

WHY

The visible aerosol optical depth is the most fundamental property to characterize atmospheric aerosol and the primary property in aerosol remote sensing from ground and space. Many global multi-year data are offered from different sensors at different accuracy and varying limitations to global coverage. It is our goal to identify retrieval strengths and combine superior pieces to the **BEST** possible **DATA-SET**. On the modeling side we notice better matches to quality data on a global average basis, but regional differences in modeling remain large.

AEROSOL OPTICAL DEPTH

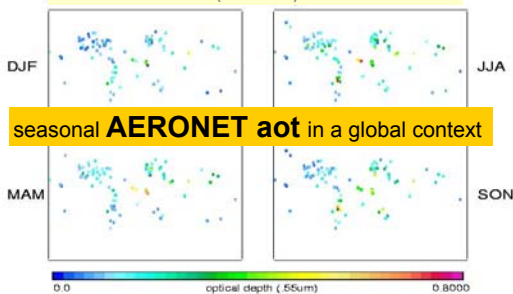
Global Fields and Regional Averages of Data and Models



Stefan Kinne and authors
MPI for Meteorology, Hamburg, Germany

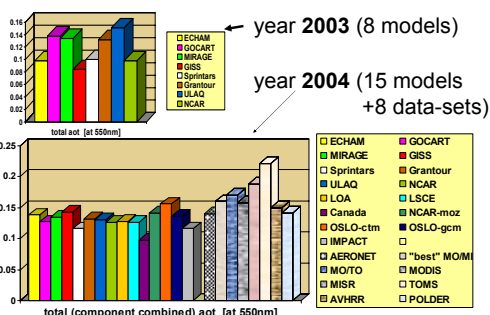
SENSOR		Measurements	Authors
Mo	MODIS	(2001)	Tanre / Kaufman
Mi	MISR	(2001)	Kahn / Martonchick
A.g	AVHRR, GISS	(1983-2001)	Mishchenko / Geo.
To	TOMS	(1979-2001)	Torres / Herman
Po	POLDER	(1986-1987)	Goussoub / Tanre
MM	MODIS (ocean) / MISR (land, primary)		
MT	MODIS (primary) / TOMS (land, primary)		
Aer	AERONET	(1994-2002)	Holben / Goussoub

