PRELIMINARY REPORT OF 050321

last update on Mon Mar 21 10:50:01 GMT 2005

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 2005-03-20 00:00:00 to 2005-03-21 10:50:01

PDHS-K					
AUXILIARY FILE	WVS	GM1	IMM	APM	WSM

ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	26	40	5	0	2
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	26	40	5	0	2
ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000	26	40	5	0	2
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	26	40	5	0	2

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	46	54	5	2	4
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	46	54	5	2	4
ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000	46	54	5	2	4
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	46	54	5	2	4

2.3 - Browse Visual Inspection

No anomalies observed from 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	20050320 053211
H	20050319 060347

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	-3.363073	0.006996	0.025965
7	P1	-3.095400	0.007876	-0.017389
11	P1	-4.694356	0.022854	0.017368
15	P1	-5.655367	0.031296	0.029871
19	P1	-3.682468	0.003684	-0.019629
22	P1	-4.517666	0.012512	0.004404
26	P1	-4.946074	0.016398	0.031543
30	P1	-7.191154	0.017976	-0.005302
3	P1	-15.963609	0.060231	0.101853
7	P1	-15.527201	0.048070	-0.039664
11	P1	-20.978119	0.270304	-0.120471
15	P1	-11.572715	0.024170	0.052035
19	P1	-14.292784	0.023483	-0.055518
22	P1	-15.648376	0.306412	0.070916
26	P1	-17.605661	0.215316	-0.008859
30	P1	-17.968403	0.468475	0.007414

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-22.091015	0.083072	0.072693
7	P2	-22.279696	0.095210	0.079587
11	P2	-14.416053	0.106016	0.221913
15	P2	-7.045146	0.091329	0.026078
19	P2	-9.634896	0.092966	0.027985
22	P2	-16.920534	0.092922	0.063020
26	P2	-16.445217	0.091783	0.024310
30	P2	-18.862844	0.082325	0.074692

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.165530	0.005035	0.013644
7	P3	-8.165530	0.005035	0.013644
11	P3	-8.165530	0.005035	0.013644
15	P3	-8.165530	0.005035	0.013644
19	P3	-8.165530	0.005035	0.013644
22	P3	-8.165530	0.005035	0.013644
26	P3	-8.165530	0.005035	0.013644
30	P3	-8.165530	0.005035	0.013644

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	-2.727701	0.011172	0.022832
7	P1	-3.030015	0.033237	-0.042272
11	P1	-3.993292	0.014637	-0.008821
15	P1	-3.572530	0.015722	0.010828
19	P1	-3.593117	0.013216	-0.014721
22	P1	-5.747318	0.035170	0.023625
26	P1	-7.290144	0.024916	0.009319
30	P1	-6.227757	0.043723	-0.000855
3	P1	-10.748643	0.053310	0.021968
7	P1	-10.337005	0.144633	-0.127253
11	P1	-12.559845	0.090801	0.044181
15	P1	-11.764676	0.068227	0.024482
19	P1	-15.565557	0.043367	0.012415
22	P1	-24.494547	1.150613	-0.325210

26	P1	-15.482138	0.166711	0.003608
30	P1	-20.215233	1.145070	0.000024

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.798805	0.033221	0.089776
7	P2	-22.365112	0.037244	0.097937
11	P2	-10.182468	0.049158	0.178333
15	P2	-4.979439	0.021072	0.008027
19	P2	-6.829379	0.031425	0.015917
22	P2	-7.098245	0.030633	0.078148
26	P2	-23.850368	0.027063	0.020795
30	P2	-21.897964	0.032494	0.043542

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-7.998621	0.002752	0.014581
7	P3	-7.998647	0.002756	0.014117
11	P3	-7.998561	0.002774	0.014322
15	P3	-7.998691	0.002764	0.014591
19	P3	-7.998628	0.002770	0.014147
22	P3	-7.998628	0.002753	0.014128
26	P3	-7.998630	0.002761	0.014374
30	P3	-7.998621	0.002768	0.014758

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	0.000457031
	stdev	2.24023e-07
MEAN Q	mean	0.000491266
	stdev	2.34296e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.128263
	stdev	0.00103652
STDEV Q	mean	0.128509
	stdev	0.00104779

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2005032[901]
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

7 - Doppler Analysis

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

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

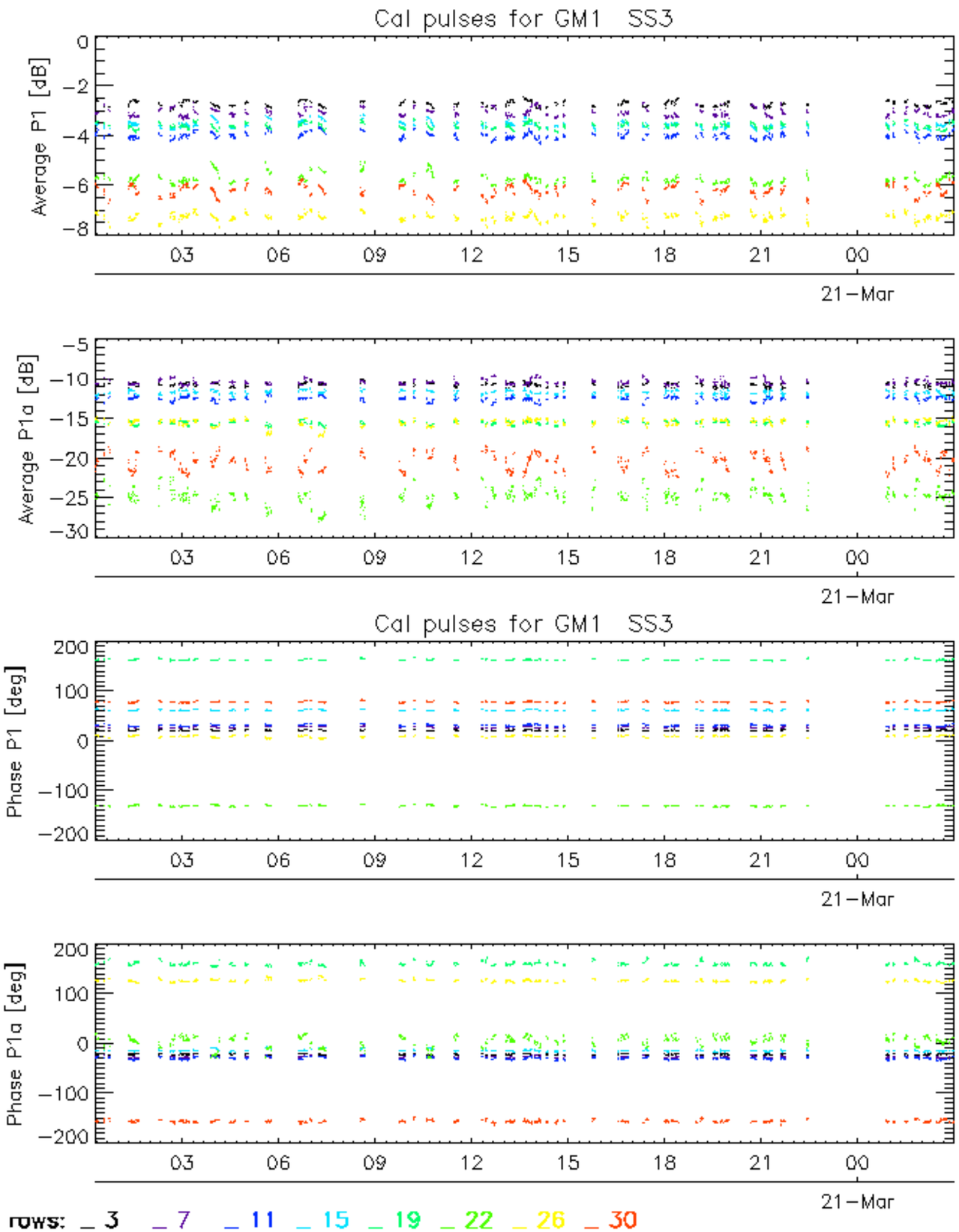
Descending

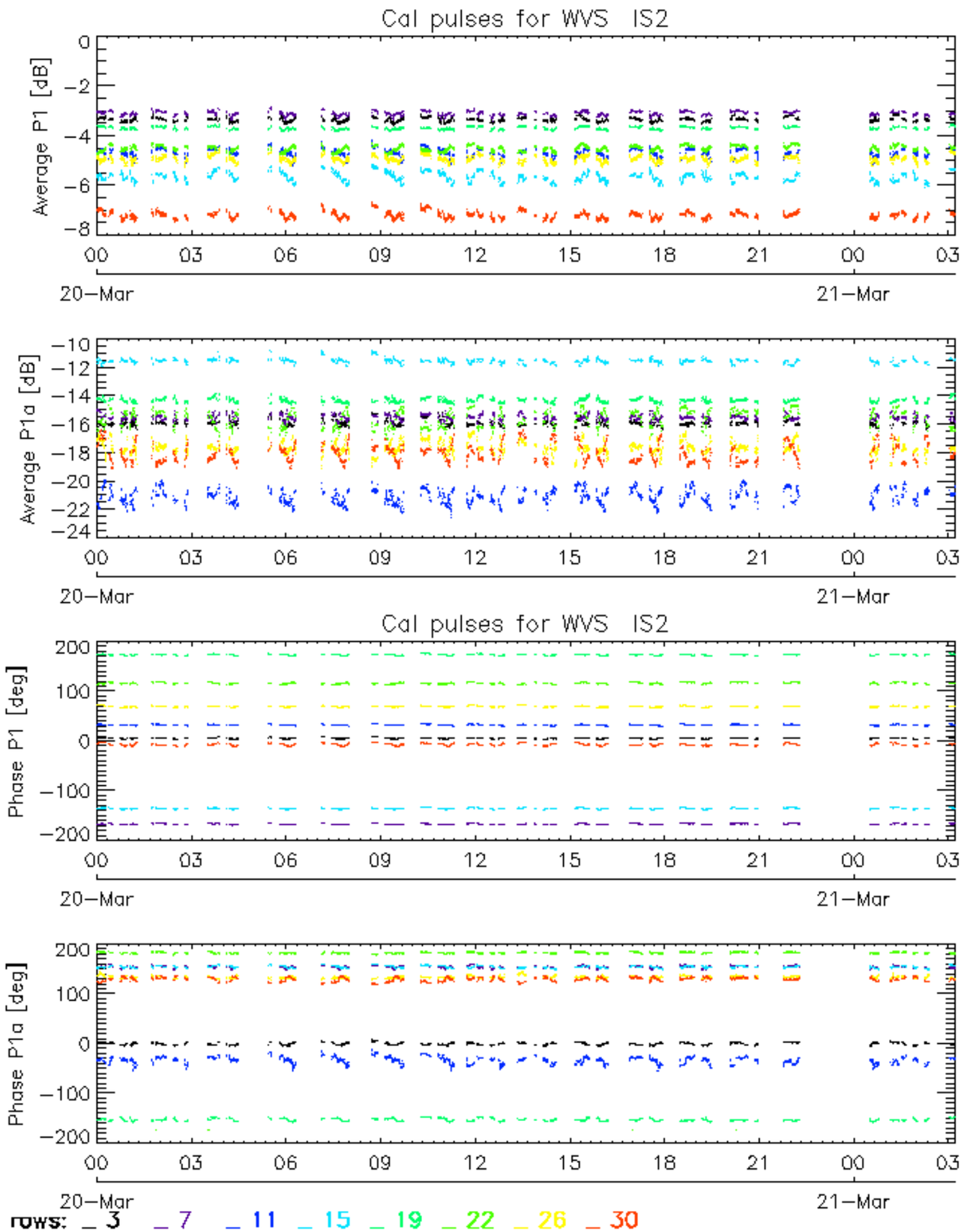
7.5 - Absolute Doppler for GM1

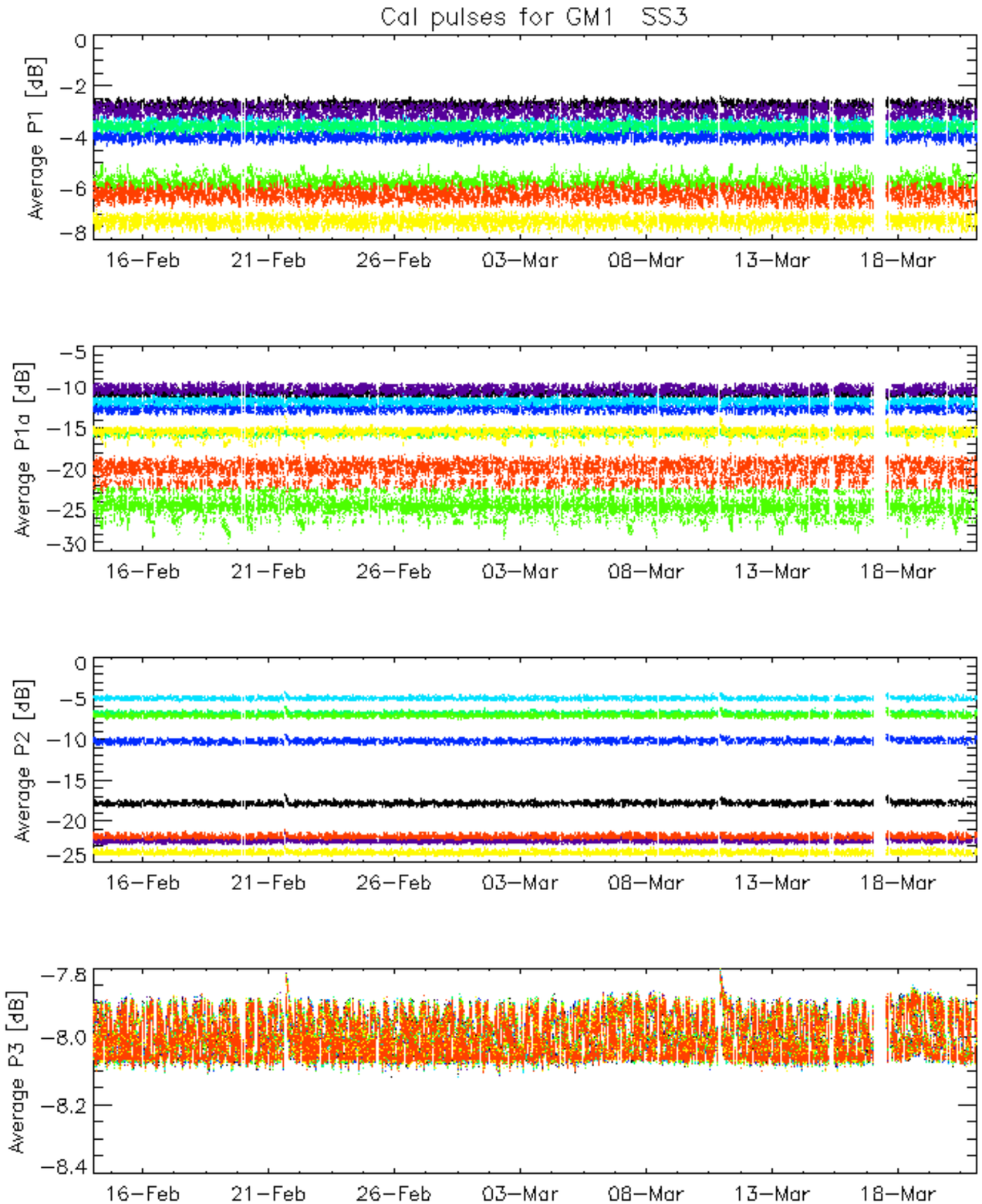
Evolution of Absolute Doppler
Acsending
Descending

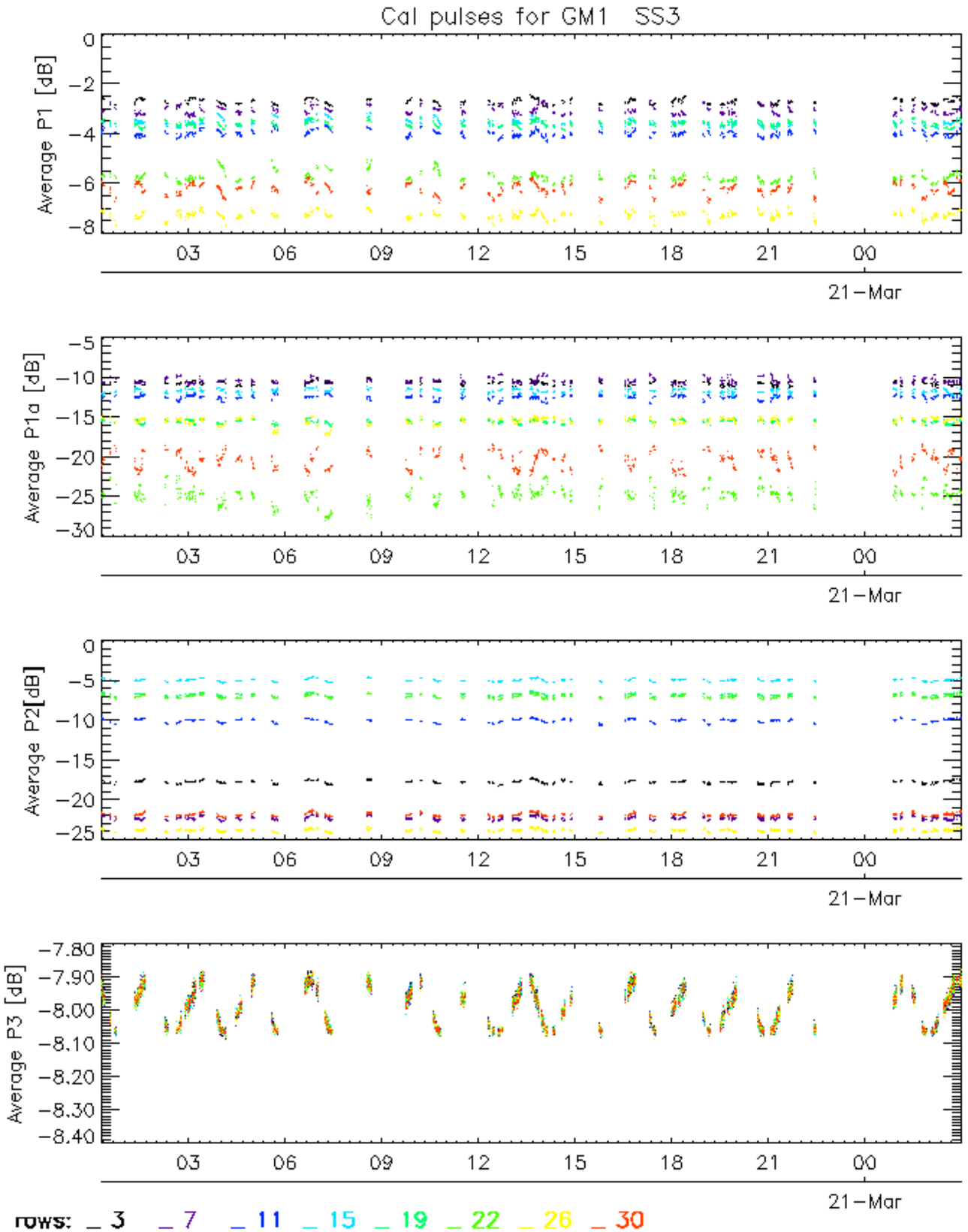
7.6 - Doppler evolution versus ANX for GM1

