OMI Total Ozone Column TOMS v8 vs DOAS v1.0.1

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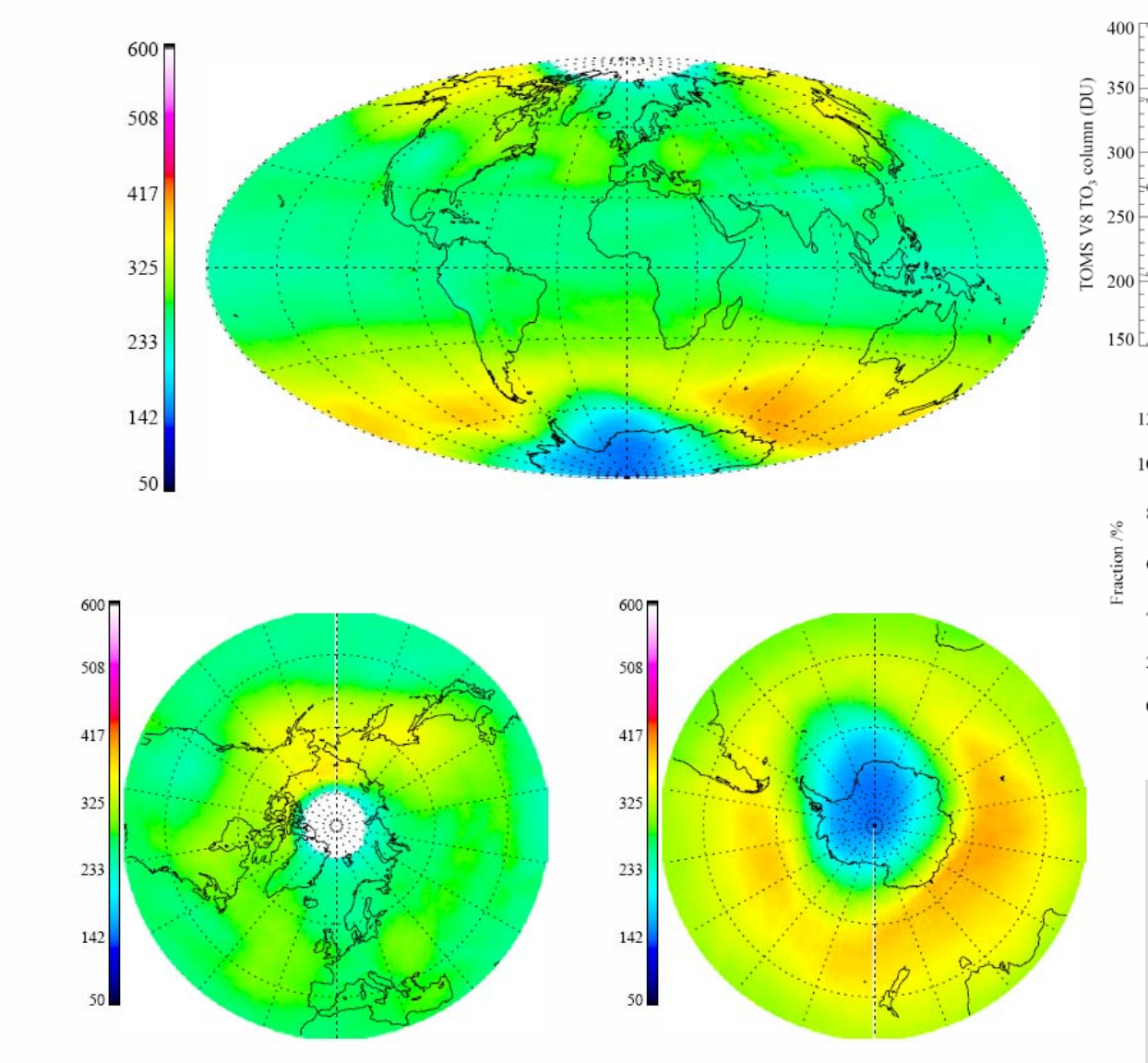
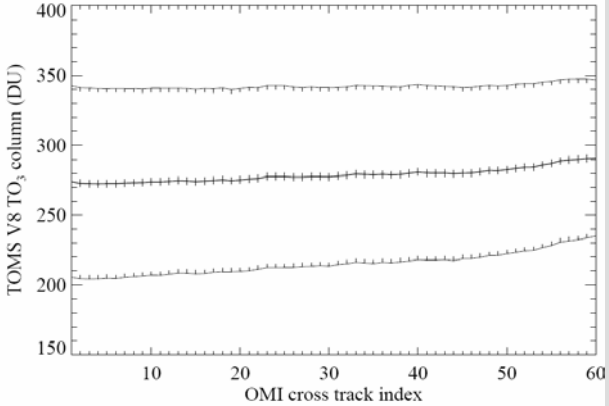
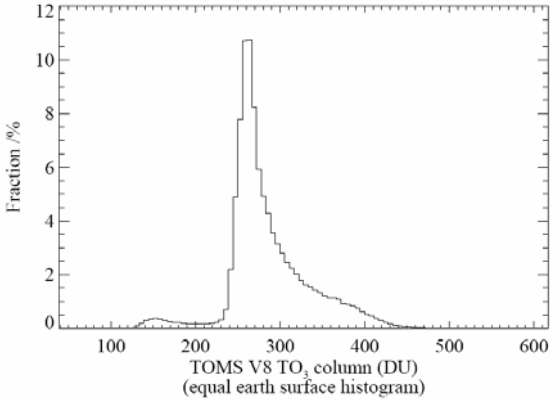
Aura Science Team Meeting
Workshop on Total Ozone Products
12 August 2006

OMI TOMS v8 Total Ozone Column

Total Ozone Column [DU]