Ground Measurements authors
Aer AERONET (1998-2001) Holben / Eck

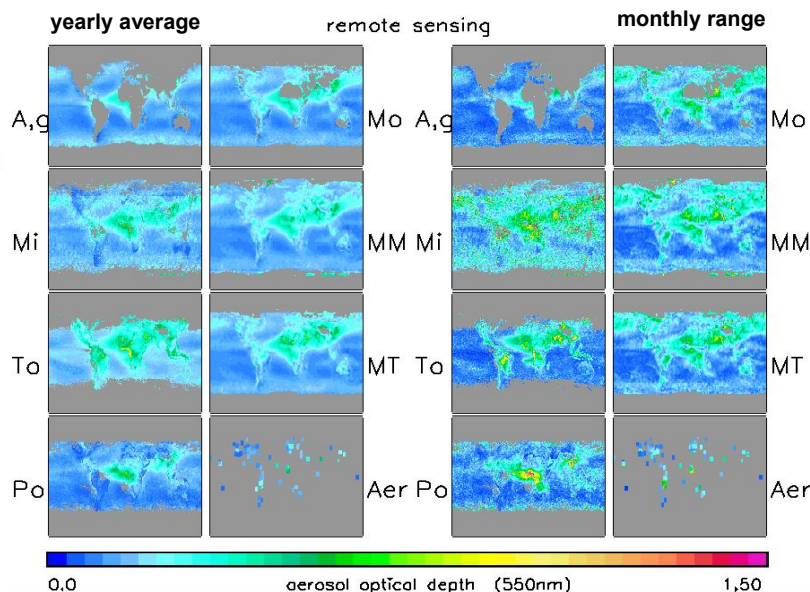


seasonal AERONET aot in a global context

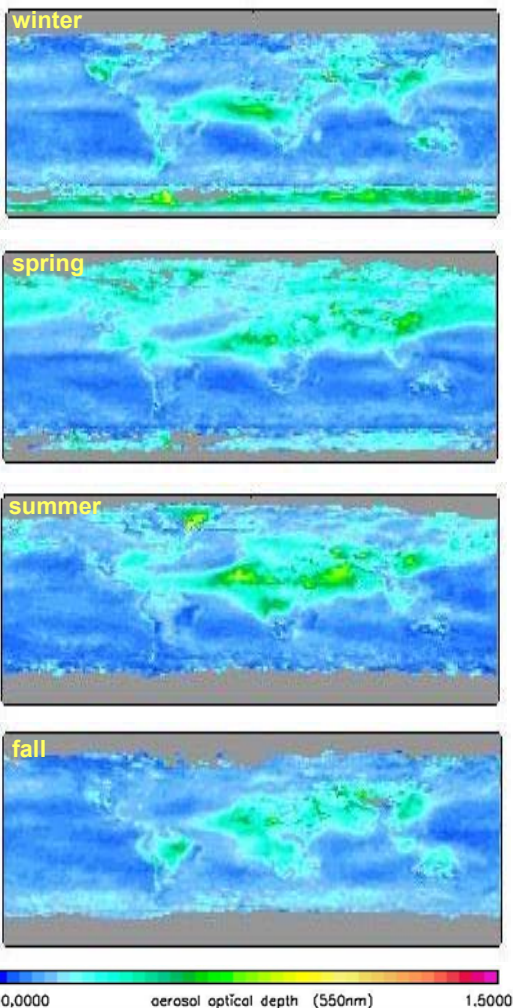
global yearly averages



global aot fields from remote sensing

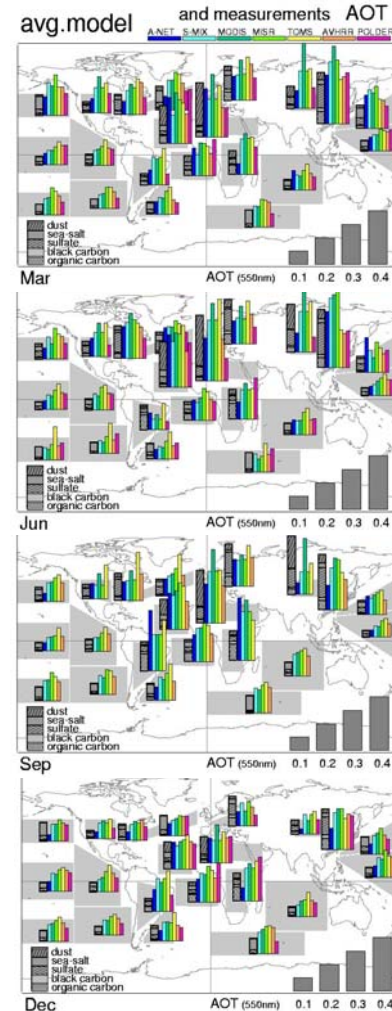


seasonal MODIS / MISR composite



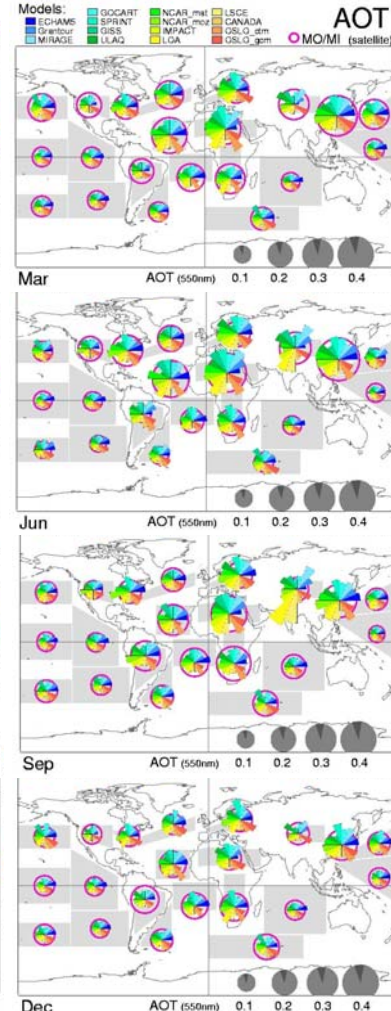
regional aot for 4 selected months

• 'average' in modeling (15 models)
• ground (AERONET) and space data



regional aot for 4 selected months

• 15 different global models
• MODIS/MISR reference (red circle)



next concepts

- quantify retrieval limitations / develop methods to overcome these limitations with supplementary data (data from other satellite sensors)
- improve connections to ground-data co-located in time and space (only use data from ground-sites that represent on the smallest pixel size)
- develop a recommended best global aot data-set by combining the best components (take advantage of individual retrieval strengths)