

# PRELIMINARY REPORT OF 070507

last update on Mon May 7 23:16:12 GMT 2007

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 2007-05-06 00:00:00 to 2007-05-07 23:16:12

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

|   |    |    |    |   |    |
|---|----|----|----|---|----|
| ASA_INS_AXVIEC20070306_164819_20070307_060000_20071231_000000 | 46 | 95 | 14 | 0 | 33 |
| ASA_CON_AXVIEC20070410_140202_20070204_165113_20071231_000000 | 46 | 95 | 14 | 0 | 33 |
| ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000 | 46 | 95 | 14 | 0 | 33 |
| ASA_XCH_AXVIEC20051219_162547_20020301_000000_20081231_000000 | 46 | 95 | 14 | 0 | 33 |

| PDHS-E  |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|
| AUXILIARY FILE  | WVS | GM1 | IMM | APM | WSM |
| ASA_INS_AXVIEC20070306_164819_20070307_060000_20071231_000000 | 47  | 65  | 45  | 12  | 73  |
| ASA_CON_AXVIEC20070410_140202_20070204_165113_20071231_000000 | 47  | 65  | 45  | 12  | 73  |
| ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000 | 47  | 65  | 45  | 12  | 73  |
| ASA_XCH_AXVIEC20051219_162547_20020301_000000_20081231_000000 | 47  | 65  | 45  | 12  | 73  |

### 2.3 - Browse Visual Inspection

No anomalies observed on available browse products

### 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            | 20070507 180513 |
| H            | 20070506 183650 |

### 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



**P1a Cyclic statistics**

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P1a   | -15.131677 | 0.146862   | -0.276201       |
| 7   | P1a   | -17.565622 | 0.095396   | -0.093332       |
| 11  | P1a   | -17.564646 | 0.366194   | -0.621291       |
| 15  | P1a   | -13.049898 | 0.136530   | -0.378255       |
| 19  | P1a   | -15.366625 | 0.072066   | -0.276931       |
| 22  | P1a   | -15.938486 | 0.394382   | -0.281374       |
| 26  | P1a   | -15.000997 | 0.218945   | 0.287630        |
| 30  | P1a   | -17.780399 | 0.374905   | -0.651349       |

**P1t Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P1    | -5.774251 | 0.010326   | -0.046517       |
| 7   | P1    | -3.152064 | 0.009040   | -0.028641       |
| 11  | P1    | -4.207575 | 0.013199   | 0.002517        |
| 15  | P1    | -6.425104 | 0.020288   | -0.136282       |
| 19  | P1    | -3.781681 | 0.011216   | 0.028680        |
| 22  | P1    | -4.747921 | 0.009650   | -0.008876       |
| 26  | P1    | -3.915276 | 0.019322   | 0.048559        |
| 30  | P1    | -5.967017 | 0.009292   | 0.011169        |

**P2 Cyclic statistics**

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P2    | -22.657894 | 0.091093   | 0.009397        |
| 7   | P2    | -21.548109 | 0.089414   | 0.104767        |
| 11  | P2    | -15.334504 | 0.118216   | 0.179093        |
| 15  | P2    | -7.129916  | 0.088520   | -0.025199       |
| 19  | P2    | -9.120736  | 0.080491   | -0.009710       |
| 22  | P2    | -18.088778 | 0.077017   | -0.007617       |
| 26  | P2    | -16.629704 | 0.082059   | -0.081041       |
| 30  | P2    | -19.271910 | 0.082030   | 0.043608        |

**P3 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P3    | -8.245564 | 0.005149   | -0.006831       |
| 7   | P3    | -8.245564 | 0.005149   | -0.006831       |
| 11  | P3    | -8.245564 | 0.005149   | -0.006831       |
| 15  | P3    | -8.245564 | 0.005149   | -0.006831       |
| 19  | P3    | -8.245564 | 0.005149   | -0.006831       |
| 22  | P3    | -8.245564 | 0.005149   | -0.006831       |
| 26  | P3    | -8.245564 | 0.005149   | -0.006831       |
| 30  | P3    | -8.245564 | 0.005149   | -0.006831       |

**4.2.2 - Evolution for GM1**

Evolution of cal pulses for GM1



**P1a Cyclic statistics**

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P1a   | -11.245119 | 0.128409   | -0.271005       |
| 7   | P1a   | -10.047344 | 0.168211   | 0.086002        |
| 11  | P1a   | -10.684812 | 0.087168   | 0.033462        |
| 15  | P1a   | -10.818155 | 0.157477   | 0.134303        |
| 19  | P1a   | -15.819662 | 0.086896   | -0.117871       |
| 22  | P1a   | -21.411348 | 1.464405   | -0.316213       |
| 26  | P1a   | -15.515777 | 0.363853   | -0.166017       |
| 30  | P1a   | -18.309235 | 0.450236   | 0.102981        |

**P1t Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P1    | -8.395541 | 0.107463   | 0.328656        |
| 7   | P1    | -2.398959 | 0.086577   | 0.073723        |
| 11  | P1    | -2.883252 | 0.022581   | 0.054186        |
| 15  | P1    | -3.812932 | 0.035632   | 0.047904        |
| 19  | P1    | -3.592452 | 0.014506   | -0.033911       |
| 22  | P1    | -4.963743 | 0.023239   | 0.070935        |

|    |    |           |          |           |
|----|----|-----------|----------|-----------|
| 26 | P1 | -6.043408 | 0.024773 | -0.051443 |
| 30 | P1 | -5.342607 | 0.031703 | -0.034790 |

### P2 Cyclic statistics

| row | pulse | mean (dB)  | stdev (dB) | slope(dB/cycle) |
|-----|-------|------------|------------|-----------------|
| 3   | P2    | -18.183756 | 0.064810   | -0.059602       |
| 7   | P2    | -22.045280 | 0.169910   | -0.044380       |
| 11  | P2    | -10.640461 | 0.043557   | -0.038723       |
| 15  | P2    | -4.929280  | 0.041309   | -0.071980       |
| 19  | P2    | -6.870952  | 0.039830   | -0.021191       |
| 22  | P2    | -8.108302  | 0.079279   | 0.012578        |
| 26  | P2    | -24.325178 | 0.129529   | -0.027051       |
| 30  | P2    | -21.707949 | 0.101037   | 0.040208        |

### P3 Cyclic statistics

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|-----|-------|-----------|------------|-----------------|
| 3   | P3    | -8.090774 | 0.004902   | 0.000686        |
| 7   | P3    | -8.090748 | 0.004907   | 0.000734        |
| 11  | P3    | -8.090617 | 0.004904   | 0.000418        |
| 15  | P3    | -8.090547 | 0.004906   | 0.000409        |
| 19  | P3    | -8.090648 | 0.004924   | 0.000668        |
| 22  | P3    | -8.090527 | 0.004898   | 0.000977        |
| 26  | P3    | -8.090652 | 0.004907   | 0.000639        |
| 30  | P3    | -8.090570 | 0.004899   | 0.000637        |

## 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  | 0.000547571 |
|         | stdev | 1.97257e-07 |
| MEAN Q  | mean  | 0.000499877 |
|         | stdev | 2.41534e-07 |



### 5.2 - Input stdev I/Q

| channel | stat  | DSS-B      |
|---------|-------|------------|
| STDEV I | mean  | 0.135769   |
|         | stdev | 0.00121292 |
| STDEV Q | mean  | 0.136157   |
|         | stdev | 0.00123045 |



### 5.3 - Gain imbalance I/Q



## 6 - Telemetry analysis

Summary of analysis for the last 3 days 2007050[567]

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_GM1_1PNPDK20070507_103322_000006402057_00495_27102_9475.N1 | 0        | 28                |
| ASA_WSM_1PNPDE20070505_134710_000000852057_00468_27075_9521.N1 | 0        | 26                |
| ASA_WSM_1PNPDE20070506_094328_000000852057_00480_27087_0728.N1 | 0        | 1                 |
| ASA_WSM_1PNPDE20070506_113212_000001532057_00481_27088_0776.N1 | 0        | 25                |
| ASA_WSM_1PNPDE20070507_165905_000000852057_00499_27106_2177.N1 | 0        | 72                |



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

### 7.2 - Absolute Doppler for WVS

#### Evolution of Absolute Doppler

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

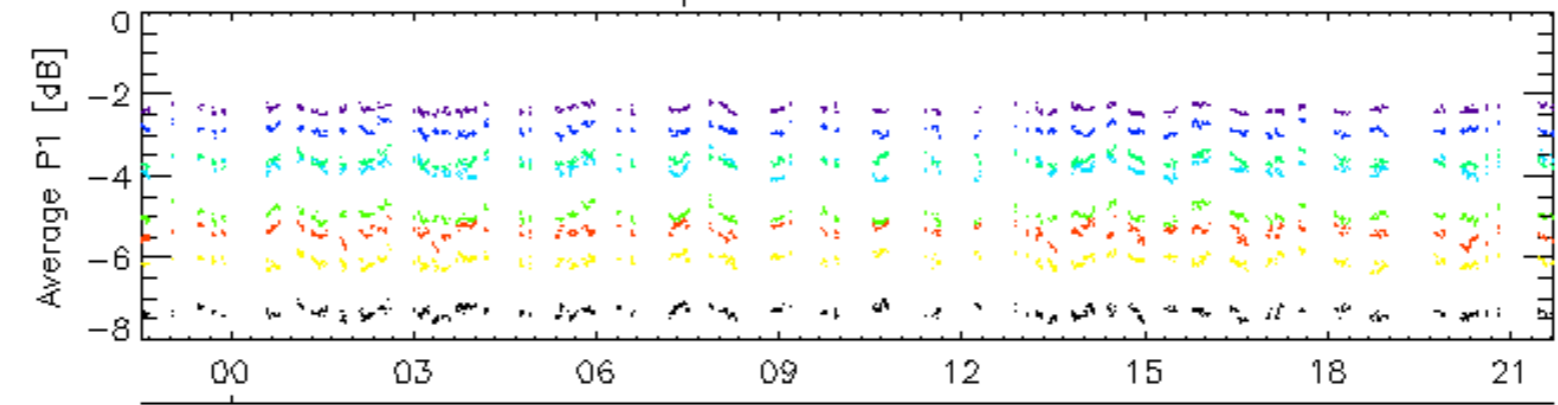
|                          |            |
|--------------------------|------------|
| <input type="checkbox"/> |            |
|                          | Ascending  |
| <input type="checkbox"/> |            |
|                          | Descending |

