OMMYDCLD: A New A-Train Cloud Product that Co-Locates OMI and MODIS Cloud and Radiance Parameters onto the OMI Footprint

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INTRODUCTION

Clouds cover approximately 60% of the earth’s surface. When obscuring the satellite’s field of view (FOV), clouds complicate the retrieval of ozone, trace gases and aerosols from data collected by earth observing satellites. Cloud properties associated with optical thickness, cloud pressure, water phase, drop size distribution (DSD), cloud fraction, vertical and areal extent can also change significantly over short spatio-temporal scales. The radiative transfer models used to retrieve column estimates of atmospheric constituents typically do not account for all these properties and their variations. The OMI science team is preparing to release a new data product, OMMYDCLD, which combines the cloud information from sensors on board two earth observing satellites in the NASA A-Train: Aura/OMI and Aqua/MODIS. OMMYDCLD co-locates high resolution cloud and radiance information from OMI onto the much larger OMI pixel and combines it with parameters derived from the two other OMI cloud products: OMCLDRR and OMCLDO2. The product includes histograms for MODIS scientific data sets (SDS) provided at 1 km resolution. The statistics of key data fields – such as effective particle radius, cloud optical thickness and cloud water path – are further separated into liquid and ice categories using the optical and IR phase information. OMMYDCLD offers users of OMI data cloud information that will be useful for carrying out OMI calibration work, multi-year studies of cloud vertical structure and in the identification and classification of multi-layer clouds.

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