GOMOS Level 2 Daily Report

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   - 5.6 Plot NO2 profiles for all STD (dark without errors)

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   - 5.8 Plot H2O profiles (only for occultations of stars 1,2,3,4,13,14,16,26,63 dark without errors) for all STD

6. Auxiliary Data Files used for the production reported in section 2

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1. General info

This report presents the daily analysis on parameters extracted from GOMOS level 2 data (GOM_NL__2P).
It is intended to monitor some important parameters that will impact the quality of these products.
A list of level 2 products (and content) that have arrived during the reporting day to the PCF is also given.

Item	Value
Time of report generation	29APR2013 18:00:51
Data source version	GOMOS/6.01
Start time of products	30-12-2010 (30DEC2010 00:00:00)
Stop time of products	31-12-2010 (31DEC2010 00:00:00)
Store outputs in DB	Yes
Nb of level 2 prods	19
Nb of prods with errors	0

2. Summary of processed GOM_NL__2P products.

Nr	Filename	UTC Start time	Limb	Duration	Star Id	Star Name	Star Mag	Star Temp	Nb Meas	Orbit	Prod. error
1	GOM_NL__2PRFIN20101230_225417_000000453098_00059_46194_1661.N1	30-DEC-2010 22:54:17	Dark	44.500	64	Gam Cen	2.2000	10600.	89	46194	No
2	GOM_NL__2PRFIN20101230_230024_000000473098_00059_46194_1662.N1	30-DEC-2010 23:00:24	Dark	47.000	113	Mu Vel	2.6920	5000.0	94	46194	No
3	GOM_NL__2PRFIN20101230_230303_000000423098_00059_46194_1663.N1	30-DEC-2010 23:03:03	Dark	41.500	71	Iot Car	2.2460	7700.0	83	46194	No
4	GOM_NL__2PRFIN20101230_230439_000000453098_00059_46194_1664.N1	30-DEC-2010 23:04:39	Dark	45.000	41	Eps Car	1.8600	4100.0	90	46194	No
5	GOM_NL__2PRFIN20101230_230748_000000483098_00059_46194_1665.N1	30-DEC-2010 23:07:48	Dark	47.500	34	Gam2Vel	1.7930	23000.	95	46194	No
6	GOM_NL__2PRFIN20101230_230959_000000493098_00059_46194_1666.N1	30-DEC-2010 23:09:59	Dark	49.000	70	Zet Pup	2.2460	39000.	98	46194	No
7	GOM_NL__2PRFIN20101230_231205_000000493098_00059_46194_1667.N1	30-DEC-2010 23:12:05	Dark	48.500	117	Pi Pup	2.7060	3800.0	97	46194	No
8	GOM_NL__2PRFIN20101230_231454_000000473098_00059_46194_1668.N1	30-DEC-2010 23:14:54	Straylight	46.500	23	21Eps CMa	1.5020	26000.	93	46194	No
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10	GOM_NL__2PRFIN20101230_231856_000000533098_00059_46194_1670.N1	30-DEC-2010 23:18:56	Straylight	53.000	1	9Alp CMa	-1.4400	11000.	106	46194	No
11	GOM_NL__2PRFIN20101230_232126_000000453098_00059_46194_1671.N1	30-DEC-2010 23:21:26	Straylight	45.000	56	53Kap Ori	2.0650	30000.	90	46194	No
12	GOM_NL__2PRFIN20101230_232357_000000453098_00059_46194_1672.N1	30-DEC-2010 23:23:57	Straylight	44.500	30	46Eps Ori	1.6940	30000.	89	46194	No
13	GOM_NL__2PRFIN20101230_232629_000000533098_00059_46194_1673.N1	30-DEC-2010 23:26:29	Twi_and_stray	53.000	14	58Alp Ori	0.87000	3000.0	106	46194	No
14	GOM_NL__2PRFIN20101230_232948_000000463098_00059_46194_1674.N1	30-DEC-2010 23:29:48	Bright	46.000	44	24Gam Gem	1.9280	11000.	92	46194	No
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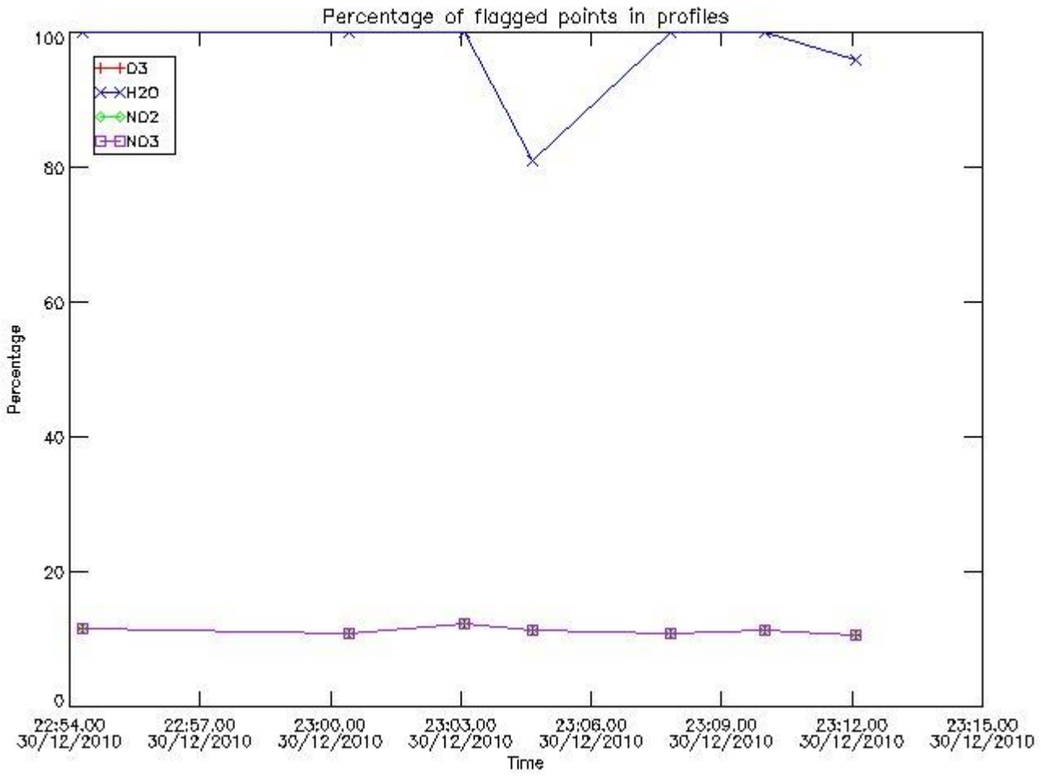
19	GOM_NL__2PRFIN20101230_235744_000000463098_00059_46194_1679.N1	30-DEC-2010 23:57:44	Bright	46.000	32	77Eps UMa	1.7630	11000.	92	46194	No

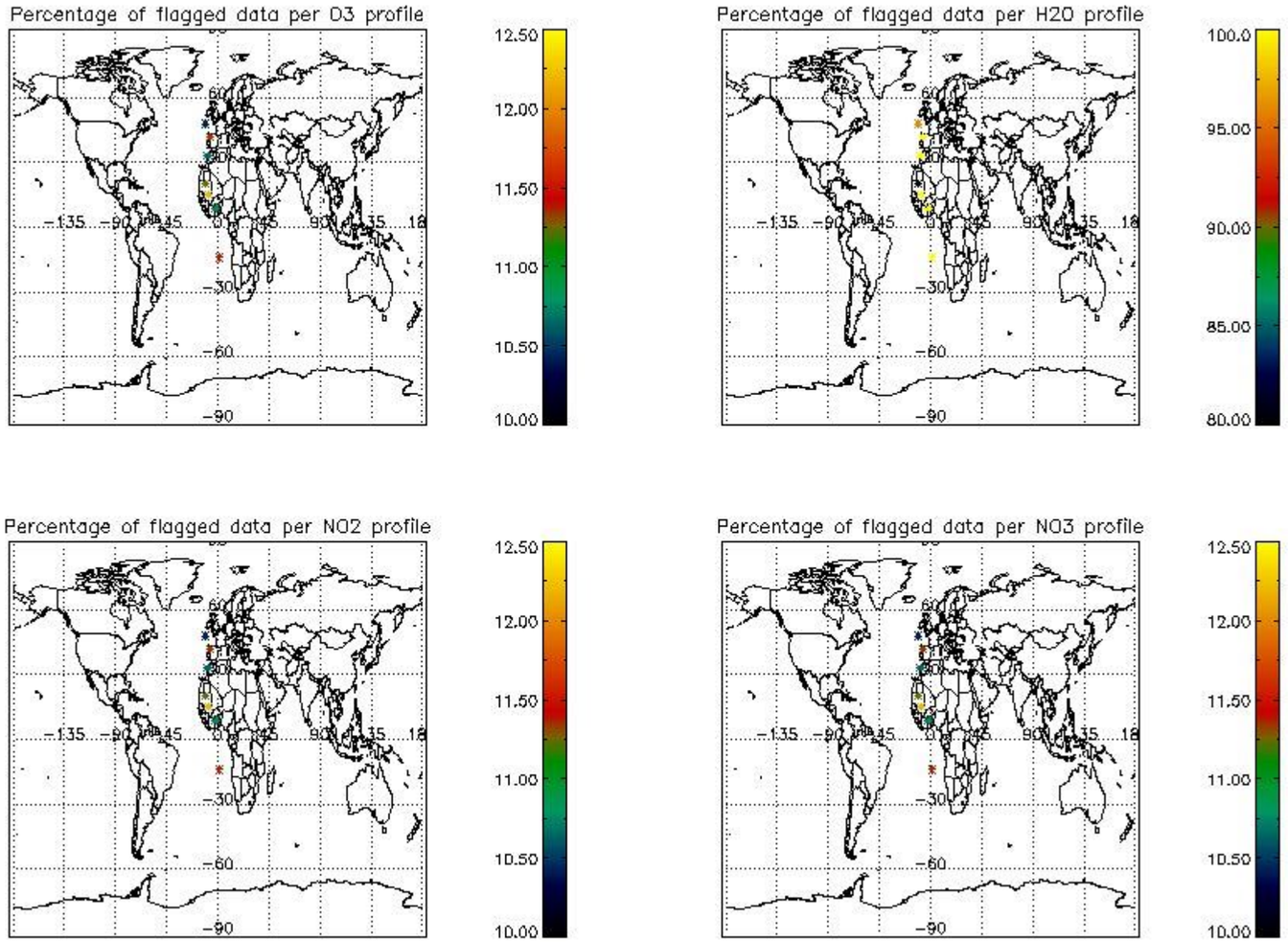
3. Quality information per product

In this section it is plotted some information contained in the Quality Summary data set of the level 2 products. Only products in dark limb conditions and without errors (error flag in the MPH set to "0") are used.

3.1 Plot quality information per product (time dependant)



3.2 Plot quality information per product (world map)

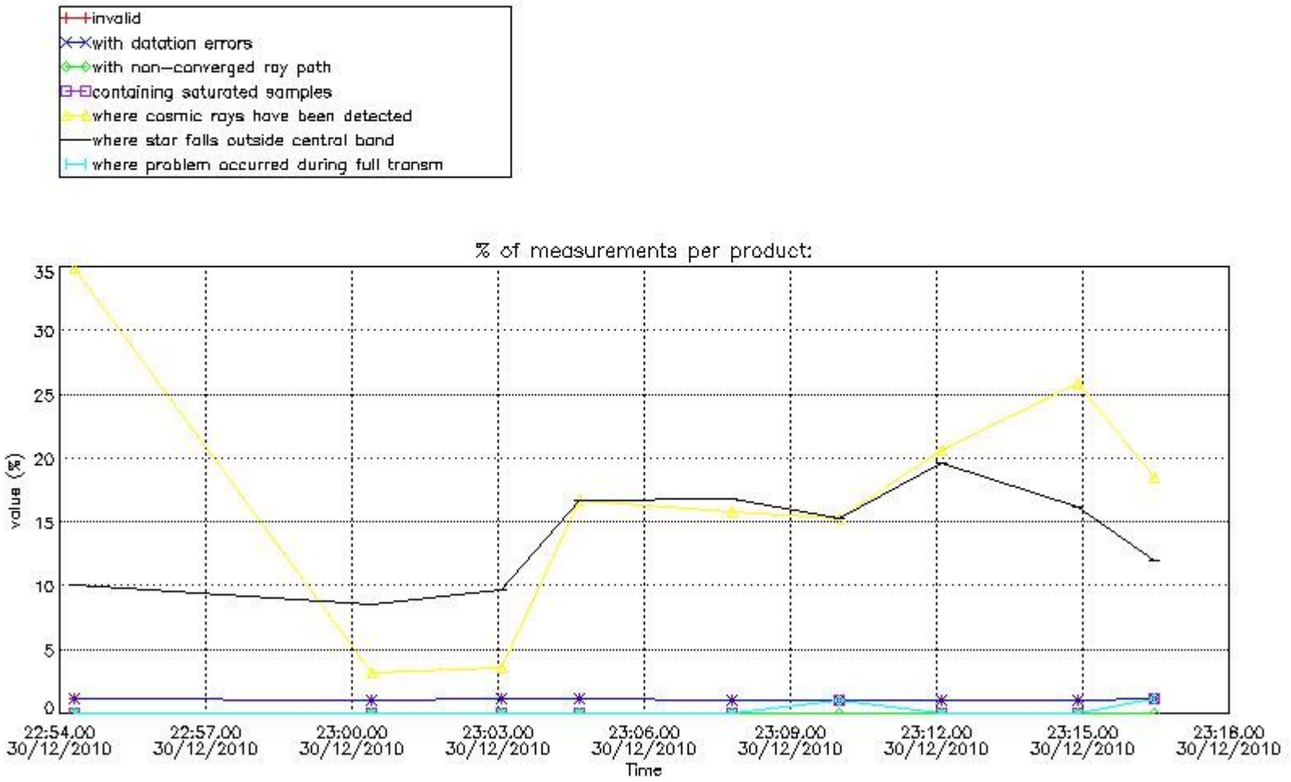


4. Level 1 quality information per product

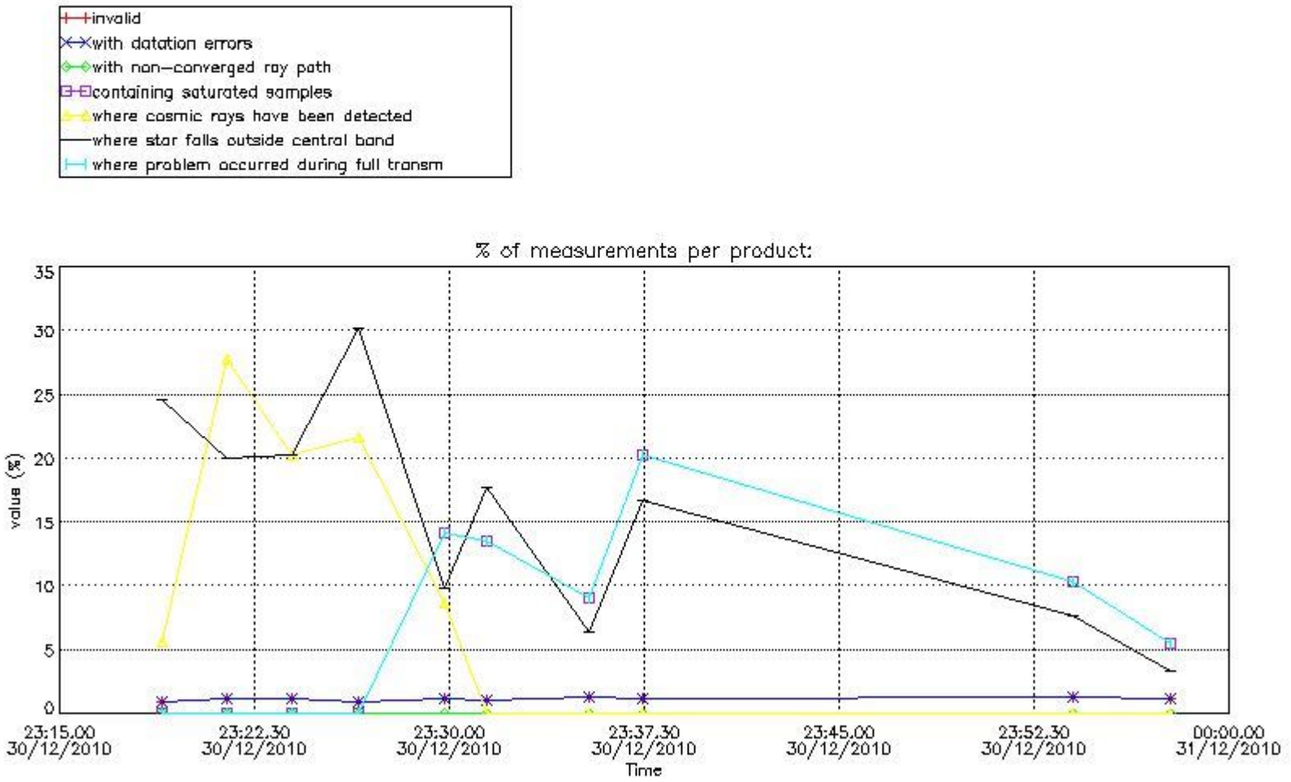
In this section it is plotted some information contained in the Quality Summary data set of the level 2 products that comes from the level 1b processsing. Products without errors (error flag in the MPH set to "0") are used.

4.1 Plot quality information per product (time dependant) comming from level 1b processing

4.1.1 Plot level 1 quality information per product (time dependant): ENVISAT ASCENDING passes

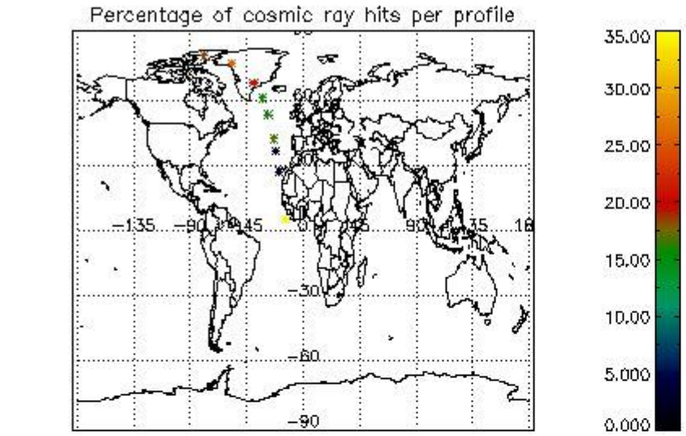


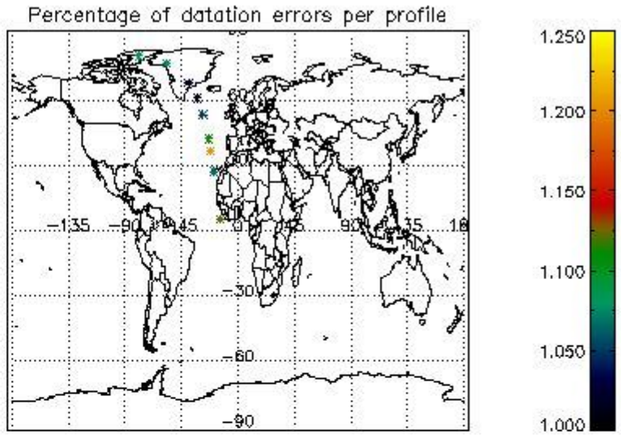
4.1.2 Plot level 1 quality information per product (time dependant): ENVISAT DESCENDING passes

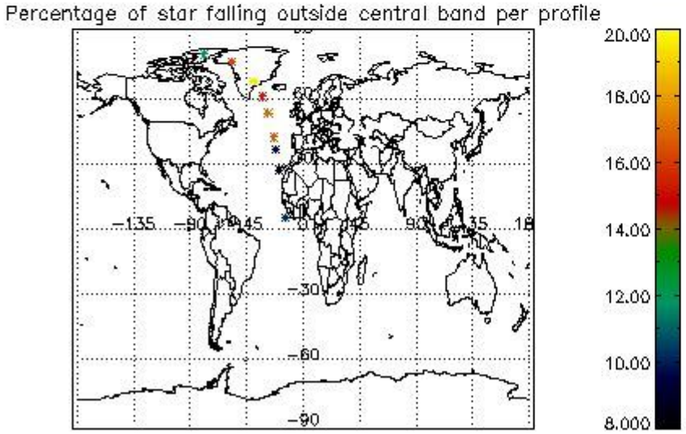


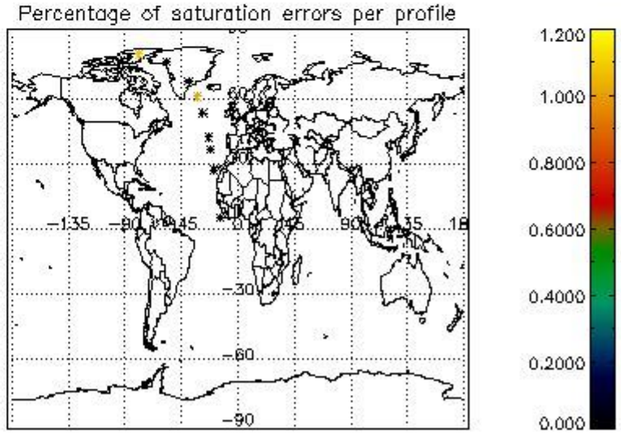
4.2 Plot quality information per product comming from level 1b processing (world map)

4.2.1 Plot level 1 quality information per product (world map): ENVISAT ASCENDING passes

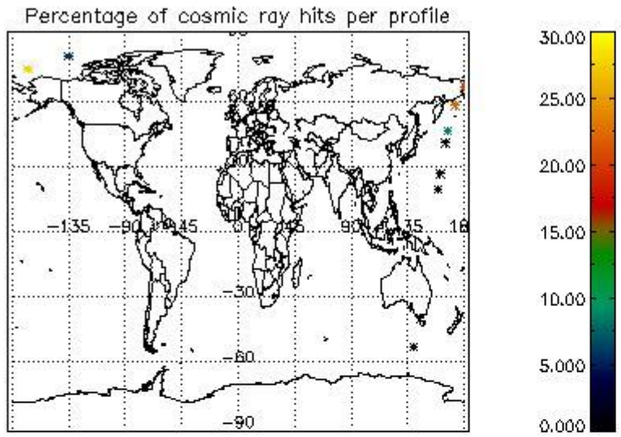


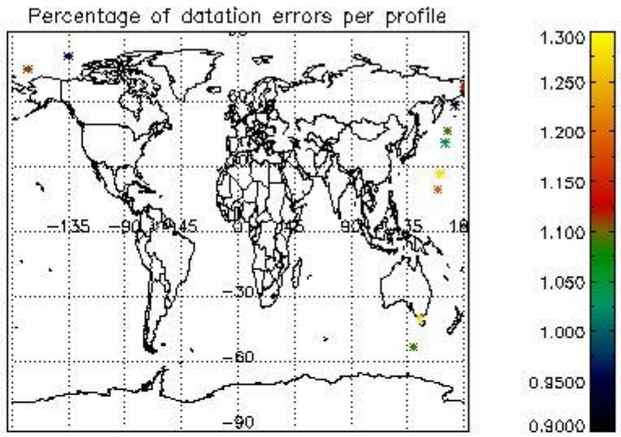


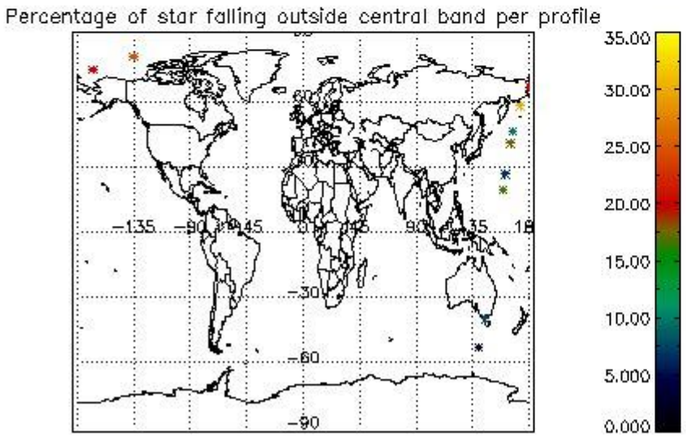


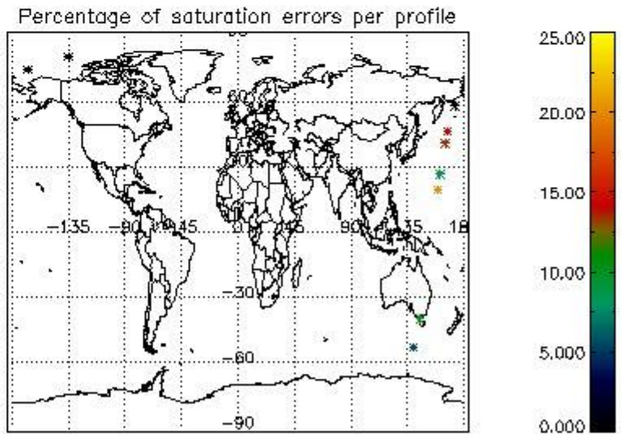


4.2.2 Plot level 1 quality information per product (world map): ENVISAT DESCENDING passes









5. Trace gas profiles

5.1 Ozone statistics based on quality of products

The final quality of the products can be "measured" using the STD (Standard Deviation) attached to every point profile.
This information is written to the parameter GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/o3_std of the level 2 products. The table below shows the statistics for given STD ranges.

The statistics are given with respect to the overall valid production:

- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
- Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

The 'Criteria' is applied to valid points of dark limb products:

- Products in dark limb illumination condition: GOM_NL__2P/NL_SUMMARY_QUALITY/obs_ill_cond=0
- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
    - Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

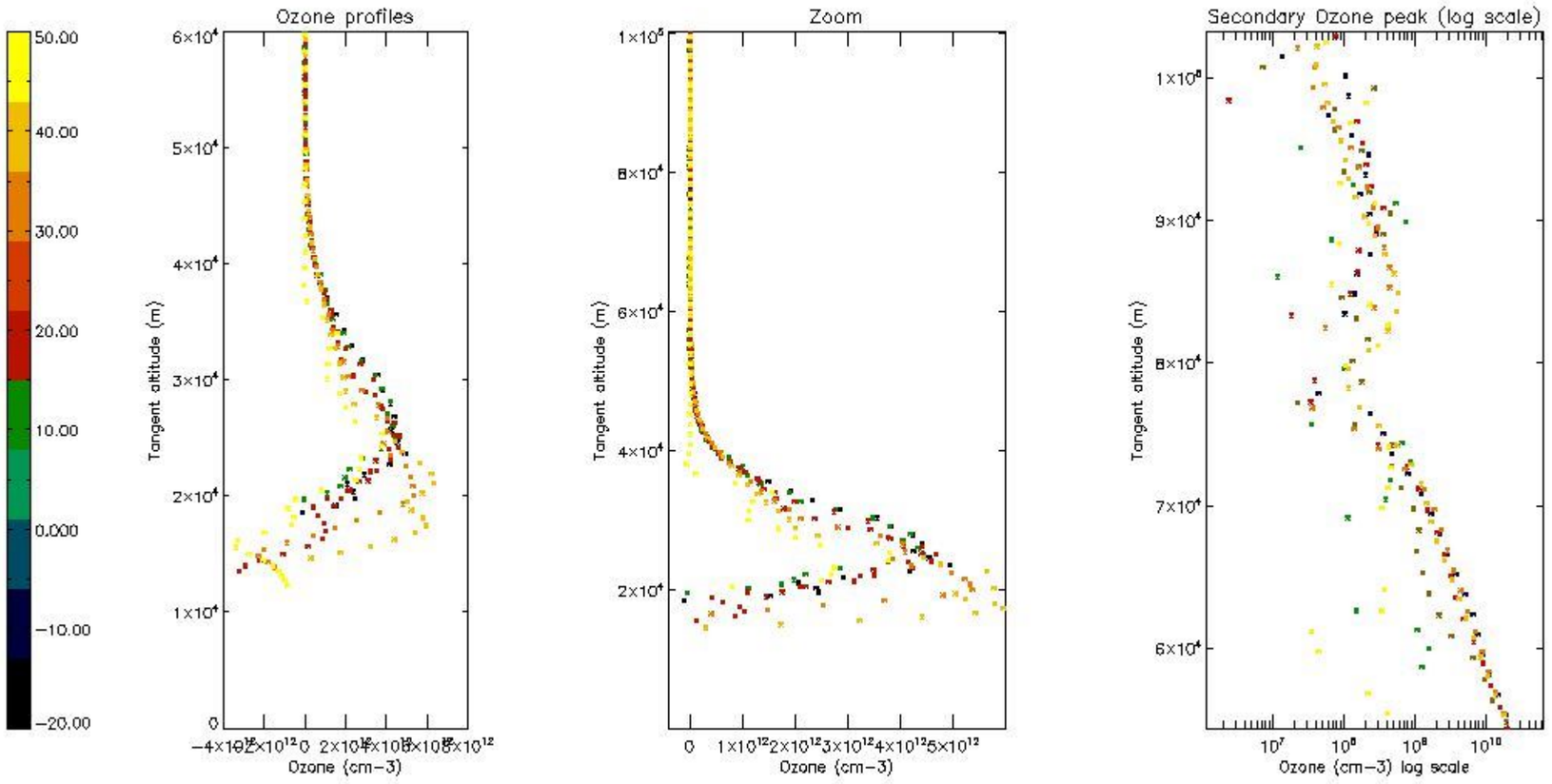
So, the table below shows the percentage of dark limb and valid observations for each criteria with respect to the overall valid daily observations.