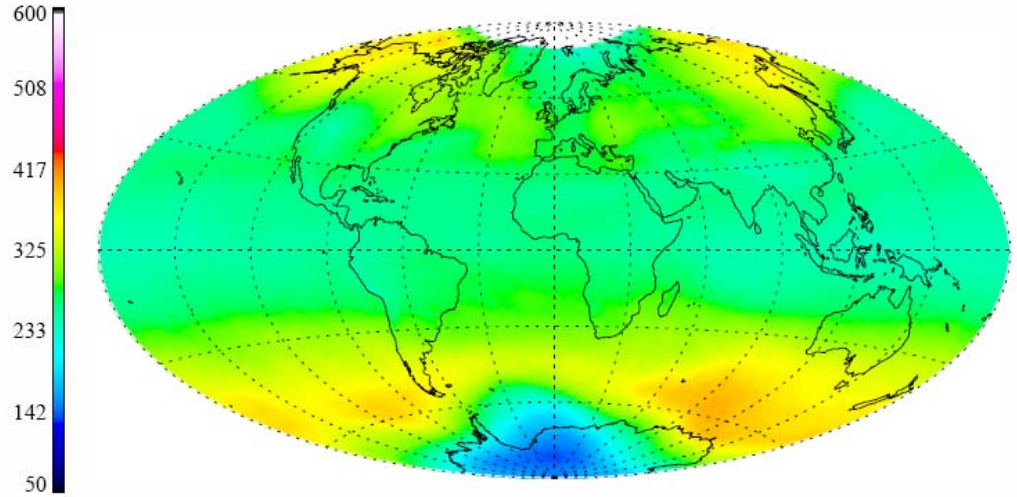


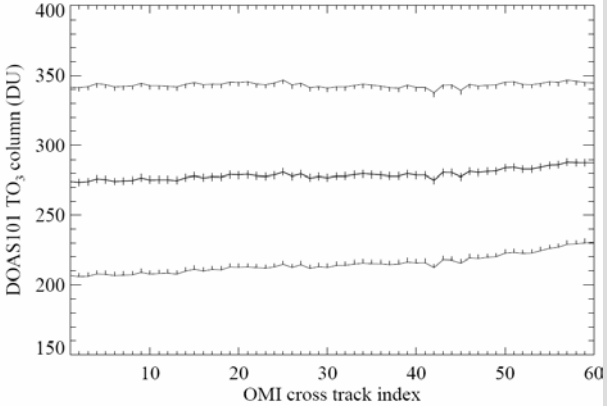
<>= 279 DU
σ = 64.0 DU
γ =-0.064

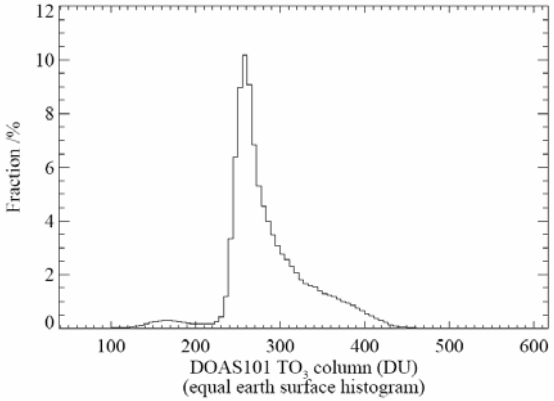
14-27 October 2005

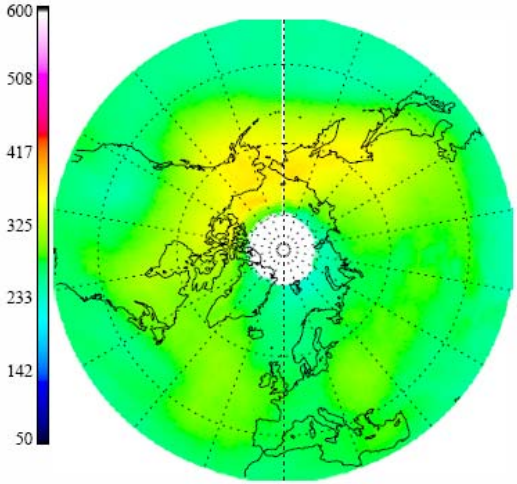
OMI DOAS v1.0.1 Total Ozone Column

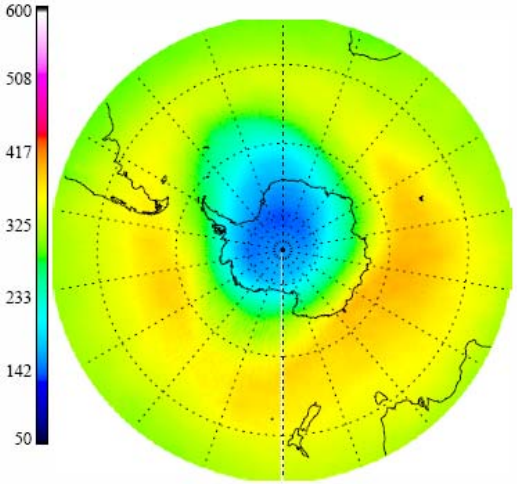
Total Ozone Column [DU]









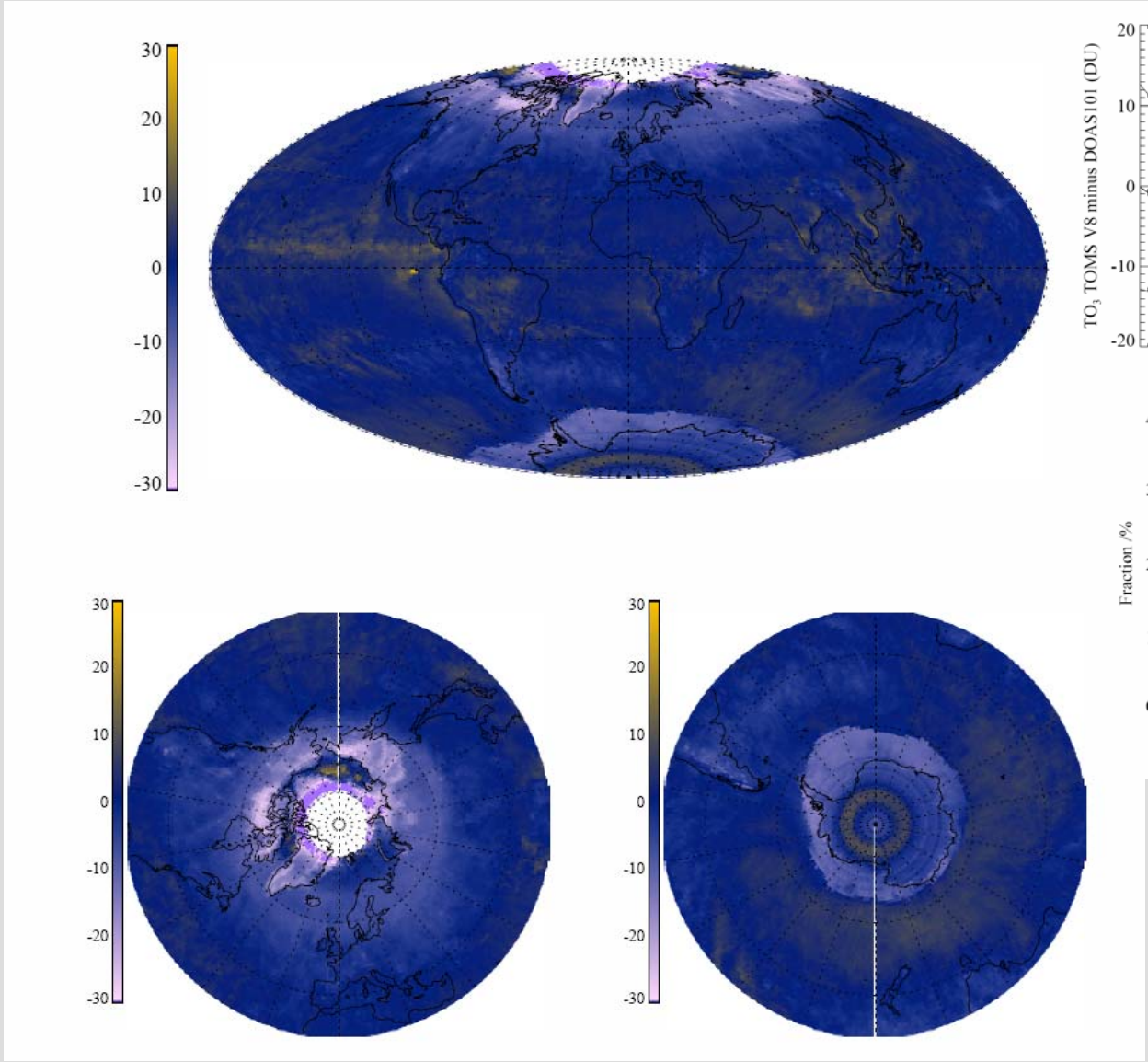


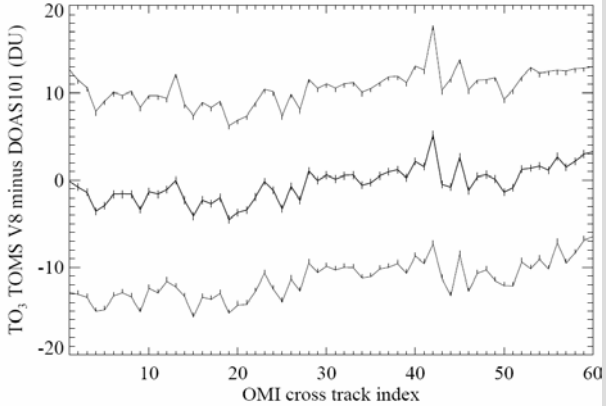
<>= 279 DU
σ = 64.4 DU
γ = -0.153

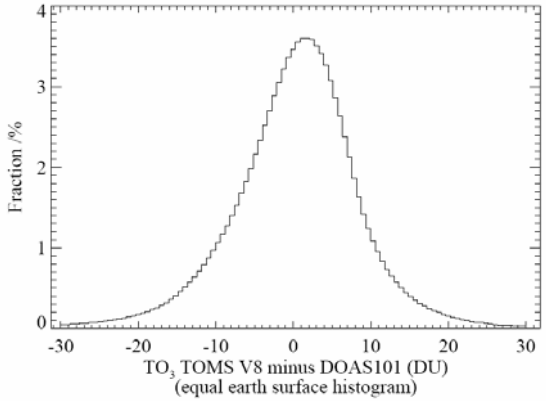
14-27 October 2005

OMI TOMS V8 - DOAS v1.0.1 Total O3 Column

Total Ozone Column Difference [DU]







<>= -0.45 DU
σ = 11.3 DU
γ = -1.66

14-27 October 2005

Clouds and Surface

Cloud Regimes

0	TOMS Cloud Fraction ∈ [0.00 , 0.05]
1	TOMS Cloud Fraction ∈ [0.05 , 0.25]
2	TOMS Cloud Fraction ∈ [0.25 , 0.75]
3	TOMS Cloud Fraction ∈ [0.75 , 1.00]
4	TOMS Cloud Fraction ∈ [0.00 , 1.00]

