

Interactive comment on “Effects of vernal equinox solar eclipse on temperatures and wind directions in Switzerland” by Werner Eugster et al.

Werner Eugster et al.

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Received and published: 14 September 2017

We copy in the reviewer’s comments and critique in blue and provide our response in black.

Reviewer: This work provides a thorough analysis of eclipse-induced responses as observed by a Swiss network of meteorological sites. A complexity of this region is of course the range of topography encountered, and the authors carefully separate the data obtained in different conditions. These reveal the wind direction and thermal changes, which are compared with previous studies. This is a valuable contribution to the literature and should be published.

In addition, the measurements in Switzerland are uniquely position to investigate the

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original interpretative ideas of Clayton, modified a century later by Aplin&Harrison. The scales employed are appropriate for this as they consider a large part of the European landmass away from coastal effects. Proper consideration of the remaining topographical aspects, as undertaken by the authors is therefore important in obtaining the underlying effects on the dynamical structures arising from eclipse meteorology.

Thank you very much for this positive assessment.

Reviewer: Minor points p1 L7 sun's disk

This will be corrected.

Reviewer: p1 L14 comma after "After the maximum,.."

This will be corrected.

Reviewer: p1 L27 it's -- > its

This will be corrected.

Reviewer: p9 L24 for

This will be corrected.

Reviewer: p10 L1 mountain

This will be corrected.

Reviewer: fig1 last line "its"

This will be corrected.

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Reviewer: Section 2.6 Give some explanation of the consequences for the choice of the sill and range parameters

This can be done. In fact, the sill and range parameters do not strongly affect the interpolation and the main differences between choices that we tested out were affecting the borders of the range covered with data. As an example we included the variants for all data with sill/range of $90^\circ/10$ km, $120^\circ/10000$ km, and $300^\circ/1000$ km. Thus, the initial estimates for both parameters are not essential and the model fit nicely finds the best estimate. This is the ideal case if no attractors exist within the realistic domain of search of the optimization algorithm.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-321>, 2017.

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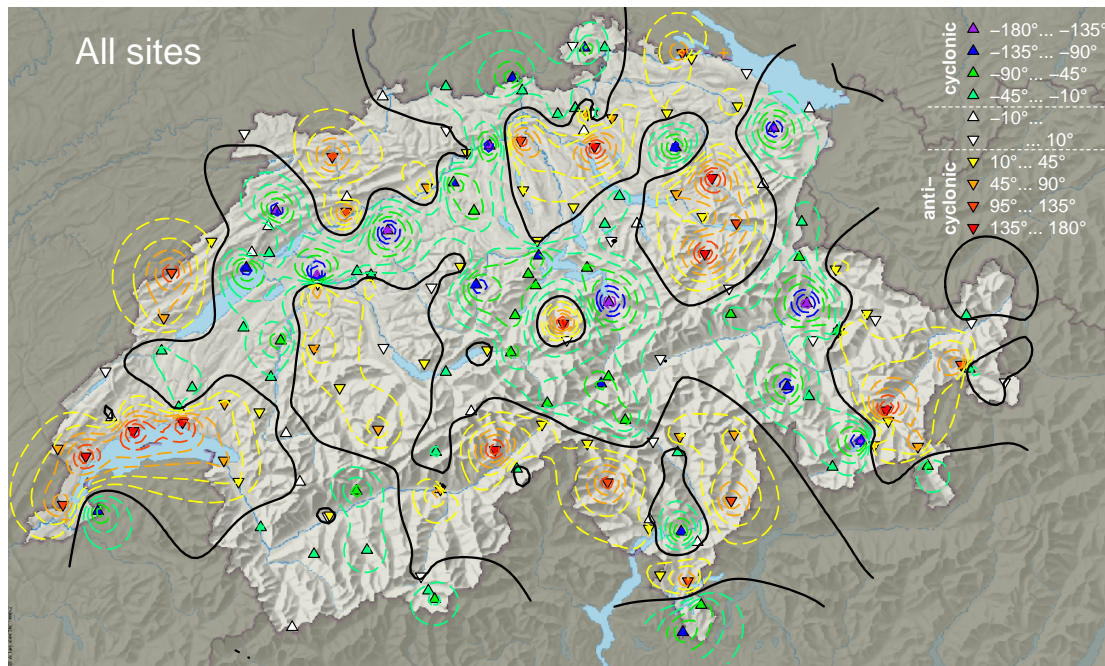


Fig. 1. Example using a sill of 90° and a range of 10 km.

