

Quick look comparison: NAAPS, GEOS-5, MACC + MRI/JMA MASINGAR

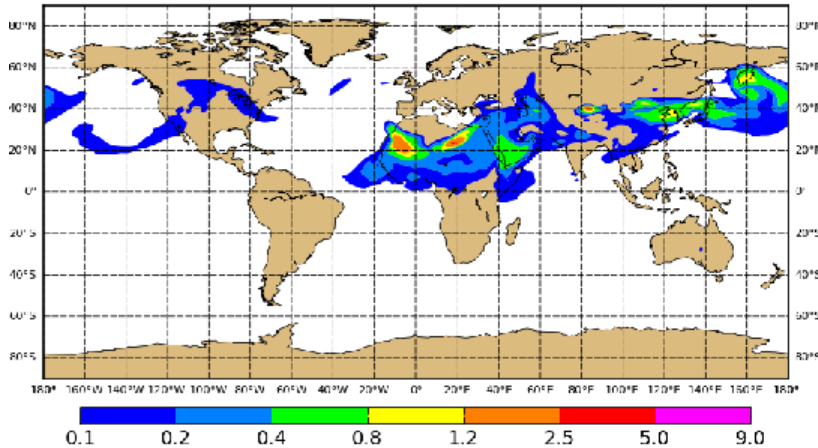
Taichu Y. Tanaka
Meteorological Research Institute
11 May 2011, ICAP 3rd Workshop

Description

- MRI/JMA MASINGAR
 - MRI version (not JMA operational model version)
 - T106 (1.125 x 1.125), 30 layers (surface – 0.4 hPa)
 - On-line coupled with AGCM
 - Horizontal wind components are nudged to JMA global analysis
 - Aerosol EnKF data assimilation is **NOT** applied.
 - Sulfate, sea salt, BC, OC, and mineral dust are included.
 - Near real time biomass burning emission is not included.

Quick look comparison (2011/03/20)

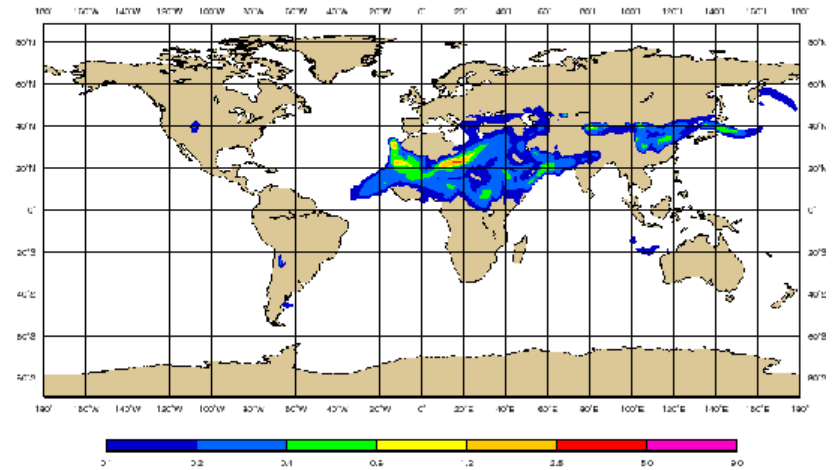
Sunday 20 March 2011 00UTC NAAPS Forecast t+006
 Sunday 20 March 2011 06UTC Valid Time
 Dust Aerosol Optical Depth at 550nm



Plots Generated Monday 21 March 2011 14:11UTC/NRL/Monterey Aerosol Modeling
 NOT OFFICIAL FNMOC NAAPS RUN

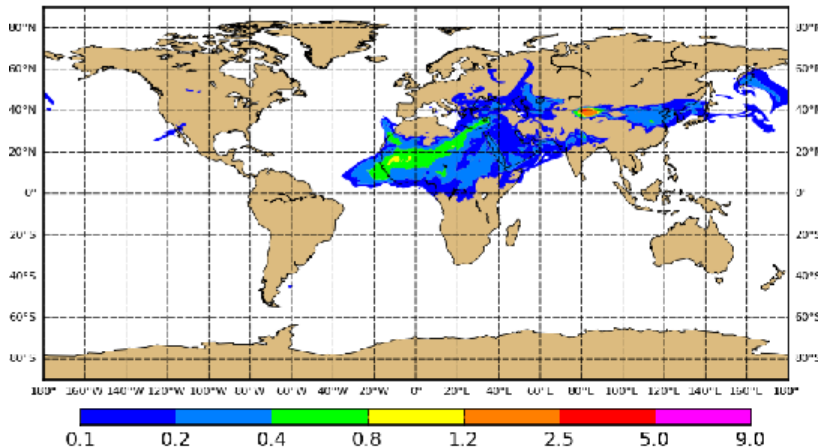
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 Dust Aerosols Optical Depth at 550 nm