DOAS cloud fraction unrestricted

Surface

Separate by DOAS GroundPixelQualityFlags Filter

Land = land[1]

Sea = shallow ocean [0] + deep inland water [5] + continental shelf ocean [6] + deep ocean [7]

Skip shallow inland water[2], ocean coastline/lake shoreline [3] and ephemeral (intermittent) water [4]

Ice = [Land + Sea] AND [NISE icefraction > 75%]

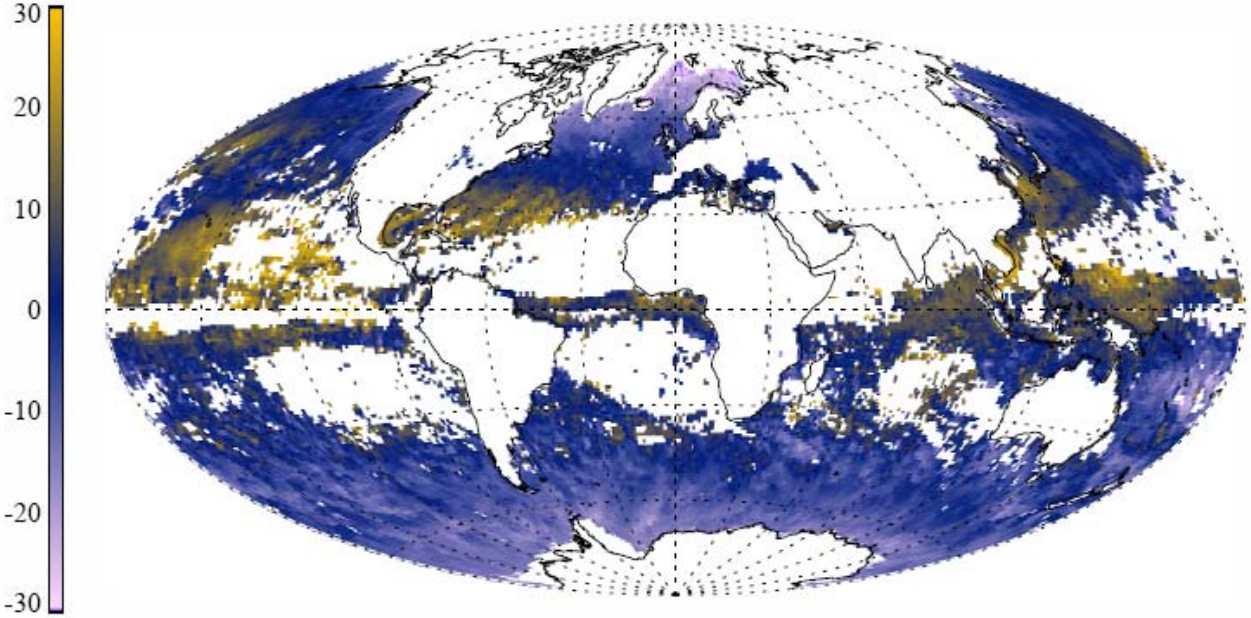
Skip ocean [104]

Includes permanent ice (Greenland, Antarctica) [100] + dry snow [103]

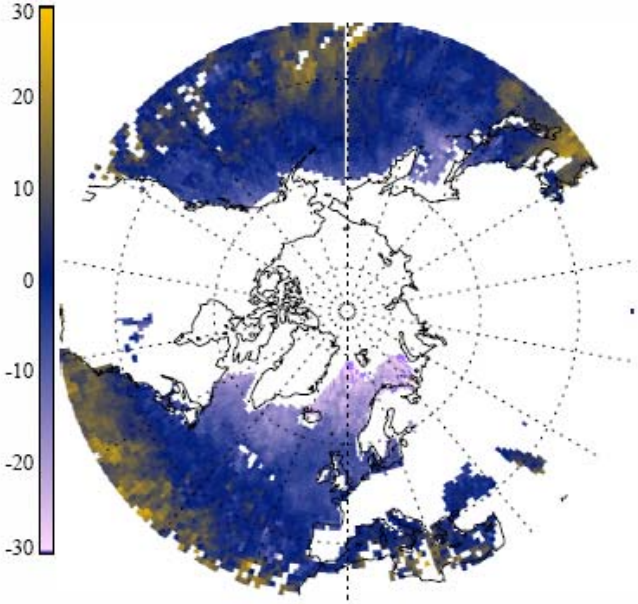
TOMS v8 – DOAS v1.0.1

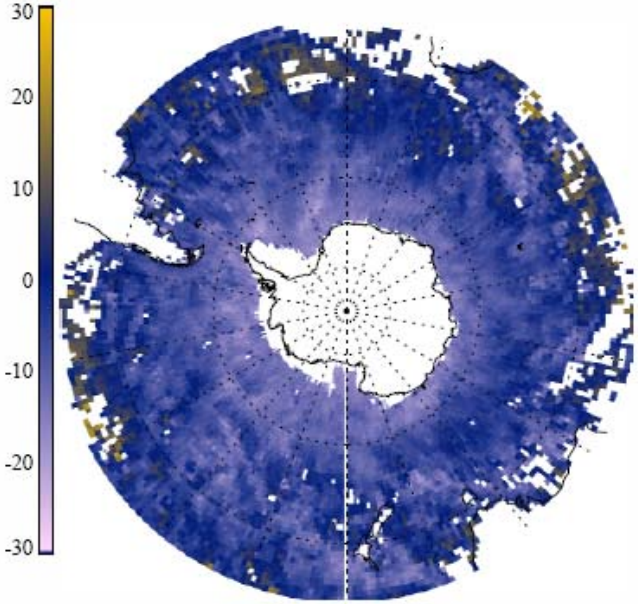
200603 Sea

Total Ozone Column Difference [DU]



