

Supplementary material

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The impact of temperature changes on summer time ozone and its precursors in the Eastern Mediterranean

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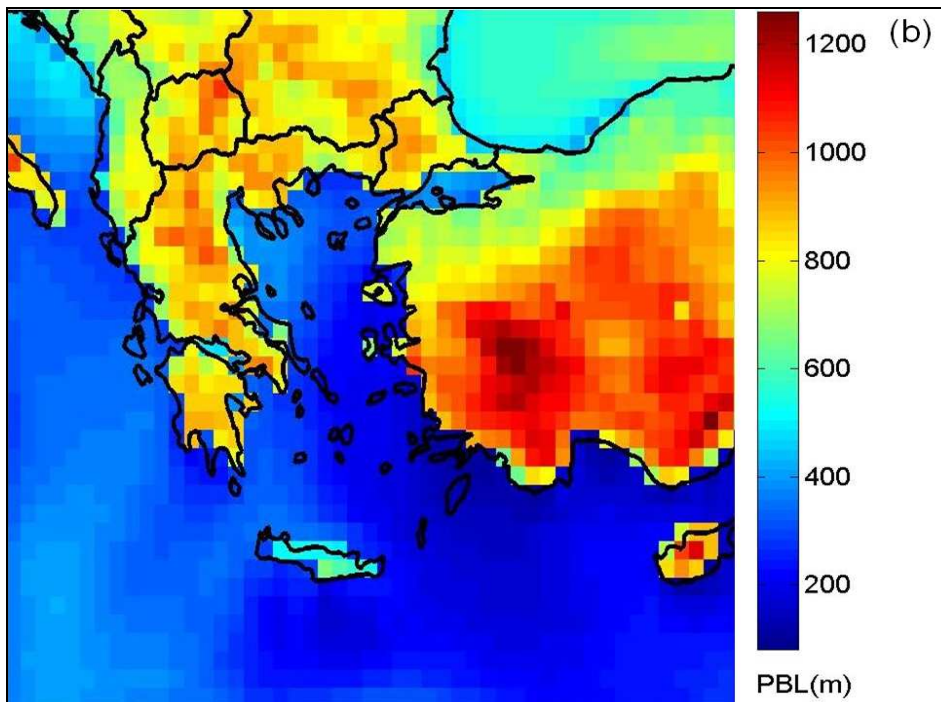
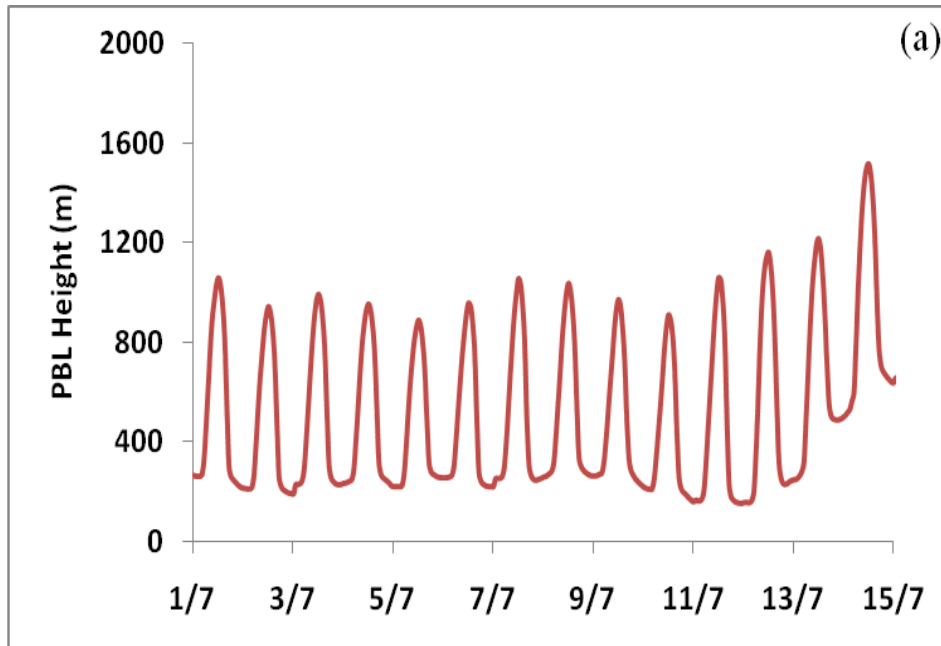


Fig. S1. a) Temporal variability of domain-averaged hourly mean PBL heights and b) spatial variability of mean PBL heights averaged over the 15-day simulation period.

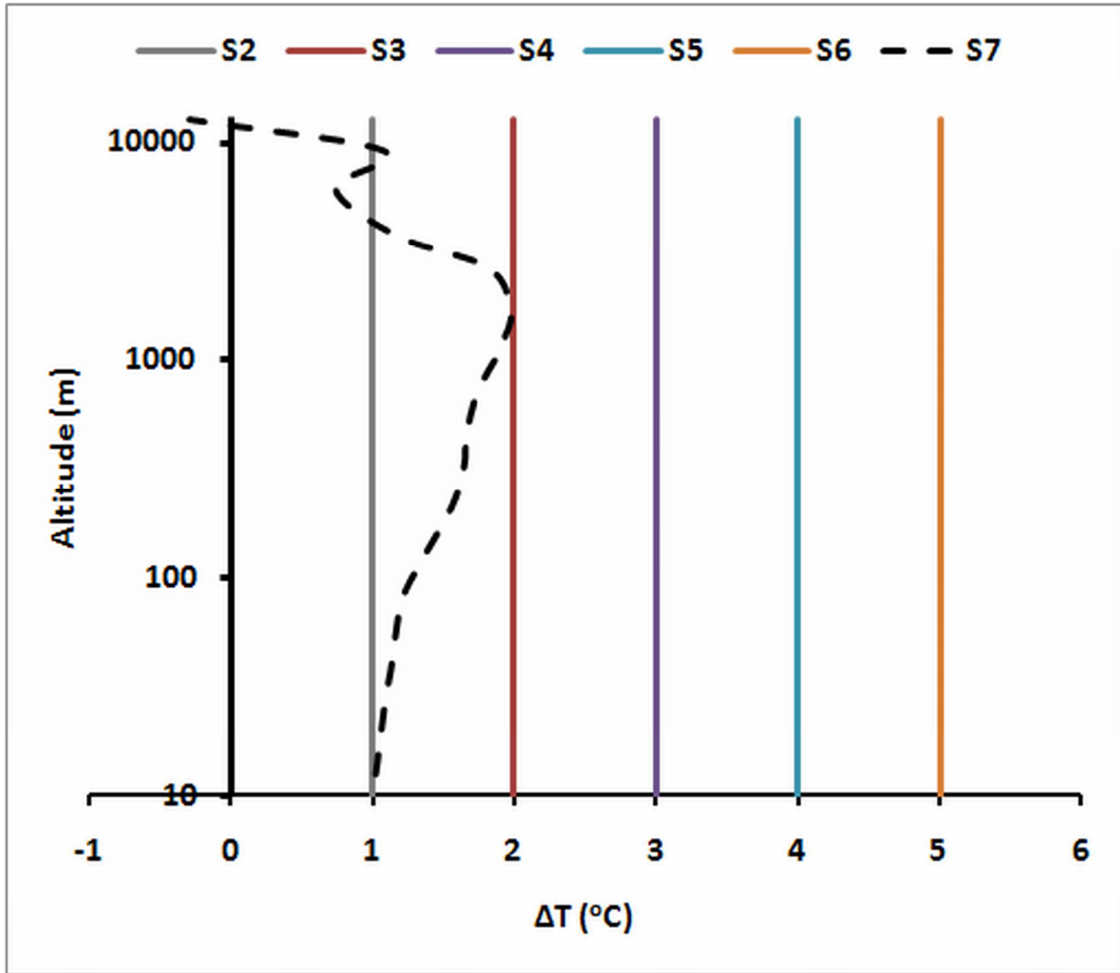


Fig. S2. The difference of mean vertical temperatures between scenarios and base case simulations.