MRI/JMA MASINGAR

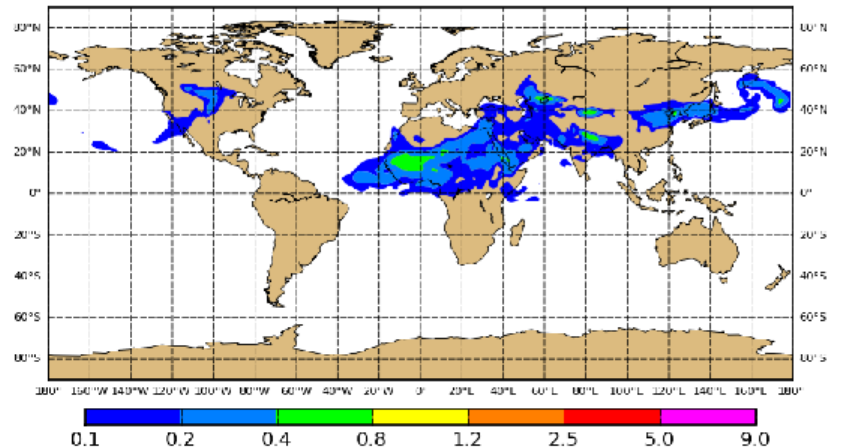
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 Dust Aerosol Optical Depth at 550nm



Plots Generated Monday 21 March 2011 01:11UTC/NRL/Monterey Aerosol Modeling
 GEOS-5 model output produced by NASA Global Modeling and Assimilation Office

GEOS-5

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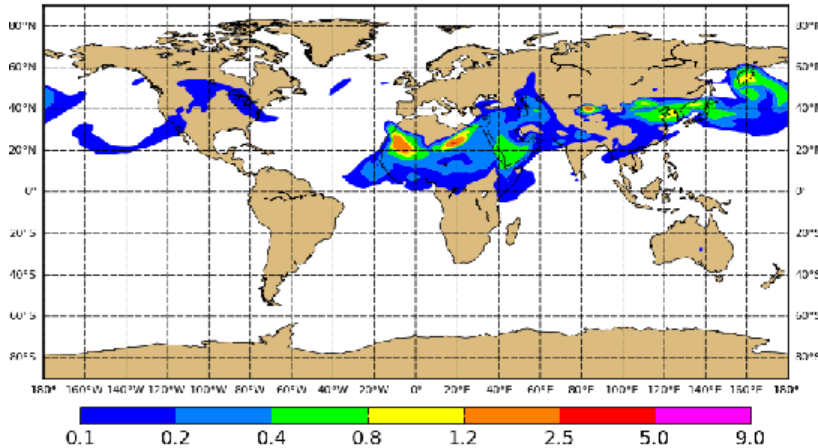