### 7.6 - Doppler evolution versus ANX for GM1

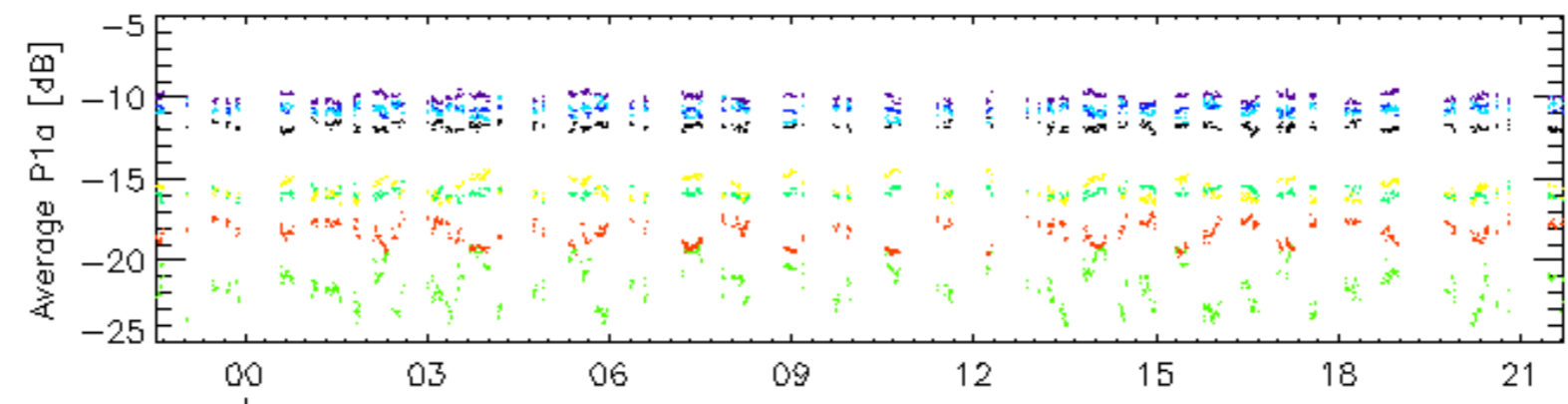
Evolution Doppler error versus ANX

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

Cal pulses for GM1 SS3

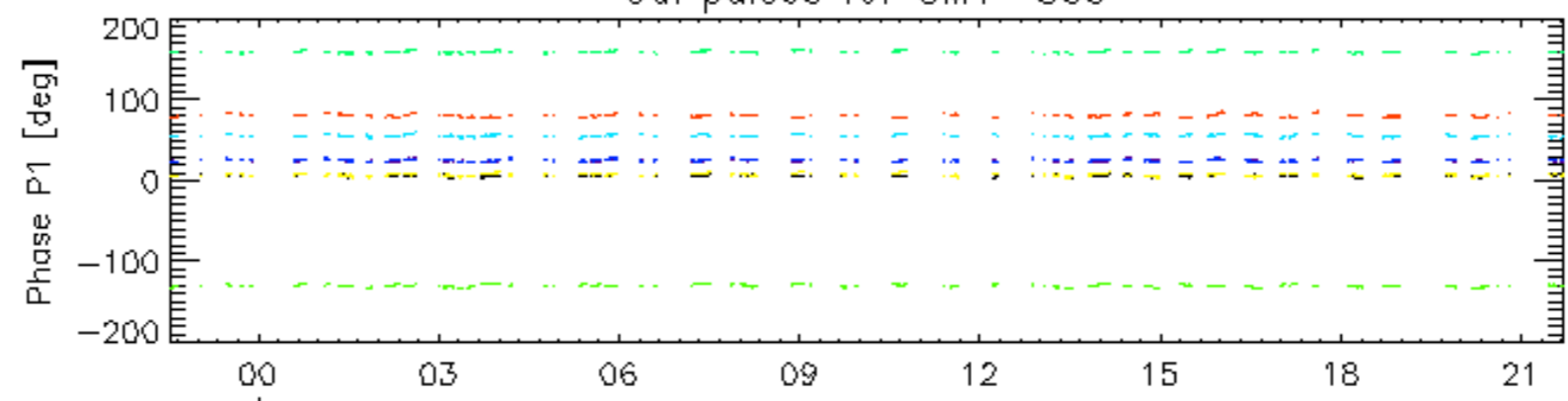


07-May

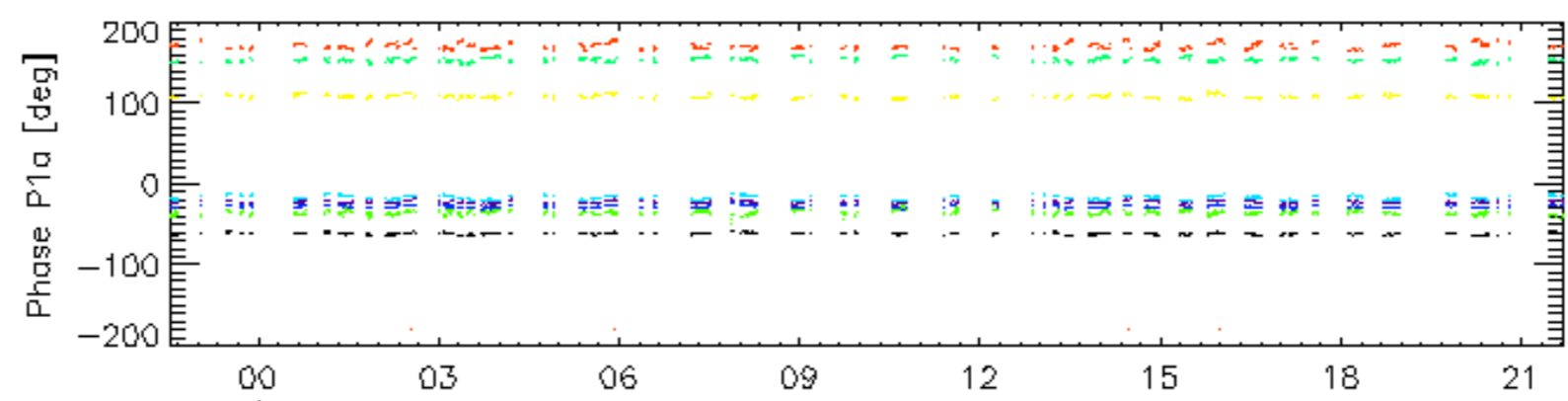


07-May

Cal pulses for GM1 SS3

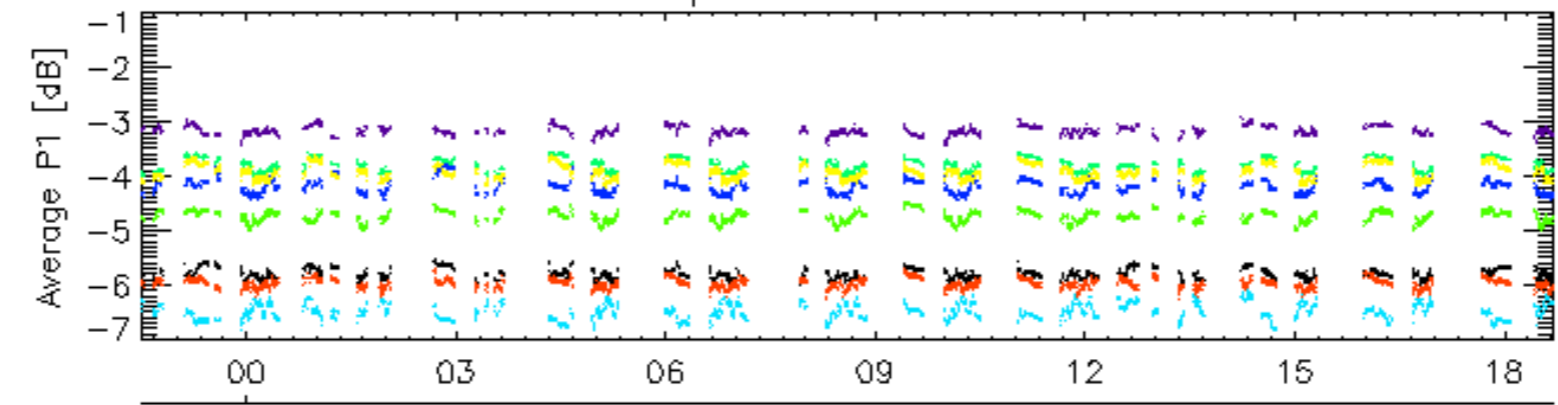


07-May

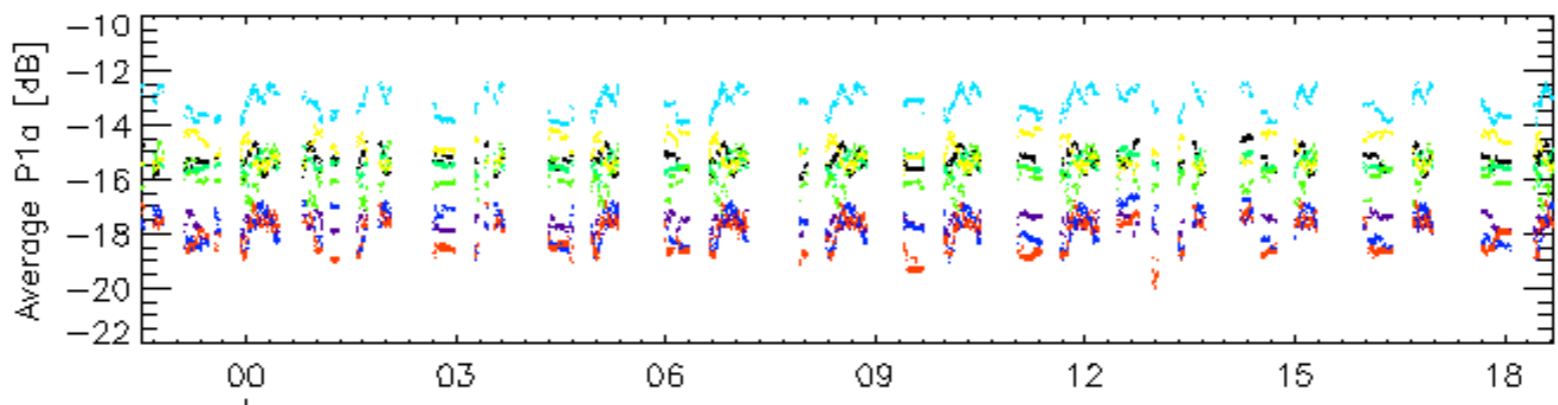


rows: 07-May  
3 7 11 15 19 22 26 30

Cal pulses for WVS IS2

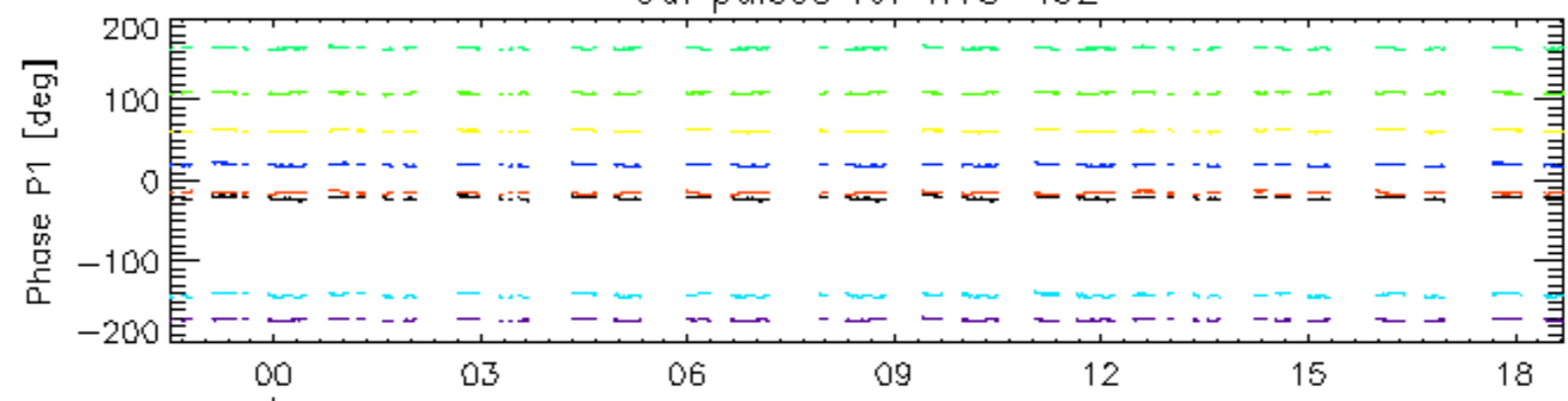


07-May

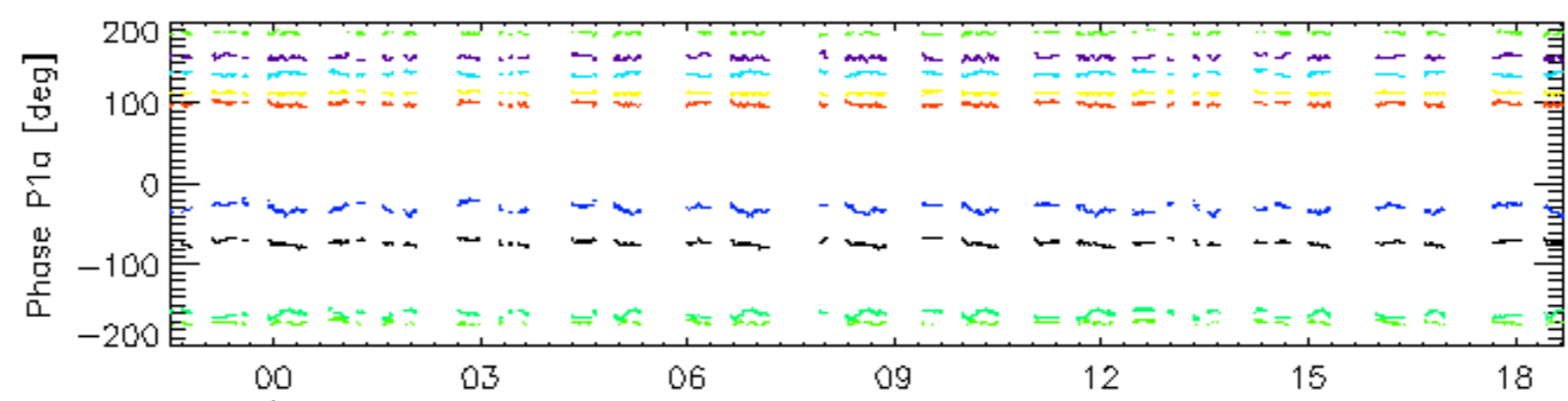


07-May

Cal pulses for WVS IS2

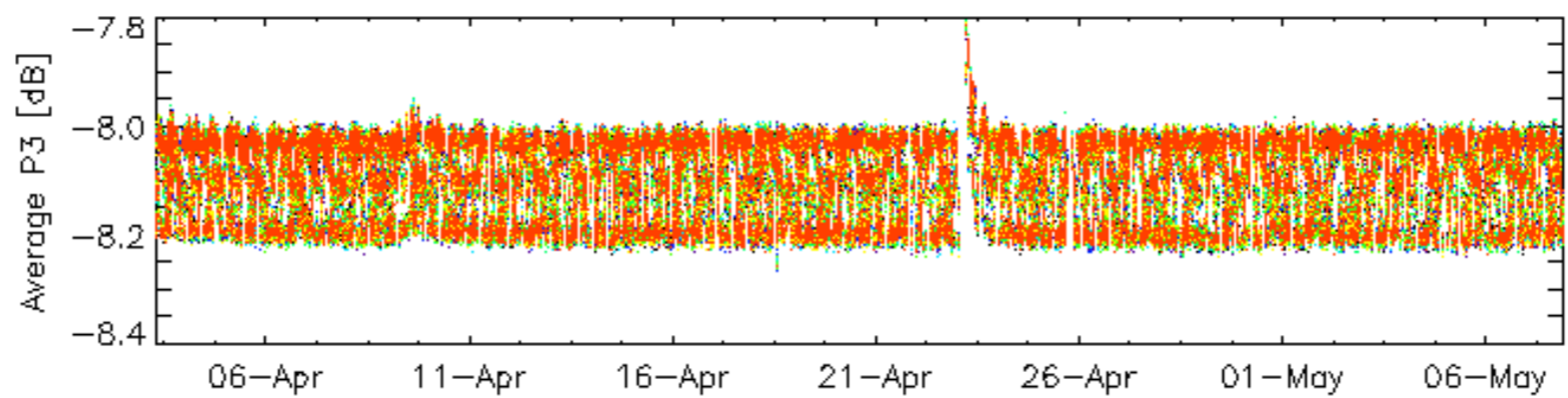
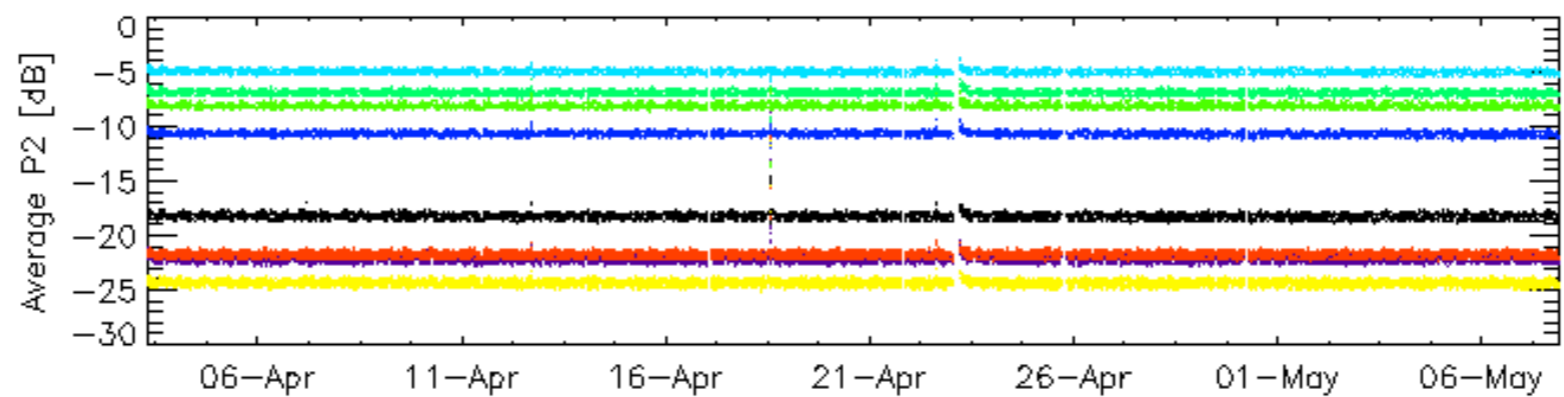
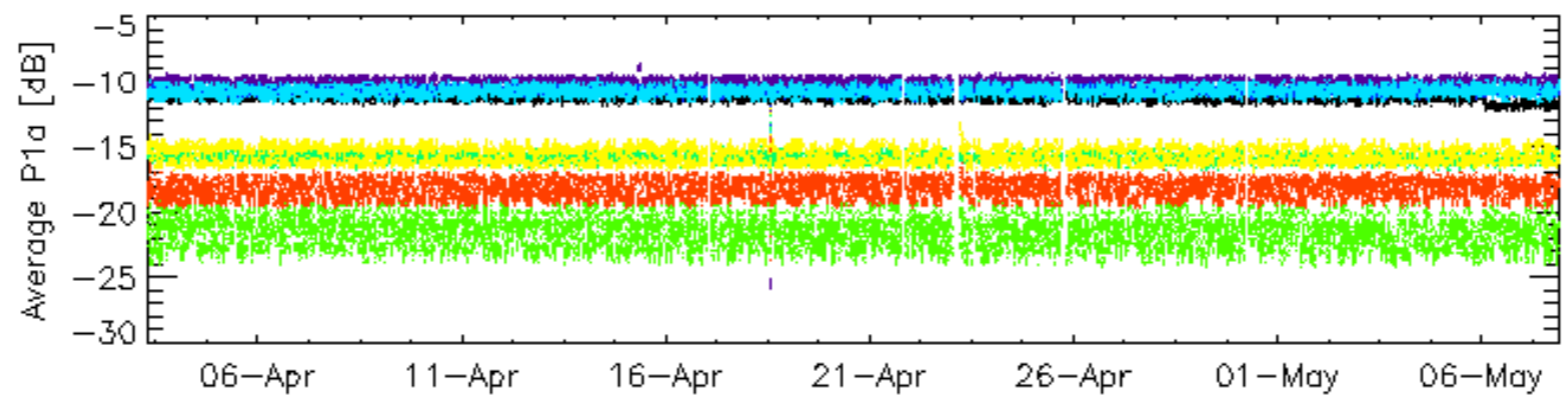
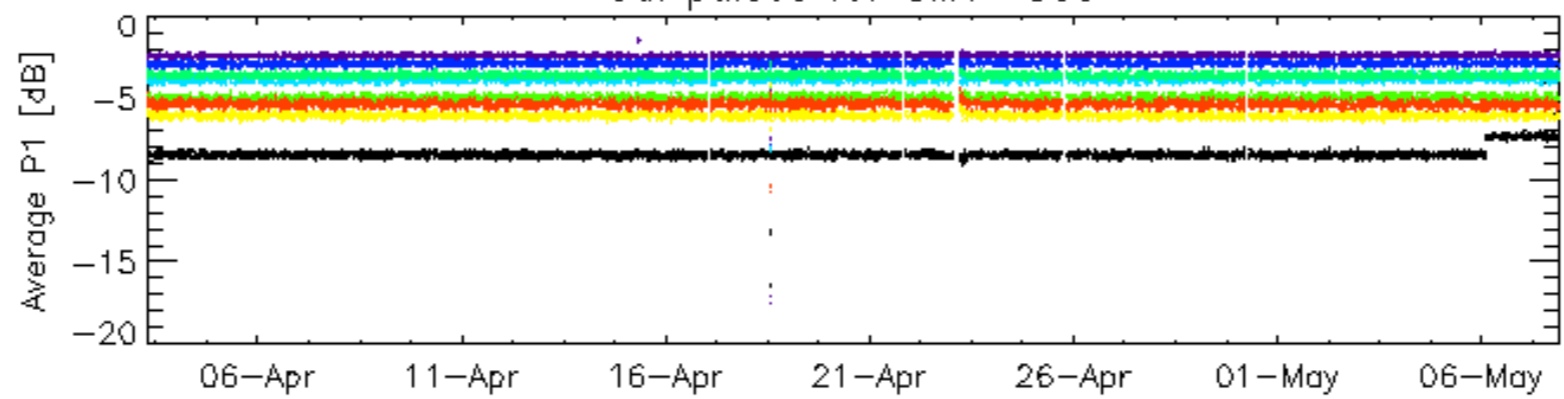


07-May



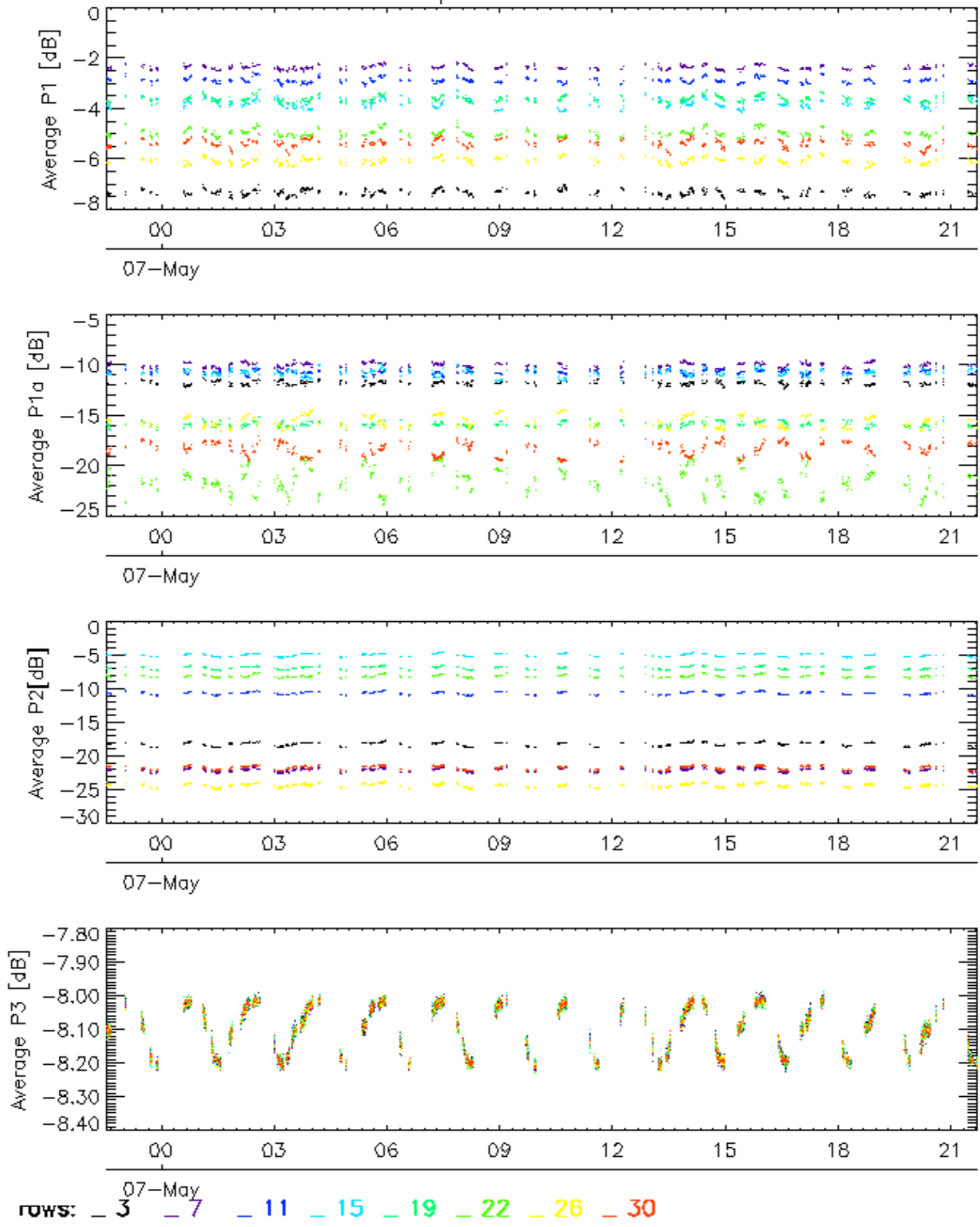
rows: **3** **7** **11** **15** **19** **22** **26** **30**

Cal pulses for GM1 SS3

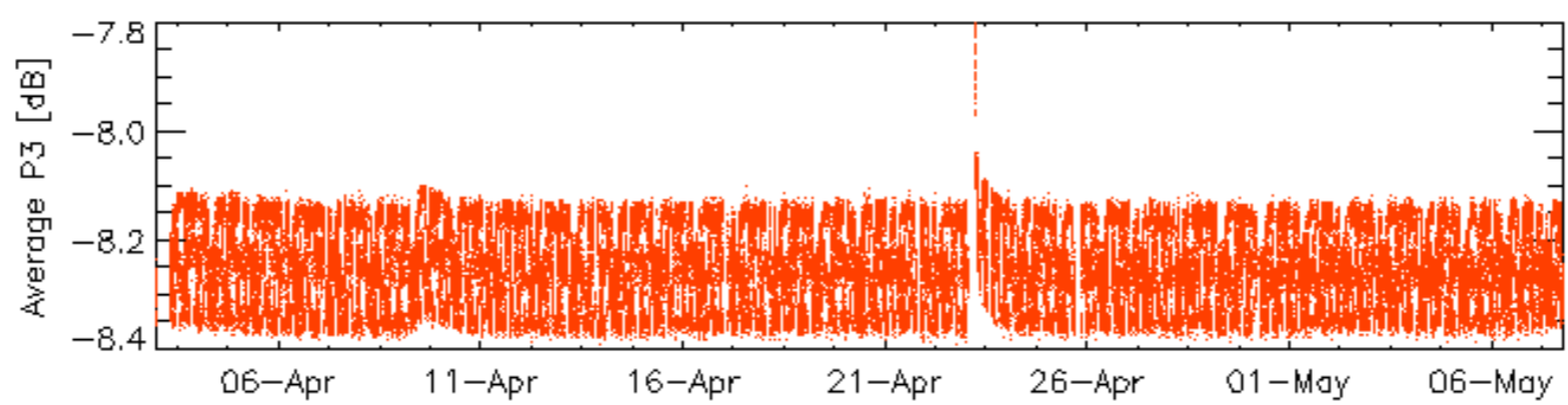
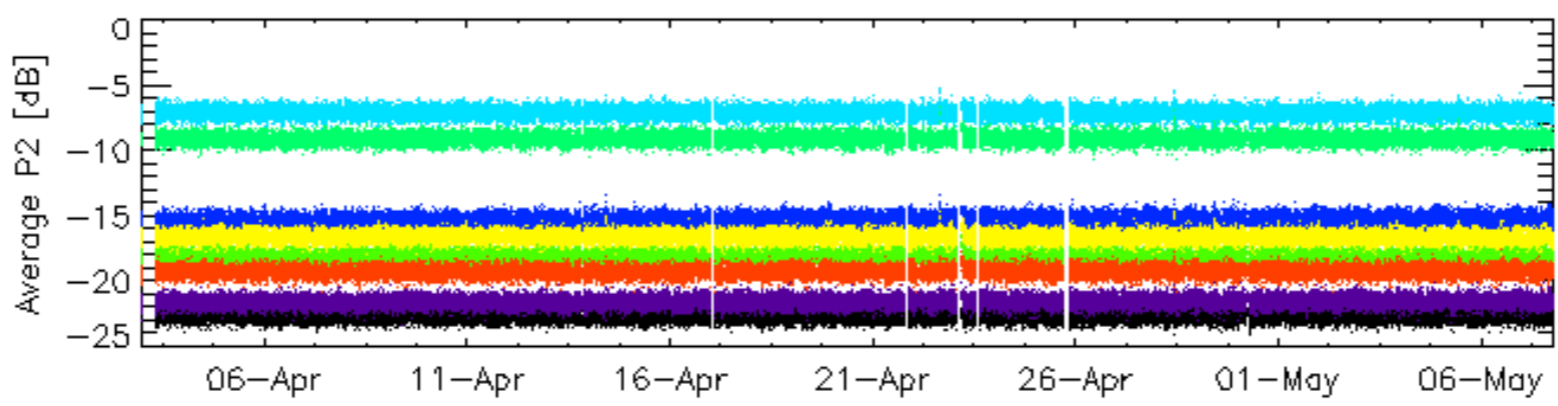
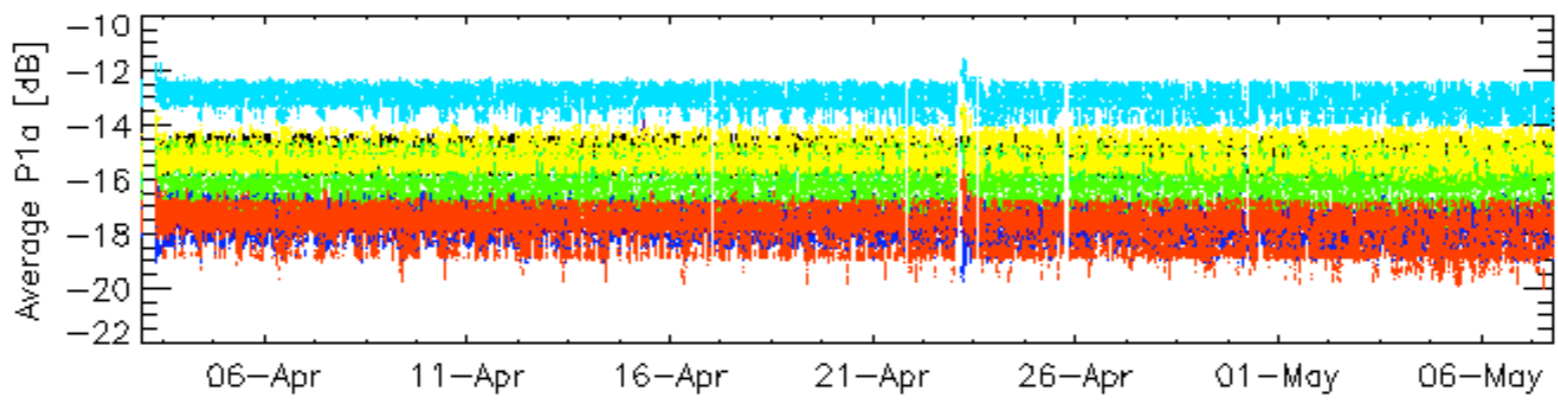
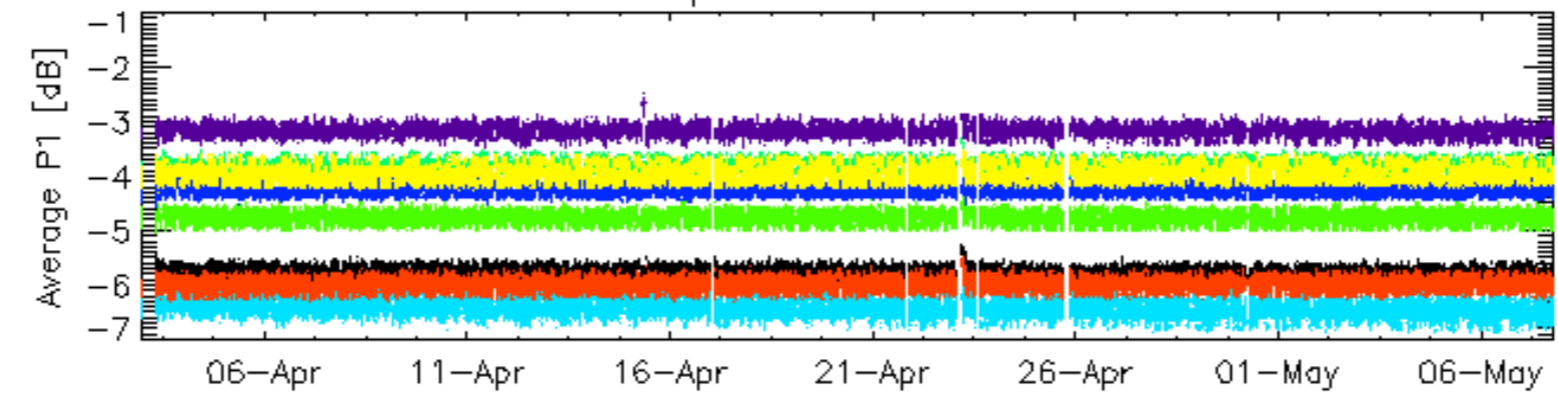


rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30

Cal pulses for GM1 SS3

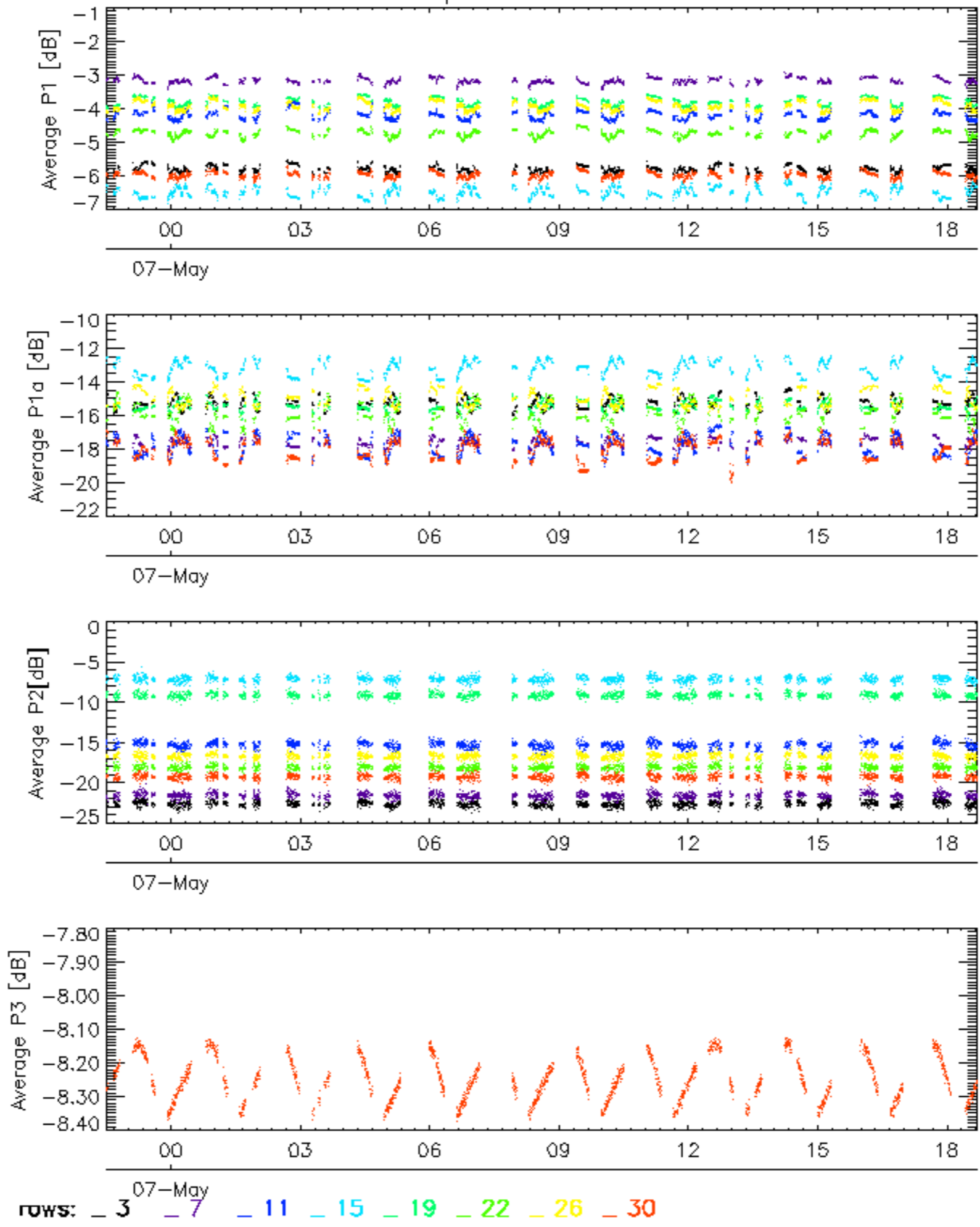


Cal pulses for WVS IS2



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

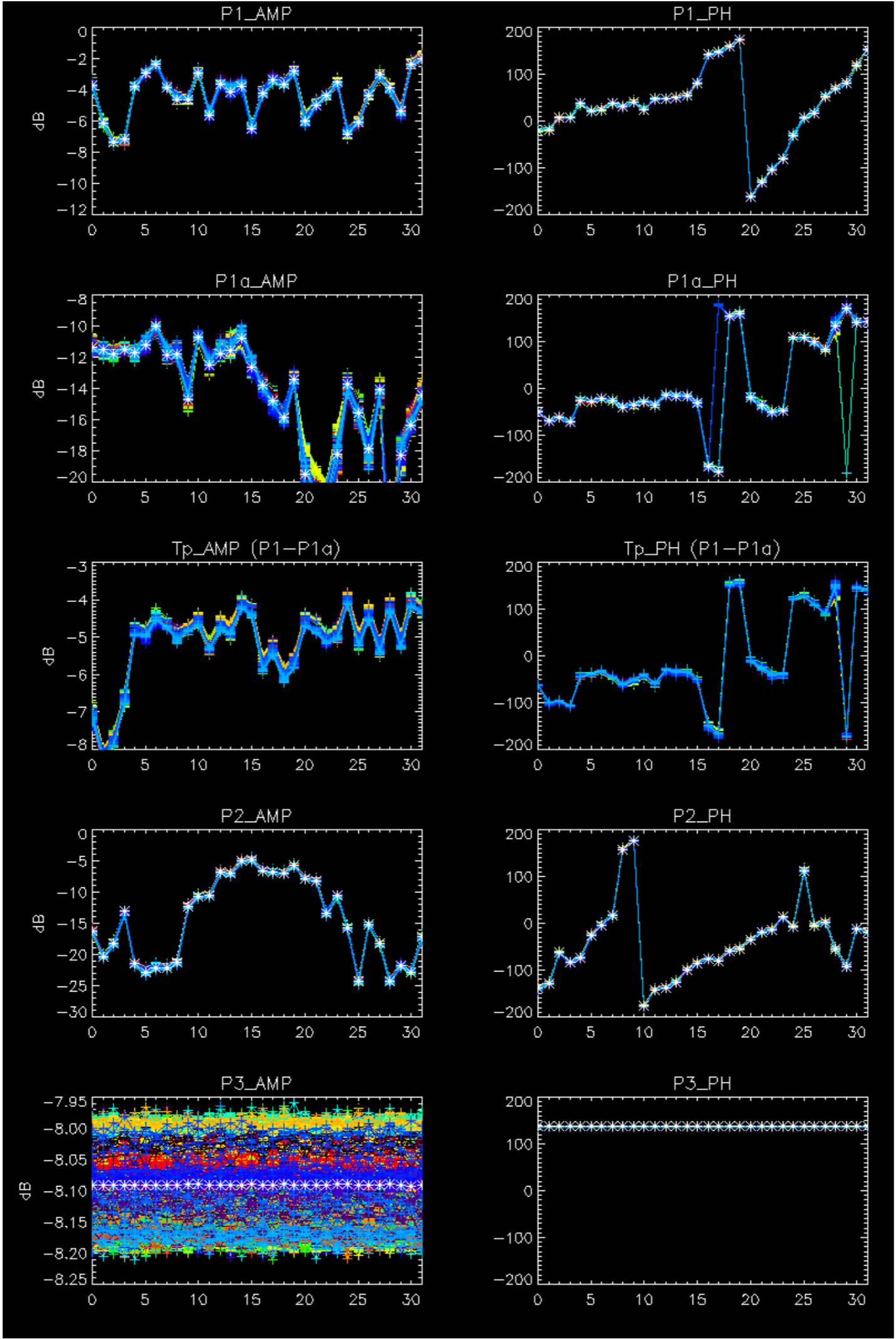
Cal pulses for WVS IS2

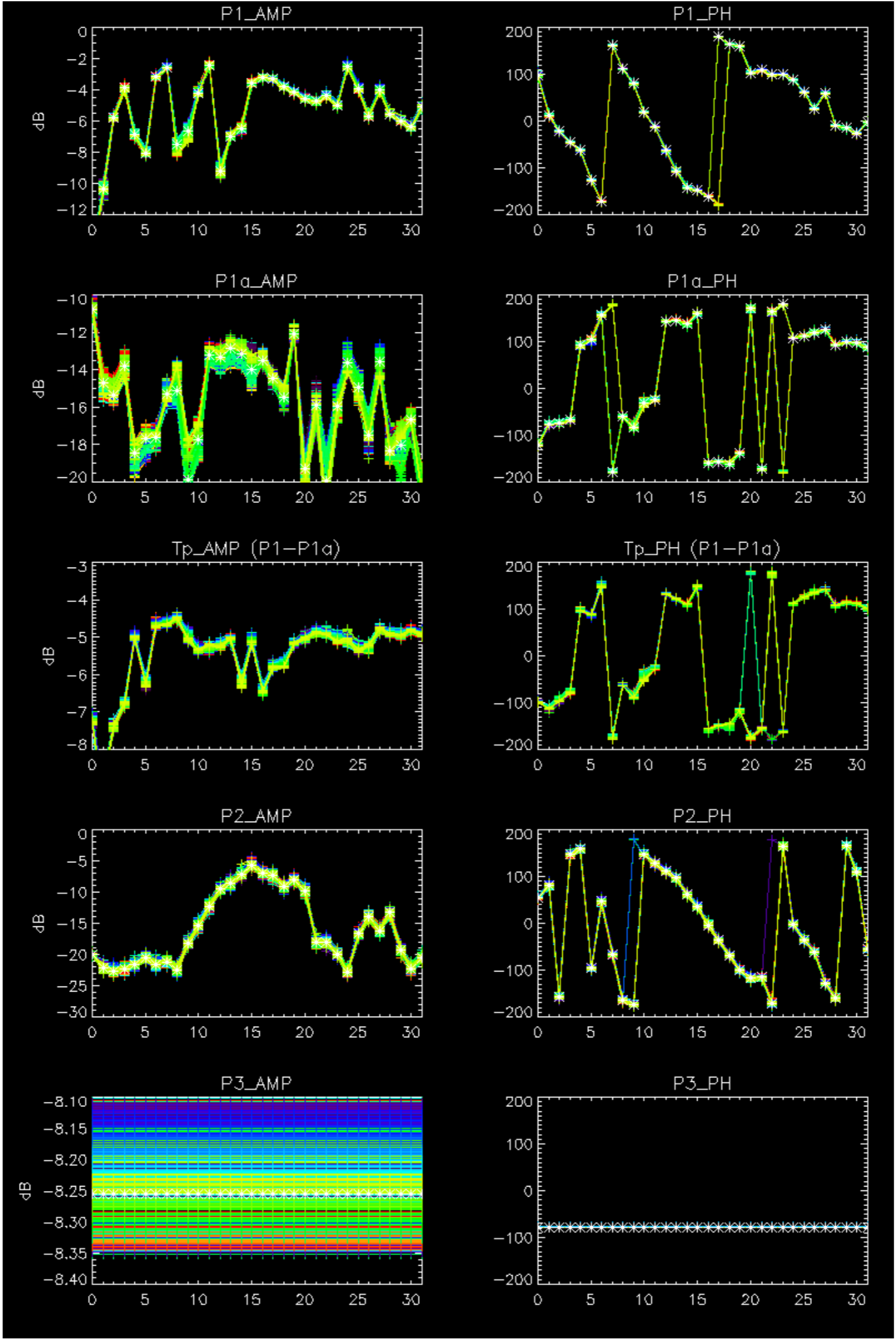


No anomalies observed on available browse products



No anomalies observed.

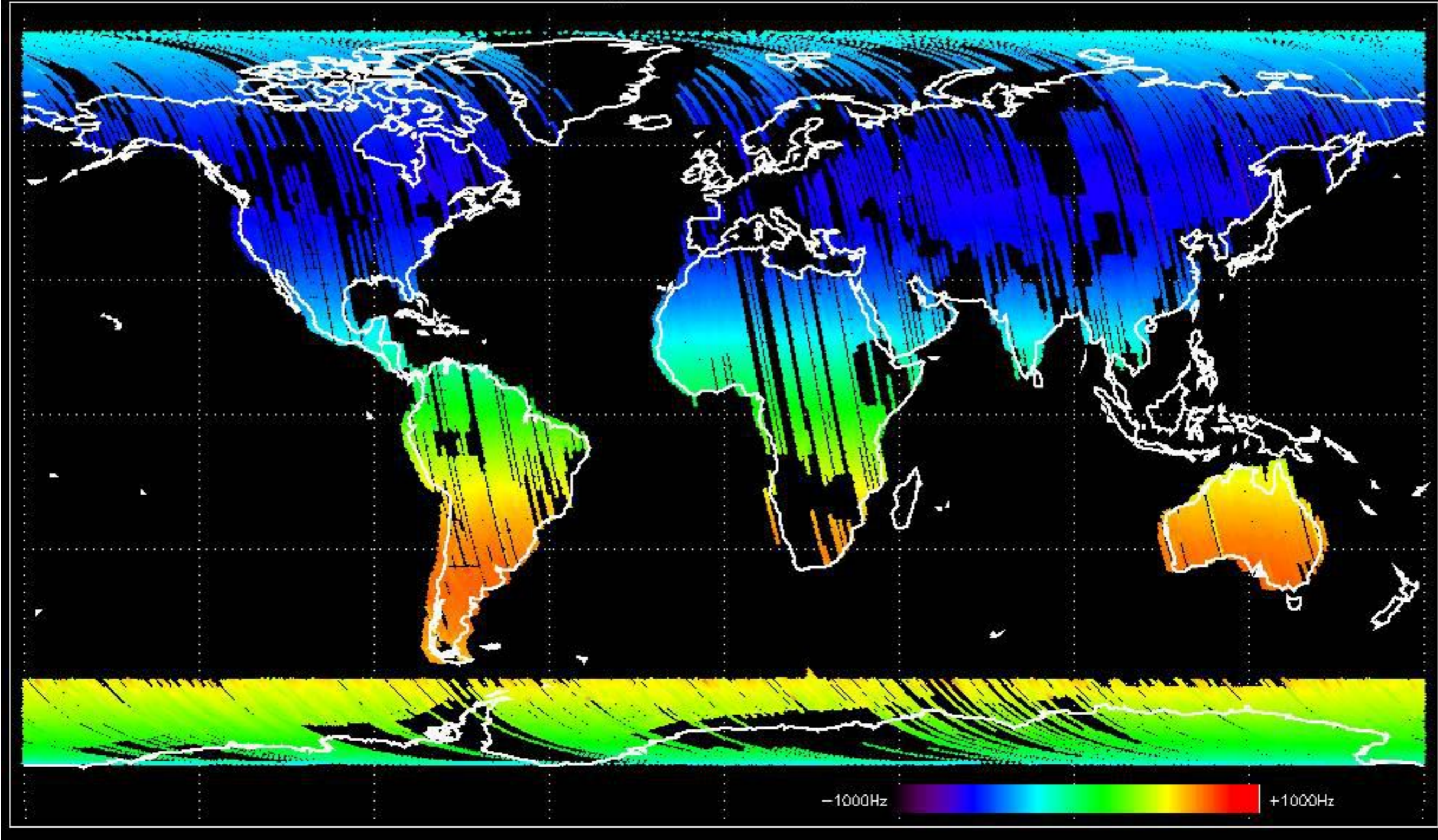




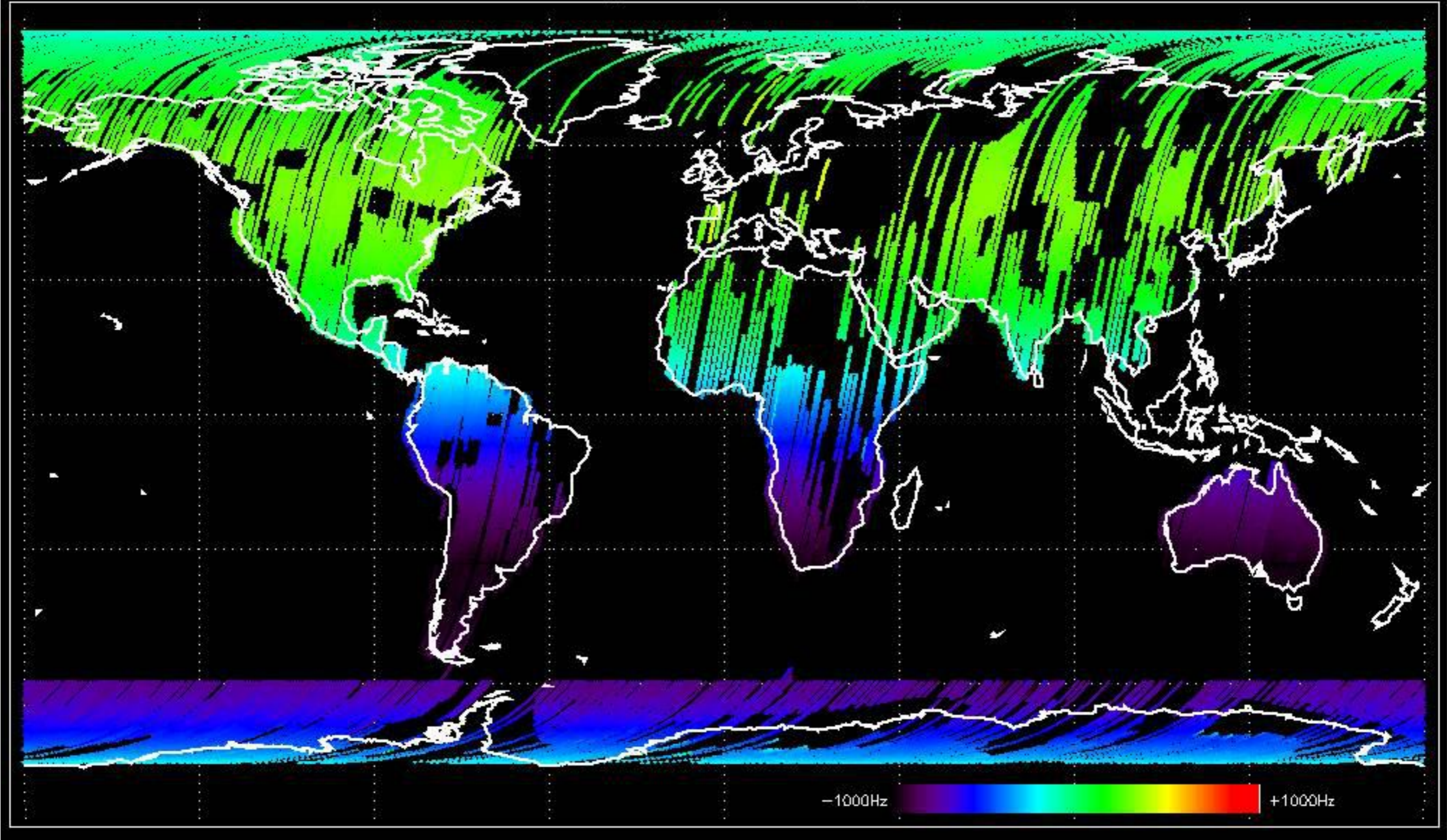
- Stable wave internal calibration pulses gain and phase.
- Stable raw data statistics.
- Nominal Doppler behavior.



