PRELIMINARY REPORT OF 050813

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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 2005-08-12 00:00:00 to 2005-08-13 10:50:01

PDHS-K					
AUXILIARY FILE	WVS	GM1	IMM	APM	WSM

ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	29	51	14	7	0
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	29	51	14	7	0
ASA_XCA_AXVIEC20050803_152145_20040412_000000_20051231_000000	29	51	14	7	0
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	29	51	14	7	0

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	33	18	10	4	12
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	33	18	10	4	12
ASA_XCA_AXVIEC20050803_152145_20040412_000000_20051231_000000	33	18	10	4	12
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	33	18	10	4	12

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	20050811 100811
H	20050812 143821

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	-3.318398	0.026970	-0.006293
7	P1	-3.156883	0.027614	-0.060752
11	P1	-4.711770	0.033026	-0.034369
15	P1	-5.591554	0.051373	-0.070438
19	P1	-3.796937	0.004200	-0.047690
22	P1	-4.638652	0.095768	0.010965
26	P1	-4.850103	0.125413	0.038560
30	P1	-7.243835	0.128071	0.009644
3	P1	-15.550675	0.077010	0.071946
7	P1	-15.517538	0.149033	-0.004680
11	P1	-21.740311	0.263869	-0.183210
15	P1	-11.293495	0.069284	0.000628
19	P1	-14.490375	0.036474	-0.052454
22	P1	-15.694667	0.345190	0.169279
26	P1	-17.351873	0.198801	0.200339
30	P1	-17.771057	0.403284	-0.167281

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-21.817951	0.083152	0.089753
7	P2	-21.975801	0.100094	0.112760
11	P2	-13.568474	0.105857	0.189662
15	P2	-7.070762	0.090907	0.023680
19	P2	-9.590071	0.094212	-0.016196
22	P2	-16.838978	0.096025	0.039569
26	P2	-16.509453	0.097336	-0.019706
30	P2	-18.798109	0.086039	-0.033955

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.157521	0.002543	-0.007063
7	P3	-8.157521	0.002543	-0.007063
11	P3	-8.157521	0.002543	-0.007063
15	P3	-8.157521	0.002543	-0.007063
19	P3	-8.157521	0.002543	-0.007063
22	P3	-8.157521	0.002543	-0.007063
26	P3	-8.157521	0.002543	-0.007063
30	P3	-8.157521	0.002543	-0.007063

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	-2.806282	0.091896	-0.080151
7	P1	-2.971594	0.057930	-0.047049
11	P1	-4.011858	0.016159	-0.049676
15	P1	-3.612393	0.060238	-0.103671
19	P1	-3.632205	0.015744	0.012748
22	P1	-5.691705	0.101068	-0.025235
26	P1	-7.395216	0.172075	0.039742
30	P1	-6.328488	0.098528	0.047085
3	P1	-10.889903	0.051984	-0.210492
7	P1	-10.467774	0.166099	-0.031768
11	P1	-12.641767	0.103634	-0.051368
15	P1	-11.599641	0.097174	0.030501
19	P1	-15.507007	0.067999	0.110752
22	P1	-25.629364	2.875992	0.259182
26	P1	-15.310123	0.312714	0.185052
30	P1	-20.054754	1.265727	-0.041338

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.551641	0.043973	0.144138
7	P2	-22.025213	0.038788	0.048283
11	P2	-9.606380	0.063732	0.185103
15	P2	-5.108299	0.041598	0.036235
19	P2	-6.888456	0.062511	0.048061
22	P2	-7.060496	0.037251	0.042894
26	P2	-23.967127	0.037815	0.019952
30	P2	-21.949898	0.042792	0.013433

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-7.999069	0.004032	-0.002902
7	P3	-7.998962	0.004019	-0.003027
11	P3	-7.998963	0.004035	-0.003274
15	P3	-7.998913	0.004030	-0.002888
19	P3	-7.999004	0.004031	-0.002803
22	P3	-7.998999	0.004020	-0.002706
26	P3	-7.998941	0.004011	-0.002688
30	P3	-7.998937	0.004012	-0.003101

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	0.000459895
	stdev	2.21578e-07
MEAN Q	mean	0.000489741
	stdev	2.34846e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.128129
	stdev	0.000993840
STDEV Q	mean	0.128387
	stdev	0.00100405

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2005081[123]
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_1PNPDE20050812_004347_000001572039_00446_18035_2259.N1	1	0
ASA_GM1_1PNPDK20050811_110131_000003742039_00438_18027_2062.N1	0	7
ASA_WSM_1PNPDE20050811_012533_000003612039_00432_18021_3986.N1	0	62
ASA_WSM_1PNPDE20050811_172656_000001042039_00442_18031_4067.N1	0	16
ASA_WSM_1PNPDE20050811_204047_000001152039_00443_18032_4103.N1	0	1

7 - Doppler Analysis

Preliminary report.The data is not yet controled

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)

