open to interpretation when it comes to them being similar or not.

And just to reiterate the need for inclusion of clear uncertainty information: Figure 3, to which Referee 1 refers to, would be much clearer and unambiguous if the uncertainty bounds for the estimates of the linear trends' slopes shown there were included as little bars or ellipses around the points. We could then easily and unambiguously judge whether the estimates are very different, and how far are they from the line of equal values (the 45 degree line). These uncertainty estimates are always provided by any regression routine and it would not be hard at all to just include them in the plot.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 18389, 2010.