

Abstract

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If the MODIS Aerosol Product is so Infested with Cloud Contamination, Why Does Everybody use the Product?

The MODIS aerosol cloud mask is based on a spatial variability test, using the assumption that aerosols are more homogeneous than clouds. On top of this first line of defense are a series of additional tests based on threshold values and ratios of various MODIS channels. The goal is to eliminate clouds and keep the aerosol. How well have we succeeded? There have been several studies showing cloud contamination in the MODIS aerosol product and several alternative cloud masks proposed. There are even “competing” MODIS aerosol products that offer an alternative “cloud free” world. Are these alternative products an improvement to the old standard product? We find there is a trade-off between retrieval availability and cloud contamination, and for many applications it is better to have a little bit of cloud in the product than to not have enough product. I will review the decisions that led us to the present MODIS cloud mask, and show how it is simultaneously too liberal and too conservative, some ideas on how to make it better and why in the end it doesn't matter. I hope to inspire a spirited discussion and will be very willing to take your complaints and suggestions.