Reviewer's report

Title: Acclimatization across Space and Time in the Effects of Temperature on Mortality

Version: 3 Date: 23 September 2014

Reviewer: michela baccini

Reviewer's report:

The authors replied to most of my comments. However there are some points that should be better addressed.

Major Compulsory Revisions

1) Regarding the assignment of the closest monitoring station to each city, a possible misclassification of exposure can occur if the altitude of the city is different than the altitude of the monitor. The fact that the monitoring stations are placed in the airport can not be used to say that this problem does not exist. What if the airport is located at a different altitude than the city?

2) Regarding the use of lag 1-5 instead of lag 0-5, probably I was not clear in my comments. The issue does not concern the correlation between the two terms included in the model (even if high correlation could be a problem). The problem concerns the interpretation of the results and the implicit assumption that cold cannot act immediately. I suggest to discuss this point in both the methods and discussion sections. Eventually, the authors could provide the results for lag 0 during winter.

3) Regarding centering of curves, 18° is reported as reference only in the results section. In the methods section the authors write that, for each cluster, centering was around the monthly mean. This should be clarified. Moreover, how the percent variation reported in the figures should be interpreted?

4) About the formula, Time is a daily indicator which counts within month (for example, Time=1,2...30 for april 1978; Time=1,2,...30 for april 1979 and so on)? or it depends also on the calendar year (Time=1,2...30 for april 1978; Time=31,32,...60 for april 1979 and so on)?

5) About the formula, if the authors leave the subscripts for month and city, they should label with month and city also the coefficients, which are estimated by specifying separated models.

6) The authors did not reply to my question on meta-smoothing: does meta-smoothing account for correlation between points from the same curve? has this an impact on the meta-smoothing results?

7) It is not trivial interpreting the negative percent changes in the figures. The authors should better explain the meaning of the curves and their relation with
the centering at 18°.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests