

# PRELIMINARY REPORT OF 050318

last update on Fri Mar 18 10:50:02 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. [TLM analysis](#)
7. [Wave Doppler 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

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 2005-03-17 00:00:00 to 2005-03-18 10:50:02

|                |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|
| PDHS-K         |     |     |     |     |     |
| AUXILIARY FILE | WVS | GM1 | IMM | APM | WSM |

|   |    |    |   |   |   |
|---|----|----|---|---|---|
| ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000 | 15 | 26 | 2 | 2 | 0 |
| ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000 | 15 | 26 | 2 | 2 | 0 |
| ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000 | 15 | 26 | 2 | 2 | 0 |
| ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000 | 15 | 26 | 2 | 2 | 0 |

| PDHS-E  |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
| AUXILIARY FILE  | WVS | GM1 | IMM | APM | WSM |
| ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000 | 32  | 34  | 2   | 3   | 0   |
| ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000 | 32  | 34  | 2   | 3   | 0   |
| ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000 | 32  | 34  | 2   | 3   | 0   |
| ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000 | 32  | 34  | 2   | 3   | 0   |

## 2.3 - Browse Visual Inspection

## 2.4 - 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            | 20050318 063525 |
| H            | 20050314 015929 |

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

**4 - Internal calibration Results**

No anomalies observed.

**4.1 - Daily statistics**

**4.1.1 - Evolution for WVS**

| Evolution of cal pulses for WVS |
|---------------------------------|
| <input type="checkbox"/>        |
| <input type="checkbox"/>        |

**4.1.2 - Evolution for GM1**

| Evolution of cal pulses for GM1 |
|---------------------------------|
| <input type="checkbox"/>        |
| <input type="checkbox"/>        |

**4.2 - Cyclic statistics**

**4.2.1 - Evolution for WVS**

| Evolution of cal pulses for WVS |
|---------------------------------|
| <input type="checkbox"/>        |

**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    | -3.364329  | 0.007167   | 0.019328        |
| 7   | P1    | -3.094436  | 0.007862   | -0.021740       |
| 11  | P1    | -4.695686  | 0.022334   | 0.000714        |
| 15  | P1    | -5.657111  | 0.031112   | 0.018840        |
| 19  | P1    | -3.681057  | 0.003728   | -0.023682       |
| 22  | P1    | -4.518954  | 0.012577   | 0.001518        |
| 26  | P1    | -4.948008  | 0.016245   | 0.023178        |
| 30  | P1    | -7.190304  | 0.017848   | -0.018074       |
| 3   | P1    | -15.970856 | 0.060835   | 0.065558        |
| 7   | P1    | -15.524572 | 0.048453   | -0.045786       |
| 11  | P1    | -20.965141 | 0.274169   | -0.137026       |
| 15  | P1    | -11.576509 | 0.024051   | 0.041971        |
| 19  | P1    | -14.287168 | 0.023699   | -0.066419       |
| 22  | P1    | -15.659266 | 0.308376   | 0.110655        |
| 26  | P1    | -17.605156 | 0.221429   | 0.002602        |
| 30  | P1    | -17.959391 | 0.472433   | 0.026045        |

**P2 Cyclic statistics**

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P2    | -22.096228 | 0.083863   | 0.069296        |
| 7   | P2    | -22.286694 | 0.095999   | 0.079761        |
| 11  | P2    | -14.438462 | 0.105452   | 0.214303        |
| 15  | P2    | -7.045830  | 0.092473   | 0.028059        |
| 19  | P2    | -9.639197  | 0.092977   | 0.032769        |
| 22  | P2    | -16.925272 | 0.093458   | 0.066882        |
| 26  | P2    | -16.447647 | 0.092055   | 0.023543        |
| 30  | P2    | -18.869122 | 0.082077   | 0.064426        |

**P3 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P3    | -8.166730 | 0.005117   | 0.007869        |
| 7   | P3    | -8.166730 | 0.005117   | 0.007869        |
| 11  | P3    | -8.166730 | 0.005117   | 0.007869        |
| 15  | P3    | -8.166730 | 0.005117   | 0.007869        |
| 19  | P3    | -8.166730 | 0.005117   | 0.007869        |
| 22  | P3    | -8.166730 | 0.005117   | 0.007869        |
| 26  | P3    | -8.166730 | 0.005117   | 0.007869        |
| 30  | P3    | -8.166730 | 0.005117   | 0.007869        |

#### 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    | -2.730628  | 0.011034   | 0.017795        |
| 7   | P1    | -3.025582  | 0.033329   | -0.051897       |
| 11  | P1    | -3.992416  | 0.014386   | -0.020806       |
| 15  | P1    | -3.572254  | 0.015996   | -0.012874       |
| 19  | P1    | -3.591788  | 0.013154   | -0.020087       |
| 22  | P1    | -5.746901  | 0.035908   | -0.002168       |
| 26  | P1    | -7.291200  | 0.025116   | -0.007486       |
| 30  | P1    | -6.230721  | 0.042304   | -0.010784       |
| 3   | P1    | -10.749000 | 0.053120   | 0.010701        |
| 7   | P1    | -10.325948 | 0.144409   | -0.134021       |
| 11  | P1    | -12.565456 | 0.091525   | 0.043795        |
| 15  | P1    | -11.764277 | 0.067081   | -0.012291       |
| 19  | P1    | -15.567085 | 0.043024   | 0.016972        |
| 22  | P1    | -24.473150 | 1.149706   | -0.251115       |
| 26  | P1    | -15.486194 | 0.160945   | 0.023825        |
| 30  | P1    | -20.204779 | 1.120571   | 0.043447        |

### P2 Cyclic statistics

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P2    | -17.808277 | 0.031599   | 0.074793        |
| 7   | P2    | -22.374691 | 0.036266   | 0.085716        |
| 11  | P2    | -10.201454 | 0.047536   | 0.168879        |
| 15  | P2    | -4.980820  | 0.020456   | 0.002956        |
| 19  | P2    | -6.832719  | 0.029919   | 0.004794        |
| 22  | P2    | -7.106204  | 0.029354   | 0.065435        |
| 26  | P2    | -23.853540 | 0.025980   | 0.014766        |
| 30  | P2    | -21.904152 | 0.031372   | 0.040176        |

### P3 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P3    | -8.000476 | 0.002633   | 0.006195        |
| 7   | P3    | -8.000405 | 0.002643   | 0.006162        |
| 11  | P3    | -8.000431 | 0.002653   | 0.006121        |
| 15  | P3    | -8.000538 | 0.002647   | 0.006489        |
| 19  | P3    | -8.000439 | 0.002652   | 0.006011        |
| 22  | P3    | -8.000409 | 0.002635   | 0.005965        |
| 26  | P3    | -8.000440 | 0.002640   | 0.006070        |
| 30  | P3    | -8.000429 | 0.002654   | 0.006773        |

## 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  | 0.000459894 |
|         | stdev | 2.22843e-07 |
| MEAN Q  | mean  | 0.000498919 |
|         | stdev | 2.33088e-07 |



### 5.2 - Input stdev I/Q

| channel | stat  | DSS-B      |
|---------|-------|------------|
| STDEV I | mean  | 0.128567   |
|         | stdev | 0.00102640 |
| STDEV Q | mean  | 0.128815   |
|         | stdev | 0.00103758 |



### 5.3 - Gain imbalance I/Q



## 6 - Telemetry analysis

Summary of analysis for the last 3 days 2005031[678]

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 |
|--|----------|-------------------|
| ASA_WSM_1PNPDE20050316_021732_000001282035_00318_15903_1197.N1 | 0        | 39                |



## 7 - Doppler Analysis

Preliminary report. The data is not yet controlled

### 7.1 - Unbiased Doppler Error for WVS

| Evolution of unbiased Doppler error (Real - Expected) |            |
|---|------------|
| <input type="checkbox"/>                              |            |
|   | Ascending  |
| <input type="checkbox"/>                              |            |
|   | Descending |

### 7.2 - Absolute Doppler for WVS

| Evolution of Absolute Doppler |            |
|-------------------------------|------------|
| <input type="checkbox"/>      |            |
|                               | Ascending  |
| <input type="checkbox"/>      |            |
|                               | Descending |

### 7.3 - Doppler evolution versus ANX for WVS

| Evolution Doppler error versus ANX |  |
|------------------------------------|--|
| <input type="checkbox"/>           |  |

### 7.4 - Unbiased Doppler Error for GM1

| Evolution of unbiased Doppler error (Real - Expected) |            |
|---|------------|
| <input type="checkbox"/>                              |            |
|   | Ascending  |
| <input type="checkbox"/>                              |            |
|   | Descending |



### 7.5 - Absolute Doppler for GM1

Evolution of Absolute Doppler

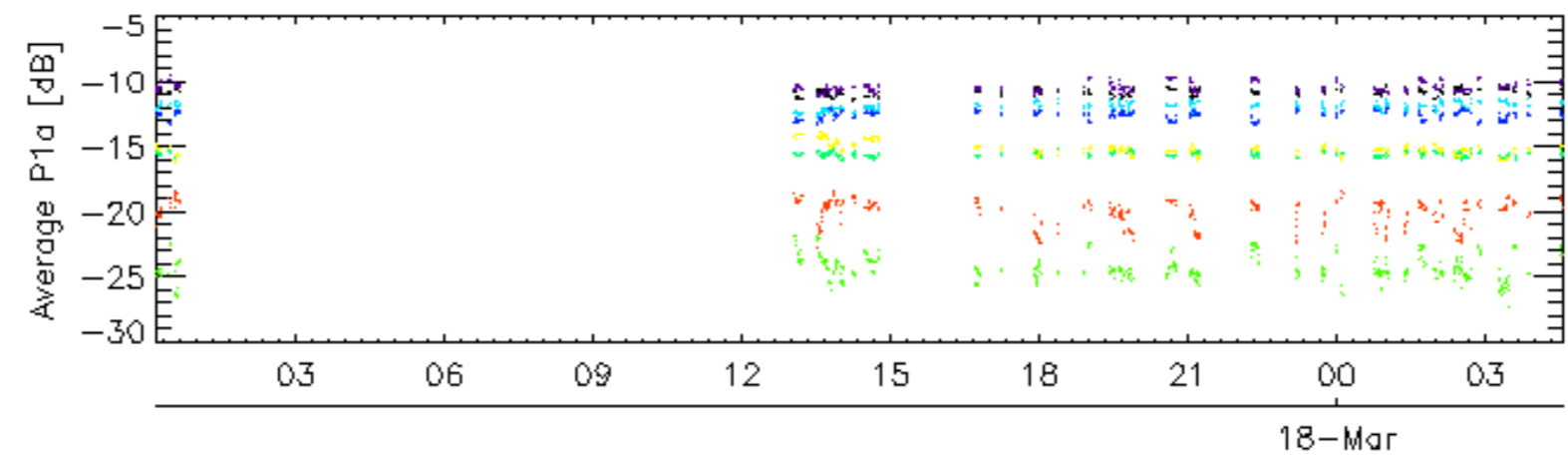
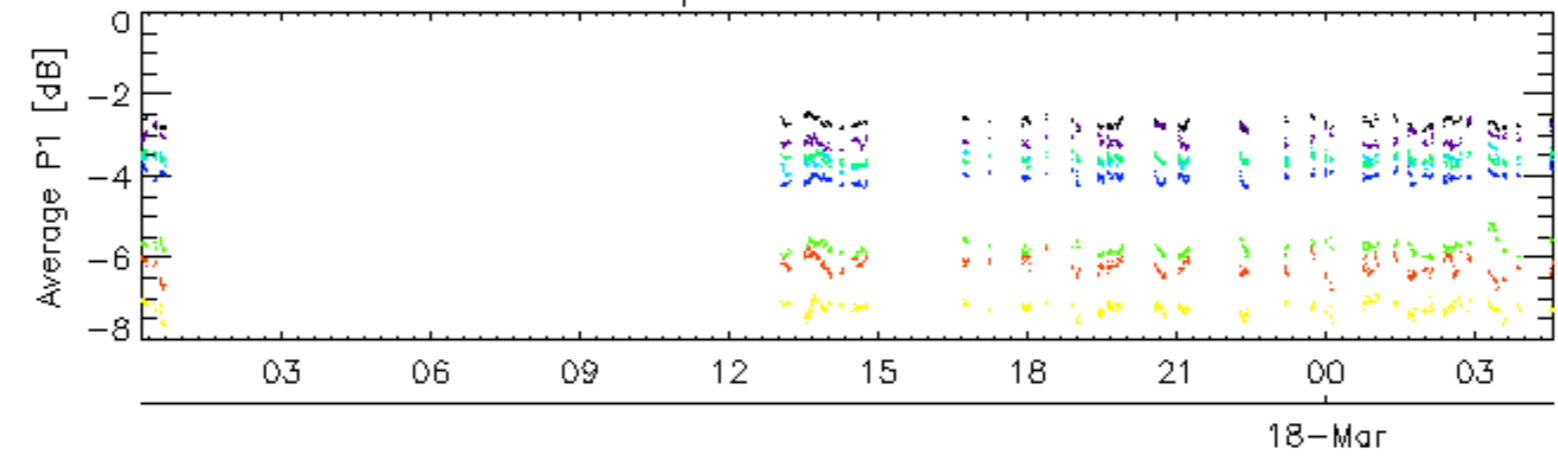
Ascending

Descending

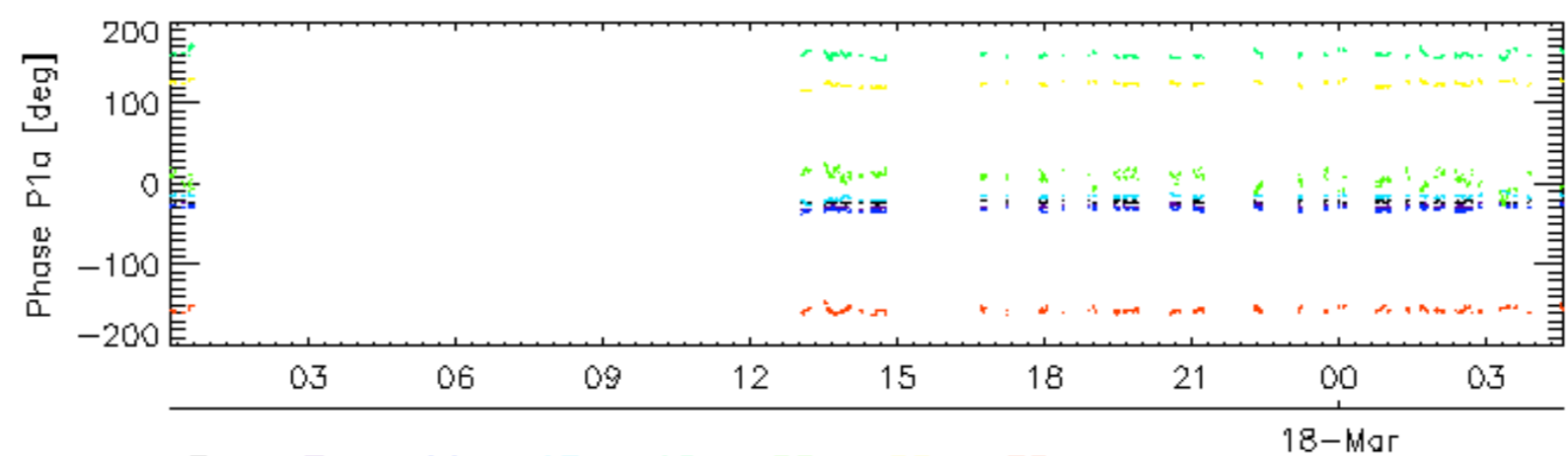
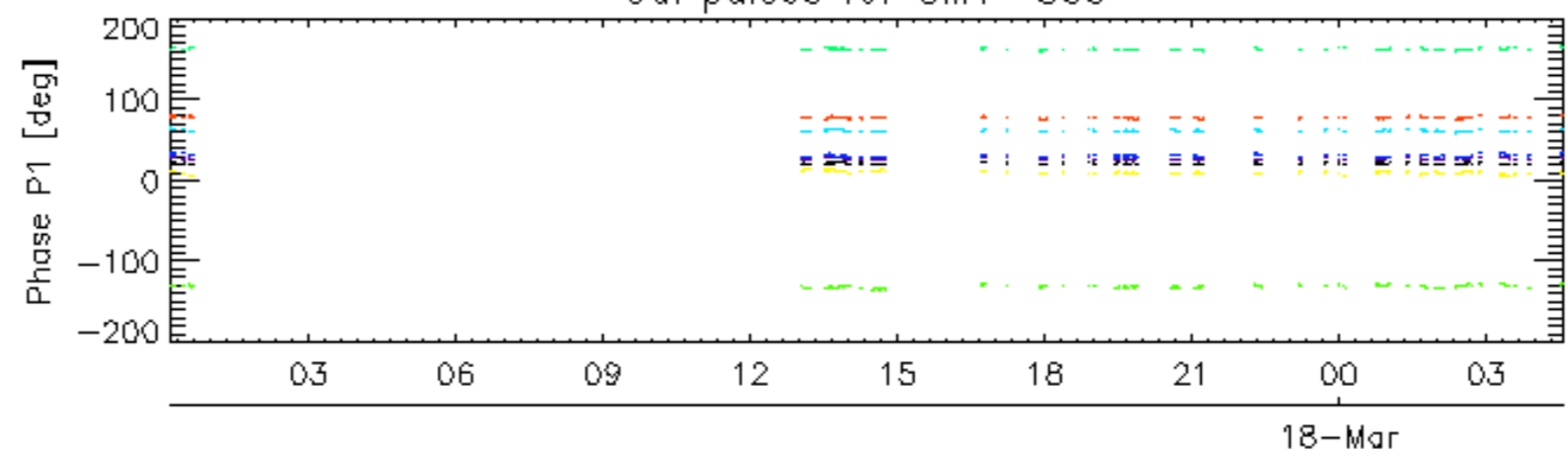
### 7.6 - Doppler evolution versus ANX for GM1