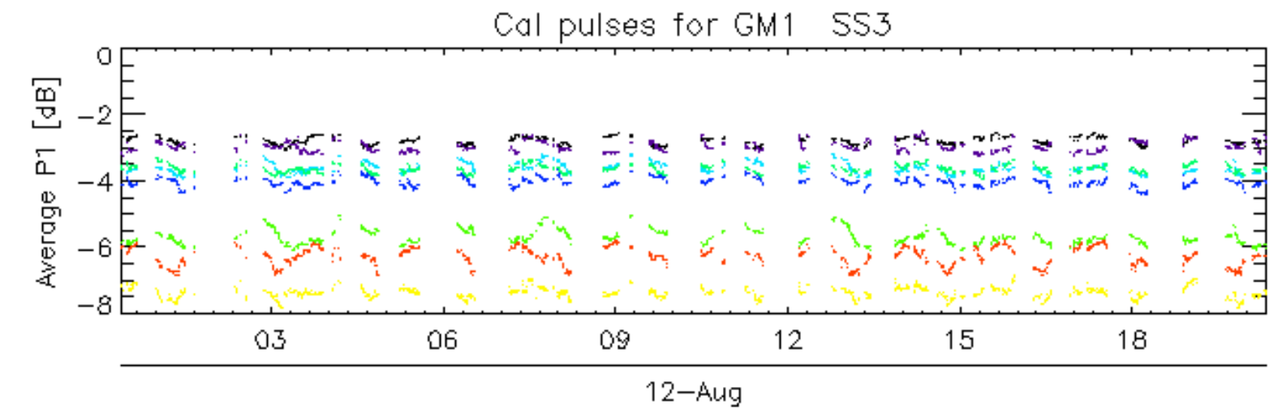
Acsending
☒
Descending

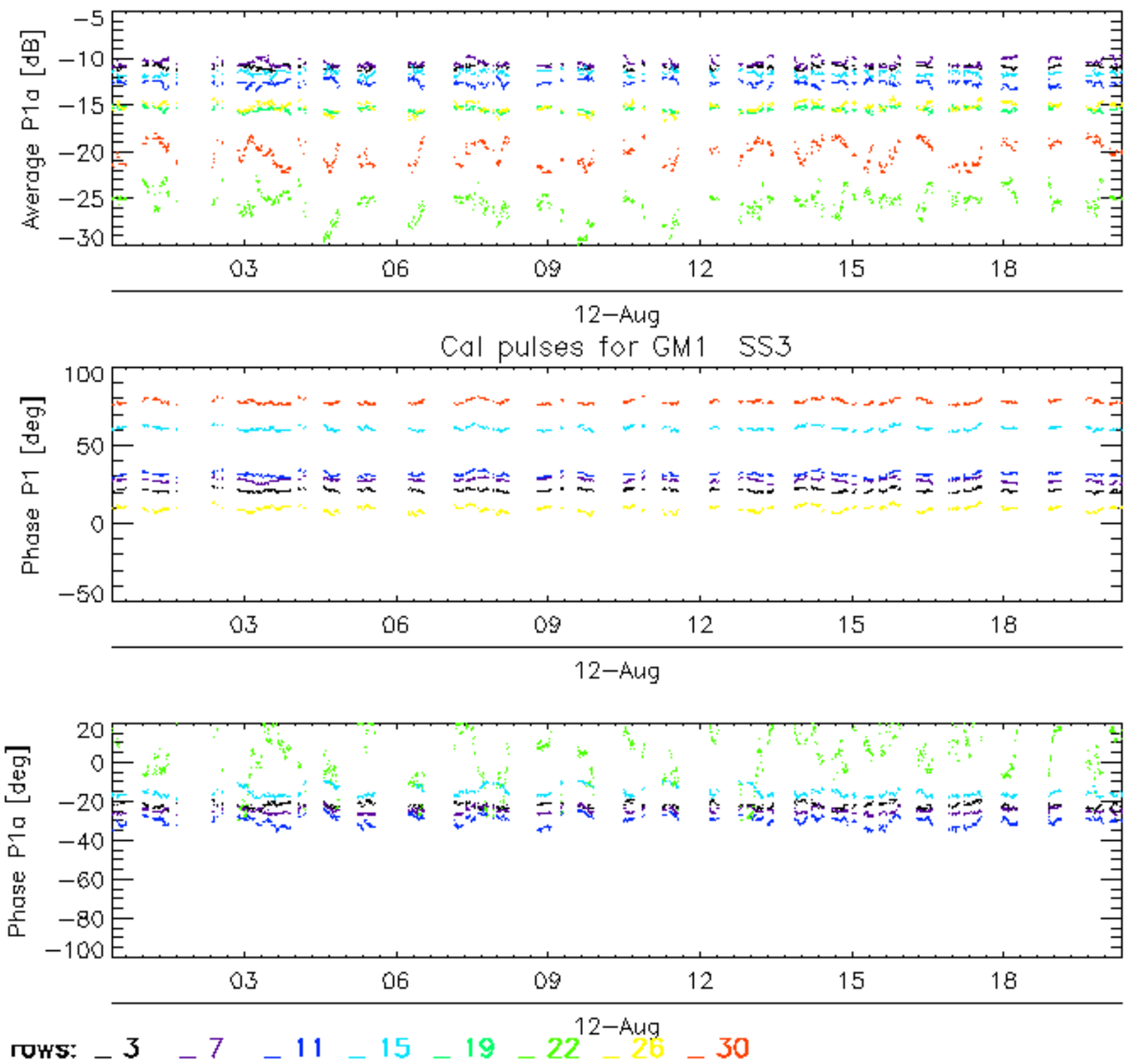
7.5 - Absolute Doppler for GM1

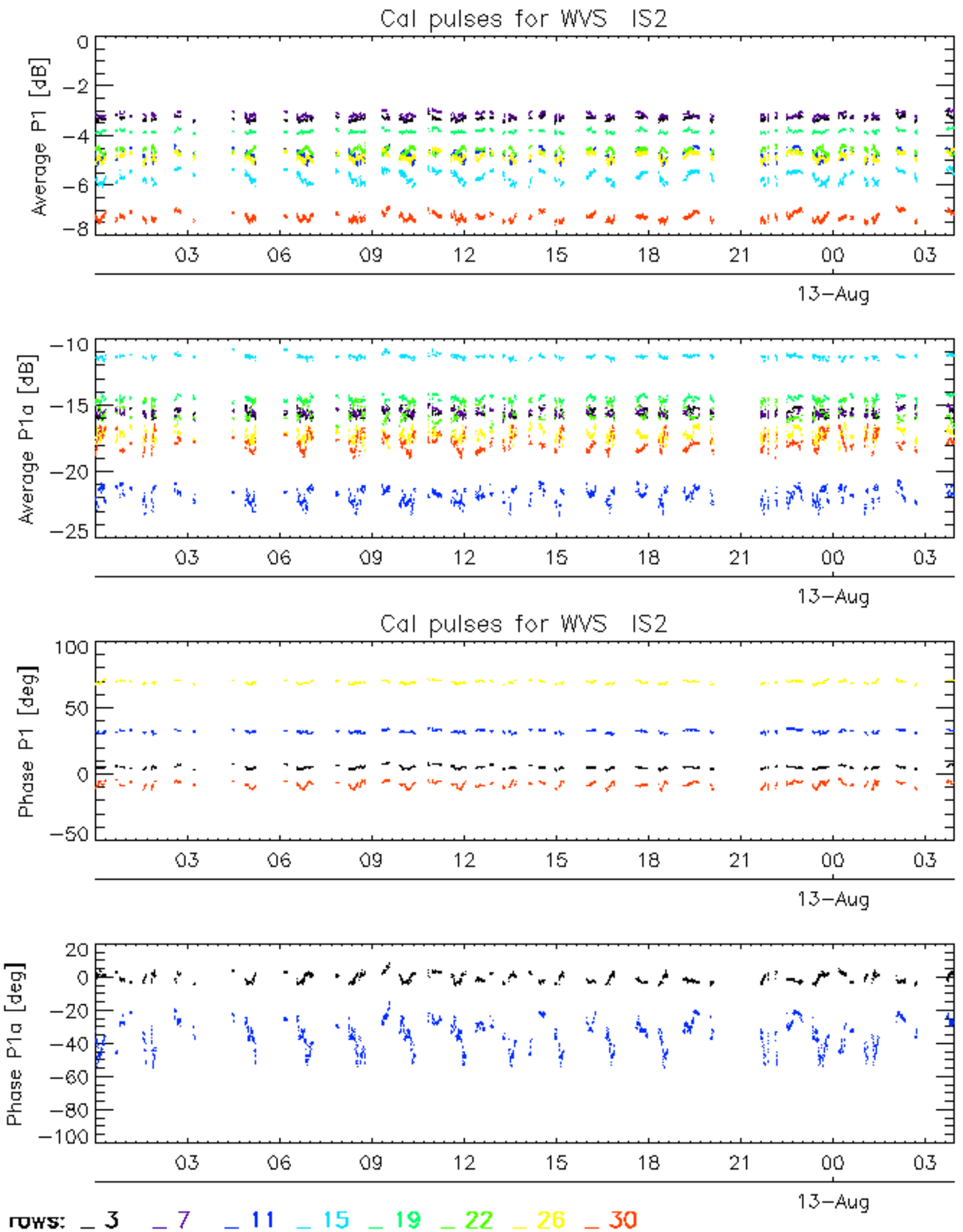
Evolution of Absolute Doppler
☒
Acsending
☒
Descending

