

Atmosphere Discipline Summary

July 2002



Recent progress

Algorithm stabilization / product validation

**cloud mask, TPW, O3, CTH, aerosol
cloud properties**

Publications

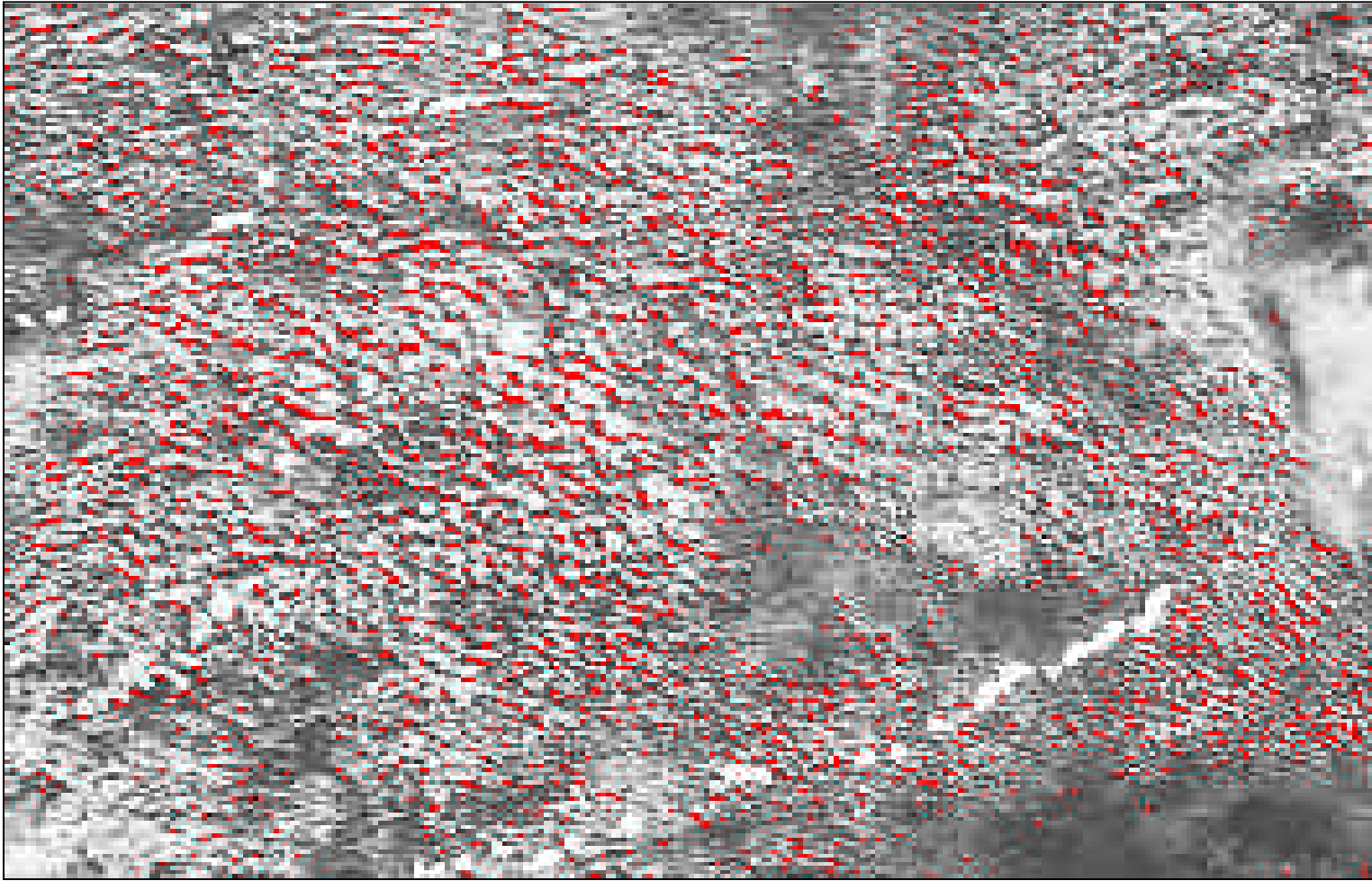
**5 papers submitted to IEEE TGRS Aqua Issue
papers in JGR, Nature, JAS**

