OMI DOAS Total Ozone Column v1.0.1 vs v0.9.4

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Aura Science Team Meeting
Workshop on Total Ozone Products
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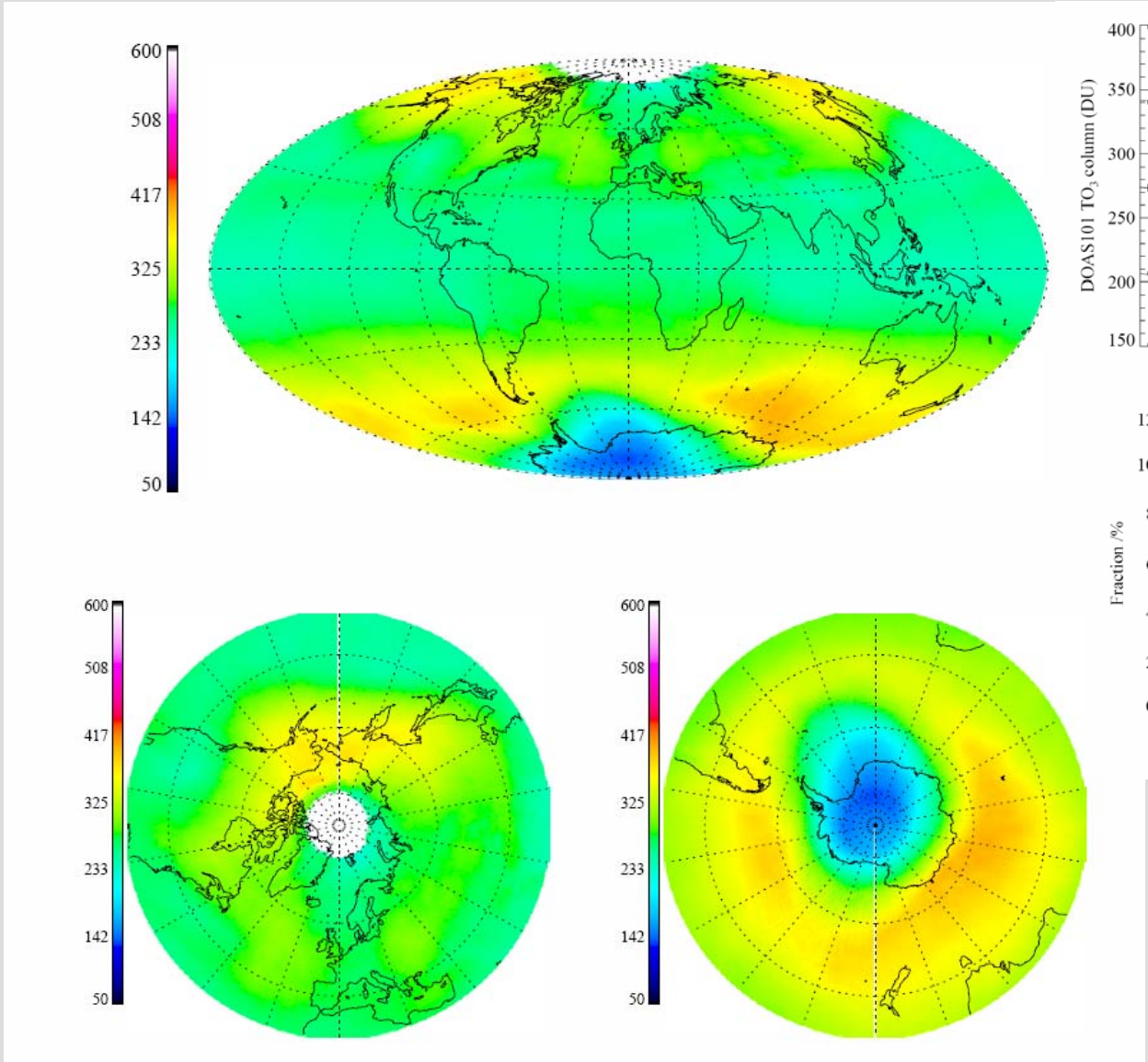
Highlights of v1.0.1

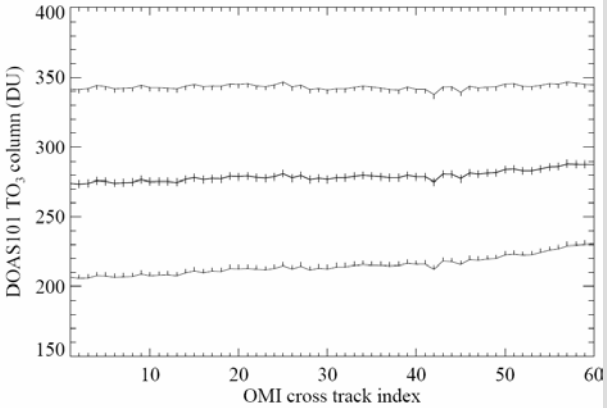
- Fixed Solar Irradiance to reduce striping; on our way to Time Dependent Operational Parameter File (TDOPF) implementation;
- The improved L1B quality flags are used (reduces the striping).
- New value of the albedo for snow covered land areas is used (0.6), however, not used for permanent snow/ice fields.
- The cloud fraction is computed internally.
- Improved cloud pressure information from OMCLDO2 v1.0.1 .

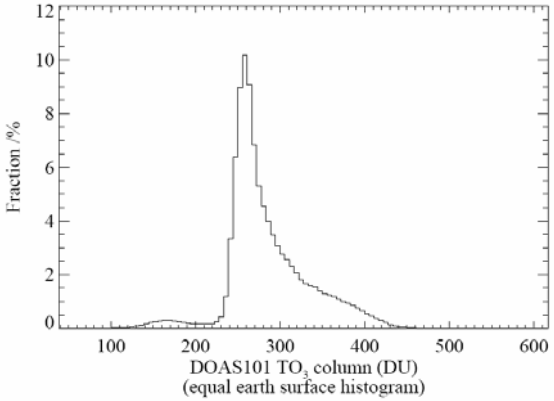
- **OMDOAO3 version 1.01 processing from orbit 6541 onwards (> 07 October 2005)**

Fixed Solar Irradiance

Total Ozone Column [DU]