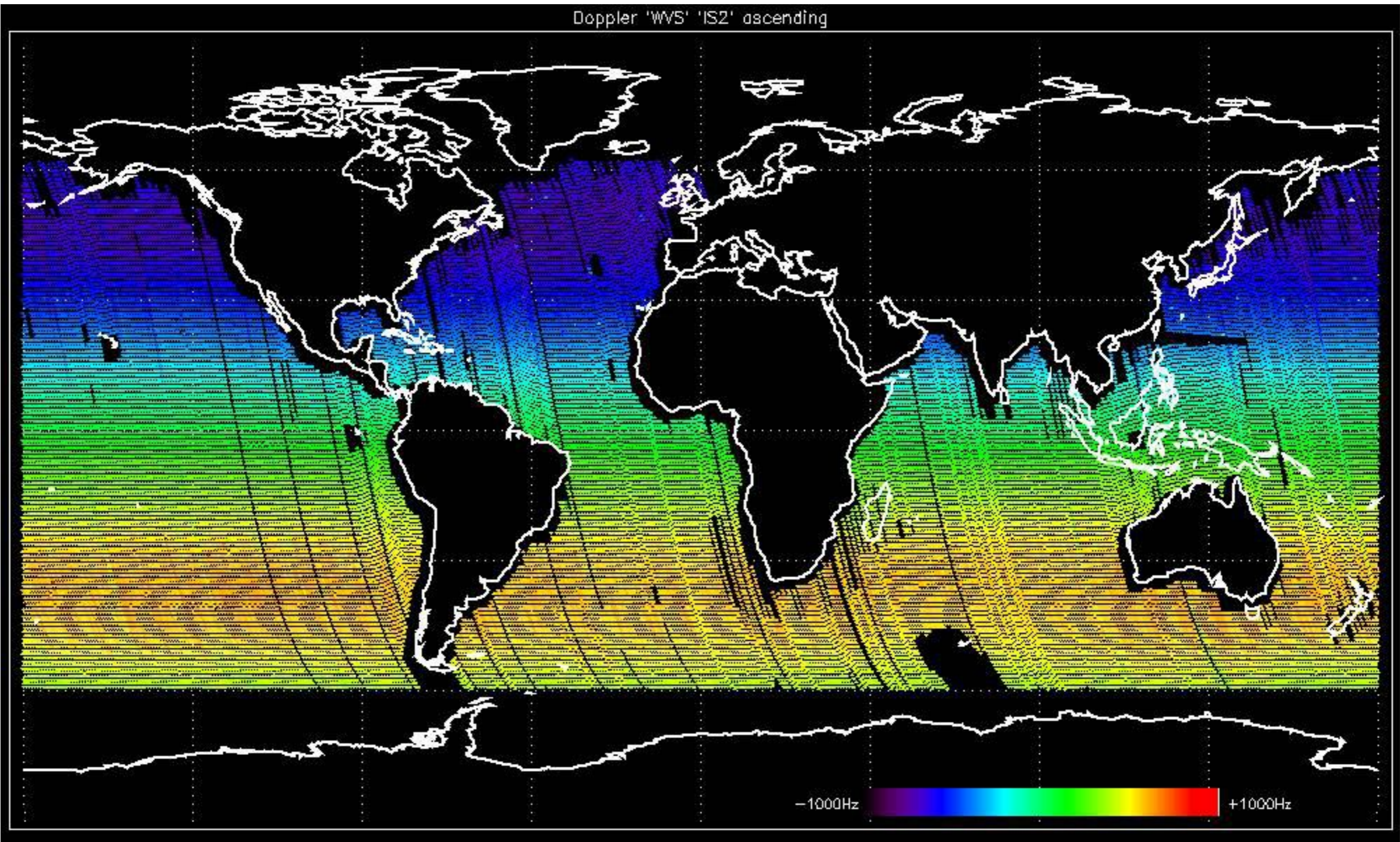
Doppler 'GM1' 'SS1' ascending



Doppler 'GM1' 'SS1' descending

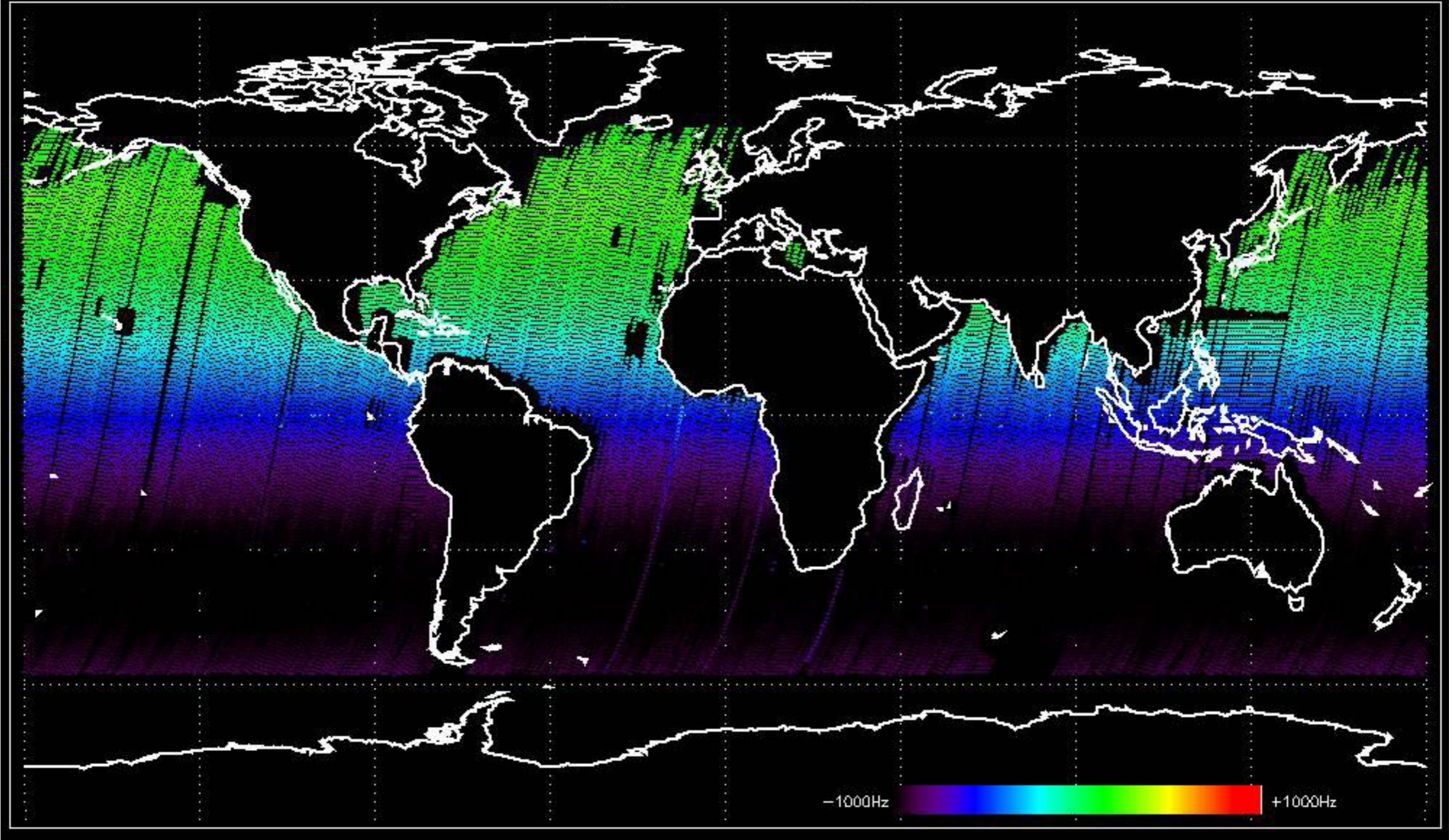


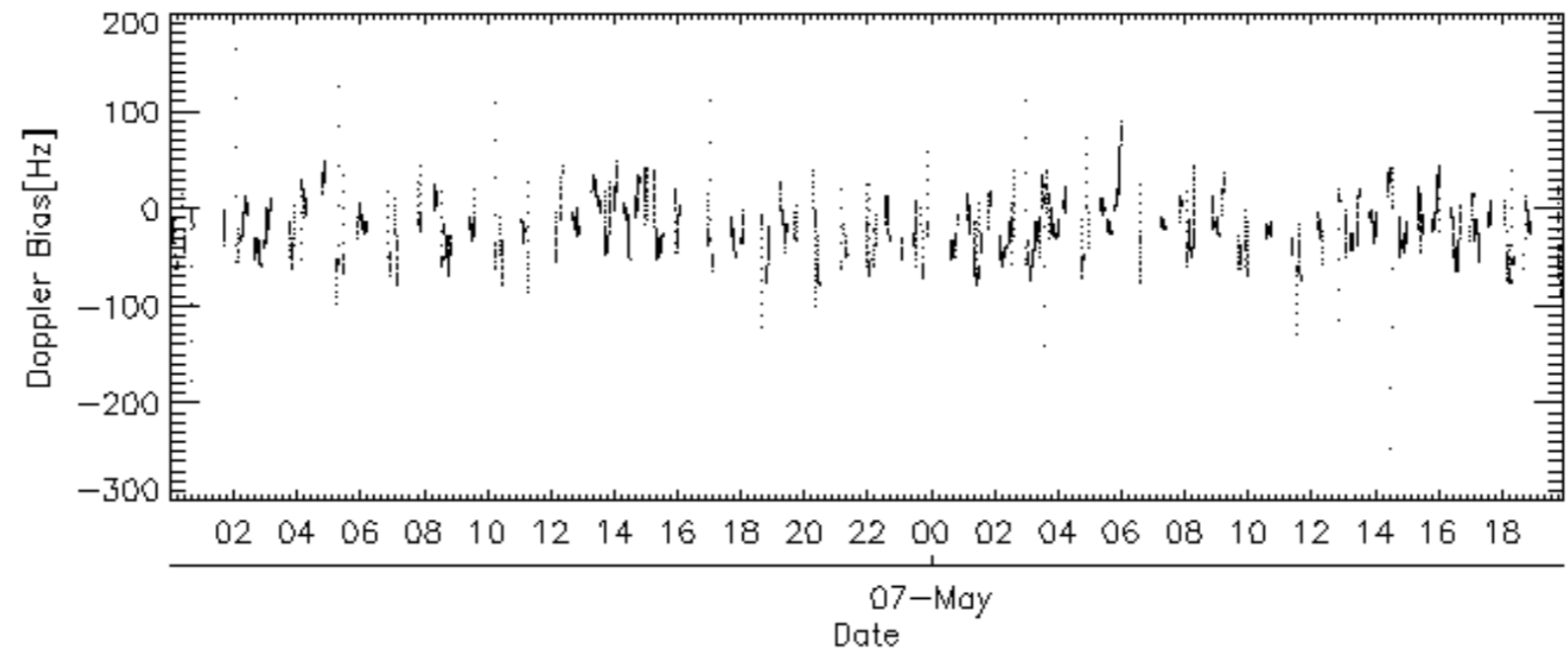
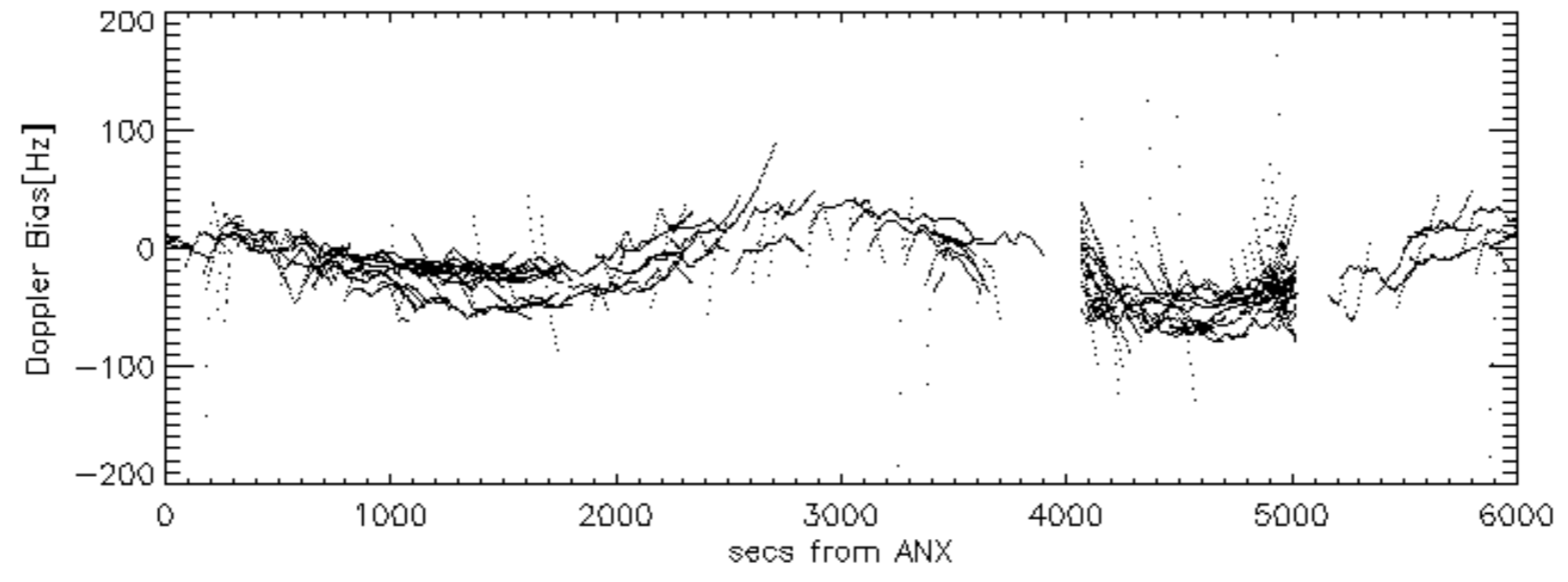
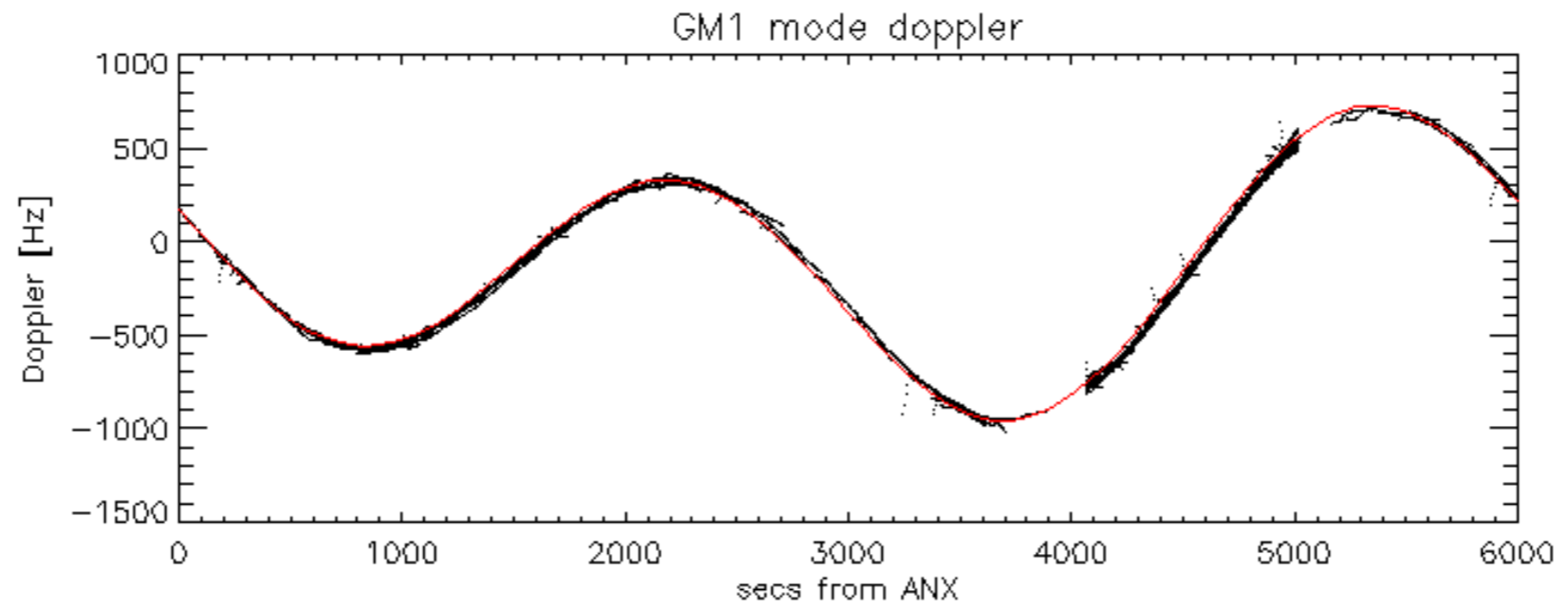
Doppler 'WVS' 'IS2' ascending

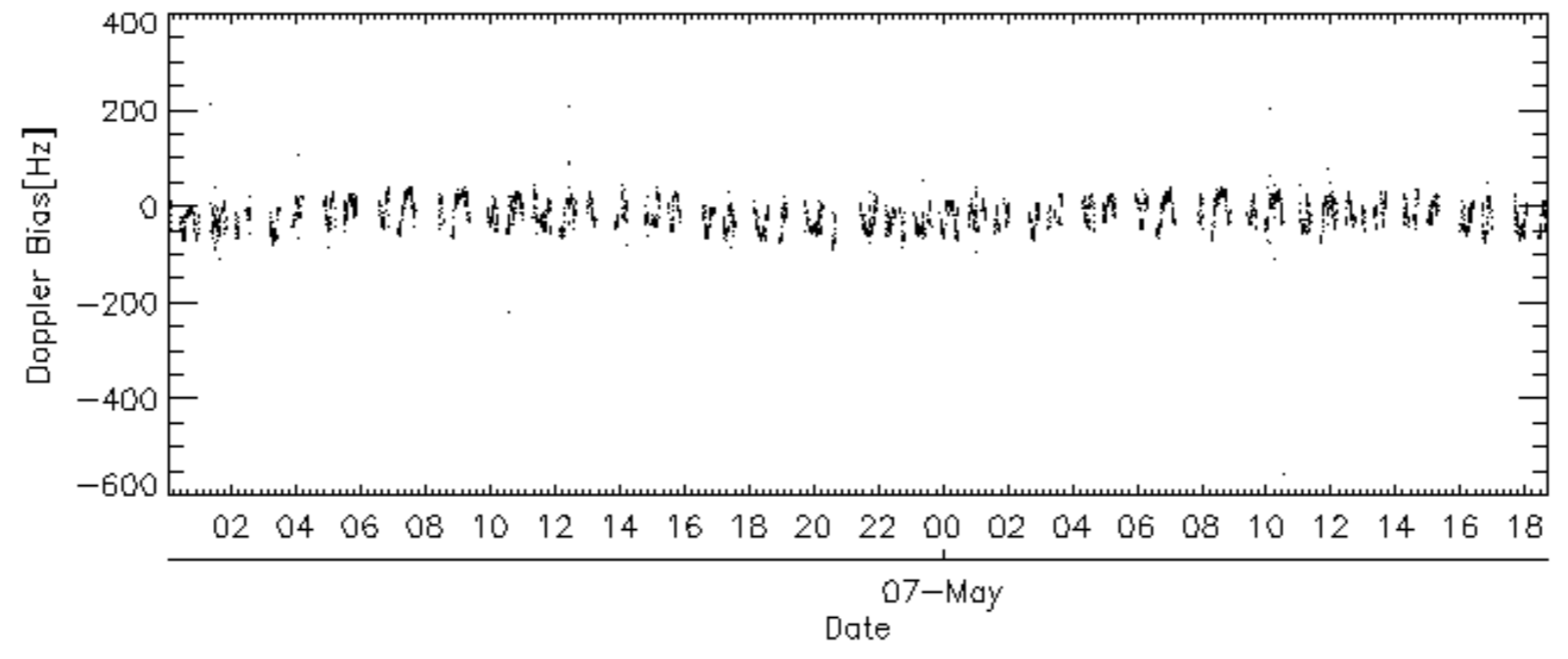
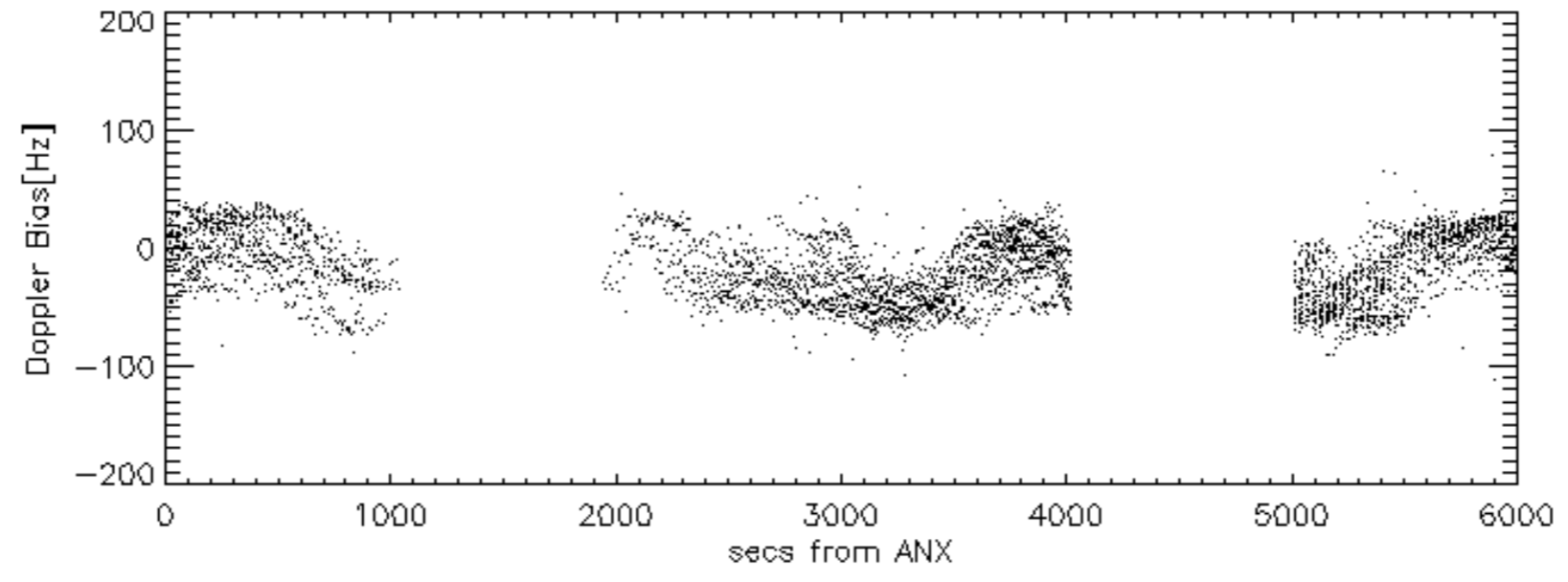
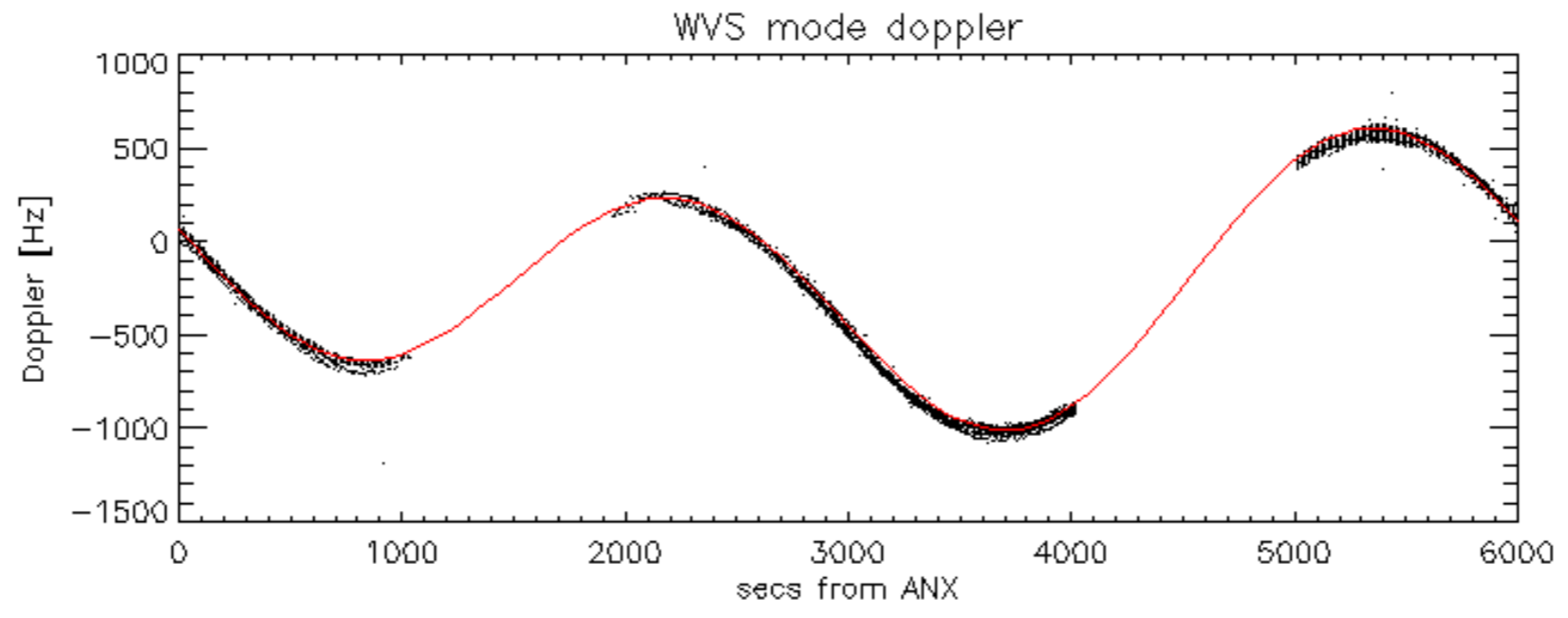