Criteria	% of total production
All STD	37
STD < 20	17

STD < 10	13
STD < 5	6

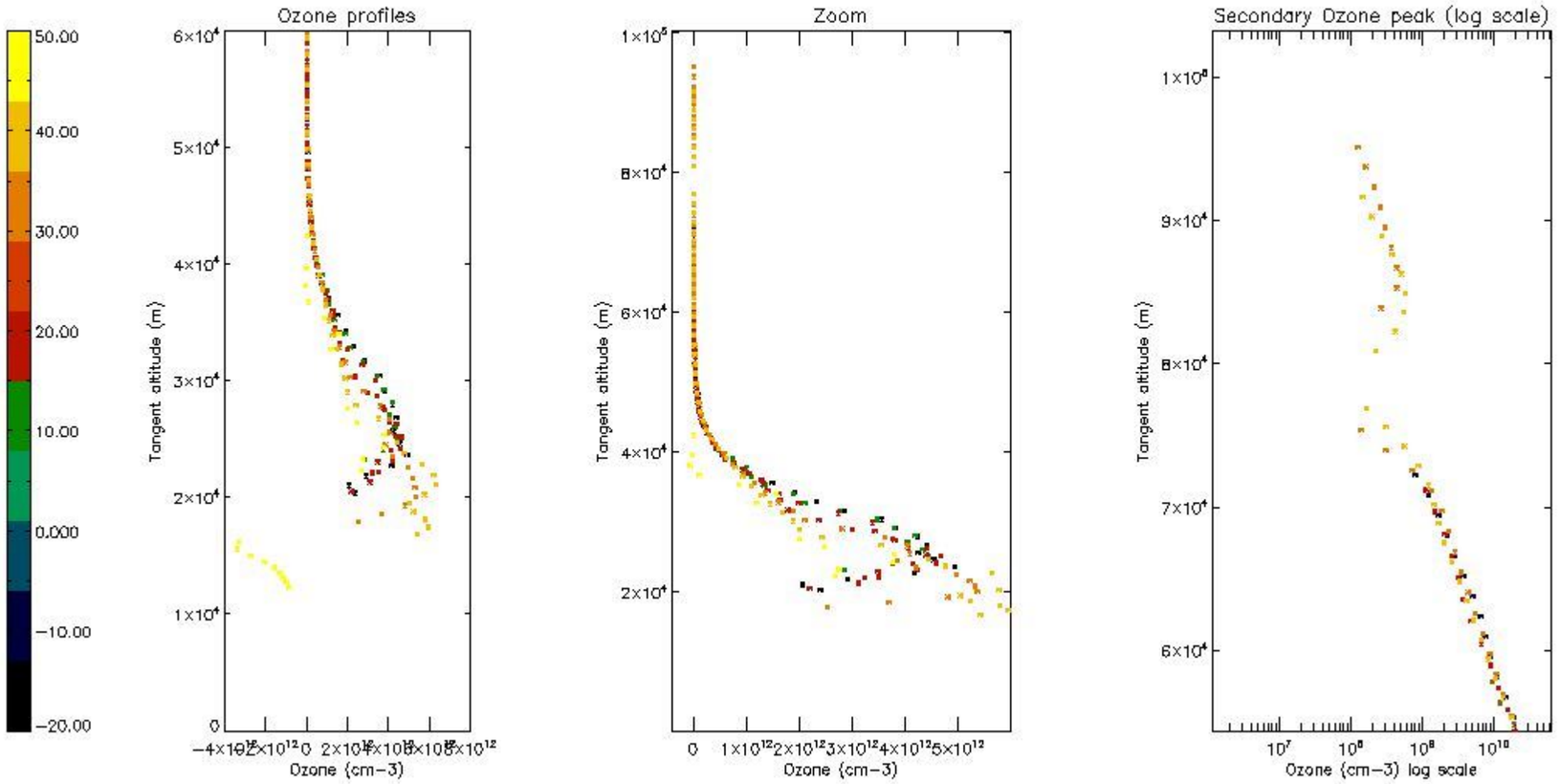
5.2 Plot ozone profiles for all STD (dark without errors)

The colorbar represents the latitude.



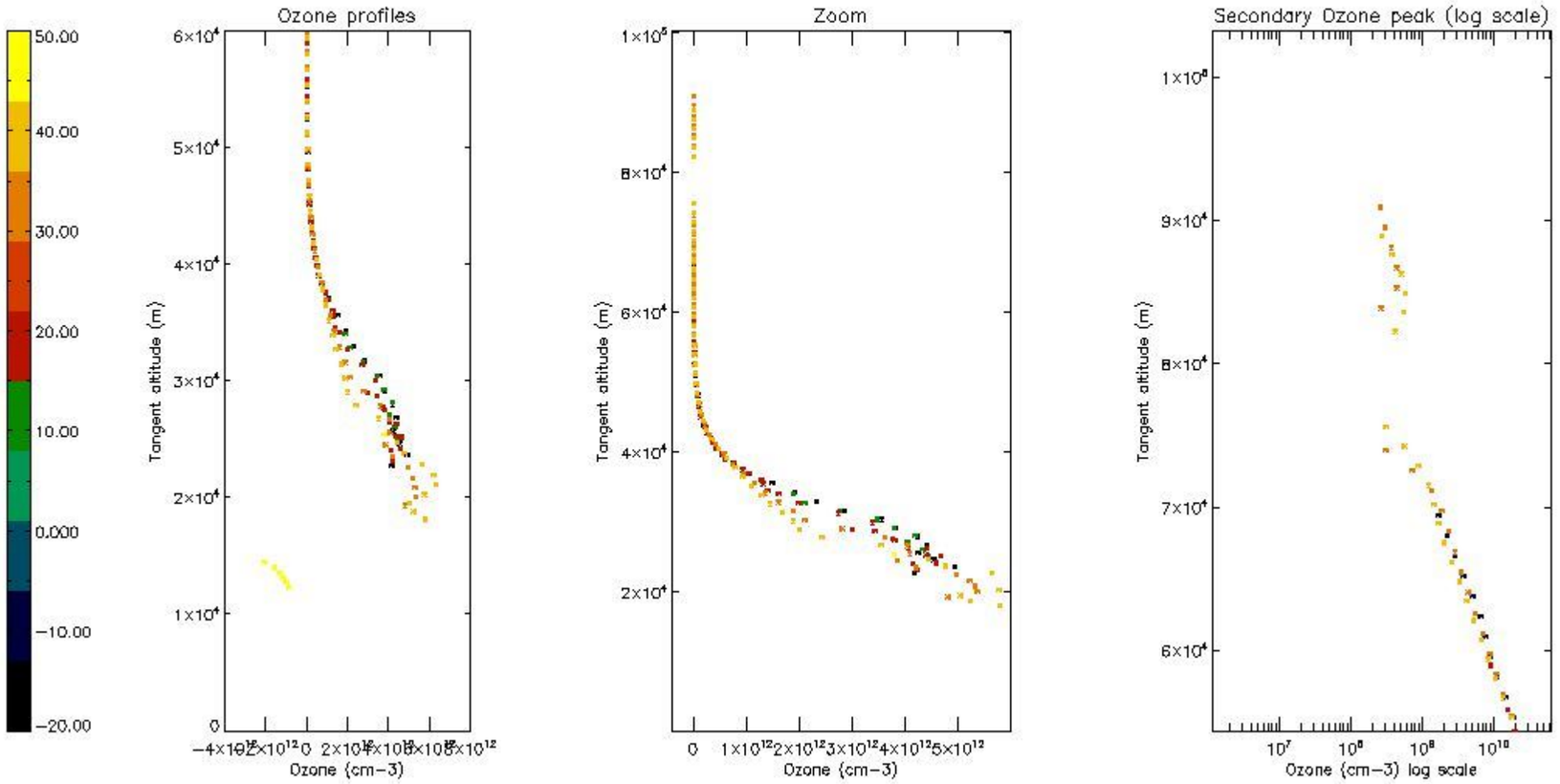
5.3 Plot ozone profiles where STD < 20% (dark without errors)

The colorbar represents the latitude.



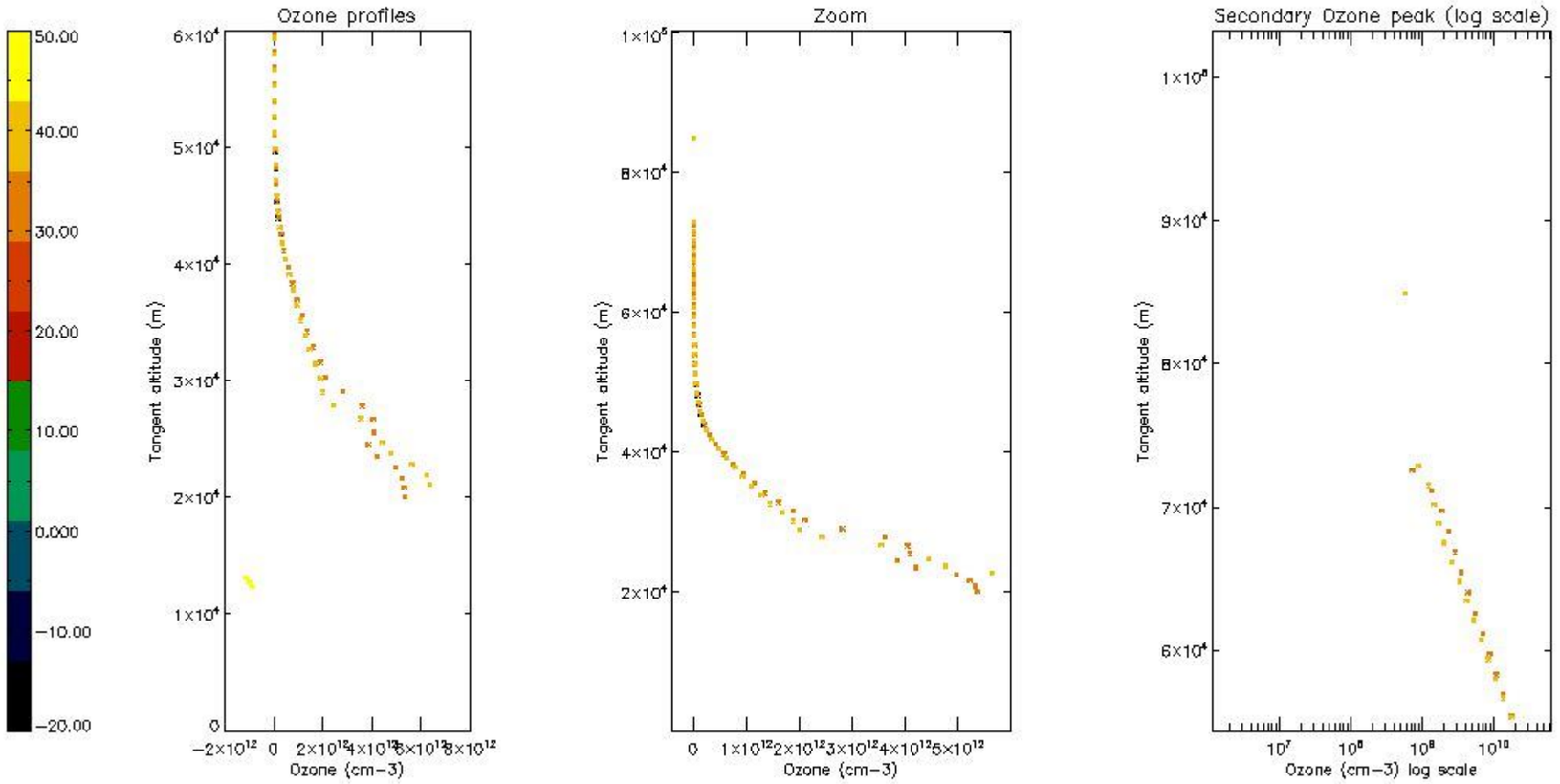
5.4 Plot ozone profiles where STD < 10% (dark without errors)

The colorbar represents the latitude.



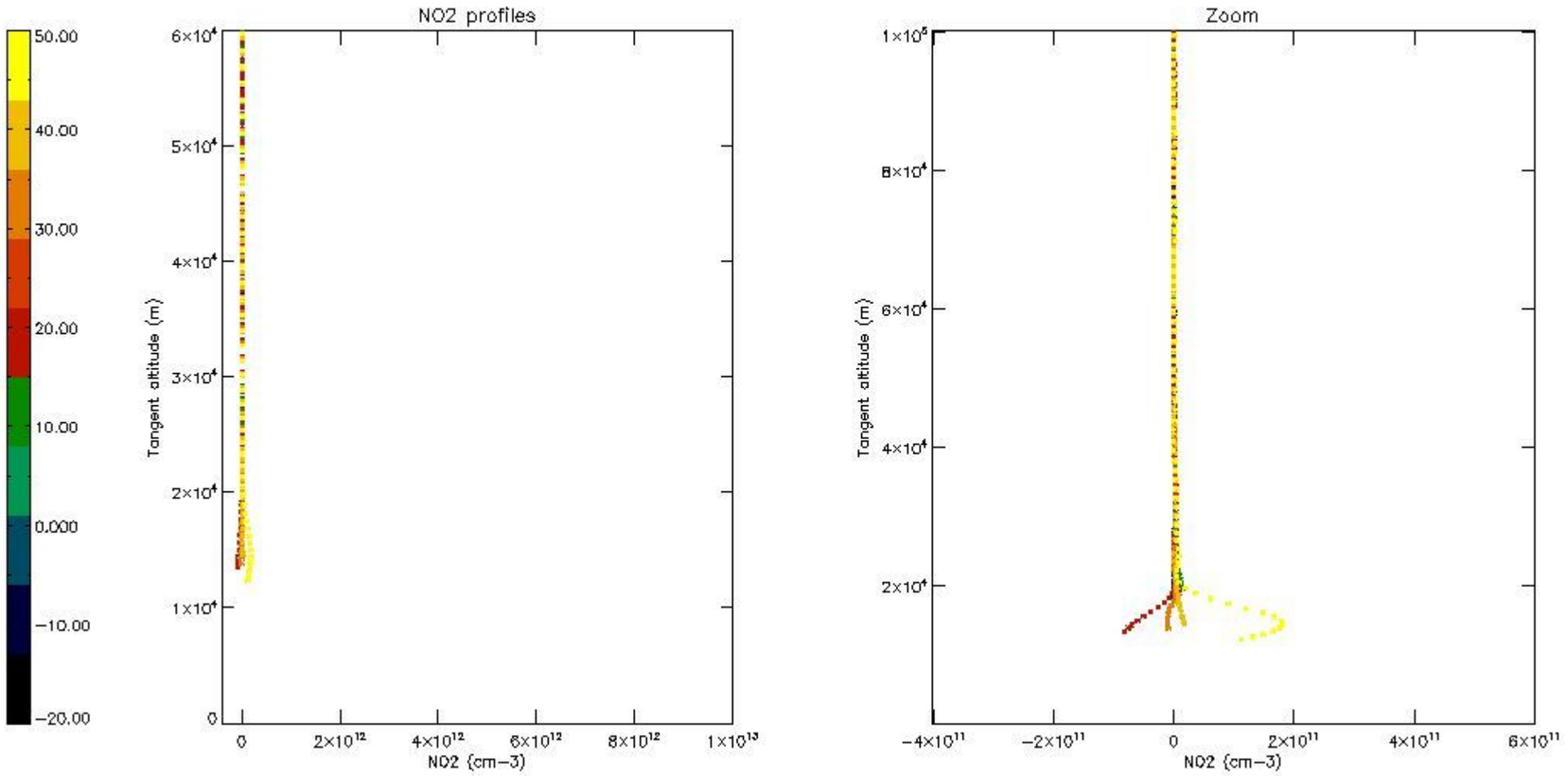
5.5 Plot ozone profiles where STD < 5% (dark without errors)

The colorbar represents the latitude.



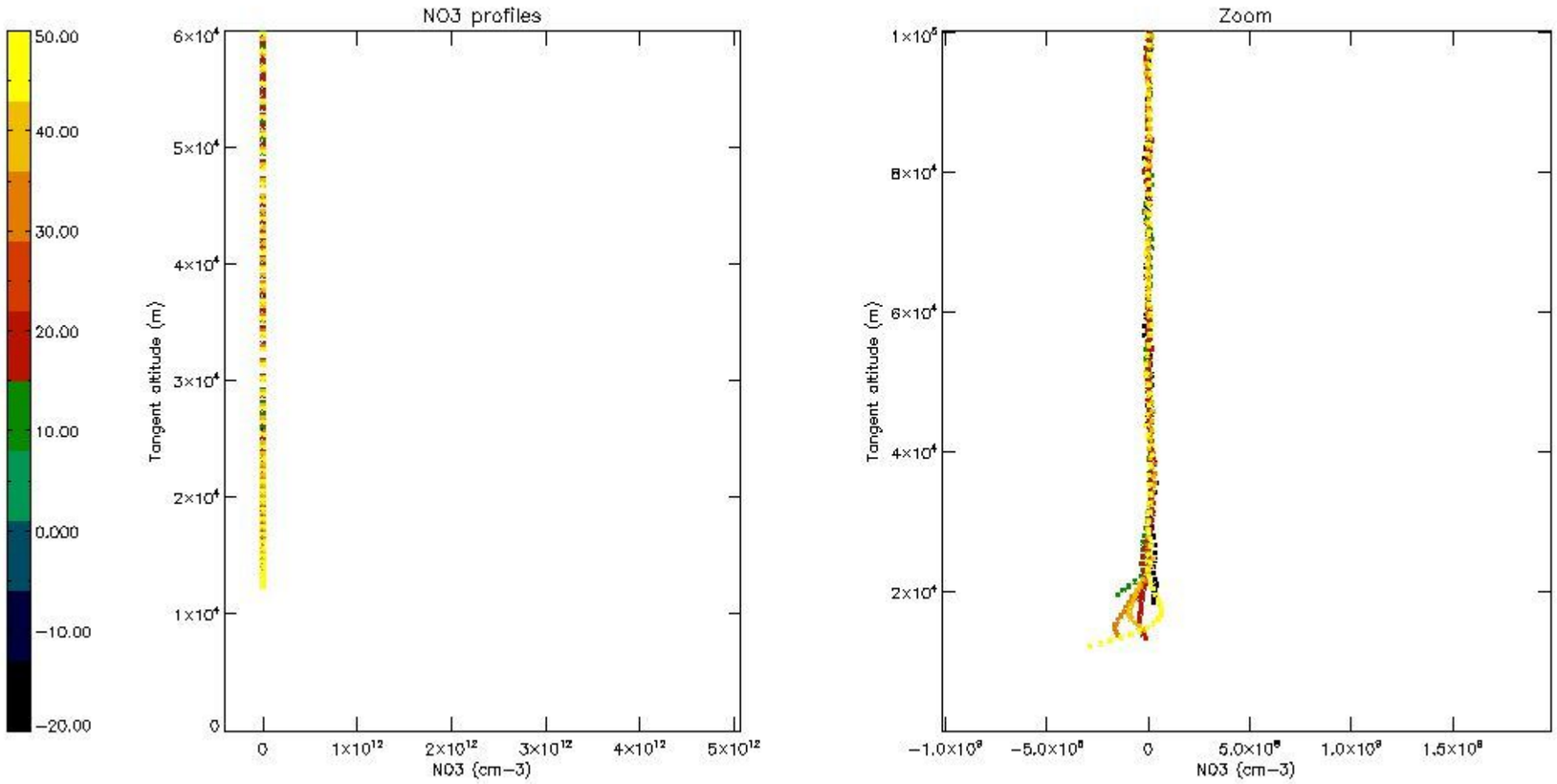
5.6 Plot NO2 profiles for all STD (dark without errors)

The colorbar represents the latitude.



5.7 Plot NO3 profiles for all STD (dark without errors)

The colorbar represents the latitude.



6. Auxiliary Data Files used for the production reported in section 2

The number reported in the third column indicates since which file (see list in section 2) the corresponding auxiliary file has been used. The fourth column is the date of those product files.

Type	Auxiliary Filename	Used since product	Used since product date
INST_PHYS_CHARACTERISTICS	GOM_INS_AXVIEC20091111_143220_20030716_120000_20500101_000000	1	30-DEC-2010 22:54:17
LEVEL-2_PROC_CONFIG	GOM_PR2_AXVIEC20091111_152718_20020301_000000_20500101_000000	1	30-DEC-2010 22:54:17
CROSS_SECTIONS_FILE	GOM_CRS_AXVIEC20091111_154832_20020301_000000_20500101_000000	1	30-DEC-2010 22:54:17

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   - 4.2 Plot of level 1 quality information per product (world map)
     - 4.2.1 Plot of level 1 quality information per product (world map): ASCENDING
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5. Ozone profiles based on quality statistics and other trace gas profiles

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12	GOM_NL__2PRFIN20101230_232357_000000453098_00059_46194_1672.N1	30-DEC-2010 23:23:57	Straylight	44.500	30	46Eps Ori	1.6940	30000.	89	46194	No
13	GOM_NL__2PRFIN20101230_232629_000000533098_00059_46194_1673.N1	30-DEC-2010 23:26:29	Twi_and_stray	53.000	14	58Alp Ori	0.87000	3000.0	106	46194	No
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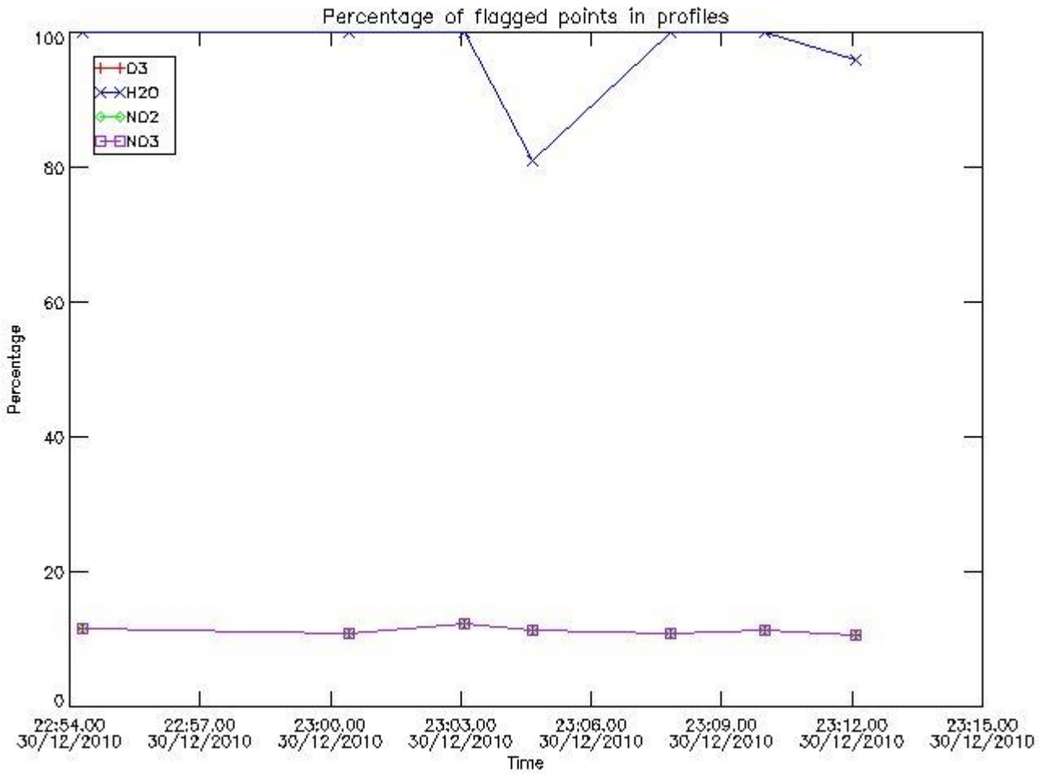
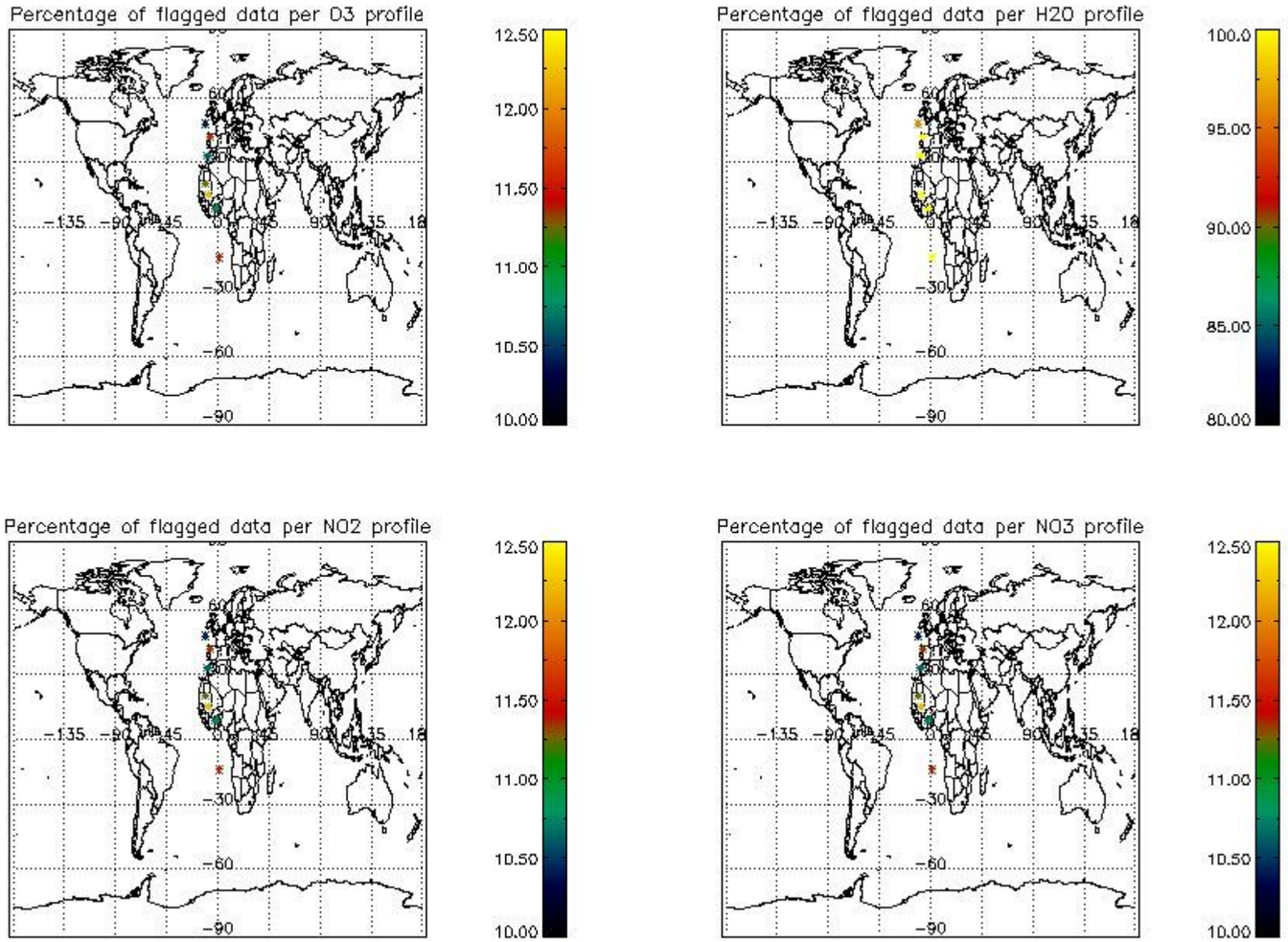
3. Quality information per product

In this section it is plotted some information contained in the Quality Summary data set of the level 2 products. Only products in dark limb conditions and without errors (error flag in the MPH set to "0") are used.

