PRELIMINARY REPORT OF 060401

last update on Sat Apr 1 10:50:02 GMT 2006

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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

No unavailabilities during the reported period.

2.2 - Auxiliary files

Summary of the auxiliary files used from 2006-03-31 00:00:00 to 2006-04-01 10:50:02

PDHS-K					
AUXILIARY FILE	WVS	GM1	IMM	APM	WSM

PDHS-E					
AUXILIARY FILE	WVS	GM1	IMM	APM	WSM

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	20060331 033411
H	20060330 040547

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	-3.998983	0.009168	0.024491
7	P1	-3.016281	0.008547	-0.015352
11	P1	-4.060813	0.017455	-0.012672
15	P1	-6.101565	0.019009	-0.034665
19	P1	-3.307275	0.006350	-0.043597
22	P1	-4.467614	0.013963	-0.018273
26	P1	-4.134942	0.020815	0.059719
30	P1	-5.782120	0.173879	0.213427
3	P1	-16.948673	0.262968	0.119069
7	P1	-16.762209	0.105330	-0.082450
11	P1	-16.474321	0.307434	-0.000979
15	P1	-13.056051	0.094380	0.018813
19	P1	-13.973368	0.049513	-0.084840
22	P1	-15.615936	0.461836	-0.071705
26	P1	-15.765615	0.295853	0.100720
30	P1	-16.527702	0.319971	-0.159696

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-21.368677	0.086059	0.079742
7	P2	-22.329411	0.095065	0.128763
11	P2	-16.207619	0.100327	0.050455
15	P2	-7.167782	0.095965	-0.005776
19	P2	-9.138093	0.087775	-0.018832
22	P2	-17.965820	0.086405	-0.061365
26	P2	-16.231022	0.092047	-0.062157
30	P2	-19.651165	0.083778	0.015301

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.194677	0.005441	0.003460
7	P3	-8.194677	0.005441	0.003460
11	P3	-8.194677	0.005441	0.003460
15	P3	-8.194677	0.005441	0.003460
19	P3	-8.194677	0.005441	0.003460
22	P3	-8.194677	0.005441	0.003460

26	P3	-8.194677	0.005441	0.003460
30	P3	-8.194677	0.005441	0.003460

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	-3.760988	0.010068	-0.008438
7	P1	-2.729204	0.008512	0.022444
11	P1	-2.929950	0.018528	-0.012299
15	P1	-3.566169	0.021130	-0.007821
19	P1	-3.381617	0.009617	0.025469
22	P1	-5.184354	0.023070	0.001551
26	P1	-5.784729	0.036448	0.058927
30	P1	-5.185668	0.079759	0.138726
3	P1	-11.588080	0.040363	-0.071559
7	P1	-9.976066	0.047939	-0.035547
11	P1	-10.280282	0.058902	-0.018245
15	P1	-10.819938	0.109280	-0.025265
19	P1	-15.405523	0.075075	0.081583
22	P1	-20.316925	1.050055	-0.177078
26	P1	-16.265991	0.390490	0.141894
30	P1	-18.283007	0.577543	0.065480

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.056076	0.040785	0.141078
7	P2	-22.537846	0.087855	0.211739

11	P2	-11.216231	0.032058	0.073574
15	P2	-4.831676	0.030104	0.024210
19	P2	-6.842219	0.029097	0.037060
22	P2	-8.145092	0.027734	0.043612
26	P2	-23.969564	0.035825	-0.043977
30	P2	-22.073174	0.027019	0.035737

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.020926	0.002433	0.008394
7	P3	-8.020794	0.002422	0.008624
11	P3	-8.020863	0.002443	0.008564
15	P3	-8.020972	0.002430	0.008708
19	P3	-8.020864	0.002431	0.008713
22	P3	-8.020973	0.002426	0.008178
26	P3	-8.020951	0.002424	0.008612
30	P3	-8.020809	0.002432	0.008583

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	0.000571346
	stdev	1.67374e-07
MEAN Q	mean	0.000524921

stdev	2.16935e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.139645
	stdev	0.00118134
STDEV Q	mean	0.140023
	stdev	0.00120076

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2006033[011]
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_IMM_1PNPDE20060331_004226_000000622046_00245_21341_1773.N1	1	0
ASA_IMM_1PNPDE20060331_155102_000000982046_00254_21350_1842.N1	1	0
ASA_WSM_1PNPDE20060330_002520_000001282046_00231_21327_3227.N1	0	34

7 - Doppler Analysis

7.1 - Unbiased Doppler Error for WVS

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

7.2 - Absolute Doppler for WVS

Evolution of Absolute Doppler
Acsending
Descending

7.3 - Doppler evolution versus ANX for WVS

Evolution Doppler error versus ANX

7.4 - Unbiased Doppler Error for GM1

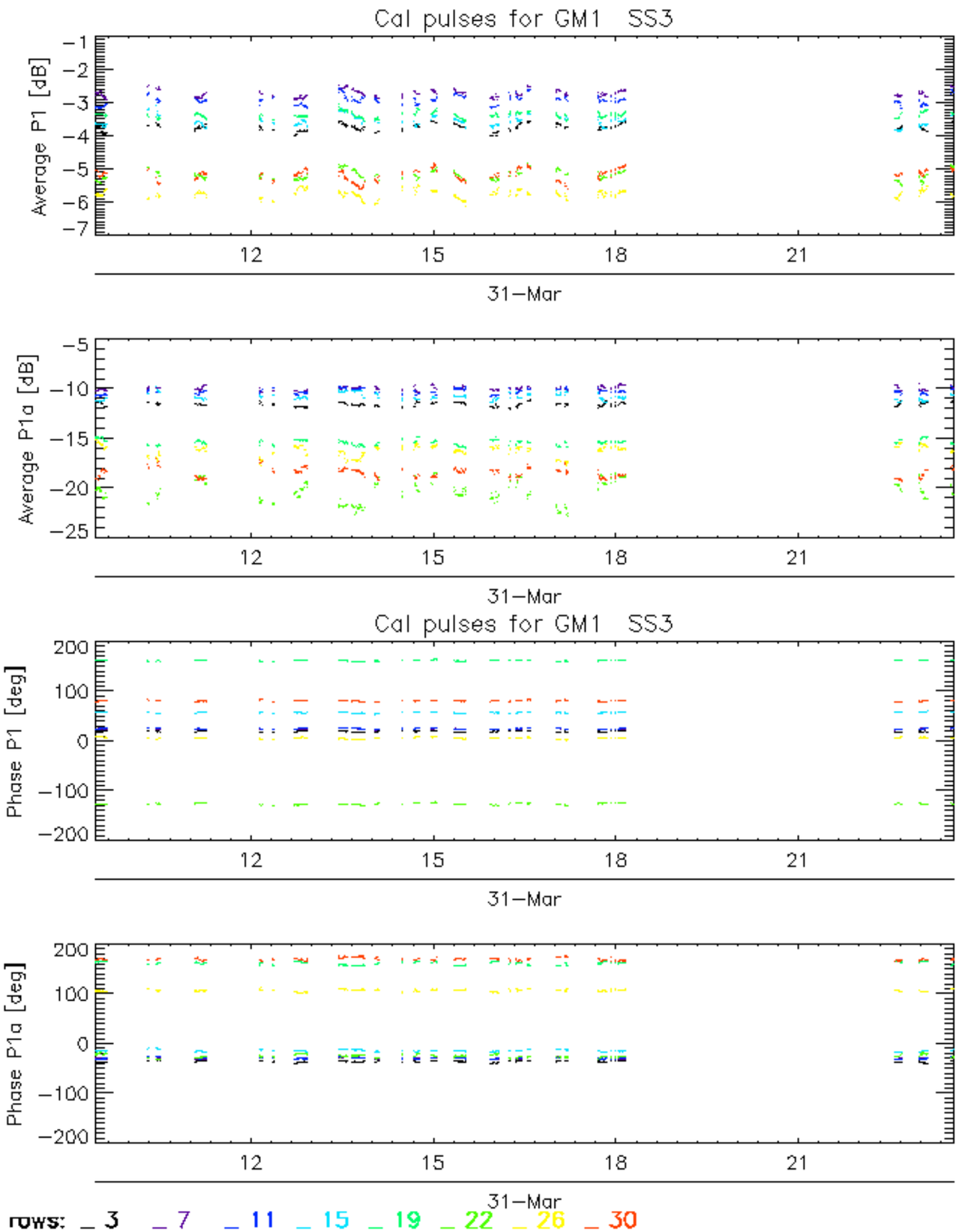
Evolution of unbiased Doppler error (Real - Expected)
Acsending
Descending

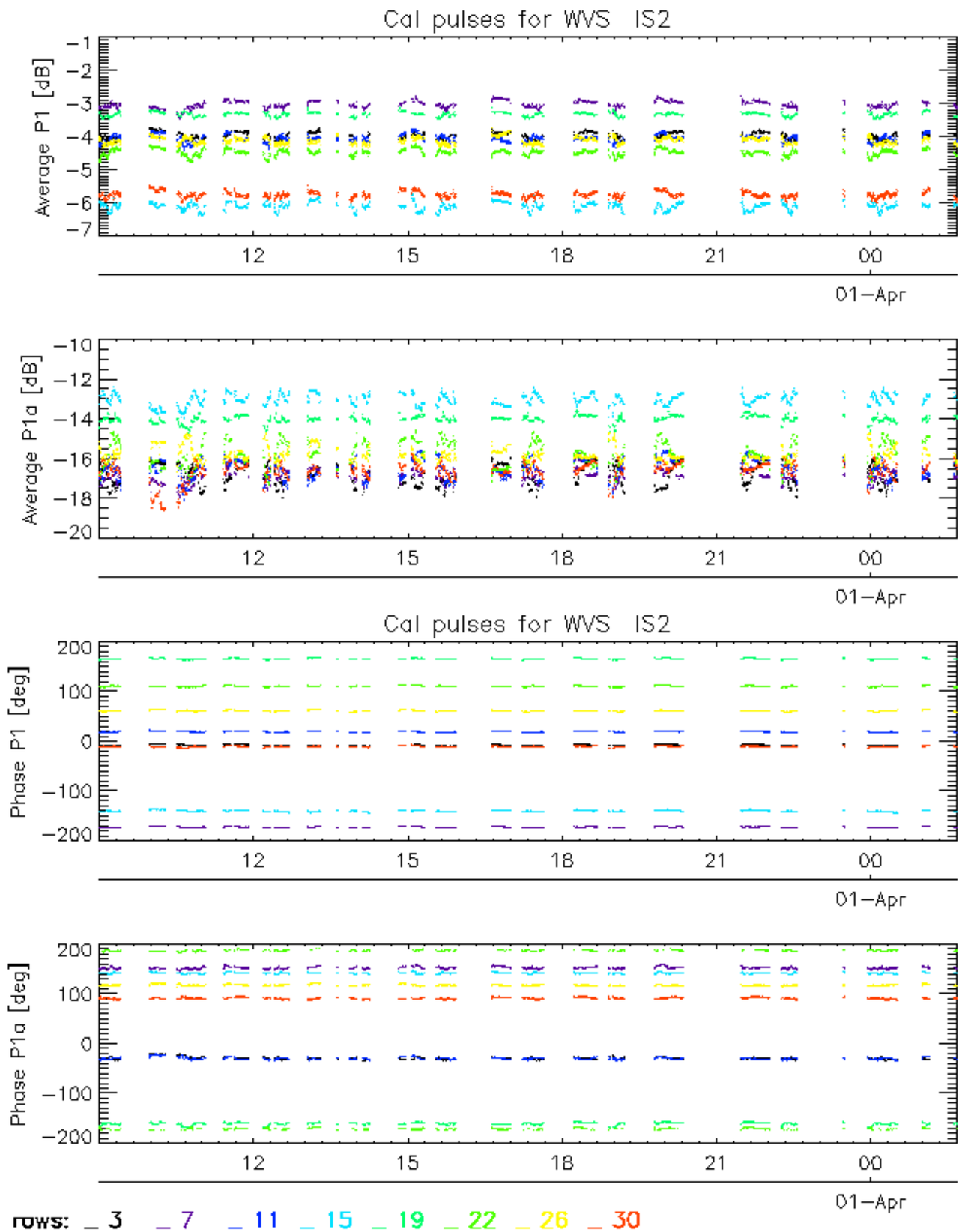
7.5 - Absolute Doppler for GM1

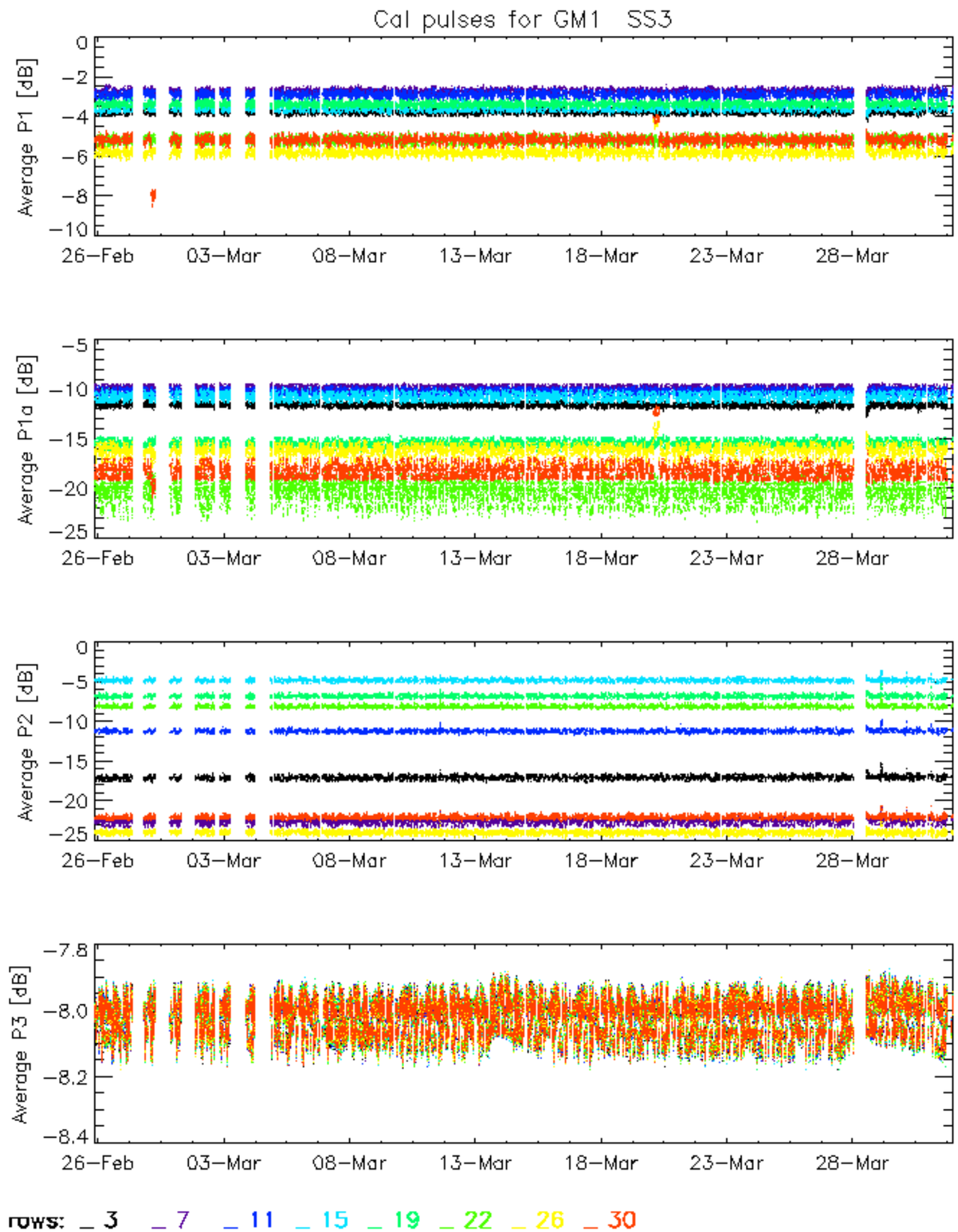
Evolution of Absolute Doppler
Acsending
Descending

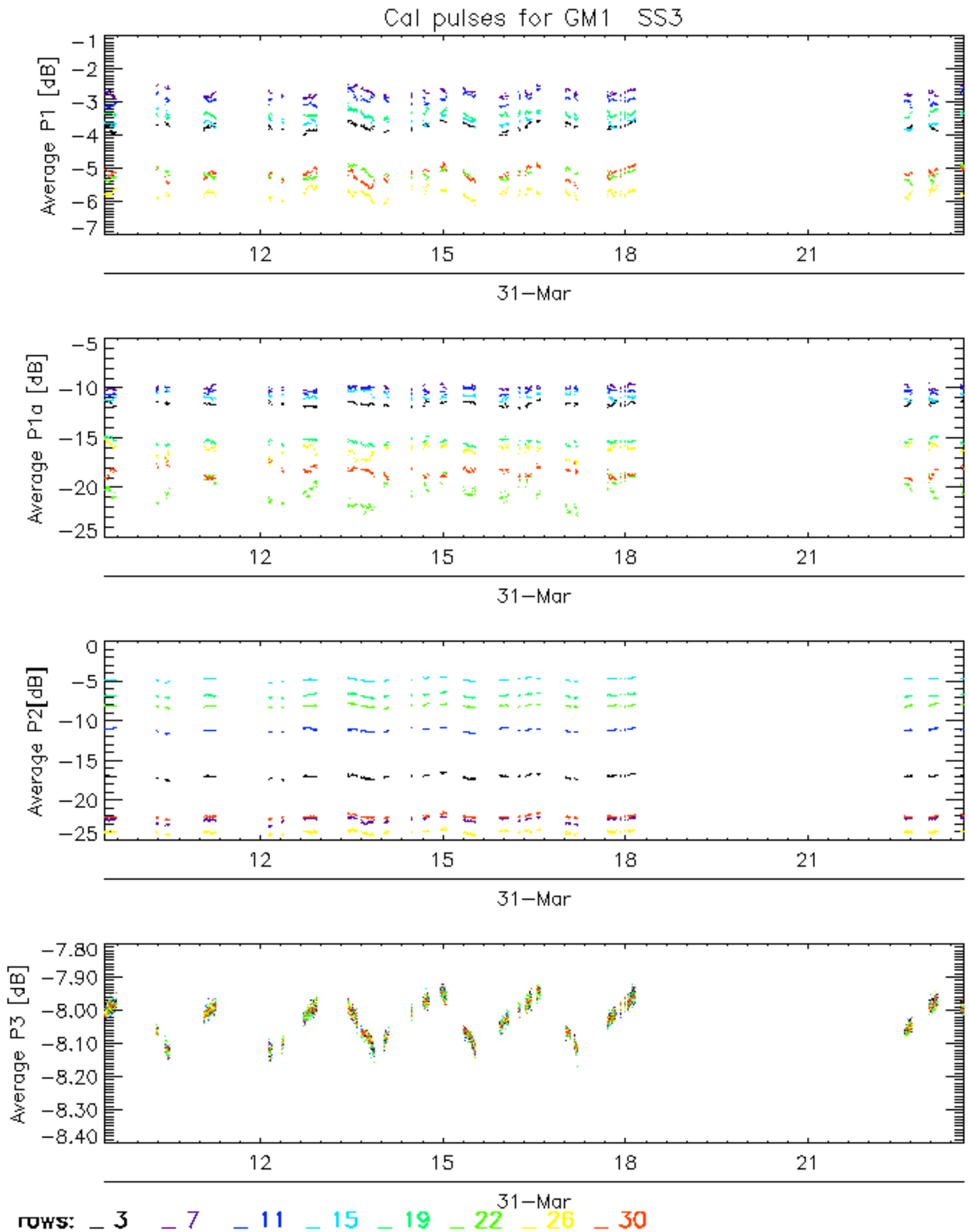
7.6 - Doppler evolution versus ANX for GM1

