POLARIZING LIDARS AND THE INSTRUMENT FUNCTION

Volker Freudenthaler[1]*

[1]*Fakultät für Physik, Meteorologisches Institut, Ludwig–Maximilians–Universität, 80333 München, Theresienstrasse 37, Germany, *volker.freudenthaler@lmu.de*

ABSTRACT

Although the determination of the linear depolarization ratio with lidar seems to be a simple task at first sight, systematic errors can skew the results a great deal. Different unknown systematic errors in different instruments make it difficult to compare the results and to compile a consistent picture of the aerosol properties from measurements around the globe. For the correction of known systematic errors and for the estimation of the uncertainty of the correction we first need a model of the lidars with a mathematical description of the measurements which contribute to the determination of the linear depolarization ratio. This lecture will introduce the model that has recently been published for this purpose [1]. An important part deals with the relative calibration of the signal channels which contribute to the linear depolarization ratio. A basic understanding of the Mueller-Stokes formalism [2,3] will facilitate to follow the lecture.

ACKNOWLEDGEMENTS

References

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