3.1 Plot quality information per product (time dependant)



3.2 Plot quality information per product (world map)

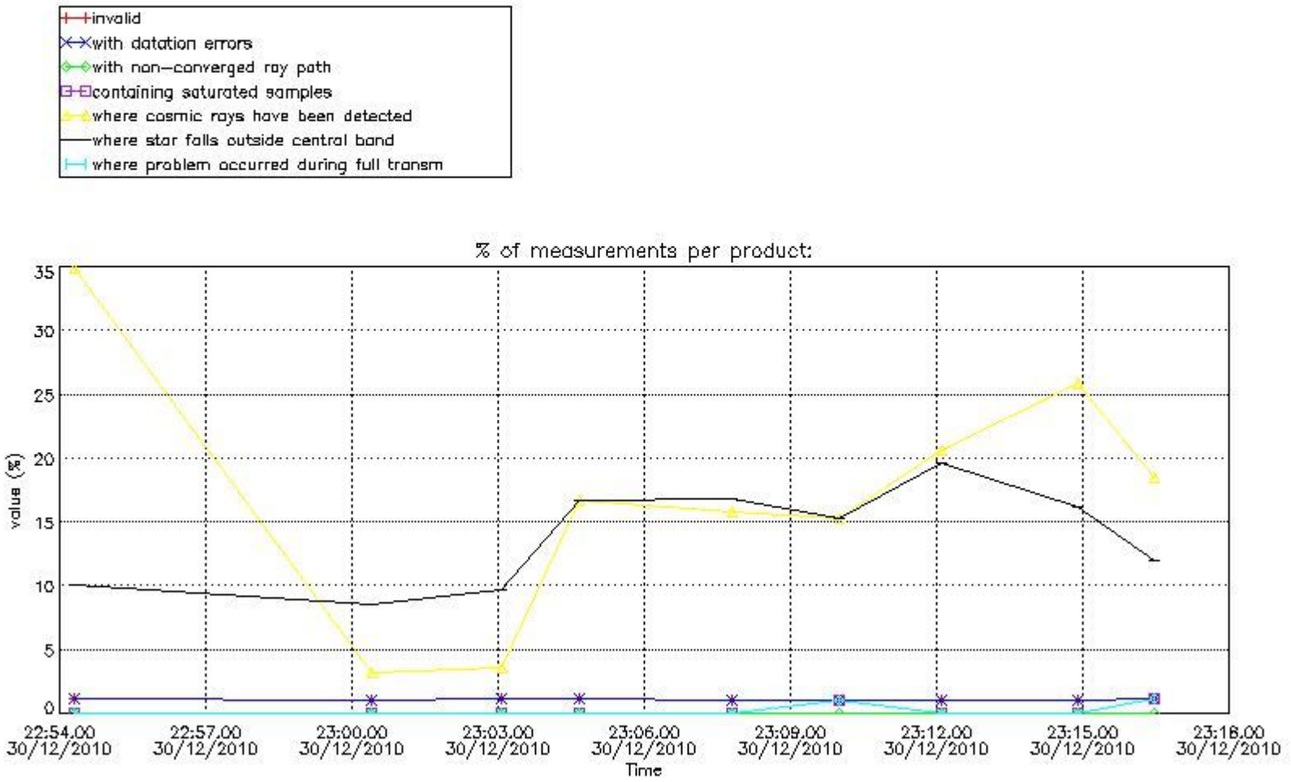


4. Level 1 quality information per product

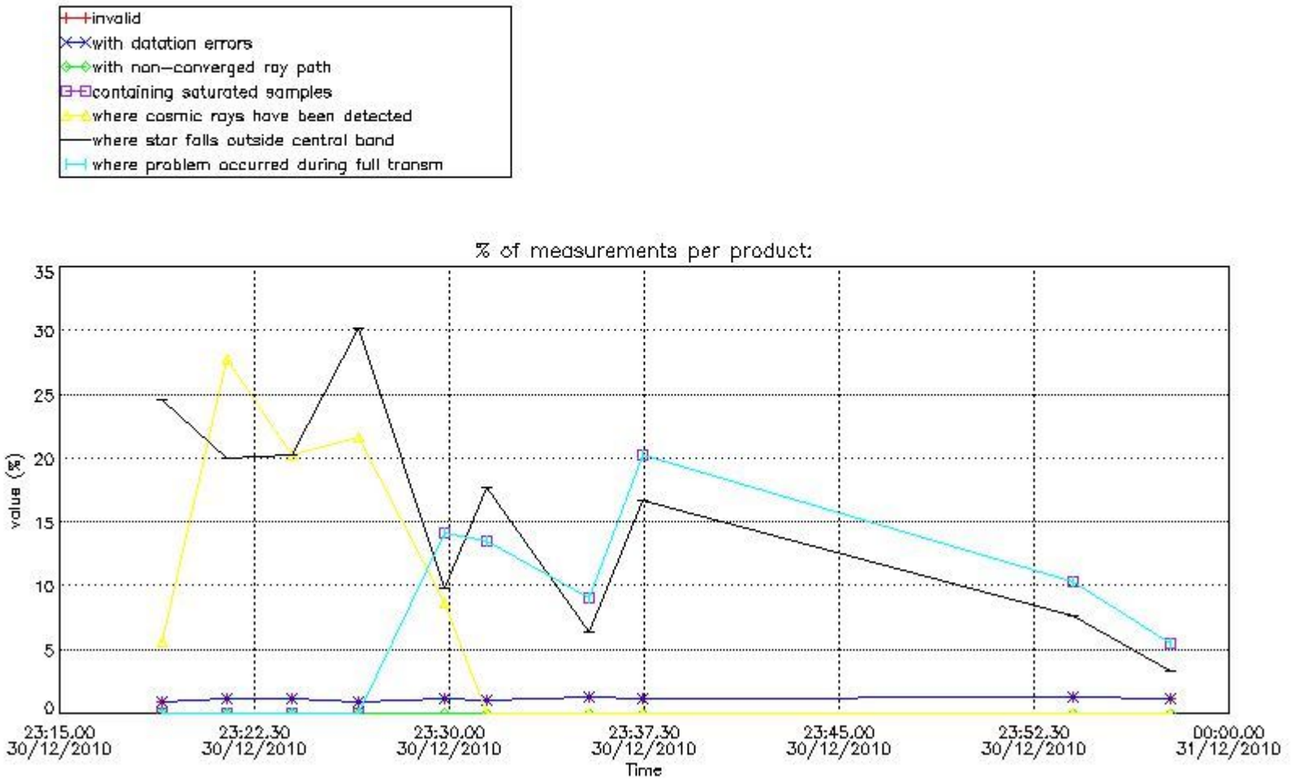
In this section it is plotted some information contained in the Quality Summary data set of the level 2 products that comes from the level 1b processsing. Products without errors (error flag in the MPH set to "0") are used.

4.1 Plot quality information per product (time dependant) comming from level 1b processing

4.1.1 Plot level 1 quality information per product (time dependant): ENVISAT ASCENDING passes

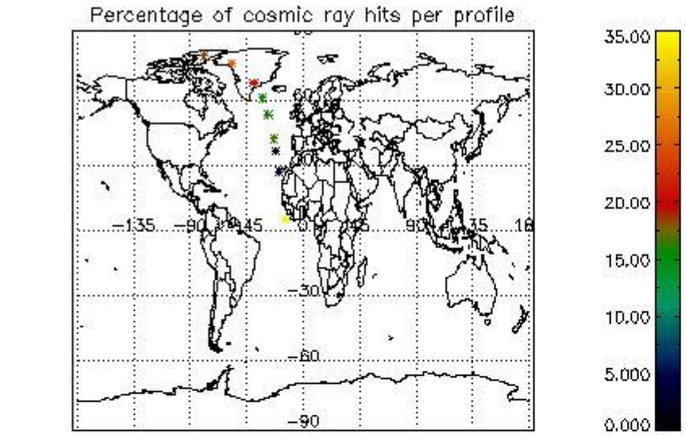


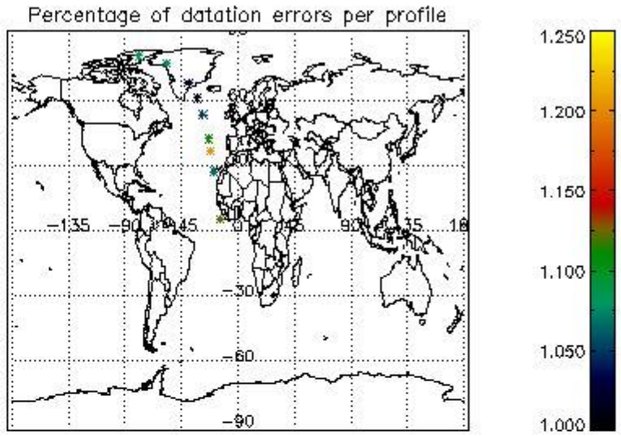
4.1.2 Plot level 1 quality information per product (time dependant): ENVISAT DESCENDING passes

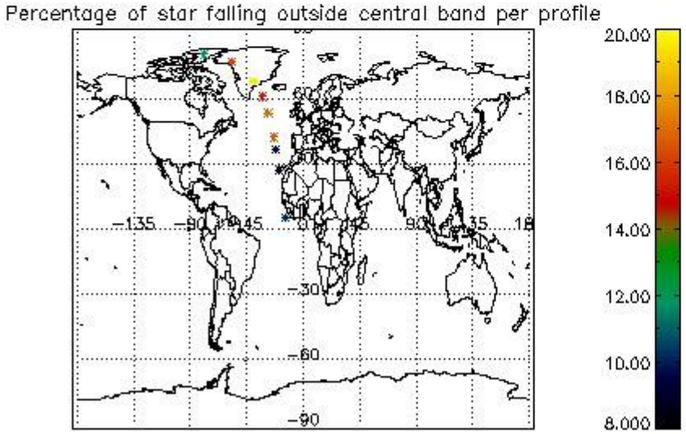


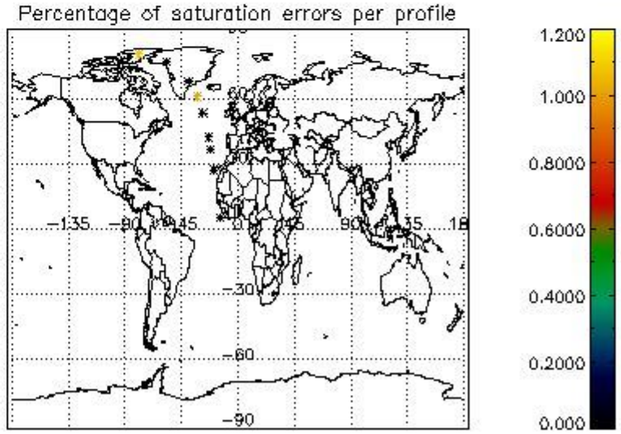
4.2 Plot quality information per product comming from level 1b processing (world map)

4.2.1 Plot level 1 quality information per product (world map): ENVISAT ASCENDING passes

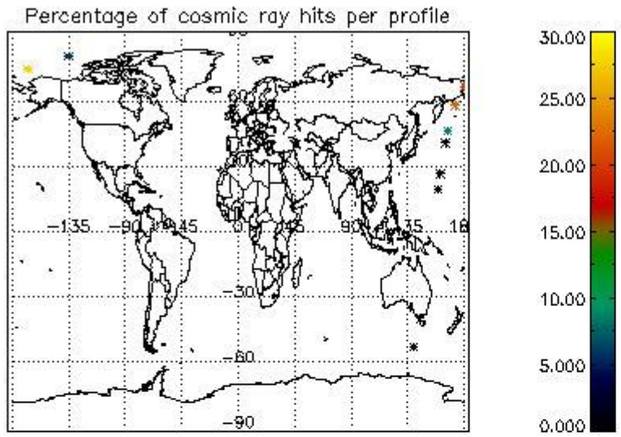


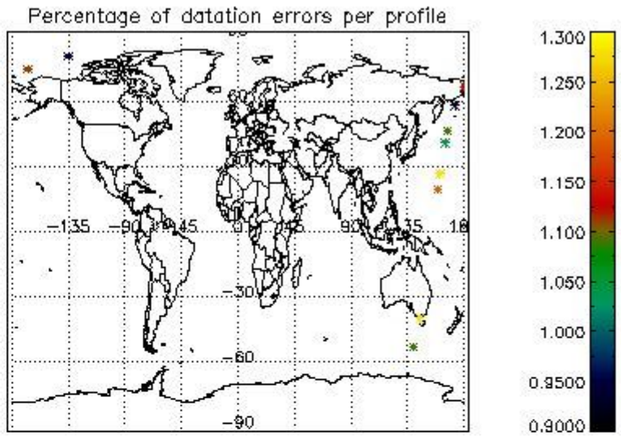


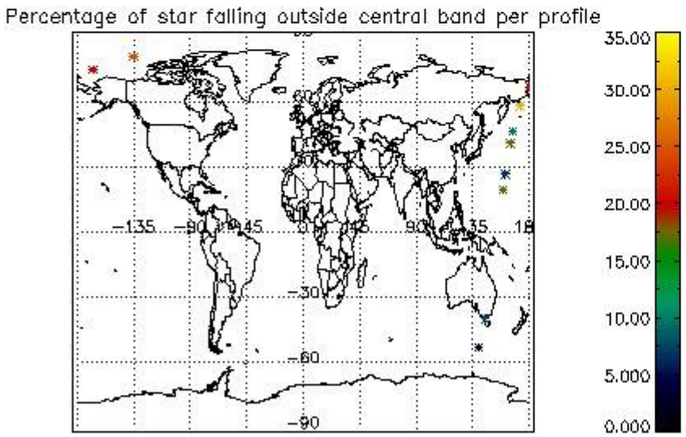


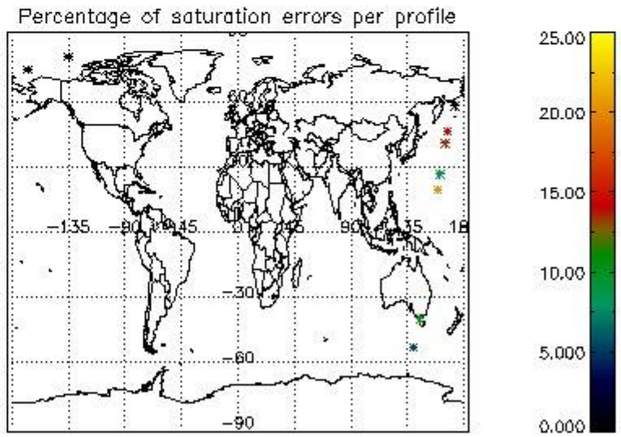


4.2.2 Plot level 1 quality information per product (world map): ENVISAT DESCENDING passes









5. Trace gas profiles

5.1 Ozone statistics based on quality of products

The final quality of the products can be "measured" using the STD (Standard Deviation) attached to every point profile.
This information is written to the parameter GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/o3_std of the level 2 products. The table below shows the statistics for given STD ranges.

The statistics are given with respect to the overall valid production:

- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
- Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

The 'Criteria' is applied to valid points of dark limb products:

- Products in dark limb illumination condition: GOM_NL__2P/NL_SUMMARY_QUALITY/obs_ill_cond=0
- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
    - Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

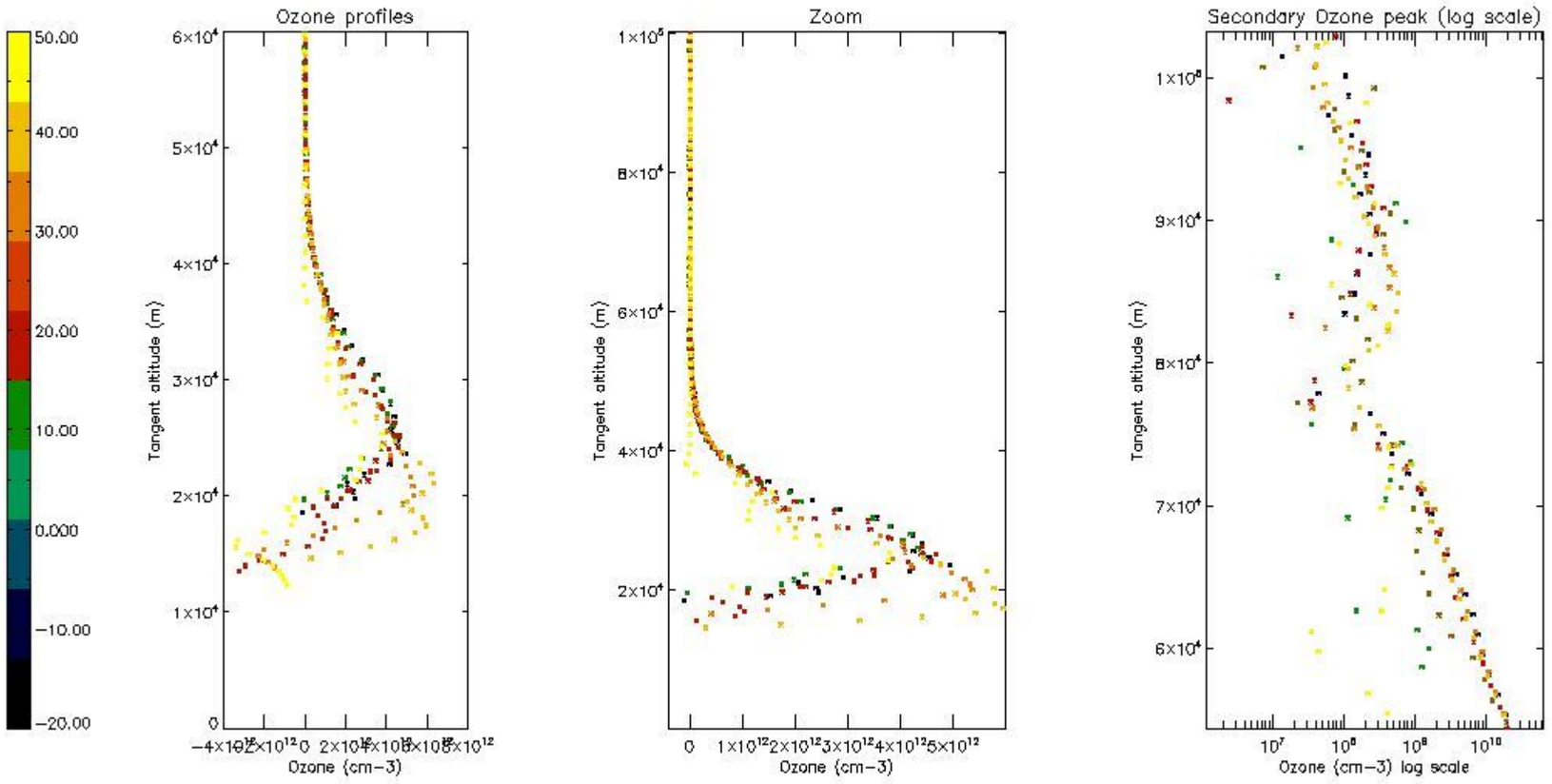
So, the table below shows the percentage of dark limb and valid observations for each criteria with respect to the overall valid daily observations.

Criteria	% of total production
All STD	37
STD < 20	17

STD < 10	13
STD < 5	6

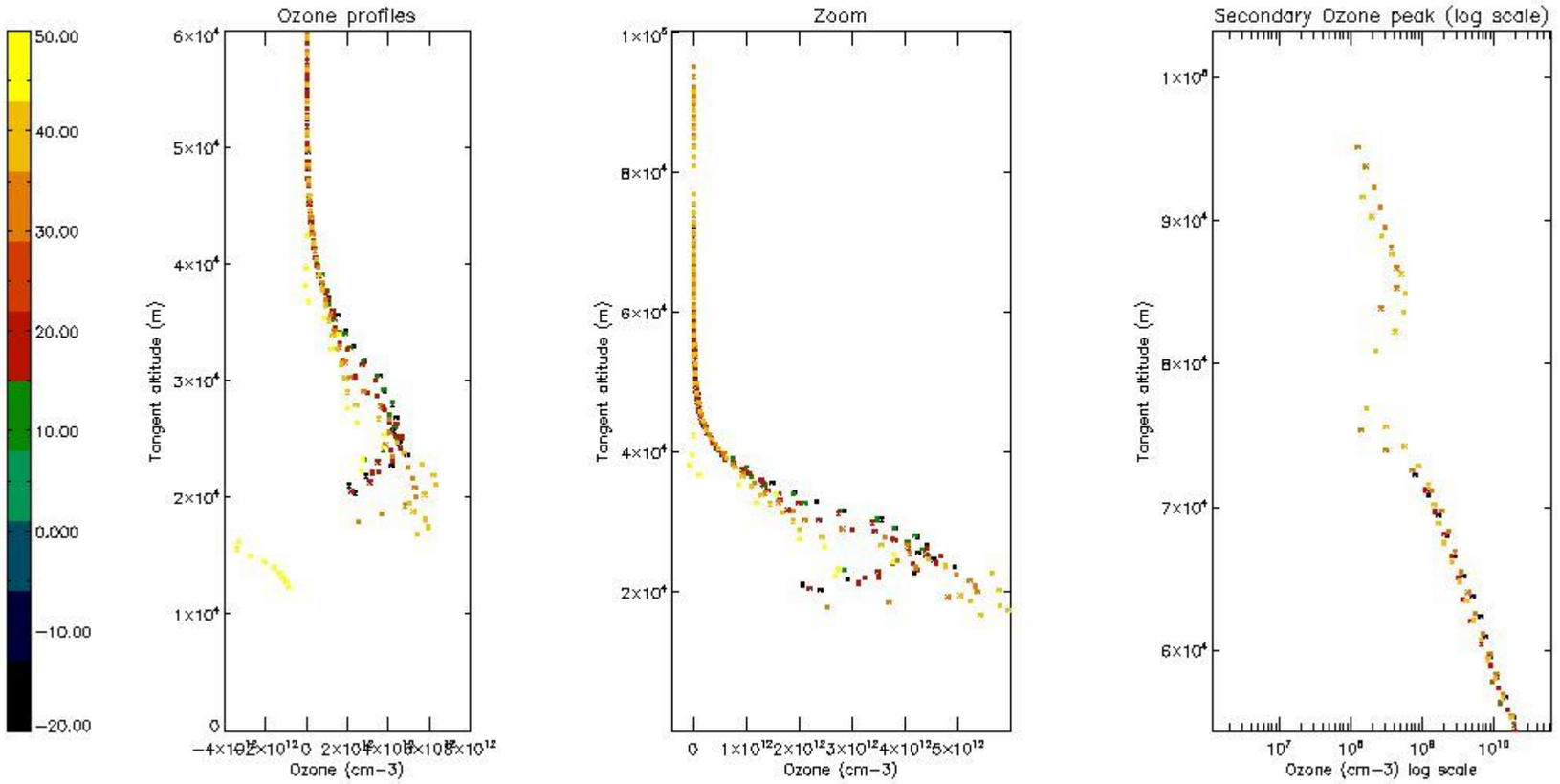
5.2 Plot ozone profiles for all STD (dark without errors)

The colorbar represents the latitude.



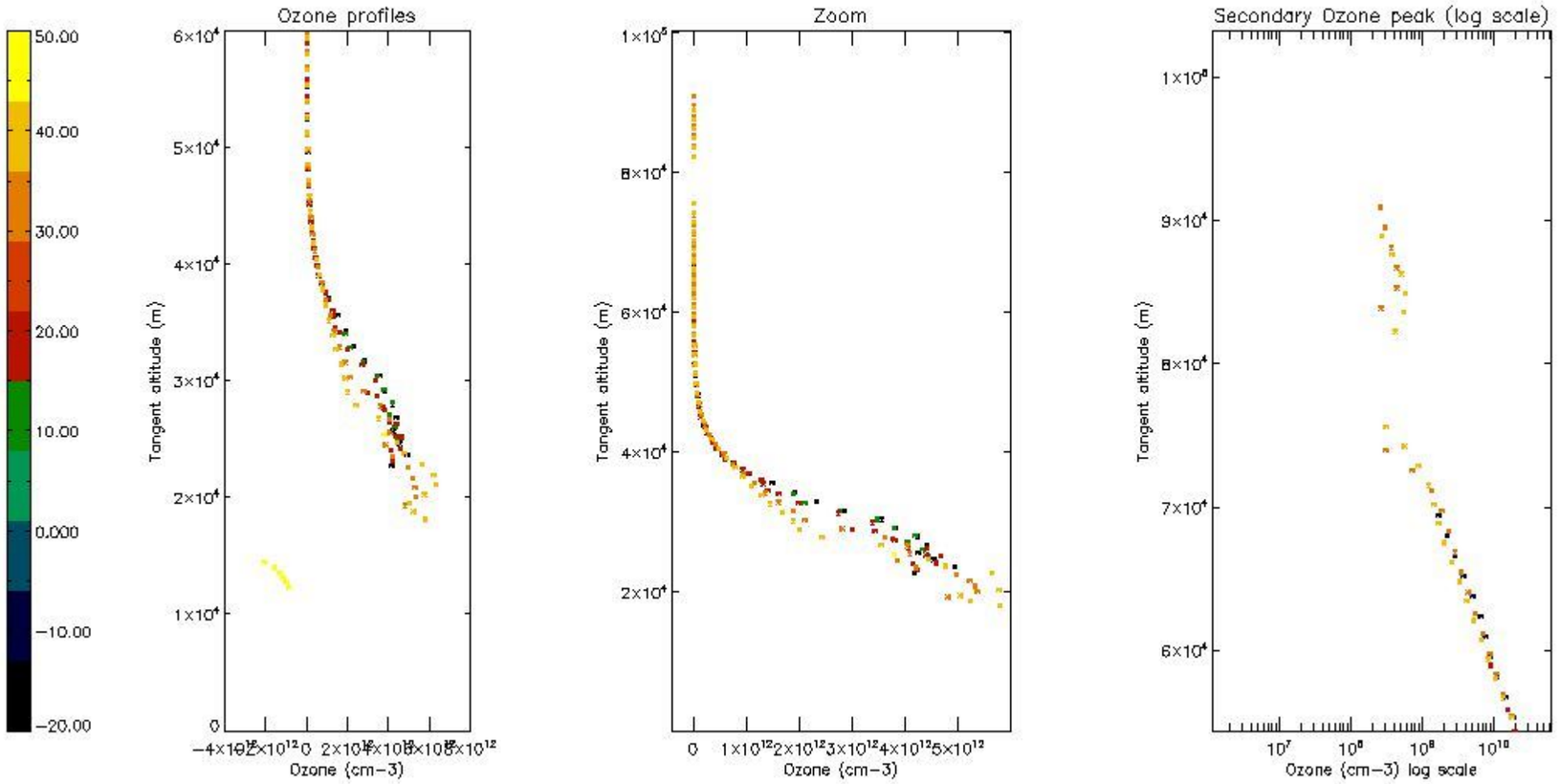
5.3 Plot ozone profiles where STD < 20% (dark without errors)

The colorbar represents the latitude.



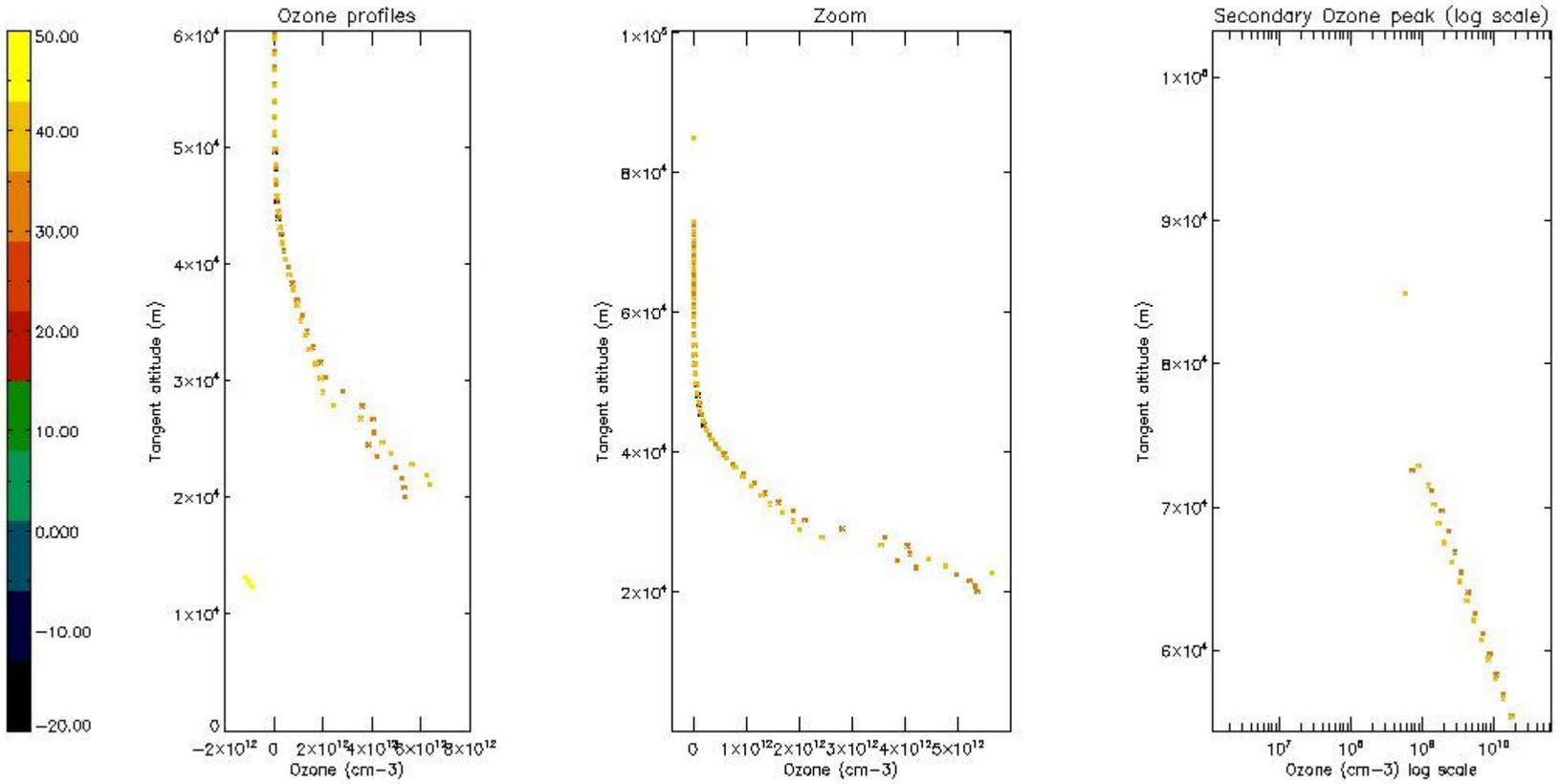
5.4 Plot ozone profiles where STD < 10% (dark without errors)

The colorbar represents the latitude.