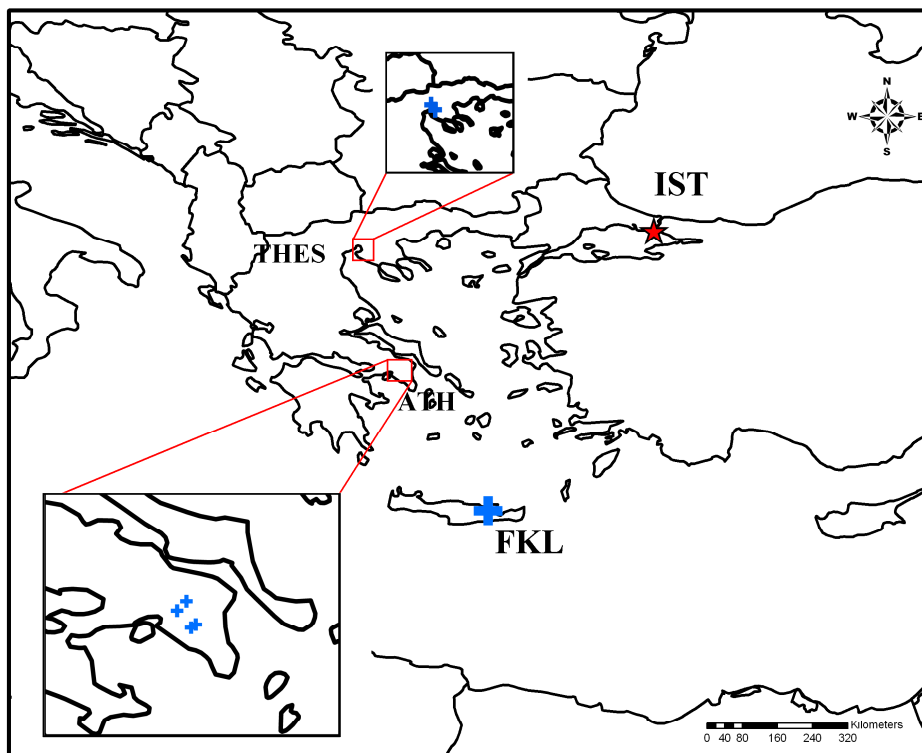


Fig. S3. Locations of the air quality monitoring stations (The geographical information for the stations are provided in Table 1).

Table S1. Comparison of deposition velocity of ozone, soil temperature, soil moisture, wind speed at FKL and the domain-averaged cloud fractions for the different scenarios.

	S0	S1	S2	S3	S4	S5	S6
Deposition velocity (m s ⁻¹)	0.00255	0.00255	0.00255	0.00255	0.00255	0.00255	0.00260
Soil temperature (K)	290.844	290.844	290.844	290.844	290.844	290.844	293.698
Soil moisture (m ³ m ⁻³)	0.2180	0.2180	0.2180	0.2180	0.2180	0.2180	0.2175
Wind speed (m s ⁻¹)	3.04	3.04	3.04	3.04	3.04	3.04	2.93
Precip. cloud cover (%)	0.003	0.003	0.003	0.003	0.003	0.003	0.005
Non-precip. cloud clover (%)	0.011	0.002	2.68E-4	3.67E-5	2.45E-6	4.81E-8	0.012

Model performance metrics

The statistical parameters applied in this study to evaluate model performance are: correlation coefficient (r : Eq. 1), Mean Normalized Bias (MNB: Eq. 2) and Index of Agreement (IOA: Eq. 3).

$$r = \left[\frac{\frac{1}{N} \sum_{i=1}^N (O_i - \bar{O})(P_i - \bar{P})}{\sigma_O \sigma_P} \right] \quad (1)$$

$$MNB = \frac{1}{N} \sum_{i=1}^N \left(\frac{P_i - O_i}{O_i} \right) \quad (2)$$

$$IOA = 1 - \frac{\sum_{i=1}^N (P_i - O_i)^2}{\sum_{i=1}^N \left(|P_i - \bar{O}| + |O_i - \bar{O}| \right)^2} \quad (3)$$

where O_i and P_i stand for observations and predictions at each time step, \bar{O} and \bar{P} stand for the daily mean of observations and predictions, and σ stands for standard deviation.