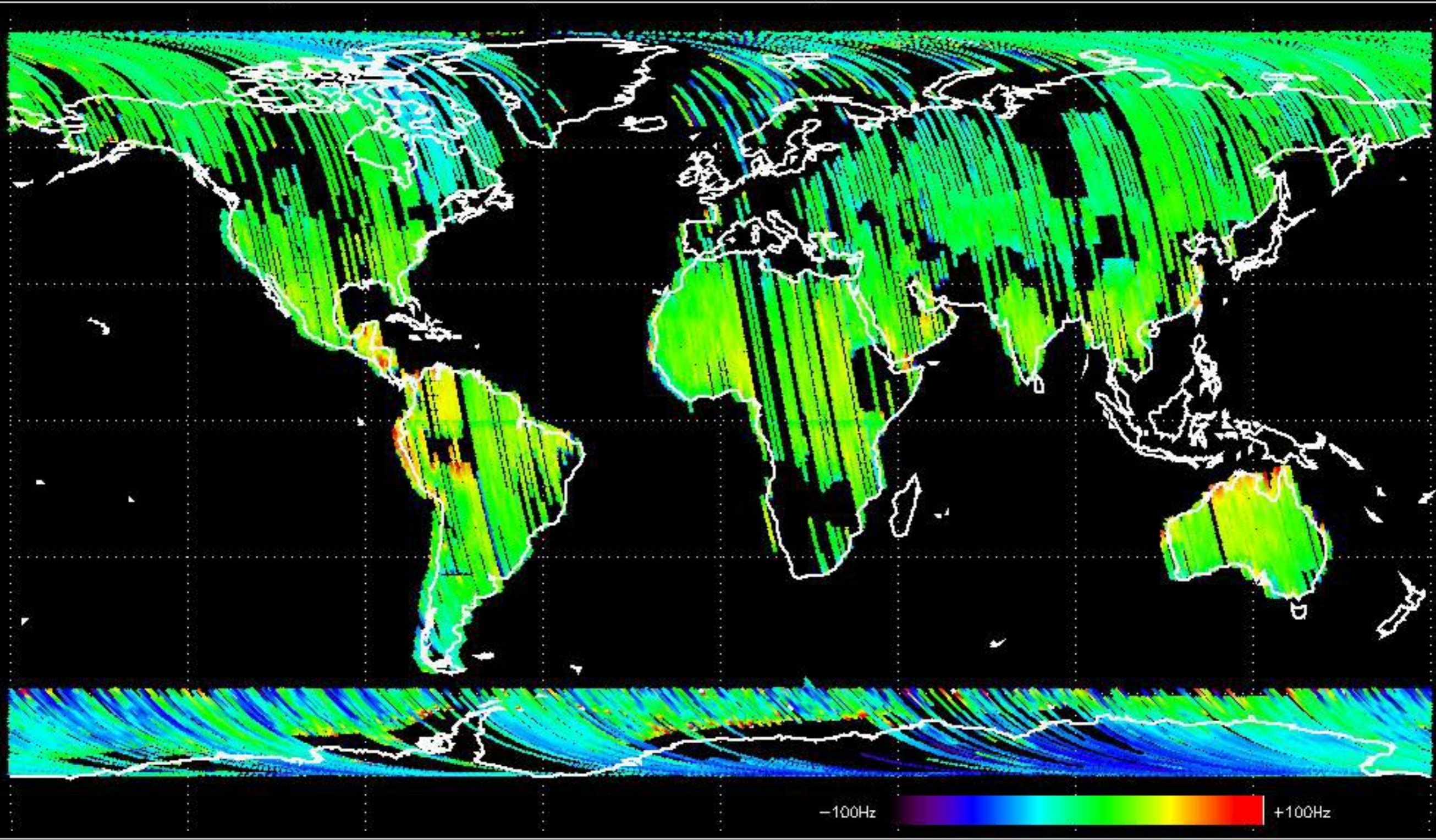
Doppler 'WVS' 'IS2' descending



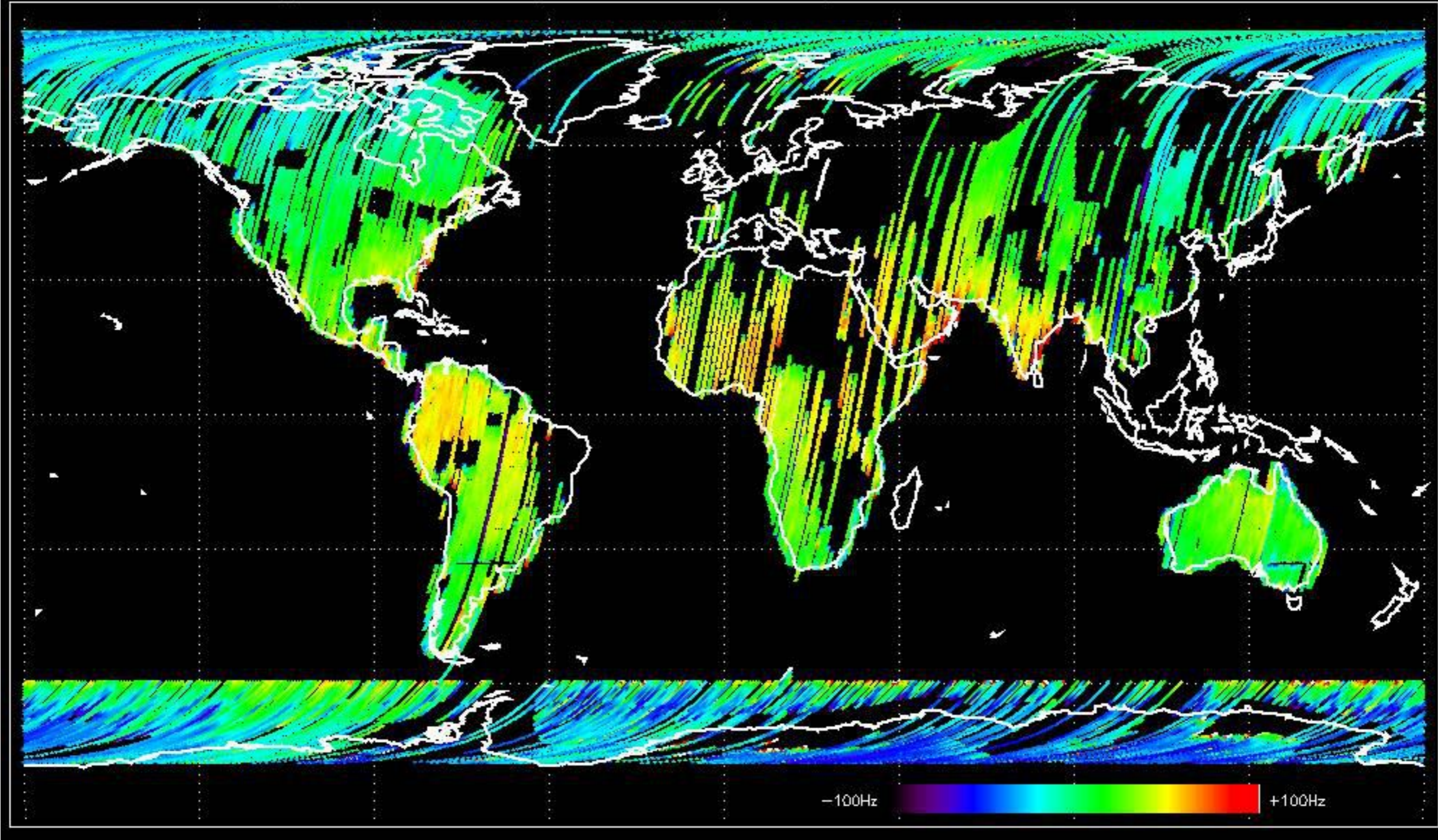




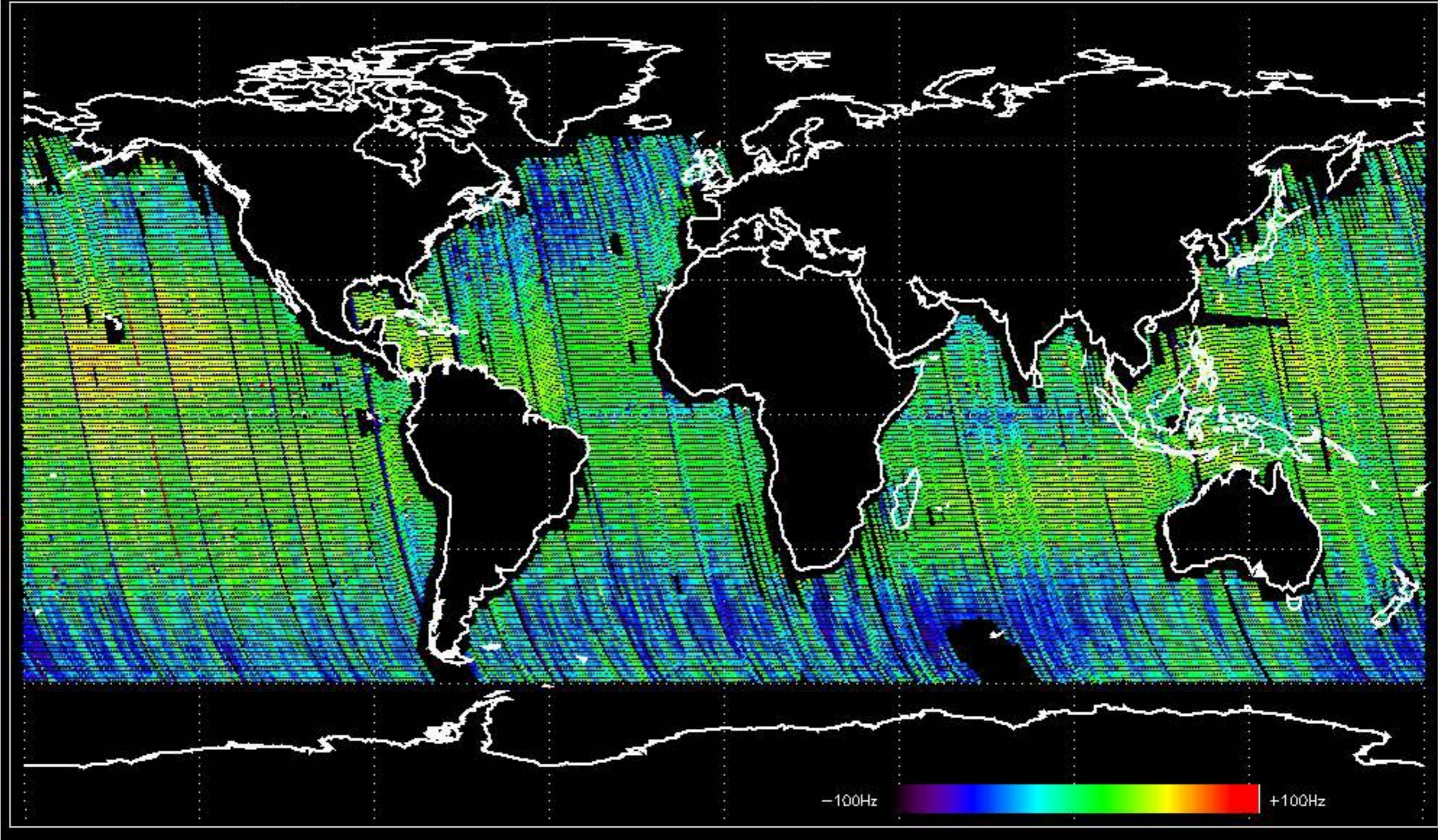
Doppler difference, estimated-predicted 'GM1' 'SS1' ascending -error mean of -24.633485 Hz



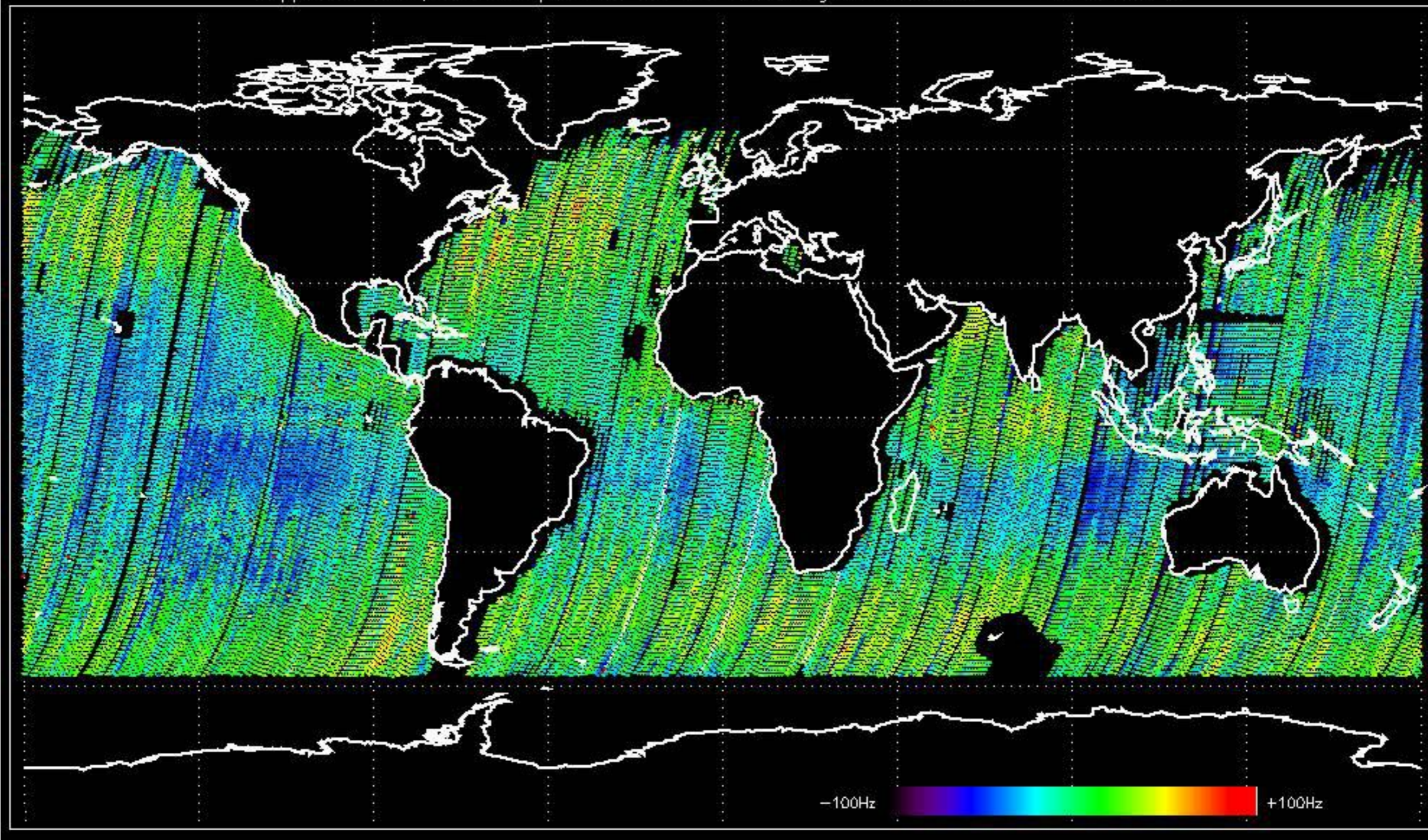
Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -16.671617 Hz



Doppler difference, estimated-predicted 'WVS' 'IS2' ascending -error mean of -18.772753 Hz



Doppler difference, estimated-predicted 'WVS' 'IS2' descending -error mean of -21.729119 Hz



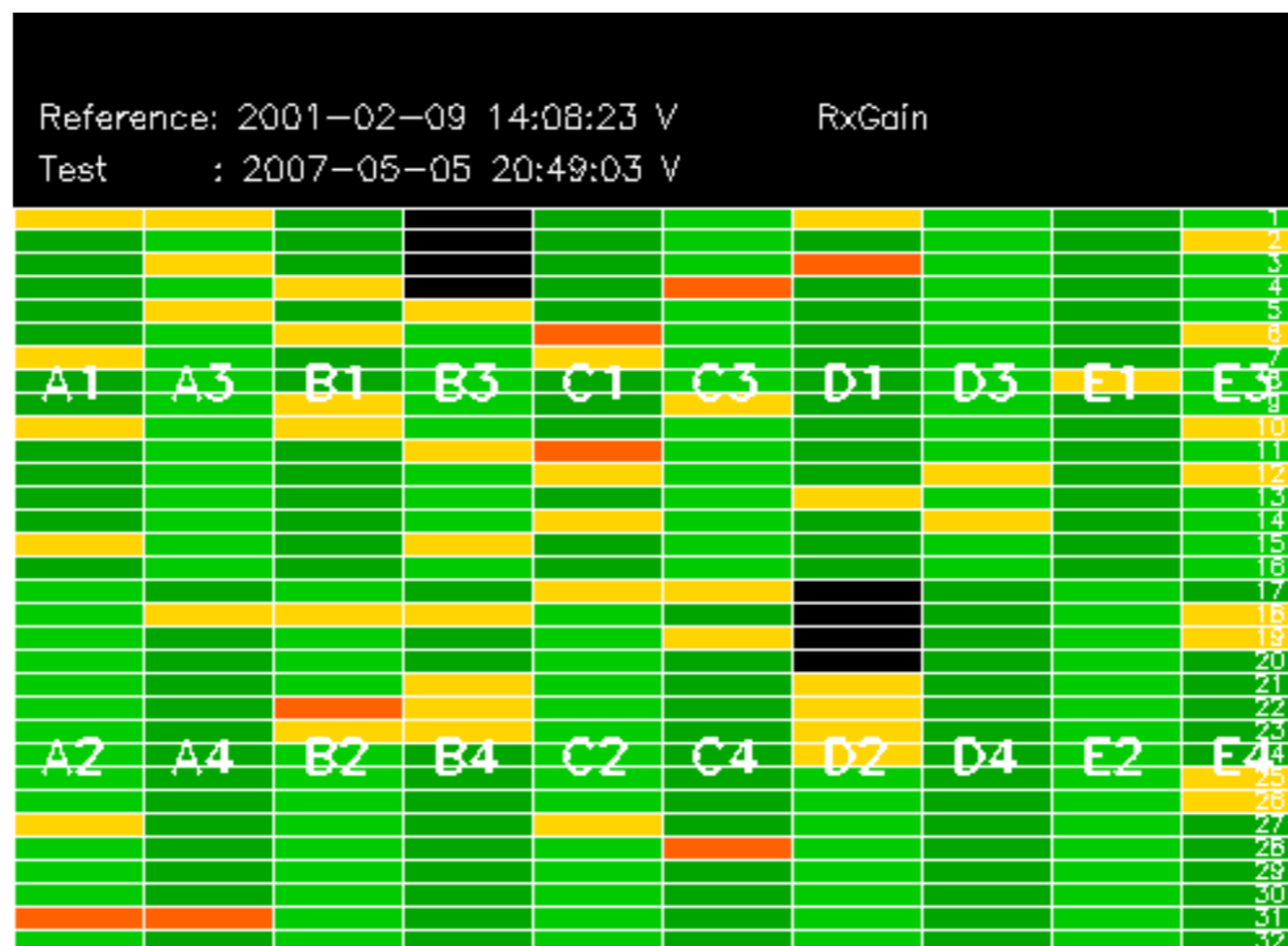
No anomalies observed on available MS products:



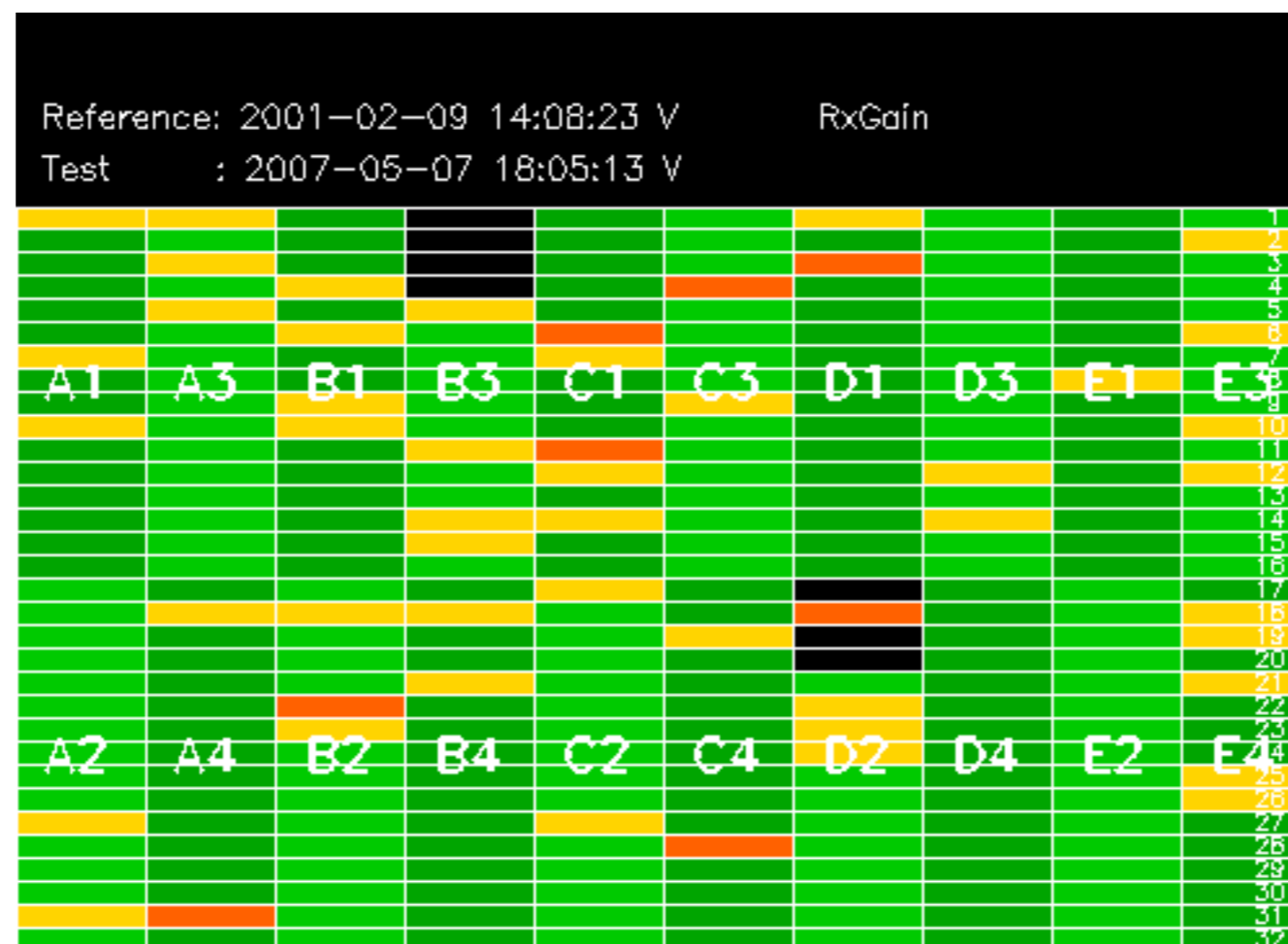
No anomalies observed.













