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On the role of tropopause folds in summertime tropospheric ozone over the eastern Mediterranean and the Middle East

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S1: Monthly mean climatology of EMAC-simulated fold frequency

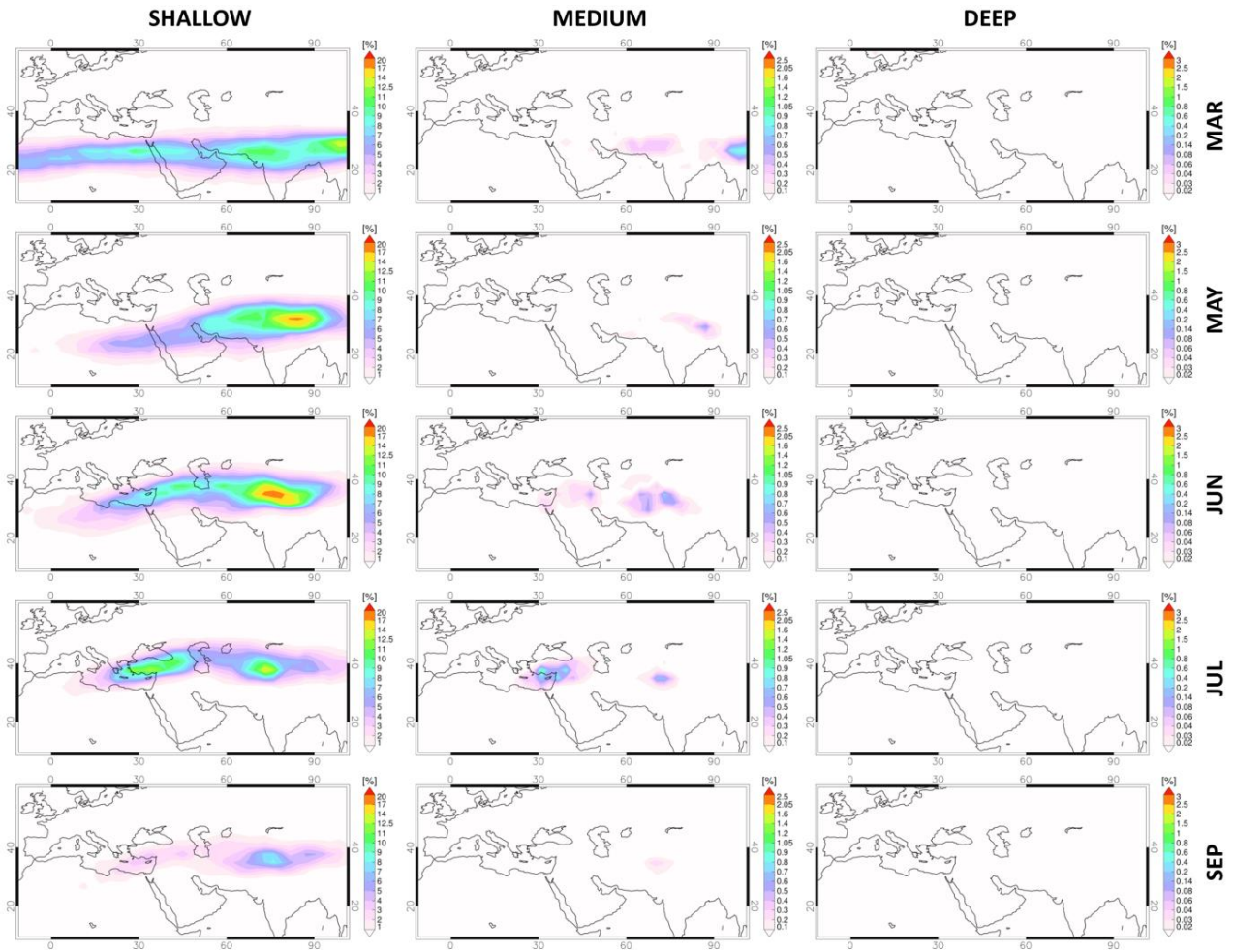


Figure S1. Monthly mean climatology (1979-2012) of shallow ($50 \leq \Delta p < 200$ hPa), medium ($200 \leq \Delta p < 350$ hPa) and deep ($\Delta p \geq 350$ hPa) fold frequency during March, May, June, July and September, for intercomparison with Fig. 2 of Tyrlis et al. (2014).