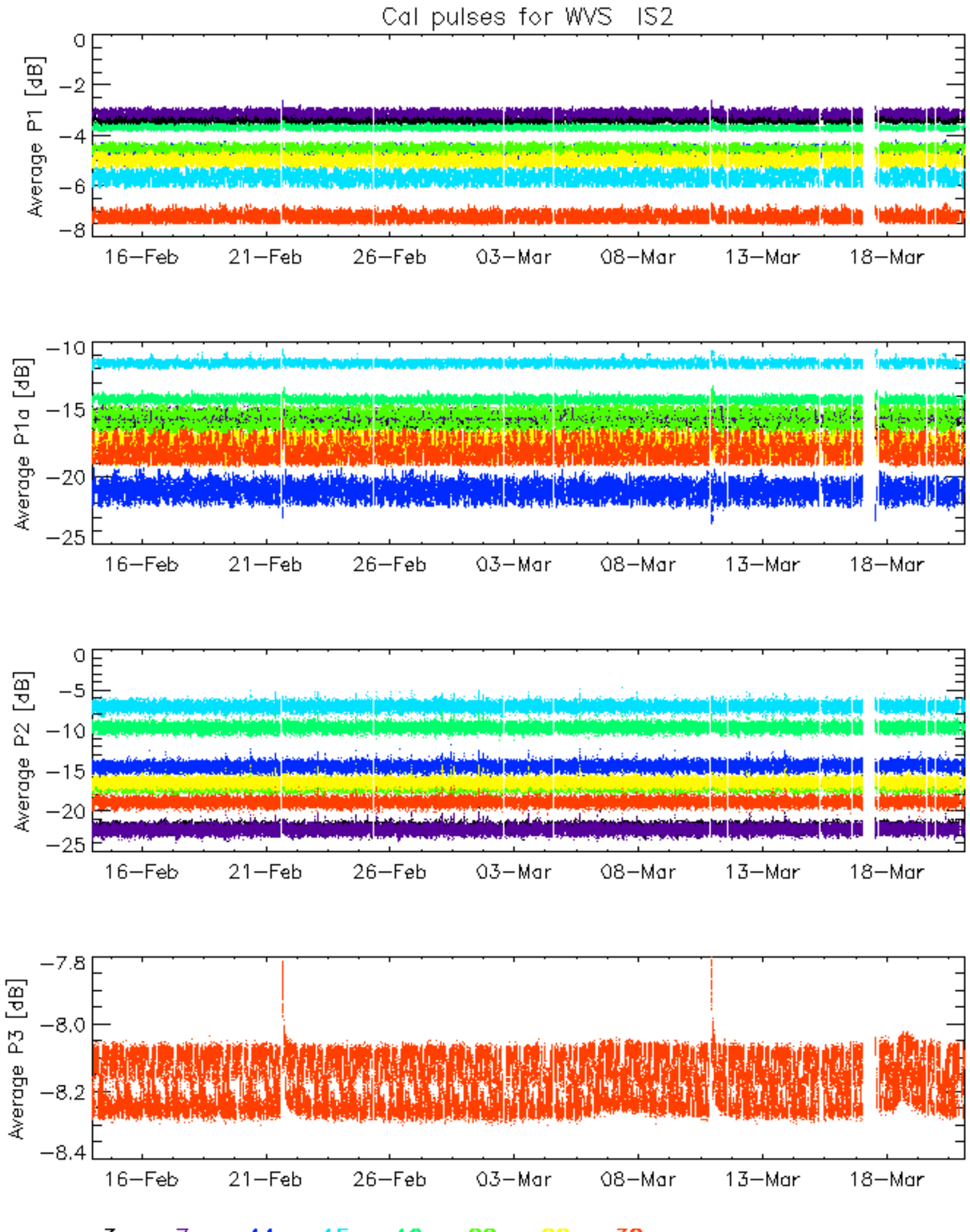
Evolution Doppler error versus ANX

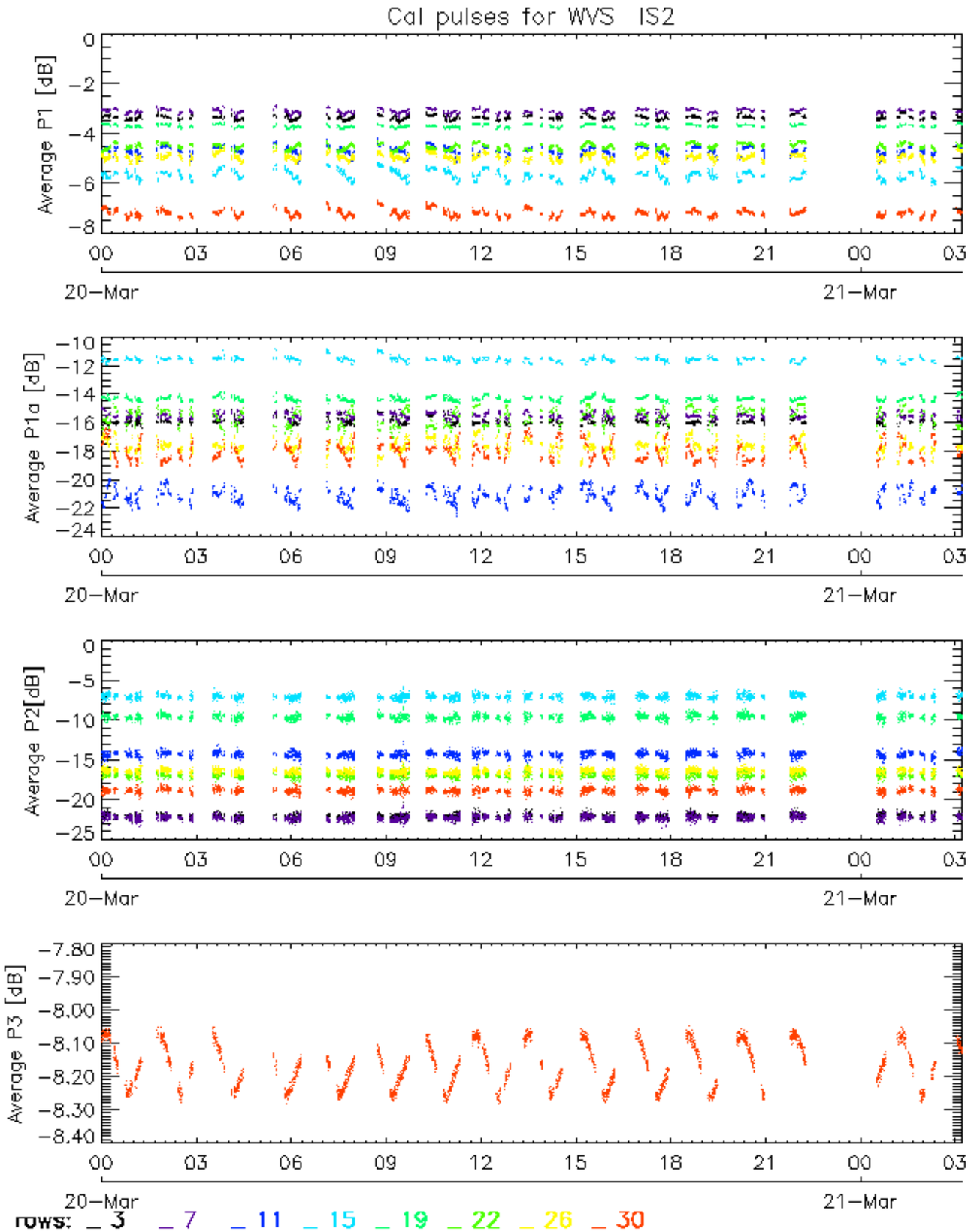

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
21−Mar
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Cal pulses for GM1 SS3
Phase P1 [deg]
200
100
0
−100
−200
Phase P1a [deg]
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
−24
Phase P1 [deg]
200
100
0
−100
−200
Phase P1a [deg]
00
03
06
09
12
15
18
21
20−Mar
21−Mar
rows: 3 7 11 15 19 22 26 30


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

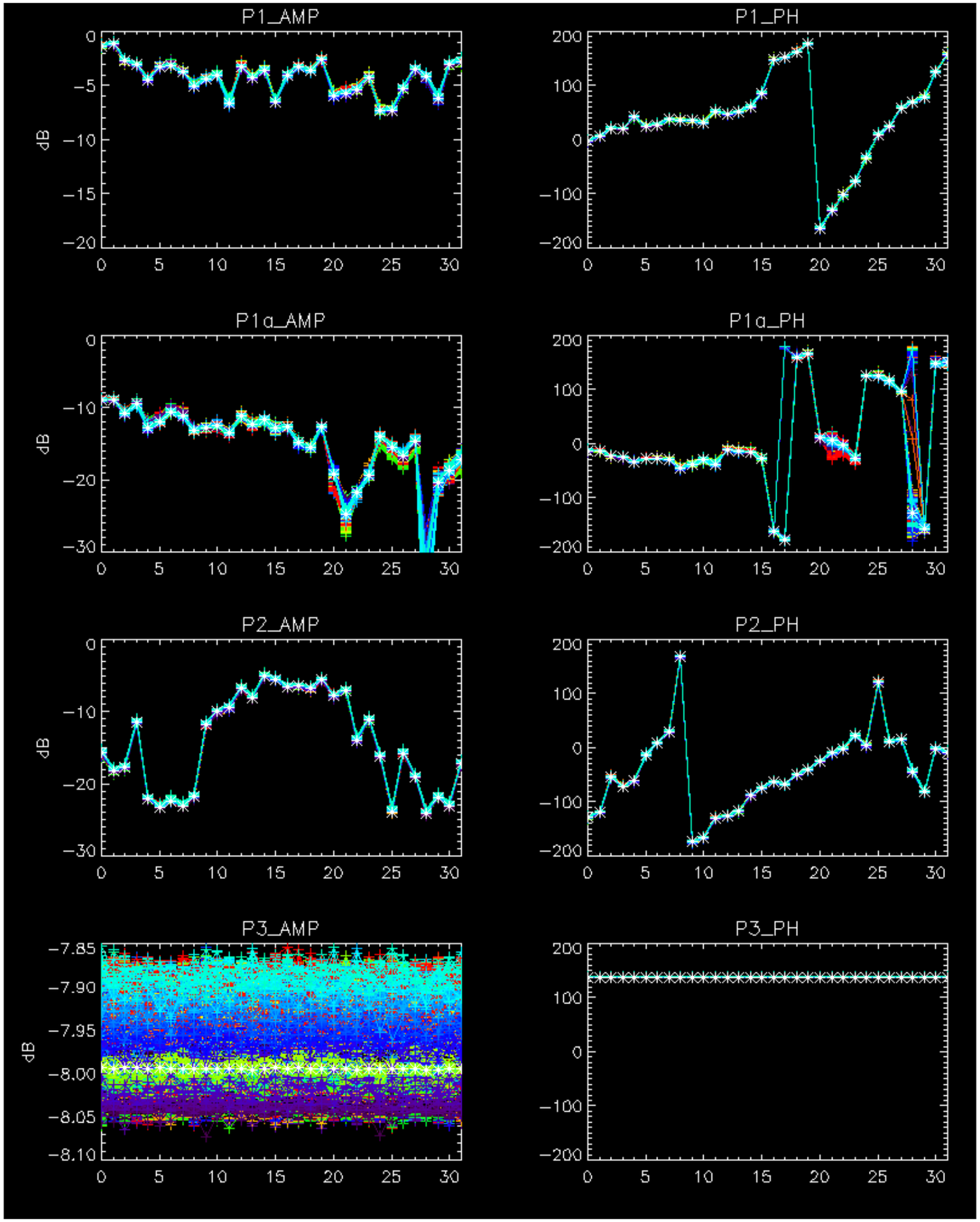

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
21−Mar
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

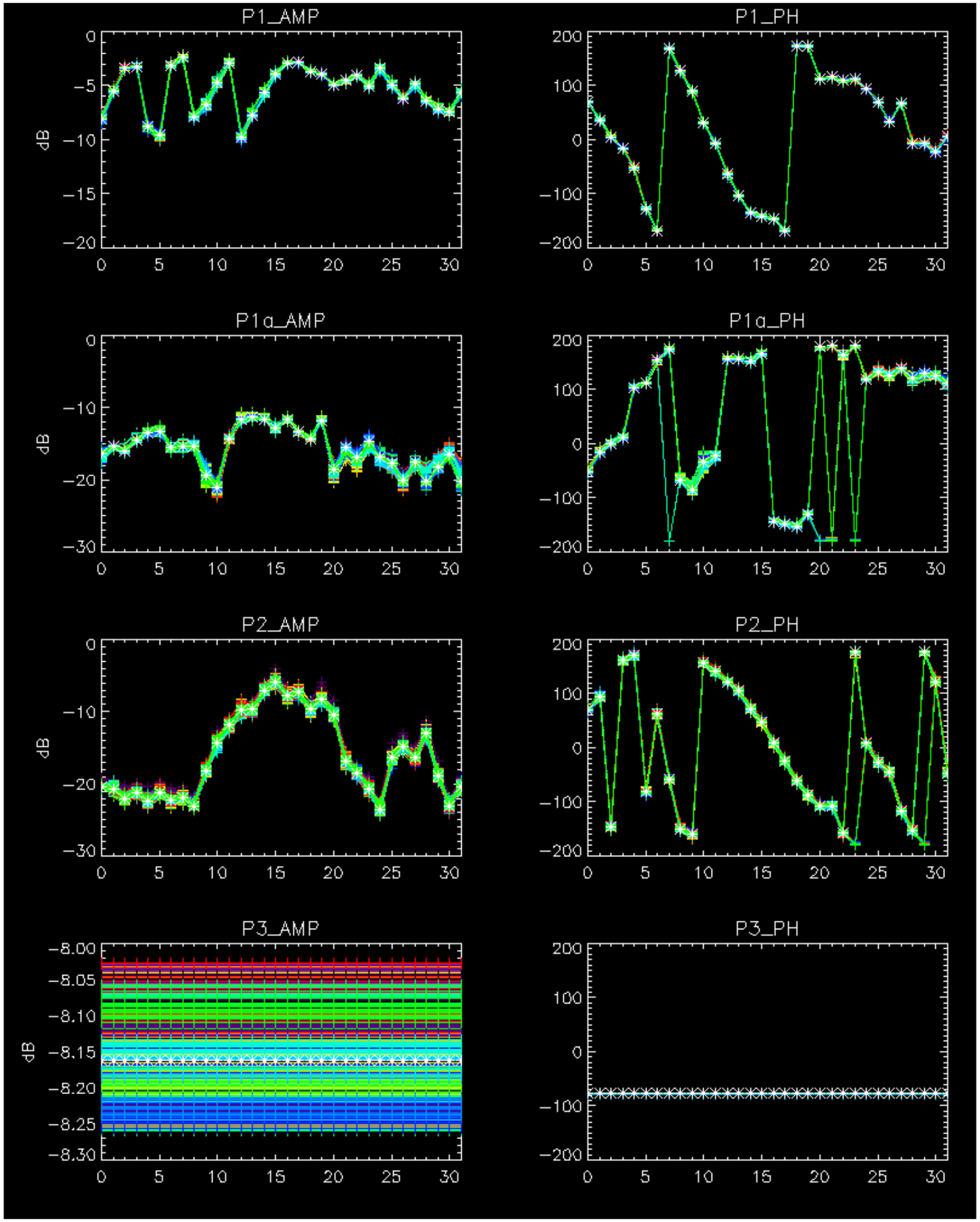

Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
16−Feb
21−Feb
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
Average P1a [dB]
−10
−15
−20
−25
Average P2 [dB]
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
00
03
06
09
12
15
18
21
00
03
20−Mar
21−Mar
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
−24
Average P2[dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: 3 7 11 15 19 22 26 30

No anomalies observed from browse visual inspection.

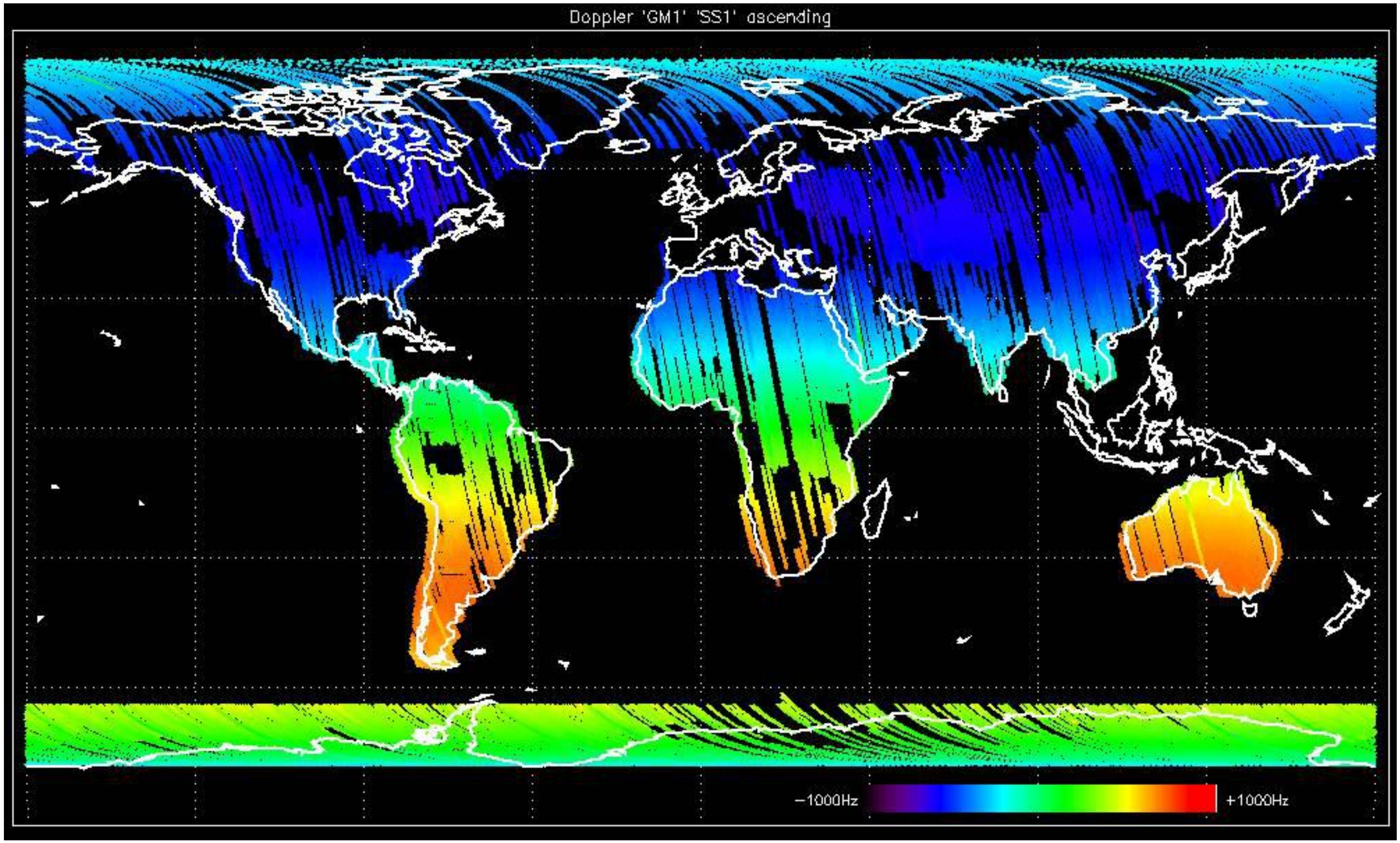
No anomalies observed.

