



Polarimetric remote sensing of the Earth's atmosphere

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Aerosols constitute the largest unknown factor within climate change, and may pose severe health hazards. Remote sensing of aerosols can be performed by analyzing the sunlight that has been scattered by them. Many aerosol properties are accessible by measuring the polarization of the scattered light as a function of scattering angle and wavelength. Information on the number density, size distribution and the chemical composition (through the refractive index) can thus be obtained.

I provide an overview of ground-based and space-based polarimetric instrumentation that is built for remote observations of aerosols. In particular, I introduce our range of SPEX instruments. One version currently operates on the ground, and the development for operation of SPEX on a satellite platform is ongoing. Now we also have a version that operates on a smartphone: iSPEX. In the summer of 2013 we will organize a large citizen science experiment in the Netherlands during which thousands of participants perform a polarimetric measurement of the blue sky. The goal is to create a flexible measurement network that can produce detailed maps of aerosols.