

REPORT OF 050504

last update on Wed May 4 12:15:52 GMT 2005

1. [Introduction](#)
2. [Summary](#)
 - [Instrument Unavailability](#)
 - [Auxiliary files used](#)
 - [Browse Visual Inspection](#)
 - [Module Stepping Results](#)
 - [Data Analysis](#)
3. [Module Stepping](#)
4. [Internal Calibration pulses](#)
 - [Daily statistics](#)
 - [Cyclic statistics](#)
 - [cal pulses monitoring \(all rows\)](#)
5. [Raw Data Statistics](#)
 - [raw data mean I and Q](#)
 - [raw data stdev I and Q](#)
 - [raw gain imbalance](#)
6. [Wave Doppler analysis](#)
7. [TLM analysis](#)
 - [Unbiased Doppler Error for WVS](#)
 - [Absolute Doppler for WVS](#)
 - [Doppler evolution versus ANX for WVS](#)
 - [Unbiased Doppler Error for GM1](#)
 - [Absolute Doppler for GM1](#)
 - [Doppler evolution versus ANX for GM1](#)

1 - Introduction

1 - Introduction

This report is based on the analysis of wave mode level-1 cross spectra (ASA_WVS_1P), global monitoring products (ASA_GM1_1P), which are the available few hours after the acquisition, on the browse (BP) products and on the Module Stepping (MS) product.

2 - Summary

2.1 - Instrument Unavailability

No unavailabilities during the reported period.

2.2 - Auxiliary files

Summary of the auxiliary files used from 2005-05-03 00:00:00 to 2005-05-04 12:15:52

| PDHS-K | | | | | |
|---|-----|-----|-----|-----|-----|
| AUXILIARY FILE | WVS | GM1 | IMM | APM | WSM |
| ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000 | 20 | 51 | 4 | 8 | 2 |
| ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000 | 20 | 51 | 4 | 8 | 2 |
| ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000 | 20 | 51 | 4 | 8 | 2 |
| ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000 | 20 | 51 | 4 | 8 | 2 |

| PDHS-E | | | | | |
|---|-----|-----|-----|-----|-----|
| AUXILIARY FILE | WVS | GM1 | IMM | APM | WSM |
| ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000 | 44 | 51 | 4 | 4 | 4 |
| ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000 | 44 | 51 | 4 | 4 | 4 |
| ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000 | 44 | 51 | 4 | 4 | 4 |
| ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000 | 44 | 51 | 4 | 4 | 4 |

2.3 - Browse Visual Inspection

2.2 - Browse Visual Inspection

No anomalies observed in browse visual inspection.

2.4 - Data Analysis

2.3 - Data Analysis

- Stable wave internal calibration pulses gain and phase.
- Stable raw data statistics.
- Nominal Doppler behavior.

3 - Module Stepping Mode

No anomalies observed on available MS products:

| Polarisation | Start Time |
|--------------|-----------------|
| V | 20050502 180523 |
| H | 20050503 173346 |

MSM in V/V polarisation

| | |
|----------------------|------------------------------|
| Pre-launch Reference | DDS-B (2003-06-12) reference |
|----------------------|------------------------------|

| | |
|---|---|
| ☒ | ☒ |
| ☒ | ☒ |
| ☒ | ☒ |
| ☒ | ☒ |

MSM in H/H polarisation

| Pre-launch Reference | DDS-B (2003-06-12) reference |
|----------------------|------------------------------|
| ☒ | ☒ |
| ☒ | ☒ |
| ☒ | ☒ |
| ☒ | ☒ |

4 - Internal calibration Results

No anomalies observed.

4.1 - Daily statistics

4.1.1 - Evolution for WVS

Evolution of cal pulses for WVS

| |
|---|
| ☒ |
| ☒ |

4.1.2 - Evolution for GM1

Evolution of cal pulses for GM1

| |
|---|
| ☒ |
| ☒ |

4.2 - Cyclic statistics

4.2.1 - Evolution for WVS

Evolution of cal pulses for WVS

P1a Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
|-----|-------|-----------|------------|-----------------|

P1 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3 | P1 | -3.348002 | 0.006793 | -0.003194 |
| 7 | P1 | -3.112480 | 0.012302 | 0.023103 |
| 11 | P1 | -4.667476 | 0.026156 | 0.027807 |
| 15 | P1 | -5.575231 | 0.043609 | 0.112385 |
| 19 | P1 | -3.713246 | 0.004175 | -0.031895 |
| 22 | P1 | -4.576505 | 0.012662 | -0.064211 |
| 26 | P1 | -4.892453 | 0.019786 | 0.046427 |
| 30 | P1 | -7.157506 | 0.026549 | 0.056155 |
| 3 | P1 | -15.768309 | 0.080247 | 0.194852 |
| 7 | P1 | -15.513854 | 0.087347 | 0.093541 |
| 11 | P1 | -21.220985 | 0.239891 | -0.182123 |
| 15 | P1 | -11.468402 | 0.032597 | 0.130639 |
| 19 | P1 | -14.322972 | 0.032264 | -0.046178 |
| 22 | P1 | -15.883147 | 0.329523 | -0.244427 |
| 26 | P1 | -17.625828 | 0.180086 | 0.013293 |
| 30 | P1 | -17.878456 | 0.298064 | 0.026175 |

P2 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3 | P2 | -22.045708 | 0.083085 | -0.033656 |
| 7 | P2 | -22.222647 | 0.103593 | -0.046655 |
| 11 | P2 | -14.172050 | 0.109347 | 0.167592 |
| 15 | P2 | -7.079557 | 0.092712 | -0.072387 |
| 19 | P2 | -9.649760 | 0.095542 | -0.003031 |
| 22 | P2 | -16.882833 | 0.097248 | -0.030046 |

| | | | | |
|----|----|------------|----------|-----------|
| 26 | P2 | -16.471636 | 0.097018 | -0.058482 |
| 30 | P2 | -18.823759 | 0.085485 | 0.009919 |

P3 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3 | P3 | -8.166921 | 0.004075 | -0.007955 |
| 7 | P3 | -8.166921 | 0.004075 | -0.007955 |
| 11 | P3 | -8.166920 | 0.004075 | -0.007956 |
| 15 | P3 | -8.166920 | 0.004075 | -0.007956 |
| 19 | P3 | -8.166920 | 0.004075 | -0.007956 |
| 22 | P3 | -8.166920 | 0.004075 | -0.007956 |
| 26 | P3 | -8.166920 | 0.004075 | -0.007956 |
| 30 | P3 | -8.166921 | 0.004075 | -0.007956 |

4.2.2 - Evolution for GM1

| |
|--|
| Evolution of cal pulses for GM1 |
| ✕ |

P1a Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
|-----|-------|-----------|------------|-----------------|

P1 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3 | P1 | -2.755258 | 0.012268 | -0.058968 |
| 7 | P1 | -3.002695 | 0.031309 | 0.055720 |
| 11 | P1 | -3.978807 | 0.016998 | 0.049294 |
| 15 | P1 | -3.539563 | 0.022151 | 0.057256 |
| 19 | P1 | -3.623577 | 0.014693 | -0.022363 |
| 22 | P1 | -5.677931 | 0.047792 | 0.092254 |
| 26 | P1 | -7.309951 | 0.024342 | -0.024879 |
| 30 | P1 | -6.278159 | 0.061261 | -0.003463 |
| 3 | P1 | -10.760834 | 0.045443 | -0.069898 |
| 7 | P1 | -10.394274 | 0.151708 | -0.063546 |

| | | | | |
|----|----|------------|----------|-----------|
| 11 | P1 | -12.560267 | 0.099976 | 0.013295 |
| 15 | P1 | -11.673969 | 0.070034 | 0.146191 |
| 19 | P1 | -15.612085 | 0.060765 | -0.042597 |
| 22 | P1 | -25.134712 | 1.914057 | -1.042992 |
| 26 | P1 | -15.622914 | 0.290927 | -0.205216 |
| 30 | P1 | -20.174456 | 1.231455 | -0.132374 |

P2 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3 | P2 | -17.755327 | 0.039362 | -0.069246 |
| 7 | P2 | -22.283195 | 0.047242 | 0.054917 |
| 11 | P2 | -10.055157 | 0.056950 | 0.067916 |
| 15 | P2 | -5.056708 | 0.037967 | -0.111186 |
| 19 | P2 | -6.882266 | 0.052911 | -0.079793 |
| 22 | P2 | -7.092563 | 0.038216 | -0.057625 |
| 26 | P2 | -23.895693 | 0.037653 | -0.083620 |
| 30 | P2 | -21.922426 | 0.042623 | -0.076800 |

P3 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3 | P3 | -8.003451 | 0.003688 | -0.007512 |
| 7 | P3 | -8.003511 | 0.003680 | -0.007545 |
| 11 | P3 | -8.003418 | 0.003682 | -0.007351 |
| 15 | P3 | -8.003556 | 0.003691 | -0.007610 |
| 19 | P3 | -8.003573 | 0.003685 | -0.007355 |
| 22 | P3 | -8.003502 | 0.003671 | -0.007388 |
| 26 | P3 | -8.003559 | 0.003678 | -0.007151 |
| 30 | P3 | -8.003559 | 0.003692 | -0.007243 |

4.3 - cal pulses monitoring (all rows)

4.3.1 - Evolution for WVS



4.3.2 - Evolution for GM1



5 - RAW data statistics

No anomalies observed.

5.1 - Input mean I/Q

| channel | stat | DSS-B |
|---------|-------|-------------|
| MEAN I | mean | 0.000476356 |
| | stdev | 2.17280e-07 |
| MEAN Q | mean | 0.000490534 |
| | stdev | 2.35285e-07 |



5.2 - Input stdev I/Q

| channel | stat | DSS-B |
|---------|-------|------------|
| STDEV I | mean | 0.128873 |
| | stdev | 0.00105783 |
| STDEV Q | mean | 0.129134 |
| | stdev | 0.00106954 |



5.3 - Gain imbalance I/Q



6 - Telemetry analysis

Summary of analysis for the last 3 days 2005050[234]

The assumption is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems

| Filename | num_gaps | num_missing_lines |
|----------|----------|-------------------|
|----------|----------|-------------------|



7 - Doppler Analysis

No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

6.1 - Unbiased Doppler Error for WVS

Evolution of unbiased Doppler error (Real - Expected)



Ascending



Descending

6.2 - Absolute Doppler for WVS

Evolution of Absolute Doppler



Ascending



Descending

6.3 - Doppler evolution versus ANX for WVS

Evolution Doppler error versus ANX



6.4 - Unbiased Doppler Error for GM1

Evolution of unbiased Doppler error (Real - Expected)

| |
|--------------------------|
| <input type="checkbox"/> |
| Acsending |
| <input type="checkbox"/> |
| Descending |

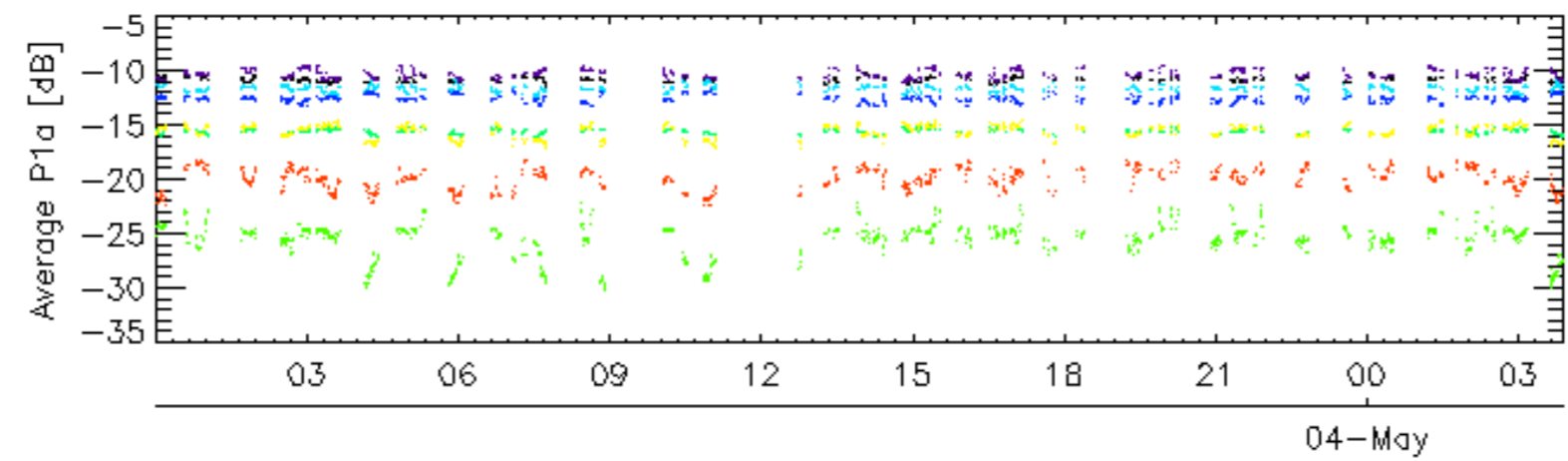
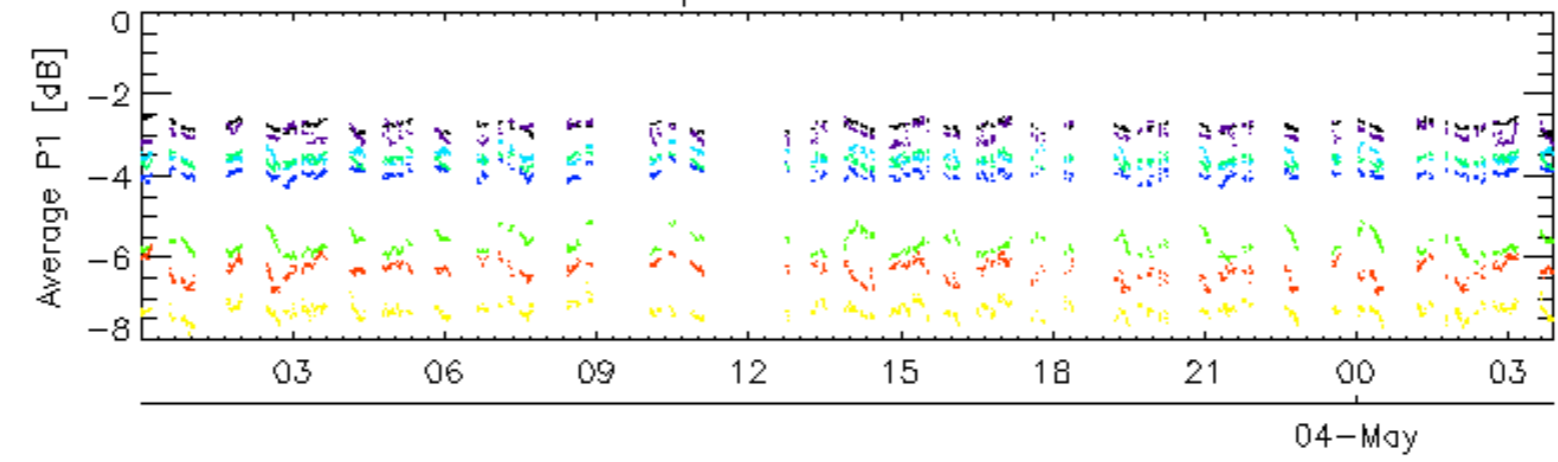
6.5 - Absolute Doppler for GM1**Evolution of Absolute Doppler**

| |
|--------------------------|
| <input type="checkbox"/> |
| Acsending |
| <input type="checkbox"/> |
| Descending |

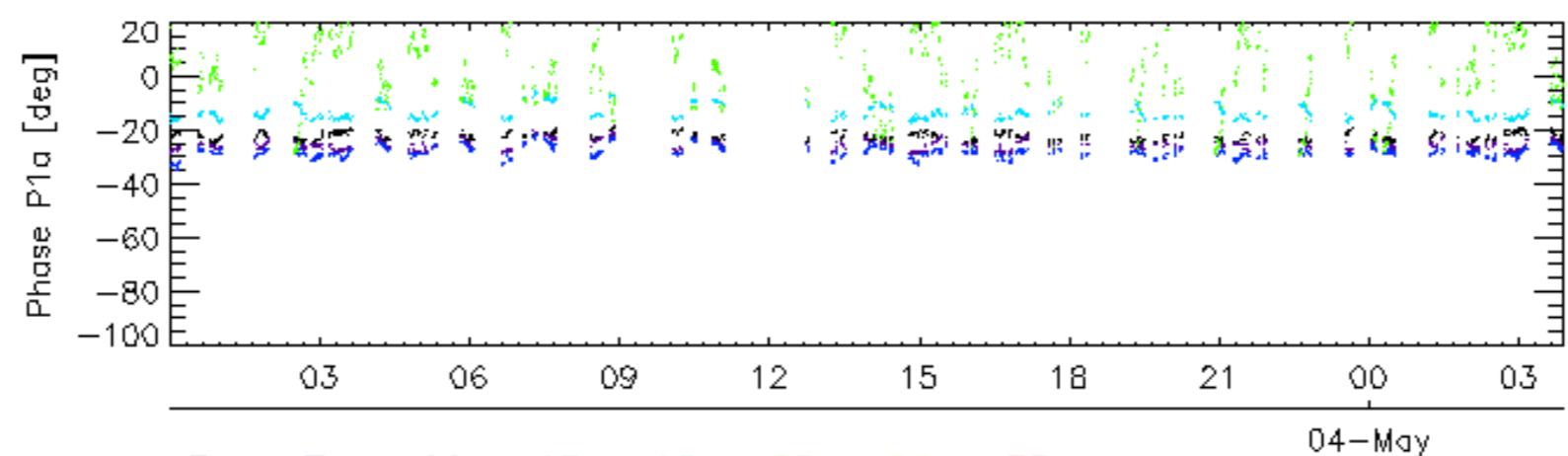
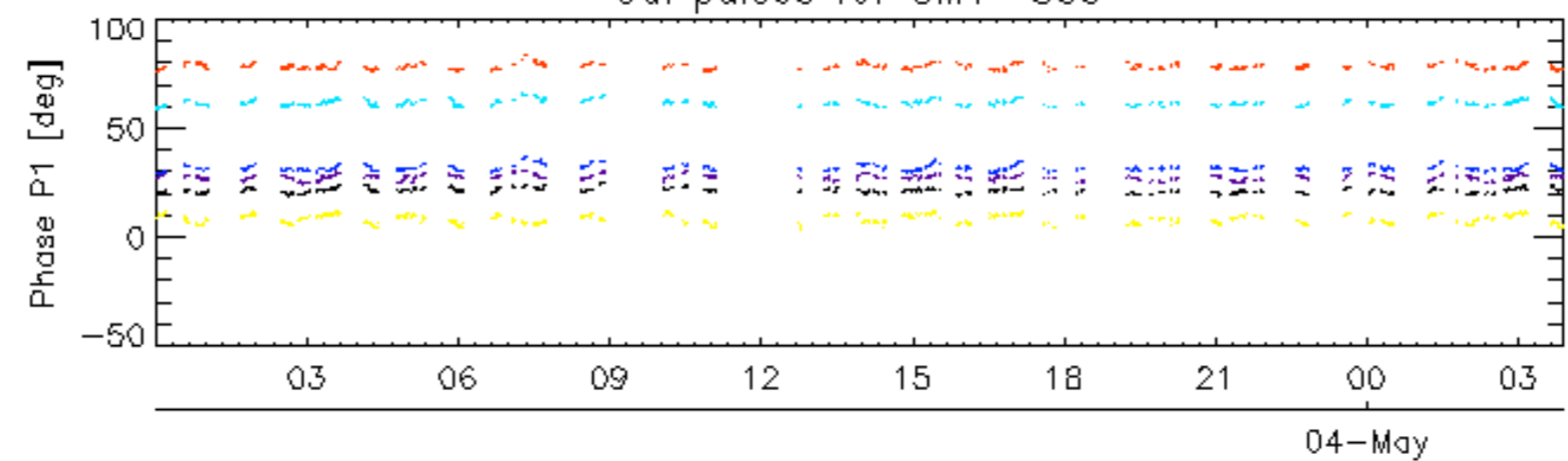
6.6 - Doppler evolution versus ANX for GM1**Evolution Doppler error versus ANX**

| |
|--------------------------|
| <input type="checkbox"/> |
|--------------------------|