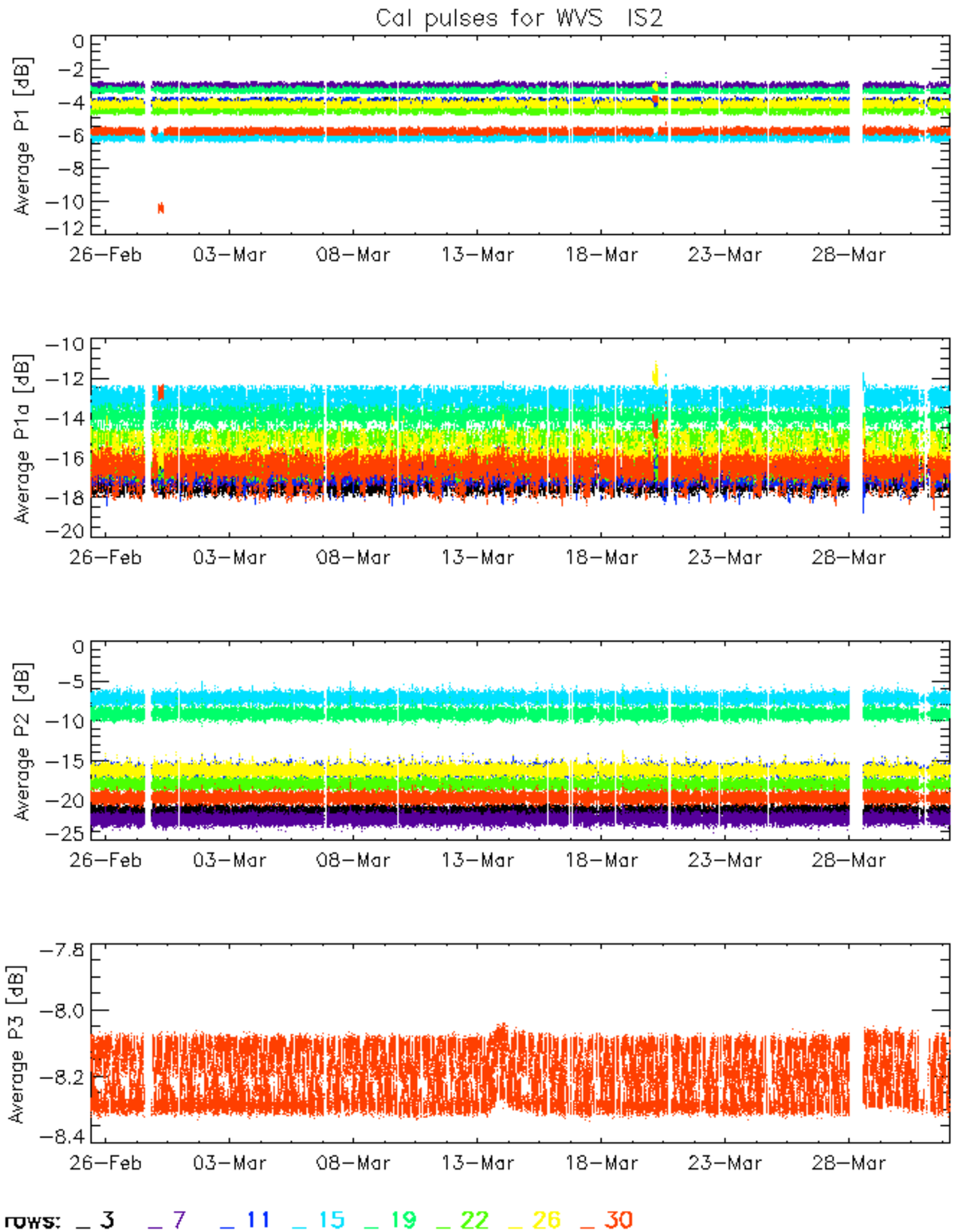
Evolution Doppler error versus ANX

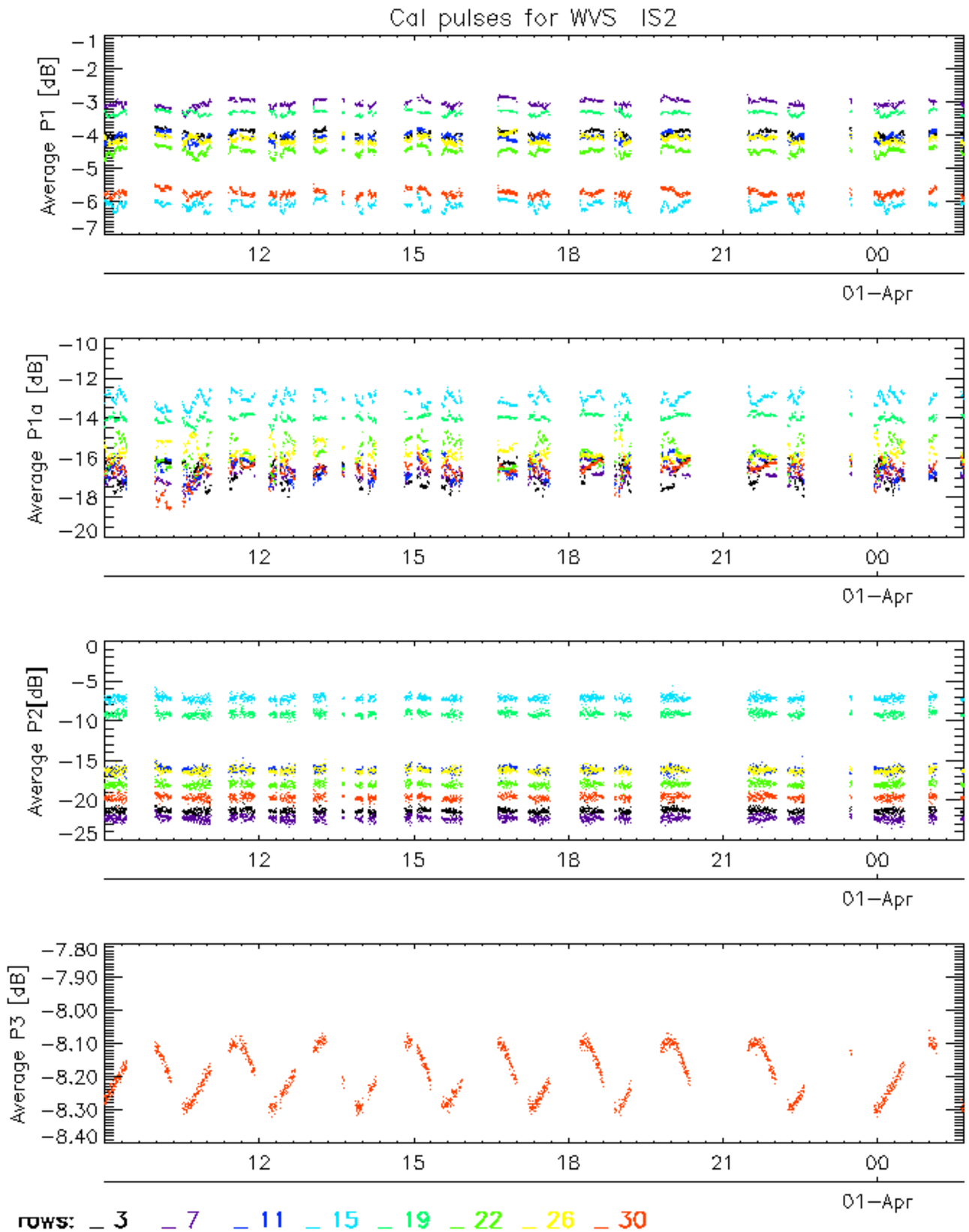

Cal pulses for GM1 SS3
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
12
15
18
21
31−Mar
Average P1a [dB]
−5
−10
−15
−20
−25
12
15
18
21
31−Mar
Cal pulses for GM1 SS3
Phase P1 [deg]
200
100
0
−100
−200
12
15
18
21
31−Mar
Phase P1a [deg]
200
100
0
−100
−200
12
15
18
21
31−Mar
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
Average P1a [dB]
Cal pulses for WVS IS2
Phase P1 [deg]
Phase P1a [deg]
12
15
18
21
00
01−Apr
rows: 3 7 11 15 19 22 26 30

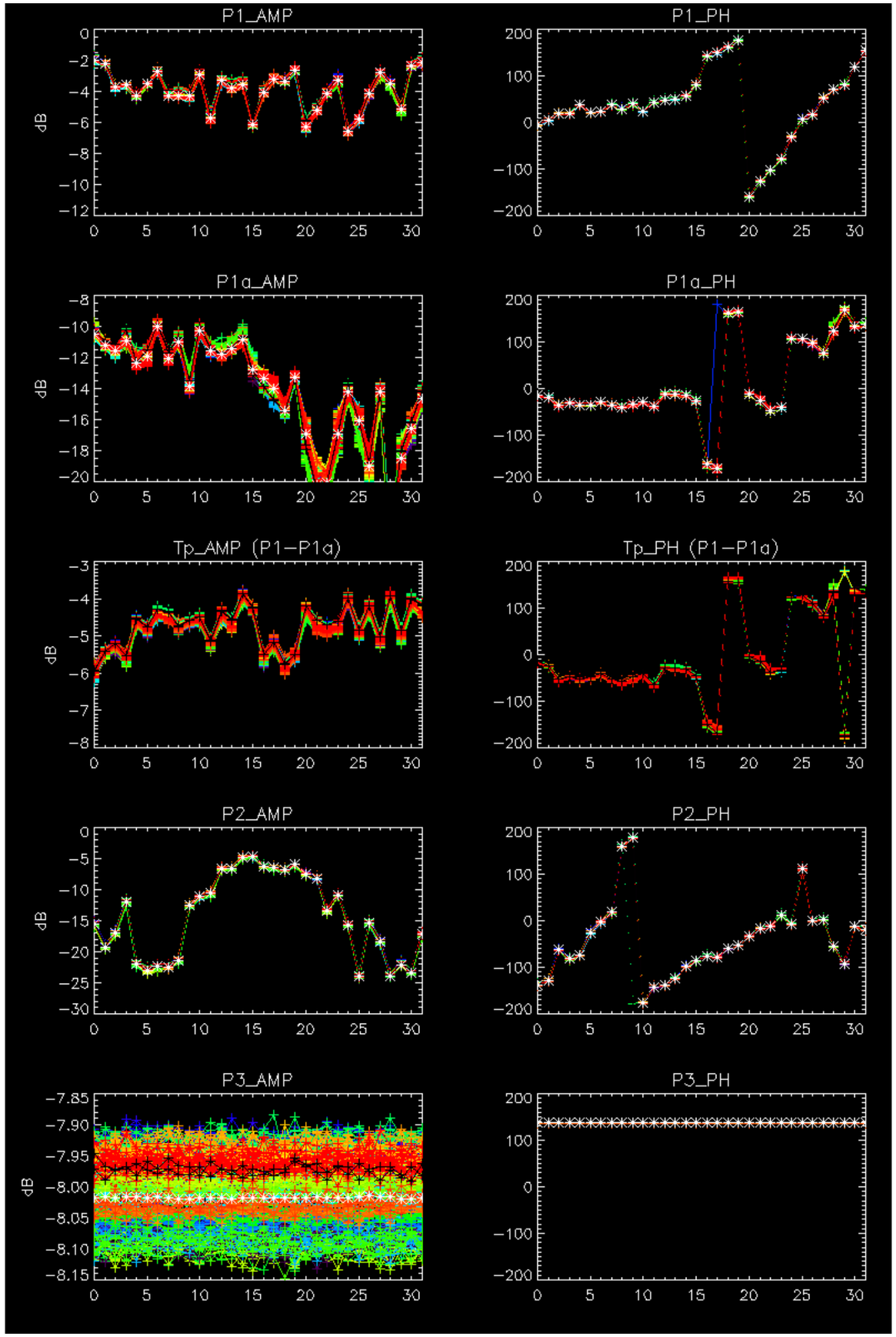

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
−10
Average P1a [dB]
−5
−10
−15
−20
−25
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar
rows: 3 7 11 15 19 22 26 30

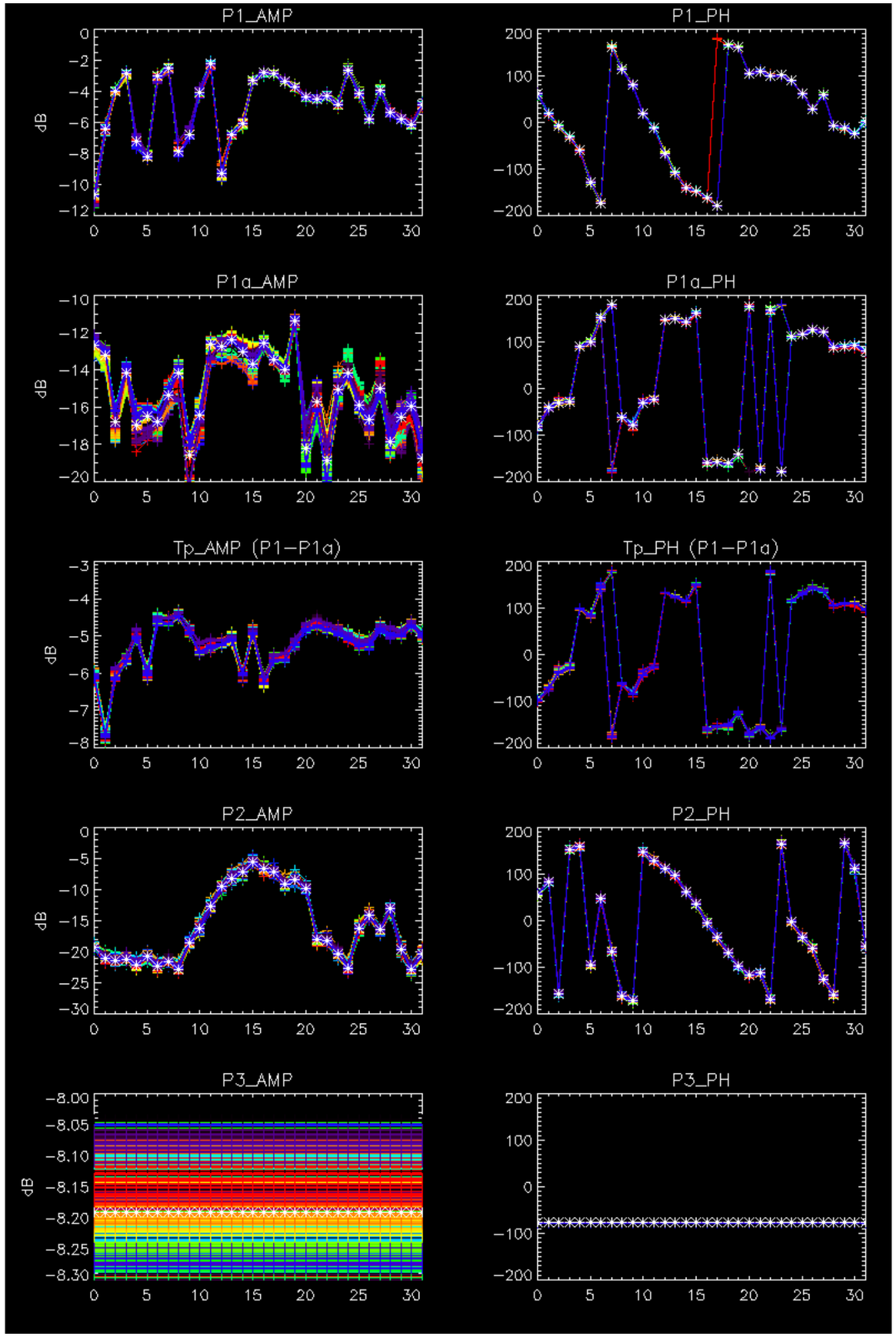

Cal pulses for GM1 SS3
Average P1 [dB]
Average P1a [dB]
Average P2[dB]
Average P3 [dB]
12
15
18
21
31−Mar
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
−10
−12
Average P1a [dB]
−10
−12
−14
−16
−18
−20
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar
rows: 3 7 11 15 19 22 26 30

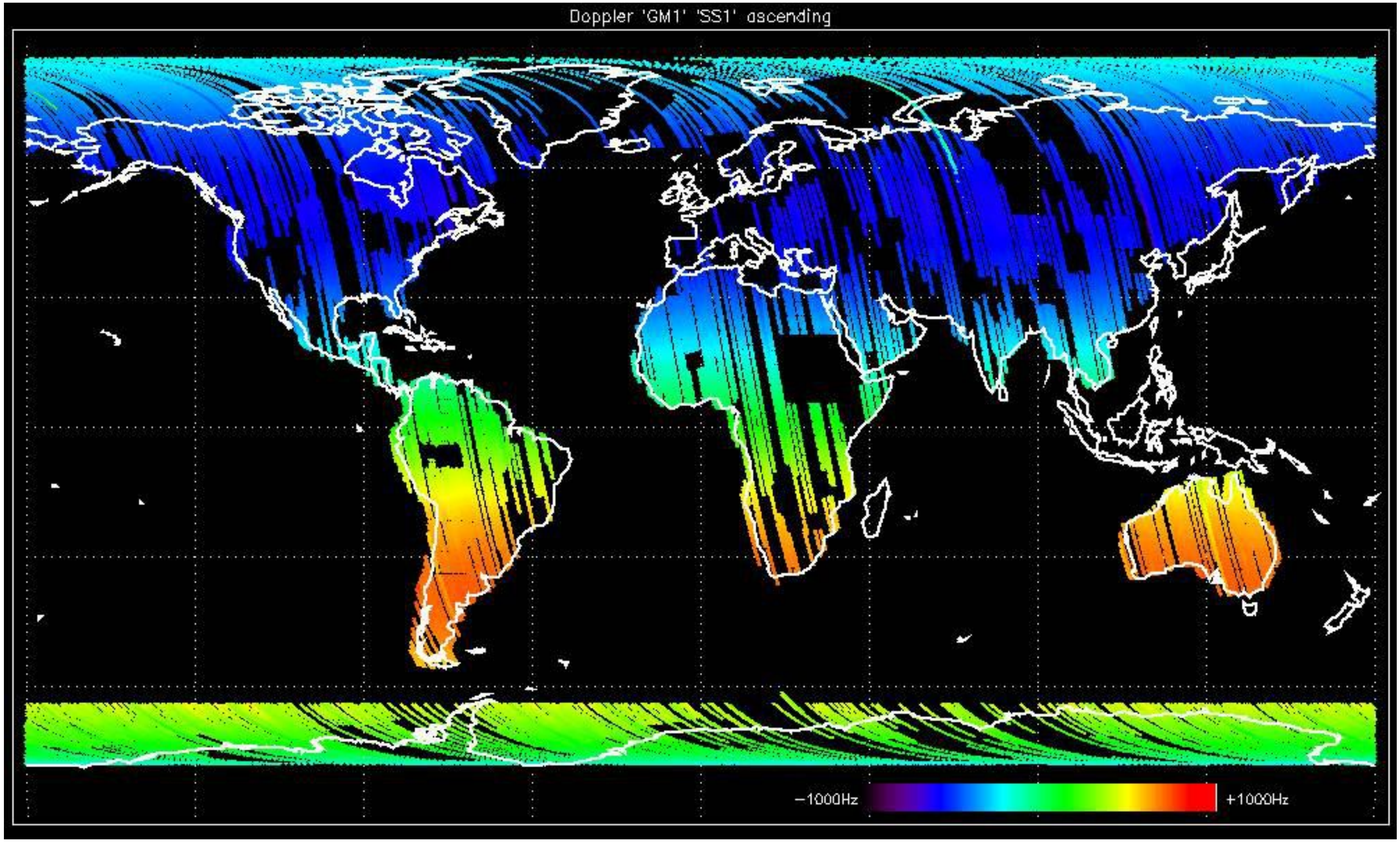

Cal pulses for WVS IS2
Average P1 [dB]
Average P1a [dB]
Average P2[dB]
Average P3 [dB]
12
15
18
21
00
01−Apr
rows: 3 7 11 15 19 22 26 30

