WHY **Aerosol properties are spatial and temporally high variable. Thus measurements cannot guarantee representation beyond their temporal and spatial characteristics. Global modeling, however, can create temporally and spatially complete global data-sets. While there are many accuracy issues regarding model simulations (model input, processes and parameterizations), new aerosol component modules in global modeling now provide so much additional detail on aerosol that model output is often desired as general reference to global distributions. As individual models are often biased in one way or another, here the median data fields (based19 aerosol modules) are presented.**

The Median Model

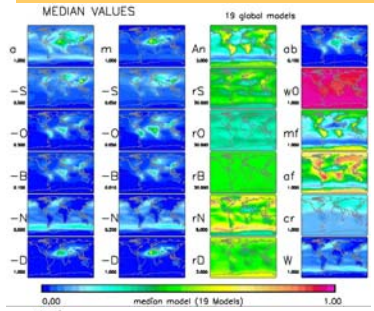
a general reference in aerosol modeling

Stefan Kinne (1) and **AeroCom community**
(1) MPI for Meteorology, Hamburg, Germany

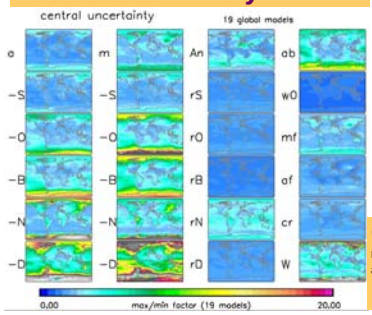
contributing models

Models	Resolution	Simulation	authors
♦ LO LOA	3.8/2.5deg	yr 2000	*Reddy / Boucher*
♦ LS LSCE	3.8/2.5deg	yr 2000	*Schulz / Balkanski*
♦ UL ULAQ	10/22.5deg	yr 2000	*Pitari / Montenaro*
♦ SP SPRINTARS	1.3/1.3deg	yr 2000	*Takemura*
♦ CT CANADA	2.8/2.8deg	1yr avg	*Gong*
♦ MI MIRAGE	2.5/2.0deg	yr 2000	*Ghan / Easter*
♦ EH ECHAM5-hh	1.9/1.9deg	3yr avg	*Stier / Feichter*
♦ EL ECHAM4	3.8/3.8deg	3yr avg	*Lohmann /Feichter*
♦ NF NCAR-Match	1.9/1.9deg	yr 2000	*Fillmore / Collins*
♦ NM NCAR-Mozart	2.8/2.8deg	1yr avg	*Tie / Brasseur*
♦ OT OSLO CTM	2.8/2.8deg	yr 1996	*Myhre /Isaksen*
♦ OG OSLO GCM	2.8/2.8deg	3yr avg	*Seland /Iversen*
♦ IM IMPACT	2.5/2.0deg	3yr avg	*Liu/ Penner*
♦ GR GRANTOUR	5.0/5.0deg	1yr avg	*Herzog / Penner*
♦ GO GOCART	2.0/2.5deg	yr 2000	*Chin / Ginoux*
♦ GI GISS	4.0/5.0deg	3yr avg	*Koch / Tegen*
♦ EM ECHAM5-dlr	3.8/3.8deg	3yr avg	*Lauer / Sausen*
♦ TM TM5	4.0/6.0deg	3yr avg	*Krool / Dentener*

median fields



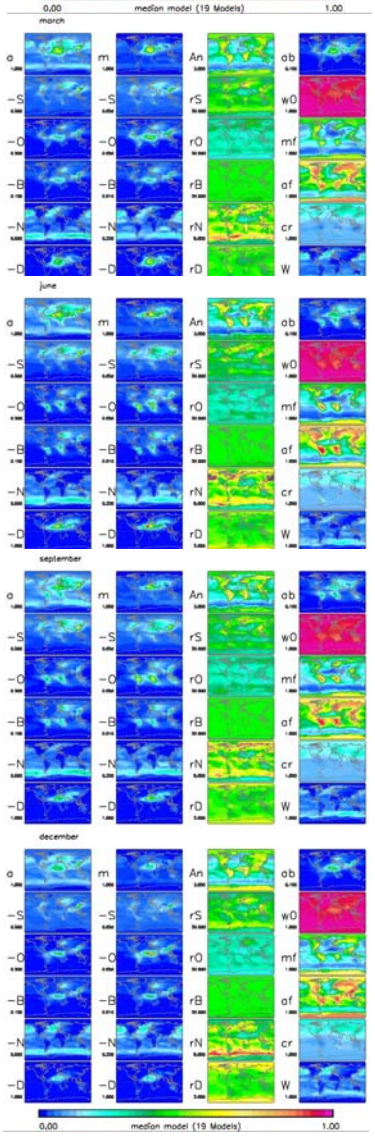
uncertainty



central uncertainty
ratio of maximum value and minimum value after removing the 4 largest and 4 smallest models

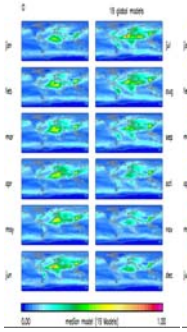
KEY

a	*aot (total)*	*-S*	*sulfate*	*ab*	*absorption aot*
m	*dry mass [g/m2]*	*-O*	*org. carbon*	*w0*	*ss-albedo*
r	*mee (=a/m)*	*-B*	*black carbon*	*cr*	*bc/oc ratio*
An	*Angstrom value*	*-N*	*seasalt*	*-f*	*accumulation mode fraction*
W	*aerosol water mass*	*-D*	*dust*		