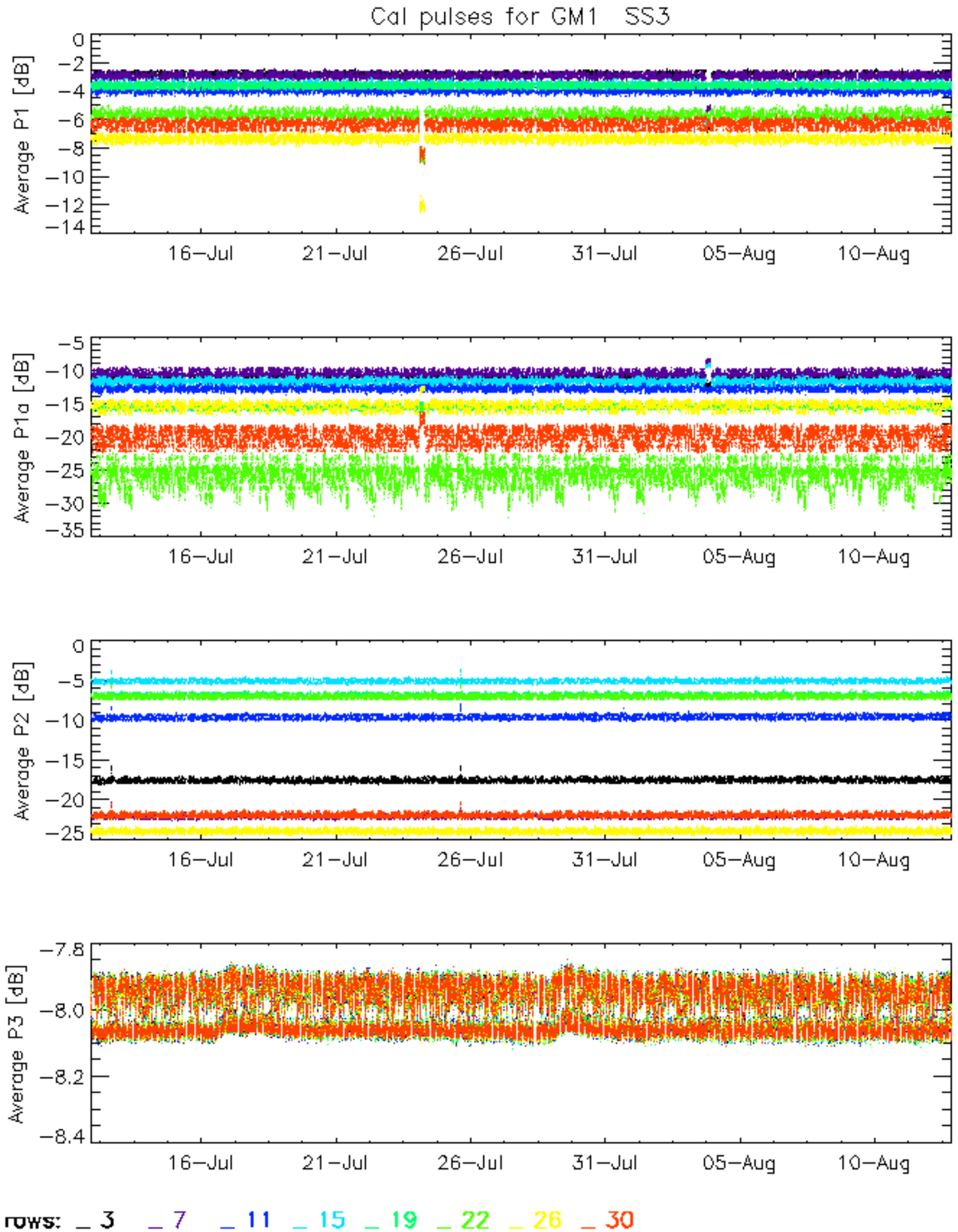
7.6 - Doppler evolution versus ANX for GM1