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MACC

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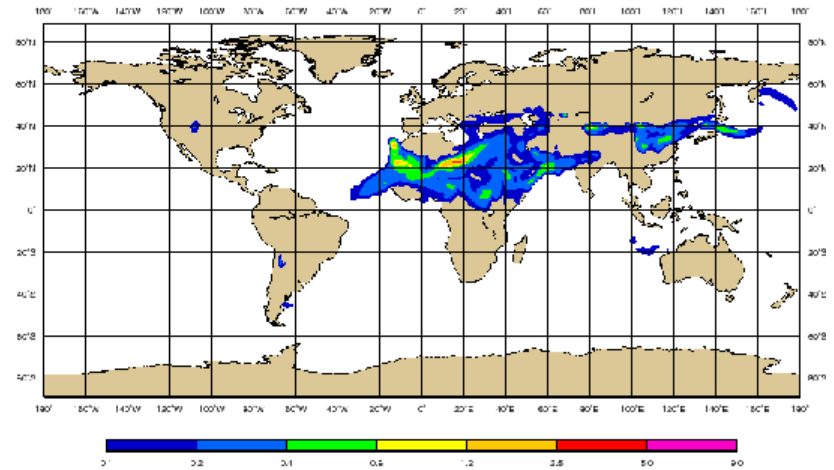
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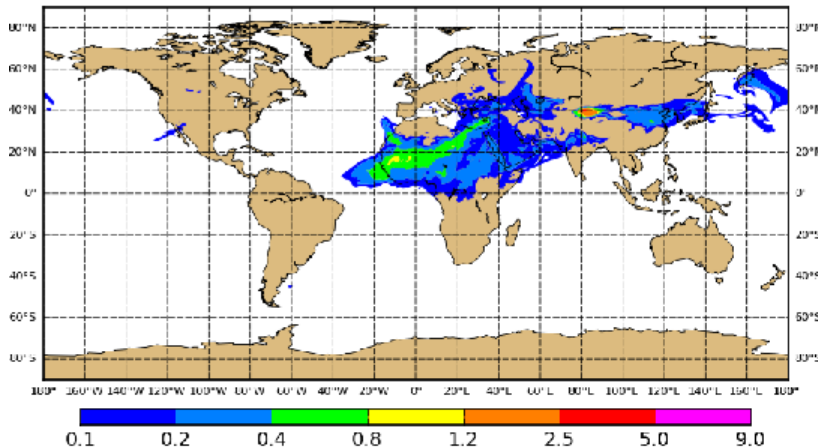
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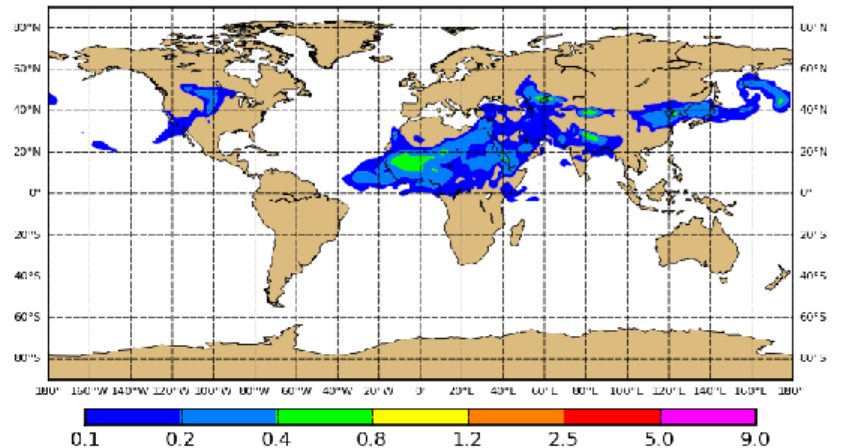
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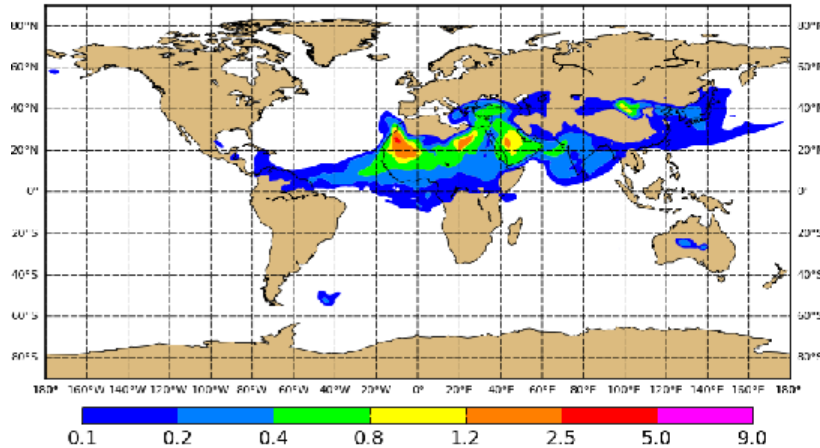


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Quick look comparison (2011/04/01)

