Intercomparison of satellite retrieved aerosol optical depth over ocean

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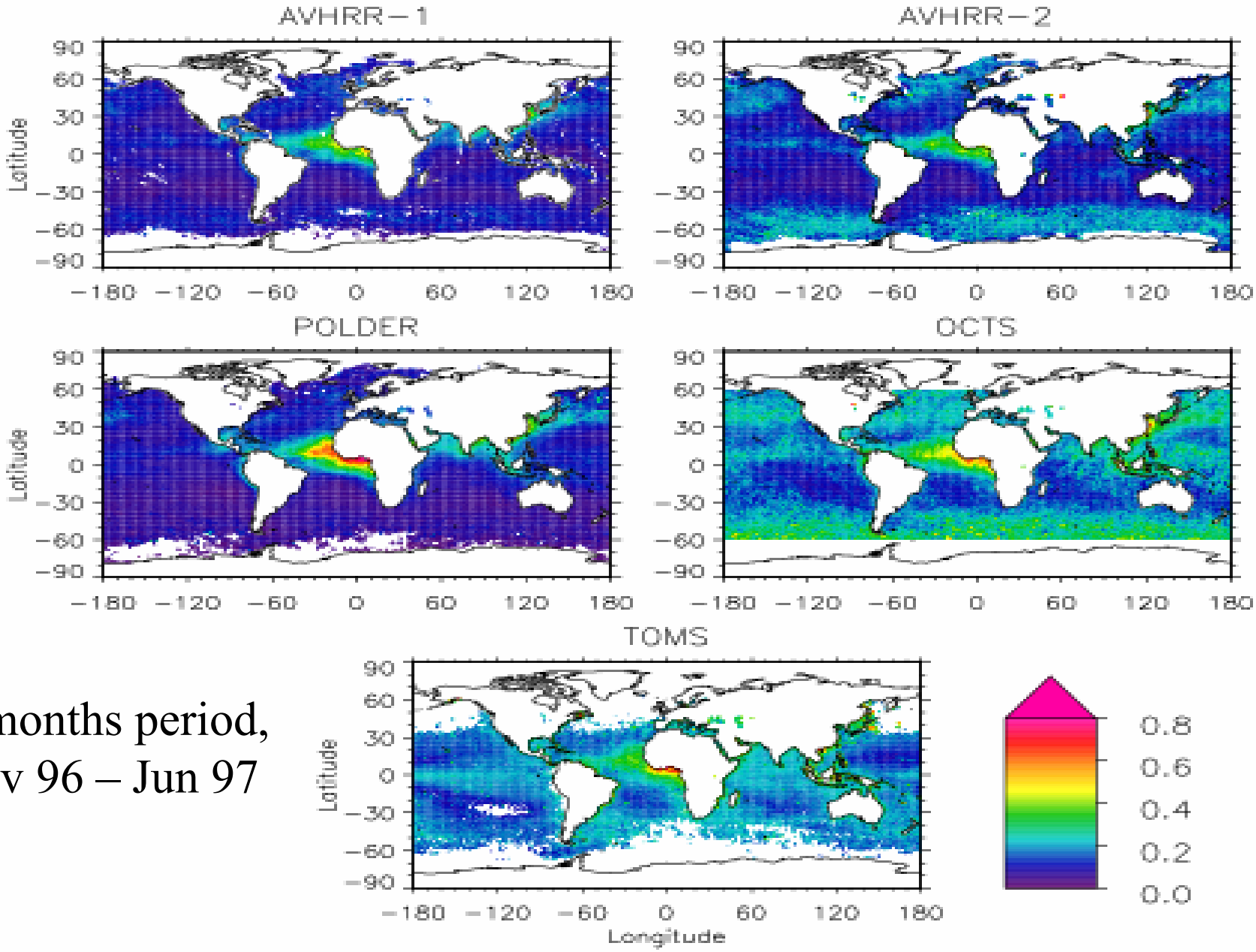
