# GOMOS Level 2 Daily Report

## SUMMARY


1. General Info

2. Summary of processed GOM_NL__2P products

3. Level 2 Quality information per product
   - 3.1 Plot of level 2 quality information per product (time dependant)
   - 3.2 Plot of level 2 quality information per product (world map)

4. Level 1 Quality information per product (stored on level 2 products)
   - 4.1 Plot of level 1 quality information per product (time dependant)
     - 4.1.1 Plot of level 1 quality information per product (time dependant): ASCENDING
     - 4.1.2 Plot of level 1 quality information per product (time dependant): DESCENDING
   - 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
     - 4.2.2 Plot of level 1 quality information per product (world map): DESCENDING

5. Ozone profiles based on quality statistics and other trace gas profiles

   - 5.1 Ozone statistics based on quality of products

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

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

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

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

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

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

   - 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 | 17APR2013 17:47:52 |
| Data source version | GOMOS/6.01 |
| Start time of products | 03-08-2002 (03AUG2002 00:00:00) |
| Stop time of products | 04-08-2002 (04AUG2002 00:00:00) |
| Store outputs in DB | Yes |
| Nb of level 2 prods | 2 |
| Nb of prods with errors | 0 |

## 2. Summary of processed GOM_NL__2P products.

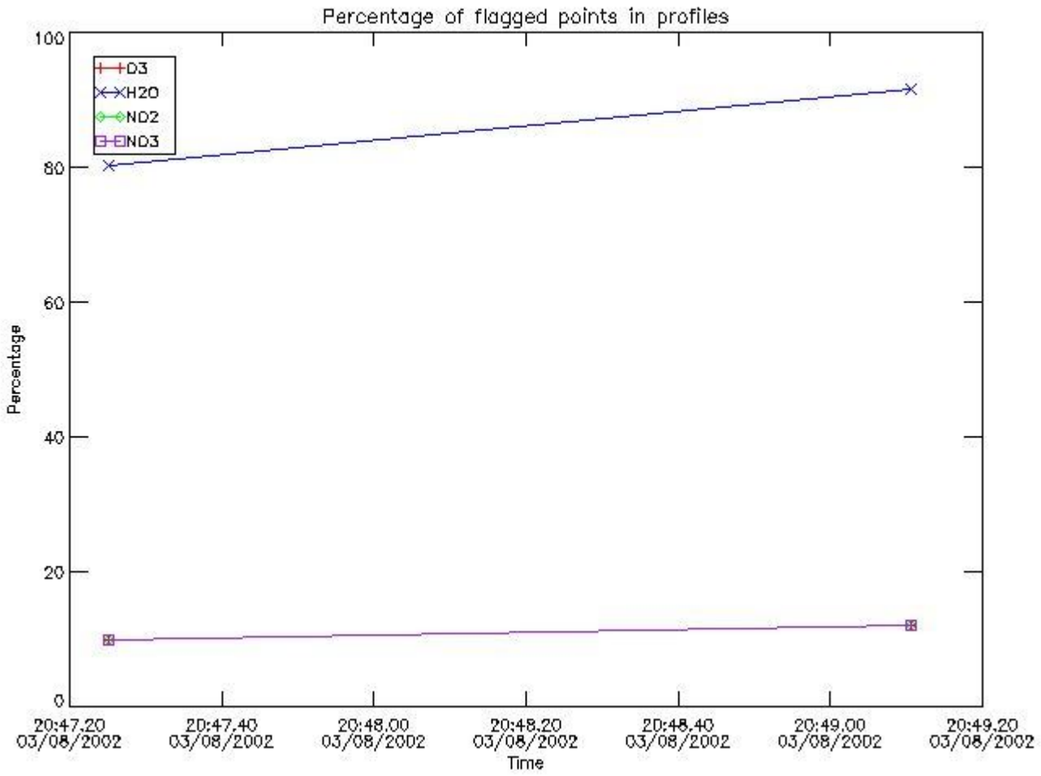
!Warning: No products without errors in BRIGHT limb contitions found

| Nr | Filename | UTC Start time | Limb | Duration | Star Id | Star Name | Star Mag | Star Temp | Nb Meas | Orbit | Prod. error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GOM_NL__2PRFIN20020803_204725_000000512008_00172_02230_8591.N1 | 03-AUG-2002 20:47:25 | Dark | 51.000 | 9 | Alp Eri | 0.45300 | 24000. | 102 | 2230 | No |
| 2 | GOM_NL__2PRFIN20020803_204910_000000432008_00172_02230_8592.N1 | 03-AUG-2002 20:49:10 | Dark | 42.500 | 135 | Bet Hyi | 2.8200 | 5800.0 | 85 | 2230 | No |

## *3. Quality information per product*

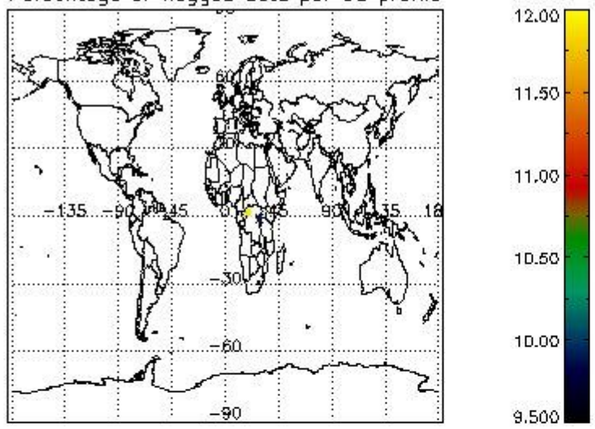
In this section it is plotted some information contained in the Quality Summary data set of the level 2 products. Only products in dark limb conditions and without errors (error flag in the MPH set to "0") are used.

### *3.1 Plot quality information per product (time dependant)*




### *3.2 Plot quality information per product (world map)*

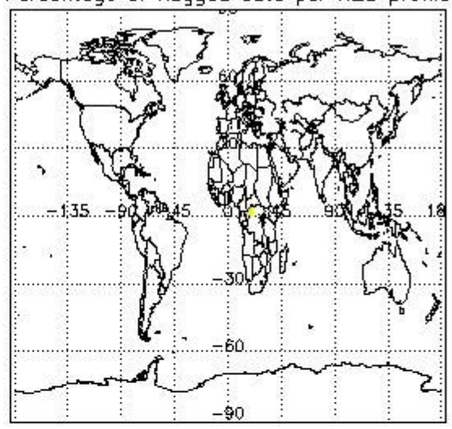
Percentage of flagged data per O3 profile

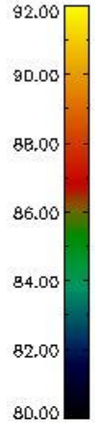




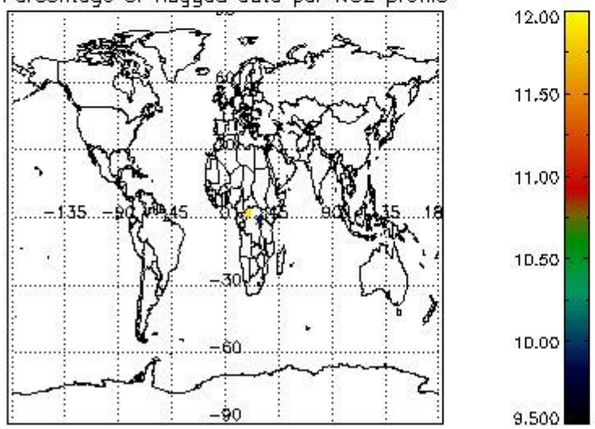


Percentage of flagged data per H2O profile



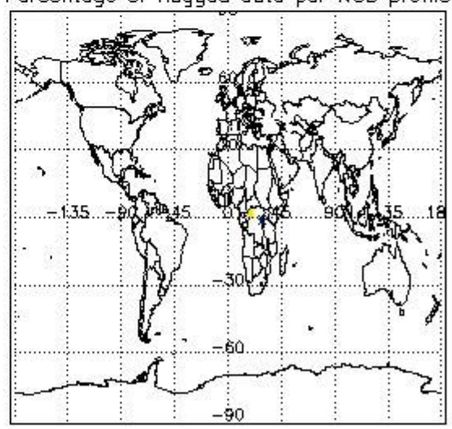

Percentage of flagged data per NO2 profile

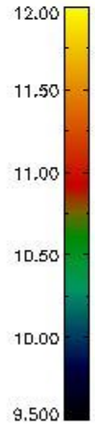






Percentage of flagged data per NO3 profile



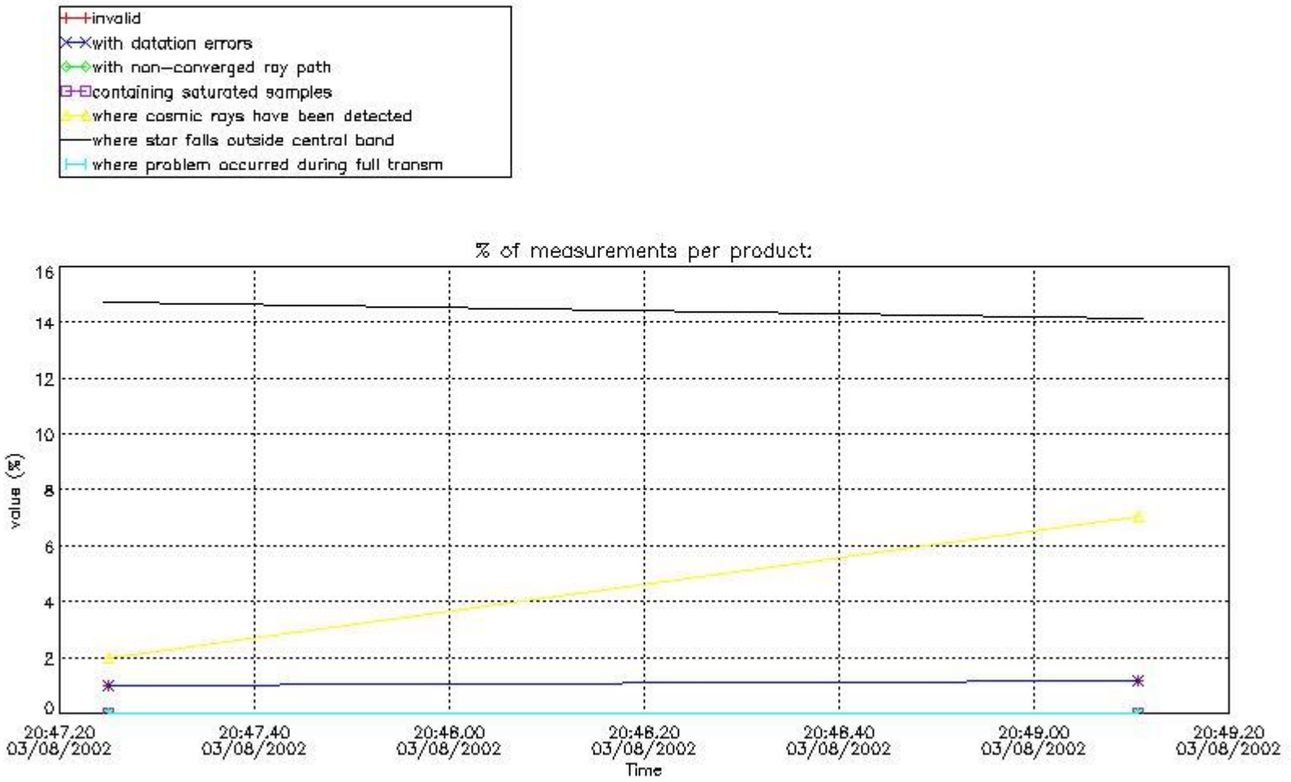




## *4. Level 1 quality information per product*

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*

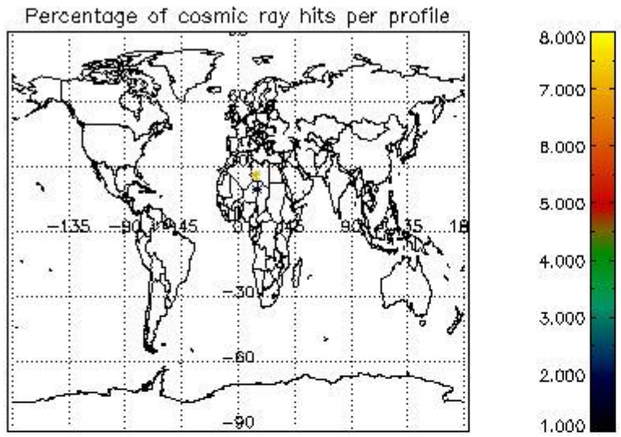


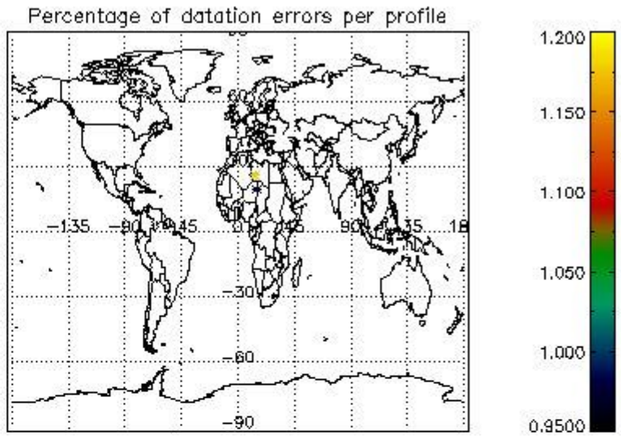

*4.1.2 Plot level 1 quality information per product (time dependant): ENVISAT DESCENDING passes*

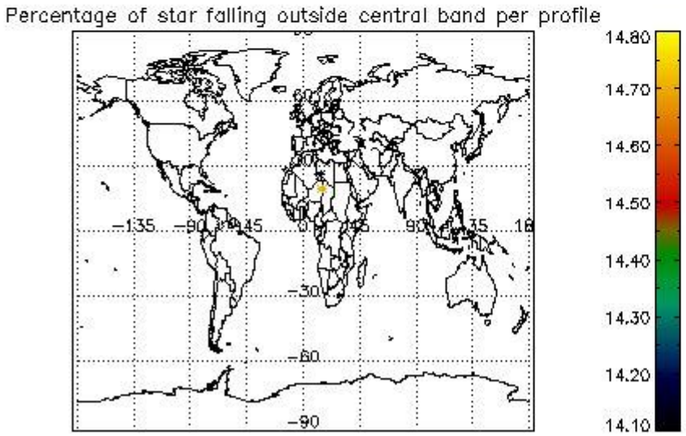
!Warning: No products without errors in descending found

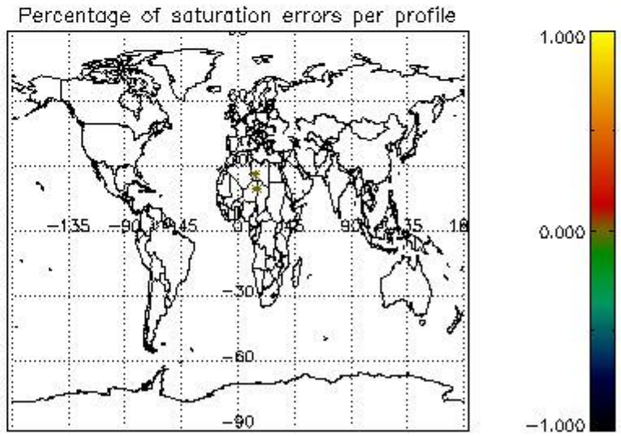
*4.2 Plot quality information per product comming from level 1b processing (world map)*

*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*

!Warning: No products without errors in descending found

## *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:

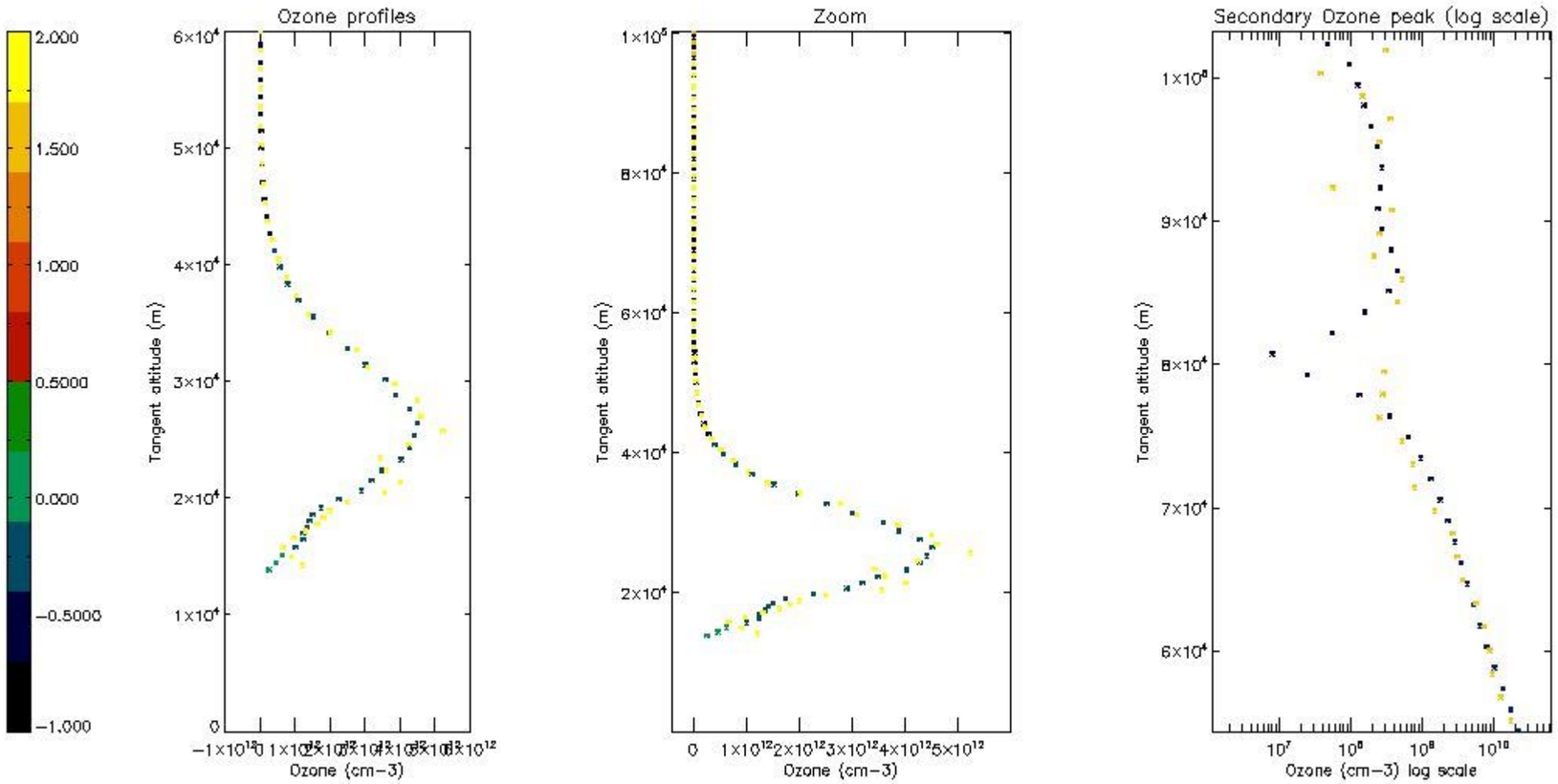
- Products in dark limb illumination condition: GOM_NL__2P/NL_SUMMARY_QUALITY/obs_ill_cond=0
- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
    - Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

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 | 100 |
| STD < 20 | 61 |
| STD < 10 | 53 |
| STD < 5 | 38 |

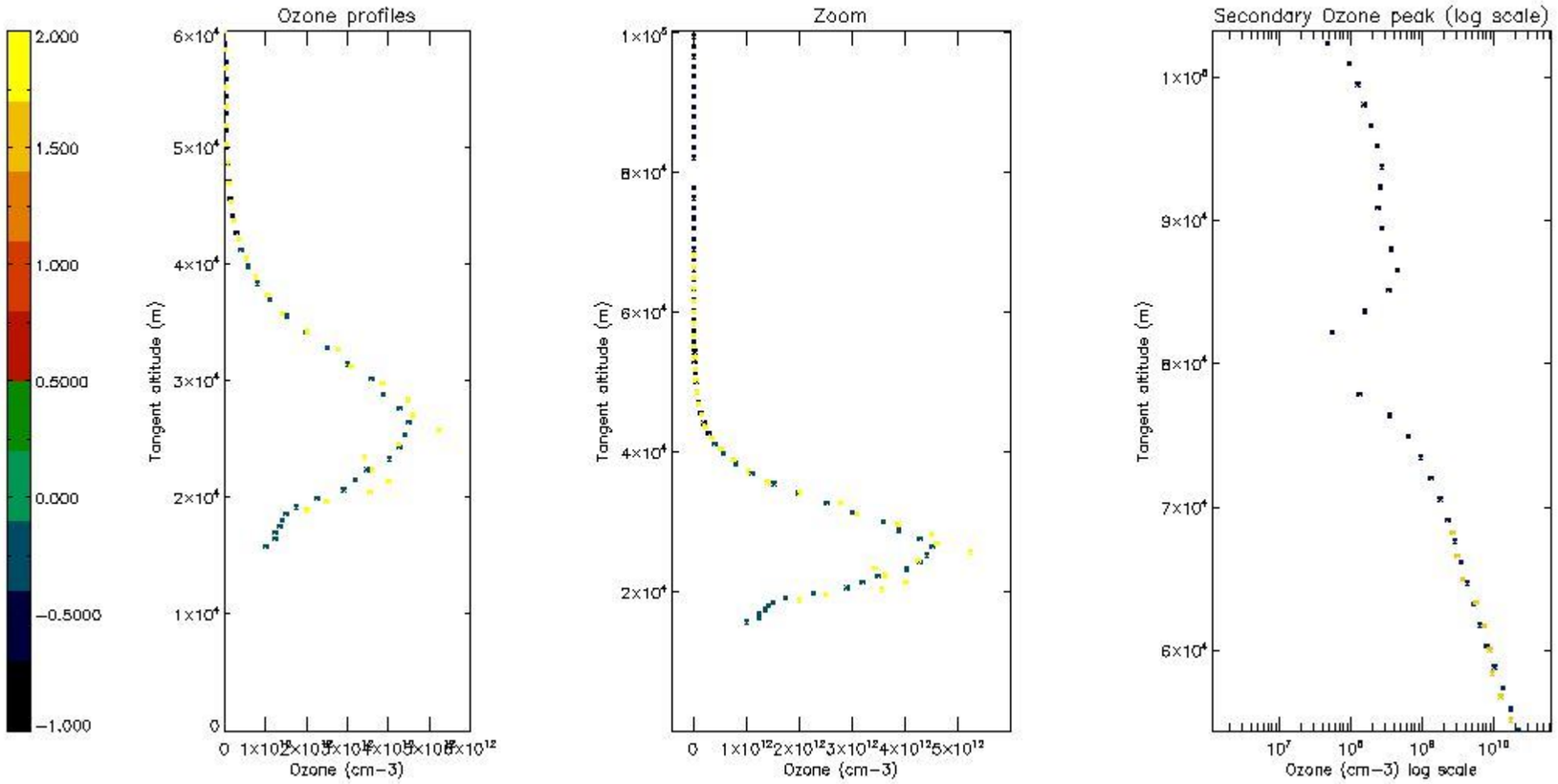
### *5.2 Plot ozone profiles for all STD (dark without errors)*

The colorbar represents the latitude.



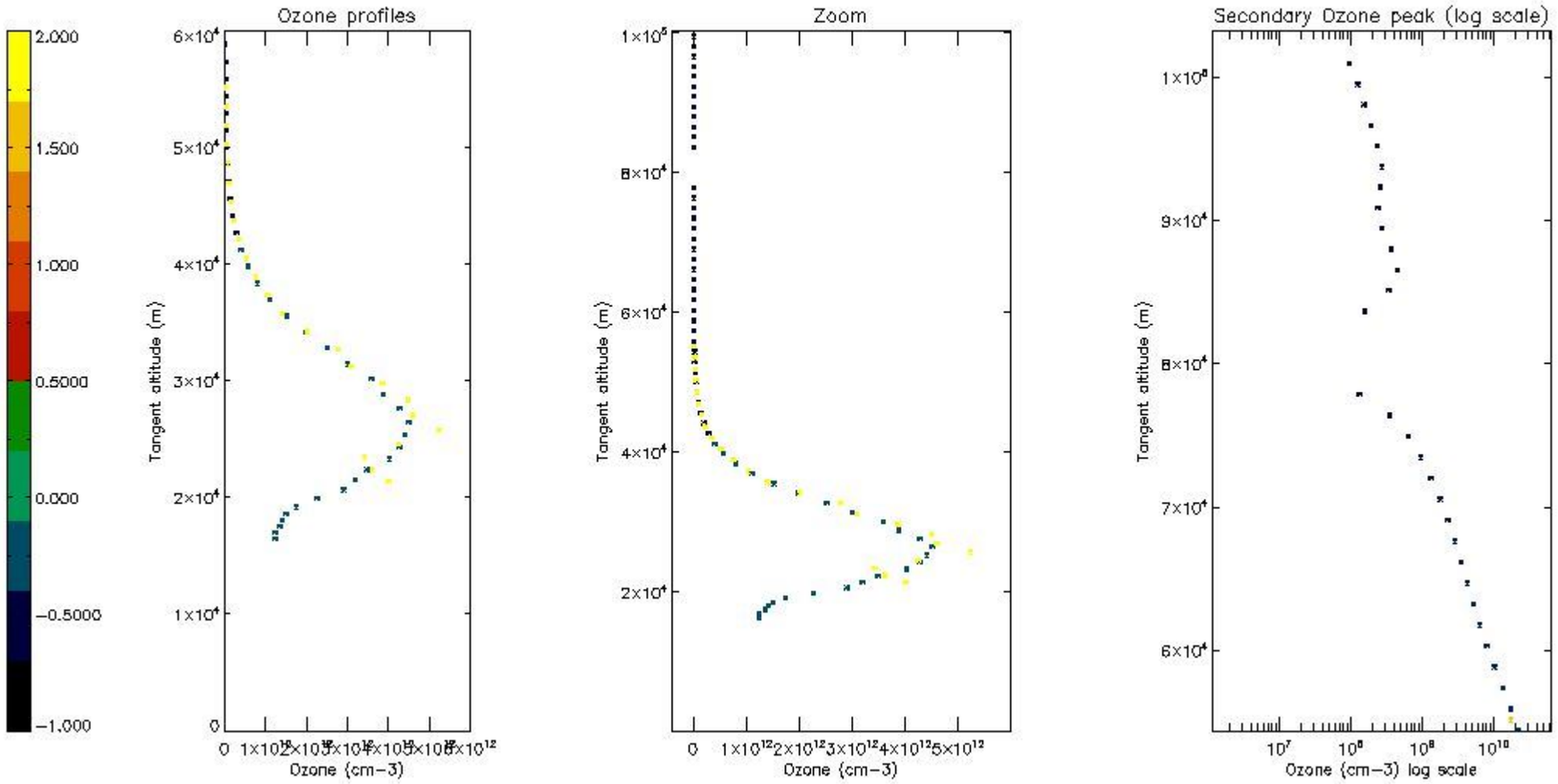

### *5.3 Plot ozone profiles where STD < 20% (dark without errors)*

The colorbar represents the latitude.