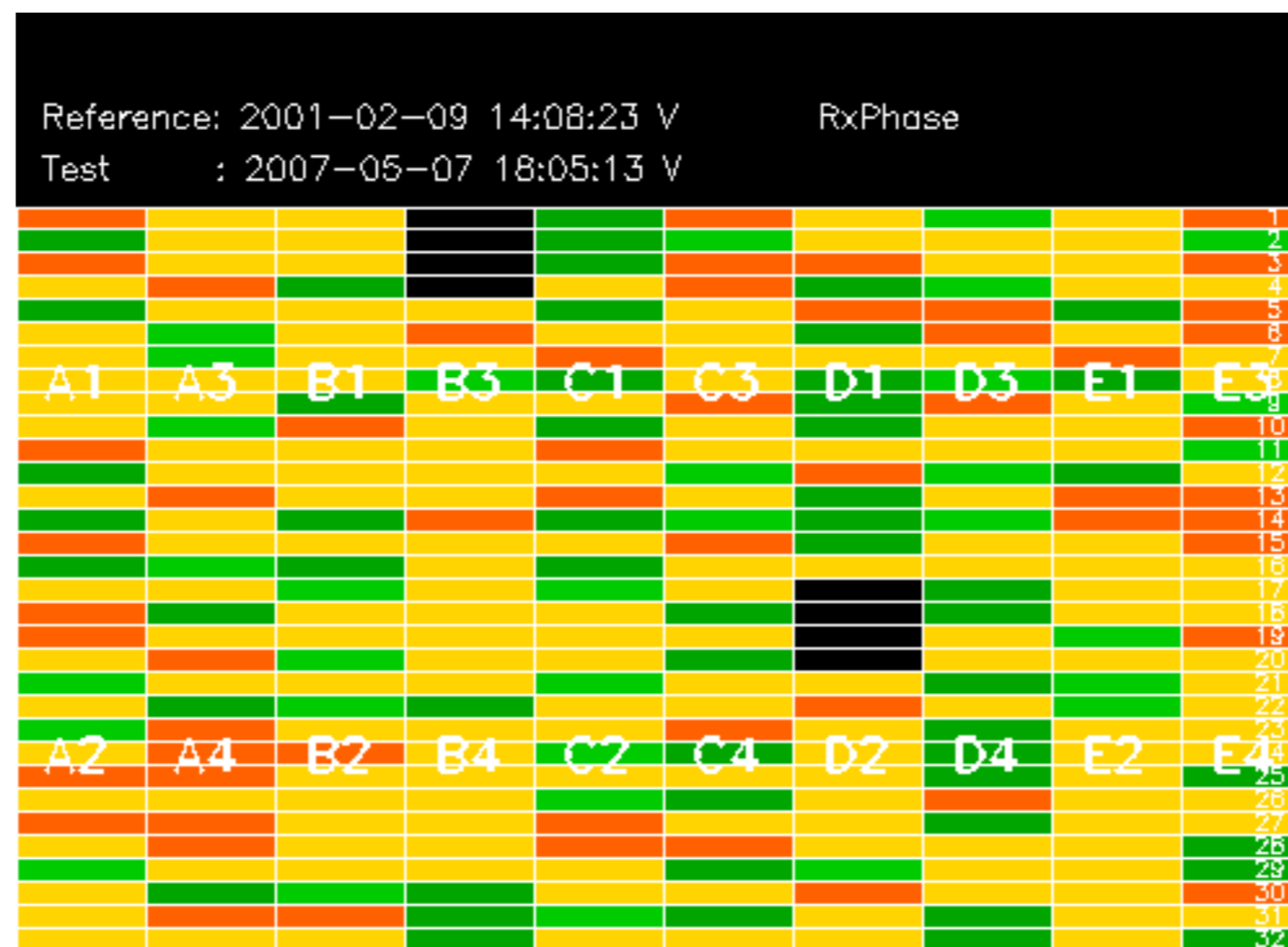




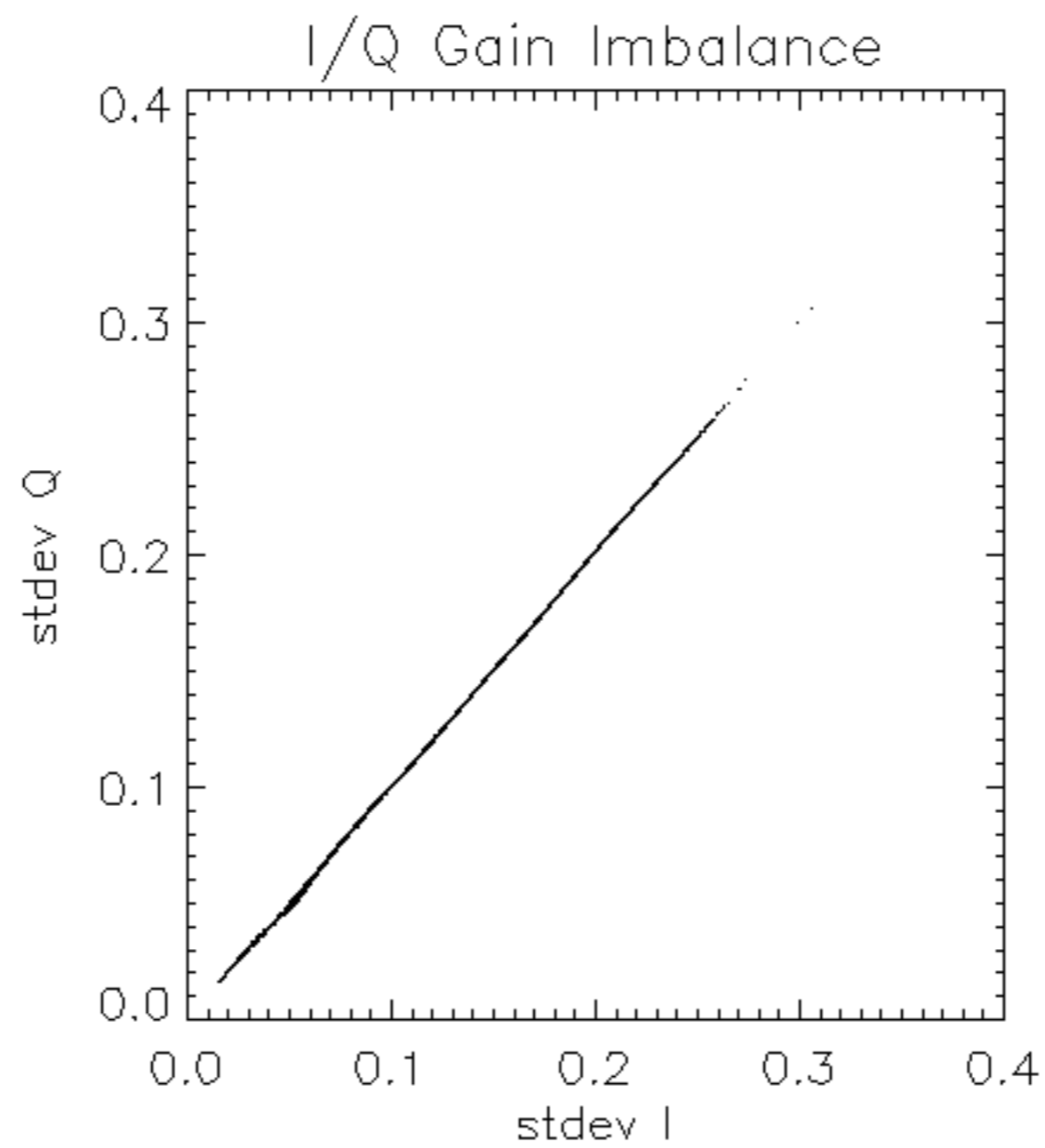


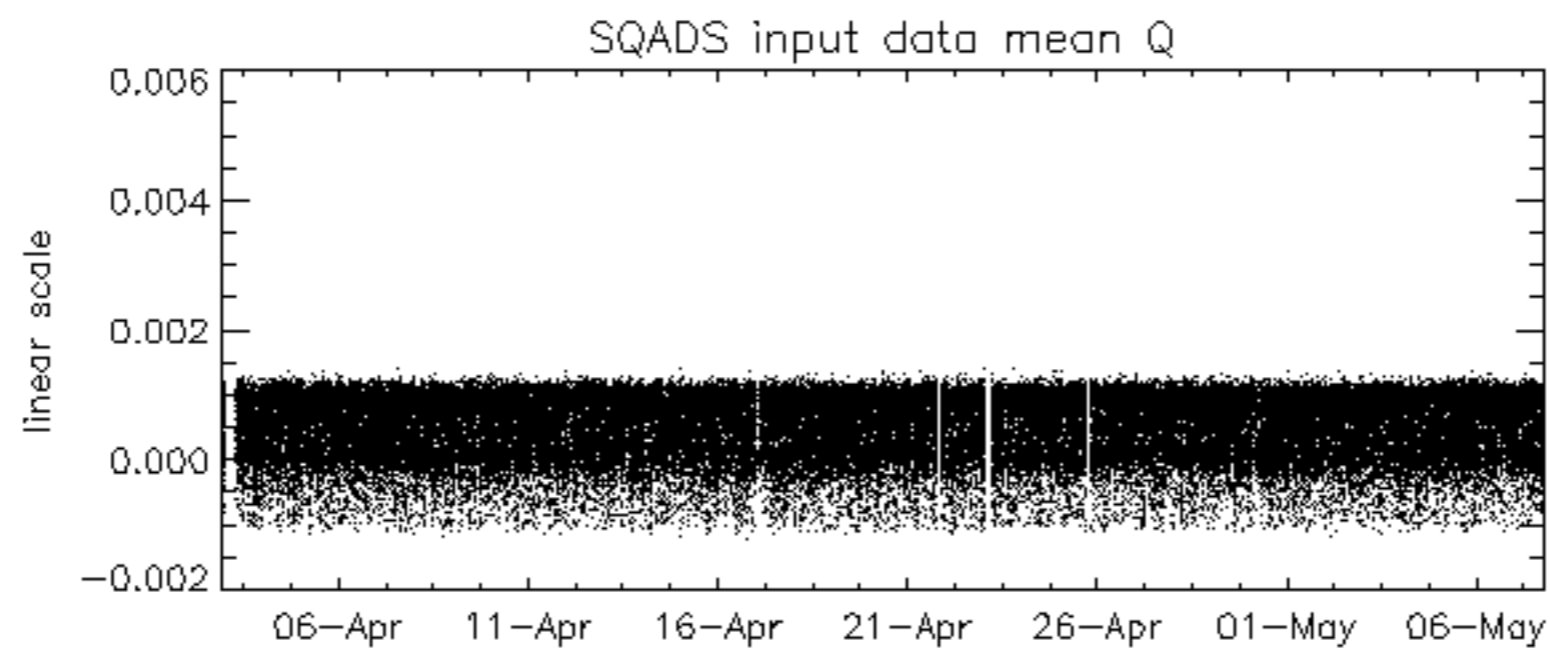
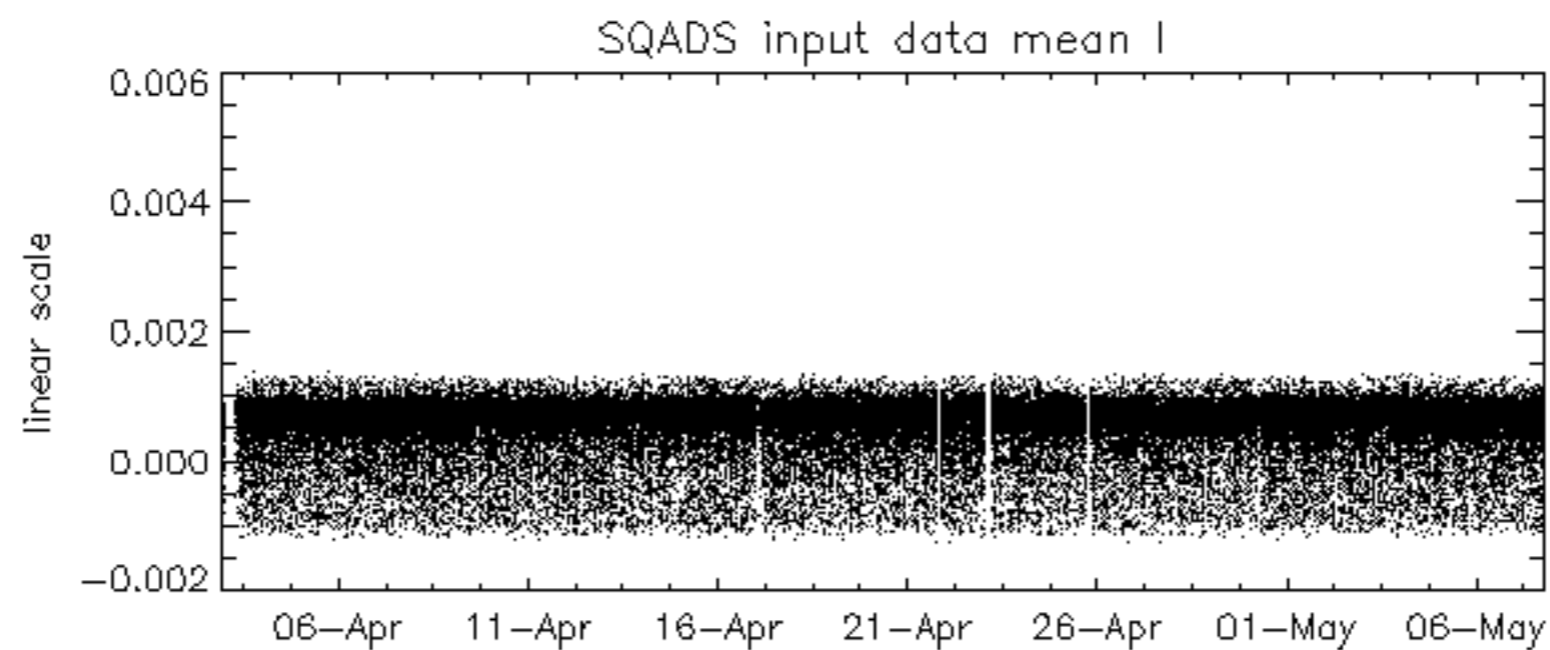
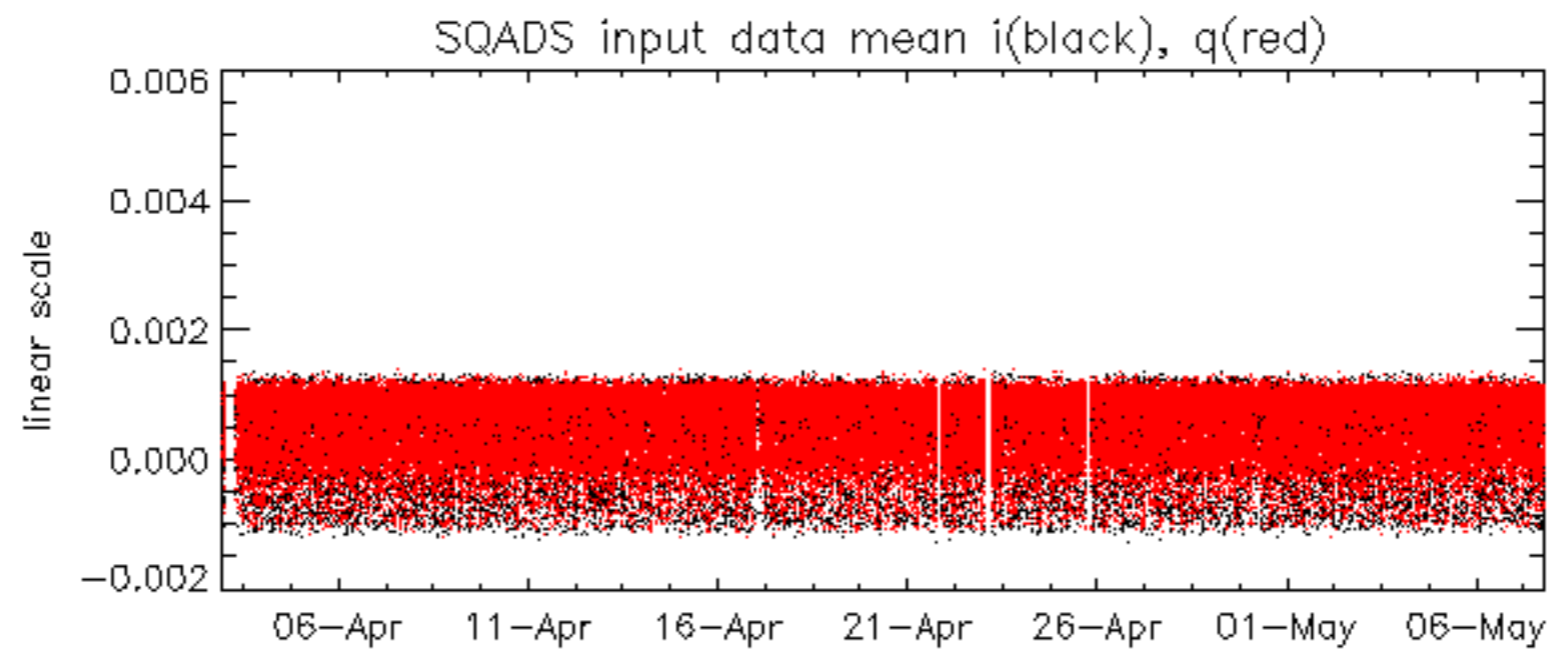