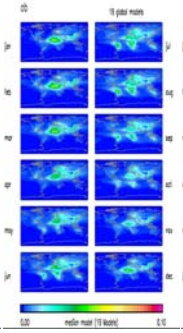


monthly averages for selected aerosol properties

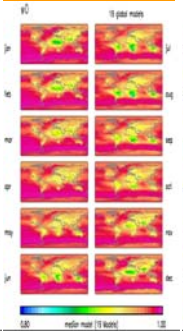
aot



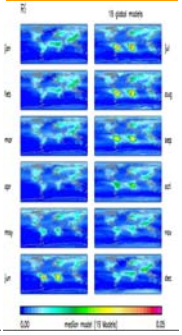
abs-aot



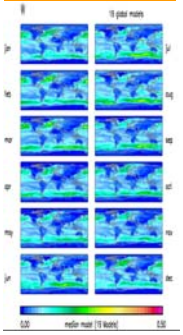
ss-albedo



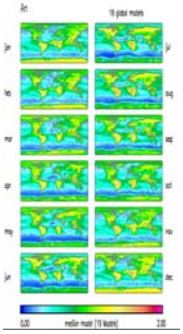
RF, imaginary



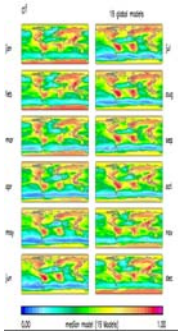
aero-water (g/m2)



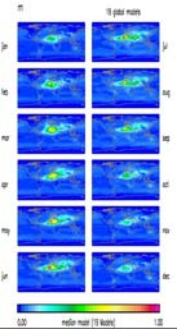
Angstrom



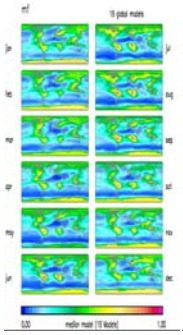
accu-aot



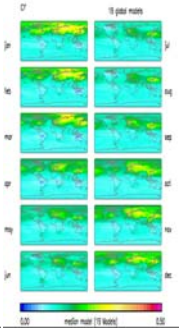
accu-mass (g/m2)



mass (g/m2)



bc/oc mass ratio

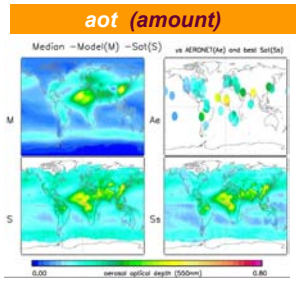


notes to 'selected" properties:

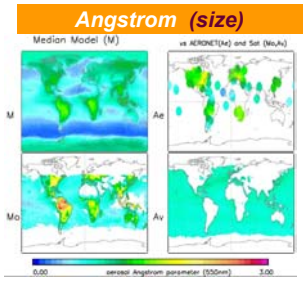
aot *('a') - aerosol optical depth or thickness at 550nm (attenuation of visible light): a measure for aerosol amount*
abs-aot *('aa') - the product of* ***aot*** *and 1-[****ss-albedo****]: a measure for the strength of aerosol absorption*
ss-albedo *('w0') - single scattering albedo determines the cause of attenuation (1.0= scattering, 0.0=absorption)*
RF,imag *('Ri') – refractive index imaginary part based on component mass data: a measure for specific absorption*
aero-water *('W') – the amount of water contained in aerosol: important, when determining the optical properties*
Angstrom *('An') – the Angstrom parameter (slope log ext/log wavel): a measure for size. (<0.5=large,>1.5 small)*
accu-aot *('af') –* ***aot*** *fraction of contributions from sulfate (S) and carbon (B,O): considered 'anthropogenic' fraction*
accu-mass *('mf') –* ***mass*** *fraction of contributions from sulfate (S) and carbon (B,C): considered 'anthropogenic'*
mass *('m) – aerosol mass, dominated the the large size of 'natural' aerosol, dust (D) and sea-salt (N)*
bc/oc mass ratio *('cr') – the ratio between soot (B) and organic carbon (O): higher for fossil fuel then for biofuel*

comparisons to measurements

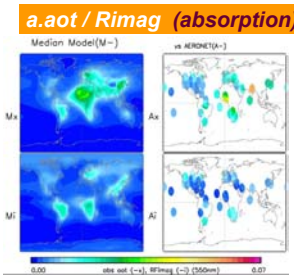
aot (amount)



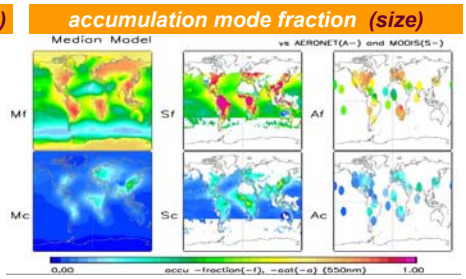
Angstrom (size)



a.aot / Rimag (absorption)



accumulation mode fraction (size)



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