

Interactive comment on “ Smoke injection heights from agricultural burning in Eastern Europe as seen by CALIPSO” by V. Amiridis et al.

Anonymous Referee #1

Received and published: 5 October 2010

Although I certainly agree that the authors have carefully analyzed and answered to my initial review, it seems we continue to disagree on one point: the authors argue that they can observe the injection height just above the fires because of i) light wind and ii) their selection of attenuated backscatter constant with height. For i), my personal experience of many years back when I was a glider pilot is that convection above agriculture fires took me up at a speed of a few m/s. Therefore, the horizontal speed is similar to the vertical speed, and the initial plume may be at an angle of 45° to the vertical. Thus, a measurement right above the fire would NOT provide the injection height. One would have to select observations that are downwind by a few km (since the typical height are a few km) For ii), the selection of attenuated backscatter that is constant with

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height may favor the selection of distant fire plumes rather the nearby ones. Indeed, transport tends to homogenize the aerosol concentration that is very heterogeneous in the vicinity of the injection. I therefore tend to disagree on this argument

Another point is the discussion on why they chose to use their own algorithm for aerosol top height. One argument in the answer is that "...previous work of other researchers who suggest the need to better analyze CALIPSO retrievals on level 1 that rely on level 2 automated products (e.g. Lenobe et al., 2001)." Calipso was not launched in 2001, so that it may have been rather difficult for Lenobe to properly assess the quality of Calipso Level 2 product.

Despite these criticisms, I certainly agree that the manuscript is a useful contribution. My recommendation is that the authors should consider my comments, but also that the paper should be published rapidly

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 19247, 2010.

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