Evolution Doppler error versus ANX

Cal pulses for GM1 SS3

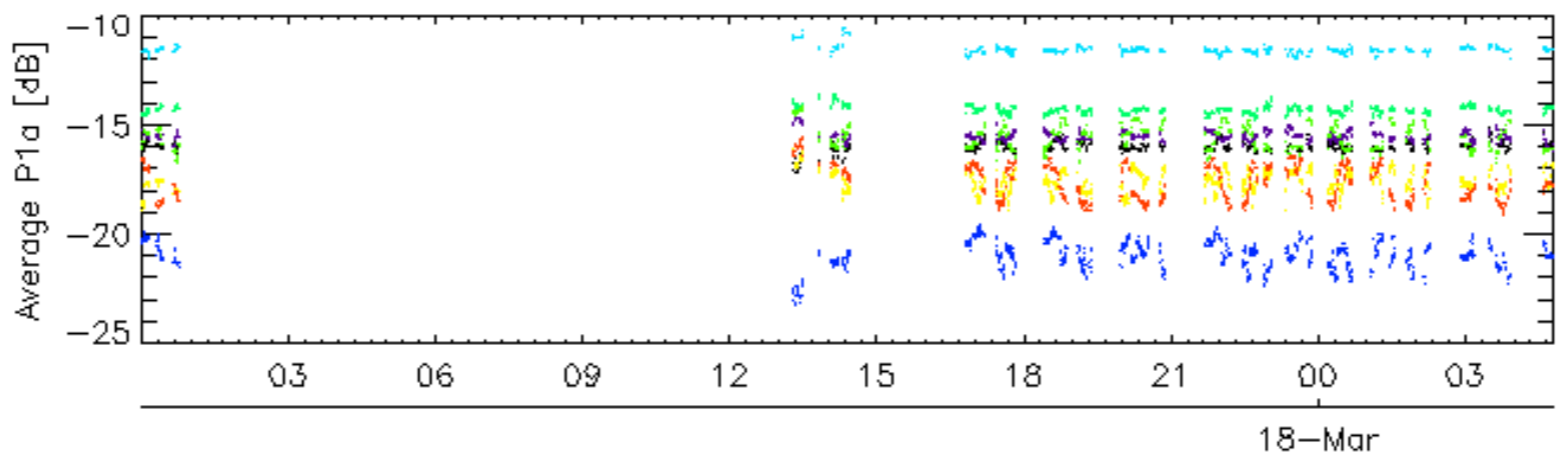
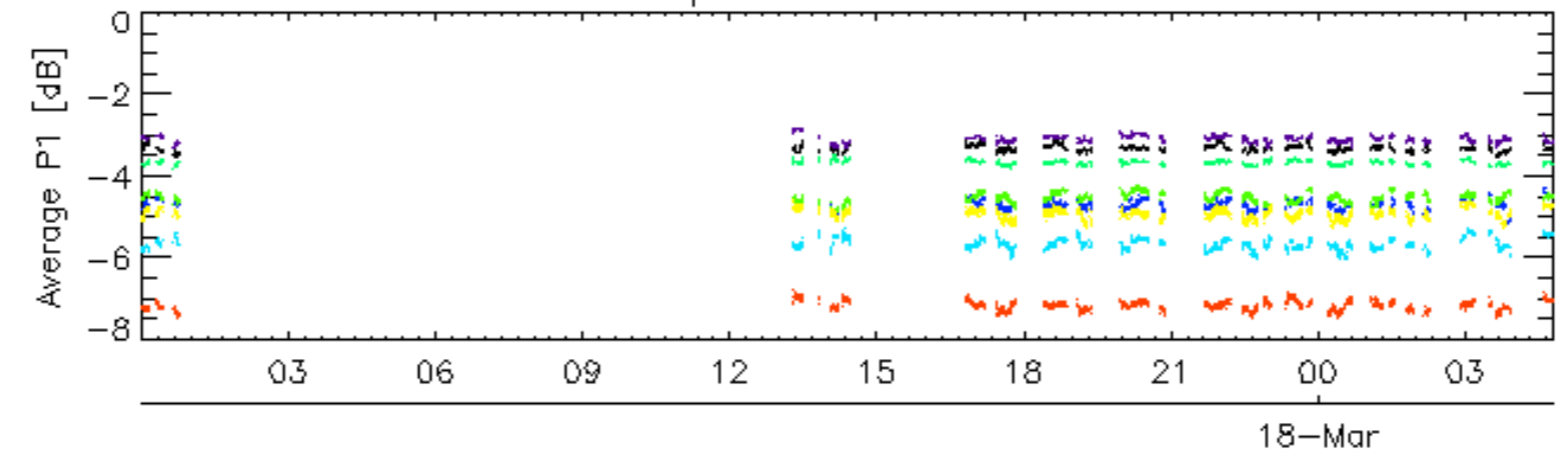


Cal pulses for GM1 SS3

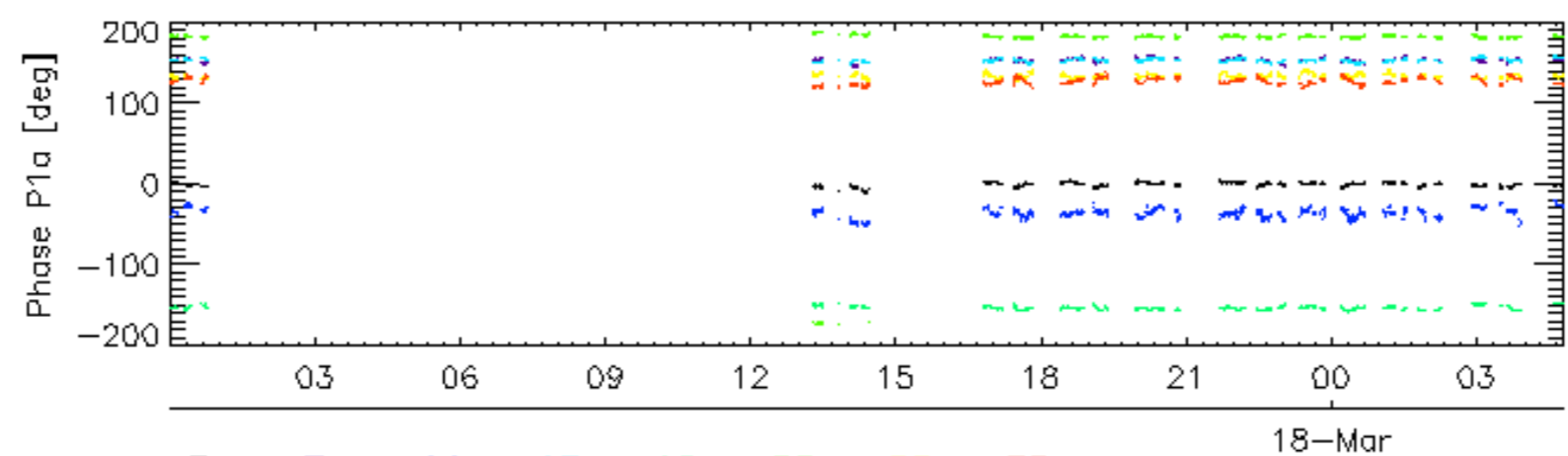
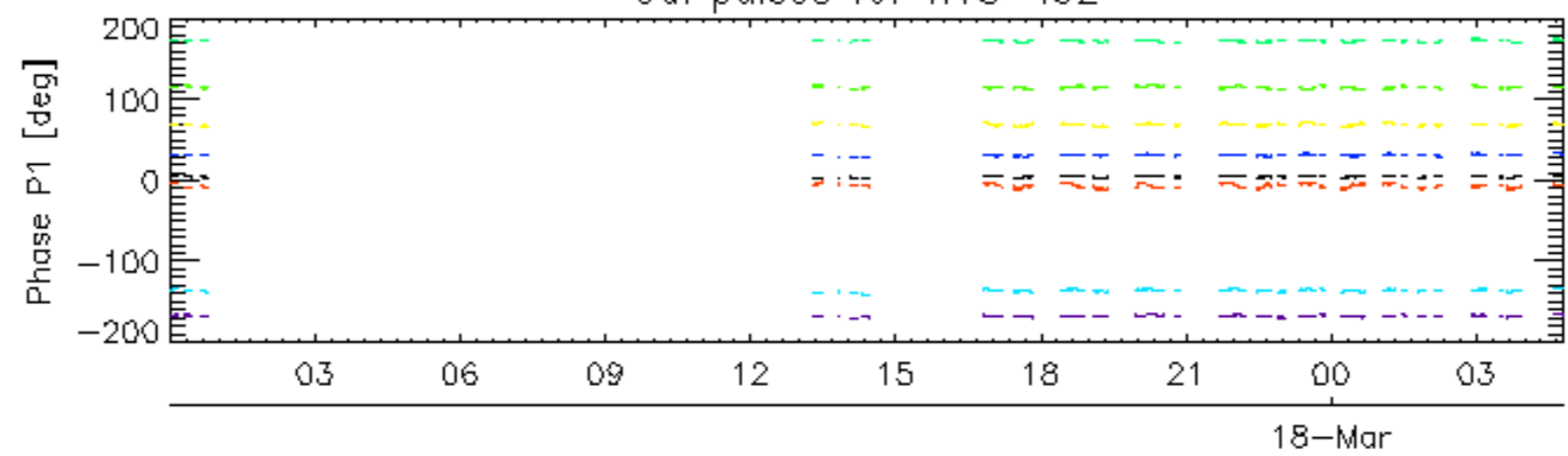


rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30

Cal pulses for WVS IS2

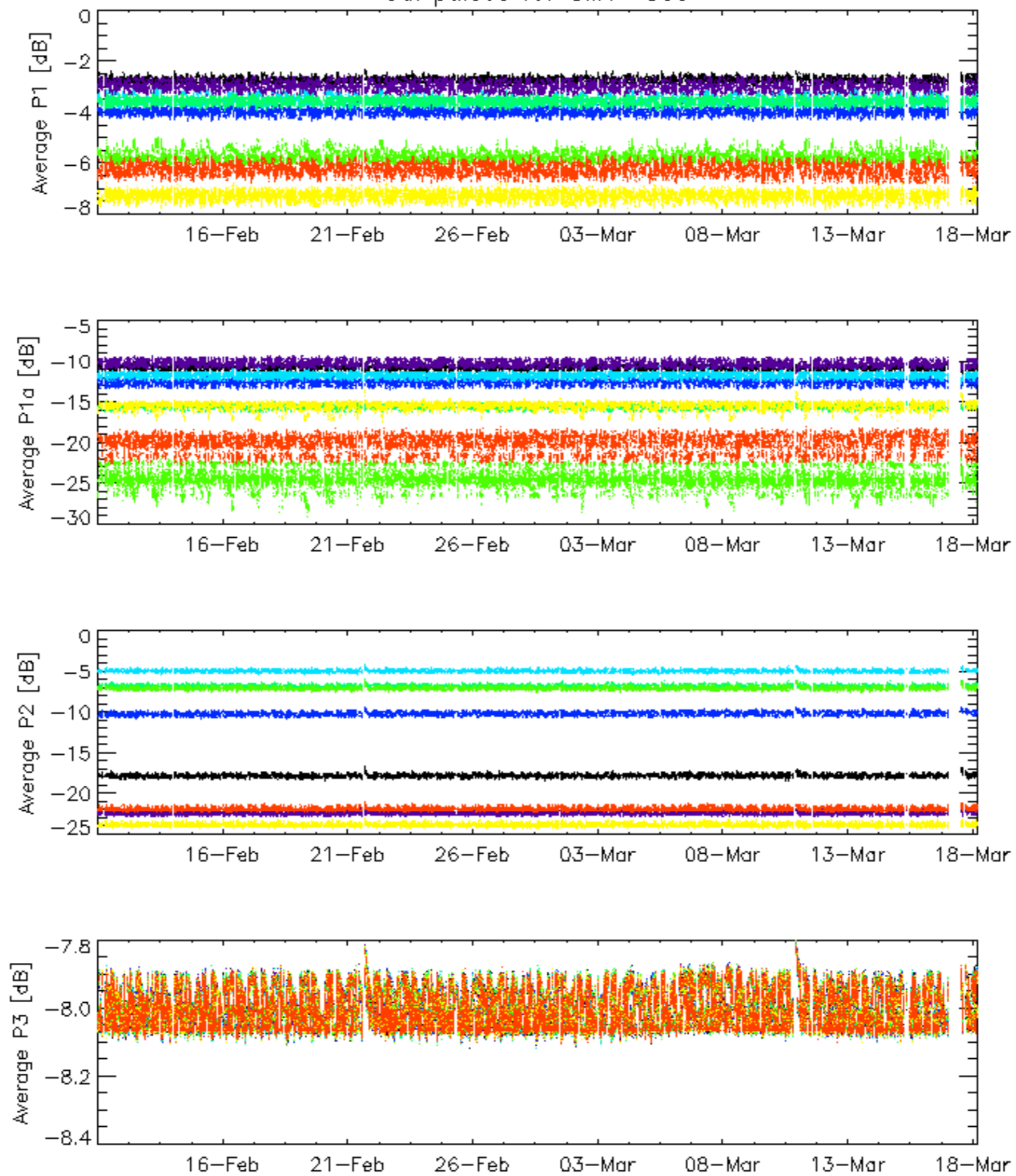


Cal pulses for WVS IS2



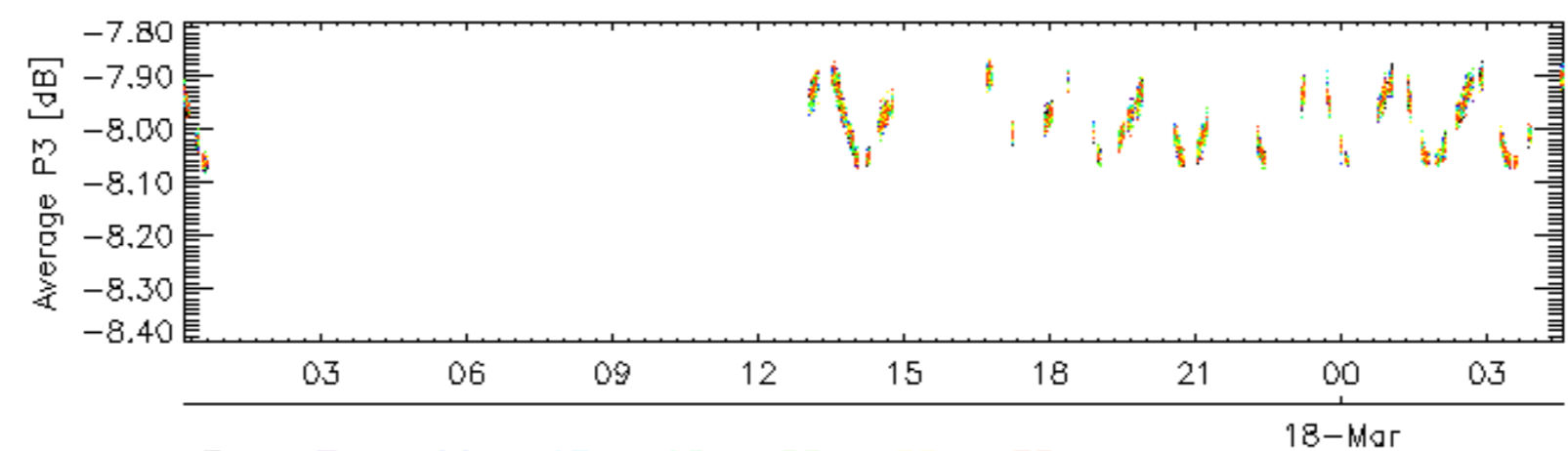
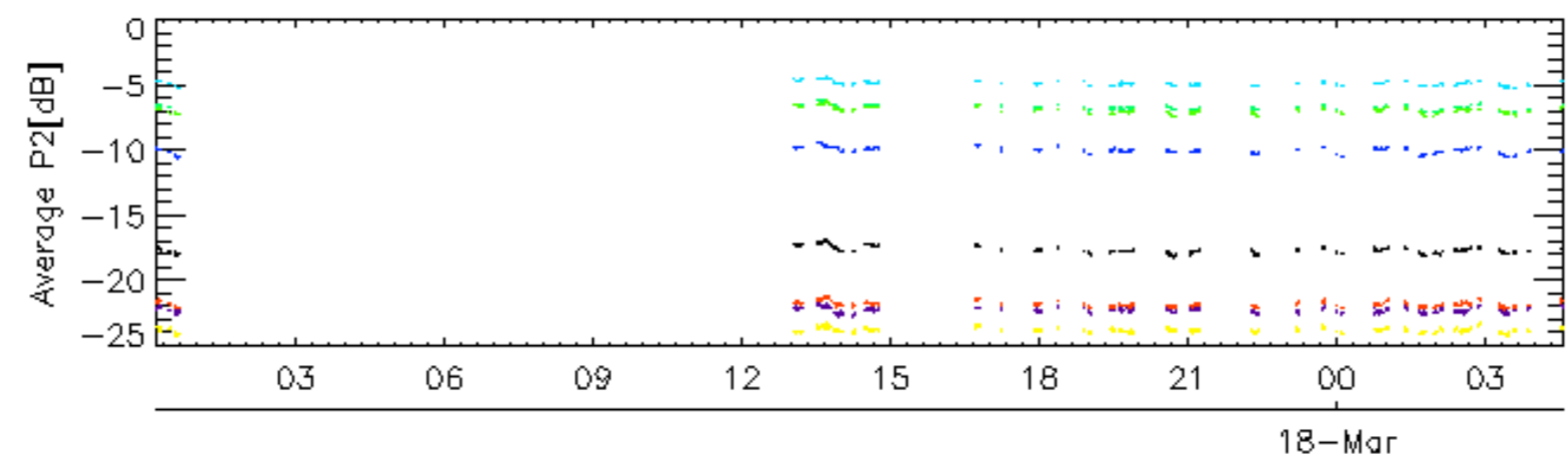
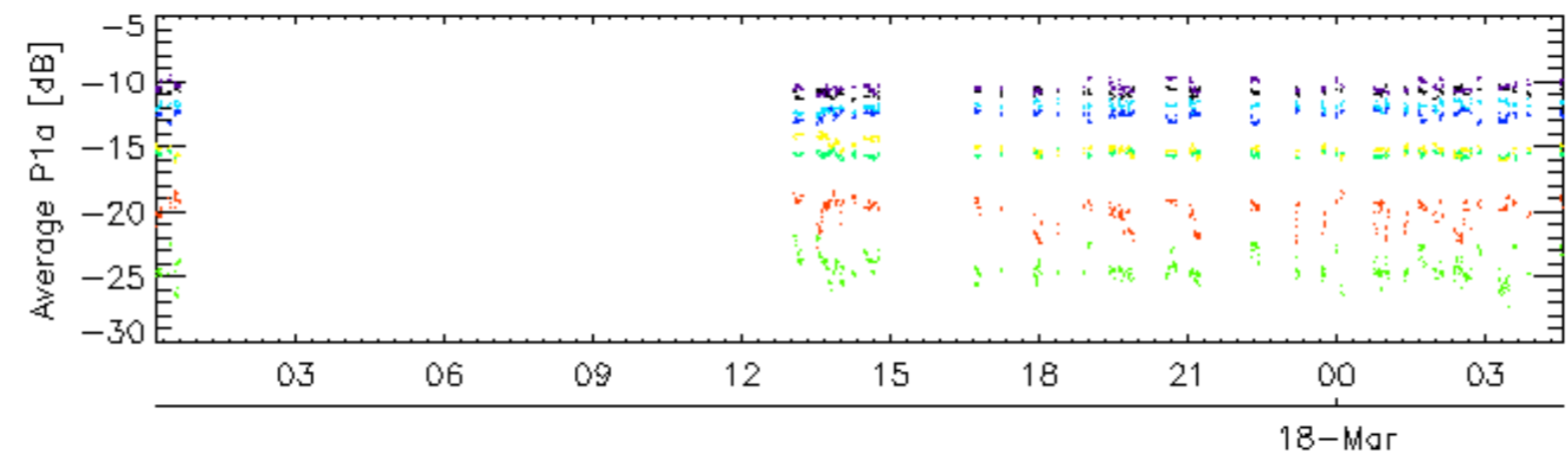
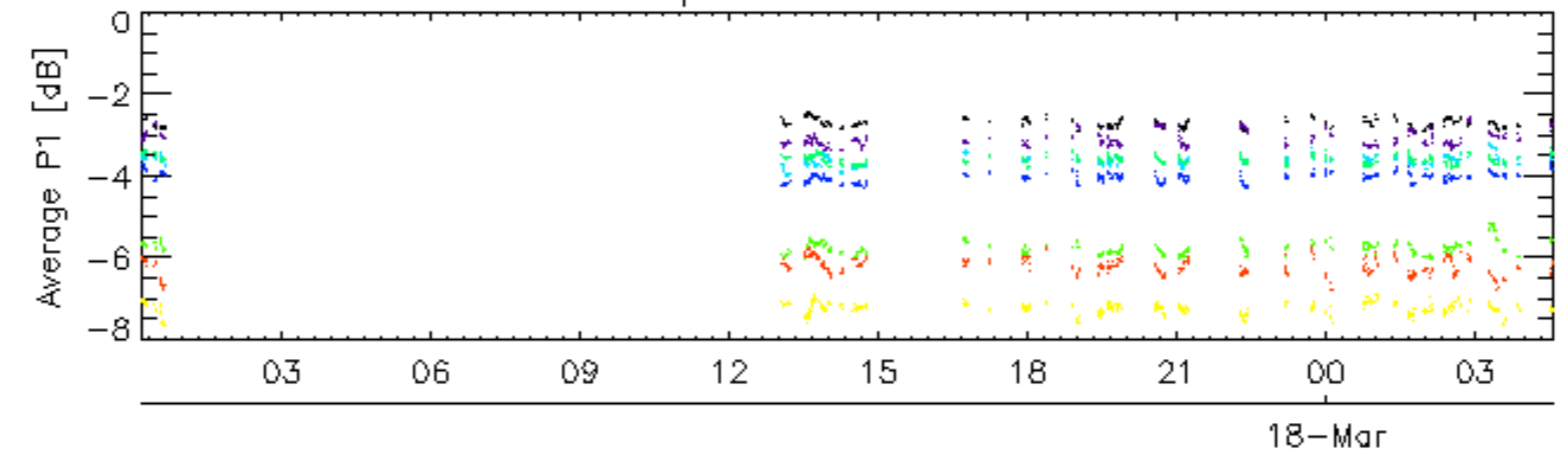
rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30