Cal pulses for GM1 SS3

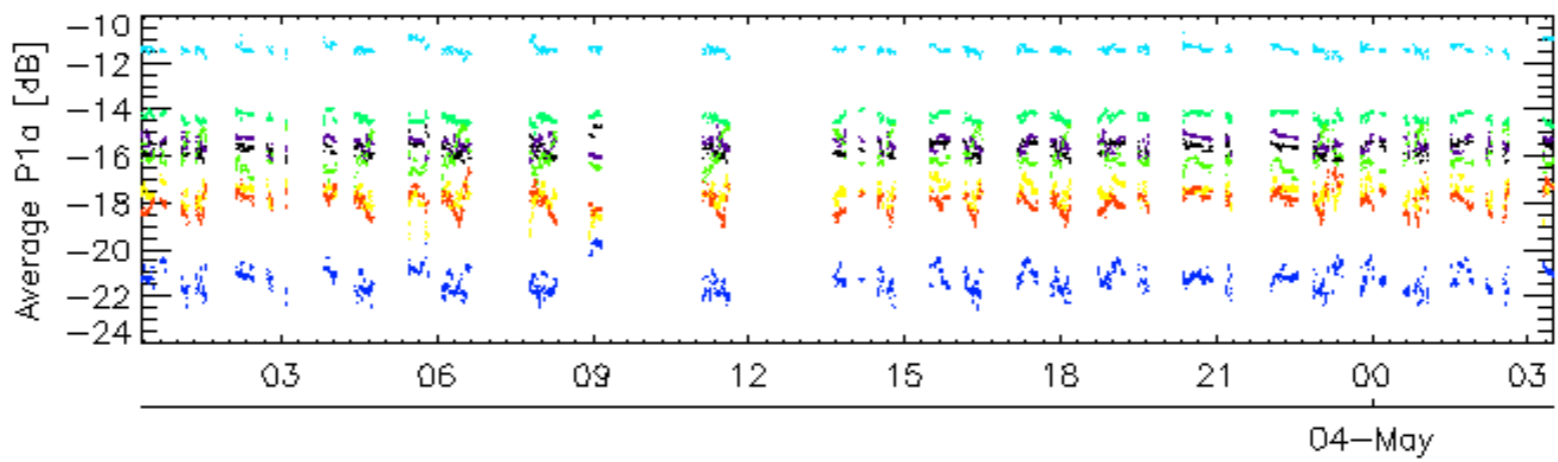
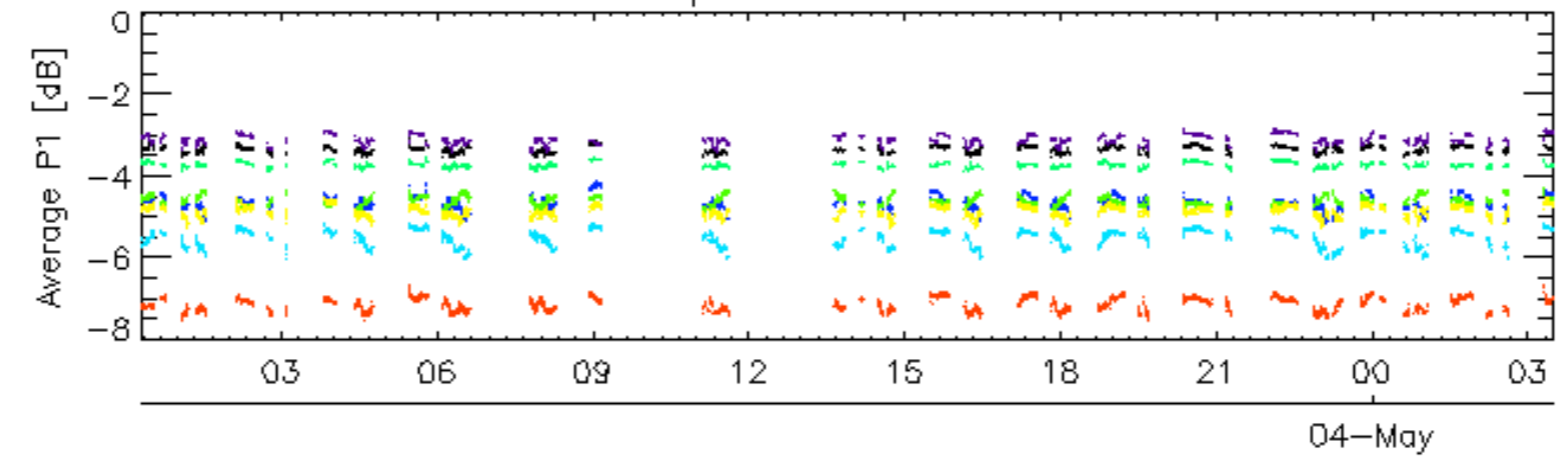


Cal pulses for GM1 SS3

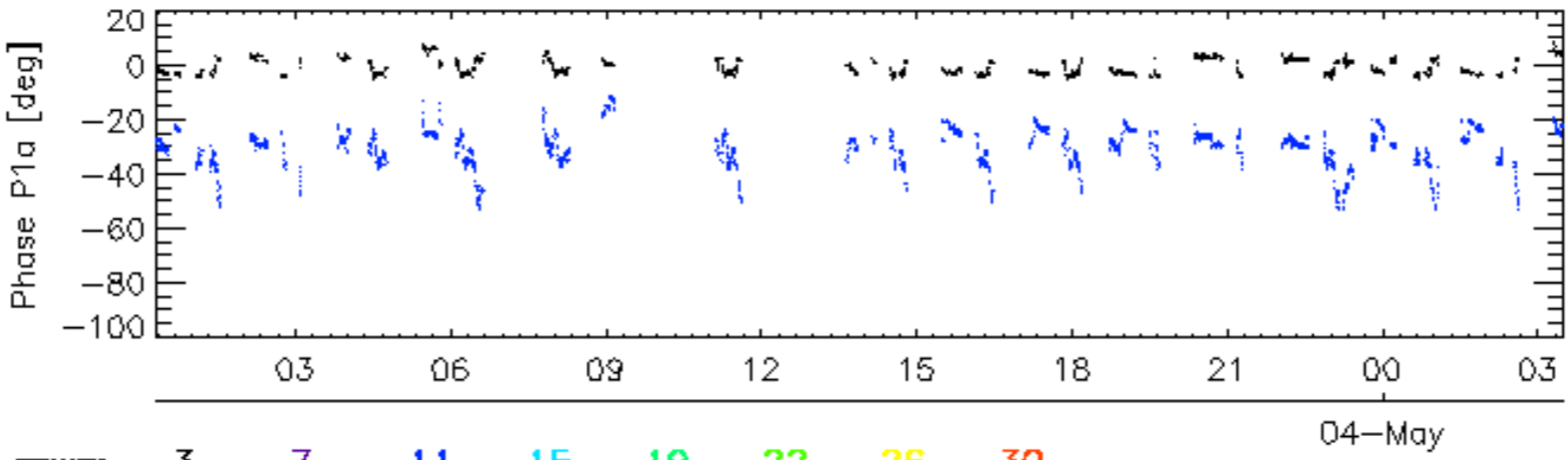
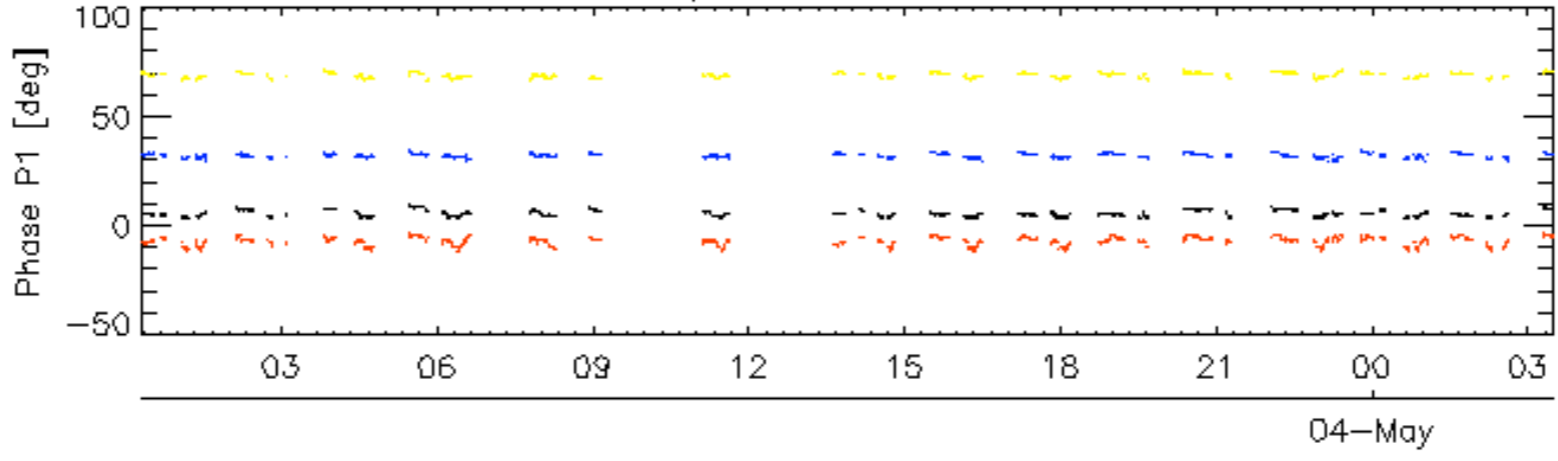


rows: **3** **7** **11** **15** **19** **22** **26** **30**

Cal pulses for WVS IS2

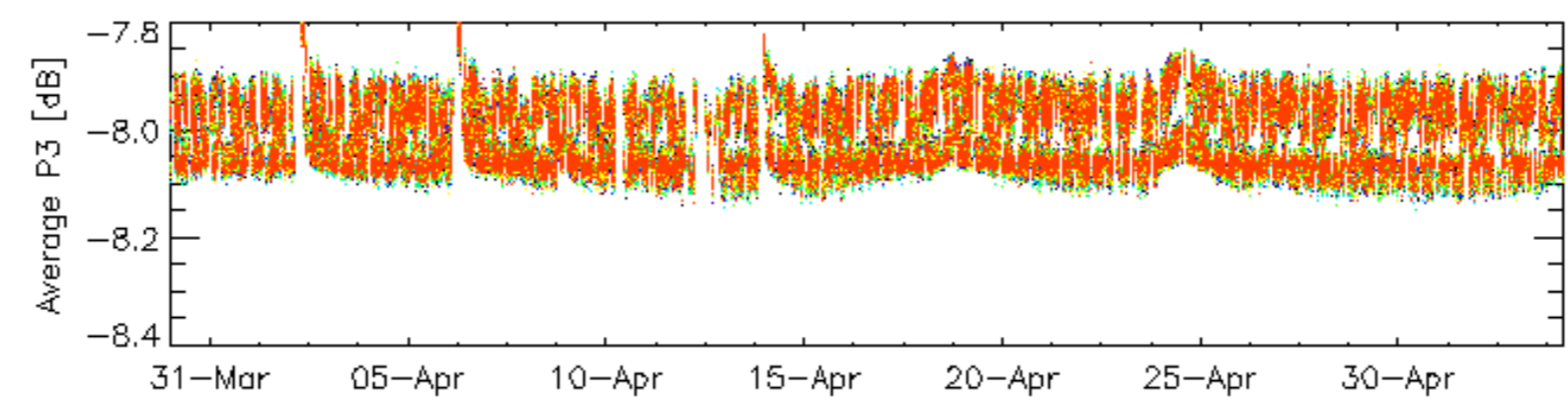
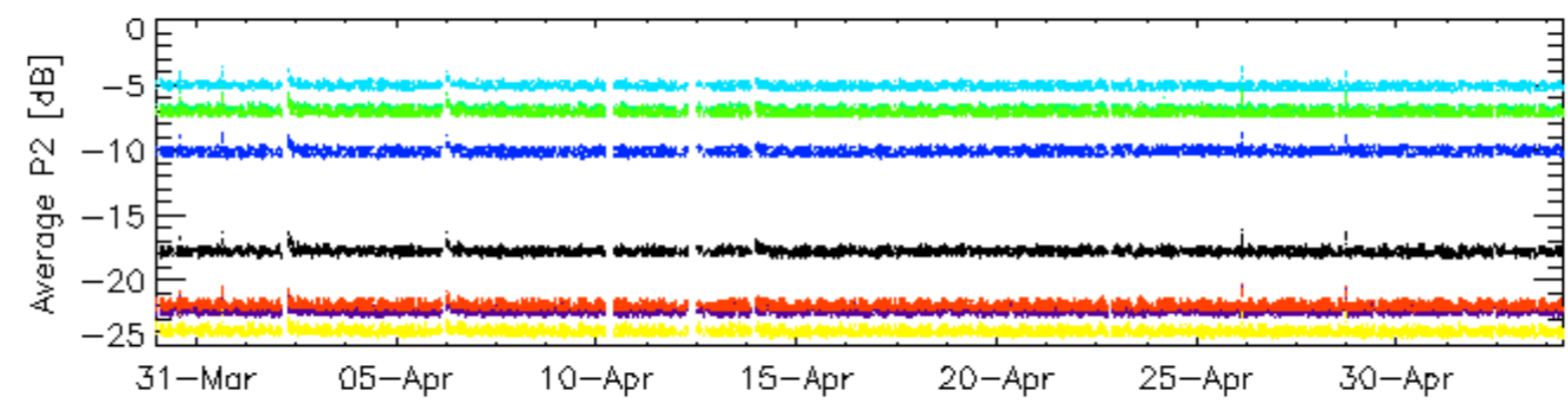
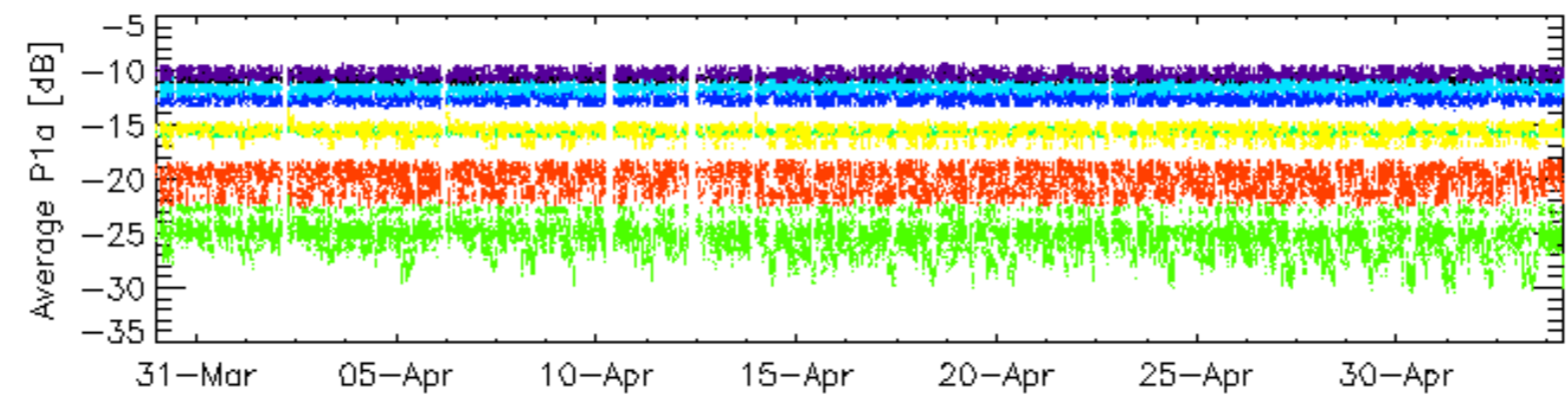
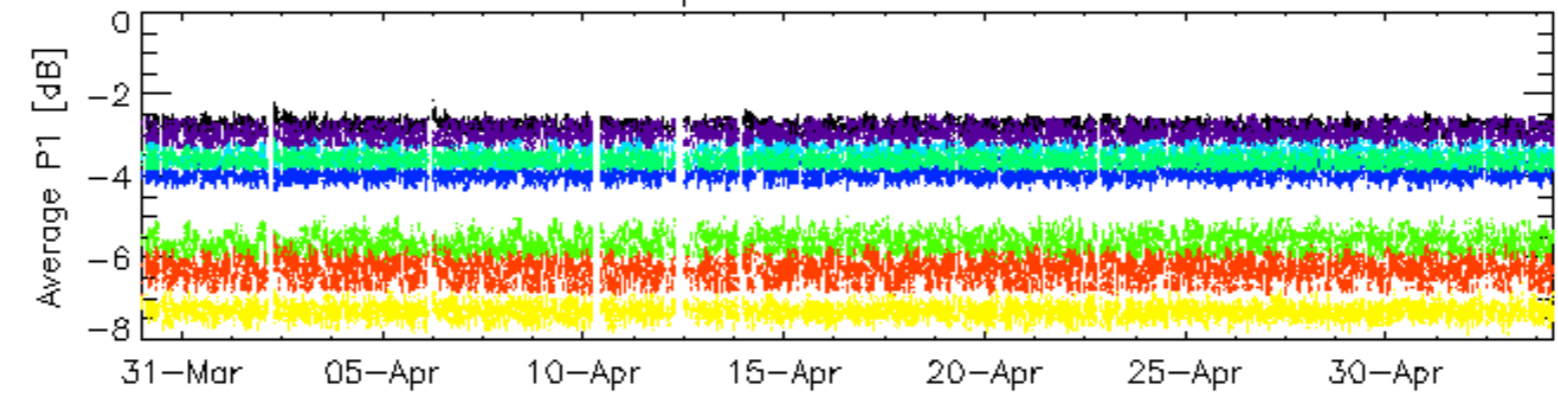