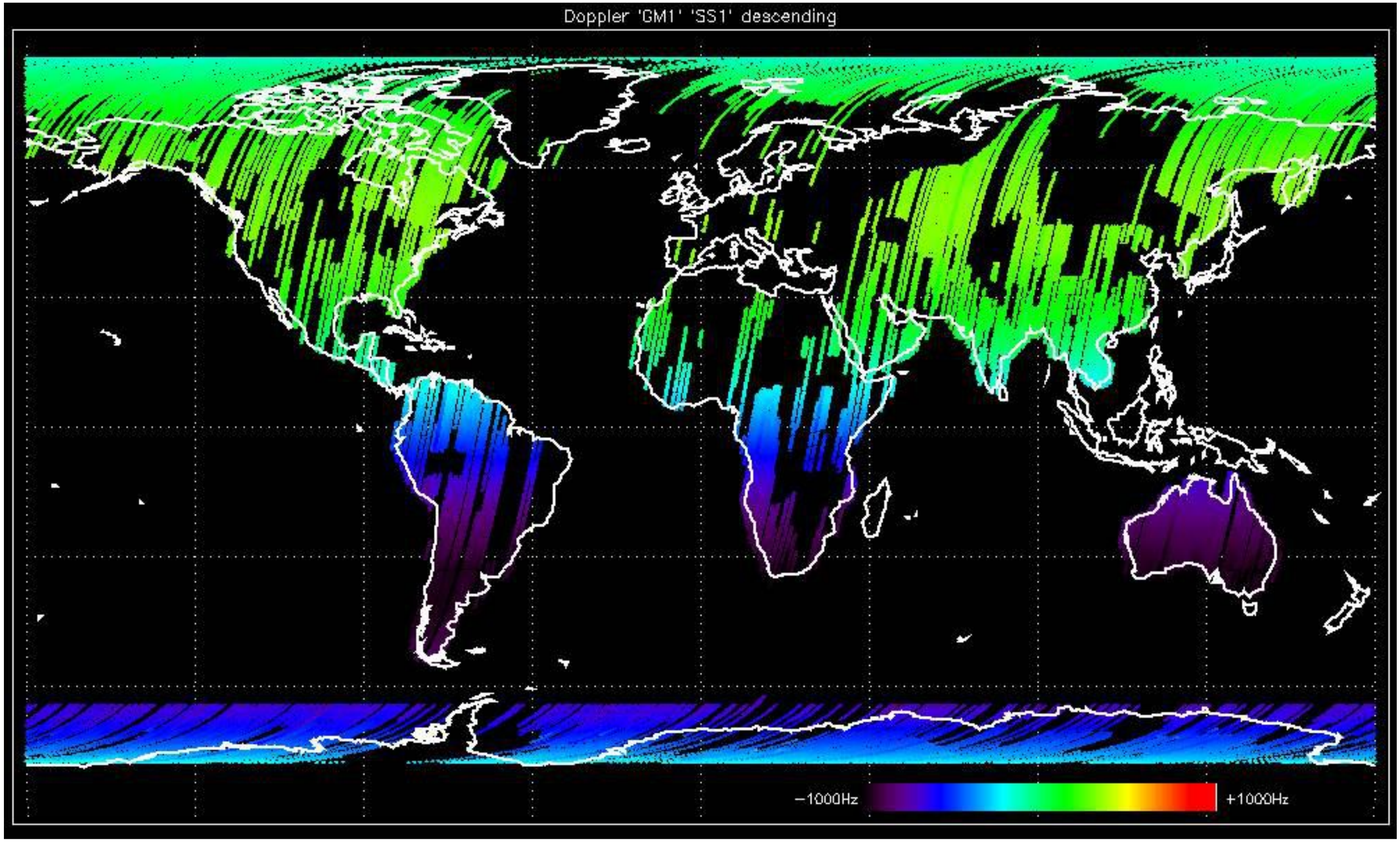
No anomalies observed.

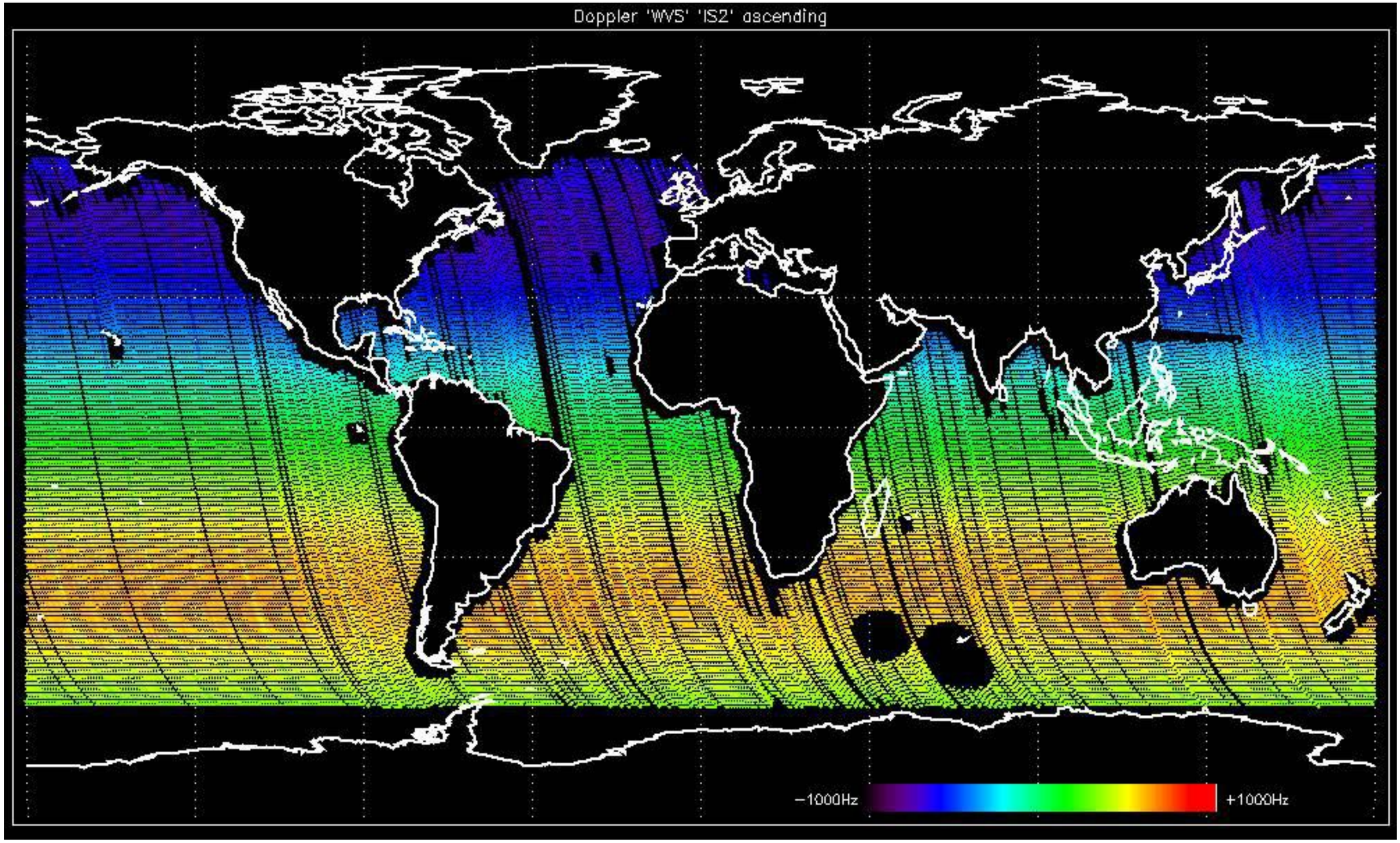

P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
Tp_AMP (P1−P1a)
dB
Tp_PH (P1−P1a)
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH

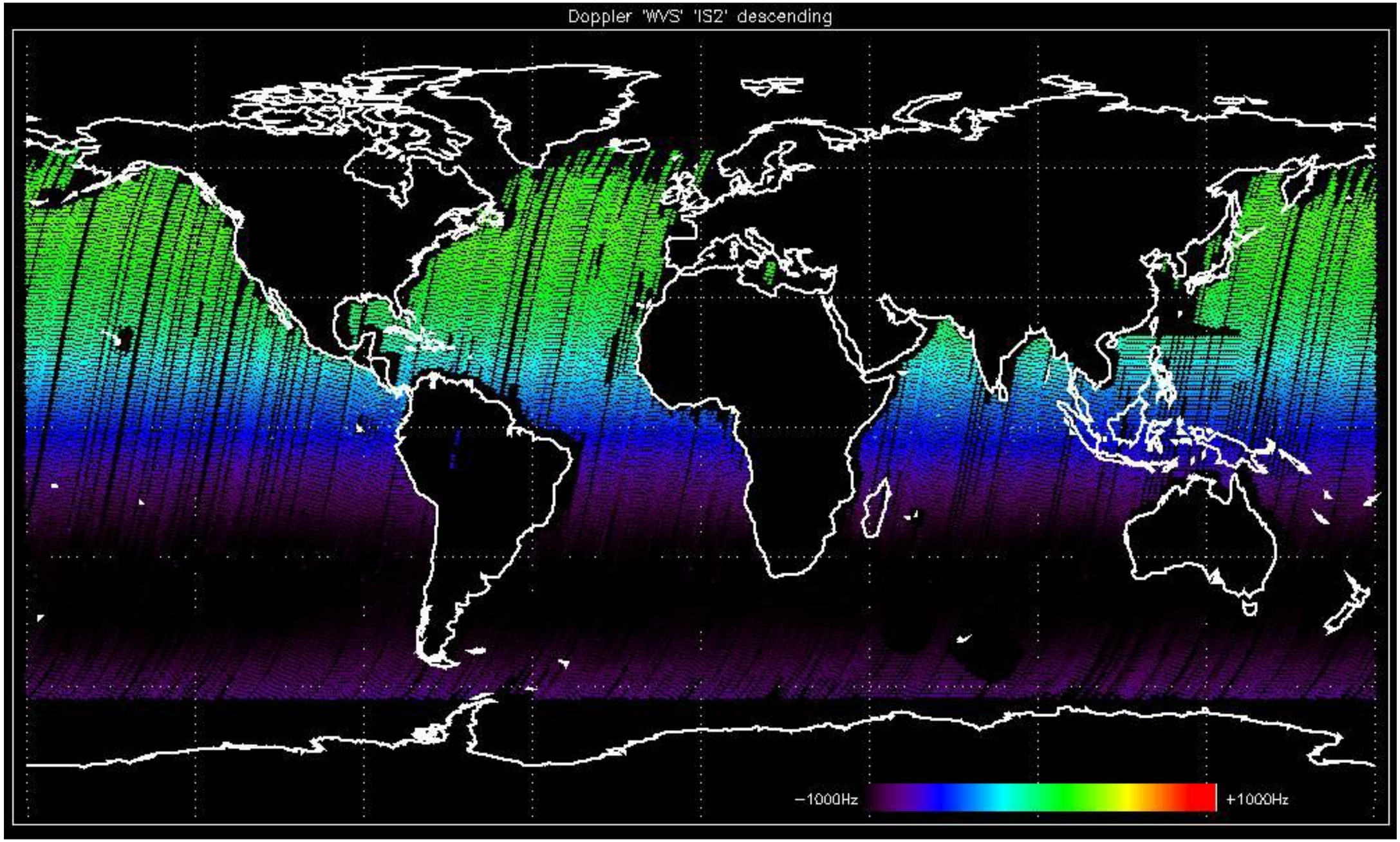

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

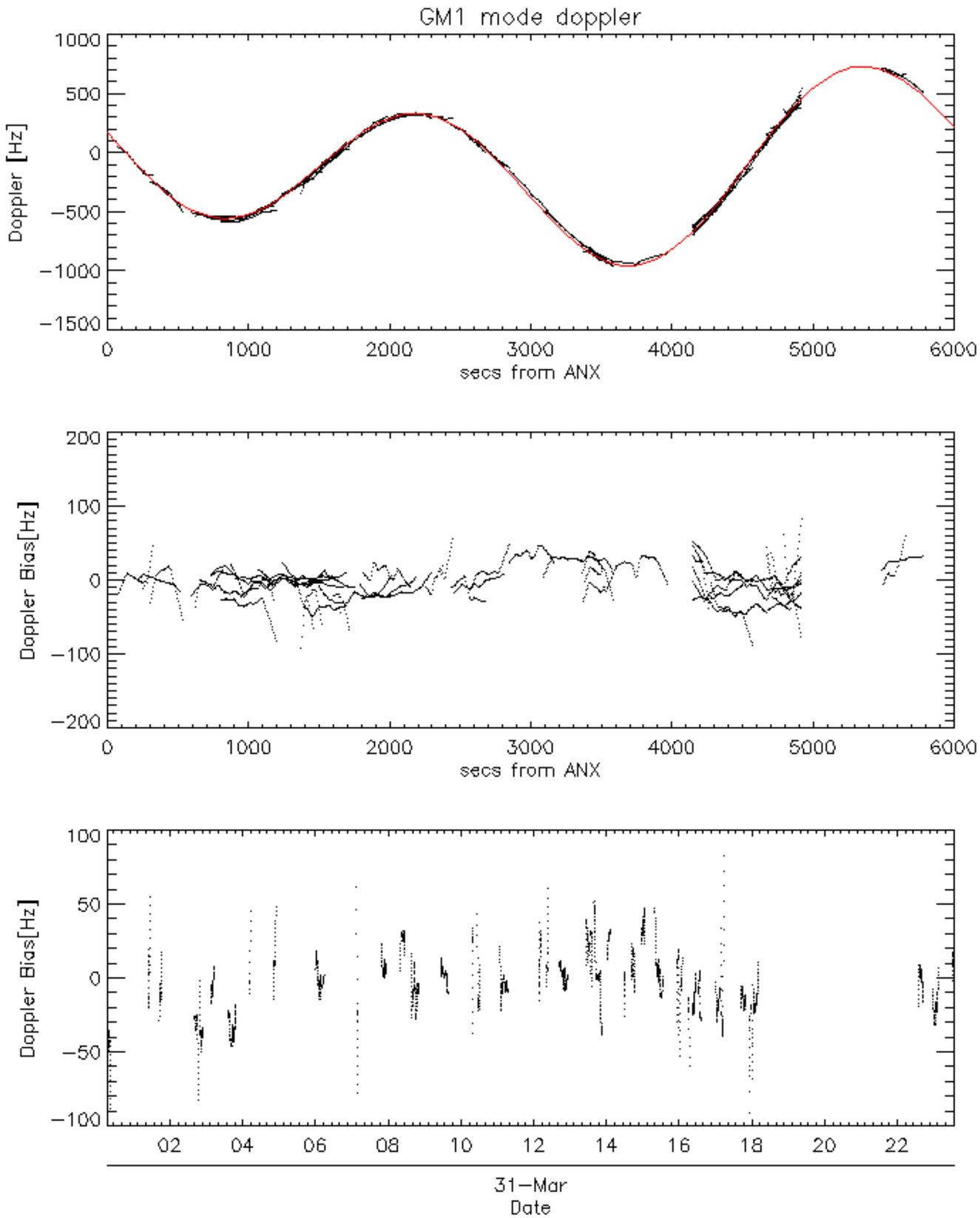
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

