

Interactive
Comment

Interactive comment on “Why does surface ozone peak before a typhoon landing in southeast China?” by Y. C. Jiang et al.

Anonymous Referee #2

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This paper presents an observed case of high surface ozone concentration before a tropical storm made a landfall in China, and the authors attribute this event to the descent of upper tropospheric ozone. Meteorological conditions are discussed along with chemical species' measurements. Their discussion links air quality with stratosphere/troposphere exchange. This study is interesting to a wide air quality and chemistry-climate research community. The paper is overall well-written though discussion could be a little more deeper. Nevertheless, I would recommend accepting this paper by ACP with some minor revisions.

My biggest concern is about tracking the ozone source using O₃/CO correlations. Previous studies showed that positive and negative correlations reveal difference ozone production/transport mechanism in troposphere. However, this needs some other fac-

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Interactive Discussion

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tor such as weather and air pollution conditions to be excluded. As to this paper, ozone production might be halted under cloudy conditions on June 14, 2014 just before the typhoon's landing. However, CO is continuously emitted. As a result, there may be a negative O₃/CO correlation with high CO abundances. I think this scenario should be cleared before linking this event with STE, though the weather condition might favor a descent from the upper troposphere. Fig 5 shows descent at 20:00h June 13 and ascent. However, it is not clear that was the case for the whole period 12:00h June 13 - 12h June 14 (the period for Fig 6b) because the last panel in Fig 5 shows the ascent at 20:00h June 15.

Some very minor suggestions: Page 24627: Line l18, remove the word "stratospheric".

Page 24628: Line 21-25, this sentence needs to be re-worded.

Page 24633: Line 3-4, what are the "implications"? The authors should specify it even too many details are not necessary.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 24623, 2015.

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