### Cal pulses for GM1 SS3



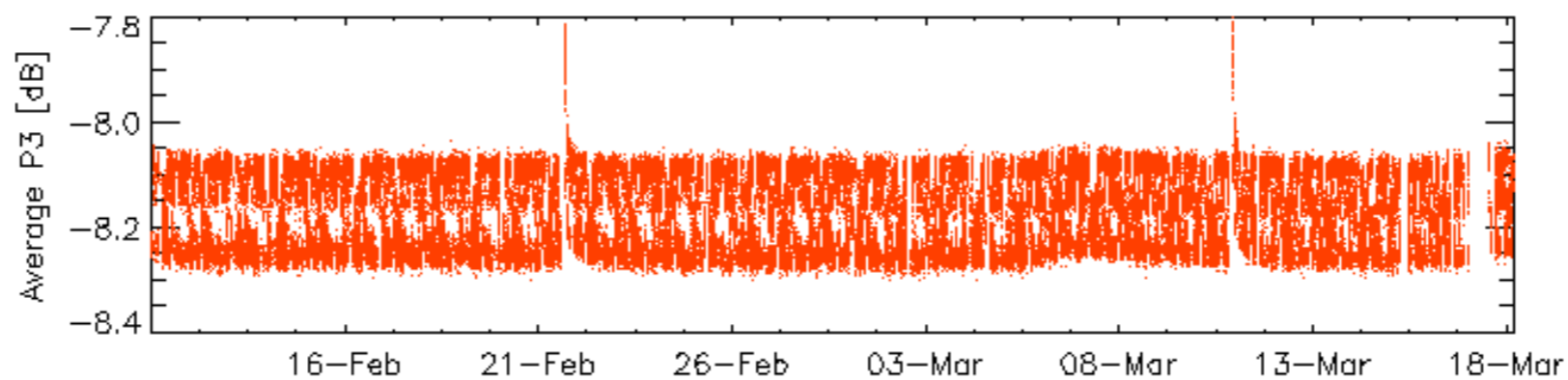
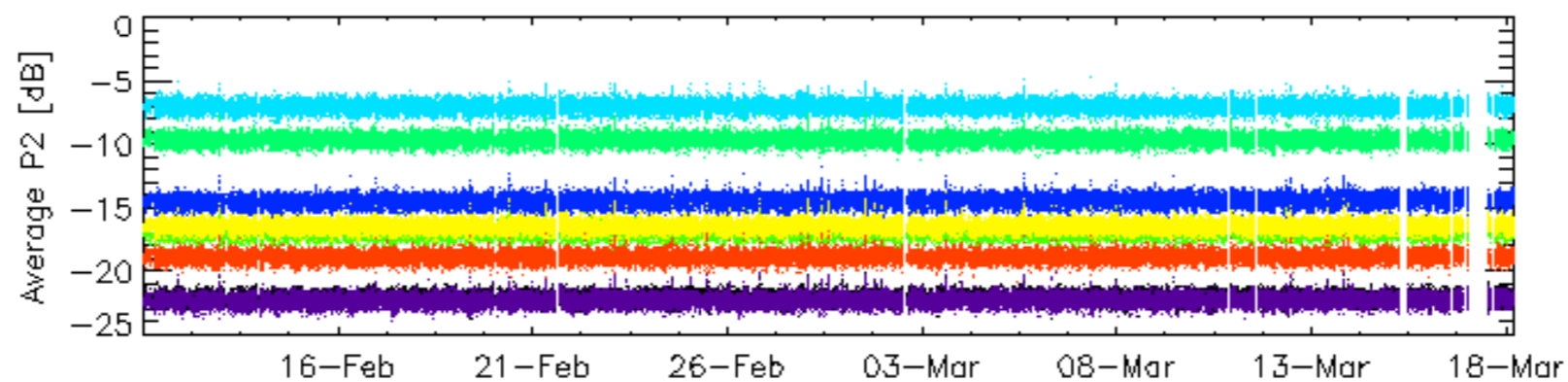
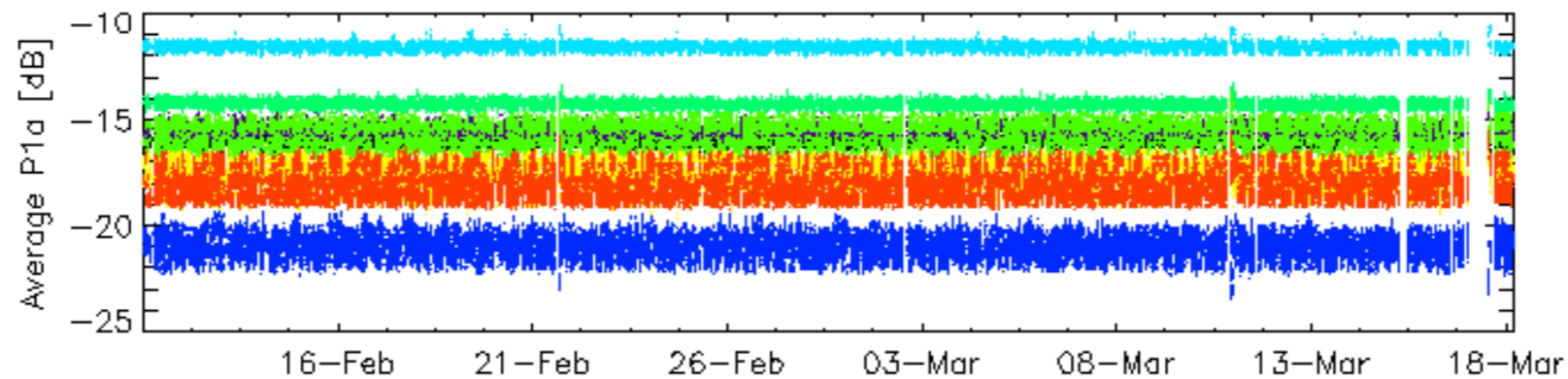
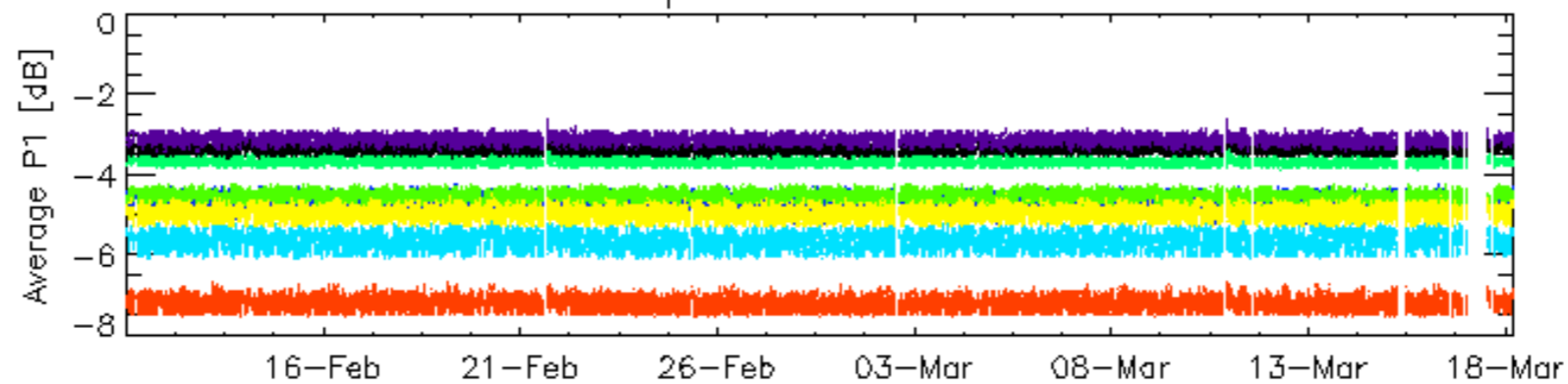
rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30

### Cal pulses for GM1 SS3



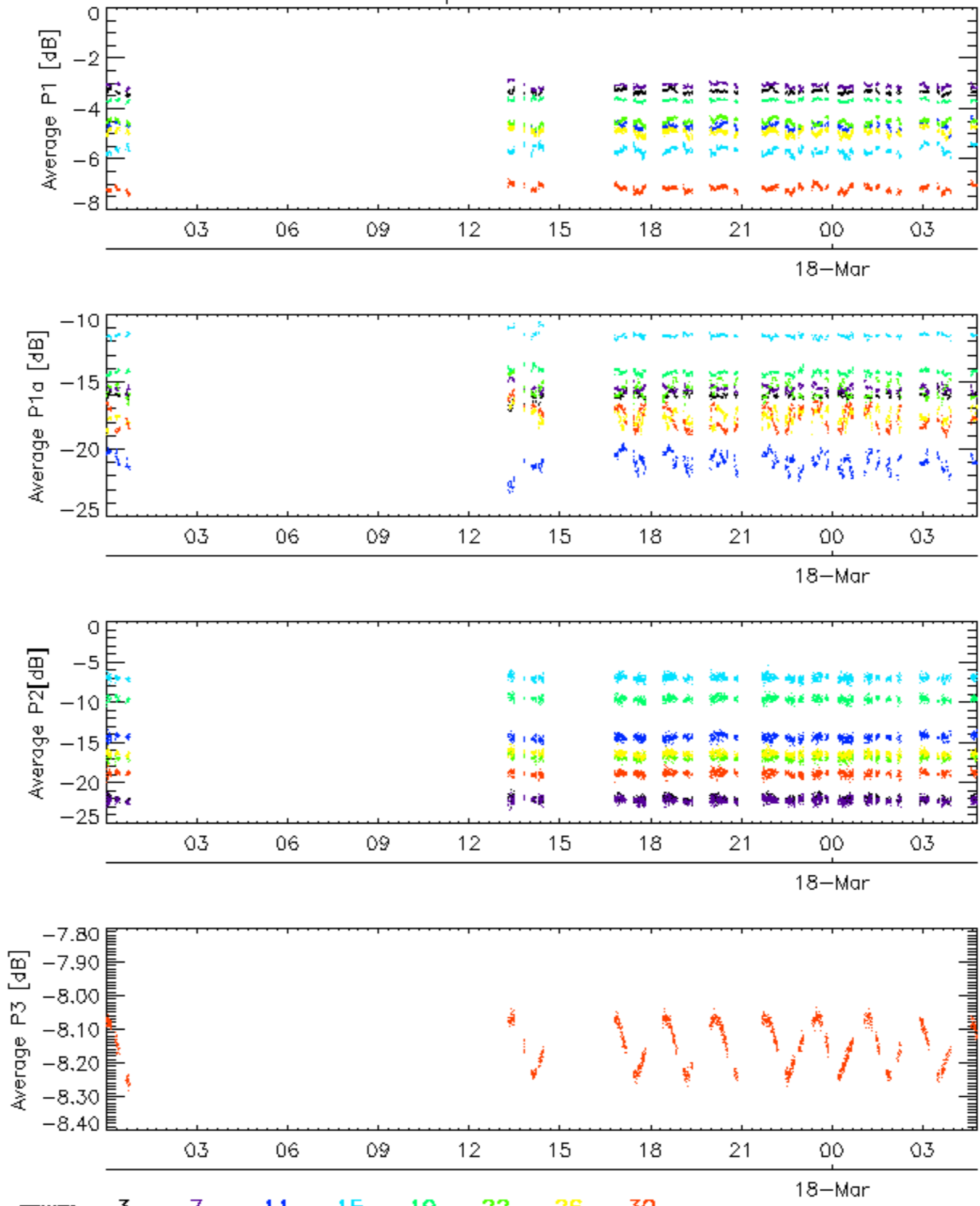
rows: **3** **7** **11** **15** **19** **22** **26** **30**

Cal pulses for WVS IS2



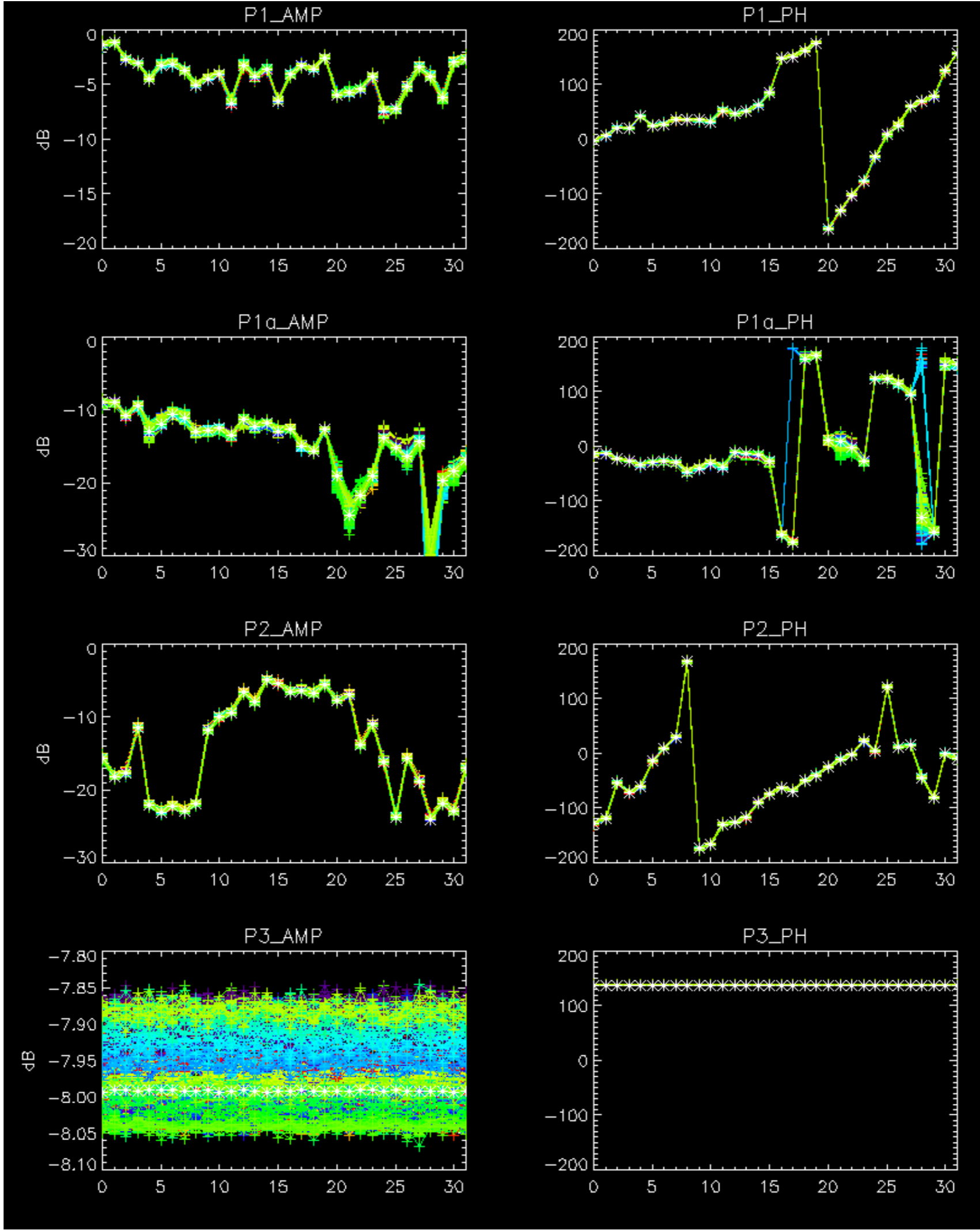
rows: [\\_ 3](#) [\\_ 7](#) [\\_ 11](#) [\\_ 15](#) [\\_ 19](#) [\\_ 22](#) [\\_ 26](#) [\\_ 30](#)

