

## ***Interactive comment on* “The First Evaluation of Formaldehyde Column Observations by Pandora Spectrometers during the KORUS-AQ Field Study” by Elena Spinei et al.**

### **Anonymous Referee #1**

Received and published: 9 May 2018

The manuscript titled “The First Evaluation of Formaldehyde Column Observations by Pandora Spectrometers during the KORUS-AQ Field Study” by E. Spinei et al. describes the first evaluation of the direct-sun observations of HCHO conducted by Pandora instruments via coordinated ground-based and flight-based in-situ HCHO measurements. These concurrent measurements were conducted in May-June 2016, at two locations in South Korea, during KORUS-AQ study. The topic of the paper is appropriate for AMT. The paper is very thorough and well-written. I recommend it for publication after the minor comments outlined below are addressed.

1) Page 3, line 25 – consider adding this paper to references: Bryan N. Duncan, Yasuko Yoshida, Jennifer R. Olson, Sanford Sillman, Randall V. Martin, Lok Lam-

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Discussion paper



sal, Yongtao Hug, Kenneth E. Pickering, Christian Retscher, Dale J. Allen h, James H. Crawford (2010), Application of OMI observations to a space-based indicator of NO<sub>x</sub> and VOC controls on surface ozone formation, *Atmospheric Environment*, 44, 2213-2223, doi:10.1016/j.atmosenv.2010.03.010. 2) Page 4, line 6 – consider adding this paper to references: Olga Pikel'naya, Stephen C. Hurlock, Sebastian Trick, and Jochen Stutz (2007), Intercomparison of Multi-Axis and Long-Path DOAS Measurements in the Marine Boundary Layer, *J. Geophys. Res.*, VOL. 112, D10S01, doi:10.1029/2006JD007727. 3) Page 6, line 7 – add reference for DOAS technique, e.g. Platt and Stutz (2008), *Differential Optical Absorption Spectroscopy Principles and Applications*, Springer, ISBN 978-3-540-75776-4. 4) Section 2.1.1 - Add an example of HCHO spectral retrieval. 5) Page 6, line 25 – Explain the rationale for selecting 4.3km for heff. 6) Page 11, line 8 – Define VMR, volume mixing ratio (VMR), and use consistently uppercase or lowercase for VMR throughout the paper. 7) Figure 4 – Identify both sites on panels (a) and (c) and add a horizontal scale. 8) Page 17, lines 13-14 – Can you comment if flight measurements are in support of your assumption that the most of HCHO column was located in the mixed-layer? 9) Page 22, line 1 – Add reference to Figure 9. 10) Page 23, line 12 – Define “good” agreement.

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Interactive comment on *Atmos. Meas. Tech. Discuss.*, doi:10.5194/amt-2018-57, 2018.

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