Cal pulses for WVS IS2



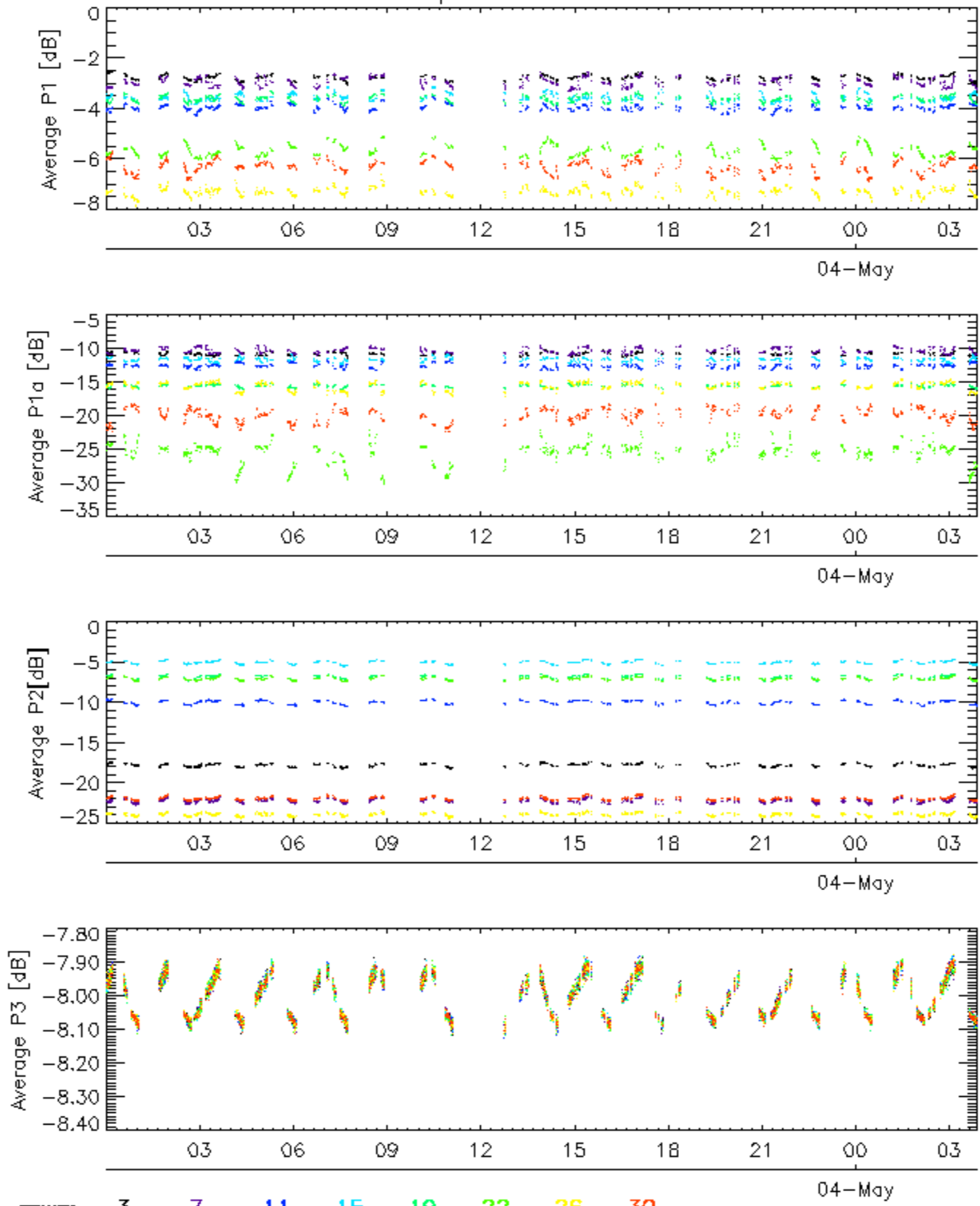
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

Cal pulses for GM1 SS3



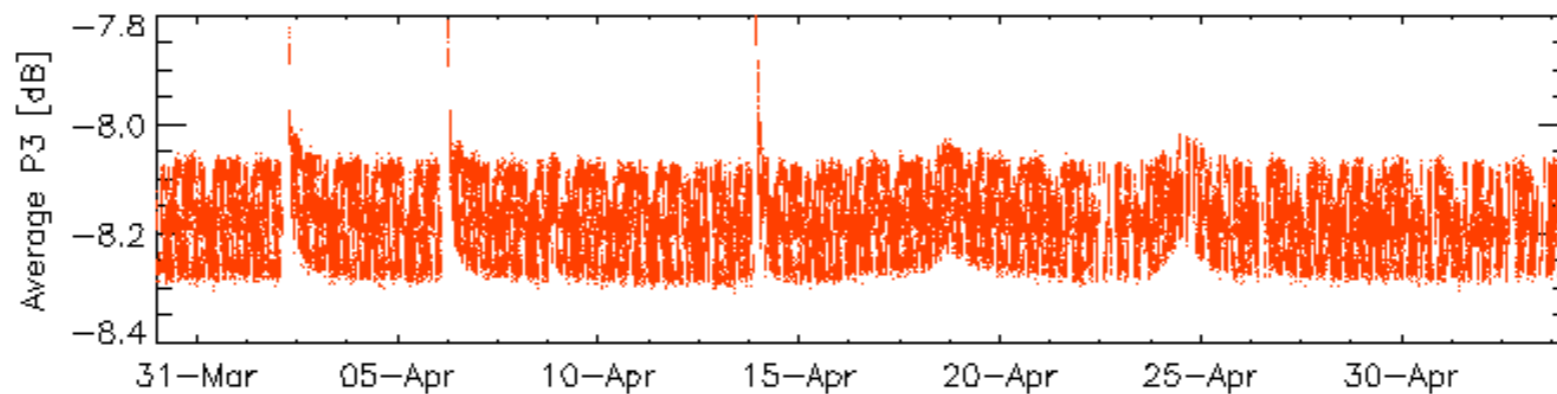
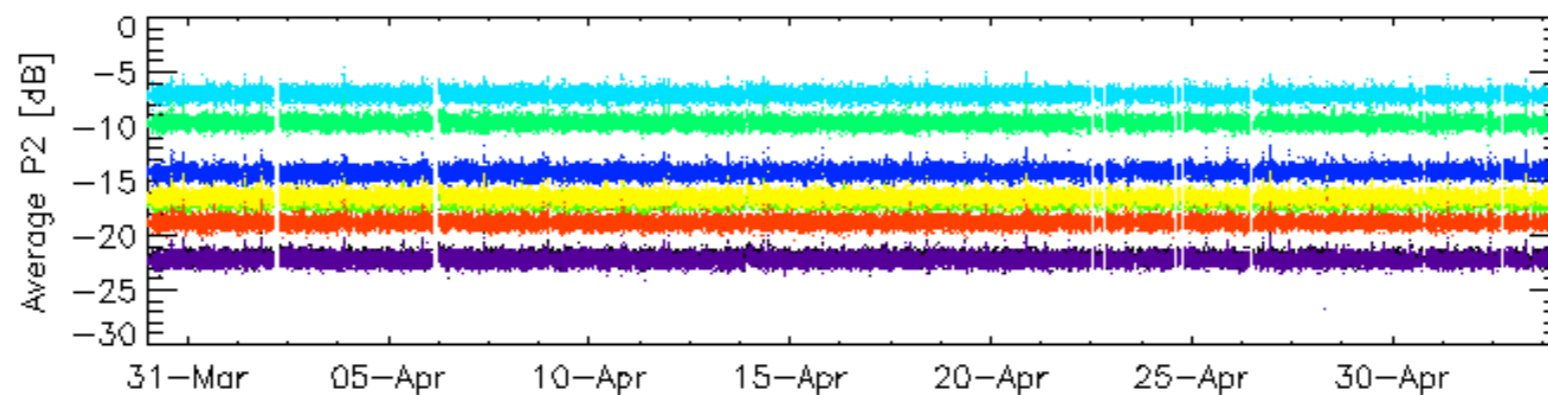
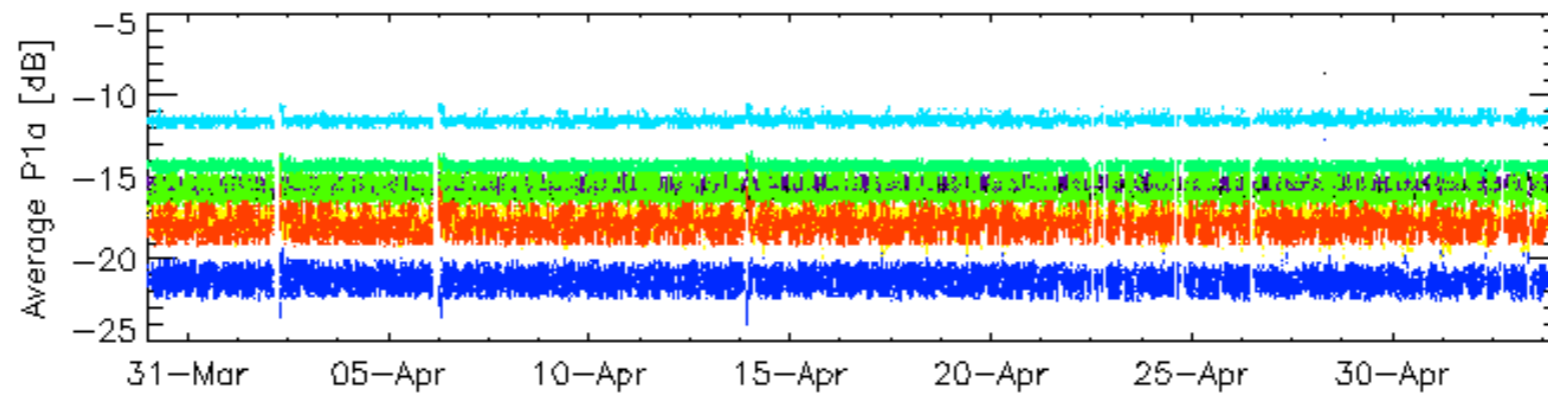
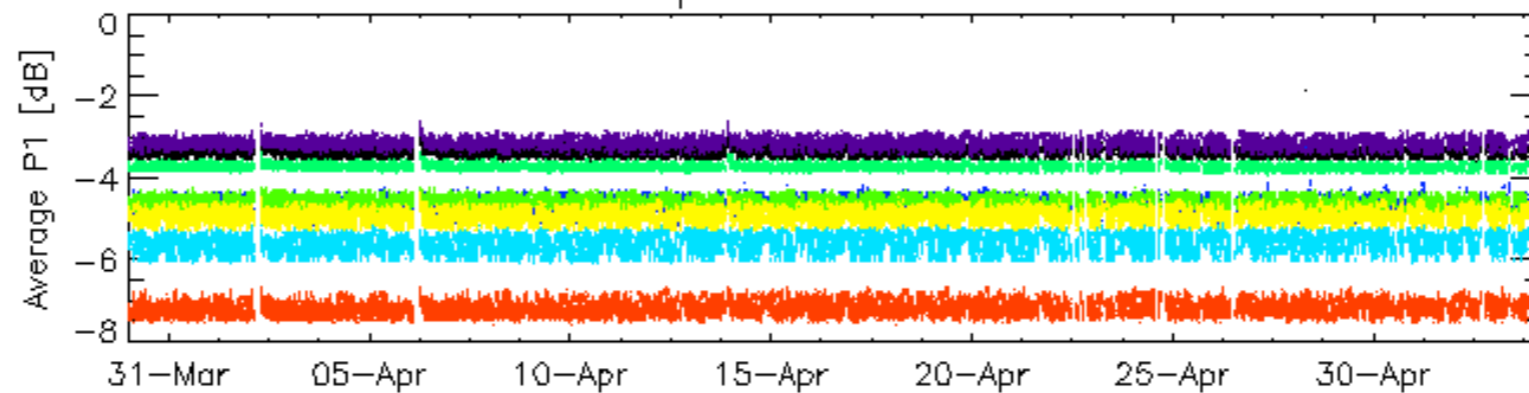
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

Cal pulses for GM1 SS3



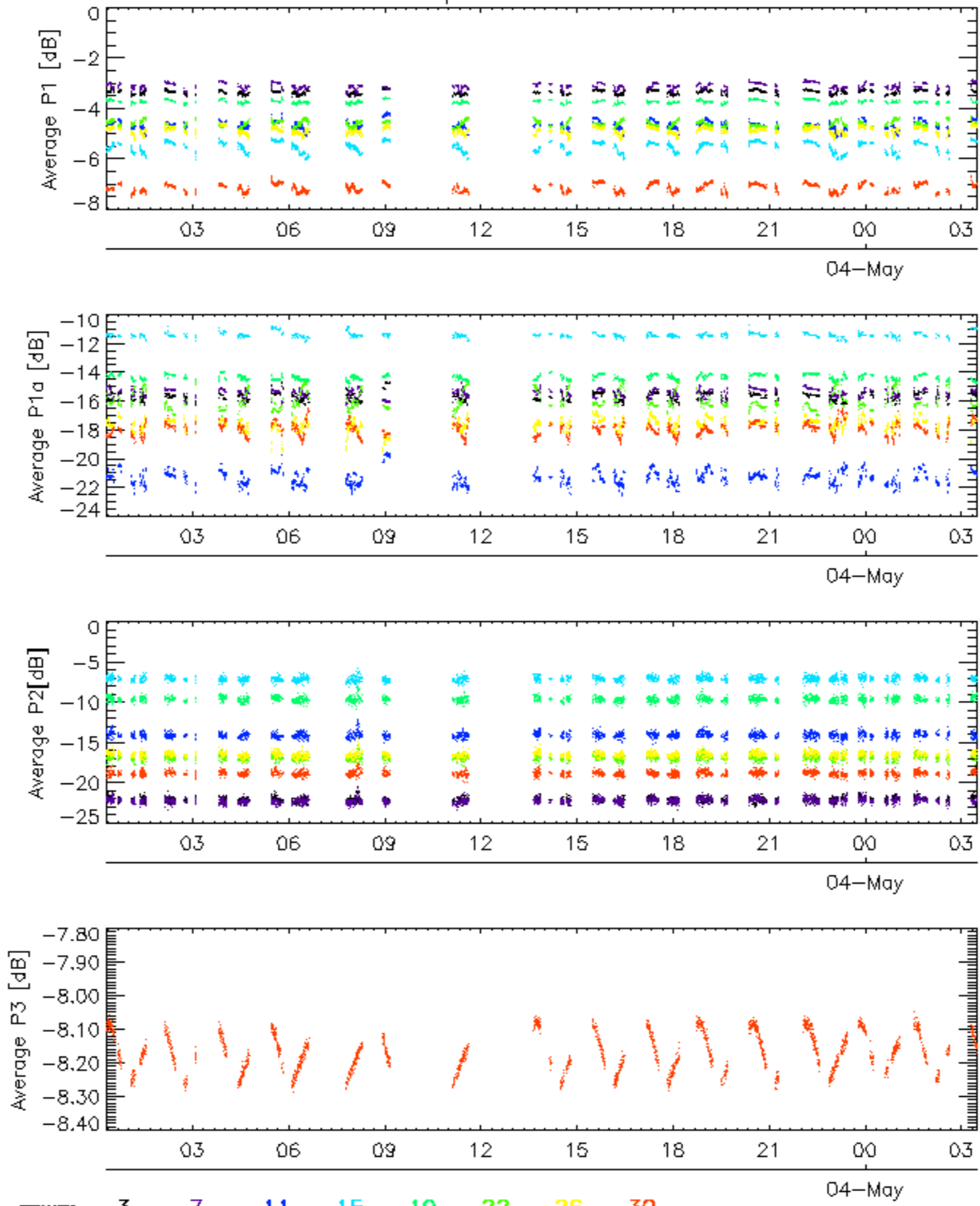
rows: **3** **7** **11** **15** **19** **22** **26** **30**

Cal pulses for WVS IS2



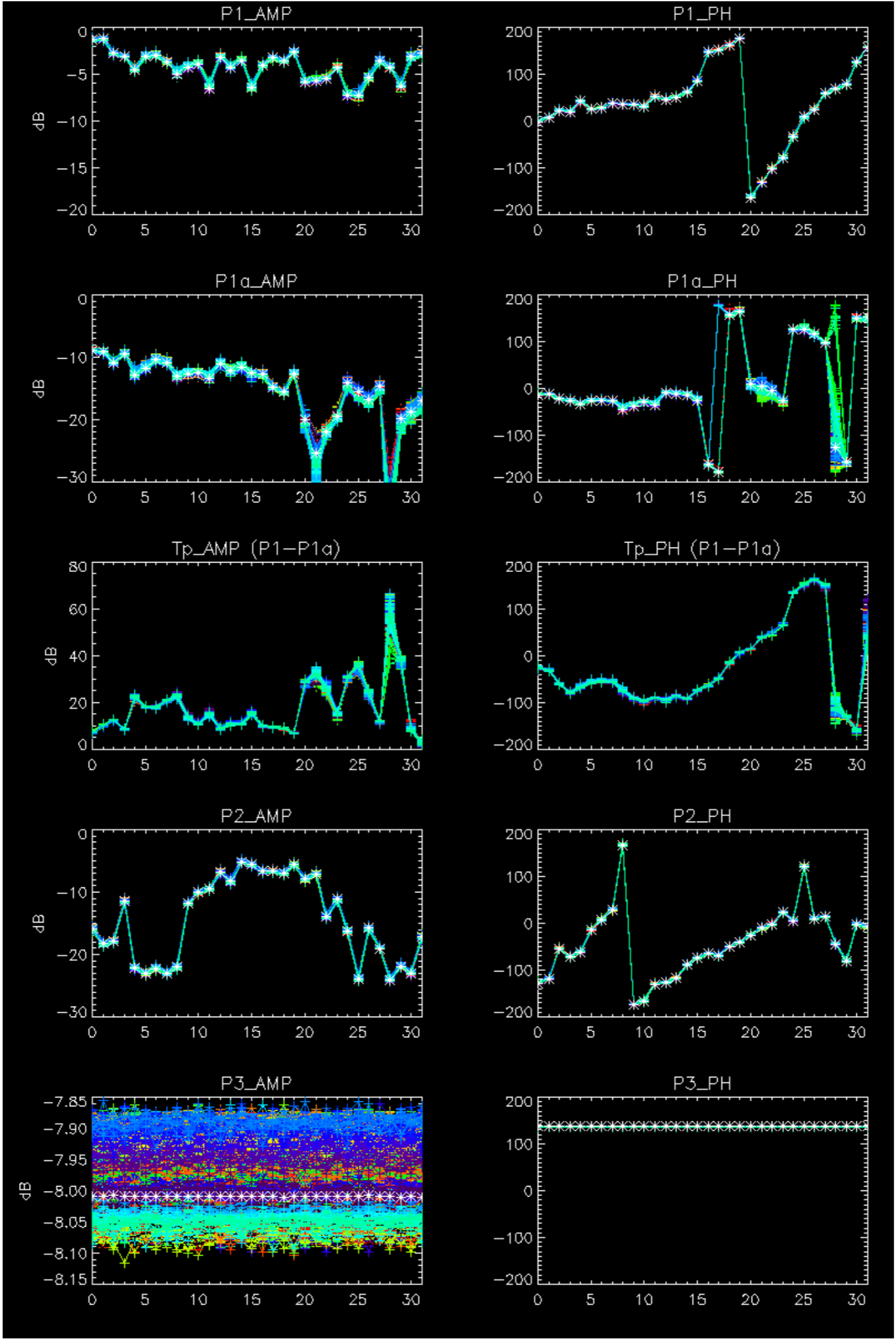
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

