

## ***Interactive comment on “Stratospheric aerosols from the Sarychev volcano eruption in the 2009 Arctic summer” by F. Jégou et al.***

**Anonymous Referee #2**

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This paper presents a nice analysis of stratospheric aerosol observations and modeling in the Arctic following the June 2009 eruption of Sarychev. The measurements include satellite-, ground- and balloon-borne remote sensors, and balloon-borne in situ measurements. The various measurements are compared to each other and to model estimates of so<sub>2</sub> mass, aerosol optical depth, and surface area. The measurements are shown to be reasonably self consistent, and the Hadley center Global Environmental Model does a reasonable job in reproducing the measurements. Together these data and the modeling present a nice description of the immediate impact, and then decay of the Sarychev aerosol.

The paper should be published after considering the minor corrections listed below using page.line\_number.

C925

3617.7 – This is not correct. Aerosols from Nabro were observed higher than the altitude stated here.

3623.2 – change to, “The first two SO<sub>2</sub> plumes ...

3623.17 – What IASI data is identified as having a maximum? Is this a retrieved quantity or primary measurement?

3623.19 – What is meant by DU? Is this Dobson unit applied to SO<sub>2</sub> column? I know it is done, but it is a bit unconventional. A more standard unit should be used.

3623.20 – Change to “overly dispersive”

3624.3 - ... most clearly ...

3625.19 – ... A secondary ...

3626.29 – Clarify not high enough, stating, “... as soon as the aerosol is not above the detection threshold for daytime measurements during the permanently ...”

3629.18 – ... low pressures ...

Fig. 7 caption – What is meant by the dates of the flights ...? What flights? None are mentioned in the text.

3629.21 – How does Fig. 8 shows different “examples of isentropic transport”, each panel in the figure is a one day snapshot.

3638.27 – Should be Hamill et al., ...

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Interactive comment on Atmos. Chem. Phys. Discuss., 13, 3613, 2013.