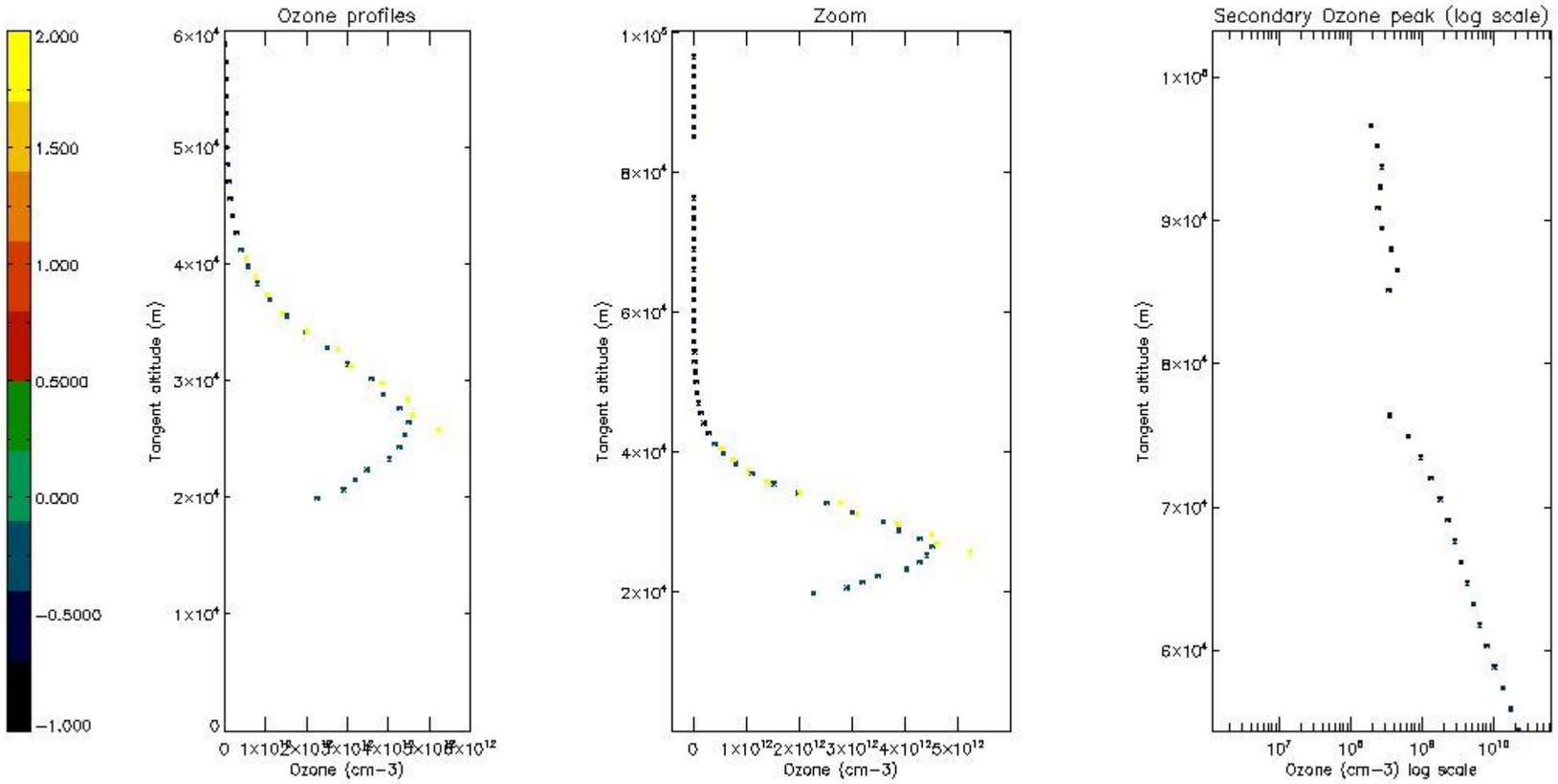

*5.4 Plot ozone profiles where STD < 10% (dark without errors)*

The colorbar represents the latitude.



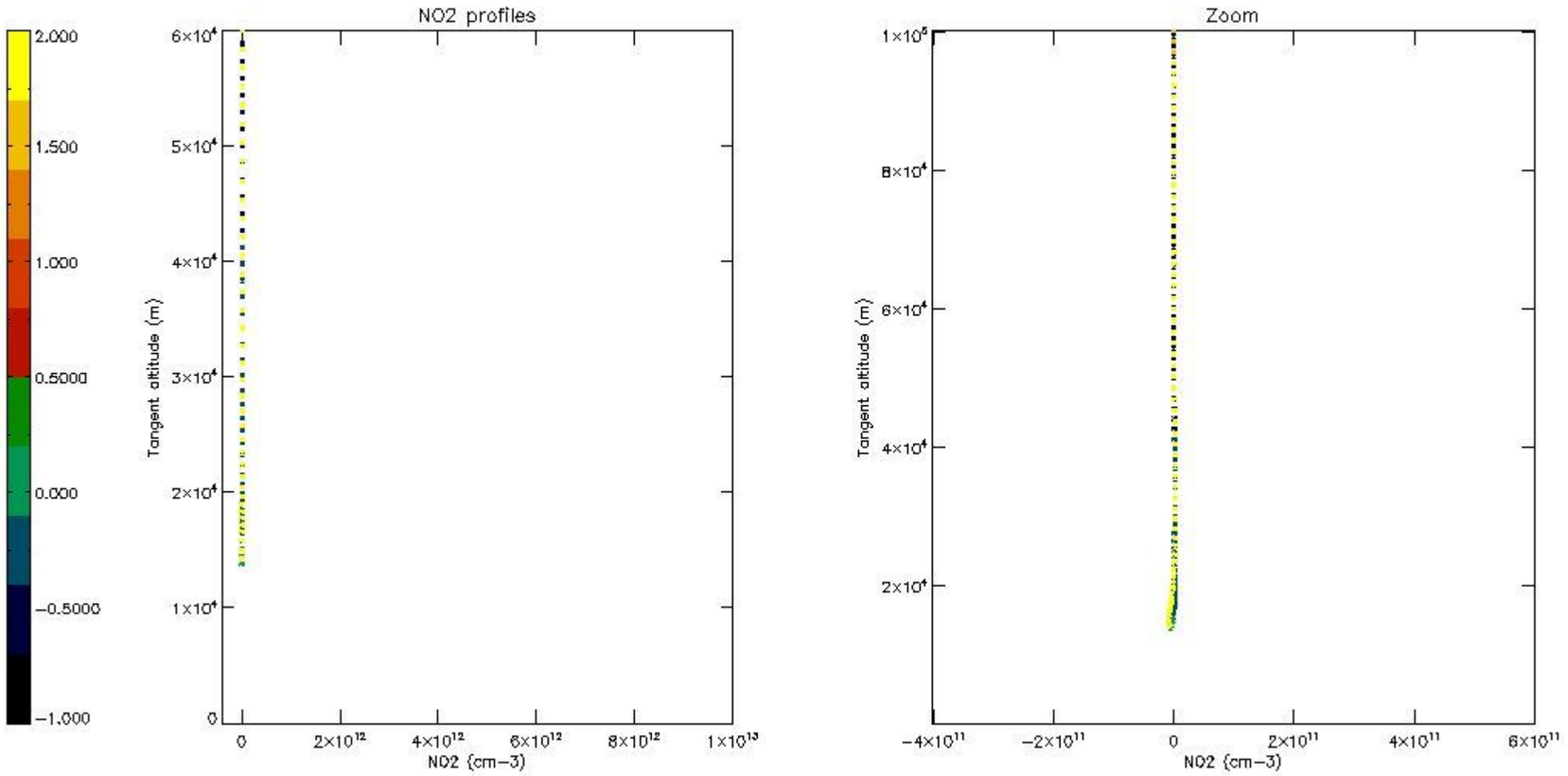

### *5.5 Plot ozone profiles where STD < 5% (dark without errors)*

The colorbar represents the latitude.




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

The colorbar represents the latitude.

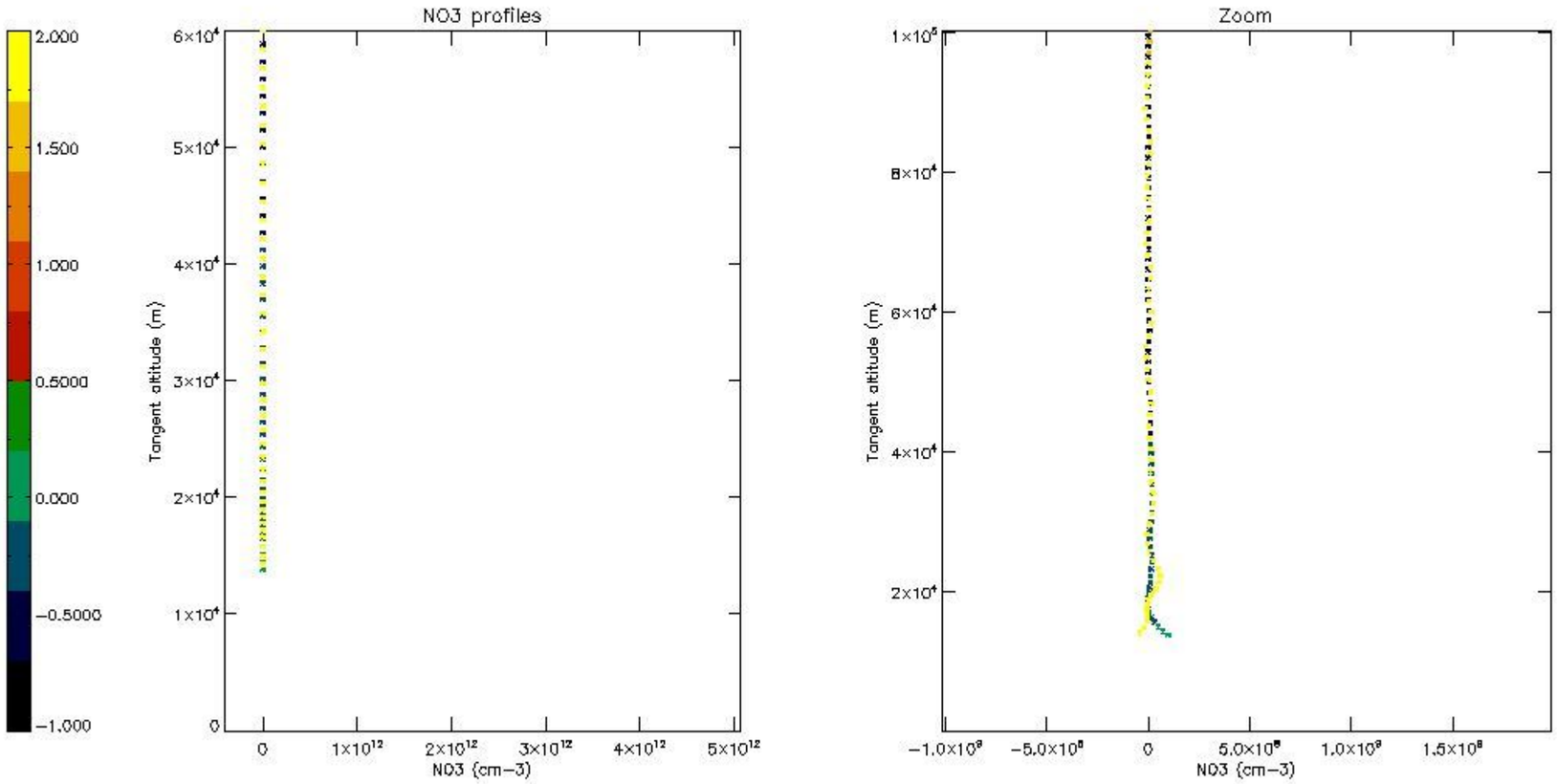






### *5.7 Plot NO3 profiles for all STD (dark without errors)*

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_AXNIEC20050627_150440_20020301_000000_20100101_000000 | 1 | 03-AUG-2002 20:47:25 |
| LEVEL-2_PROC_CONFIG | GOM_PR2_AXVIEC20091111_152718_20020301_000000_20500101_000000 | 1 | 03-AUG-2002 20:47:25 |
| CROSS_SECTIONS_FILE | GOM_CRS_AXVIEC20091111_154832_20020301_000000_20500101_000000 | 1 | 03-AUG-2002 20:47:25 |

# GOMOS Level 2 Daily Report

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3. Level 2 Quality information per product
   - 3.1 Plot of level 2 quality information per product (time dependant)
   - 3.2 Plot of level 2 quality information per product (world map)

4. Level 1 Quality information per product (stored on level 2 products)
   - 4.1 Plot of level 1 quality information per product (time dependant)
     - 4.1.1 Plot of level 1 quality information per product (time dependant): ASCENDING
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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

   - 5.1 Ozone statistics based on quality of products

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

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

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

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

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

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

   - 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 | 17APR2013 17:47:52 |
| Data source version | GOMOS/6.01 |
| Start time of products | 03-08-2002 (03AUG2002 00:00:00) |
| Stop time of products | 04-08-2002 (04AUG2002 00:00:00) |
| Store outputs in DB | Yes |
| Nb of level 2 prods | 2 |
| Nb of prods with errors | 0 |

## 2. Summary of processed GOM_NL__2P products.

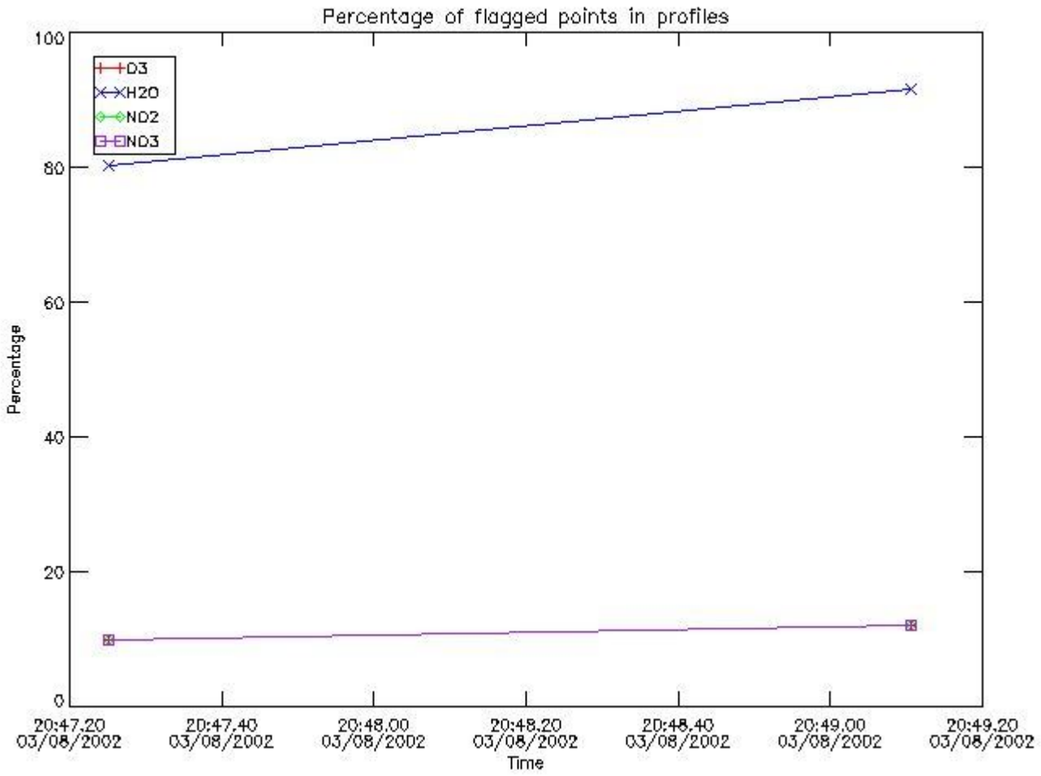
!Warning: No products without errors in BRIGHT limb contitions found

| Nr | Filename | UTC Start time | Limb | Duration | Star Id | Star Name | Star Mag | Star Temp | Nb Meas | Orbit | Prod. error |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | GOM_NL__2PRFIN20020803_204725_000000512008_00172_02230_8591.N1 | 03-AUG-2002 20:47:25 | Dark | 51.000 | 9 | Alp Eri | 0.45300 | 24000. | 102 | 2230 | No |
| 2 | GOM_NL__2PRFIN20020803_204910_000000432008_00172_02230_8592.N1 | 03-AUG-2002 20:49:10 | Dark | 42.500 | 135 | Bet Hyi | 2.8200 | 5800.0 | 85 | 2230 | No |

## *3. Quality information per product*

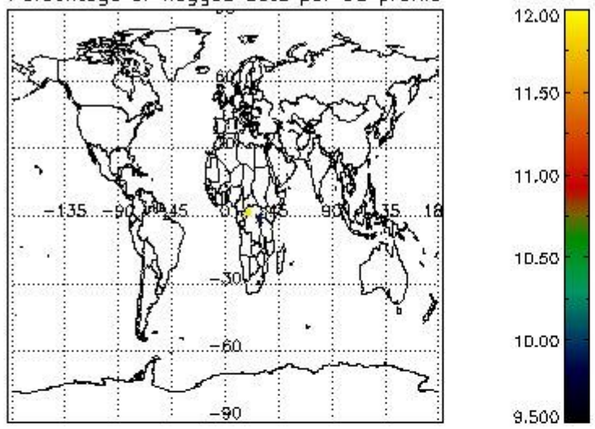
In this section it is plotted some information contained in the Quality Summary data set of the level 2 products. Only products in dark limb conditions and without errors (error flag in the MPH set to "0") are used.

### *3.1 Plot quality information per product (time dependant)*




### *3.2 Plot quality information per product (world map)*

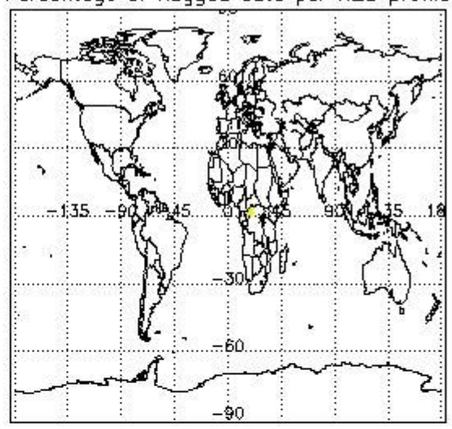
Percentage of flagged data per O3 profile

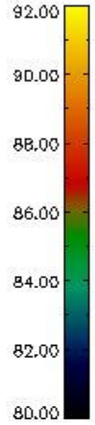




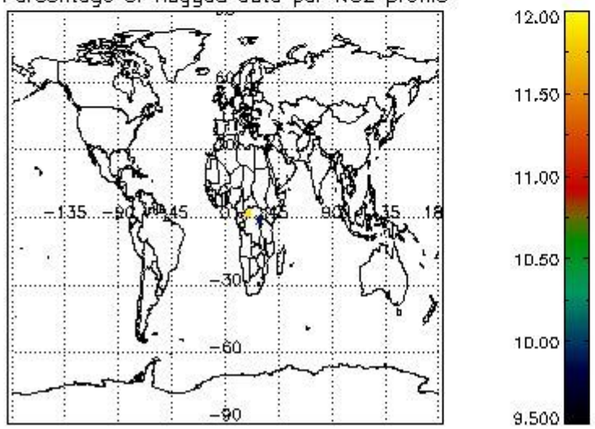


Percentage of flagged data per H2O profile



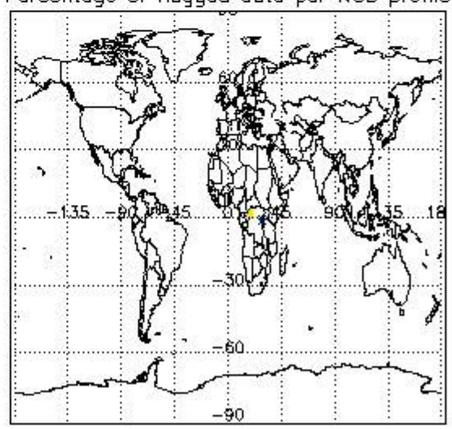

Percentage of flagged data per NO2 profile

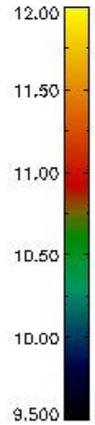






Percentage of flagged data per NO3 profile



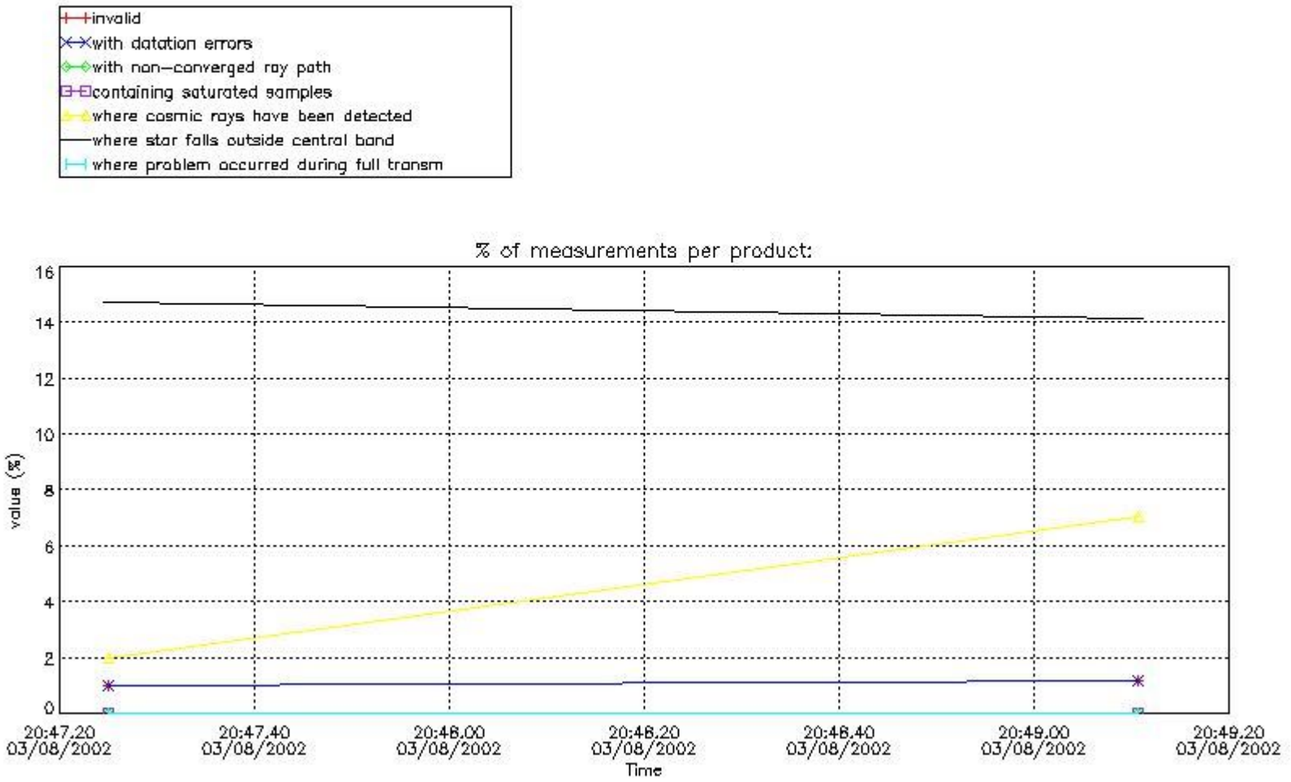




## *4. Level 1 quality information per product*

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*

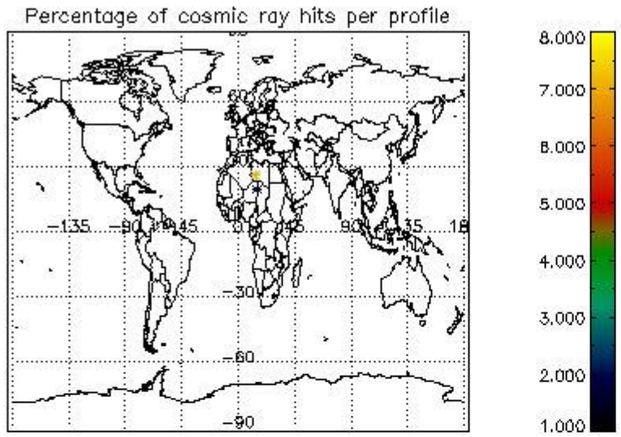


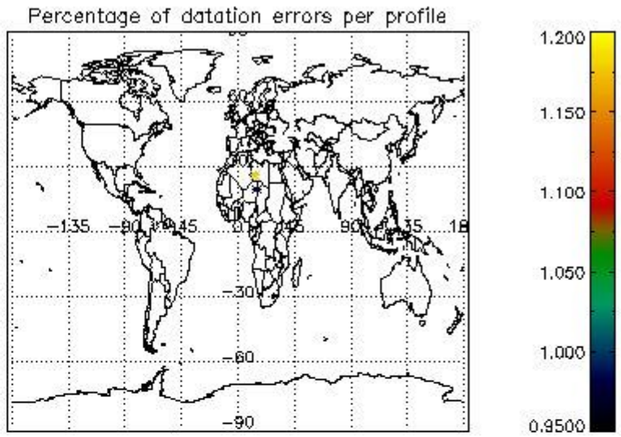

*4.1.2 Plot level 1 quality information per product (time dependant): ENVISAT DESCENDING passes*