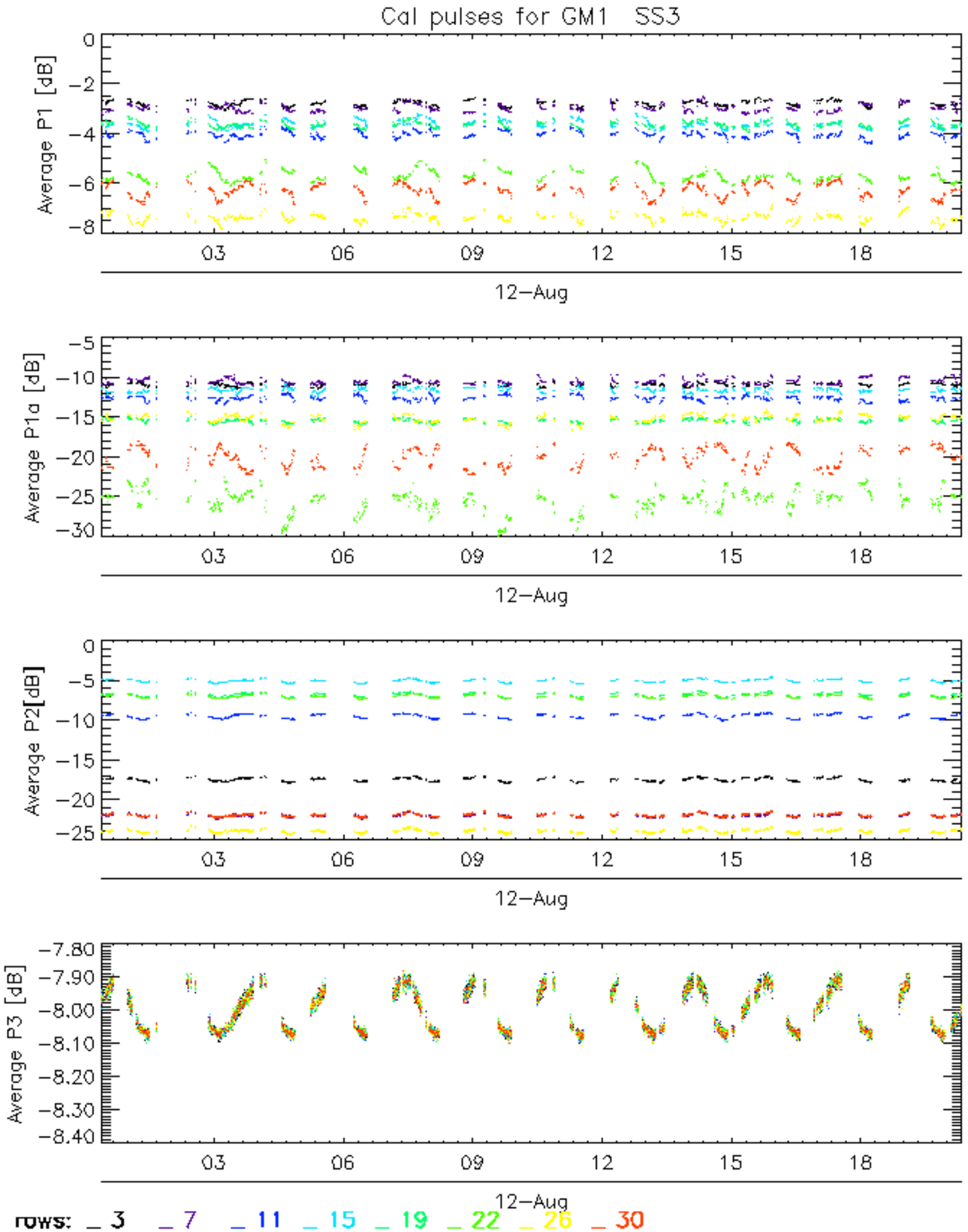
Evolution Doppler error versus ANX
☒

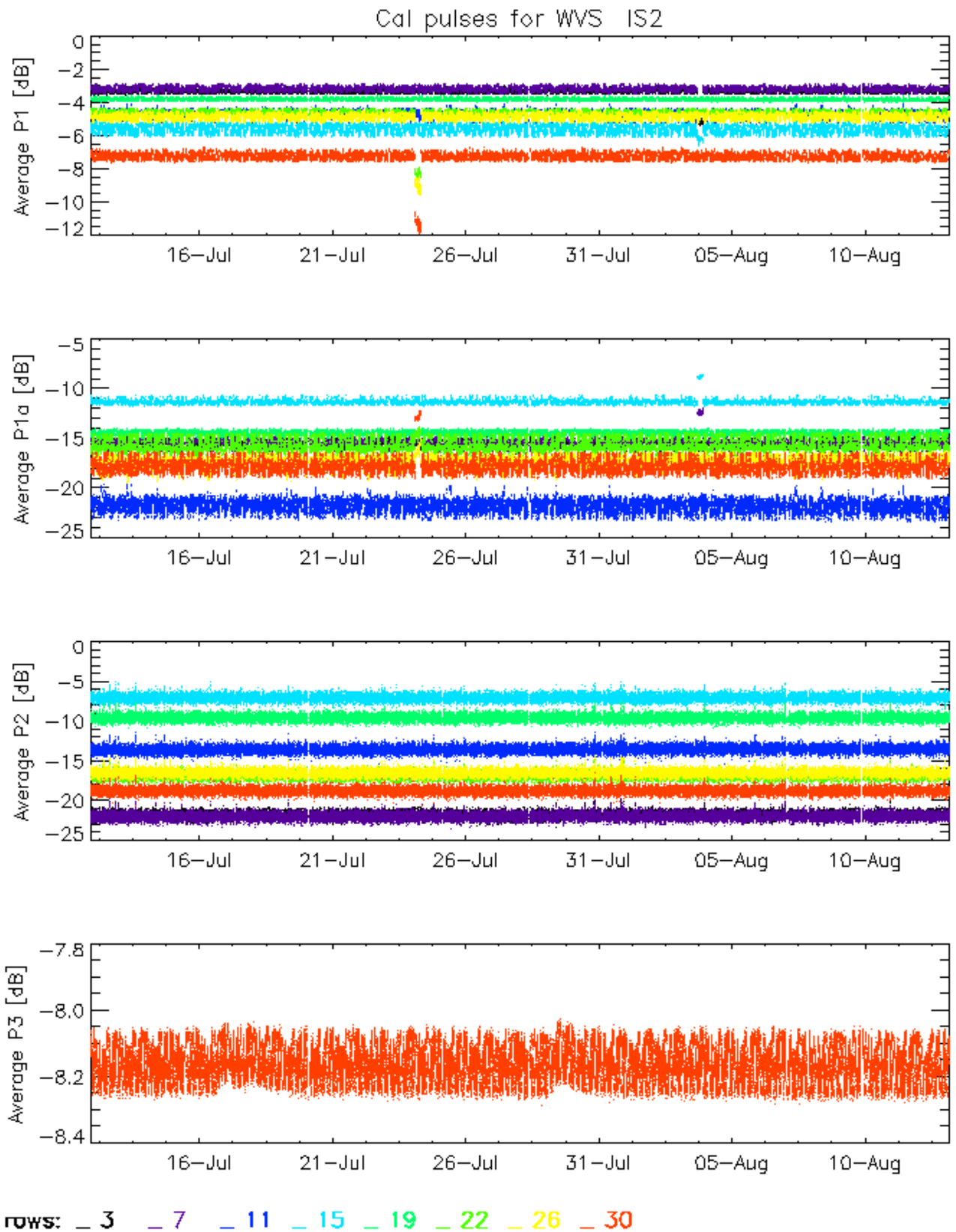

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
12−Aug

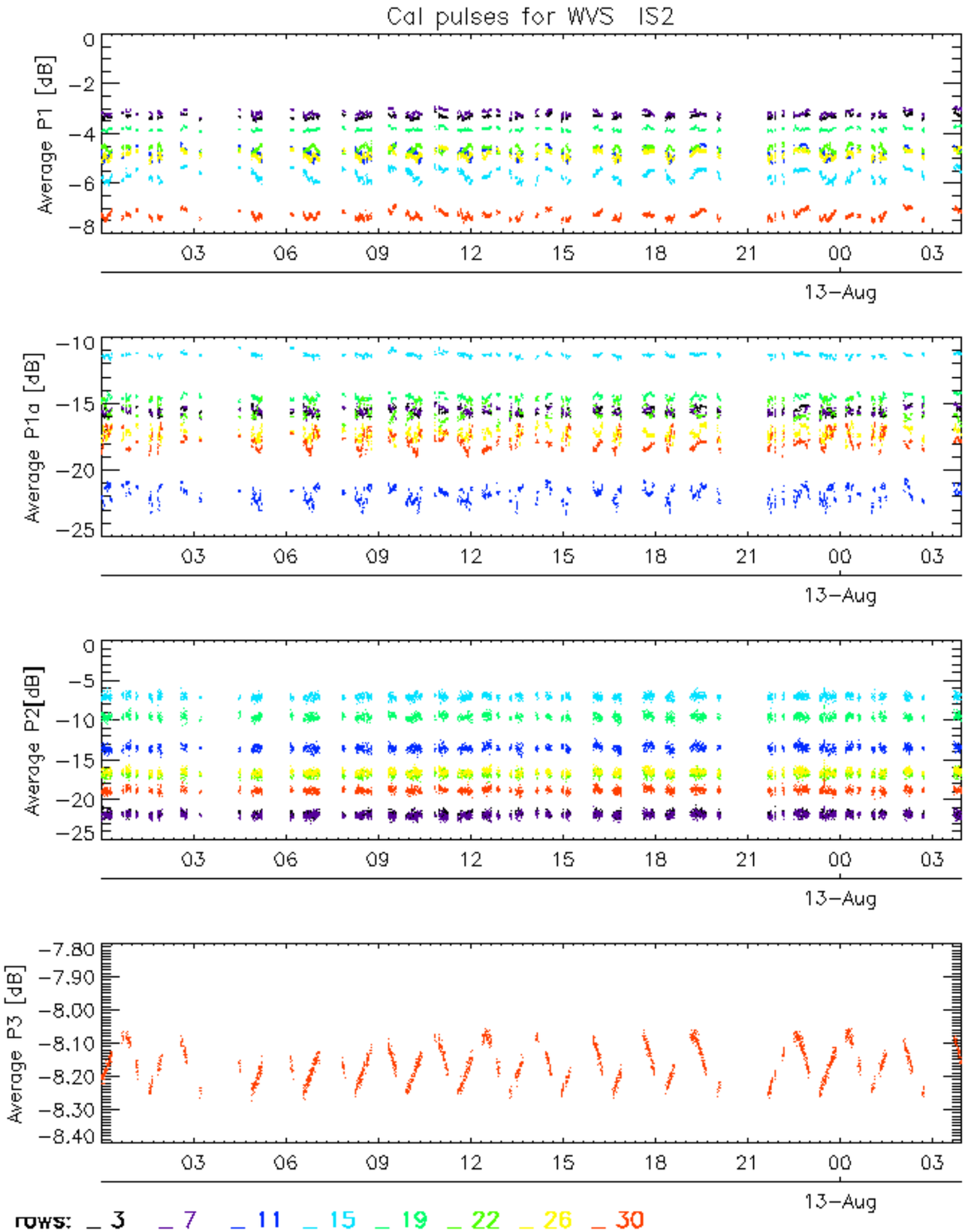

Average P1a [dB]
−5
−10
−15
−20
−25
−30
03
06
09
12
15
18
12−Aug
Cal pulses for GM1 SS3
Phase P1 [deg]
100
50
0
−50
03
06
09
12
15
18
12−Aug
Phase P1a [deg]
20
0
−20
−40
−60
−80
−100
03
06
09
12
15
18
12−Aug