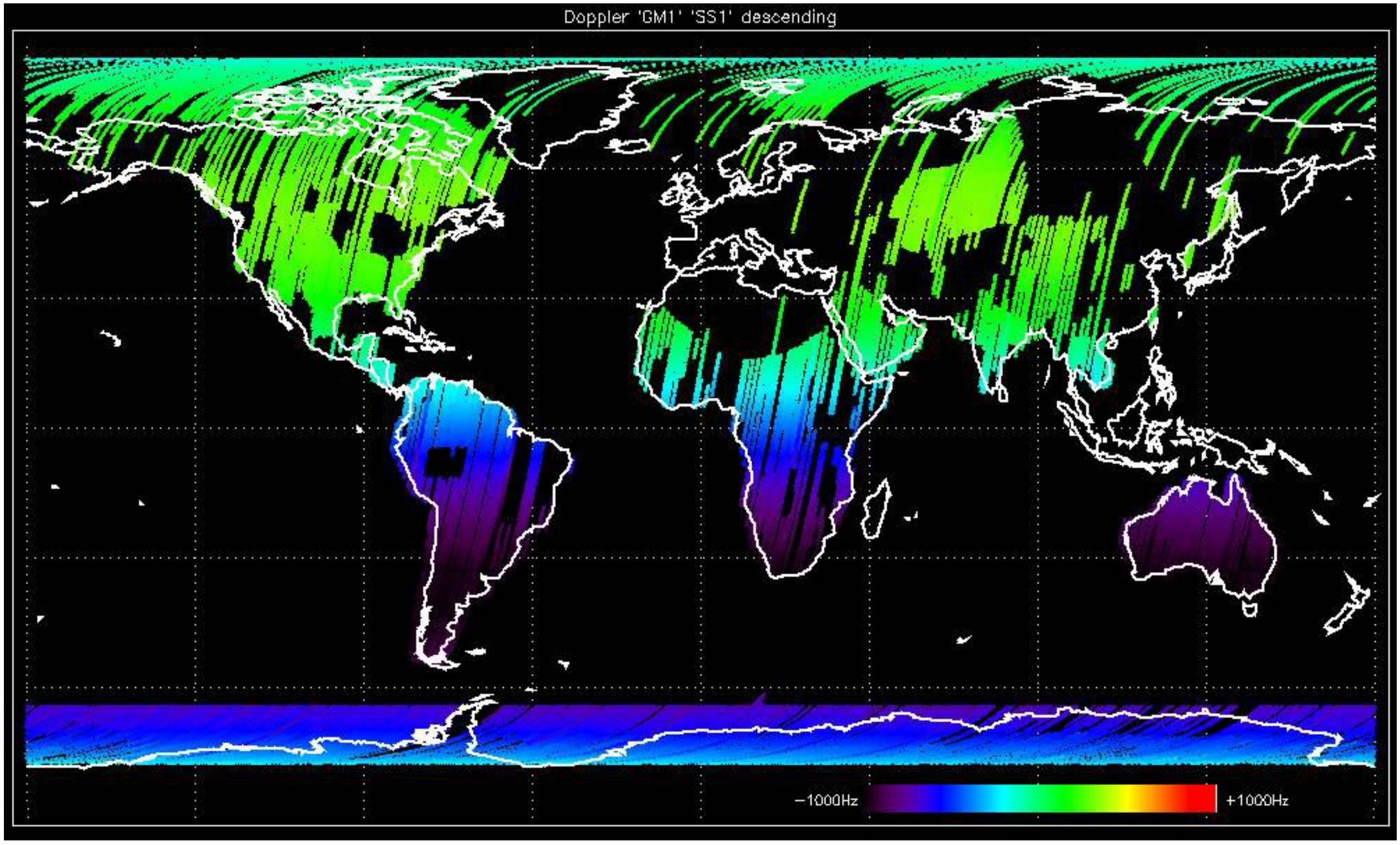

P1_AMP
dB
0
−5
−10
−15
−20
0 5 10 15 20 25 30
P1_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P1a_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P1a_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P2_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P2_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P3_AMP
dB
−7.85
−7.90
−7.95
−8.00
−8.05
−8.10
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30

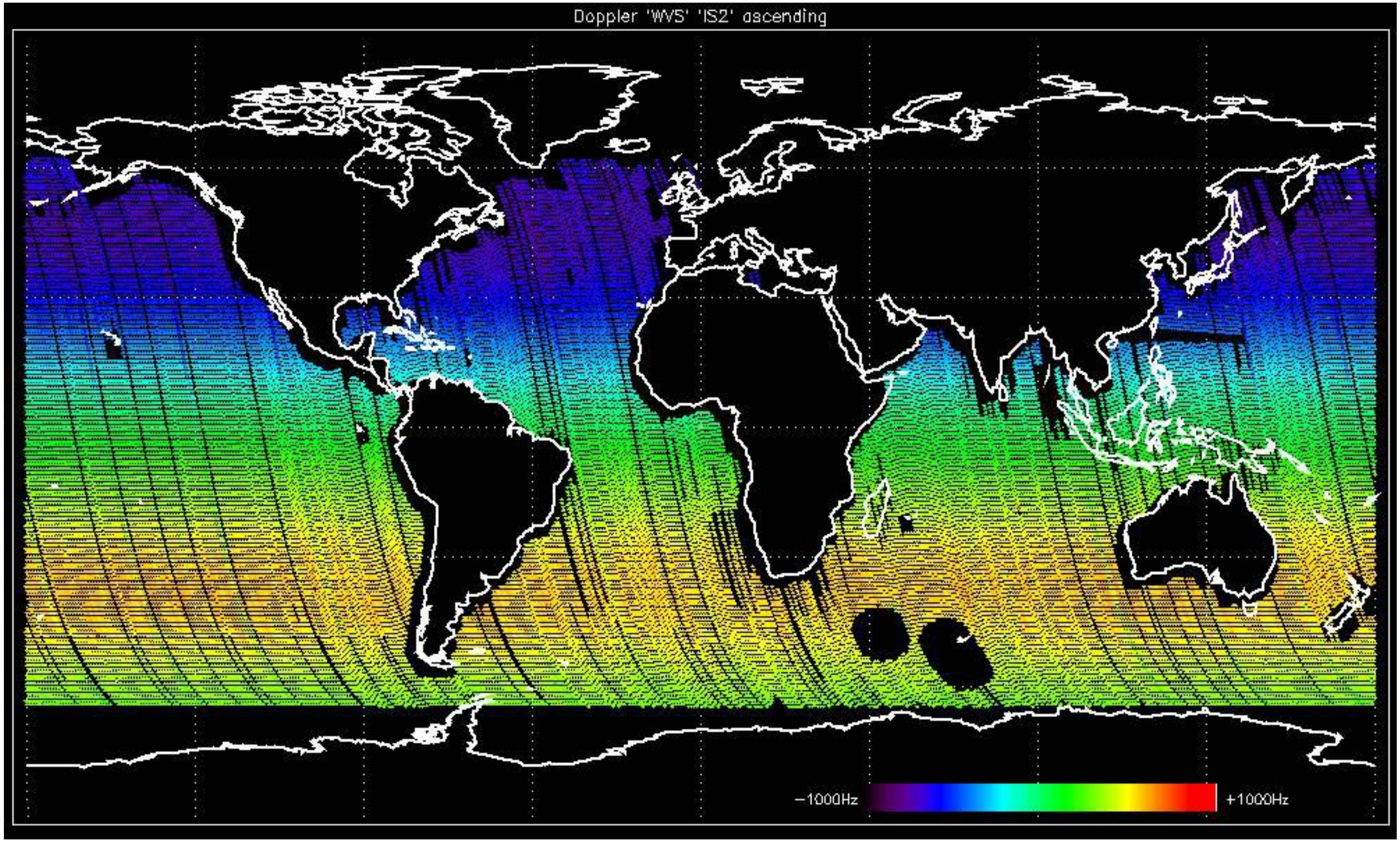

P1_AMP
dB
0
−5
−10
−15
−20
0 5 10 15 20 25 30
P1_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P1a_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P1a_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P2_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P2_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P3_AMP
dB
−8.00
−8.05
−8.10
−8.15
−8.20
−8.25
−8.30
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30

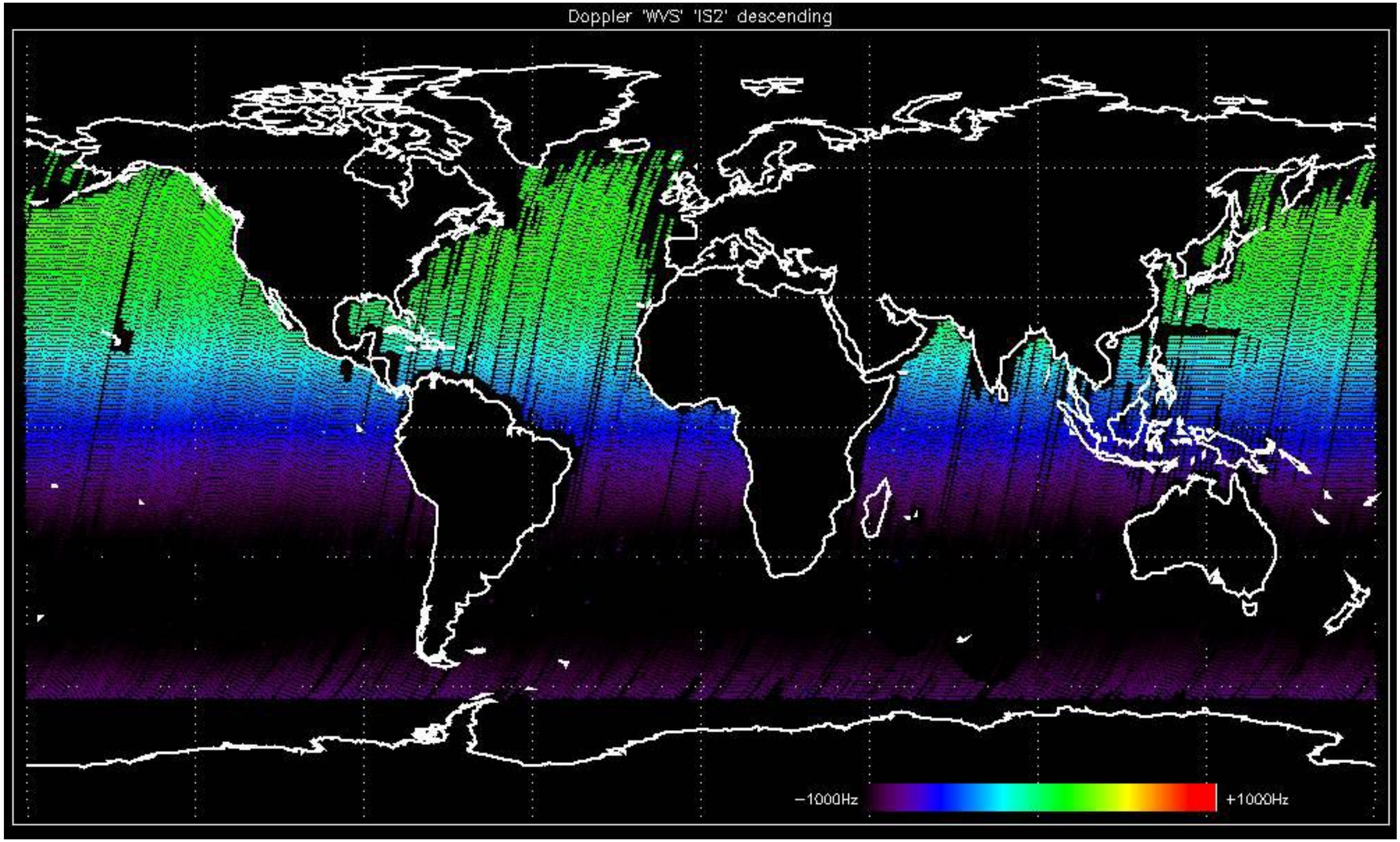
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

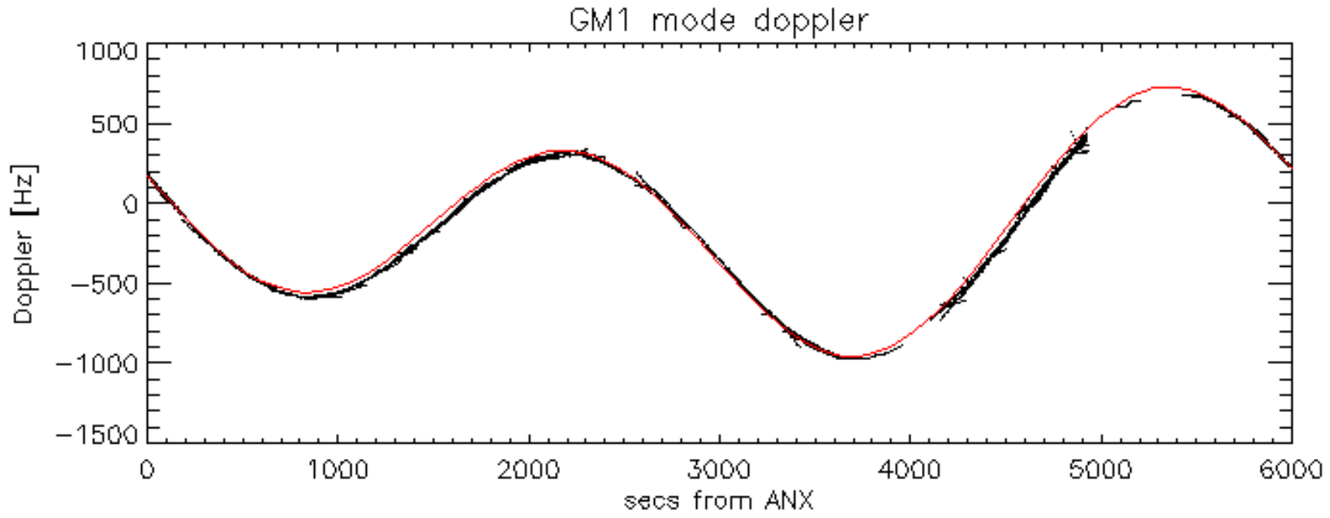
No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