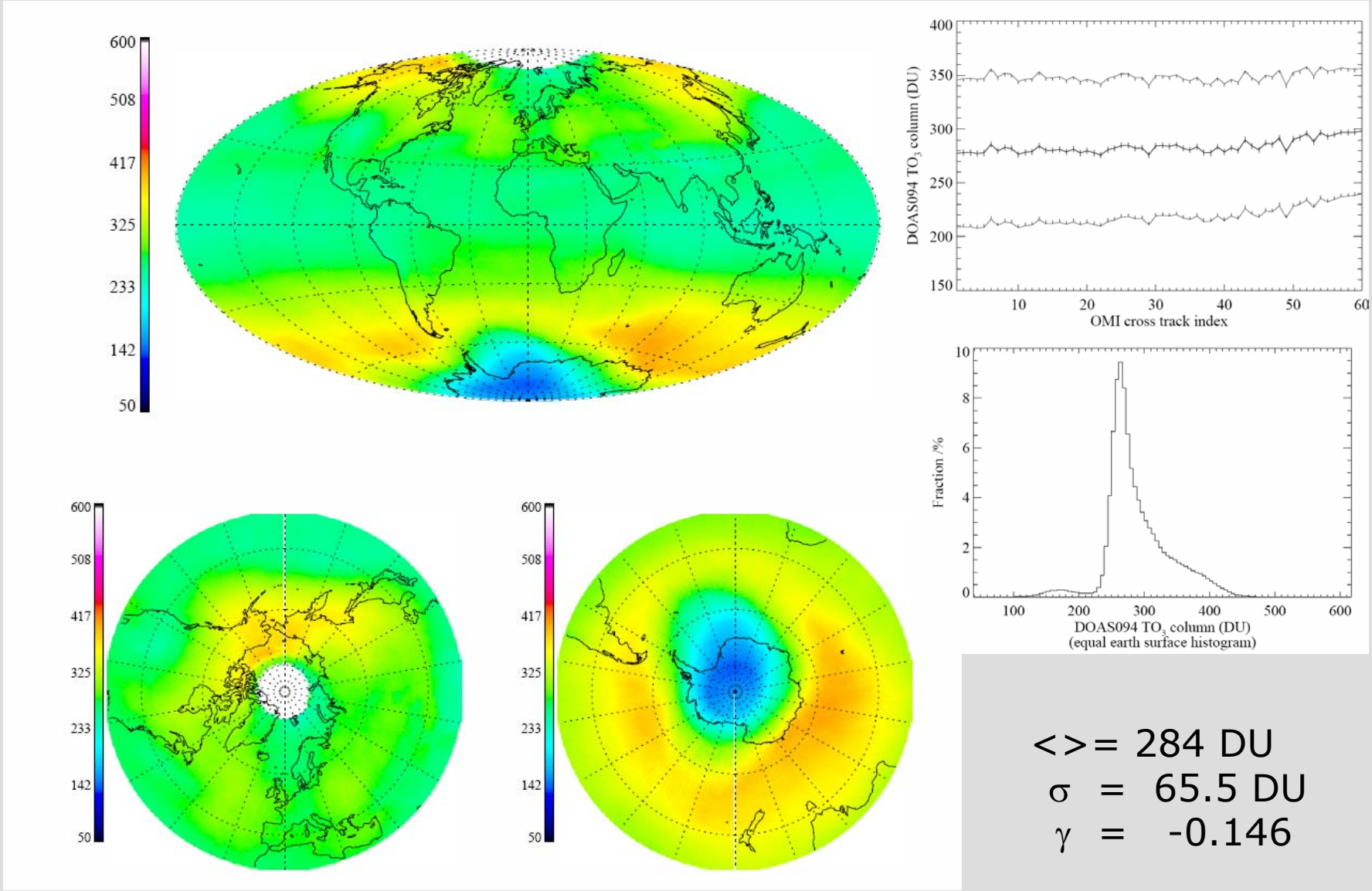


<>= 279 DU
σ = 64.4 DU
γ = -0.153

OMI DOAS v1.0.1 Total Ozone Column 14-27 October 2005

Fixed Solar Irradiance

Total Ozone Column [DU]