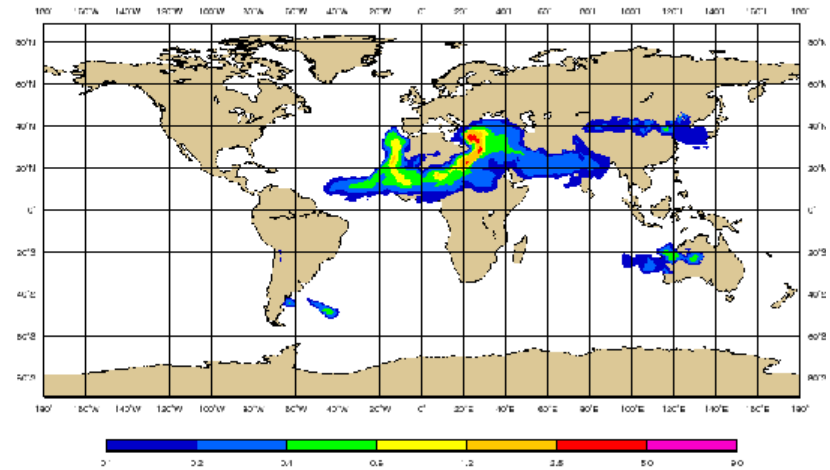
Friday 1 April 2011 00UTC NAAPS Forecast t+006
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Plots Generated Saturday 2 April 2011 16UTC/NRL/Monterey Aerosol Modeling
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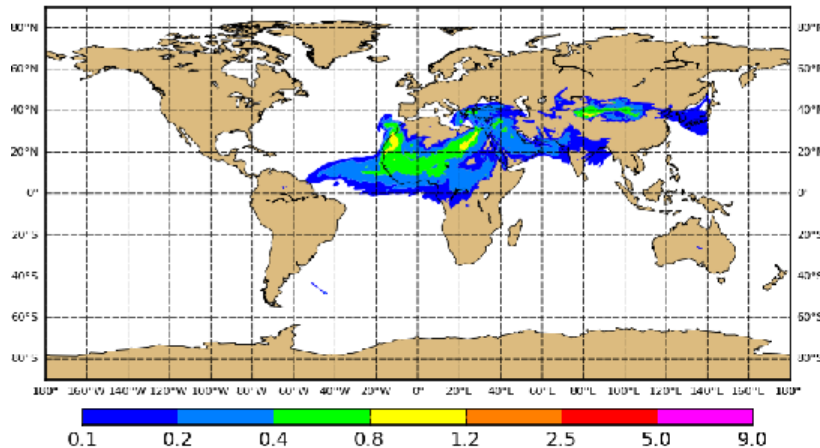
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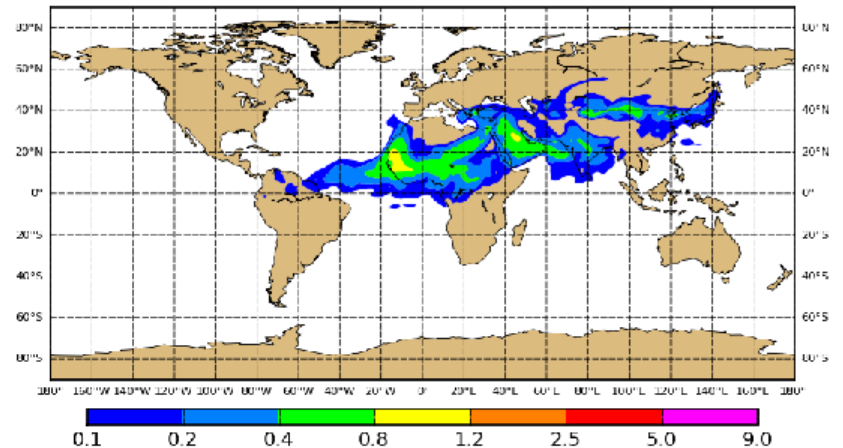
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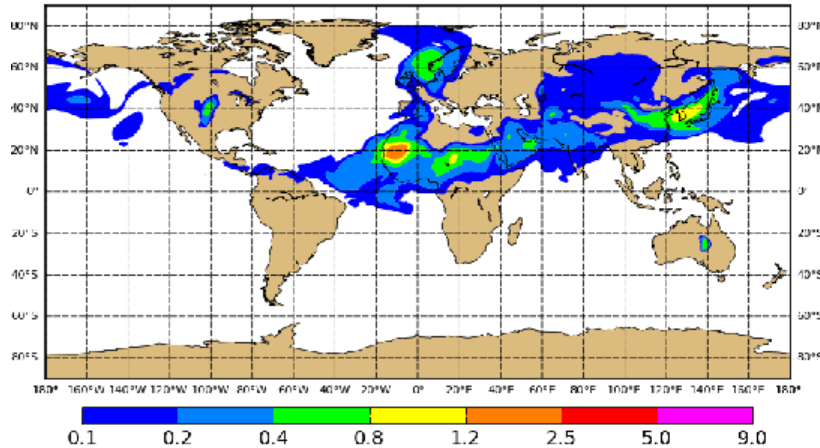