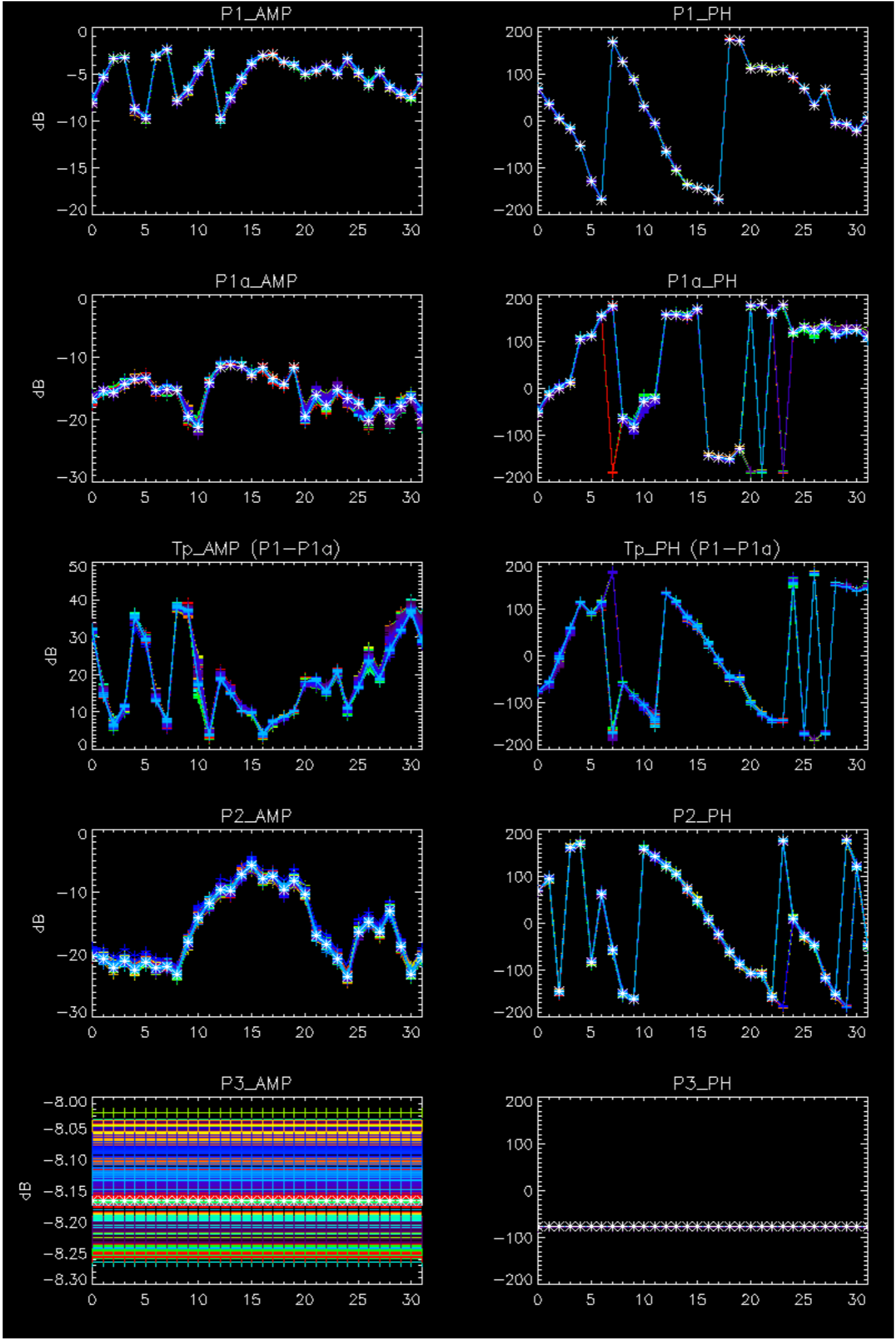
Cal pulses for WVS IS2



No anomalies observed in browse visual inspection.

No anomalies observed.

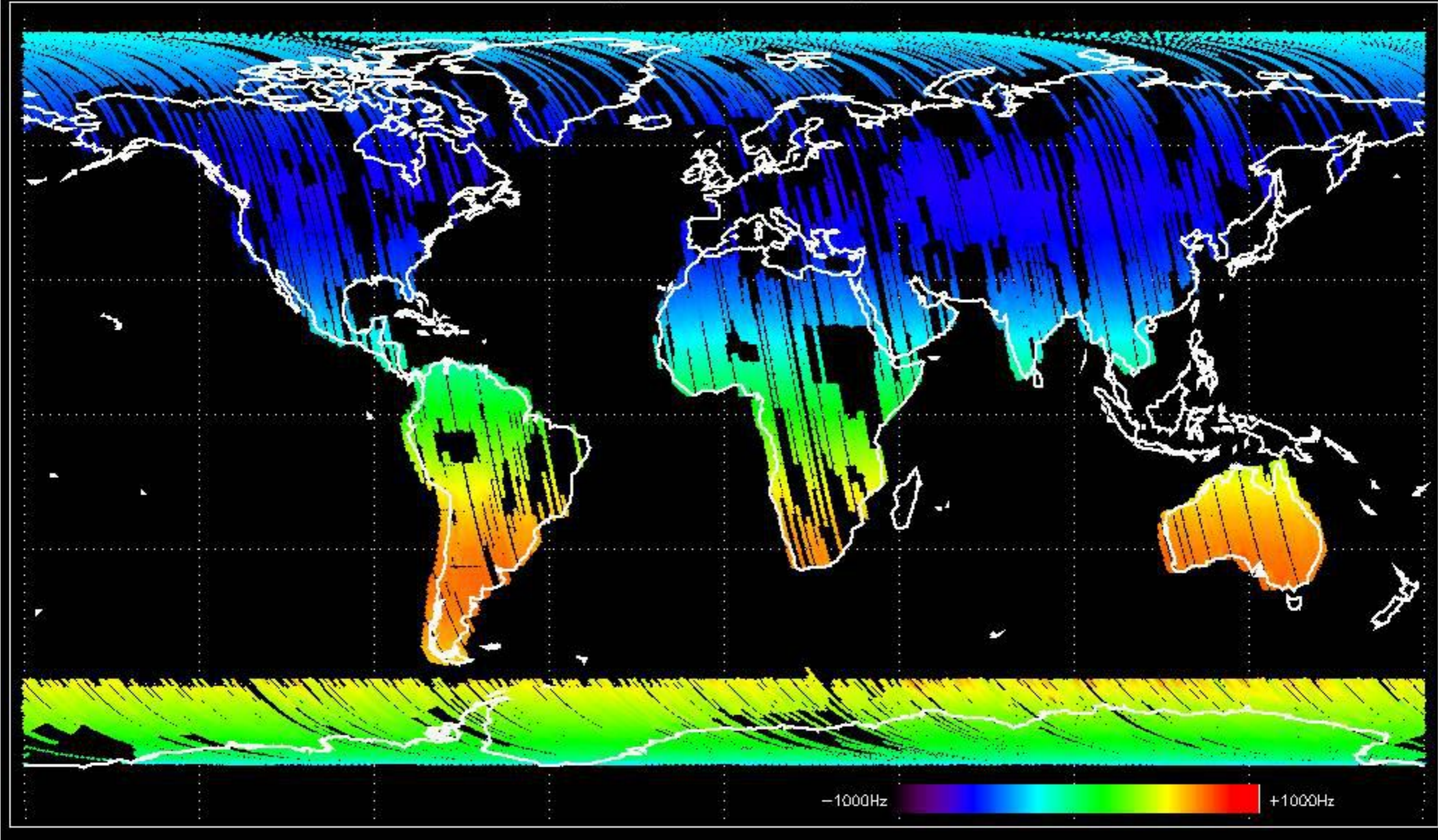




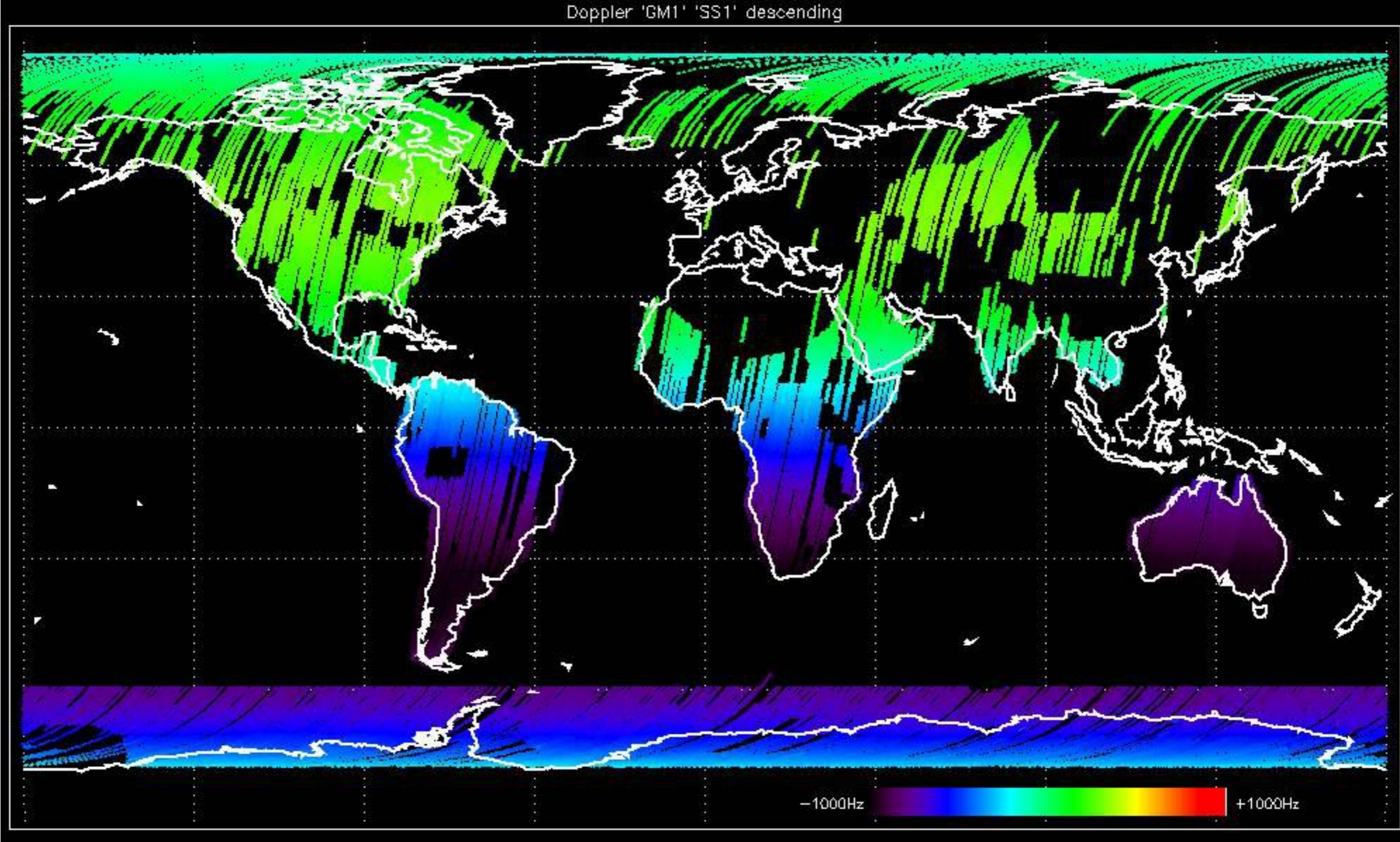
- Stable wave internal calibration pulses gain and phase.
- Stable raw data statistics.
- Nominal Doppler behavior.