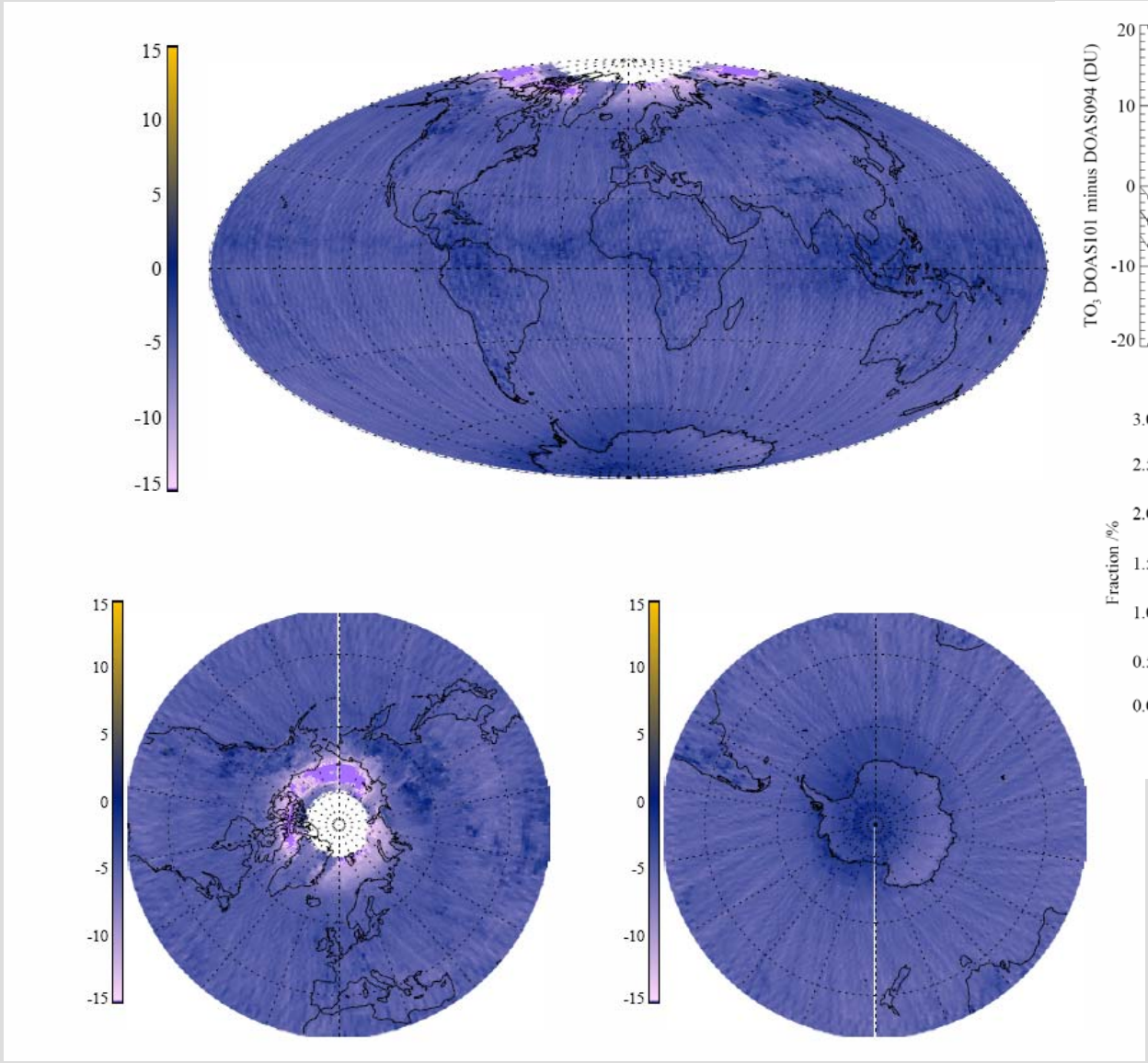


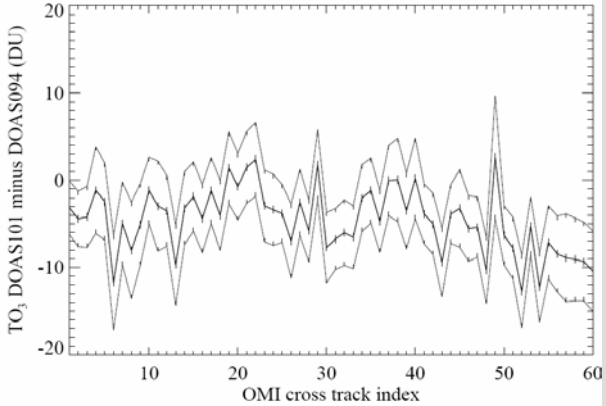
<>= 284 DU
σ = 65.5 DU
γ = -0.146

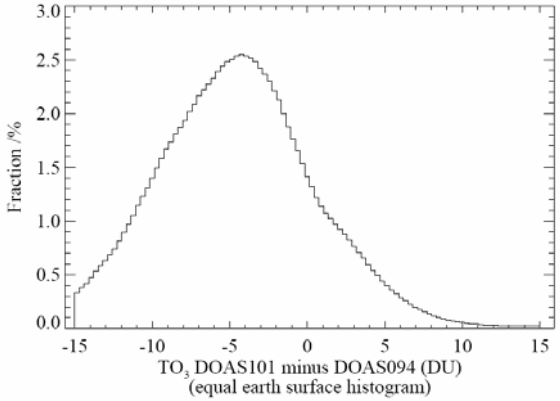
OMI DOAS v0.9.4 Total Ozone Column 14-27 October 2005

Fixed Solar Irradiance

Ozone Column Difference [DU]







<>= -4.55 DU
σ = 5.54 DU
γ = -1.16

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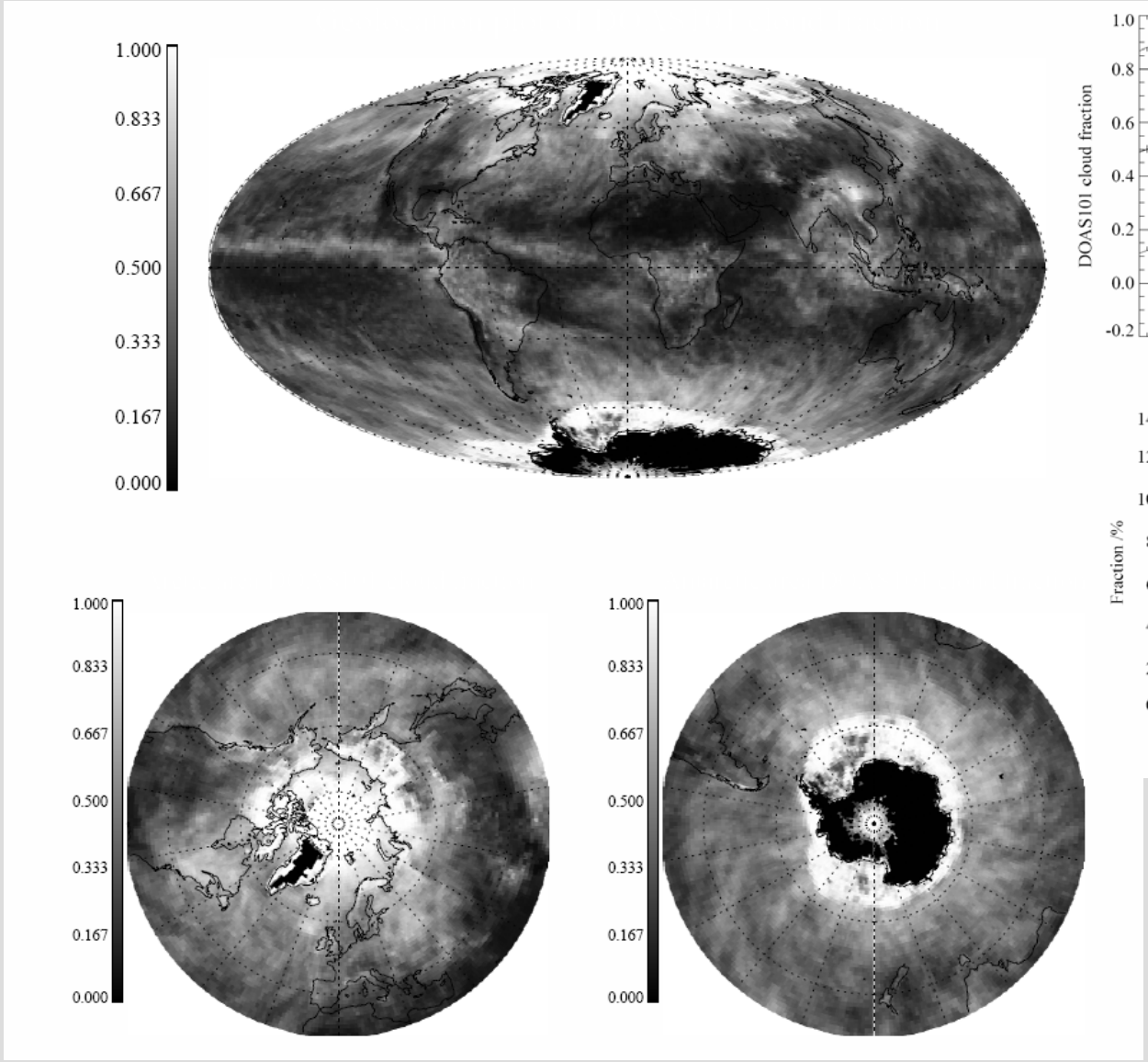
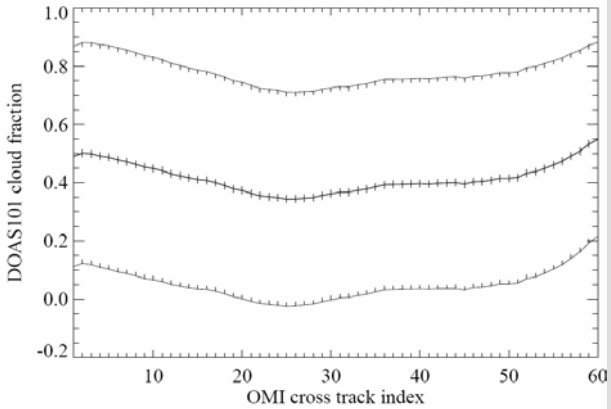
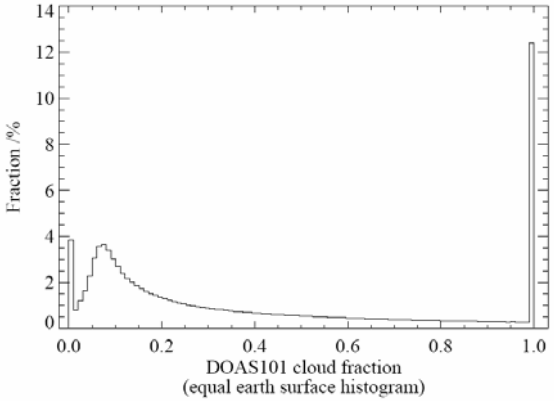
Cloud Fraction