0.75-1.00



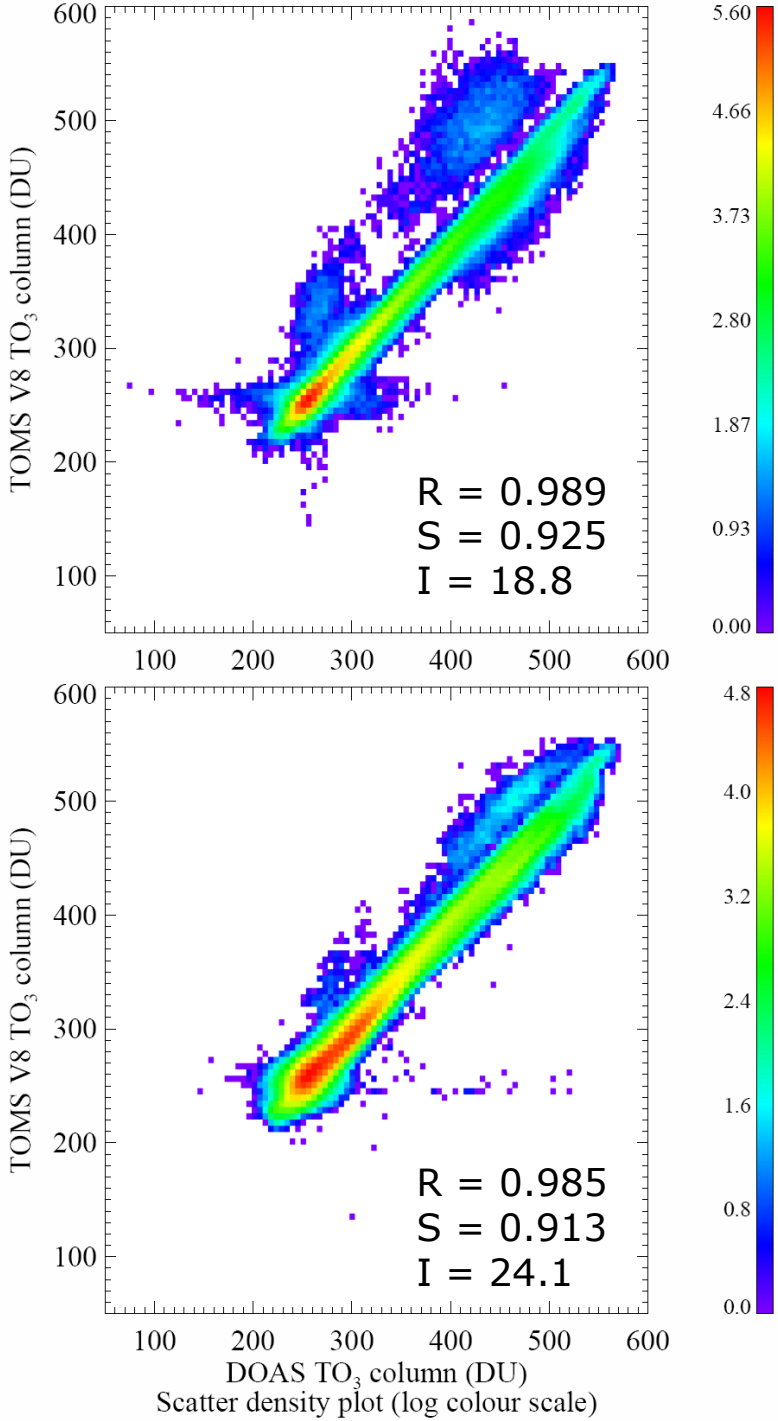


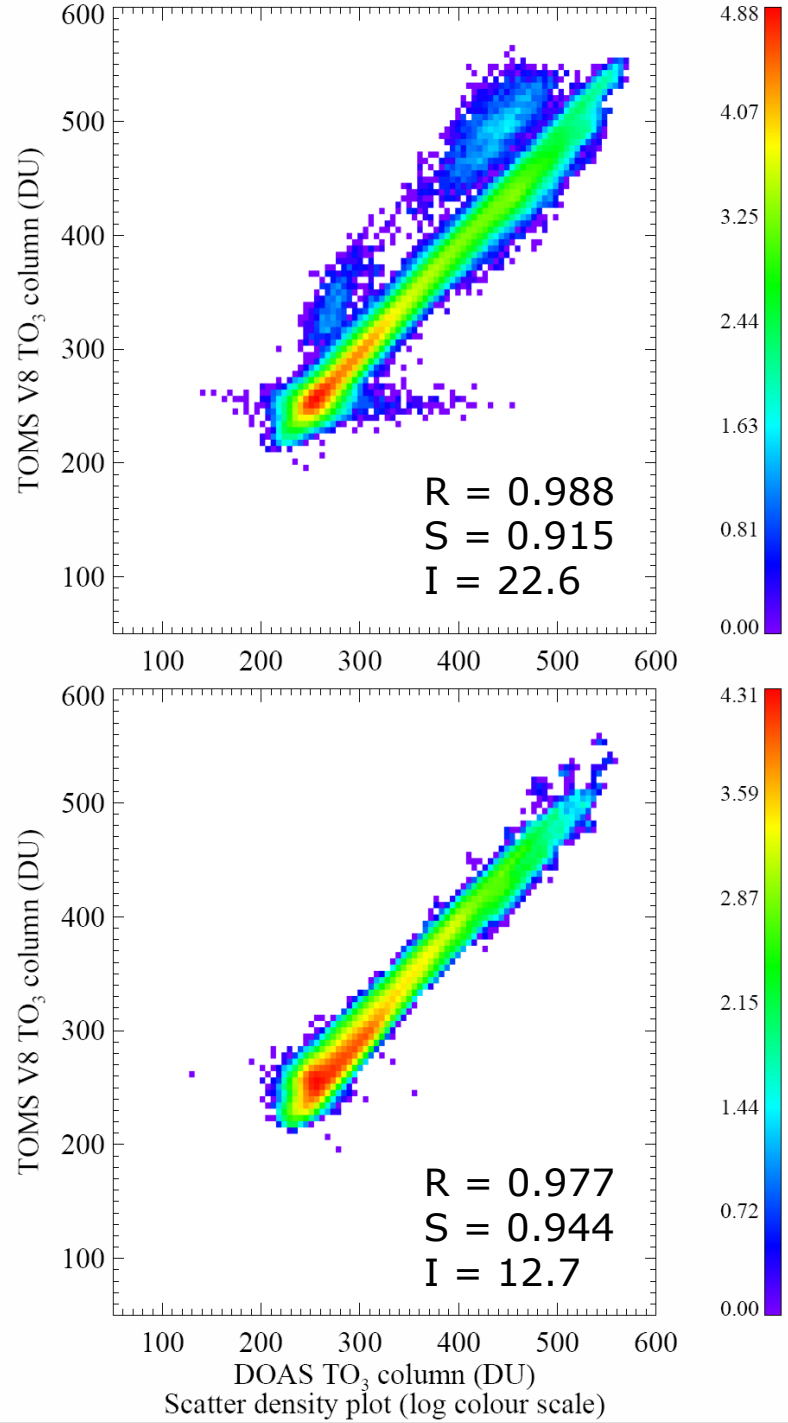
0

1

200603 Sea

TOMS vs DOAS TO3C





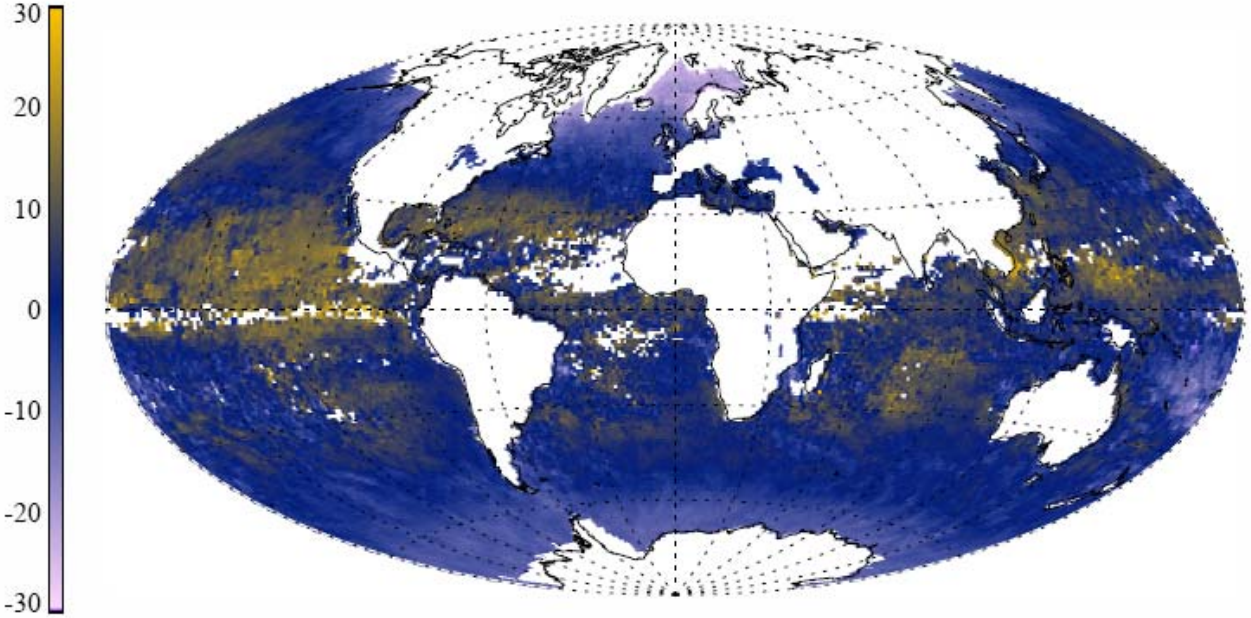
2

3

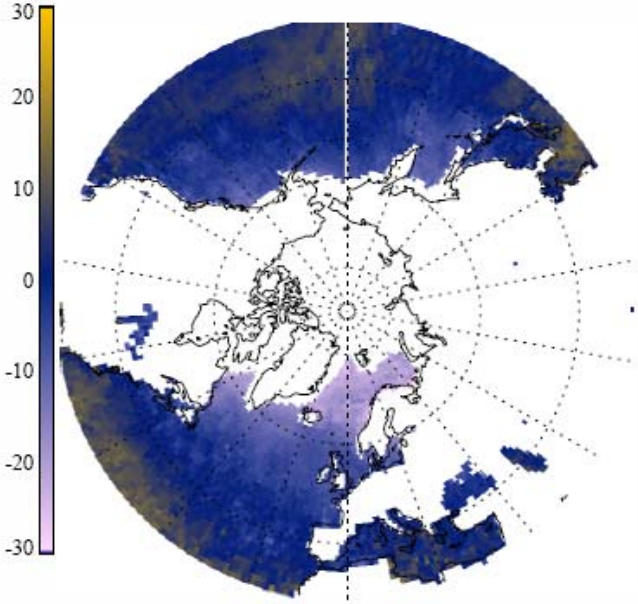
200603 Sea

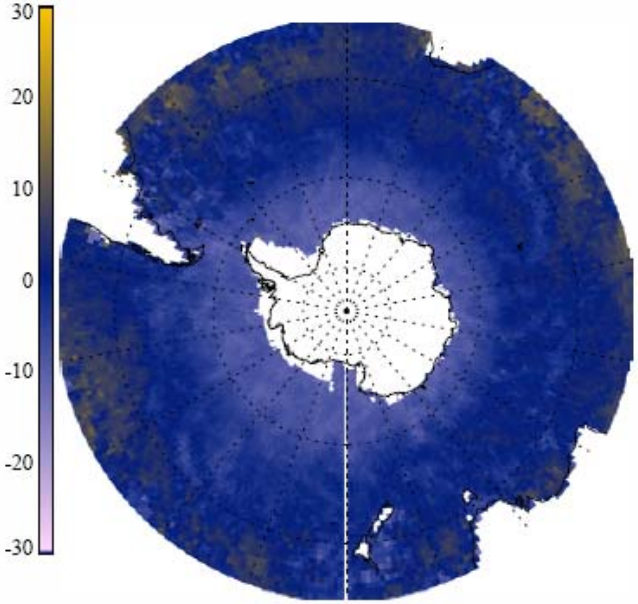
TOMS v8 – DOAS v1.0.1

Total Ozone Column Difference [DU]