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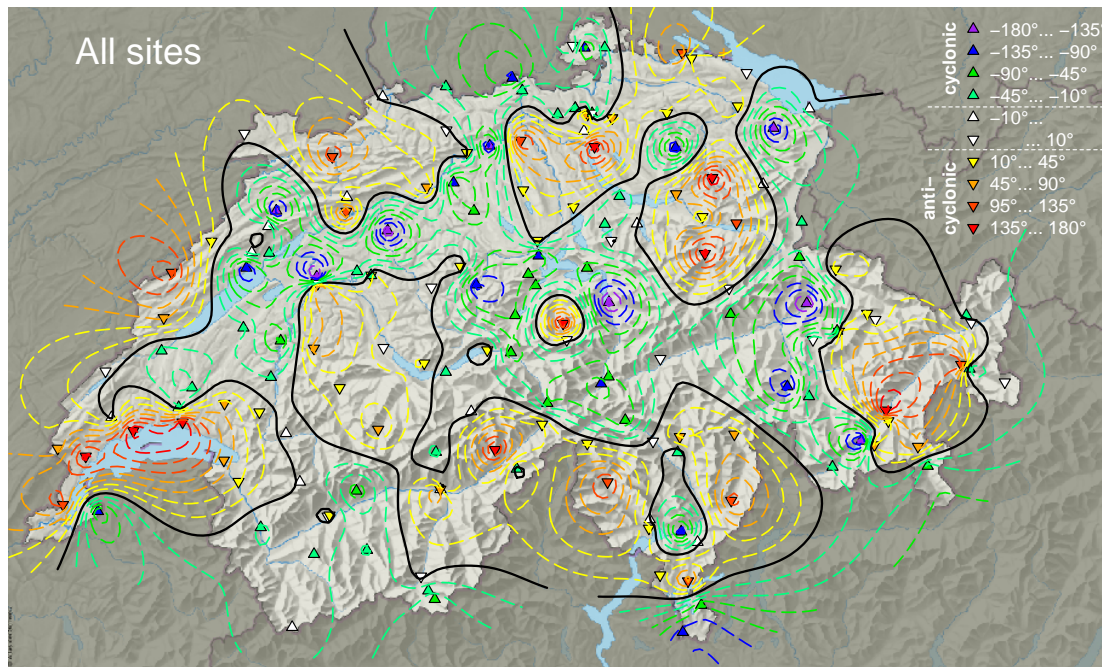


Fig. 2. Example using a sill of 120° and a range of 10000 km.

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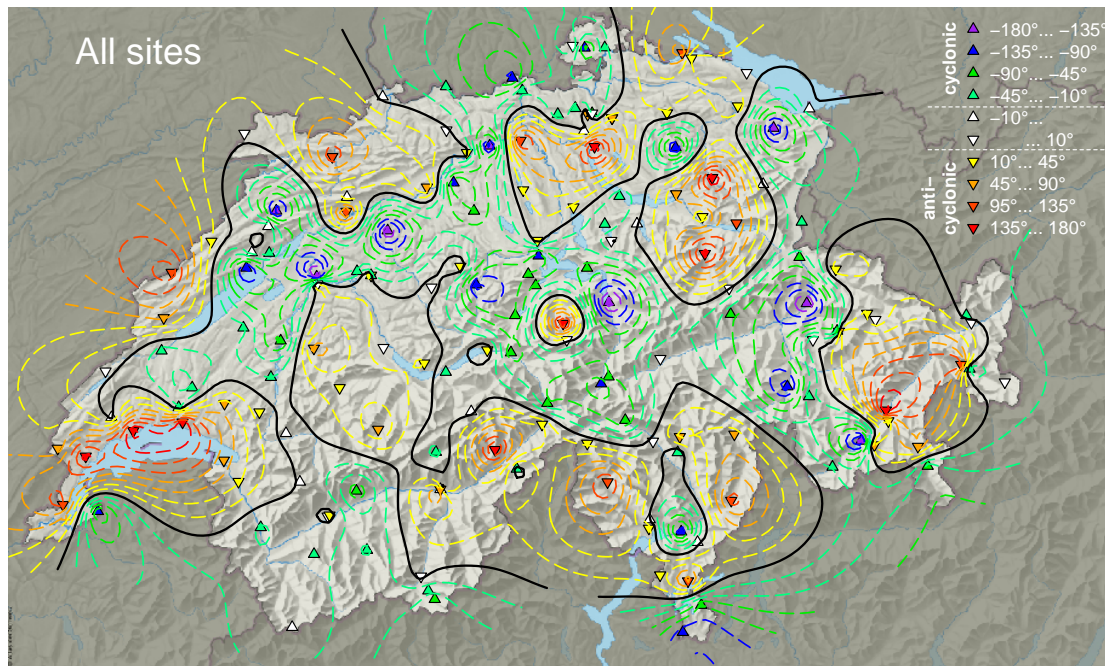


Fig. 3. Example using a sill of 300° and a range of 1000 km.

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