

High tropospheric ozone in Lhasa within the Asian summer monsoon anticyclone 2013: influence of convective transport and stratospheric intrusions

by Dan Li et al.

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The manuscript describes promising studies in a very important region that can receive air from a number of sources. In particular, the role of stratosphere-troposphere transport is very high due to the extreme elevation of the Tibetan plateau and the presence of the subtropical jet stream. I recommend the paper for publication after some modification.

Comments:

P.1, line 18: Please, add a reference here. This statement is not obvious!

P. 2, line 19: I think Skerlak et al, Atmos. Chem. Phys., 14, 913-937, 2014, mention the Tibetan plateau to be a “hot spot”. You should write something like “particular active region”. This a strong motivation for your measurements!!!

P. 2, line 26: “over northern India”: Here (or in the following paragraph) you should mention Ohja et al., Atmos. Environ., 88, 201-211, 2014, and Atmos. Chem. Phys., 17 6743-6757, 2017.

P. 2, around line 28: I am missing some statement on the role of the subtropical jet stream (e.g., Koch et al., Int. J. Climatol. **26** (2006), 283-301; Trickl et al., Atmos. Chem. Phys. **11** (2011), 9343-9366; and references therein). This also adds to the motivation for the paper!

P. 2, line 29: Here (or below) you should add a sentence on the importance of intensifying observations in this interesting region.

P. 3, line 15: Please, specify SWOP.

P. 4, line 31: P. 4, Sec. 2.3: There is a strong need for justifying the extension of trajectory calculations to as much as 50 days!!! There are papers on the quite limited accuracy of trajectories (e.g., Stohl et al.). I think that 10 days are acceptable in the free troposphere due at least for coherent air streams. However, I have seen reasonable results in the literature times up to 20 days in certain cases.

P. 5, line 4: extremely high

P. 5, line 11: RH profiles

P. 7, line 11: Can you make conclusions about the quality of the trajectories from the results (e.g., from the coherence properties)?

Conclusions: Section 4 looks rather technical. I am missing more scientific statements in relation to the topics mentioned in the introduction. In addition, it would be advantageous to learn (e.g.) what was the idea behind the effort and what is planned. Long-term measurement would be great!