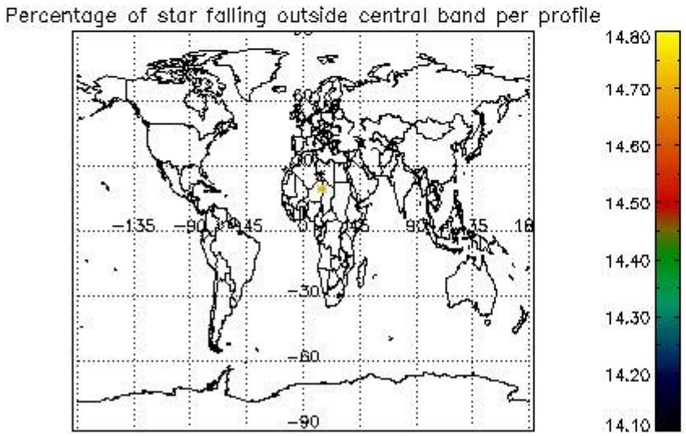
!Warning: No products without errors in descending found

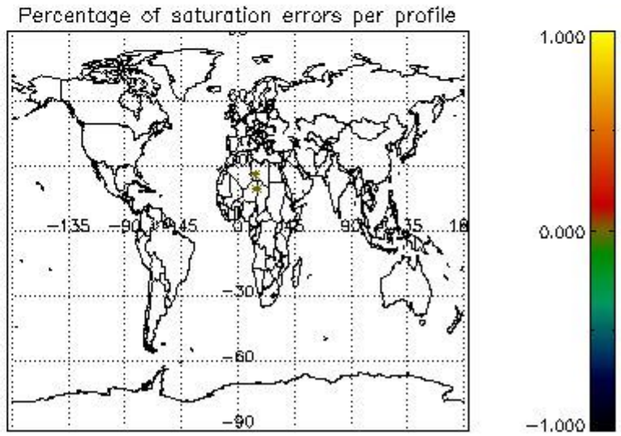
*4.2 Plot quality information per product comming from level 1b processing (world map)*

*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*

!Warning: No products without errors in descending found

## *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:

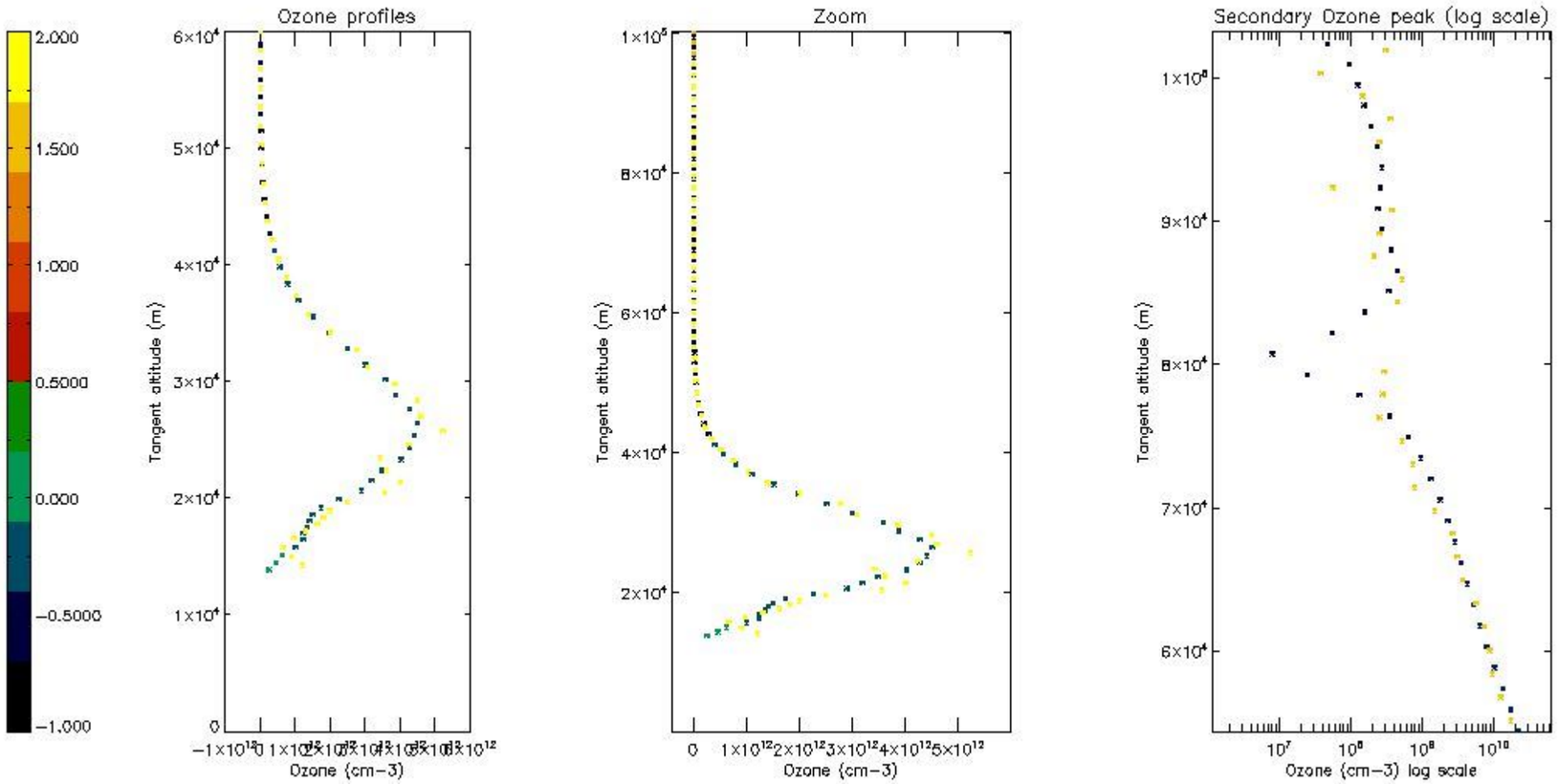
- Products in dark limb illumination condition: GOM_NL__2P/NL_SUMMARY_QUALITY/obs_ill_cond=0
- Products without fatal errors: GOM_NL__2P/MPH/PRODUCT_ERR=0
    - Valid point profile: GOM_NL__2P/NL_LOCAL_SPECIES_DENSITY/pcd(0)=0

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 | 100 |
| STD < 20 | 61 |
| STD < 10 | 53 |
| STD < 5 | 38 |

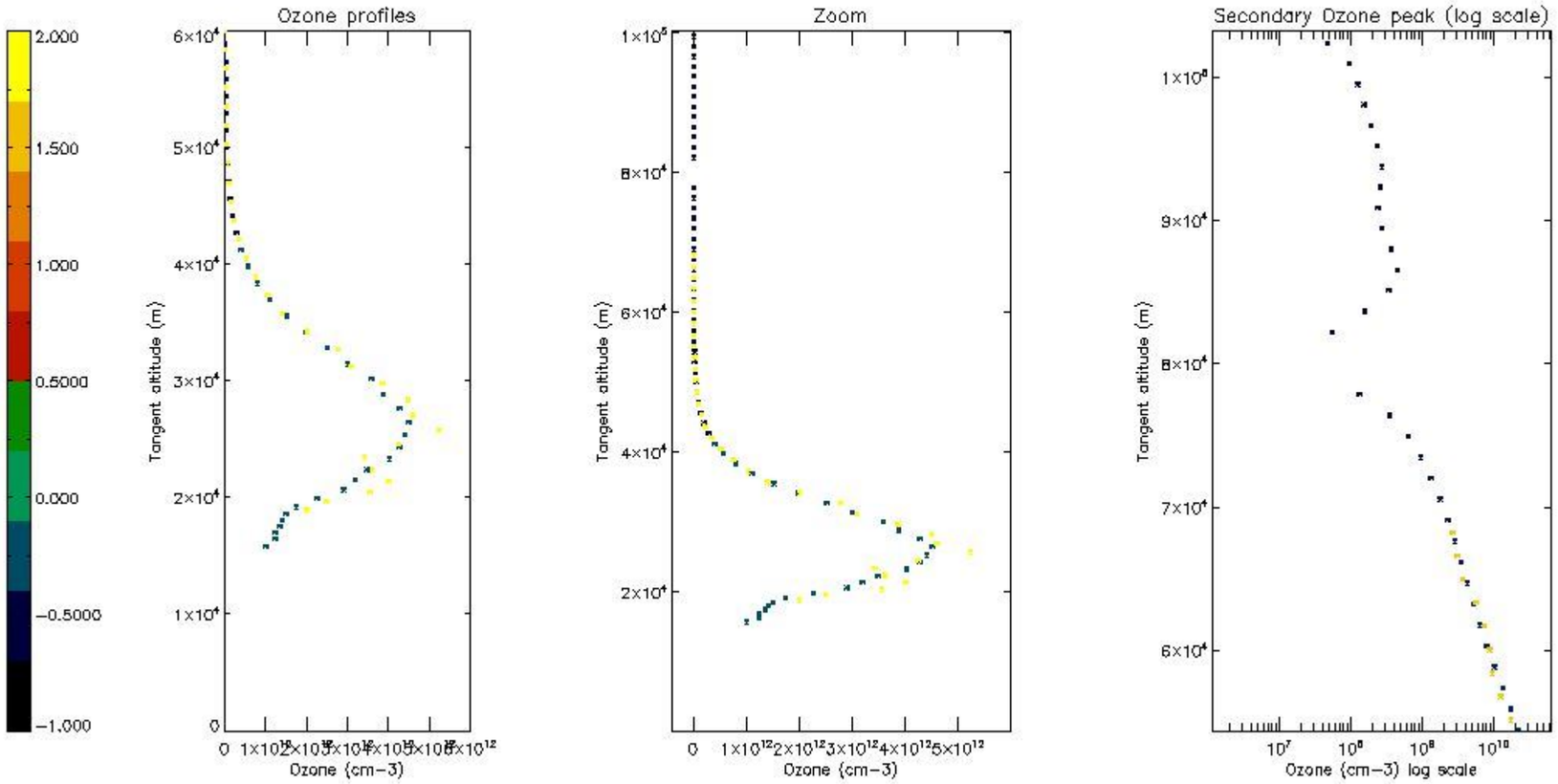
### *5.2 Plot ozone profiles for all STD (dark without errors)*

The colorbar represents the latitude.



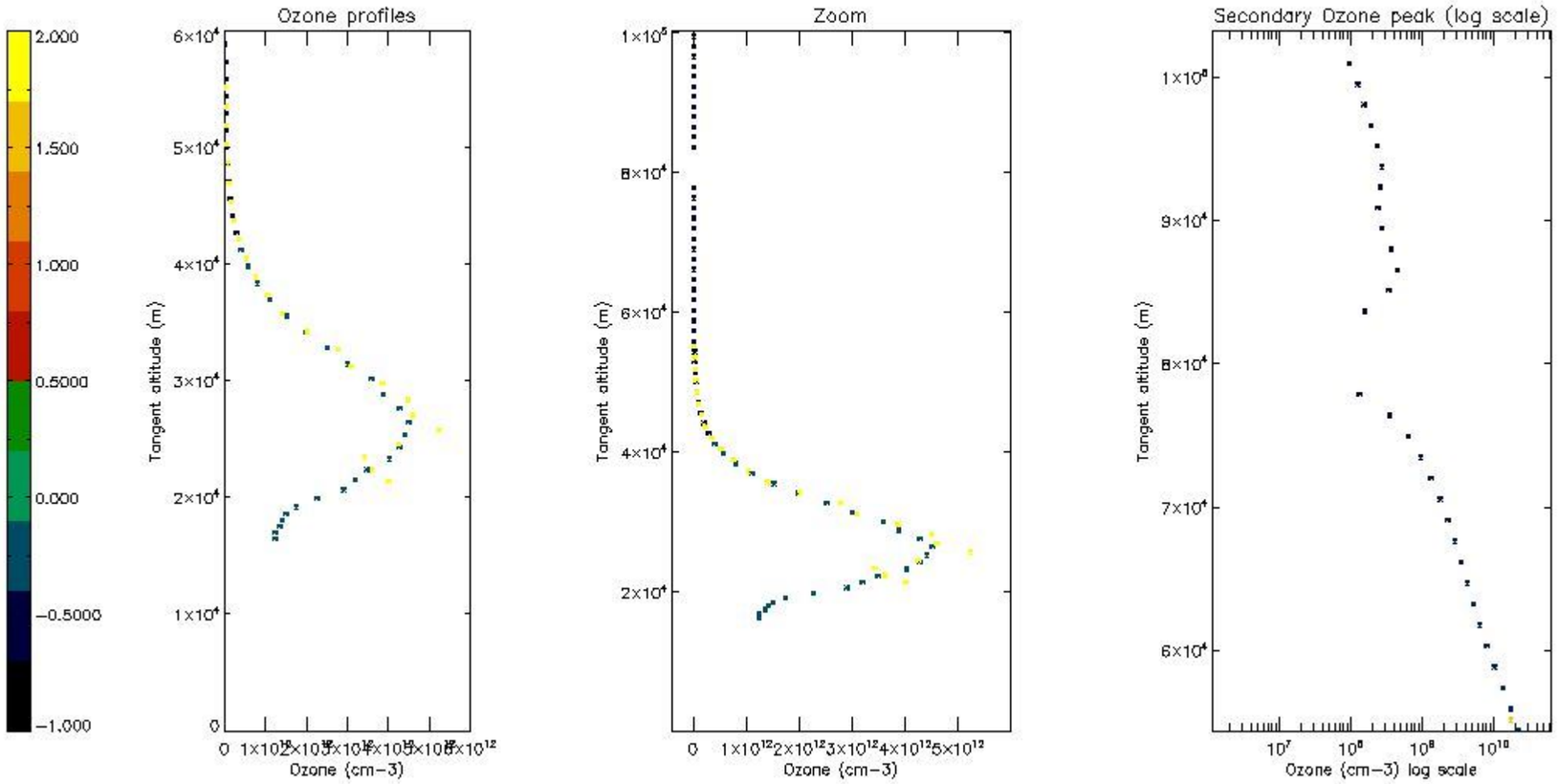

### *5.3 Plot ozone profiles where STD < 20% (dark without errors)*

The colorbar represents the latitude.



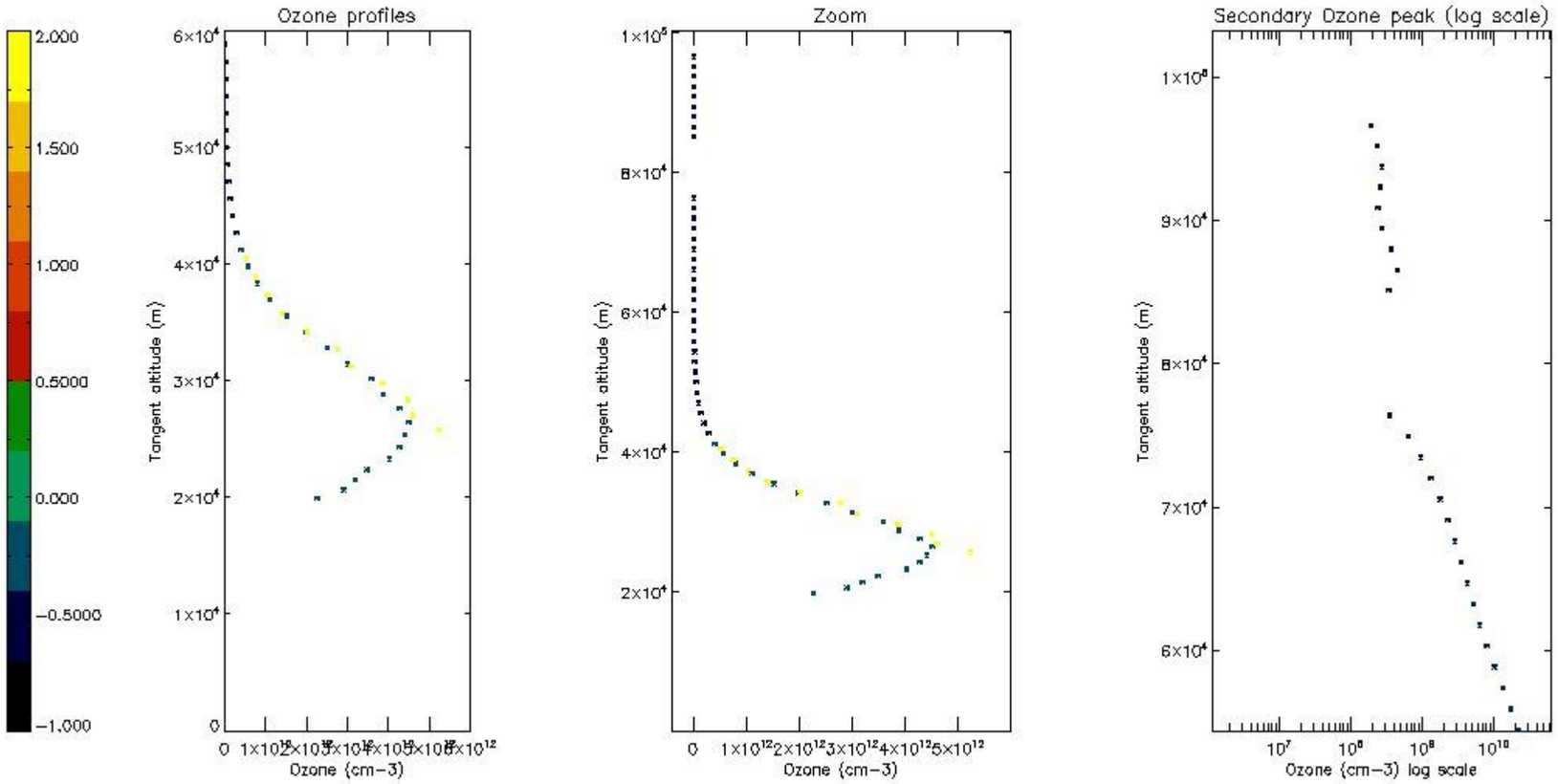

*5.4 Plot ozone profiles where STD < 10% (dark without errors)*

The colorbar represents the latitude.



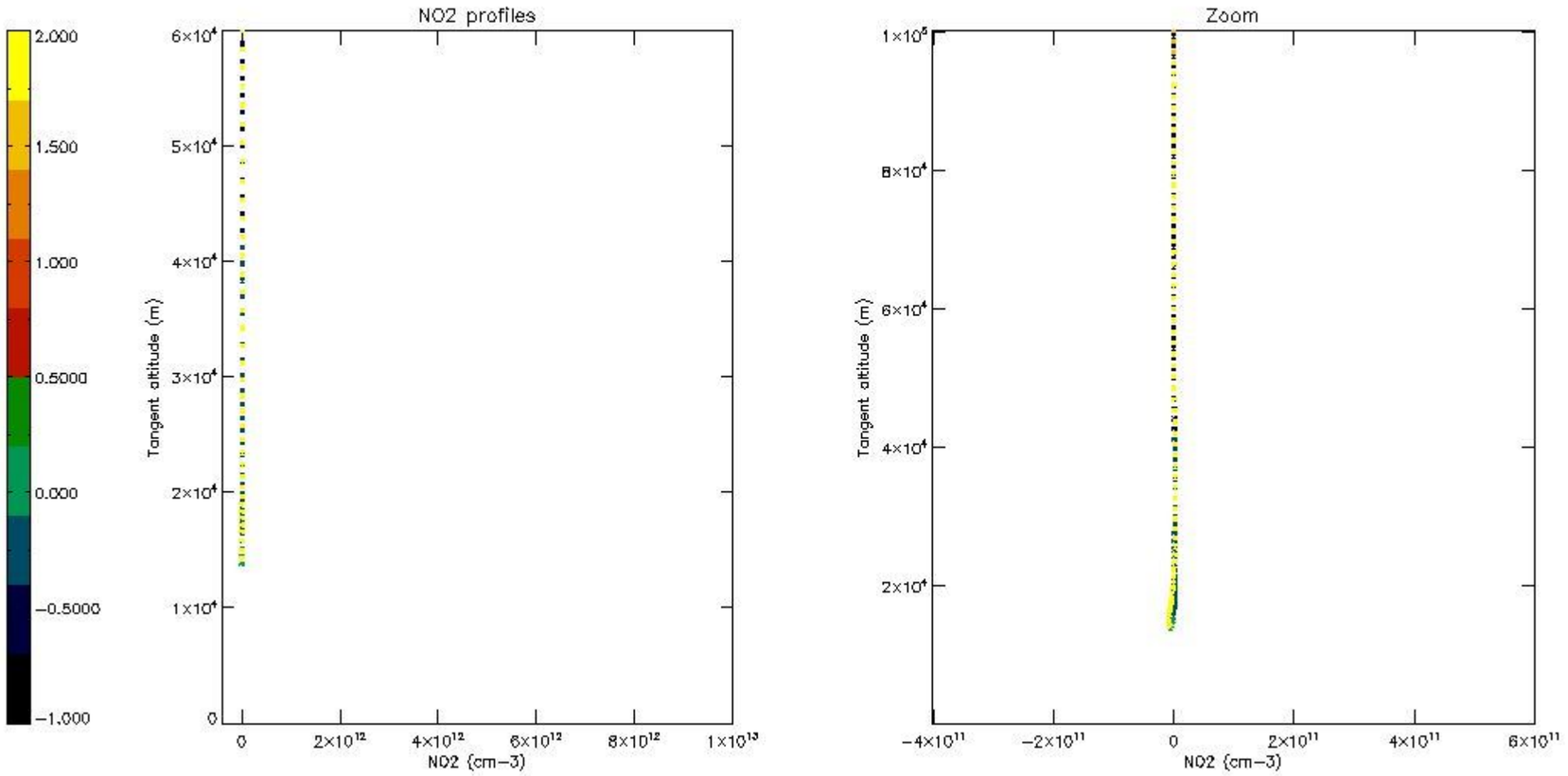

### *5.5 Plot ozone profiles where STD < 5% (dark without errors)*

The colorbar represents the latitude.




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

The colorbar represents the latitude.