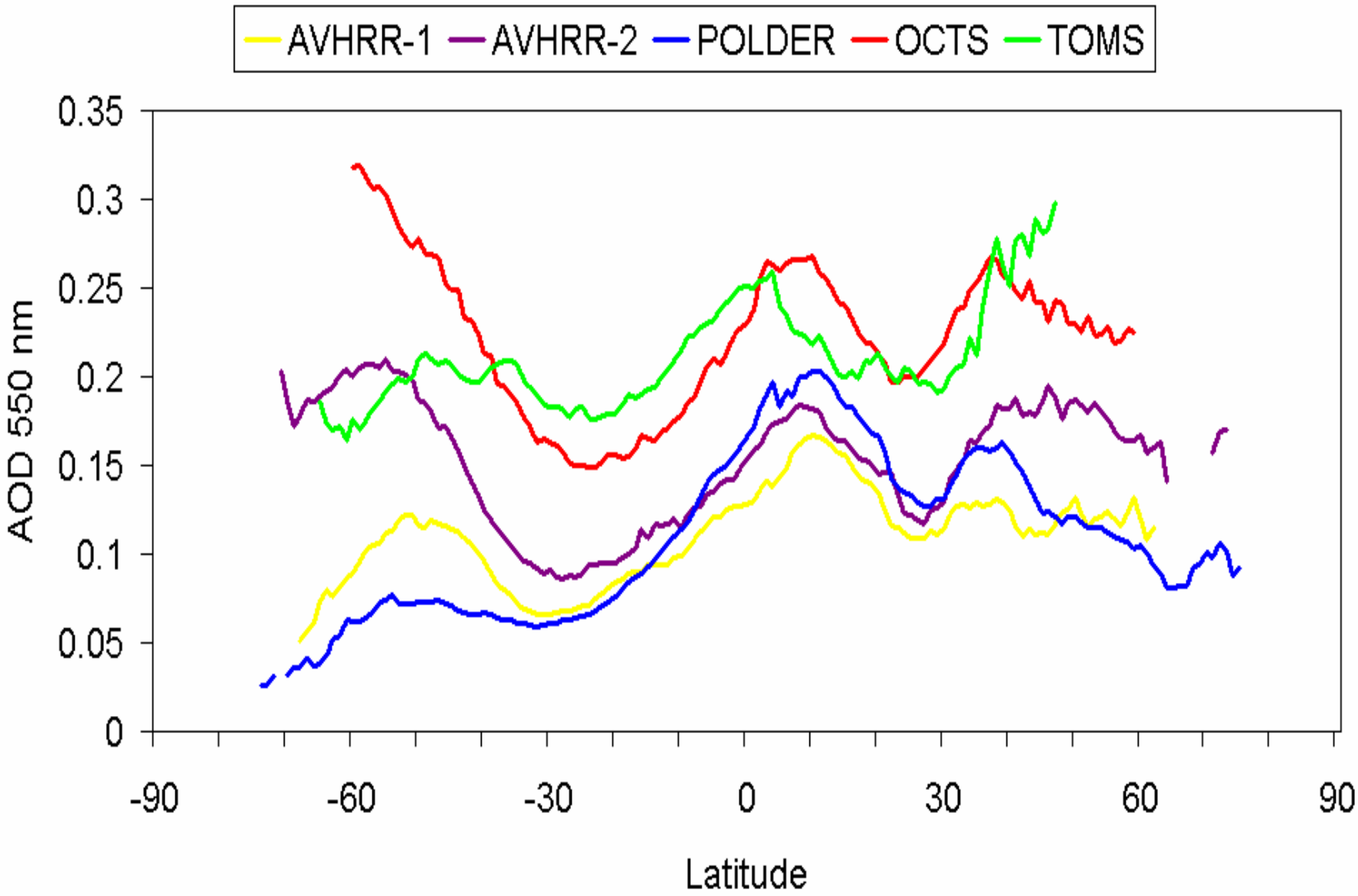
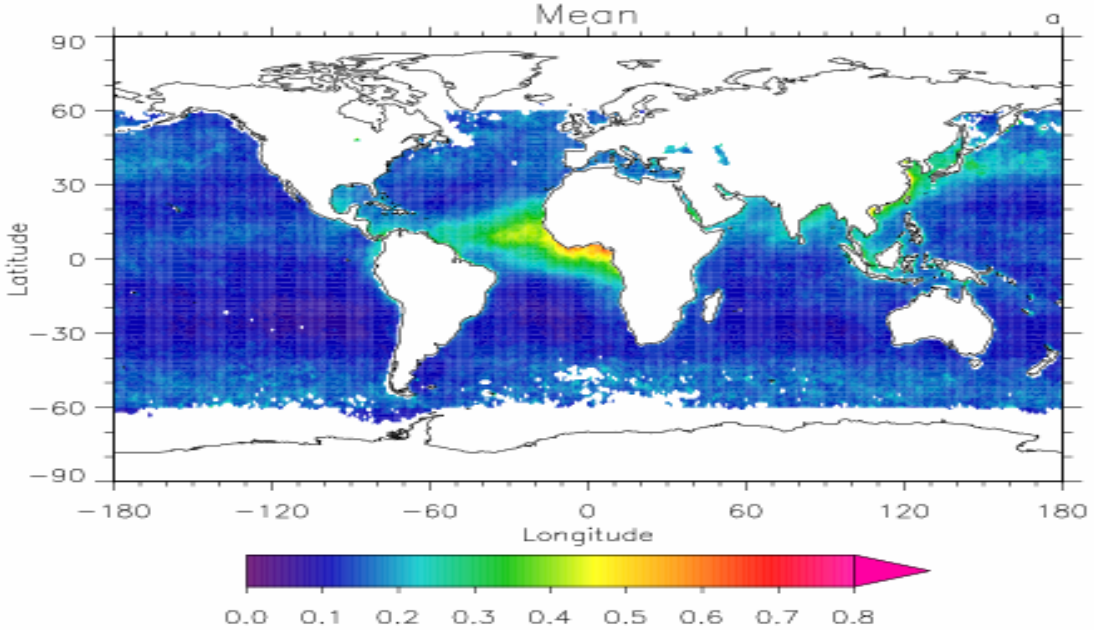
- A tool for validating our global model
- Analyse and compare different satellite aerosol retrievals over ocean and land
- Develop satellite aerosol products better suited for users over ocean and land
- Two AVHRR retrievals, POLDER, OCTS, TOMS, SeaWiFS, VIRS