No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

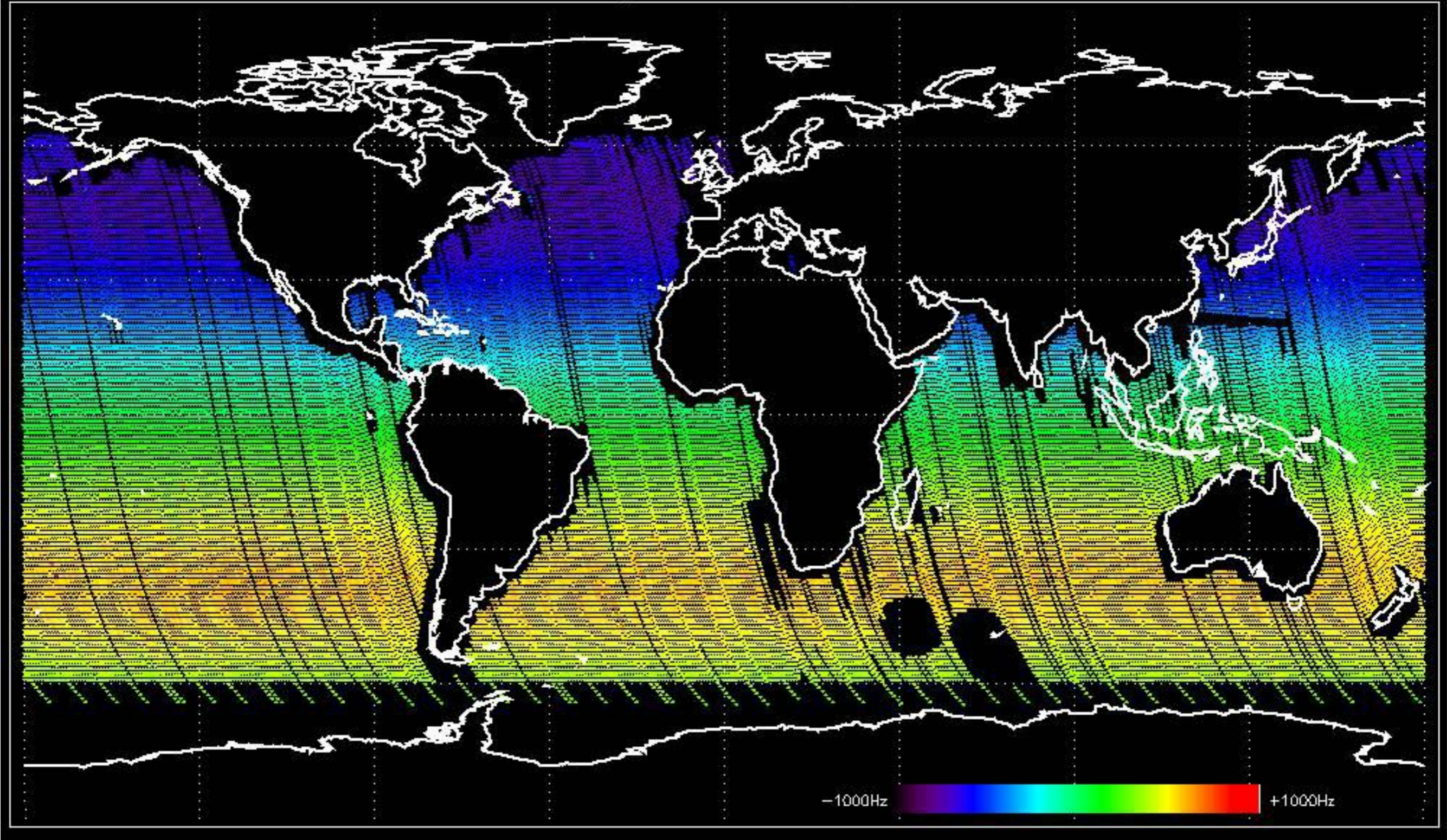
Doppler 'GM1' 'SS1' ascending



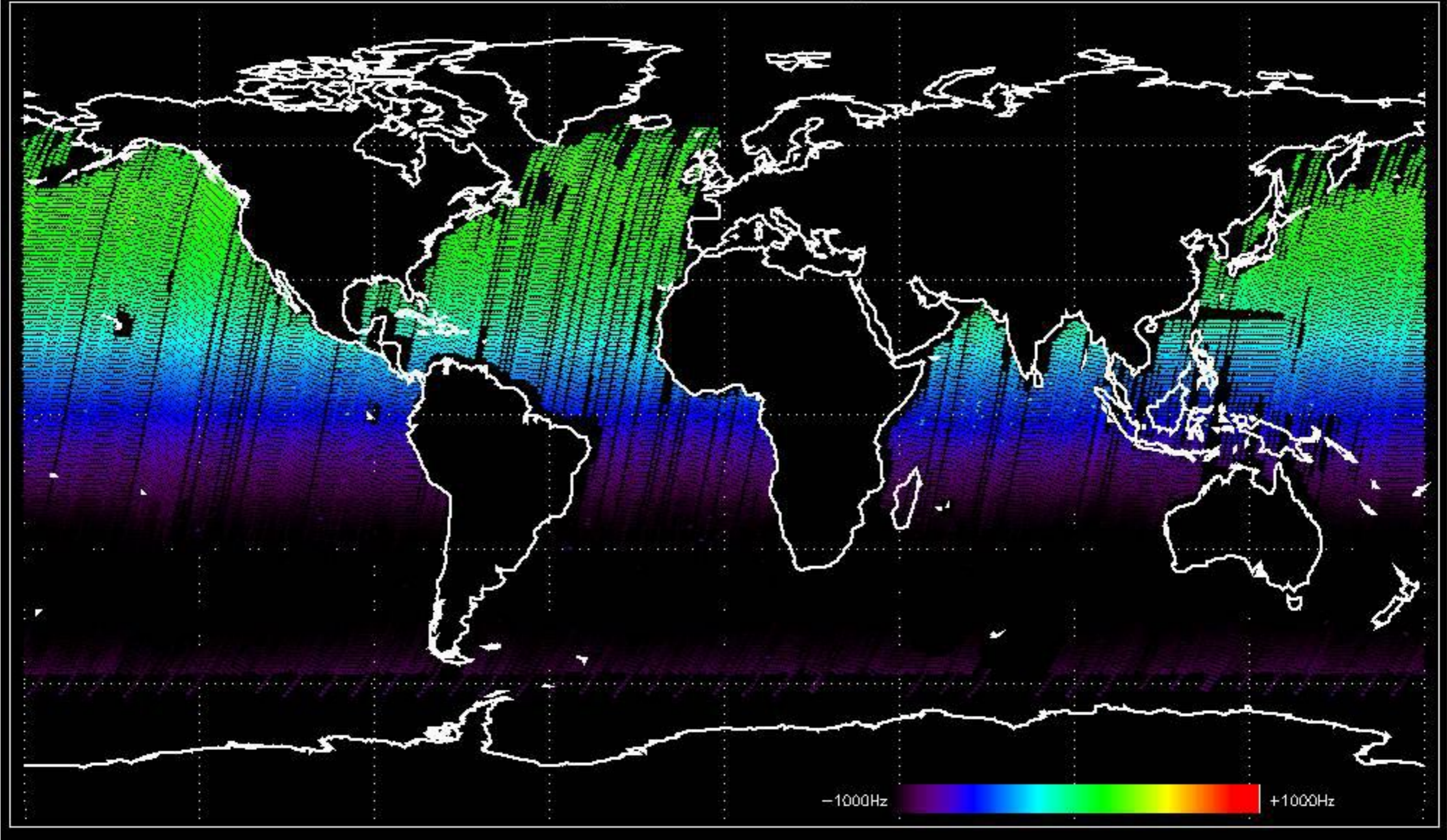
Doppler 'GM1' 'SS1' descending



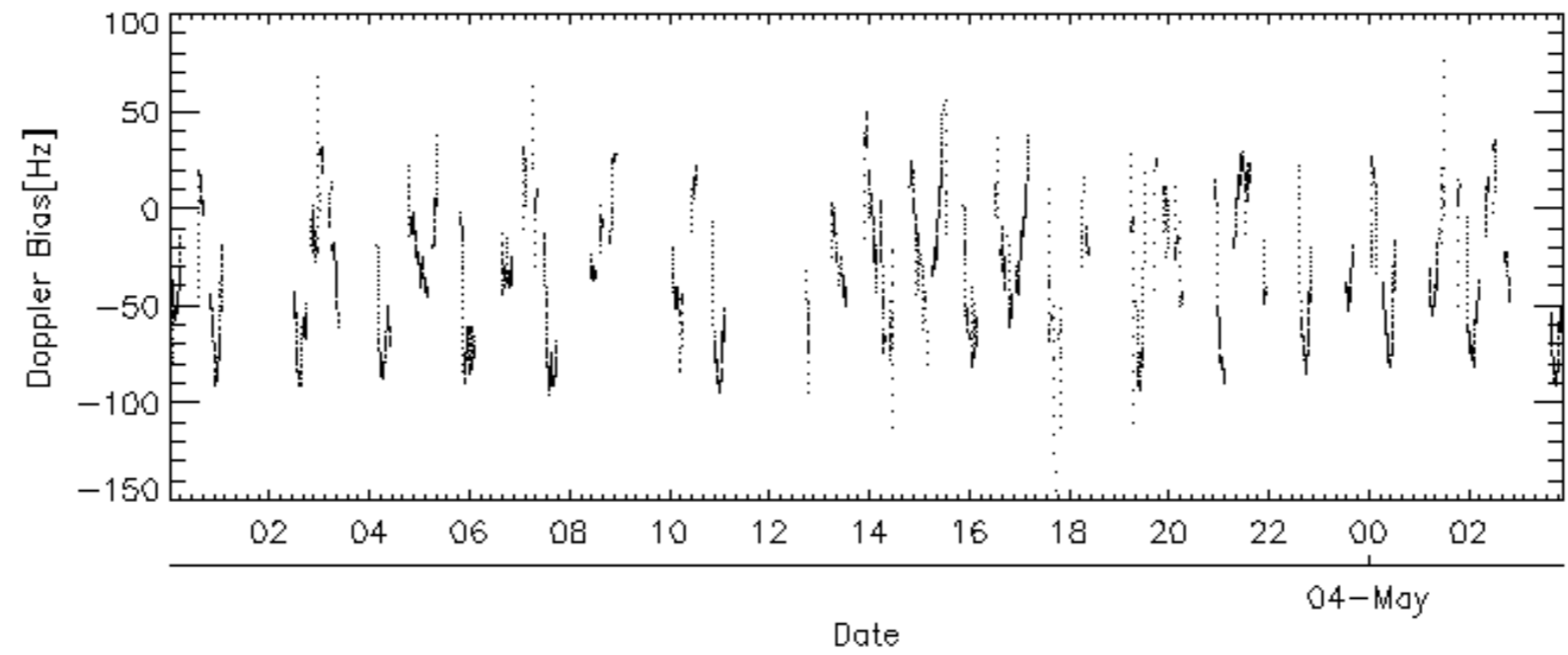
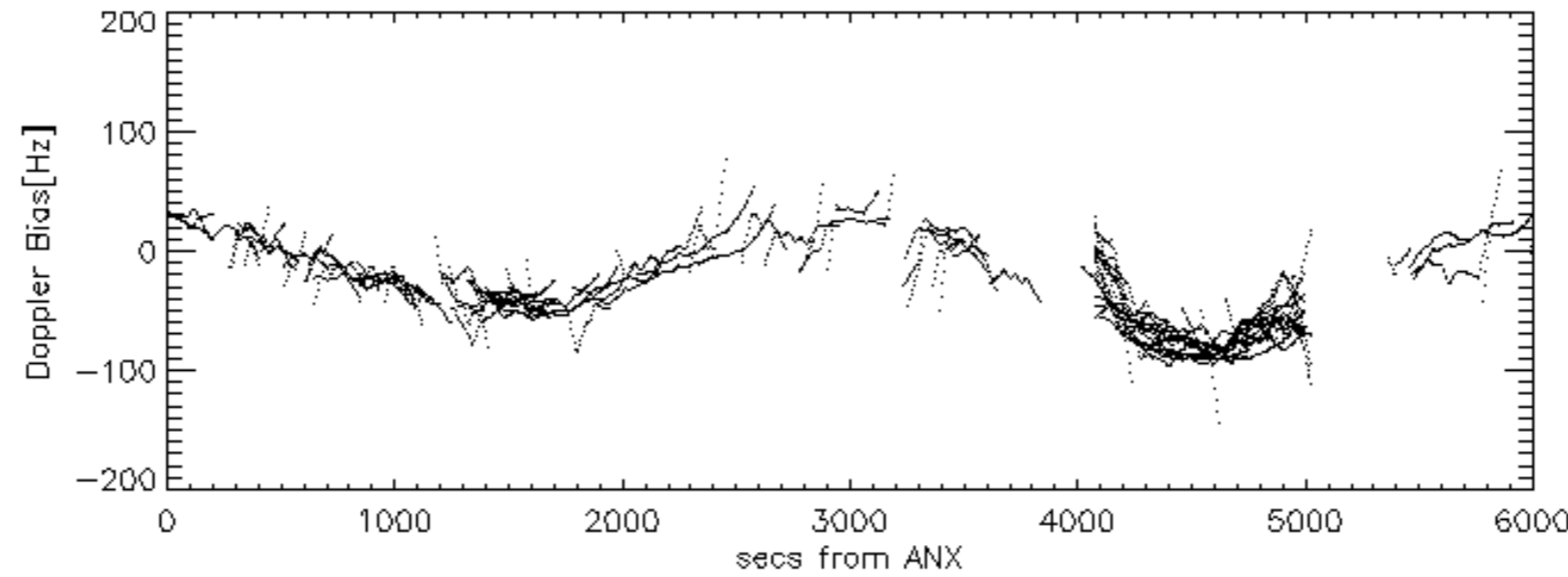
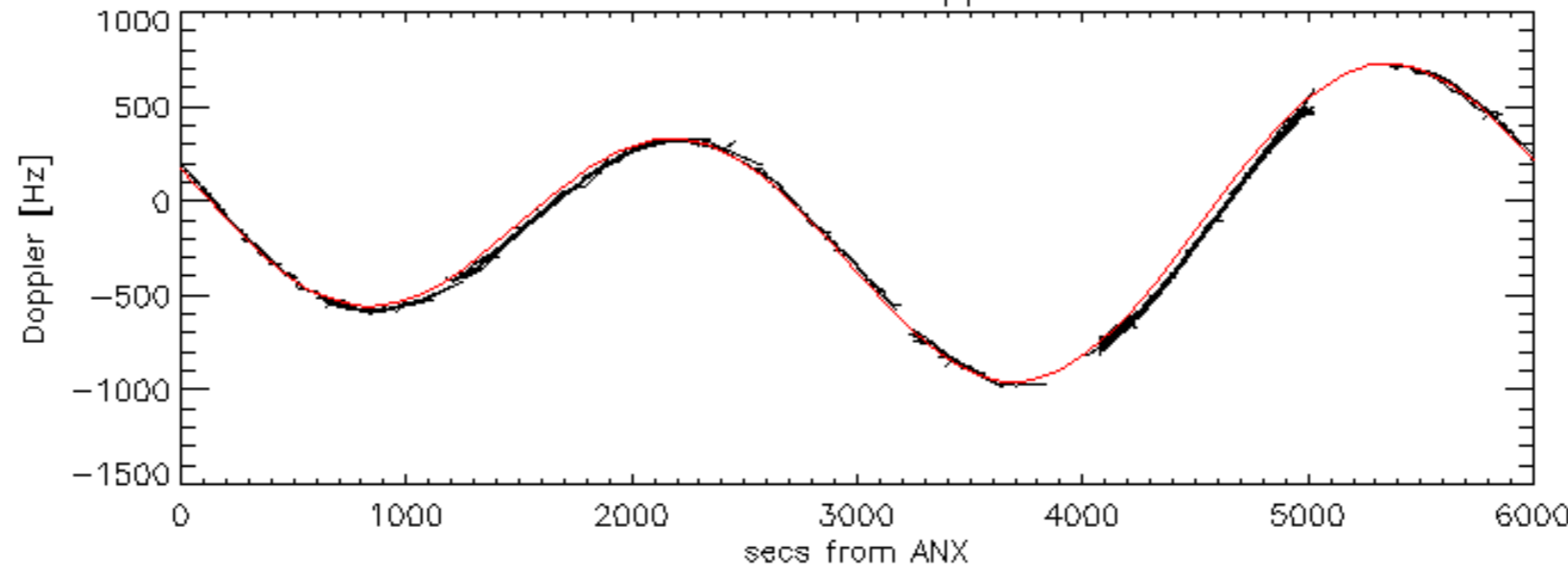
Doppler 'WVS' 'IS2' ascending

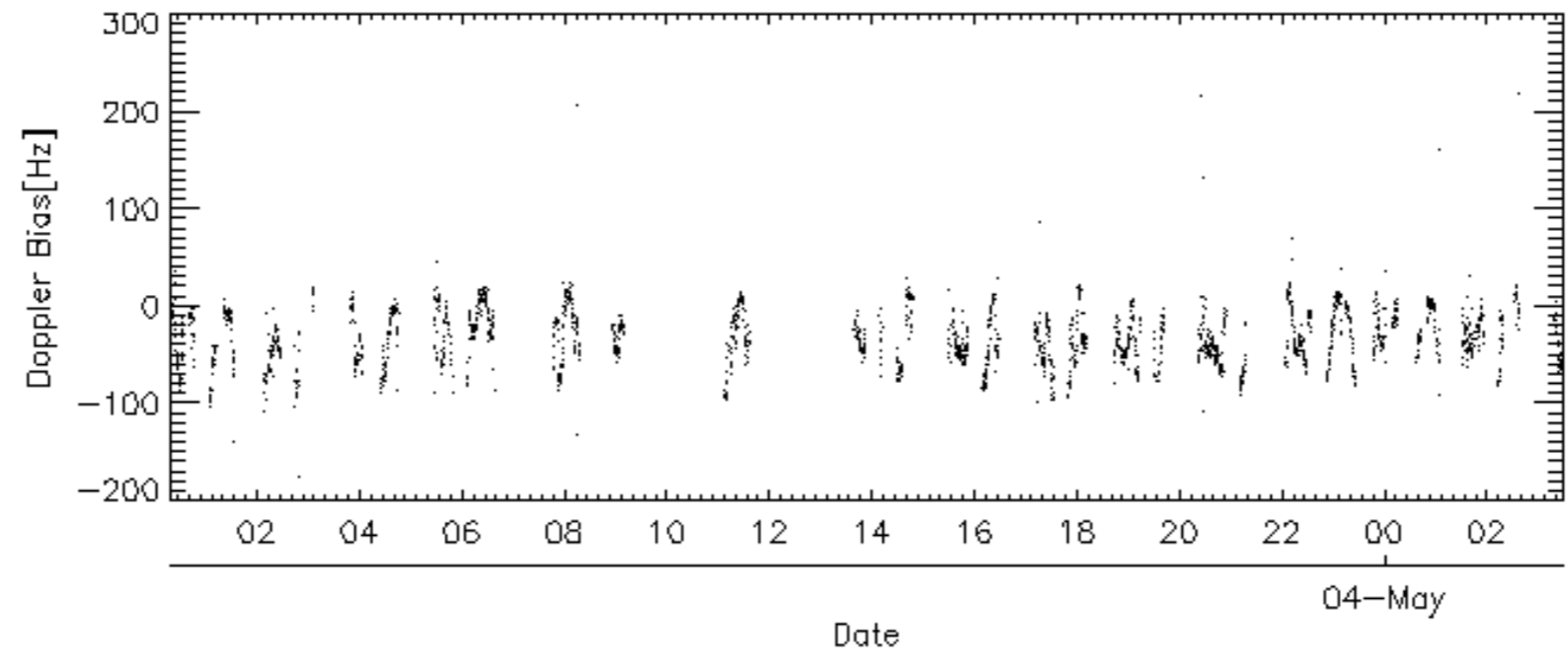
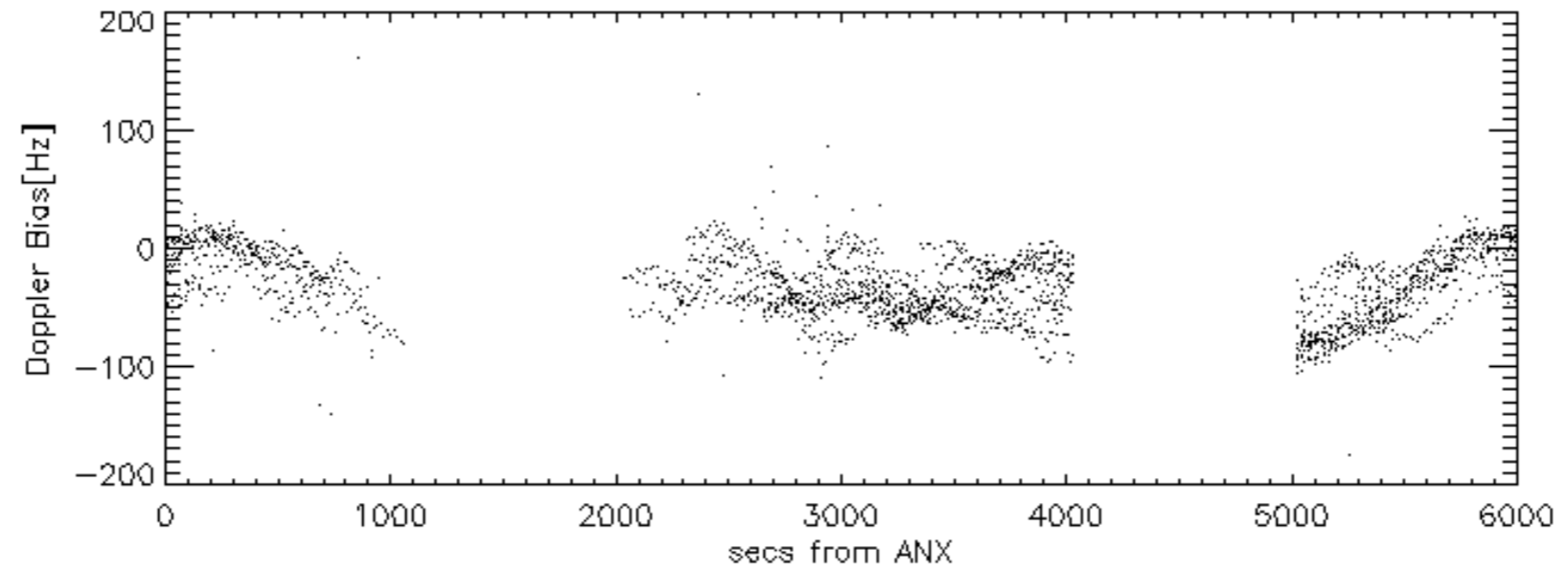
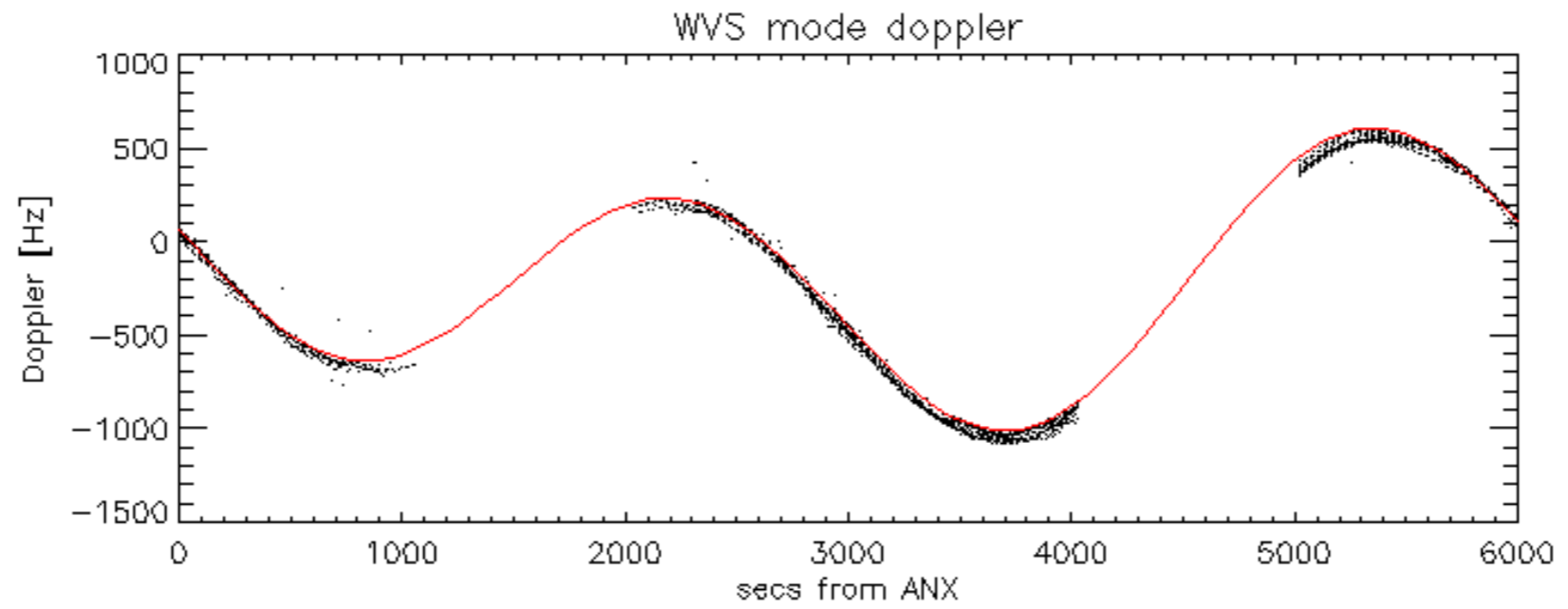