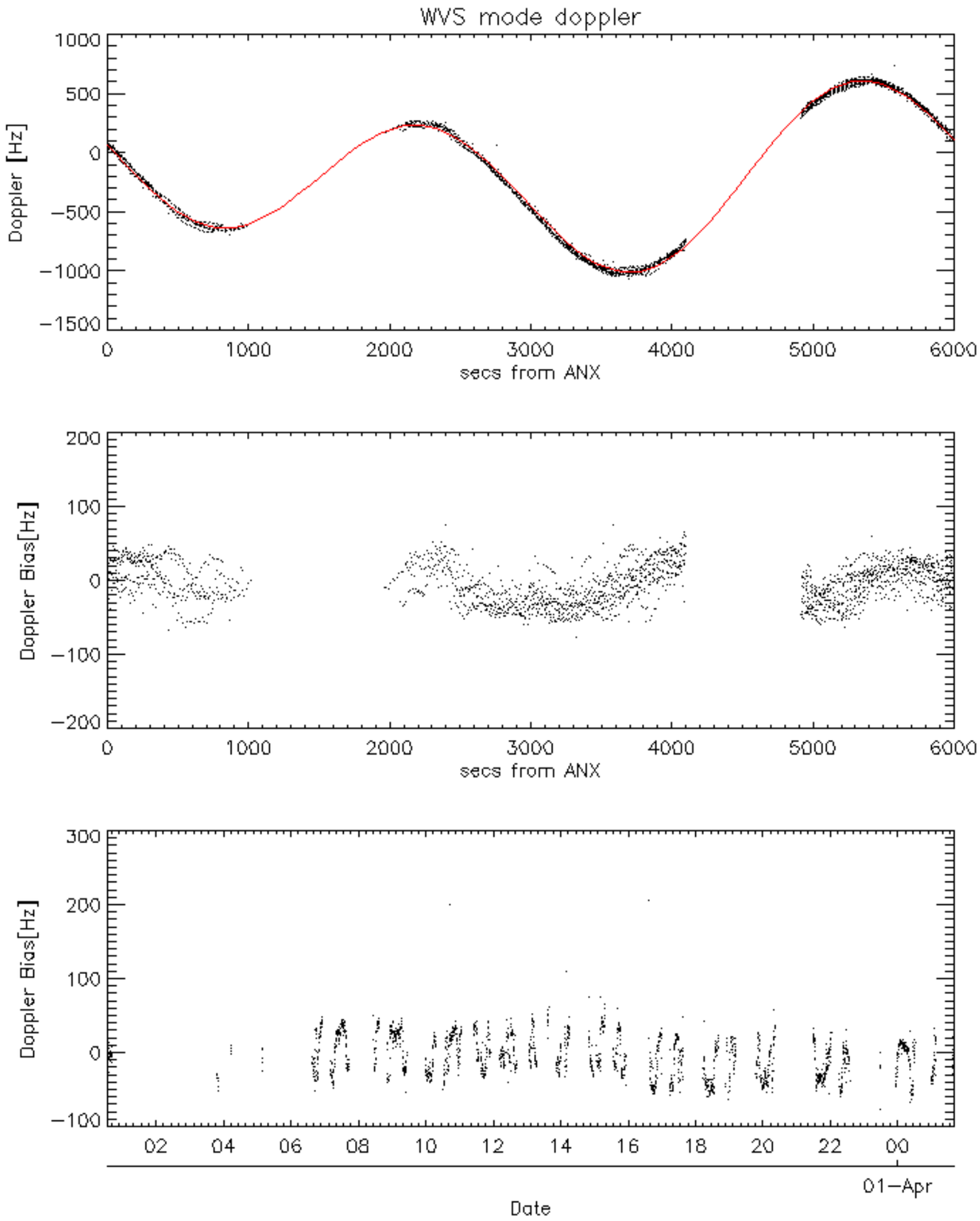

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

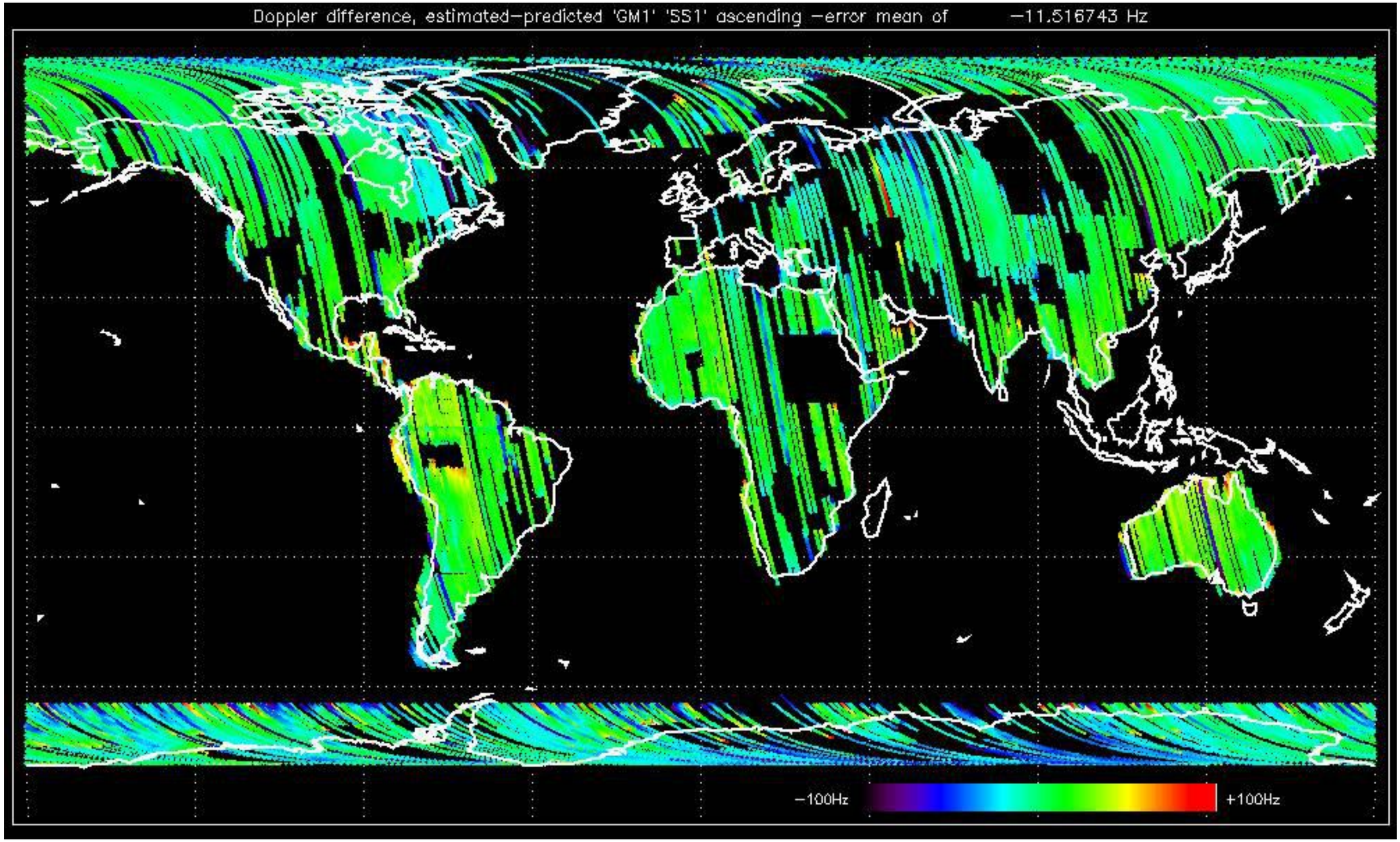

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

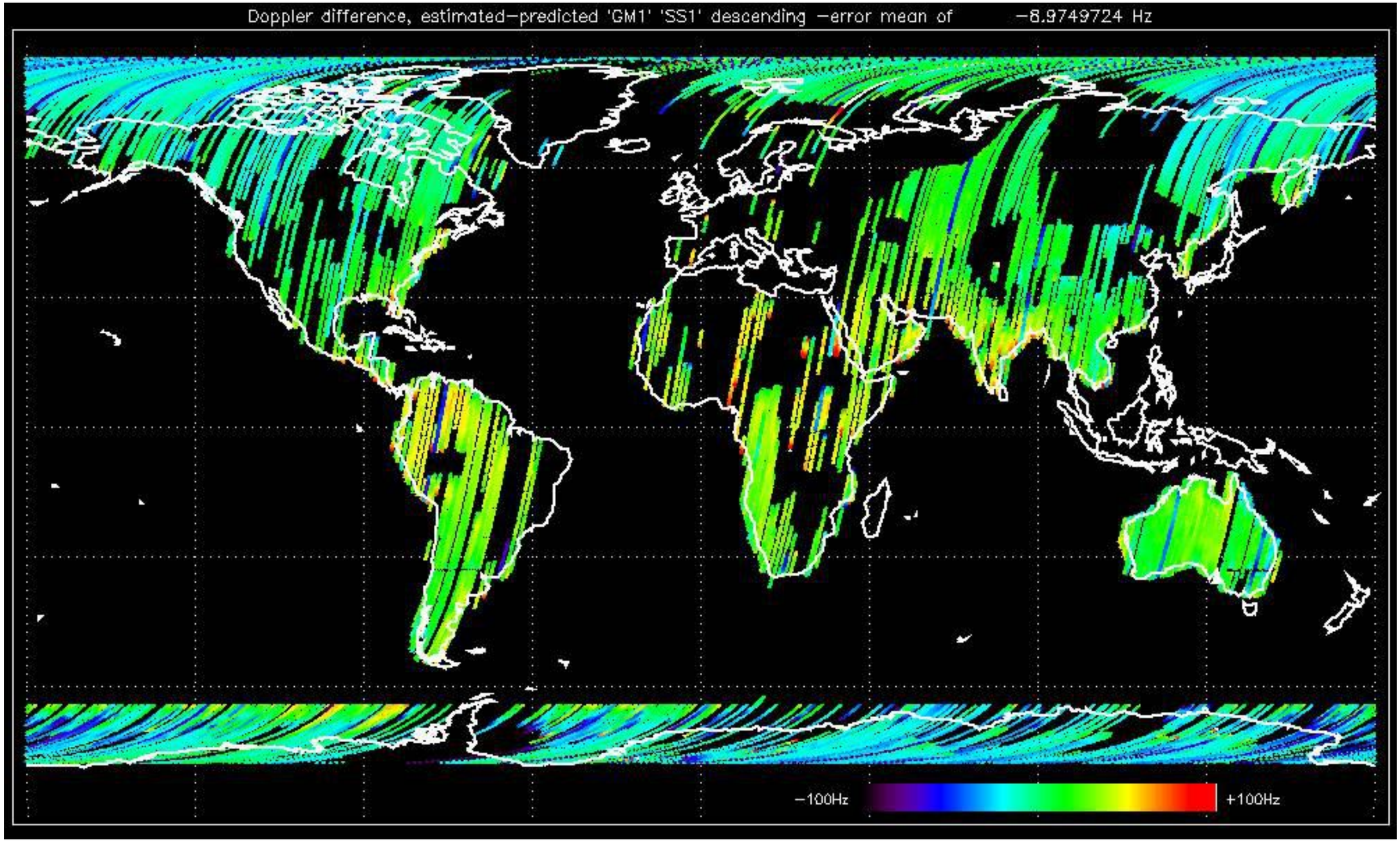

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

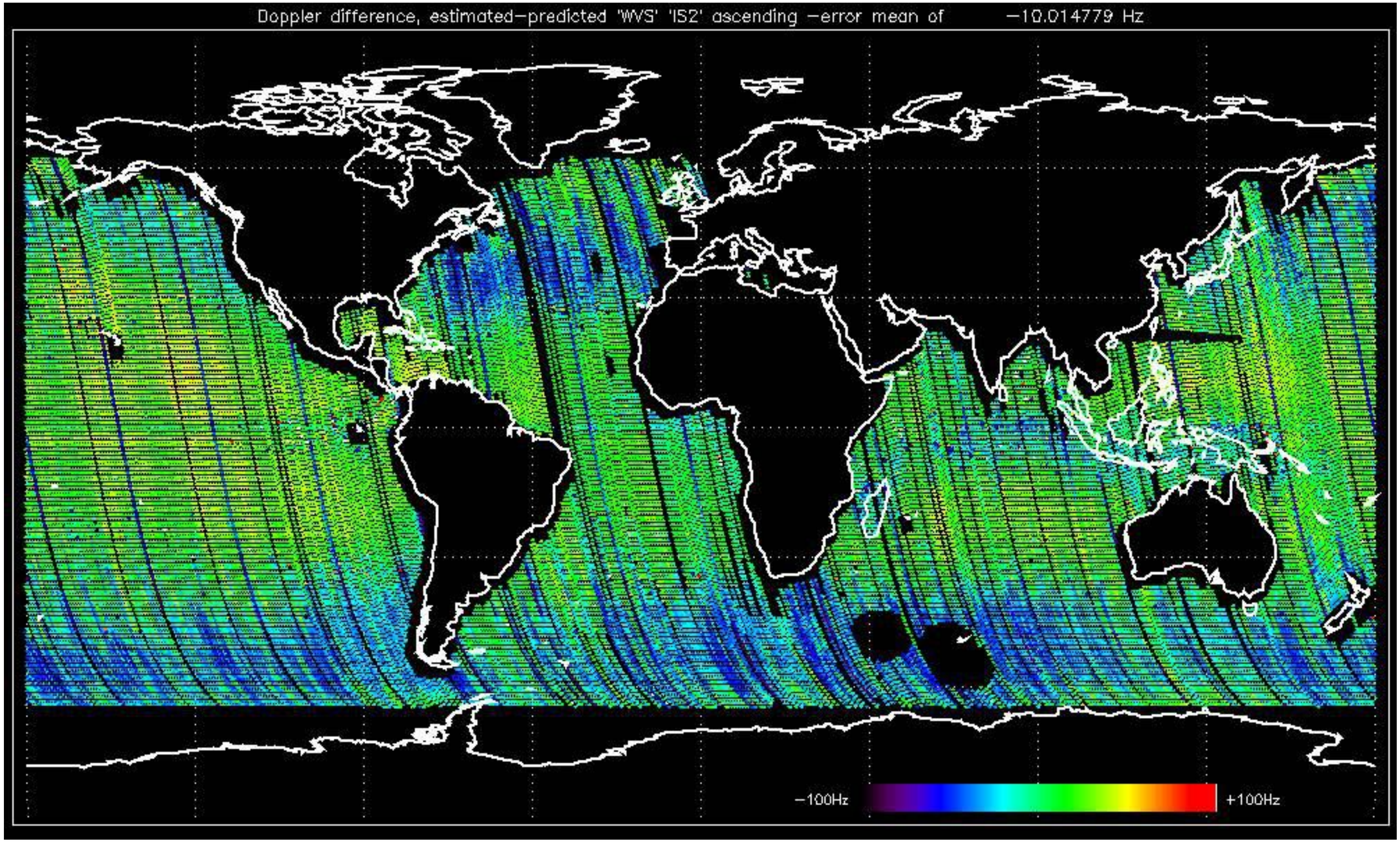

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

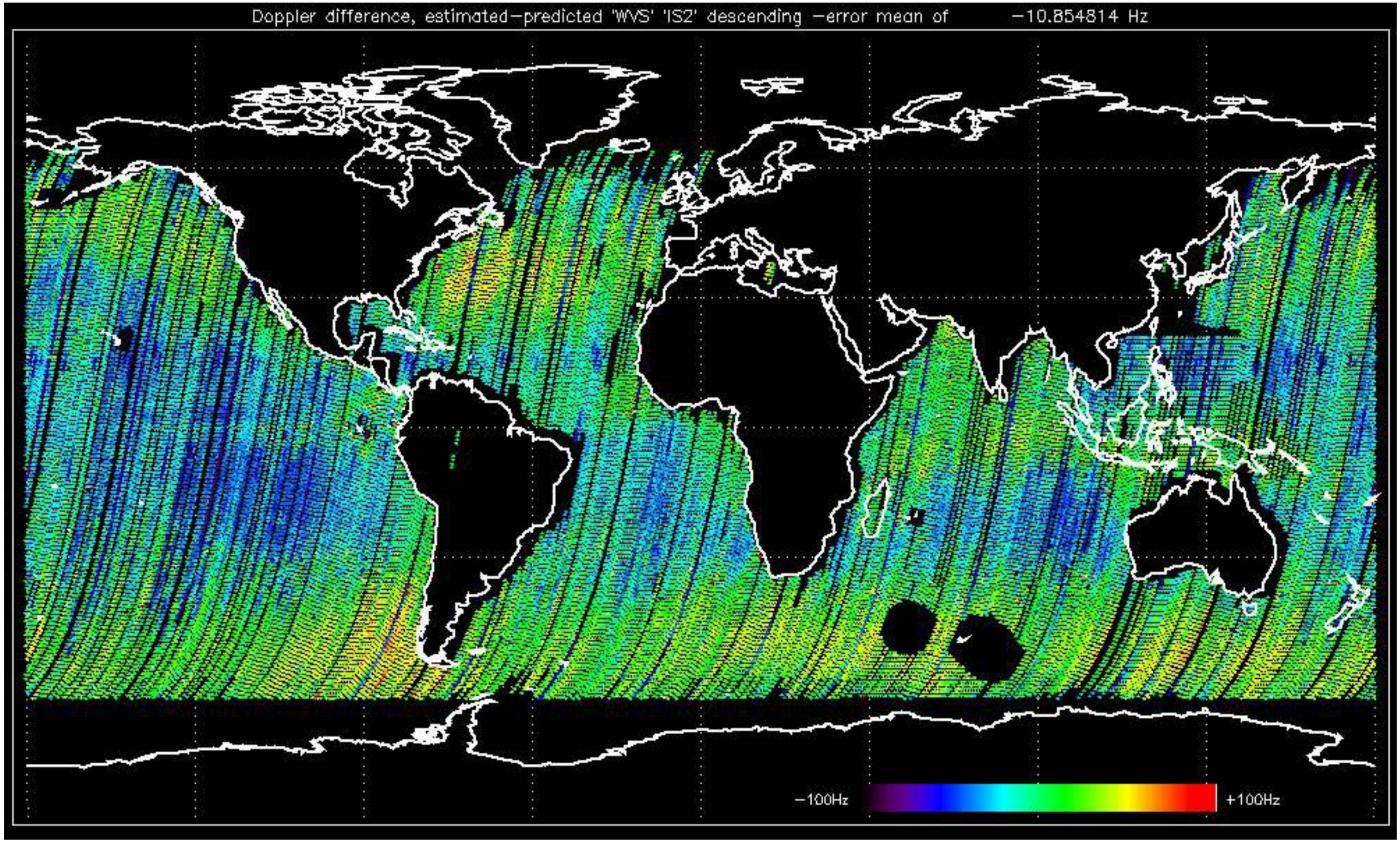

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
100
50
0
−50
−100
02
04
06
08
10
12
14
16
18
20
22
31−Mar
Date


WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
300
200
100
0
−100
02
04
06
08
10
12
14
16
18
20
22
00
01−Apr
Date


