

# REPORT OF 040818

last update on Wed Aug 18 14:13:41 GMT 2004

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## 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

ASAR unavailability on 2004-08-17 10:50:00 to 10:57:45

- Antenna reset due to loss of transmission on tile D1, PSU1 and 2 in H and V polarisation.

### 2.2 - Browse Visual Inspection

No anomalies observed on available browse products

### 2.3 - Data Analysis

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

### 3 - Module Stepping Mode

The lasat available product :

- ASA\_MS\_\_0PNPDK20040817\_081020\_000000152029\_00307\_12886\_0047.N1  
shows the anomaly detected on tile D1.

Please note that the antenna reset occurred after the acquisition of the listed product

Polarisation	Start Time
V	20040816 084157
H	20040817 081020

#### 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

The end of anomaly is visible on cal pulse plots.

The Tx power of the rows that shared the PSU 1 and 2 of tile D1 is back to a nominal level.

#### 4.1 - Daily statistics

#### 4.1.1 - Evolution for WVS

Evolution of cal pulses for WVS

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#### 4.1.2 - Evolution for GM1

Evolution of cal pulses for GM1

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### 4.2 - Cyclic statistics

#### 4.2.1 - Evolution for WVS

Evolution of cal pulses for WVS

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✕

#### P1a Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
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#### P1 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P1	-3.474482	0.052272	0.068709
7	P1	-3.307199	0.057407	0.153688
11	P1	-4.645424	0.114058	-0.075585
15	P1	-5.750250	0.123078	-0.065027
19	P1	-3.456841	0.005147	0.000986
22	P1	-4.553802	0.010988	0.057484
24	P1	-4.958818	0.019184	0.009577
30	P1	-6.919217	0.024481	-0.082511
3	P1	-15.901221	1.608645	1.850677

7	P1	-14.025505	0.169778	-0.250925
11	P1	-20.098909	0.408994	-0.315176
15	P1	-11.793869	0.167627	-0.065655
19	P1	-13.871509	0.034175	-0.019670
22	P1	-16.264185	0.341627	0.239177
24	P1	-14.575689	0.290466	0.206441
30	P1	-17.730350	0.434735	-0.274607

**P2 Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-22.310112	0.079224	0.051744
7	P2	-22.654119	0.128621	0.154217
11	P2	-15.386316	0.157398	0.128351
15	P2	-7.080812	0.091866	0.106286
19	P2	-9.561086	0.180296	0.106125
22	P2	-17.378363	0.110840	0.139472
24	P2	-20.749304	0.084358	0.003378
30	P2	-19.301517	0.078874	0.143843

**P3 Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.141510	0.002358	0.015030
7	P3	-8.141505	0.002358	0.014984
11	P3	-8.141497	0.002357	0.014928
15	P3	-8.141491	0.002357	0.014902
19	P3	-8.141483	0.002357	0.014861
22	P3	-8.141484	0.002357	0.014836
24	P3	-8.141485	0.002357	0.014807
30	P3	-8.141727	0.002375	0.013221

**4.2.2 - Evolution for GM1**

Evolution of cal pulses for GM1	
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☒	

**P1a Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
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**P1 Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P1	-2.702390	0.274781	0.643040
7	P1	-2.952834	0.222037	0.398614
11	P1	-3.867413	0.170395	-0.082924
15	P1	-3.536140	0.160126	-0.000787
19	P1	-3.477013	0.015520	-0.004319
22	P1	-5.667068	0.044325	-0.078851
24	P1	-3.870547	0.017506	-0.082398
30	P1	-6.179809	0.067226	0.071333
3	P1	-10.332815	1.061564	1.336484
7	P1	-10.063908	0.159970	0.201697
11	P1	-12.081057	0.117143	-0.205116
15	P1	-11.627811	0.115679	-0.115022
19	P1	-15.618055	0.068550	-0.016214
22	P1	-23.303926	1.297842	-0.272199
24	P1	-17.766523	0.230025	-0.401183
30	P1	-20.353163	1.256630	-0.271280

**P2 Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.980246	0.058137	0.080721
7	P2	-22.787594	0.052771	0.137310
11	P2	-11.038708	0.076677	0.165709
15	P2	-4.953542	0.040005	0.041745
19	P2	-6.772353	0.058605	0.092150
22	P2	-7.464715	0.048196	0.087039
24	P2	-11.037548	0.053512	0.031721
30	P2	-22.240885	0.048210	0.140761

**P3 Cyclic statistics**

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
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3	P3	-7.986483	0.003728	0.006660
7	P3	-7.986498	0.003735	0.007145
11	P3	-7.986563	0.003725	0.006513
15	P3	-7.986440	0.003731	0.006757
19	P3	-7.986502	0.003735	0.006682
22	P3	-7.986492	0.003726	0.007035
24	P3	-7.986501	0.003744	0.007033
30	P3	-7.986471	0.003727	0.006809

### 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	0.000494526
	stdev	2.14060e-07
MEAN Q	mean	0.000539061
	stdev	2.43412e-07



### 5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.129321
	stdev	0.00102665

STDEV Q	mean	0.129564
	stdev	0.00103885





### 5.3 - Gain imbalance I/Q





## 6 - Doppler Analysis

Wrong Doppler estimation for one GM product because of high amount of black lines (no data).

### 6.1 - Unbiased Doppler Error for WVS

Evolution of unbiased Doppler error (Real - Expected)	
	
	Acsending
	
	Descending

### 6.2 - Absolute Doppler for WVS

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

### 6.5 - Absolute Doppler for GM1

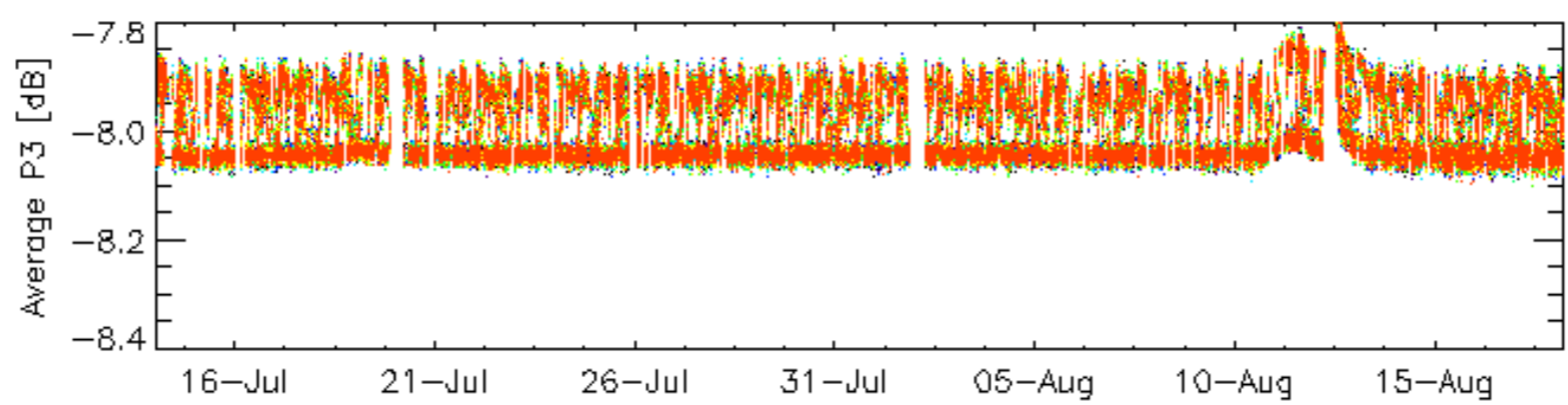
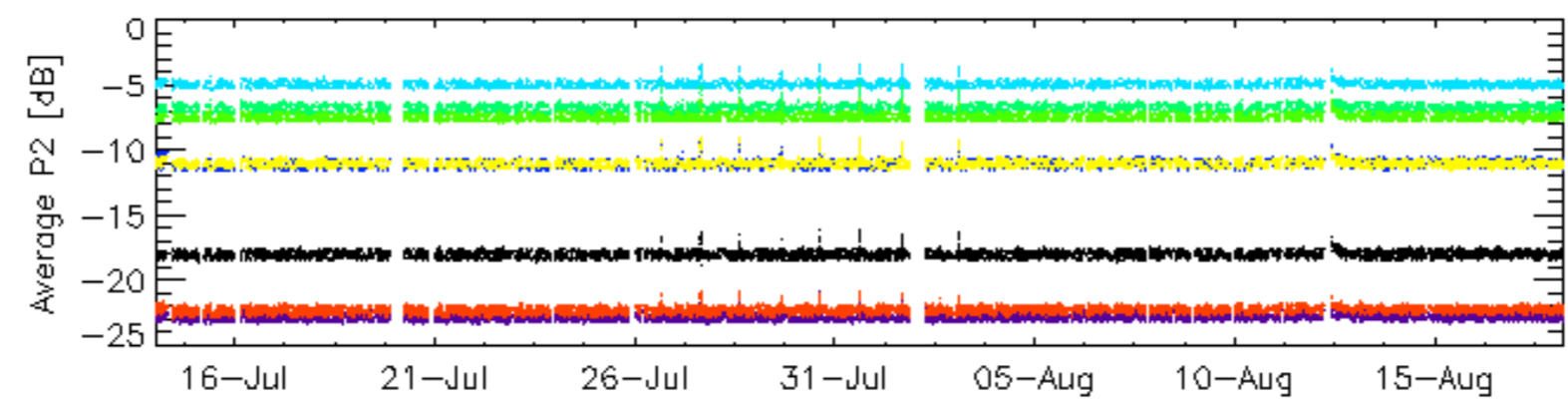
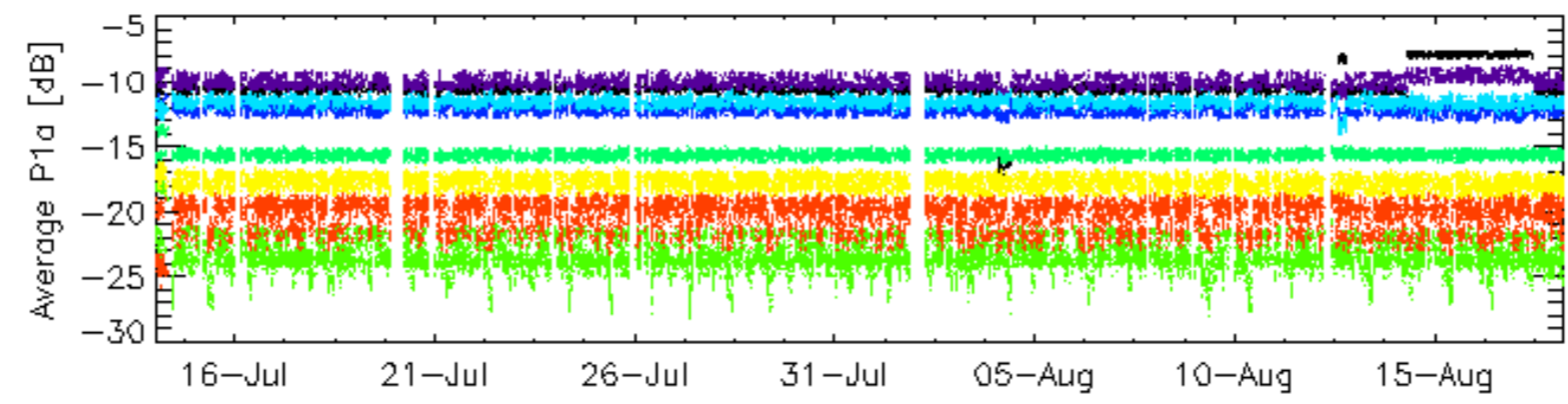
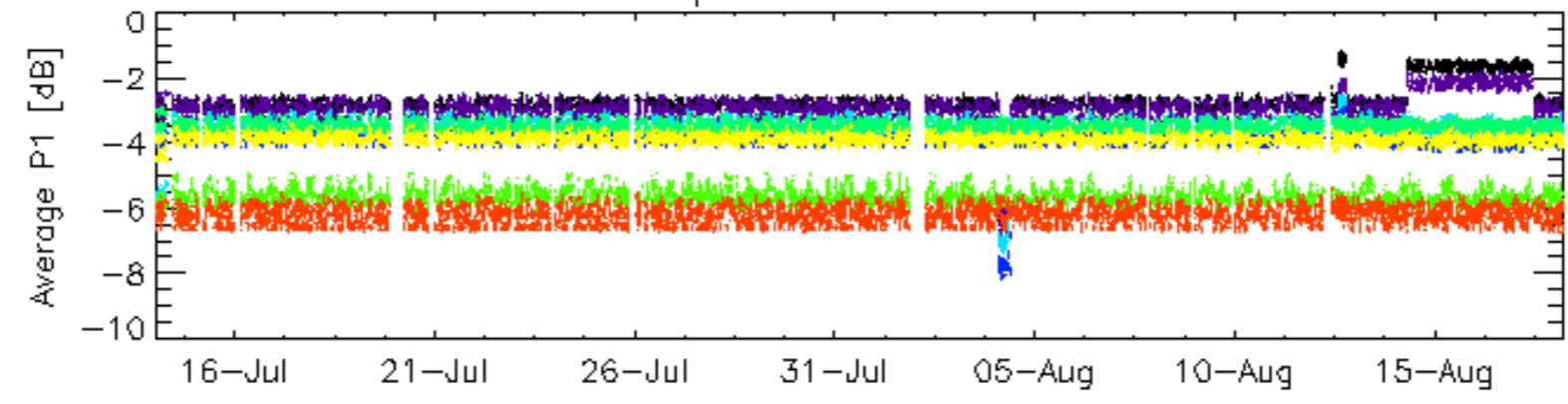
Evolution of Absolute Doppler	
<input type="checkbox"/>	
	Ascending
<input type="checkbox"/>	
	Descending