Crystal field experiment

ice cloud investigations



Detecting cloud shadows over land by comparing observed 1.6 μ m reflectance with 8-day clear-sky composite and looking for values lower than an 80% threshold



Detecting cloud shadows over land by comparing observed 1.6um reflectance with 8-day clear-sky composite and looking for values lower than an 80% threshold

Recent progress

S/W updates to accommodate Aqua data
initial product flow looks good

Aqua concerns

**near real time geo-location (missing position
sensor) - polar winds**
offset between warm-cold focal planes - TPW
missing 1.6 um - cloud optical properties

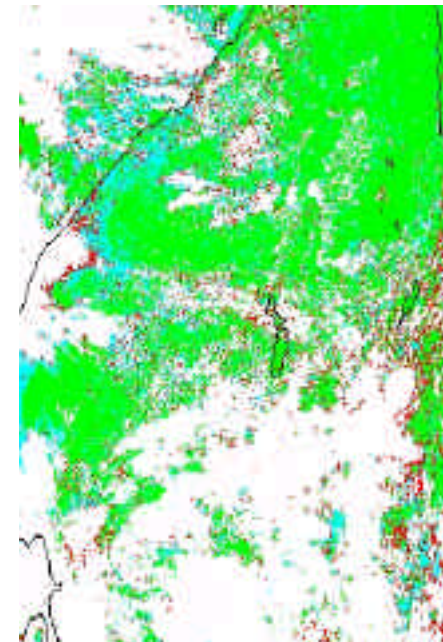
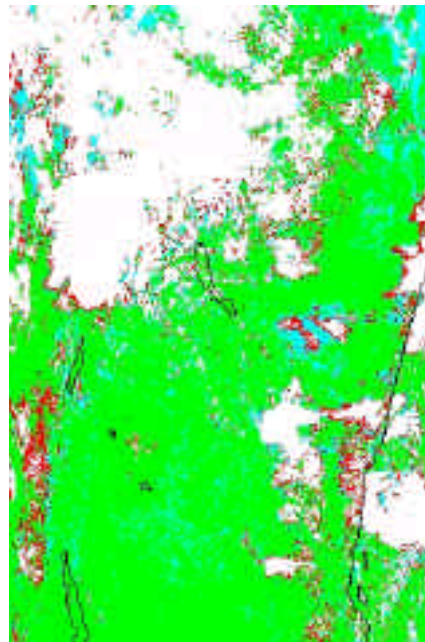
Terra and Aqua

East African Scene from July 11, 2002
Terra at 08:05 UTC, Aqua from 11:00 UTC

MODIS Band 2
Terra (left) and Aqua (right)



MODIS Cloud Mask
Terra (left) and Aqua (right)



Colors: green is confident clear
cyan is probably clear
red is uncertain
white is cloudy

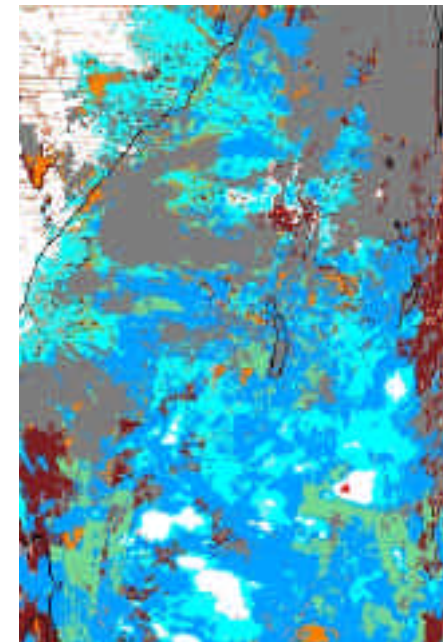
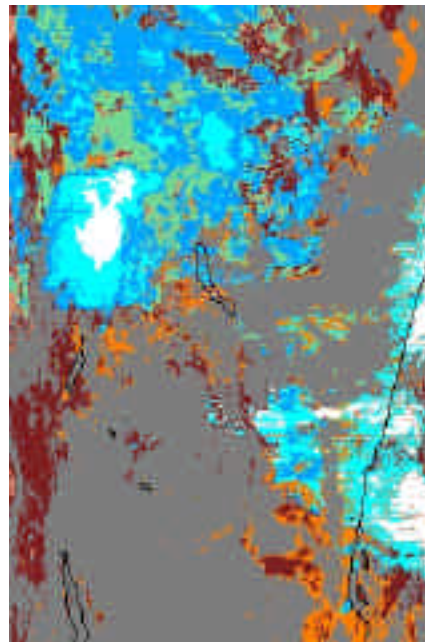
Terra and Aqua