Doppler 'WVS' 'IS2' descending

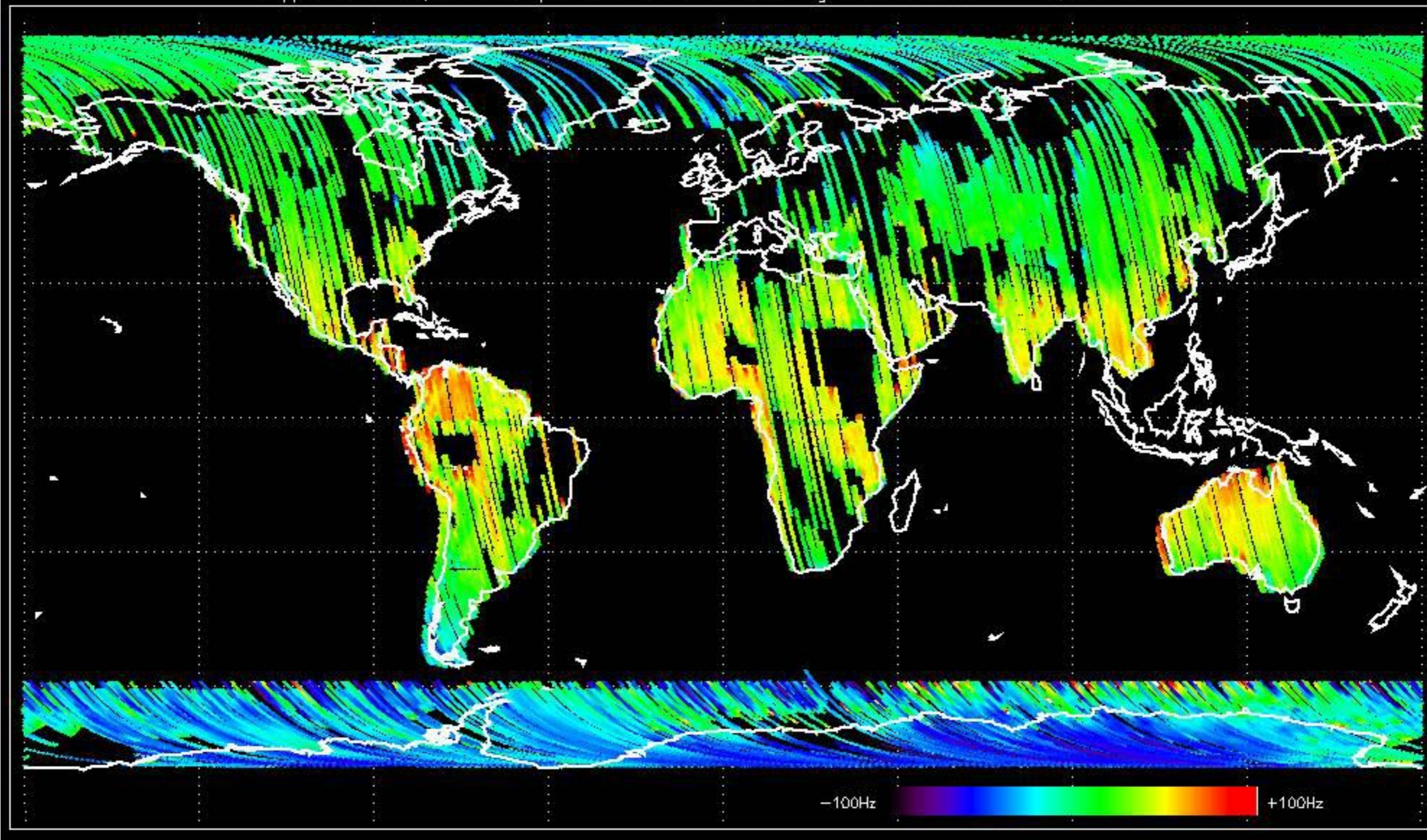


GM1 mode doppler

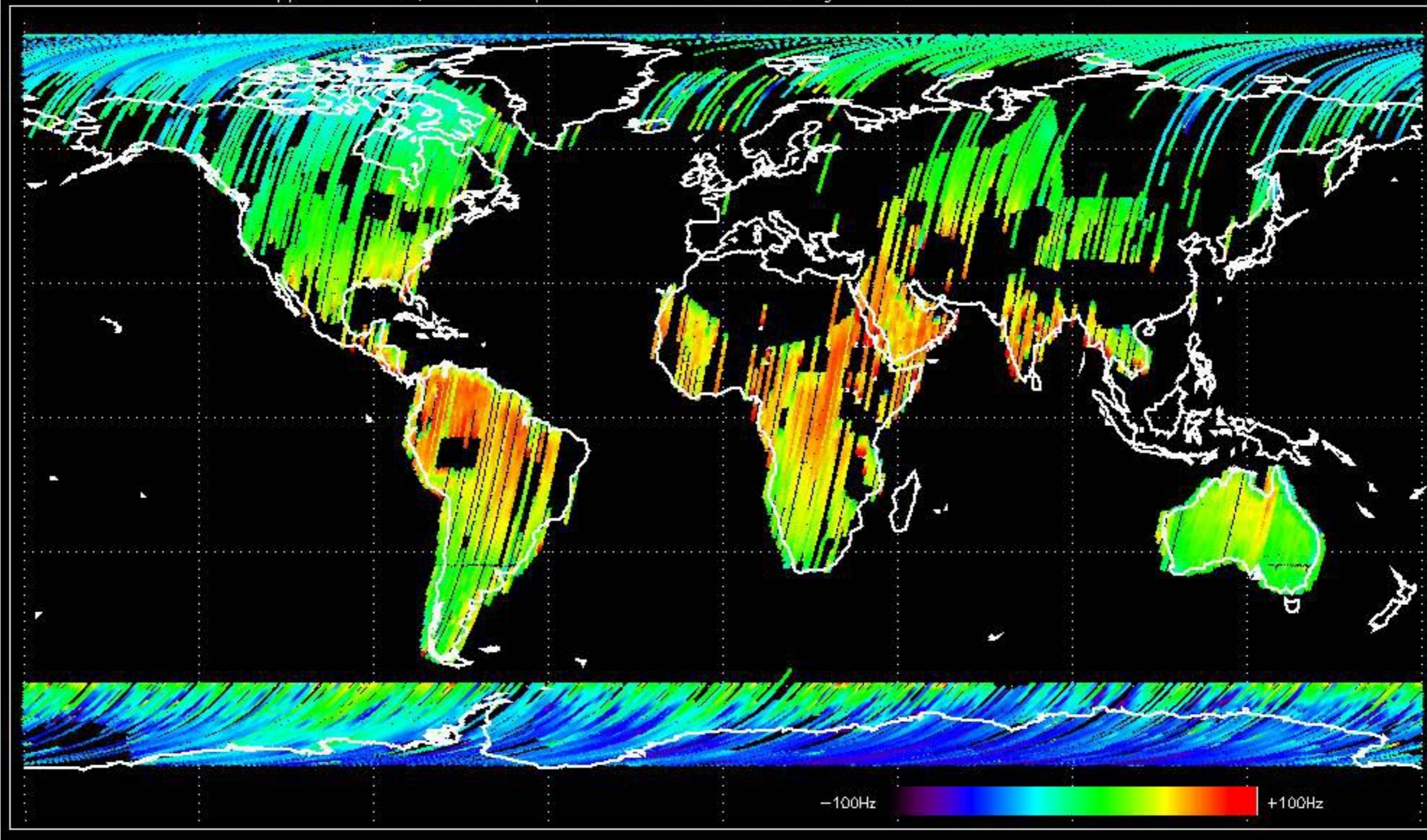




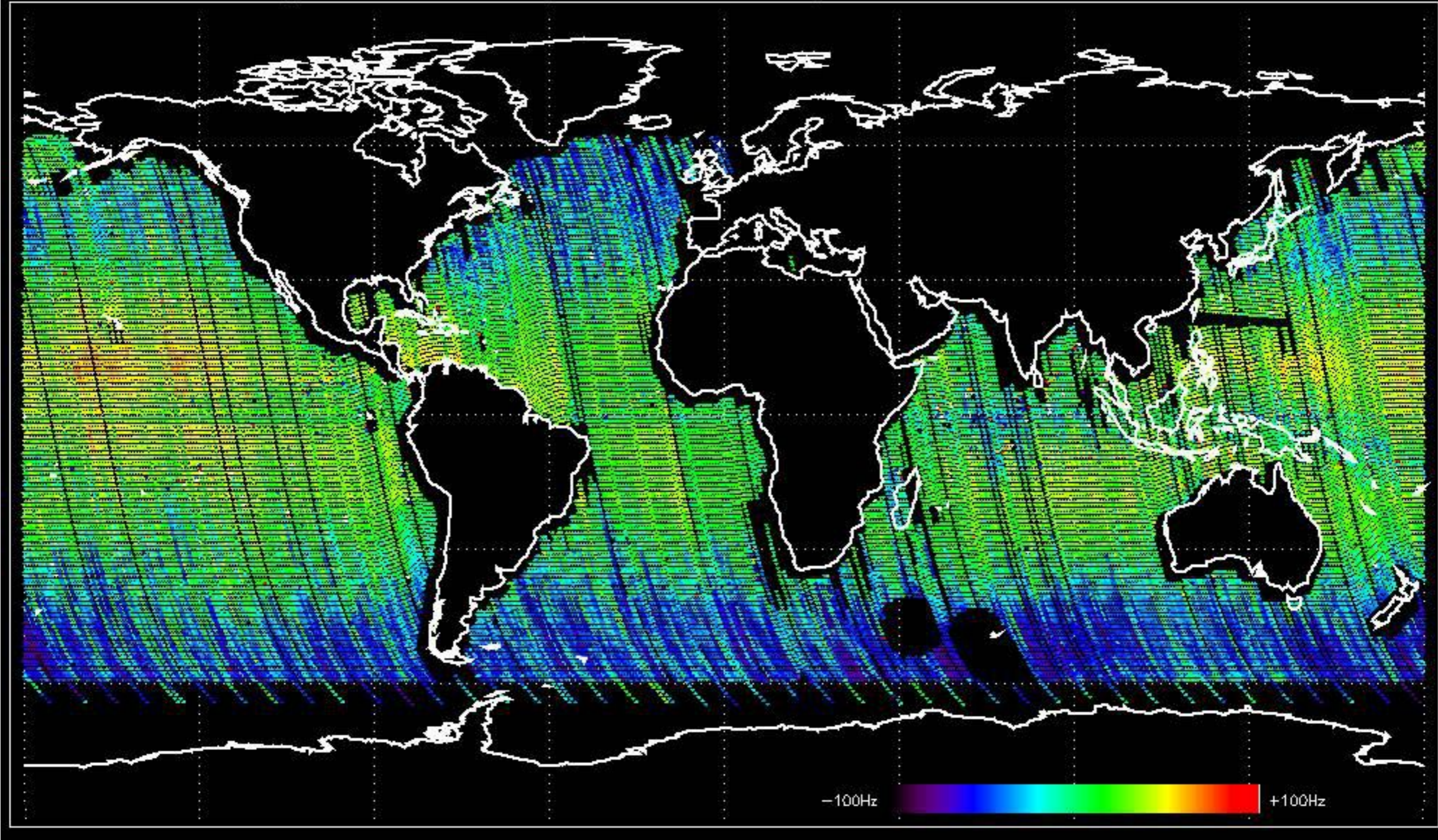
Doppler difference, estimated-predicted 'GM1' 'SS1' ascending -error mean of -38.878568 Hz



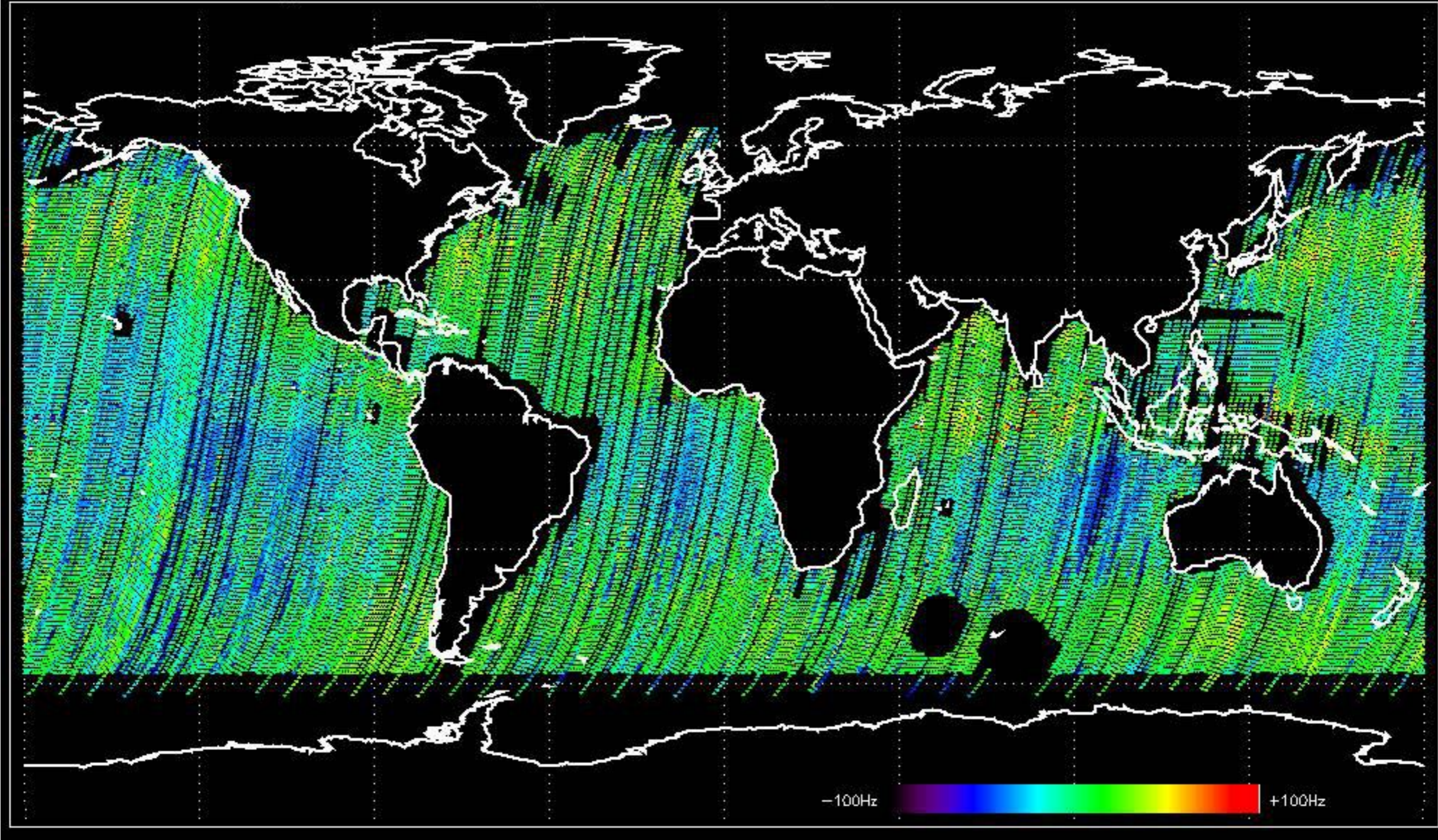
Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -30.624575 Hz



Doppler difference, estimated-predicted 'WVS' 'IS2' ascending -error mean of -33.179729 Hz

