This book gives a much needed explanation of the basic physical principles of radiative transfer and remote sensing, and presents all the instruments and retrieval algorithms in a homogenous manner. For the first time, an easy path from theory to practical algorithms is available in one easily accessible volume, making the connection between theoretical radiative transfer and individual practical solutions to retrieve aerosol information from remote sensing. In addition, the specifics and intercomparison of all current and historical retrieval methods are explained and clarified.

Aerosol Remote Sensing:

- introduces the field of aerosol research and remote sensing;
- comprehensively explains the basic principles of radiative transfer and remote sensing;
- presents the various instruments and the inversion algorithms in a homogenous manner;
- covers passive (shortwave and longwave) and active methods;
- connects theoretical radiative transfer with individual practical solutions;
- gives the specifics and intercomparison of all current and historical retrieval methods.

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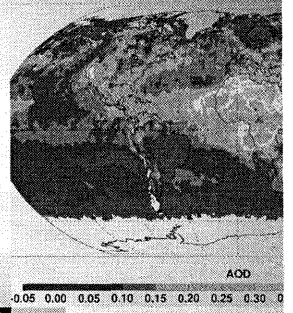

$$\frac{dL(\tau,\mu,\phi)}{d\tau} = L(\tau,\mu,\phi) - J(\tau,\mu,\phi),$$

$$J(\tau,\mu,\phi) = \frac{\varpi(\tau)}{4\pi} P(\tau,\mu,\phi,\mu_0,\varphi_0) E_0 \exp(-\tau/\mu_0) + \frac{\varpi(\tau)}{4\pi} \int_0^{2\pi} d\varphi' \int_{-1}^{+1} P(\tau,\mu,\varphi,\mu',\varphi') L(\tau,\mu',\varphi') d\mu'$$

Jacqueline Lenoble
Lorraine Remer
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