

Interactive comment on “Spatial and temporal variability in surface ozone at a high elevation remote site in Nepal” by G. W. K. Moore et al.

Anonymous Referee #3

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This paper finds that stratospheric incursions impact ozone levels at the ABC-Pyramid site before the monsoon, based on correlations between surface ozone measurements, satellite total column ozone and model meteorological parameters.

I felt that there was too much emphasis on correlations with not enough data and/or not enough emphasis on actual physical descriptions. Given the relatively short length of time of the comparisons, it seems that the paper is over-stretching its conclusions. I would recommend publication only if the authors are able to make their study more rigorous by extending the data used in correlations, and/or analyzing the cases available in greater detail. This would then allow the conclusions to be more quantitative in their evaluation of tropospheric / stratospheric impacts.

For example, pg 16244, ln 18-24, how can one make general conclusions from a year
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that is anomalous? The pre-monsoon signal is dominated by the high ozone event at the beginning of June. It seems that this should be analyzed separately as an individual episode, as it is likely to swamp the correlation calculations (ie. expand pg 16250, ln 4-15).

Some questions that come to mind:

Might some correlations be due to similar seasonal trends?

What is the impact of the global ozone background?

There is some discussion of tropopause folds, but this could be described in greater detail, including the seasonal evolution of the tropopause height, and the possible impacts of intense convection events.

Could you show that noon-time ozone is representative of the daily surface levels? What is the diurnal trend, and if you are interested in stratospheric transport, would longer averages not be more appropriate?

Minor comments: please check spelling and typos carefully, eg.: "Pryamid", "respectifuly", "epidemological", "that that", "concentraton", "algorithim", "obatained", "organizaiton"

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 16233, 2009.