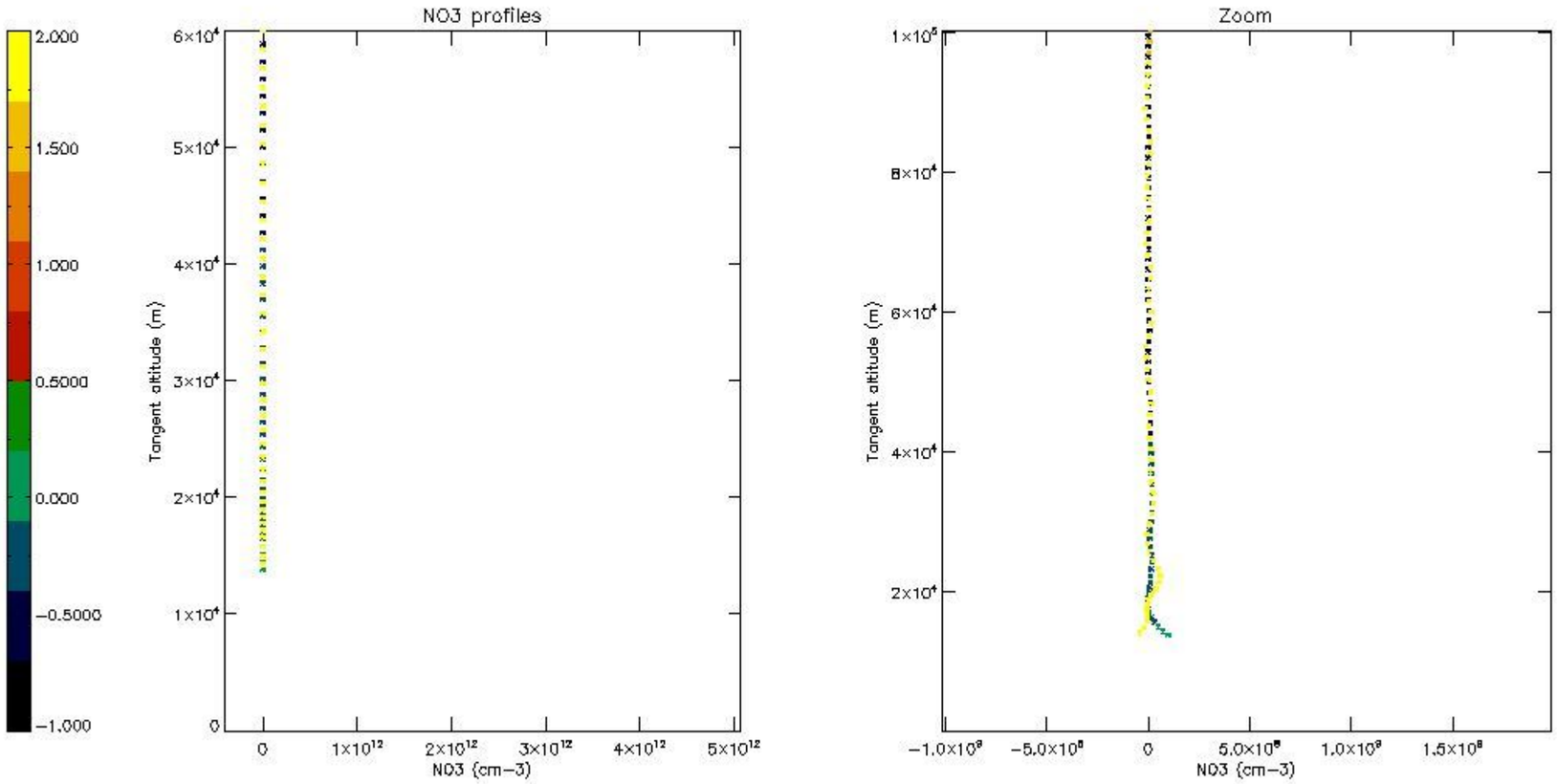






### *5.7 Plot NO3 profiles for all STD (dark without errors)*

The colorbar represents the latitude.



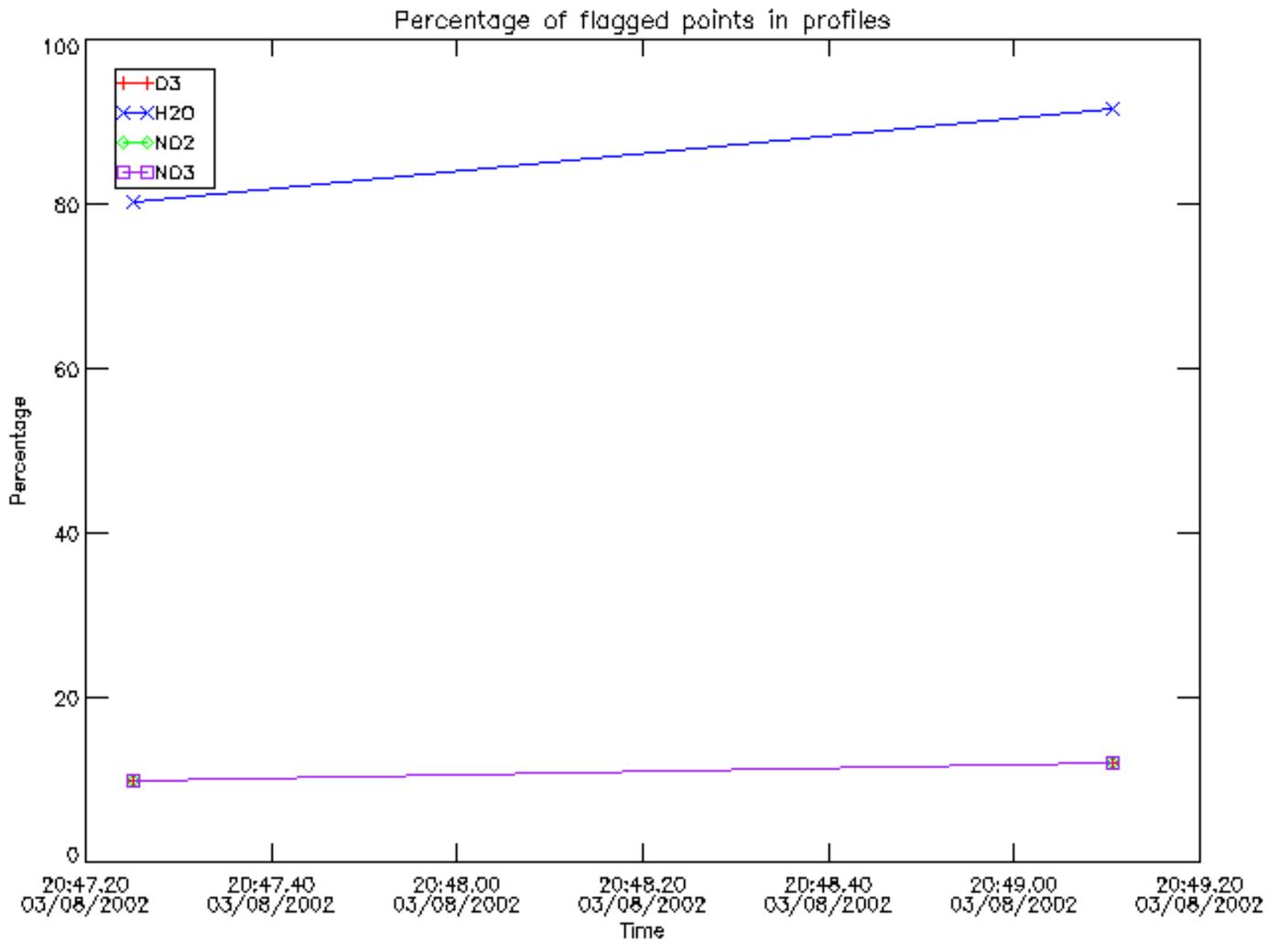




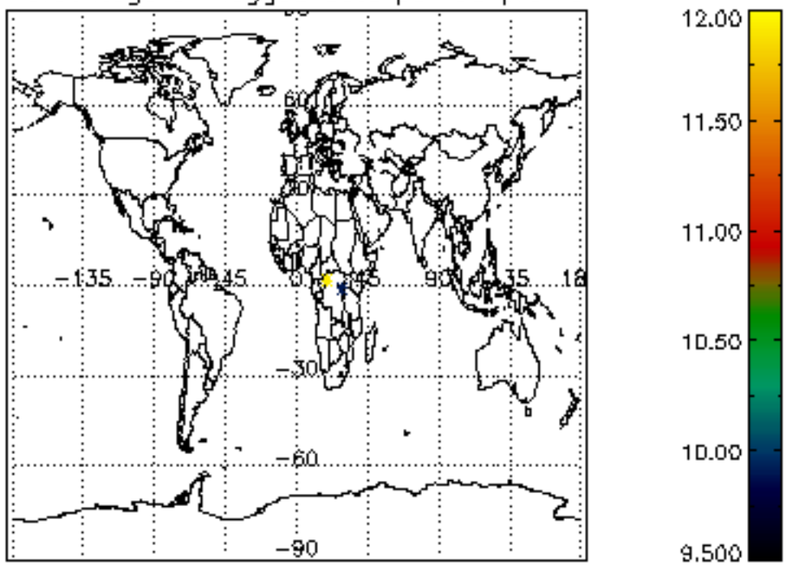
## 6. Auxiliary Data Files used for the production reported in section 2

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.

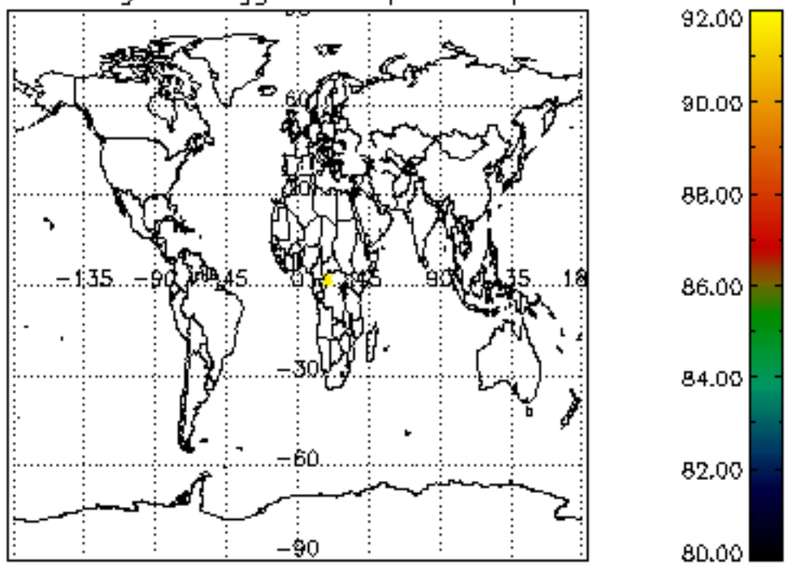
| Type | Auxiliary Filename | Used since product | Used since product date |
|---|---|---|---|
| INST_PHYS_CHARACTERISTICS | GOM_INS_AXNIEC20050627_150440_20020301_000000_20100101_000000 | 1 | 03-AUG-2002 20:47:25 |
| LEVEL-2_PROC_CONFIG | GOM_PR2_AXVIEC20091111_152718_20020301_000000_20500101_000000 | 1 | 03-AUG-2002 20:47:25 |
| CROSS_SECTIONS_FILE | GOM_CRS_AXVIEC20091111_154832_20020301_000000_20500101_000000 | 1 | 03-AUG-2002 20:47:25 |


Percentage of flagged points in profiles
O3
H2O
NO2
NO3
100
80
60
40
20
0
Percentage
20:47.20
03/08/2002
20:47.40
03/08/2002
20:48.00
03/08/2002
20:48.20
03/08/2002
20:48.40
03/08/2002
20:49.00
03/08/2002
20:49.20
03/08/2002
Time

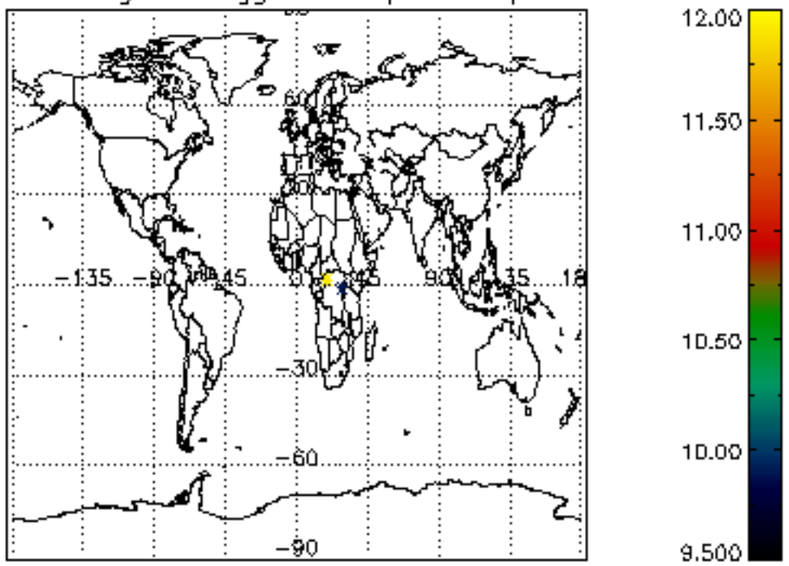
Percentage of flagged data per O3 profile



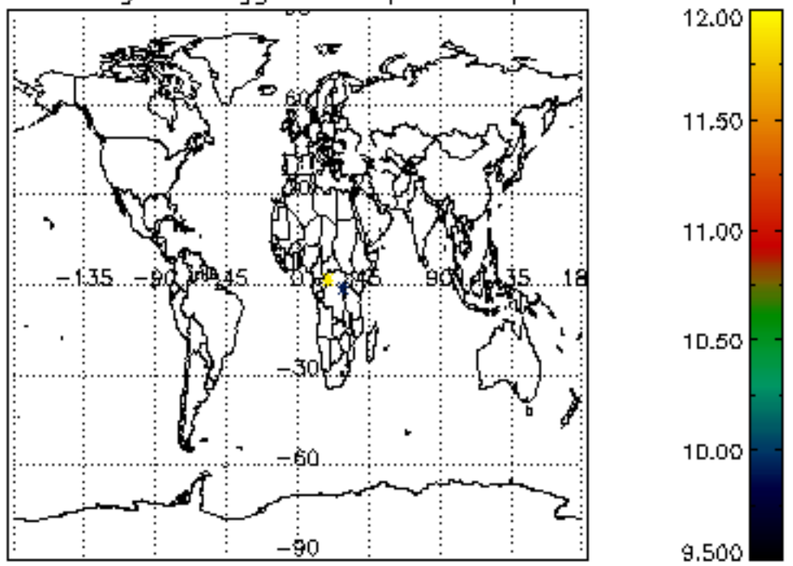

Percentage of flagged data per H2O profile

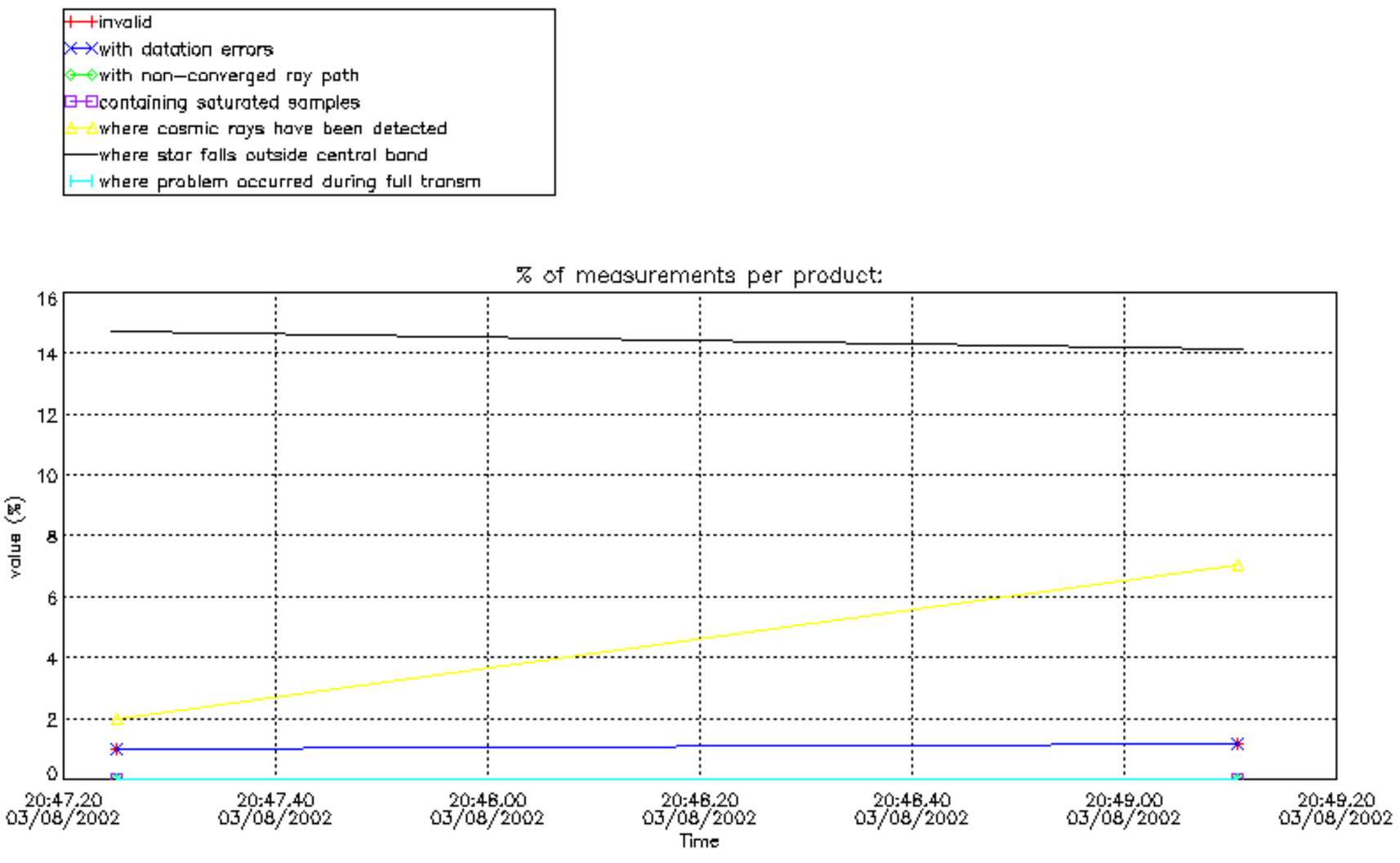



Percentage of flagged data per NO2 profile

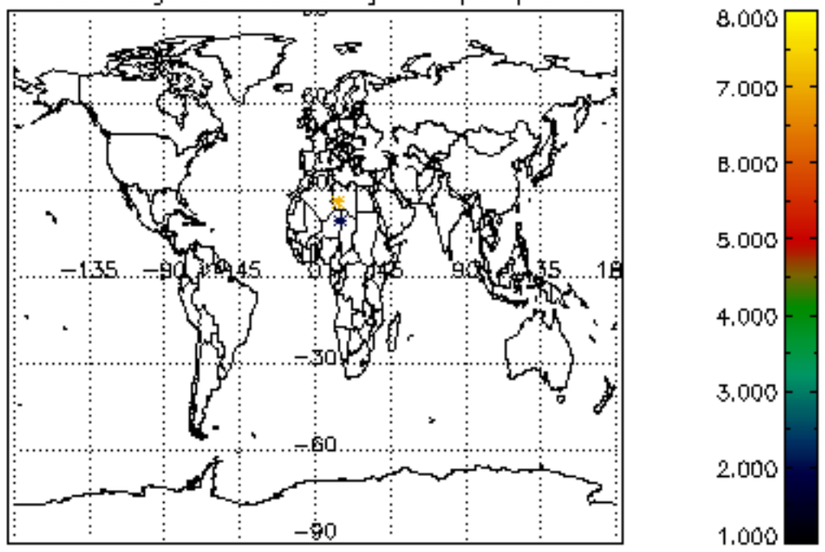



Percentage of flagged data per NO3 profile

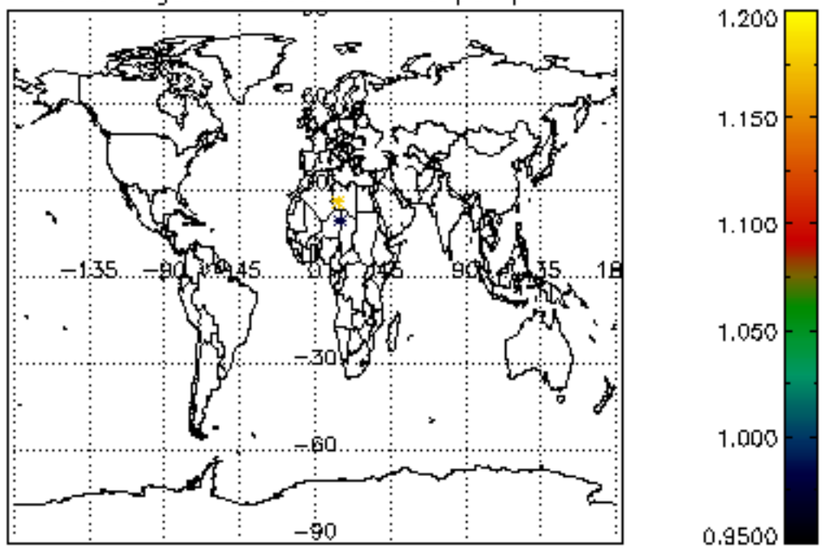



invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
16
14
12
10
8
6
4
2
0
value (%)
20:47.20 03/08/2002
20:47.40 03/08/2002
20:48.00 03/08/2002
20:48.20 03/08/2002
20:48.40 03/08/2002
20:49.00 03/08/2002
20:49.20 03/08/2002
Time

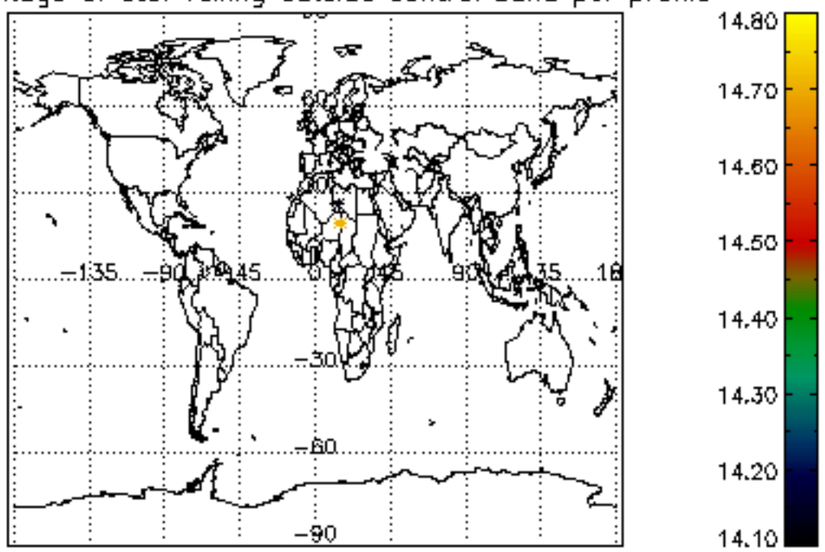
Percentage of cosmic ray hits per profile