East African Scene from July 11, 2002
Terra at 08:05 UTC, Aqua from 11:00 UTC

MODIS Band 31
Terra (left) and Aqua (right)



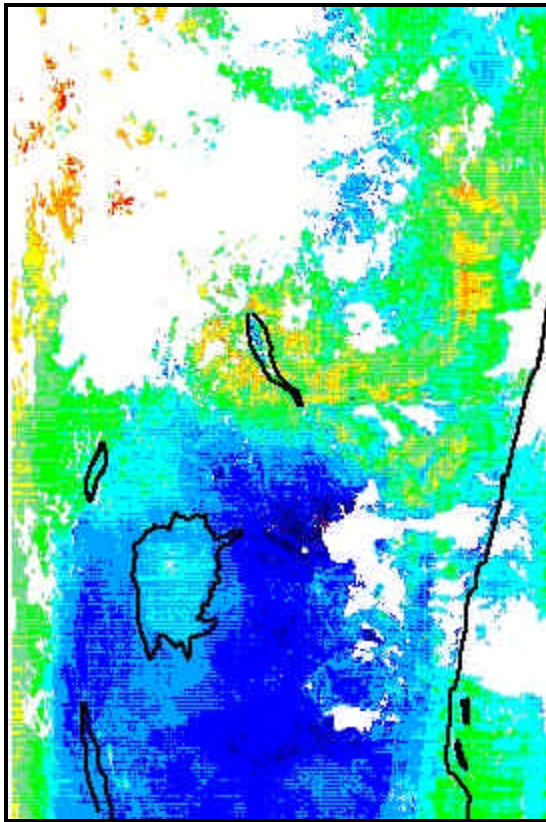
MODIS Cloud Top Pressure (mb)
Terra (left) and Aqua (right)



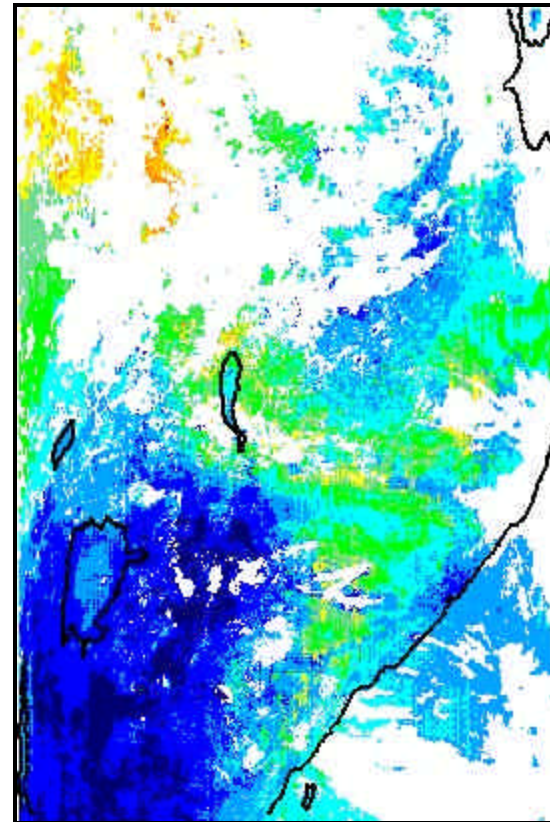
Colors: red ≤ 100 aqua 400-500
white 100-200 tan 500-700
cyan 200-300 brown 700-850
blue 300-400 orange 850-1000
gray is clear

Atmospheric Total Column Water Vapor

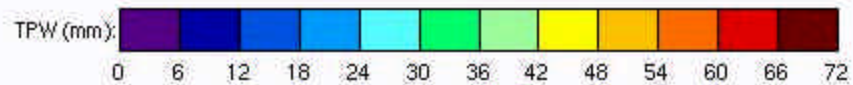
East African Scene from July 11, 2002
Terra at 08:05 UTC, Aqua from 11:00 UTC



