

Home

Online Library ACP

- Recent Final Revised Papers
- Volumes and Issues**
- Special Issues
- Library Search
- Title and Author Search

Online Library ACPD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper

Impact
Factor
4.865

ISI
indexed



[Volumes and Issues](#) [Contents of Issue 21](#) [Special Issue](#)

Atmos. Chem. Phys., 7, 5543-5553, 2007

www.atmos-chem-phys.net/7/5543/2007/

© Author(s) 2007. This work is licensed under a Creative Commons License.

The effect of the total solar eclipse of 29 March 2006 on meteorological variables in Greece

D. Founda¹, D. Melas², S. Lykoudis¹, I. Lisaridis², E. Gerasopoulos¹, G. Kouvarakis³, M. Petrakis¹, and C. Zerefos¹

¹National Observatory of Athens, Institute for Environmental Research and Sustainable Development, Greece

²Aristotle University of Thessaloniki, Physics Department, Laboratory of Atmospheric Physics, Thessaloniki, Greece

³University of Crete, Chemistry Department, Environmental and Chemical Processes Laboratory, Crete, Greece

Abstract. This paper examines the effect of the total solar eclipse of 29 March 2006 on meteorological variables across Greece. Integrated micrometeorological measurements were conducted at Kastelorizo, a small island within the path of totality, and other sites within the Greek domain, with various degrees of solar obscuration. The observations showed a dramatic reduction in the incoming global radiation and subsequent, pronounced changes in surface air temperature with the lowest temperature values occurring about 15 min after the full phase. The amplitude of the air temperature drop was not analogous to the obscuration percentage but was principally determined by the surrounding environment (mainly the sea influence), the background meteorological conditions and local cloudiness. Surface wind-speed decreased in most sites as a result of the cooling and stabilization of the atmospheric boundary layer. This perturbation provided a unique opportunity to apply a sensitivity analysis on the effect of the eclipse to the Weather Research and Forecast (WRF) numerical mesoscale meteorological model. Strong anomalies, not associated with a dynamic response, were simulated over land especially in surface air temperature. The simulated temperature drop pattern was consistent with the observations.

[Final Revised Paper](#) (PDF, 1100 KB) [Discussion Paper](#) (ACPD)

Citation: Founda, D., Melas, D., Lykoudis, S., Lisaridis, I., Gerasopoulos, E., Kouvarakis, G., Petrakis, M., and Zerefos, C.: The effect of the total solar eclipse of 29 March 2006 on meteorological variables in Greece, Atmos. Chem. Phys., 7, 5543-5553, 2007. [Bibtex](#) [EndNote](#) [Reference Manager](#)

Search ACP

Library Search

Author Search

News

- Sister Journals AMT & GMD
- Financial Support for Authors
- Journal Impact Factor
- Public Relations & Background Information

Recent Papers

01 | ACP, 23 Dec 2008: Measurement of glyoxal using an incoherent broadband cavity enhanced absorption spectrometer

02 | ACPD, 23 Dec 2008: Single particle characterization using a light scattering module coupled to a time-of-flight aerosol mass spectrometer

03 | ACP, 23 Dec 2008: Corrigendum to "Modeling the effect of plume-rise on the transport of carbon monoxide over Africa with NCAR CAM" published in