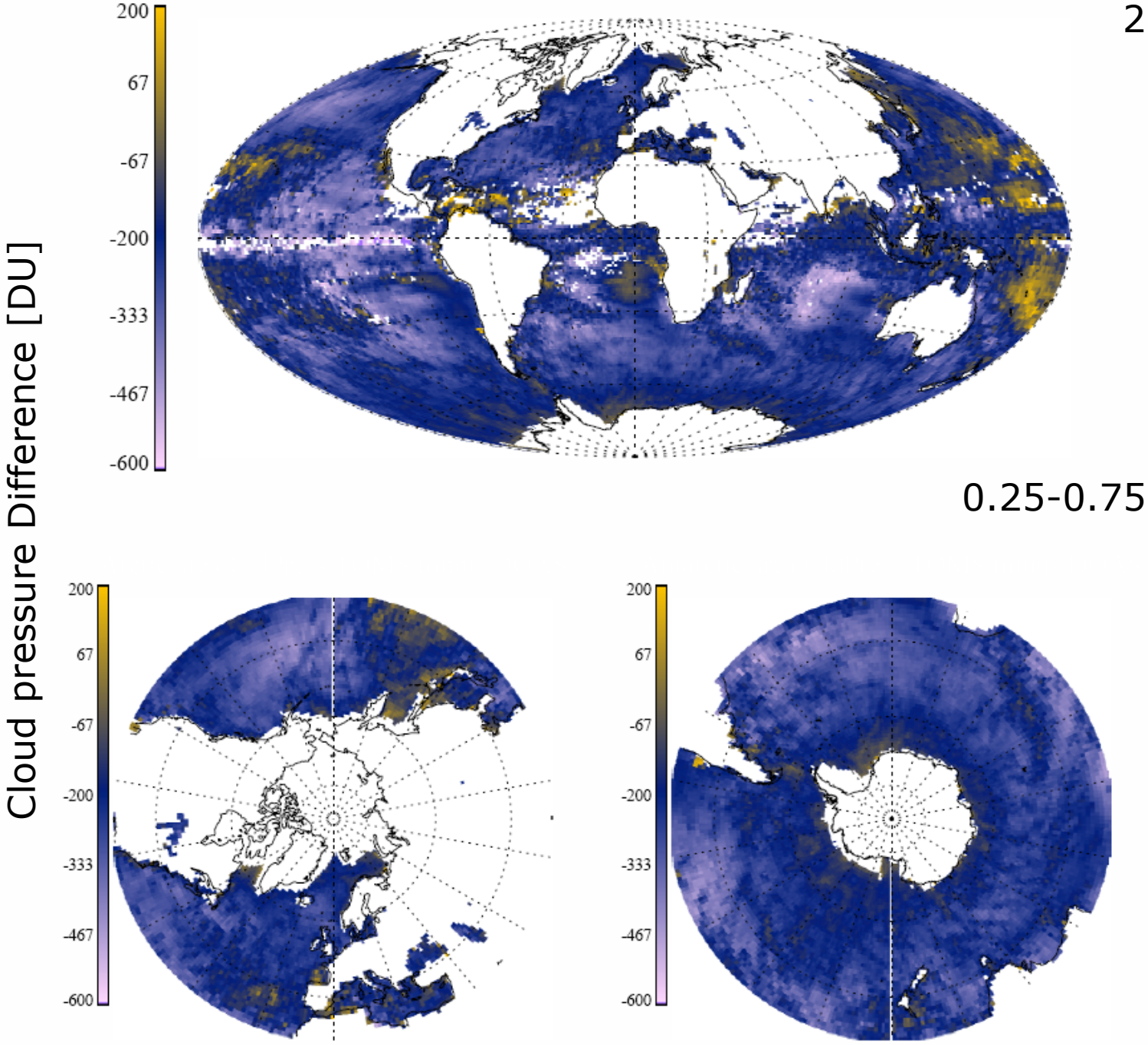
0.25-0.75





200603 Sea

TOMS v8 – DOAS v1.0.1

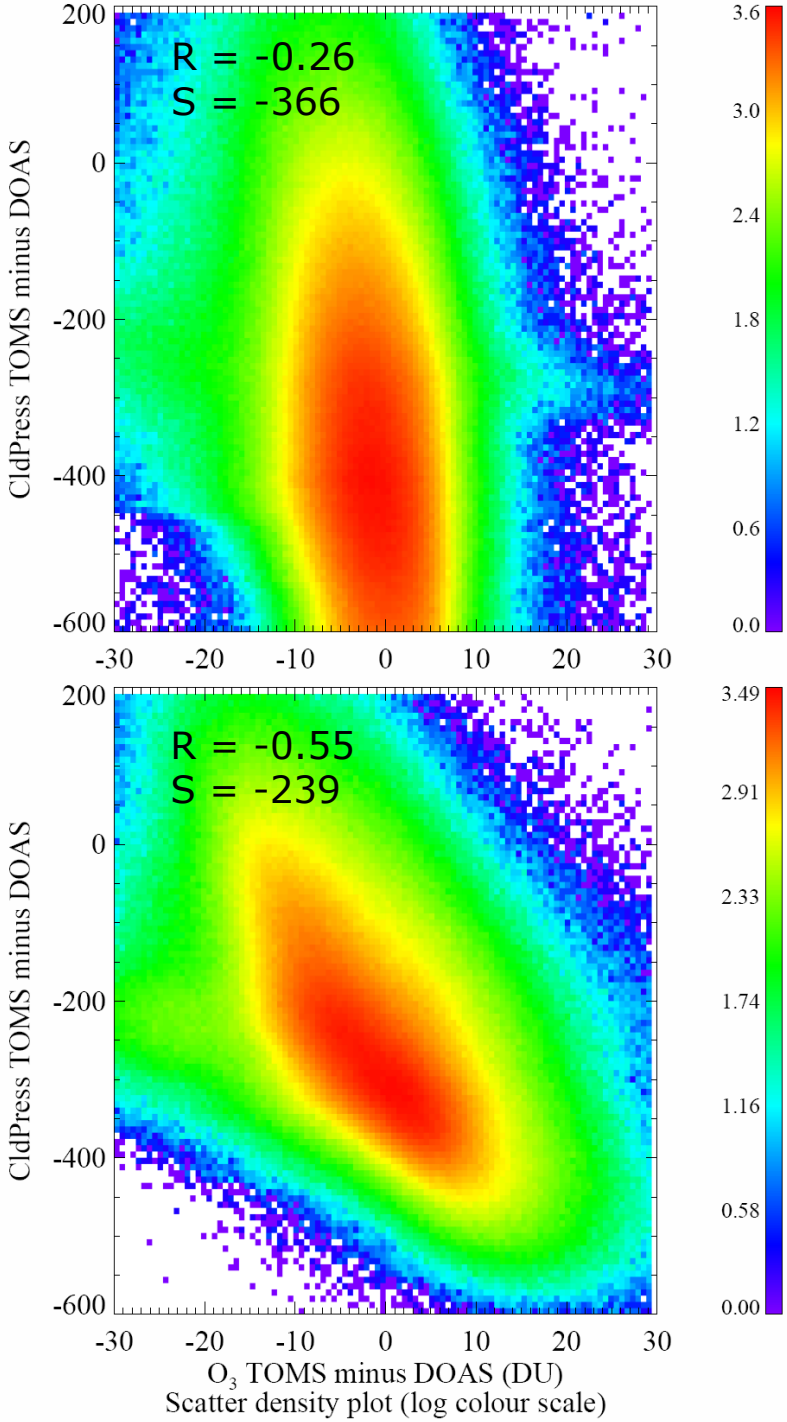


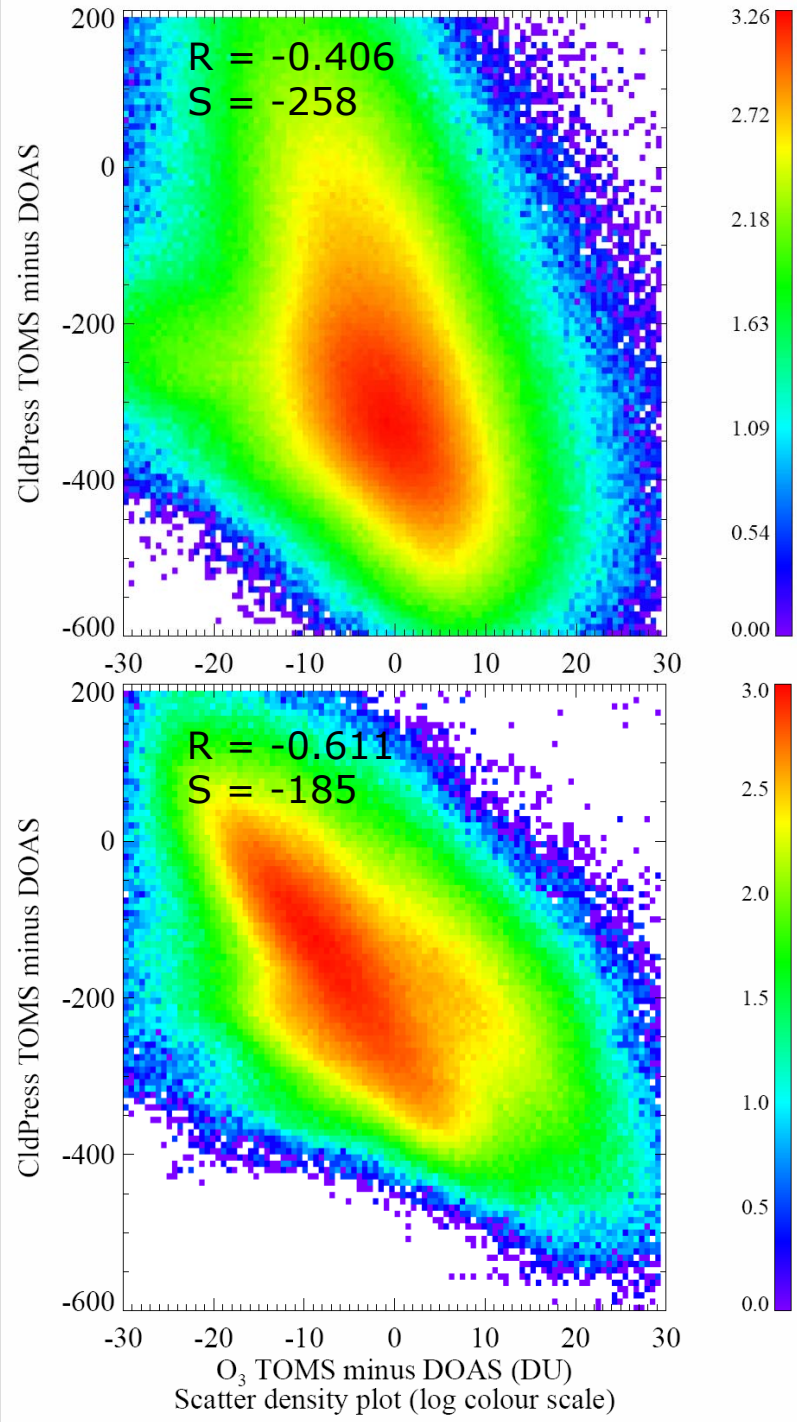
0

1

200603 Sea

CldPress Diff vs TO3 Diff





2

3

Cloud Regime Statistics
