

## ***Interactive comment on “Local short-term variability in solar irradiance” by Gerald M. Lohmann et al.***

### **Anonymous Referee #2**

Received and published: 18 March 2016

I agree with the comments listed by Reviewer 1. In addition:

• This paper examines clear sky irradiance at 1 Hz. Given the response time of solar photovoltaics and solar photothermal, is this frequency necessary? I suspect an argument for this could go either way; please include a discussion in the discussion/conclusions.

• The finding that of a very low spatial autocorrelation at  $\tau=1$  is not surprisingly, given the physical nature of clouds. Indeed, previous papers cited by the author suggest that the spatial autocorrelation should be low even at 5 or 15 minute time steps. Why is this important to have discovered, and what does it show beyond what we already know?

• A similar question with the decorrelation. . . Wouldn't it make sense that the decor-

C1

relation distances would be a function of clouds? In an area of almost entirely one climatic zone, cloud conditions in one location will (almost by definition) be correlated with other locations, and thus the distance needed to obtain decorrelation will increase. It is not clear this is novel; at a minimum, the authors should describe why this finding agrees entirely with what one would expect from real time data.

---

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-2, 2016.

C2