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −11.516743 Hz
−100Hz
+100Hz

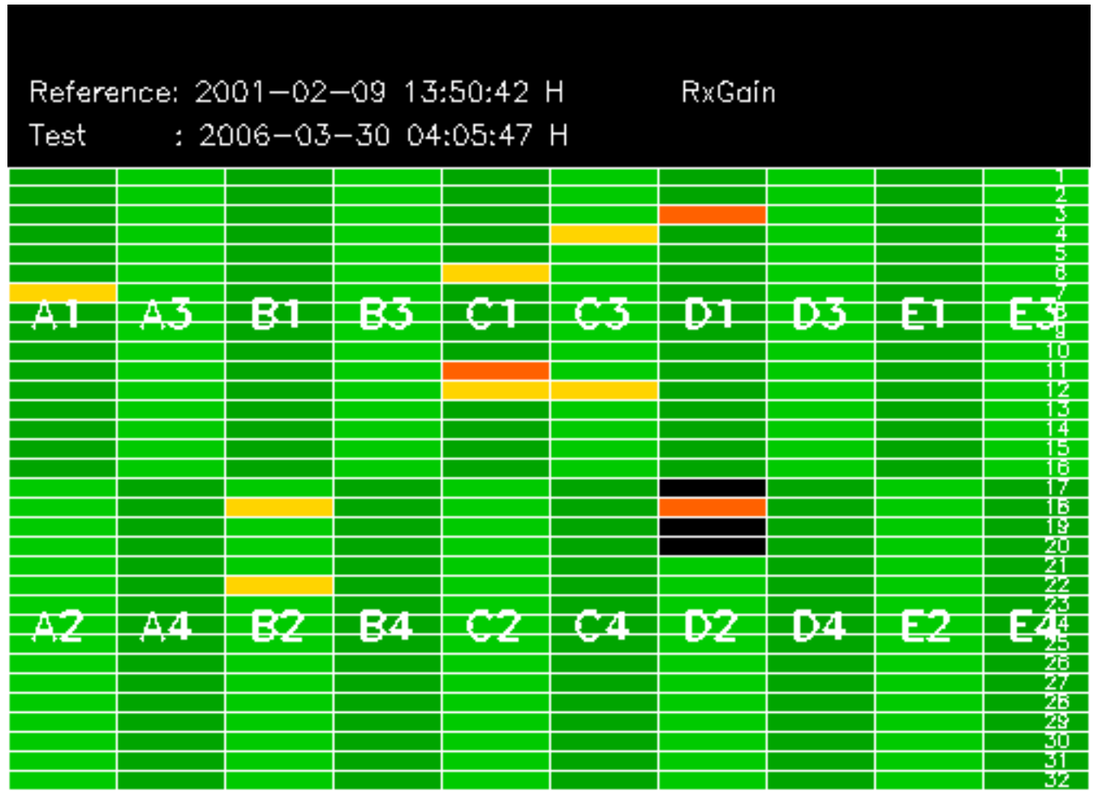

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -8.9749724 Hz
-100Hz
+100Hz

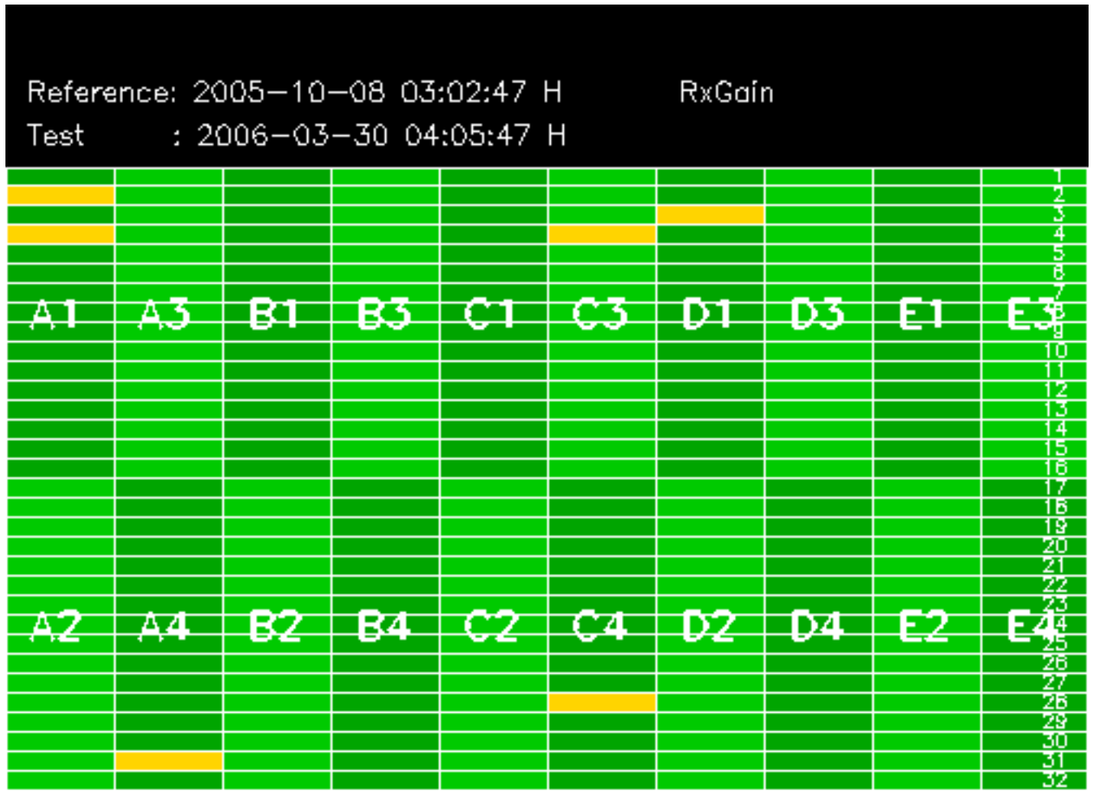

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −10.014779 Hz
−100Hz
+100Hz

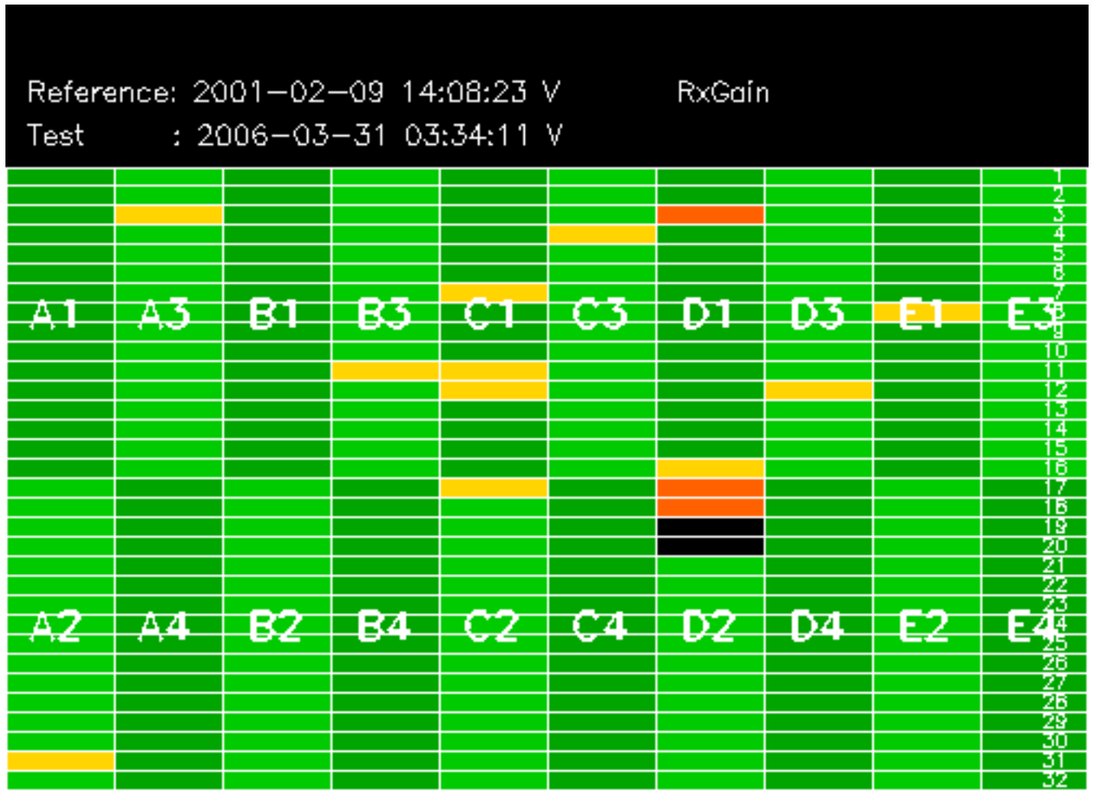

Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −10.854814 Hz
−100Hz
+100Hz

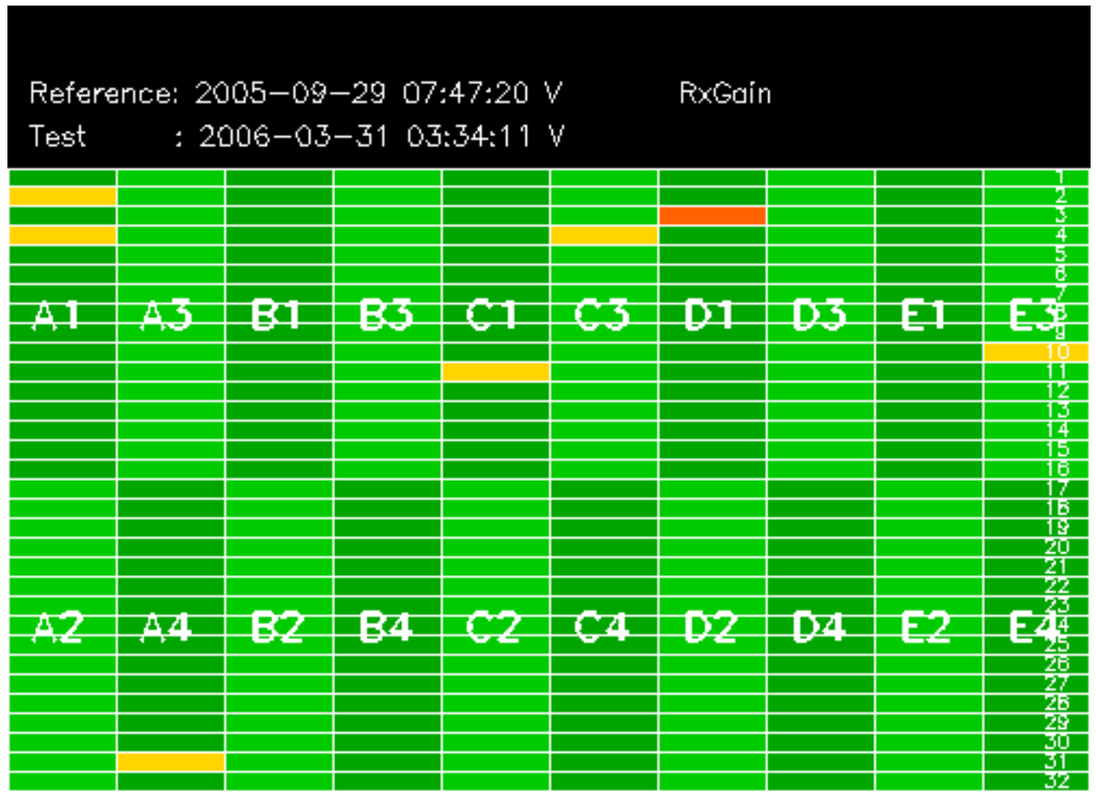
No anomalies observed on available MS products:

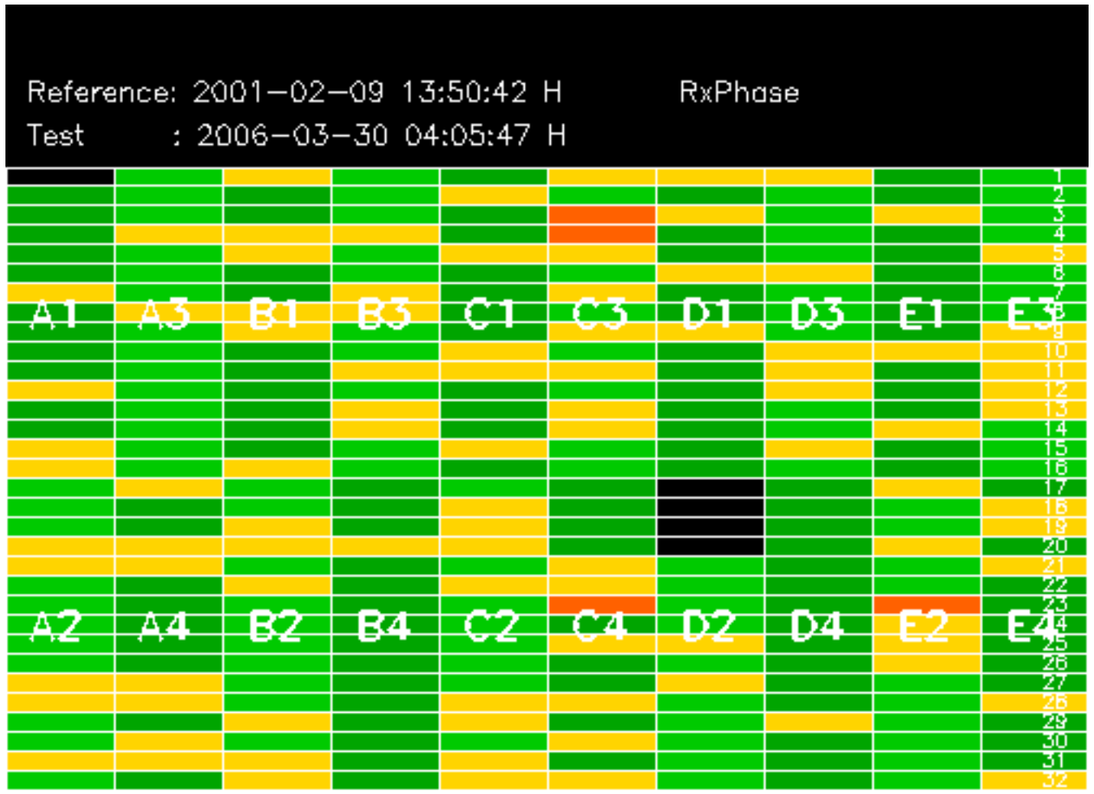
No anomalies observed.

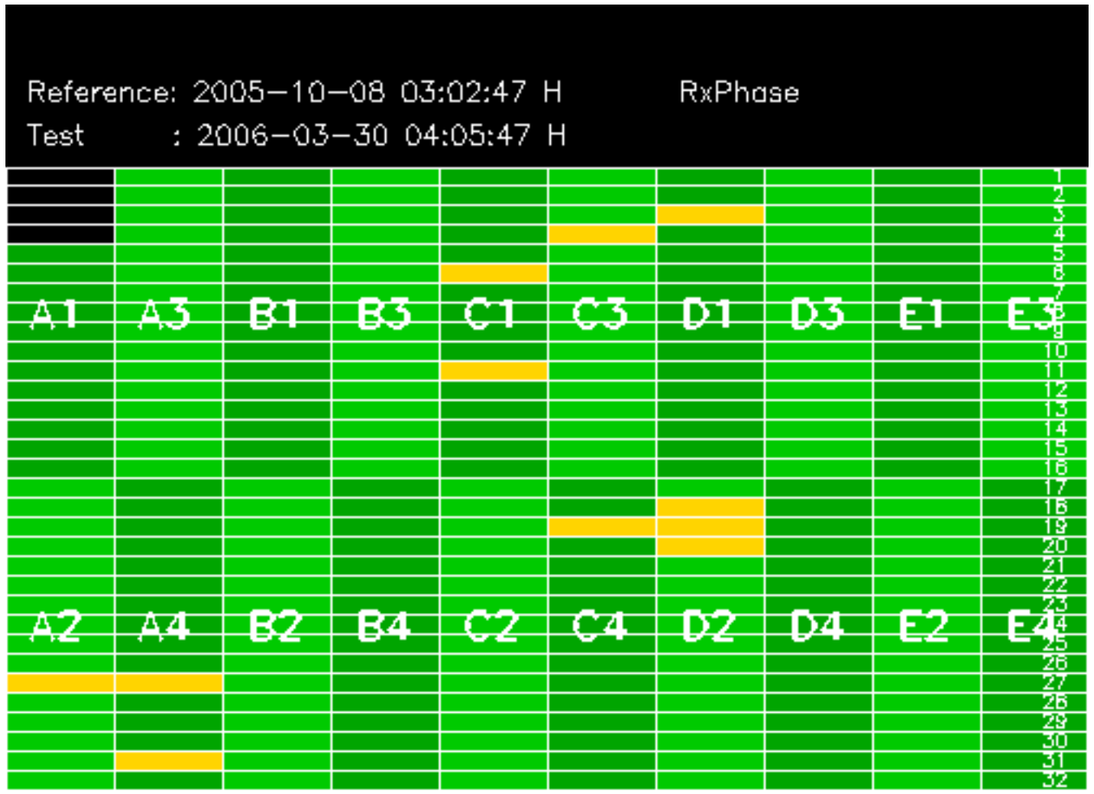

Reference: 2001-02-09 13:50:42 H
RxGain
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

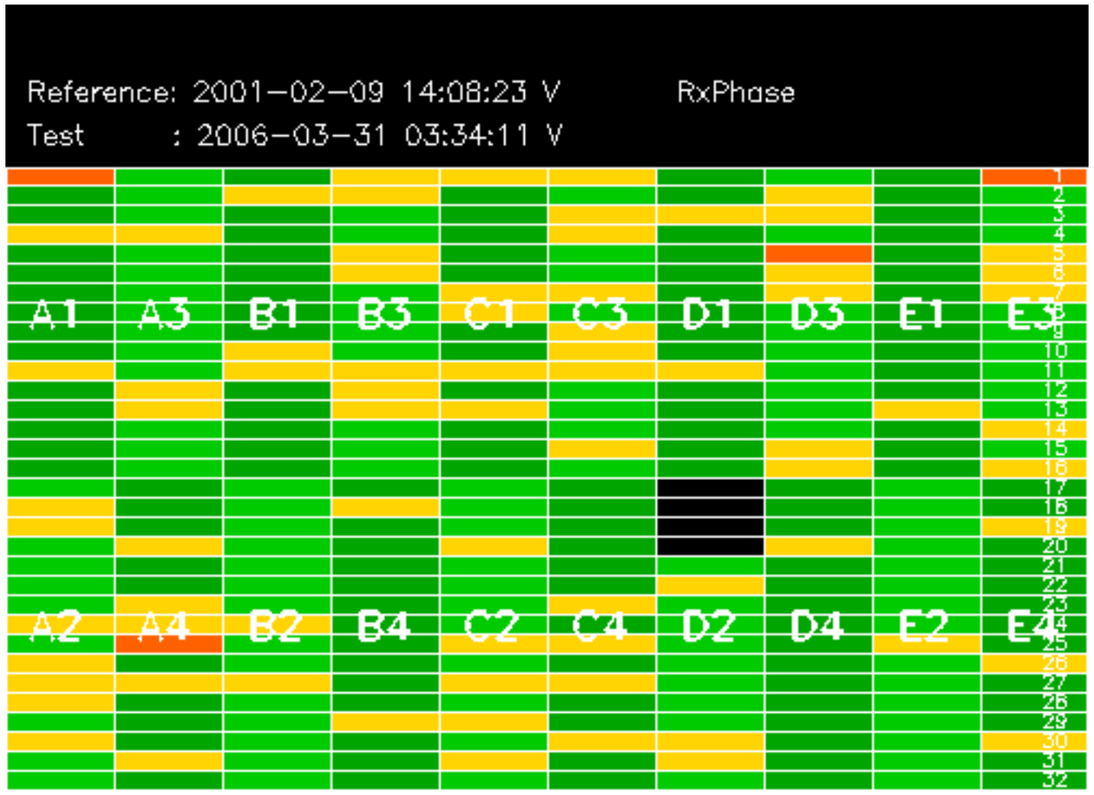

Reference: 2005-10-08 03:02:47 H
RxGain
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

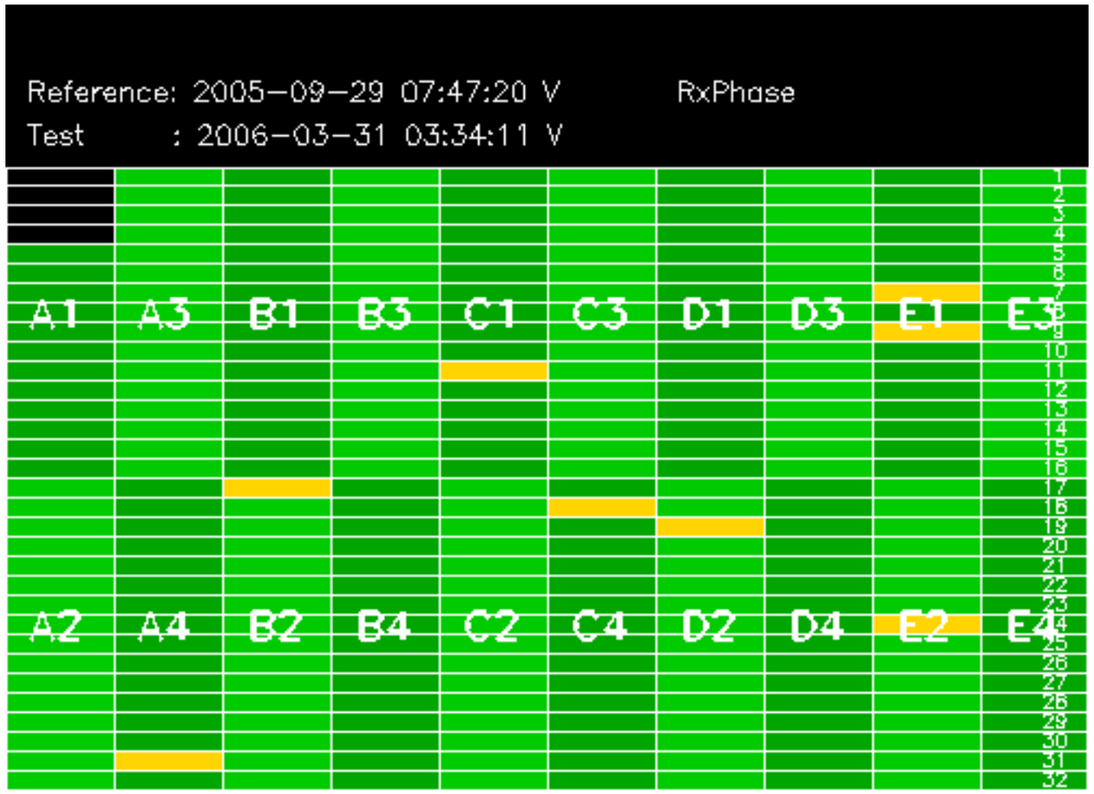

Reference: 2001-02-09 14:08:23 V
RxGain
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