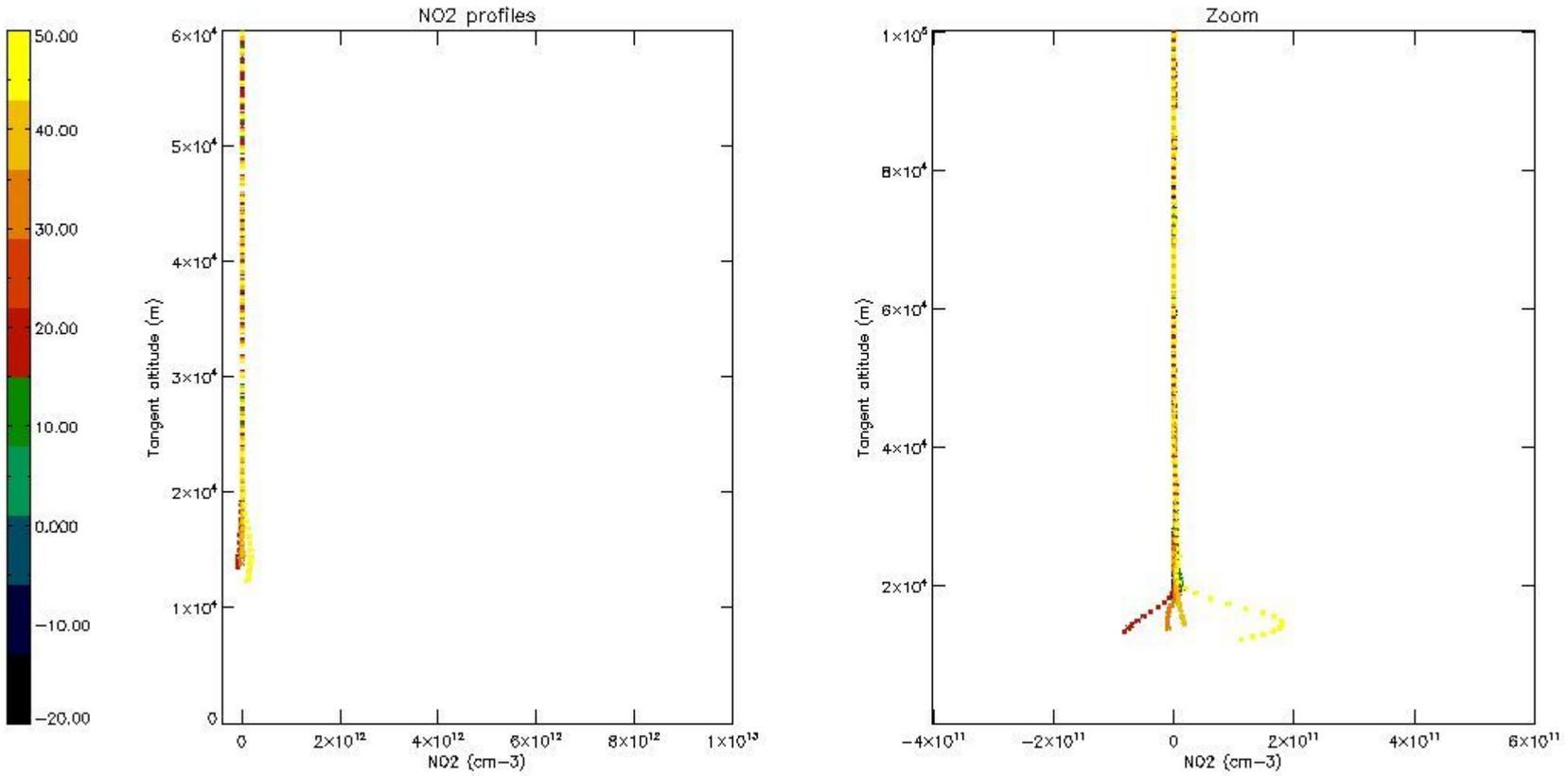
5.5 Plot ozone profiles where STD < 5% (dark without errors)

The colorbar represents the latitude.



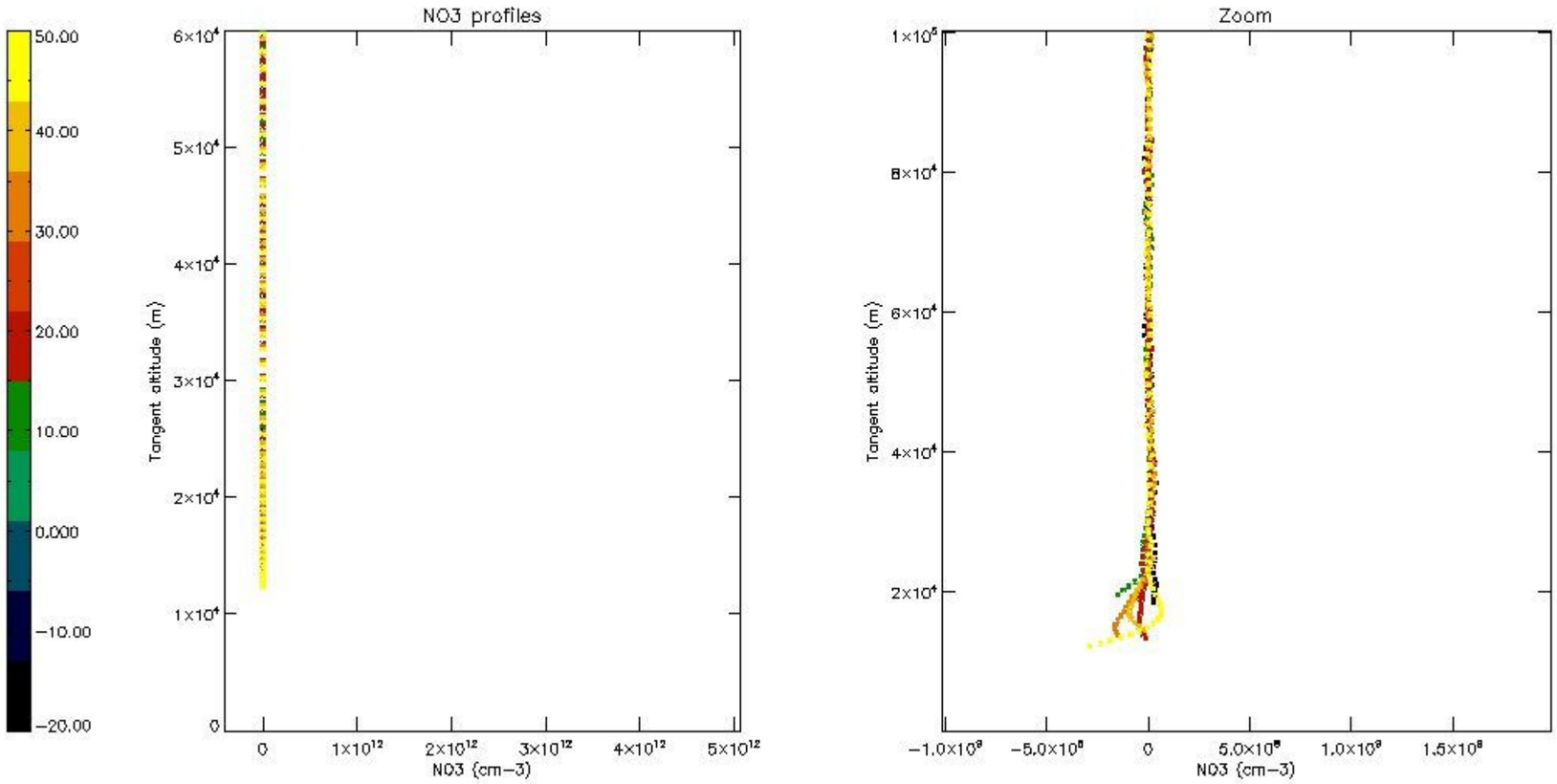
5.6 Plot NO2 profiles for all STD (dark without errors)

The colorbar represents the latitude.



5.7 Plot NO3 profiles for all STD (dark without errors)

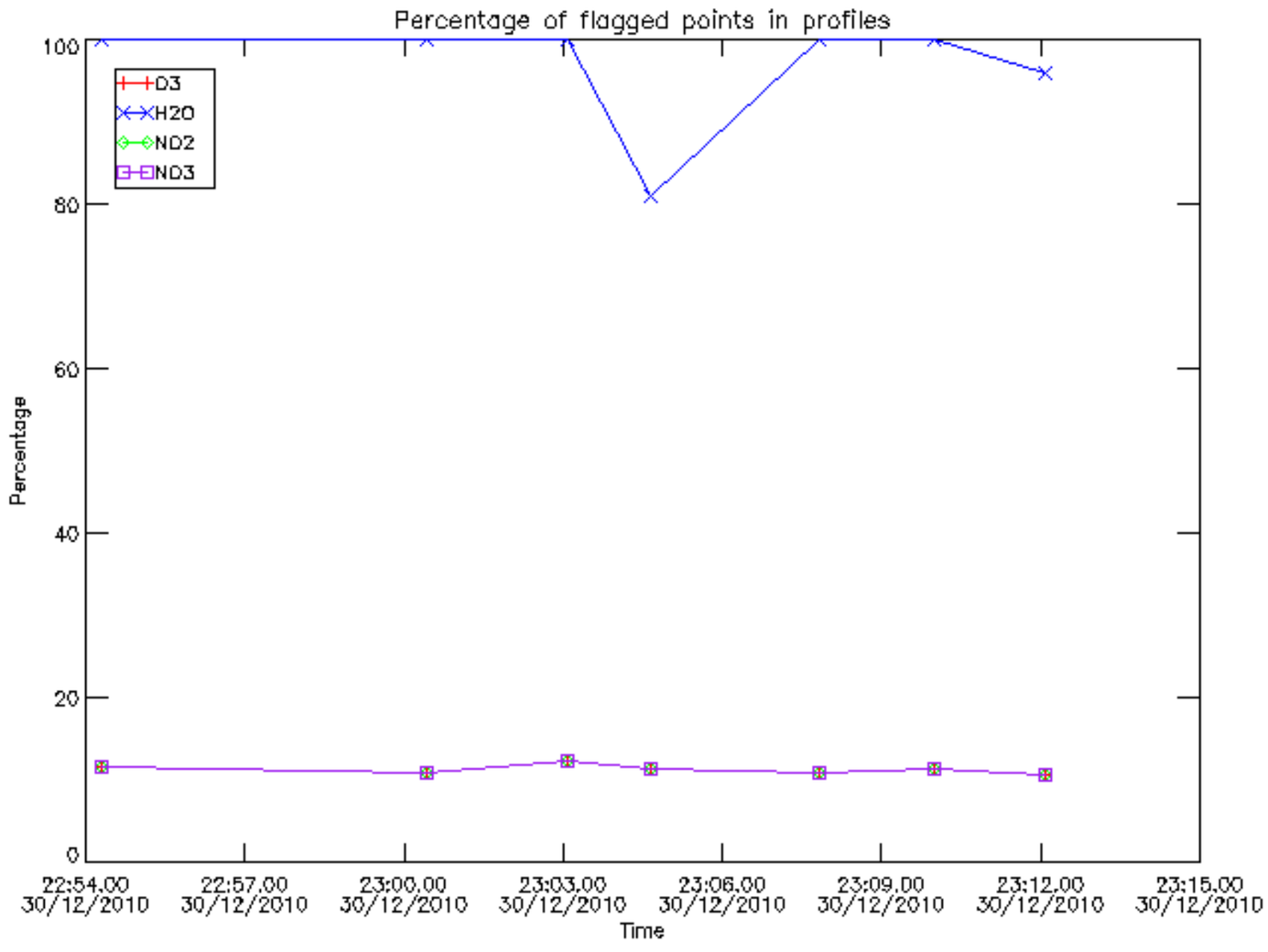
The colorbar represents the latitude.



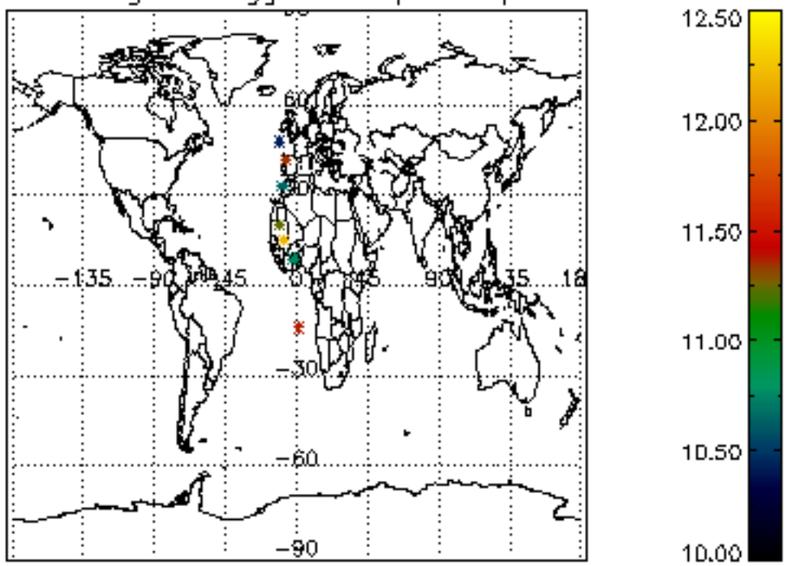
6. Auxiliary Data Files used for the production reported in section 2

The number reported in the third column indicates since which file (see list in section 2) the corresponding auxiliary file has been used. The fourth column is the date of those product files.

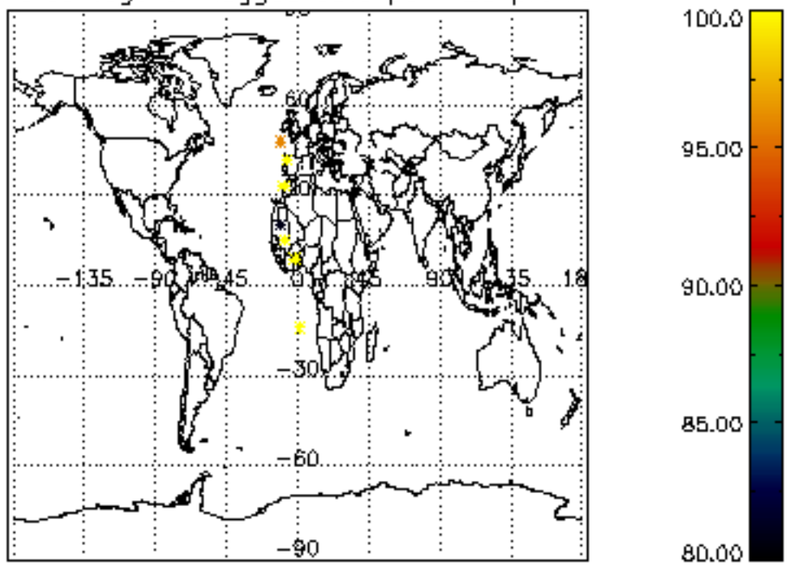
Type	Auxiliary Filename	Used since product	Used since product date
INST_PHYS_CHARACTERISTICS	GOM_INS_AXVIEC20091111_143220_20030716_120000_20500101_000000	1	30-DEC-2010 22:54:17
LEVEL-2_PROC_CONFIG	GOM_PR2_AXVIEC20091111_152718_20020301_000000_20500101_000000	1	30-DEC-2010 22:54:17
CROSS_SECTIONS_FILE	GOM_CRS_AXVIEC20091111_154832_20020301_000000_20500101_000000	1	30-DEC-2010 22:54:17


Percentage of flagged points in profiles
O3
H2O
NO2
NO3
100
80
60
40
20
0
Percentage
22:54.00
30/12/2010
22:57.00
30/12/2010
23:00.00
30/12/2010
23:03.00
30/12/2010
23:06.00
30/12/2010
23:09.00
30/12/2010
23:12.00
30/12/2010
23:15.00
30/12/2010
Time

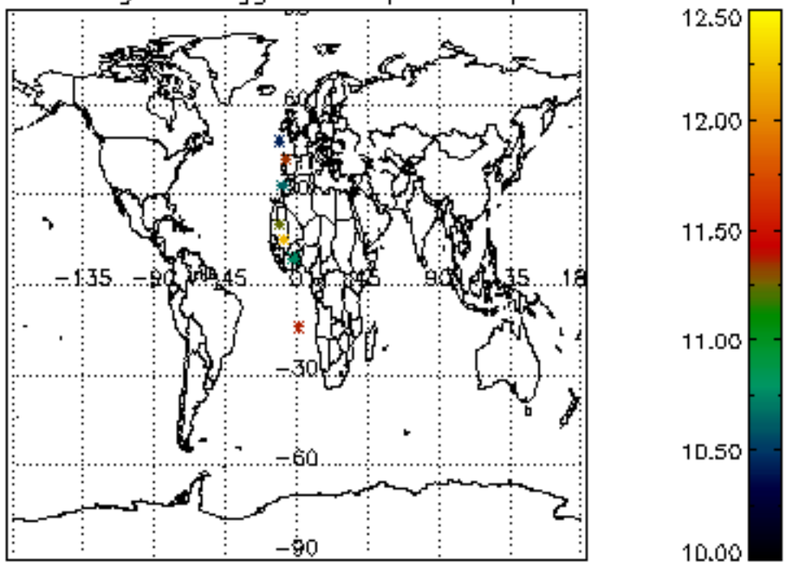
Percentage of flagged data per O3 profile



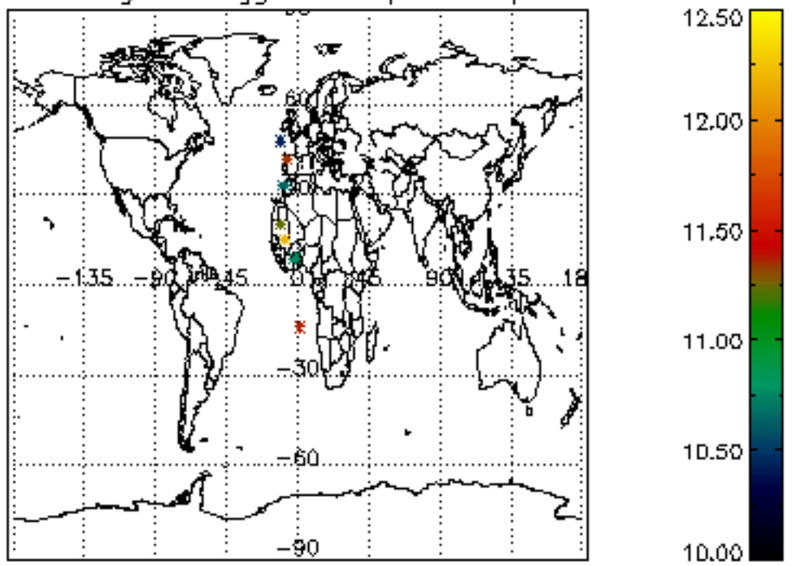
Percentage of flagged data per H2O profile

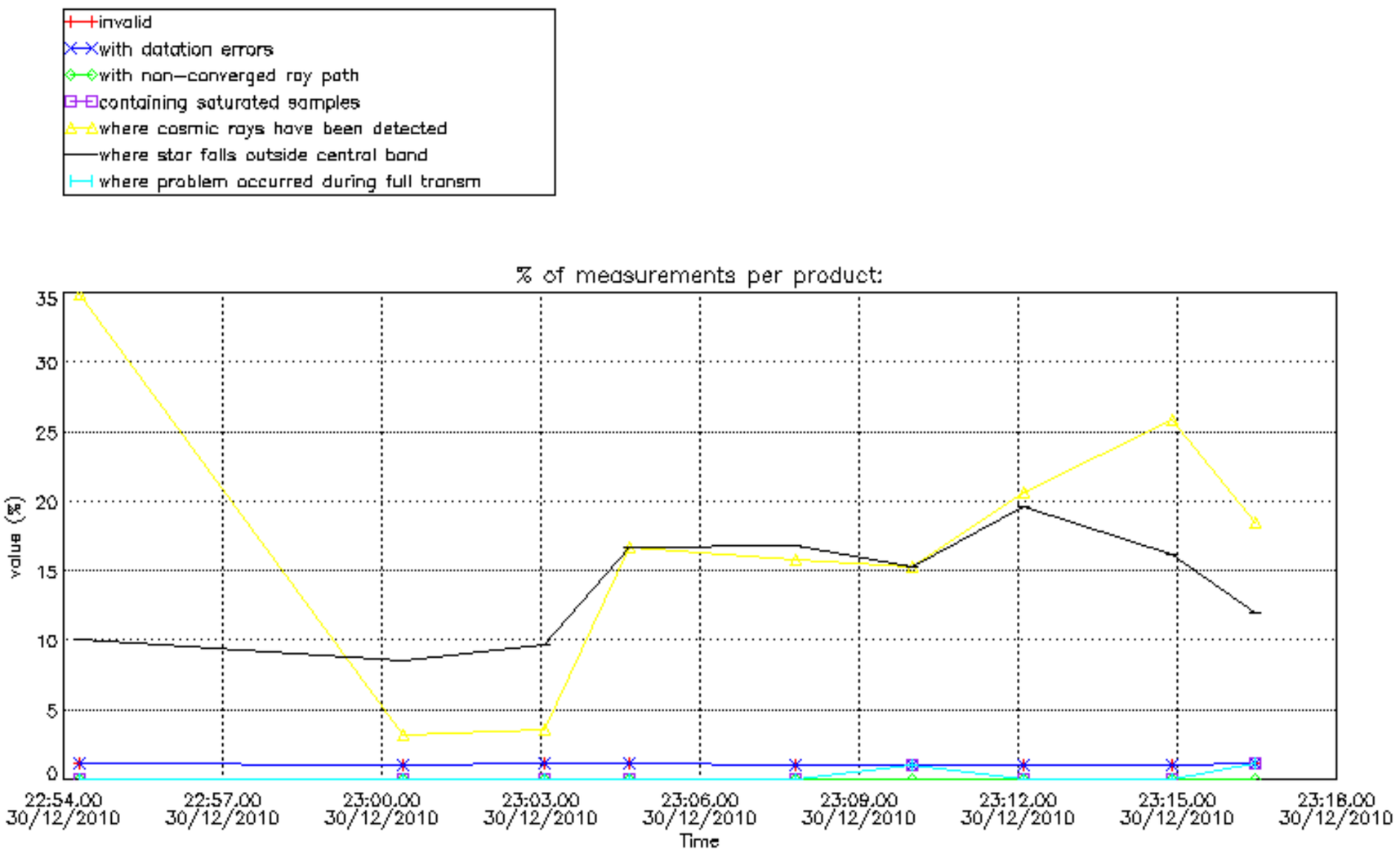


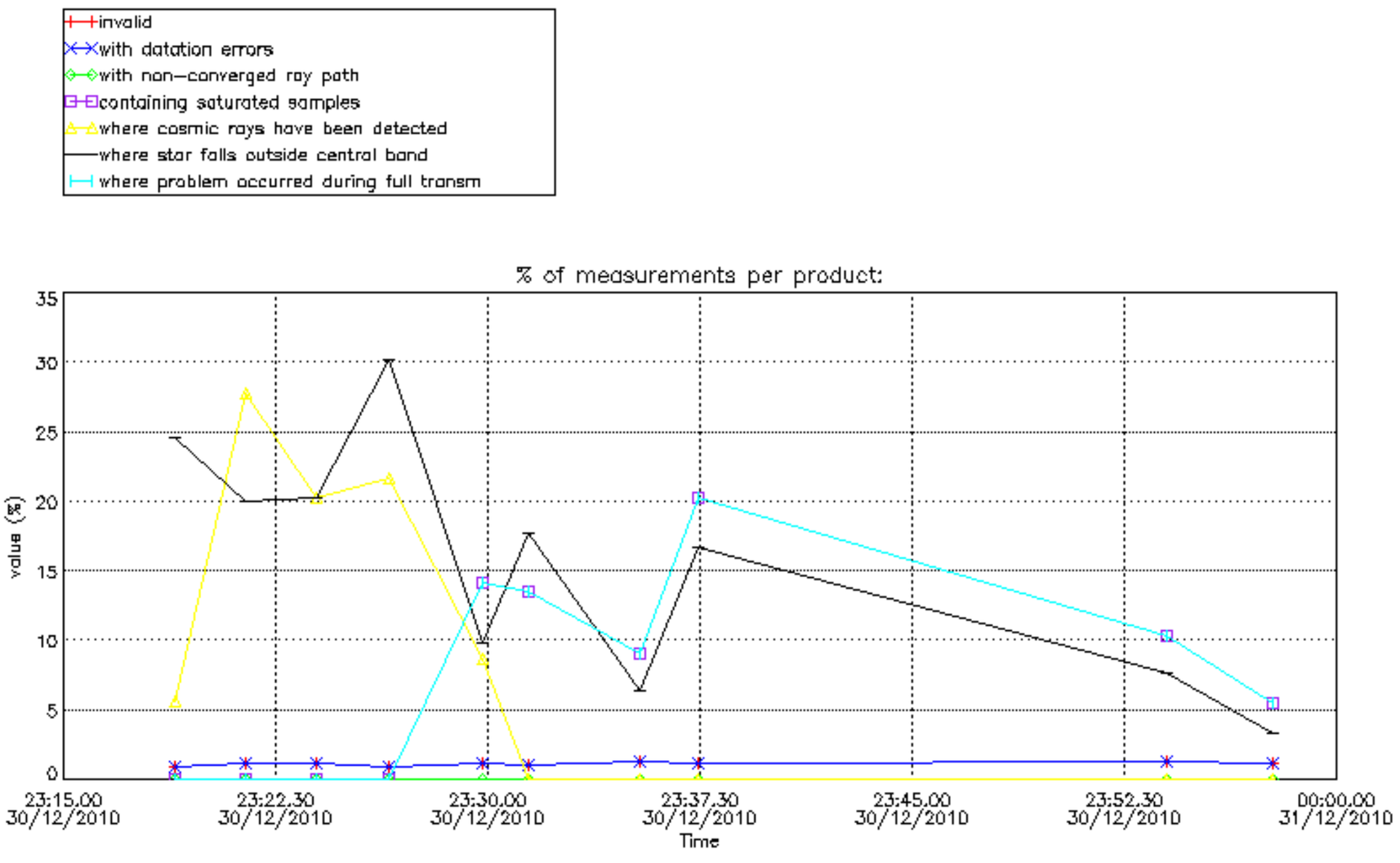
Percentage of flagged data per NO2 profile

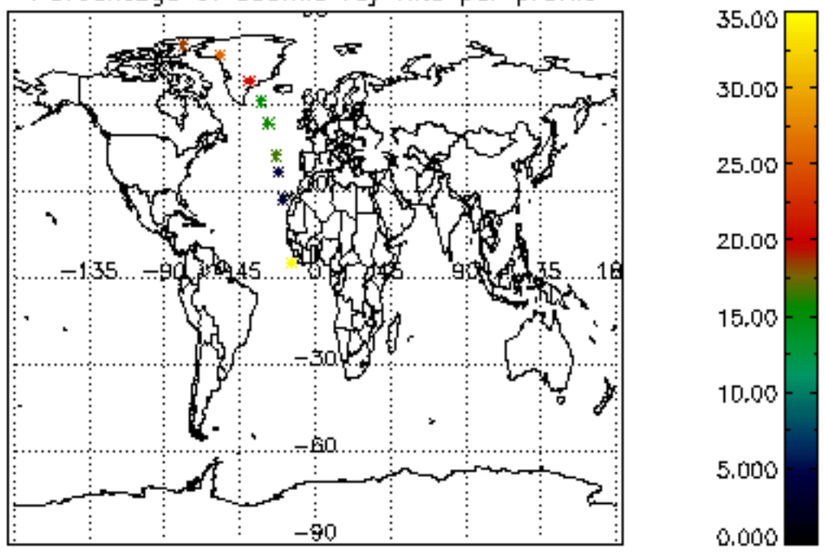


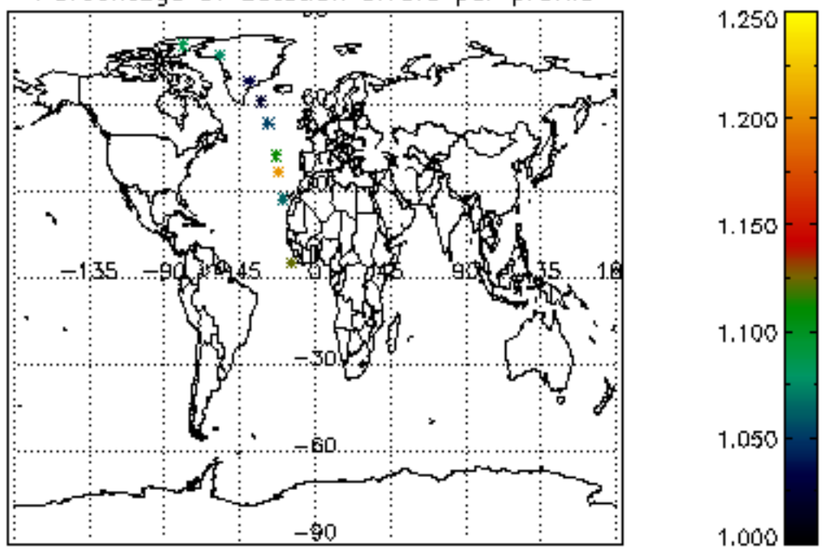
Percentage of flagged data per NO3 profile

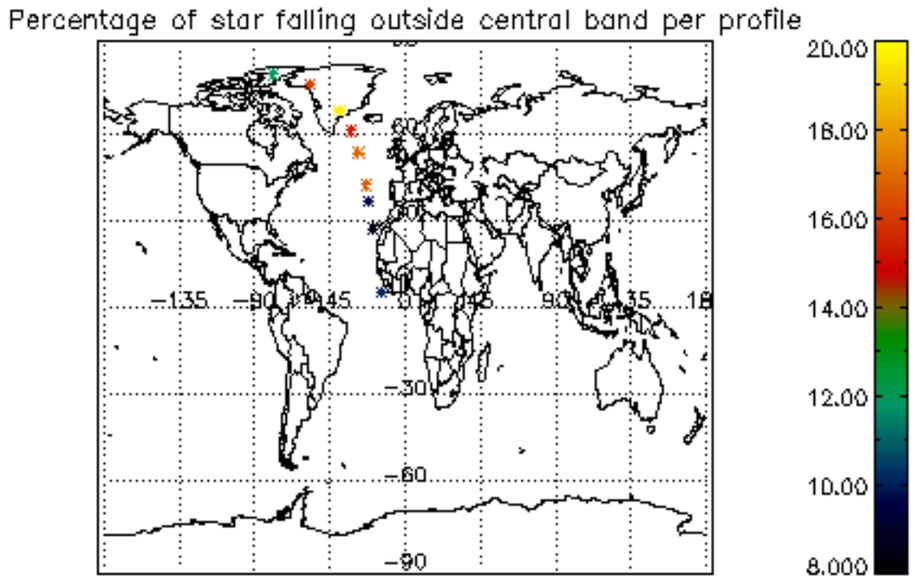


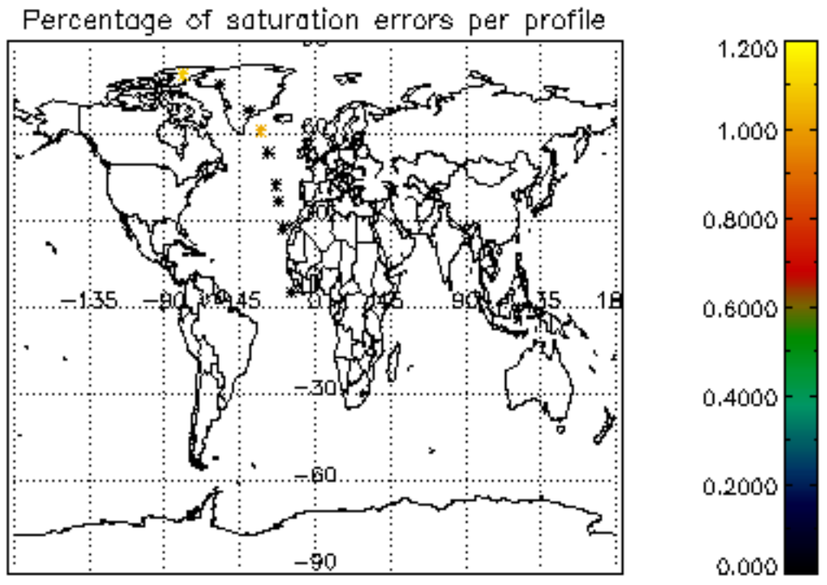

invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
value (%)
35
30
25
20
15
10
5
0
22:54.00 30/12/2010
22:57.00 30/12/2010
23:00.00 30/12/2010
23:03.00 30/12/2010
23:06.00 30/12/2010
23:09.00 30/12/2010
23:12.00 30/12/2010
23:15.00 30/12/2010
23:18.00 30/12/2010
Time


invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
value (%)
0
5
10
15
20
25
30
35
23:15.00 30/12/2010
23:22.30 30/12/2010
23:30.00 30/12/2010
23:37.30 30/12/2010
23:45.00 30/12/2010
23:52.30 30/12/2010
00:00.00 31/12/2010
Time