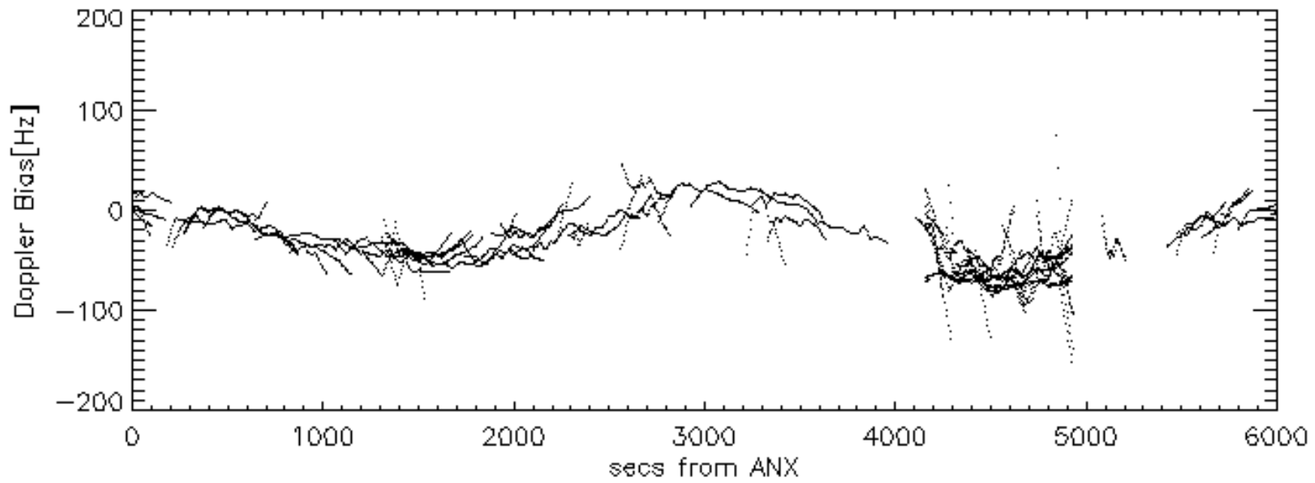

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

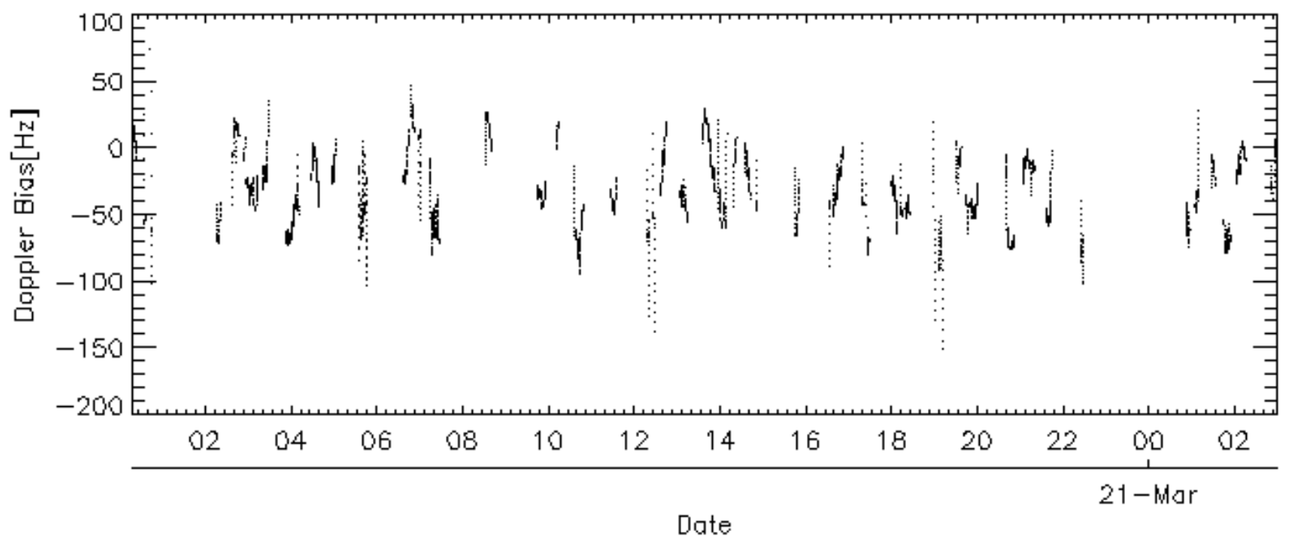

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

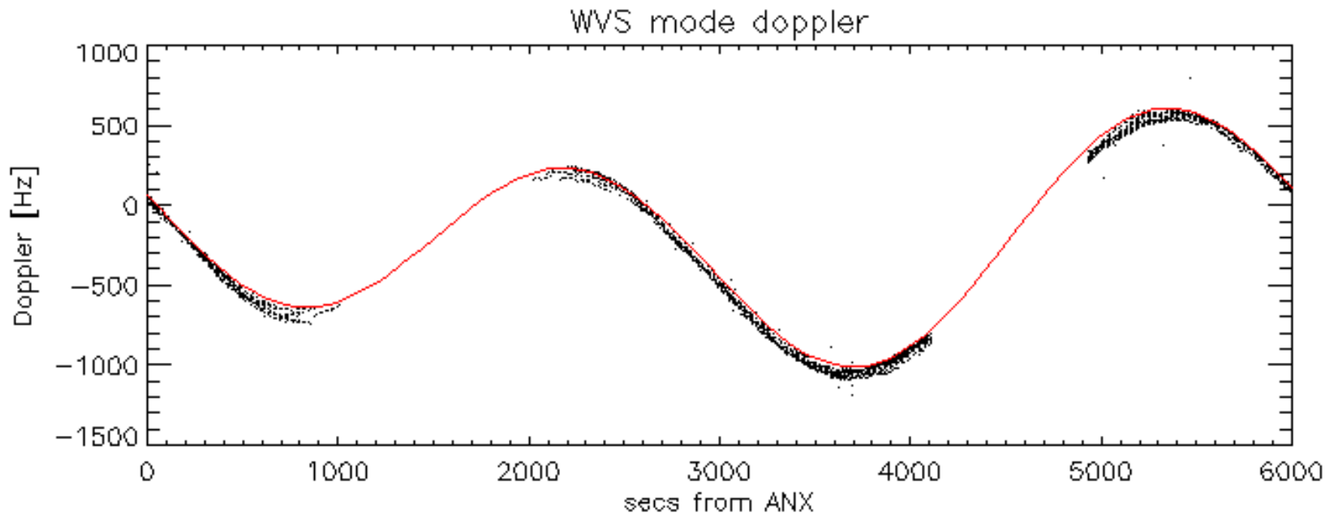

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

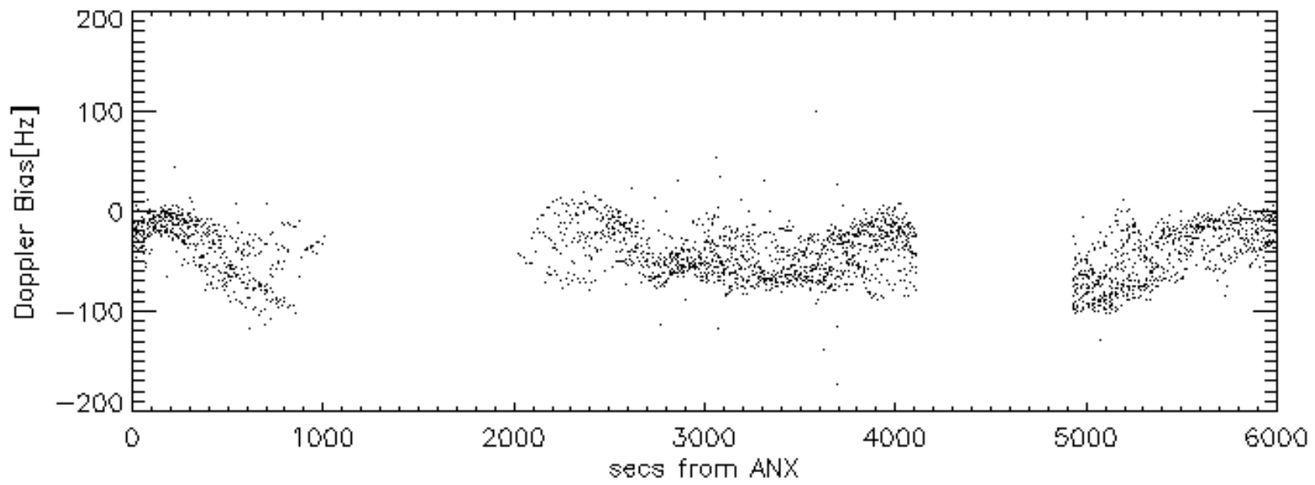

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

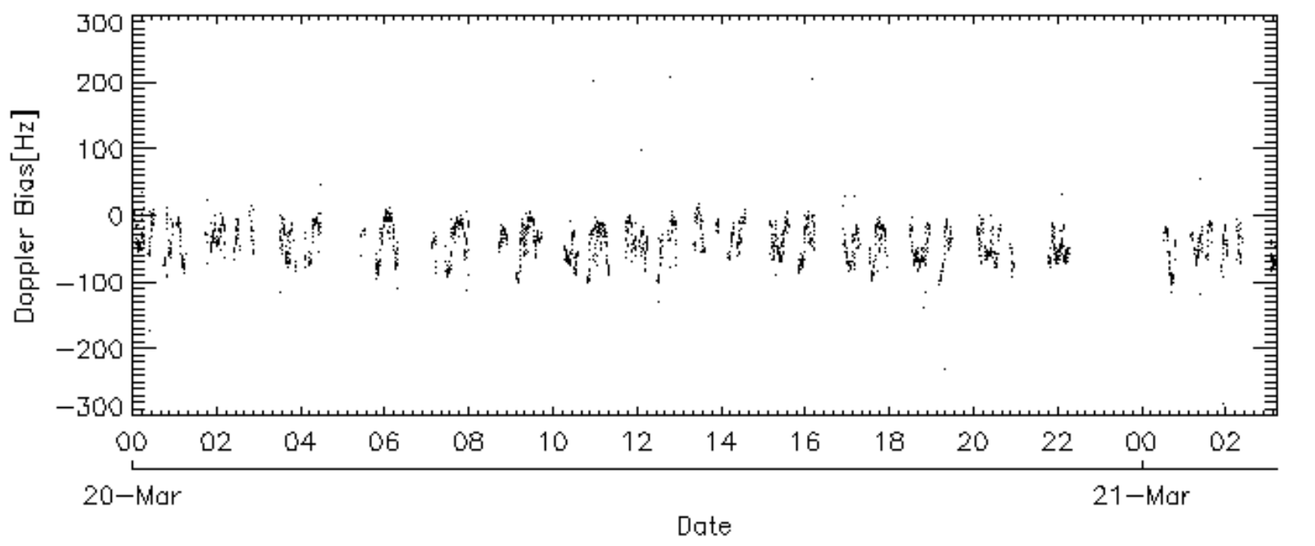

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

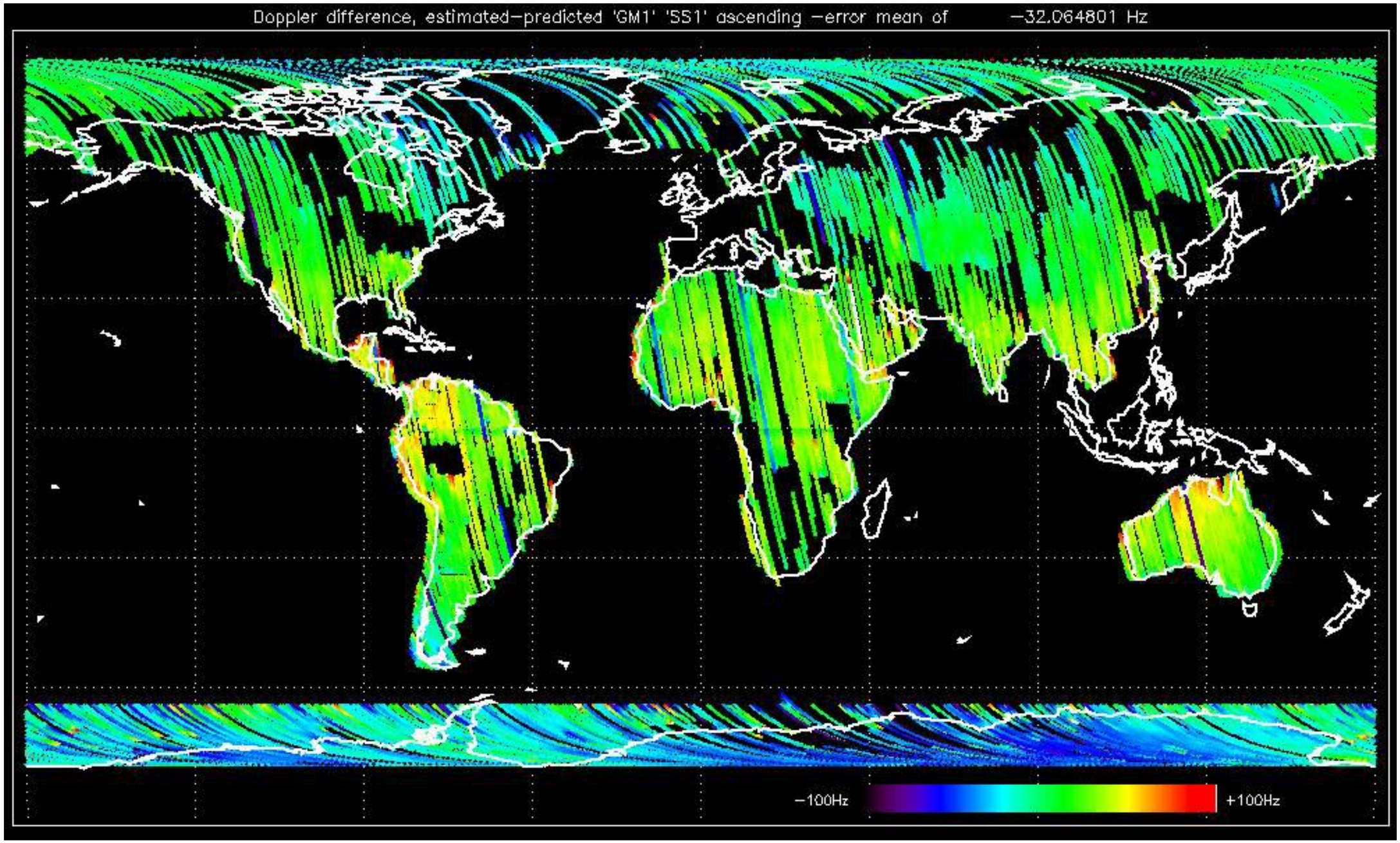

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

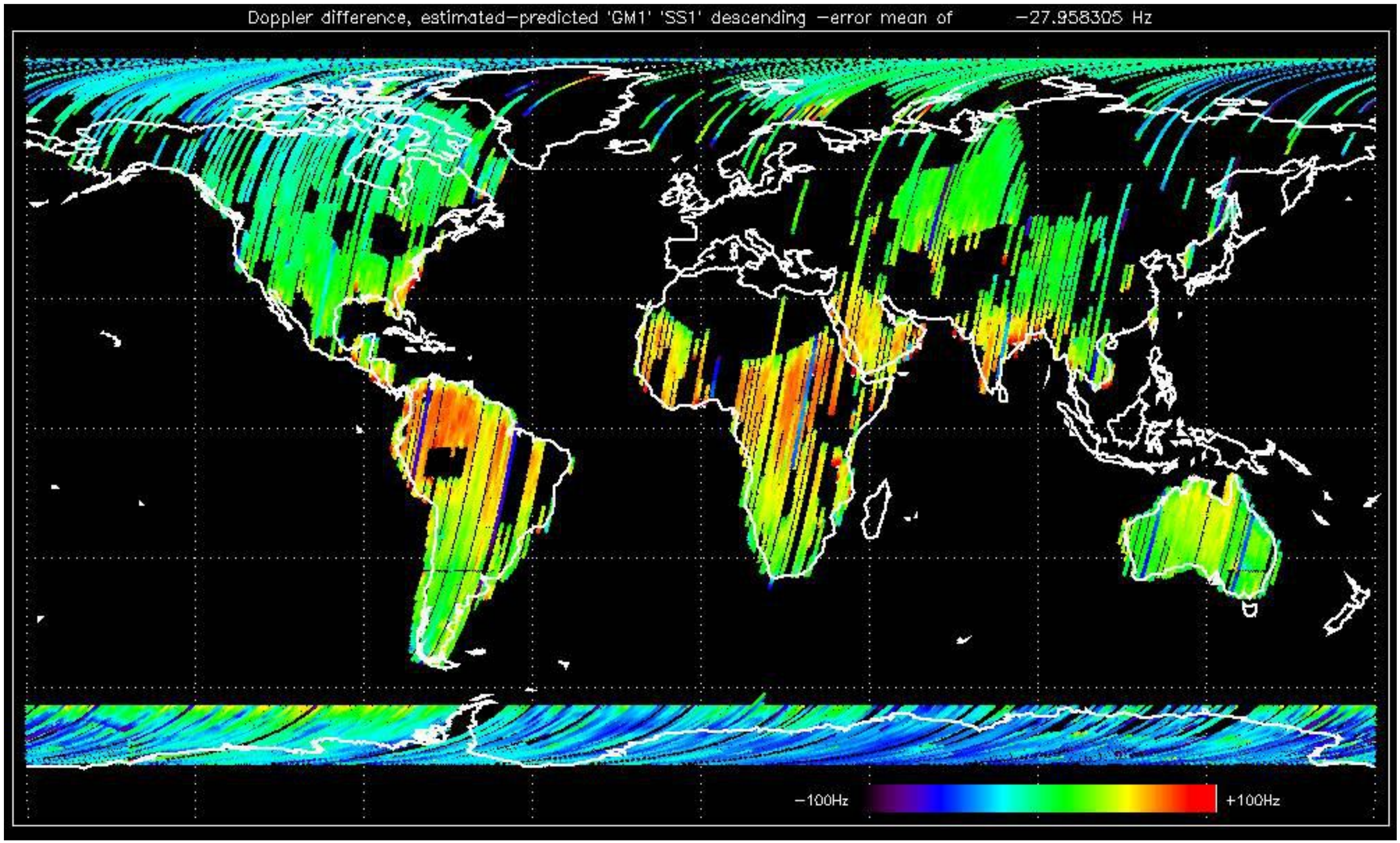

Doppler Bias[Hz]
100
50
0
−50
−100
−150
−200
02
04
06
08
10
12
14
16
18
20
22
00
02
21−Mar
Date

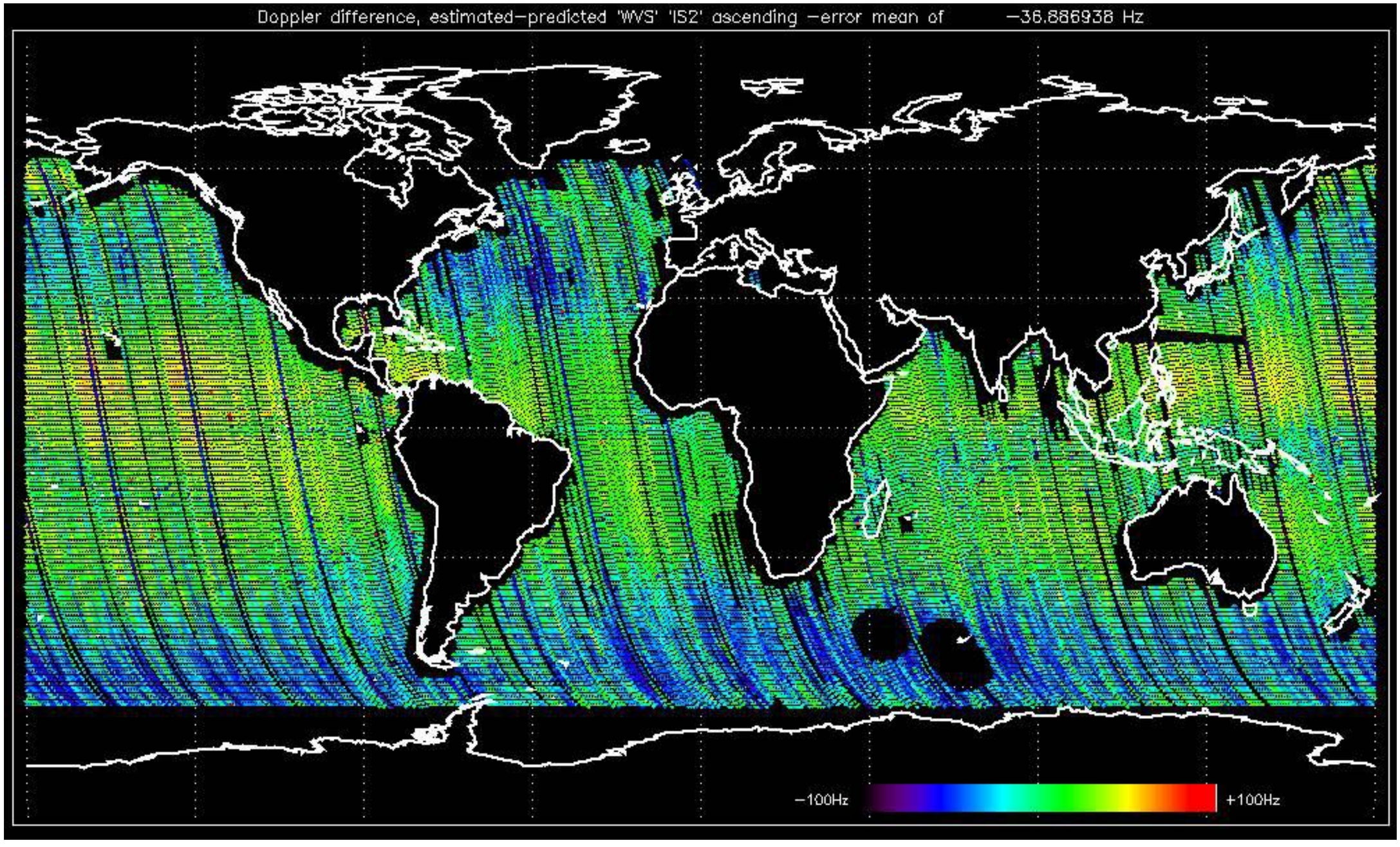

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

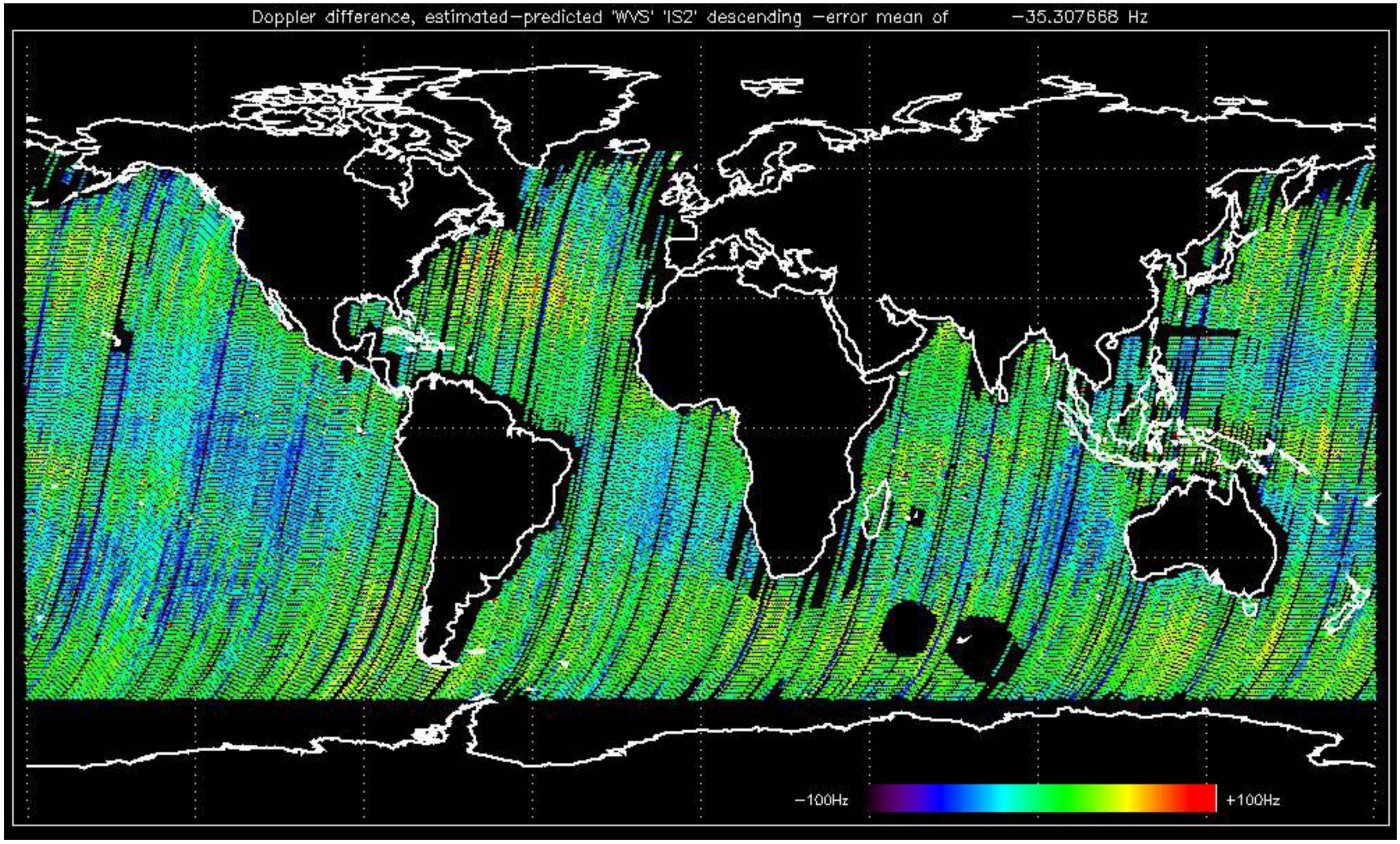

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


Doppler Bias[Hz]
300
200
100
0
−100
−200
−300
00
02
04
06
08
10
12
14
16
18
20
22
00
02
20−Mar
21−Mar
Date