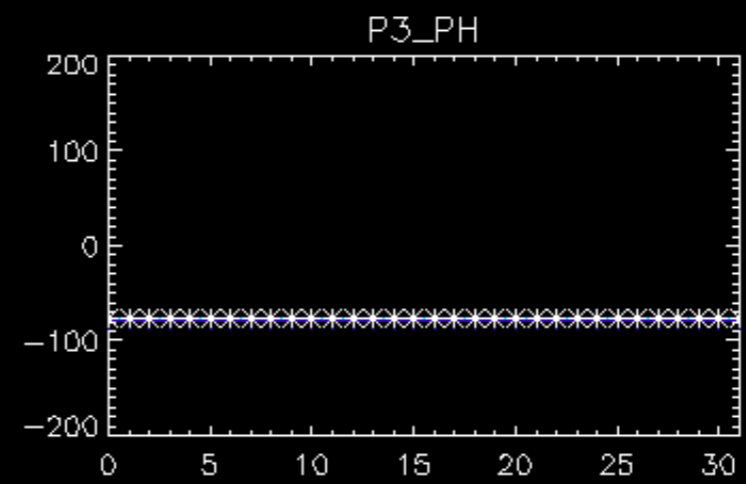
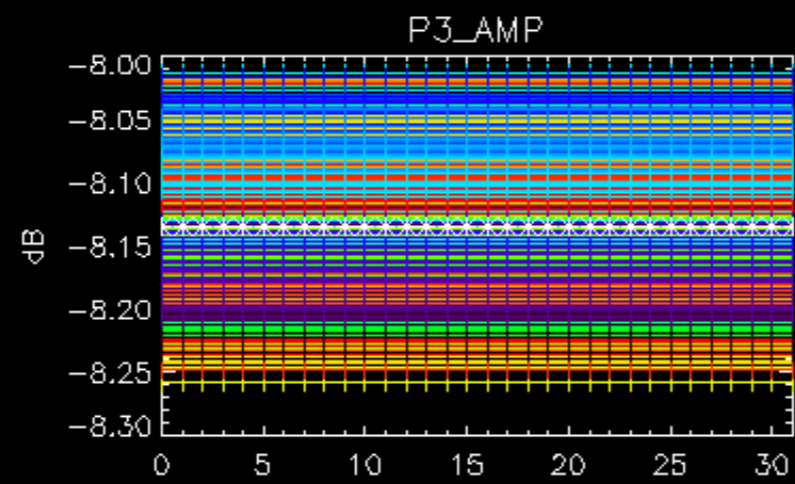
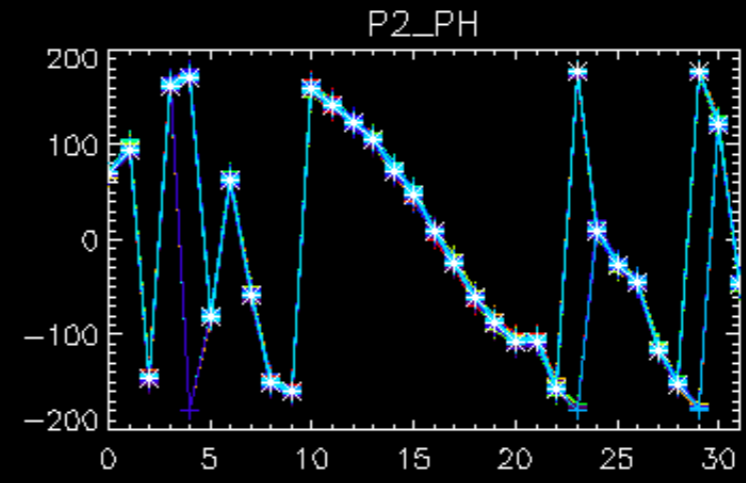
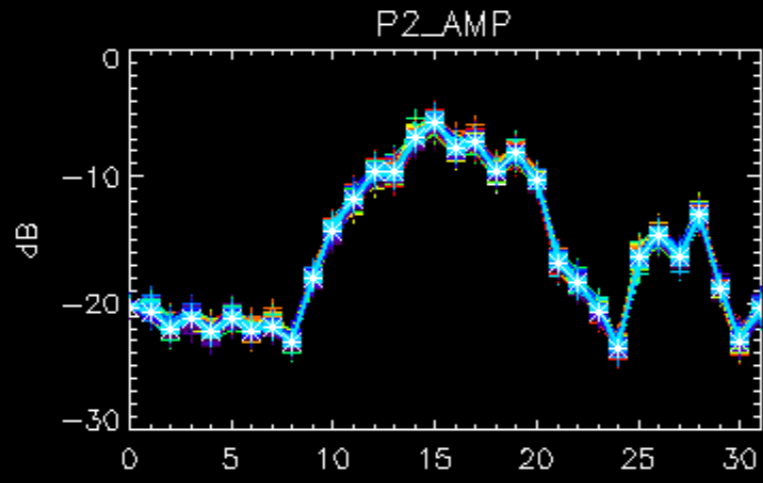
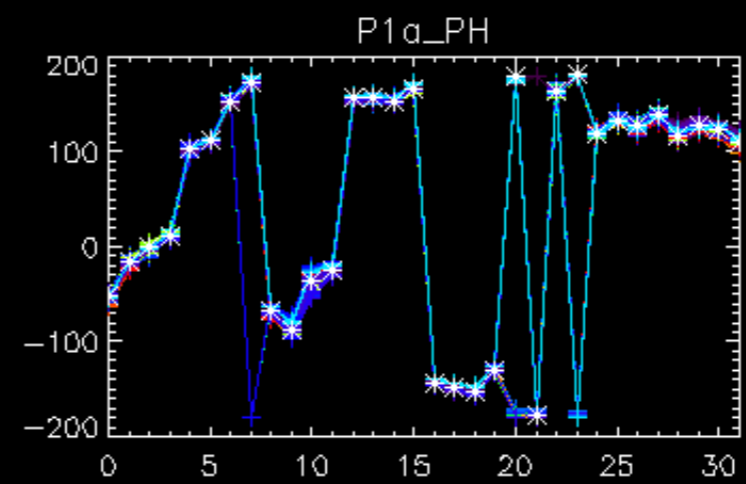
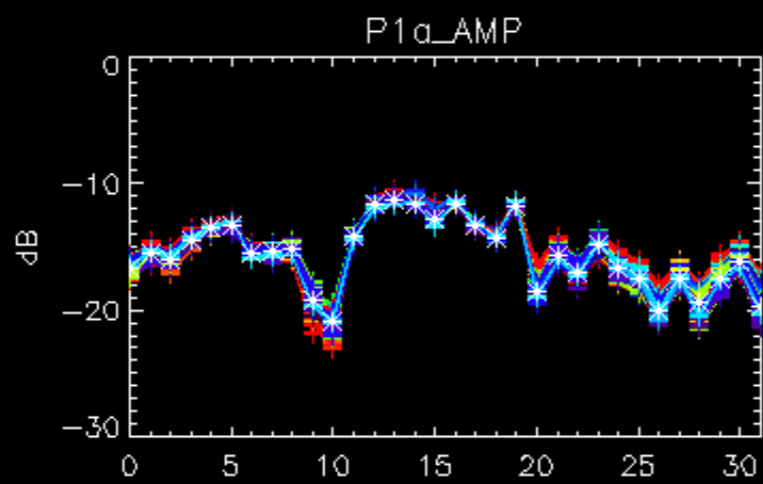
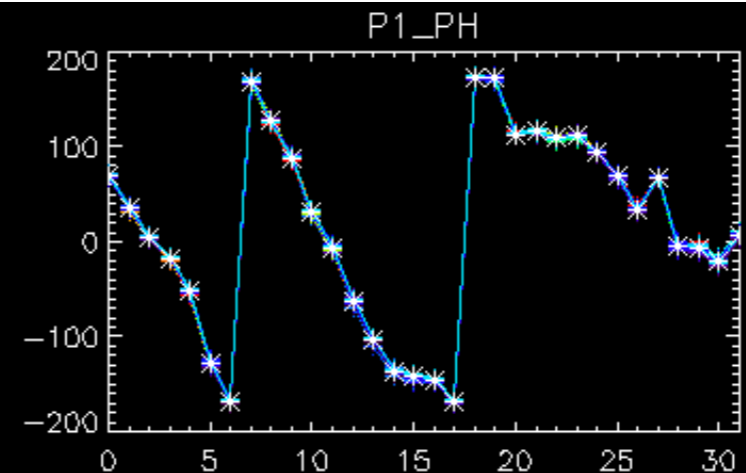
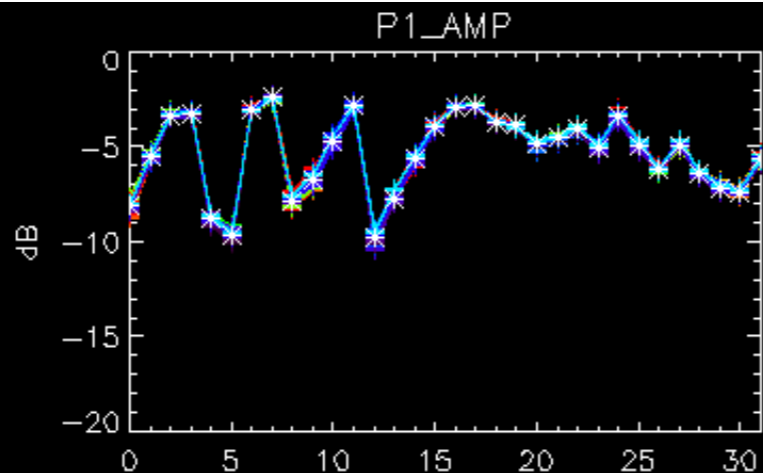
Cal pulses for WVS IS2



No anomalies observed.



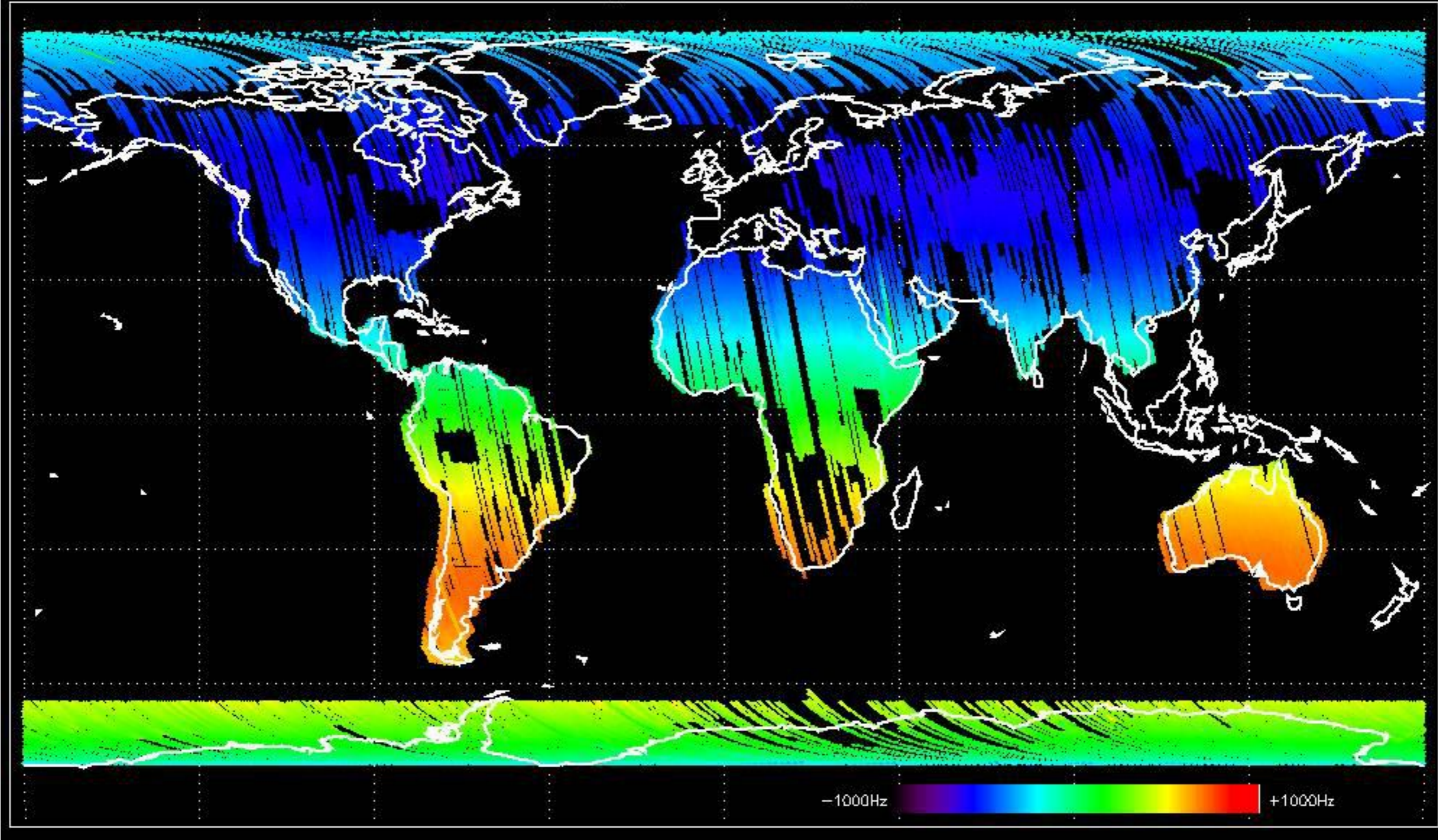




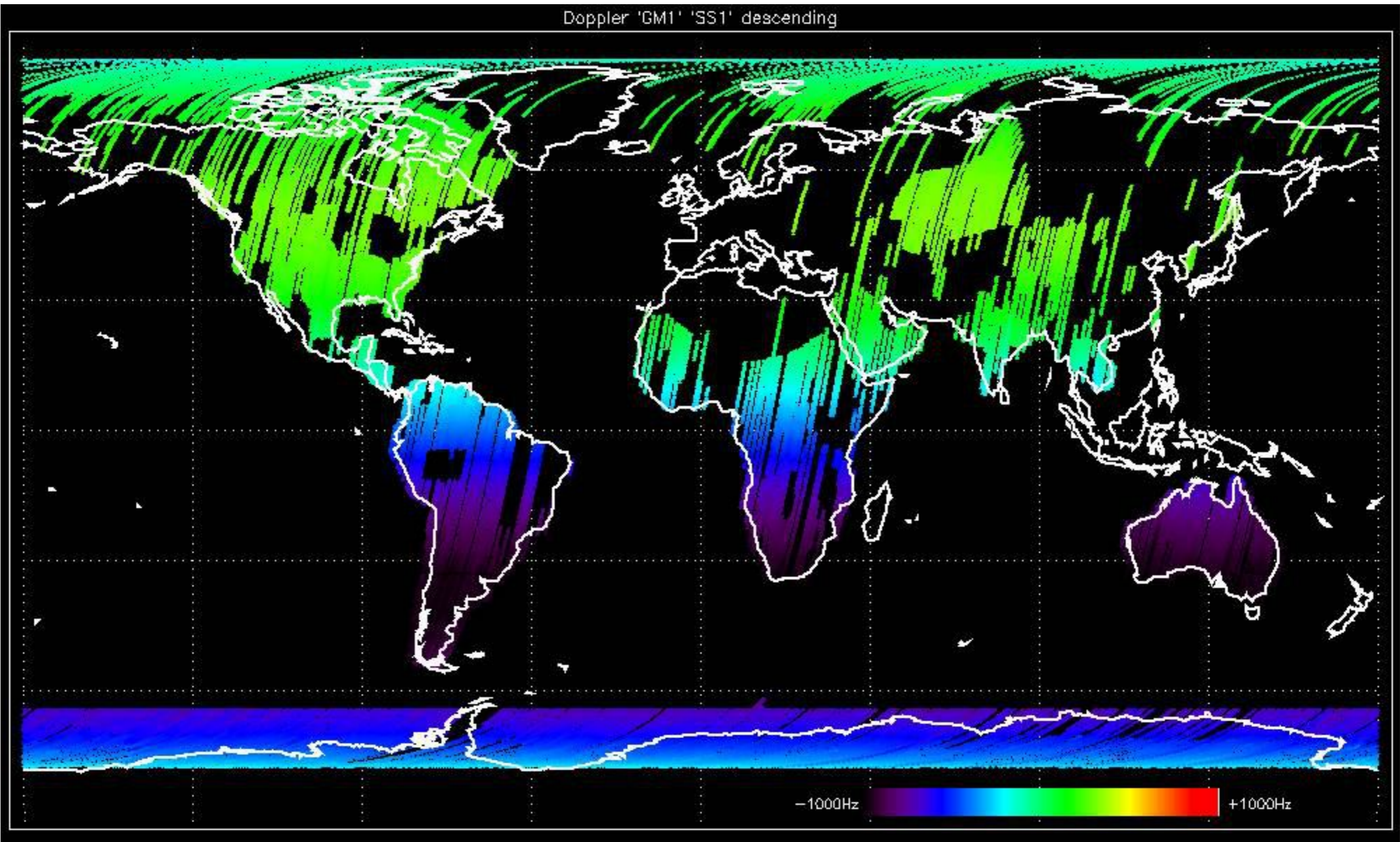
- Stable wave internal calibration pulses gain and phase.
- Stable raw data statistics.
- Nominal Doppler behavior.