### 6.6 - Doppler evolution versus ANX for GM1

Evolution Doppler error versus ANX	
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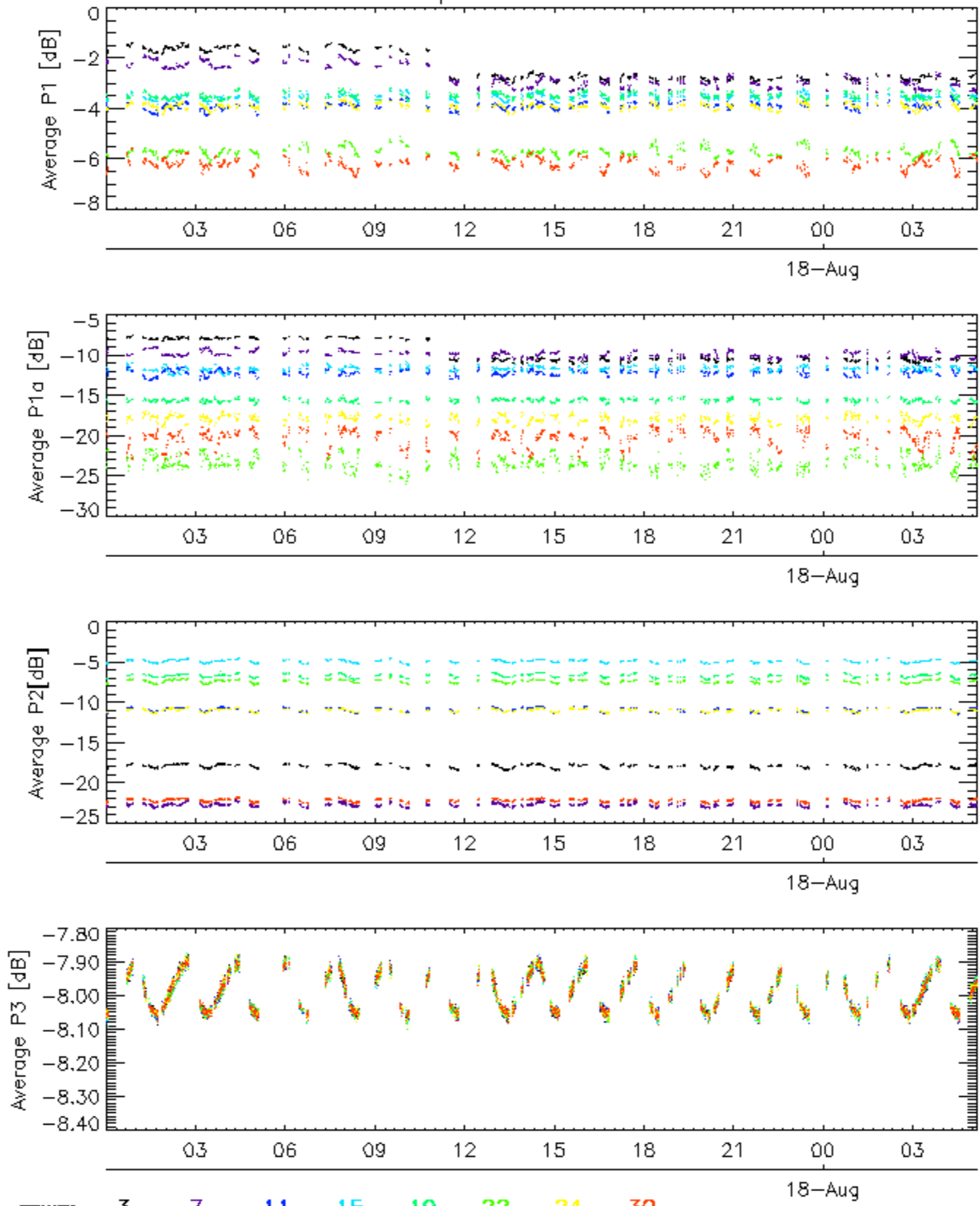


### Cal pulses for GM1 SS3

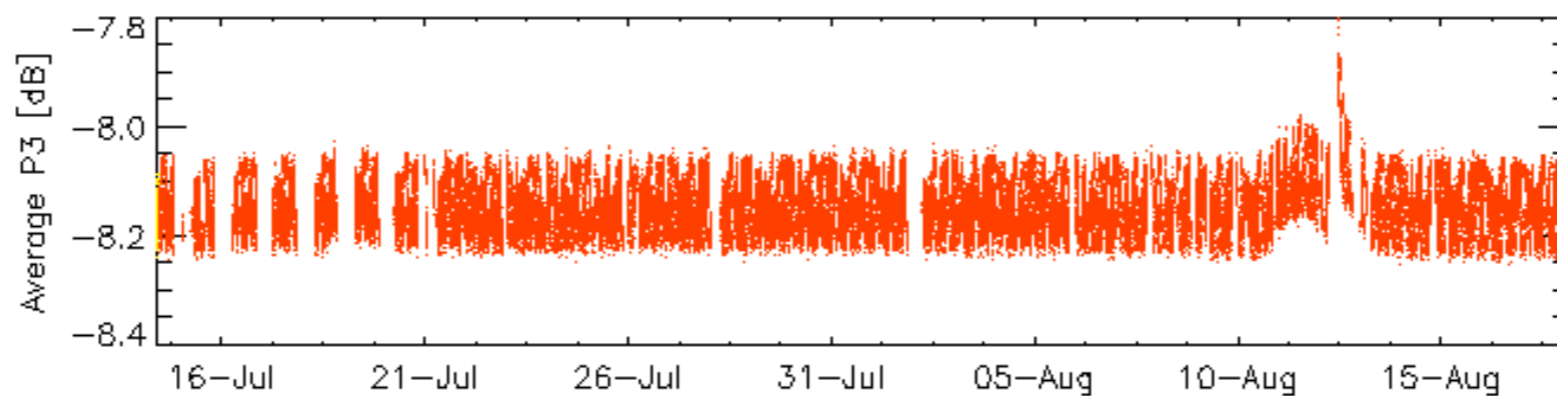
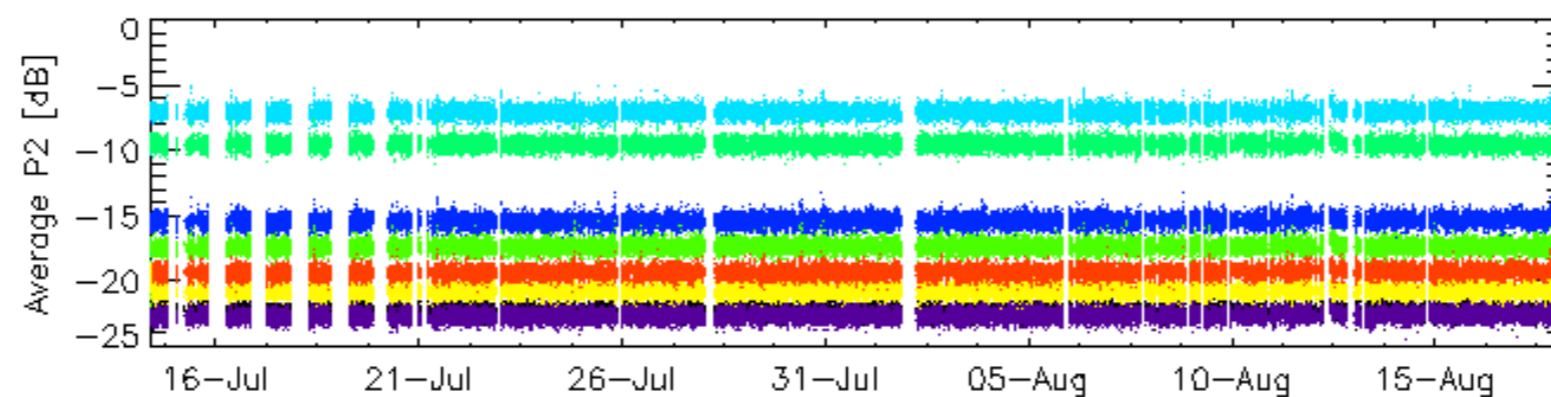
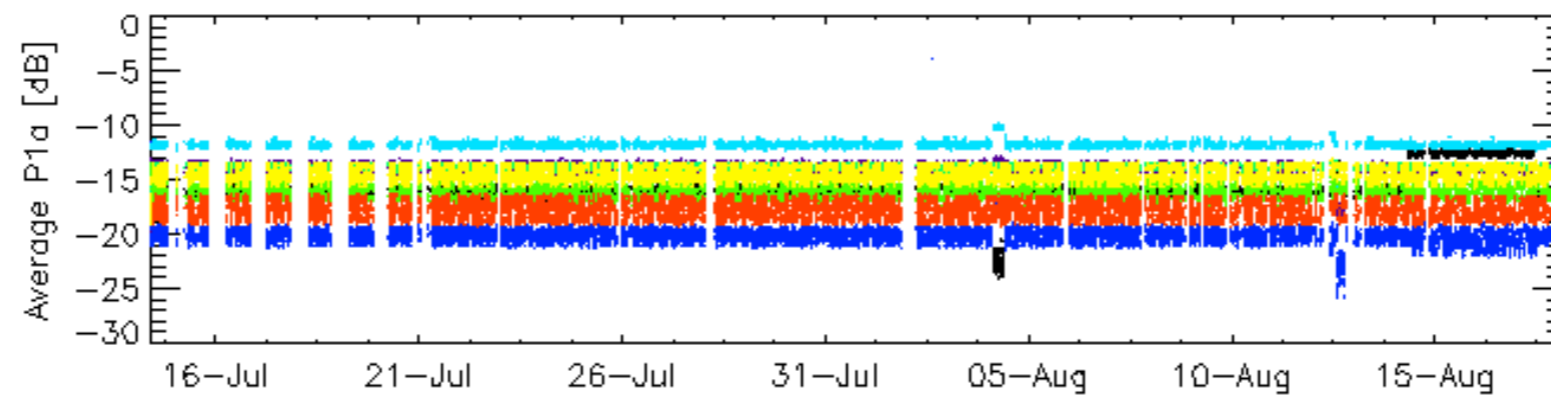
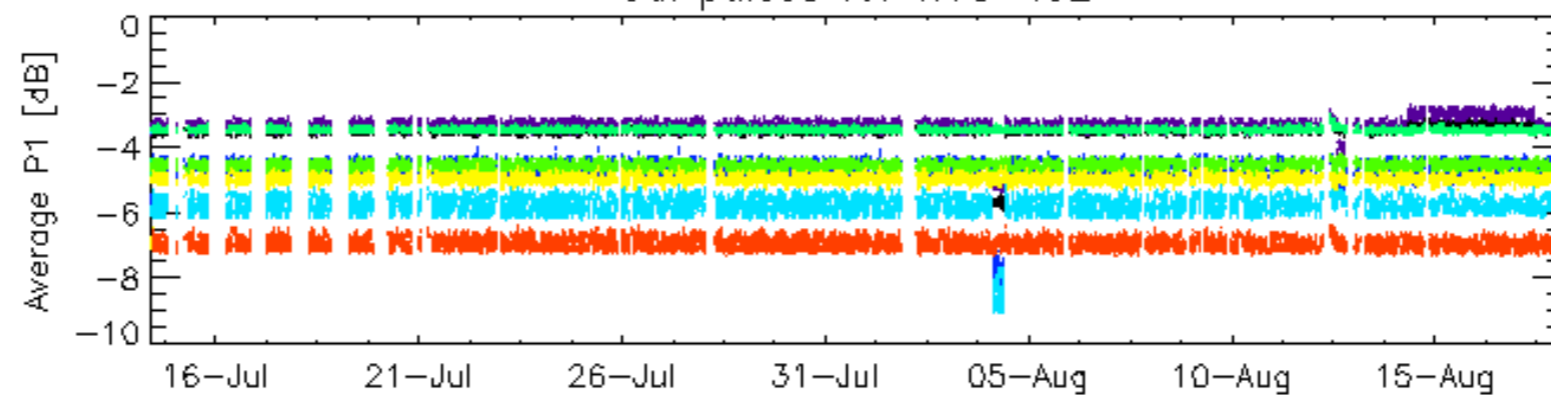


rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30

Cal pulses for GM1 SS3

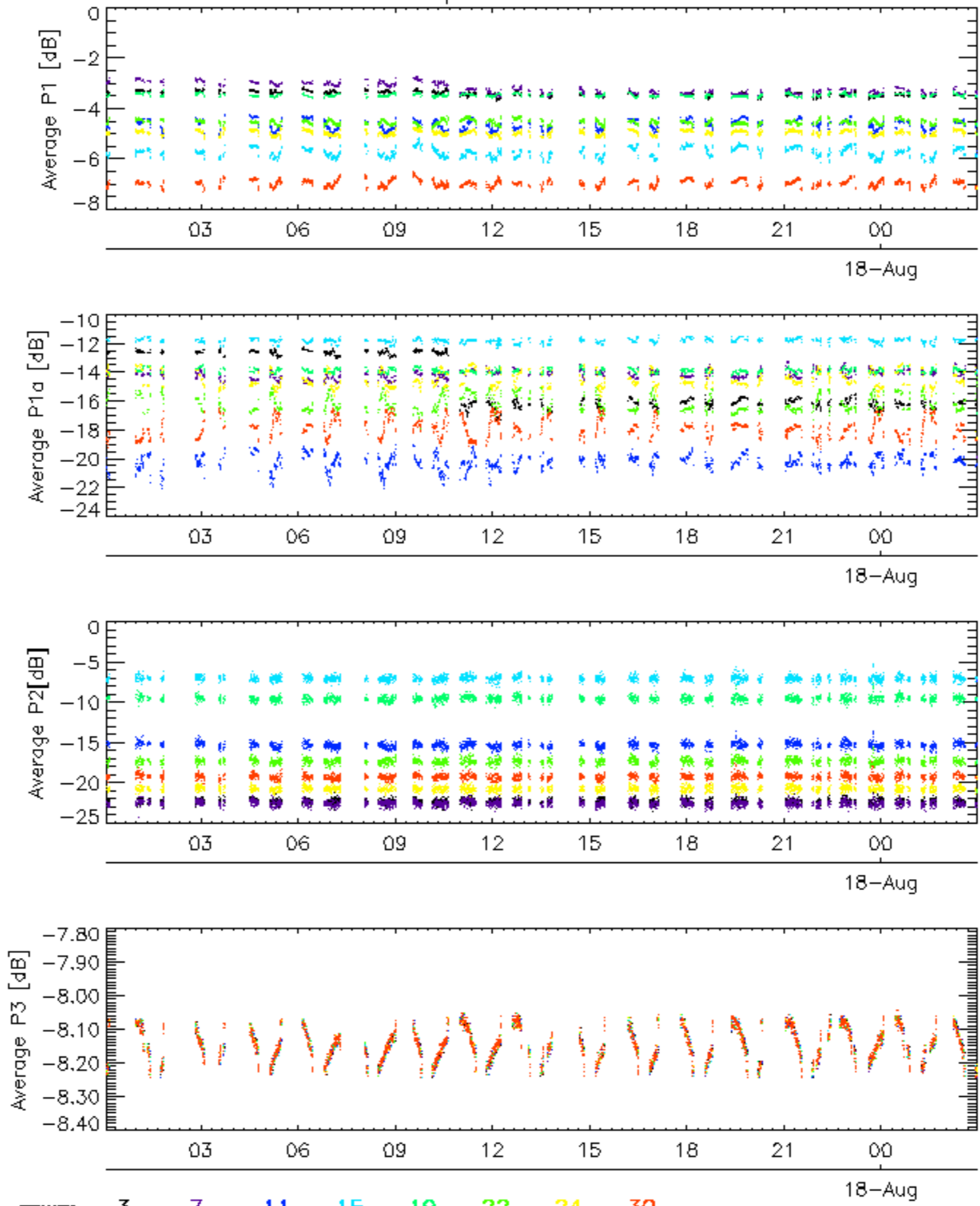


### Cal pulses for WVS IS2



rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30

Cal pulses for WVS IS2

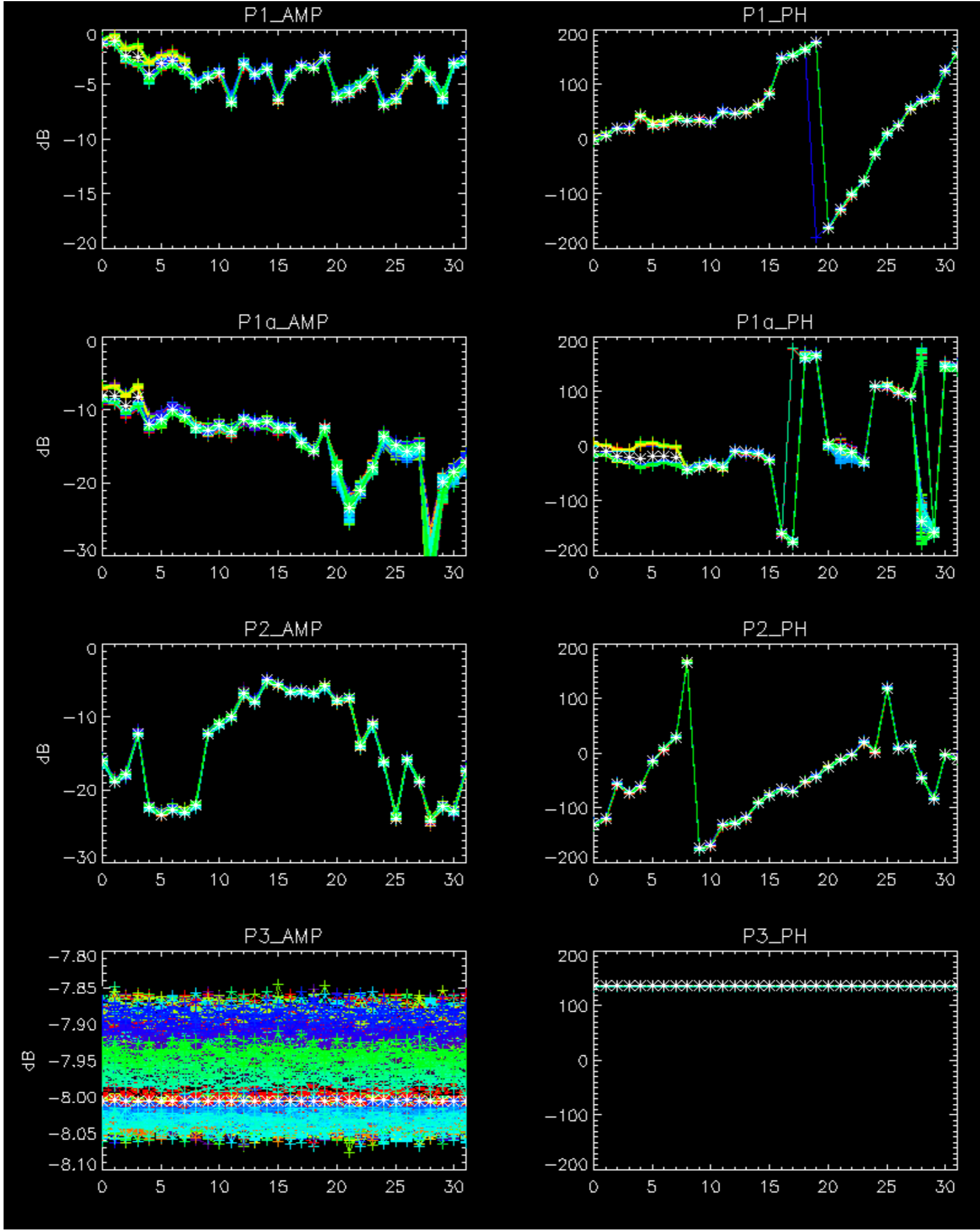


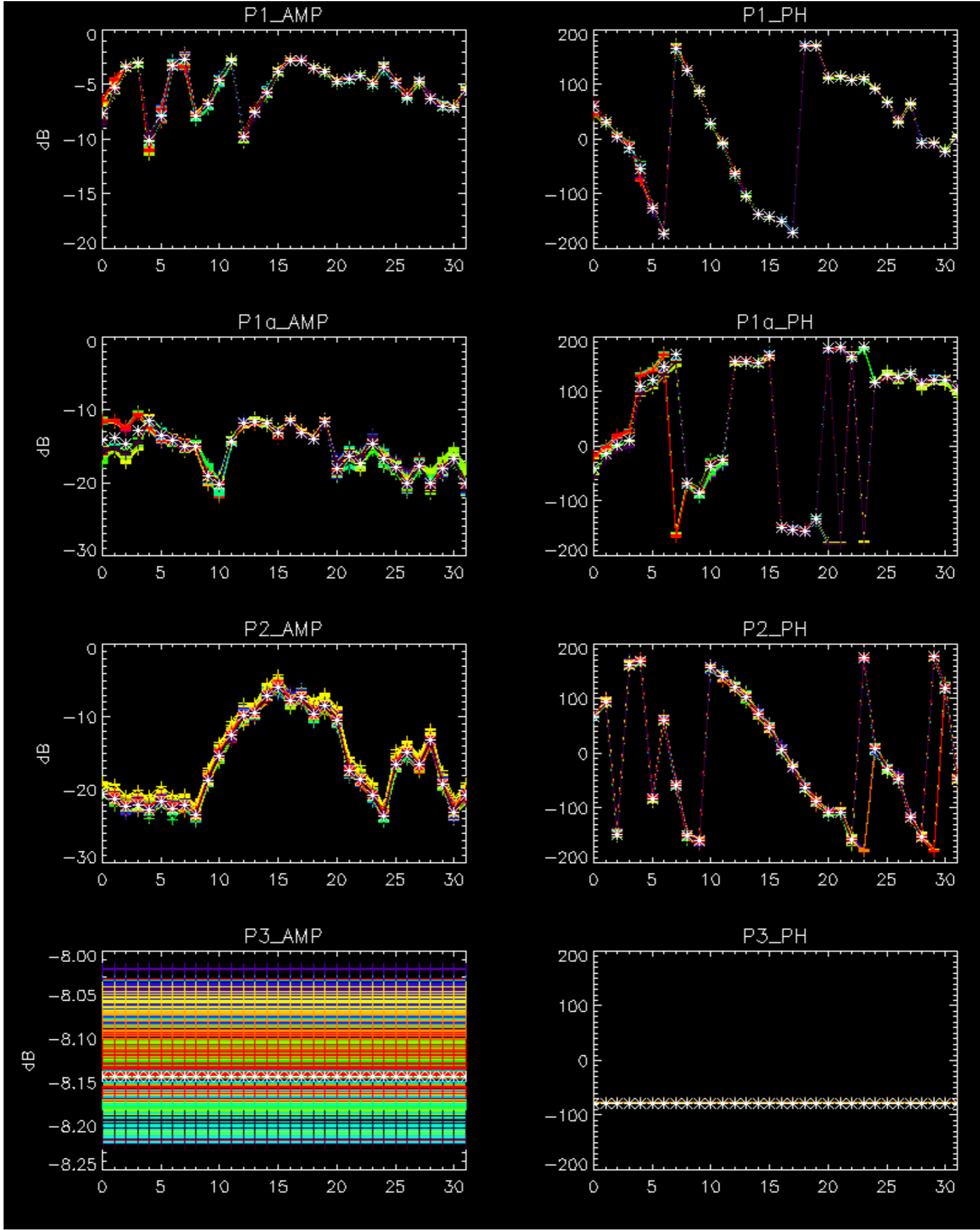
rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30

No anomalies observed on available browse products

The end of anomaly is visible on cal pulse plots.  
The Tx power of the rows that shared the PSU 1 and 2 of tile D1 is back to a nominal level.





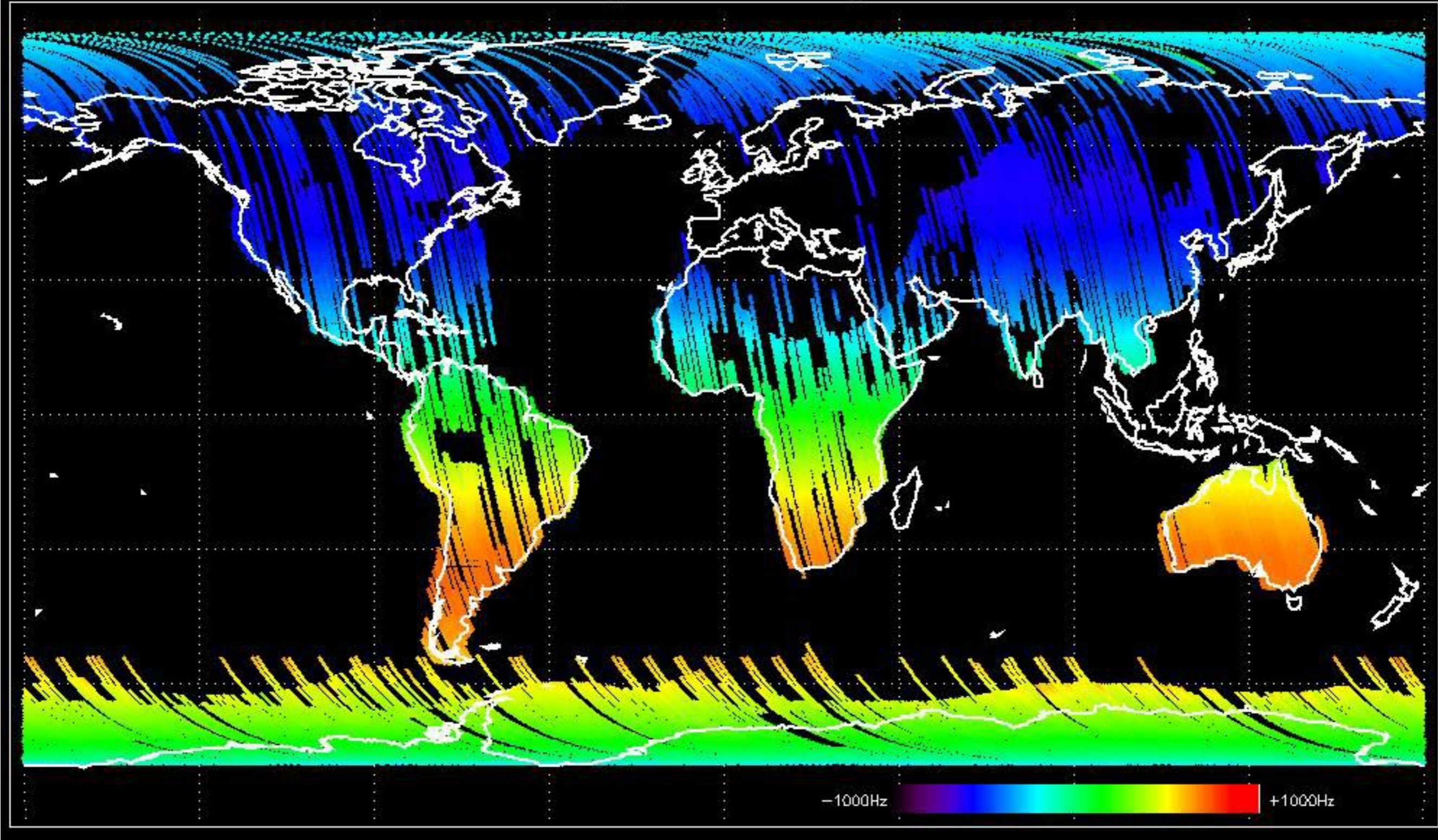




- Stable wave internal calibration pulses gain and phase since antenna reset.
- Stable raw data statistics.
- Nominal Doppler behavior.

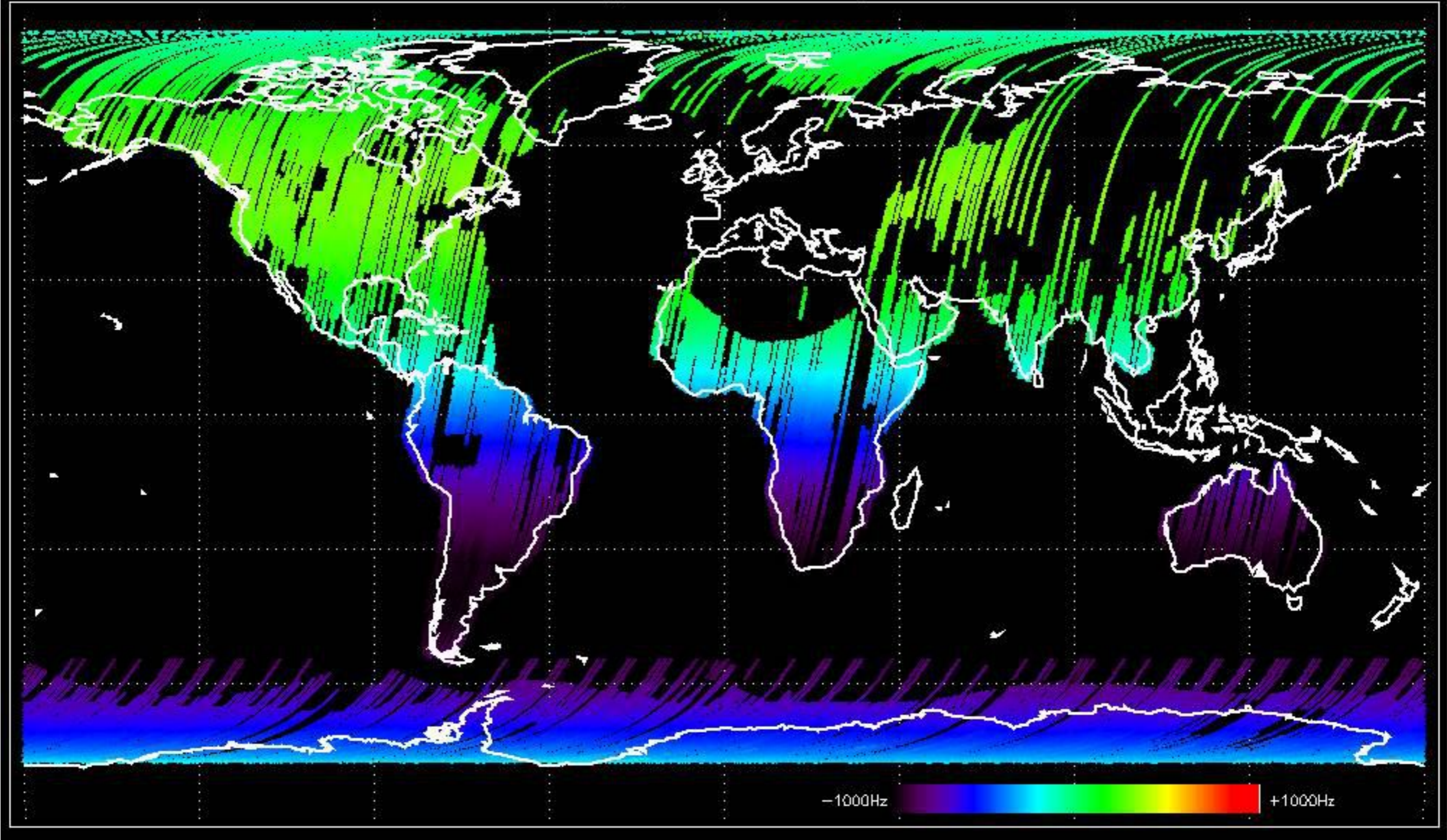
Wrong Doppler estimation for one GM product because of high amount of black lines (no data).