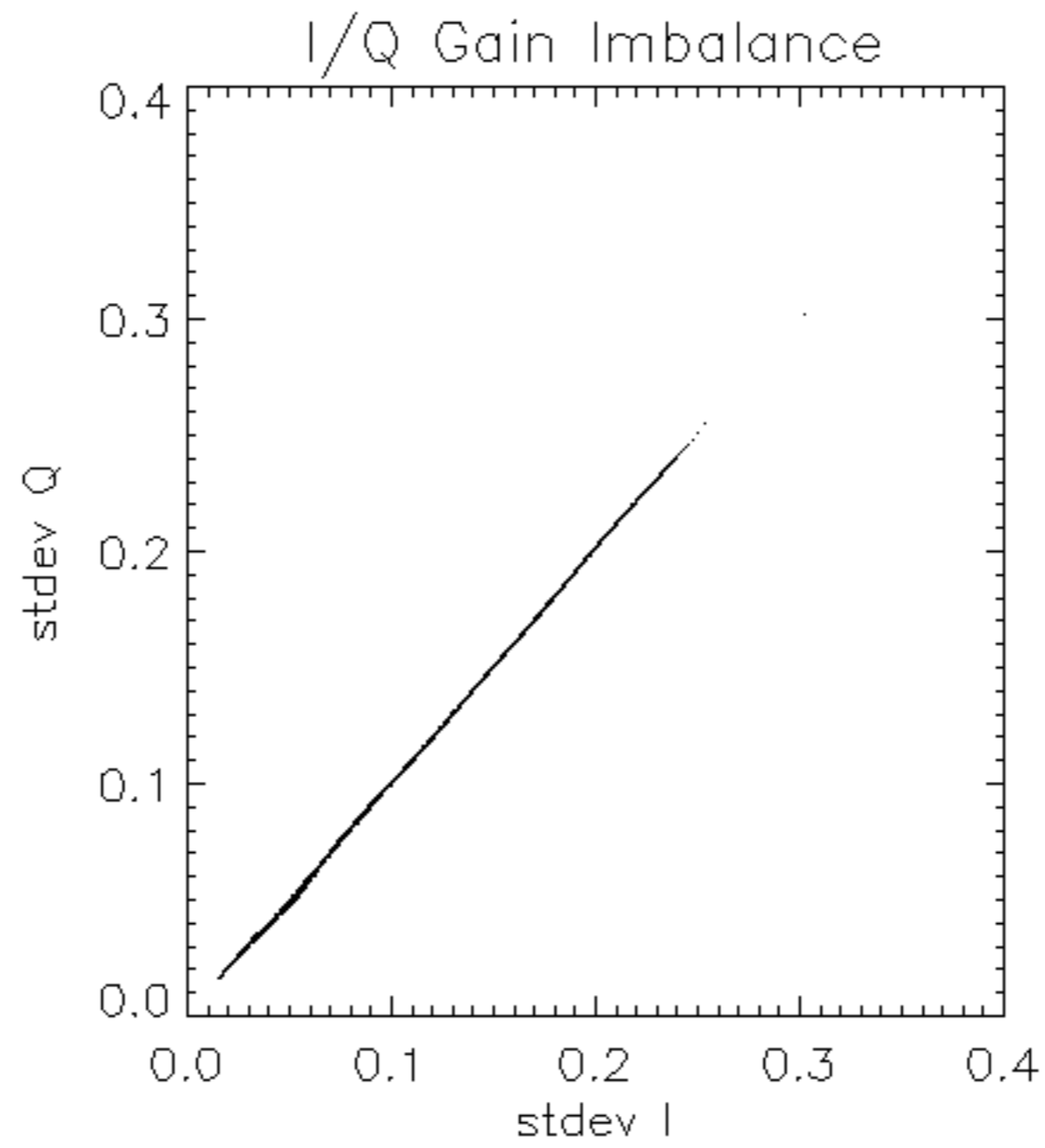


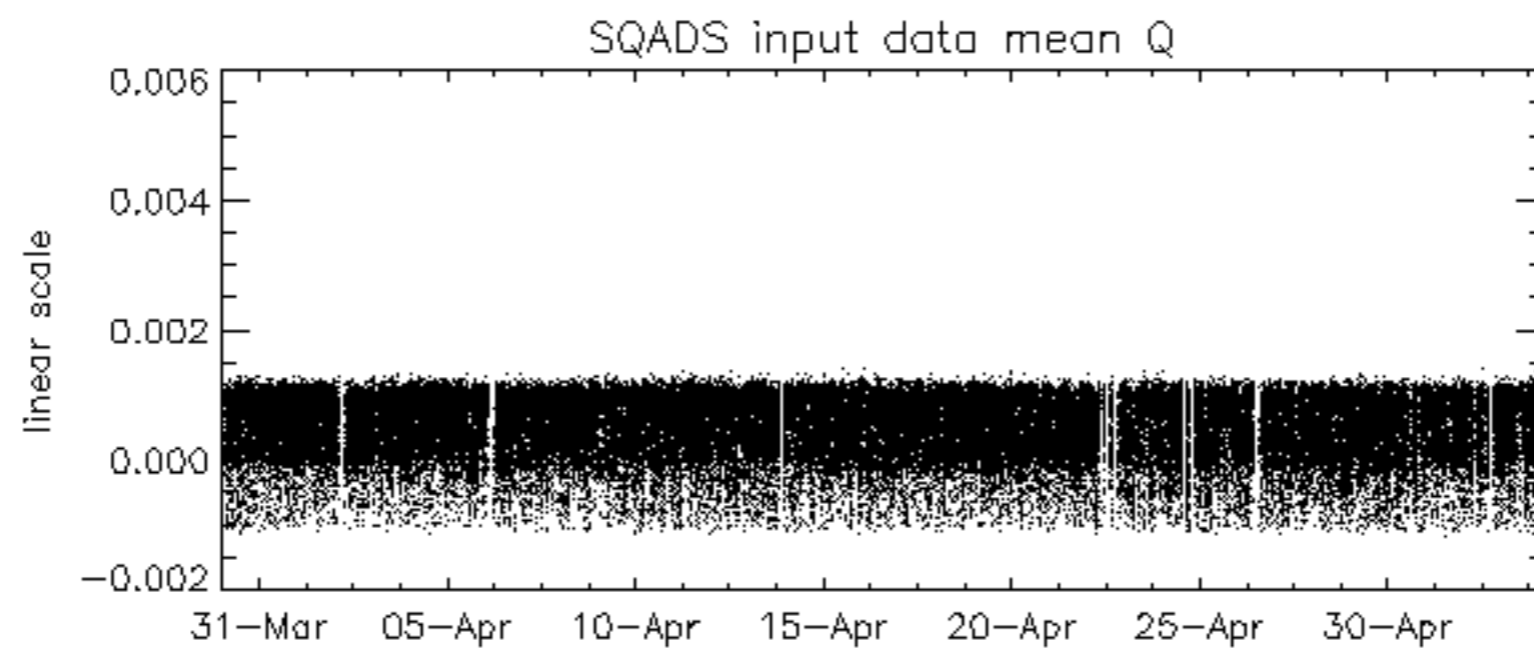
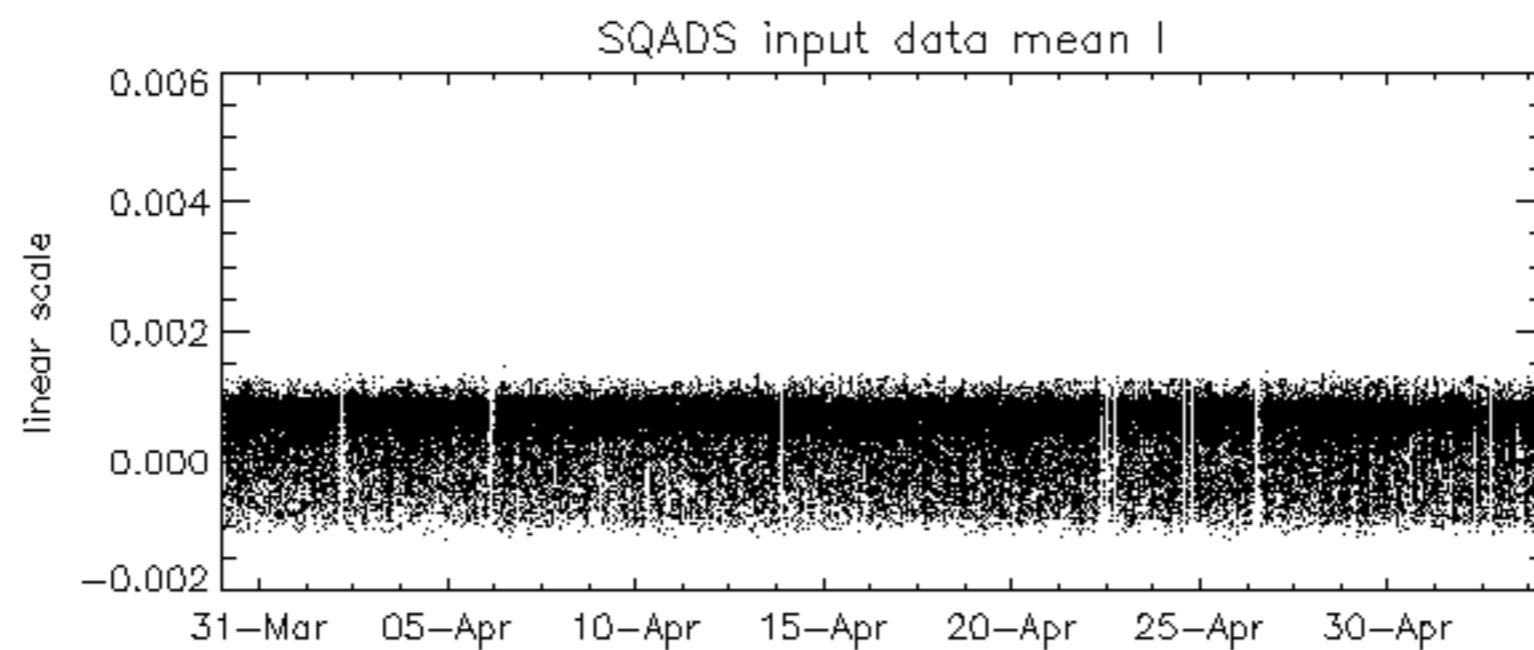
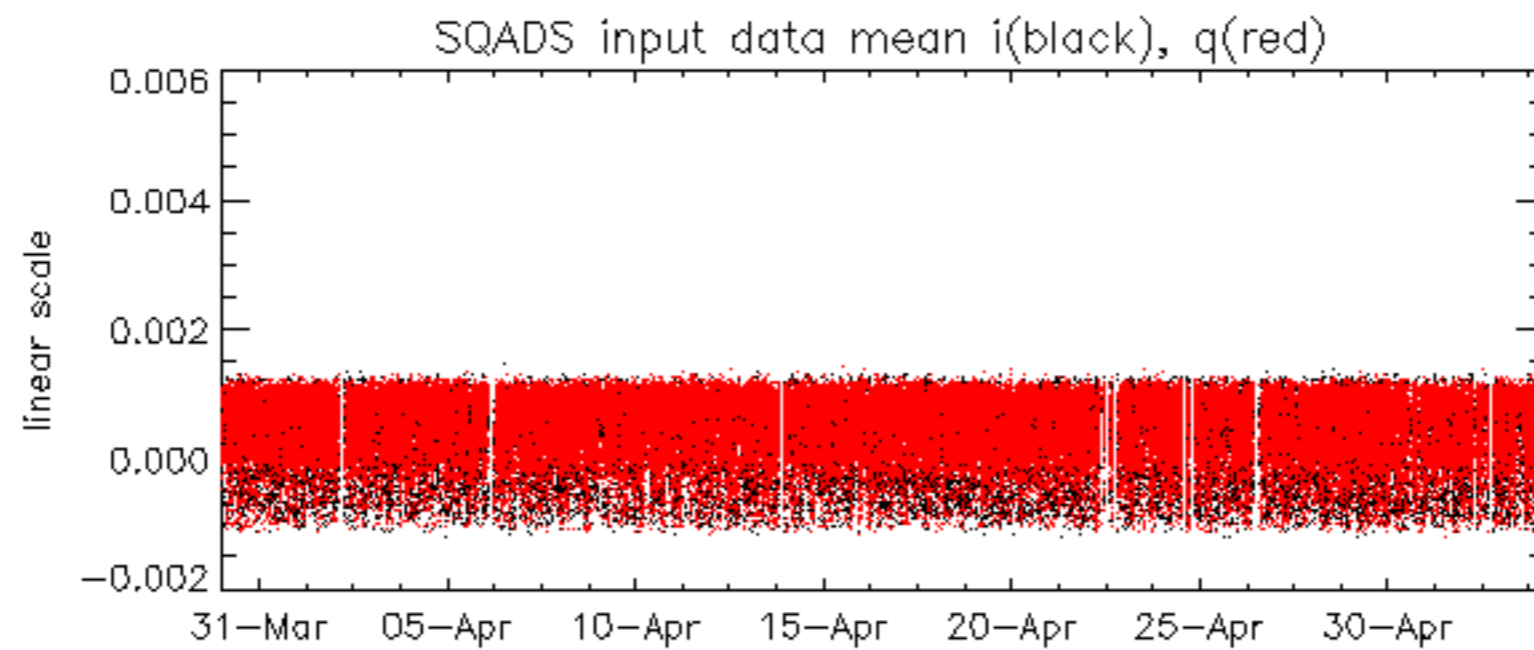
Doppler difference, estimated-predicted 'WVS' 'IS2' descending -error mean of -36.357722 Hz

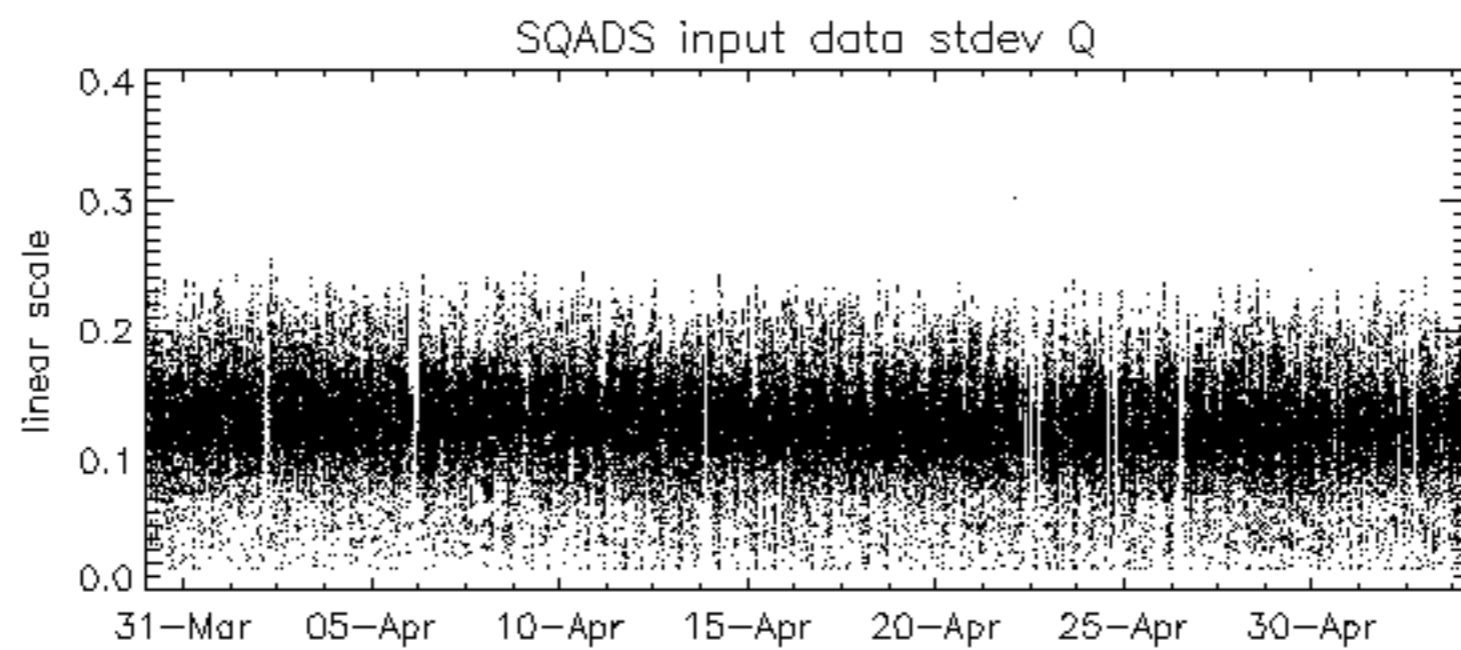
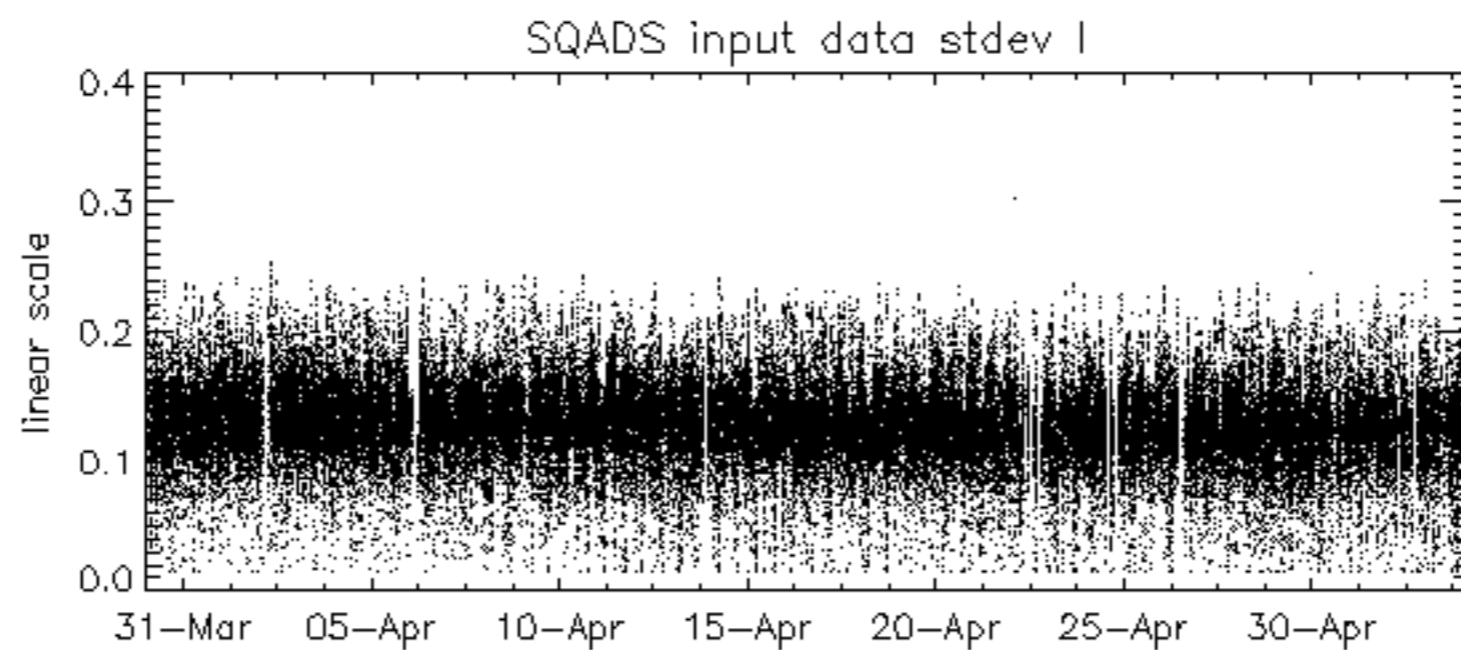
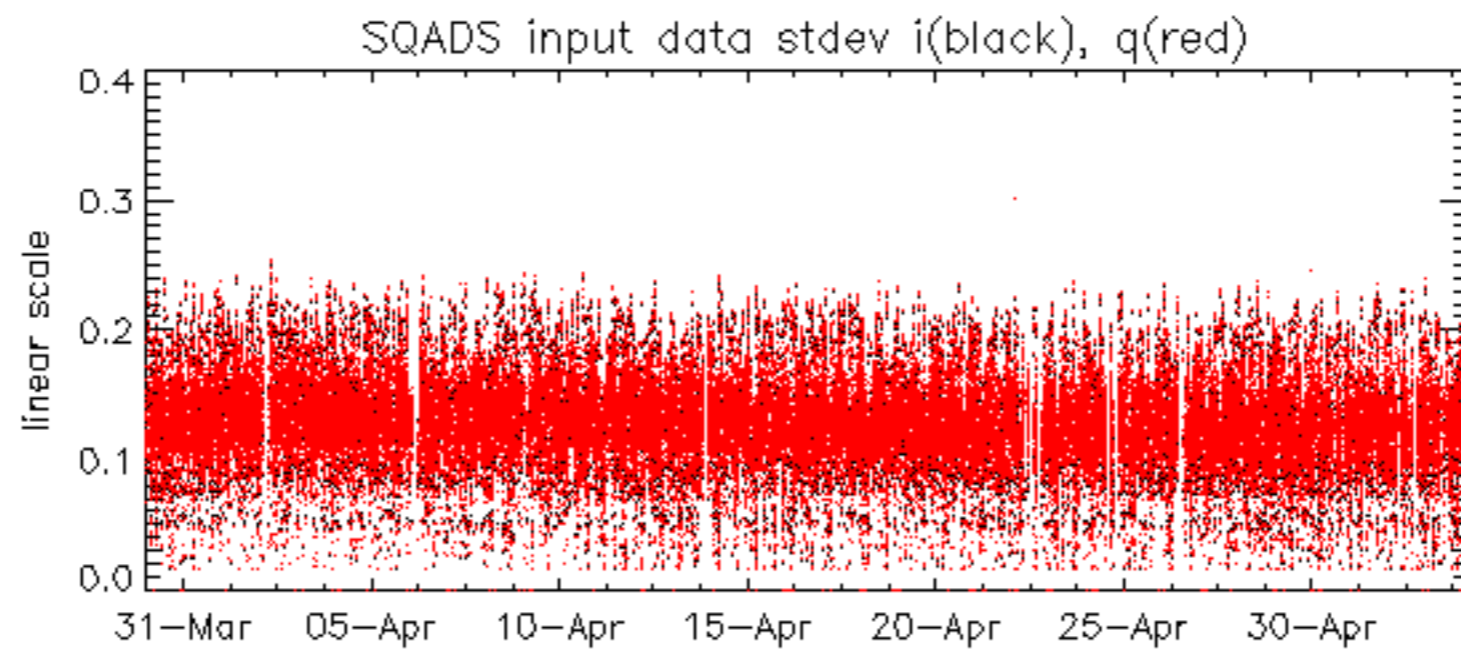


No anomalies observed on available MS products:

No anomalies observed.