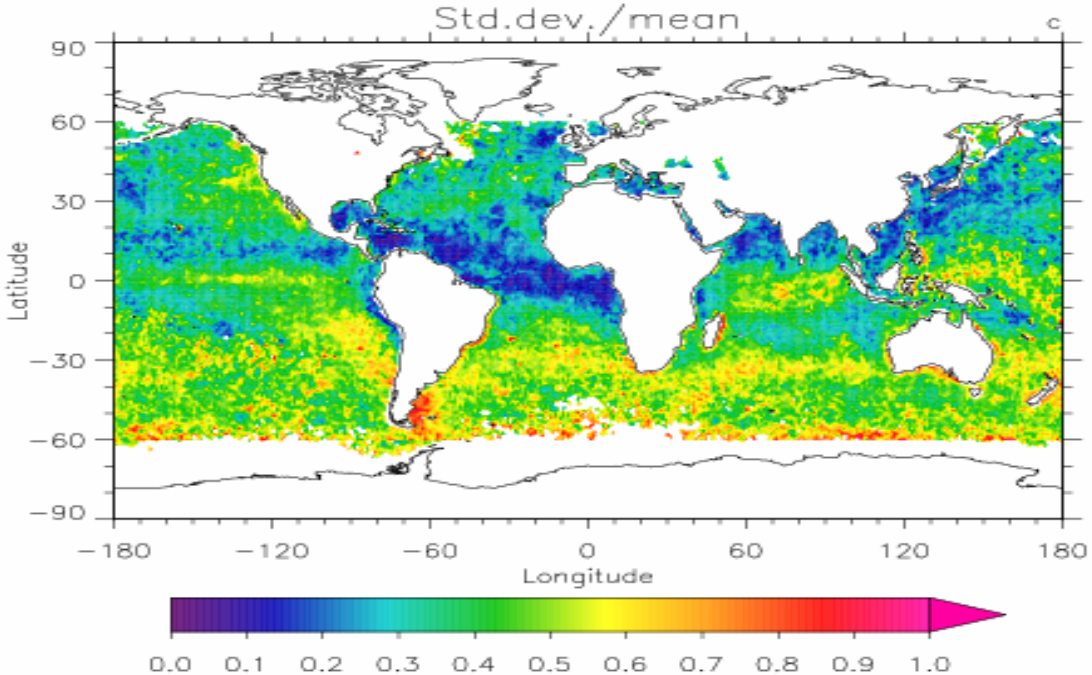


8-months period,
Nov 96 – Jun 97

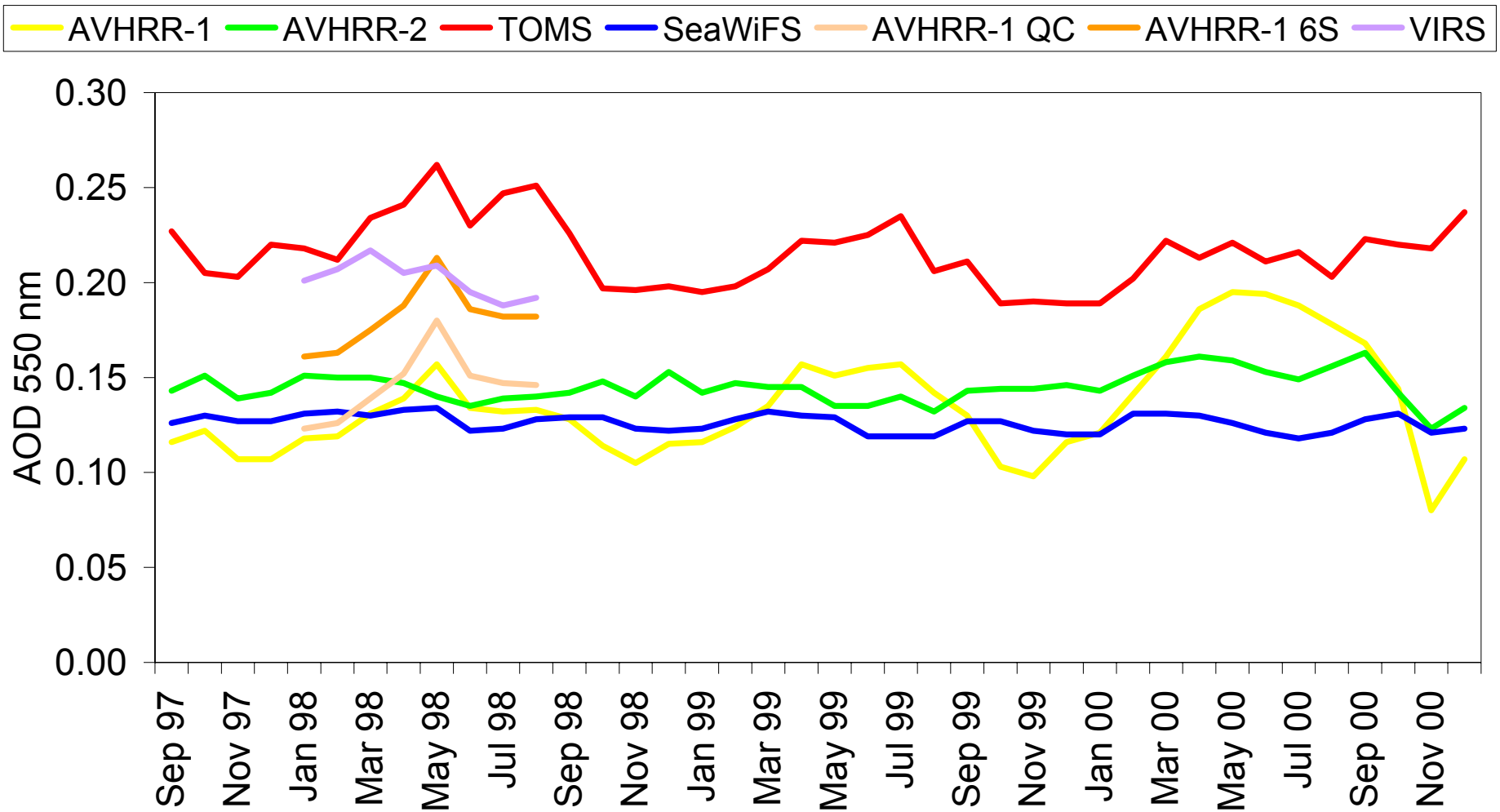
Aerosol Optical Depth, Zonal Mean

