

Interactive comment on “Attributing and quantifying European carbon monoxide sources affecting the Eastern Mediterranean: a combined satellite, modelling, and synoptic analysis study” by R. Drori et al.

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We would like to thank the reviewer for his useful comments.

General remark: The paper was rewritten and several sections were added. As the reviewers pointed up the model is not able to reproduce the synoptic scale variation except for summer months. Therefore the paper was divided into two parts. The first part dealing with the model result on large spatial and temporal scale evaluating the results on monthly basis and synoptic scale (deseasonalizing) and some budget analysis. The

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second part, focused on summer months, and characterizing the synoptic configuration leading to contribution from a specific location, and the contribution from BB.

*The importance of the work for broader community. This paper represents a combination of in-situ measurements, remotely sensed data, chemical transport model and synoptic analysis. This blend of data is unique and might be interesting to the broader community. The clear associational between sources, pathways and coexistence of pressure systems might be also attractive.

*New scientific insight. The eastern Mediterranean shore (e.g. Syria, Lebanon, Israel) differ significantly from the northern part of the EM. Most of the papers are describing either pathways or gross synoptic characterization of a specific episode. Here we are showing how the coexistence of two systems leads to a certain pathways and eventually changes the CO concentration from a specific source. The analysis is done over four months with consistent results. Another important insight is the high contribution of CO originating from hydrocarbon oxydation and its signature on the seasonal CO cycle.

* Why using CO? CO is a good tracer and can be run at tagged mode in order to quantify the source contribution.

* Model ability to simulate synoptic scale variation: This is very important point. After deseasonalizing the model (Fig 9) it is evident that the model cannot reproduce the synoptic scale variability except for the summer months (Jul-Sep)

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