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Calculation of polarisation correction factors for atmospheric lidar systems

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The depolarisation ratio of the light backscattered by different types of aerosol makes it not only possible to discrimintae them with polarisation sensitive lidar systems, but also to quantify their relative contribution in aeorosol layers [1]. The systematic uncertainties of the depolarisation technique of lidars must be reduced in order to better separate more aerosol types and to increase the accuracy of the determined mass contribution.

Using the polarisation lidar model of [2] we present an open accessible code [3] with which a systematic error calculation regarding polarisation effects can be performed. We show how the code can be used and which improvements and insigths can be achieved.

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[2] Freudenthaler, V.: About the effects of polarising optics on lidar signals and the $\Delta 90$ calibration, Atmos. Meas. Tech., 9, 4181-4255, https://doi.org/10.5194/amt-9-4181-2016, 2016.
[3] Freudenthaler, V.: Calculation of polarization correction factors for atmospheric lidar systems, https://bitbucket.org/iannis_b/atmospheric_lidar_ghk