

Interactive comment on “Skill in forecasting extreme ozone pollution episodes with a global atmospheric chemistry model” by J. L. Schnell et al.

Anonymous Referee #2

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Schnell et al. describe a novel method for evaluating chemical transport models and chemistry climate models against observations of surface ozone. Their method goes beyond the simple comparison of model output with the observed mean values or probability distributions, in which the current generation of models fares poorly. Instead, they show a method for evaluating the ability of models to simulate the widespread, multi-day episodes of ozone pollution which make a large contribution to real-world air quality threshold exceedance events. By examining the frequency of extreme events based on a fixed return time, rather than basing their analysis on air quality thresholds, they avoid the problem of bias in the current generation models. They show that a

C2942

modern chemical transport model is able to hindcast observed widespread ozone pollution events with a good degree of skill, lending some confidence to the application of the method to simulations of future scenarios.

Schnell et al. also create a gridded dataset of interpolated surface ozone observations from Europe and the United States against which they compare their model, and which they have made available in their supplementary material. The methodologies for creating the interpolated dataset and comparing the model output against this dataset are clearly described. The limitations of the methodologies are also well discussed.

The paper is very well written, and I recommend publication in ACP after some very minor grammatical errors are corrected:

Page 6227, line 27: "If an absolute threshold, such as 75 ppb, then...". The first part of this sentence needs a verb.

Page 6279, line 22: "event" should be plural here.

Page 6285, line 28: "number events". This is missing an "of".

Page 6287, line 27: "daily gridded daily". One "daily" too many.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 6261, 2014.

C2943