Review of acp-2016-1181
"Depolarization Ratios Retrieved by AERONET 1 Sun/Sky Radiometer Data 2 and Comparison to Depolarization Ratios Measured With Lidar" by Youngmin Noh, et al.

General comments:
The manuscript describes the results of comparing aerosol column value of particle linear backscatter depolarization ratio retrieved from AERONET sun-radiometer measurements, δ_p^s, and its direct measurements by lidar, δ_p^{CL}, as well as detailed analysis of the relationship between the parameter δ_p^s and the characteristics of the aerosol dust fraction. The results of this work can be implemented in observations of Asian dust transport.
Evaluation of aerosol depolarization ratio, δ_p^s, from AERONET measurements of direct and scattered solar radiation is the result of solving of "ill-posed" inverse problem. Correlation coefficients between δ_p^s and δ_p^{CL} characterize the uncertainties of parameter δ_p^s. It is useful information to improve the algorithms for processing data of complex experiments with employment of sun-radiometers and lidars.
I consider this paper to be a good and useful work and suggest to public it with some corrections.

Specific comments:

1. 1. The term "linear backscatter depolarization ratio" is used in the scientific literature to denote two similar but not identical parameters: the ratio of the backscatter perpendicular intensity to the parallel intensity, as well as the ratio perpendicular to the total backscattering intensity. The relationship between these quantities is nonlinear and for large depolarization the difference between parameters is significant. Therefore, at the beginning of this manuscript (in Abstract) it should be specified which parameters are used for characterization of radiometric and lidar data.
2. The question of the causes of the differences in depolarization evaluations, made from the results of radiometric and lidar measurements, is of interest. What part of these differences is caused by instrumental measurement errors?
3. Line 217: "The molecular depolarization ratio is assumed to be 0.0044". It means that all lidar systems have optical filters with very small bandwidth and measure almost only central Cabannes line of Rayleigh scattering (PC-SCI-201, CALIOP Algorithm Theoretical Basis DocumentCalibration and Level 1 Data Products).
4. Lines 41-44 in Abstract (the same, in Summary) should be compared to lines 362 -363.