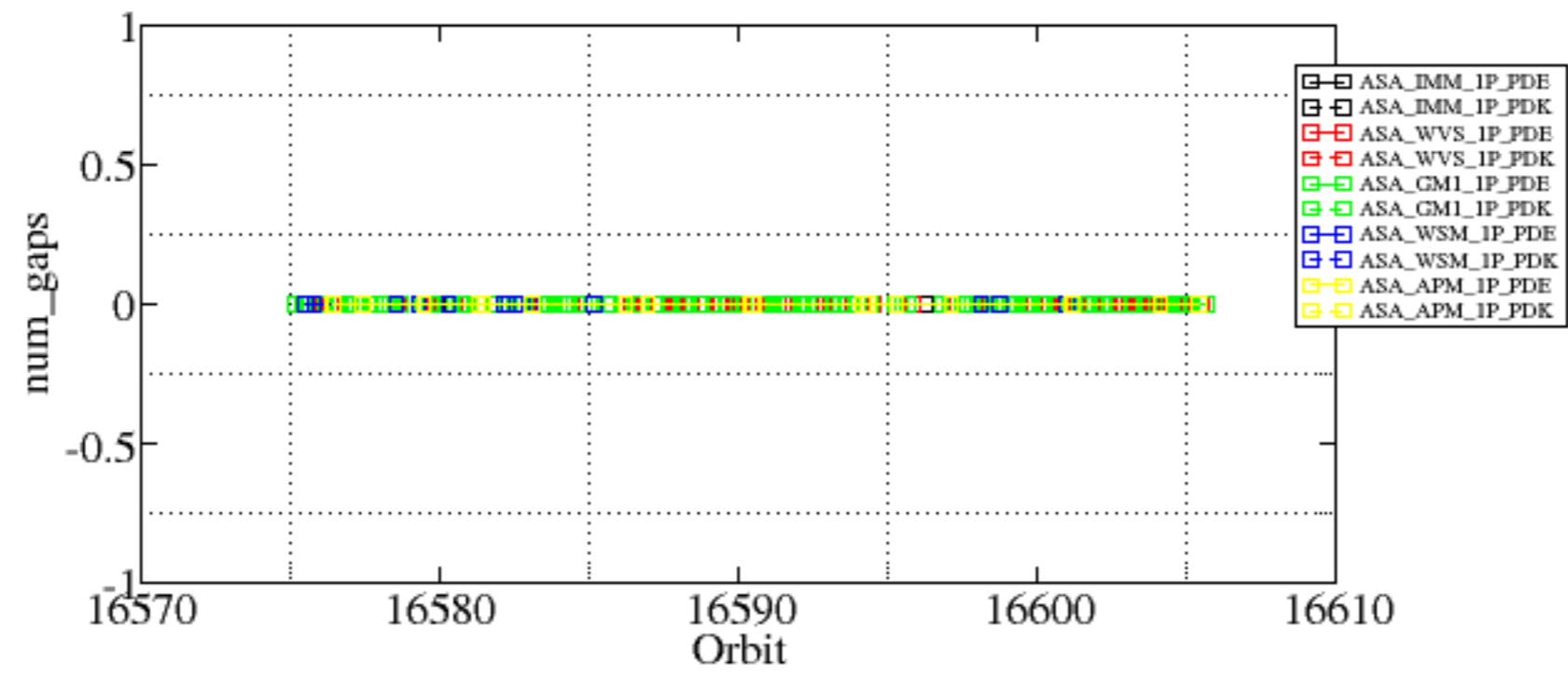


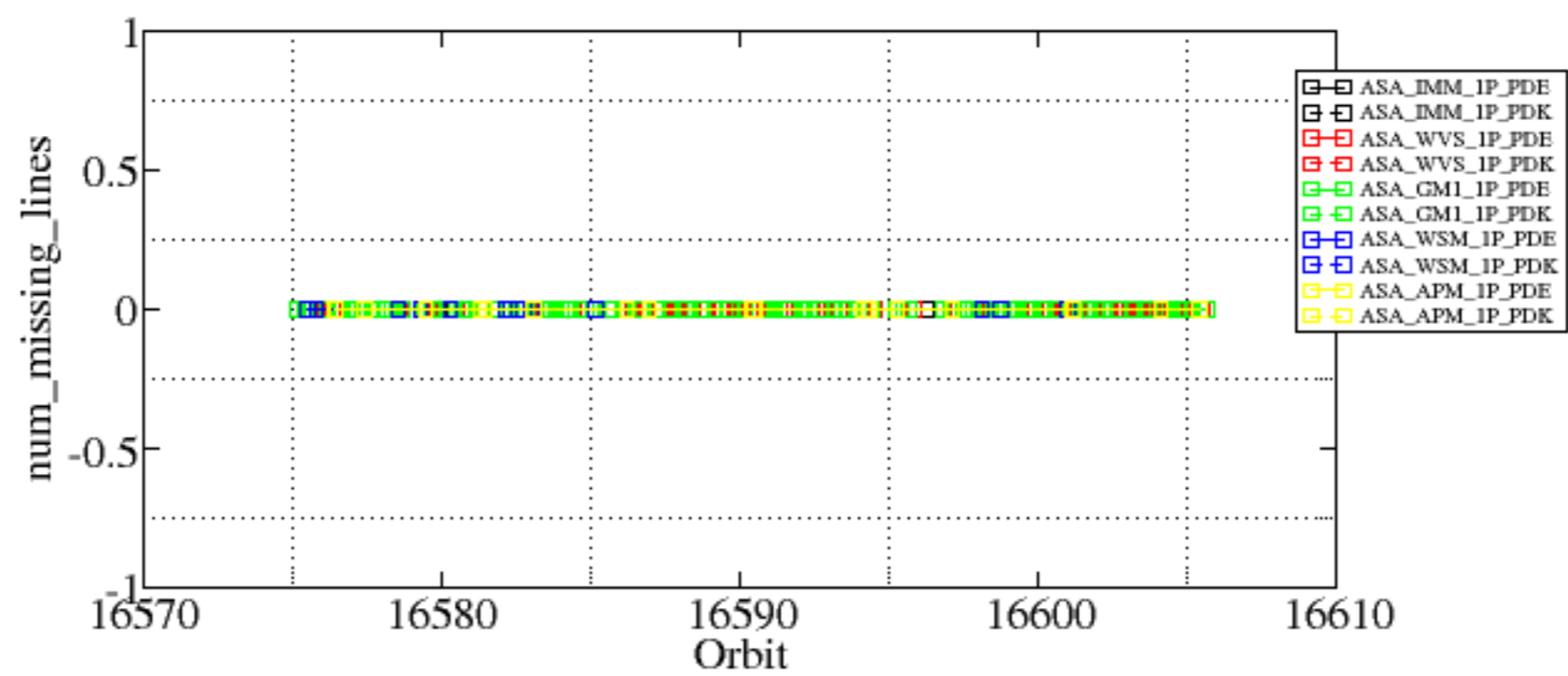


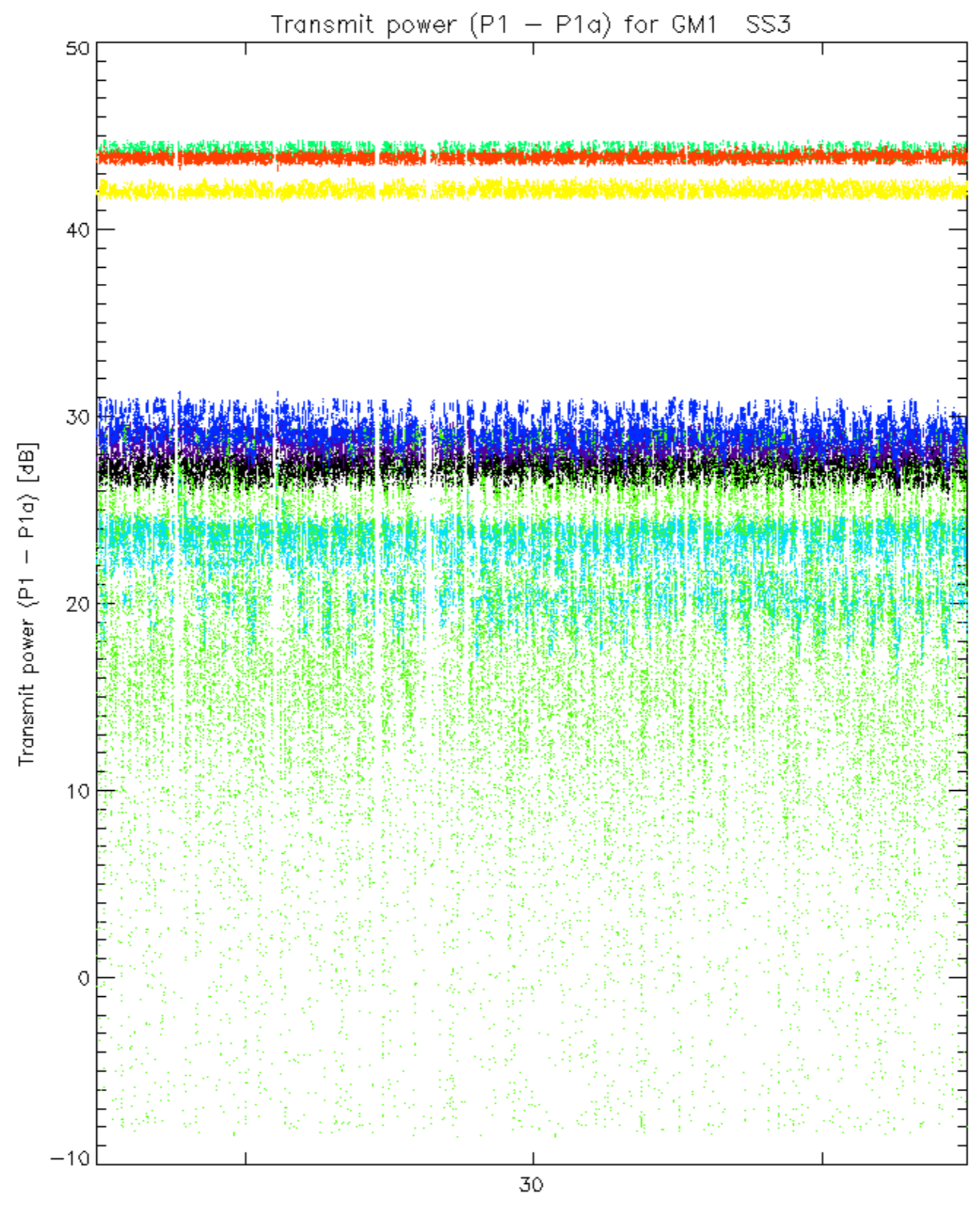
Summary of analysis for the last 3 days 2005050[234]

The assumption is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems

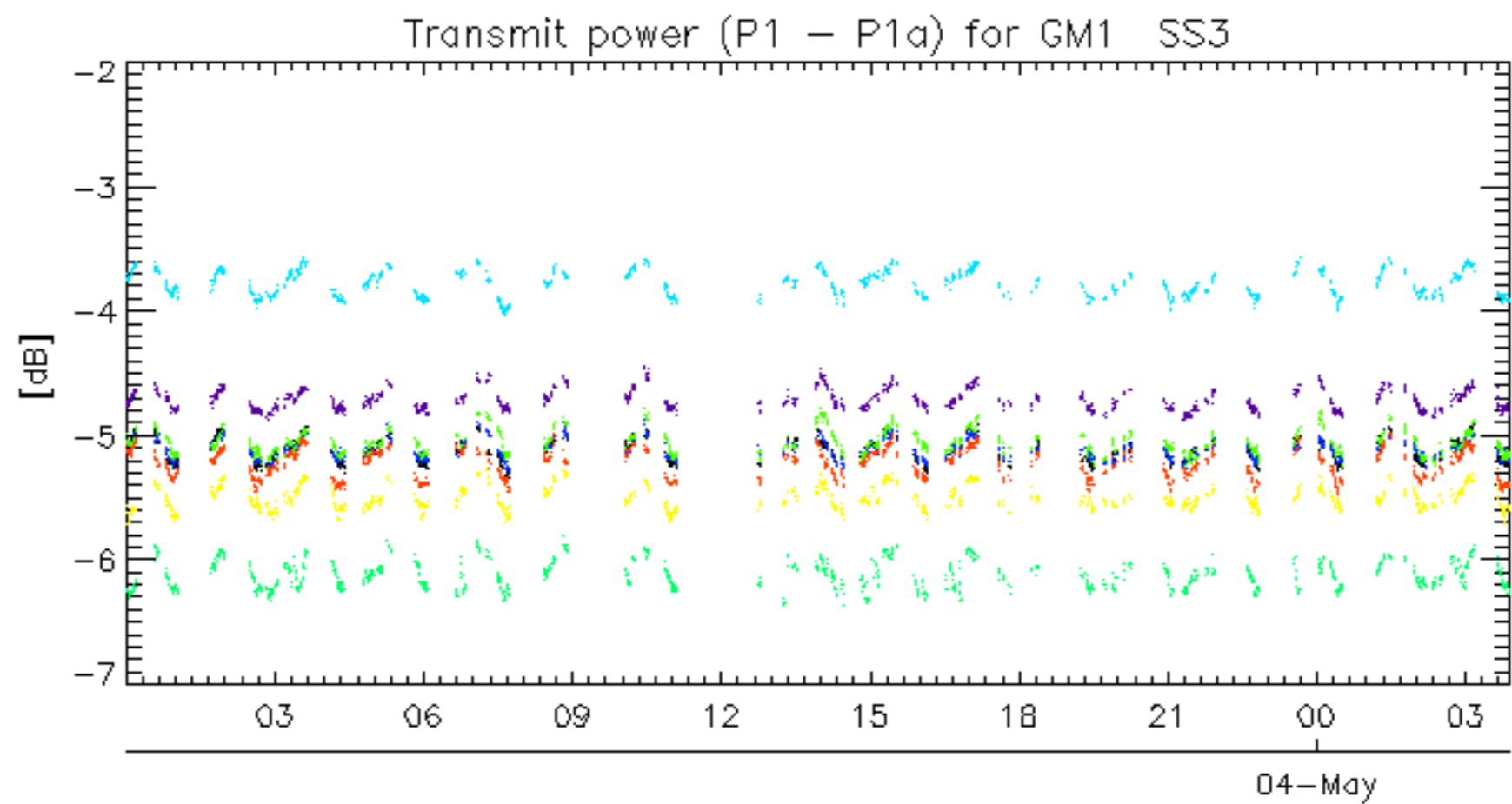
| Filename | num_gaps | num_missing_lines |
|----------|----------|-------------------|
|----------|----------|-------------------|



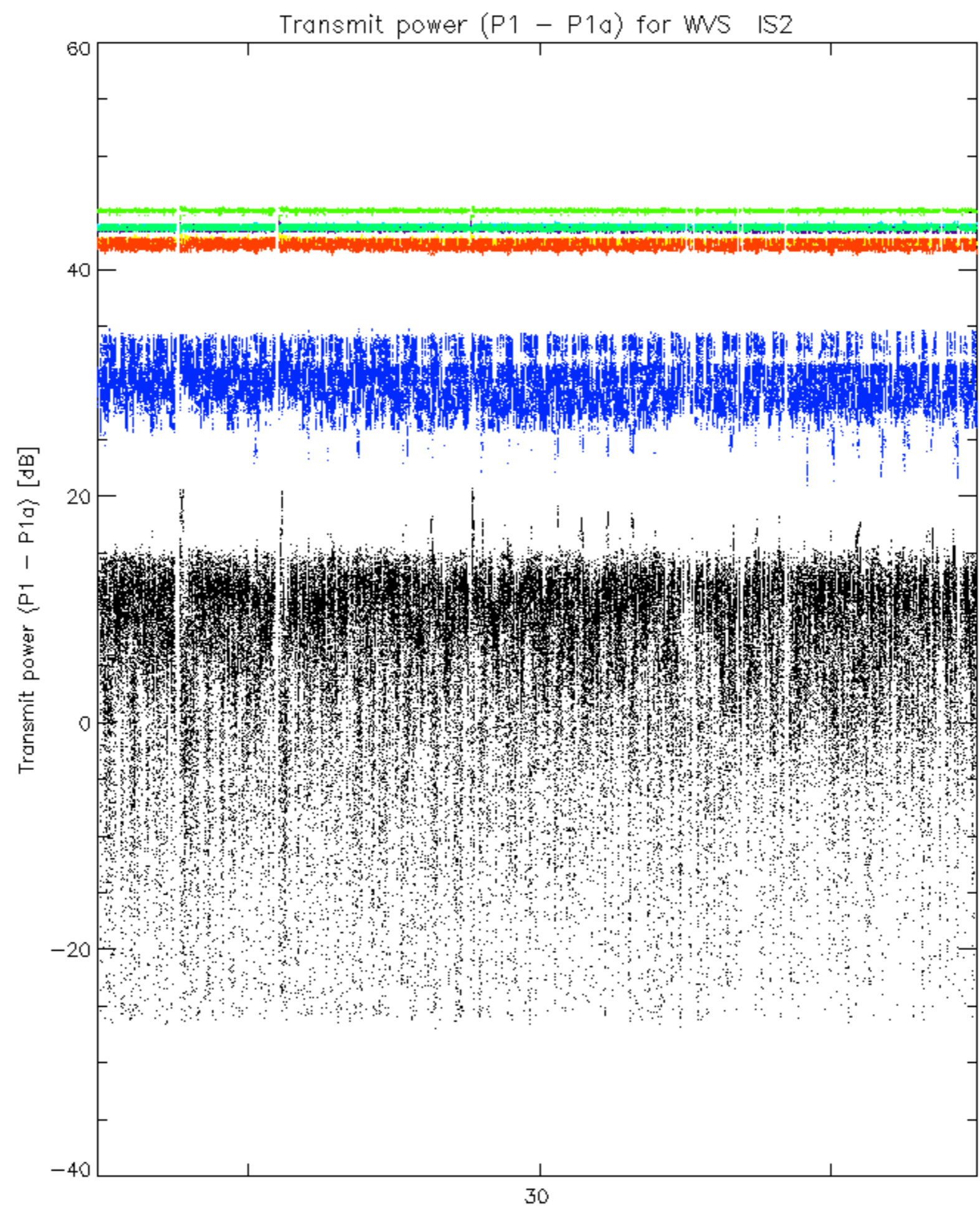


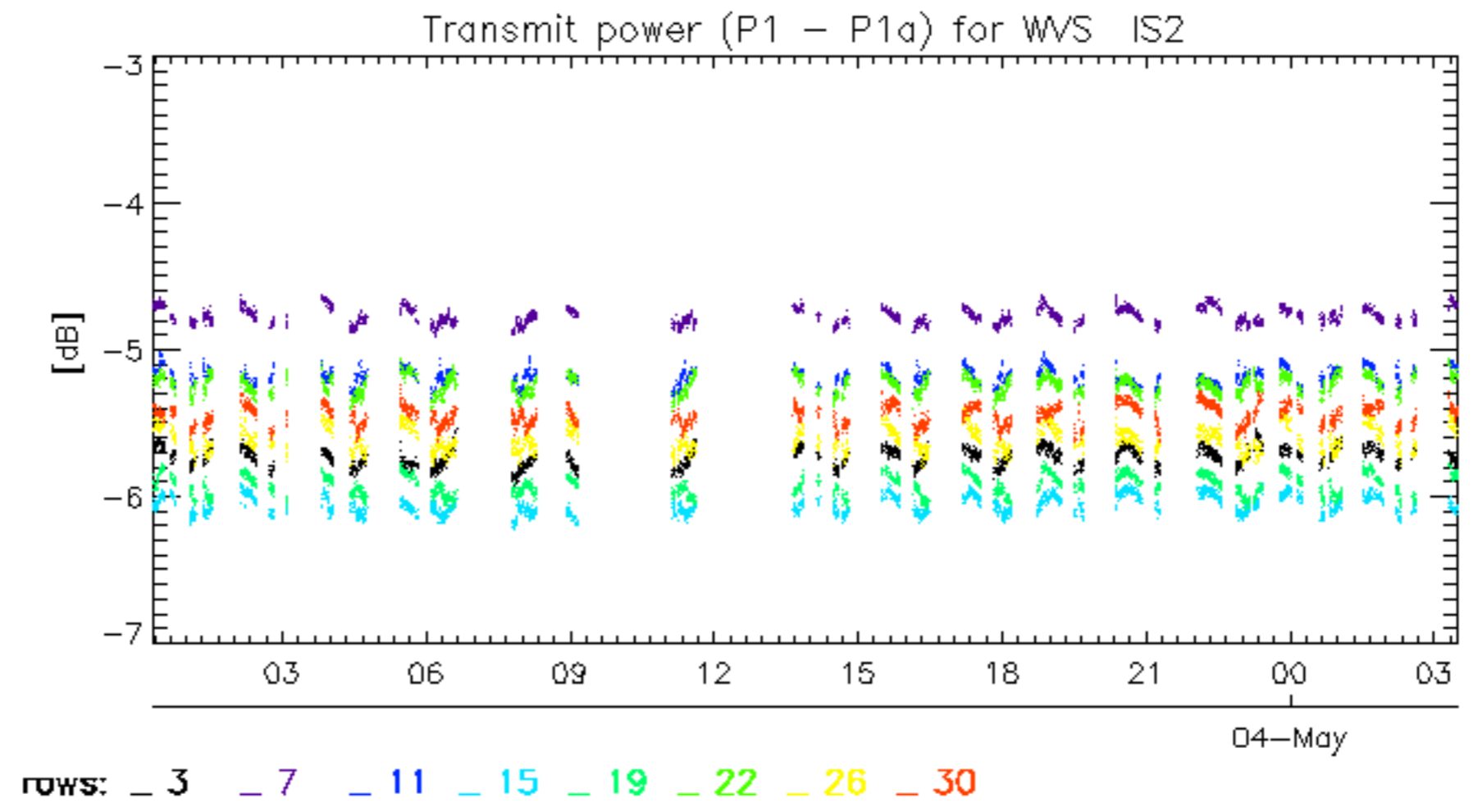


rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30



rows: **- 3** **- 7** **- 11** **- 15** **- 19** **- 22** **- 26** **- 30**





No unavailabilities during the reported period.