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −32.064801 Hz
−100Hz
+100Hz

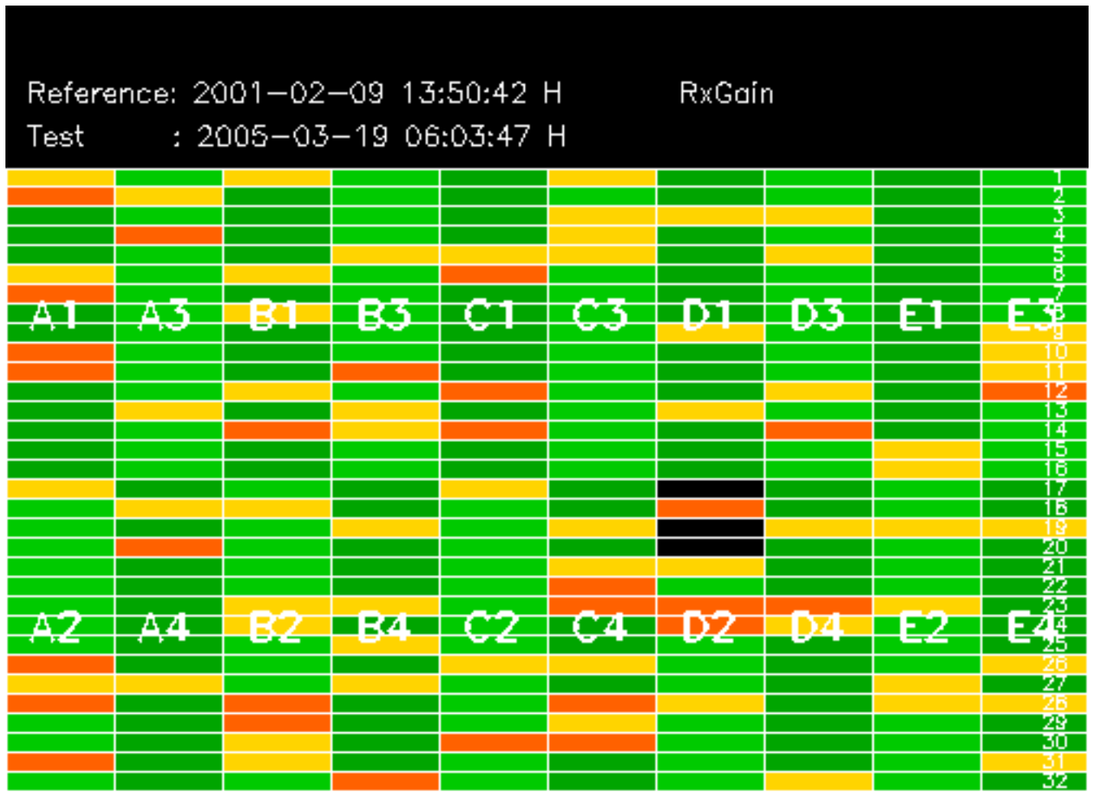

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -27.958305 Hz
-100Hz
+100Hz

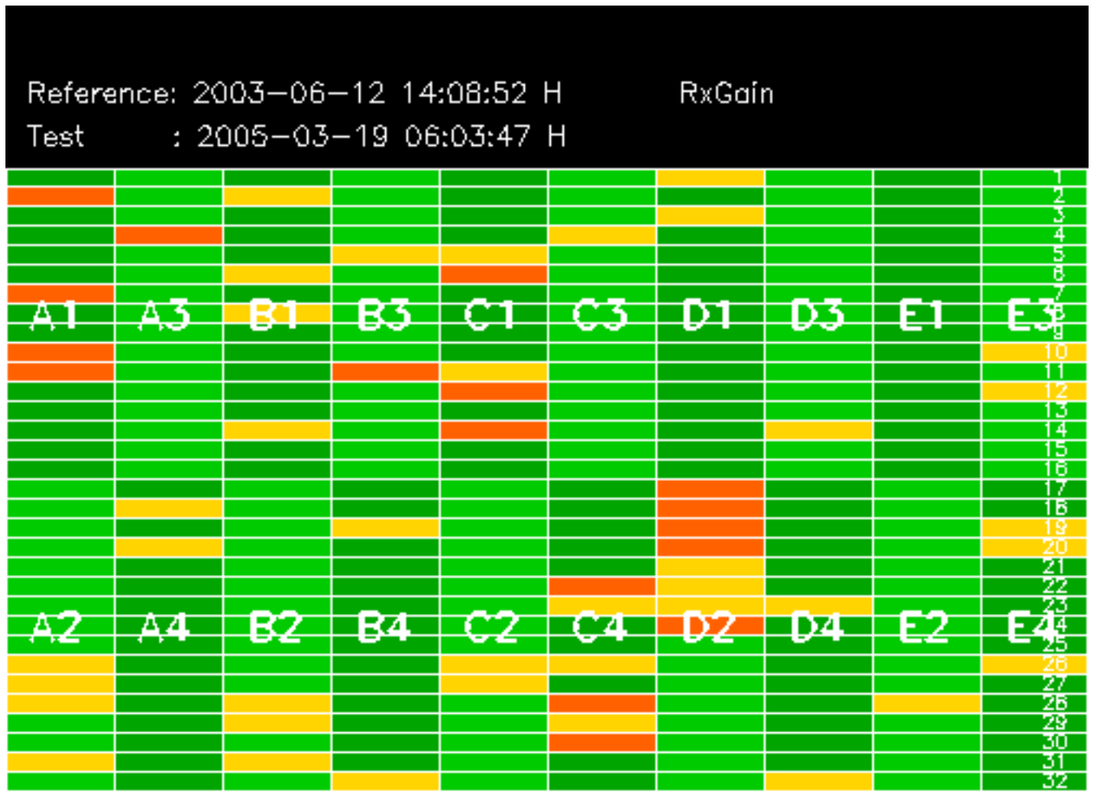

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −36.886938 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −35.307668 Hz
−100Hz
+100Hz

No anomalies observed on available MS products:

No anomalies observed.


Reference: 2001-02-09 13:50:42 H
Test : 2005-03-19 06:03:47 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32


Reference: 2003-06-12 14:08:52 H
Test : 2005-03-19 06:03:47 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
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20
21
22
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26
27
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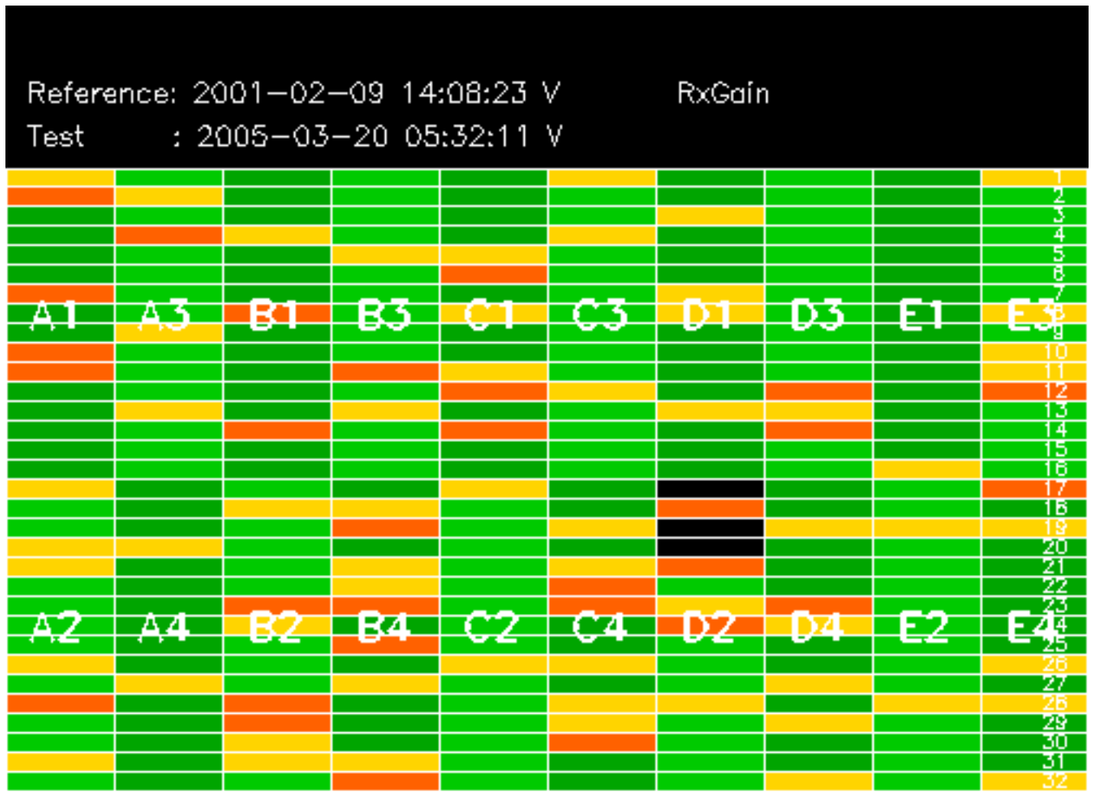
29
30
31
32


Reference: 2001-02-09 14:08:23 V
Test : 2005-03-20 05:32:11 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
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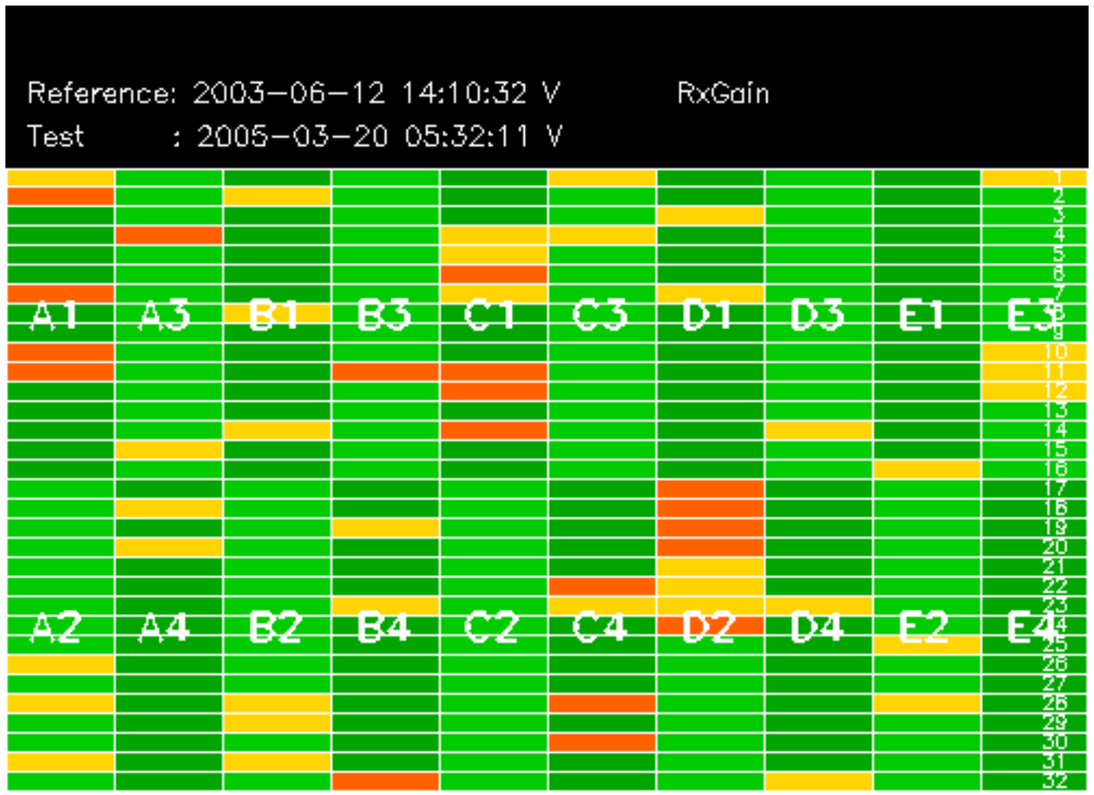
21
22
23
24
25
26
27
28
29
30
31
32


Reference: 2003-06-12 14:10:32 V
Test : 2005-03-20 05:32:11 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
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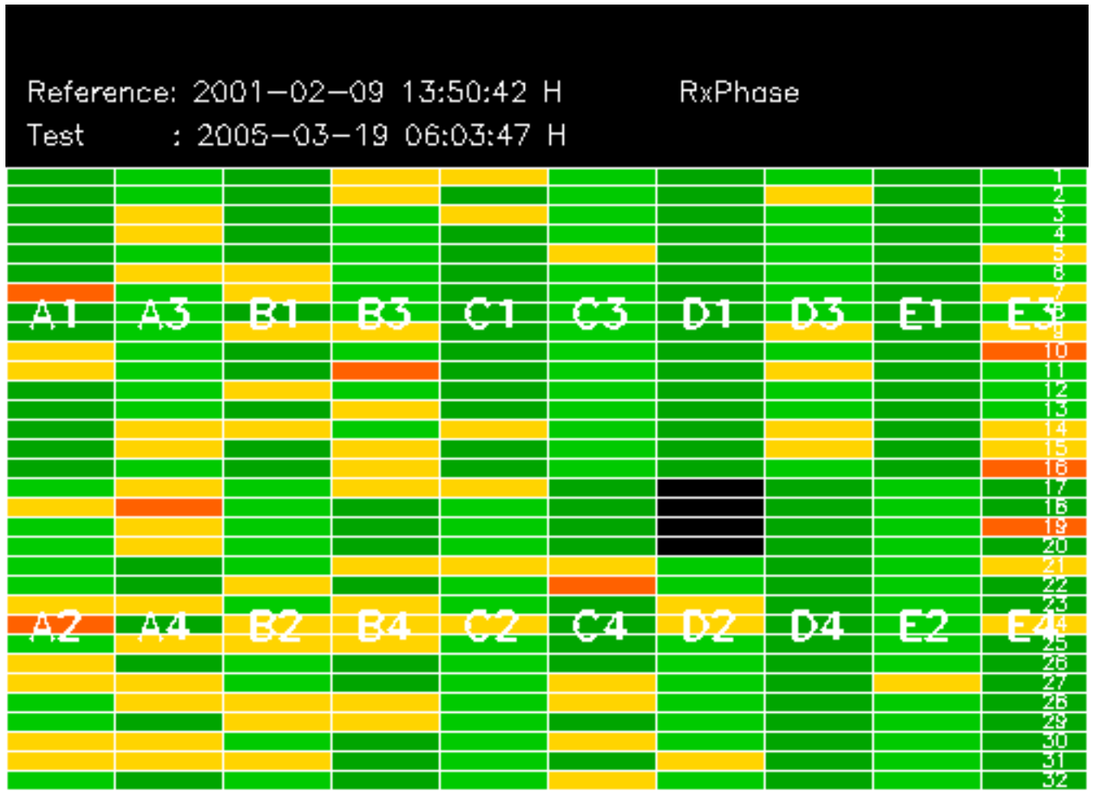
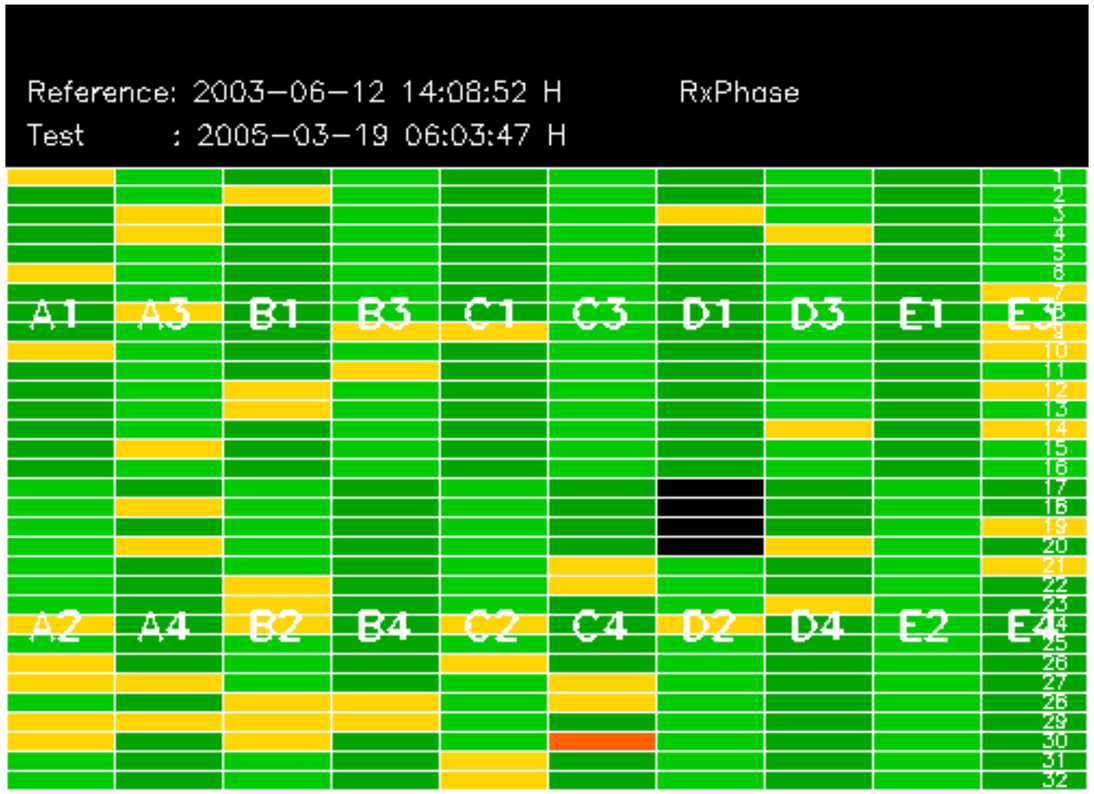
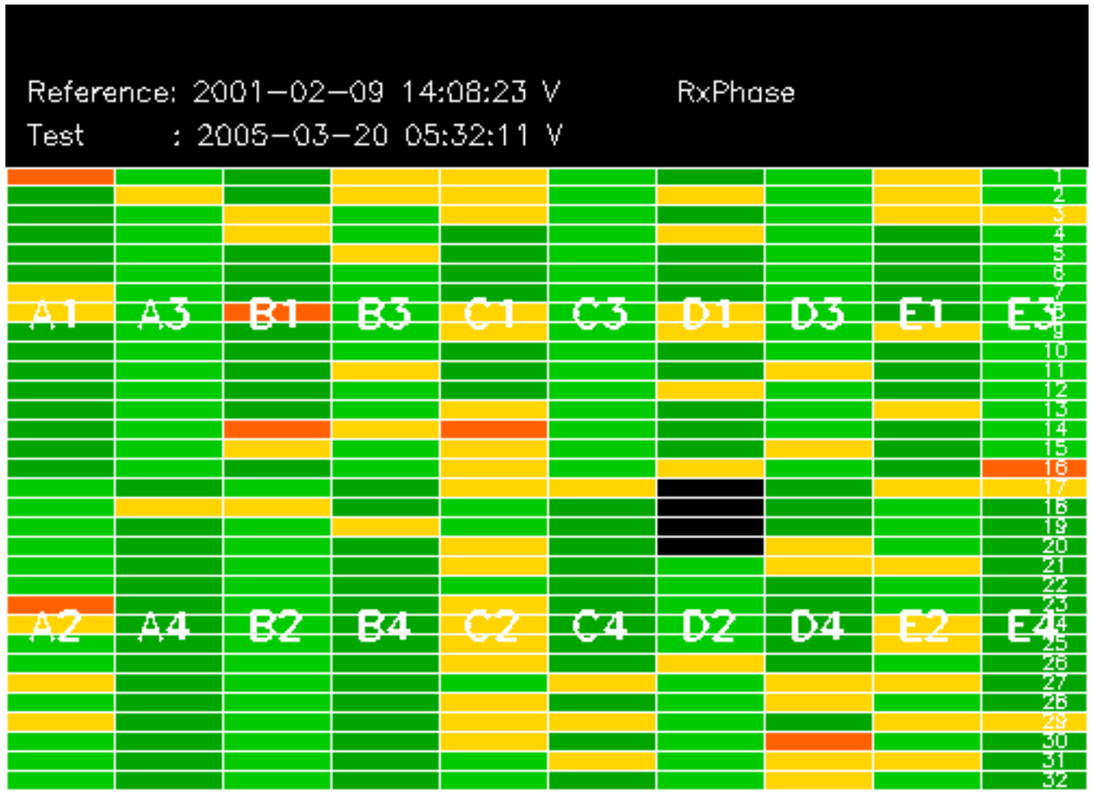
26
27
28
29
30
31
32


Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-03-19 06:03:47 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:08:52 H
Test : 2005-03-19 06:03:47 H
RxPhase
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
Test : 2005-03-20 05:32:11 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
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14
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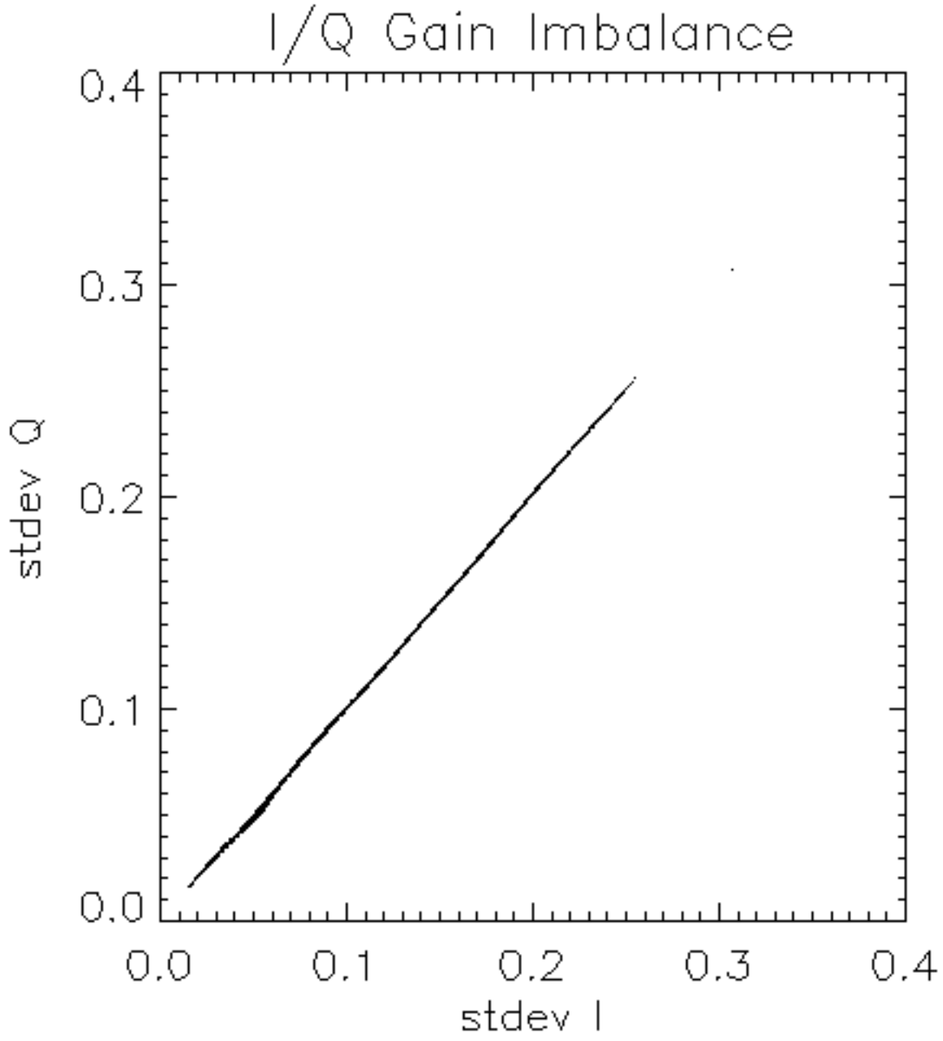
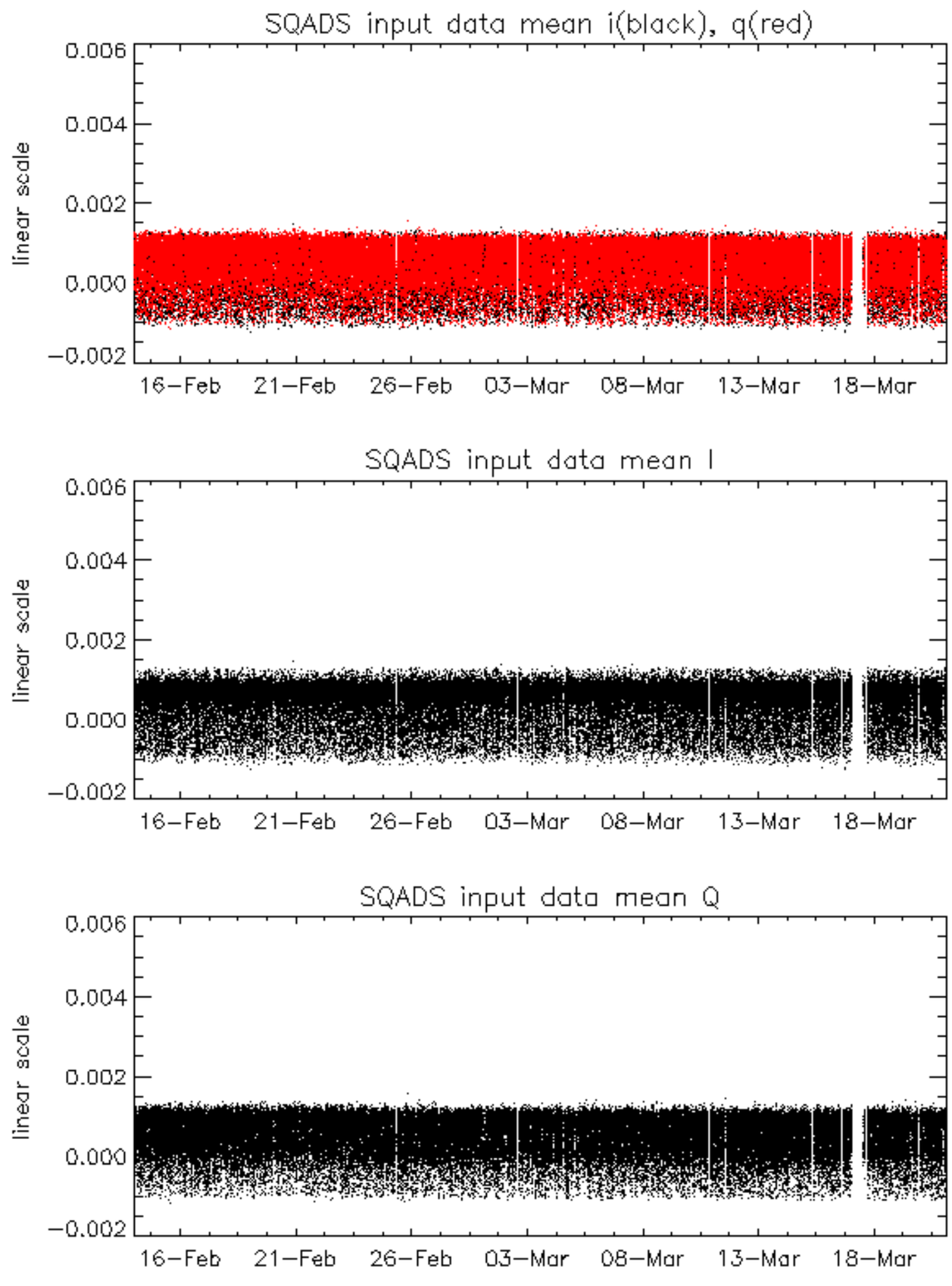
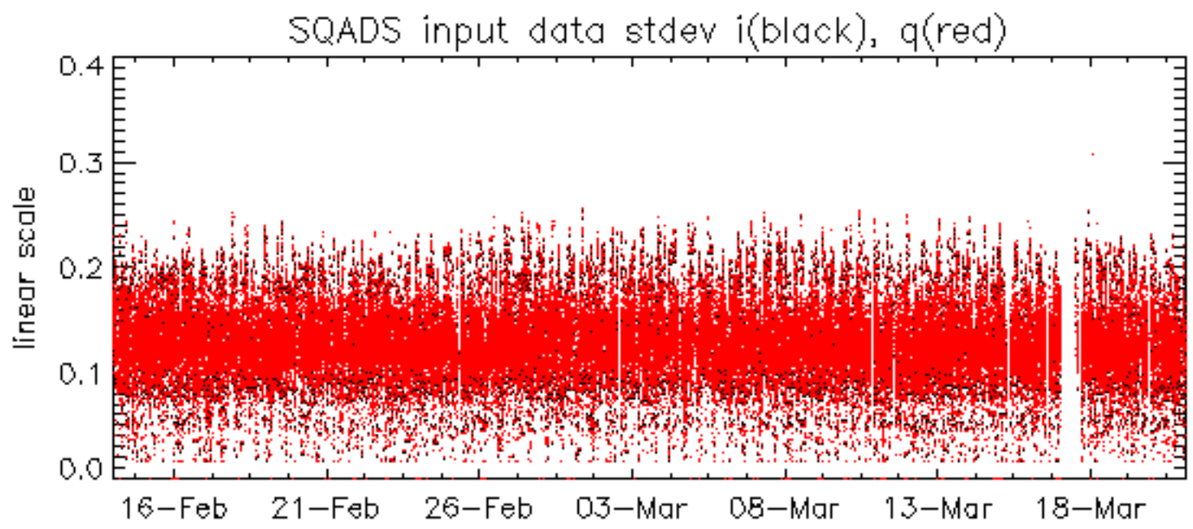
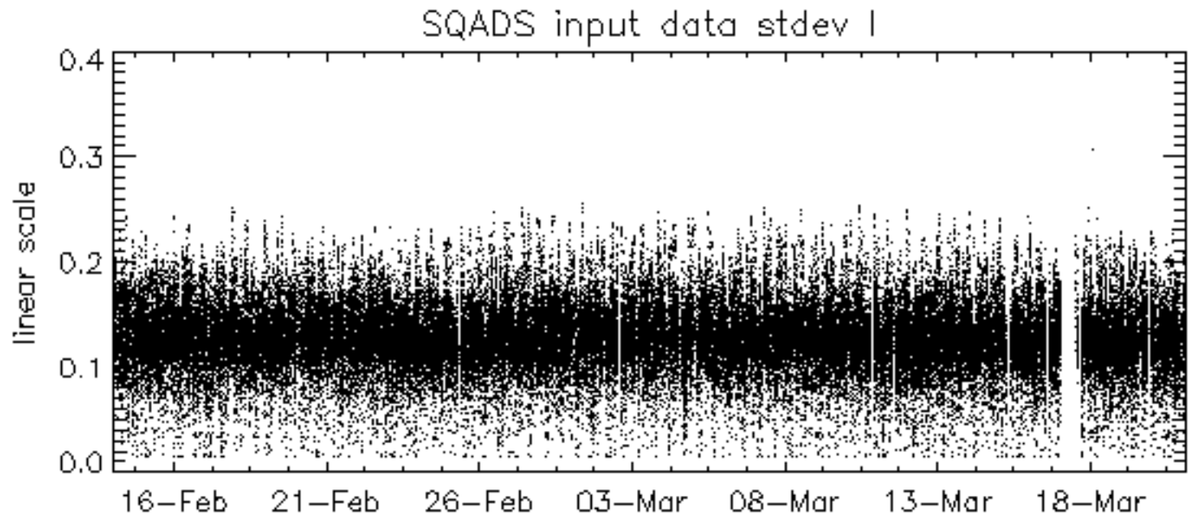
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

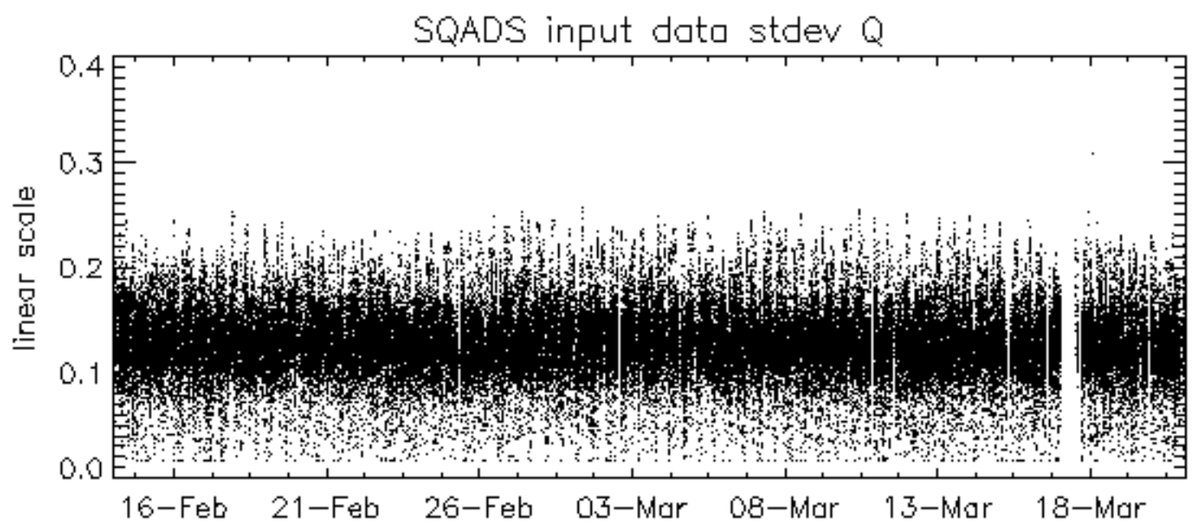

Reference: 2003-06-12 14:10:32 V
Test : 2005-03-20 05:32:11 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