Doppler 'GM1' 'SS1' ascending



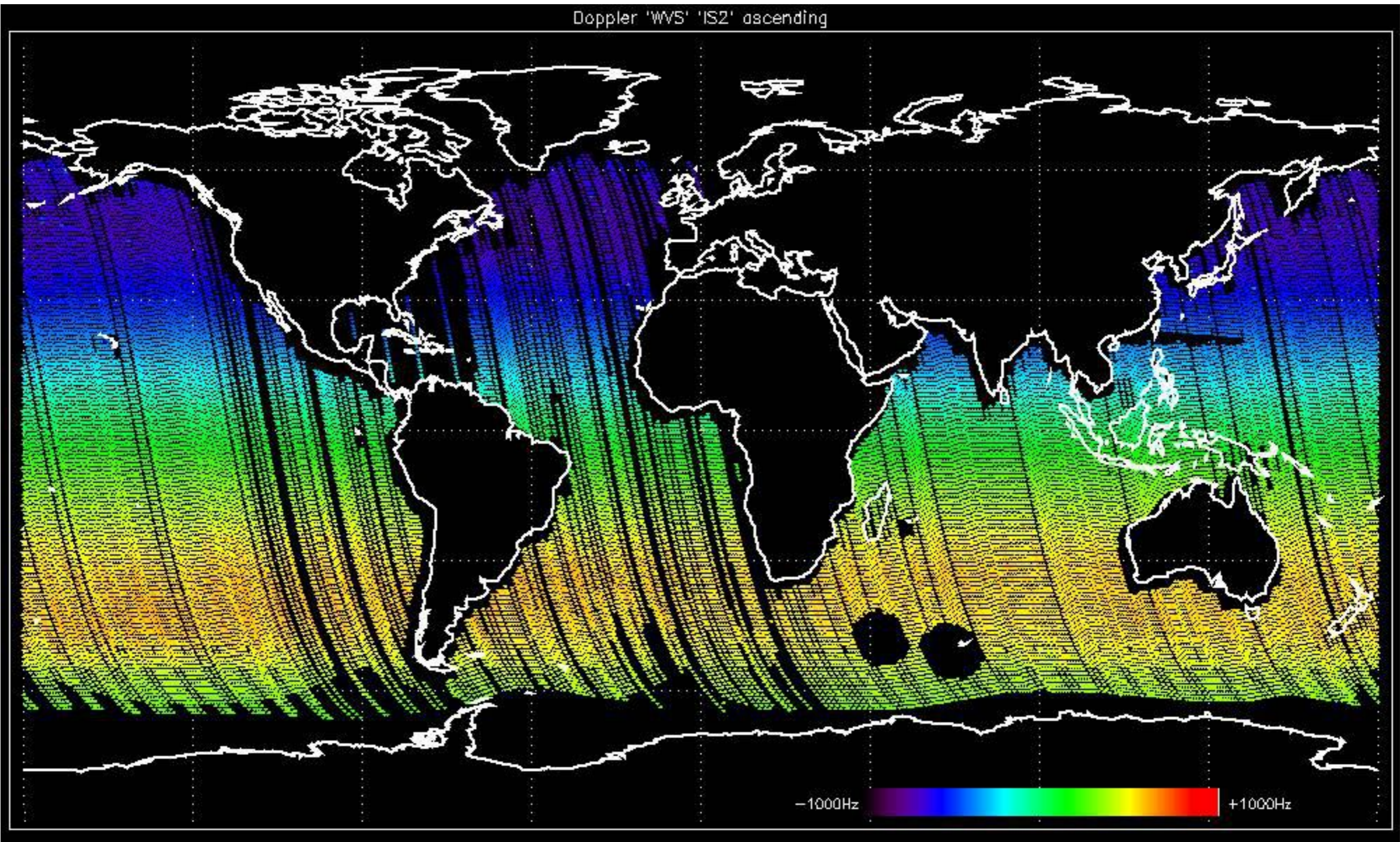


Doppler 'GM1' 'SS1' descending



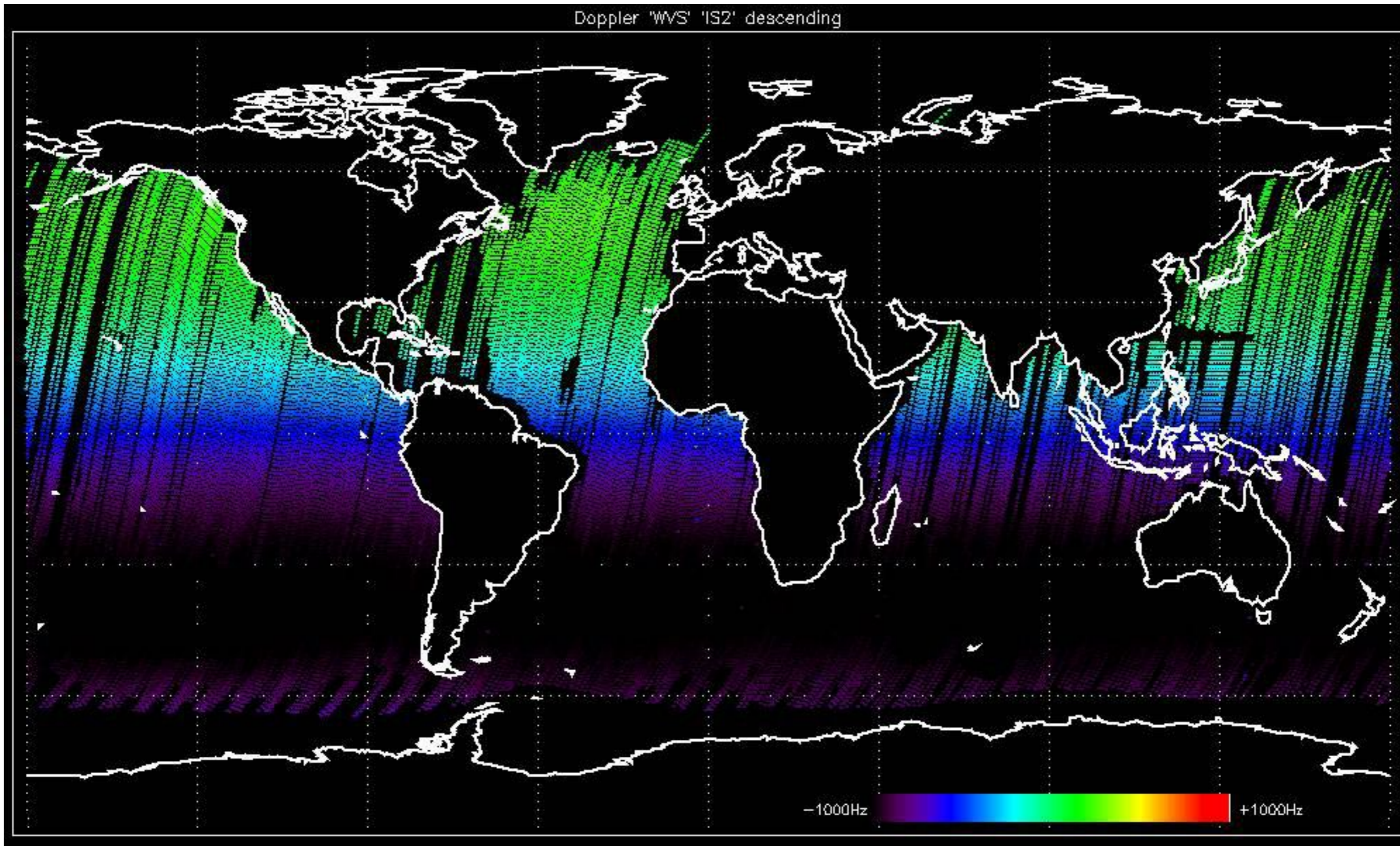


Doppler 'WVS' 'IS2' ascending

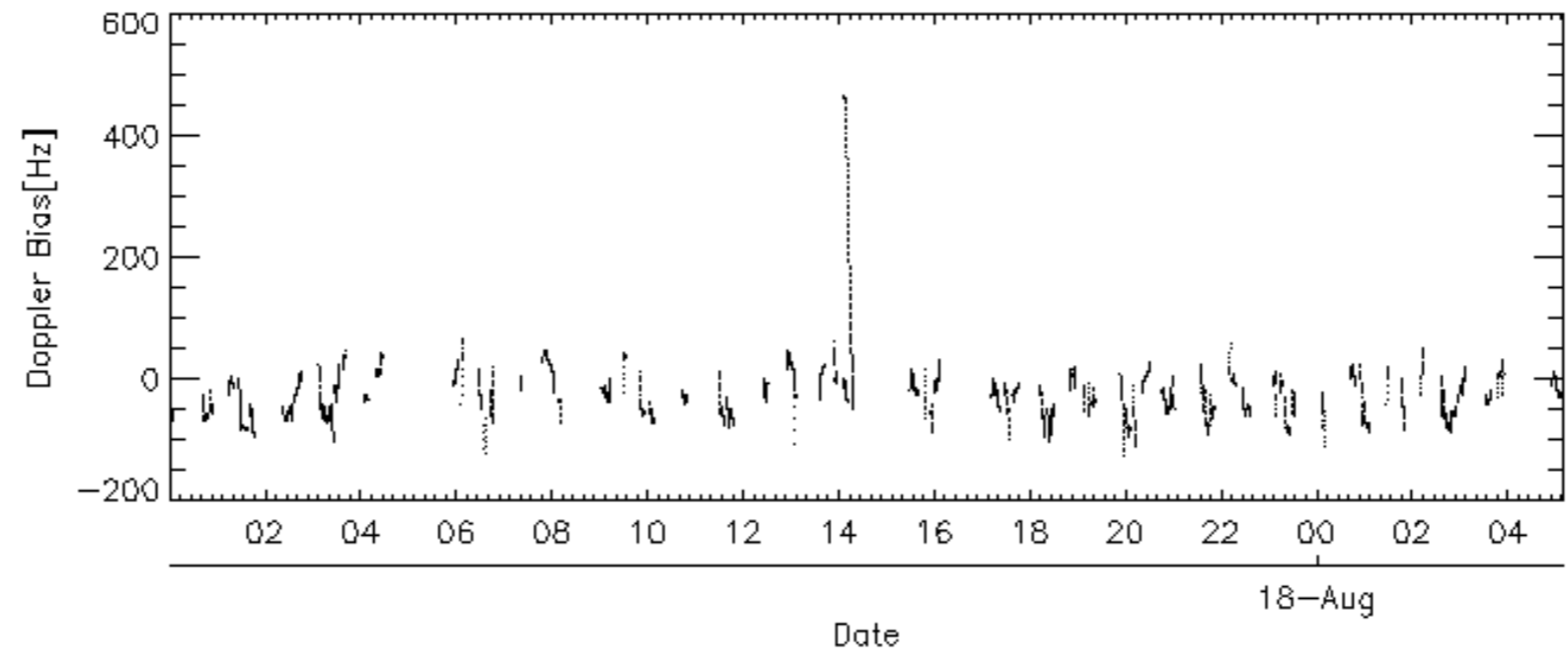
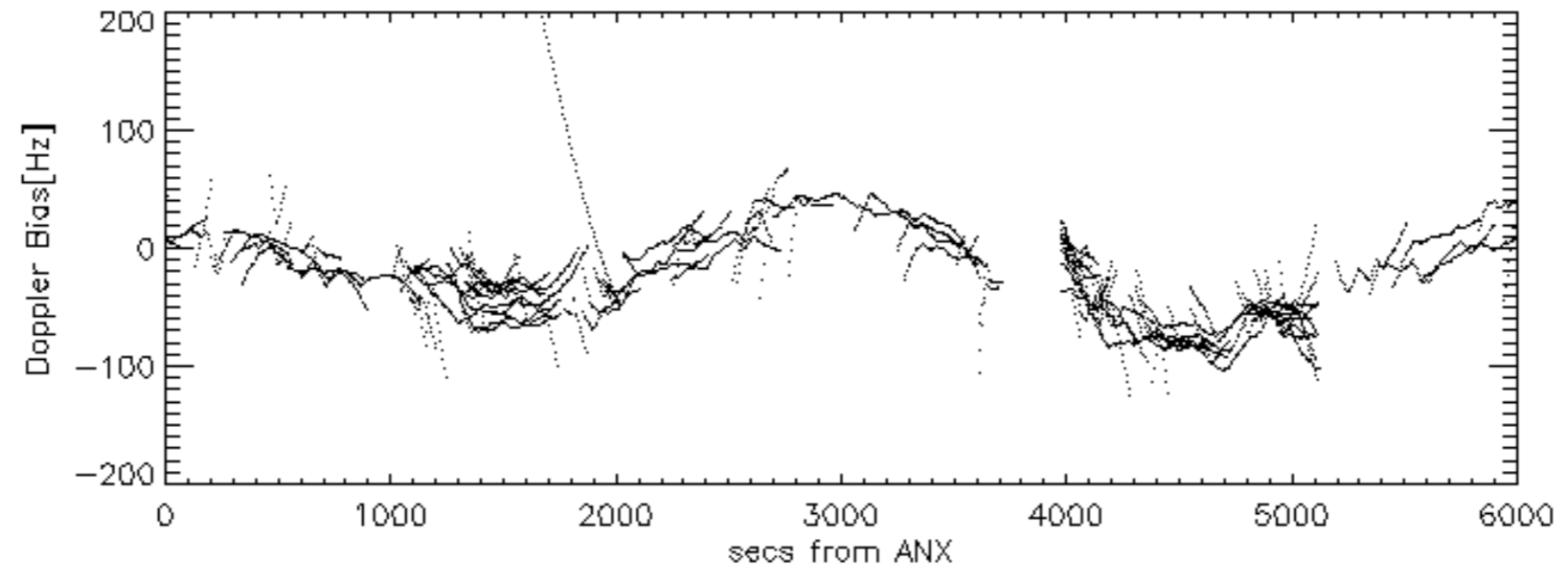
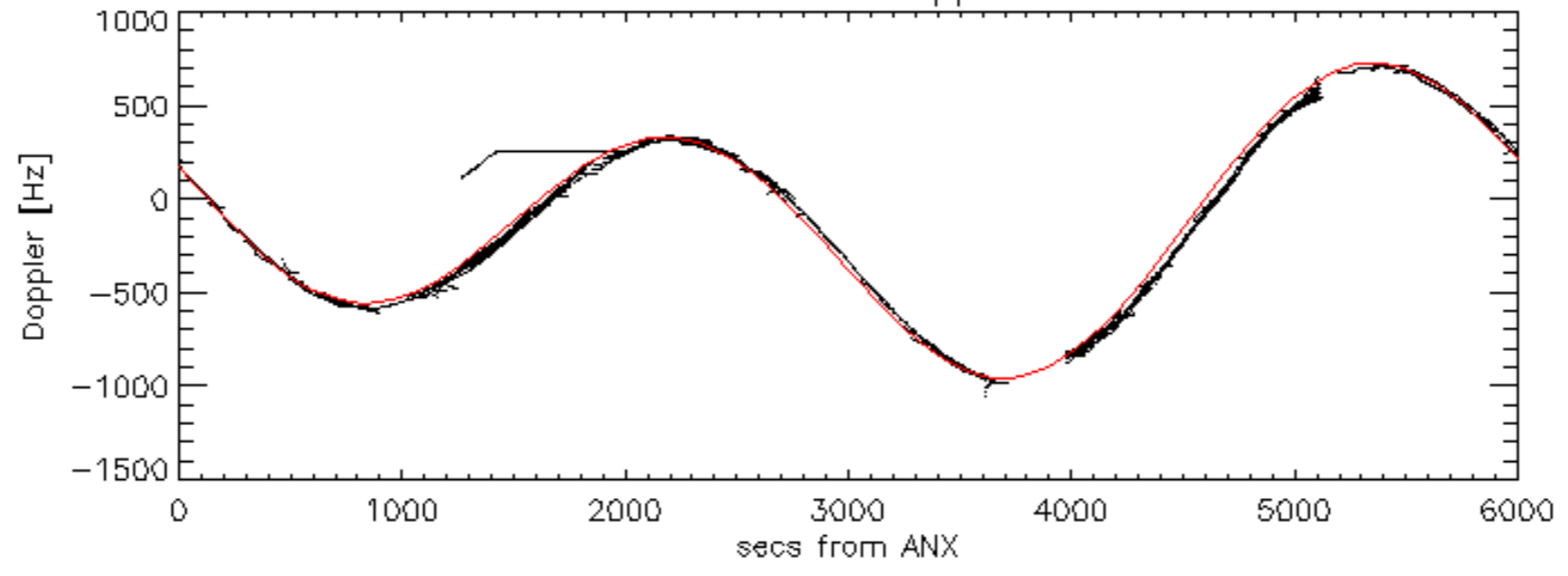




