

## **Aerosol parameters determined from NOAA satellite visible channel data**

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### **Abstract**

The effect of the atmospheric aerosol on the energy balance of the earth and the chemical process has been confirmed by the research in recent years. The large-scale monitoring and study of the aerosol may be conducted through the use of satellite remote sensing technique. However, the radiance observed by the visible channels of the AVHRR aboard the NOAA satellites comes from many components which may consists of the Mie scattering due to aerosols and Rayleigh scattering due to air particles apart from the surface reflection. As the expansion of highly developed industry and the human activity becomes extensive, the origin and the changes of distribution of the aerosols becomes more complex than ever. Since the radiance received by the satellite and the aerosol optical thickness have nearly linear relationships, the aerosol optical thickness may be retrieved from the radiance corrected for the Rayleigh scattering and then used in assessing the role played by the aerosol in the radiative processes in the atmosphere and in the atmospheric correction of the image data of the earth resource satellite. In this paper we used the single scattering approximation and introduced the aerosol size parameter and aerosol optical thickness to perform the quantitative and qualitative analysis of aerosol characteristics. Finally we investigated these two parameters for Taiwan and Southeast China coast to understand and to trace the origins of aerosol particles at the upper level including those from the sea, land and industry.

Keywords: NOAA satellite, aerosol, atmospheric corrections