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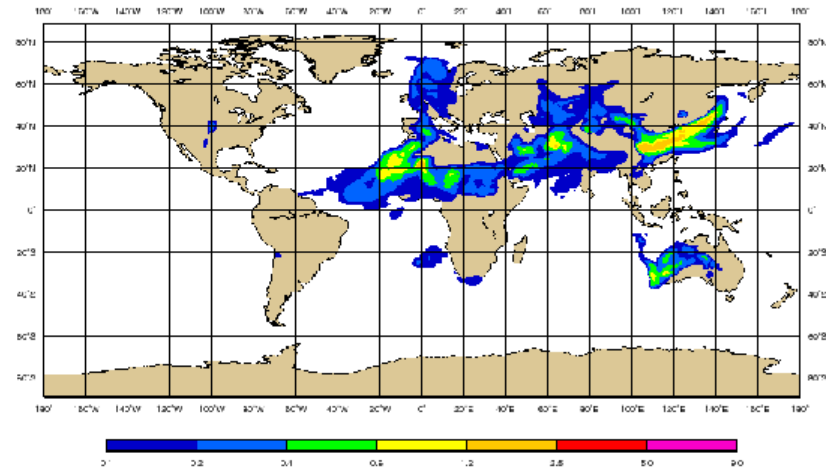
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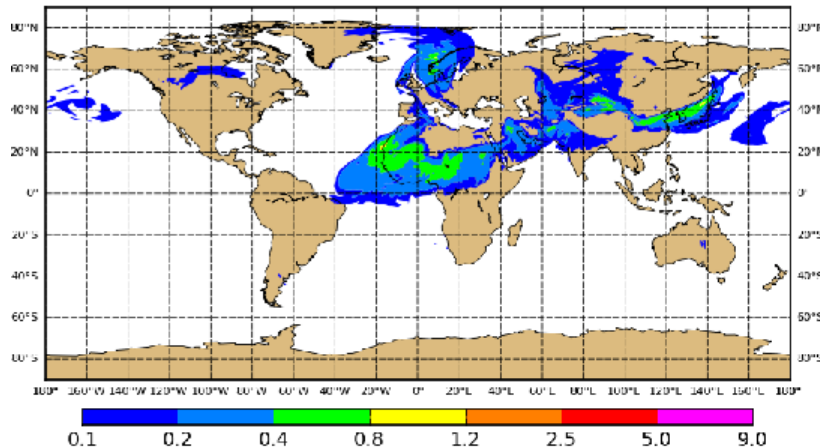
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MRI/JMA MASINGAR

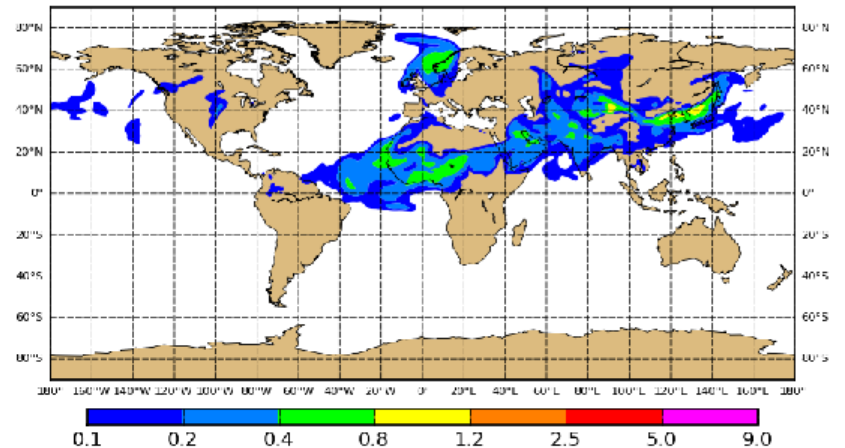
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 GEOS-5 model output produced by NASA Global Modeling and Assimilation Office

GEOS-5

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 Dust Aerosol Optical Depth at 550nm

