

Interactive comment on “The Smithsonian solar constant data revisited: no evidence for cosmic-ray induced aerosol formation in terrestrial insolation data” by G. Feulner

Anonymous Referee #1

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This paper is effectively a technical comment on the paper by Weber in Ann Phys (Berlin). For a long time scientific practice has generally been to publish comments in the same journal as the original paper, to allow comments and corrections (and the courtesy of a reply from the author) to be associated with the first piece of work. Nowadays web linking improves this so readers of a paper cannot be unaware of comments and corrections when the original paper is consulted. By submitting this related contribution to a different journal no link will be made from the original journal. It therefore becomes possible that a reader of the original paper could still be unaware of the additional points made relevant to the paper he or she is reading.

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So why has this extended technical comment been presented as a new paper for a different journal? One reason might be that its author wishes to engage a different audience. Another argument may be that the needs of climate science are such that an immediate high profile response is considered essential. But surely the importance of climate studies is such that the established conventions in science need, more than ever, to be continued rather than being put aside? Of course another convention, by introducing a new paper such as this rather than a targeted comment, is the requirement that new and original material and analysis should be presented.

It is an important technical consideration to remove seasonality and biases from the data, but perhaps an opportunity to analyse the resulting data in a more sophisticated way has been missed. It is obvious in figs 4, 5 and 6 that a linear model is not appropriate but still this has been fitted. It is therefore not a surprise that the statistical results do not support a linear model. A more appropriate consideration is- is there any change between low and high R in any parameter, e.g. variability or medians? This should be considered.

Throughout there is an assumption of a linear relationship between sunspot number and cosmic ray aerosol production. What is the basis for this? The variable experimental work probably does not support this, for example there is a square-root relation between ion production and ion concentration.

It is necessary to be clear that there is no evidence of a cosmic ray effect on aerosol production on the assumption that cosmic particle formation would somehow generate a linear trend. The title should be changed to reflect the finding that an assumption of a linear trend was not supported. Formation of ultrafine particles from cosmic ray ions behaving differently may still be occurring.

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