AVHRR DERIVED AEROSOL OPTICAL THICKNESS DATASETS AT NOAA/NESDIS

BY

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REVIEW OF NOAA/NESDIS AEROSOL OPTICAL THICKNESS DATASETS

DEVELOPED, IMPLEMENTED AND VALIDATED AVHRR SINGLE CHANNEL AOT RETRIEVAL ALGORITHMS OVER OCEANS

Stowe, Ignatov, Singh, 1997: JGR 102, D14

1\textsuperscript{st} gen. alg. uses modified Junge dist. (\(Nu = 3.5\)), 1.5-0i, \(Rsfc = 1.5\%\) biased low by \(\sim 50\%\) relative to sun-photometer AOT

2\textsuperscript{nd} gen. alg. uses LN dist (\(r_m = 0.1; F = 2.03\)), 1.4-0i, \(Rsfc = 0.2\%\) bias within +/- 10\% of sun-photometer, with random error of 0.04.

GLOBAL OCEANIC AOT PRODUCED OPERATIONALLY SINCE 1990

uses cloud mask modified from SST retrieval algorithm

uses: 1\textsuperscript{st} gen. alg. Jan. ‘90 - Sept. ‘94; 2\textsuperscript{nd} gen. alg. Aug. ‘95 - present

mapped on 1 degree latitude/longitude grid

calibration degradation correction applied after Aug. ‘95

images of most current daily, weekly and monthly mean AOT fields at:
http://psbsgi1.nesdis.noaa.gov:8080/PSB/EPS/EPS.html

access data via: 9-track tape (contact:smccown@ncdc.noaa.gov)

REVIEW OF NOAA/NESDIS AOT DATASETS
(CONTINUED)

GLOBAL OCEANIC AOT REPROCESSED FROM JULY ’81
- AUG.’98
(PATMOS - AVHRR PATHFINDER ATMOSPHERE DATASET)

uses cloud mask from CLAVR-1 algorithm (Stowe, Davis, McClain, 1999: JTECH 16)

uses 2nd gen. alg. throughout

mapped on 110 km equal area grid

calibration degradation correction applied July’81 - Aug. ’94

Mar.’96 - Aug.’98 processed without cal. degradation correction

Jan.’95 - present will be reprocessed by end of 1999

PATMOS-1:

twice-daily (day/night) clear/cloud radiance statistics and cloud amount
(71 parameters)

access data via: 8mm tape cartridges (contact lstowe@nesdis.noaa.gov)
PATMOS-2:

daily AOT and twice-daily ERB components (26 parameters)

pentad and monthly mean PATMOS-1 and AOT/ERB fields
(82 parameters each)

Access data via: ftp://aries.nesdis.noaa.gov and
http://www.saa.noaa.gov (monthly only)

RESEARCH WITH THE PATMOS DATASET
AT NOAA/NESDIS

DIRECT AEROSOL RADIATIVE FORCING:
Aerosols as Observed from the NOAA/AVHRR Pathfinder Atmosphere
(PATMOS) Multi-year Dataset.
ftp://orbit-net.nesdis.noaa.gov/pub/crad/rcat/stowe/FORCING

INDIRECT AEROSOL RADIATIVE FORCING:
Microphysics, Aerosol
(in press).
(AMS Conf. On Sat. Meteor. & Ocean. Paper available on ftp site above)
RElATIONSHIP BETWEEN ABSORBED SOLAR AND SURFACE TEMPERATURE

DEVELOPMENT OF AN ALGORITHM TO REMOTELY SENSE AOT OVER LAND

DEVELOPMENT OF AN AEROSOL CORRECTION ALGORITHM FOR AVHRR/SST
Nalli, N. and L.L. Stowe

EIGHTY SCIENTISTS FROM OTHER GROUPS HAVE ACCESSED THE PATMOS DATASET