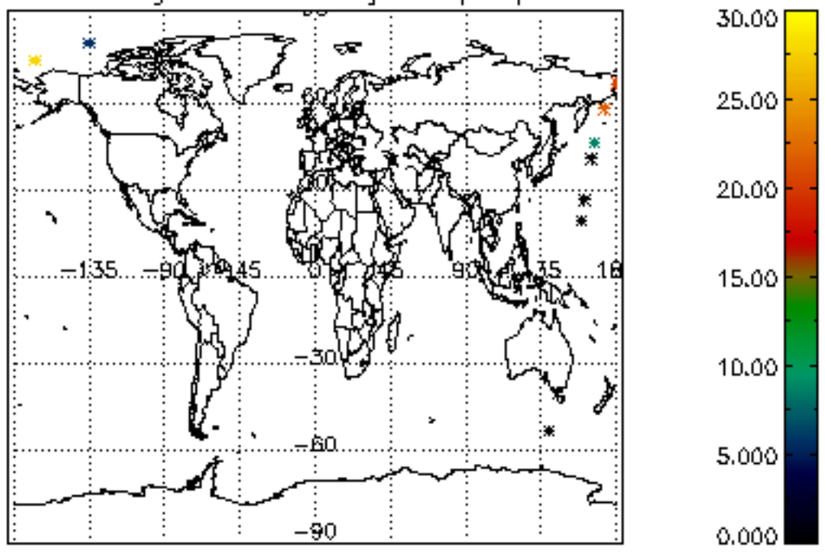

Percentage of cosmic ray hits per profile
35.00
30.00
25.00
20.00
15.00
10.00
5.000
0.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90


Percentage of datation errors per profile
1.250
1.200
1.150
1.100
1.050
1.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

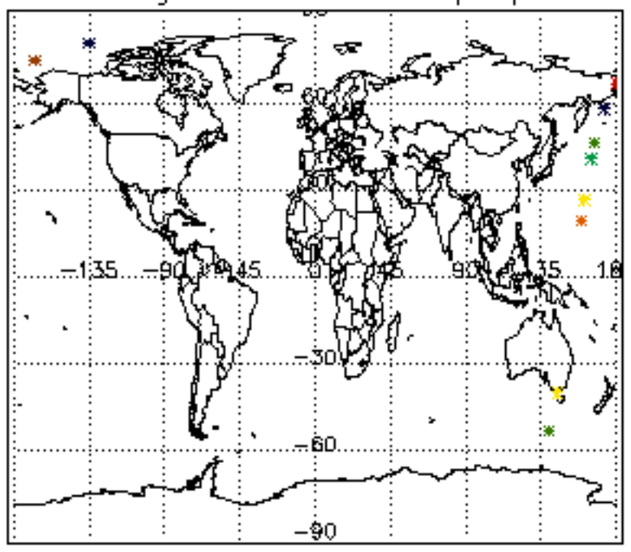

Percentage of star falling outside central band per profile
20.00
18.00
16.00
14.00
12.00
10.00
8.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

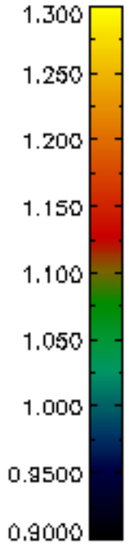

Percentage of saturation errors per profile
1.200
1.000
0.8000
0.6000
0.4000
0.2000
0.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

Percentage of cosmic ray hits per profile

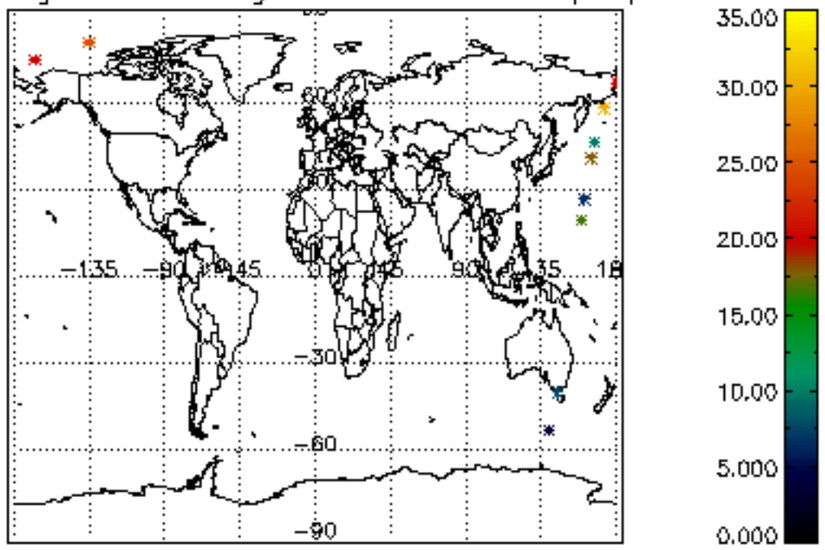


Percentage of datation errors per profile

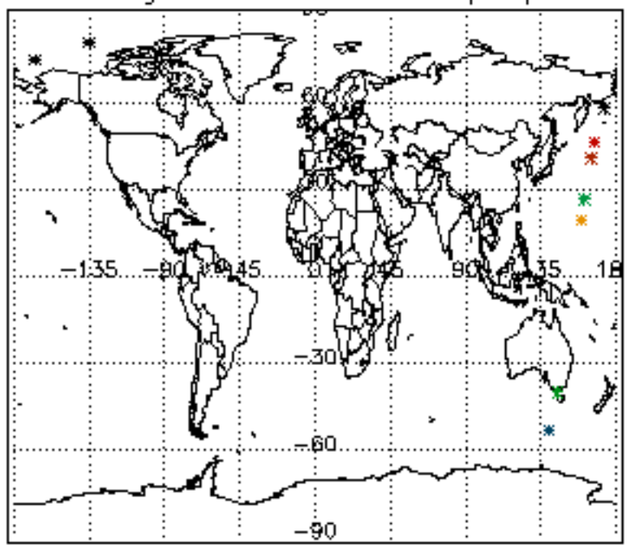


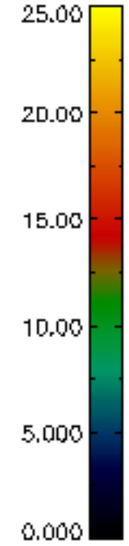


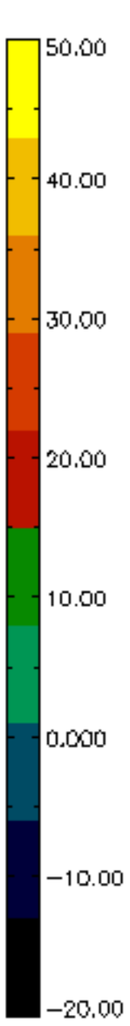
Percentage of star falling outside central band per profile

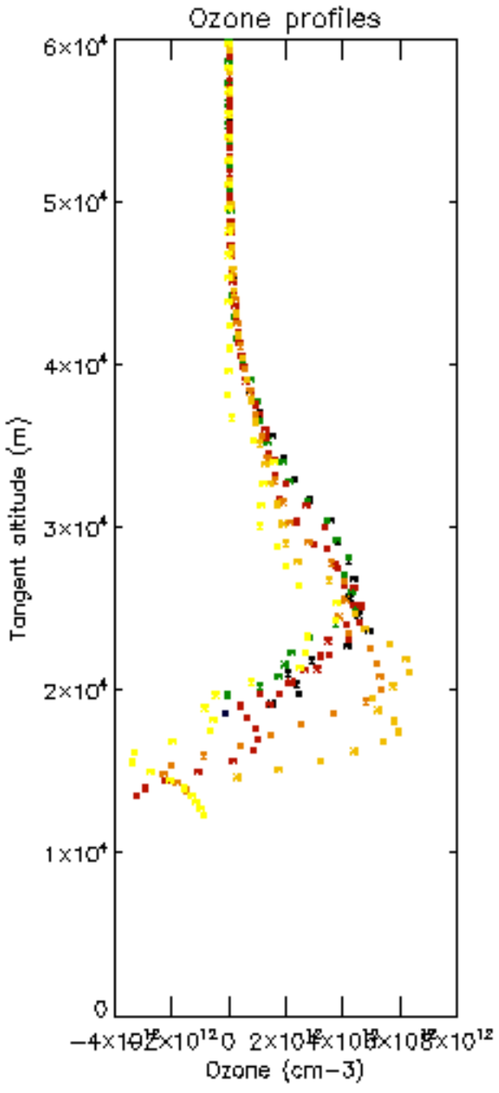


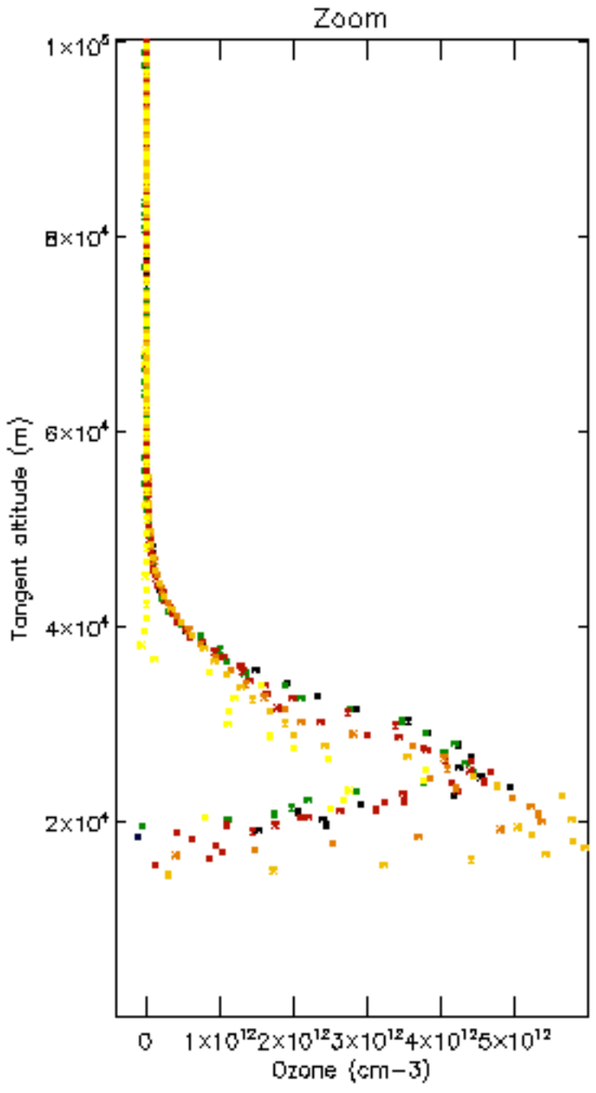
Percentage of saturation errors per profile

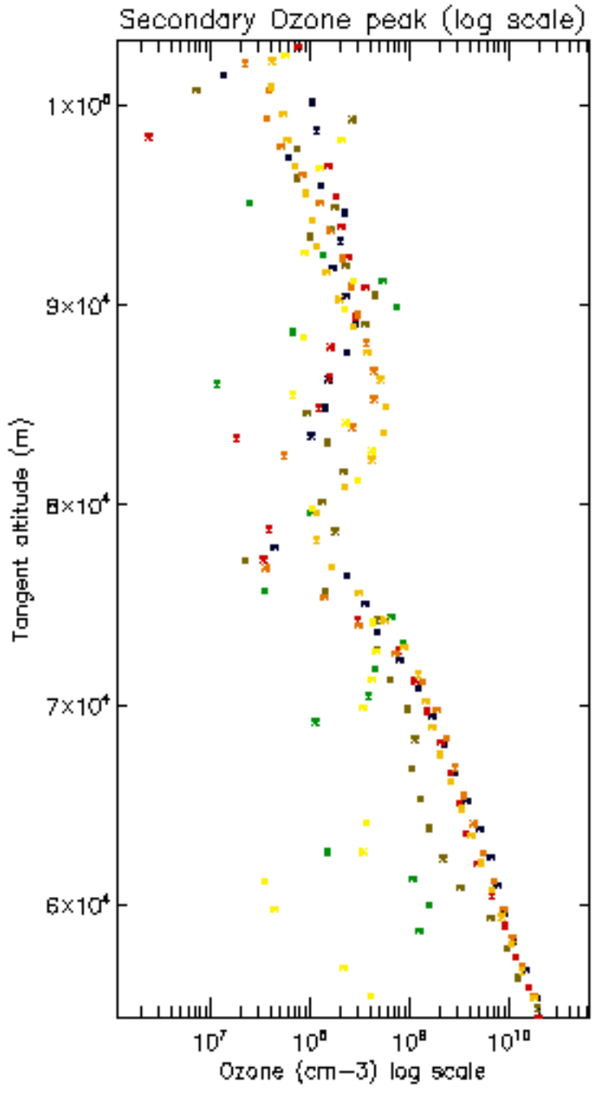


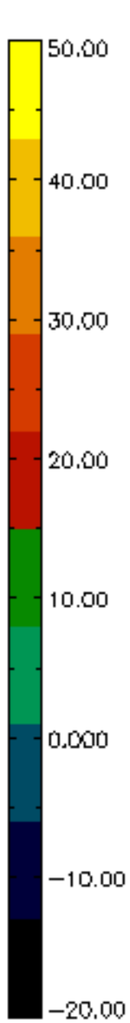


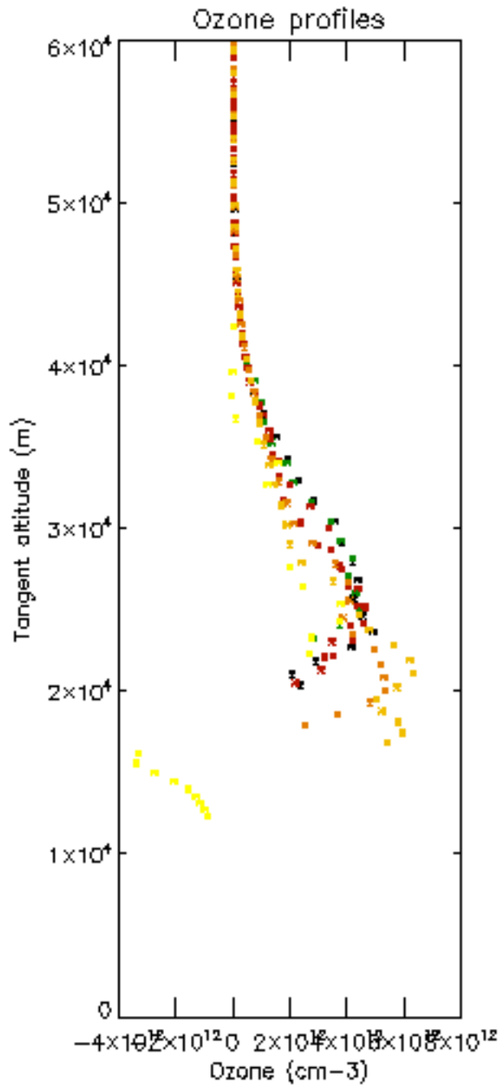

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00

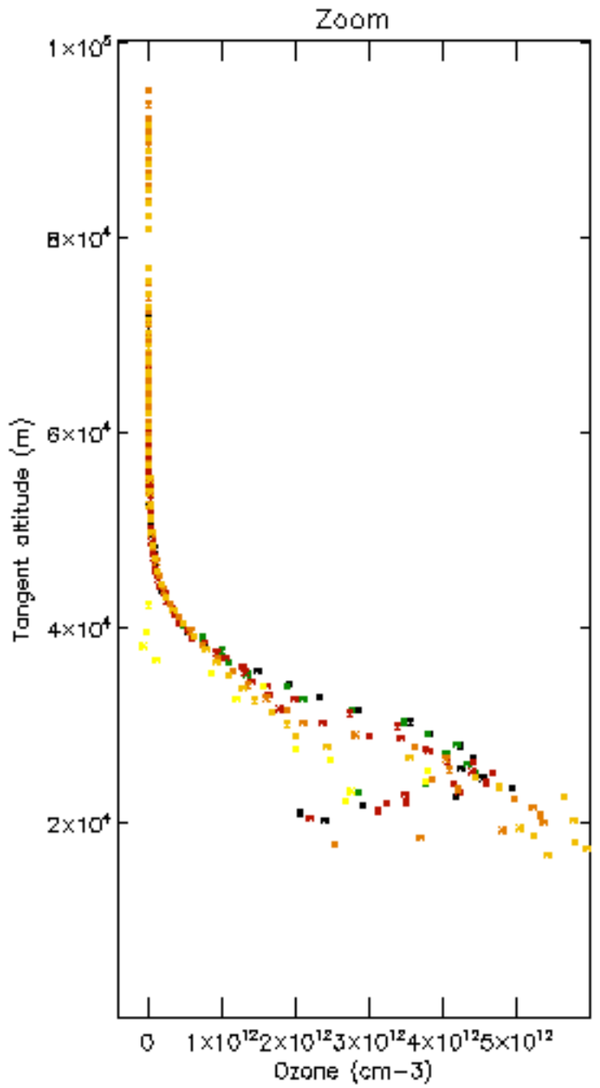

Ozone profiles
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
Ozone (cm−3)

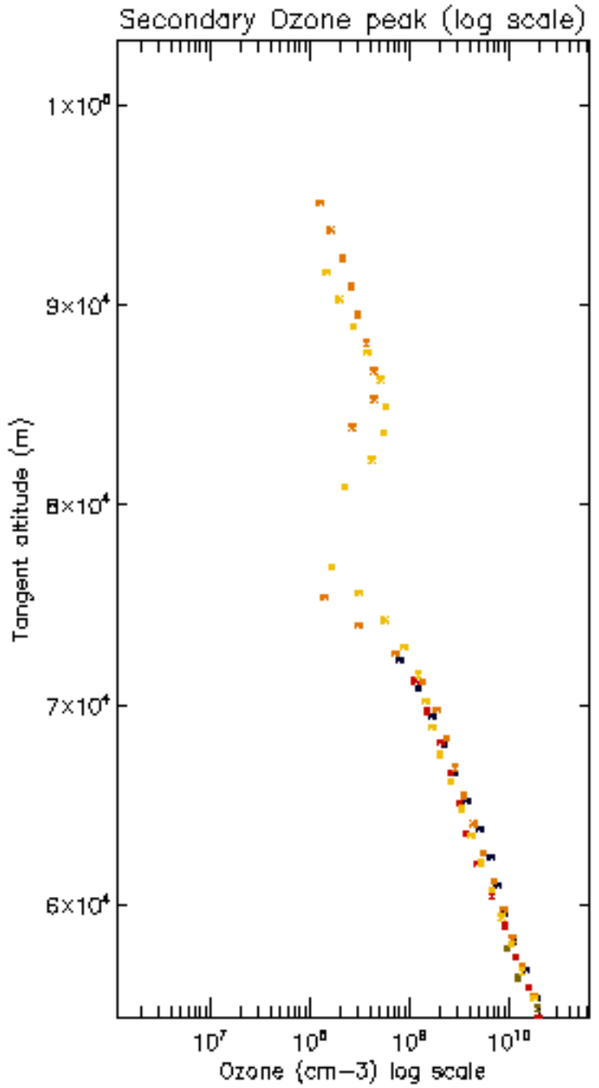

Zoom
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
Tangent altitude (m)
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)


Secondary Ozone peak (log scale)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
Tangent altitude (m)
10⁷
10⁸
10⁸
10¹⁰
Ozone (cm−3) log scale

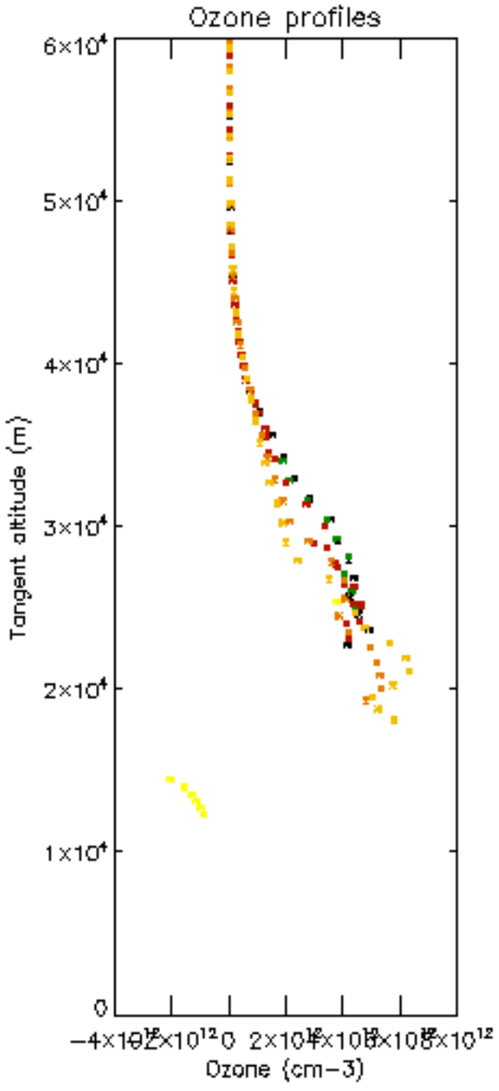

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00

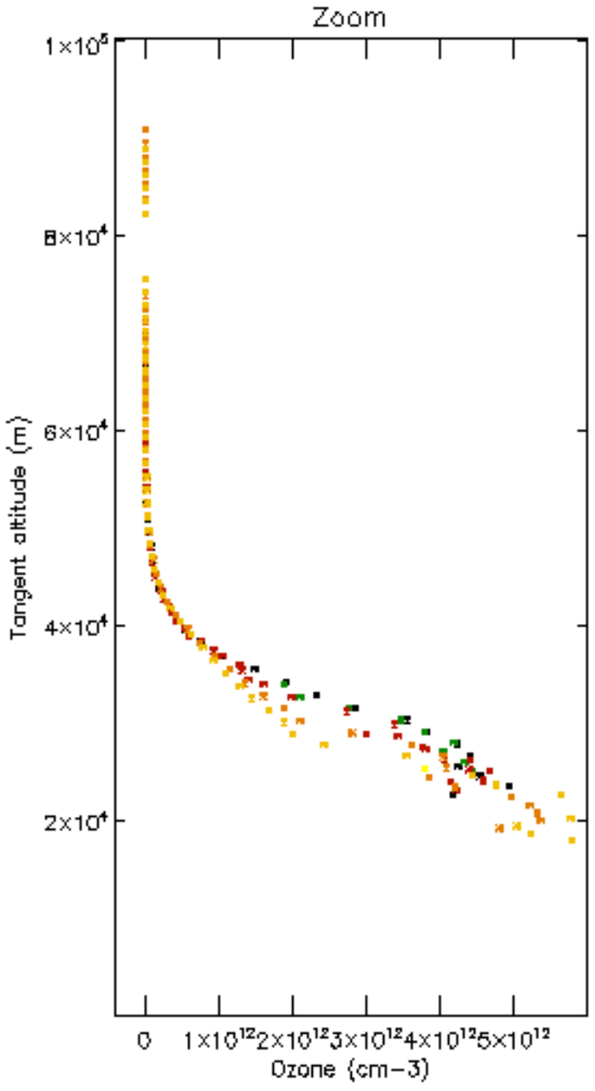

Ozone profiles
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
Ozone (cm−3)

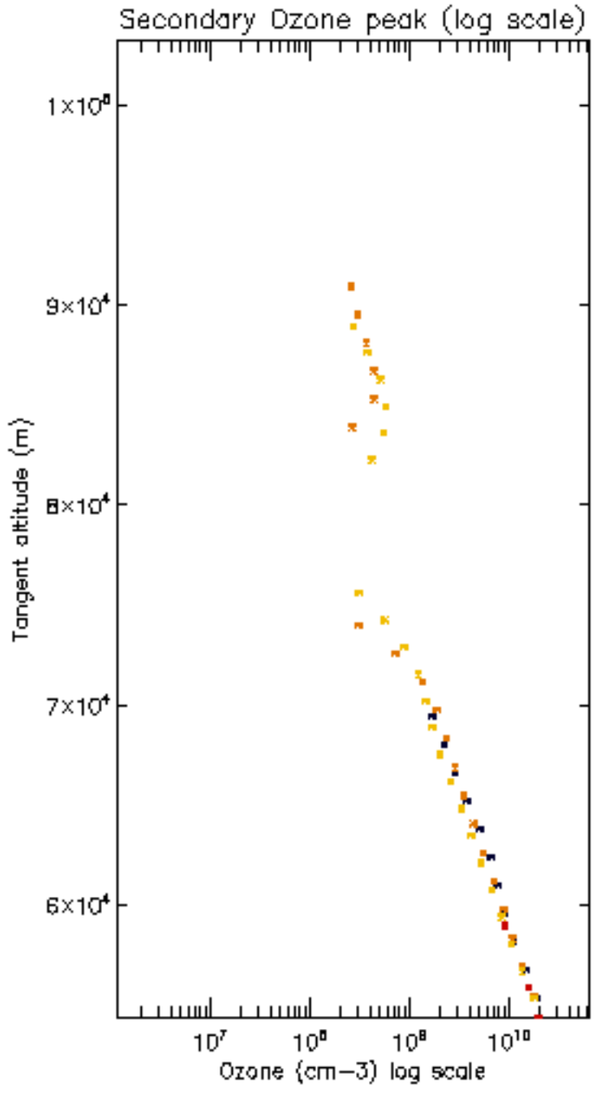

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)

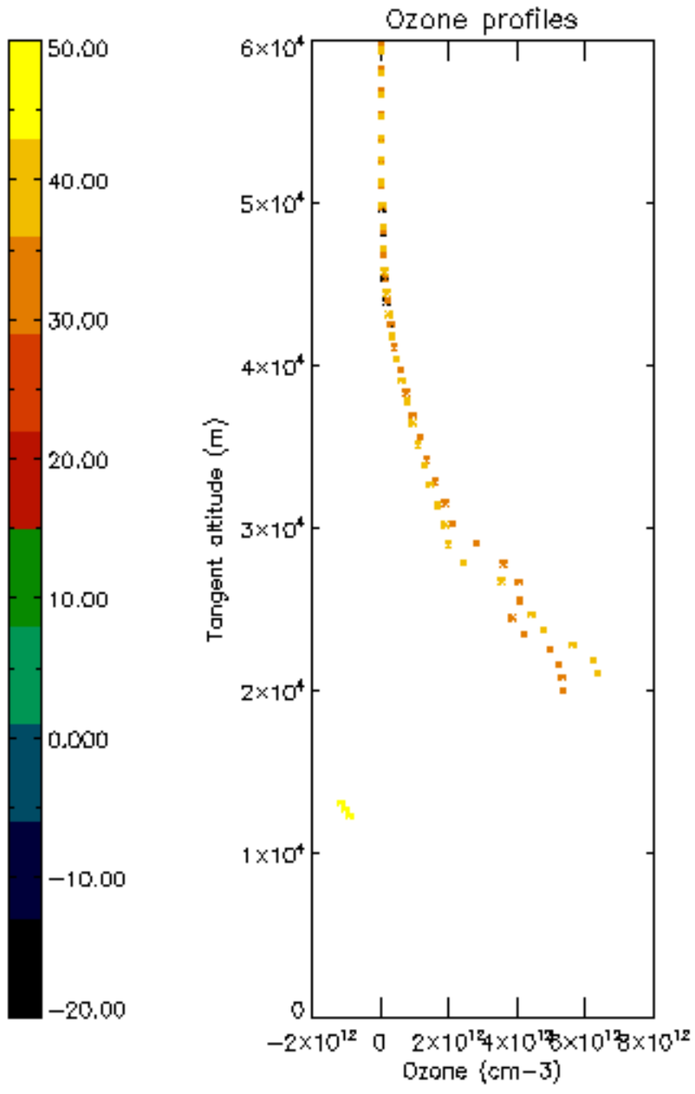

Secondary Ozone peak (log scale)
Tangent altitude (m)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00


Ozone profiles
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
1×10¹³
Ozone (cm−3)

