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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Lidar observations of Nabro volcano aerosol layers in the stratosphere over Gwangju, Korea" *by* D. Shin et al.

Anonymous Referee #2

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This paper describes lidar observation of stratospheric aerosols in Gwangju, Korea. Although it can be a good report on the lidar observation, the contents of the paper seem not sufficient for publication in ACP. The authors claim that this is the first observation of stratospheric aerosols over Korea with a Raman scattering lidar, but it is a misleading overstatement. No results using Raman lidar data are presented in this paper. They just applied the Fernald method with a constant lidar ratio to the backscattering data. The authors presented as their finding that high particle depolarization ratio volcanic aerosols remained after several months. However, error in the particle depolarization ratio can be extremely high in the low aerosol concentration case. It is not convincing without error analysis.

Some of descriptions in the manuscript are not very accurate. For example, sulfur

dioxide itself does not increase the optical thickness. It would be better to present the definition of the linear depolarization ratio because there are two definitions commonly used (S/P or S/(P+S)).

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 1171, 2015.