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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Exceptional emissions of NH_3 and HCOOH in the 2010 Russian wildfires" by Y. R'Honi et al.

Anonymous Referee #2

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This paper once again demonstrates the impressive performance of IASI. I have a number of minor corrections to suggest and a couple of more serious points that need to be addressed. 1. Pg. 31565, line 14, "two month period" 2. Pg. 31567, line 8. In Figure 3a, were the low ammonia points included in the slope determination? I don't think they should be because the low values look more like some sort of retrieval failure or at least a very marginal result. Please clarify in the paper. 3. Pg. 31567, near line 25. I find the values for the emission ratios of formic acid to be surprisingly high. Although references to higher values are cited, there exist several un-cited references to lower values including one by one of the co-authors (Coheur et al. ACP 7, 5437, 2007). The suggestion of secondary production during aging is also not very convincing because there is a recent paper by Tereszchuk et al. ACPD 12, 31629, 2012 (see also Tereszchuk et al. ACP 11, 12169, 2011) with emission ratios for formic acid that decline as the fire plume ages. Furthermore, the calculation of emission ratios from

total columns is also somewhat dubious because CO, formic acid and ammonia all have very different vertical profiles, and the averaging kernels of IASI therefore sample them in different ways. I realize that the authors are well aware of these problems, but they should be brought to the attention of the readers. In other words, I think the authors should point out potential problems in the methodology and the values (at least for formic acid), even if they do not provide solutions. 4. Pg, 31569, line 7. “emission fluxes (source rates, Tg day-1)” 5. Pg. 31571, line 2, “taken a large range of possible effective lifetimes, as” 6. Pg. 31571, line 23, “signal-to-noise” 7. Pg. 31572, line 9, “5 K” 8. Pg. 31572, line 11, “but an accurate error could only be obtained via validation” 9. Pg. 31576, line 13, update to ACP reference (11, 10031-10056, 2011) 10. Pg. 31583, “corresponding slope errors” 11. Pg. 31584, “10-day intervals”

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Interactive Comment