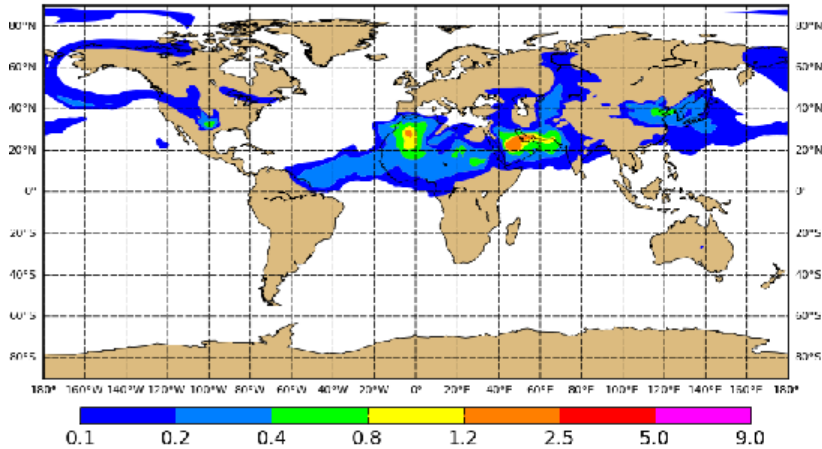


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MACC

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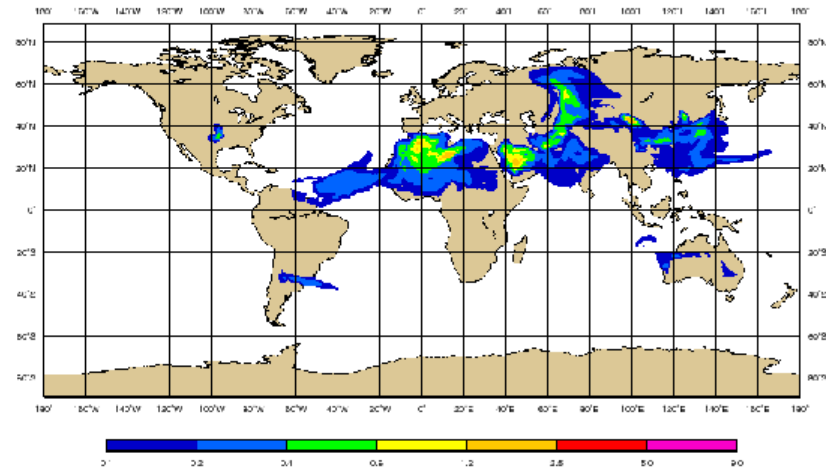
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 Dust Aerosol Optical Depth at 550nm



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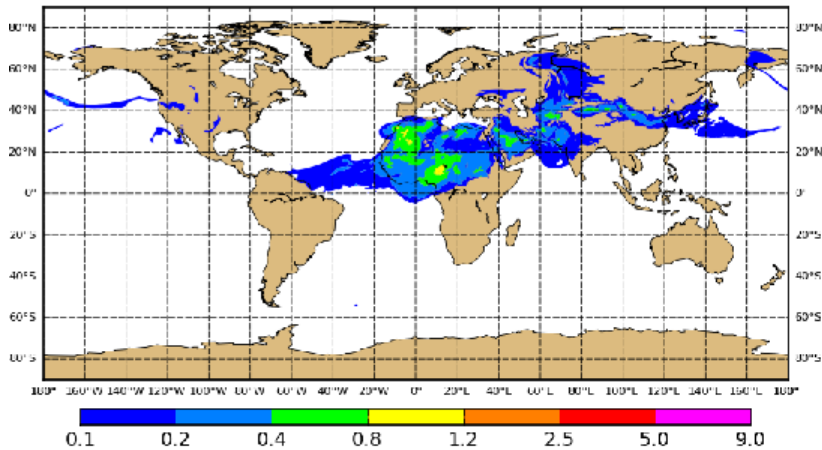
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MRI/JMA MASINGAR

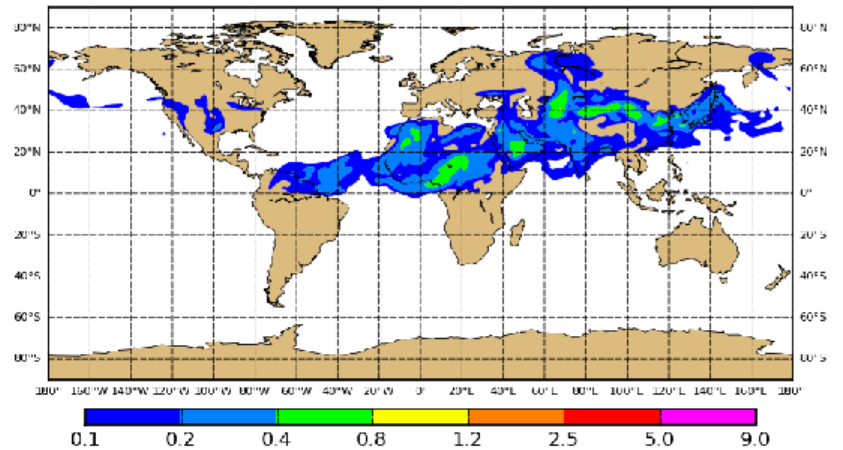
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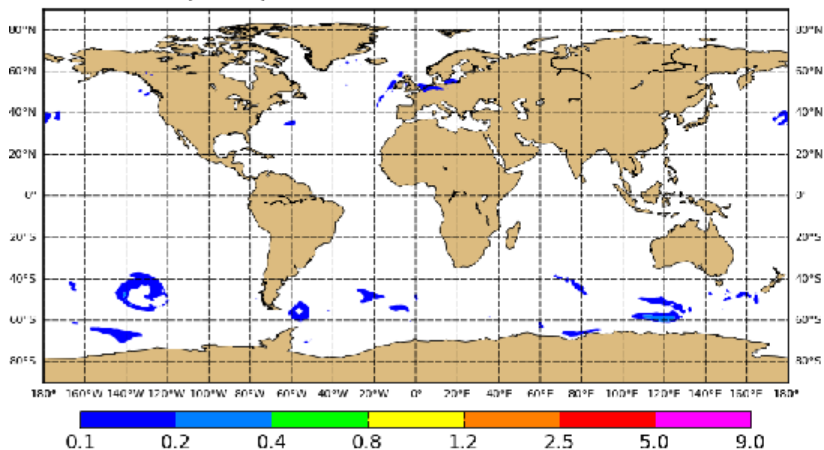