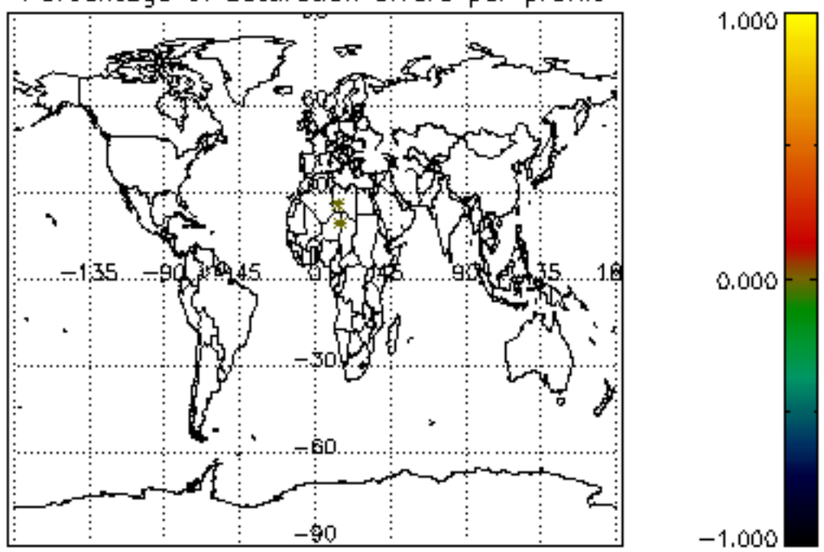

Percentage of datation errors per profile

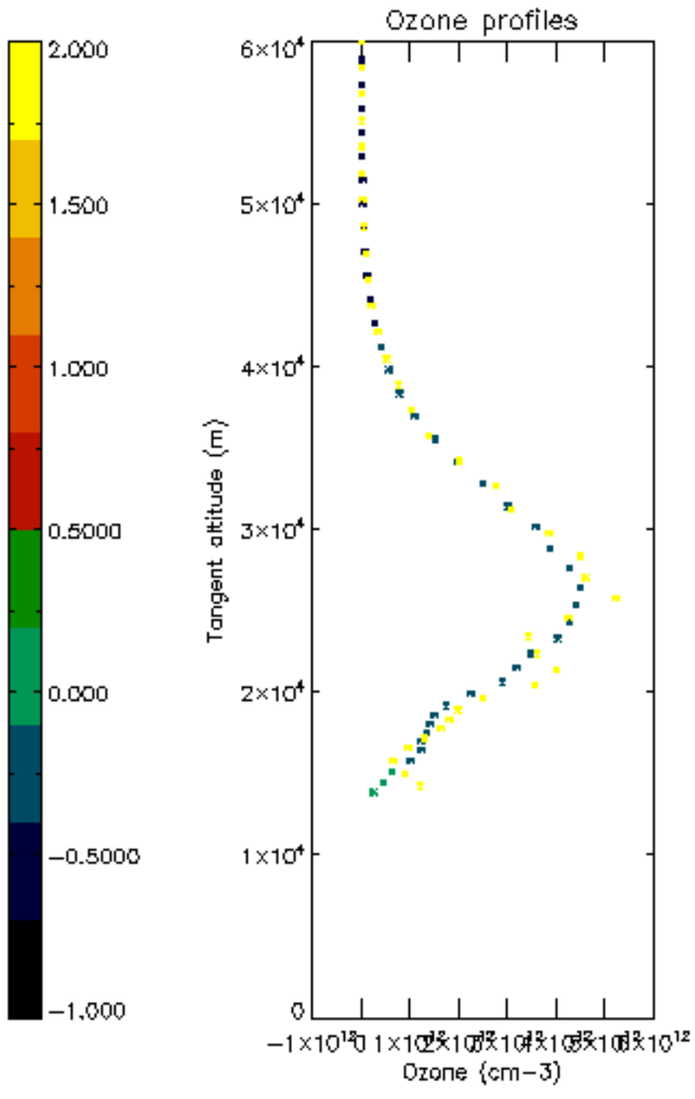


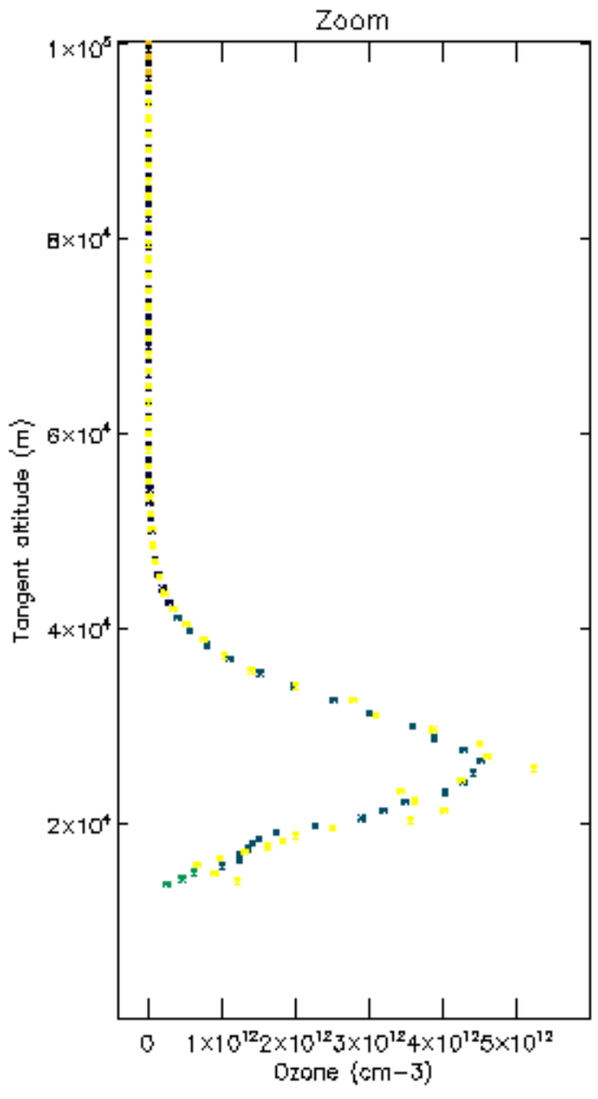

Percentage of star falling outside central band per profile

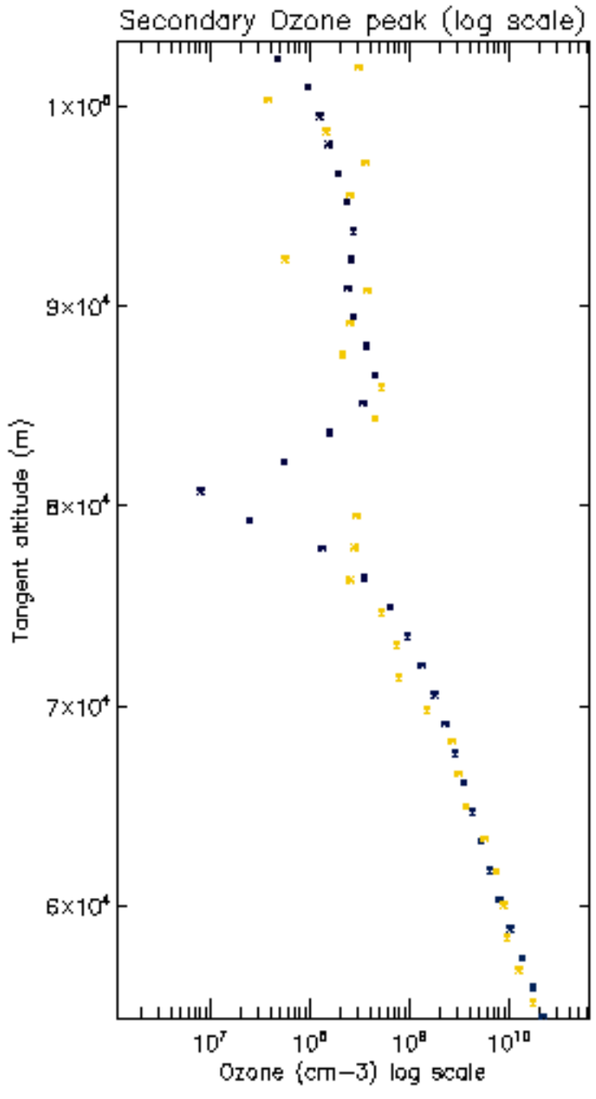


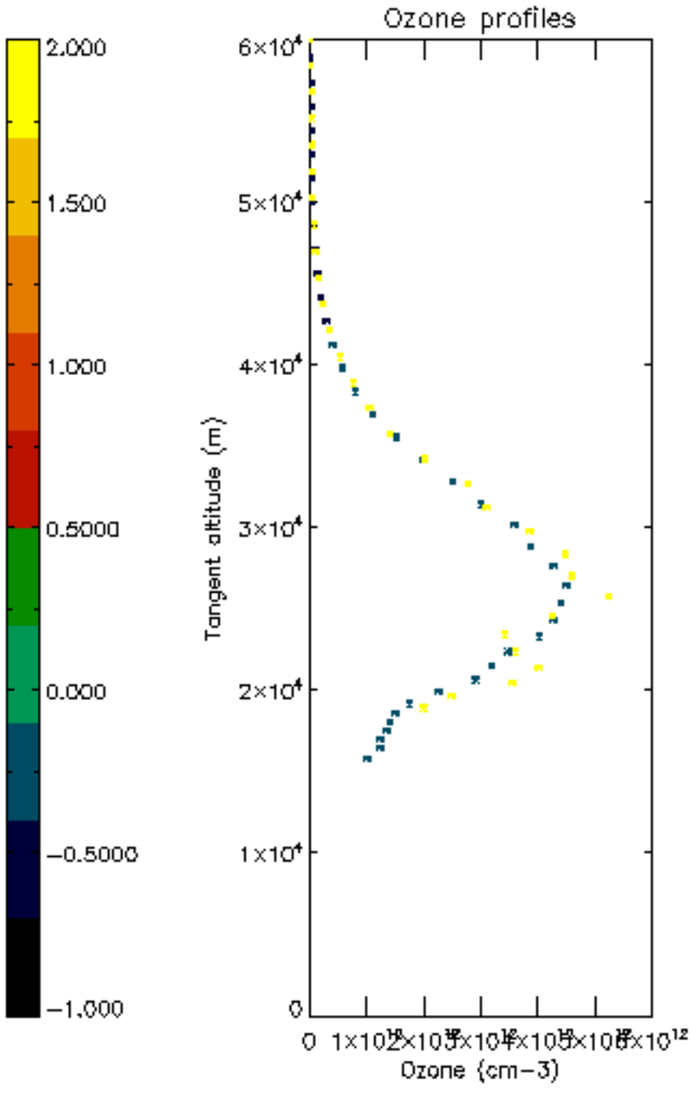

Percentage of saturation errors per profile




Ozone profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
−1×10¹²
0
1×10¹²
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)

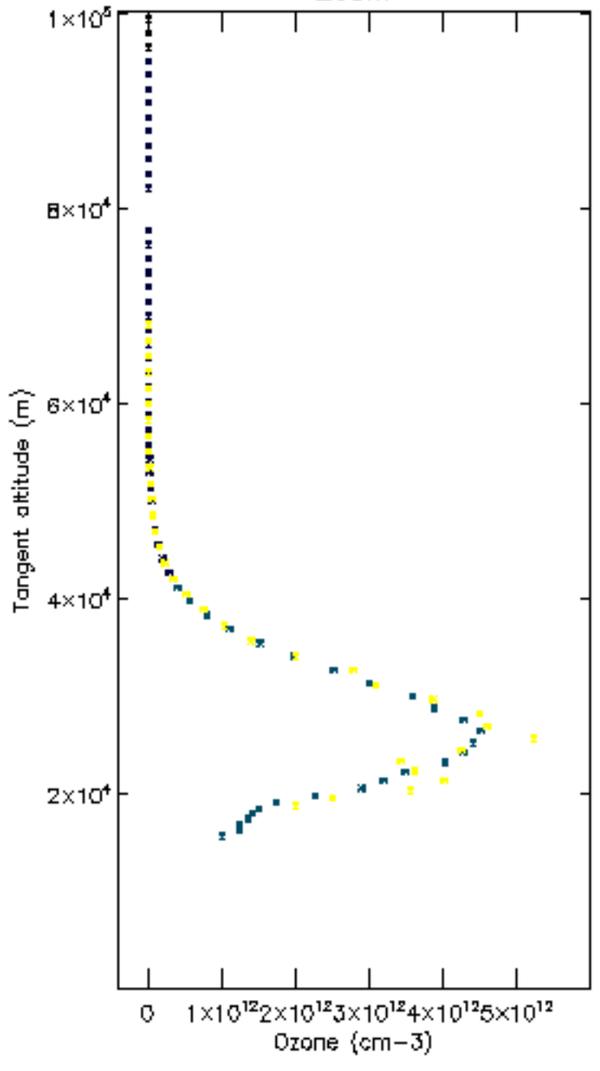

Secondary Ozone peak (log scale)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
Tangent altitude (m)
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale



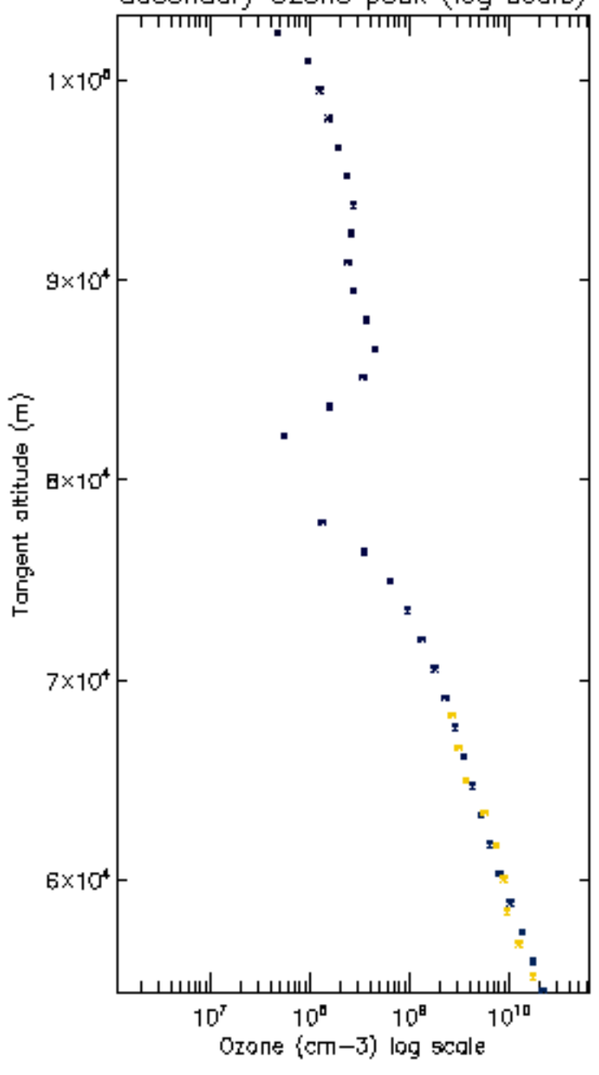

Ozone profiles

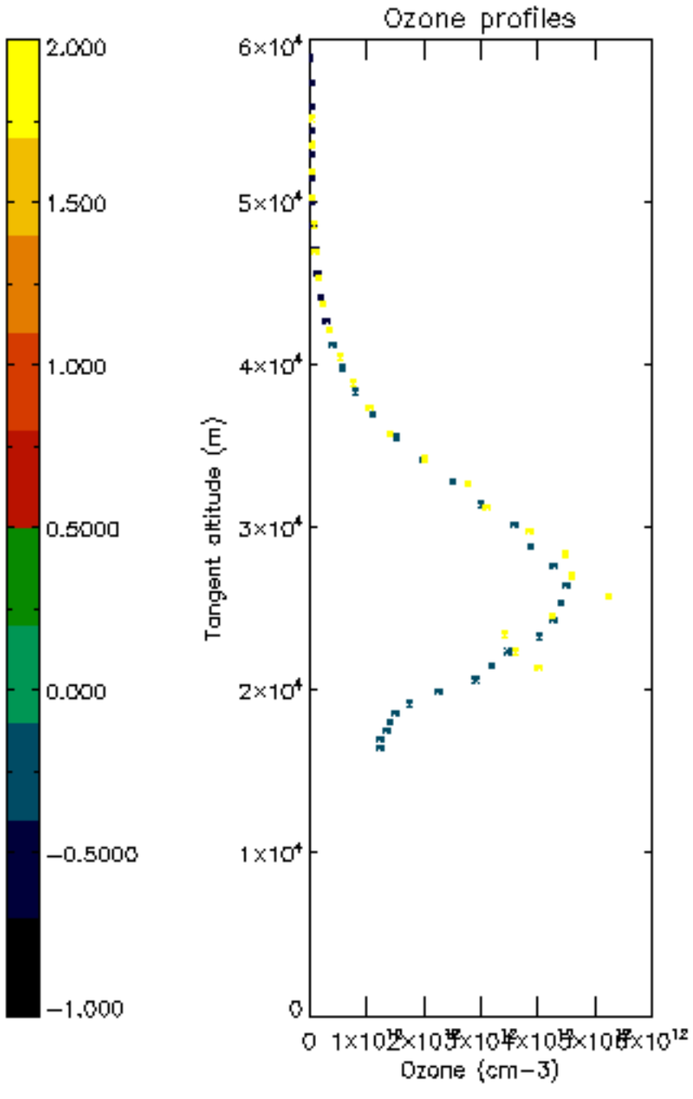



Zoom




Secondary Ozone peak (log scale)

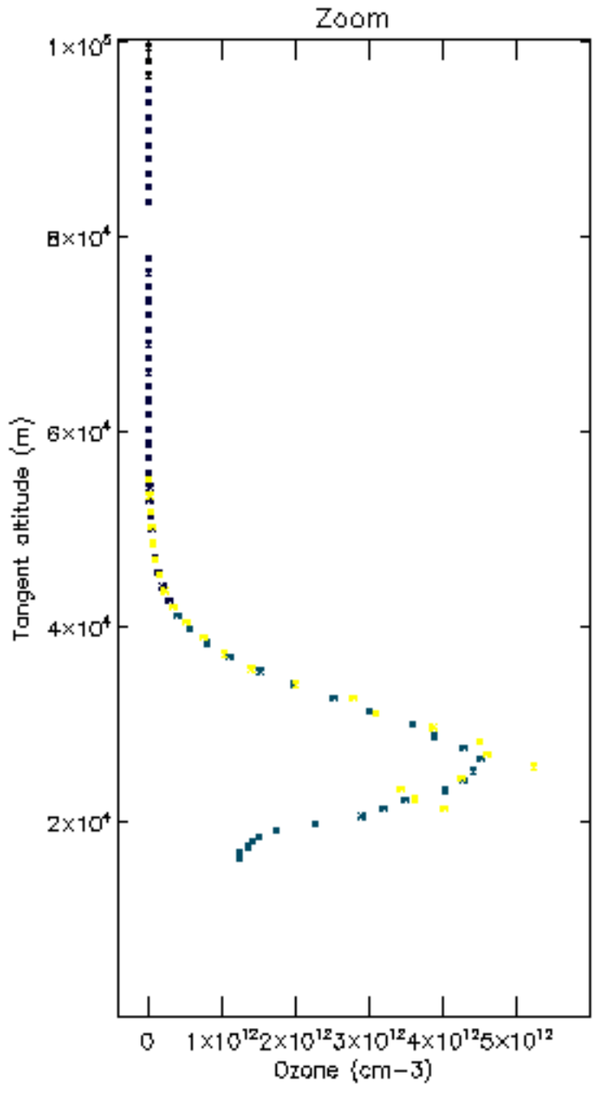




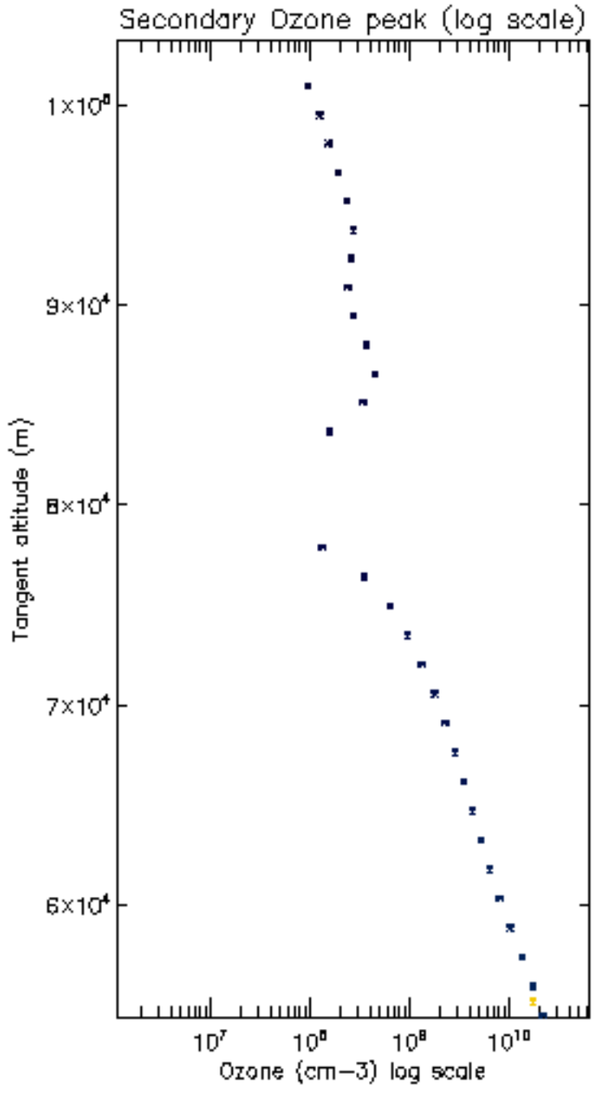

Ozone profiles

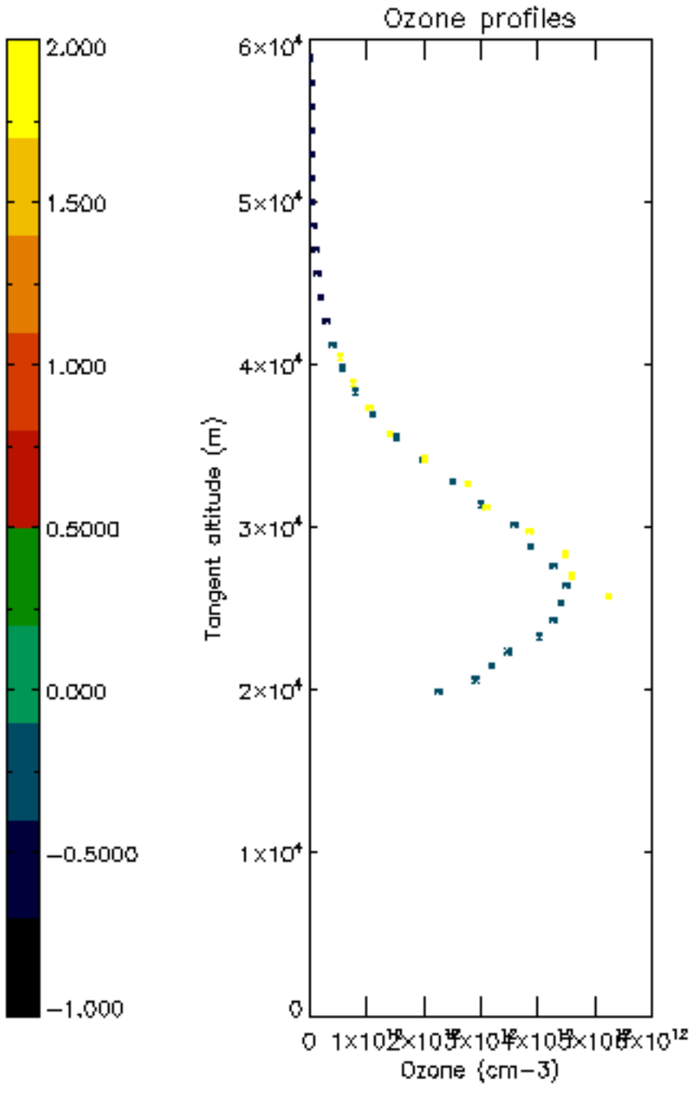


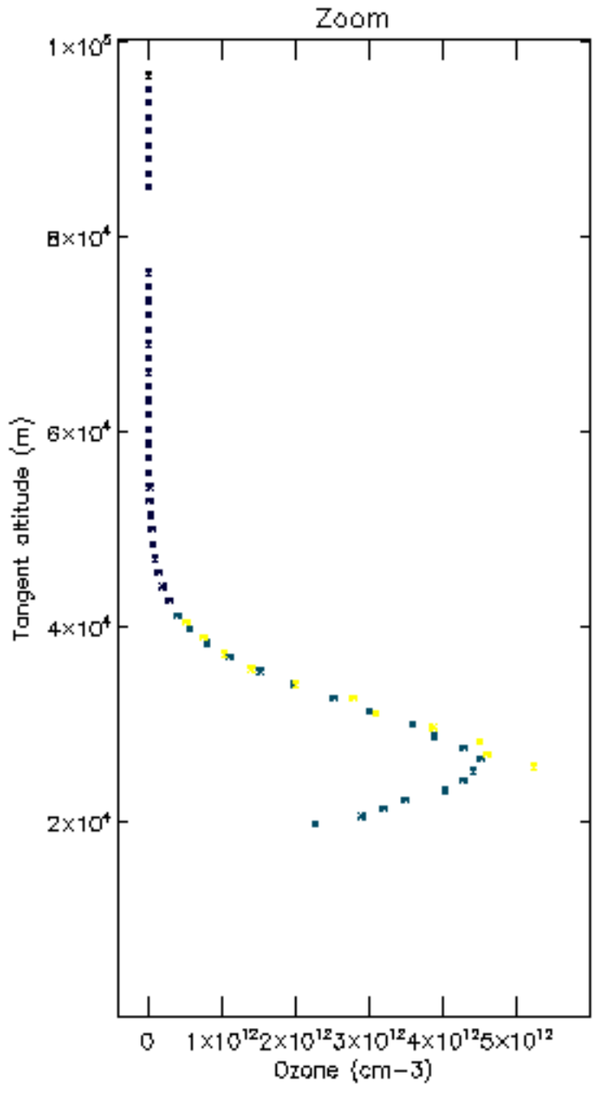

Zoom

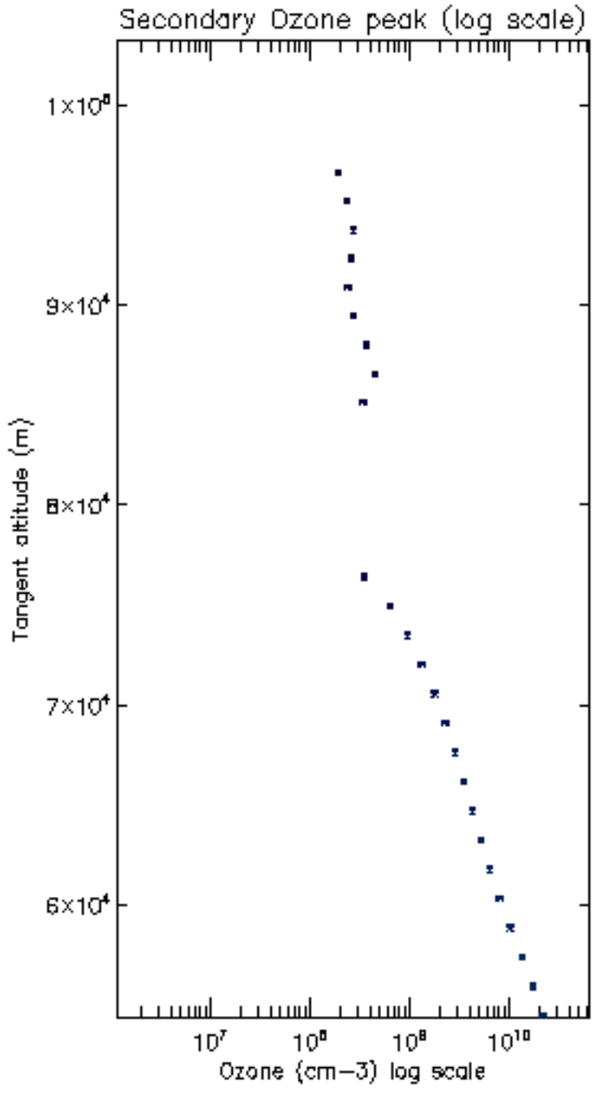


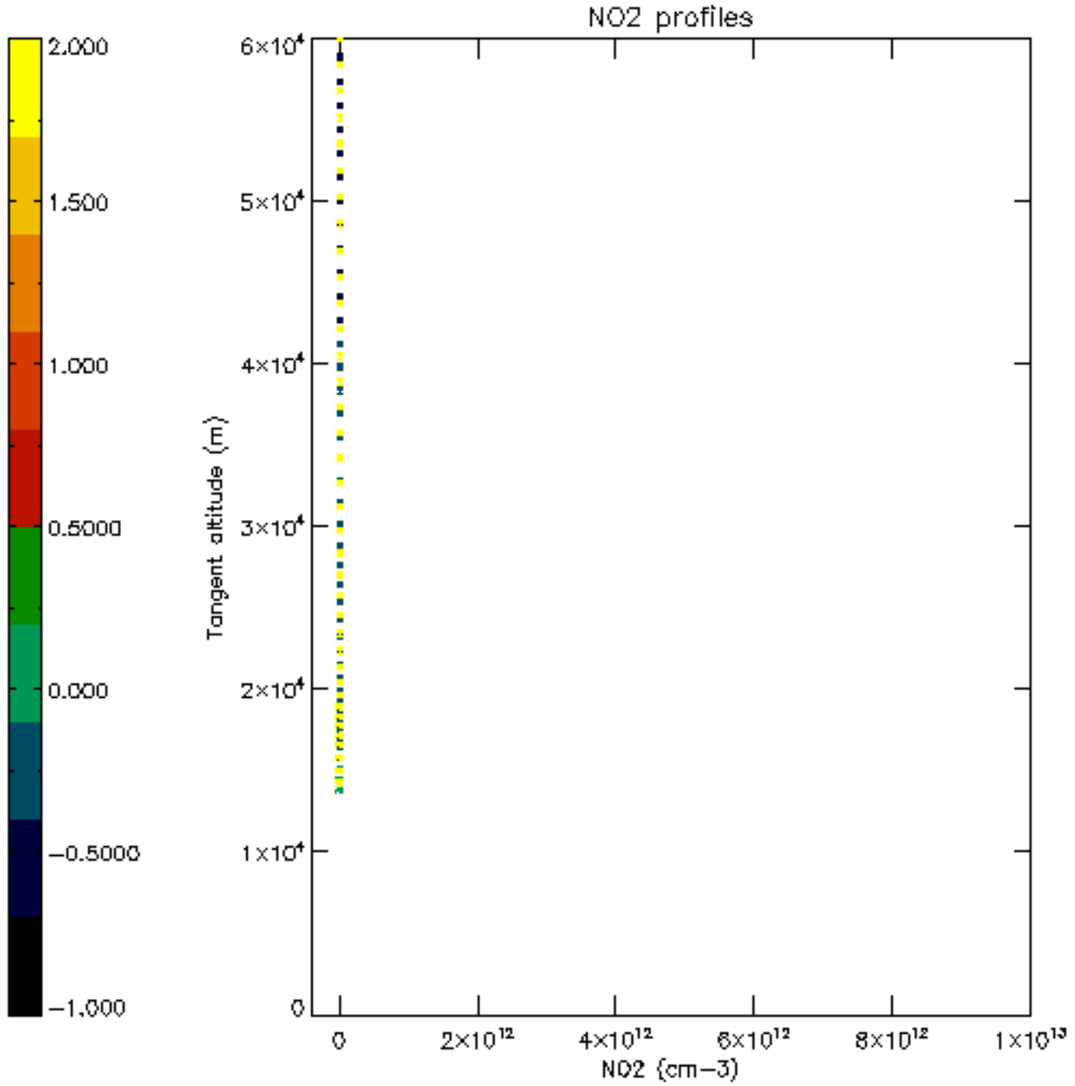

Secondary Ozone peak (log scale)