14-27 March 2006 : Sea

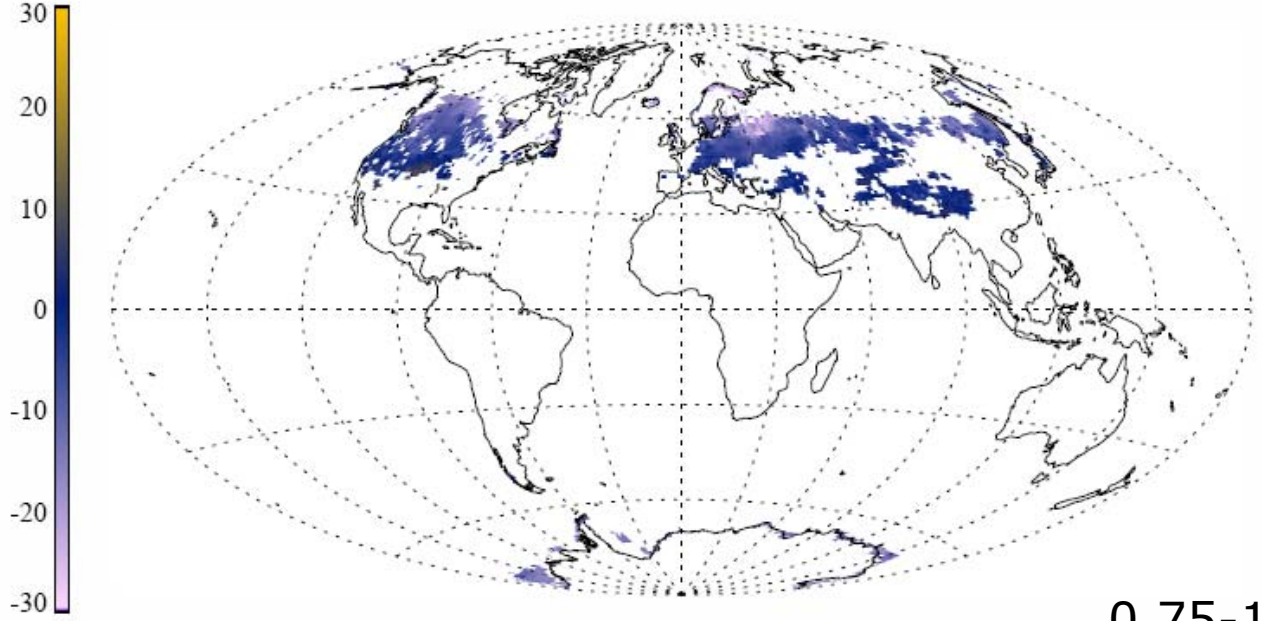
SEA	Cloud 0 [0.00,0.05]	Cloud 1 [0.05,0.25]	Cloud 2 [0.25,0.75]	Cloud 3 [0.75,1.00]
Total O3 TOMS minus DOAS (DU)	<> = -2.09 σ = 6.65	<> = -2.20 σ = 9.10	<> = -1.95 σ = 9.94	<> = -3.79 σ = 10.1