Effective Cloud Fraction





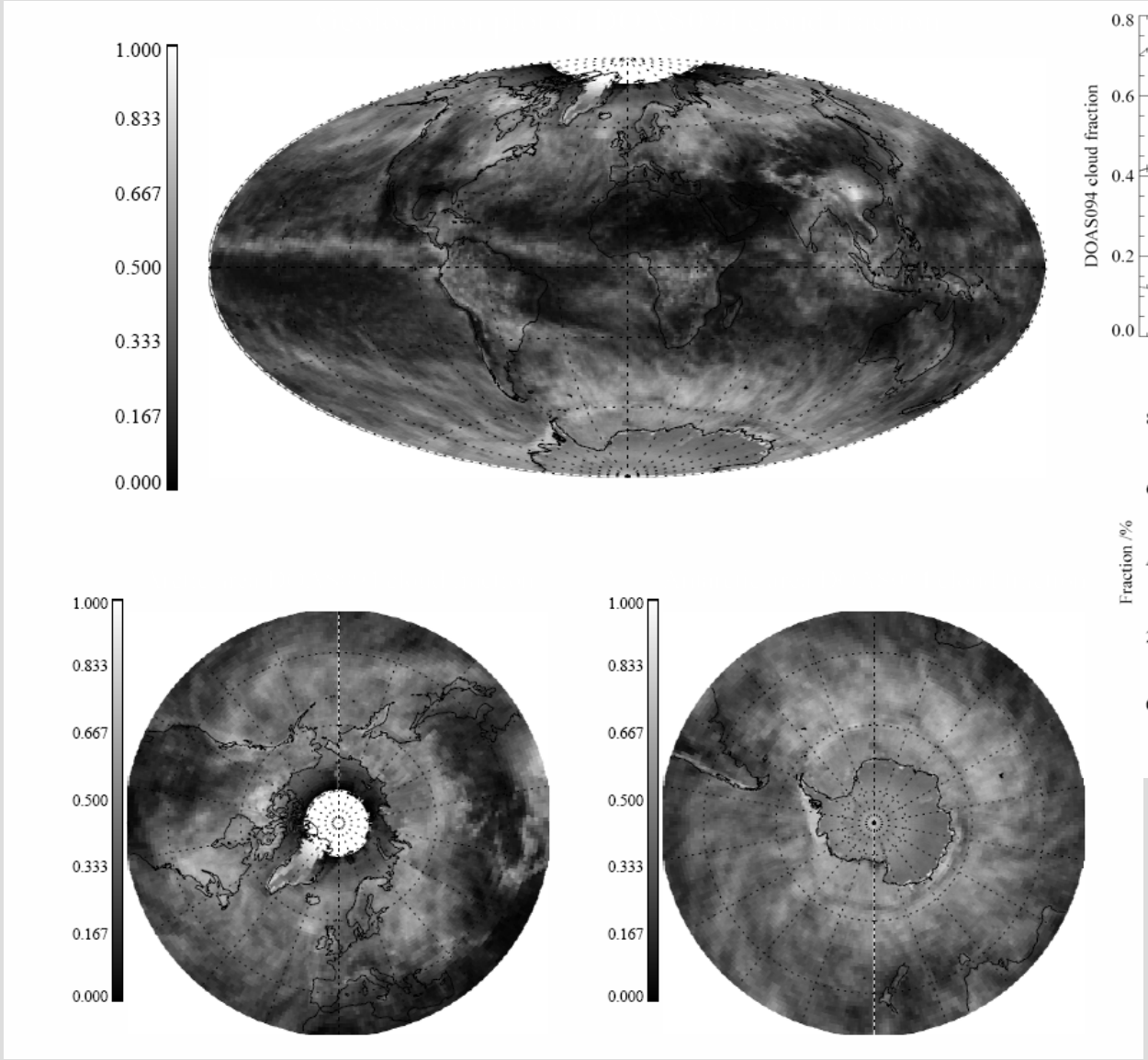


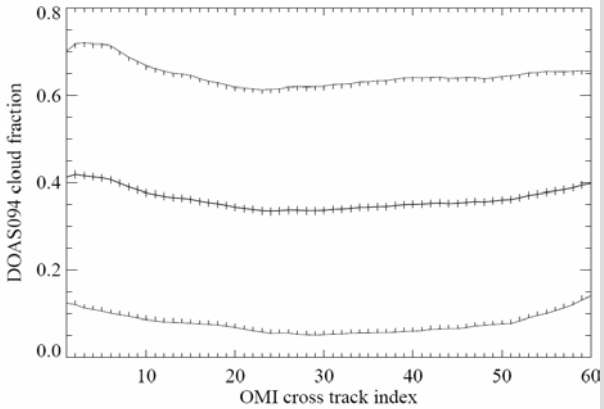
<>= 0.417
σ = 0.371
γ = 0.511

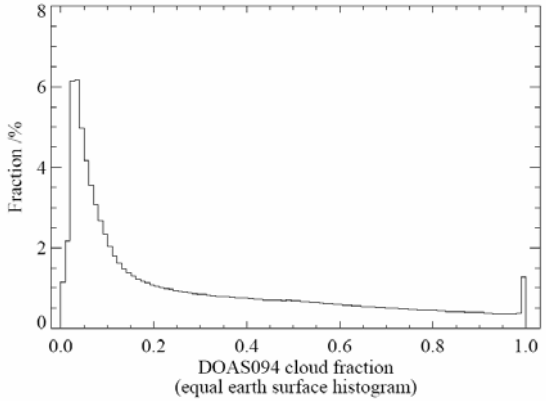
OMI DOAS v1.0.1 Cloud Fraction 14-27 October 2005

