

***Interactive comment on “Fluorescence from atmospheric aerosol detected by a lidar indicates biogenic particles in the stratosphere” by F. Immler et al.***

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The paper has stimulated some interesting discussion, I have asked the first referee whom did not reply in time to provide a short critique to help with the discussion of this paper.

From Referee 1

Fluorescence from atmospheric aerosol detected by a lidar indicates biogenic particles in the stratosphere F. Immler, D. Engelbart, and O. Schrems Paper number: acpd-4-5831\_p.pdf

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General comments This is an interesting paper that describes a particular case of a Raman lidar observation of aerosols and water vapor. The authors make their case to explain that an enhanced Raman lidar echo in the water vapor channel of their system is not due to high water vapor content, but to aerosol fluorescence. The authors claim to have a novel technique to detect aerosols from biogenic origins, but I am missing the counterpart of their message, which is possibly bad news, namely that water vapor measurements by present Raman lidars both in the stratosphere and in the troposphere are biased by the presence of biogenic (fluorescent) particles. The fact that the case discussed was detected in the first place was the unusually large magnitude of water vapor concentrations in the stratosphere. Furthermore, the lidar observations did not compare well with simultaneous radio sonde measurements in this particular altitude level. I think the paper should include calculations of the systematic error that arises from the presence of fluorescent particles. Also, the authors might elude on technical suggestions to solve the problems with bias occurring in water vapor Raman lidar measurements. Perhaps addition of an extra off-line detection channel in the fluorescence band close to the water vapor Raman line can alleviate the problems.

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Interactive comment on Atmos. Chem. Phys. Discuss., 4, 5831, 2004.

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