**OCEAN COLOR RETRIEVAL USING MULTIPLE EPSILON VALUES**

Ziauddin Ahmad1, 2 and Bryan A. Franz1

Atmospheric correction is one of the most important elements in the ocean color retrieval from space borne measurements. To process a large amount of data from ocean color sensors like SeaWiFS, MODIS, and VIIRS, the Ocean Biology Processing Group (OBPG) at the NASA-GSFC center has adopted an atmospheric correction method that was proposed by Gordon and Wang (GW94) over two decades ago. The method uses the ratio of reflectances in two NIR bands of the sensor and in a complicated way selects an aerosol model, which is then used for atmospheric correction. However, for their method to work, one has to use the single scattering approximation of the radiative transfer in the atmosphere. This implies that the multiple-scattering contribution must be subtracted from the observed reflectances, which incidentally requires an aerosol model that may or may not be the aerosol model that is finally used for atmospheric correction. In this paper we propose a new method where single scattering approximation is not required, and the aerosol optical thickness and Angstrom exponent are determined in a straight forward manner. The new method is also amenable to error propagation techniques, which allows one to determine the effect of aerosol size distribution uncertainties on the retrieved ocean colors. Results from processing MODIS data using the new method will be presented and compared with GW94 method. In addition, some simulation results pertaining to the uncertainties in the micro-physical and optical properties of aerosols on ocean color retrievals will also be presented.

[Ziauddin.Ahmad@nasa.gov](mailto:Ziauddin.Ahmad@nasa.gov)

1NASA Goddard Space Flight Center, Greenbelt Road, Greenbelt, MD 20906

2Science and Data Systems, Inc. 16509 Copperstrip Ln., Silver Spring, MD 20906

[Bryan.A.Franz@nasa.gov](mailto:Bryan.A.Franz@nasa.gov)

1NASA Goddard Space Flight Center, Greenbelt Road, Greenbelt, MD 20906