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
13−Aug
Average P1a [dB]
−10
−15
−20
−25
Cal pulses for WVS IS2
Phase P1 [deg]
100
50
0
−50
Phase P1a [deg]
20
0
−20
−40
−60
−80
−100
rows: 3 7 11 15 19 22 26 30

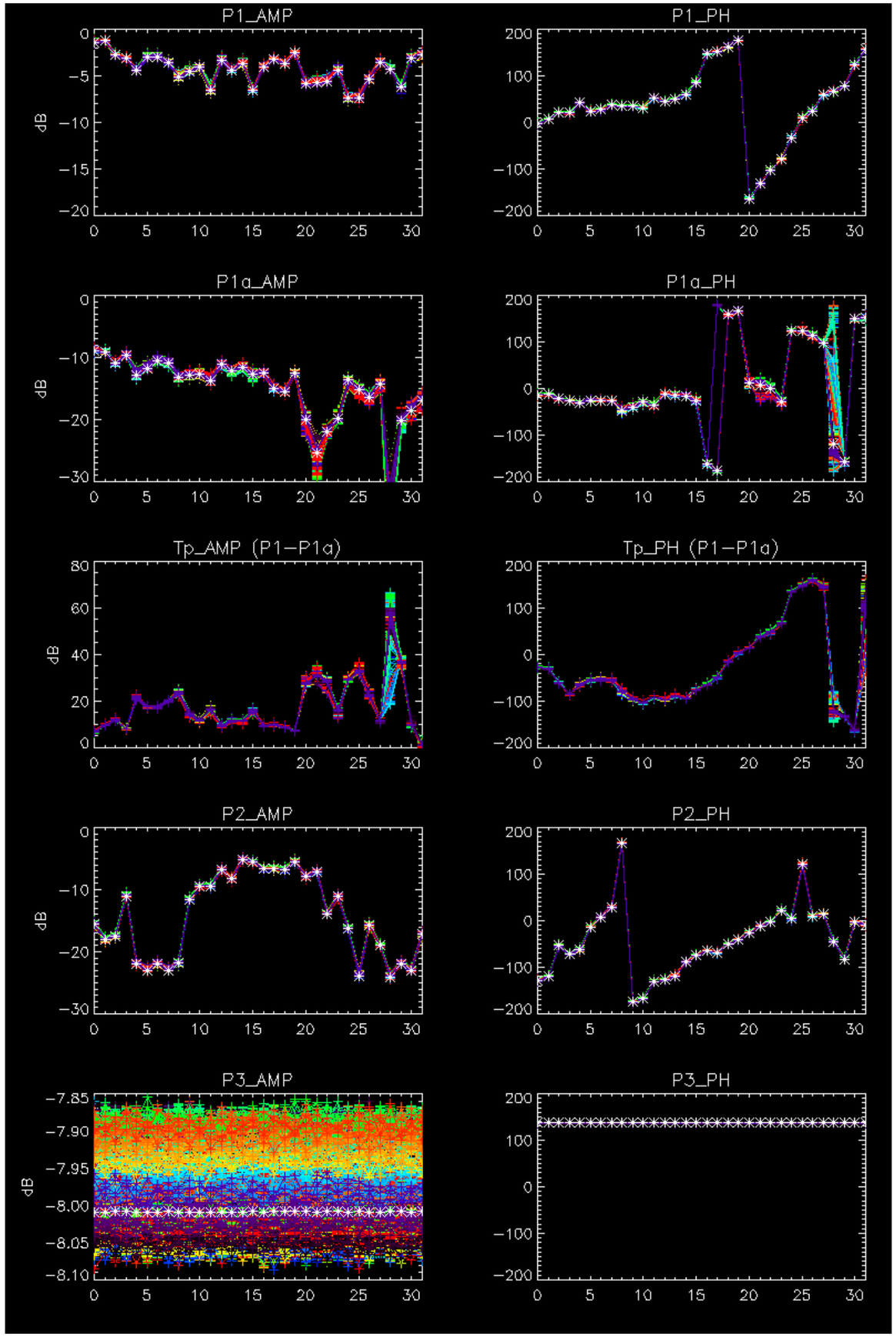

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
−10
−12
−14
16−Jul
21−Jul
26−Jul
31−Jul
05−Aug
10−Aug
Average P1a [dB]
−5
−10
−15
−20
−25
−30
−35
Average P2 [dB]
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