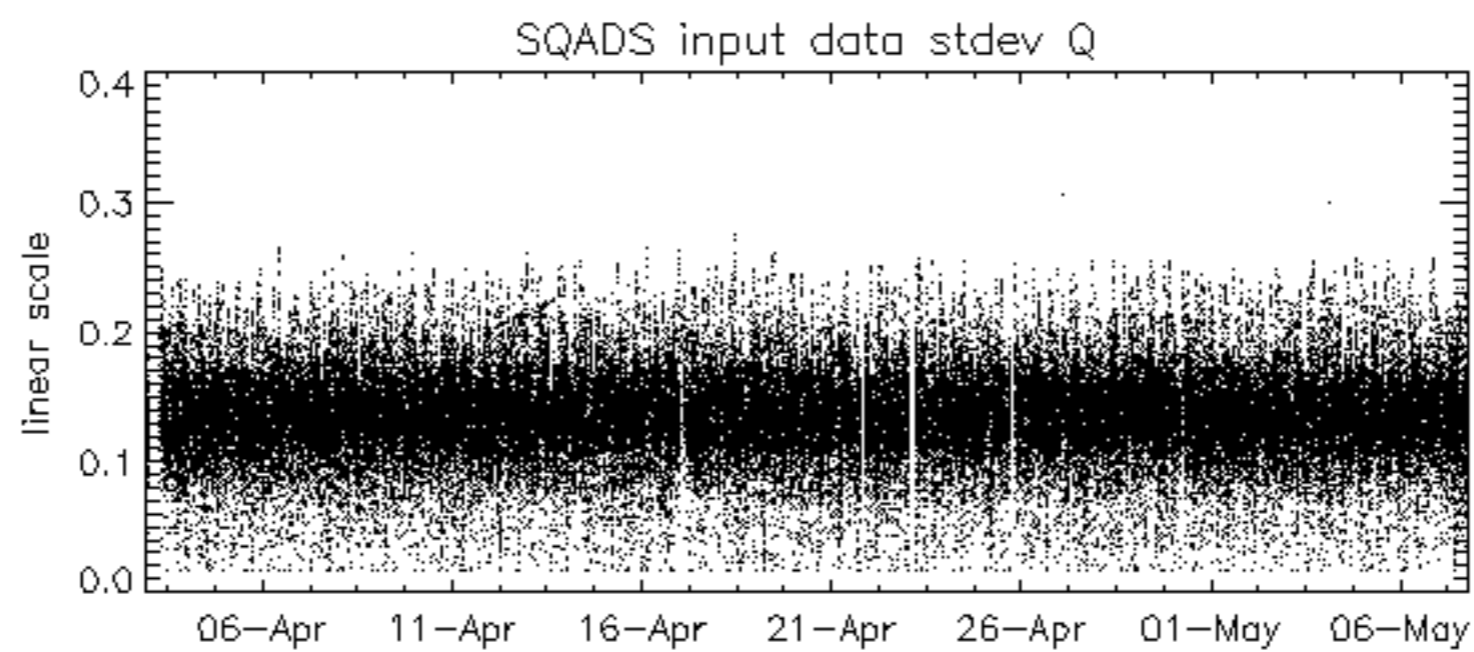
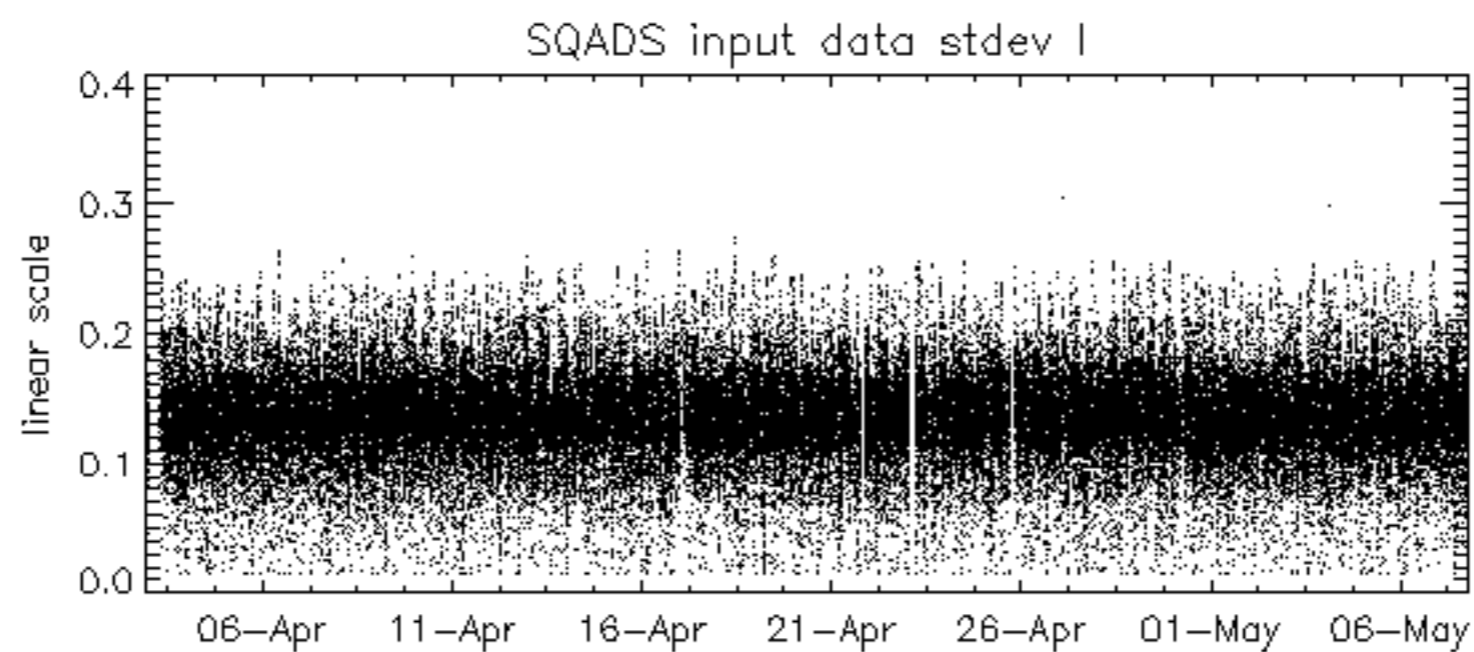
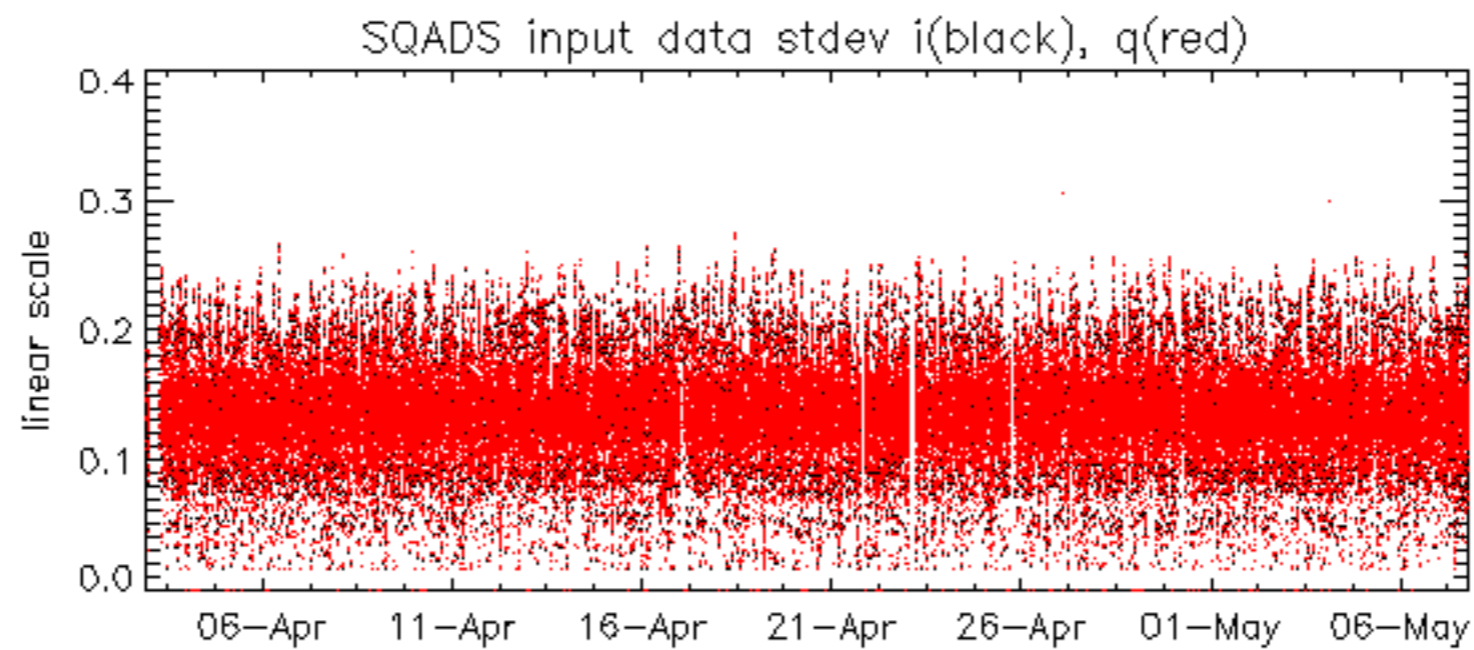


























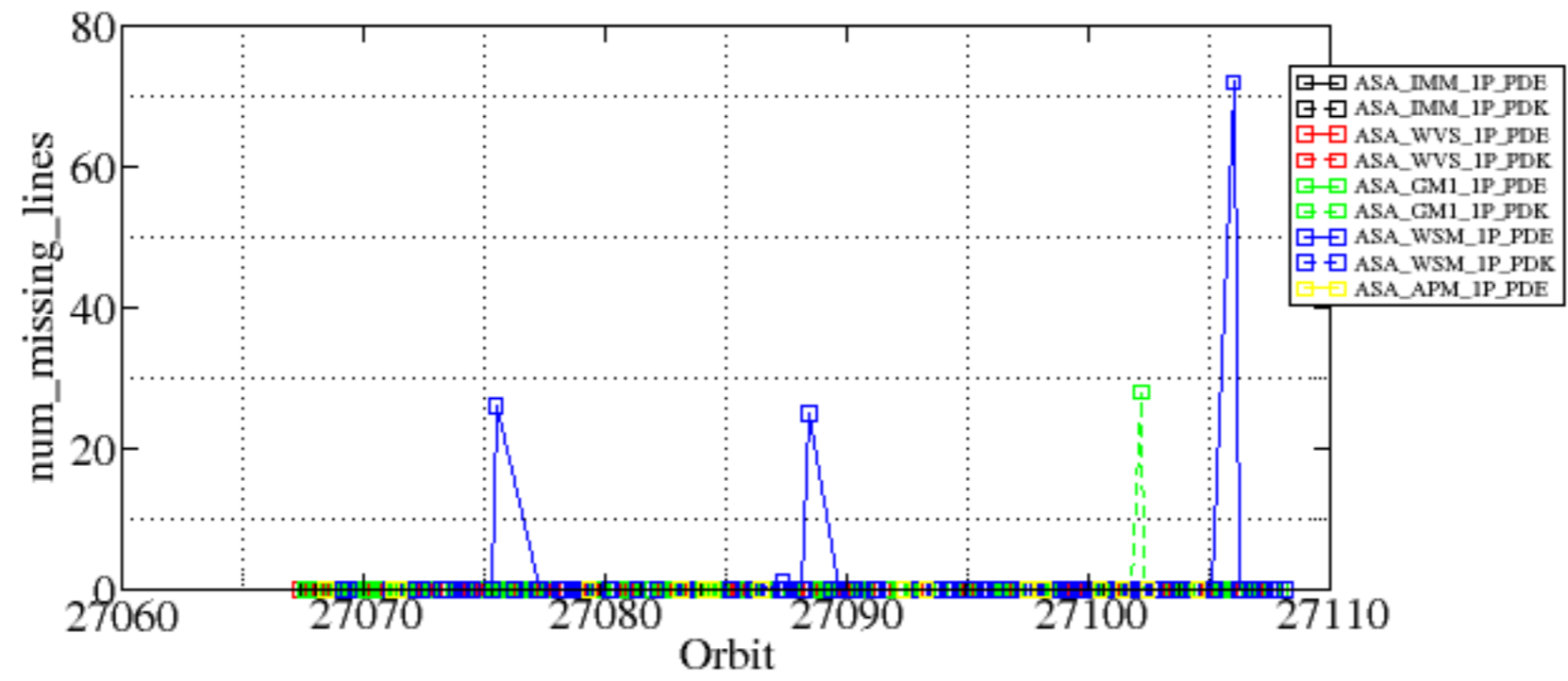
Summary of analysis for the last 3 days 2007050[567]

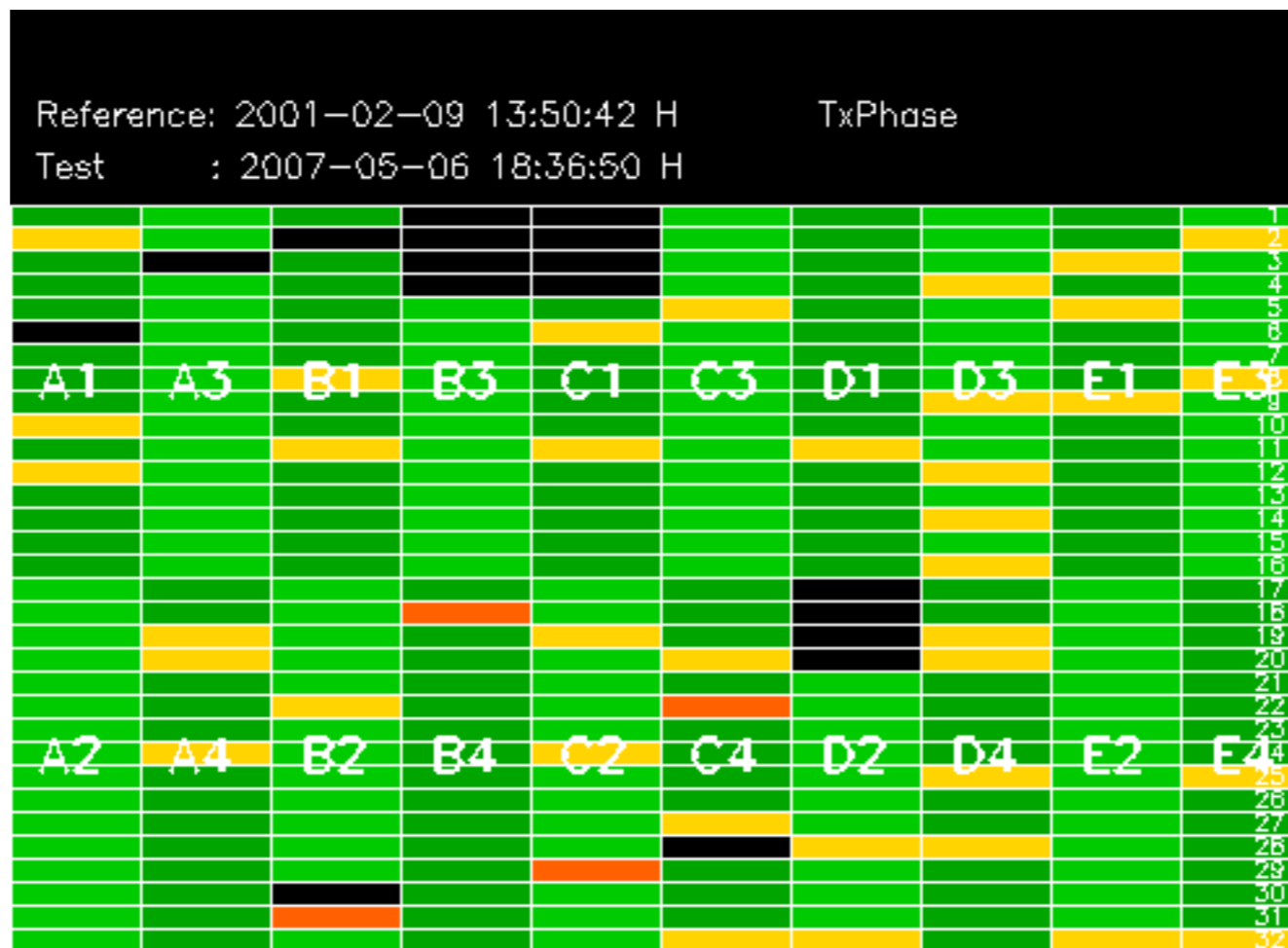
The assumption is taken that the SQUADS num\_gaps and num\_missing\_lines fields are reliable indicators of telemetry problems

| Filename   | num_gaps | num_missing_lines |
|--|----------|-------------------|
| ASA_GM1_1PNPDK20070507_103322_000006402057_00495_27102_9475.N1 | 0        | 28                |
| ASA_WSM_1PNPDE20070505_134710_000000852057_00468_27075_9521.N1 | 0        | 26                |
| ASA_WSM_1PNPDE20070506_094328_000000852057_00480_27087_0728.N1 | 0        | 1                 |
| ASA_WSM_1PNPDE20070506_113212_000001532057_00481_27088_0776.N1 | 0        | 25                |
| ASA_WSM_1PNPDE20070507_165905_000000852057_00499_27106_2177.N1 | 0        | 72                |
| ASA_APM_1PNPDE20070506_023611_000000422057_00476_27083_0204.N1 | 6        | 0                 |



