

Interactive comment on “Variability and evolution of mid-latitude stratospheric aerosol budget from 22 years of ground-based lidar and satellite observations” by Sergey M. Khaykin et al.

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We thank Dr. M. Fromm for bringing up the issue in Fig. 4a showing the detection of aerosol plume from Sarychev eruption. This remark led us to carefully revisit the OHP lidar data series. As a matter of fact the entire data set was subjected to reprocessing (see AC1 “Reprocessing of the OHP lidar data and related changes to the manuscript”). It was found in particular that a semi-automated screening procedure applied to the initial version of the data leaves behind some of the useful measurements, e.g. a strong aerosol peak at 21.5 km originating from the Sarychev eruption or an early detection of Nabro plume (15 days after the eruption as opposed to 45 days reported initially). Figure 4 and the discussion around it (Sect. 4.2.1) were completely revised.

C1

Figure 4. Individual (coloured curves) and period-averaged (black circles) scattering ratio profiles from OHP LiO3S lidar acquired after the eruptions of Sarychev (a) and Nabro (b) volcanoes. The colours of individual profiles denote the days since eruption. The eruption dates and plume detection periods are indicated in each panel. Only the data above the local tropopause (NCEP) are shown.

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/acp-2016-846/acp-2016-846-AC5-supplement.pdf>

Interactive comment on Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-846, 2016.

C2

Sarychev 48° N (12.06.2009)
Detection at OHP: 26.06.2009 - 17.12.2009

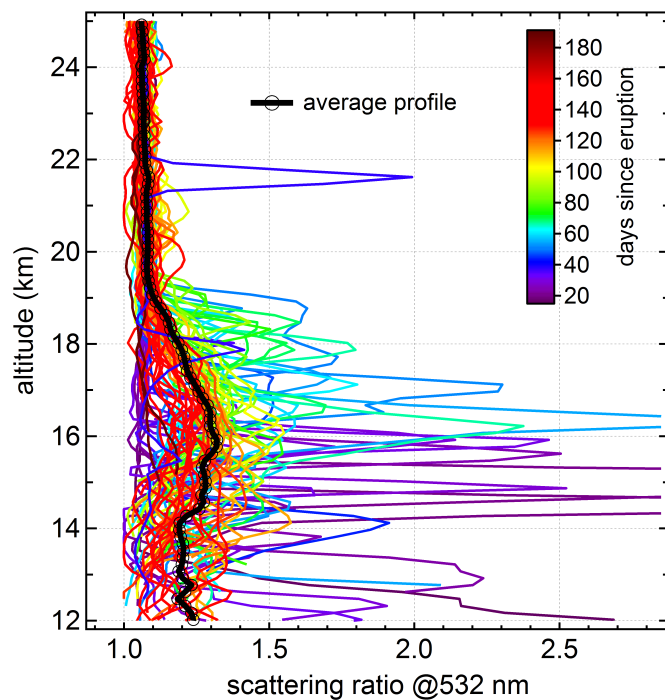


Fig. 1. Figure 4a

C3

Nabro 13° N (13.06.2011)
Detection at OHP: 28.06.2011 - 18.03.2013

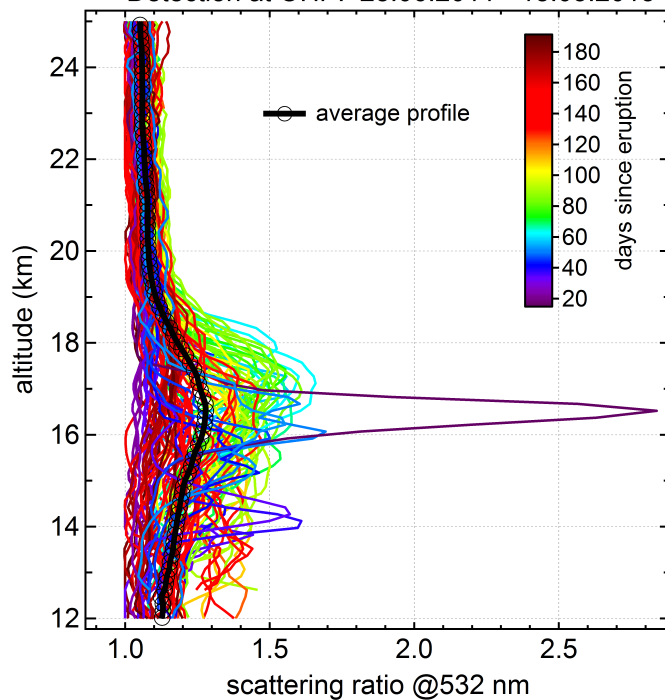


Fig. 2. Figure 4b

C4