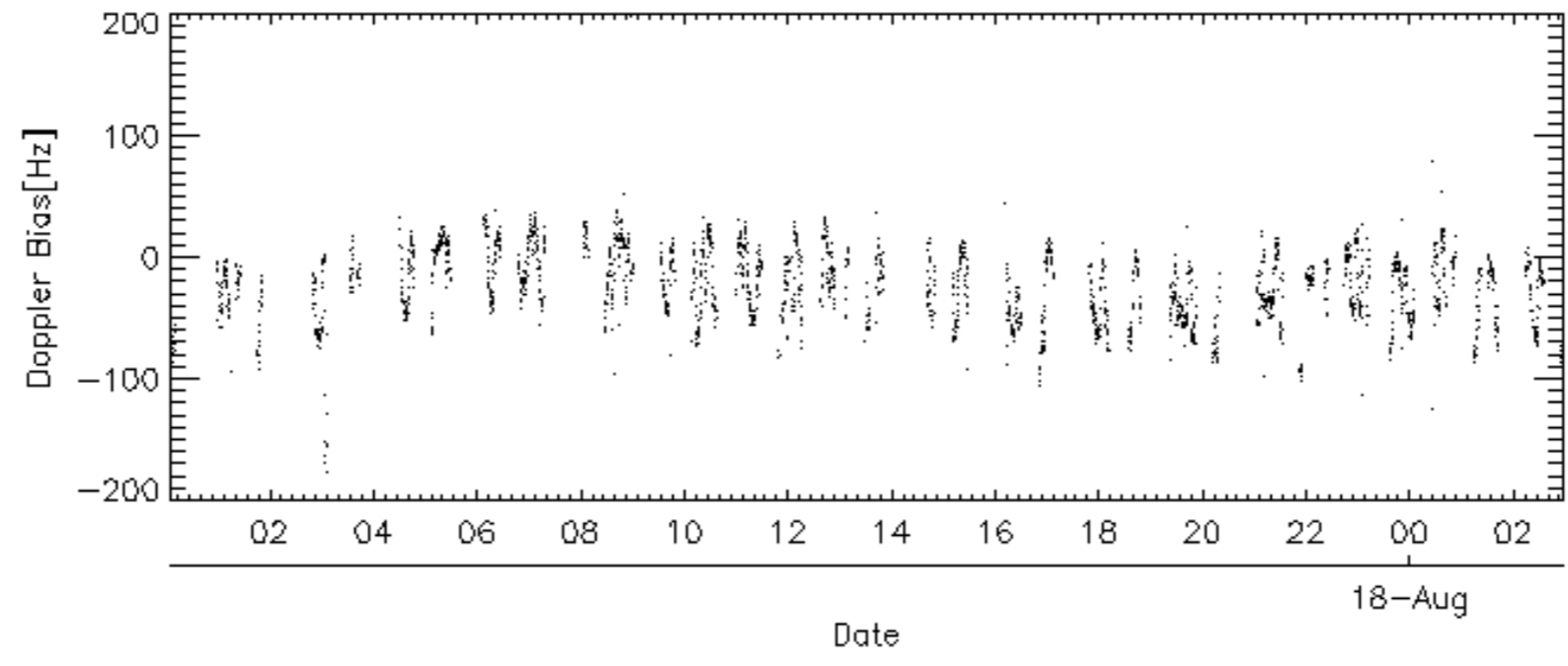
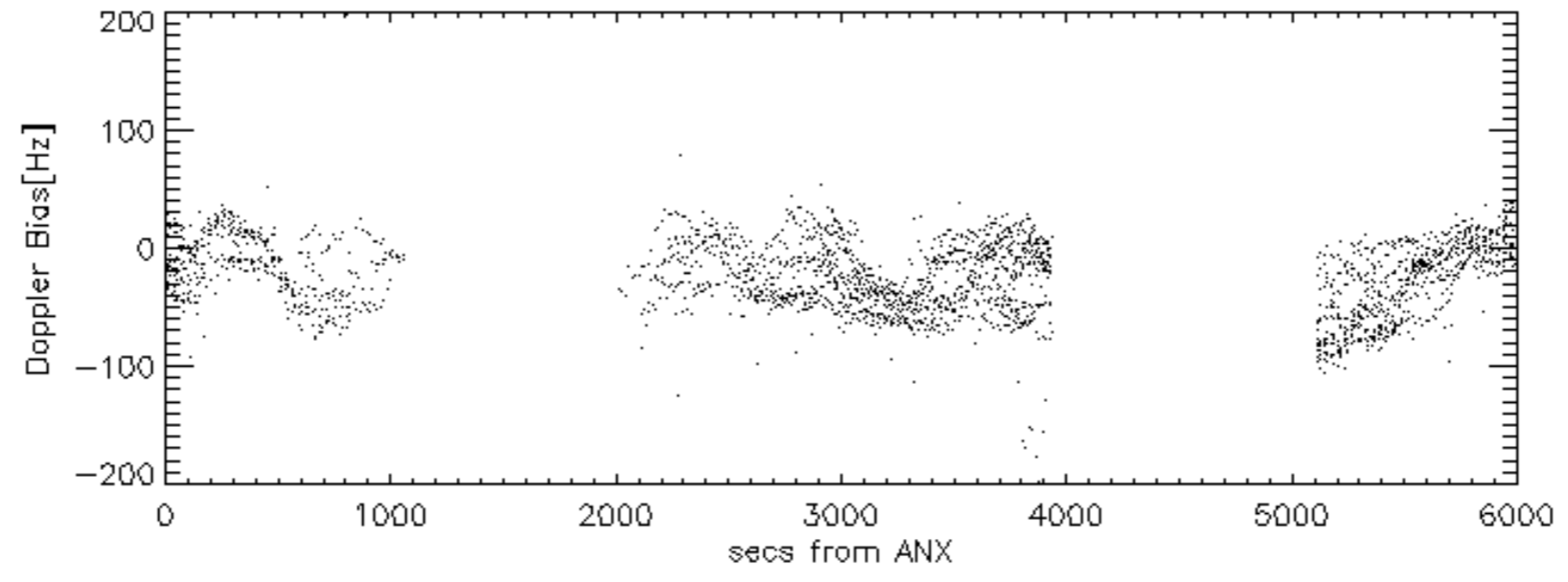
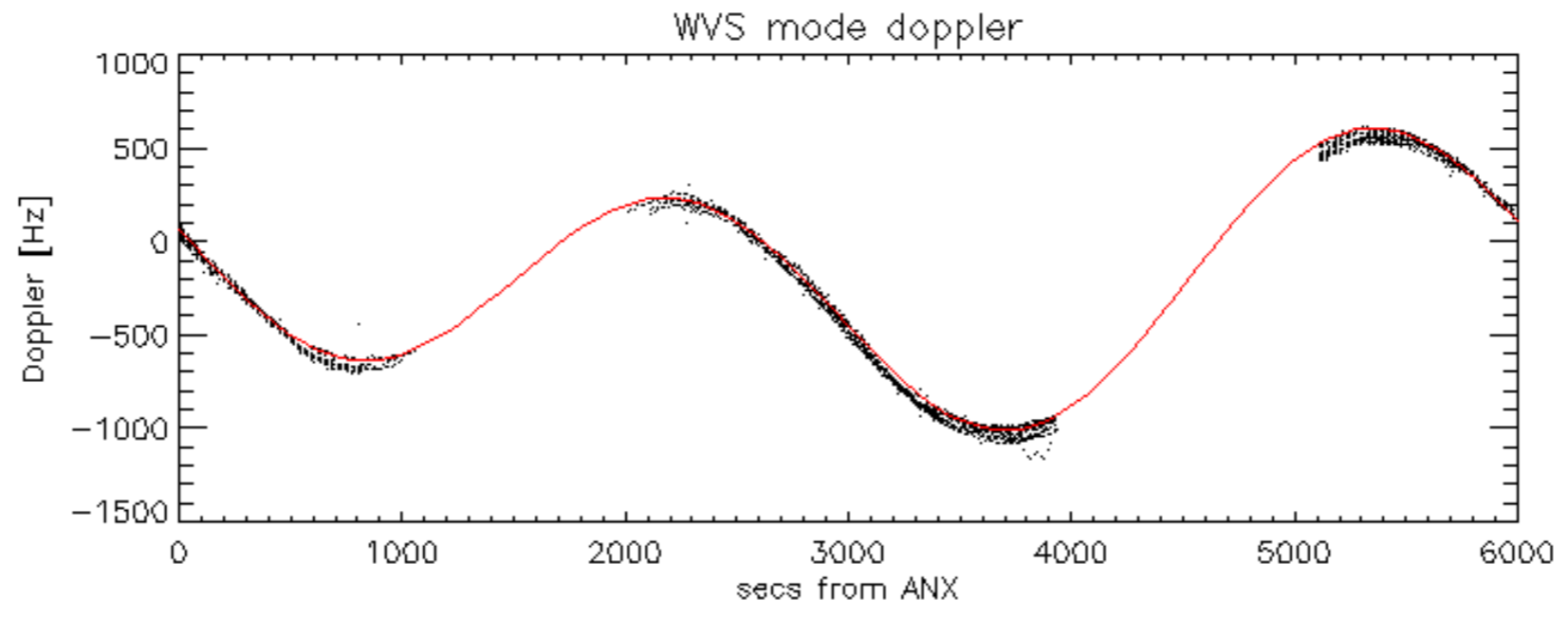
Doppler 'WVS' 'IS2' descending