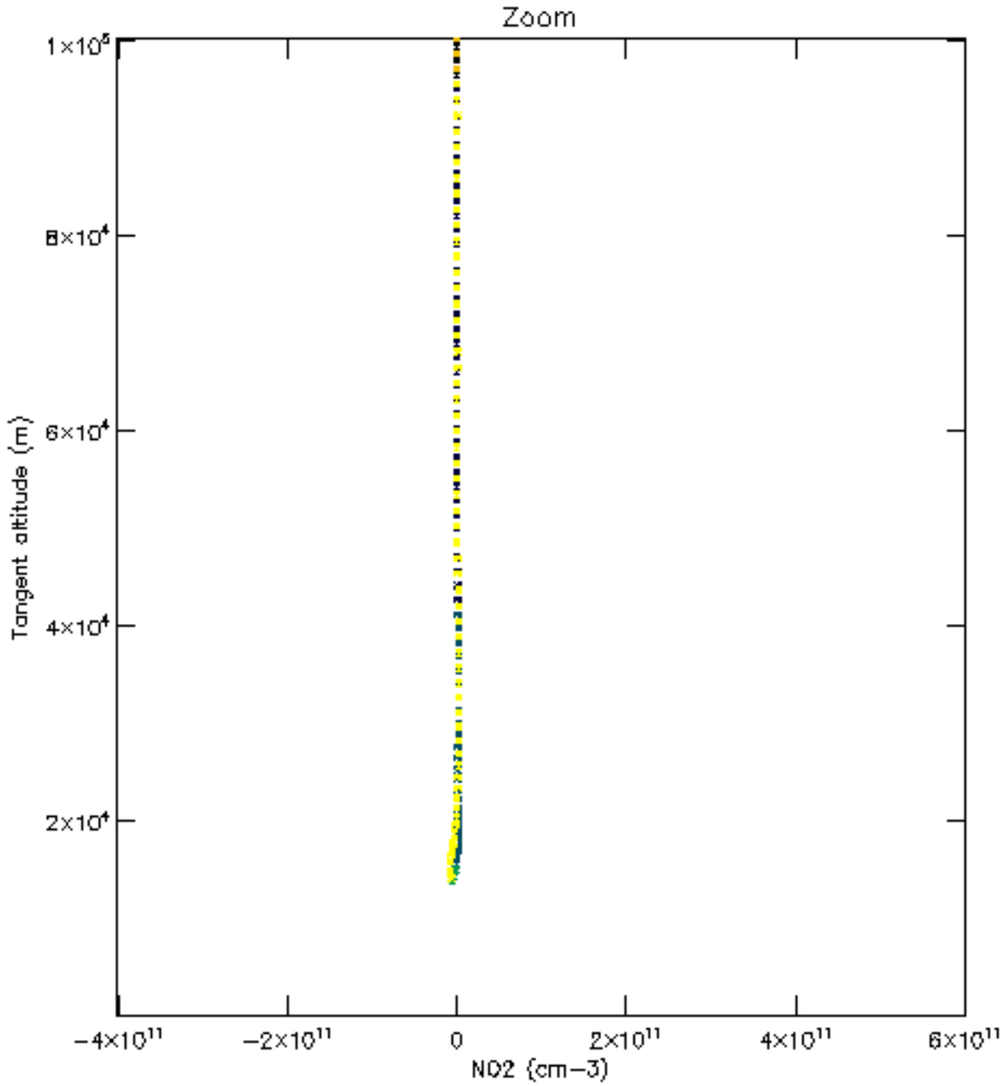


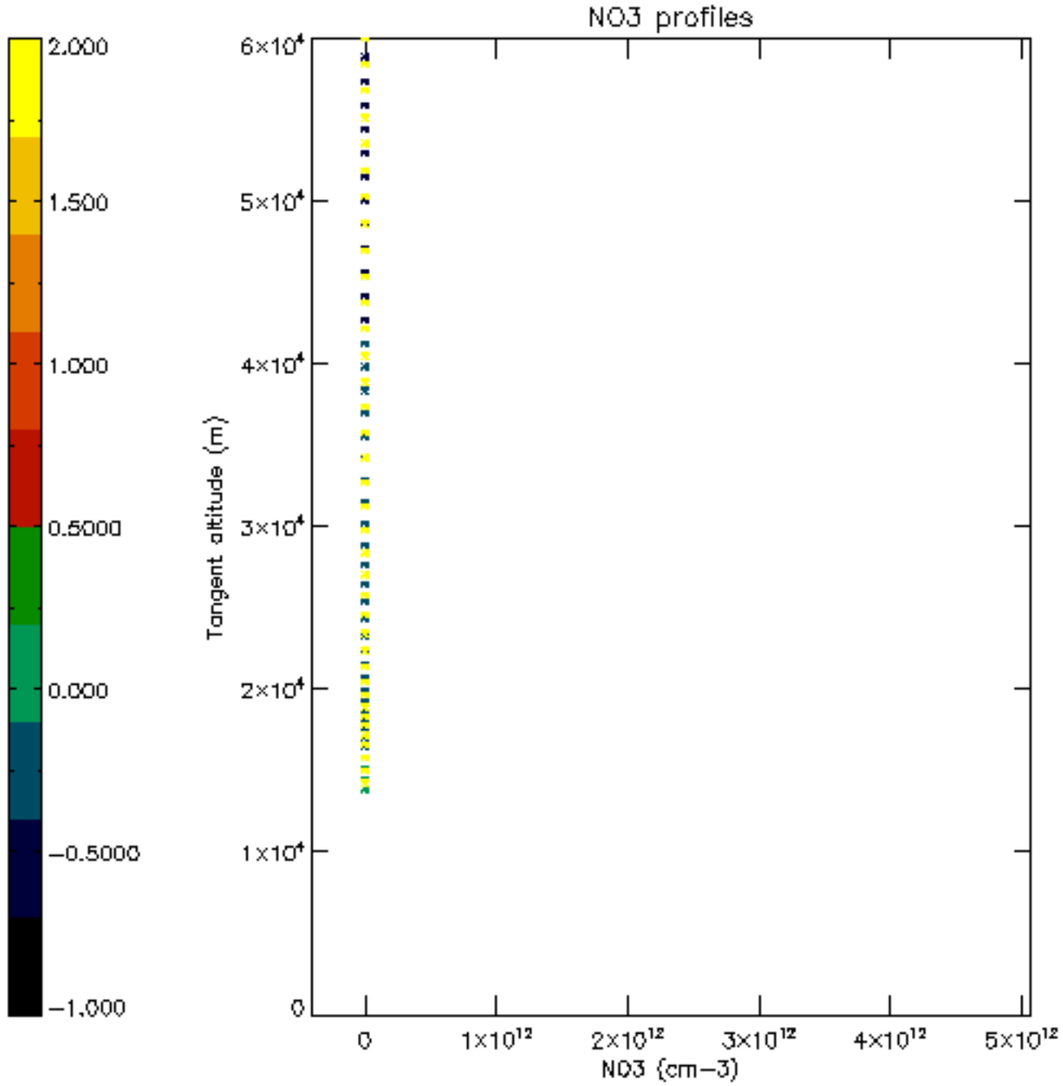

Ozone profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
0 1×10¹² 2×10¹² 3×10¹² 4×10¹² 5×10¹² 6×10¹²
Ozone (cm−3)

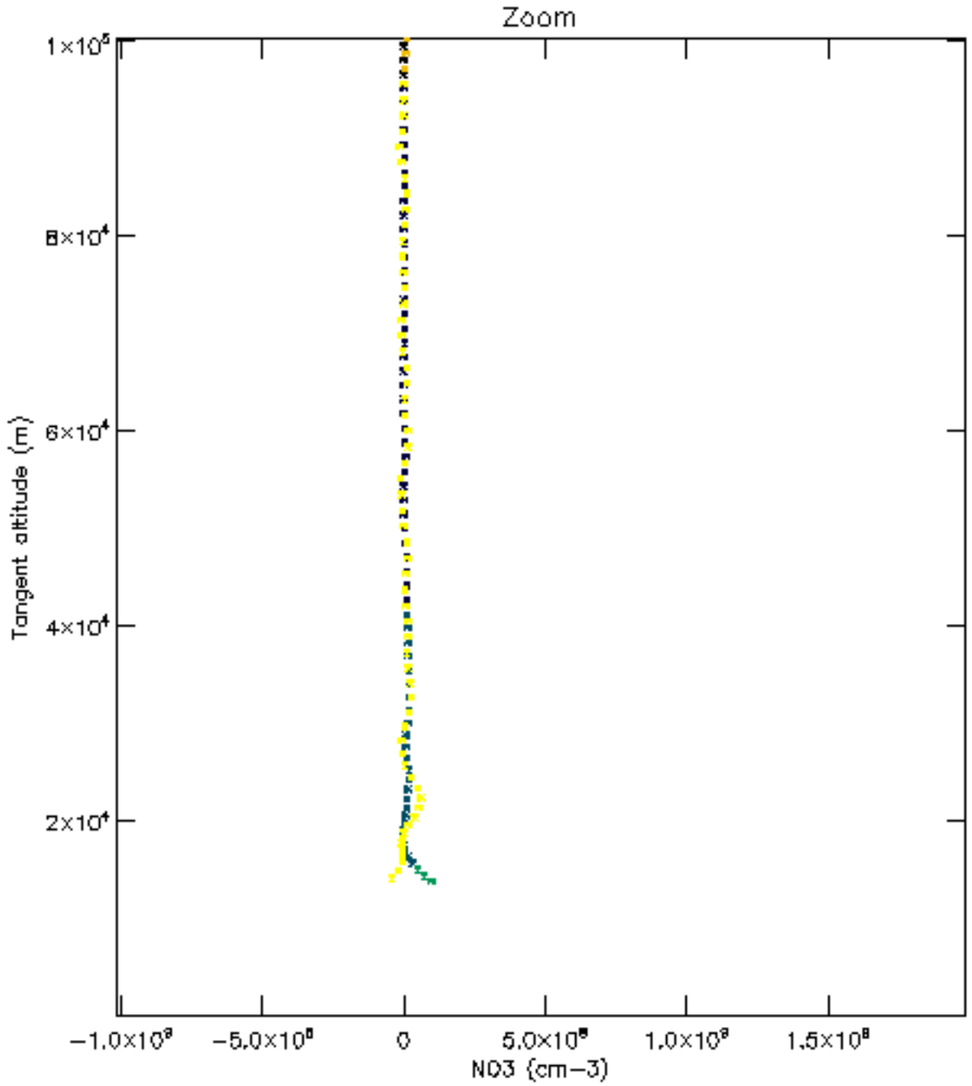

Zoom
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
Tangent altitude (m)
0 1×10¹² 2×10¹² 3×10¹² 4×10¹² 5×10¹²
Ozone (cm−3)

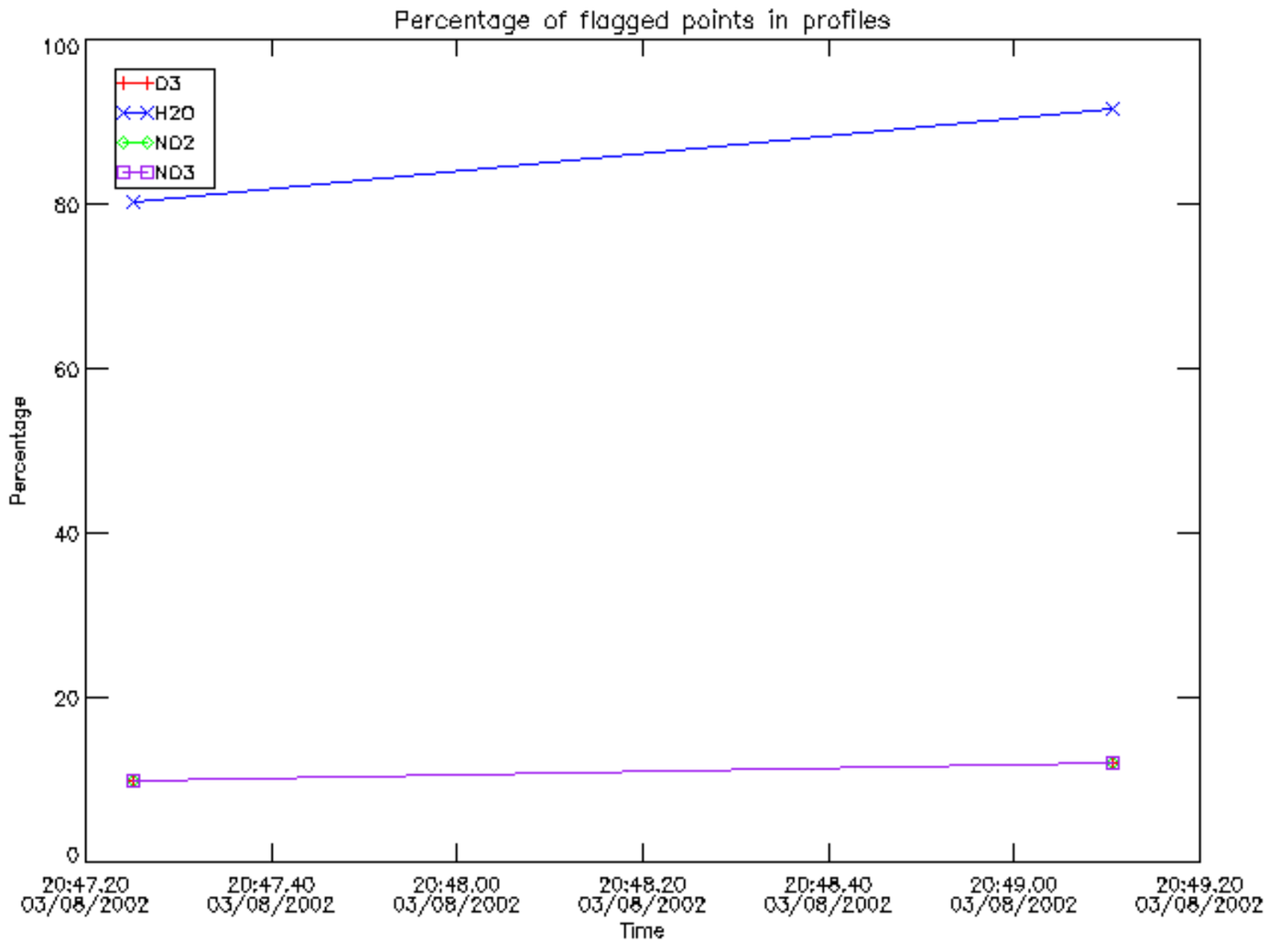

Secondary Ozone peak (log scale)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
Tangent altitude (m)
10⁷ 10⁸ 10⁹ 10¹⁰
Ozone (cm−3) log scale


NO2 profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
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)

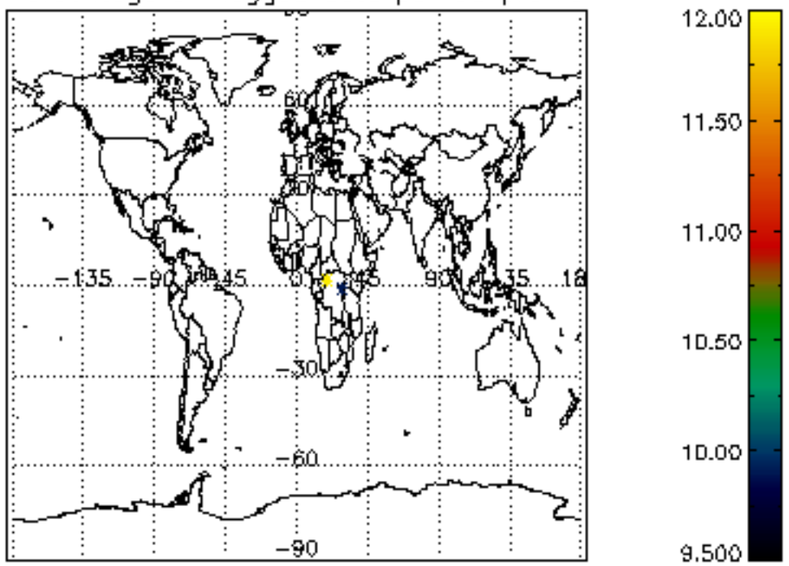

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−4×10¹¹
−2×10¹¹
0
2×10¹¹
4×10¹¹
6×10¹¹
NO2 (cm−3)


NO3 profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
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)

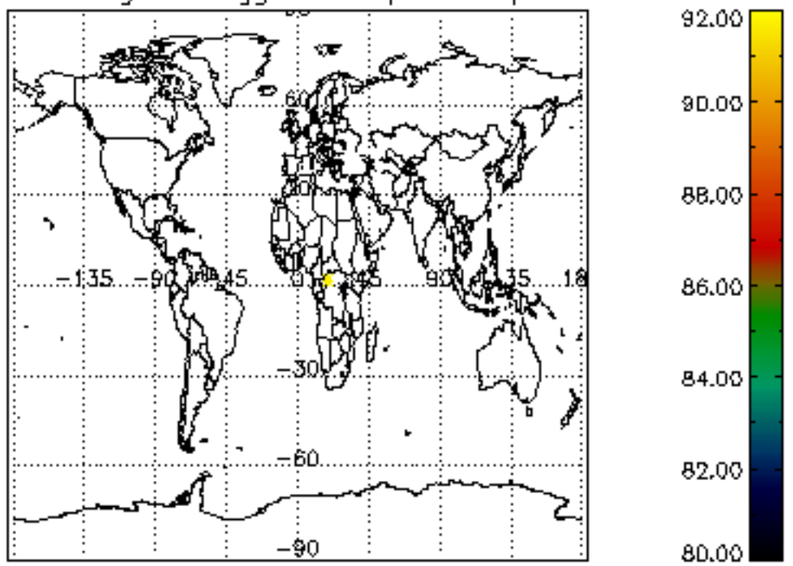

Zoom
Tangent altitude (m)
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
−1.0×10⁸
−5.0×10⁸
0
5.0×10⁸
1.0×10⁹
1.5×10⁹
NO3 (cm−3)


Percentage of flagged points in profiles
O3
H2O
NO2
NO3
100
80
60
40
20
0
Percentage
20:47.20
03/08/2002
20:47.40
03/08/2002
20:48.00
03/08/2002
20:48.20
03/08/2002
20:48.40
03/08/2002
20:49.00
03/08/2002
20:49.20
03/08/2002
Time

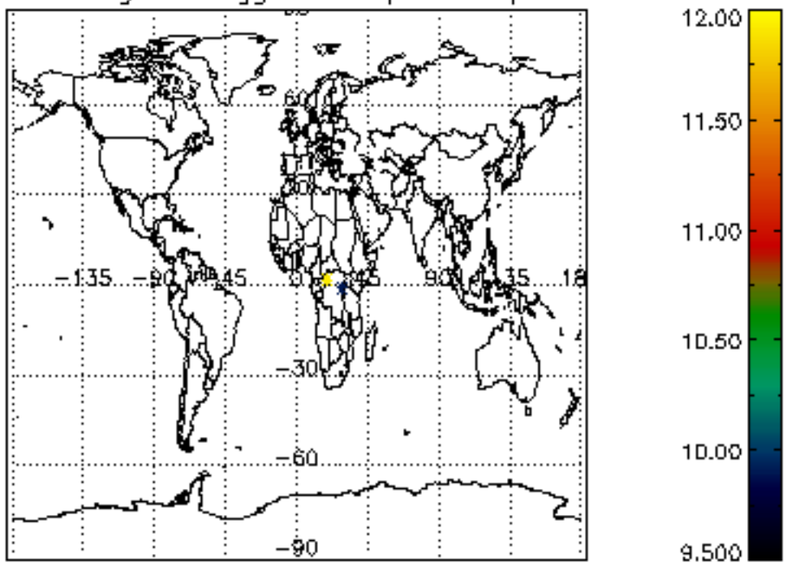
Percentage of flagged data per O3 profile



