

## ***Interactive comment on “NASA A-Train and Terra observations of the 2010 Russian wildfires” by J. C. Witte et al.***

**Anonymous Referee #1**

Received and published: 29 July 2011

Review of NASA A-Train and Terra observations of the 2010 Russian wildfires

Witte et al. present an interesting study of the 2010 Russian wildfires. They use data from multiple satellite-borne sensors which give a comprehensive and informative picture of this major event. This paper is very well written and suitable for publication in ACP once a few minor points are addressed.

p. 19117, line 14: As you mention, heavy clouds may prevent MODIS from detecting fires. What about thick smoke plumes? The Russian fires produced huge amounts of smoke which probably diminished the number and the intensity of the detected fires.

p. 19117, line 24: You should also mention the accuracy of the AOT retrieval.

p. 19117, line 24: AOT55 → AOT.55.

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p. 19118, line 6: You could add the wavelength information to the SSA term, just like you did with AOT.

p. 19118, line 14: Here you should mention that AI depends on the amount of absorption but also on the altitude of the aerosol layer.

p. 19118, line 26: What is the accuracy of the total column CO?

p. 19119, line 17/Figure 2: Why did you choose this specific domain (33E-53E, 52N-62N) for the AIRS OLR data? Is it due to the radiosonde locations? This should be clarified in the text.

p. 19120, line 3/Figure 4: Figure 4d shows that during the episode domains 2,3,6,7 and 10 have clearly lower SSA values. However, in Figure 4c the domains 2,3,6,7 have increased AI values during the episode while domain 10 seems pretty much constant. Do you have an explanation for the difference between the SSA and AI data? It is evident from Figure 4e that domain 10 has significantly lower AOT values than the other domains which could explain the difference but could there also be some differences on the altitude of the smoke plumes in these domains?

p. 19124, line 1/Figure 6: The selected region in this study seems like the worst-case scenario for 2010 and it made me wonder what would happen to the differences between the years if the region had been selected differently. What do you think, would the difference between 2010 and the other years be as clear if you had selected, for example, the domain 6 from Figure 4 for this analysis?

p.19124, line 23: You could mention in the text that in this study the domain is 1x1 degrees.

Figure 6: FNR → FRP

Figure 7: The AOT and CO data suggest that the most polluted days in Moscow were between 1 August and 18 August. OMI AI data, on the other hand, has elevated values also on 31 July while the SSA data has clearly lower values from 26 July onward. Can

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you explain why OMI measurements at the end of July indicate increased absorption by aerosols even though AOT and CO values are still moderate?

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Interactive comment on Atmos. Chem. Phys. Discuss., 11, 19113, 2011.

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