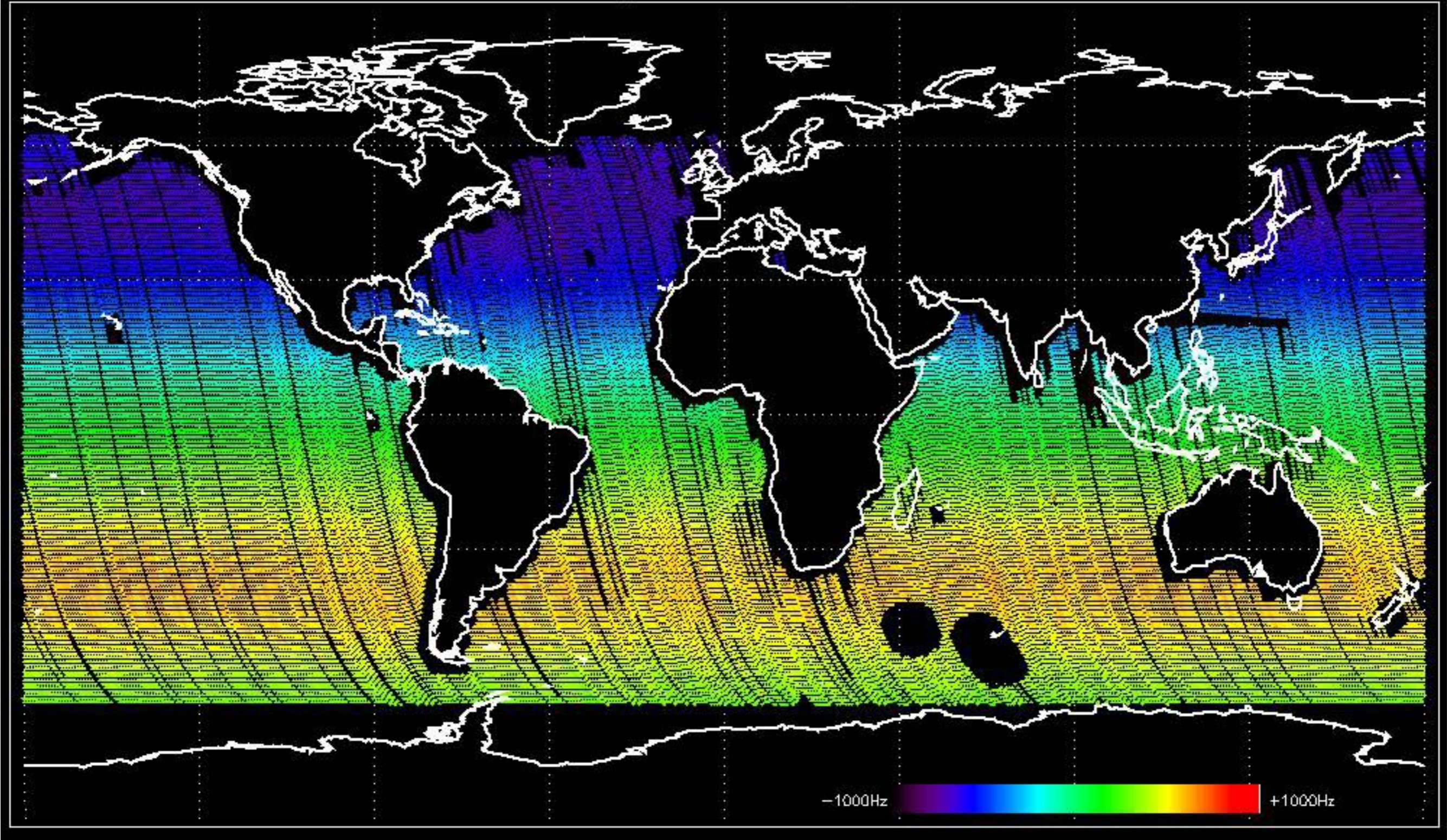
Doppler 'GM1' 'SS1' ascending



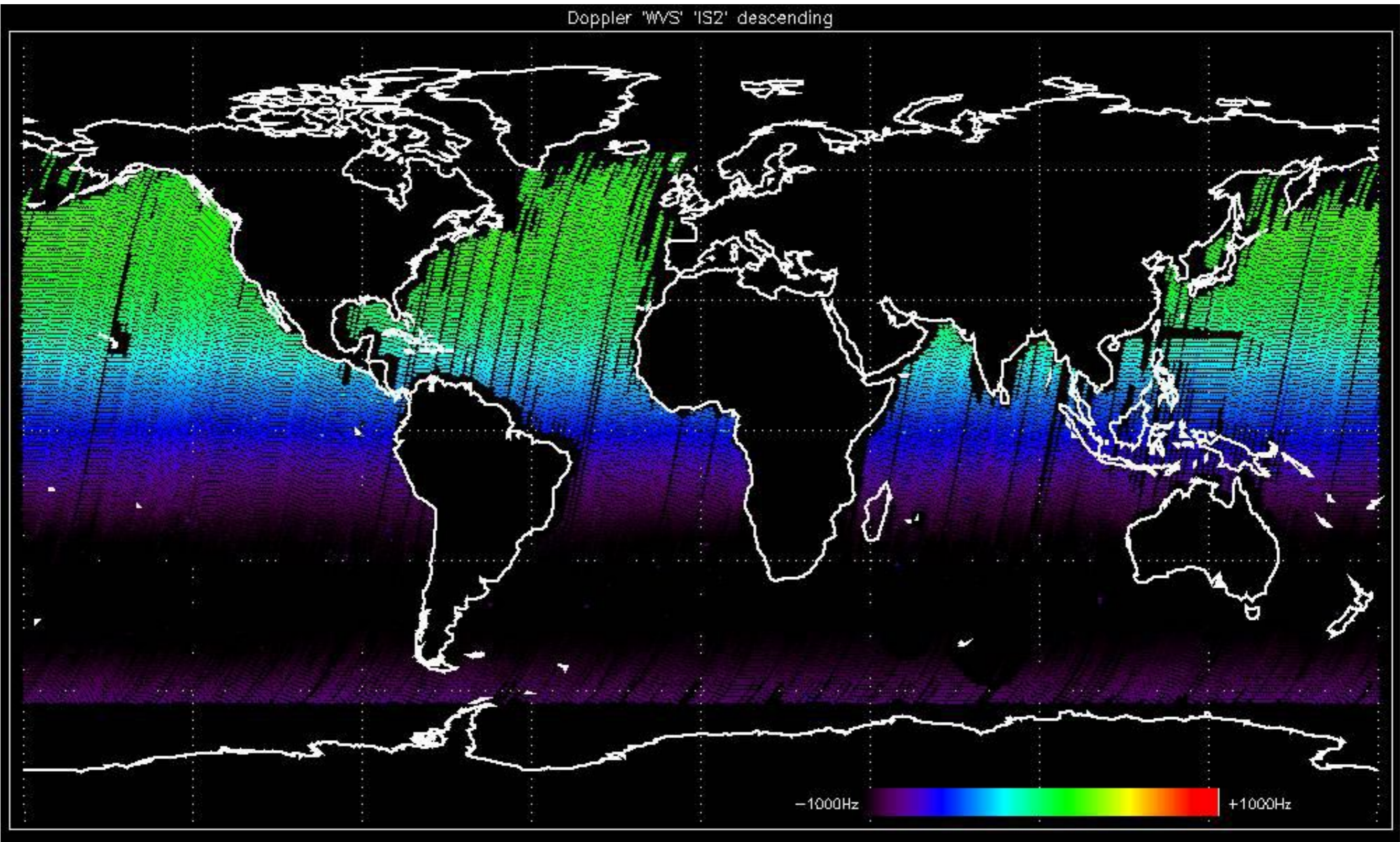
Doppler 'GM1' 'SS1' descending



Doppler 'WVS' 'IS2' ascending

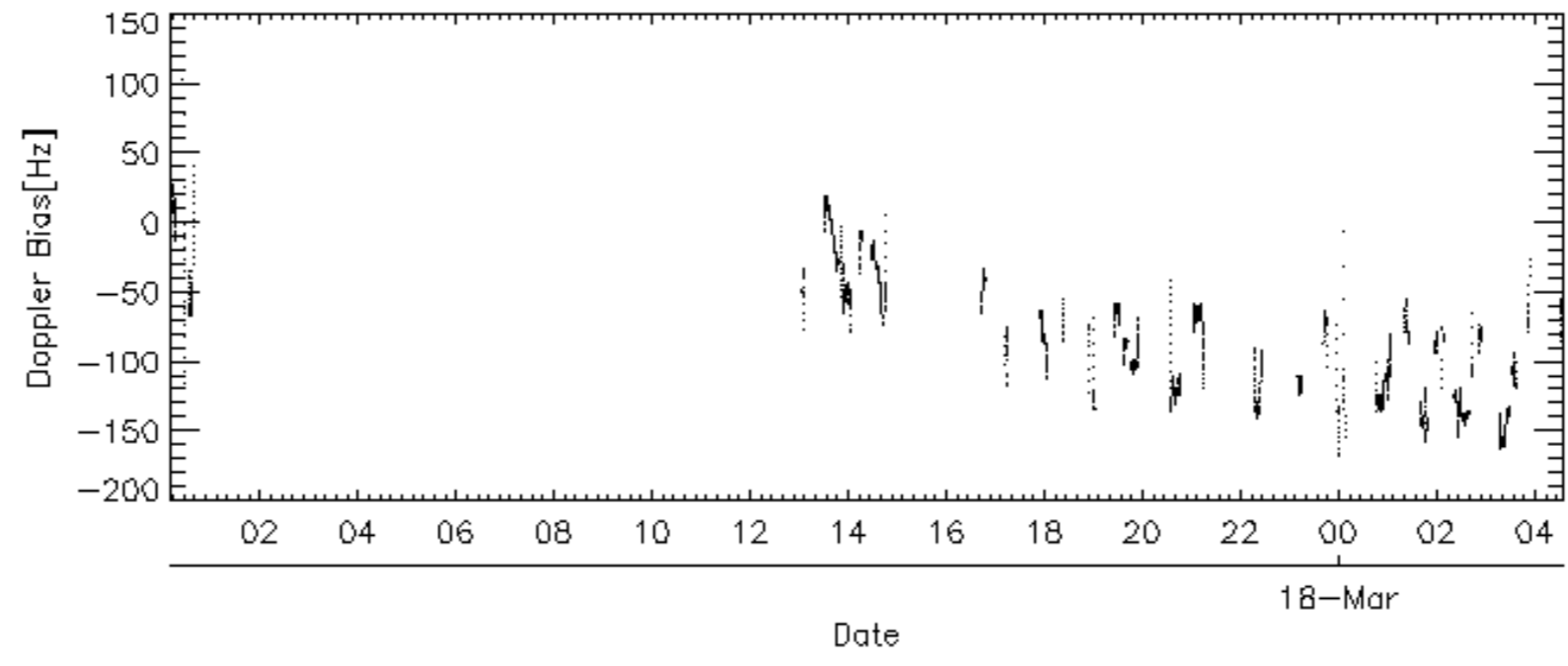
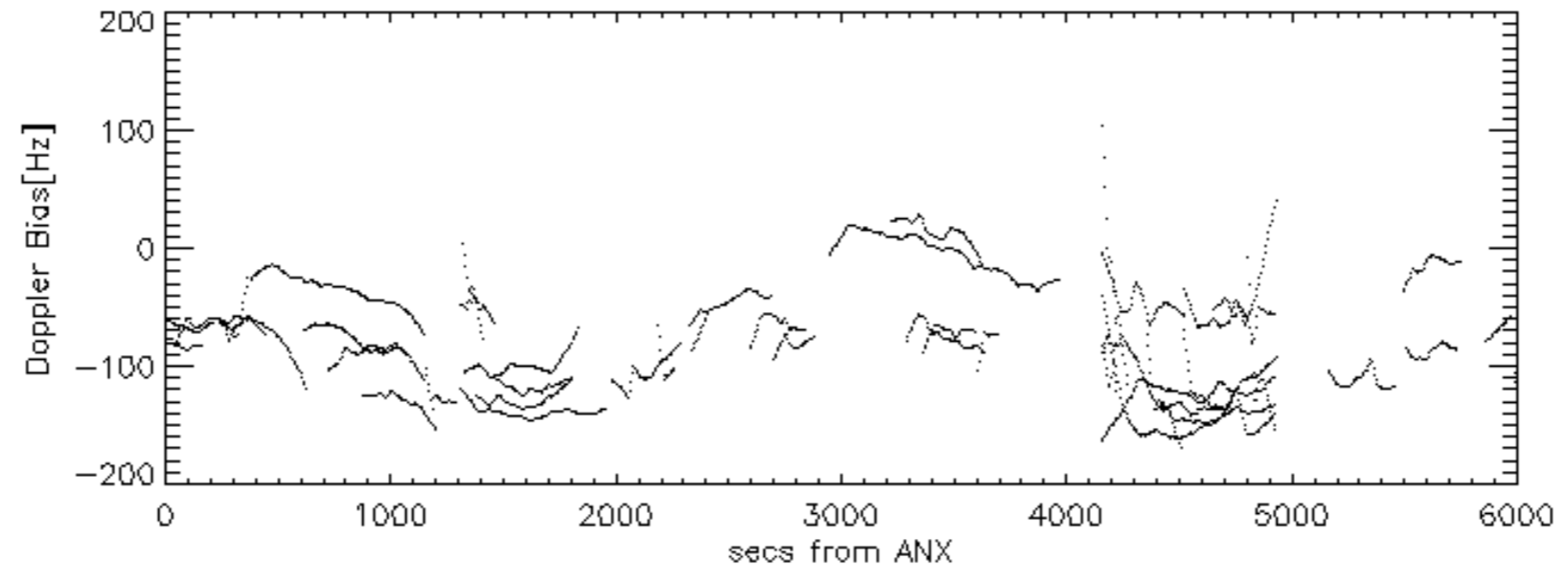
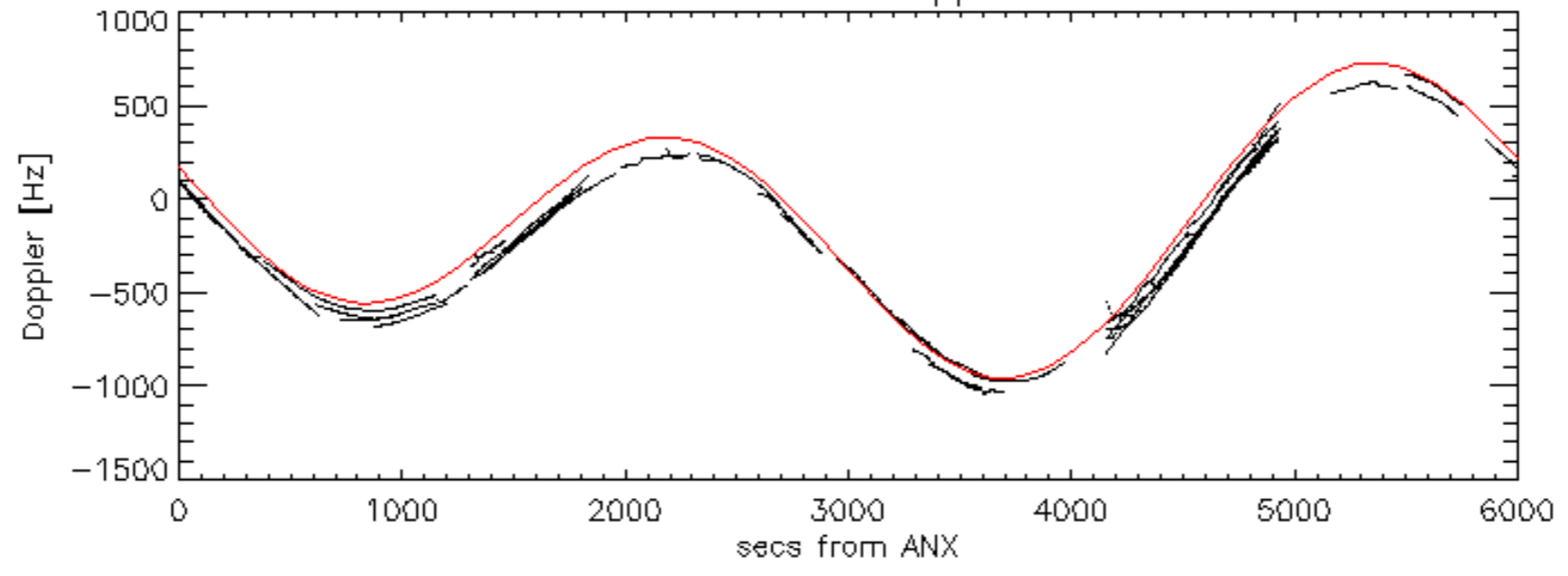


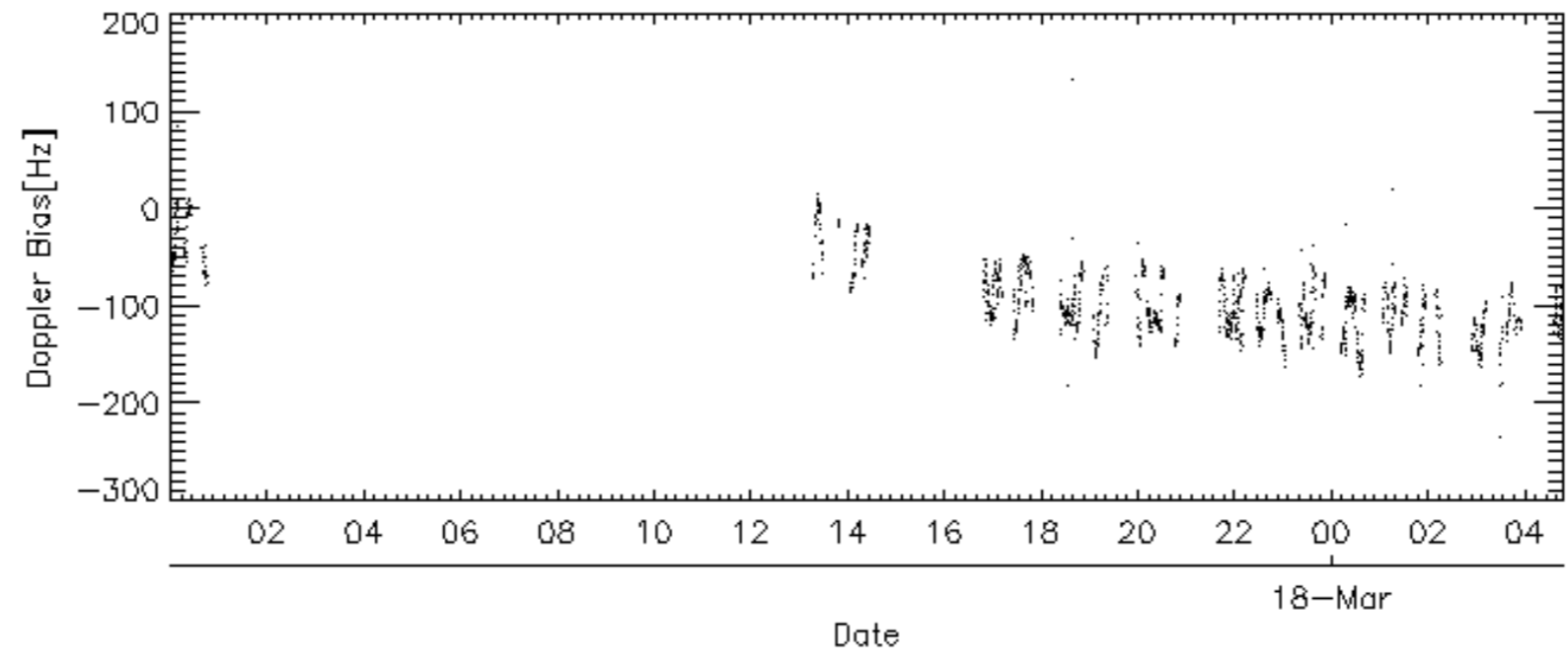
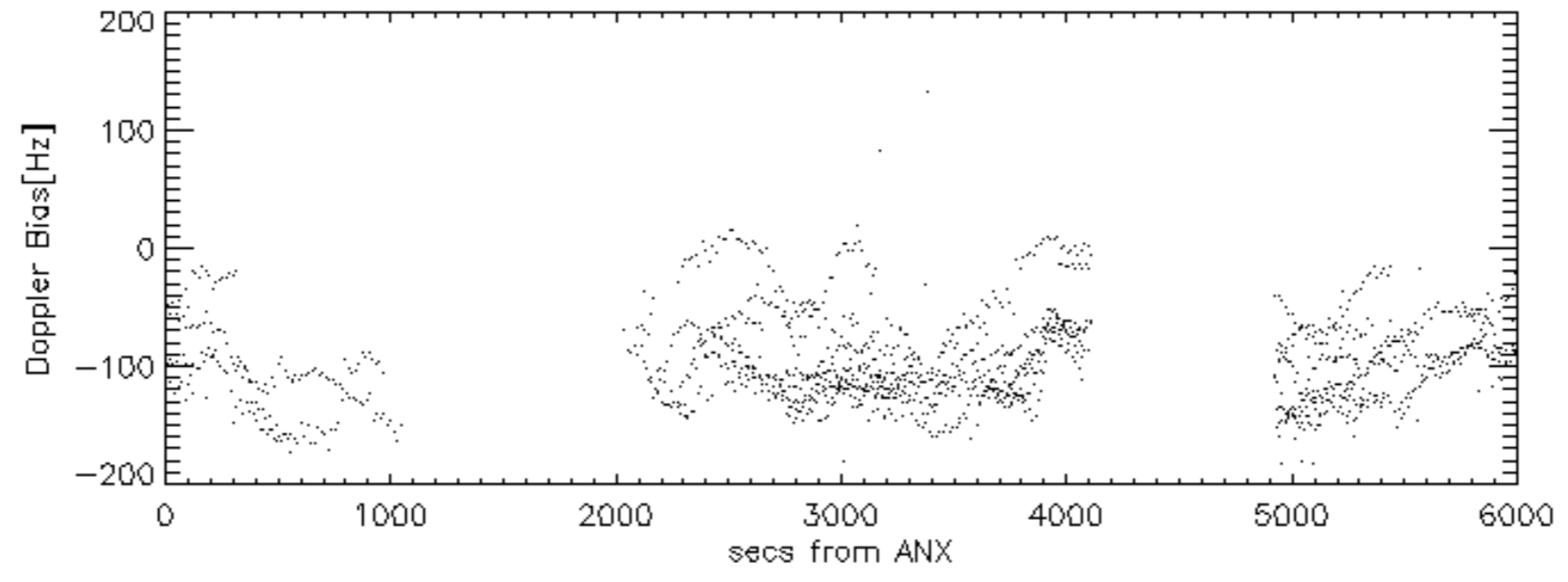
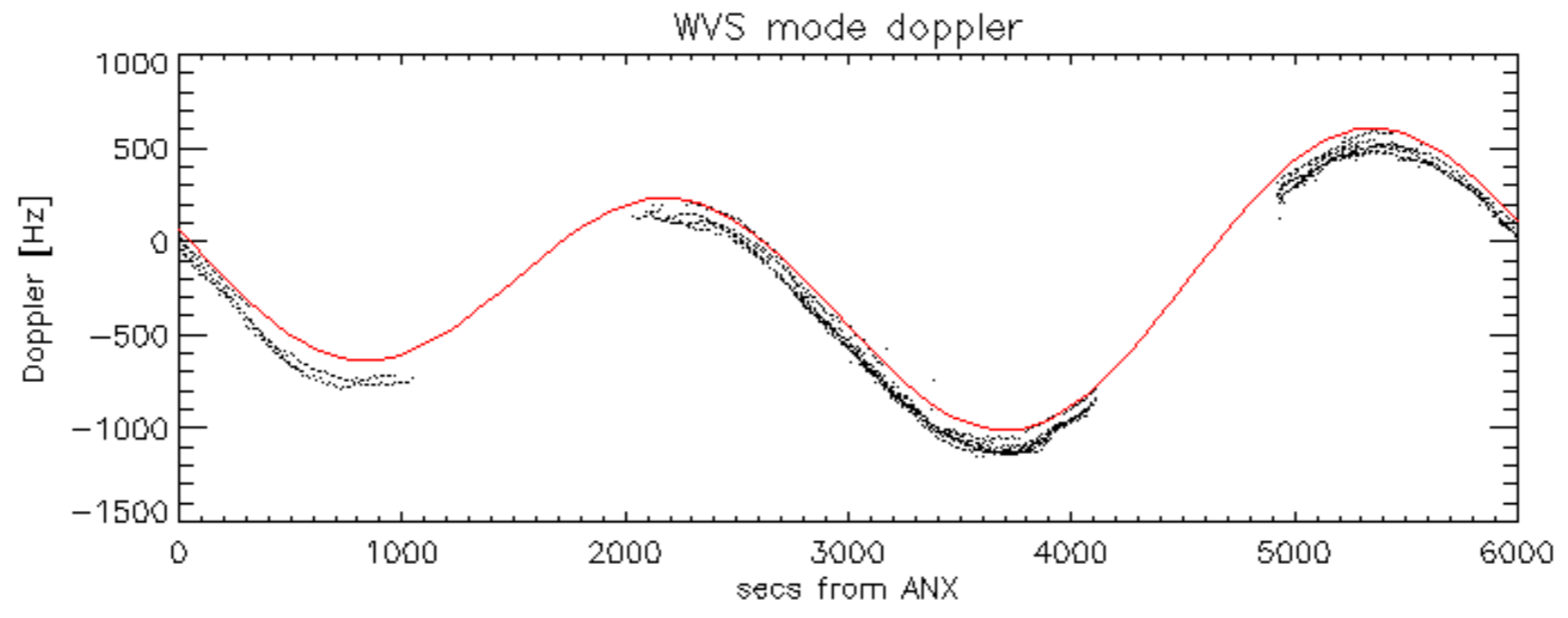
Doppler 'WVS' 'IS2' descending