Plots Generated Saturday 16 April 2011 12UTCNRL/Monterey Aerosol Modeling

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Sea salt comparison (2011/04/01)

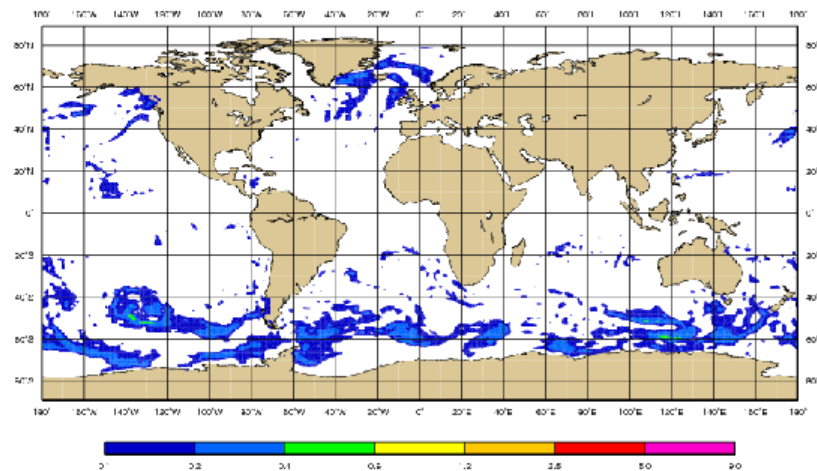
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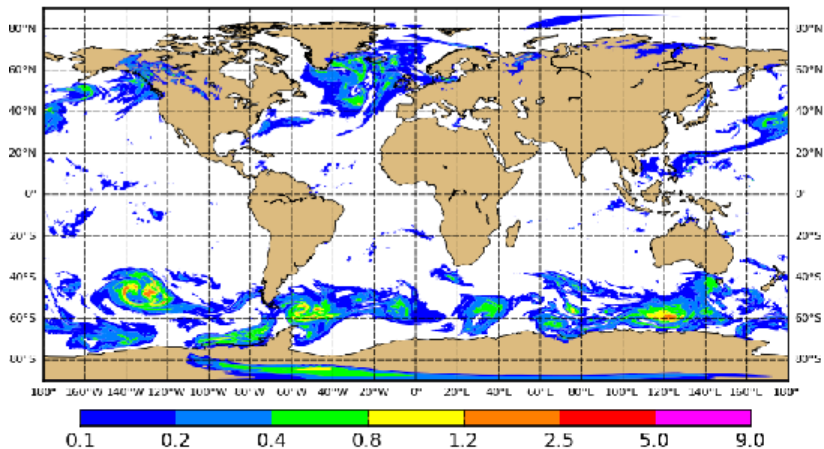
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 SeaSalt Aerosol Optical Depth at 550nm



MRI/JMA MASINGAR

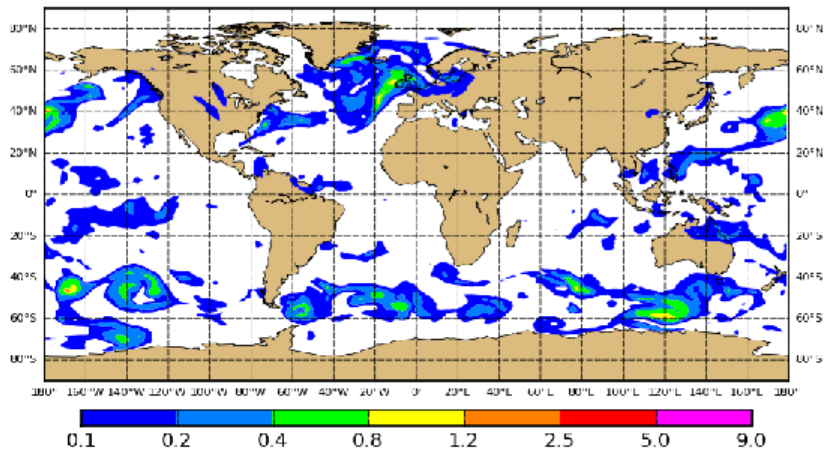
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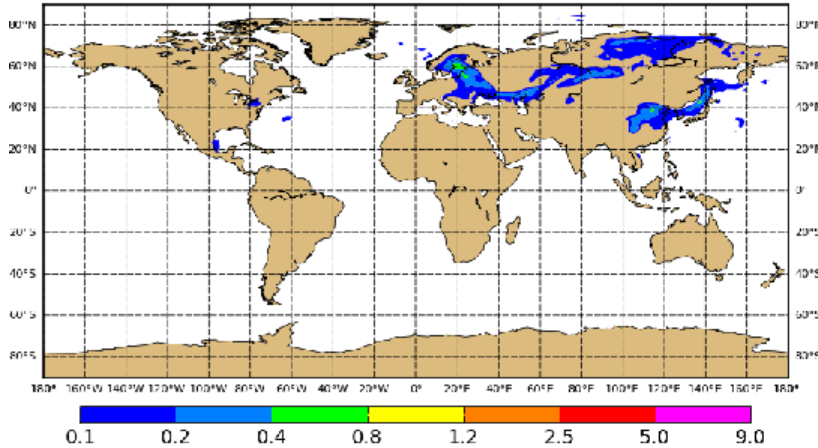