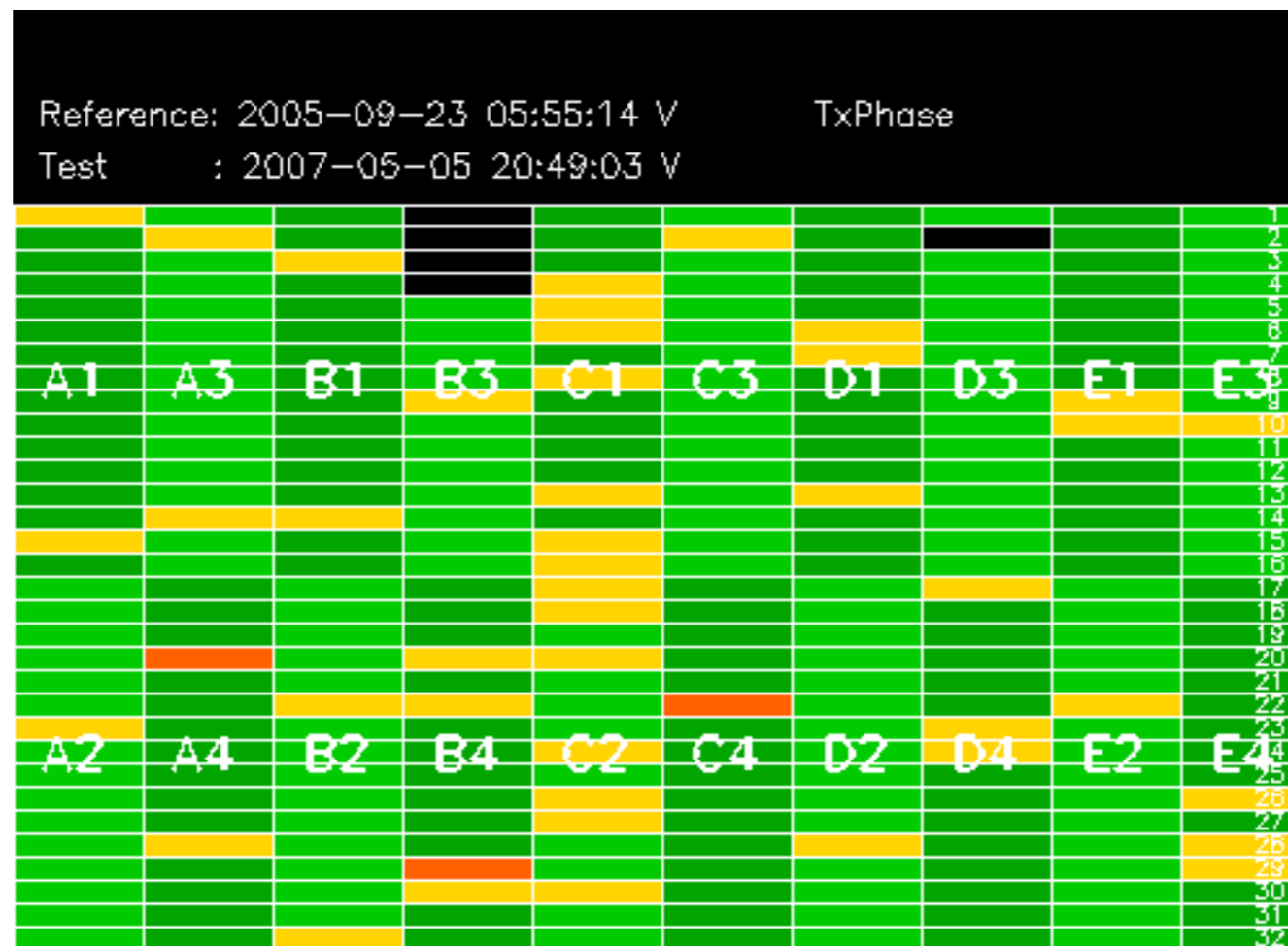




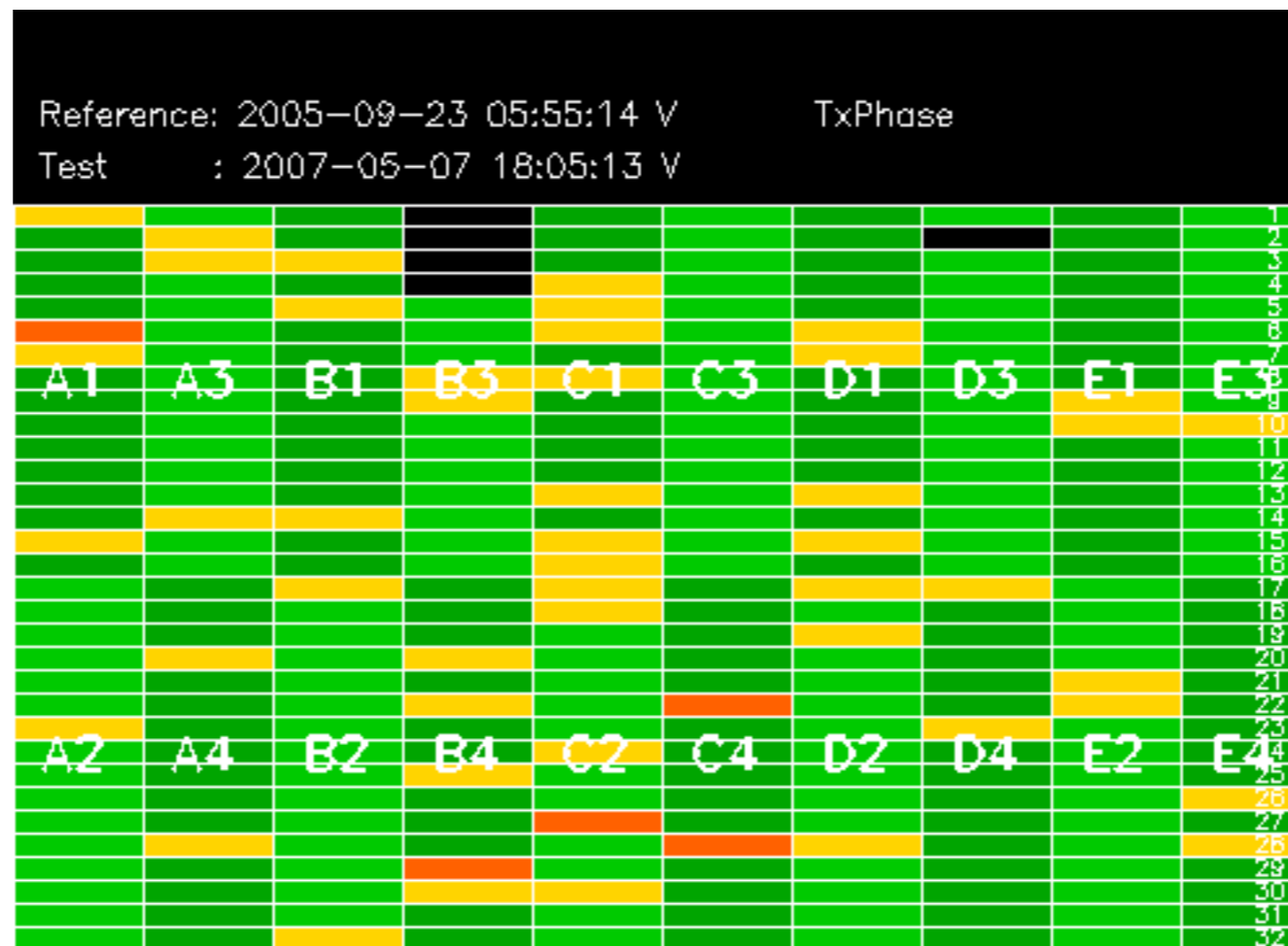


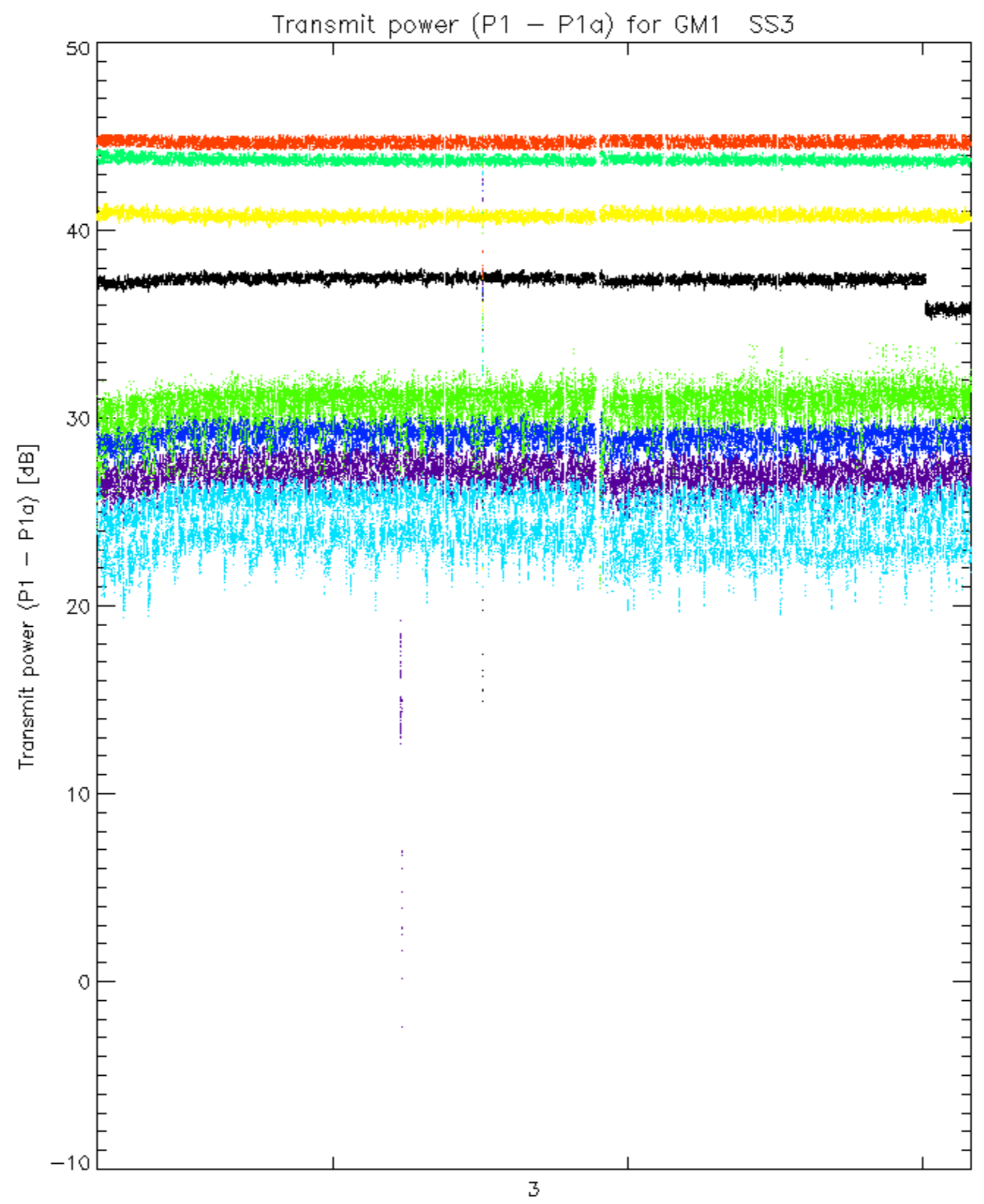






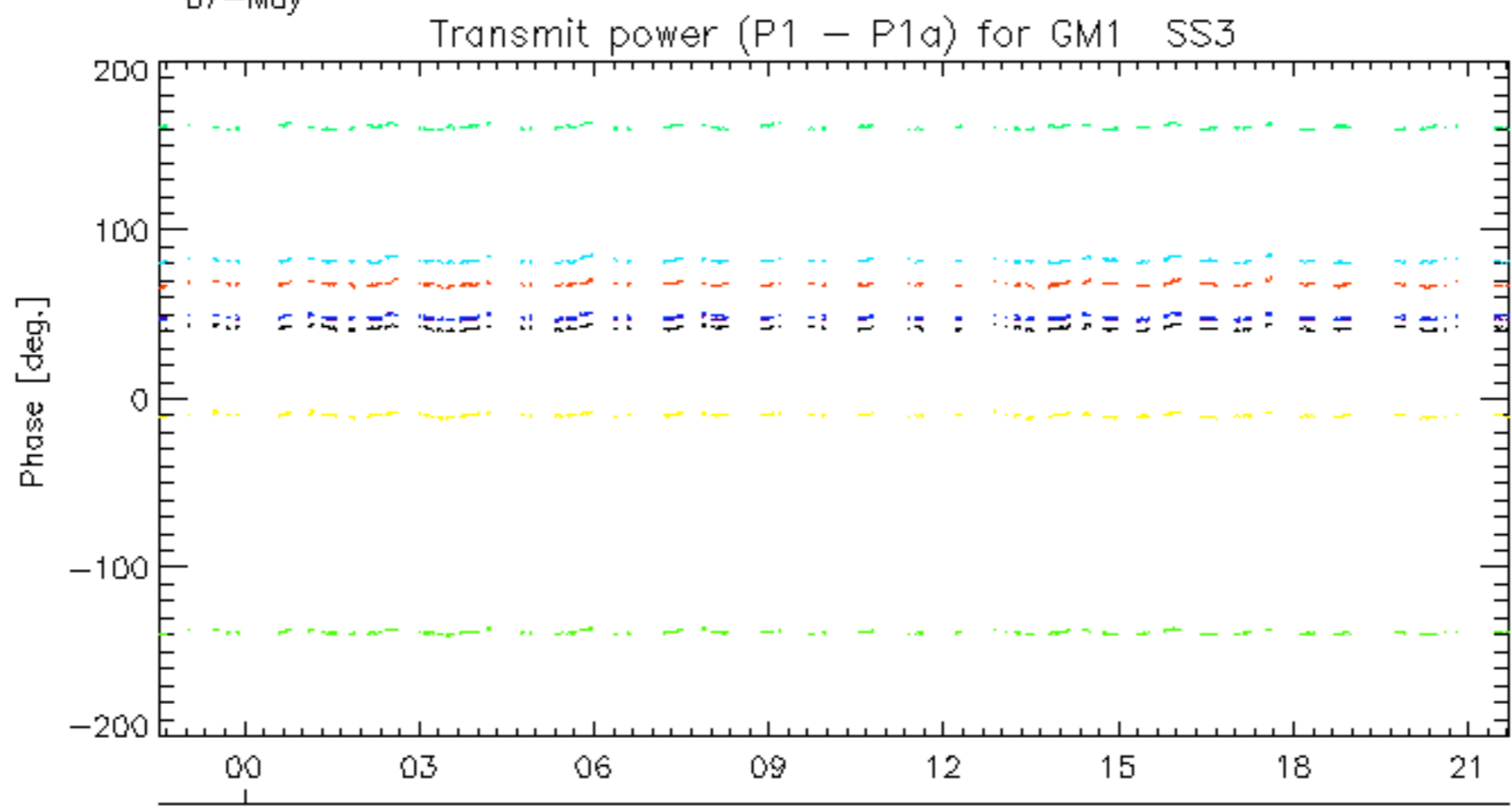
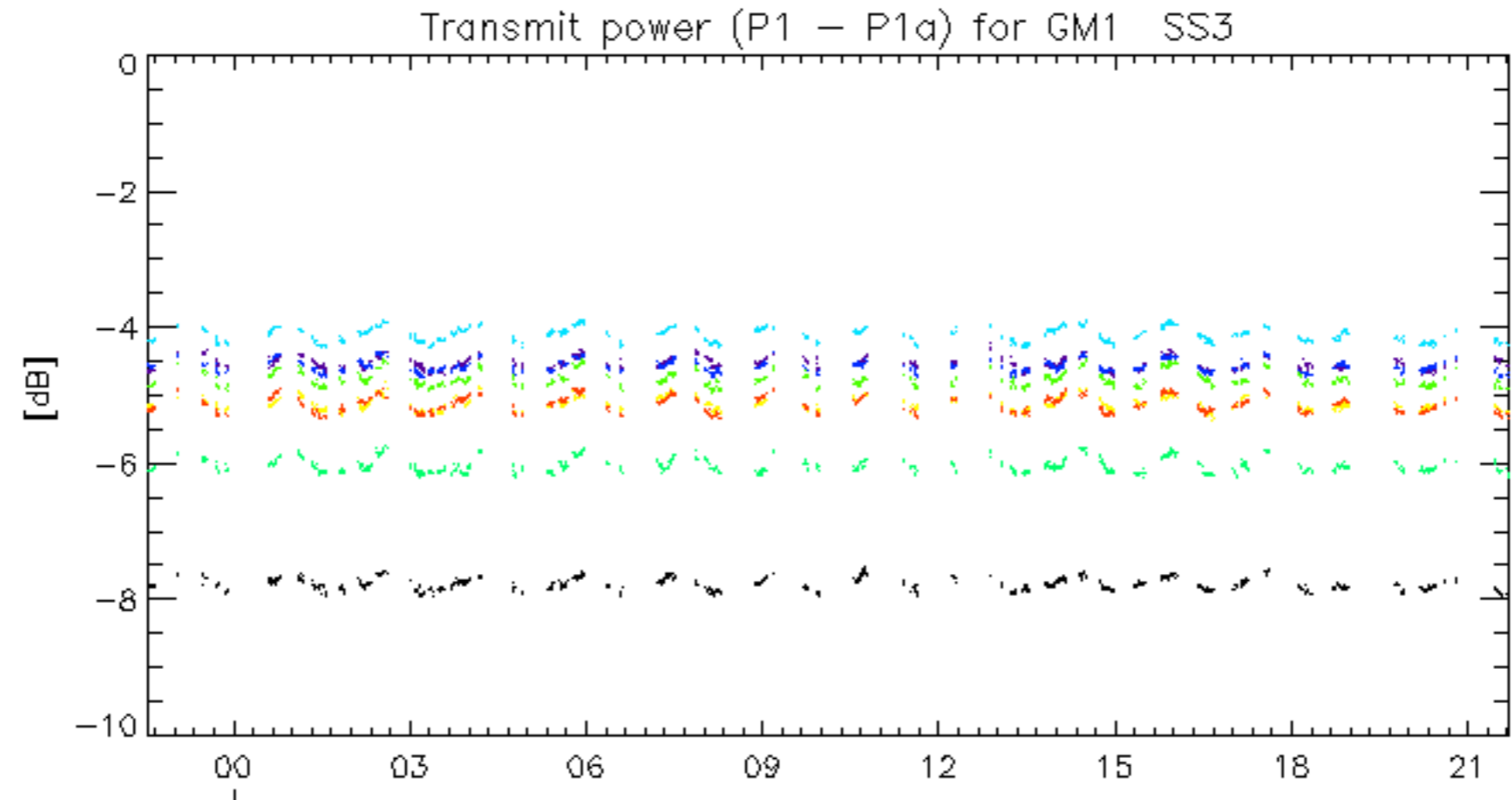




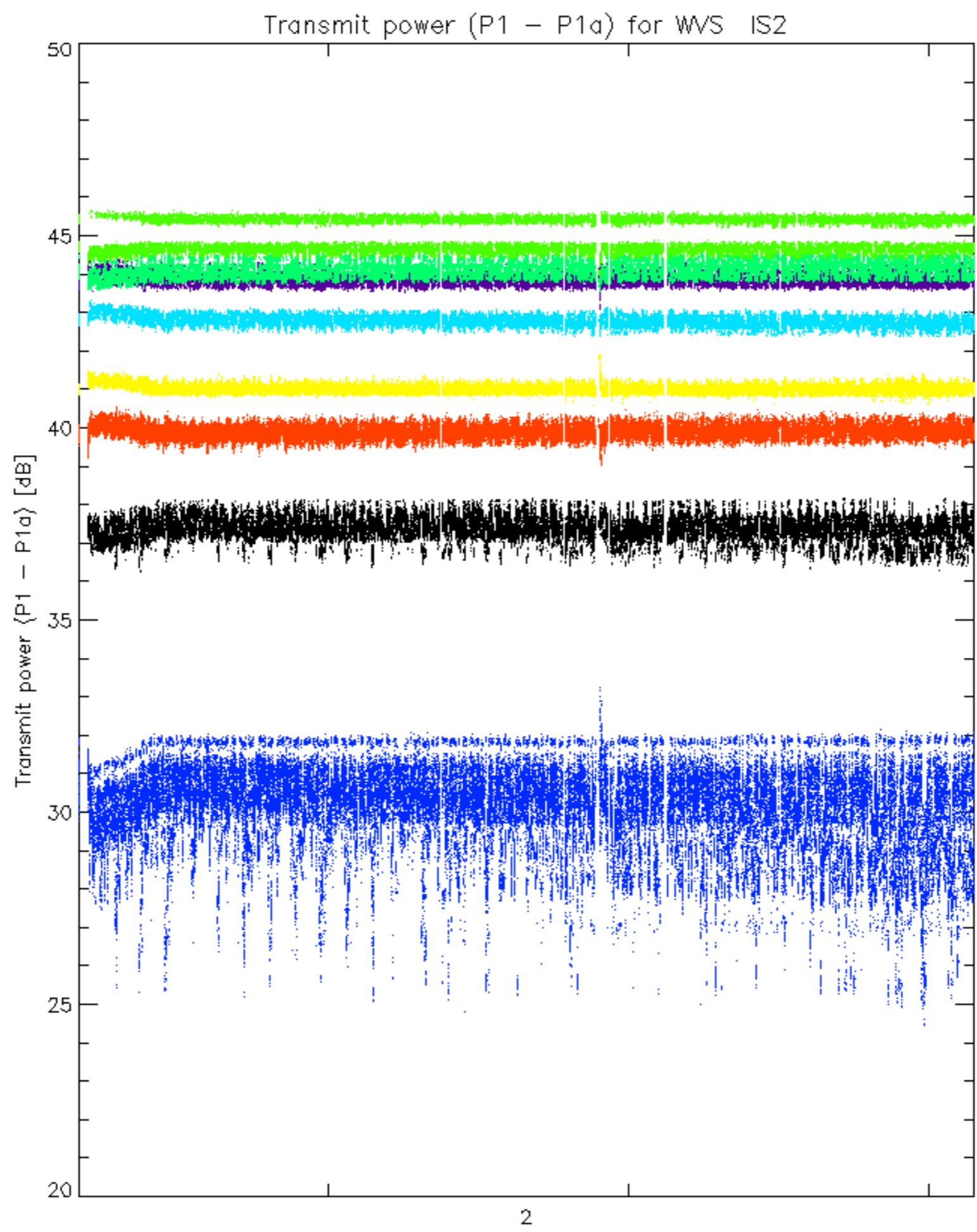


rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 26 \_ 30

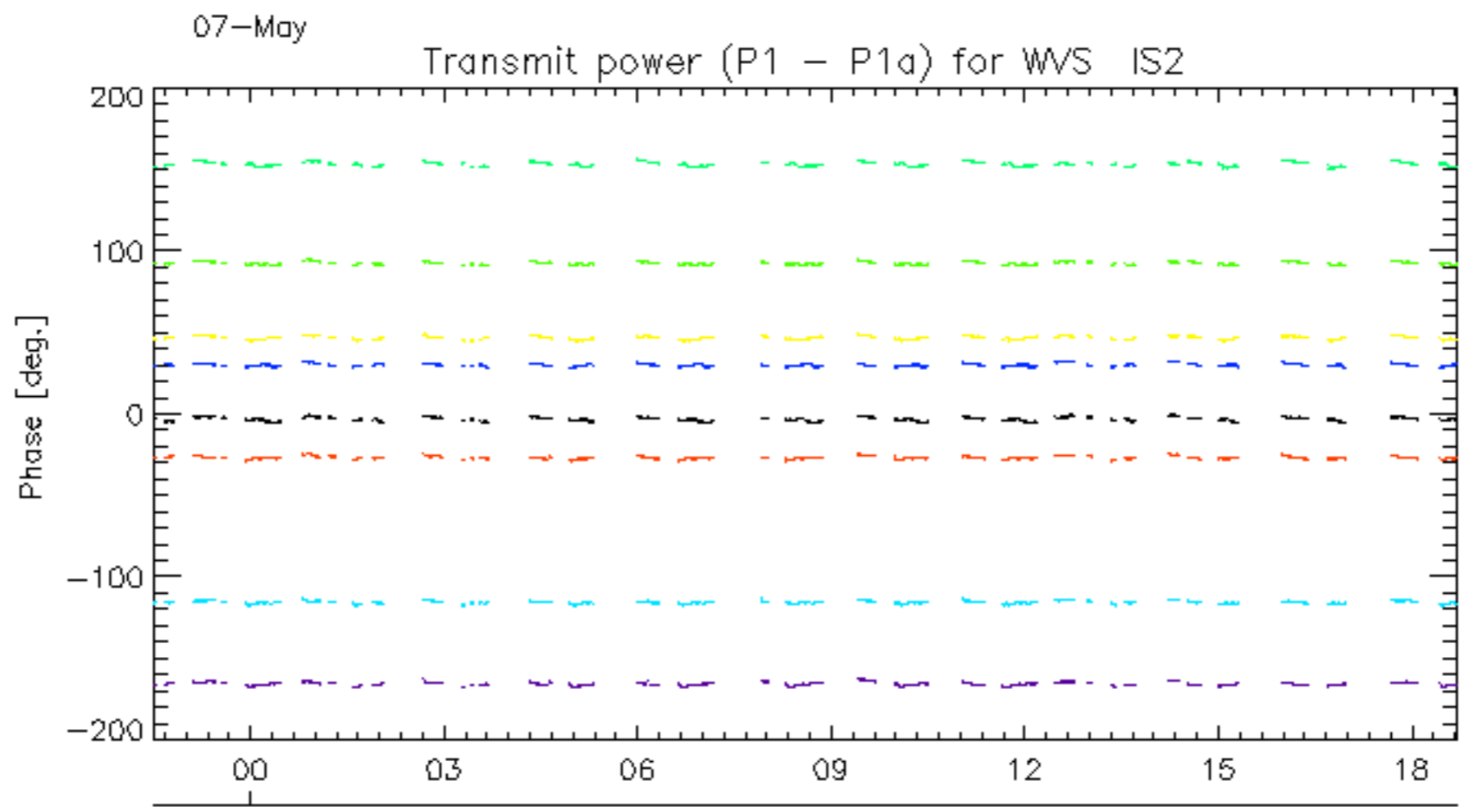
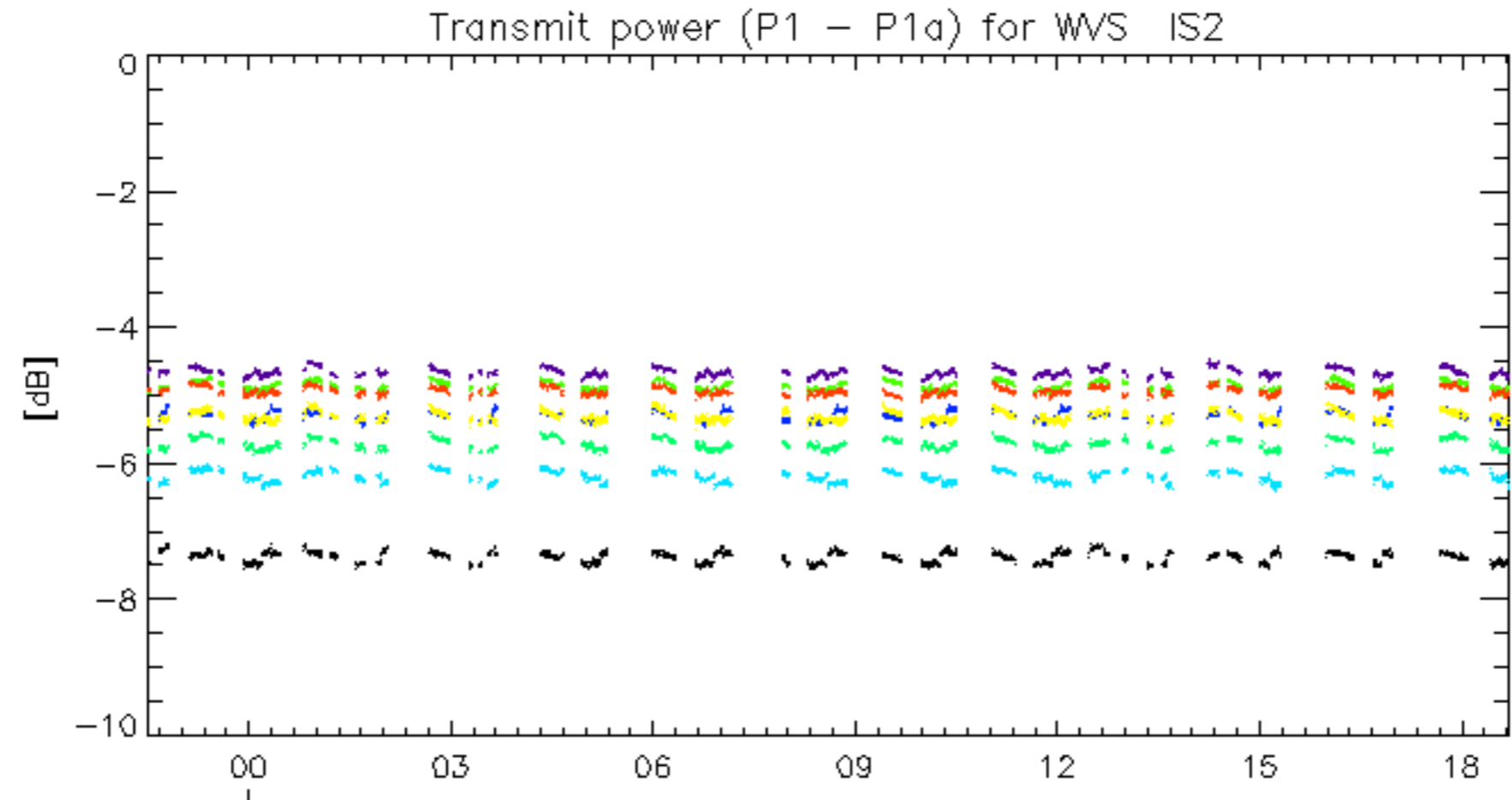




rows: 3 7 11 15 19 22 26 30



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



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

No unavailabilities during the reported period.