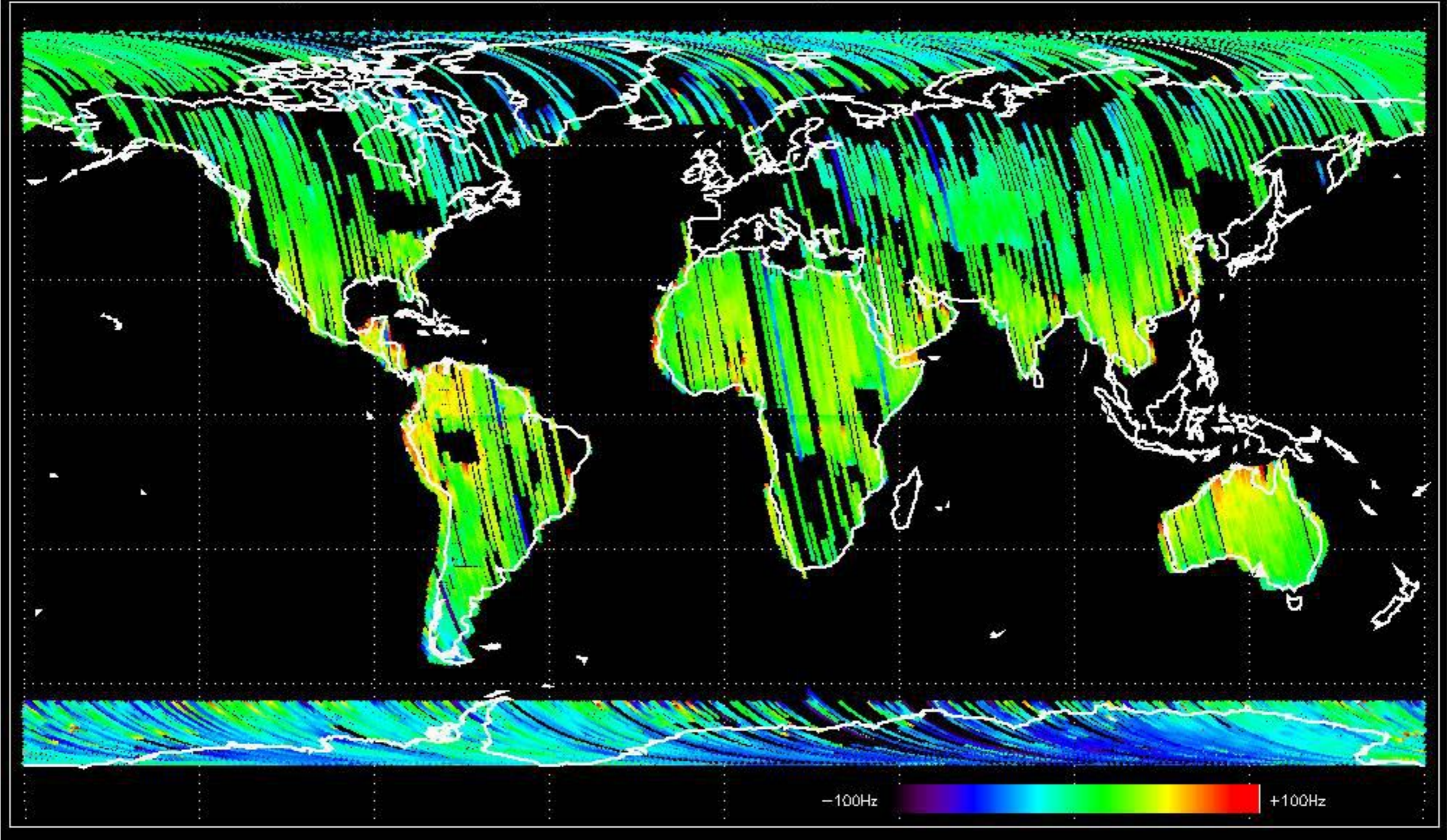


GM1 mode doppler

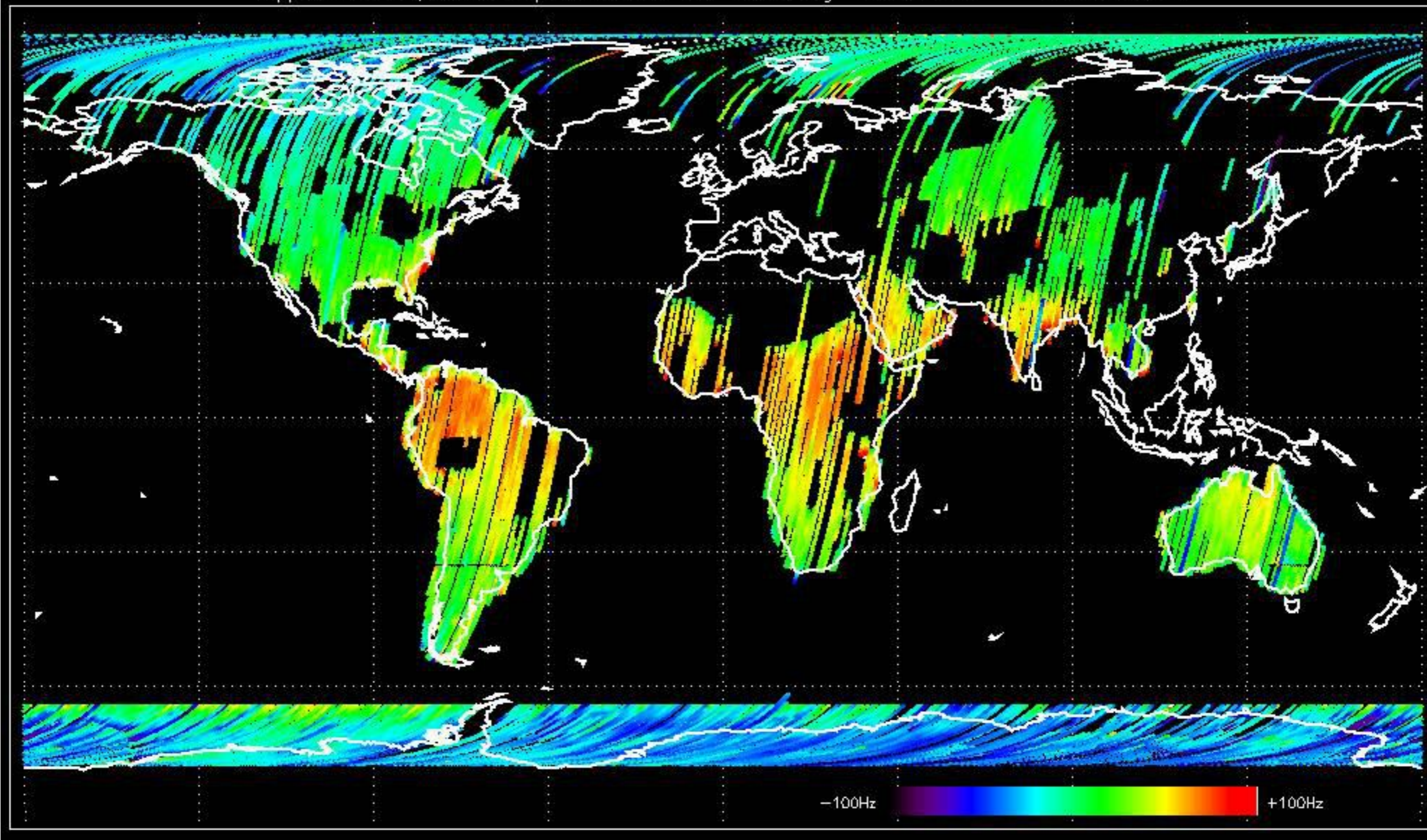




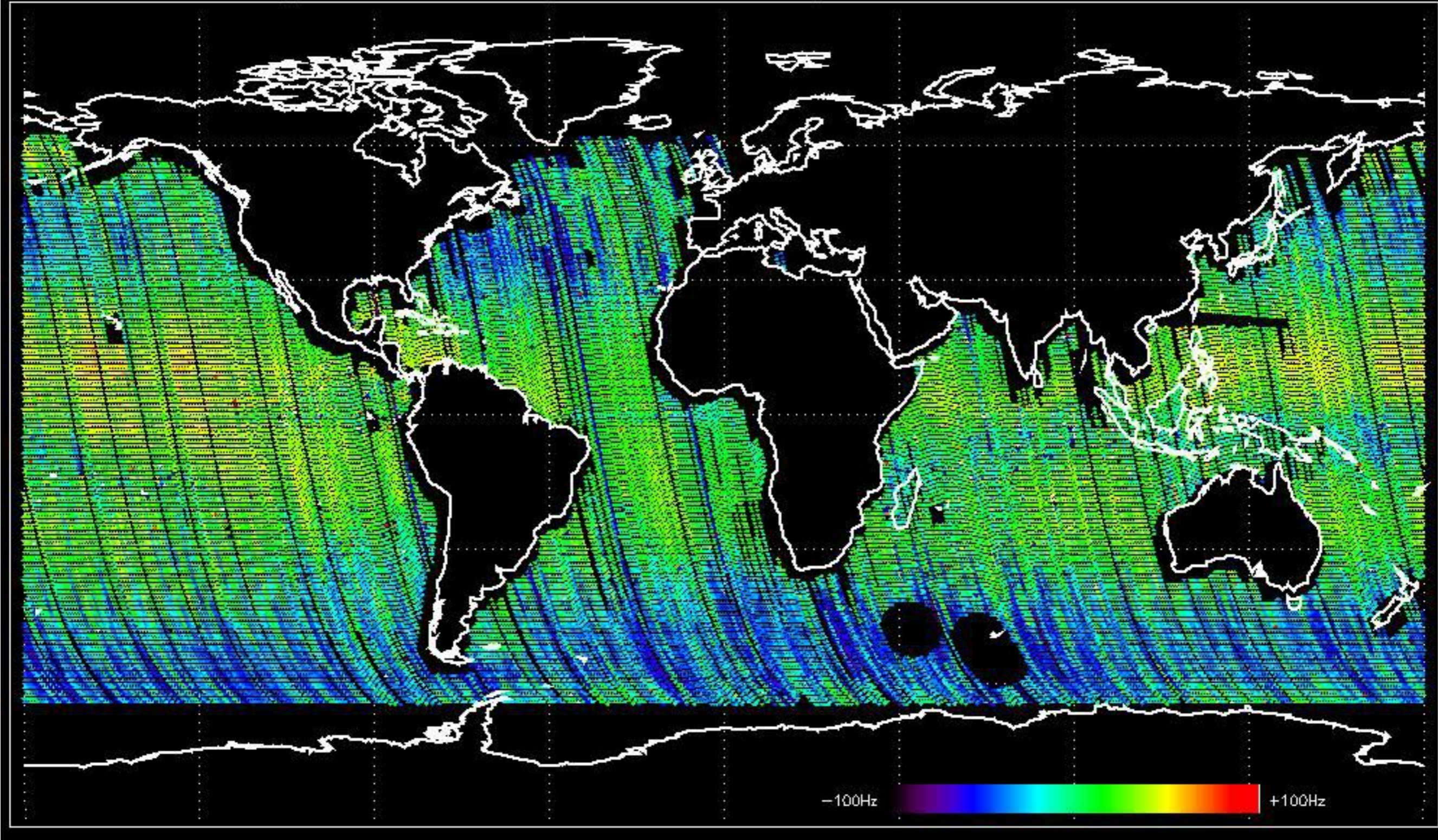
Doppler difference, estimated-predicted 'GM1' 'SS1' ascending -error mean of -31.098107 Hz



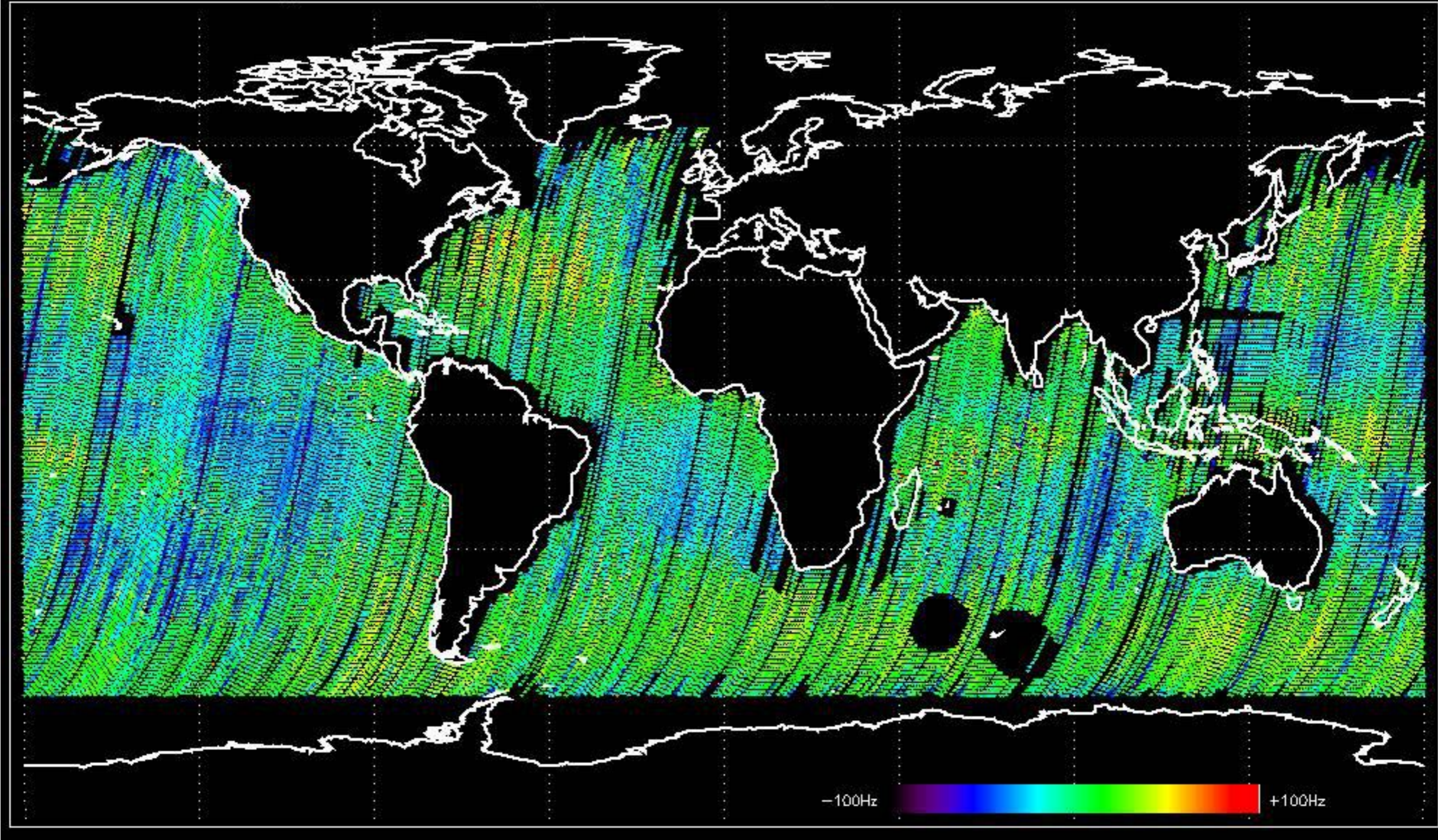
Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -26.782735 Hz



Doppler difference, estimated-predicted 'WVS' 'IS2' ascending -error mean of -34.909966 Hz



Doppler difference, estimated-predicted 'WVS' 'IS2' descending -error mean of -33.684266 Hz



No anomalies observed on available MS products:

No anomalies observed.



