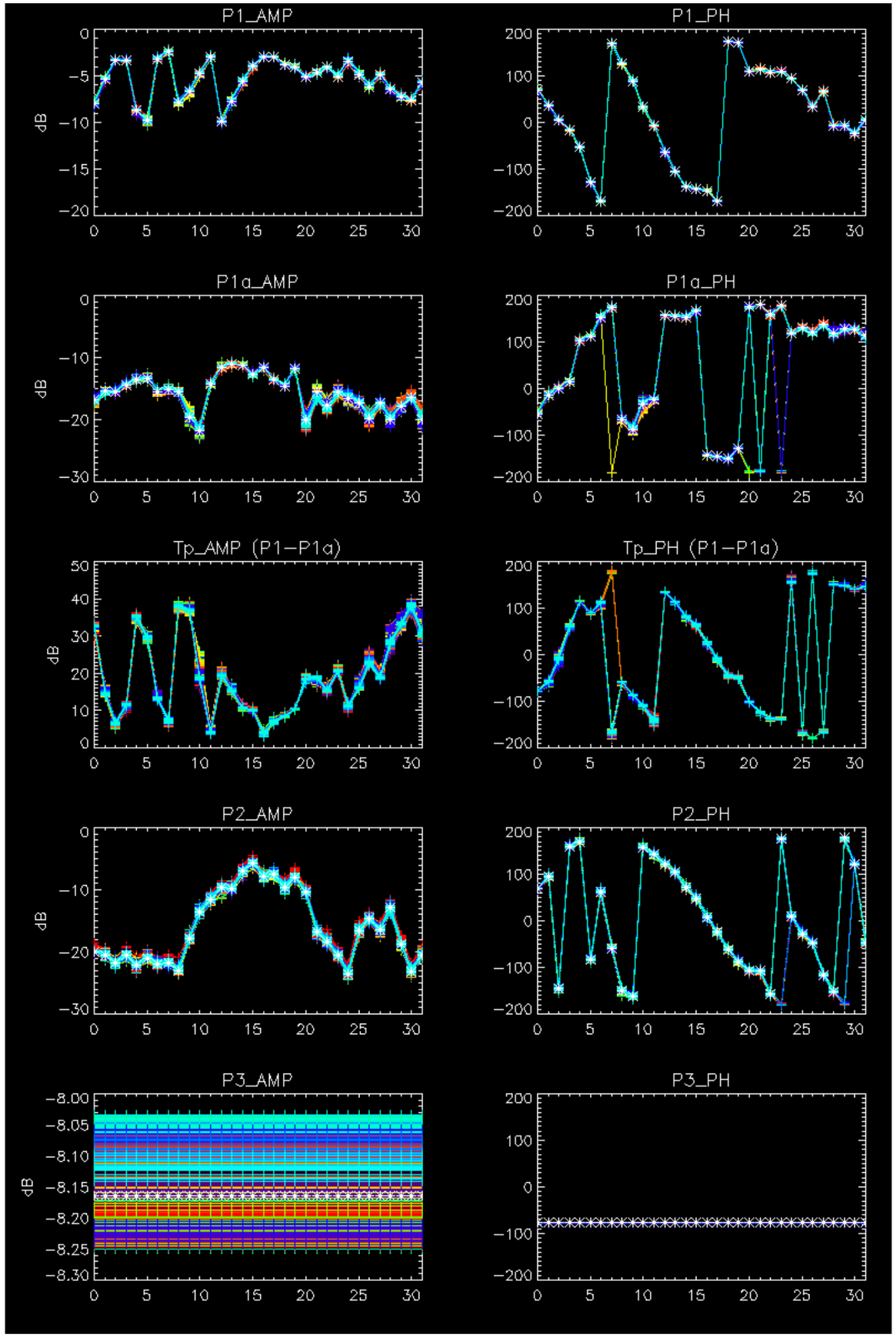

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
12−Aug
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
−10
−12
16−Jul
21−Jul
26−Jul
31−Jul
05−Aug
10−Aug
Average P1a [dB]
−5
−10
−15
−20
−25
Average P2 [dB]
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
03
06
09
12
15
18
21
00
03
13−Aug
Average P1a [dB]
−10
−15
−20
−25
Average P2[dB]
−5
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

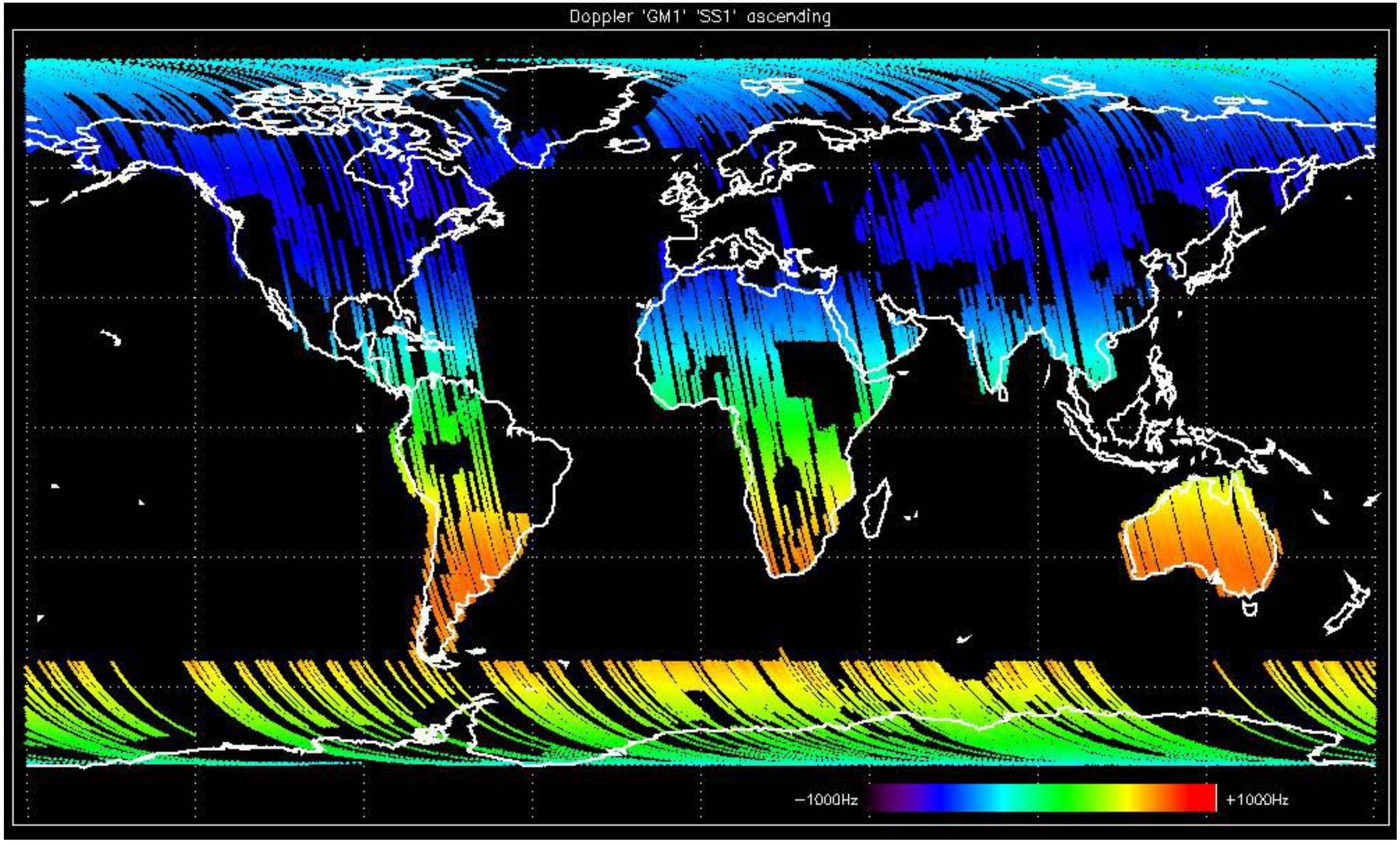
No anomalies observed.

