**Reviewers' comments:  
  
1. This paper is a marginal addition to the Sparks et al. IMAGE weather generator paper. In fact, it seems like the results in this paper could easily have been added to that paper.**

We have added an analysis of the United States, as well as the original simulation for Europe. By adding a further geographic region of study, we are of the view that the paper is more worthy of being a stand-alone analysis.

**2. It is not clear how temperature values can be simulated at unobserved locations.**

A fair comment in the context of datasets with missing data. However, in this case the GCM’s output is always complete spatially and temporally, and so is not relevant.

**3. For each month, is my understanding that equation (1) will be employed with the coefficients and epsilon simulated from the multivariate covariance matrices? - which produces the ensembles?  
  
4. How does this compare with other weather generators? - LARS, WGEN, etc.**

… **5. The title says weather generator but only temperature is simulated. How about precipitation, Tmax, Tmin?**A fair comment and addressed in the revised manuscript by including humidity, as well as max daily wind speed, which all have an influence on the heat stress on a human.

**Reviewer #2:**

**Firstly, there is no data analysis part which should explore the time and spatial patterns of the heat waves reproduced by the GCM.  Same pattern that should be capture by the generator.**

We are slightly puzzled by this comment, as the

**Then, it is known that heat waves usually have complex dependence structures (not shown is the paper). Such structures cannot be captured by models which only reproduce the second order structure as the one of the paper. For instance, the heat waves correspond to phenomena with an unusual long duration (i.e. a non-Markovian processes) while AR process used in the paper are Markovian.**

…

**Furthermore, the modification added to the IMAGE model is hard to understand. Indeed, from a statistical point of view, it has no sense to compute a correlation on the variable initial space to inject it in the Gaussian model (transformed space). More generally, the correlation should not be corrected by adding a new noise.**

…

**Finally, no comparison is done with existing stochastic weather generators. And I do not agree with some interpretations of the results. As an example, the authors claim that « IMAGE projected significant increases in the intensity and duration of rare heat waves ». I suspect that this trend is due to the GCM and not IMAGE which should just reproduce the statistics of the GCM.**

The purpose of the analysis using IMAGE was to demonstrate that using limited climate data (in this case 30 years-worth of European data)