Terra 08:05 UTC

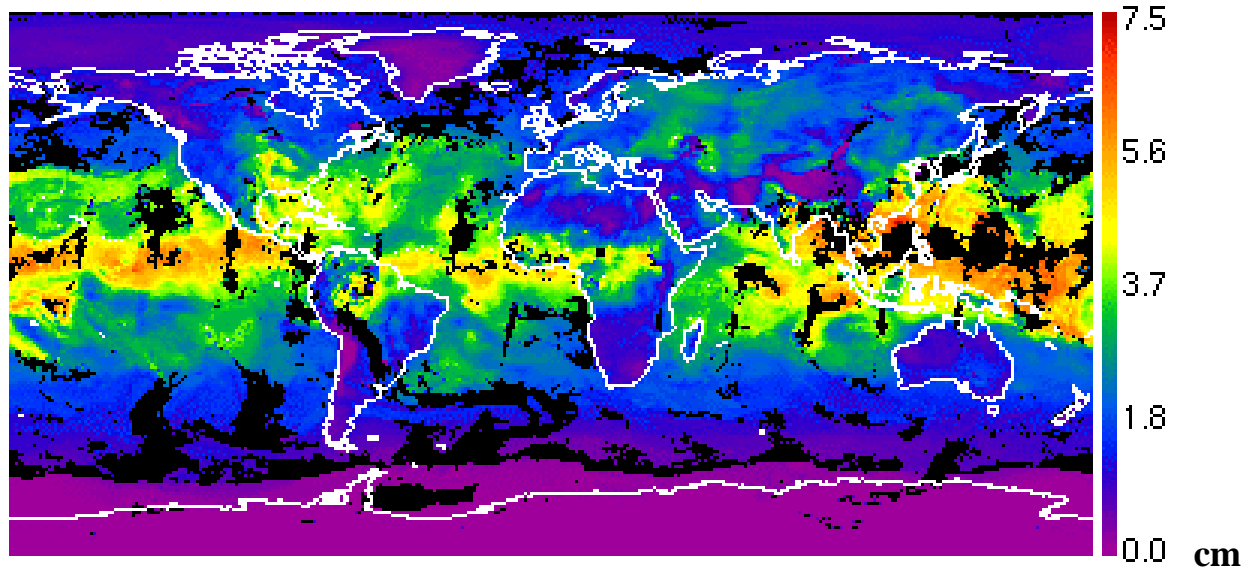


Aqua 11:00 UTC



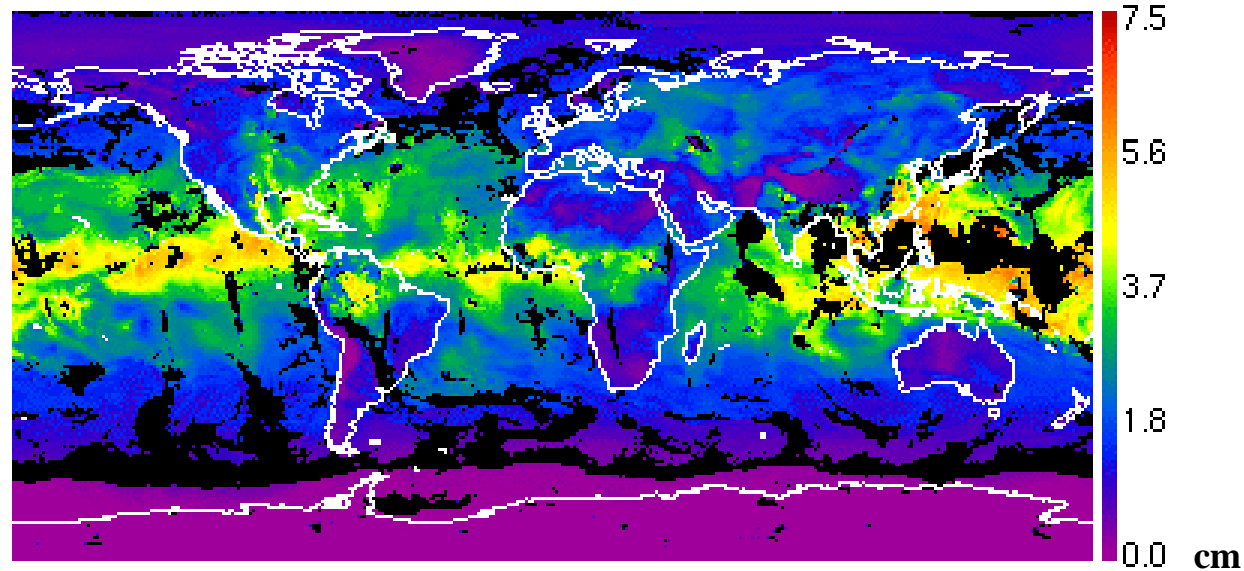
Global Atmospheric Total Column Water Vapor