S2: Box-whisker plots of O3 concentrations during the fold events

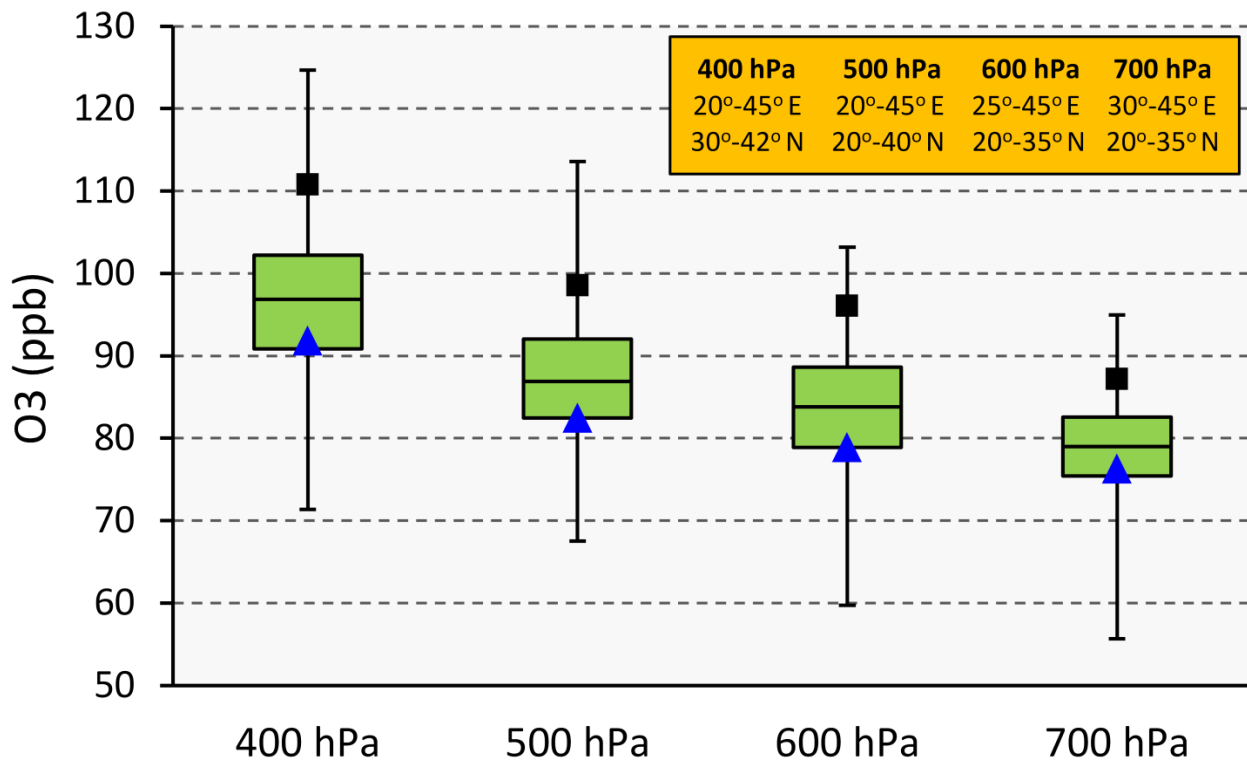


Figure S2. Box-whisker plots of O₃ concentrations during fold events at 400, 500, 600 and 700 hPa. The middle line in the box shows the median O₃ concentrations, the box represents the range between the 25th and 75th percentiles, the top/bottom whiskers indicate the max/min concentrations and the filled black square shows the 95th percentile. The filled blue triangle represents the average O₃ concentrations during the remainder summer timesteps. O₃ concentrations are calculated as the spatial average of the regions (orange table) where the positive anomalies in Fig. 5 are mainly found.

References

Tyrlis, E., Škerlak, B., Sprenger, M., Wernli, H., Zittis, G., and Lelieveld, J.: On the linkage between the Asian summer monsoon and tropopause fold activity over the eastern Mediterranean and the Middle East, *Journal of Geophysical Research: Atmospheres*, 119, 3202–3221, 2014.