Cloud Fraction

Effective Cloud Fraction





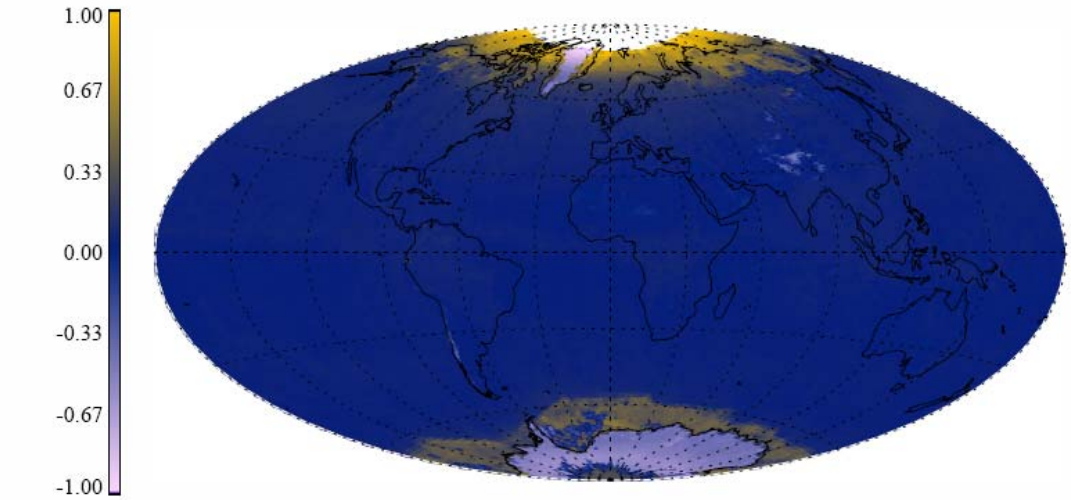


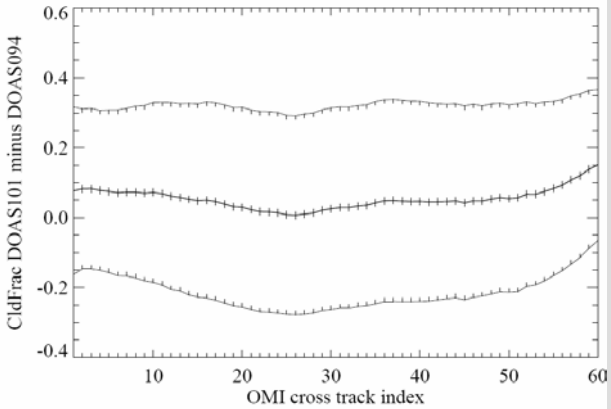
<>= 0.363
σ = 0.286
γ = 0.509

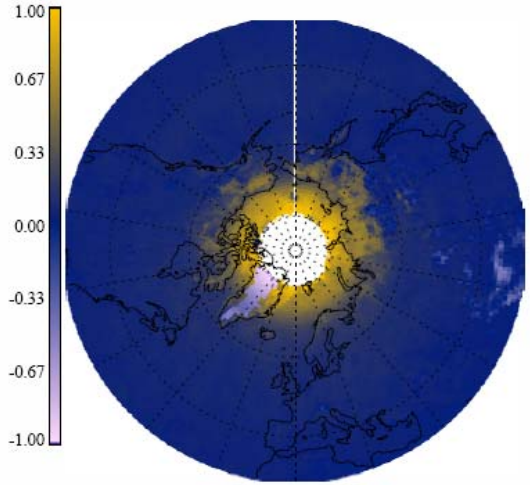
OMI DOAS v0.9.4 Cloud Fraction 14-27 October 2005

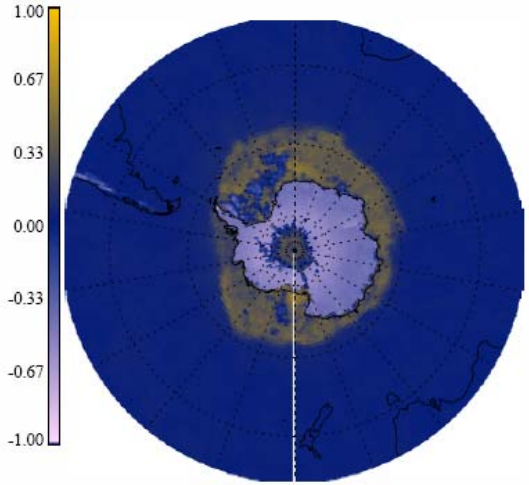
Cloud Fraction

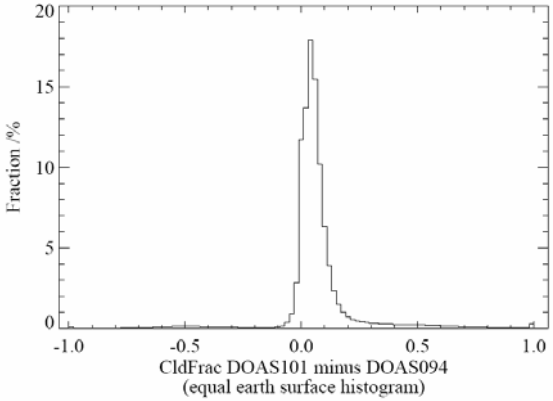
Effective Cloud Fraction Difference











<>= 0.054
σ = 0.271
γ = -0.537

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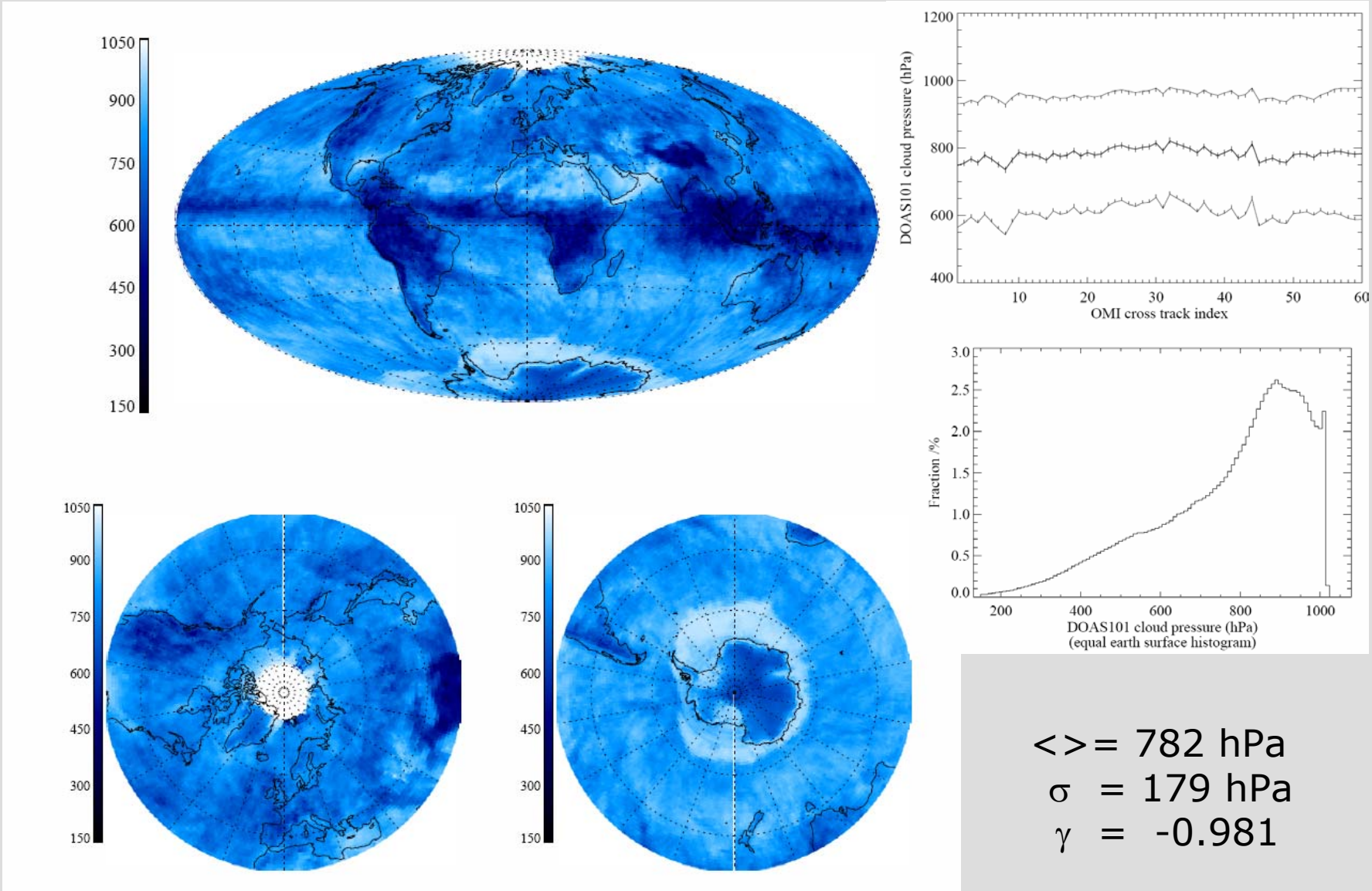
Cloud Height

Effective Cloud Pressure [hPa]