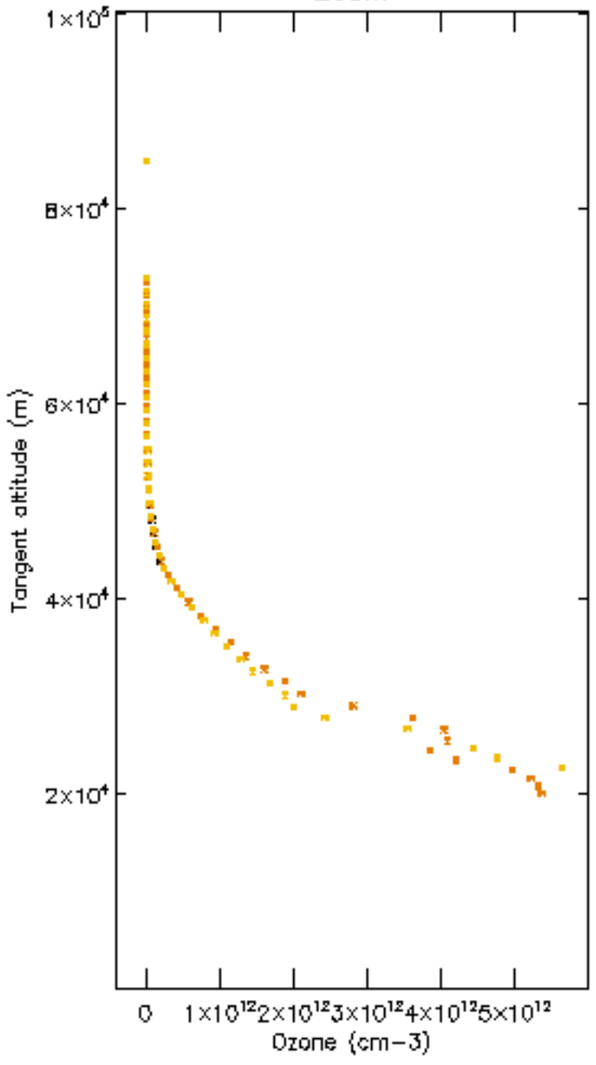

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)


Secondary Ozone peak (log scale)
Tangent altitude (m)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale

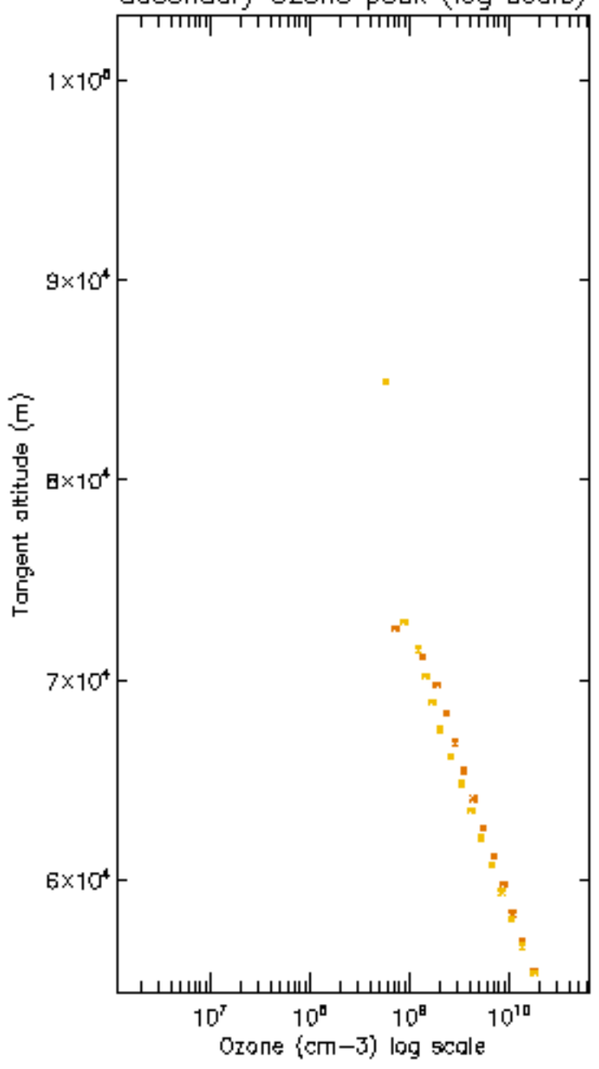


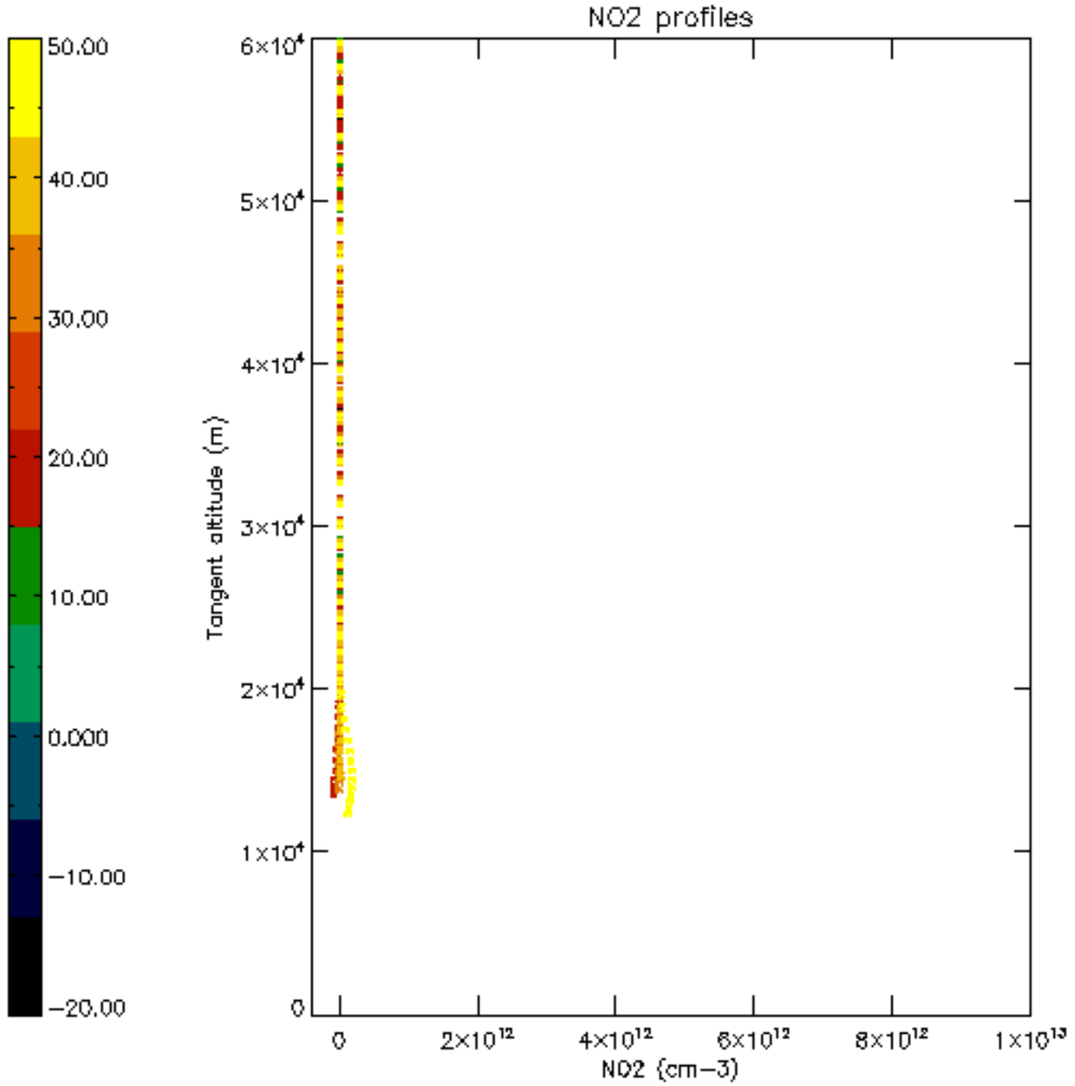
Ozone profiles

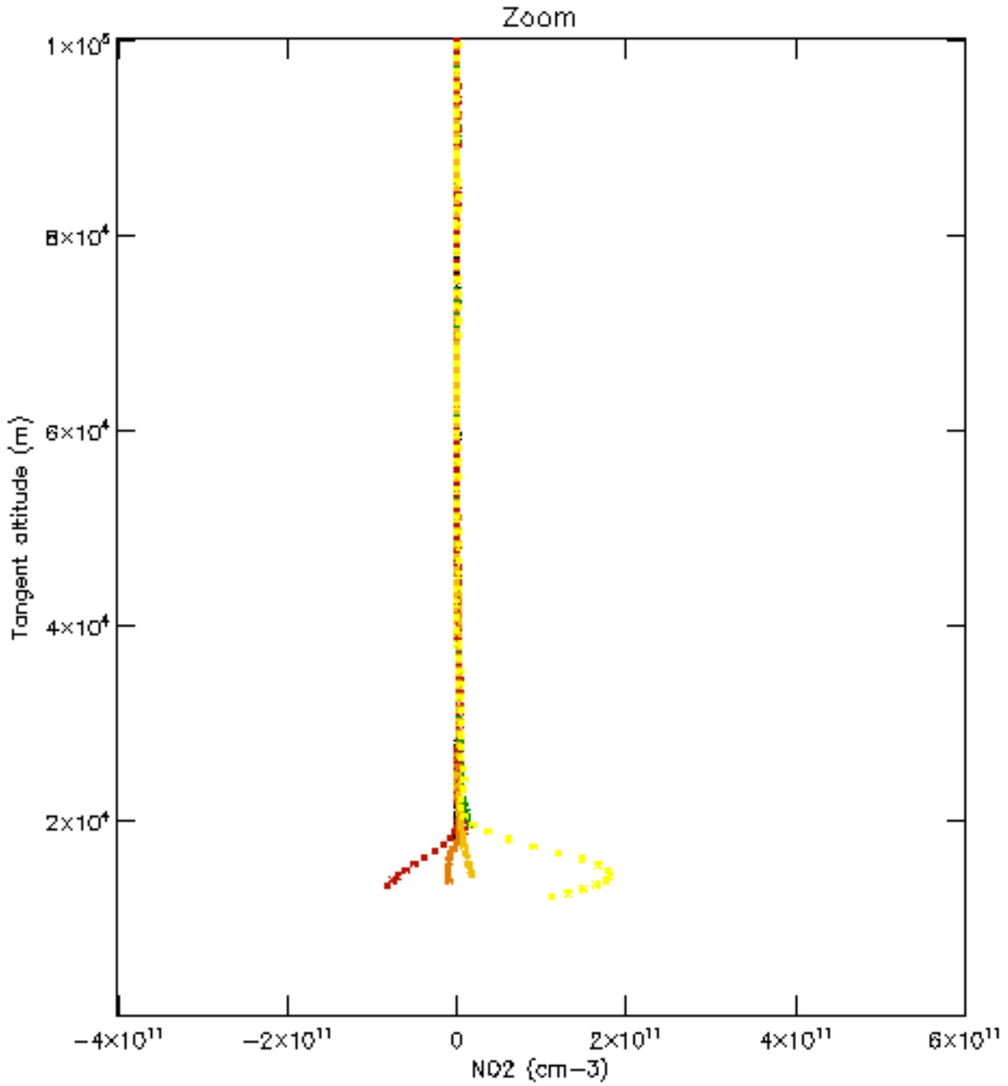
Zoom

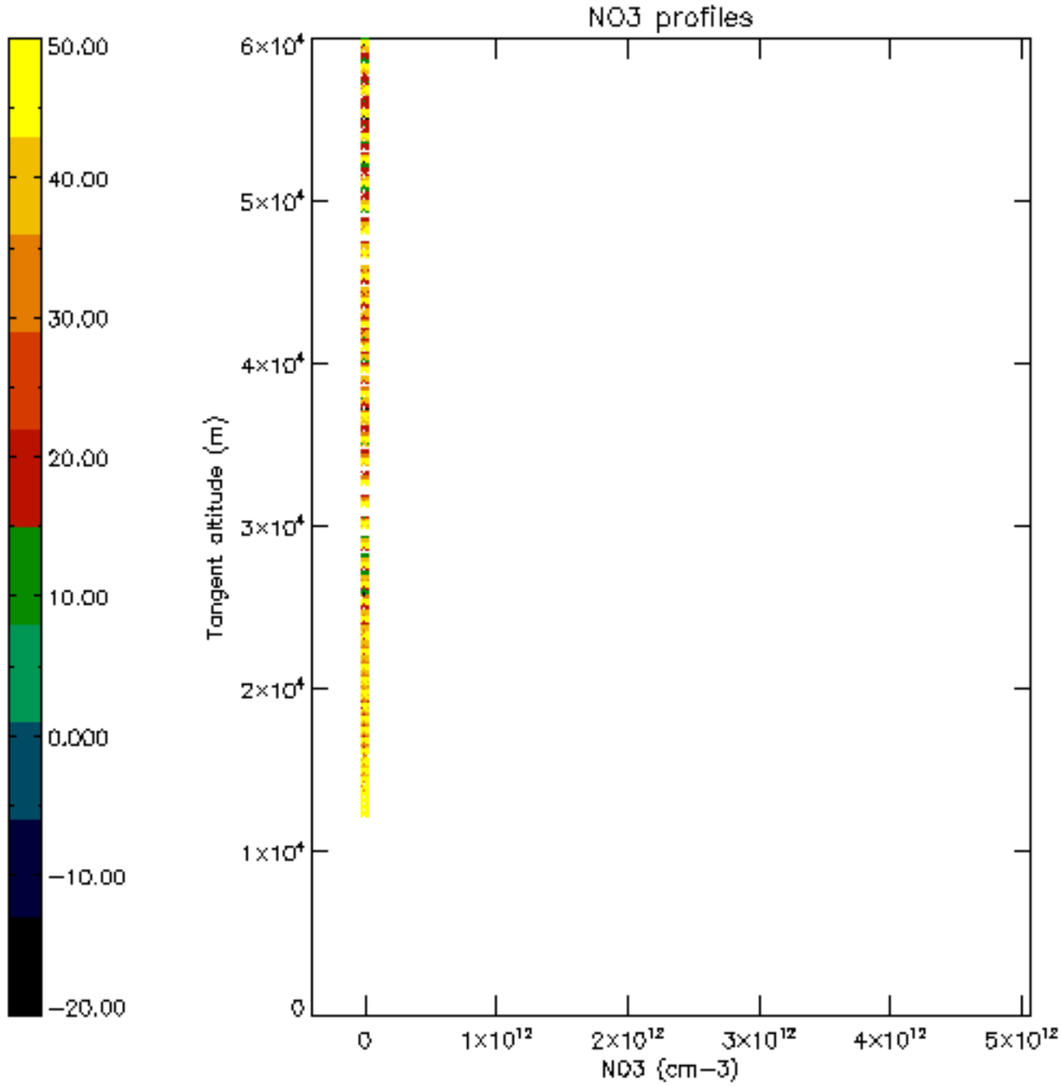


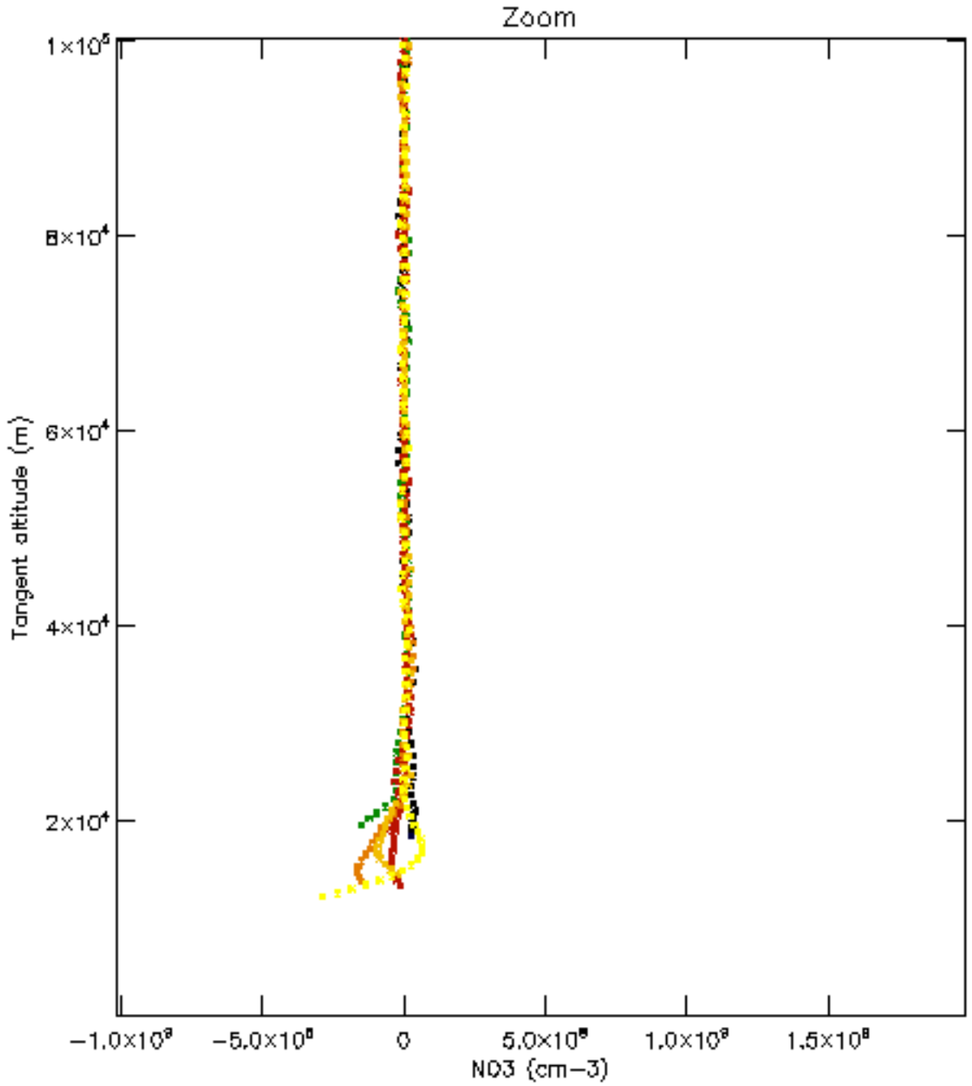
Secondary Ozone peak (log scale)

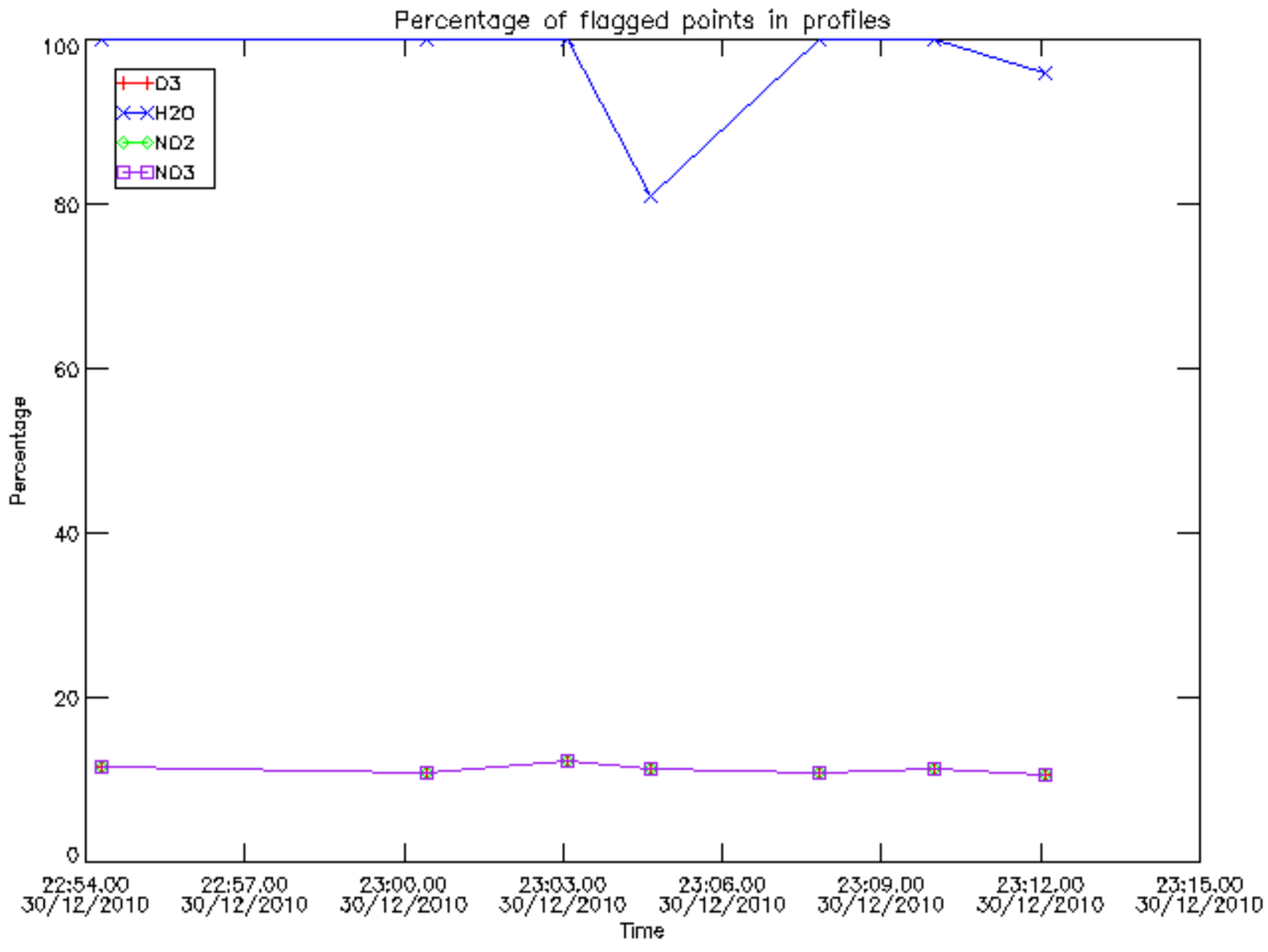



NO2 profiles
50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
1×10¹³
NO2 (cm−3)

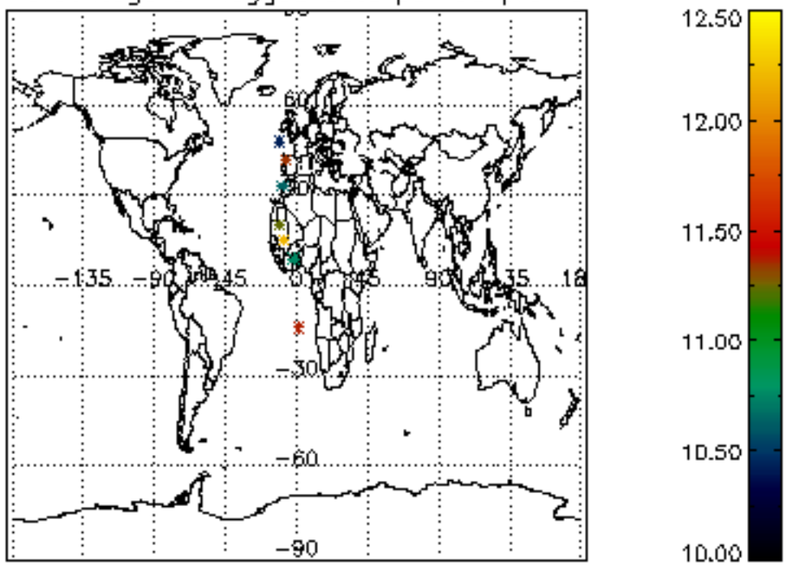

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−4×10¹¹
−2×10¹¹
0
2×10¹¹
4×10¹¹
6×10¹¹
NO2 (cm−3)


NO3 profiles
50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
NO3 (cm−3)

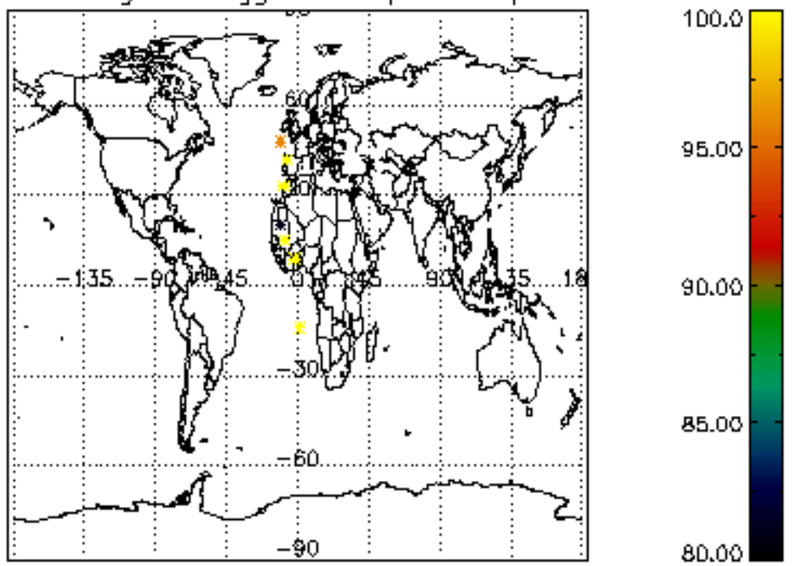

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−1.0×10⁹
−5.0×10⁸
0
5.0×10⁸
1.0×10⁹
1.5×10⁹
NO3 (cm−3)


Percentage of flagged points in profiles
O3
H2O
NO2
NO3
100
80
60
40
20
0
Percentage
22:54.00
30/12/2010
22:57.00
30/12/2010
23:00.00
30/12/2010
23:03.00
30/12/2010
23:06.00
30/12/2010
23:09.00
30/12/2010
23:12.00
30/12/2010
23:15.00
30/12/2010
Time

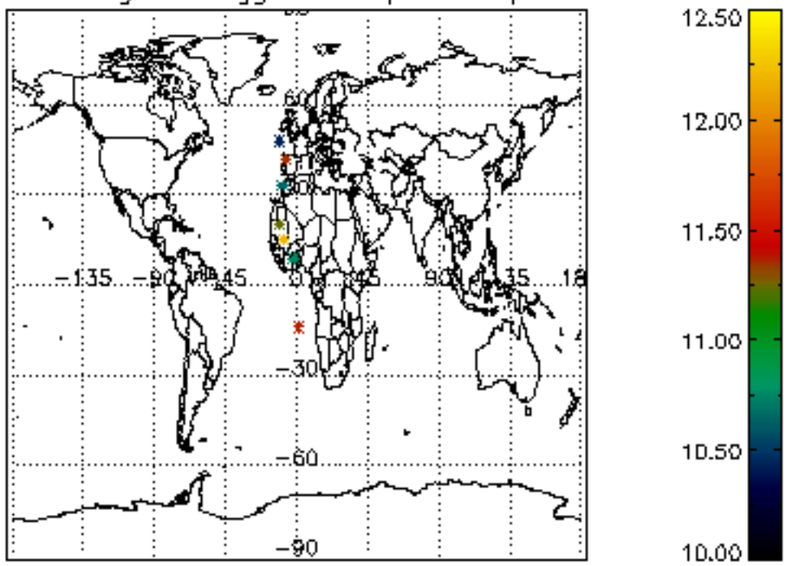
Percentage of flagged data per O3 profile



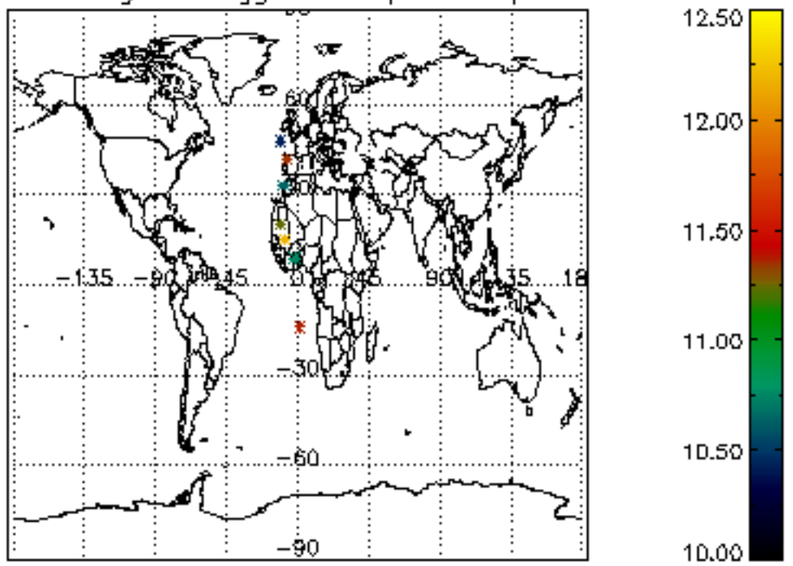
Percentage of flagged data per H2O profile