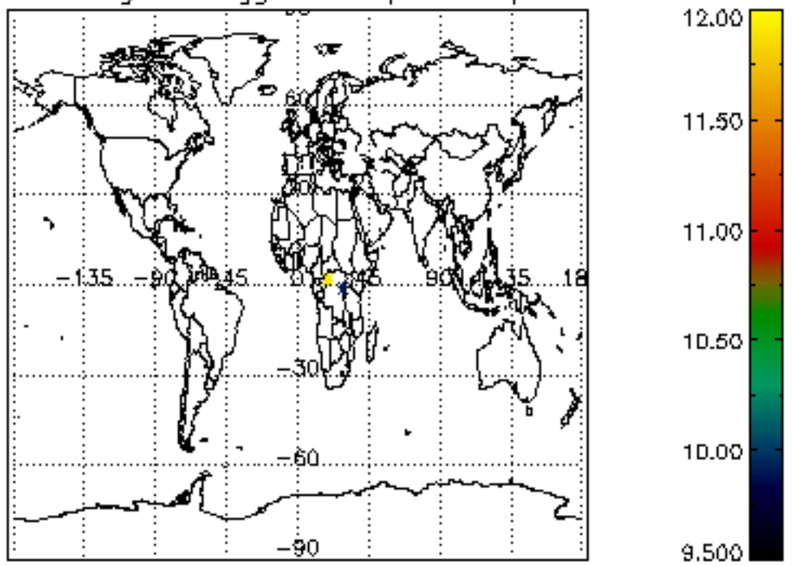

Percentage of flagged data per H2O profile

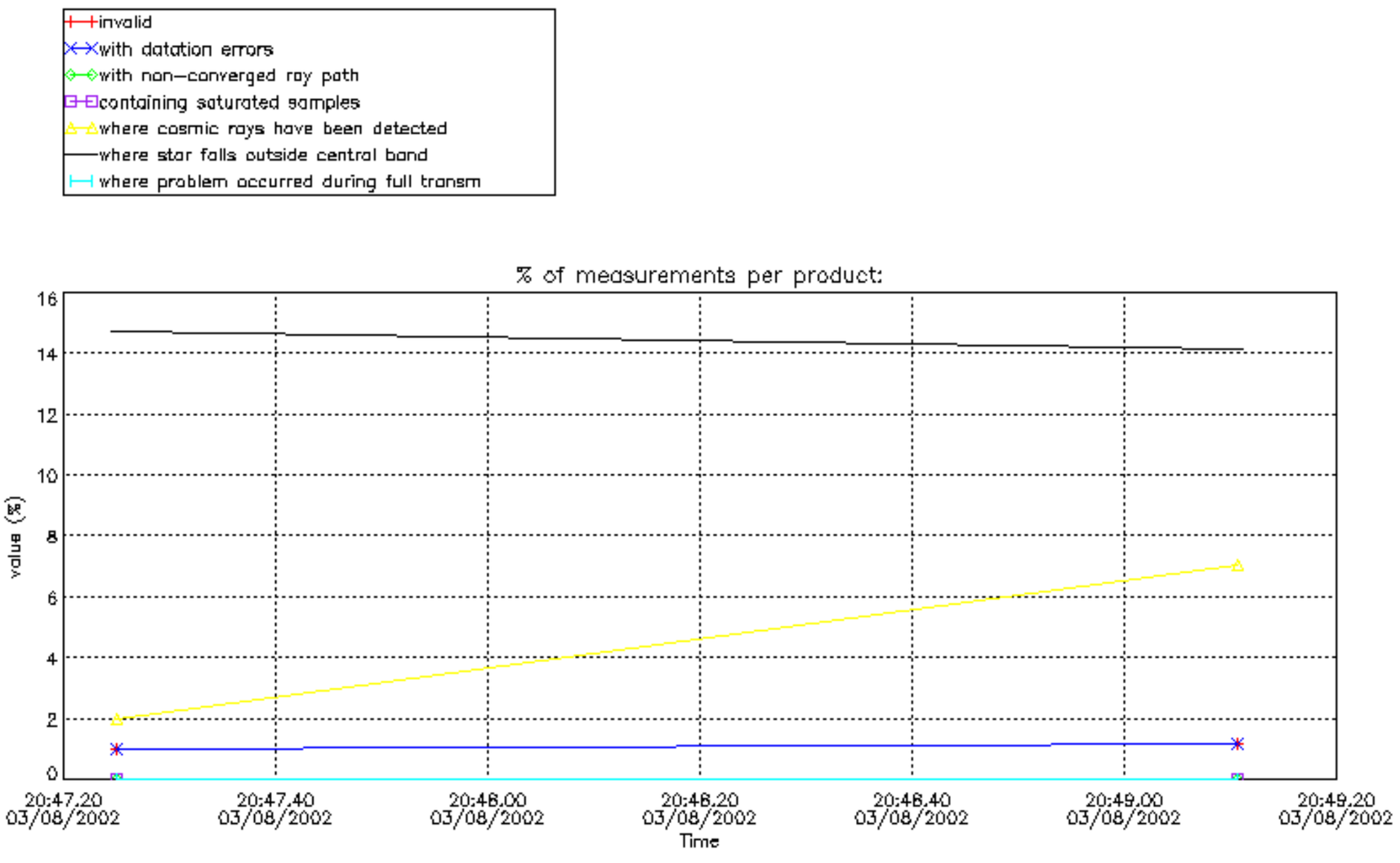



Percentage of flagged data per NO2 profile

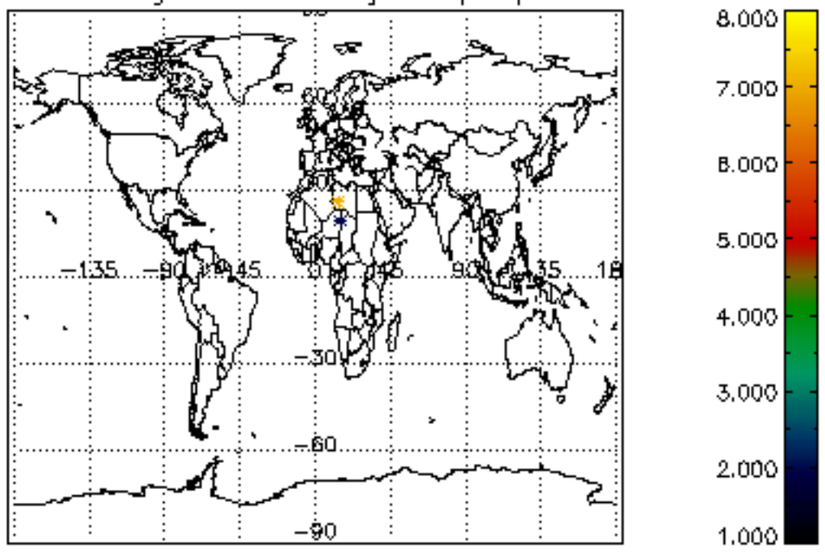



Percentage of flagged data per NO3 profile

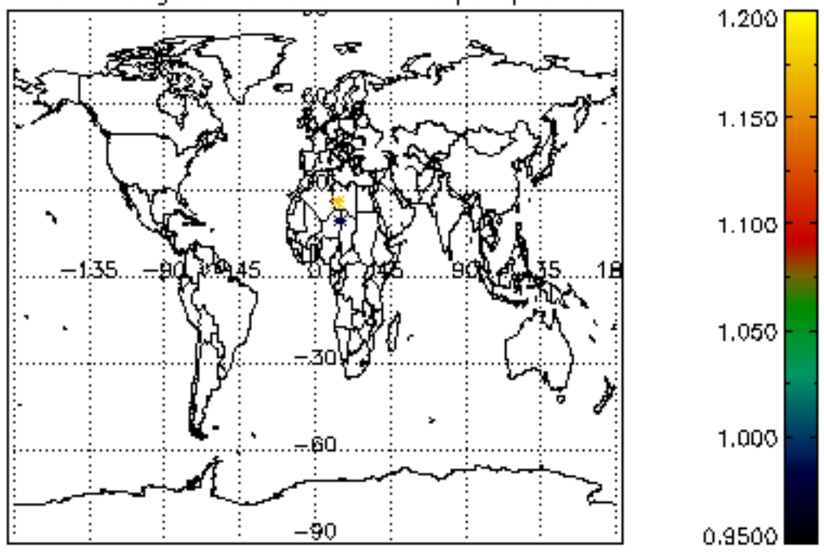



invalid
with datation errors
with non-converged ray path
containing saturated samples
where cosmic rays have been detected
where star falls outside central band
where problem occurred during full transm
% of measurements per product:
16
14
12
10
8
6
4
2
0
value (%)
20:47.20 03/08/2002
20:47.40 03/08/2002
20:48.00 03/08/2002
20:48.20 03/08/2002
20:48.40 03/08/2002
20:49.00 03/08/2002
20:49.20 03/08/2002
Time

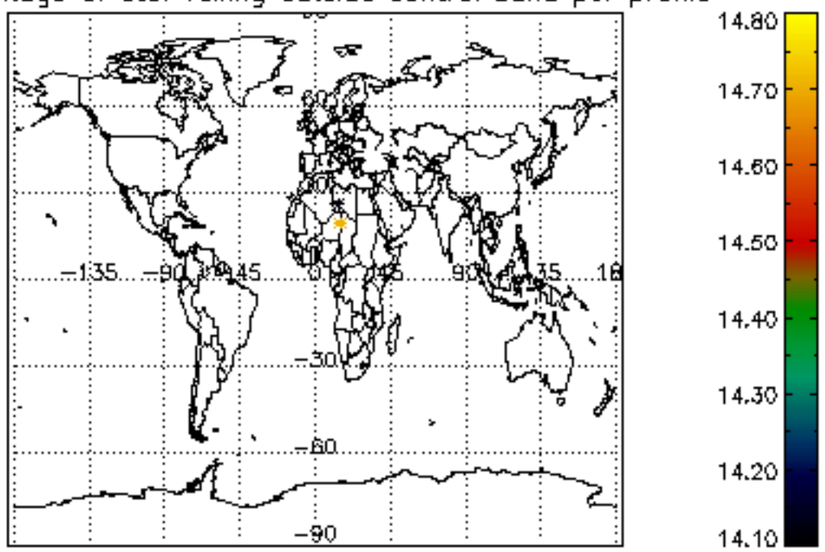
Percentage of cosmic ray hits per profile



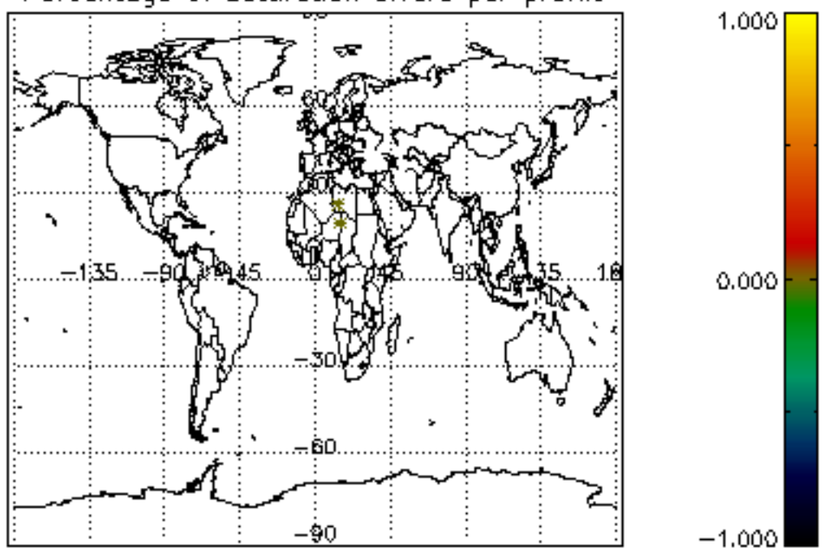

Percentage of datation errors per profile

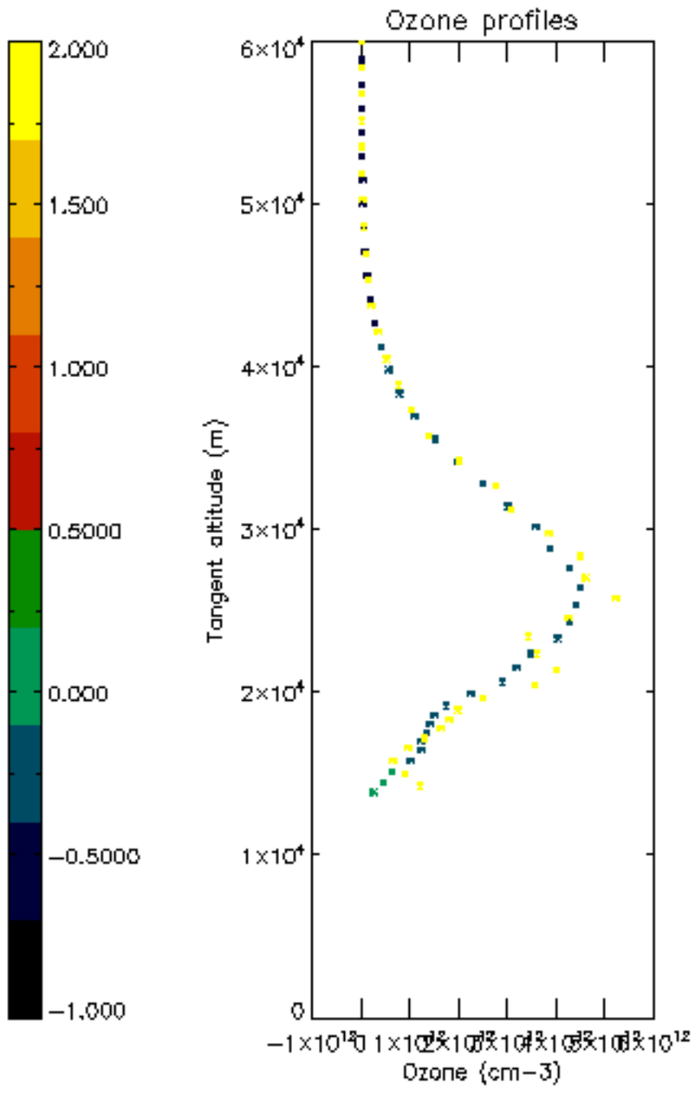


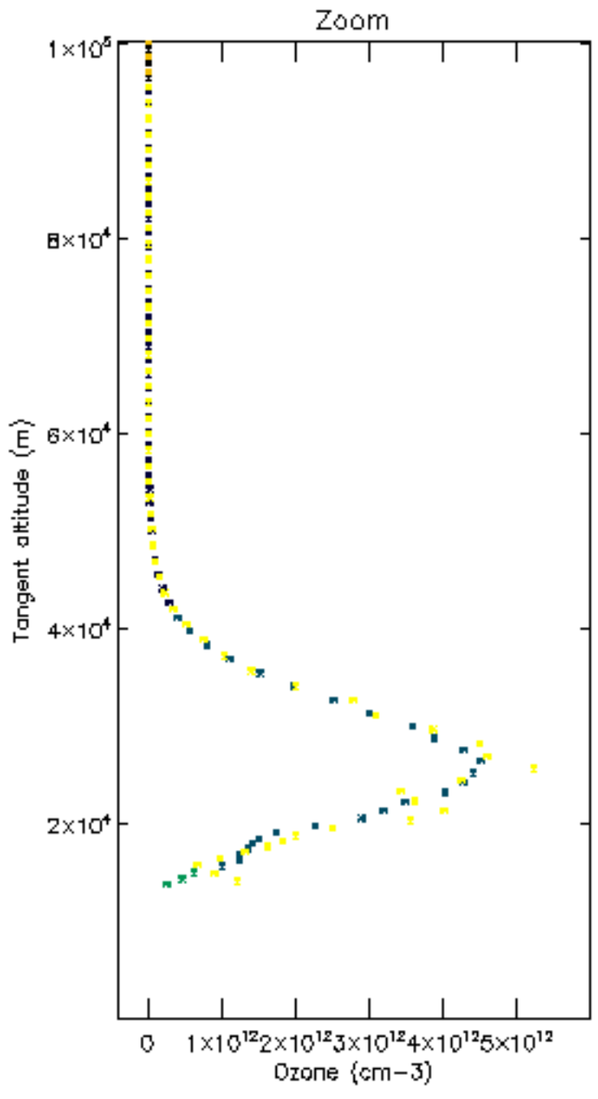

Percentage of star falling outside central band per profile

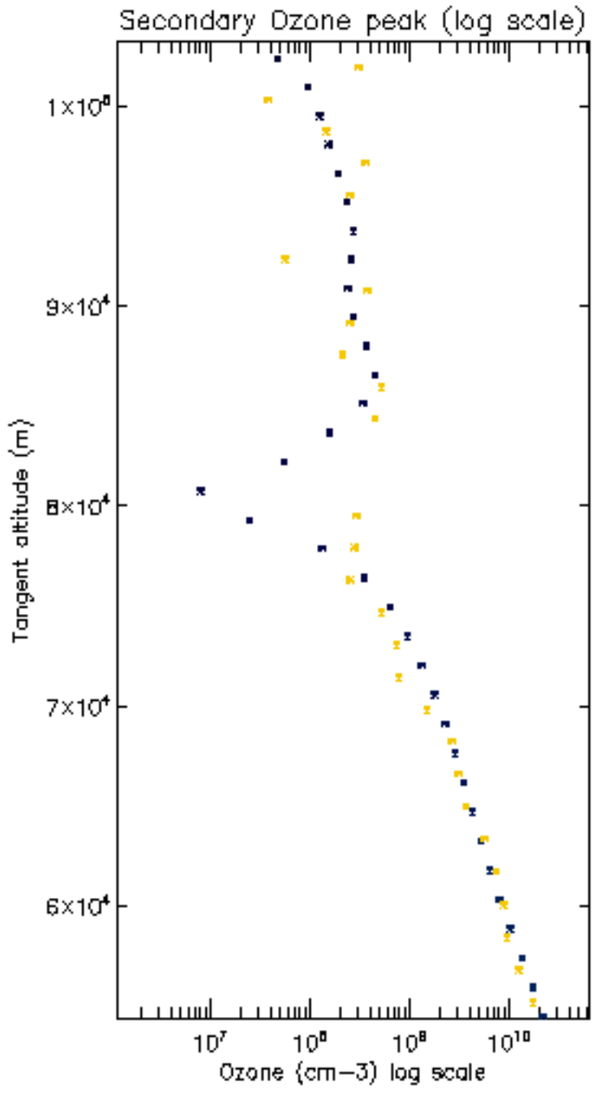


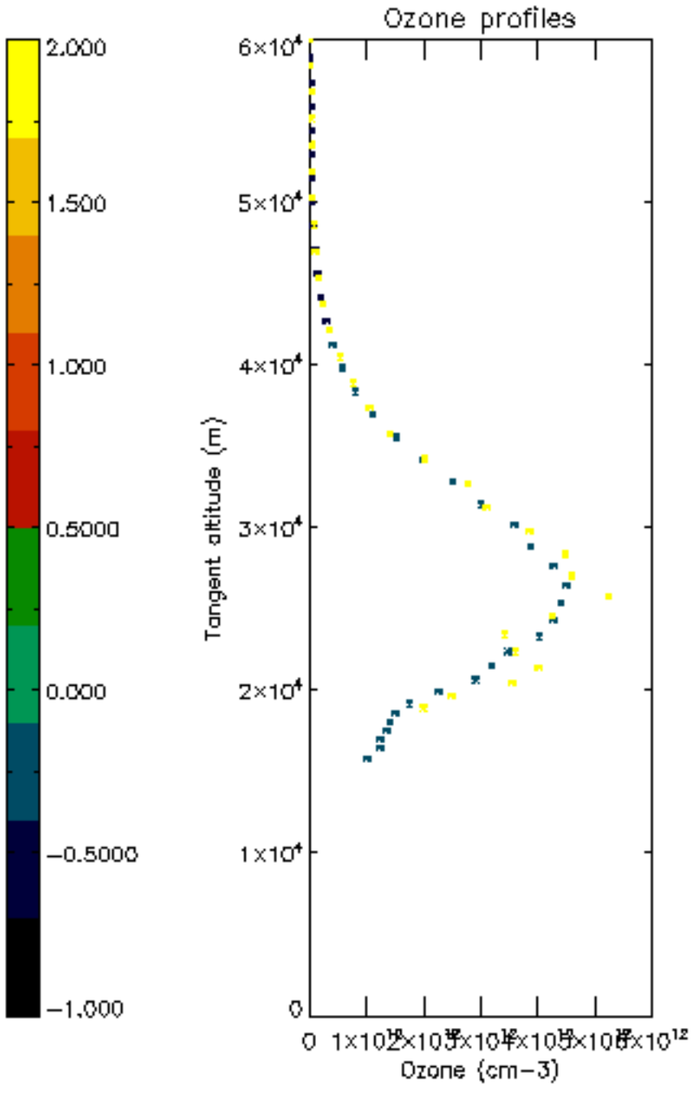

Percentage of saturation errors per profile




Ozone profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
−1×10¹²
0
1×10¹²
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)

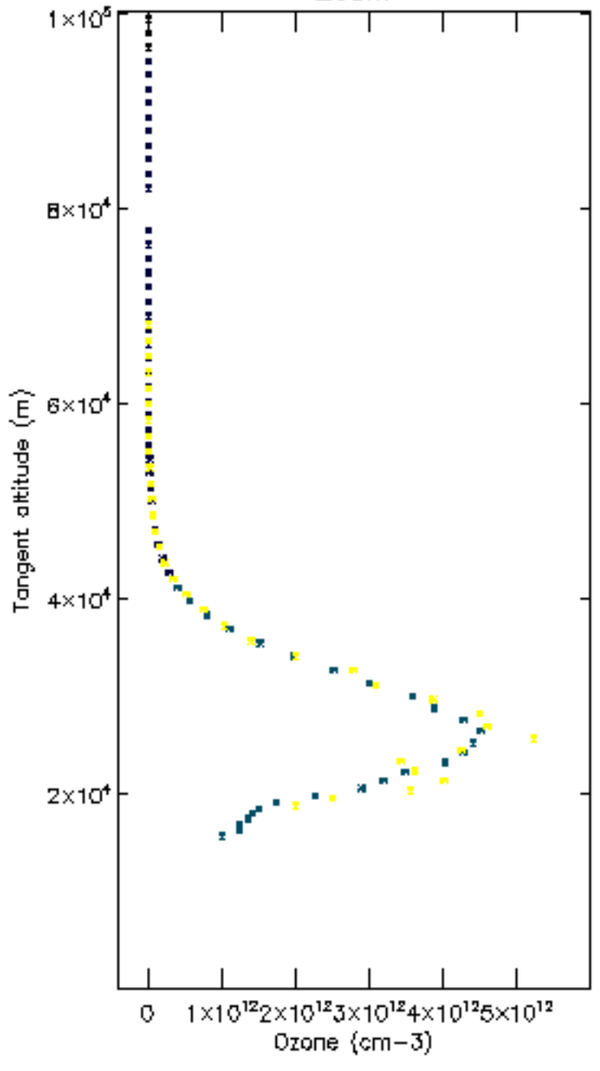

Secondary Ozone peak (log scale)
1×10⁵
9×10⁴
8×10⁴
7×10⁴
6×10⁴
Tangent altitude (m)
10⁷
10⁸
10⁹
10¹⁰
Ozone (cm−3) log scale



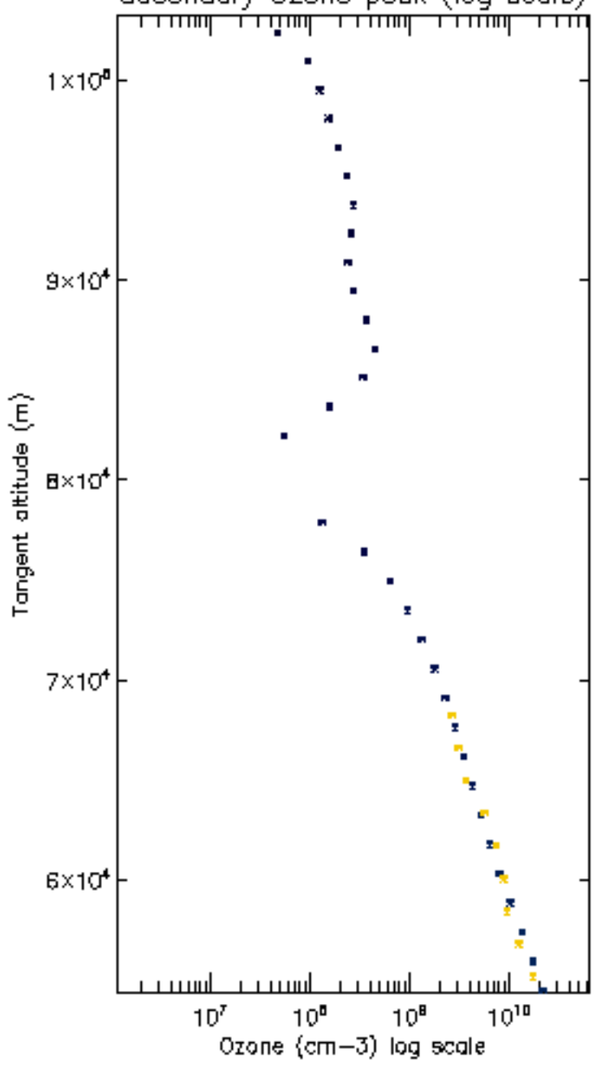

Ozone profiles

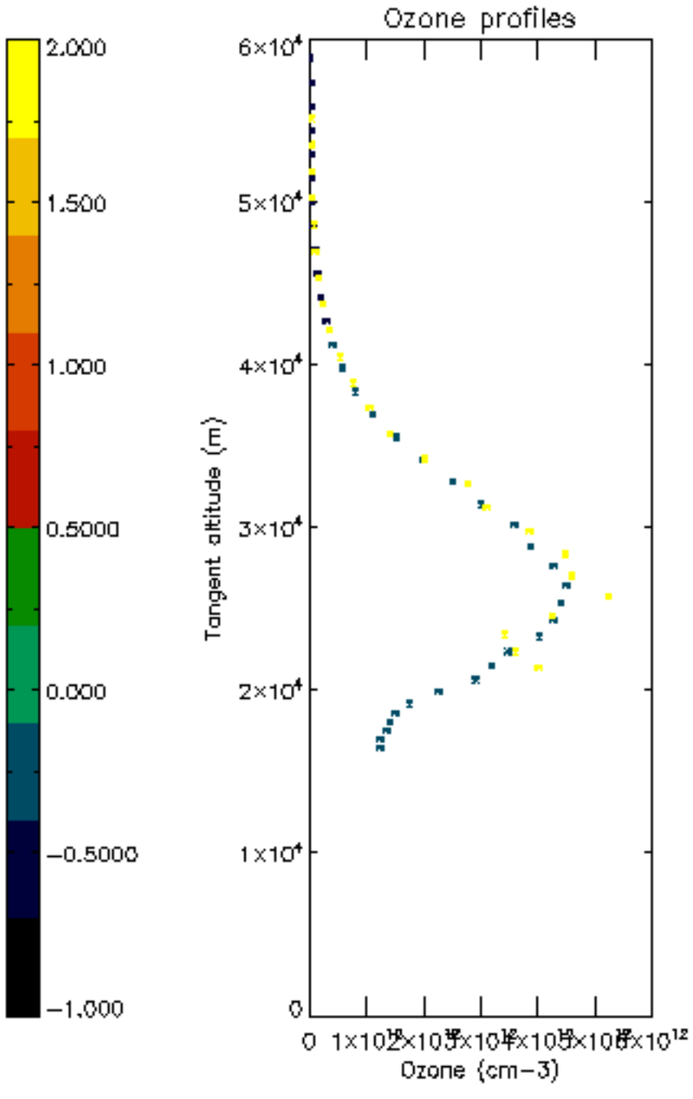



Zoom




Secondary Ozone peak (log scale)