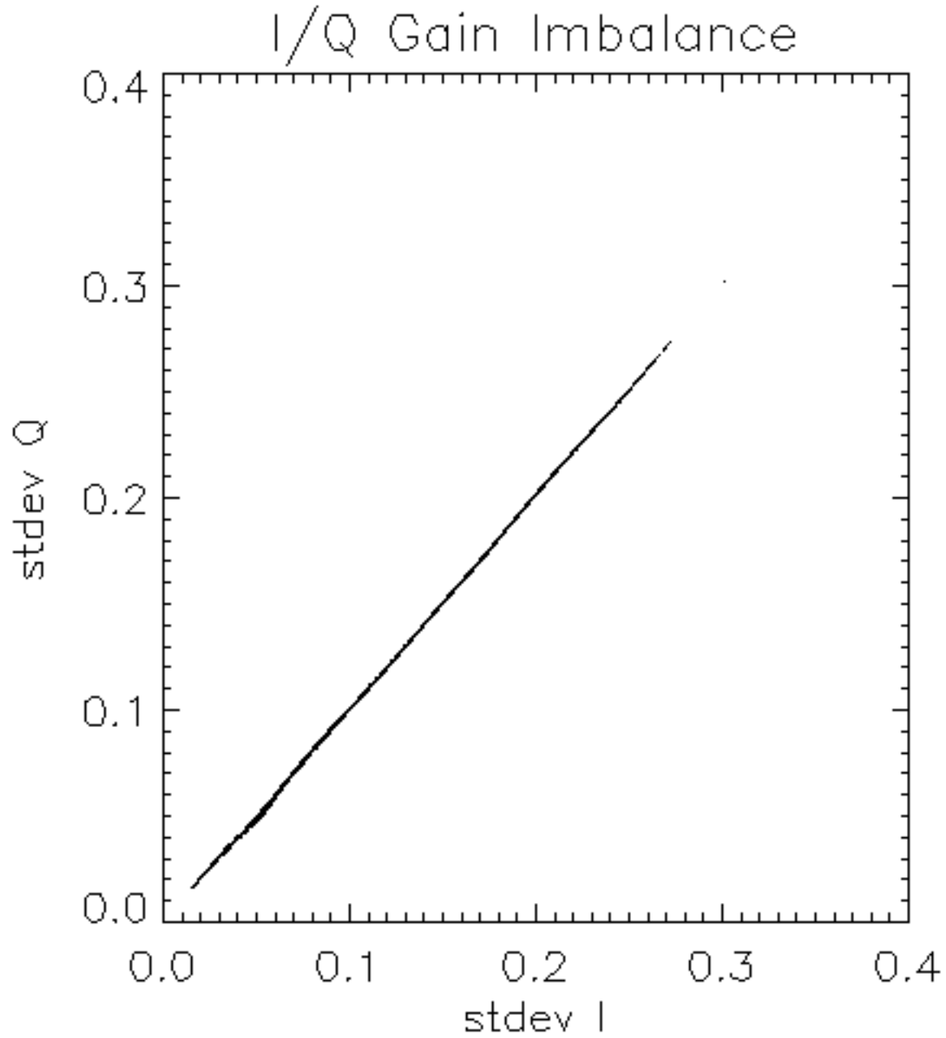

Reference: 2005-09-29 07:47:20 V
RxGain
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

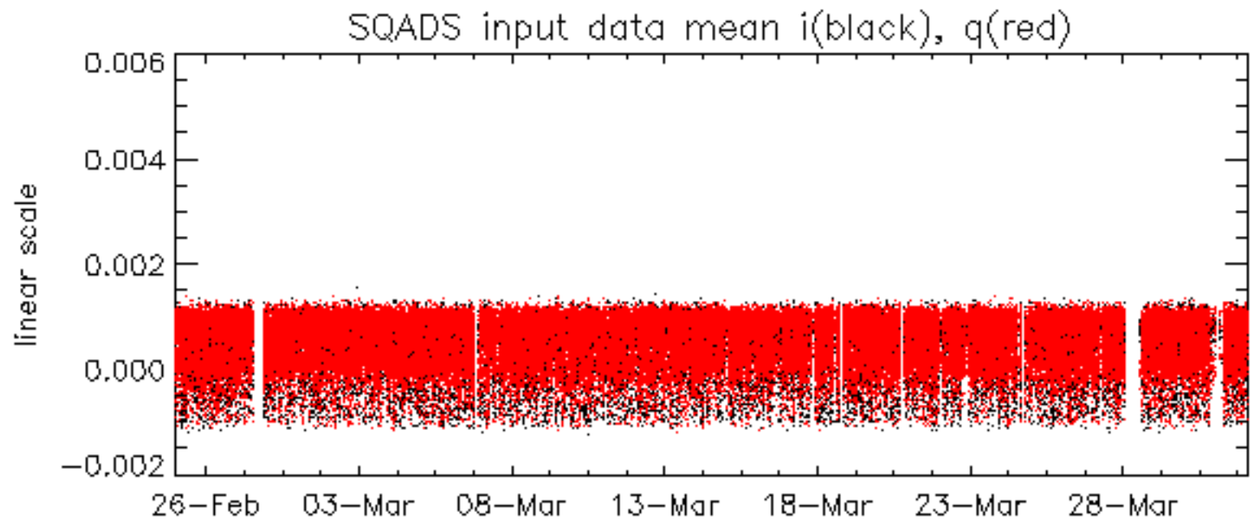

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

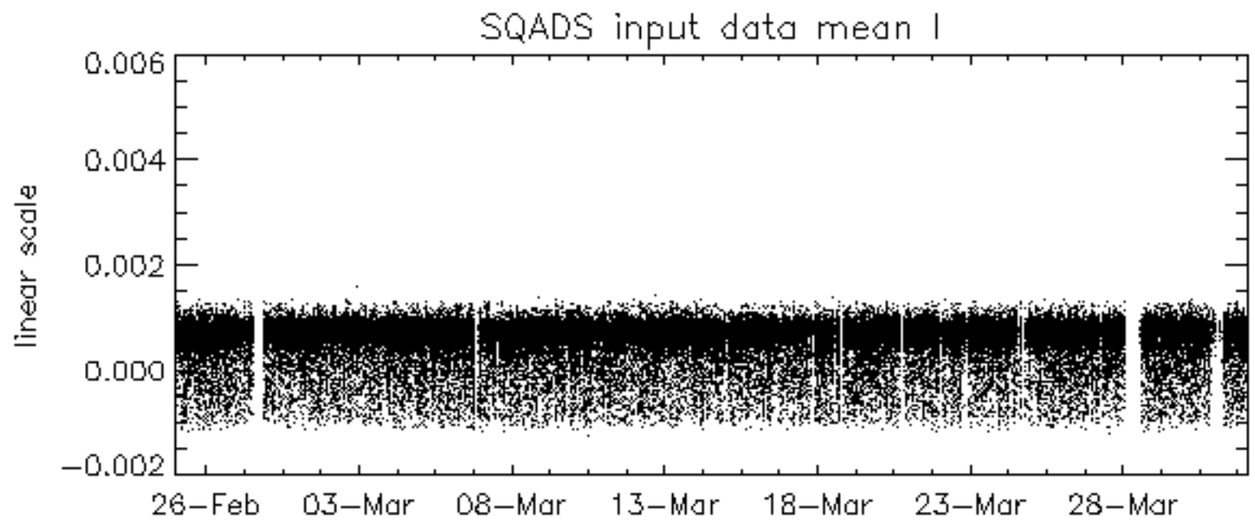

Reference: 2005-10-08 03:02:47 H
RxPhase
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

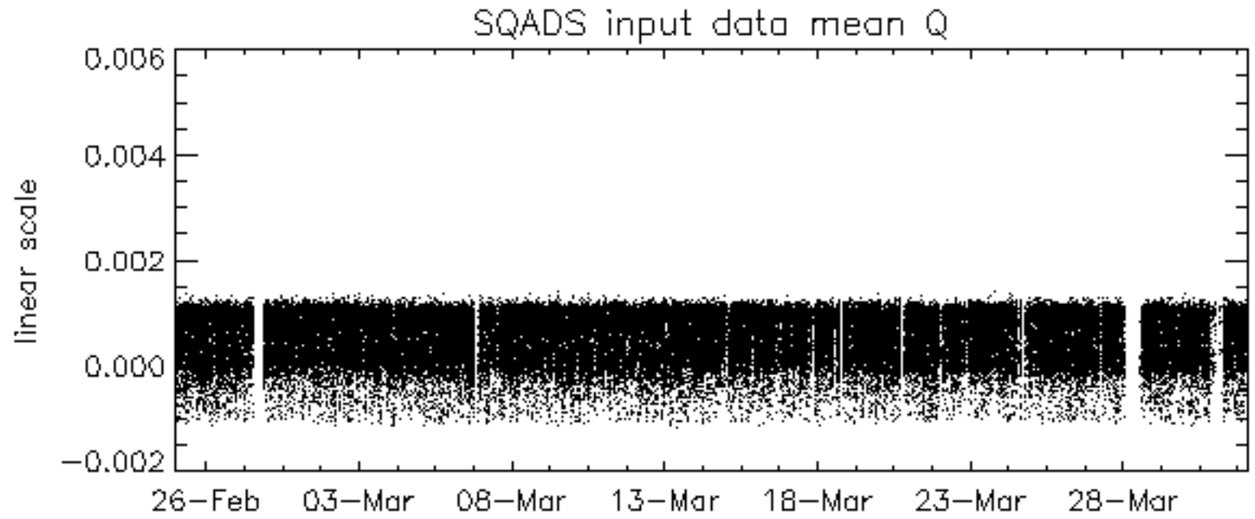

Reference: 2001-02-09 14:08:23 V
RxPhase
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

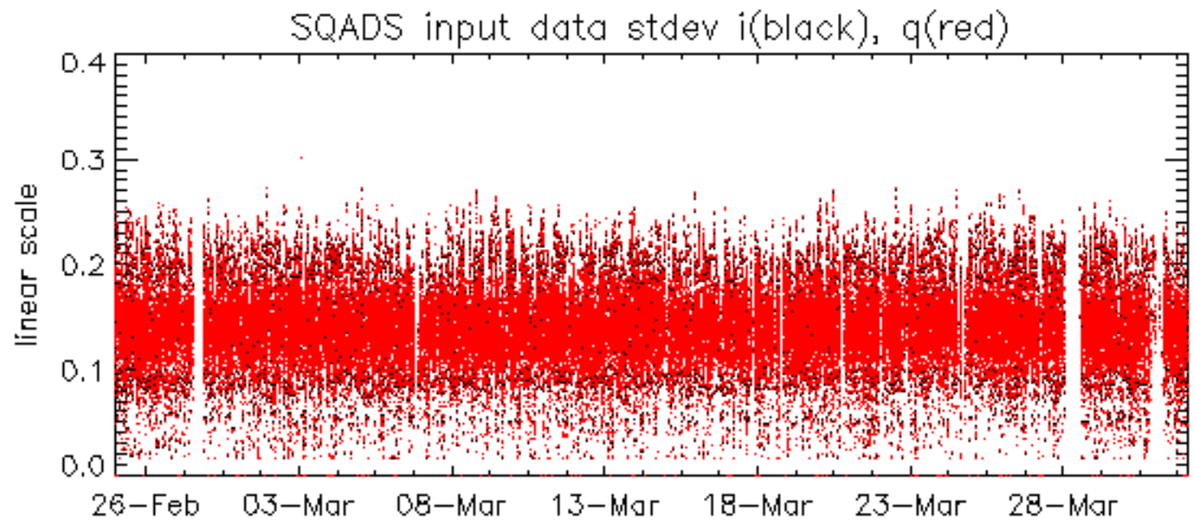

Reference: 2005-09-29 07:47:20 V
RxPhase
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

