

## Spatial and Temporal Distribution of Tropospheric Clouds observed by MODIS onboard the Terra and Aqua Satellites

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### ABSTRACT

The Moderate Resolution Imaging Spectroradiometer (MODIS) was developed by NASA and launched onboard the Terra spacecraft on December 18, 1999 and Aqua spacecraft on May 4, 2002. It achieved its final orbit and began Earth observations on February 24, 2000 for Terra and June 24, 2002 for Aqua. A comprehensive set of remote sensing algorithms for cloud masking and the retrieval of cloud physical and optical properties has been developed by members of the MODIS atmosphere science team. The archived products from these algorithms have applications in climate change studies, climate modeling, numerical weather prediction, as well as fundamental atmospheric research. In addition to an extensive cloud mask, products include cloud-top properties (temperature, pressure, effective emissivity), cloud thermodynamic phase, cloud optical and microphysical parameters (optical thickness, effective particle radius, water path), as well as derived statistics. We will describe the various cloud properties being analyzed on a global basis from both Terra and Aqua. These include the latitudinal distribution of cloud optical and radiative properties of both liquid water and ice clouds, as well as joint histograms of cloud optical thickness and effective radius for selected geographical locations around the world.