IMPROVED MODIS AEROSOL RETRIEVALS - COMING TO A COLLECTION NEAR YOU!
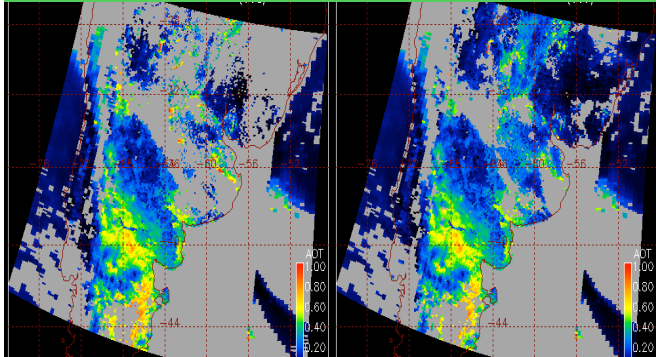
L.A. Remer, Y.J. Kaufman, D. Tanré[1],
R.G. Kleidman[2], R-R. Li[3], R. Levy[2], S.Mattoo[2], D.A. Chu[4], J.V. Martins[4], C. Ichoku[2], I. Koren[4], Z. Ahmad[2]
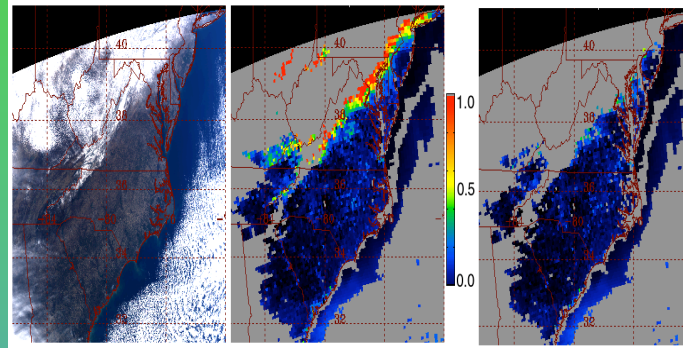NASA/Goddard Space Flight Center

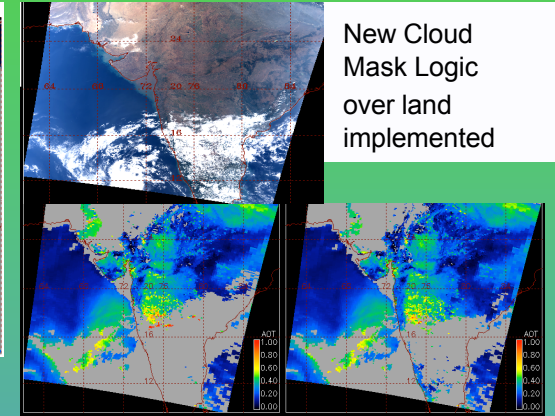## Collection 005

MORE! - Land Pixels Retrieved

Negative values of 1.38 µm now permitted allowing additional retrieval of land pixels.

LESS! - Snow Contamination

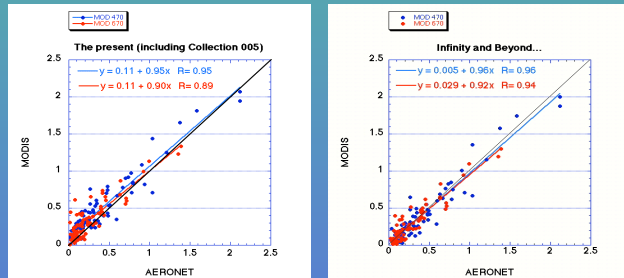Snow mask implemented as described in Li et. al. (2005)

BETTER! - Cloud Mask

New Cloud Mask Logic over land implemented

Collection 006

BETTER! - Retrieval Over Land

The present (including Collection 005)
y = 0.11 + 0.95x   R= 0.95
y = 0.11 + 0.90x   R= 0.89

Infinity and Beyond…
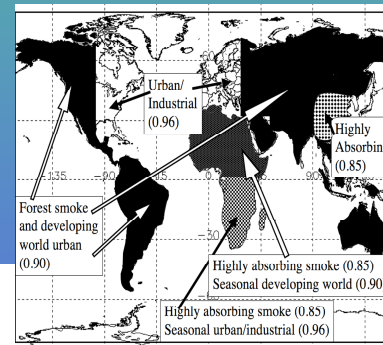y = 0.005 + 0.96x   R= 0.96
y = 0.029 + 0.92x   R= 0.94

Fixed ratios of red and blue to 2.1 µm (top left) are replaced by parameterization with respect to geometry (top right) to produce more accurate land retrievals (below).
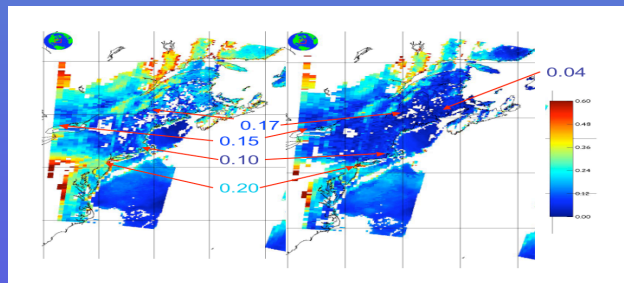
DIVIDE and CLUSTER the World!

Subjective distribution of aerosol models over land surface recently validated by objective clustering analysis of AERONET data.


Urban/Industrial (0.96)
Highly Absorbing (0.85)
Forest smoke and developing world urban (0.90)
Highly absorbing smoke (0.85) Seasonal developing world (0.90)
Highly absorbing smoke (0.85) Seasonal urban/industrial (0.96)

AERONET Cluster

JJA

Objective Clustering 006?

NEW! - Inversion for Land

Leading to better aerosol size determination over land

IMPROVED! - Aerosol Models

Including nonspherical particles over ocean
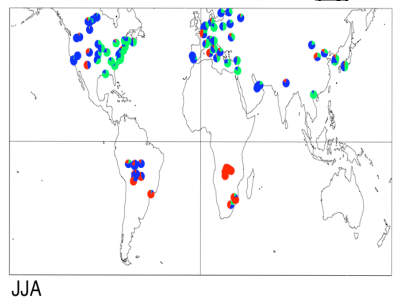
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