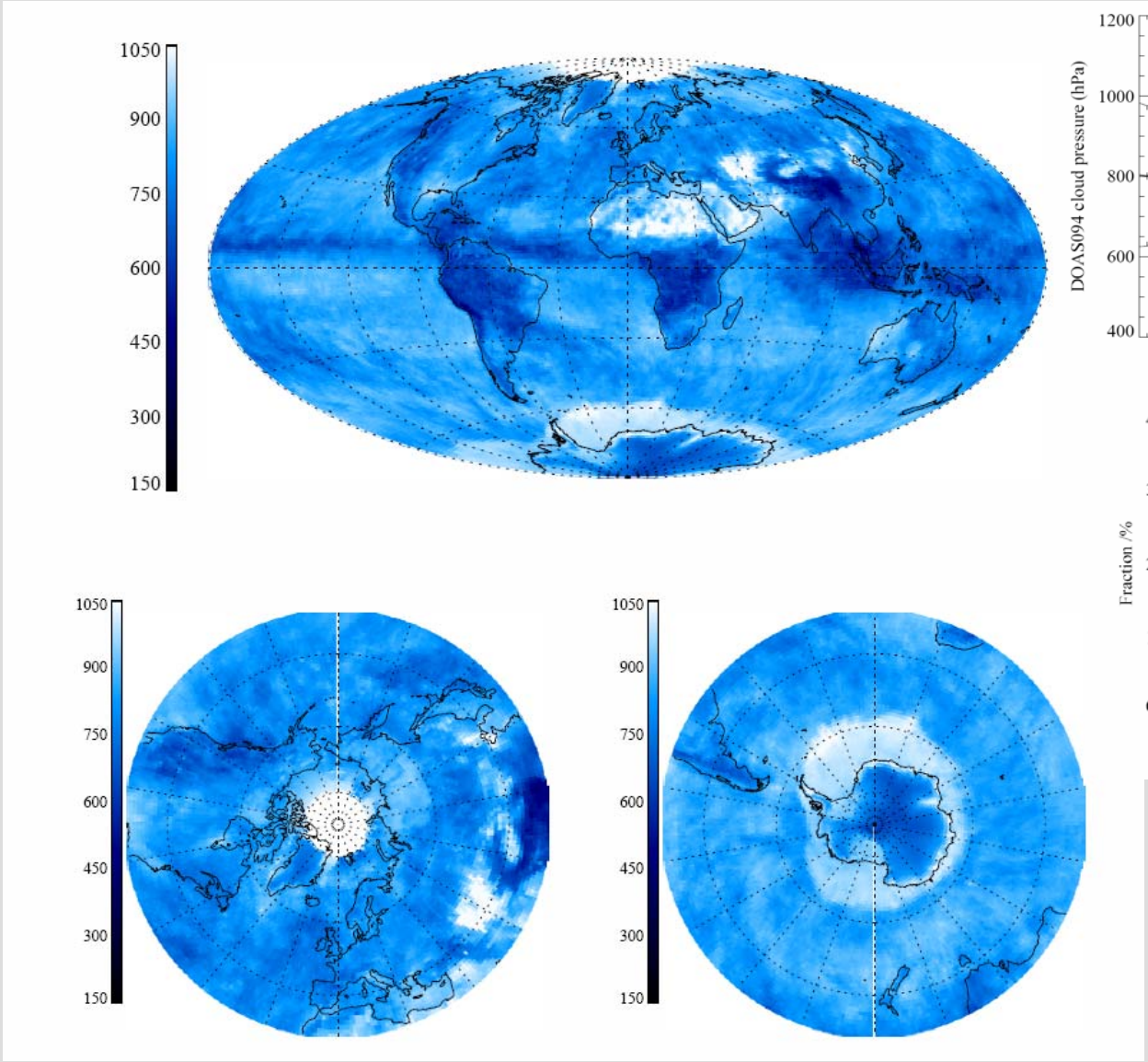


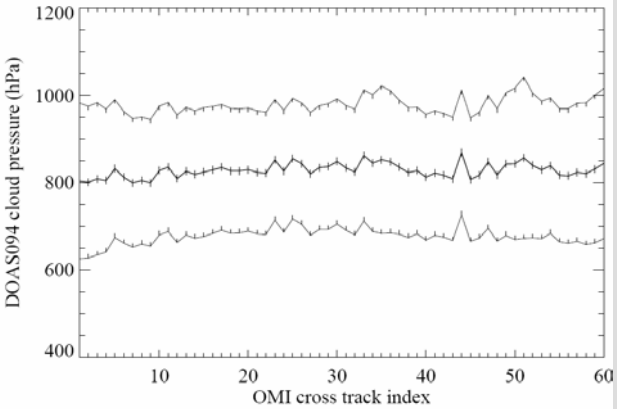
<>= 782 hPa
σ = 179 hPa
γ = -0.981

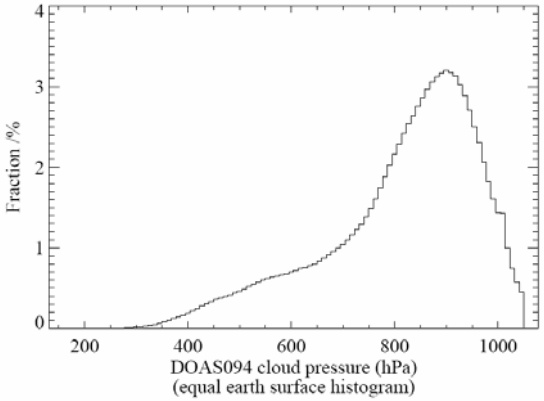
OMI DOAS v1.0.1 Cloud Pressure 14-27 October 2005

Cloud Height

Effective Cloud Pressure [hPa]