GM1 mode doppler

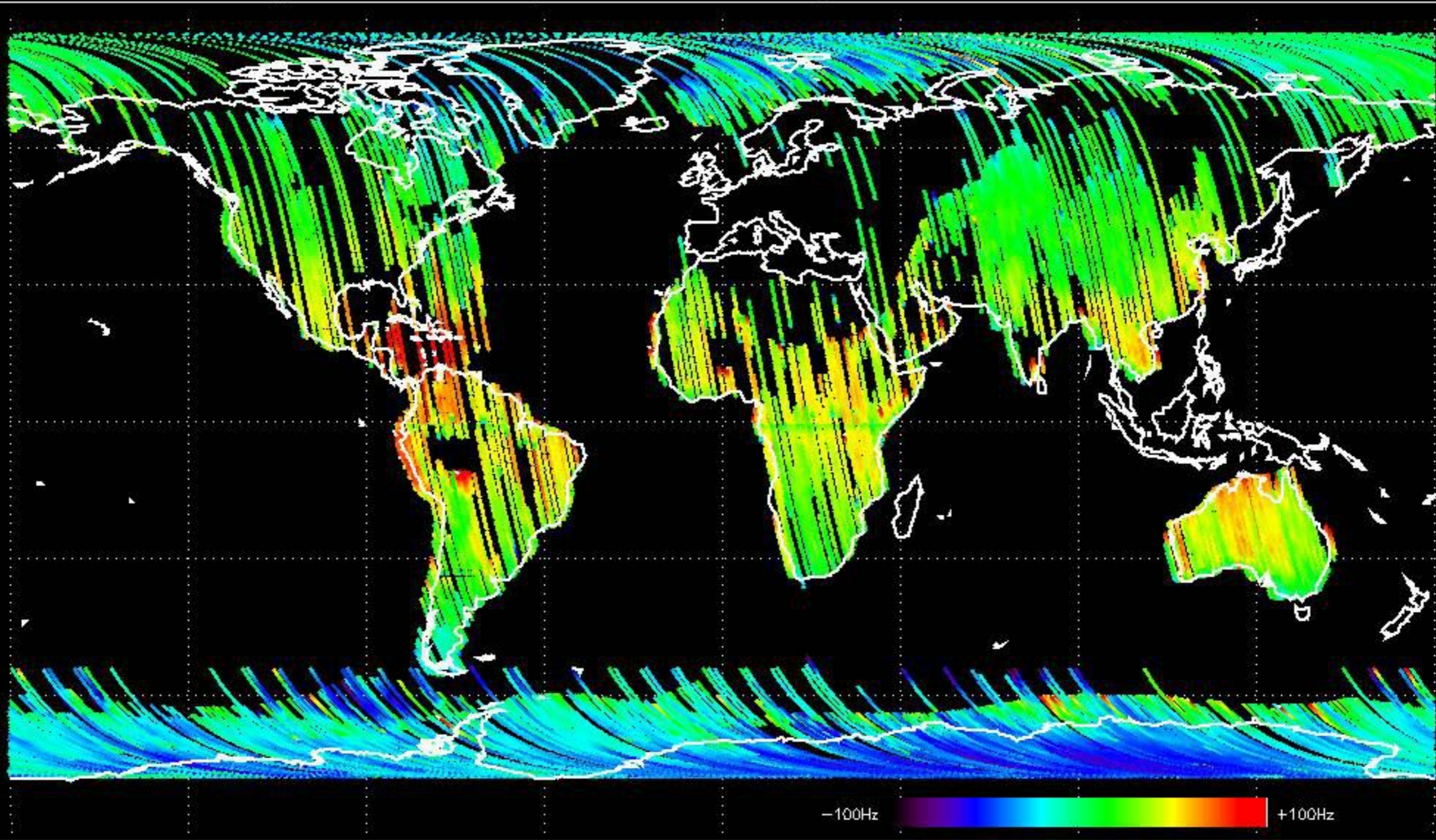






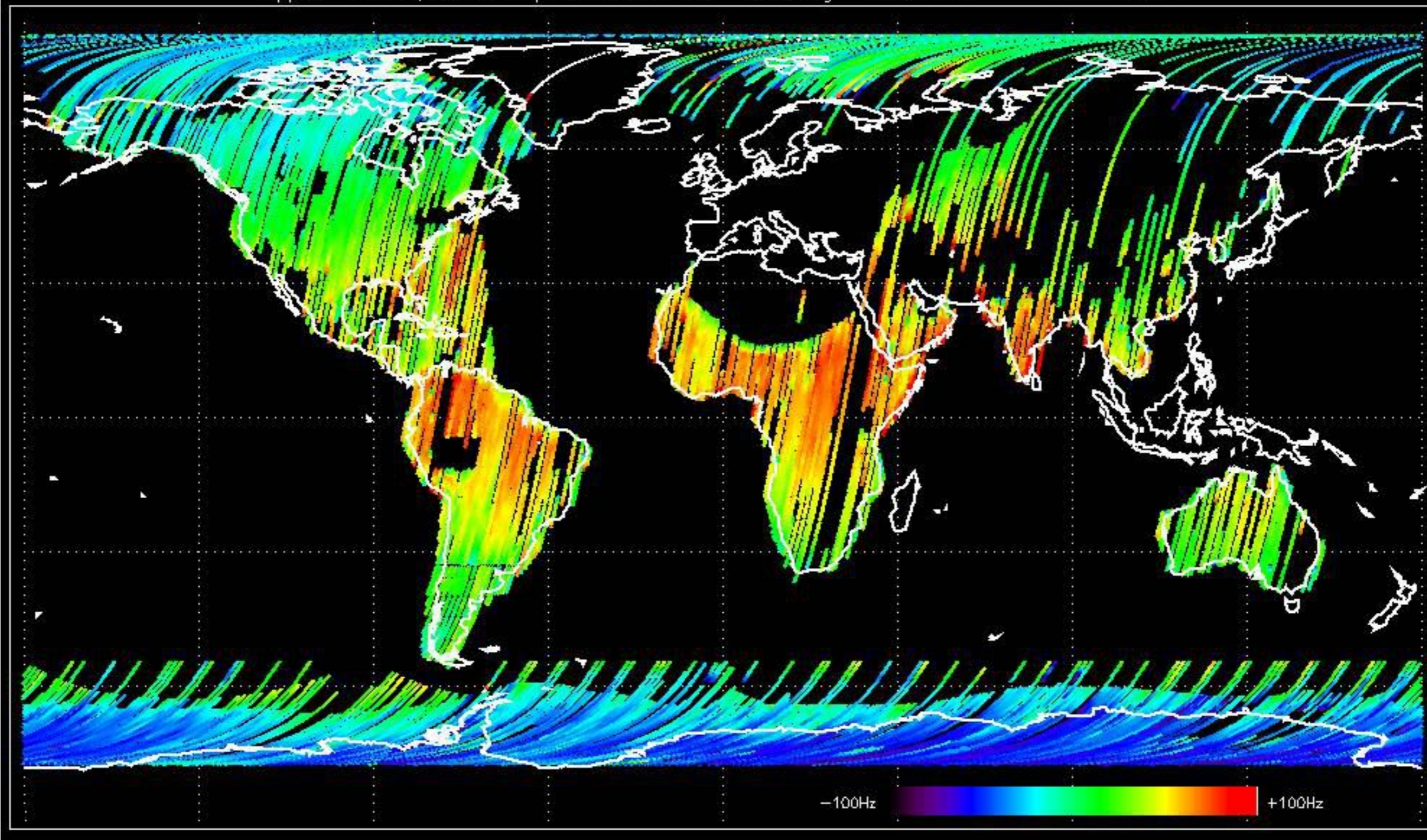


Doppler difference, estimated-predicted 'GM1' 'SS1' ascending -error mean of -38.722183 Hz



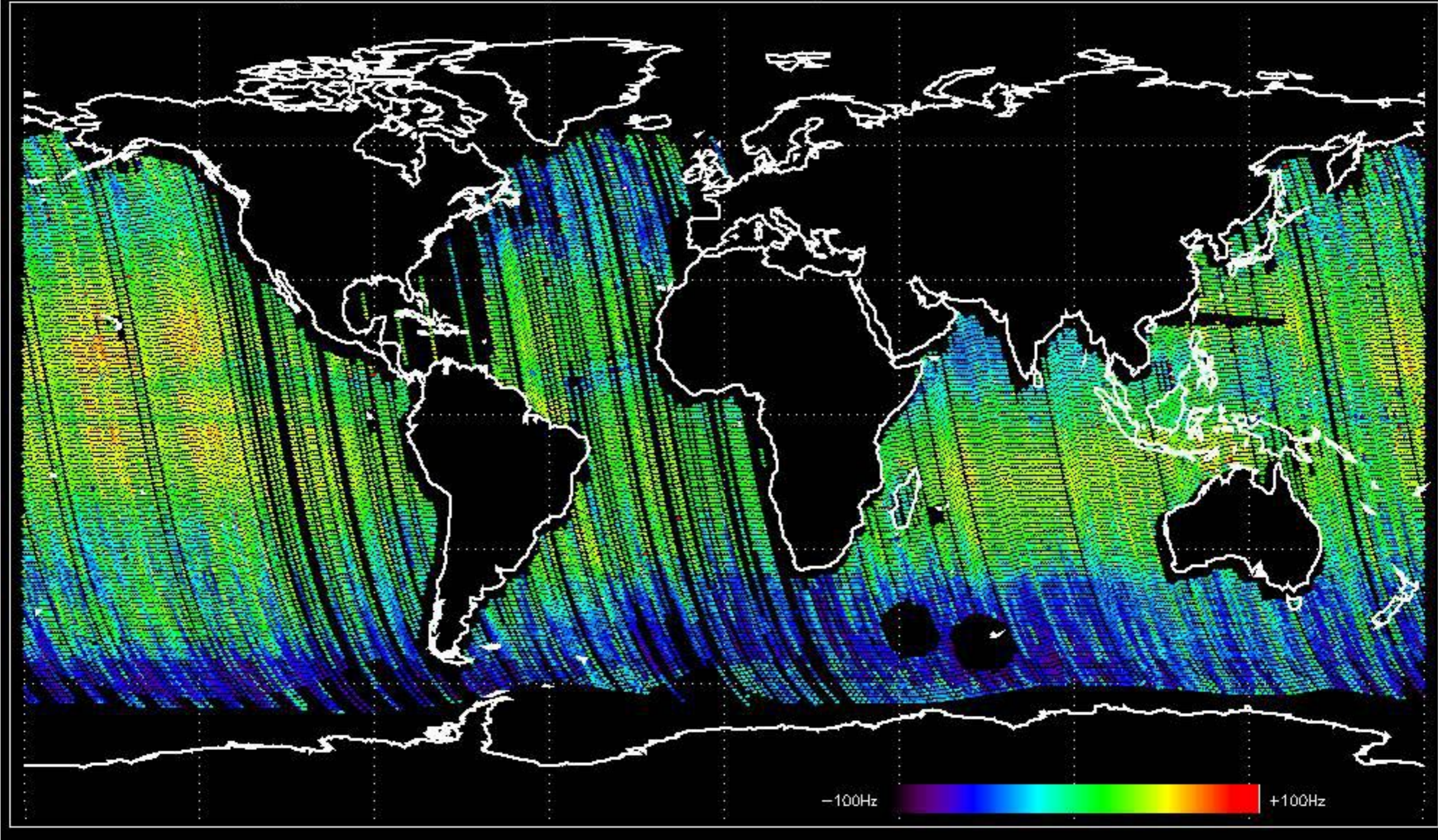


Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -27.309173 Hz



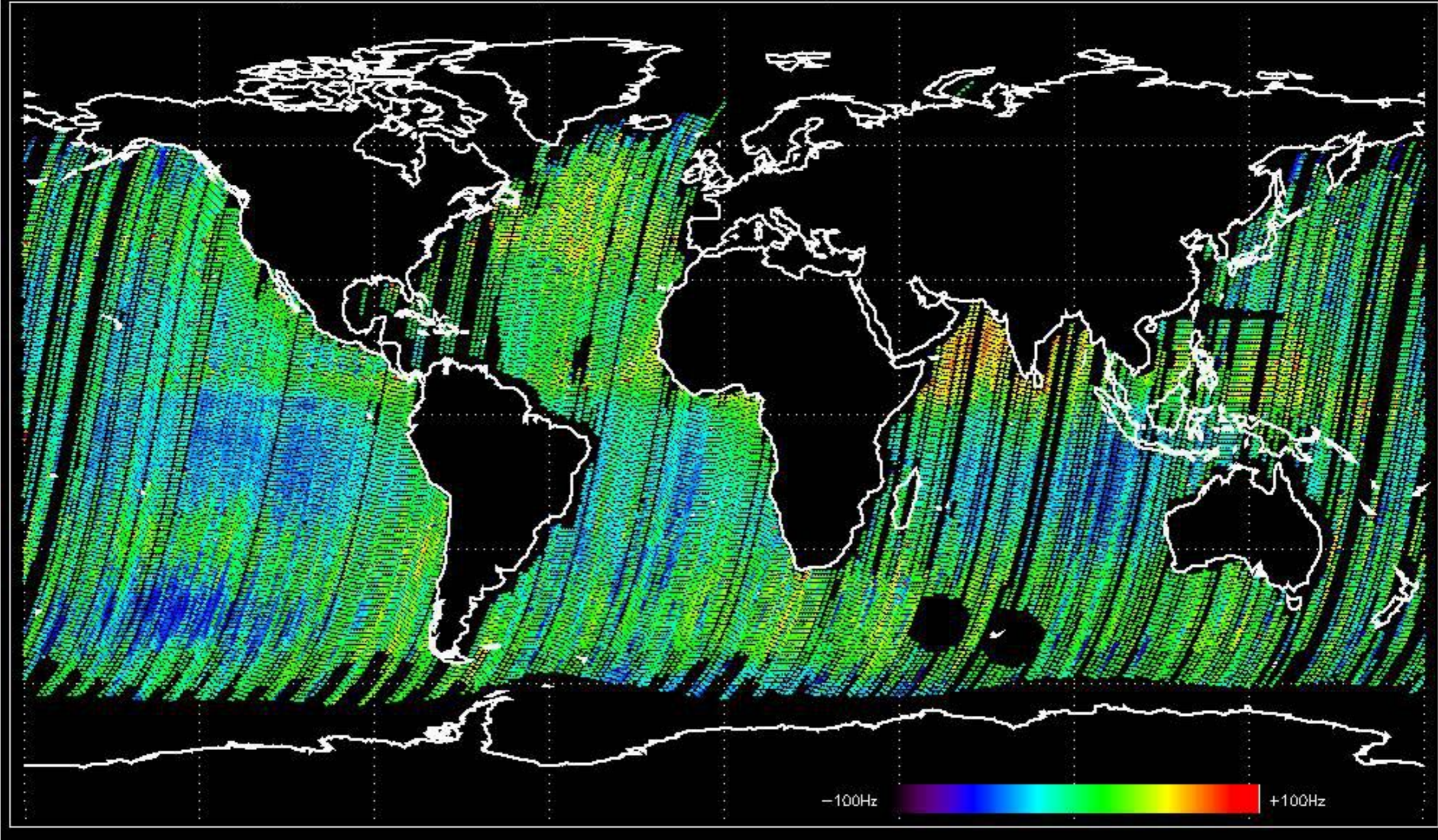


Doppler difference, estimated-predicted 'WVS' 'IS2' ascending -error mean of -28.642434 Hz





Doppler difference, estimated-predicted 'WVS' 'IS2' descending -error mean of -29.054596 Hz





The lasat available product :

- ASA\_MS\_\_0PNPDK20040817\_081020\_000000152029\_00307\_12886\_0047.N1

shows the anomaly detected on tile D1.

Please note that the antenna reset occurred after the acquisition of the listed product

No anomalies observed.









