

***Interactive comment on* “The effect of the total solar eclipse of 29 March 2006 on meteorological variables in Greece” by D. Founda et al.**

D. Founda et al.

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Answer to referee # 2

The authors would like to thank the referee for reviewing this paper and for his comments which urged us to reconsider and subsequently improve several aspects of the paper. Our answers to the referee’s comments are summarized as follows:

1) Q: The observed change of the surface pressure gradient...local effects

A: According to observations, at all stations of the studied area (and some other neighboring stations) the surface pressure started to decrease about one hour before the eclipse and continued its decreasing march during the whole event. Observations of surface pressure are in accordance with NOAA surface pressure maps (<http://www.arl.noaa.gov/ready/disclaim.html>). Following the suggestion of the reviewer

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we have investigated more thoroughly the changes of the surface pressure gradient during the eclipse at different distances from the eclipse axis, but no particular pattern attributable to the eclipse event could be found.

2) Q: The increased wind speed at Kastelorizo... Asia Minor

A: The reviewer is right that the increased wind speed at Kastelorizo could possibly be an indication of enhanced sea-land circulation due to the eclipse. However, the wind speed kept on increasing also during the hours after the eclipse. For this reason we believe that the wind changes at Kastelorizo were mainly determined by a combination of synoptic conditions and local circulations (e.g. sea-land breeze). As argued in the manuscript, we believe that the most clear feature of the eclipse influence on wind at Kastelorizo, is the decrease of its gustiness rather than changes on its mean value. Appropriate addition to the manuscript to include also the reviewer's speculation was made.

3) Q: Fig. 1...on this figure

A: The shadow path and central line of the eclipse are now included in Figure 1.

5) Q: The normal course ... long period observations

A: As normal course we used the global radiation at Finokalia during the pre-eclipse day which was characterized by clear sky conditions. This has been now clarified in the text and relevant figure.

4) Q: I think that the cloudiness fluctuations...Table 2

A: In solar eclipse studies, the amplitude and rate of temperature drop, or time lags are usually assessed under different meteorological conditions (cloudiness, wind etc) which affect their magnitudes. It seems that in Athens area, the increased cloudiness and its fluctuations at the beginning of the event played a role in the observed time lag of temperature drop from 1st contact. Table 2 displays the observed values of the above elements although it is impossible to distinguish between cloudiness and eclipse

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induced effects.

All other minor comments have been taken into account (added or corrected) in a revised manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 10631, 2007.

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