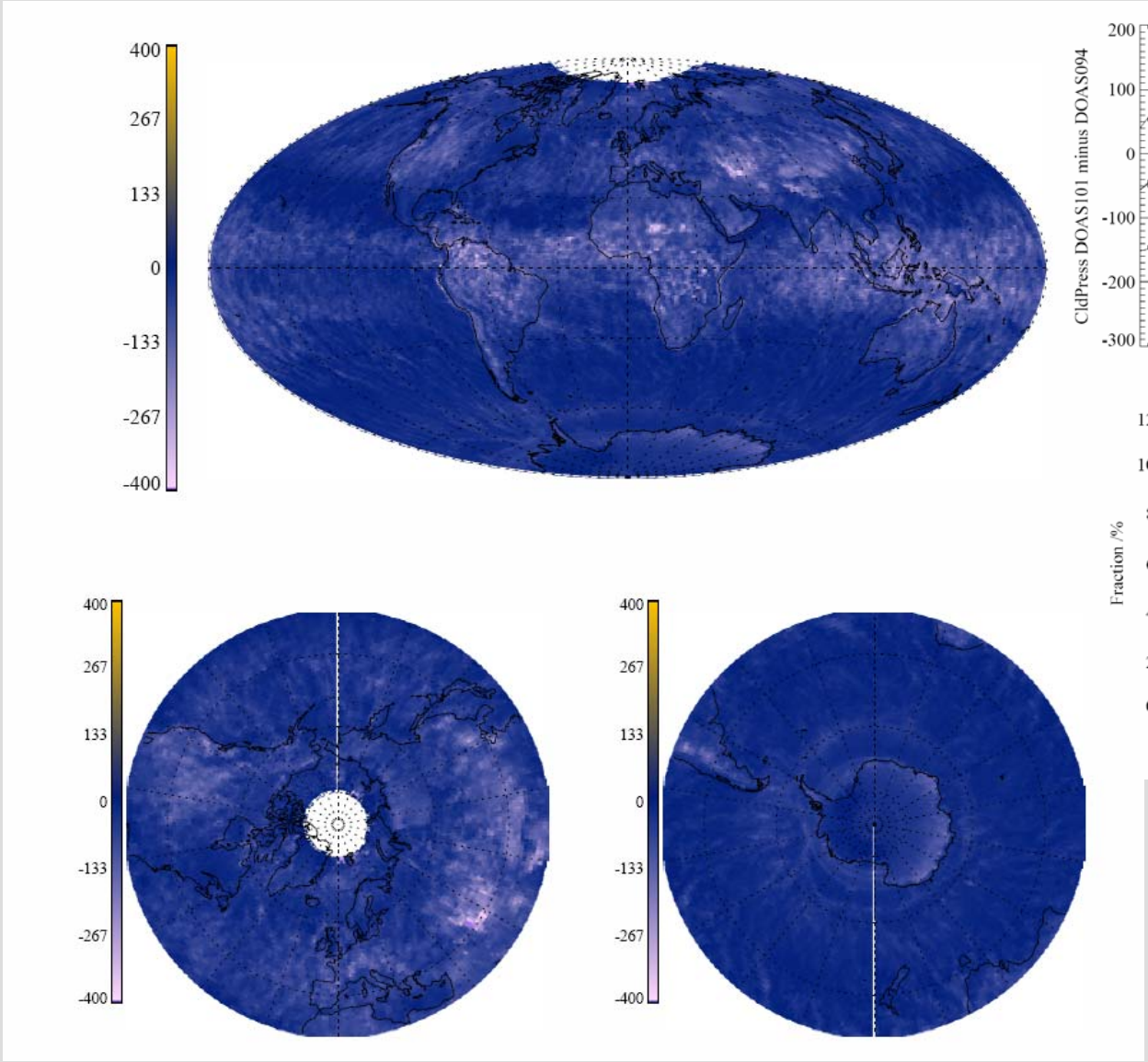


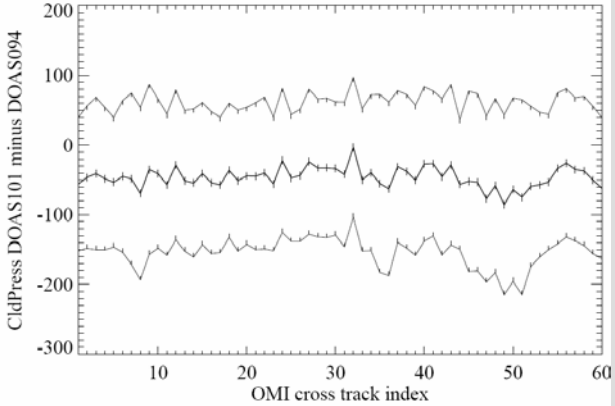
<>= 828 hPa
σ = 153 hPa
γ = -0.256

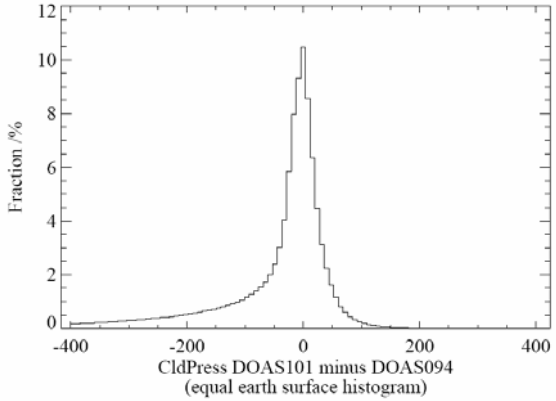
OMI DOAS v0.9.4 Cloud Pressure 14-27 October 2005

Cloud Height

Effective Cloud Pressure Difference [hPa]