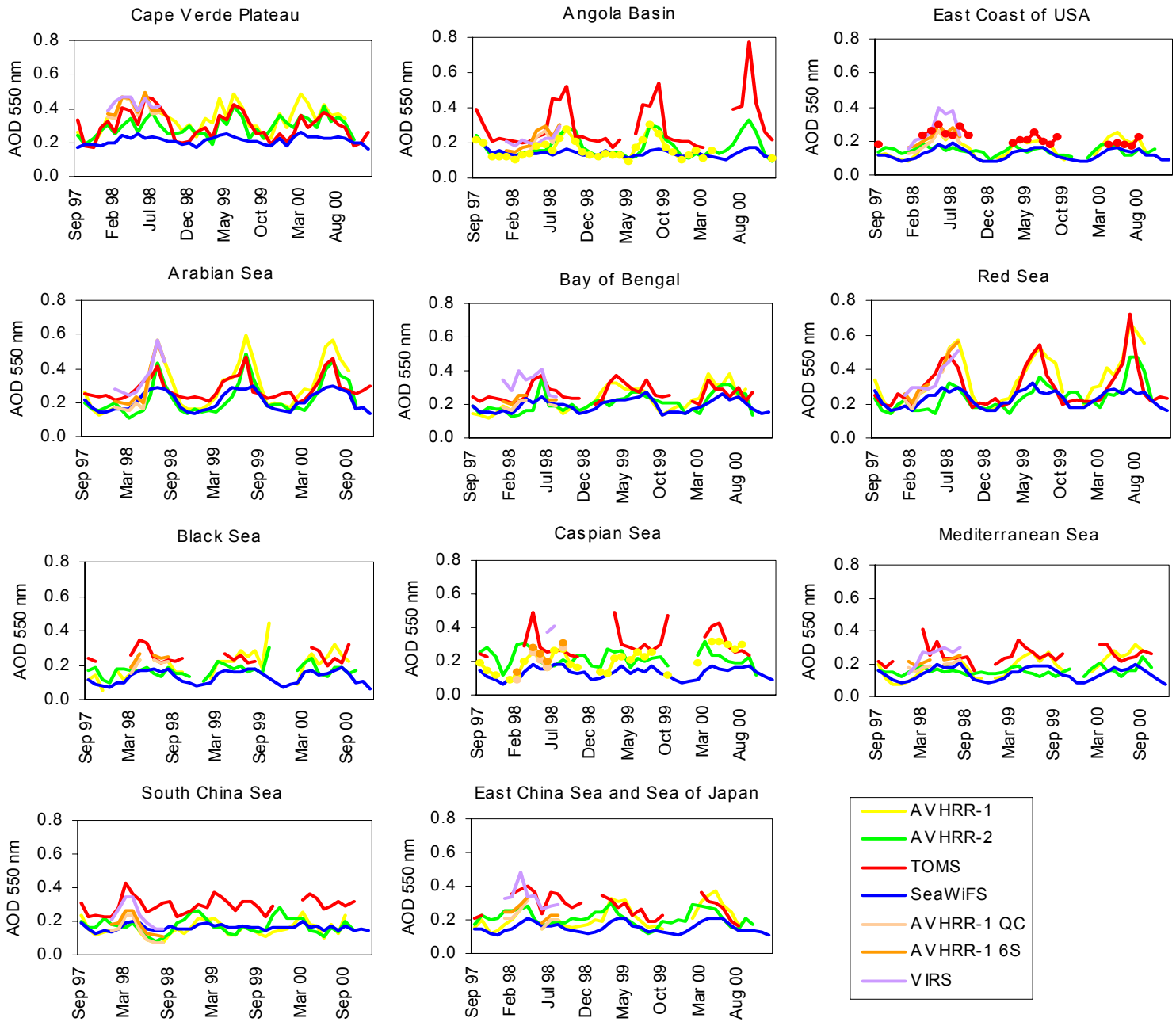


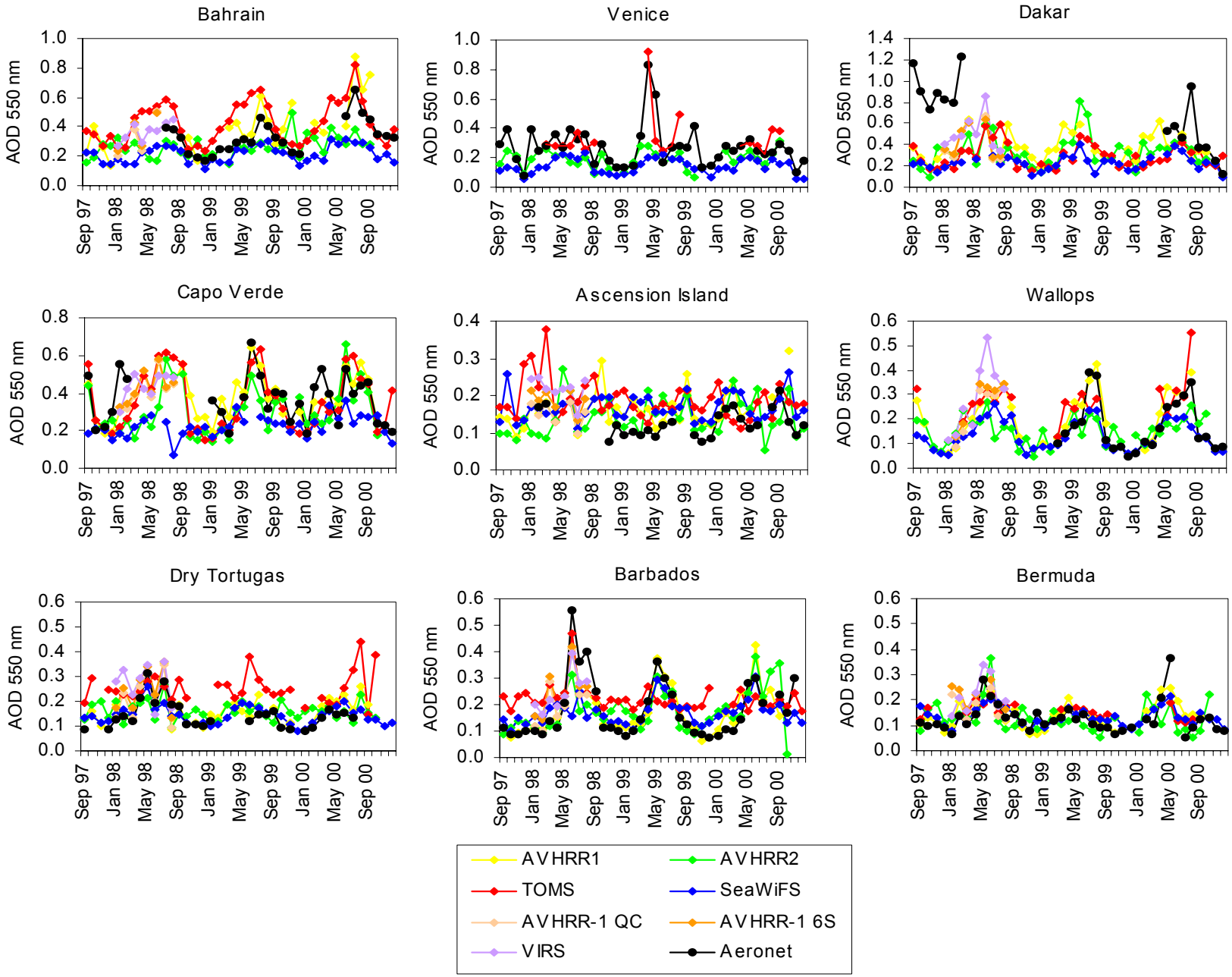

Mean
a
90
60
30
0
−30
−60
−90
Latitude
−180
−120
−60
0
60
120
180
Longitude
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8


Std.dev./mean
c
90
60
30
0
−30
−60
−90
Latitude
−180
−120
−60
0
60
120
180
Longitude
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0