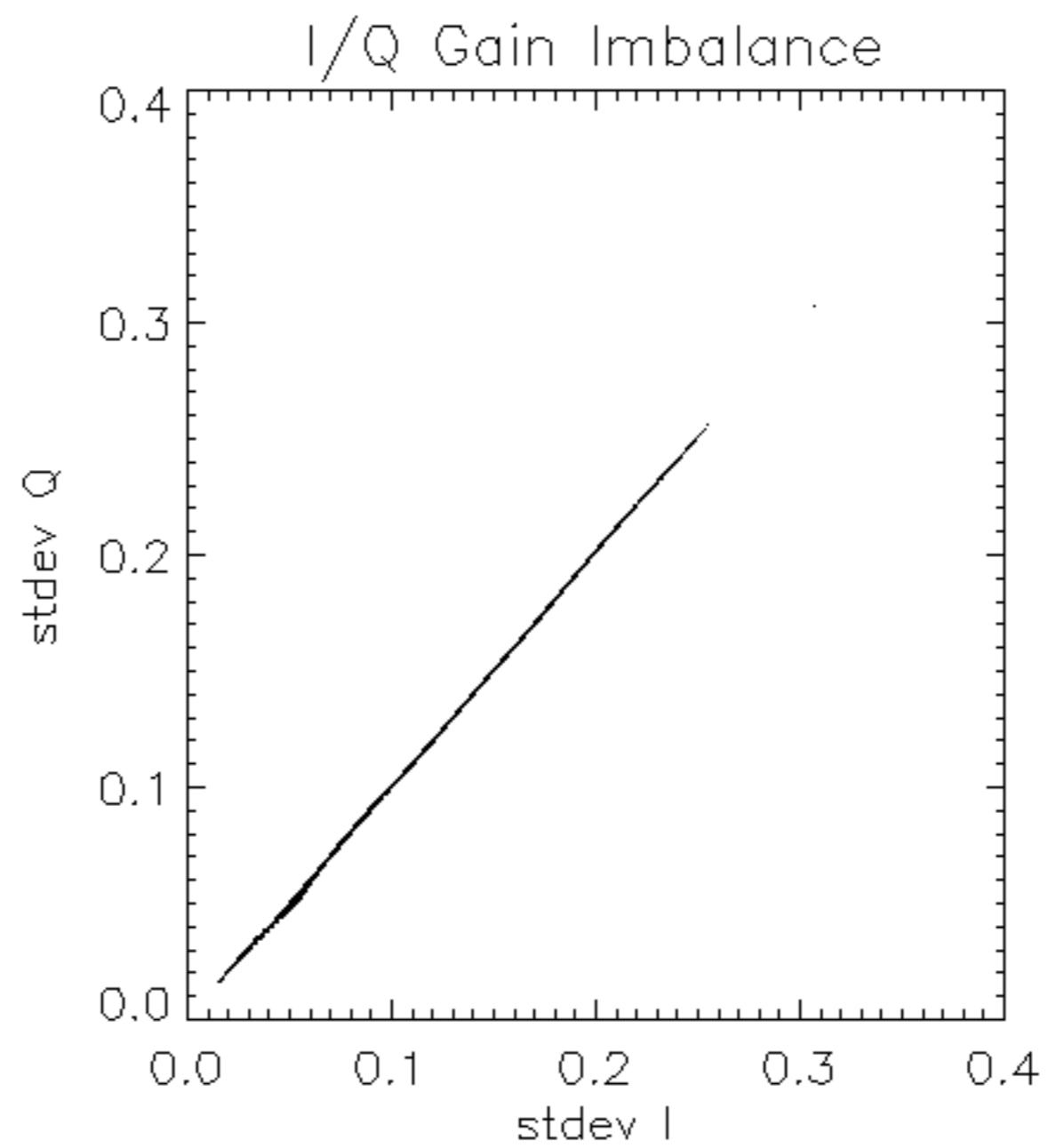


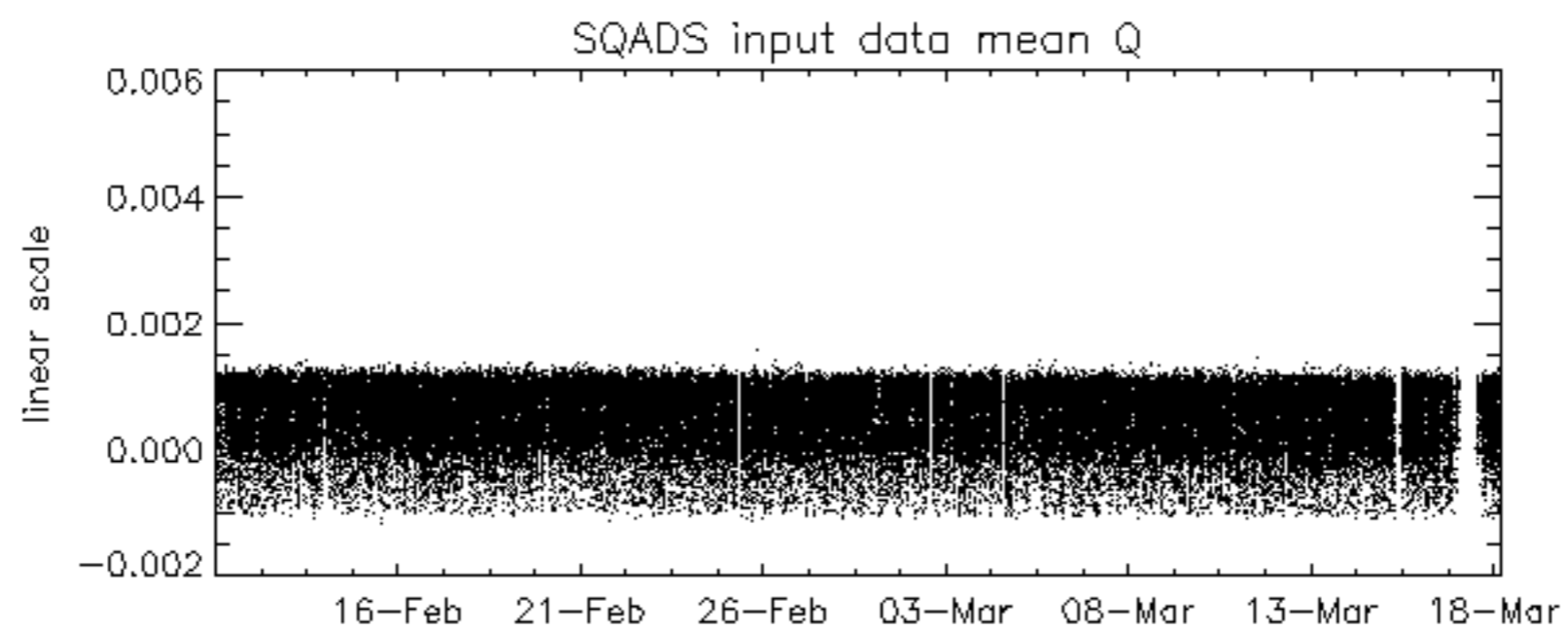
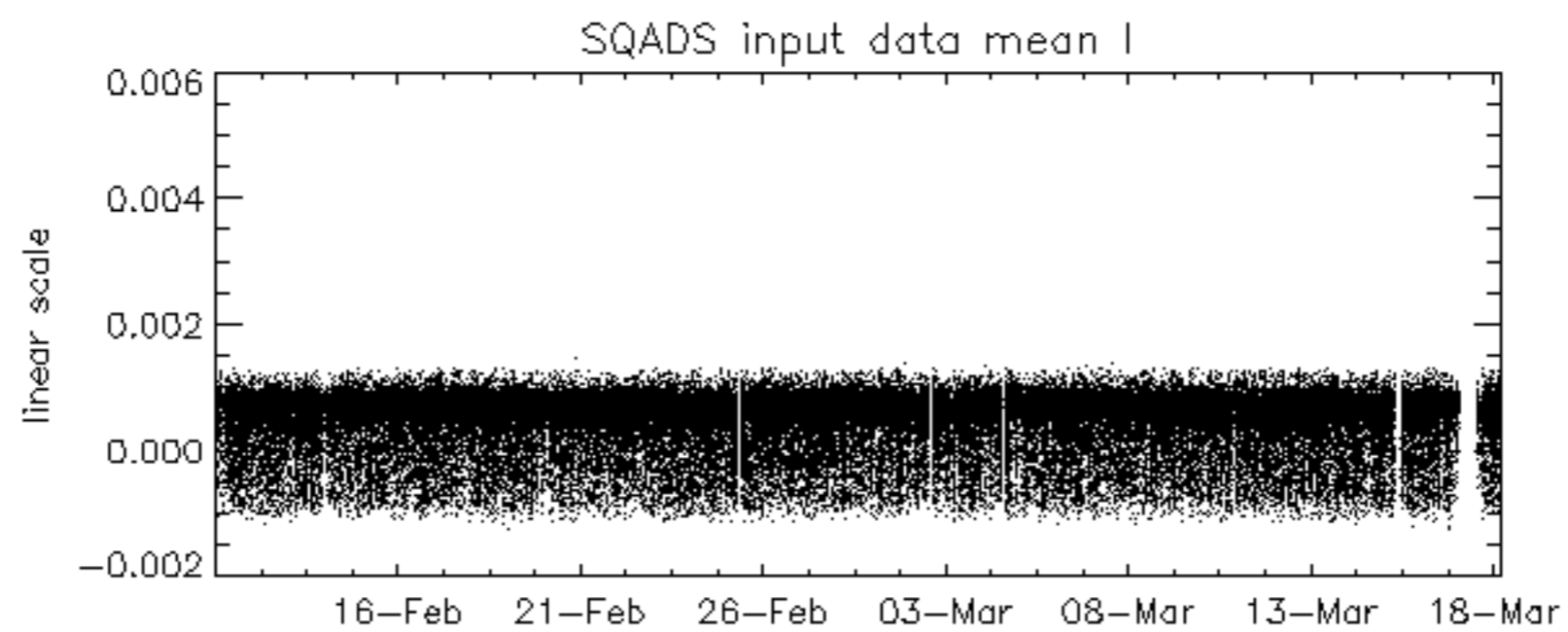
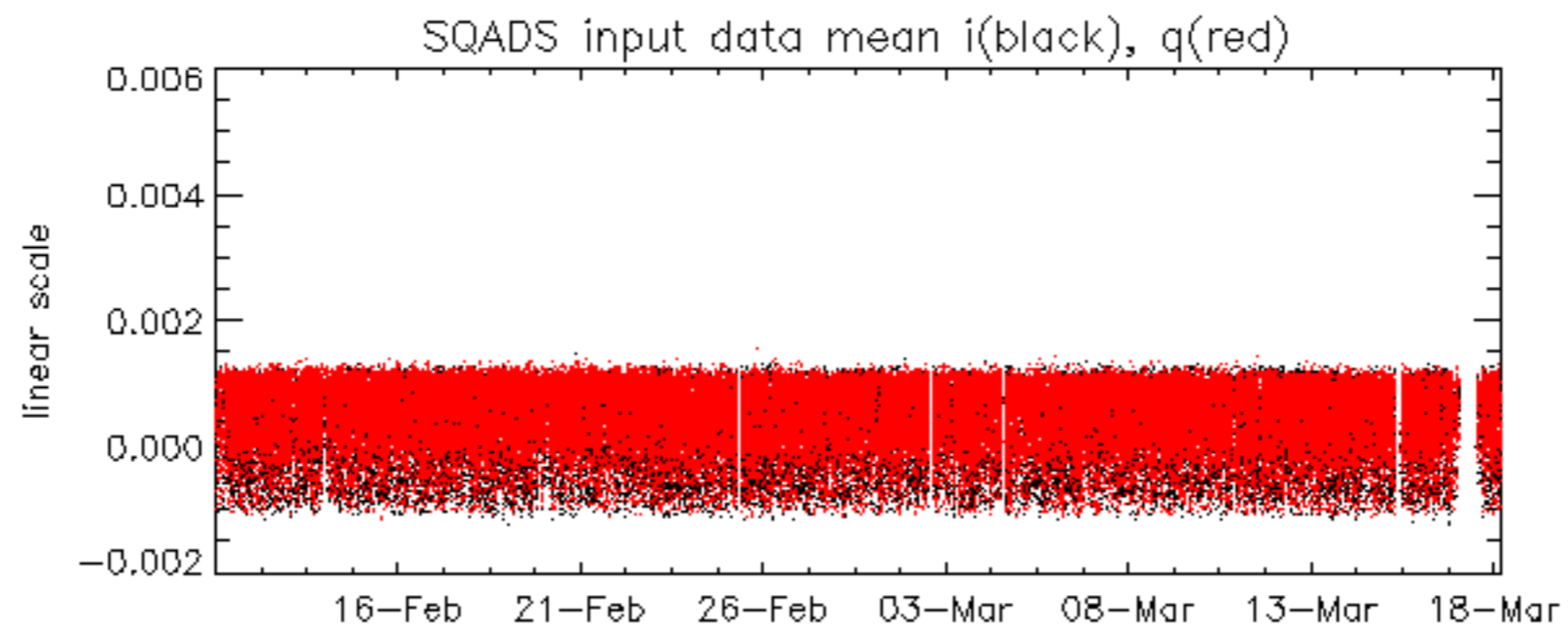


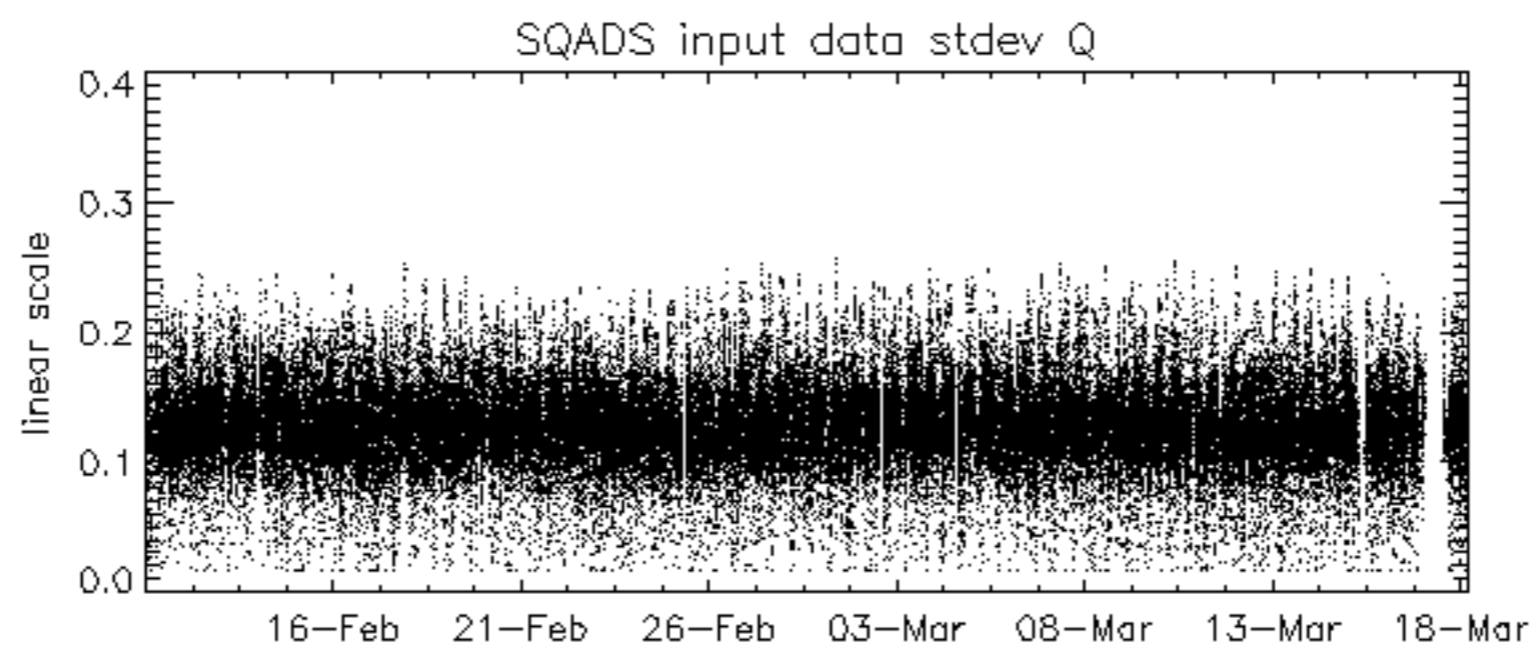
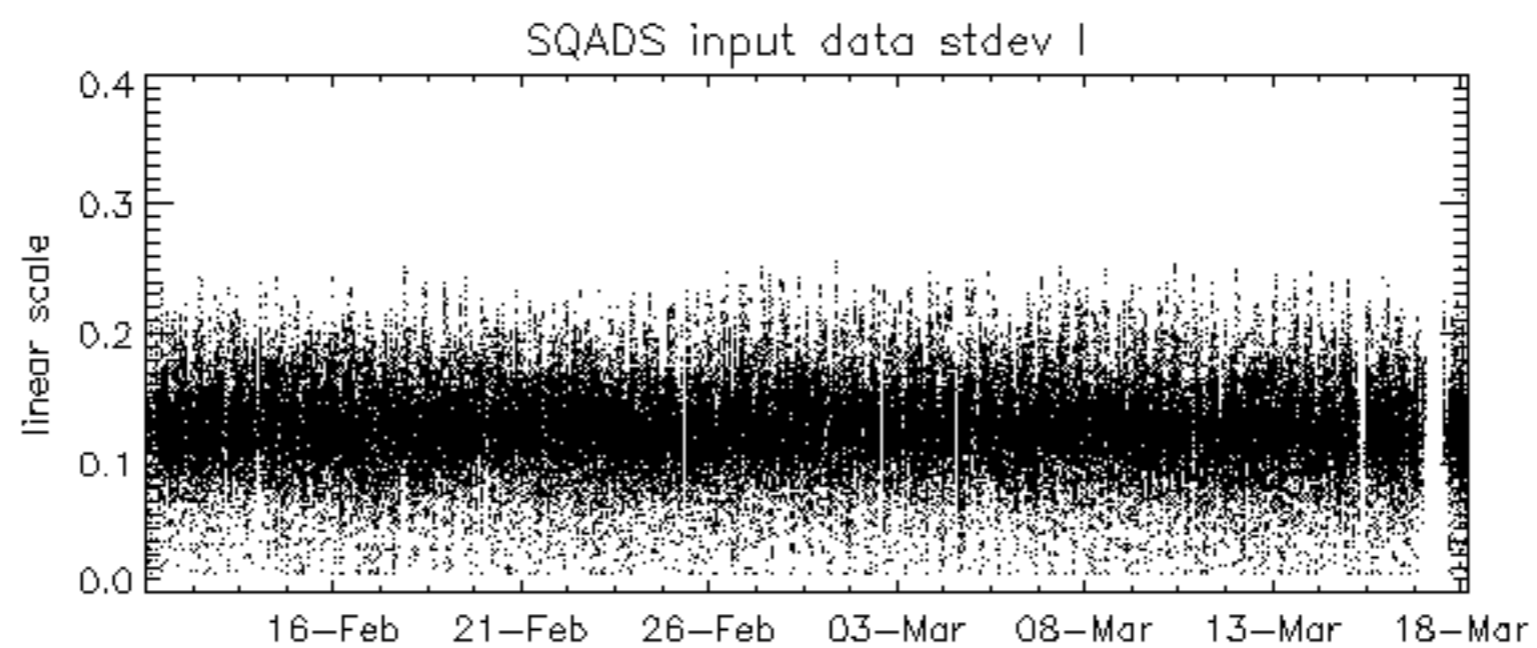
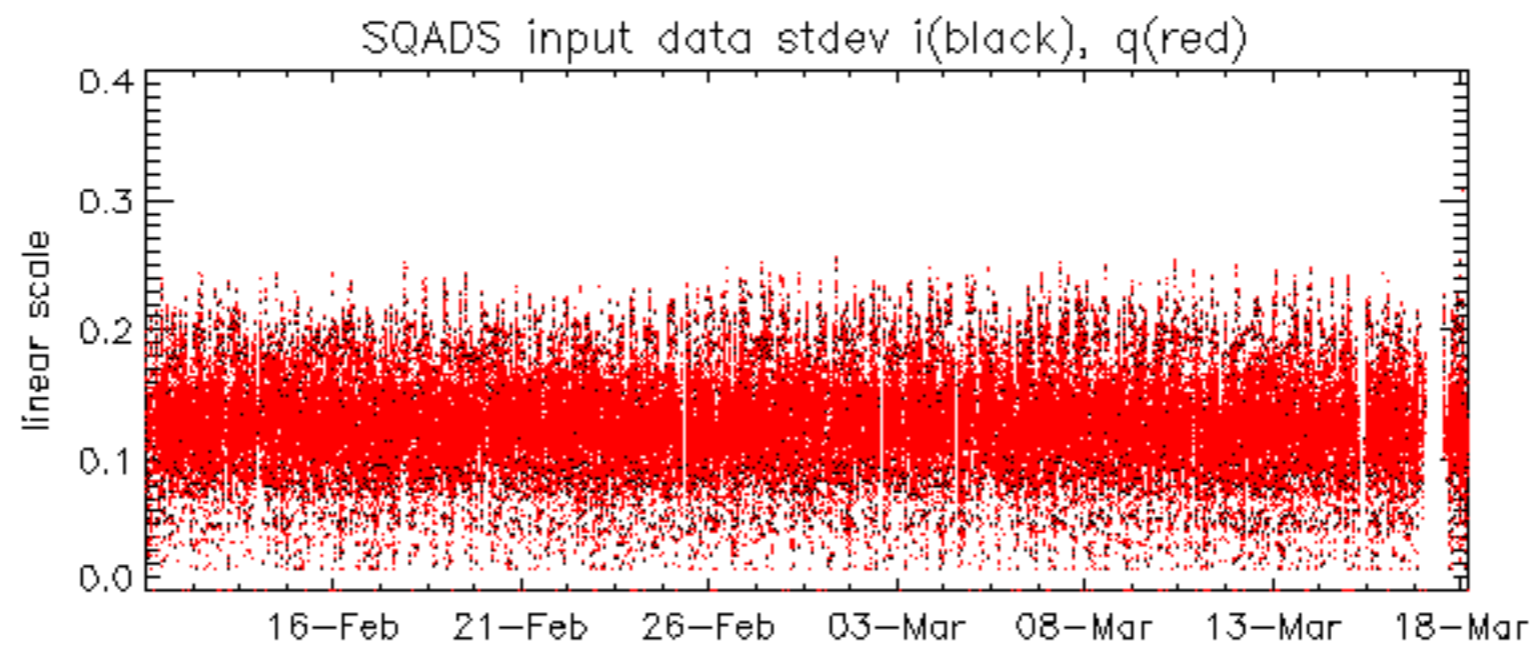








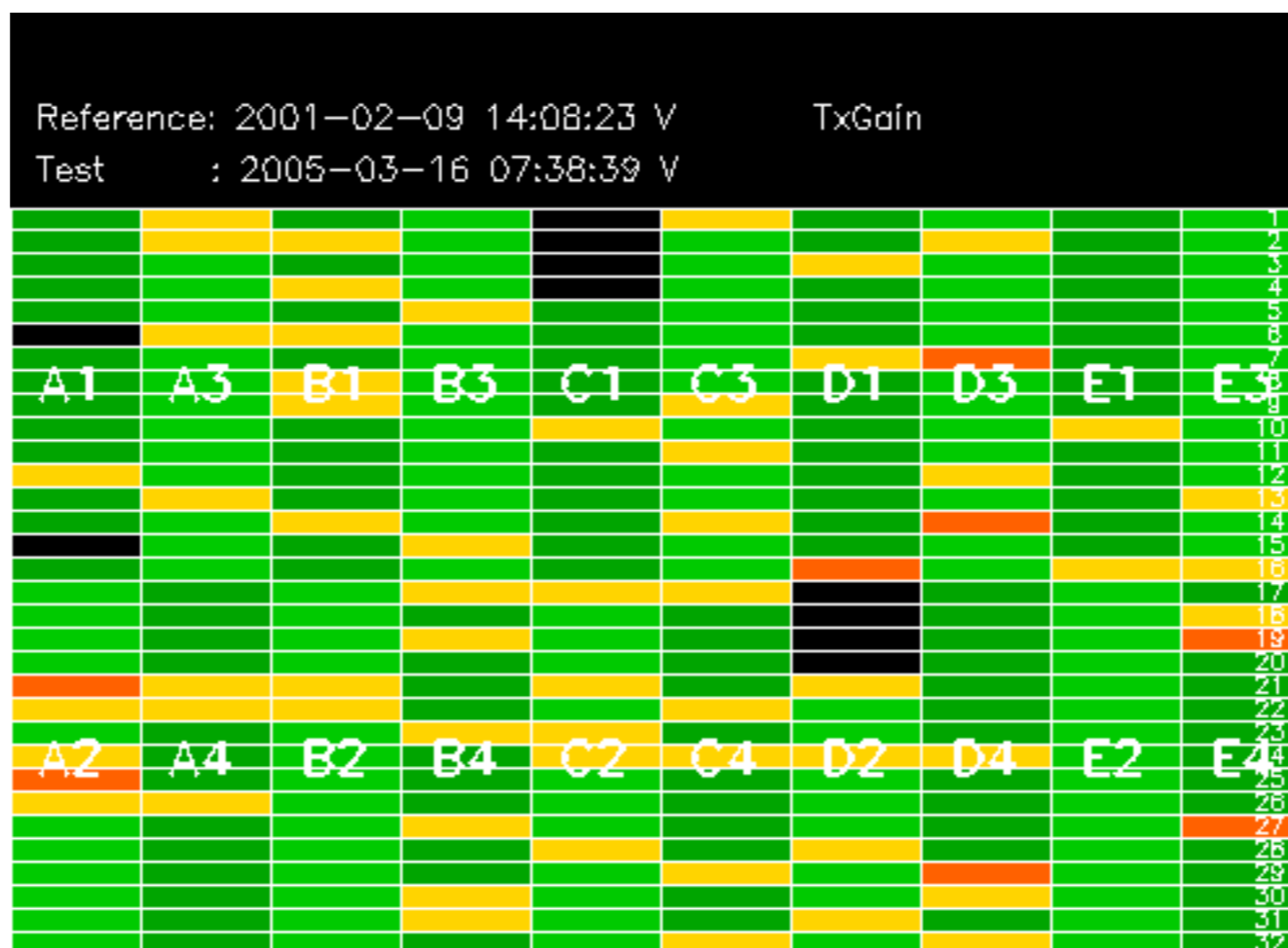


















Summary of analysis for the last 3 days 2005031[678]

