

Interactive comment on “Interannual variability in soil nitric oxide emissions over the United States as viewed from space” by R. C. Hudman et al.

Anonymous Referee #2

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The authors present interesting results on satellite observations of NO_x emissions from the soil in the agricultural area of the US. They show that the OMI instrument on EOS-AURA is capable of monitoring the monthly variability of soil NO_x and its relationship with meteorological conditions. One thing I am missing in this paper is the effects of anthropogenic sources in the US on the presented results. I suggest that more discussion on this uncertainty is added to the discussion of the results. More specifically:

Page 13037 line 6-8 : The same storms that cause extra lightning NO_x, can also contribute to a more than typical transport of anthropogenic NO₂ to the region of interest. Especially if the wind direction is atypical in the month of interest, this can lead to an extra anthropogenic signal due to transport. The blue spots in Figure 4 at isolated sources of NO_x seems to point to this (more NO₂ blown out of the city)

Page 13037 lines 13-20 : As pointed out before by several authors on NO₂ monitoring, the fact that June 2006 was warmer than usual can also lead to more use of air conditionings and therefore higher energy usage and more NO_x emissions.

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