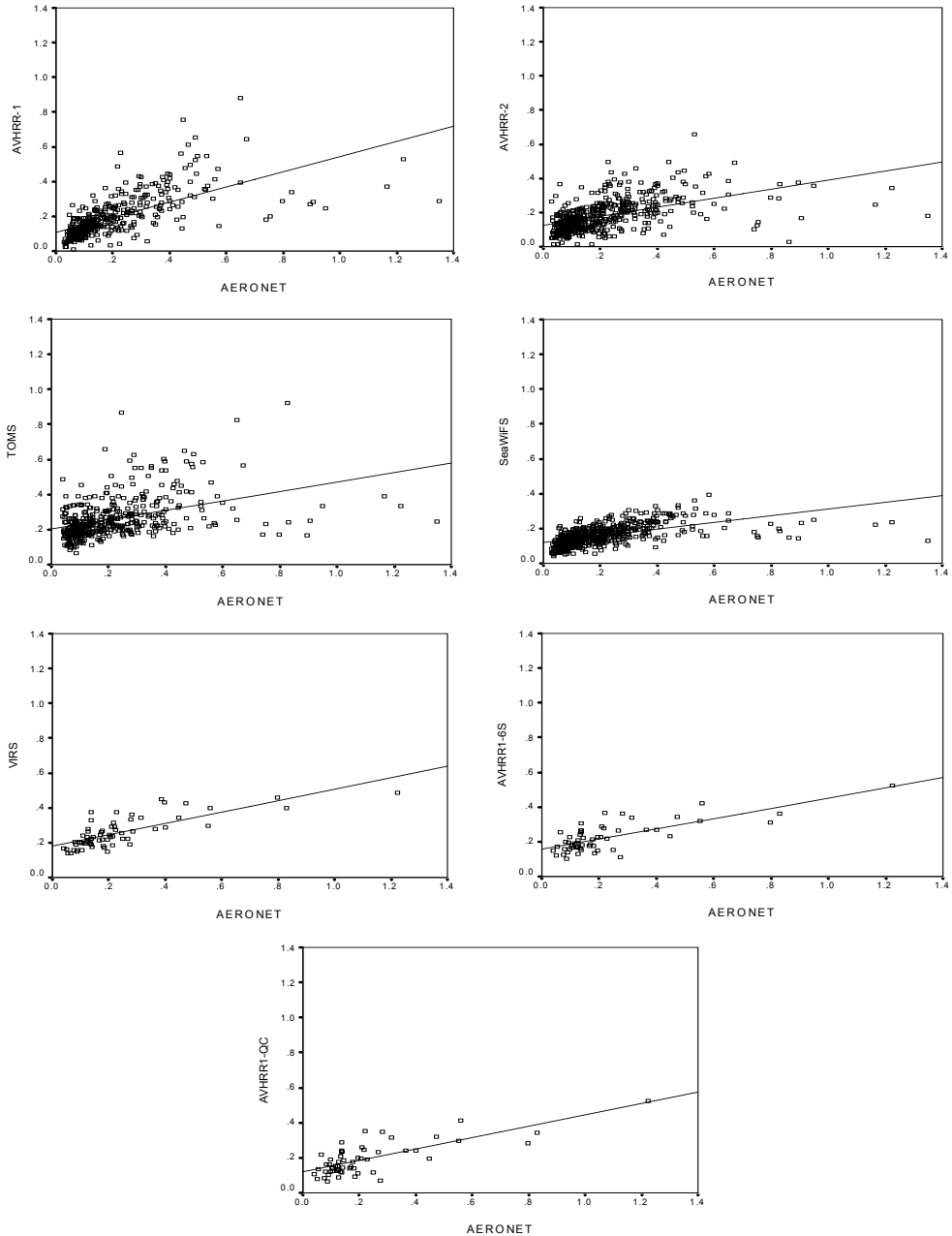
Period from Sep 1997 to Dec 2000




Cape Verde Plateau
Angola Basin
East Coast of USA
Arabian Sea
Bay of Bengal
Red Sea
Black Sea
Caspian Sea
Mediterranean Sea
South China Sea
East China Sea and Sea of Japan
AOD 550 nm
0.0
0.2
0.4
0.6
0.8
Sep 97
Feb 98
Mar 98
Jul 98
Sep 98
Dec 98
Mar 99
May 99
Sep 99
Oct 99
Mar 00
Aug 00
Sep 00
AVHRR-1
AVHRR-2
TOMS
SeaWiFS
AVHRR-1 QC
AVHRR-1 6S
VIRS


Bahrain
Venice
Dakar
Capo Verde
Ascension Island
Wallops
Dry Tortugas
Barbados
Bermuda
AOD 550 nm
Sep 97
Jan 98
May 98
Sep 98
Jan 99
May 99
Sep 99
Jan 00
May 00
Sep 00
AVHRR1
AVHRR2
TOMS
SeaWiFS
AVHRR-1 QC
AVHRR-1 6S
VIRS
Aeronet

Scatter plot for the individual satellite retrievals and AERONET



AOD

comparison in events of high AOD or aerosol campaigns

Summary

- Significant differences between the satellite retrievals
- No single data set which stands out as very different from the others
- Cloud screening is likely one major reason for the differences
- Comparison with AERONET data
  - No particular region with large differences
  - No retrieval with especially large differences
  - No particle size (Ångstrøm exponent) where differences particularly large