

***Interactive comment on “Examination of the atmospheric conditions associated with high and low summer ozone levels in the lower troposphere over the Eastern Mediterranean” by P. D. Kalabokas et al.***

**K. Kourtidis (Referee)**

kourtidi@env.duth.gr

Received and published: 31 January 2013

General comments

The authors examine the meteorological (both local and synoptic) conditions that regulate through horizontal and vertical transport the tropospheric ozone levels over Eastern Mediterranean. The topic is of relevance since ozone levels in the area are above the EU air quality standard much of the time during summer and above the EU phytotoxicity limit almost year-round. The work adds to a number of existing studies and

C49

clearly and convincingly clarifies the dynamical aspects of this topic. The paper is well written, presents a thorough analysis and is within the scope of ACP. I recommend publication after consideration of some quite minor comments.

Specific comments

p. 2460 lines 15-17, “significantly enhanced”: as compared to what? Please clarify.

p. 2461 lines 25-26: Instrumentation for NO<sub>y</sub> is mentioned, but it is not used in the analysis. The authors should remove this reference to the NO<sub>y</sub> instrumentation (or, even better, present the NO<sub>y</sub> results also; NO<sub>y</sub> would be very useful in offering information about the chemical state of the air masses).

p. 2462 line 9, “36 profiles over Heraklion [...] and Rhodes”. 36 profiles over each of the two airports? Please clarify.

p. 2462 line 18: the boundary layer is claimed to be 0-1 km in general. I would tend to believe that it would be somewhat higher in the area during summertime (0-2 km?).

p. 2470 lines 25-26: Some reference on how CAPE and CIN were calculated would be useful.

Technical corrections

p. 2458 line 18: ozone rich → ozone-rich

p. 2458 line 26-p. 2459 line 1: ozone at ground surface → ozone near the ground surface

p. 2460 line 3: long range → long-range

p. 2465 lines 13 and 21, and other parts of the text as well as in Table 1: >500 hPa→ <500 hPa

p. 2465 line 25: Tel Aviv, Israel → Tel Aviv (for consistency, since in the rest of the text countries of the cities are not mentioned)

C50

p. 2467 line 18: In Cairo profiles... → In the Cairo profiles...

p. 2468 line 16: wind speeds [...] are higher → wind speed [...] is higher

p. 2469 lines 19-21: hand the → hand, the

with low-pressure → with a low-pressure

Europe leading → Europe, leading

region diffusing → region, diffusing

the air pollutants, but also are associated → the air pollutants. They are also associated (sentence too big)

p. 2471 line 2 In fact → These

line 5 corresponding days radiosoundings → corresponding radiosoundings

line 6 contrary during ..... calculated → contrary, high CIN values have been calculated during the days with highest ozone values

Figures 1, 2, 6, 8, 10: The axis numbering is difficult to read.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 2457, 2013.