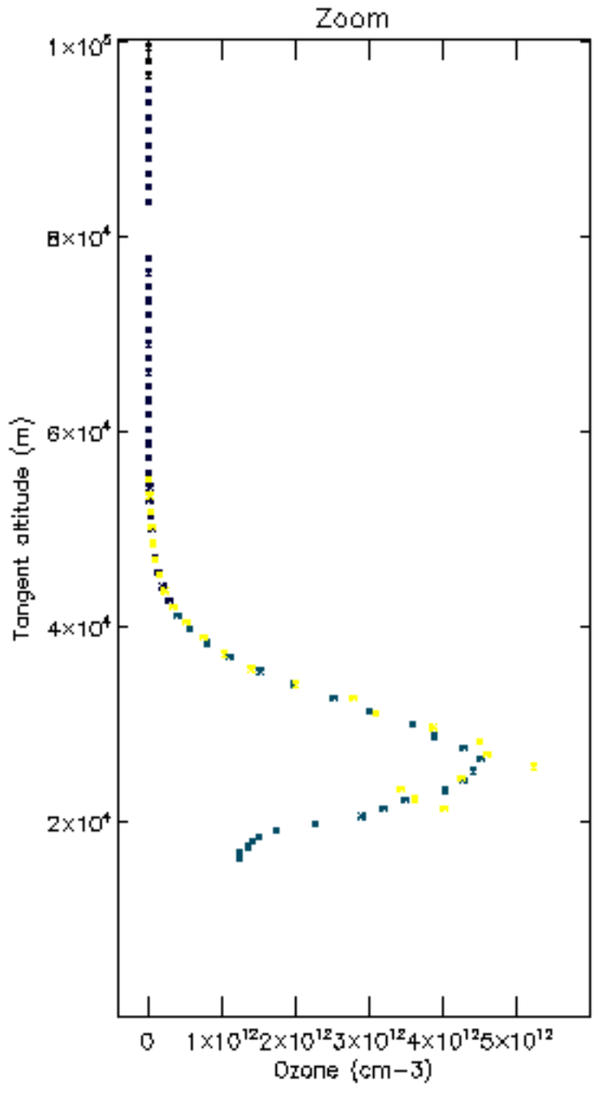




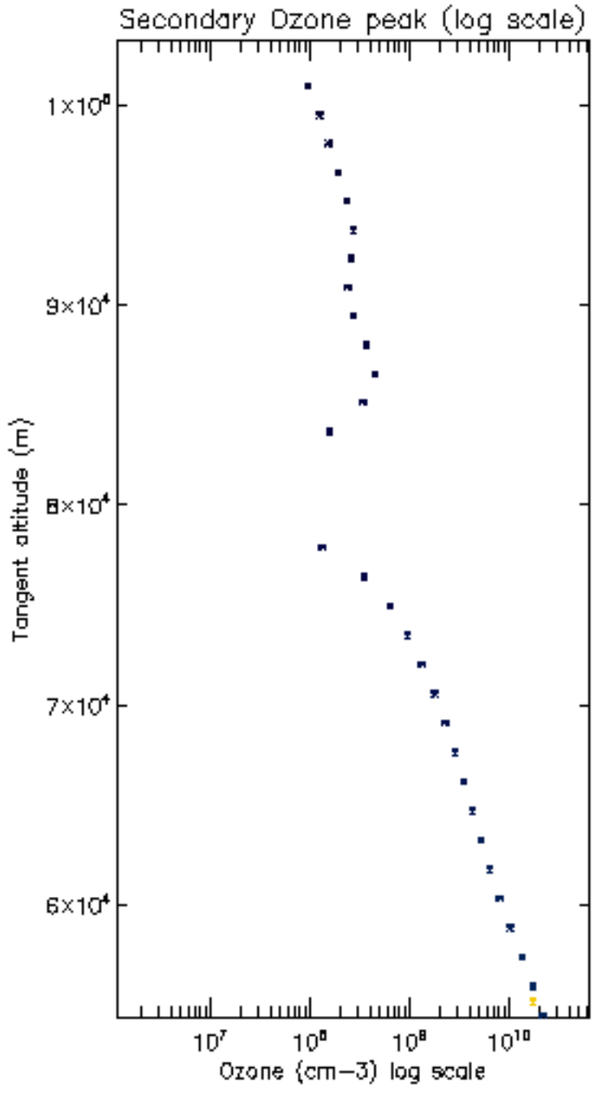

Ozone profiles

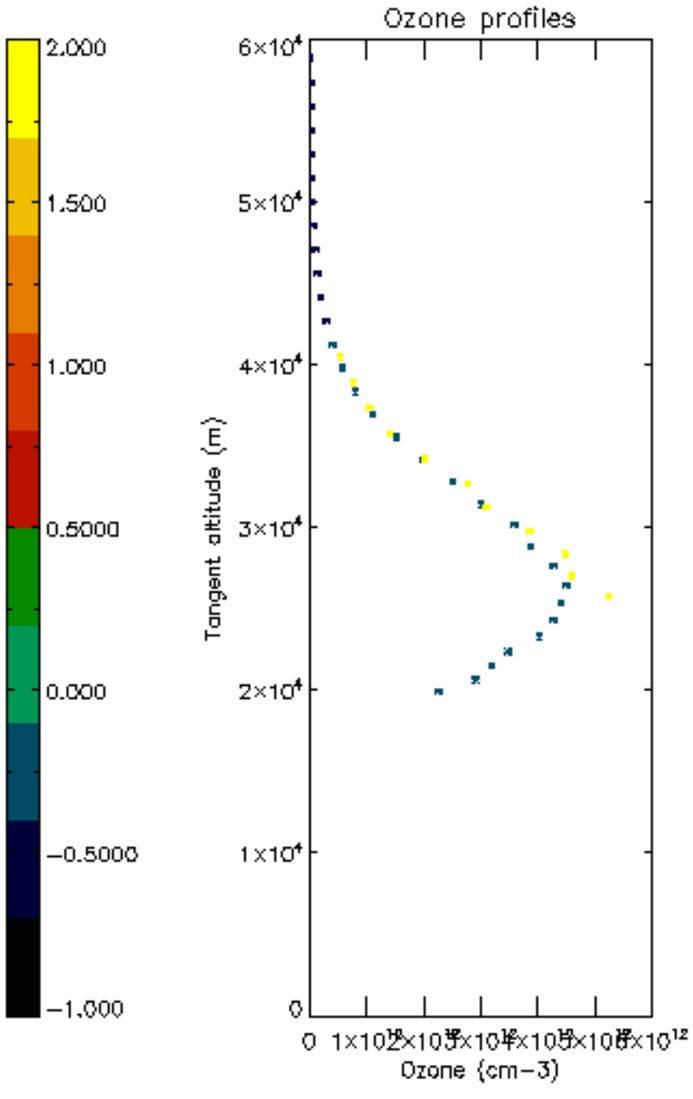


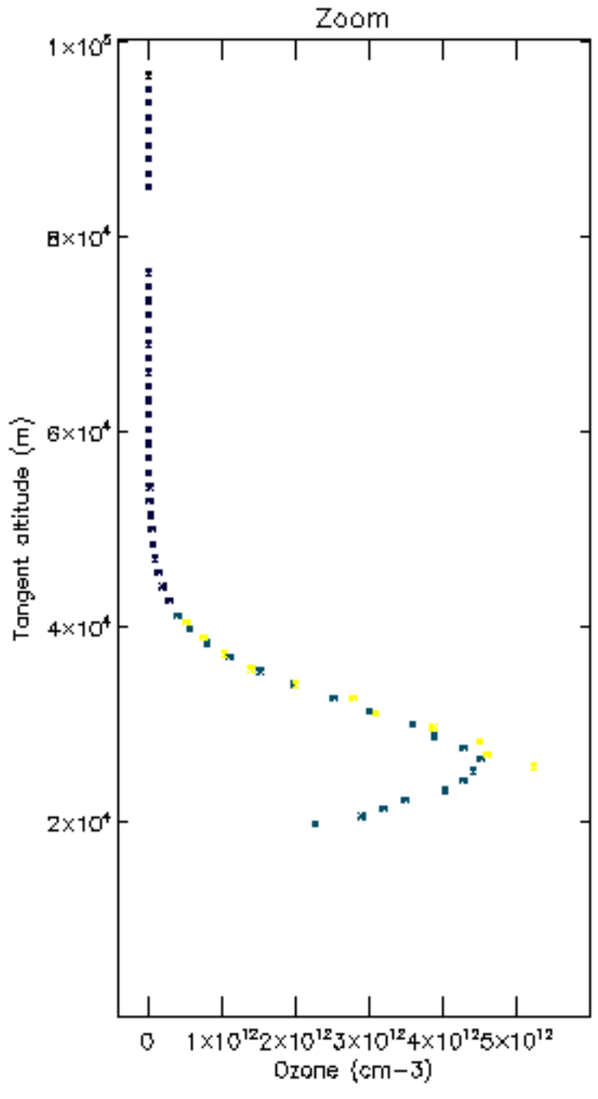

Zoom

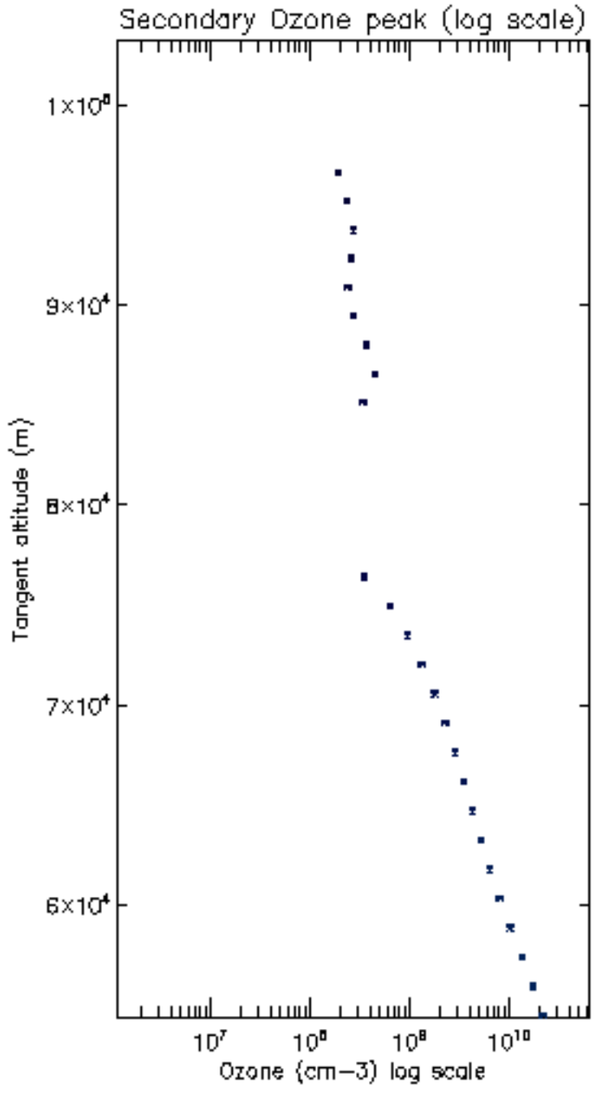


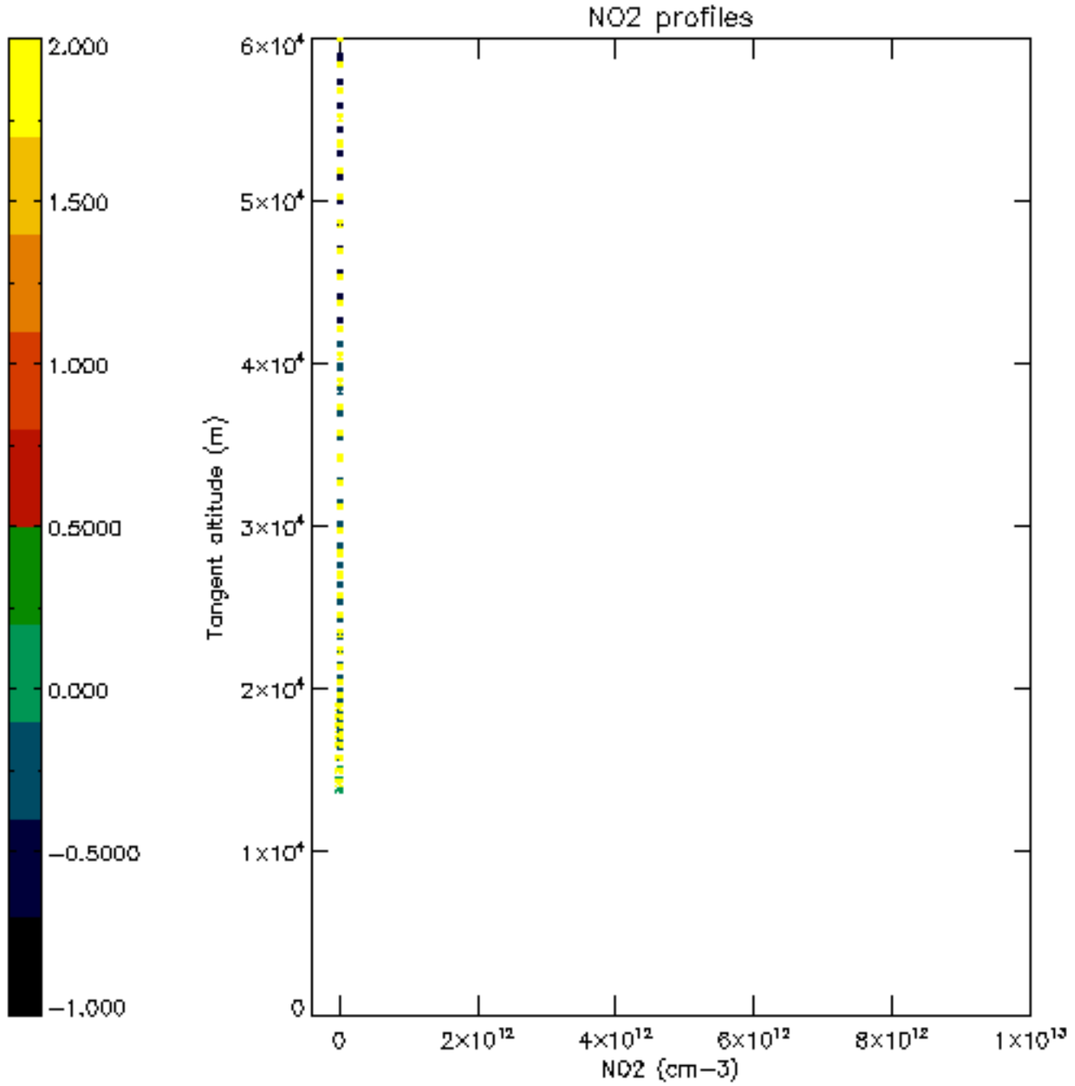

Secondary Ozone peak (log scale)

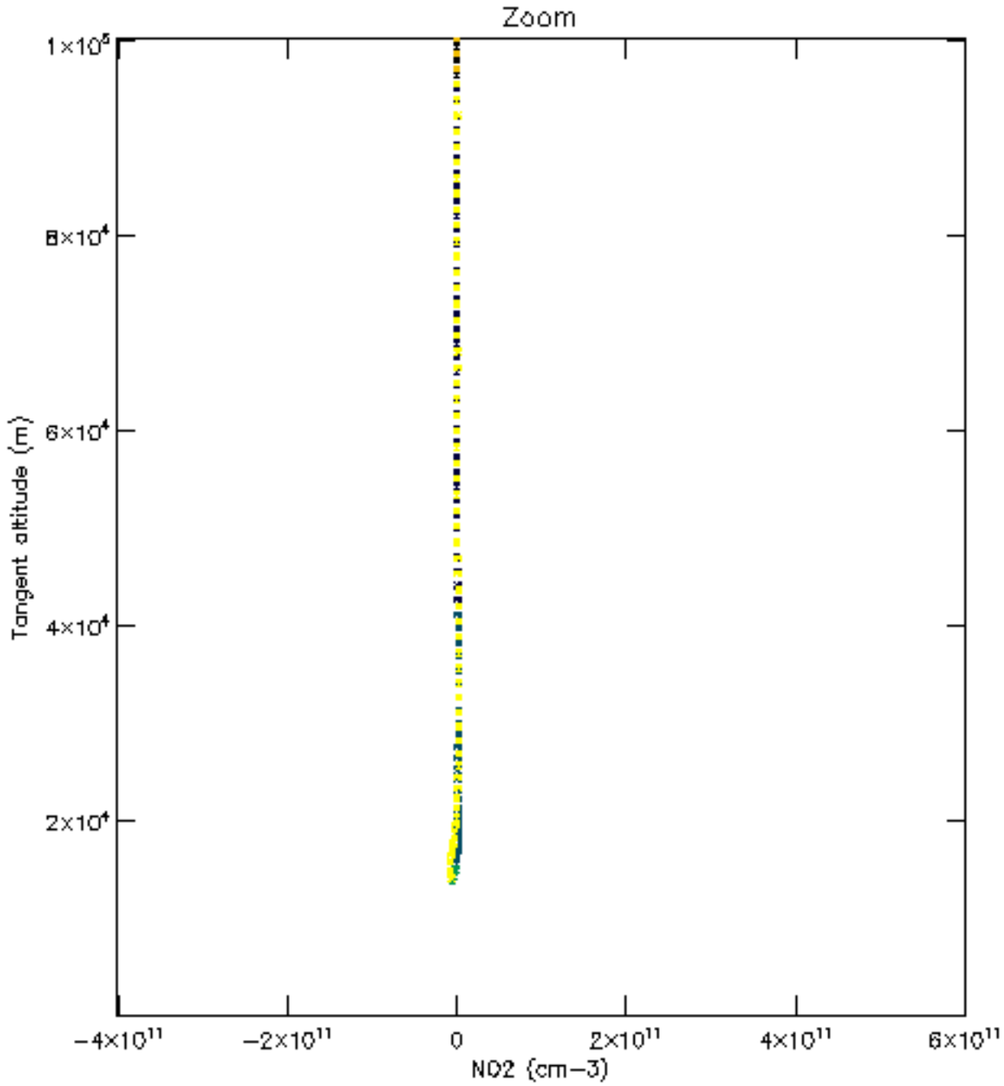


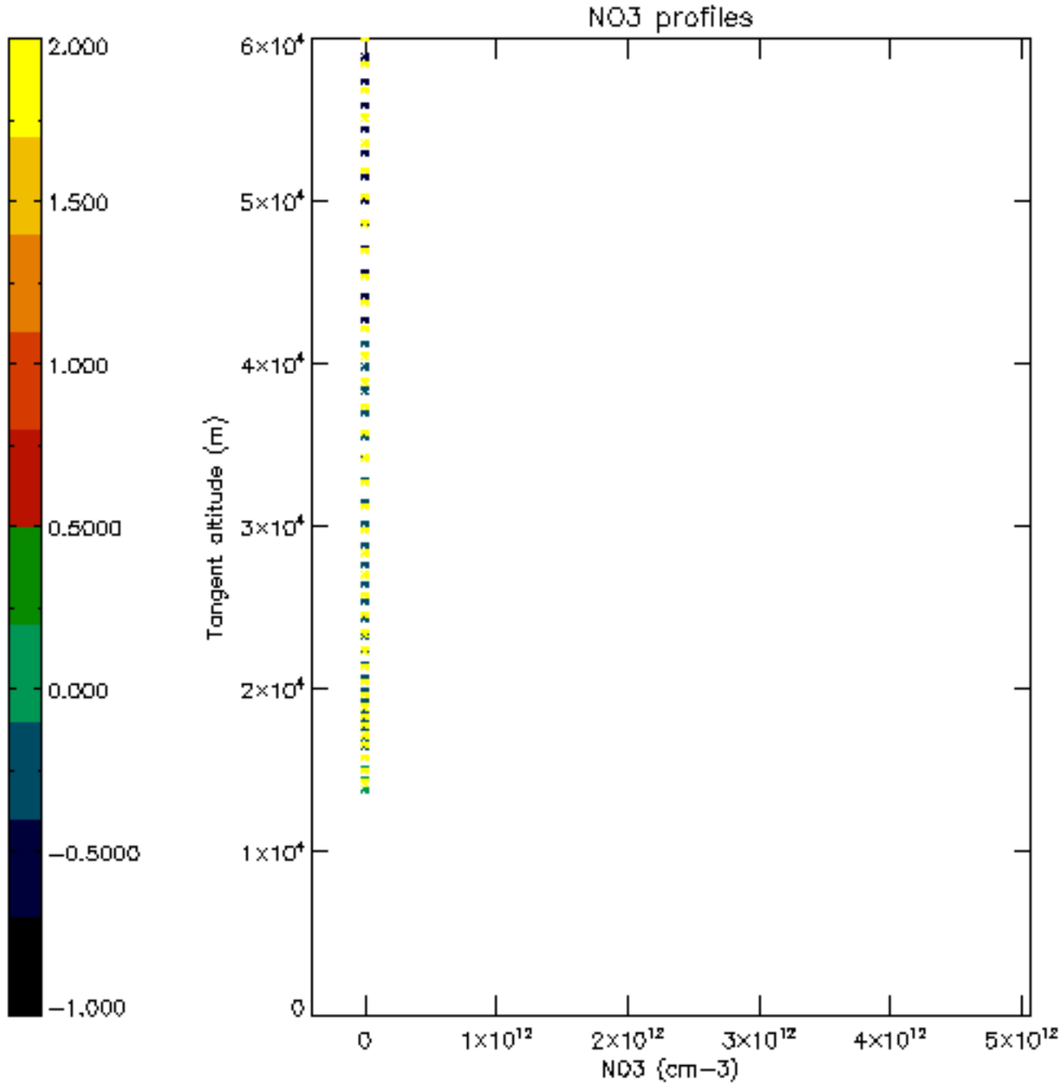

Ozone profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
6×10⁴
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Tangent altitude (m)
0 1×10¹² 2×10¹² 3×10¹² 4×10¹² 5×10¹² 6×10¹²
Ozone (cm−3)

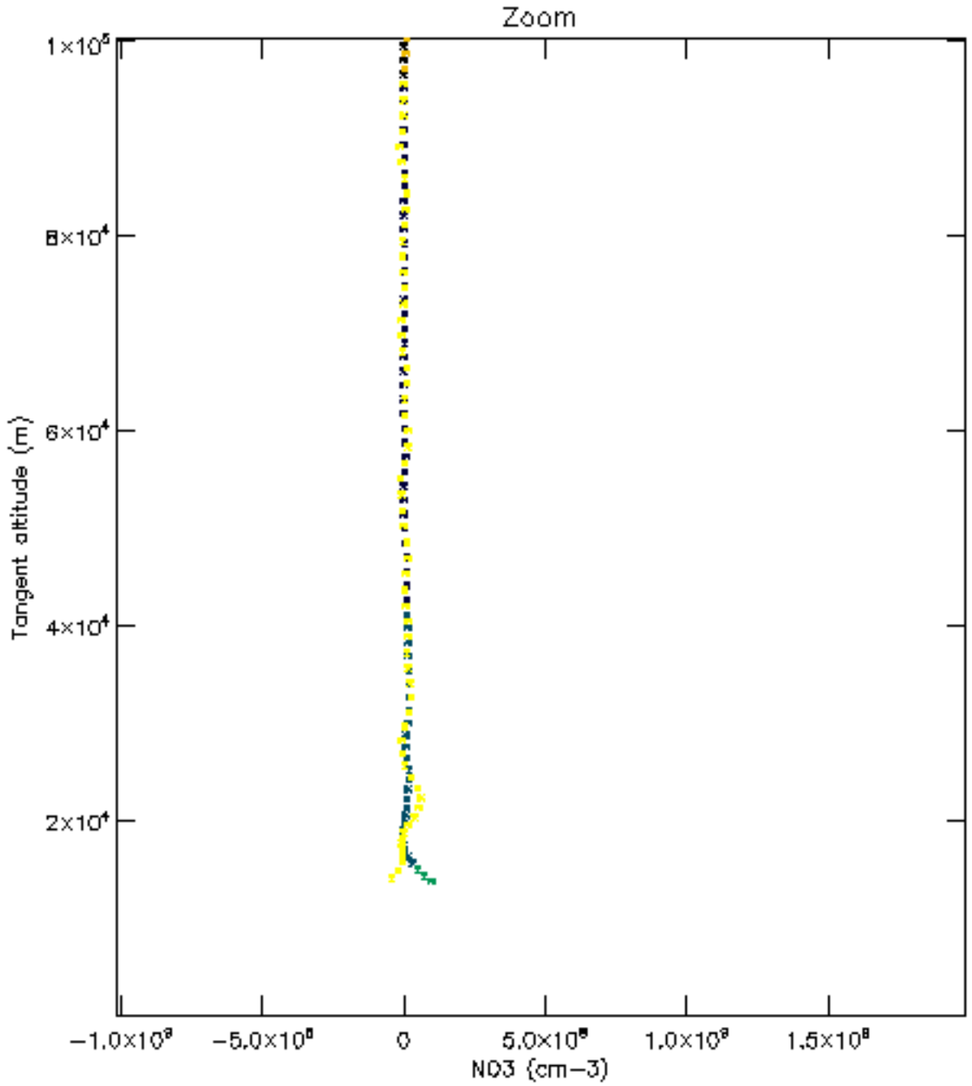

Zoom
1×10⁵
8×10⁴
6×10⁴
4×10⁴
2×10⁴
Tangent altitude (m)
0 1×10¹² 2×10¹² 3×10¹² 4×10¹² 5×10¹²
Ozone (cm−3)


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


NO2 profiles
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
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
2.000
1.500
1.000
0.5000
0.000
−0.5000
−1.000
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
−1.0×10⁸
−5.0×10⁸
0
5.0×10⁸
1.0×10⁹
1.5×10⁹
NO3 (cm−3)