<>= -46 hPa
σ = 109 hPa
γ = -3.09

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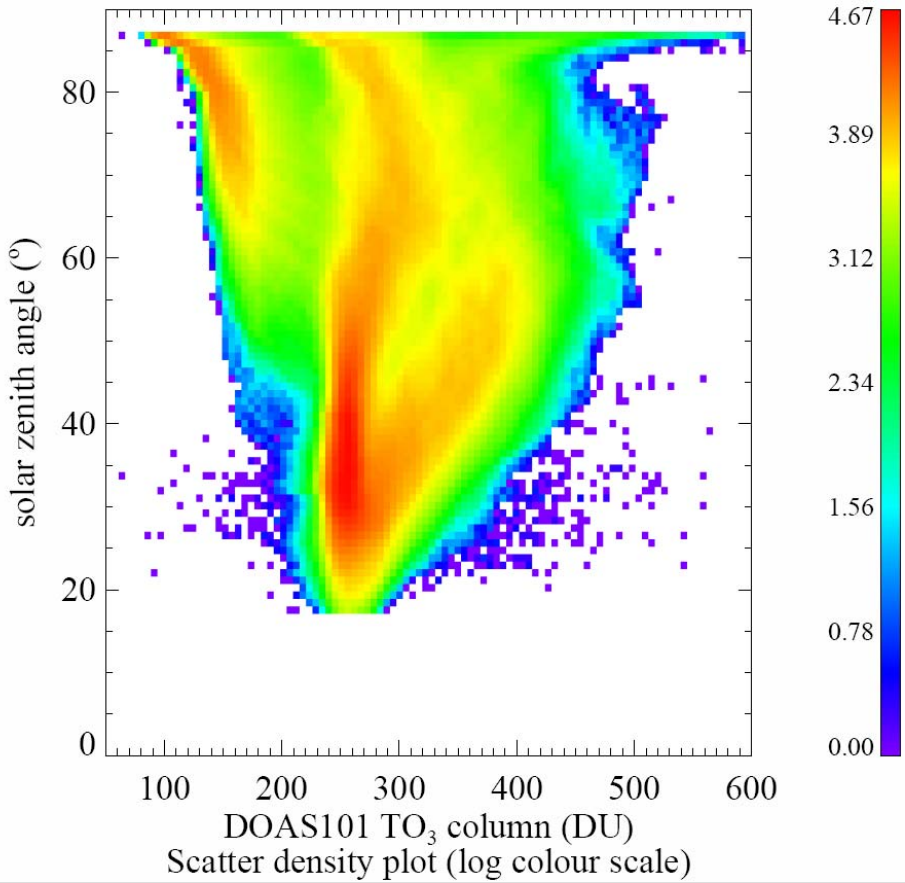
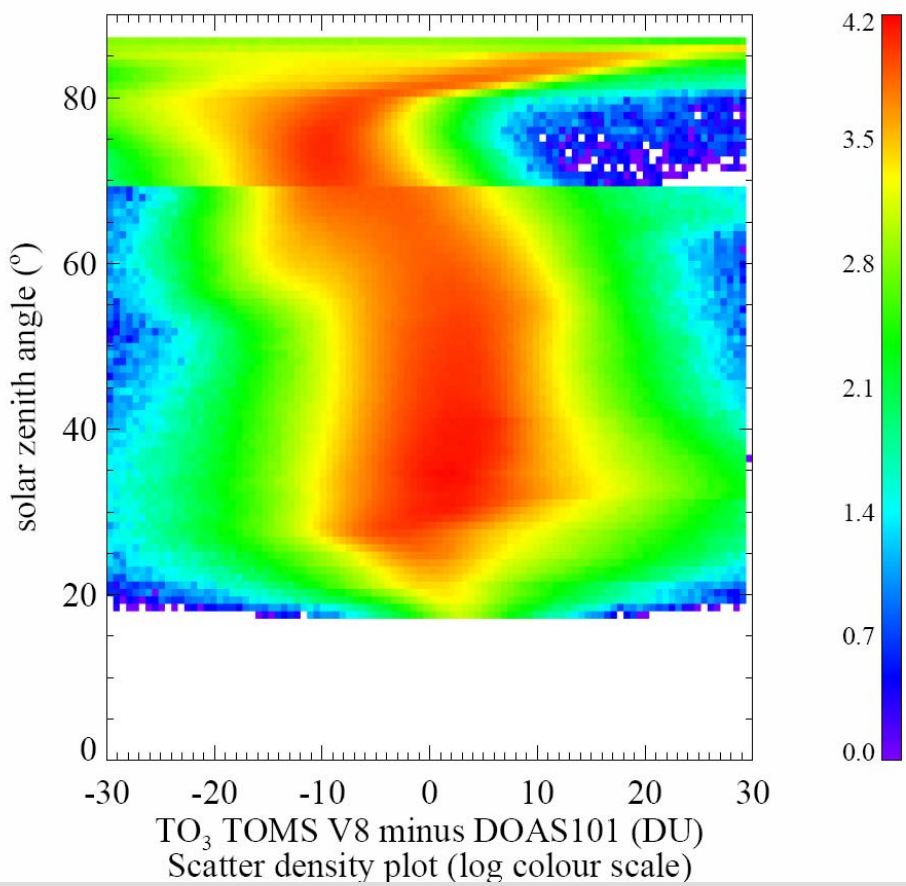
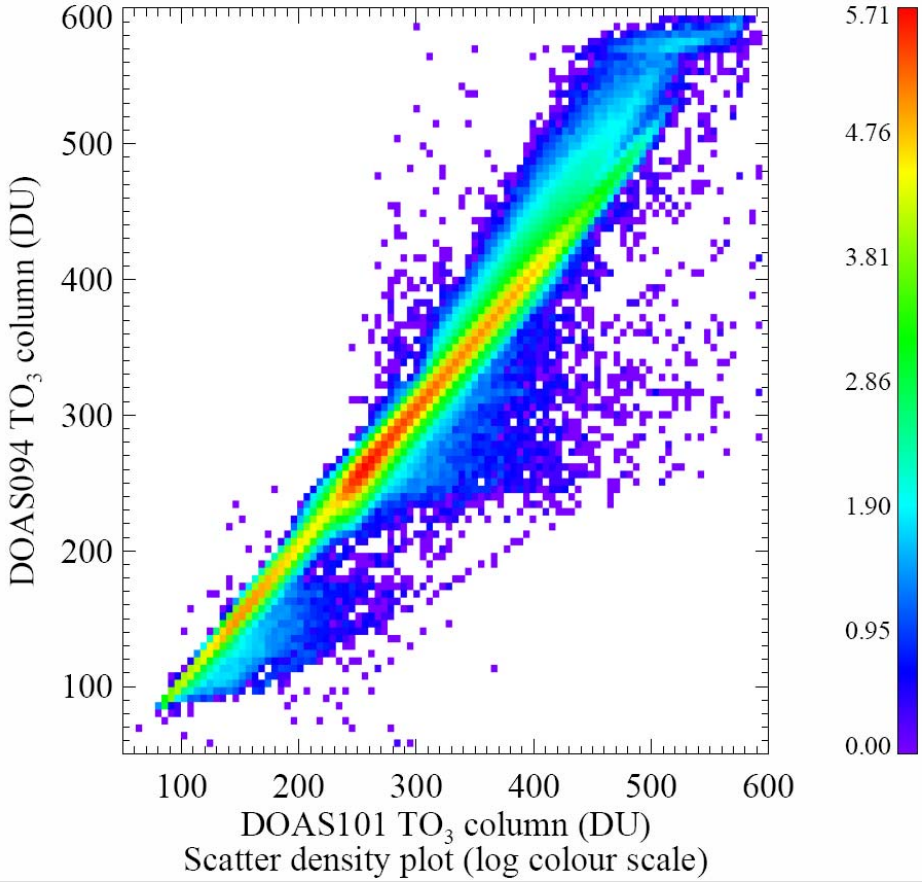
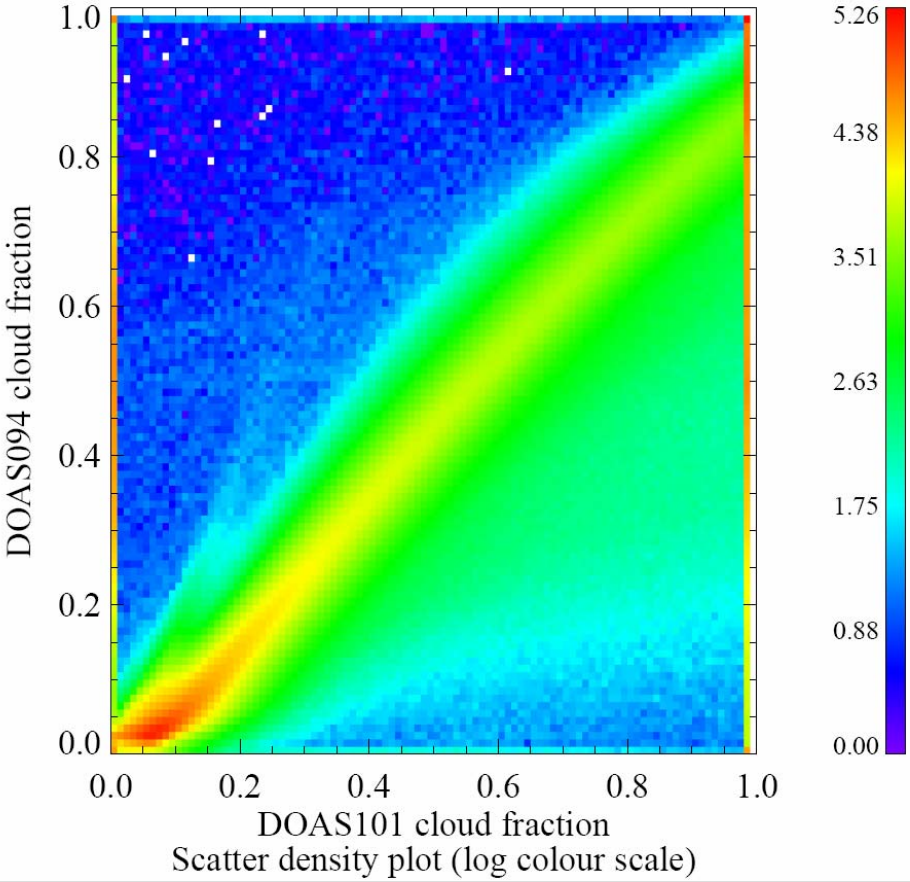
Solar Zenith Angle





Statistics





R = 0.997
S = 0.980 / 1.01

R = 0.688
S = 0.892 / 0.531

Plans for the next release 2006/2007

- New AMF tables to solve the SZA dependence.
  Issue has been identified, implementation is being tested.
- Back to daily irradiance files when TDOPF is in place.
- Improve treatment of snow/ice areas.
- Investigate different ozone cross sections.
- (Always watch for) Bug fixes.

A new version is planned for the next OMI reprocessing (Collection 3), planned for 2007.