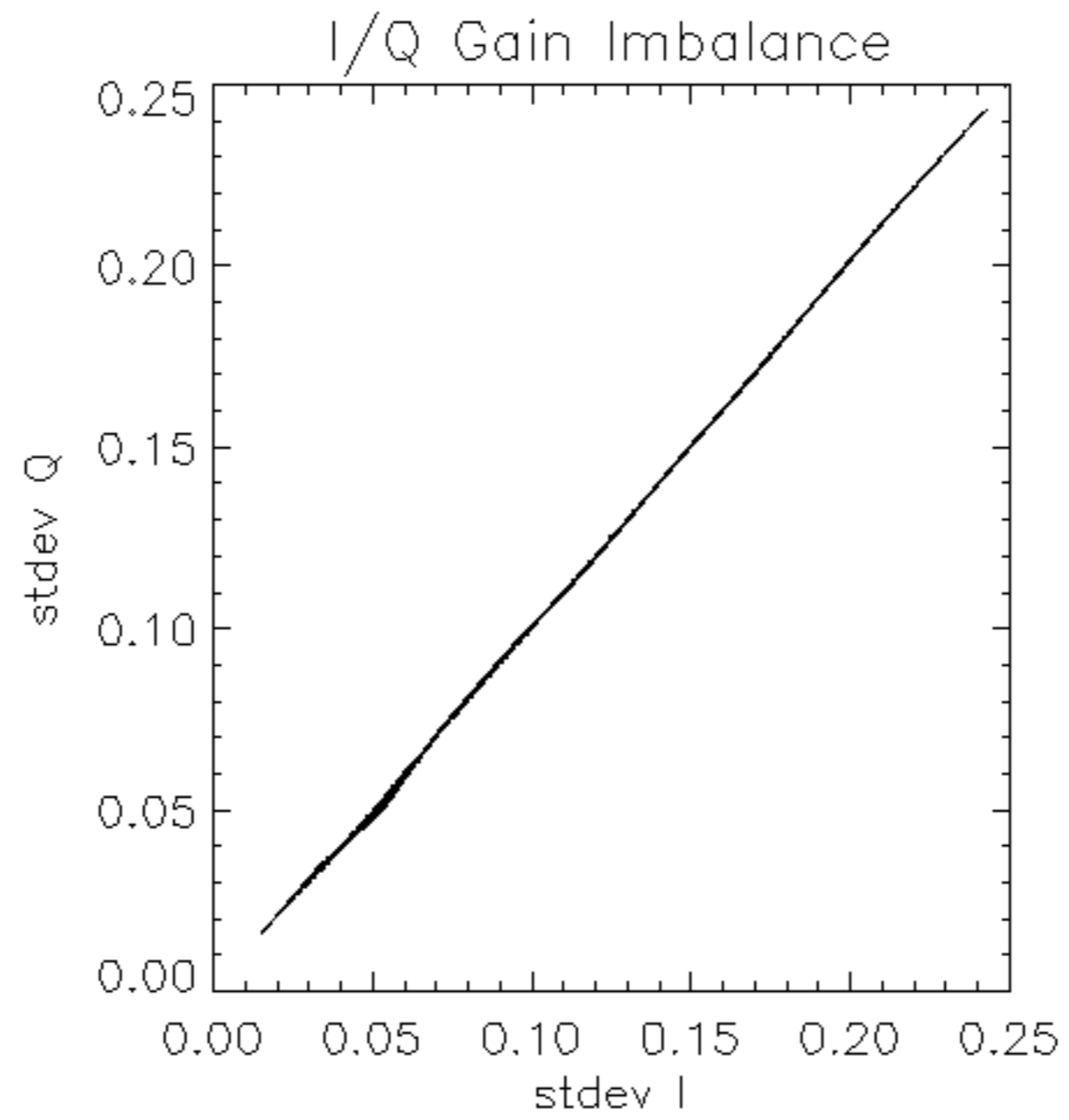


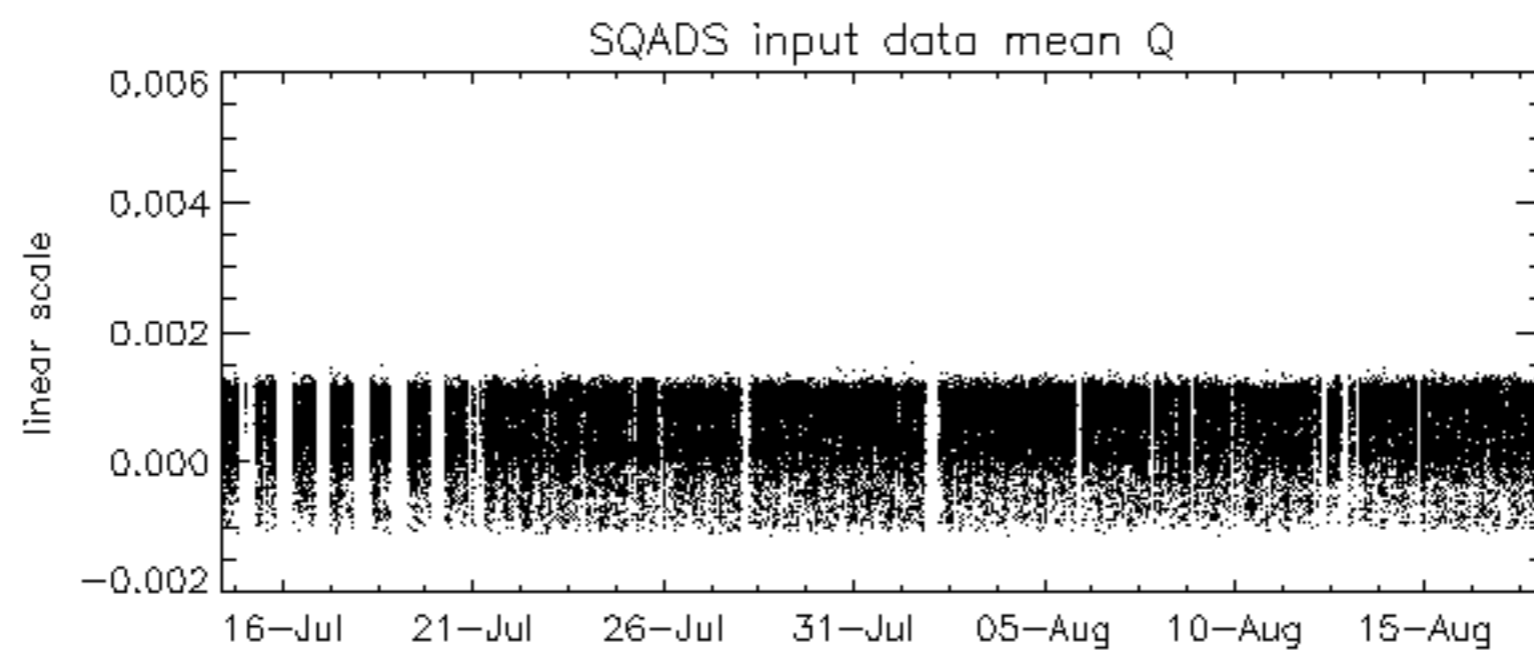
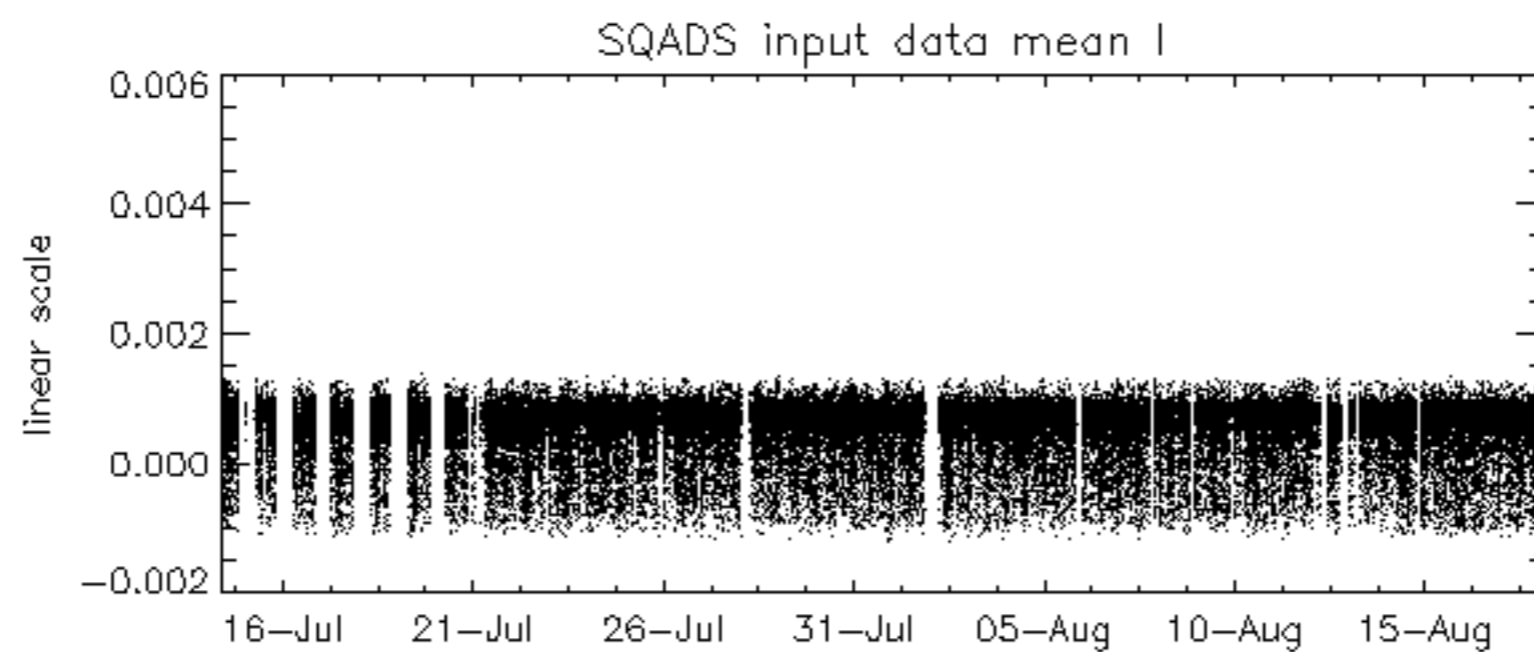
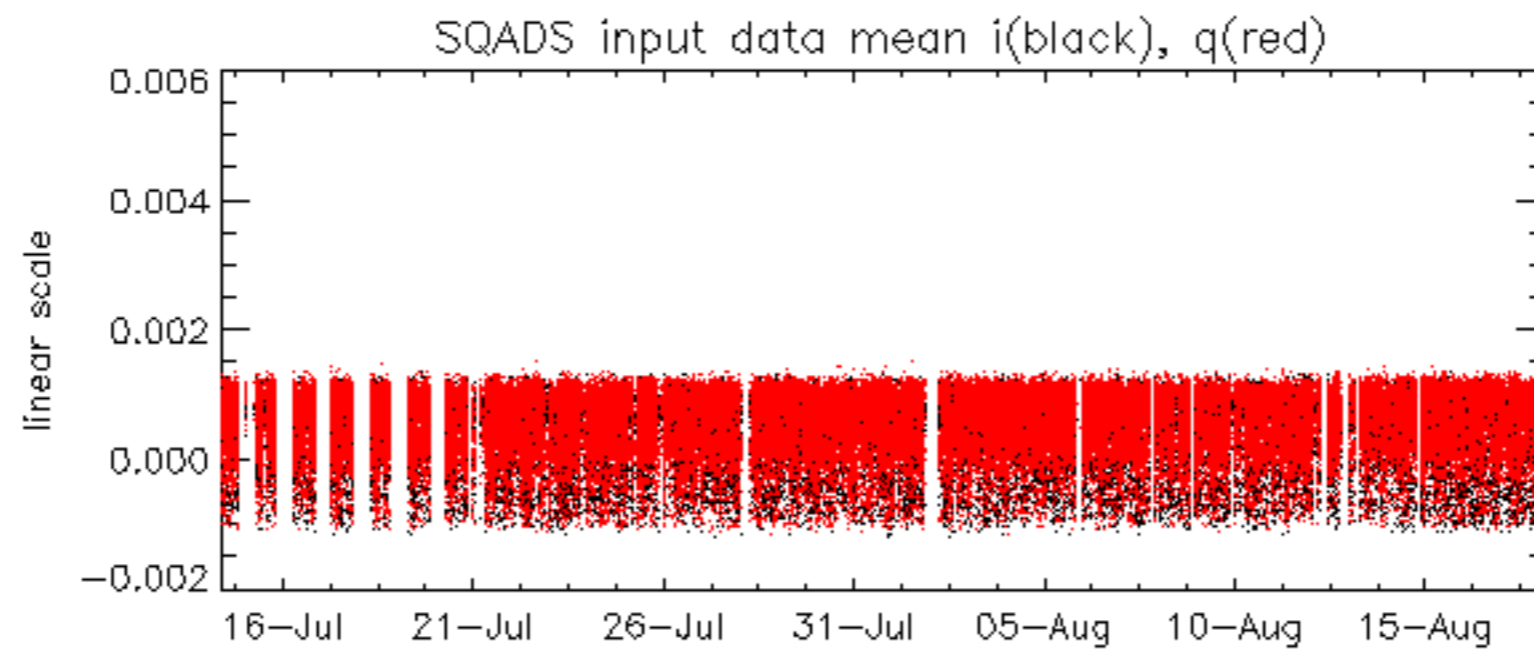




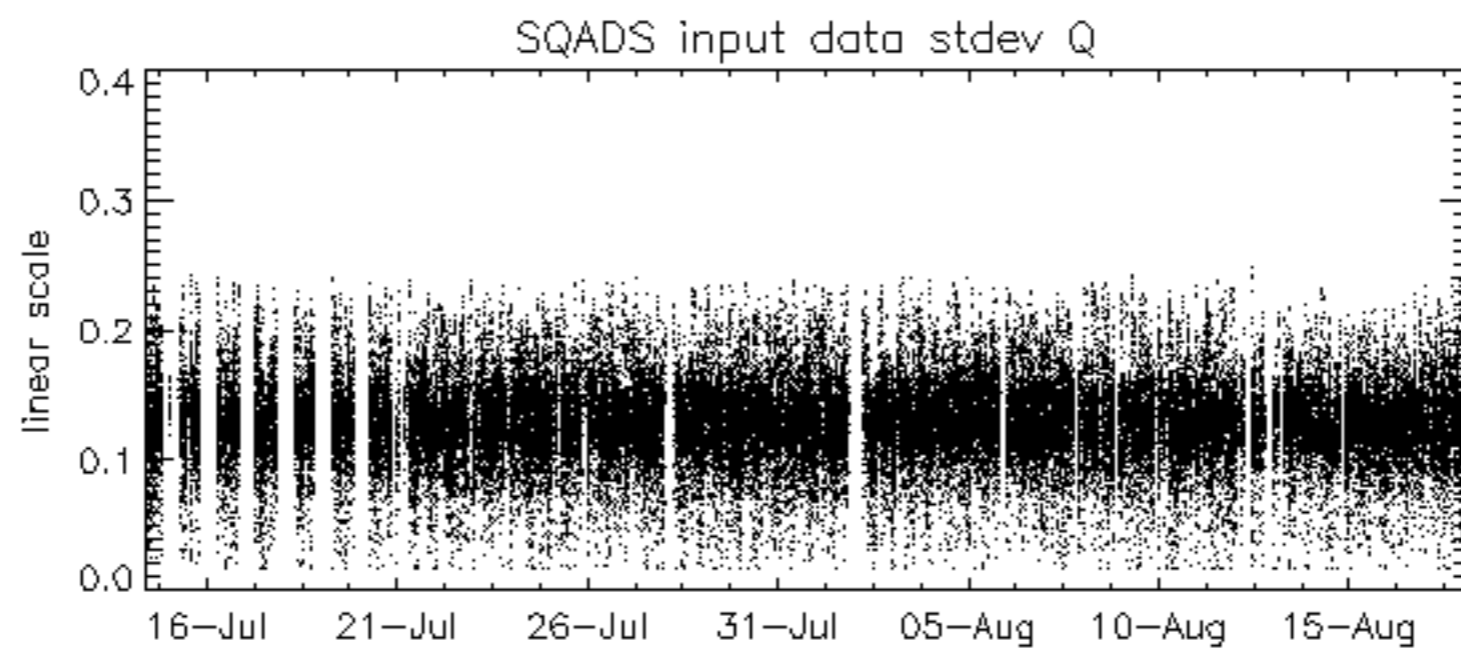
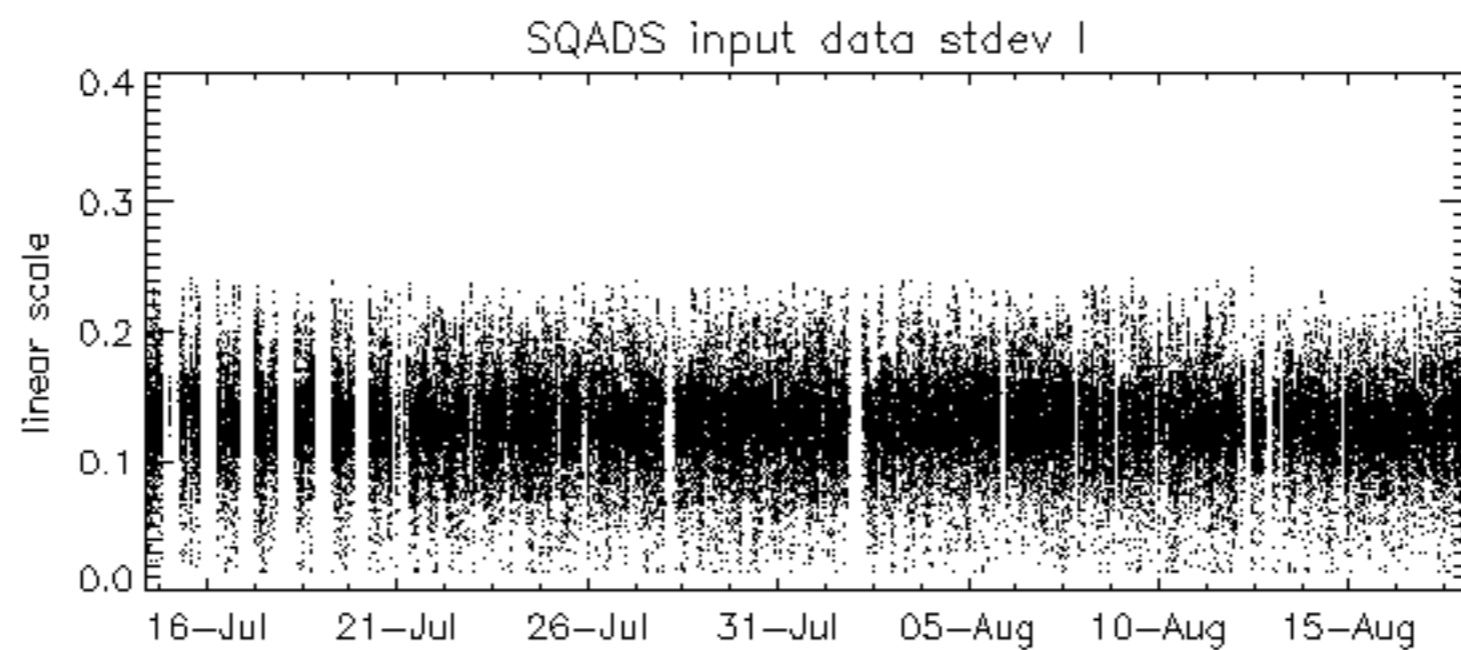
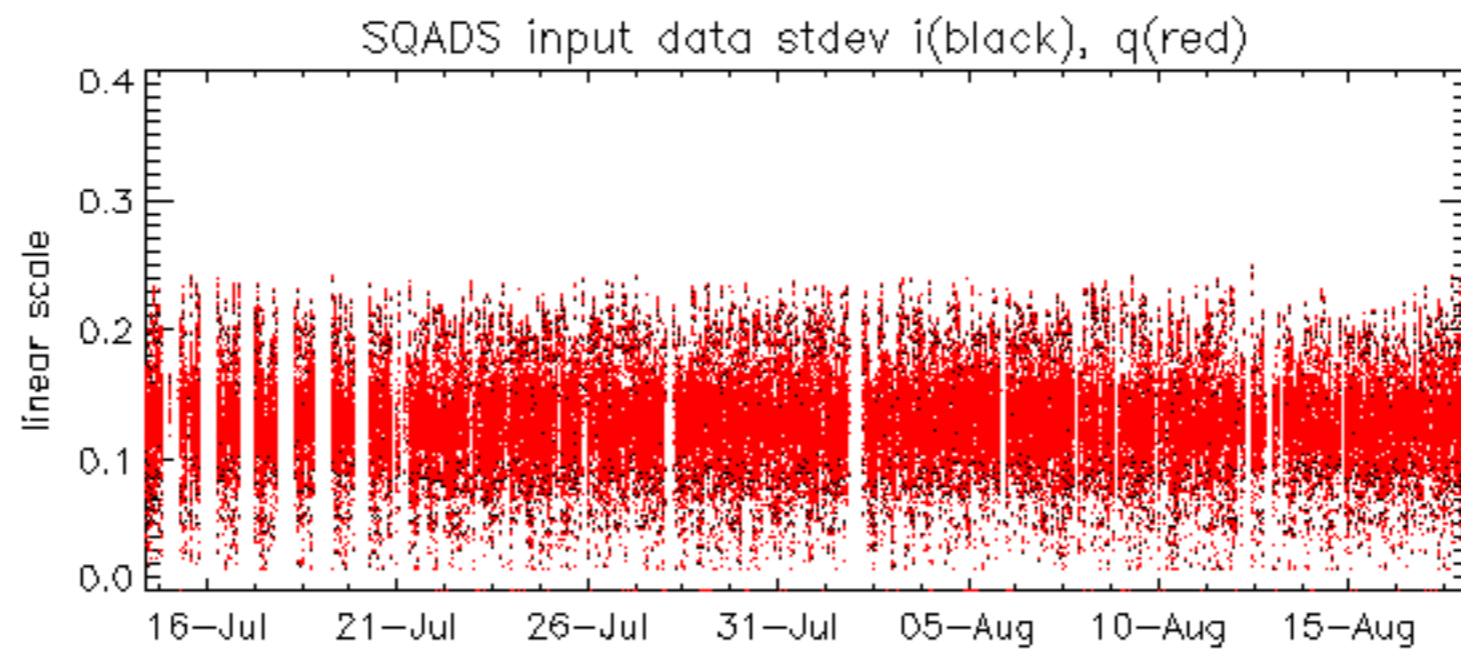
