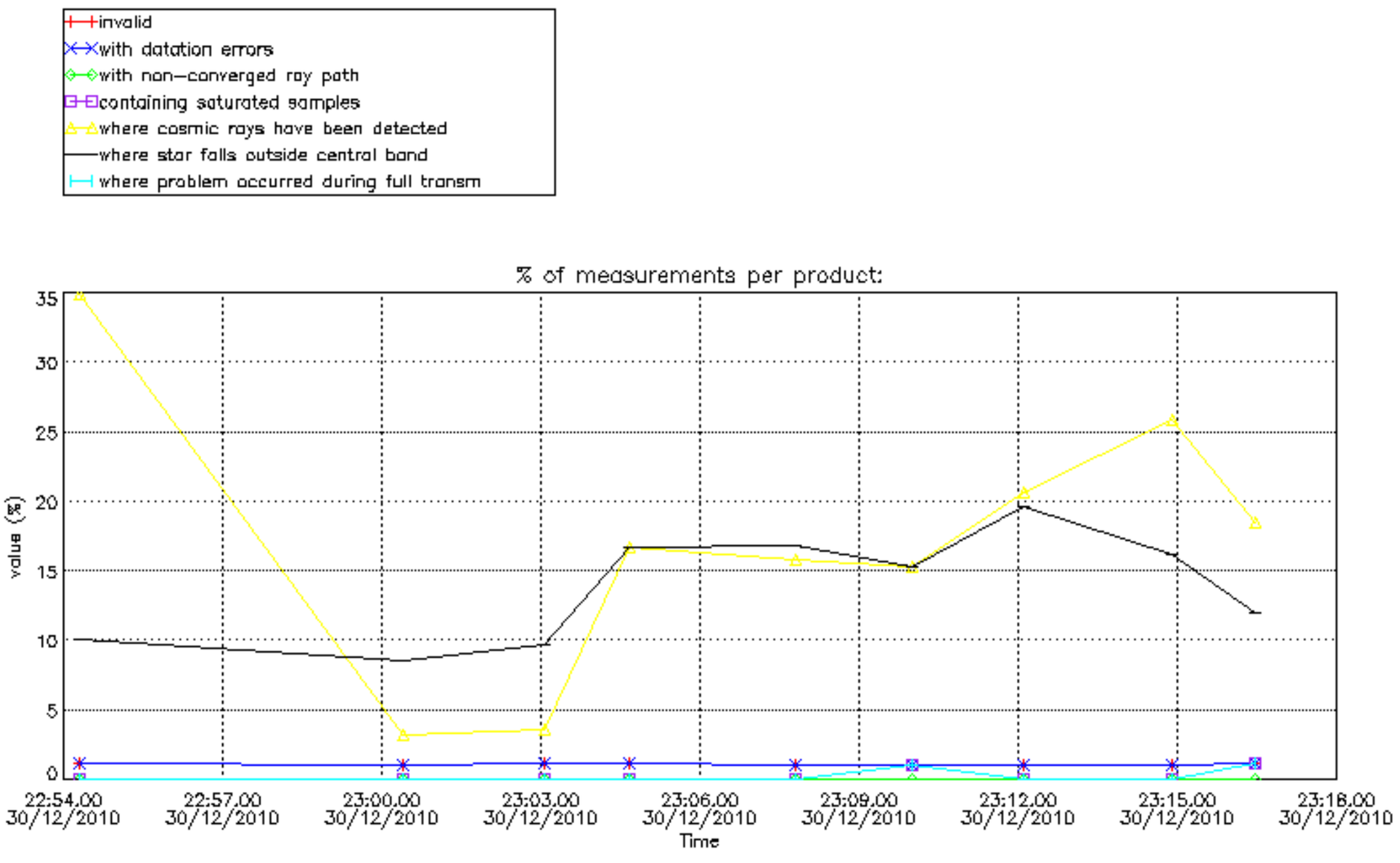


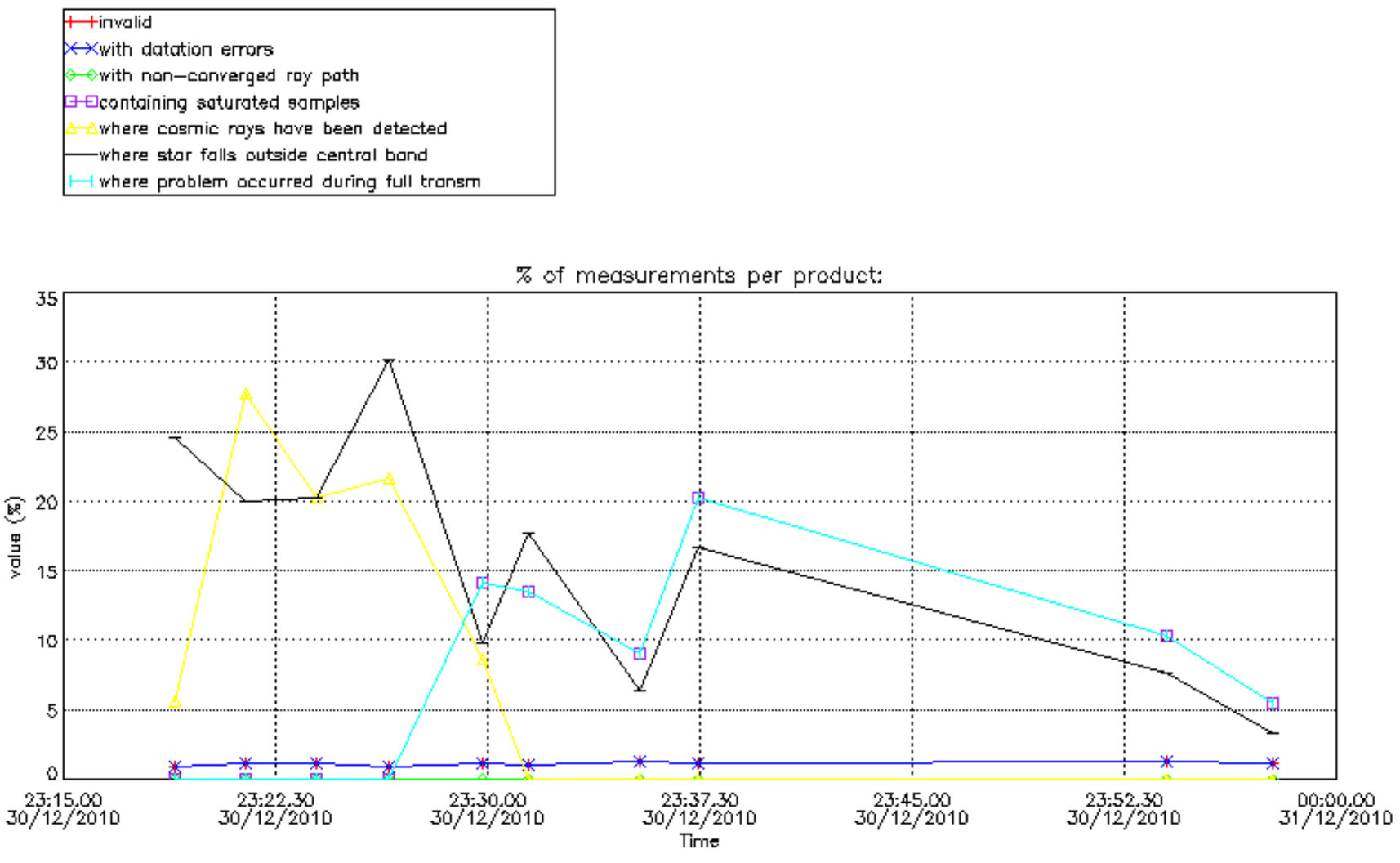
Percentage of flagged data per NO2 profile

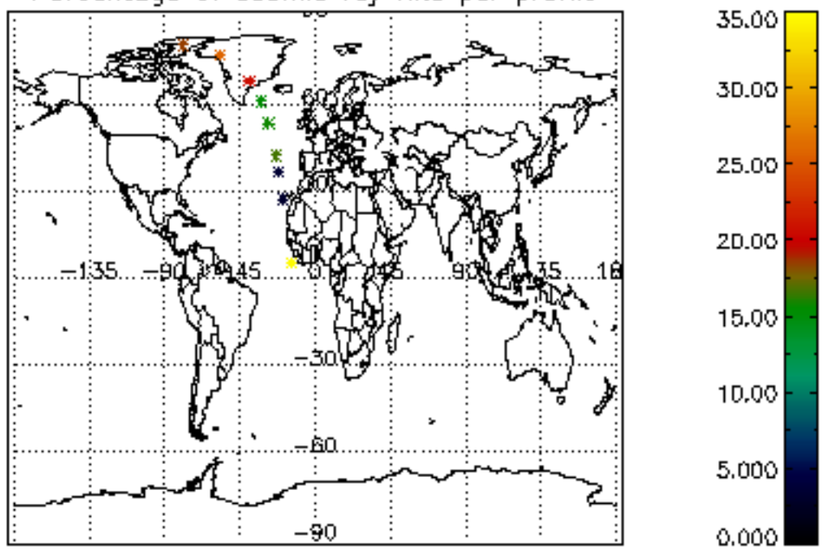


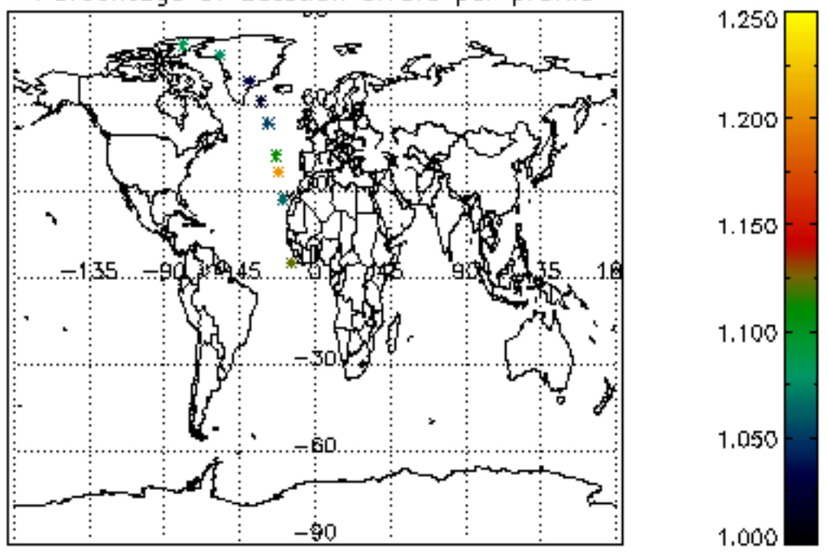
Percentage of flagged data per NO3 profile

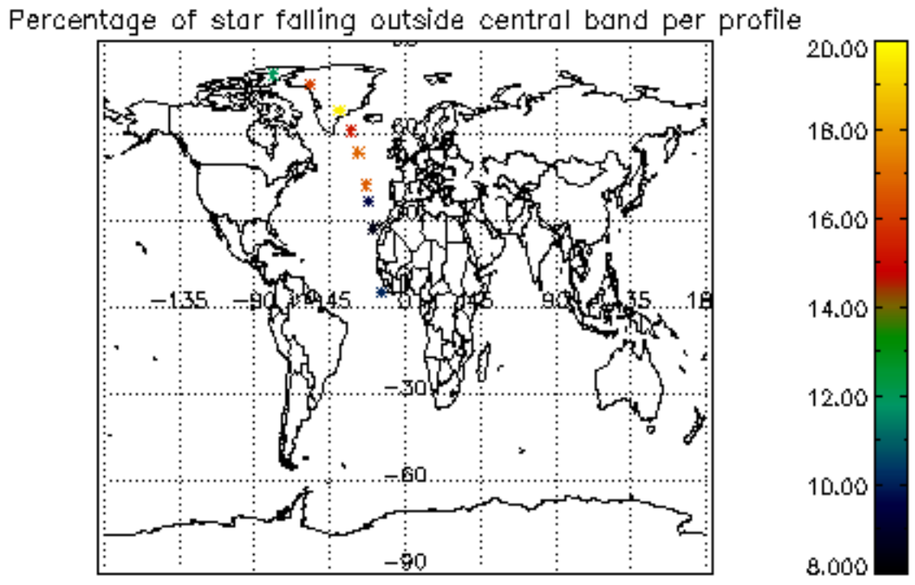


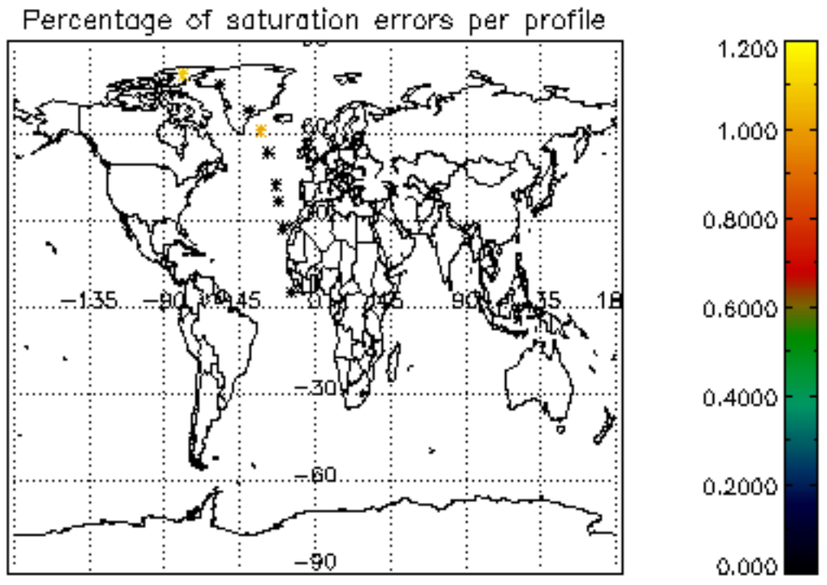

invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
value (%)
35
30
25
20
15
10
5
0
22:54.00 30/12/2010
22:57.00 30/12/2010
23:00.00 30/12/2010
23:03.00 30/12/2010
23:06.00 30/12/2010
23:09.00 30/12/2010
23:12.00 30/12/2010
23:15.00 30/12/2010
23:18.00 30/12/2010
Time


invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
value (%)
0
5
10
15
20
25
30
35
23:15.00 30/12/2010
23:22.30 30/12/2010
23:30.00 30/12/2010
23:37.30 30/12/2010
23:45.00 30/12/2010
23:52.30 30/12/2010
00:00.00 31/12/2010
Time

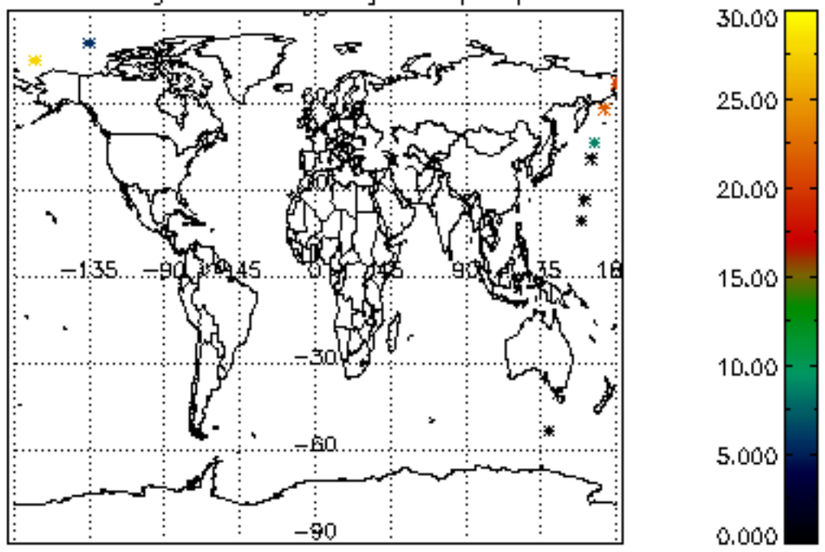

Percentage of cosmic ray hits per profile
35.00
30.00
25.00
20.00
15.00
10.00
5.000
0.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90


Percentage of datation errors per profile
1.250
1.200
1.150
1.100
1.050
1.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

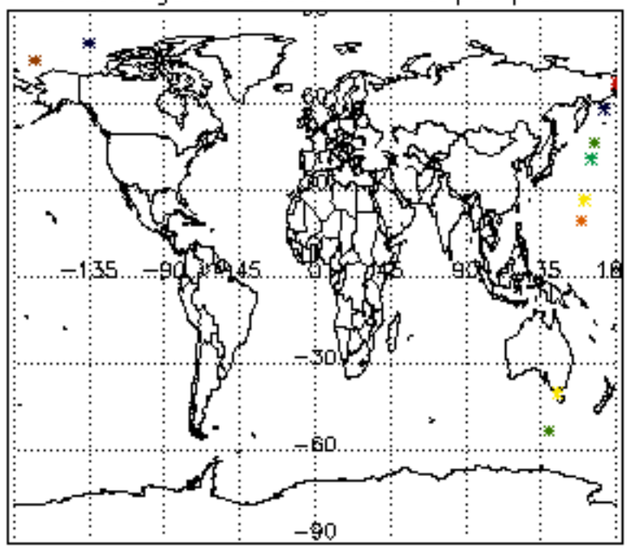

Percentage of star falling outside central band per profile
20.00
18.00
16.00
14.00
12.00
10.00
8.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

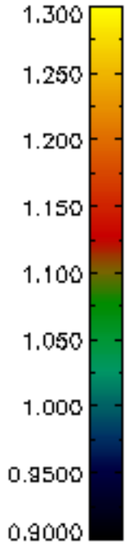

Percentage of saturation errors per profile
1.200
1.000
0.8000
0.6000
0.4000
0.2000
0.000
−135
−90
−45
0
45
90
135
180
−30
−60
−90

Percentage of cosmic ray hits per profile

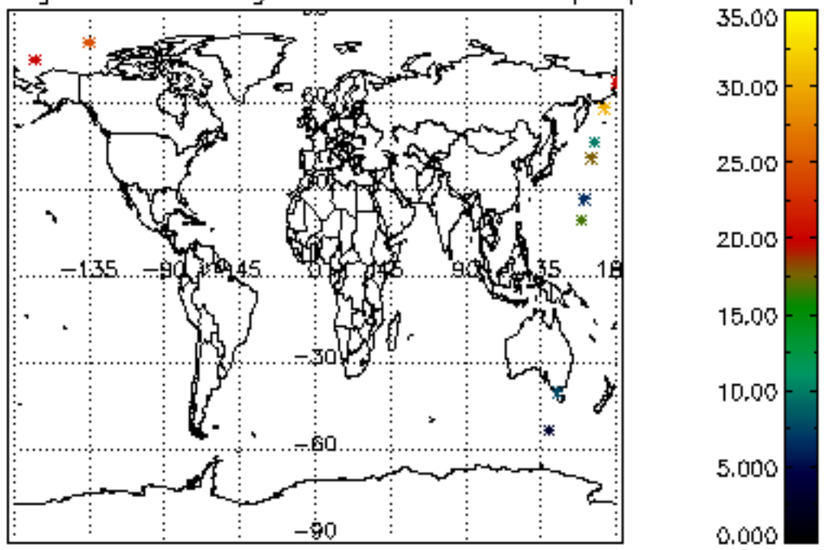


Percentage of datation errors per profile

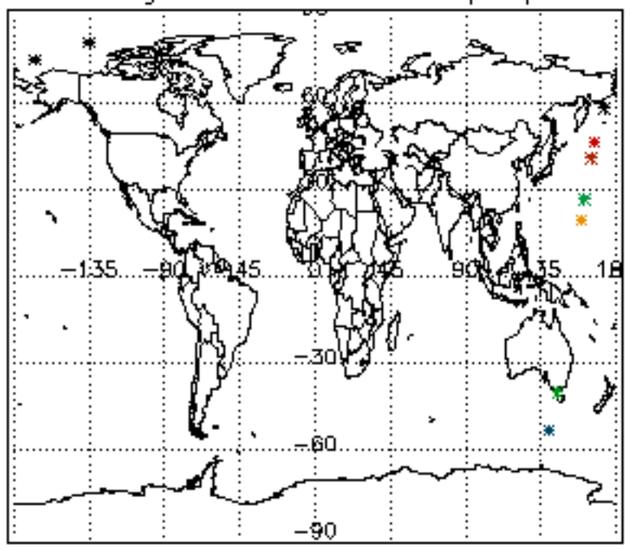


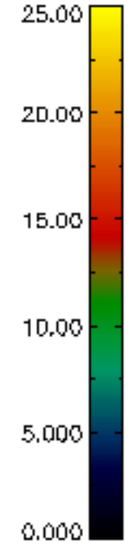


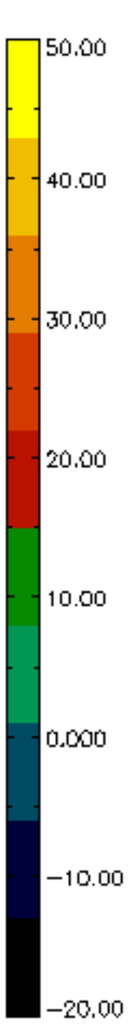
Percentage of star falling outside central band per profile

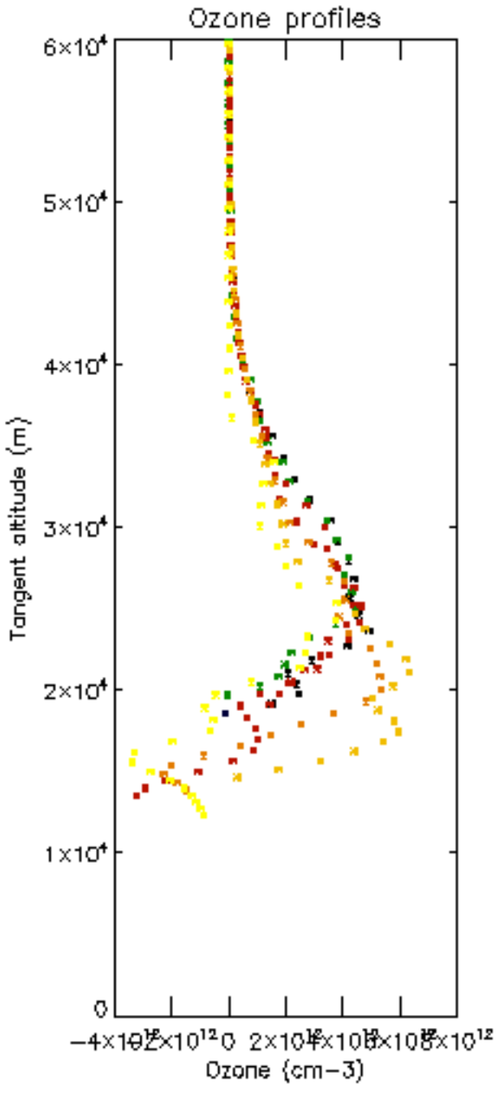


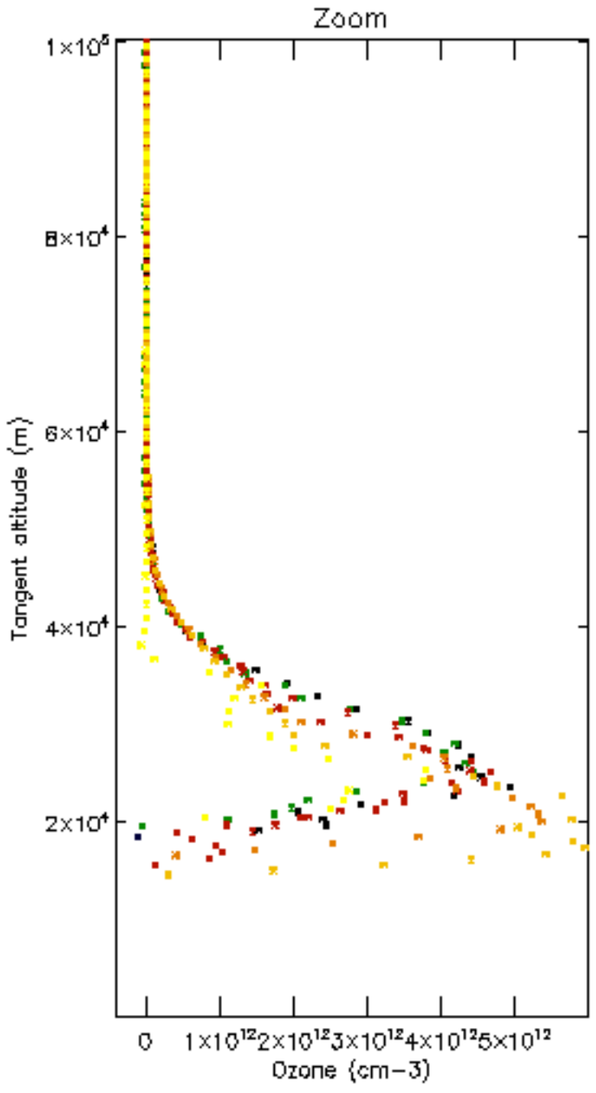
Percentage of saturation errors per profile

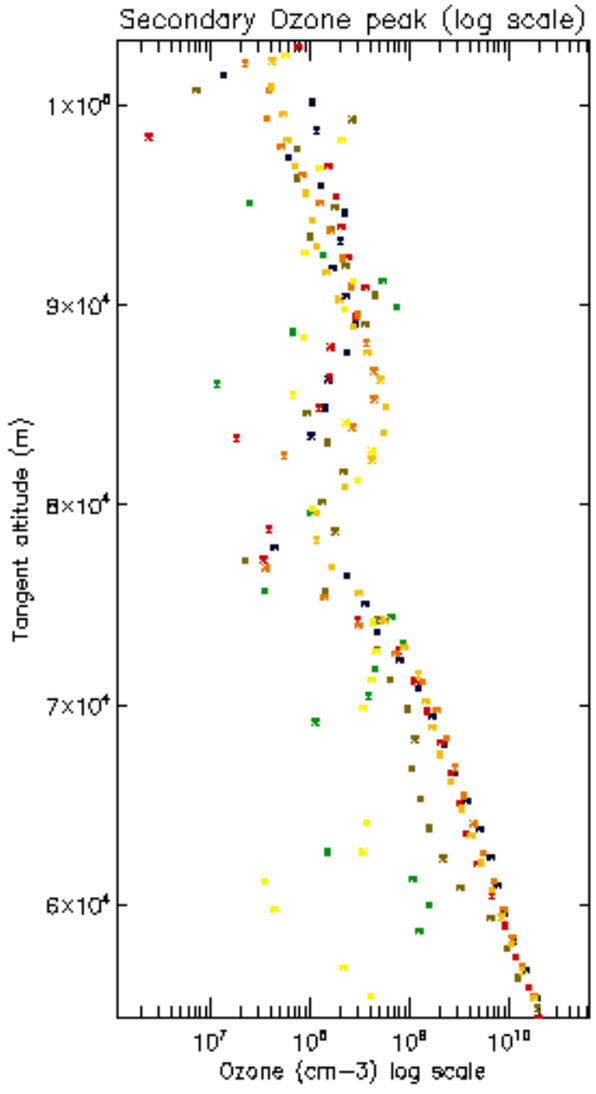


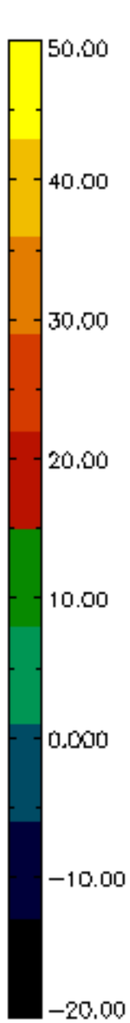


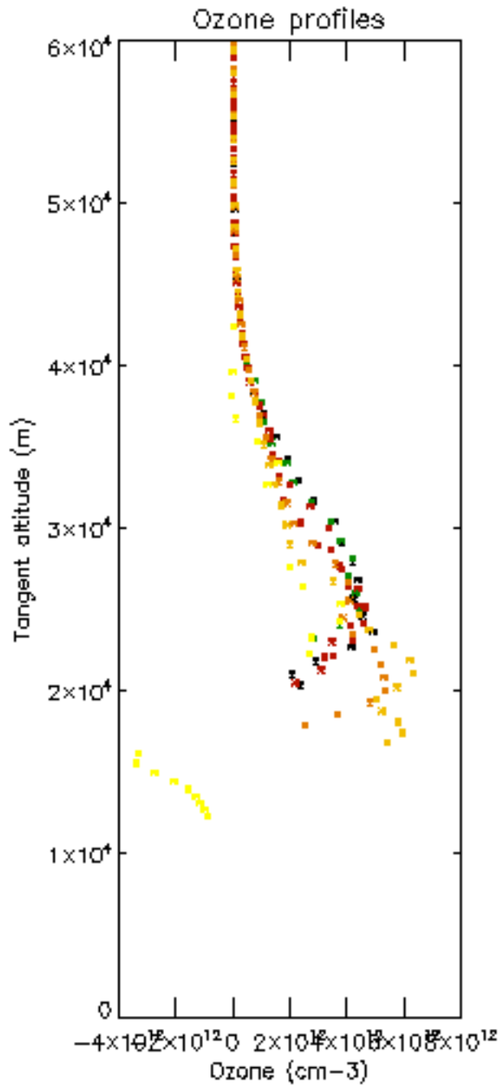

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00

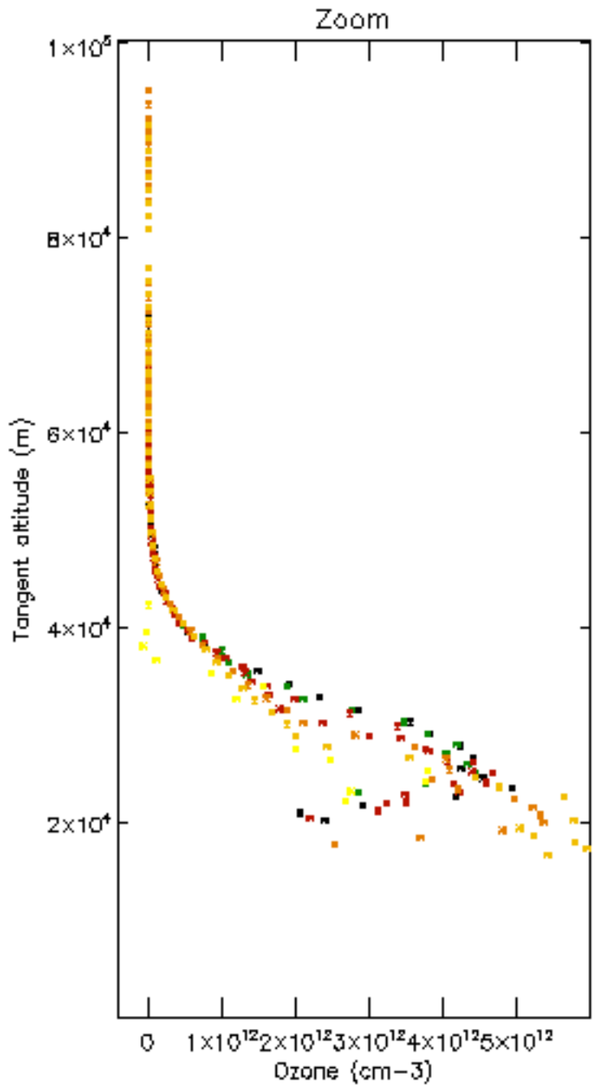

Ozone profiles
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
Ozone (cm−3)