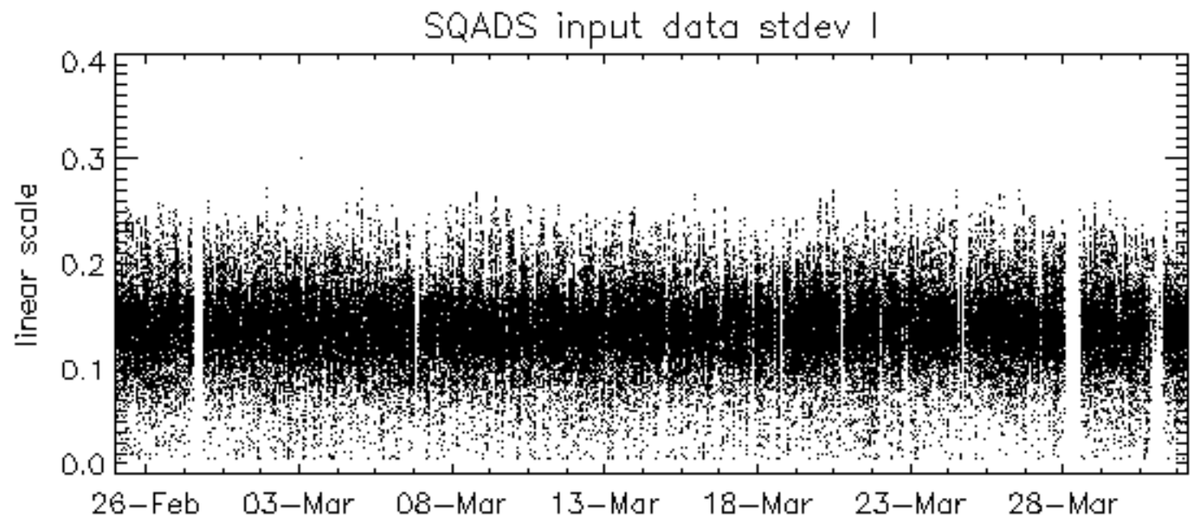

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

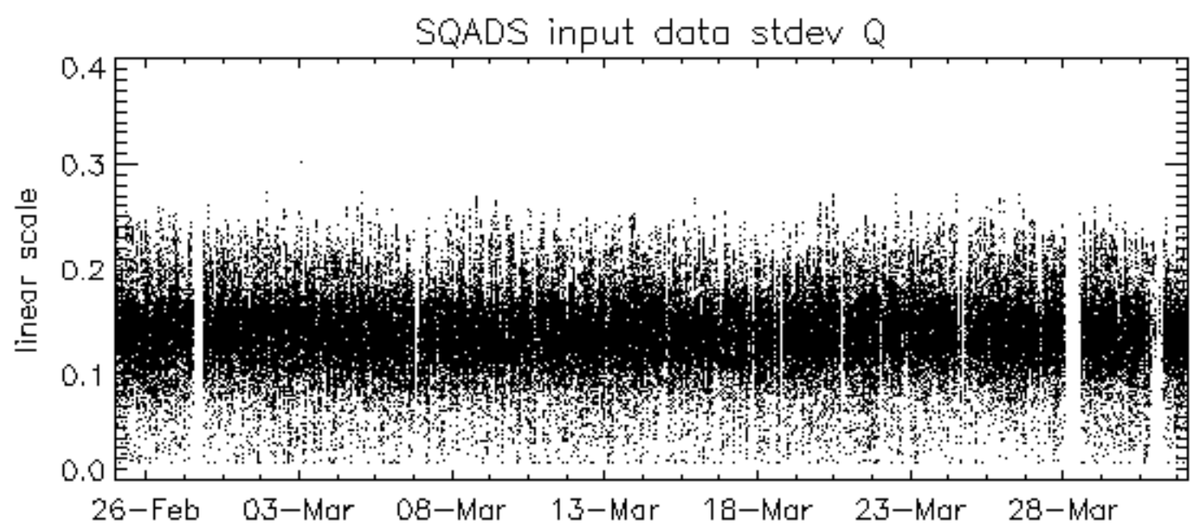

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar

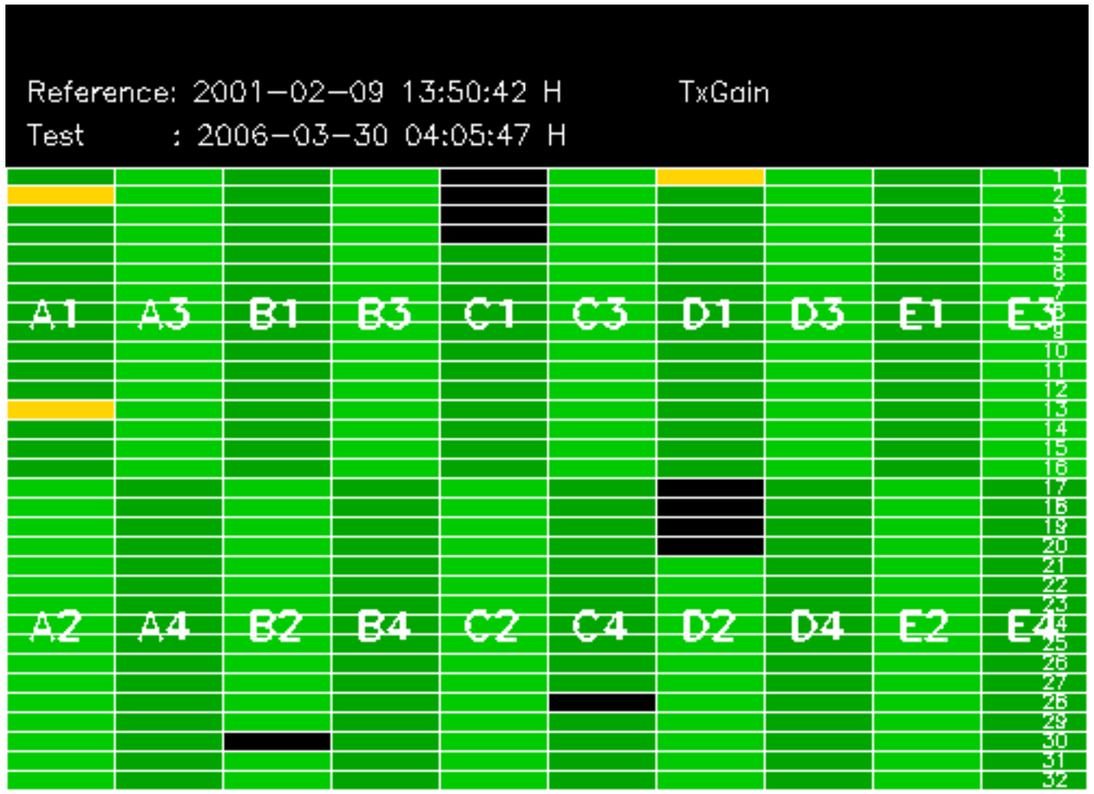

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar

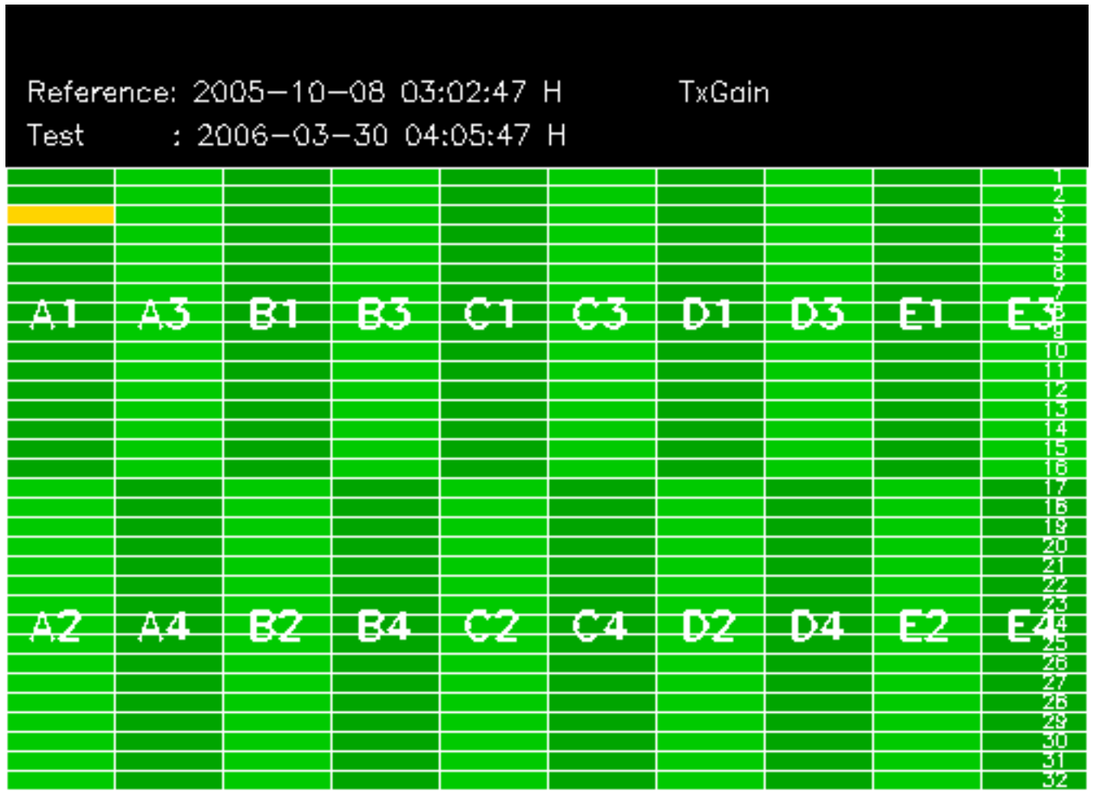

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar

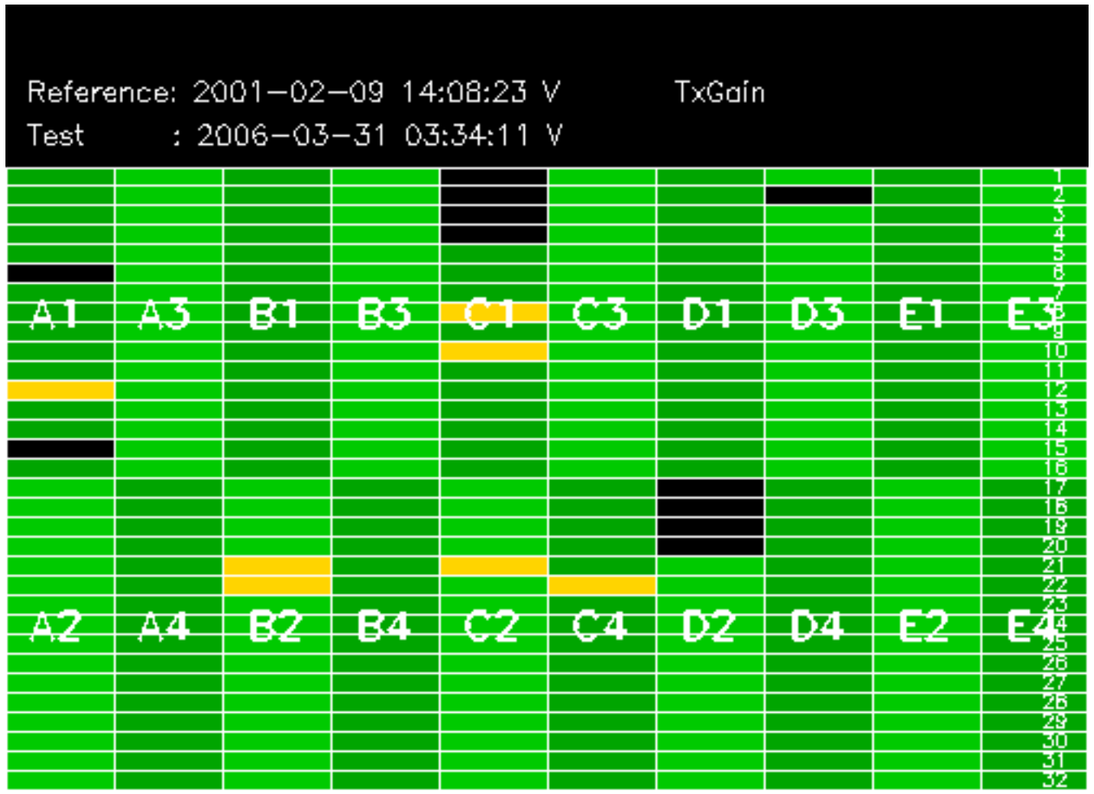

SQADS input data stdev i(black), q(red)
linear scale
0.0
0.1
0.2
0.3
0.4
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar

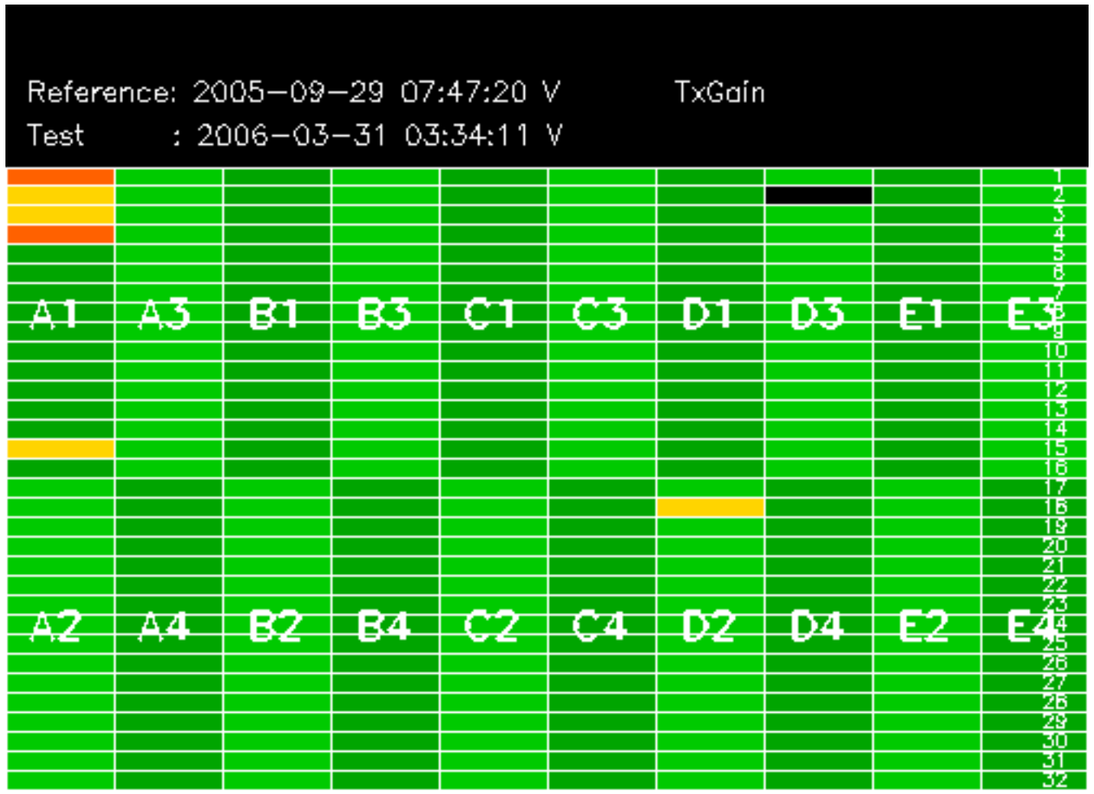

SQADS input data stdev I
linear scale
0.0
0.1
0.2
0.3
0.4
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar


SQADS input data stdev Q
linear scale
0.0
0.1
0.2
0.3
0.4
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
23−Mar
28−Mar


Reference: 2001-02-09 13:50:42 H
TxGain
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

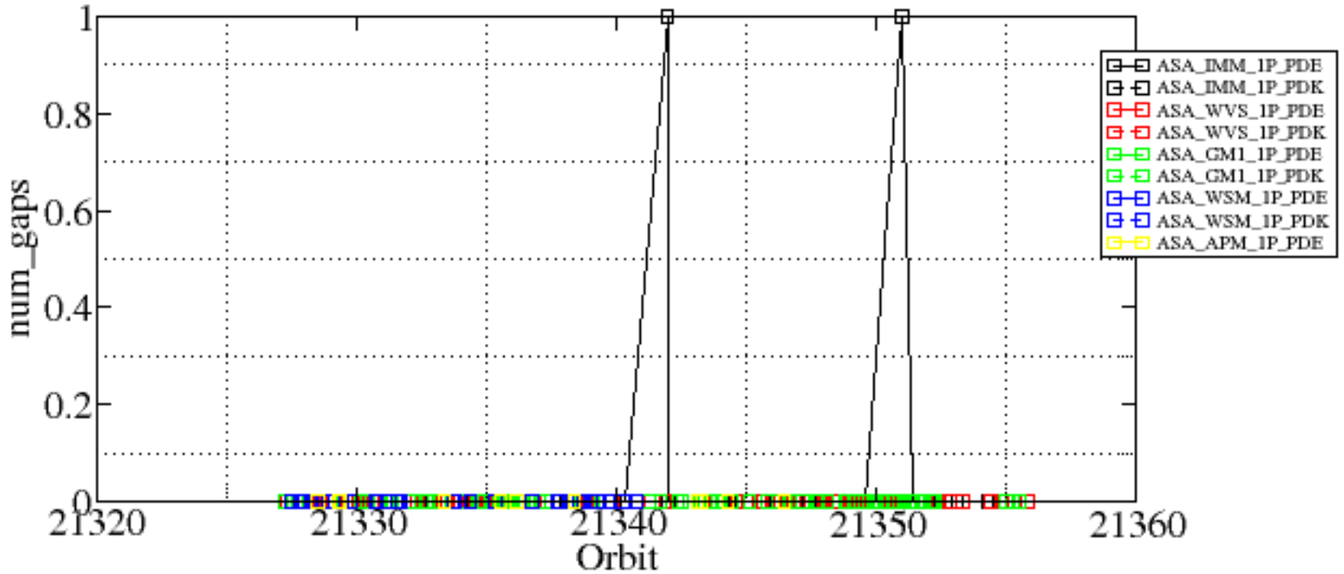

Reference: 2005-10-08 03:02:47 H
TxGain
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

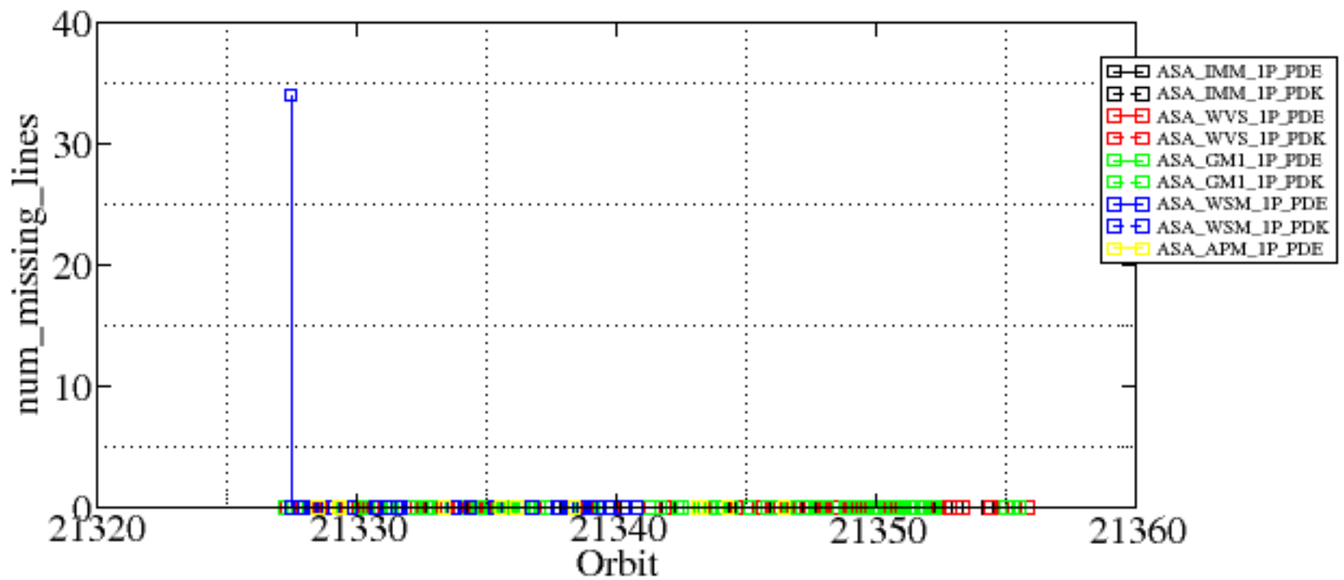

Reference: 2001-02-09 14:08:23 V
TxGain
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

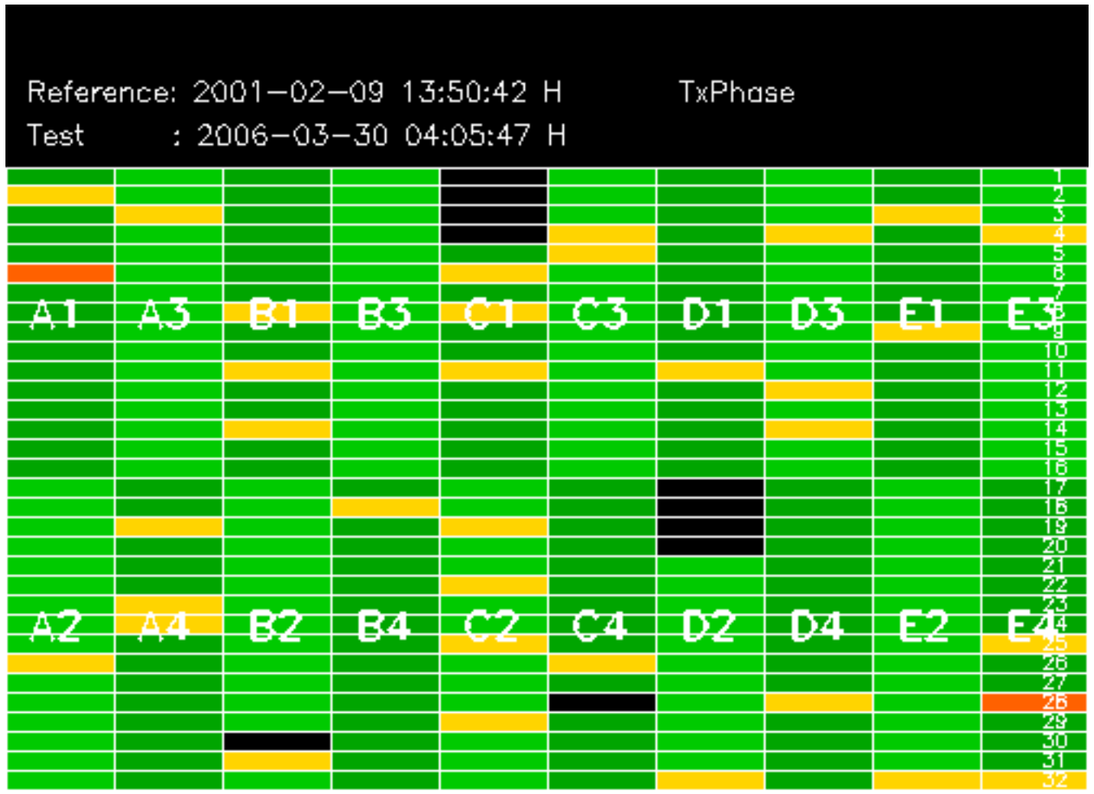

Reference: 2005-09-29 07:47:20 V
TxGain
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

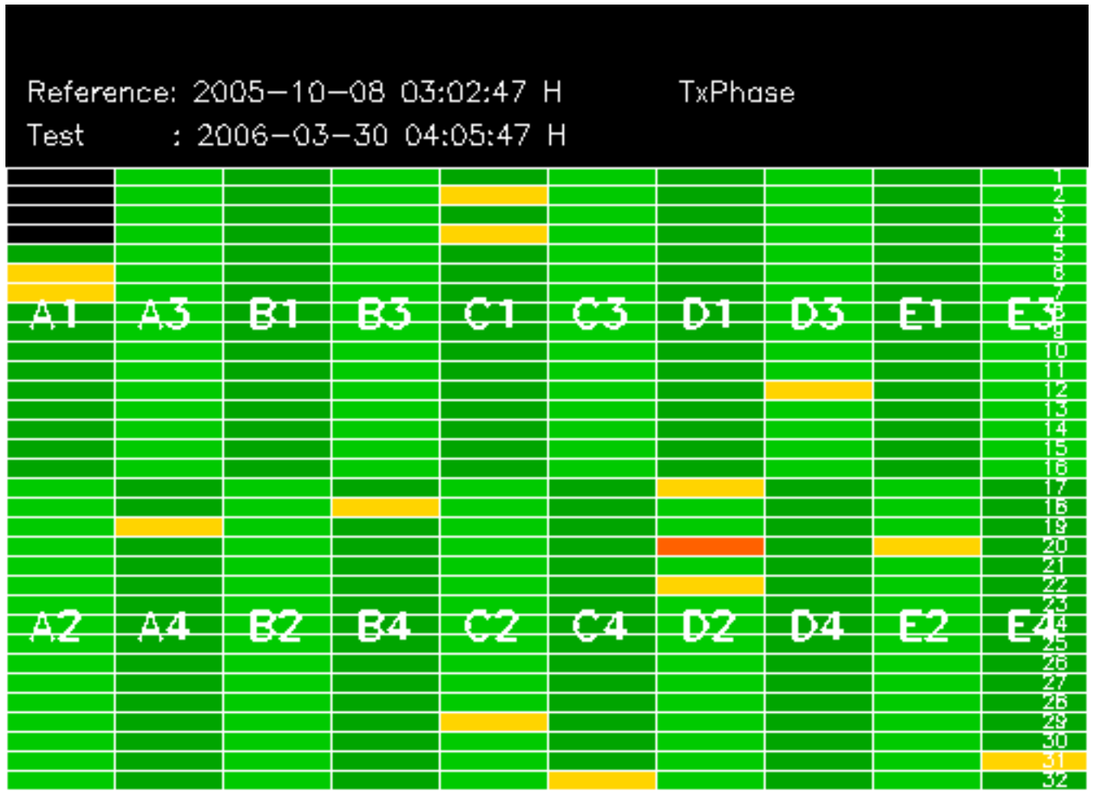
Summary of analysis for the last 3 days 2006033[011]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems

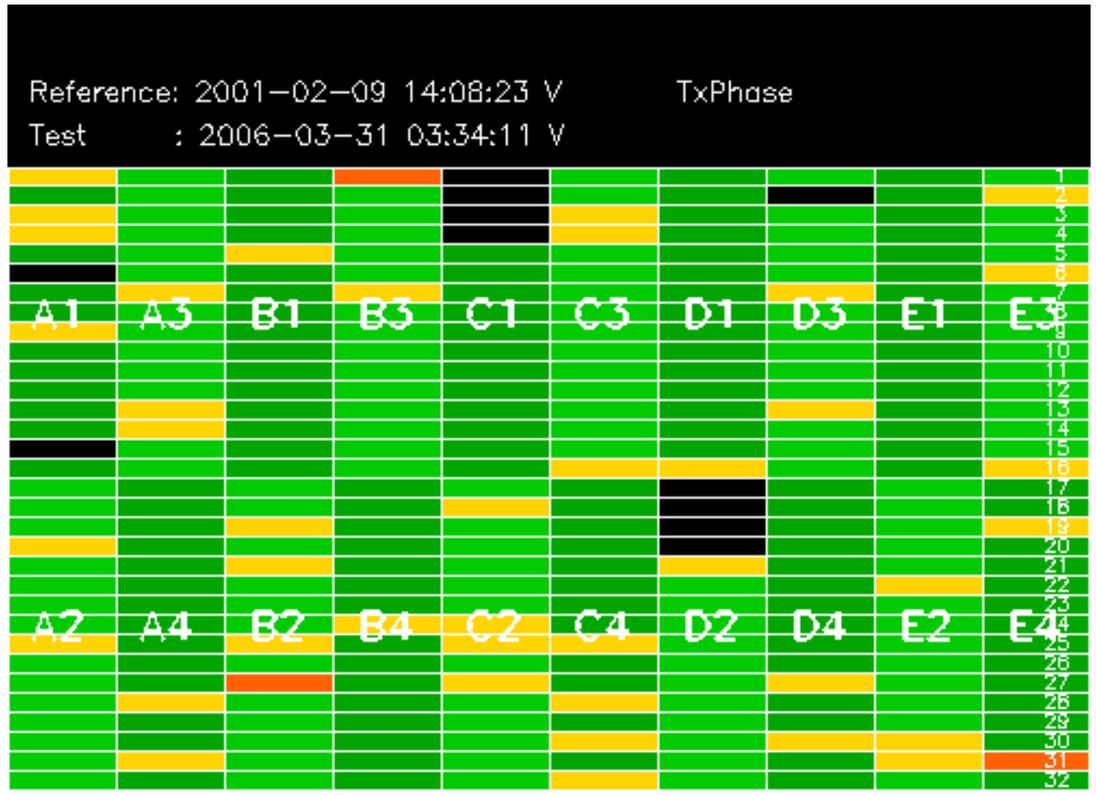
<table border=1>
<tr> <th>Filename </th><th> num_gaps</th><th>num_missing_lines</th></tr>
<tr> <td>ASA_IMM_1PNPDE20060331_004226_000000622046_00245_21341_1773.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_IMM_1PNPDE20060331_155102_000000982046_00254_21350_1842.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20060330_002520_000001282046_00231_21327_3227.N1 </td> <td>0 </td> <td>34 </td></tr>
</table>