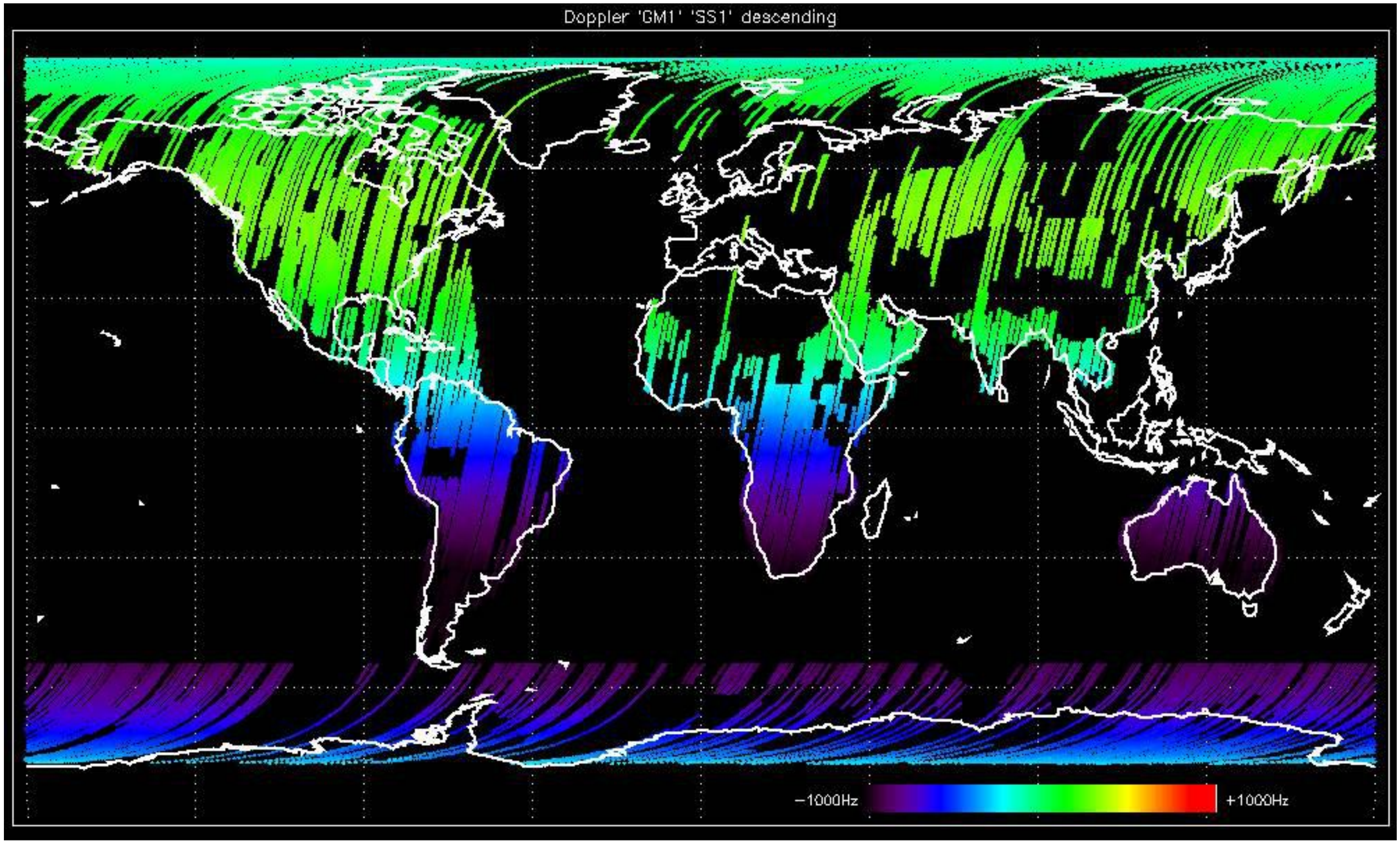

P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
Tp_AMP (P1−P1a)
dB
Tp_PH (P1−P1a)
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH