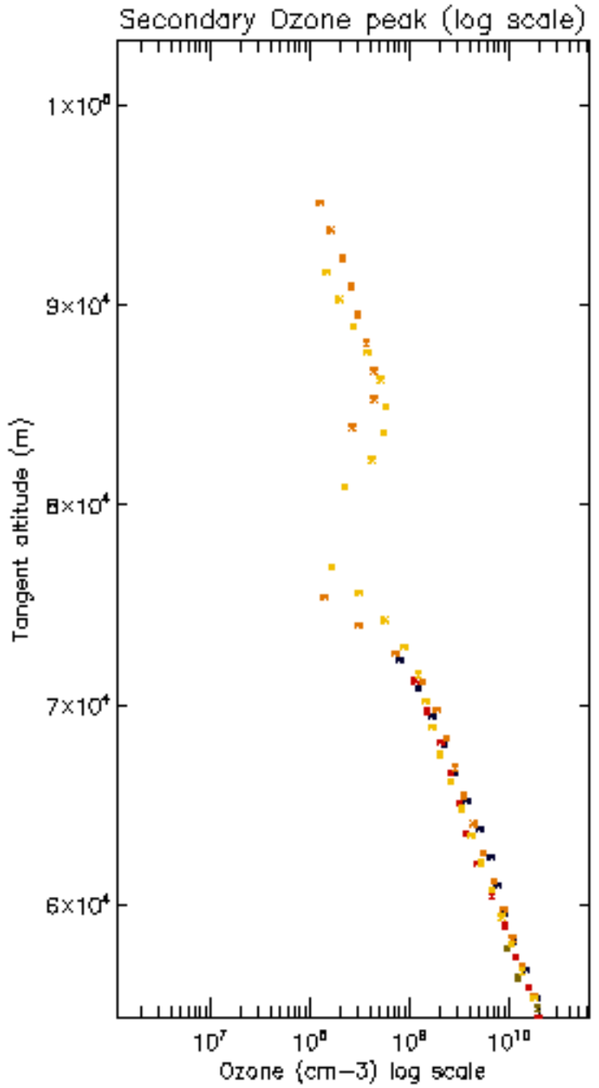

Zoom
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
Tangent altitude (m)
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)


Secondary Ozone peak (log scale)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
Tangent altitude (m)
10⁷
10⁸
10⁸
10¹⁰
Ozone (cm−3) log scale

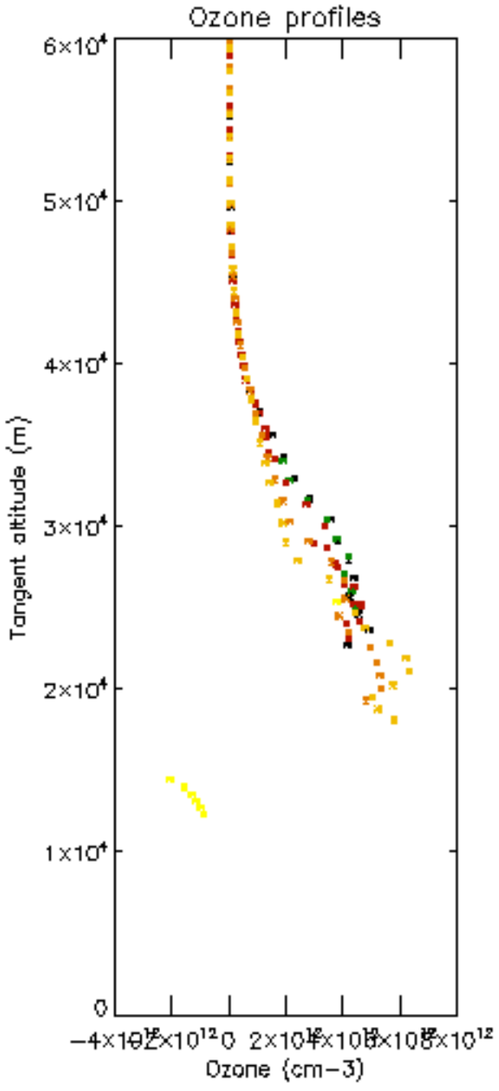

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00

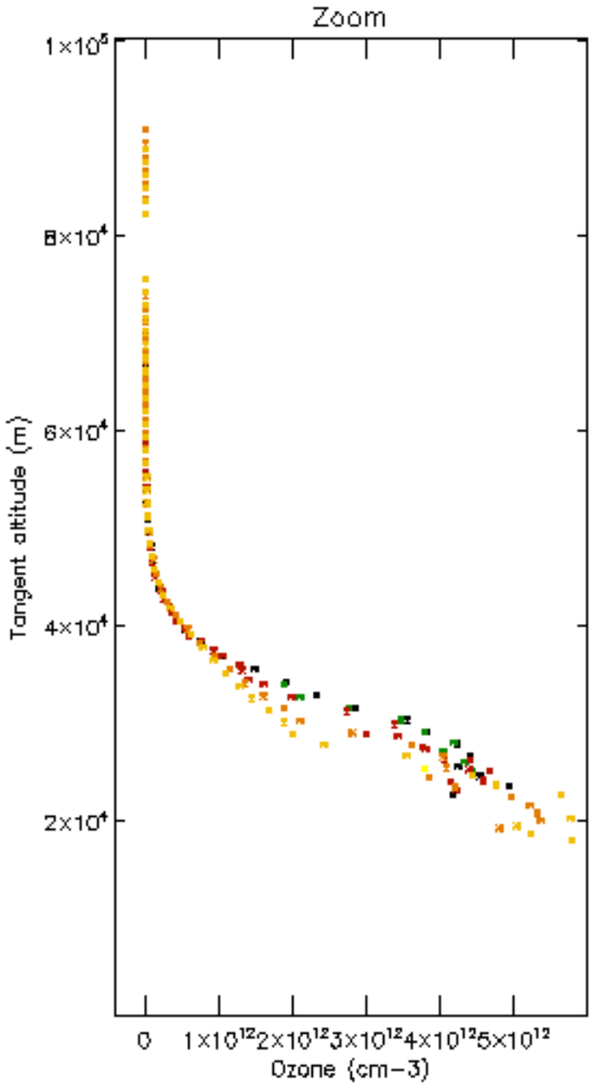

Ozone profiles
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
Ozone (cm−3)

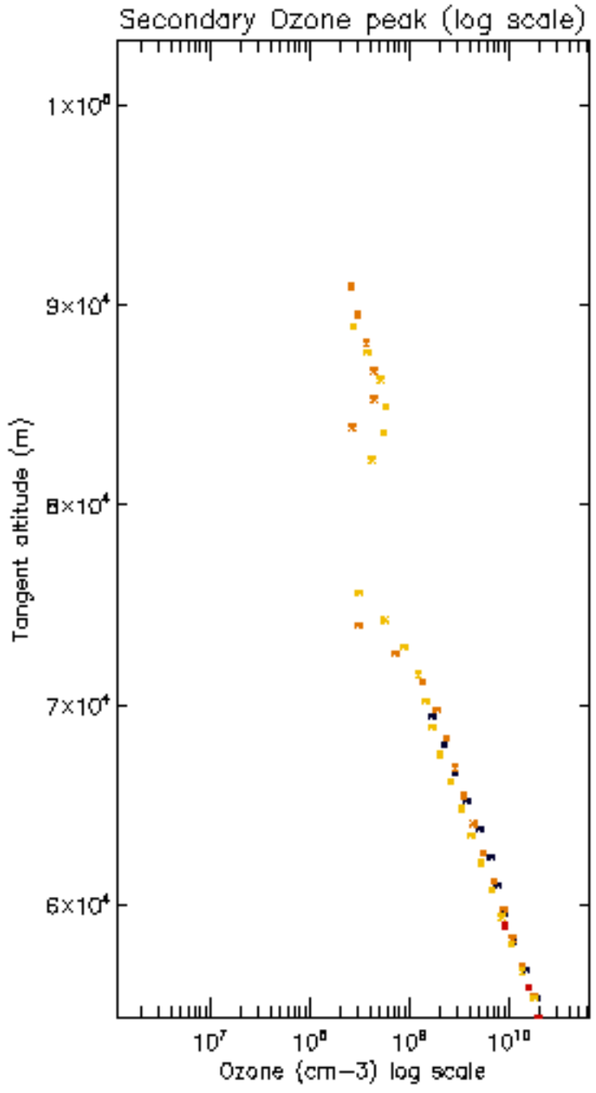

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)

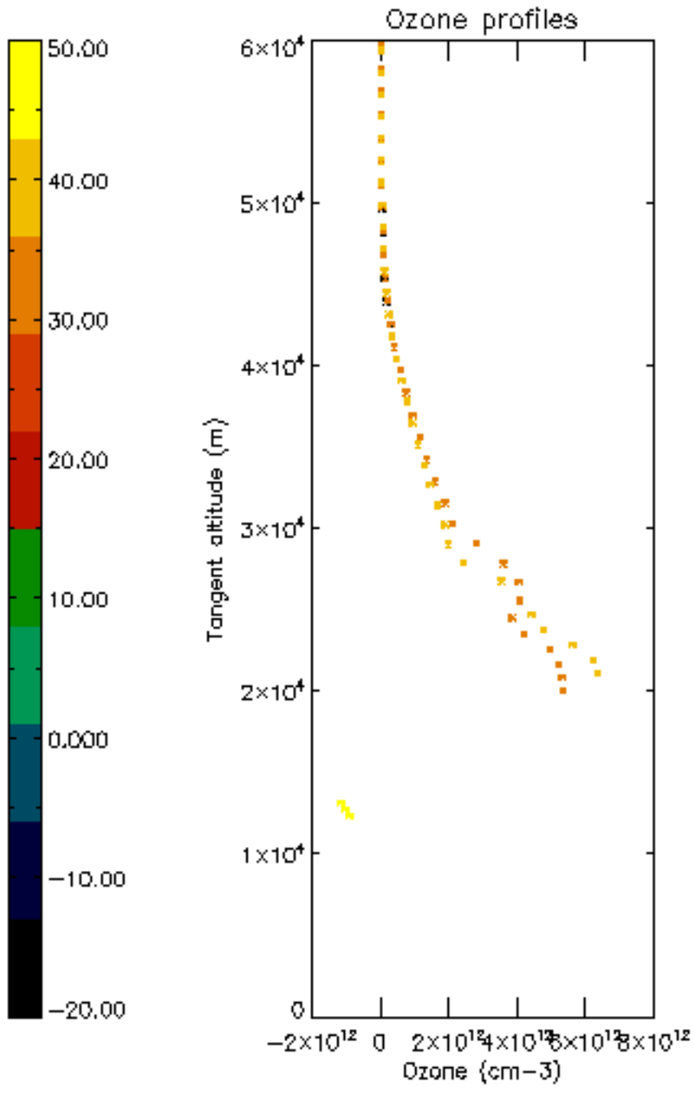

Secondary Ozone peak (log scale)
Tangent altitude (m)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale

50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00


Ozone profiles
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
−4×10¹²
−2×10¹²
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
1×10¹³
Ozone (cm−3)

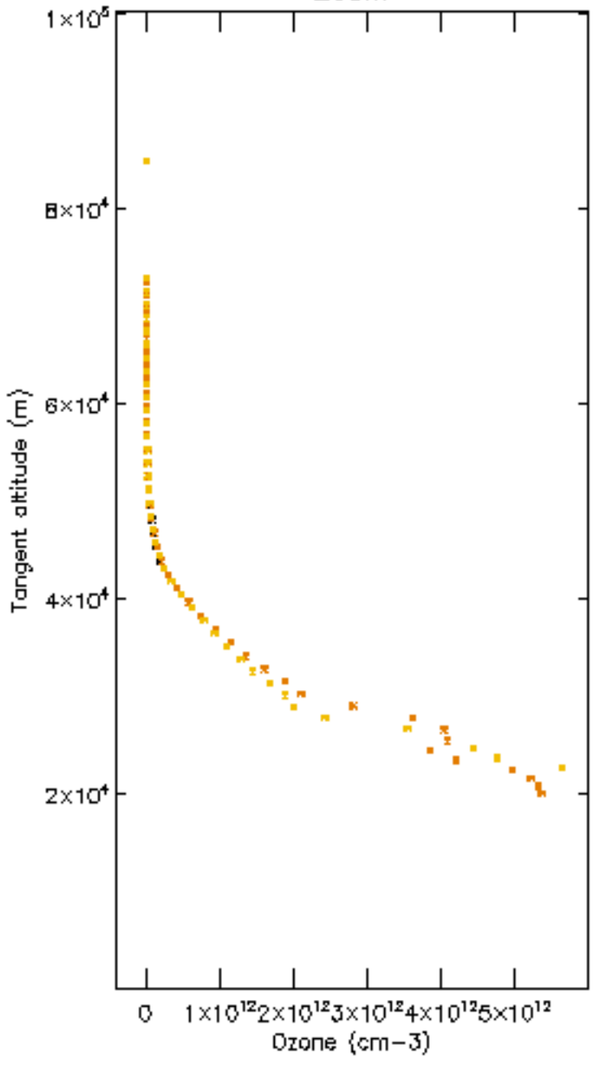

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
Ozone (cm−3)


Secondary Ozone peak (log scale)
Tangent altitude (m)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale

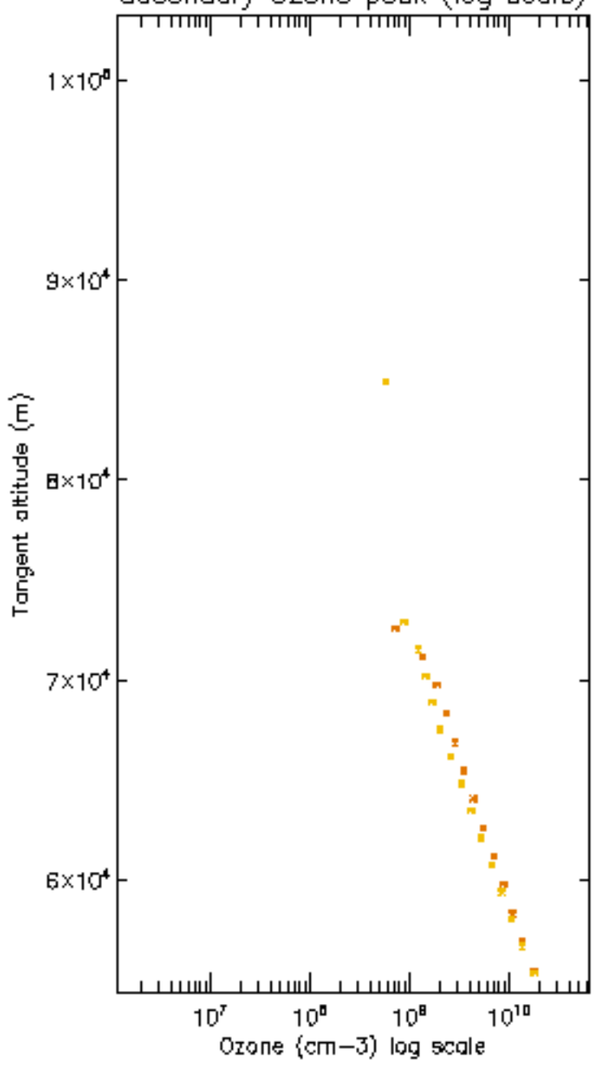


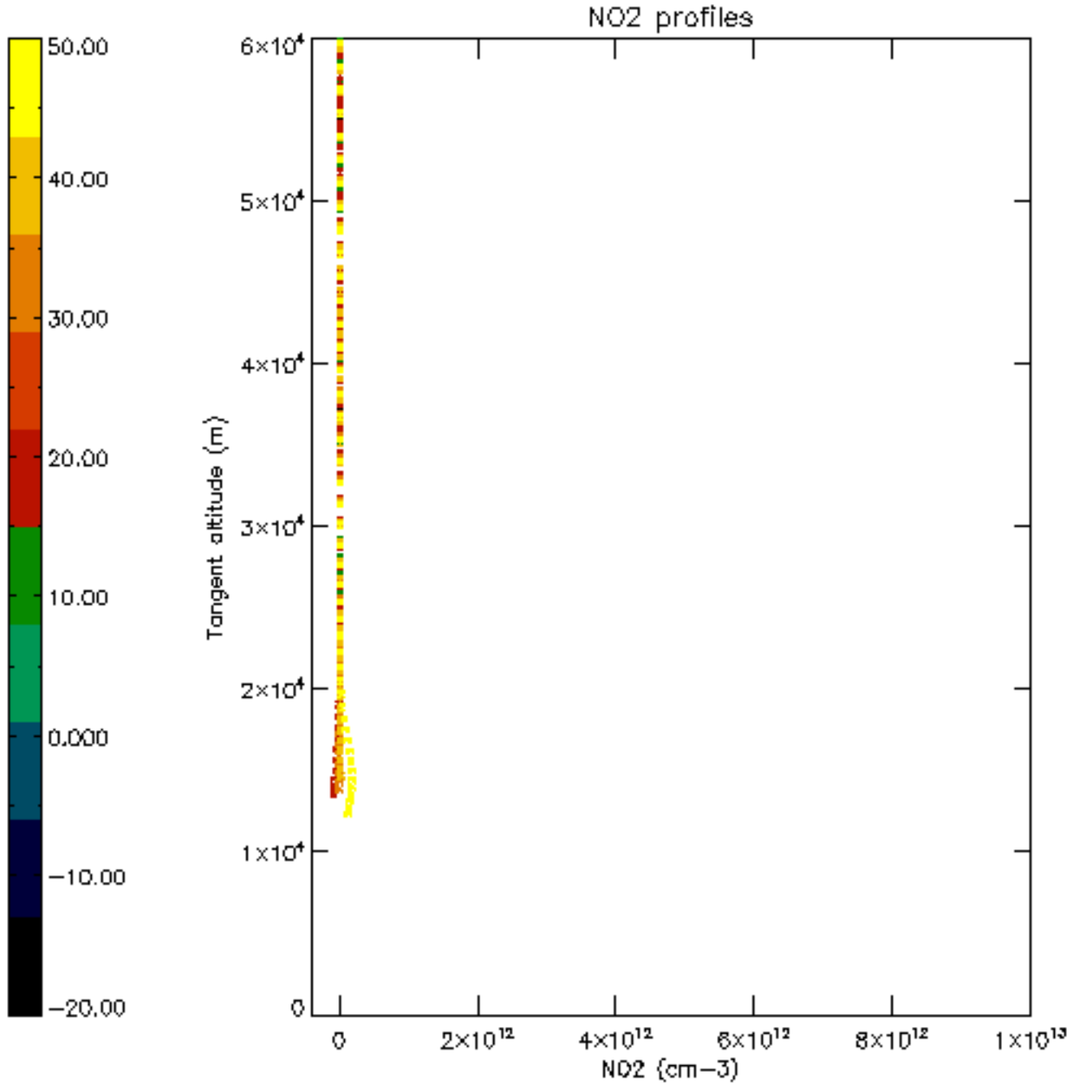
Ozone profiles

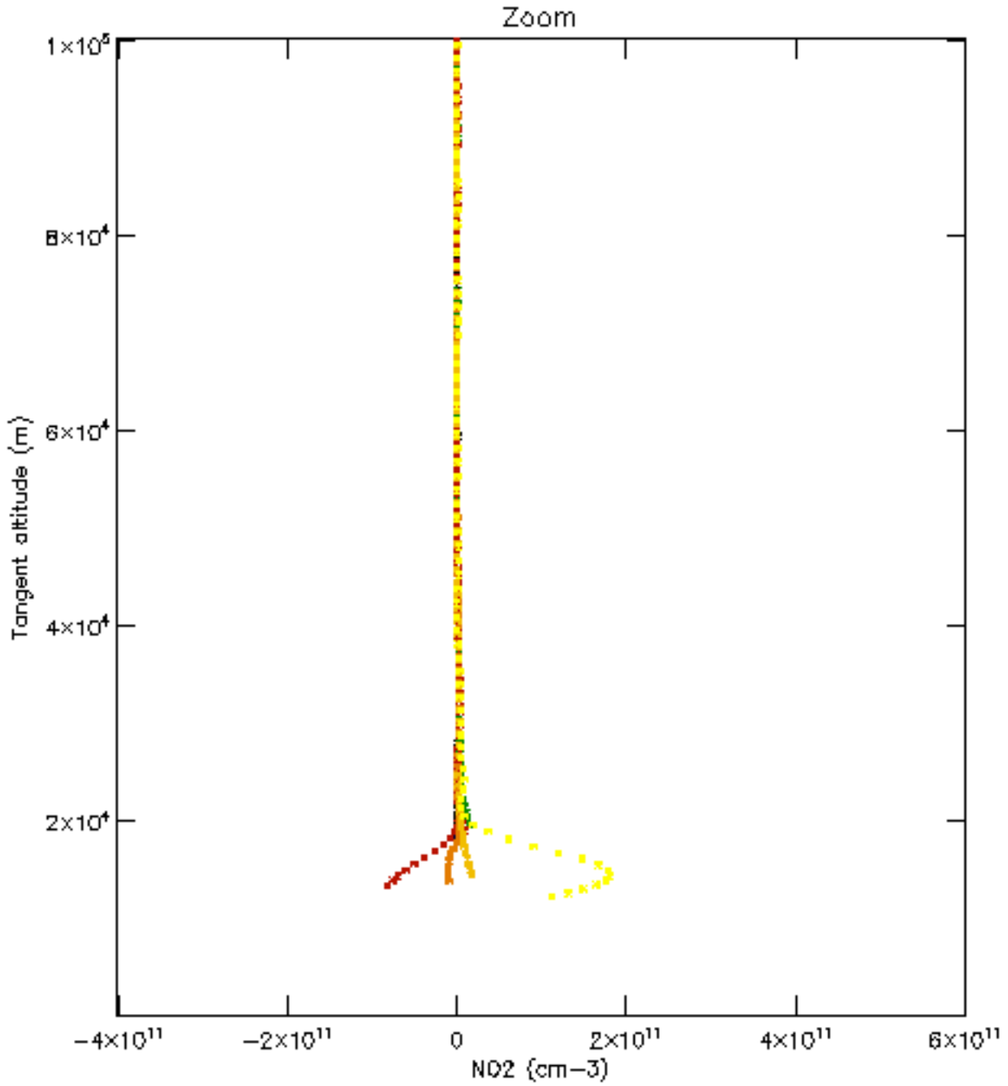
Zoom

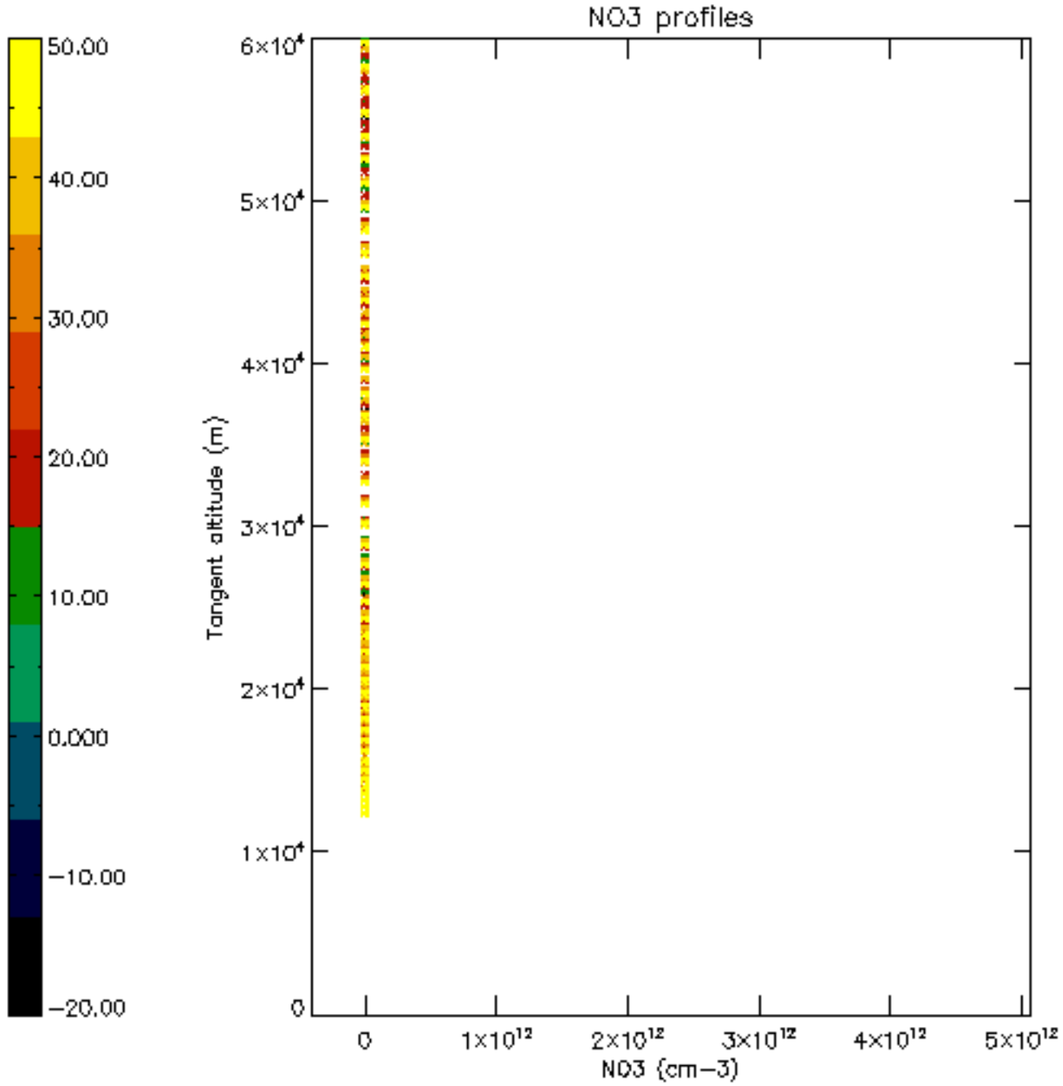


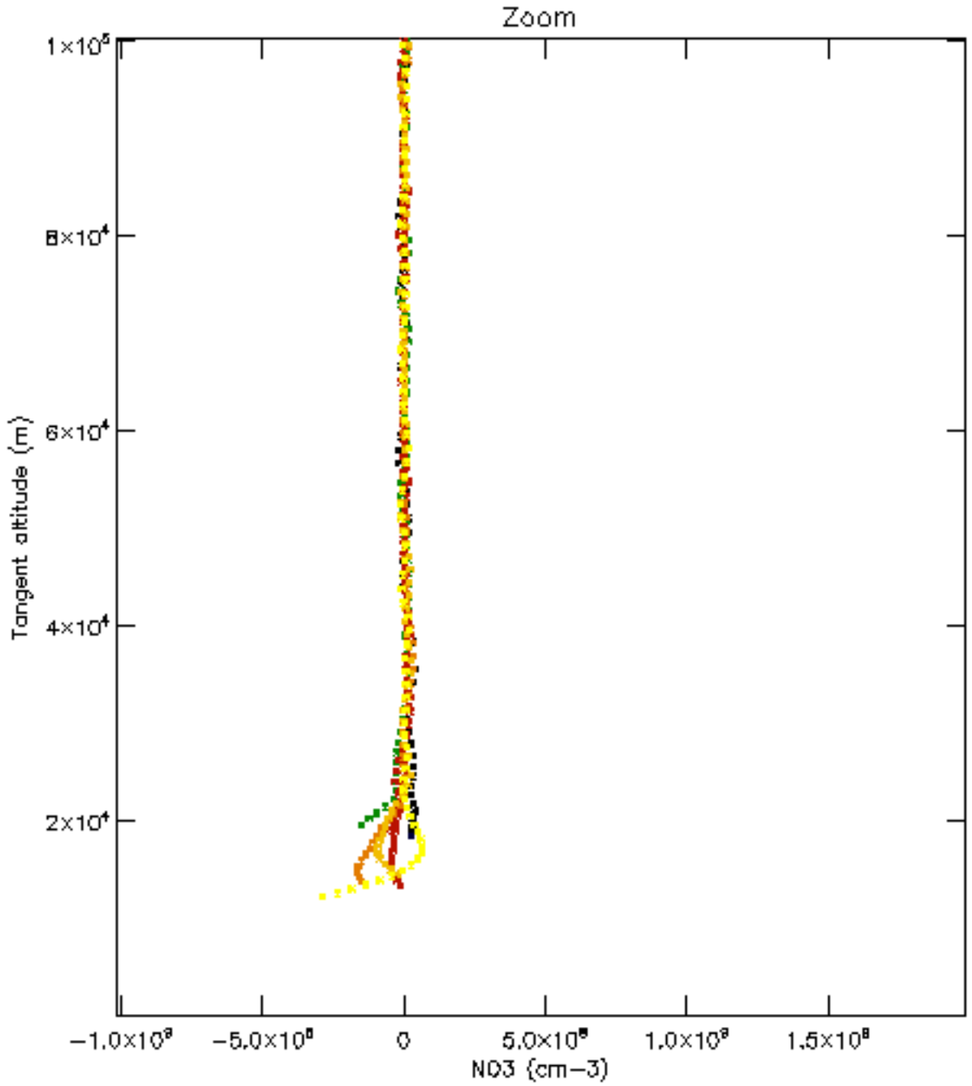
Secondary Ozone peak (log scale)




NO2 profiles
50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
0
2×10¹²
4×10¹²
6×10¹²
8×10¹²
1×10¹³
NO2 (cm−3)


Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−4×10¹¹
−2×10¹¹
0
2×10¹¹
4×10¹¹
6×10¹¹
NO2 (cm−3)


NO3 profiles
50.00
40.00
30.00
20.00
10.00
0.000
−10.00
−20.00
Tangent altitude (m)
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
0
1×10¹²
2×10¹²
3×10¹²
4×10¹²
5×10¹²
NO3 (cm−3)


Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−1.0×10⁹
−5.0×10⁸
0
5.0×10⁸
1.0×10⁹
1.5×10⁹
NO3 (cm−3)