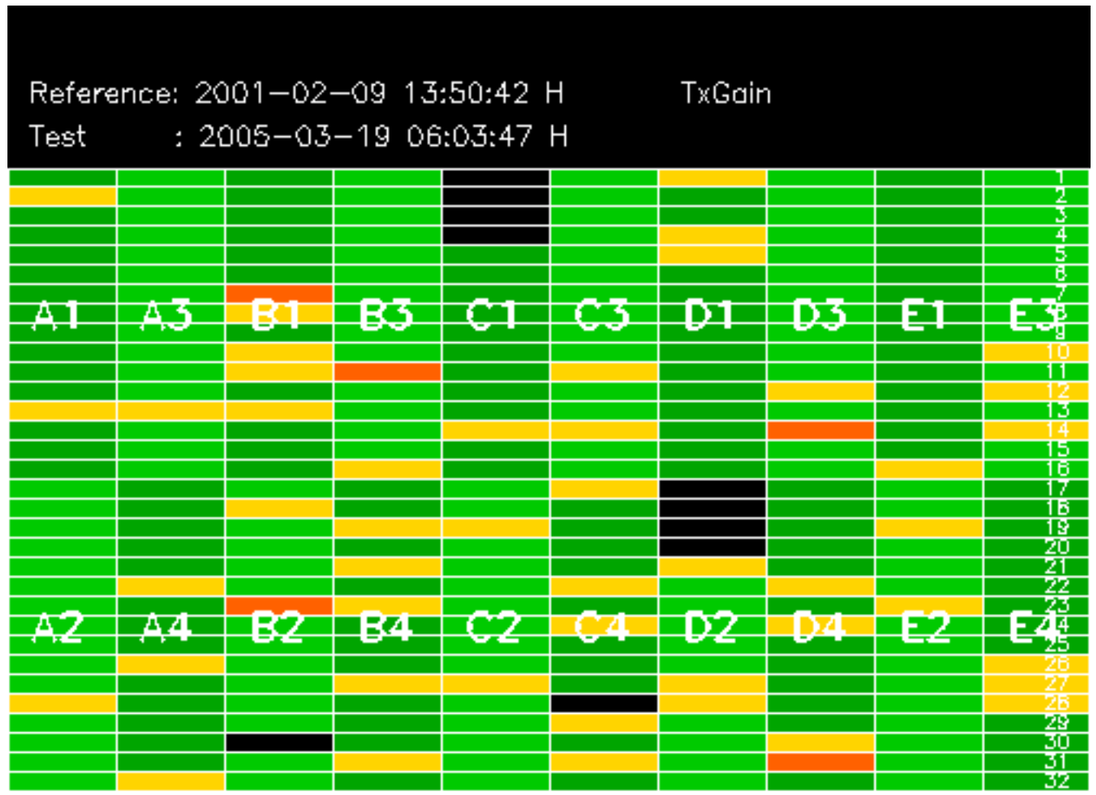

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

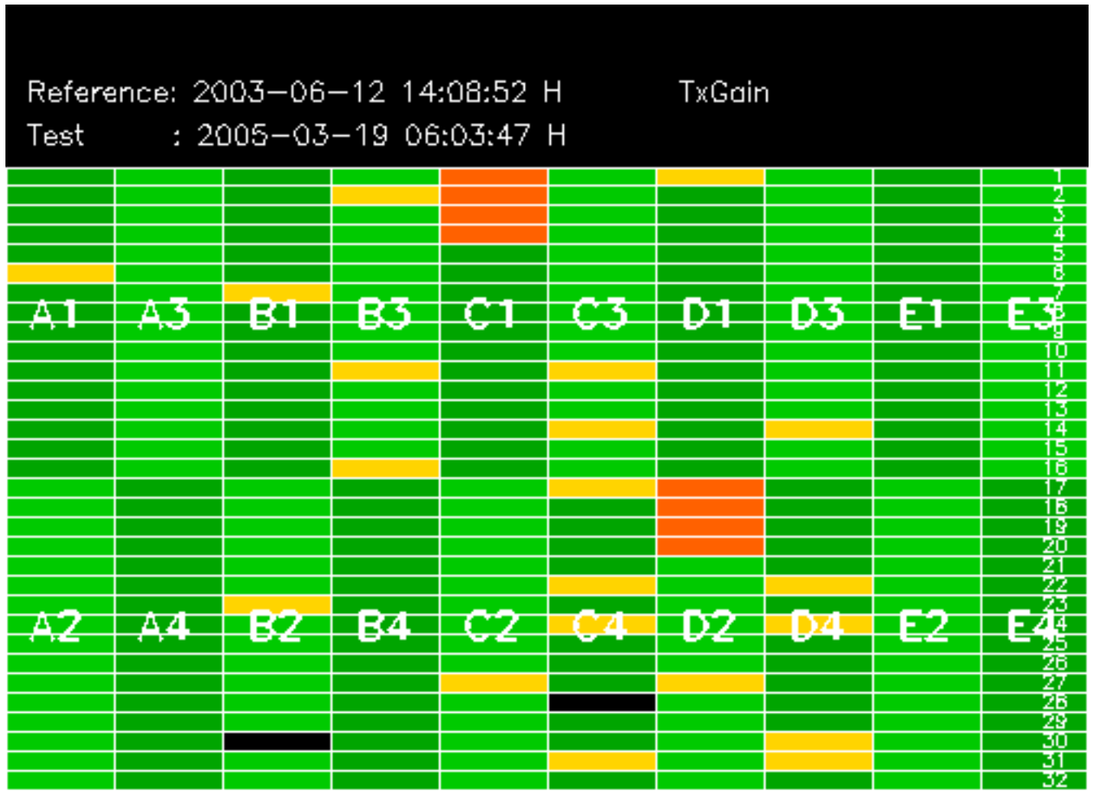

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Feb
21−Feb
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Feb
21−Feb
26−Feb
03−Mar
08−Mar
13−Mar
18−Mar
SQADS input data mean Q
linear scale
0.006
0.004
0.002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


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


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


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


Reference: 2001-02-09 13:50:42 H
Test : 2005-03-19 06:03:47 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:08:52 H
Test : 2005-03-19 06:03:47 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
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8
9
10
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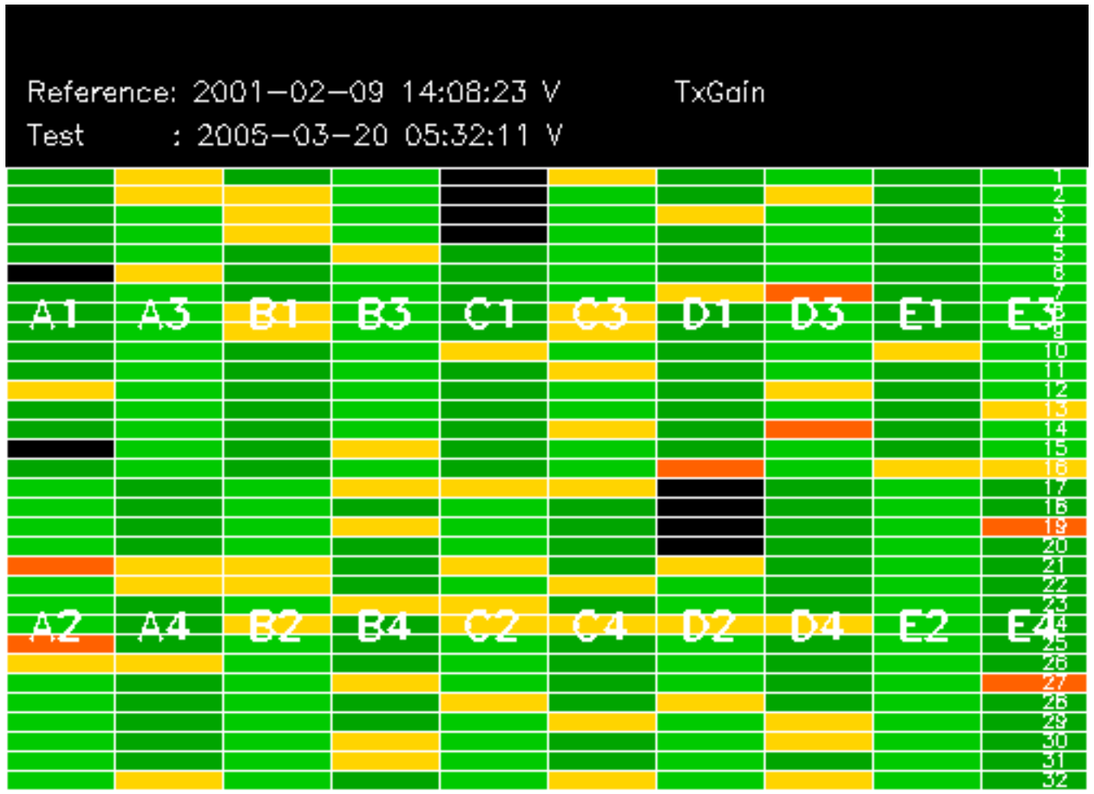
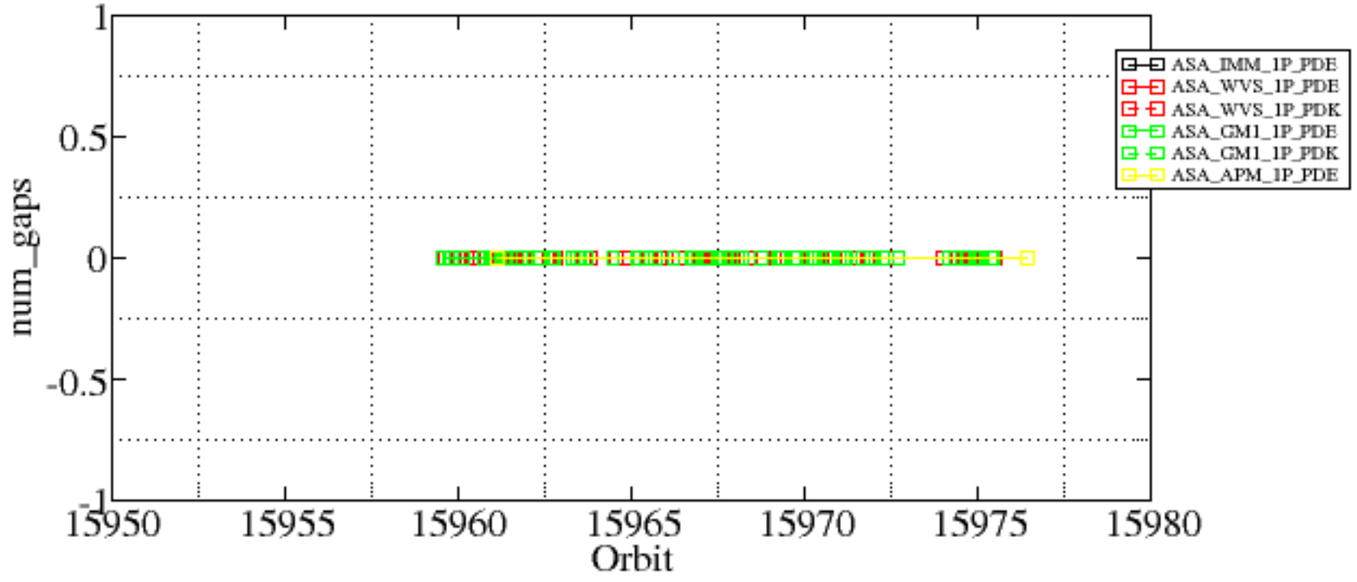
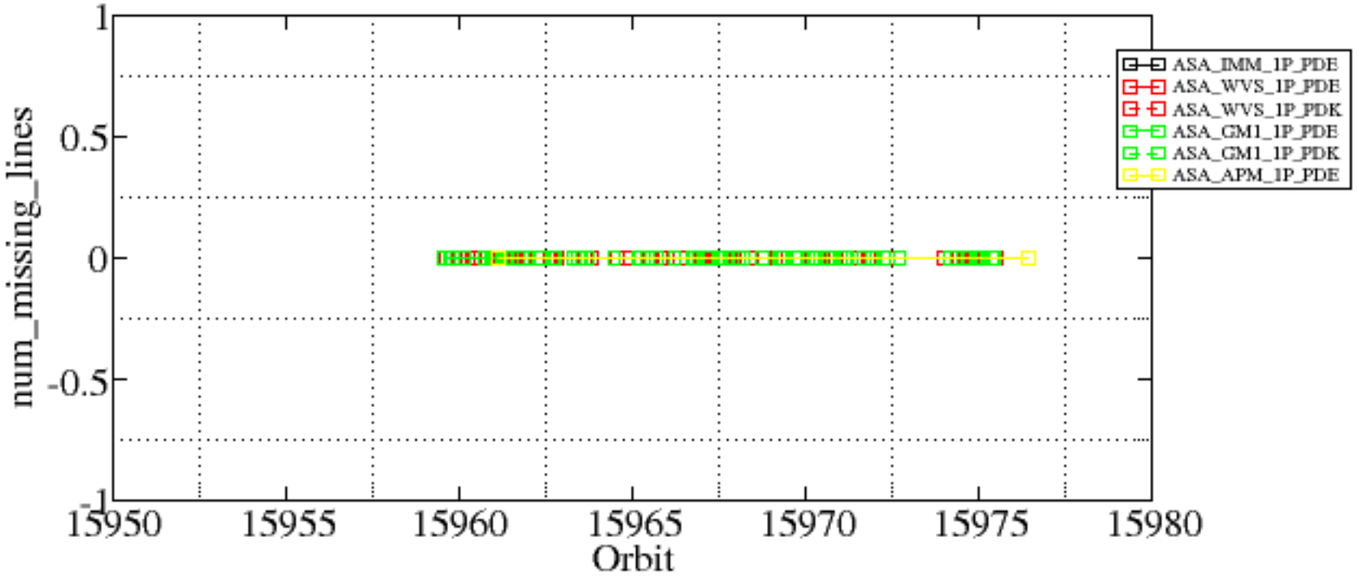
32

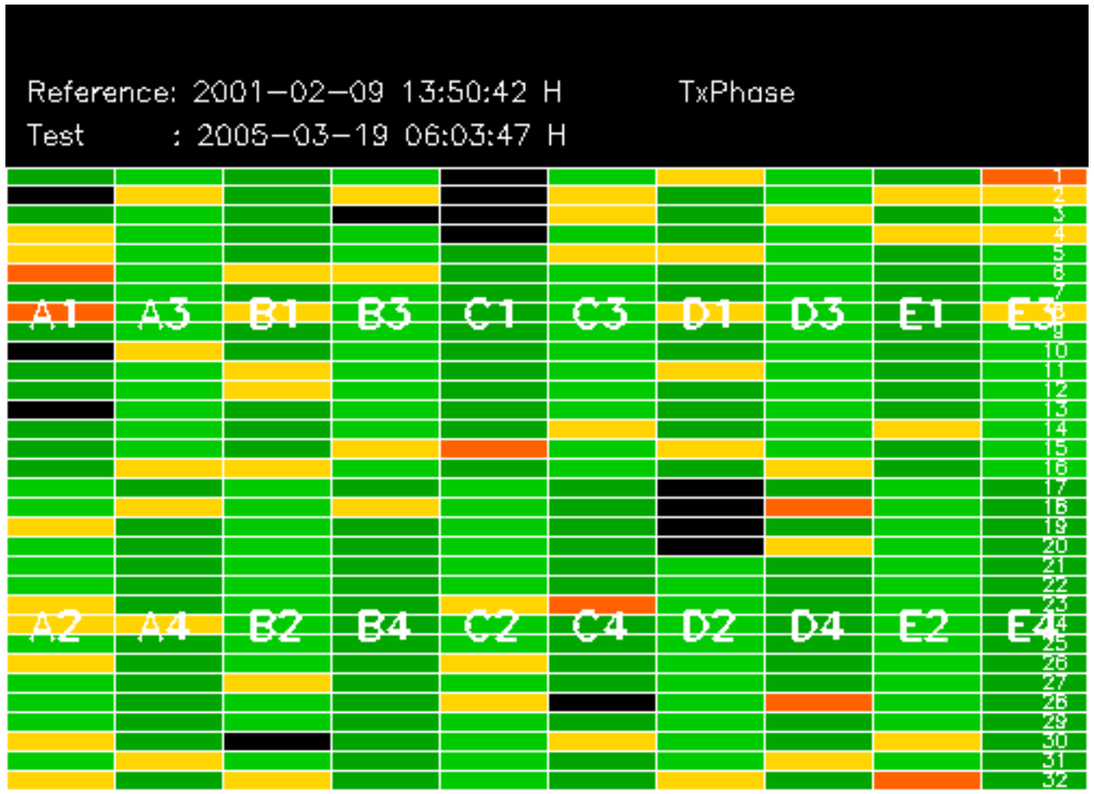

Reference: 2001-02-09 14:08:23 V
Test : 2005-03-20 05:32:11 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

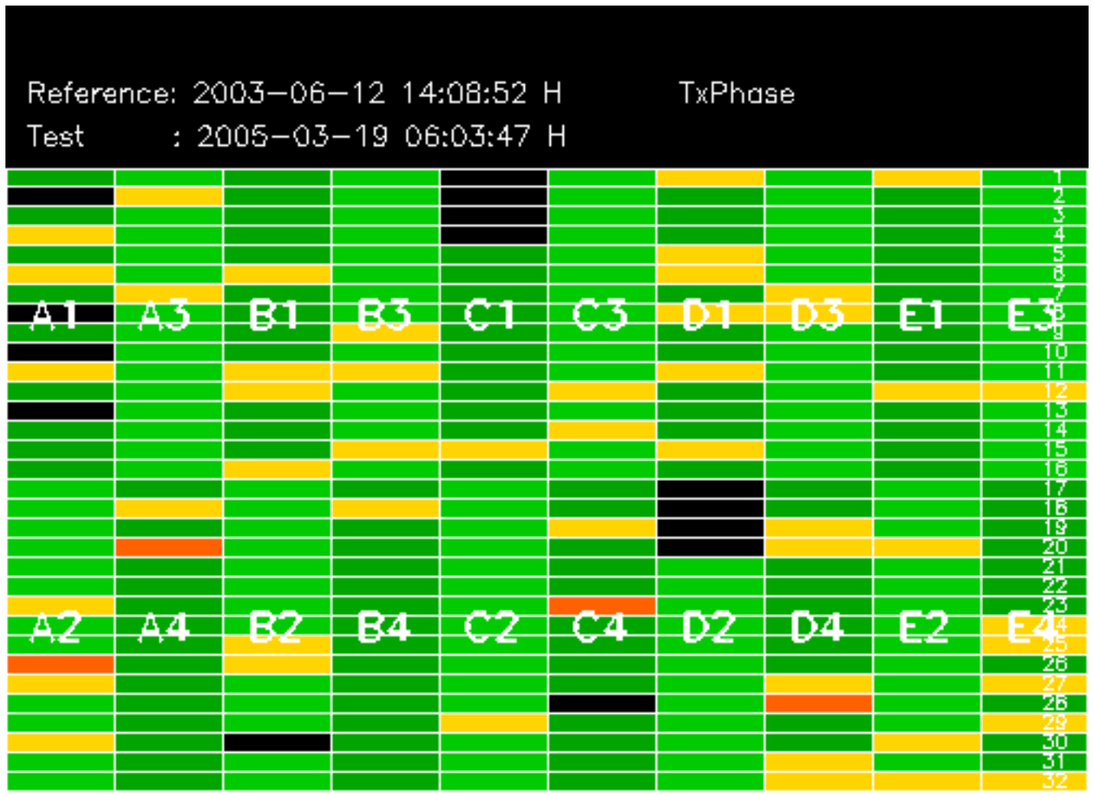

Reference: 2003-06-12 14:10:32 V
Test : 2005-03-20 05:32:11 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

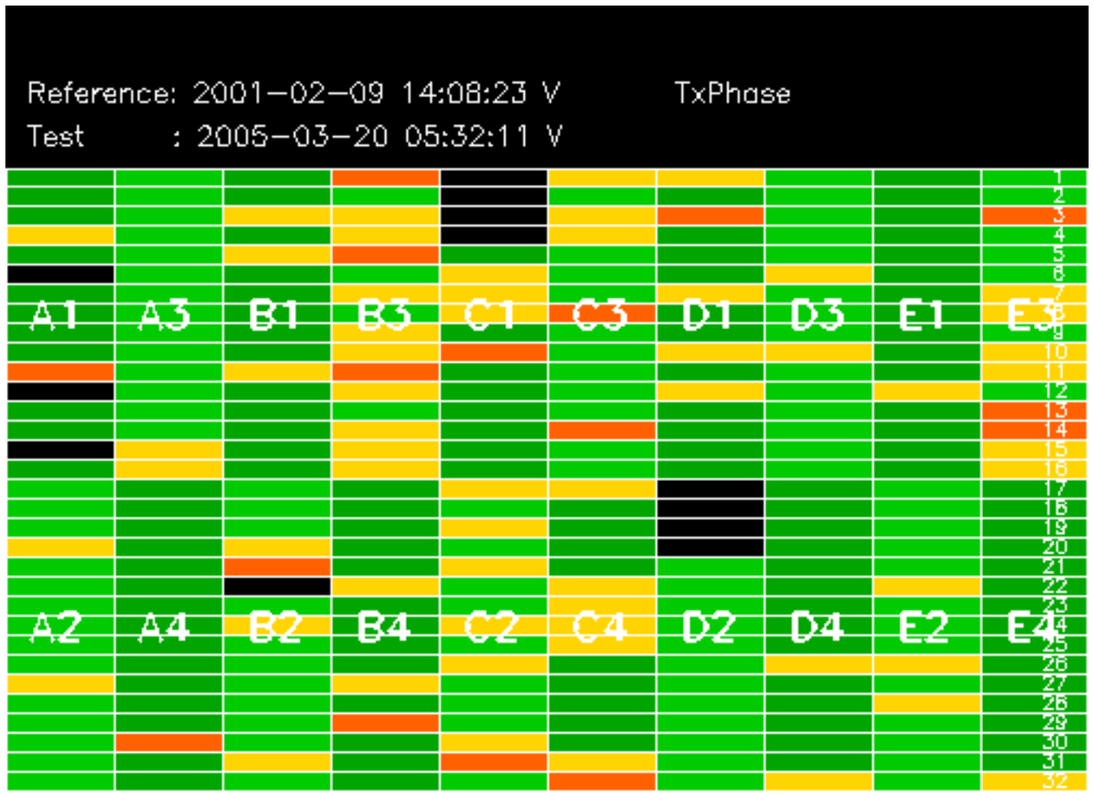
Summary of analysis for the last 3 days 2005032[901]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems
<table border=1>
<tr> <th>Filename </th><th> num_gaps</th><th>num_missing_lines</th></tr>
</table>