The assumptions is taken that the SQADS num\_gaps and num\_missing\_lines fields are reliable indicators of telemetry problems

| Filename   | num_gaps | num_missing_lines |
|--|----------|-------------------|
| ASA_WSM_1PNPDE20050316_021732_000001282035_00318_15903_1197.N1 | 0        | 39                |





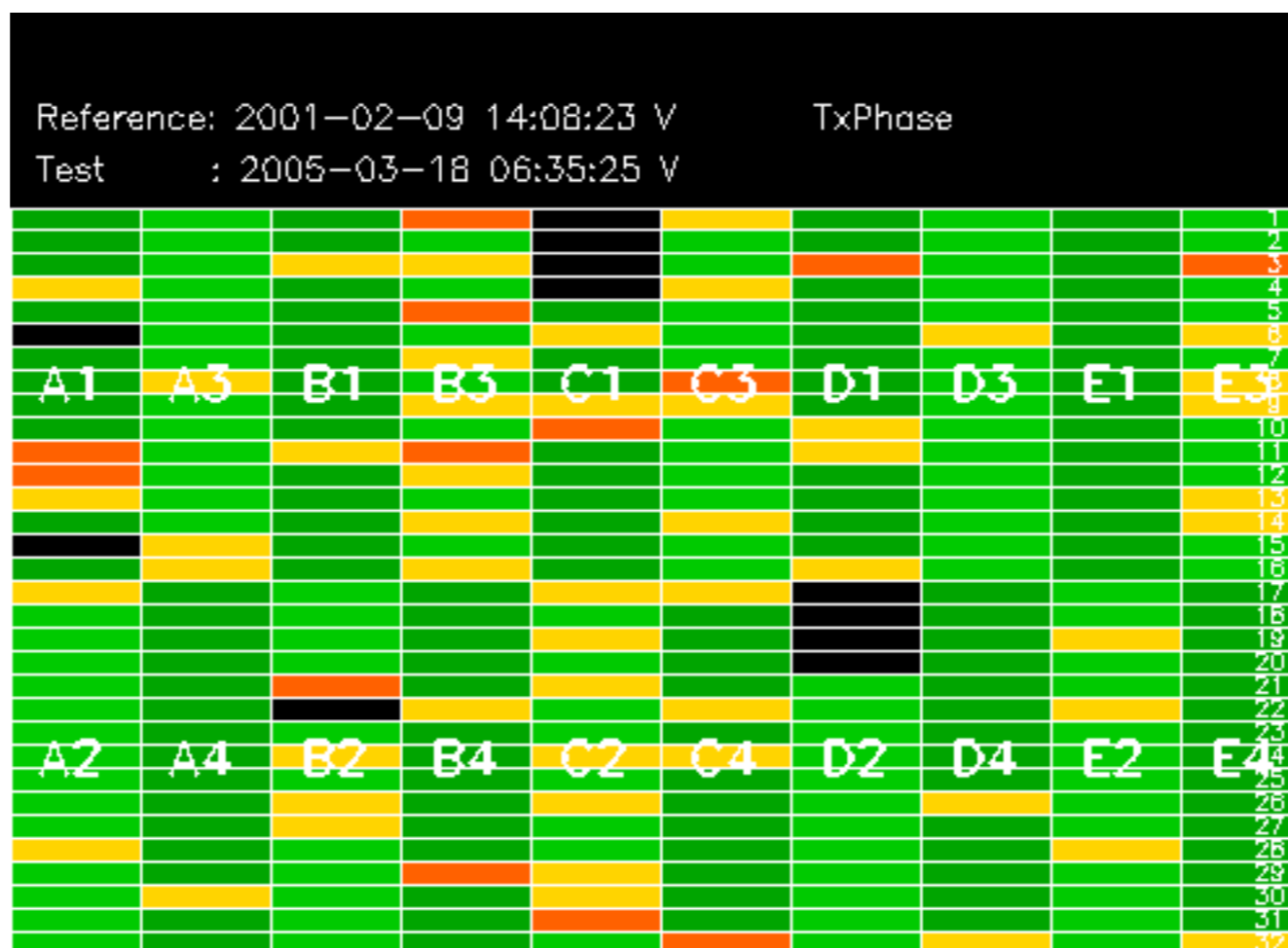




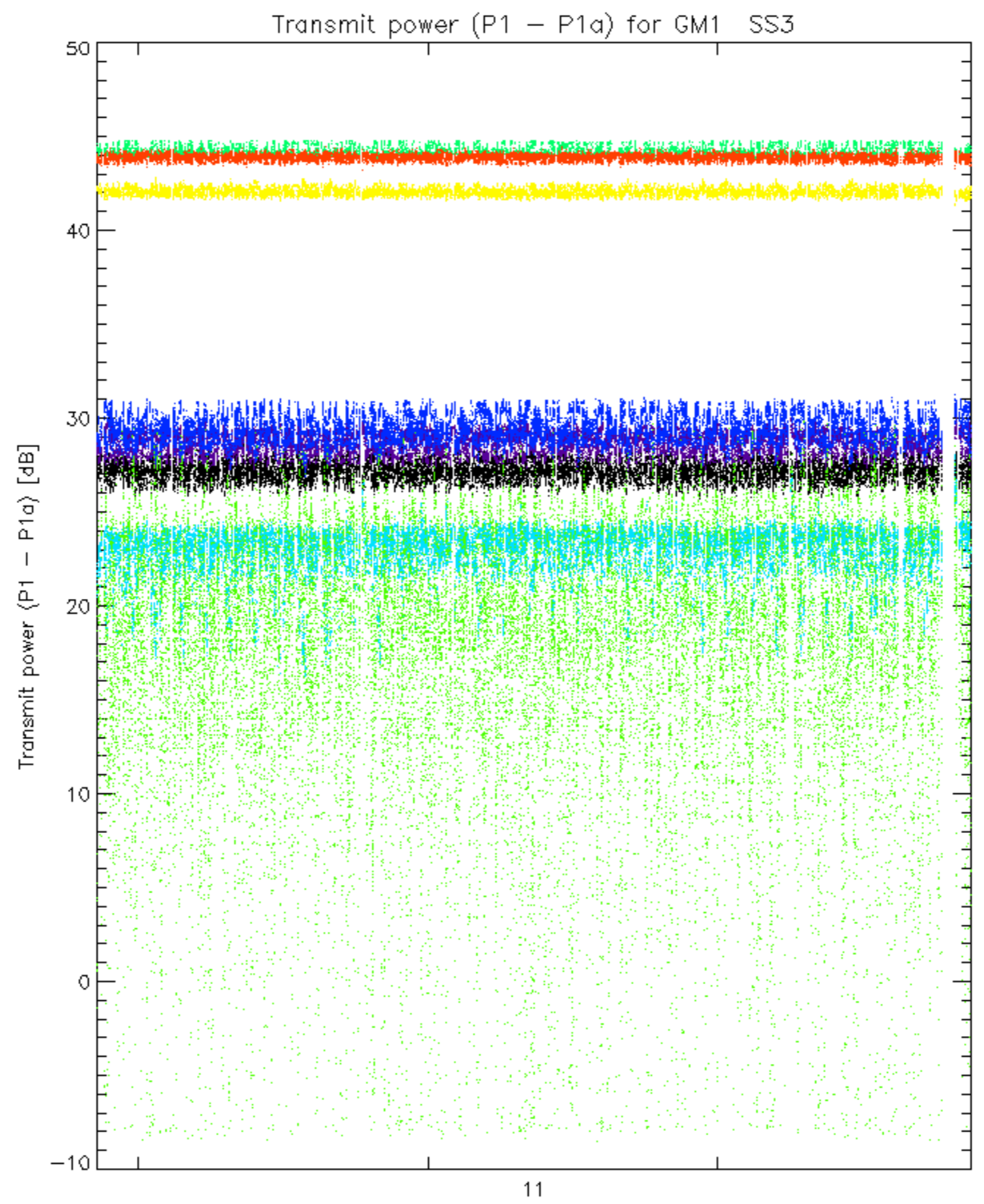




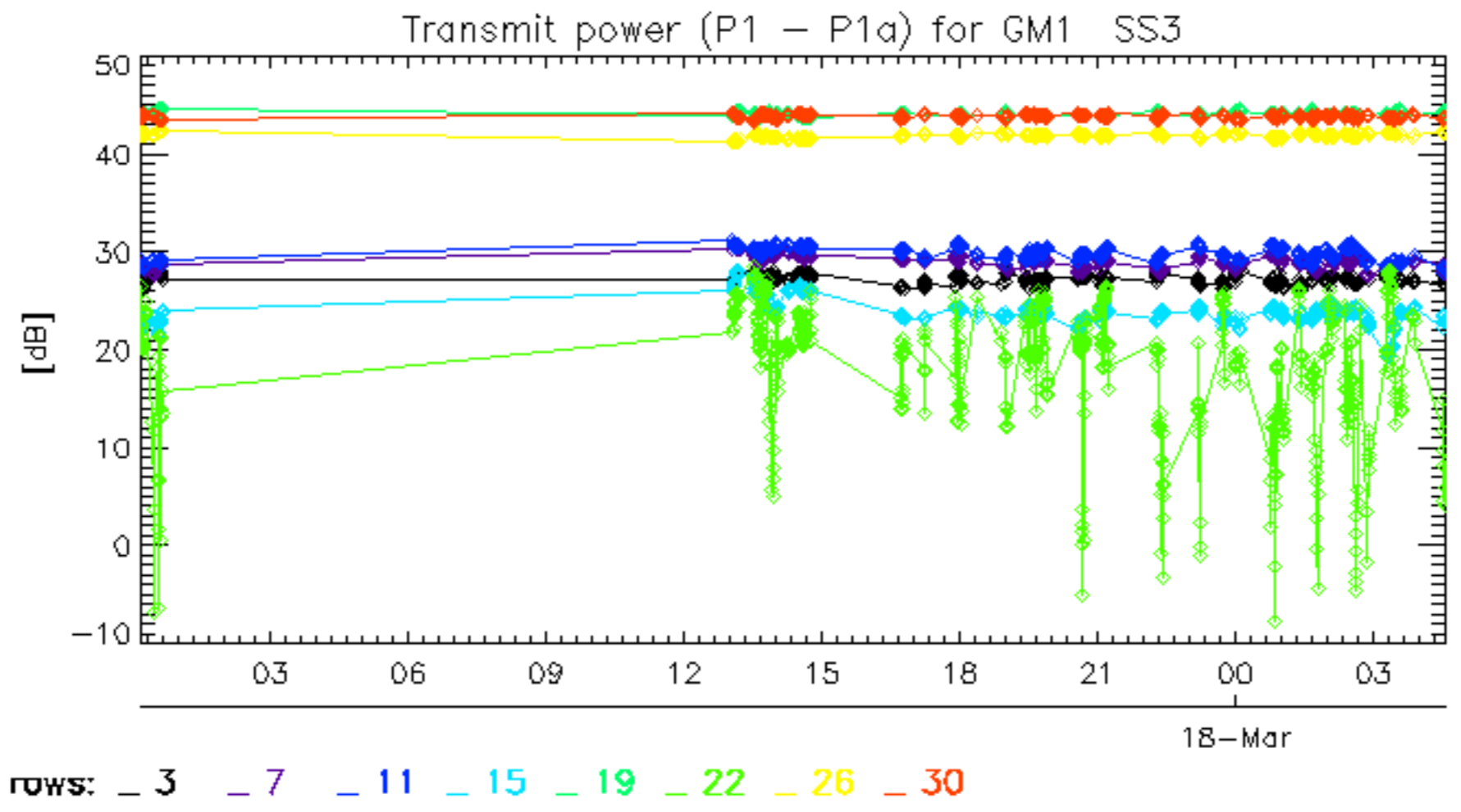




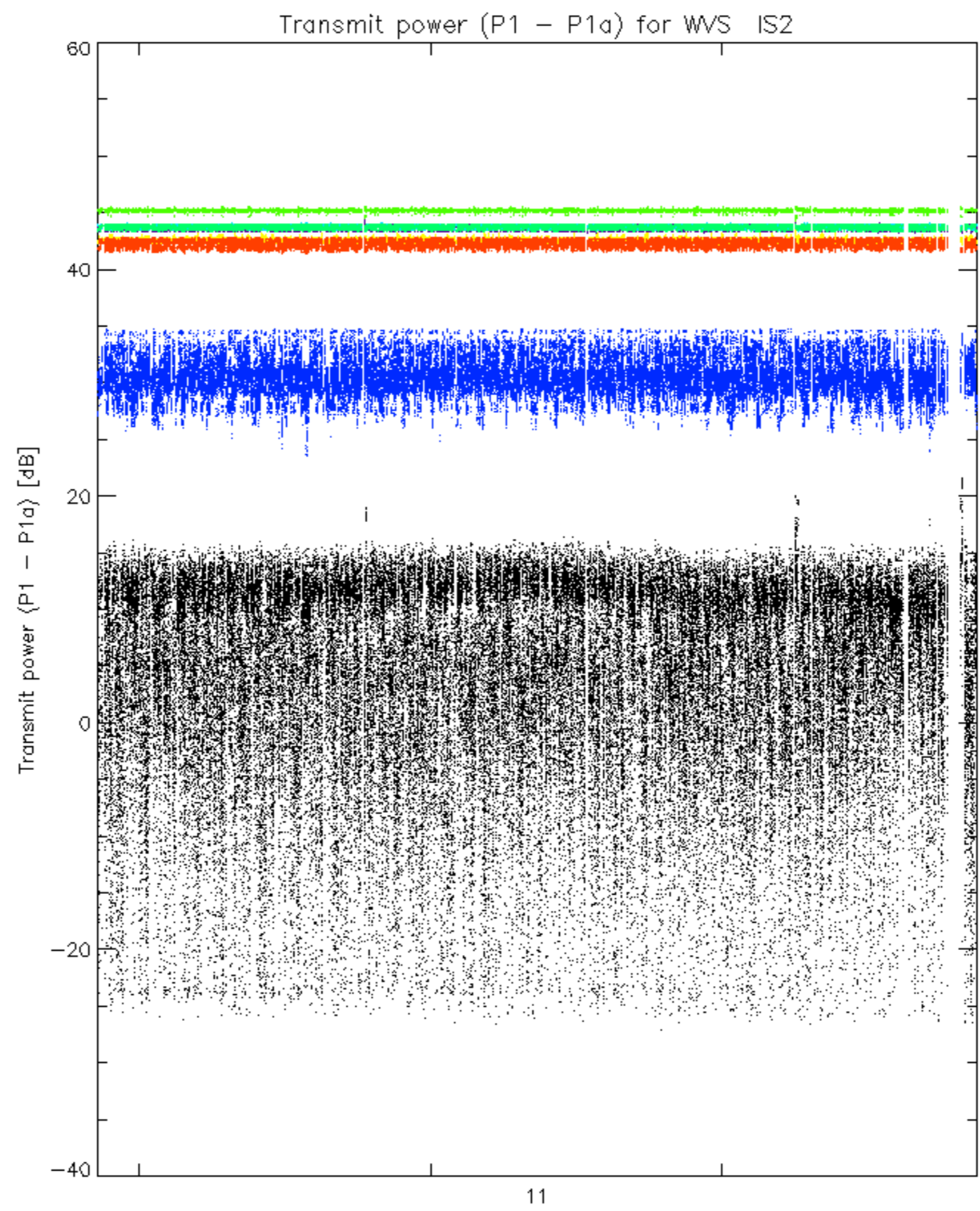


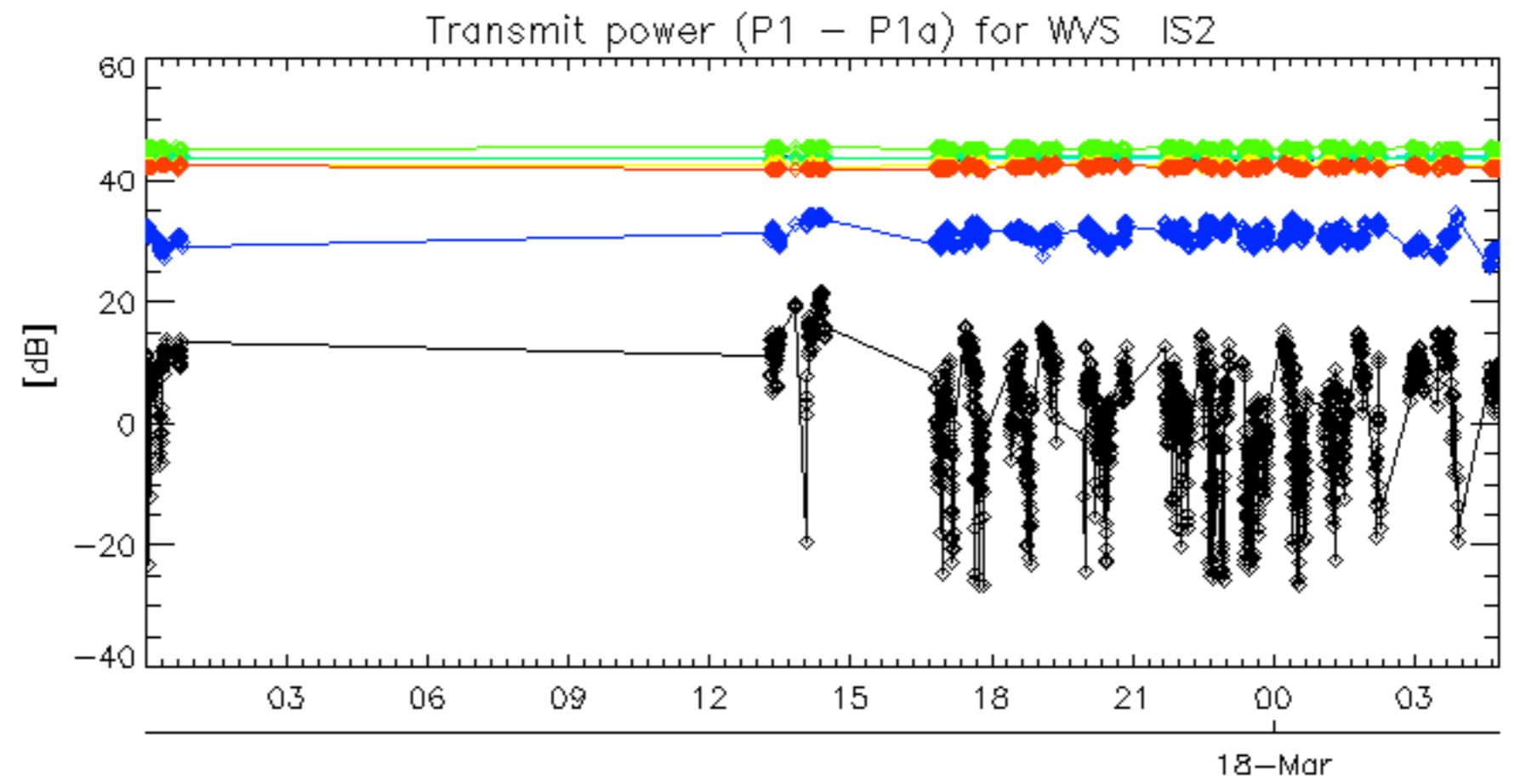


rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30









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

No unavailabilities during the reported period.