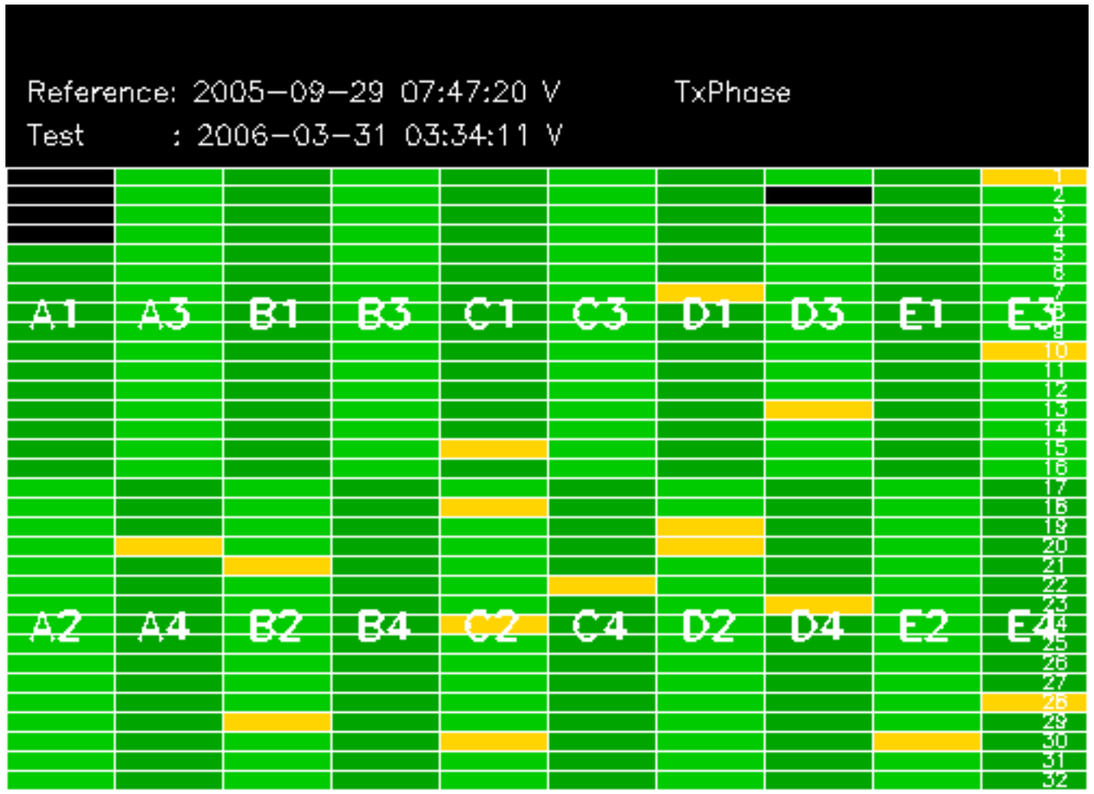

num_gaps
Orbit
1
0.8
0.6
0.4
0.2
0
21320
21330
21340
21350
21360
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_WSM_1P_PDK
ASA_APM_1P_PDE

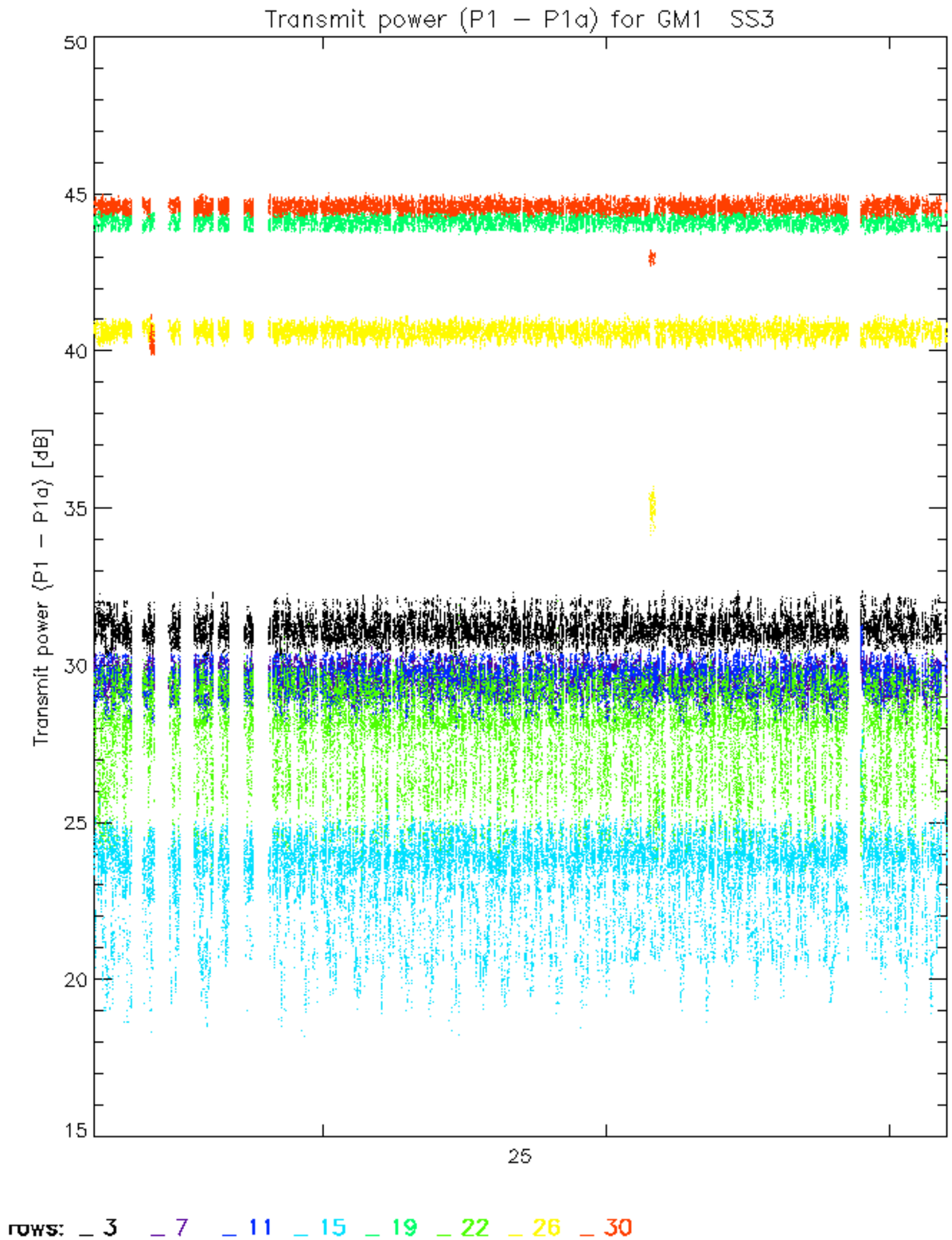

num_missing_lines
40
30
20
10
0
21320
21330
21340
21350
21360
Orbit
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_WSM_1P_PDK
ASA_APM_1P_PDE

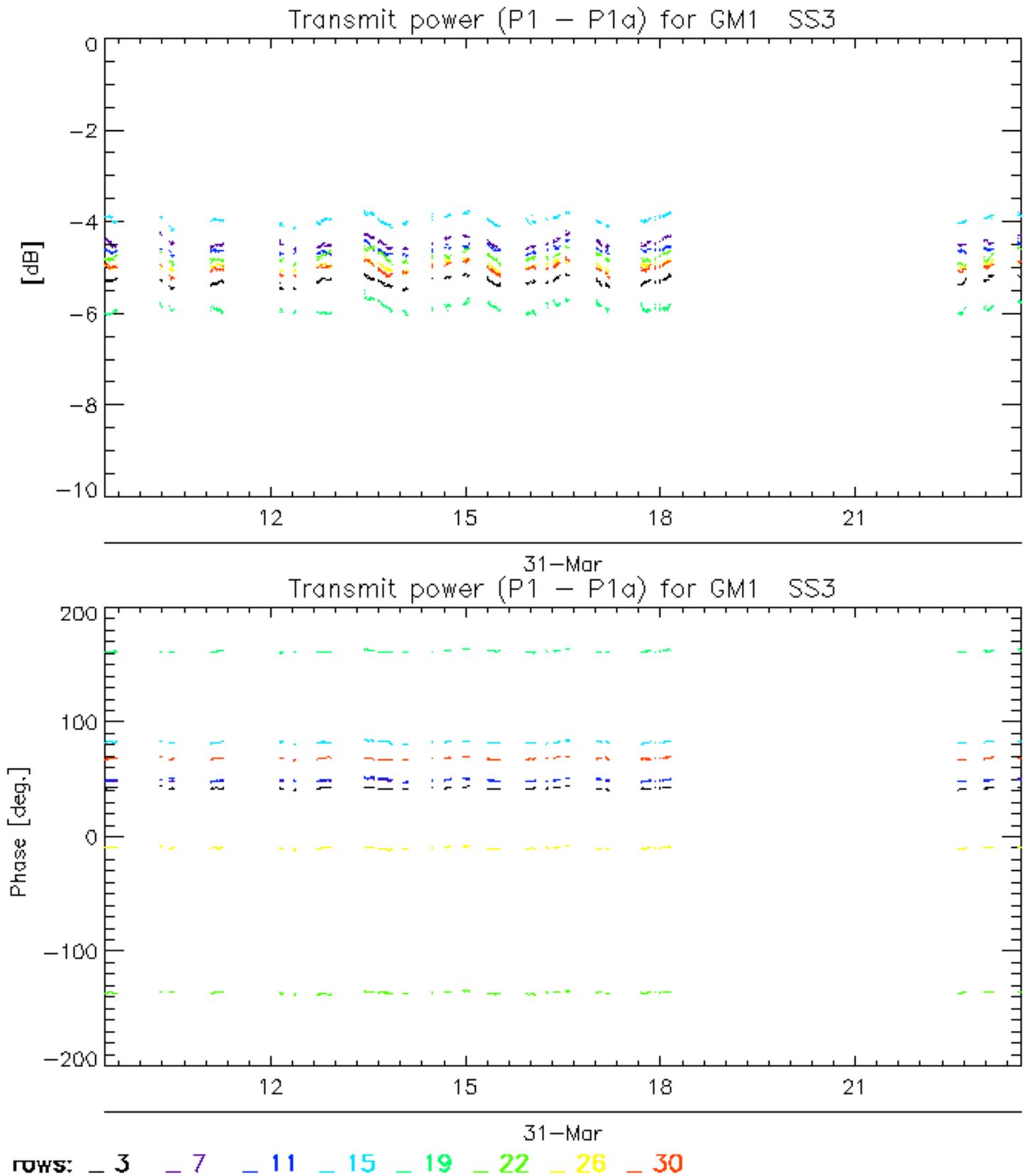

Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

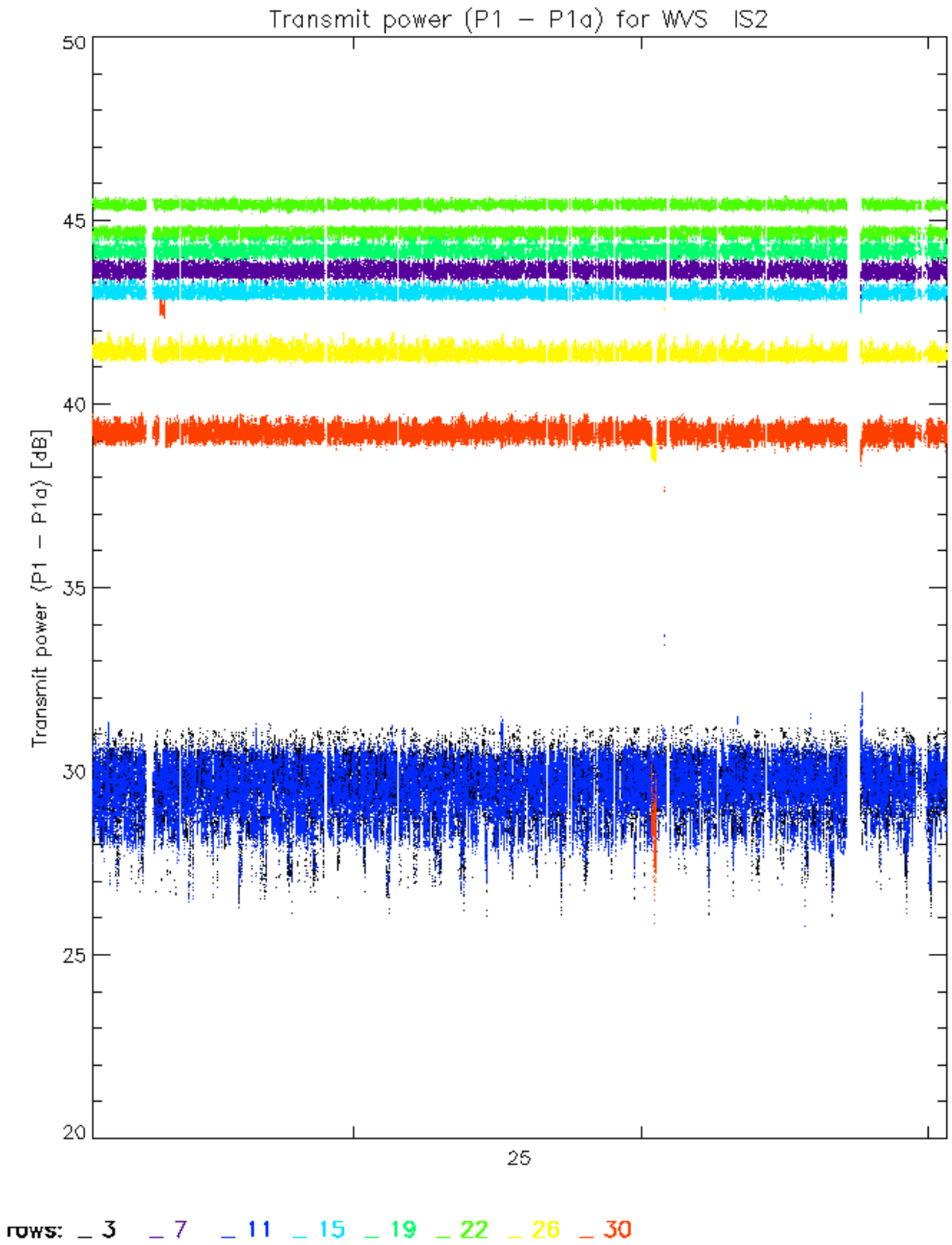

Reference: 2005-10-08 03:02:47 H
TxPhase
Test : 2006-03-30 04:05:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

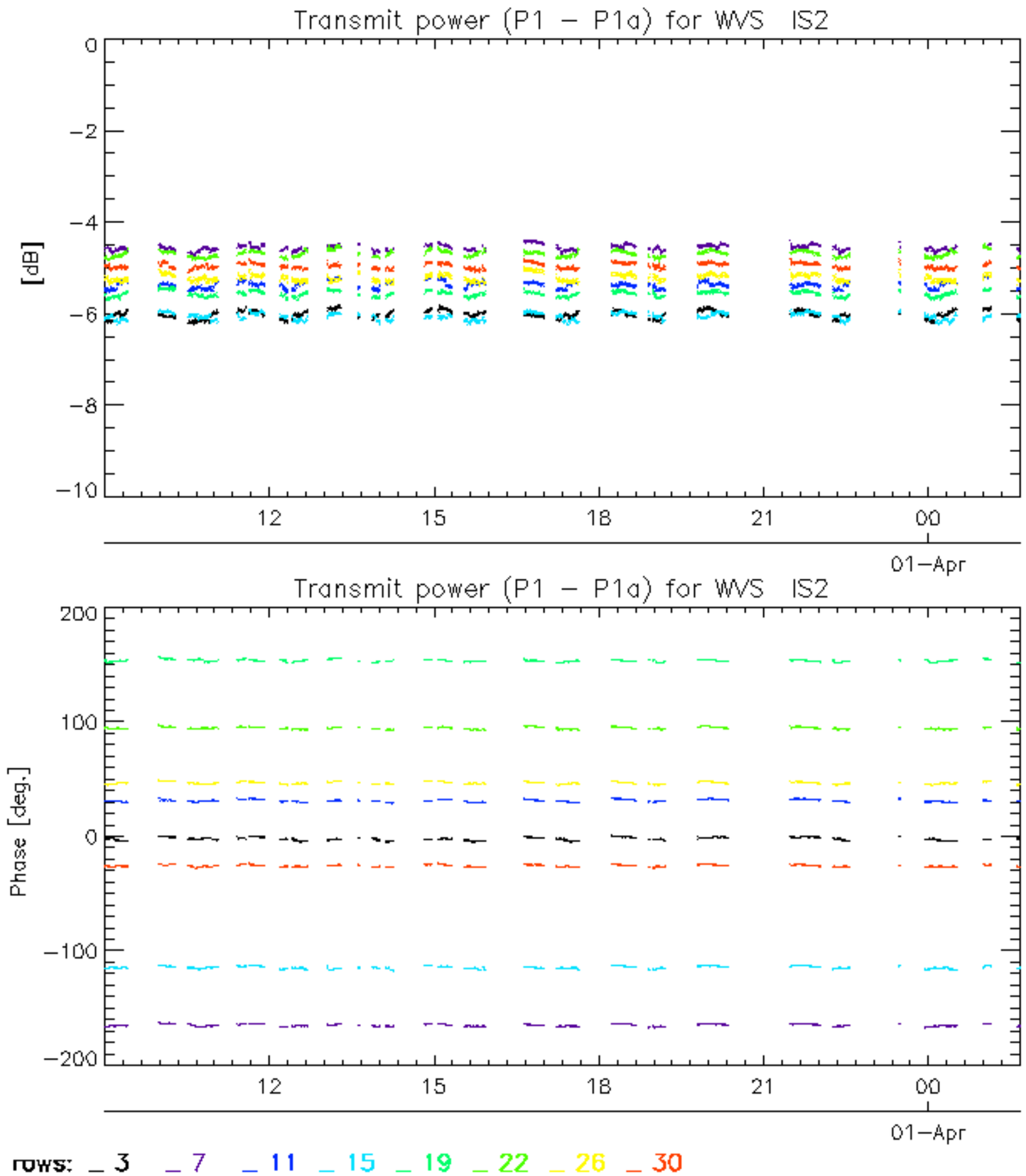

Reference: 2001-02-09 14:08:23 V
TxPhase
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2005-09-29 07:47:20 V
TxPhase
Test : 2006-03-31 03:34:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Transmit power (P1 – P1a) for GM1 SS3
Transmit power ⟨P1 – P1a⟩ [dB]
50
45
40
35
30
25
20
15
25
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
0
−2
−4
−6
−8
−10
12
15
18
21
31−Mar
Transmit power (P1 – P1a) for GM1 SS3
Phase [deg.]
200
100
0
−100
−200
12
15
18
21
31−Mar
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
Transmit power (P1 – P1a) [dB]
50
45
40
35
30
25
20
25
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
[dB]
0
−2
−4
−6
−8
−10
12
15
18
21
00
01−Apr
Transmit power (P1 – P1a) for WVS IS2
Phase [deg.]
200
100
0
−100
−200
12
15
18
21
00
01−Apr
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.