Terra

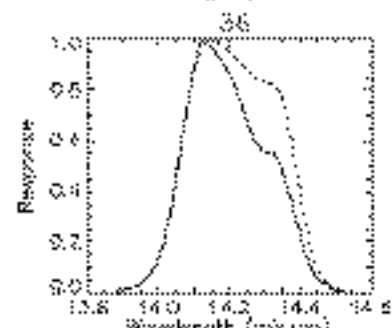
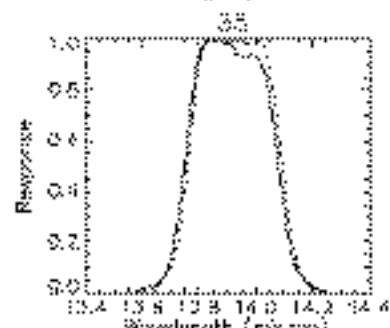
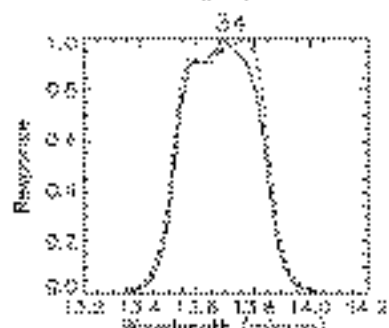
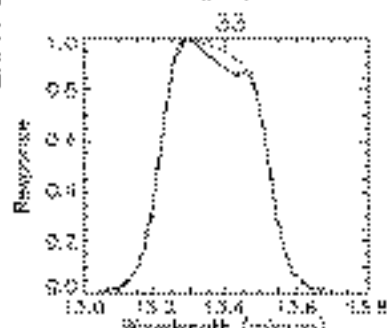
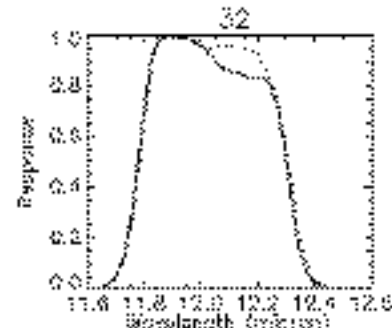
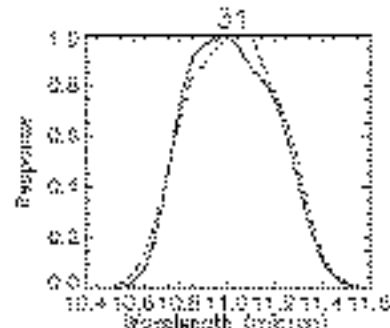
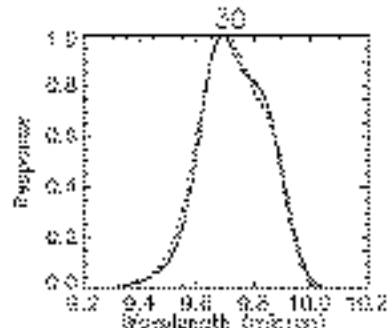
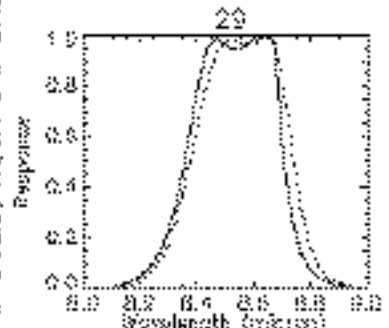
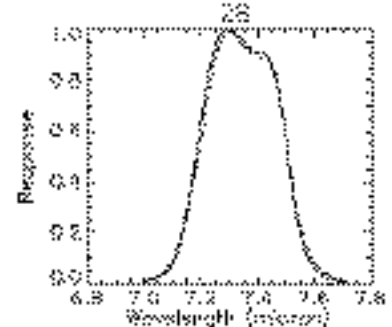
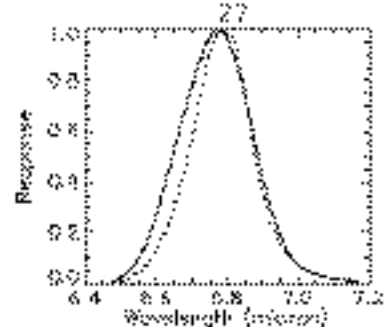
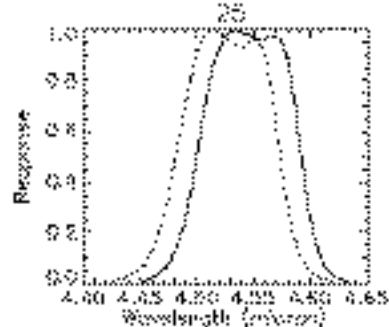
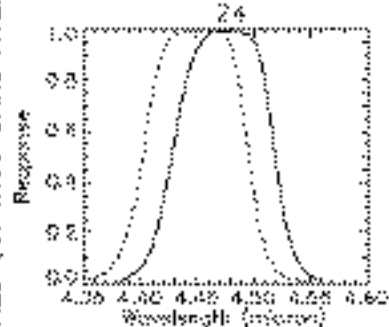
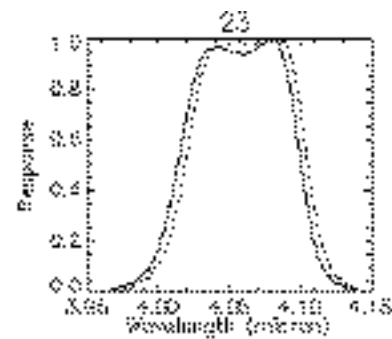
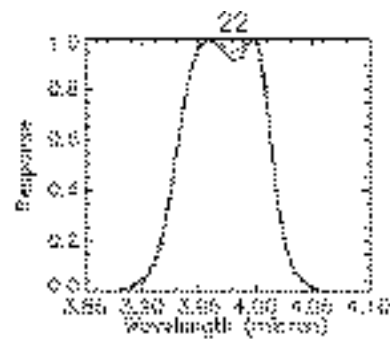
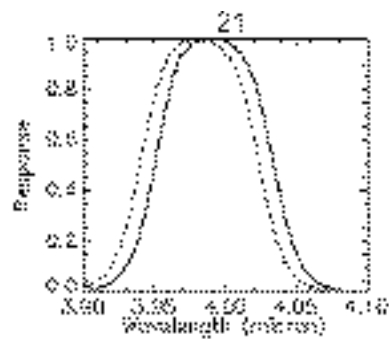
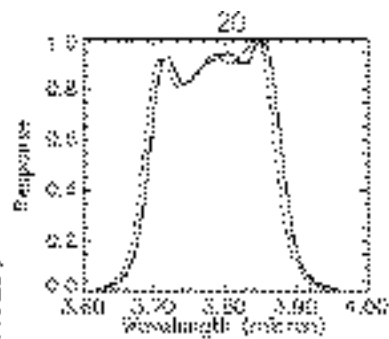


5 July 2002

Aqua



TERRA SRF SOLID, AQUA SRF DASHED (U. WISC BAND AVERAGED)



SRF Terra (solid) and Aqua (dashed)

Near Term Plans

**Global IR radiance bias (obs – calc) adjustment
sequencing of 8 day clear sky composite
forward stream as well as reprocessing**

Level 3 Products

**animation for easier QC
intercomparison of complementary TPWs, etc.**

ATBD updates by end of Sep 2002

**algorithm evolution
Aqua adjustments
quality indicators**

IR Calibration in Nov 2002

MAS and SHIS underfly of Aqua

Terra plus Aqua

Better Polar Winds

**Diurnal process studies
aerosol, moisture, and clouds**

**AIRS plus MODIS
cloud properties
soundings**