OMI TOMS V8 and DOAS v1.0.1 for 14-27 March 2006

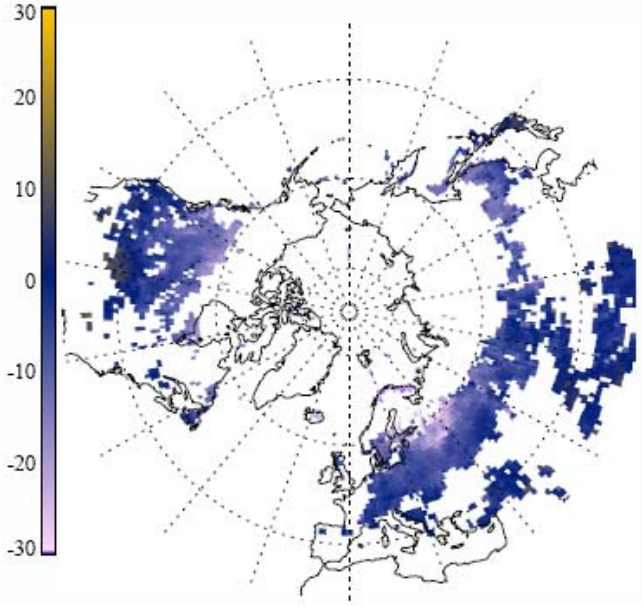
200603 Ice

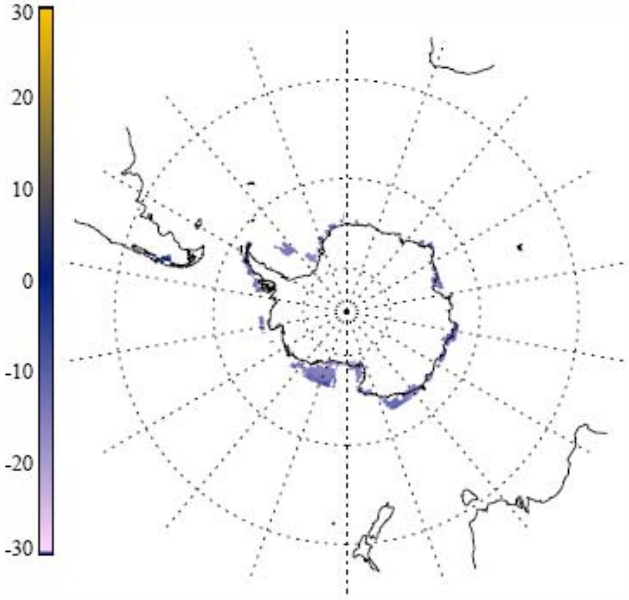
TOMS v8 – DOAS v1.0.1

Total Ozone Column Difference [DU]



0.75-1.00



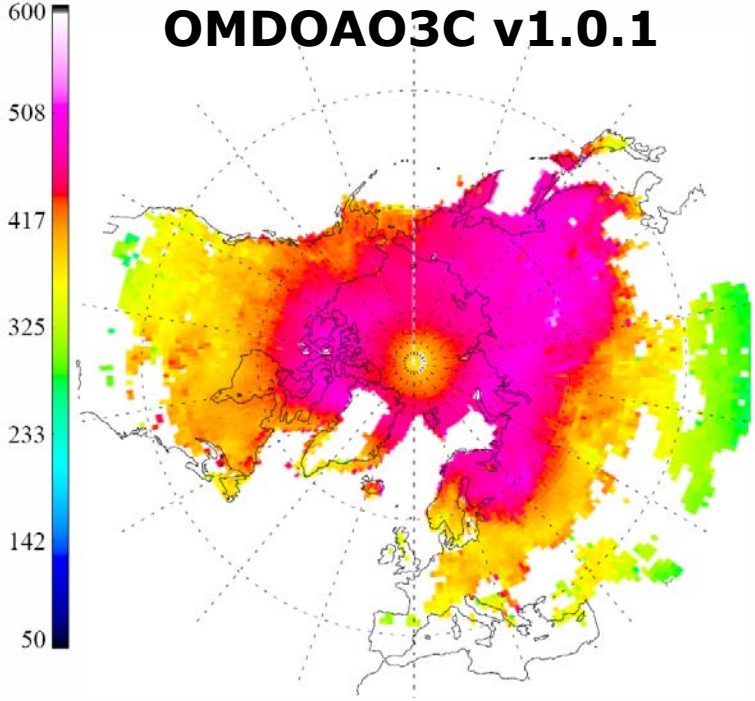


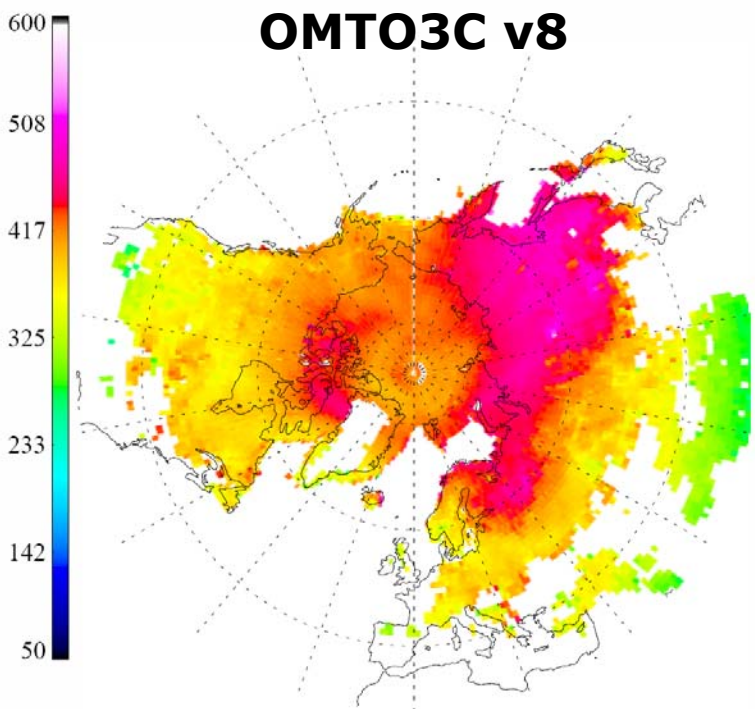
Cloud Regime Statistics
14-27 March 2006 : ICE

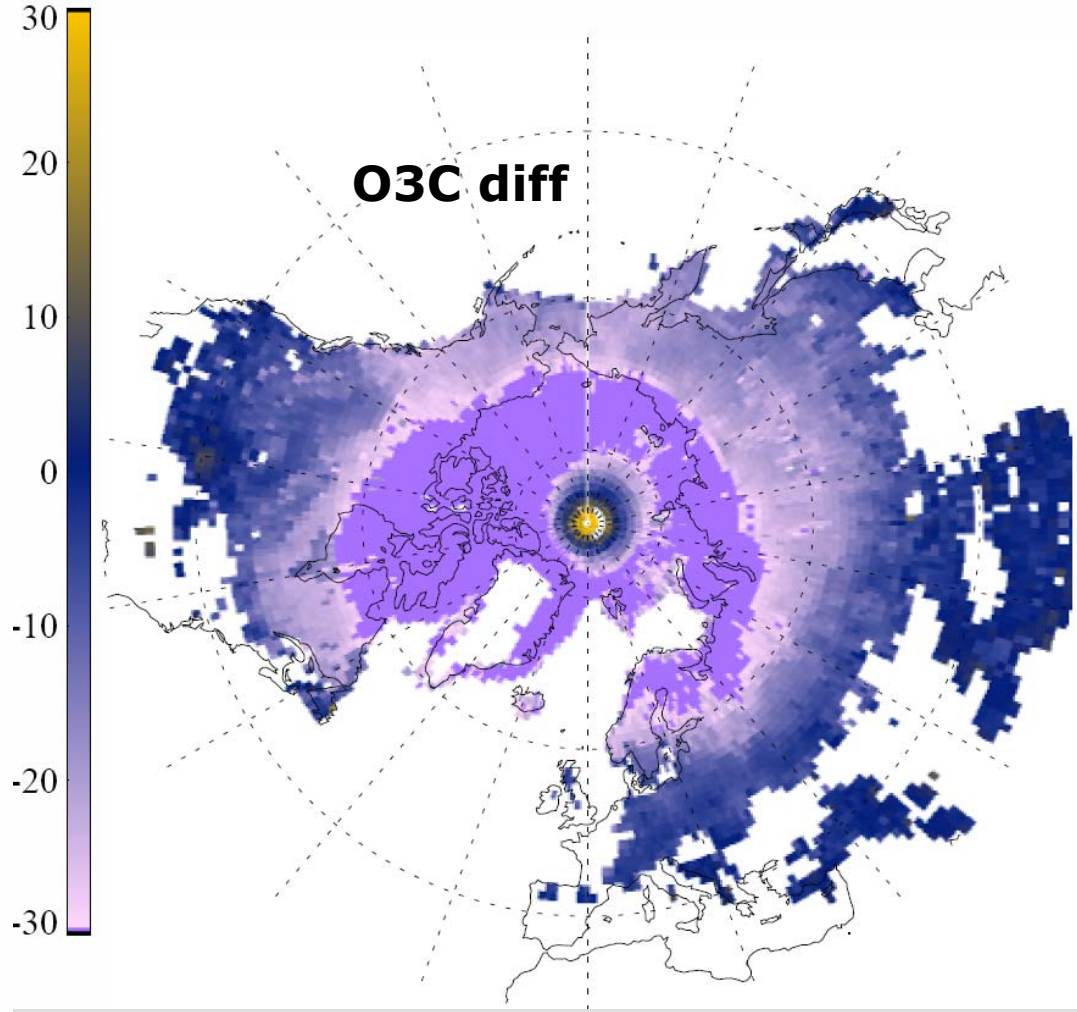
ICE	Cloud 0 [0.00,0.05]	Cloud 1 [0.05,0.25]	Cloud 2 [0.25,0.75]	Cloud 3 [0.75,1.00]
Total O3 TOMS minus DOAS (DU)	**<> = -29.3** **σ = 18.3**	<> = -6.65 σ = 11.6	<> = -7.14 σ = 9.90	<> = -9.71 σ = 10.0
Total Number of Obs. 17,834,907	58.3%	13.2%	20.8%	7.7%

