

Interactive comment on “Simultaneous observations by sky radiometer and MAX-DOAS for characterization of biomass burning plumes in central Thailand in January–April 2016” by Hitoshi Irie et al.

Anonymous Referee #2

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The paper compares observations by sky radiometer and MAX-DOAS for characterization of biomass burning plumes in central Thailand in the period January–April 2016. Although similar measurements have already been published it is of scientific value to have this additional data obtained with different techniques. The manuscript is well structured but at some places the explanations could be more precise. The topic of the manuscript is interesting as additional report of the ratio CHOCHO to formaldehyde from a site in central Thailand, where biomass burning seems to play an important role. However, I am not totally convinced that there is a technical contribution, from the

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point of view of the measurement methods. This is probably due to the lack of details of the procedures followed, especially regarding the MAX-DOAS observations and profile retrievals.

My first comment concerns the lack of some relevant information: Description of the site, location of the instruments, description of the MAX-DOAS instrument (e.g. is it thermally stabilized? If not, how often was the DC measured?). The MAX-DOAS of the PREDE Co. Ltd. contains a MAYA2000Pro? Please specified the technical details of the spectrometer (e.g. it uses a slit or just an optical fiber?). The measurements were done at 2°, 3°, 4°, 6°, 8°, 70° elevation angles and the measure at 70° elevation angle was used as reference. Is that correct? Please justified and describe the method. There are also no details about the fitting windows and the cross section used for the trace gas analysis. A table may be useful.

My second comment concerns meteorological information, which is not mentioned in the manuscript. Has NCEP a meteorological station at the site? Since the RH was in January over 60%, was it not necessary to include a scale factor in the DOAS analysis?

My last comment concerns the missing information of the used parameters to retrieve the vertical column of the trace gases: which were the inputs used to retrieve the lower tropospheric vertical profiles? Where do they come from the estimated errors? The site by Irie et al. 2015 is Cabauw, so the parameters are probably different as the parameter used in Phimai.

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