

## ***Interactive comment on “Diurnal variability of total column NO<sub>2</sub> measured using direct solar and lunar spectra over Table Mountain, California (34.38° N)” by King-Fai Li et al.***

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I do not agree with your arguments in reply to \_\_\_\_ Box 1.5 The linear fit in Figure 6 does not mean much, other than as a baseline, as there are two linear regimes, one from 07:00 to 13:00 and from 13:00 to 16:00 hours. Is there an explanation for the two regimes? \_\_\_\_

- Fig. 3a in Sussmann et al. 2005 does not show indications for any measurable non-linear diurnal change
- Your modeled diurnal variation is much closer to a linear behavior than your mea-

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surement results.

This means, obviously the main reason for your observed non-linear behavior is a different (probably experimental) one, i.e., your trying to explain via modeling is flawed or can at best be used as a minor, partial explanation. So you should thoroughly discuss possible reasons which could make the measurements erroneously look non-linear, i.e., please quantitatively estimate possible measurement artifacts like airmass/zenith angle dependencies.

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