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Sulfate comparison (2011/04/01)

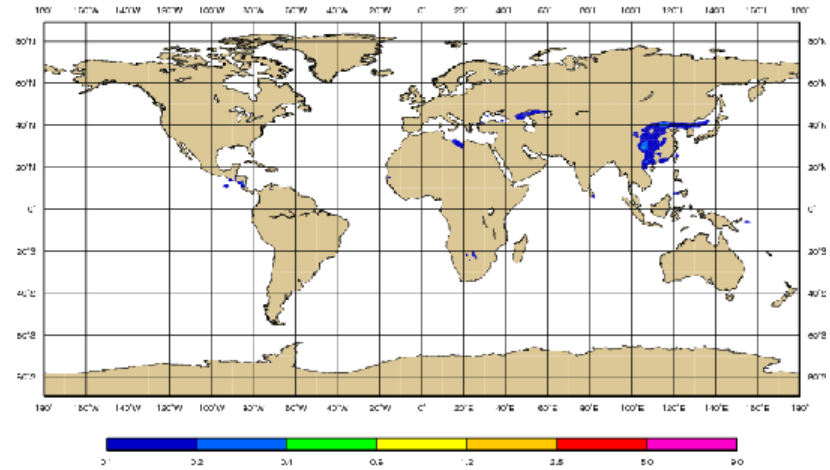
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 Sulfate Aerosol Optical Depth at 550nm



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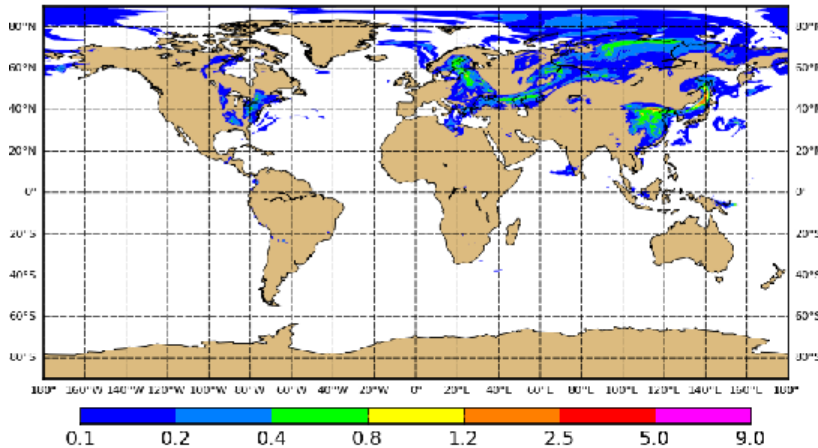
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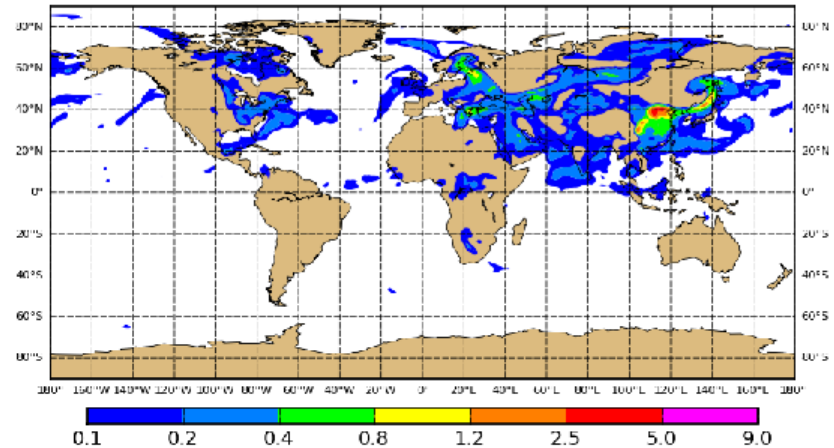
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Summary

- Magnitude of AOT
 - Dust aerosol is comparable among the 4 models.
 - Sea salt and sulfate are more diverse than dust.
- Things to look more in detail...
 - Surface concentration
 - Angstrom exponent (particle size distribution)
 - Assumed optical properties
 - How about hygroscopicity (or humidity in the model)?