

Motivation behind the Development of Inversion Methods: Oleg Dubovik and his Influence

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Remote sensing of aerosol optical and microphysical properties got a resurgence in the 1970s when Ben Herman and John Reagan initiated a program to develop and implement a surface-based sunphotometer system to monitor spectral aerosol optical thickness at the University of Arizona. This system was later used to develop an inversion algorithm for retrieving aerosol size distribution from spectral aerosol optical thickness measurements. In the 1990s Brent Holben, Didier Tanré and others developed a ground-based sun and sky radiometer system to monitor spectral aerosol optical thickness and spectral sky radiance. In this presentation I will review the development of an inversion algorithm by Oleg Dubovik to simultaneously retrieve aerosol size distribution as well as the complex refractive index and hence single scattering albedo of aerosols from a combination of these measurements. Progress made in inversion theory for analyzing such data has been valuable in a global analysis of aerosol optical properties and subsequently used in satellite remote sensing algorithms and validation. The pioneering implementation of this inversion algorithm will be discussed and described.