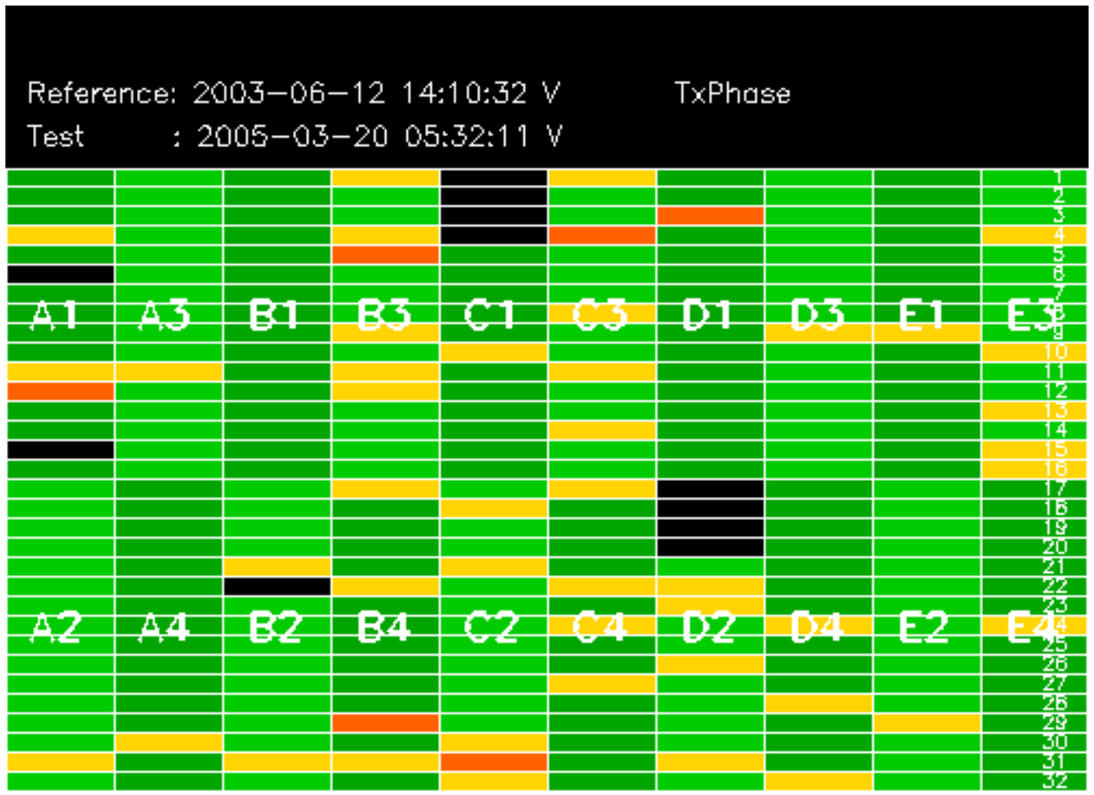

num_gaps
1
0.5
0
-0.5
-1
15950
15955
15960
15965
15970
15975
15980
Orbit
ASA_IMM_1P_PDE
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_APM_1P_PDE


num_missing_lines
1
0.5
0
-0.5
-1
15950
15955
15960
15965
15970
15975
15980
Orbit
ASA_IMM_1P_PDE
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_APM_1P_PDE


Reference: 2001-02-09 13:50:42 H
Test : 2005-03-19 06:03:47 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:08:52 H
Test : 2005-03-19 06:03:47 H
TxPhase
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 : 2005-03-20 05:32:11 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2005-03-20 05:32:11 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
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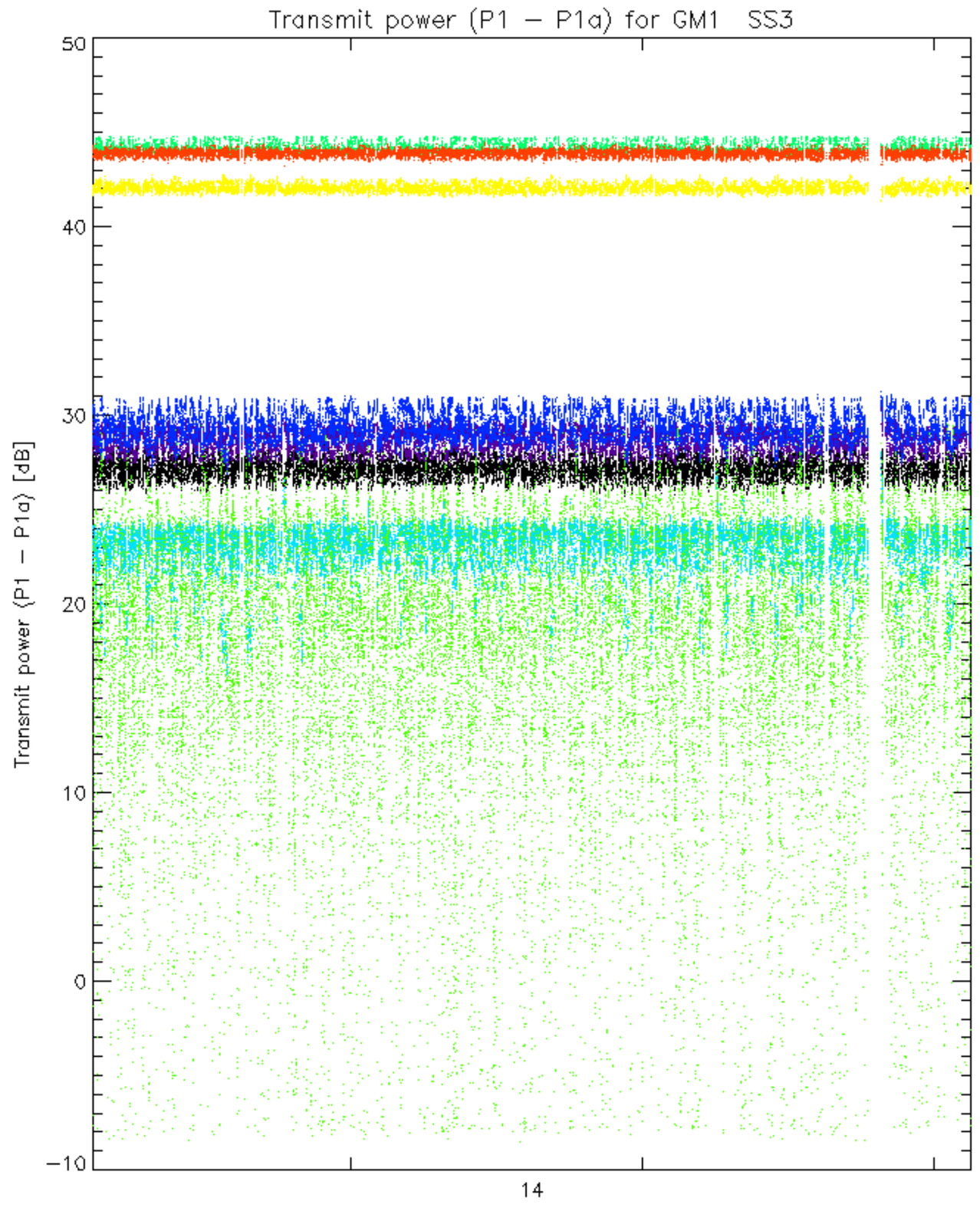
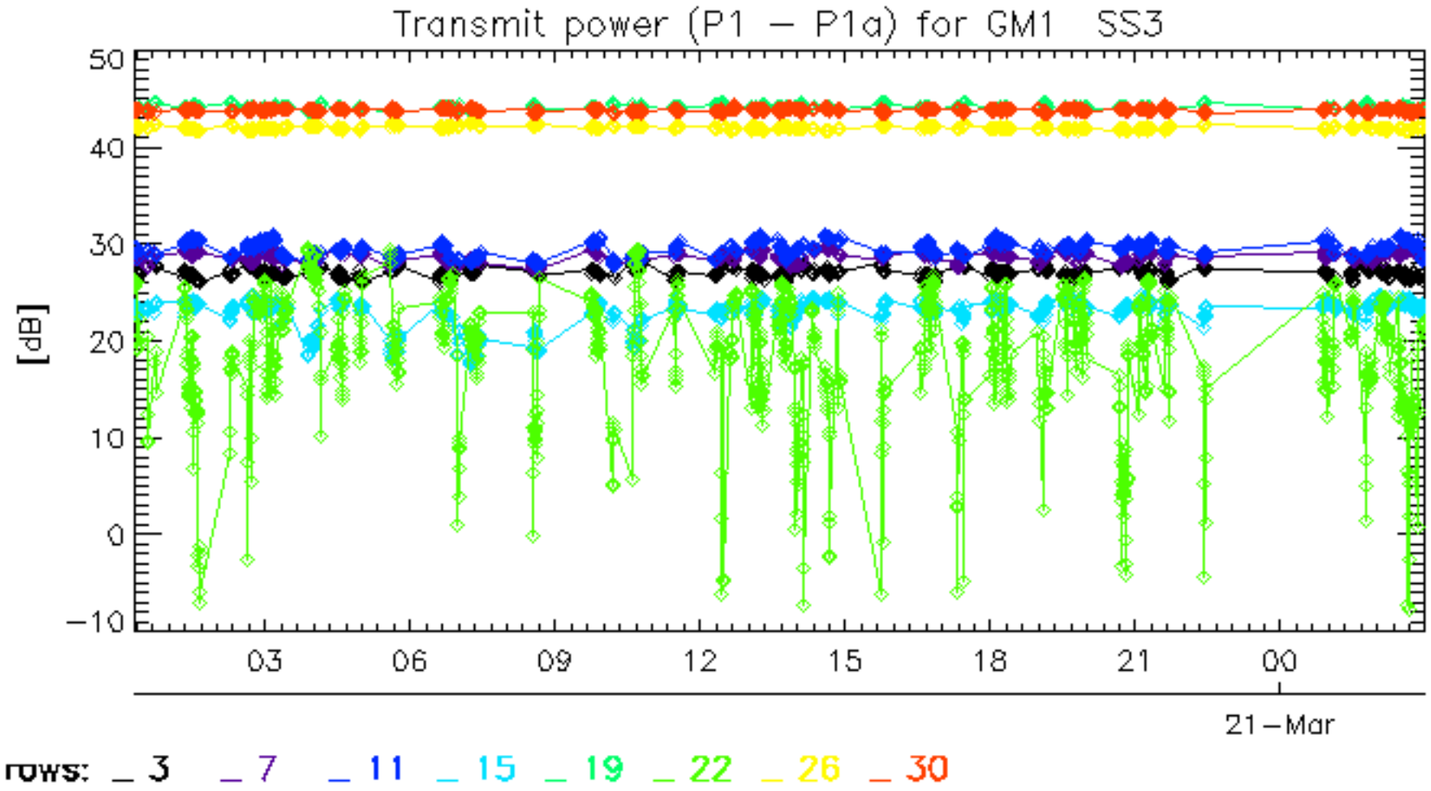
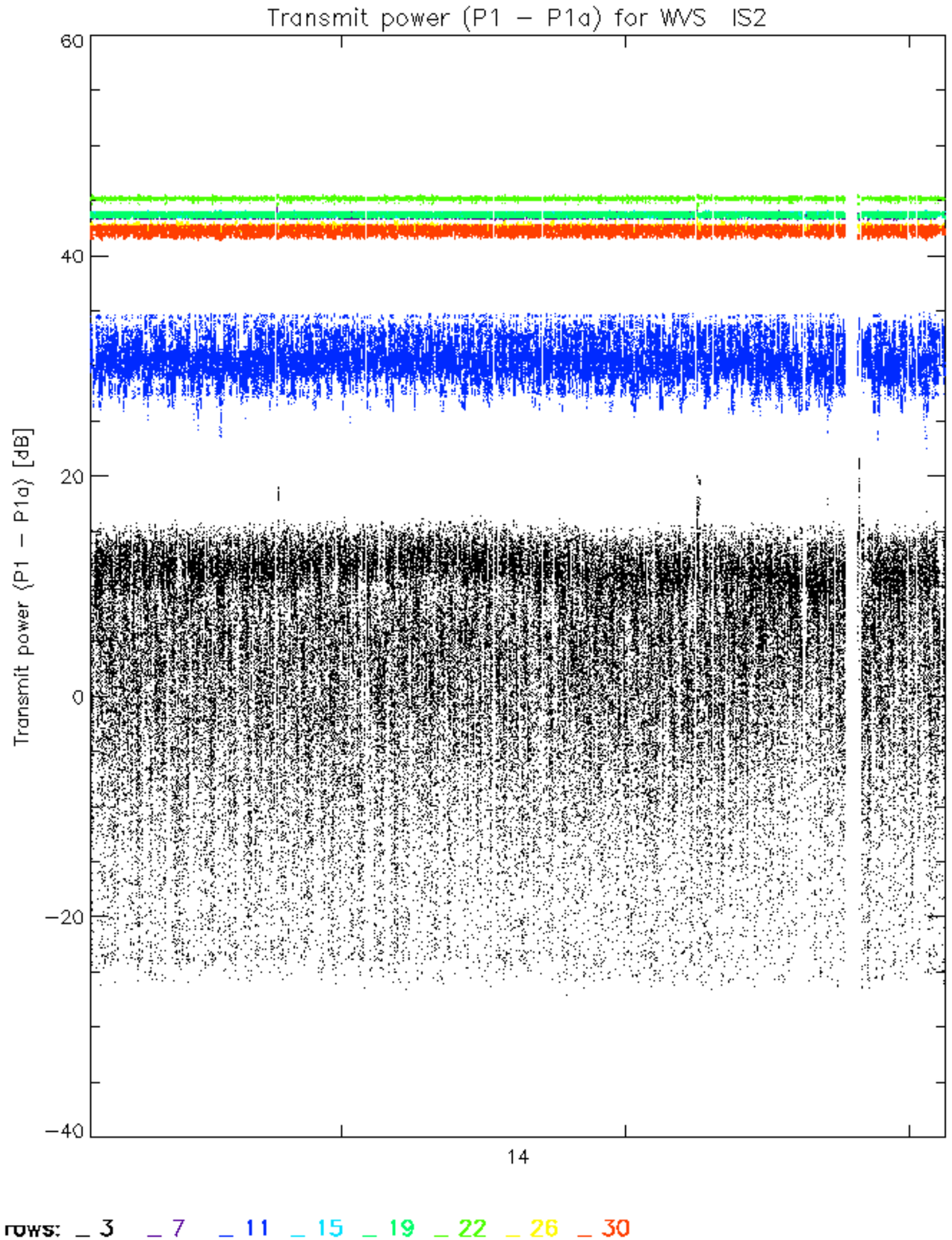
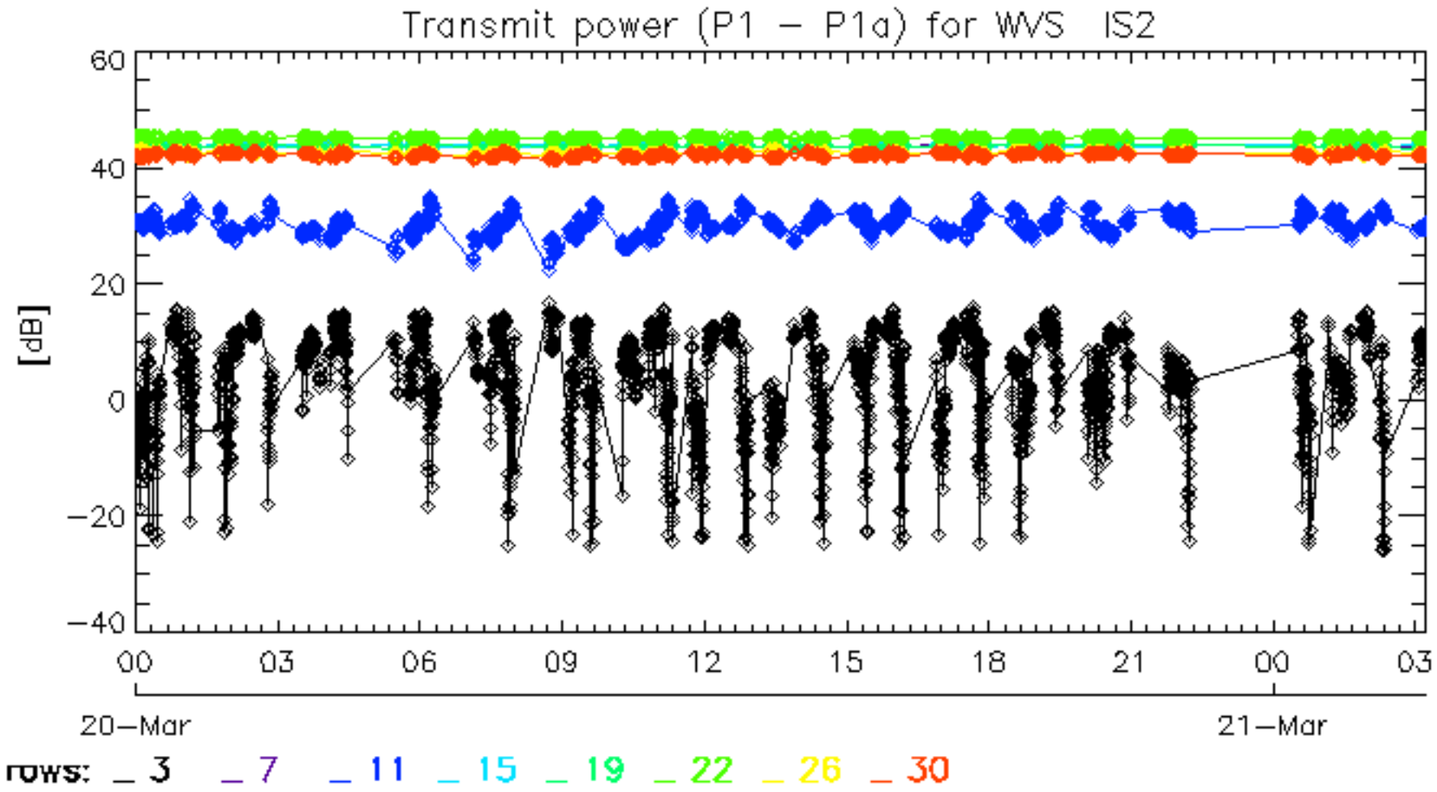

Transmit power (P1 – P1a) for GM1 SS3
Transmit power ⟨P1 – P1a⟩ [dB]
50
40
30
20
10
0
−10
14
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
50
40
30
20
10
0
−10
03
06
09
12
15
18
21
00
21−Mar
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Transmit power (P1 – P1a) for WVS IS2
60
40
20
0
−20
−40
Transmit power ⟨P1 – P1a⟩ [dB]
14
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
60
40
20
0
−20
−40
[dB]
00
03
06
09
12
15
18
21
00
03
20–Mar
21–Mar
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.