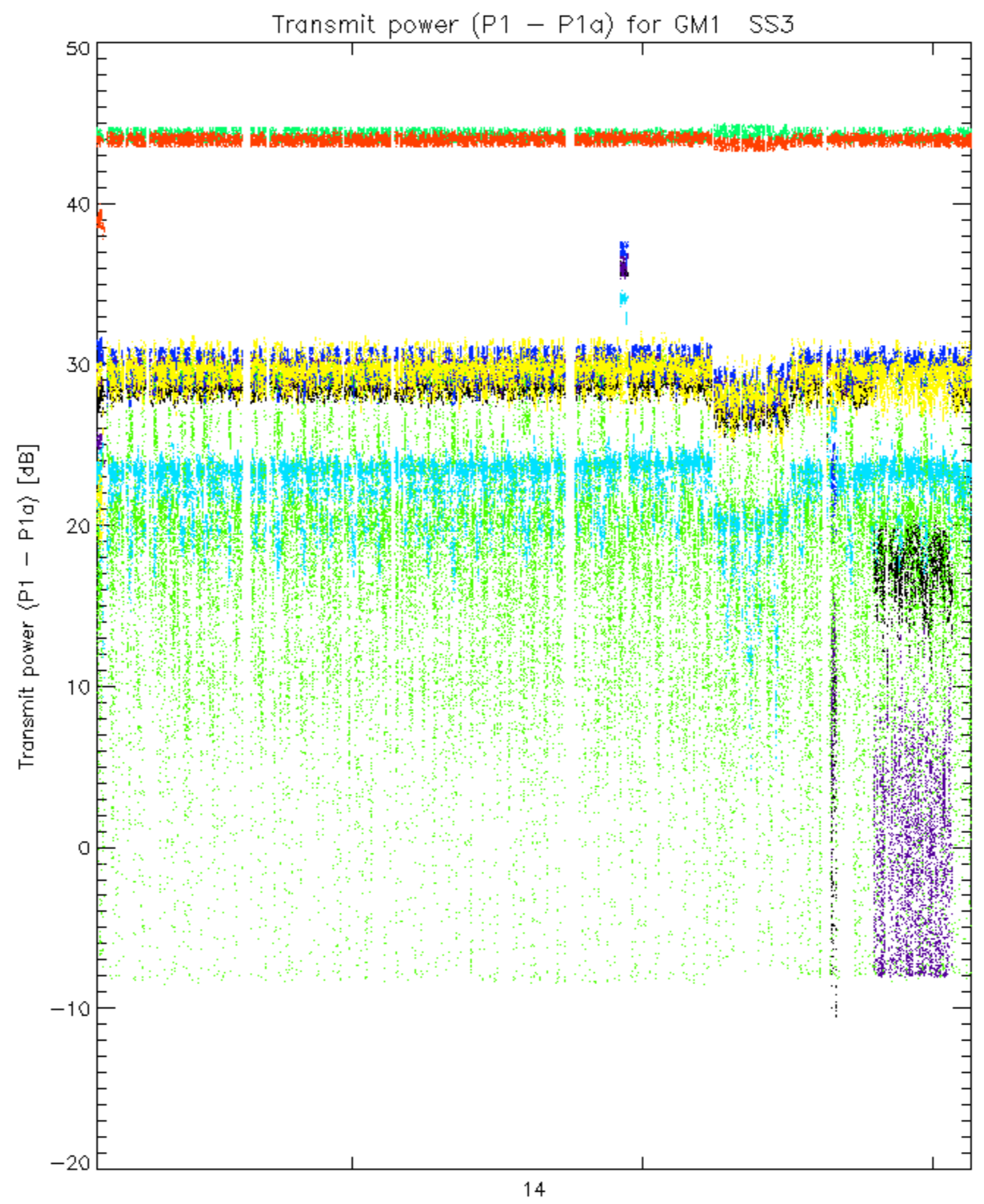




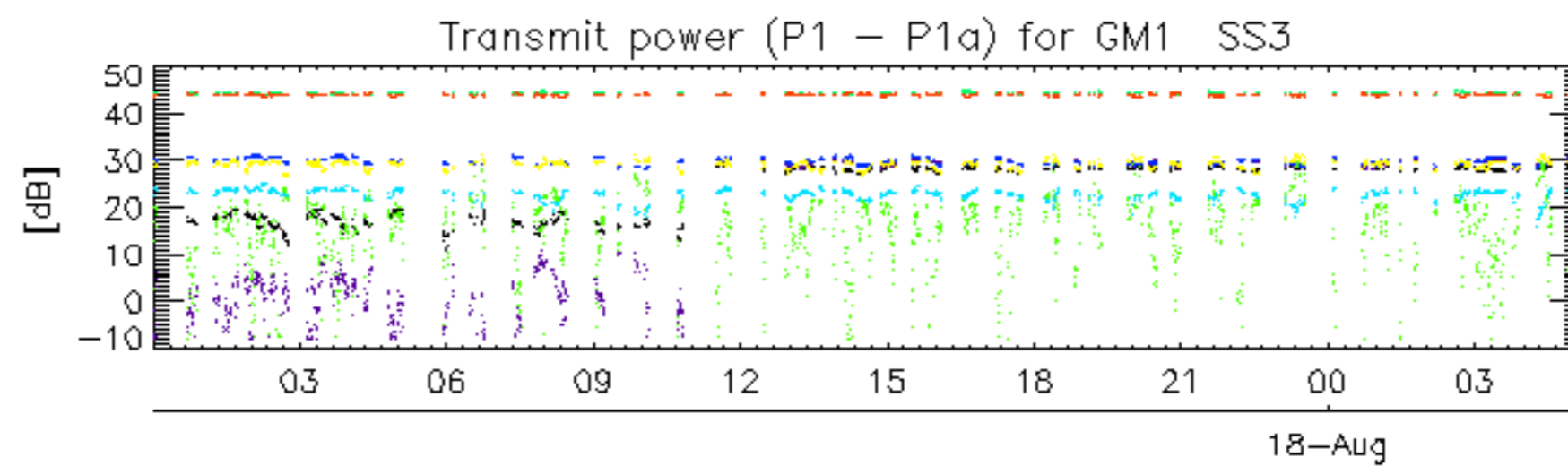




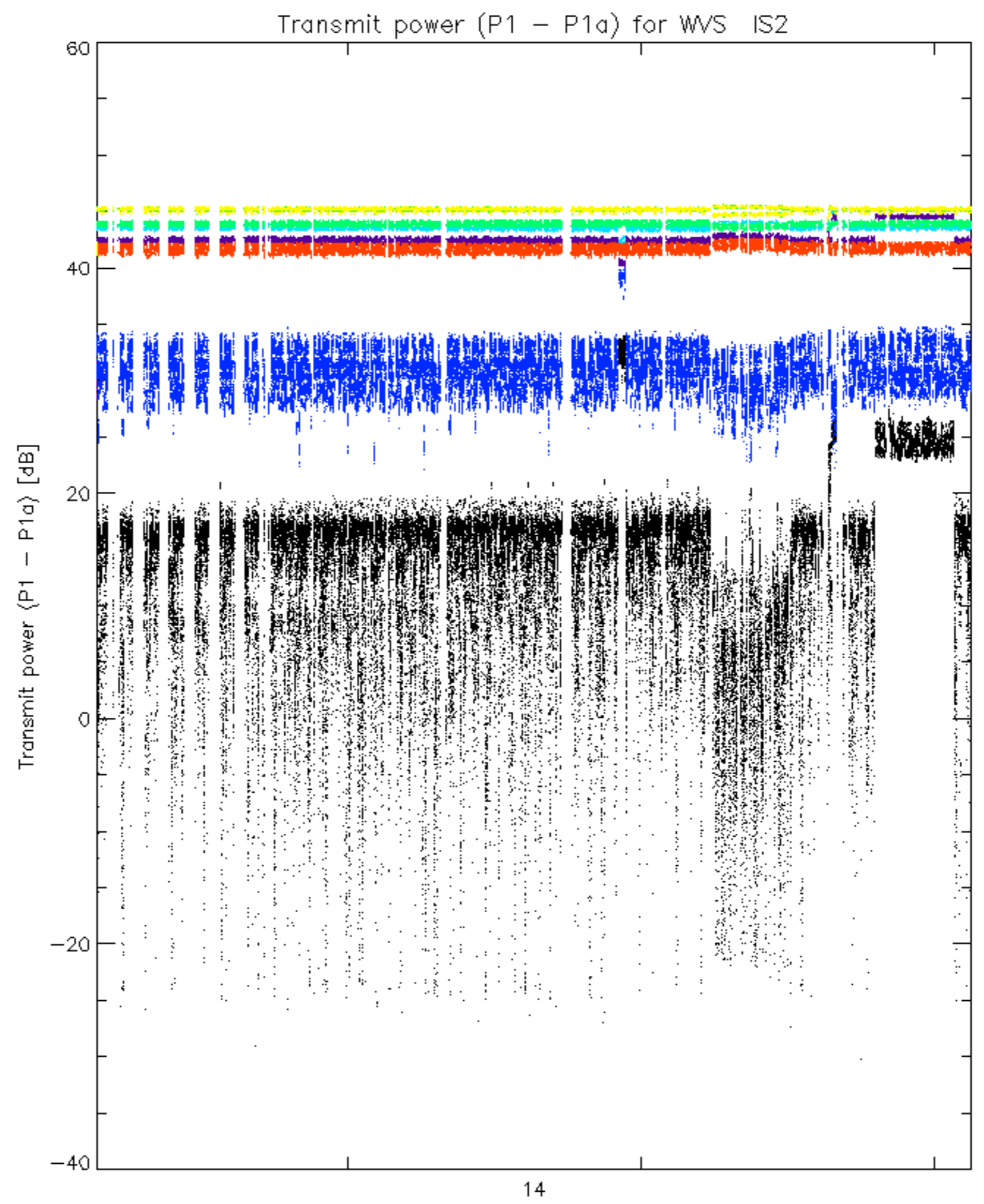




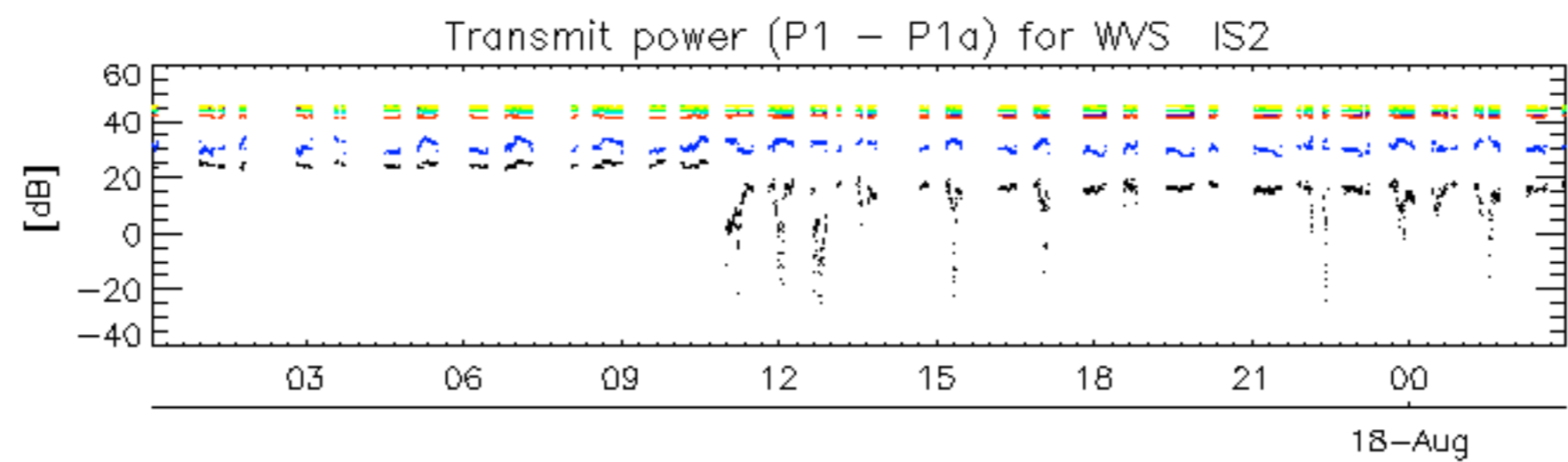
rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30



rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30



rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30



rows: \_ 3 \_ 7 \_ 11 \_ 15 \_ 19 \_ 22 \_ 24 \_ 30



ASAR unavailability on 2004-08-17 10:50:00 to 10:57:45  
- Antenna reset due to loss of transmission on tile D1, PSU1 and 2 in H and V polarisation.