OMI TOMS V8 and DOAS v1.0.1 for 14-27 March 2006

Total O3 Column 200603 Ice

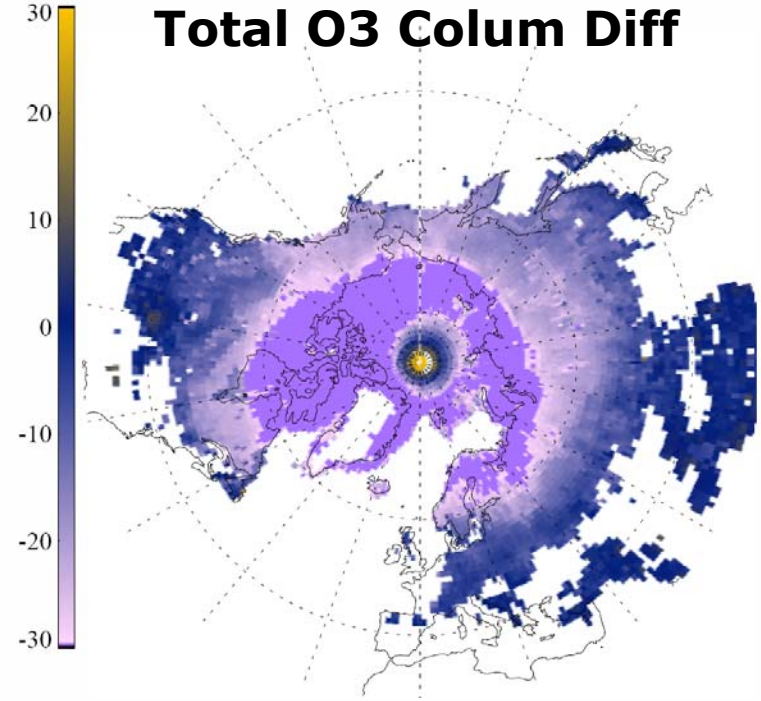


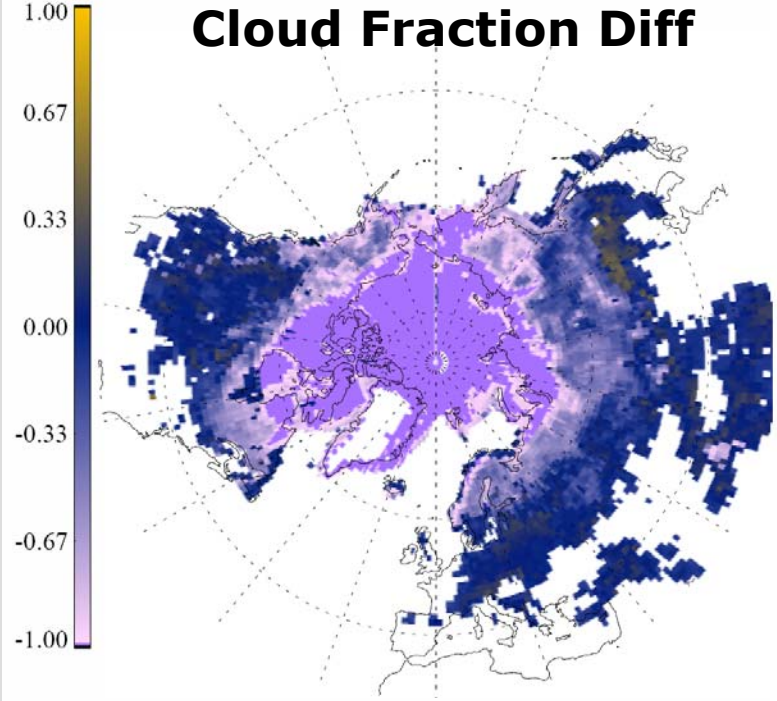


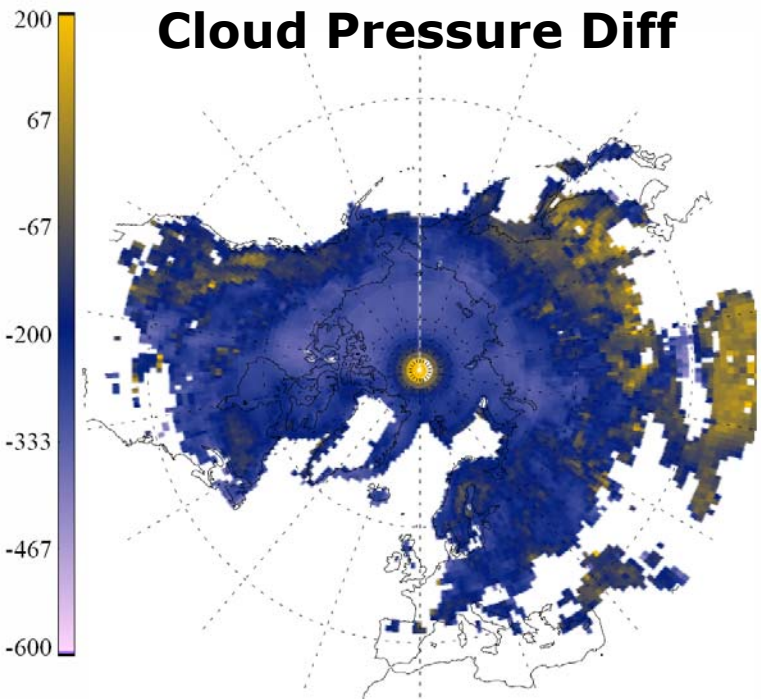


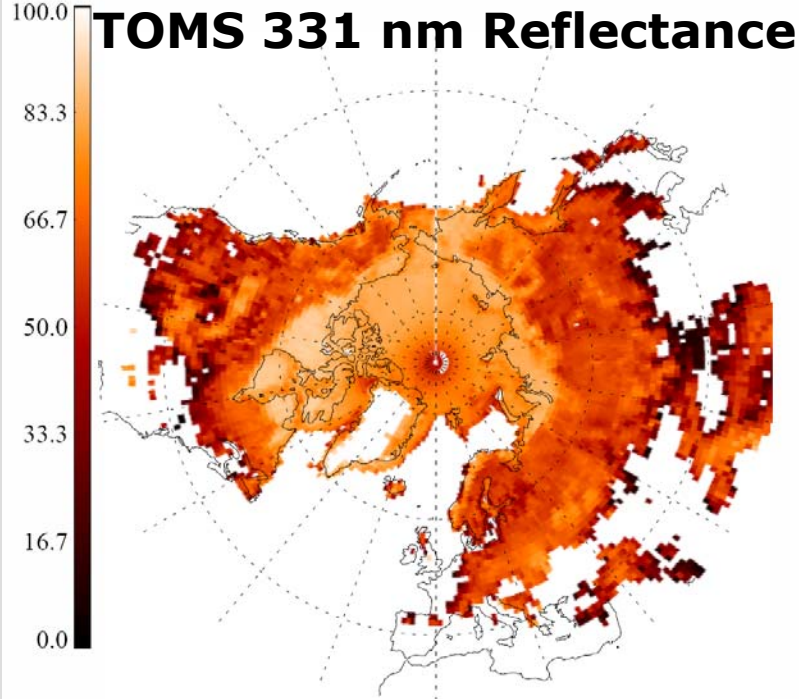
All Cloud Fractions

200603 Ice


Total O3 Colum Diff
30
20
10
0
-10
-20
-30


Cloud Fraction Diff
1.00
0.67
0.33
0.00
-0.33
-0.67
-1.00


Cloud Pressure Diff
200
67
-67
-200
-333
-467
-600


TOMS 331 nm Reflectance
100.0
83.3
66.7
50.0
33.3
16.7
0.0