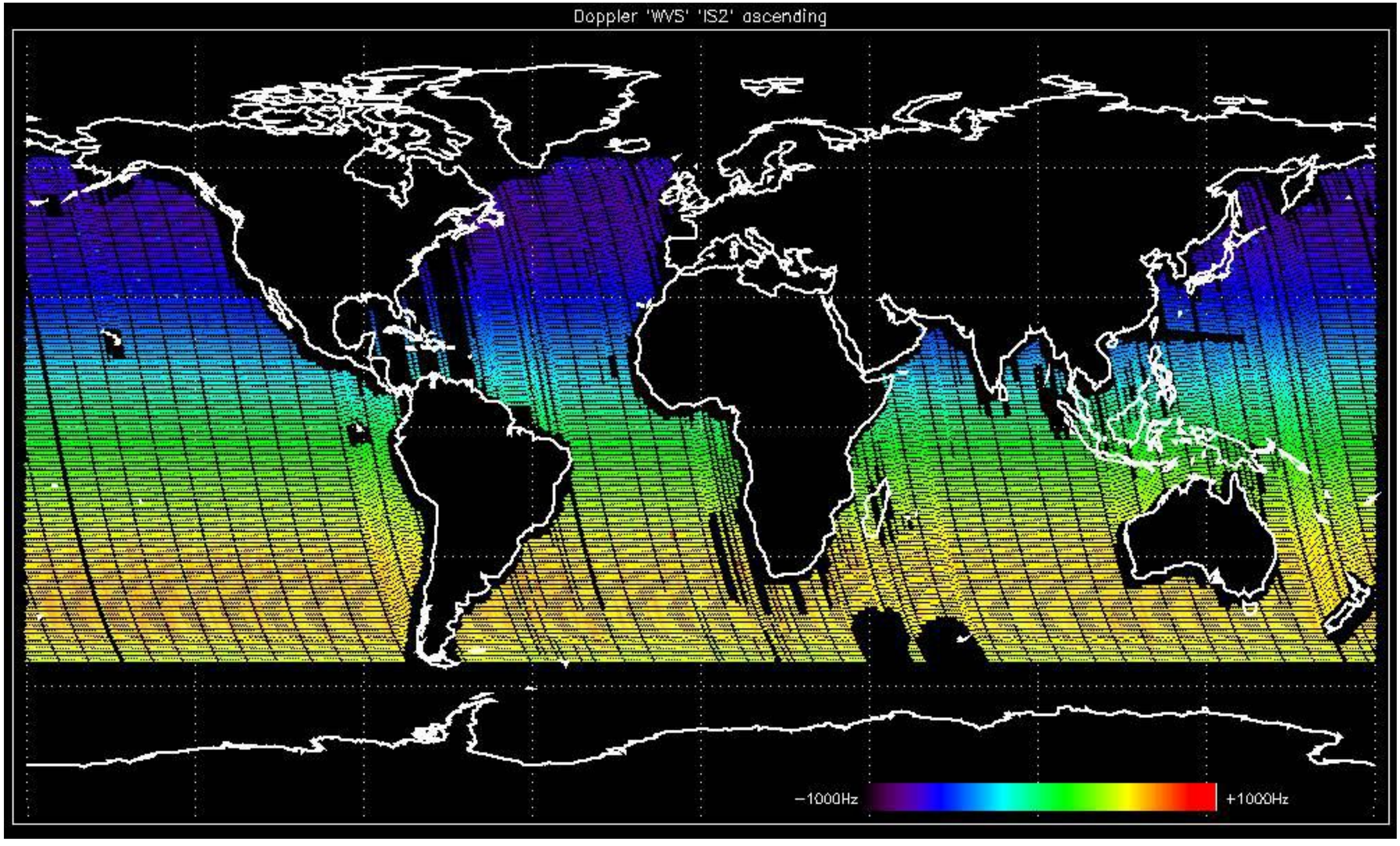

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

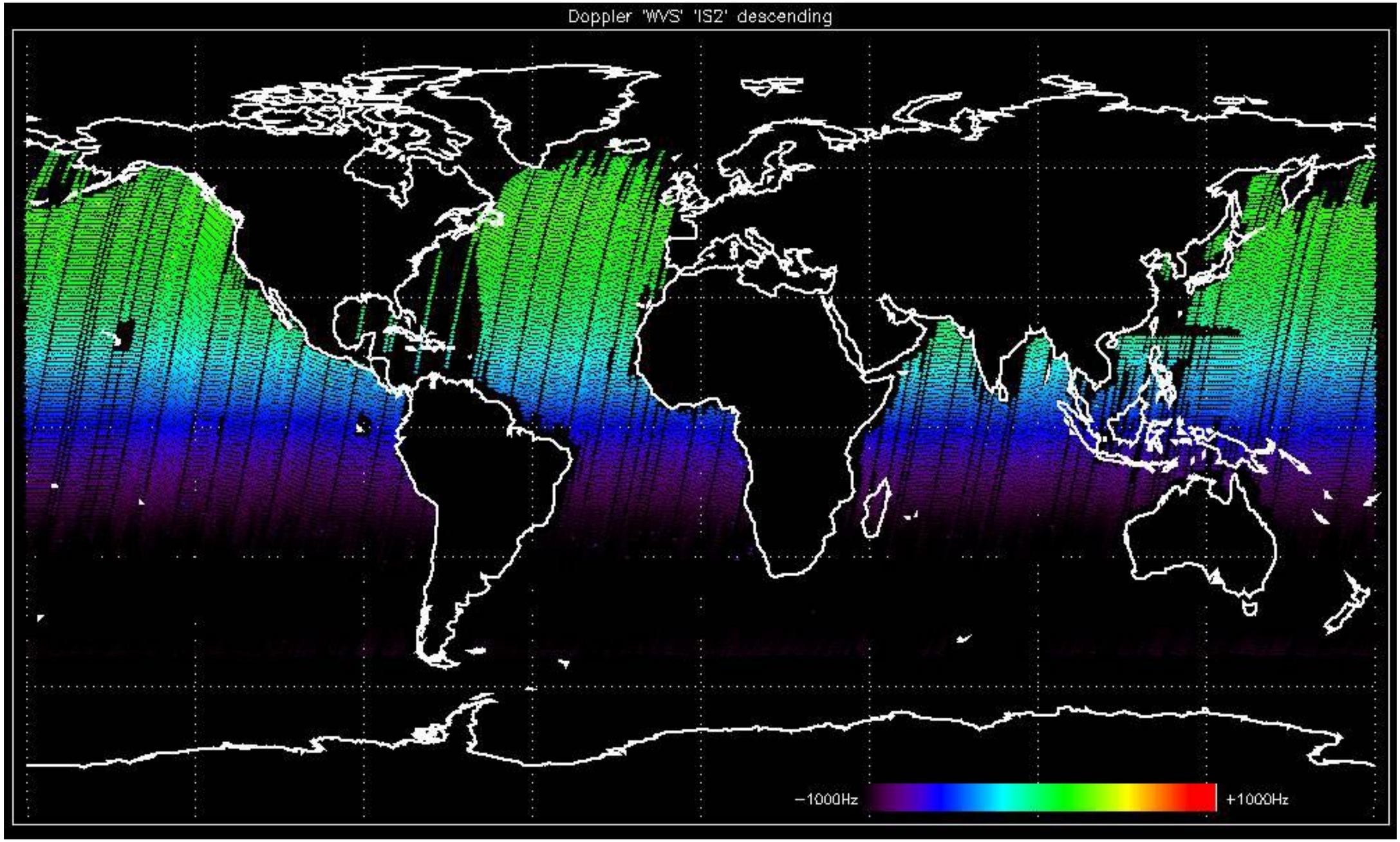
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

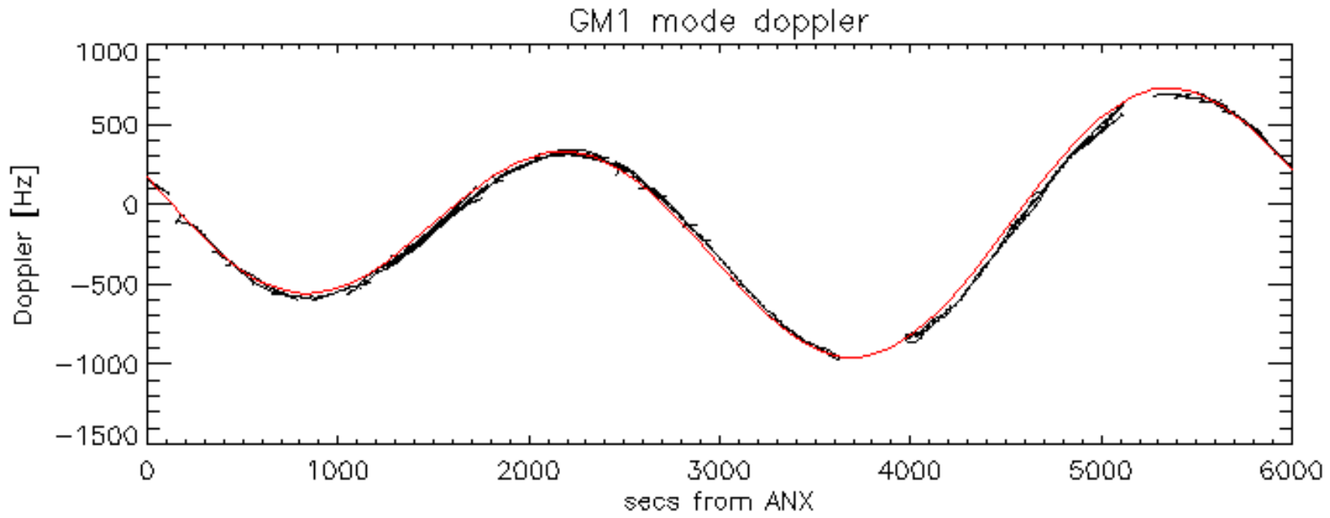
Preliminary report.The data is not yet controled

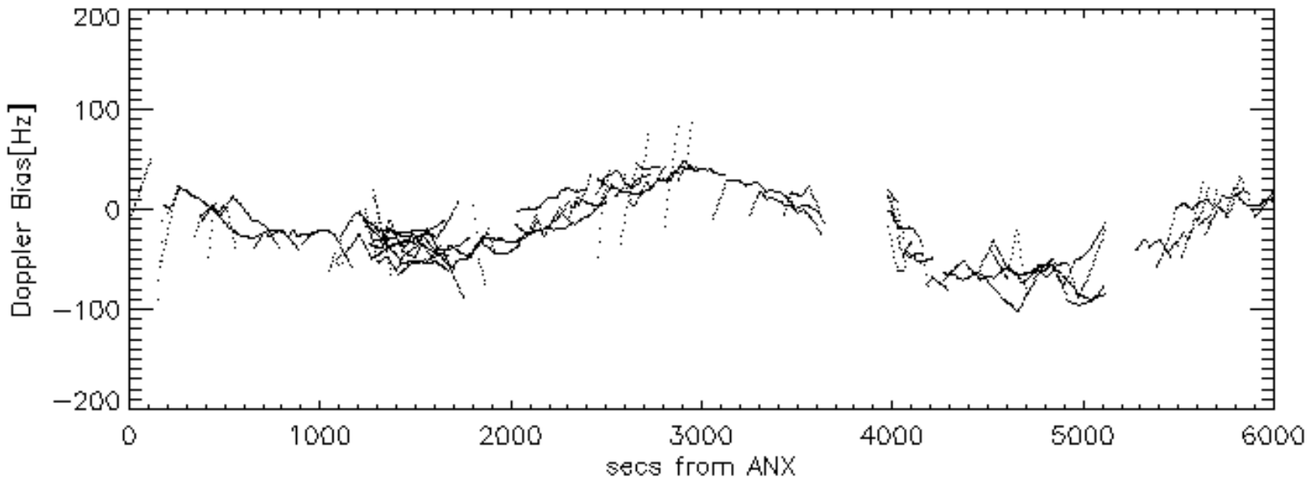

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

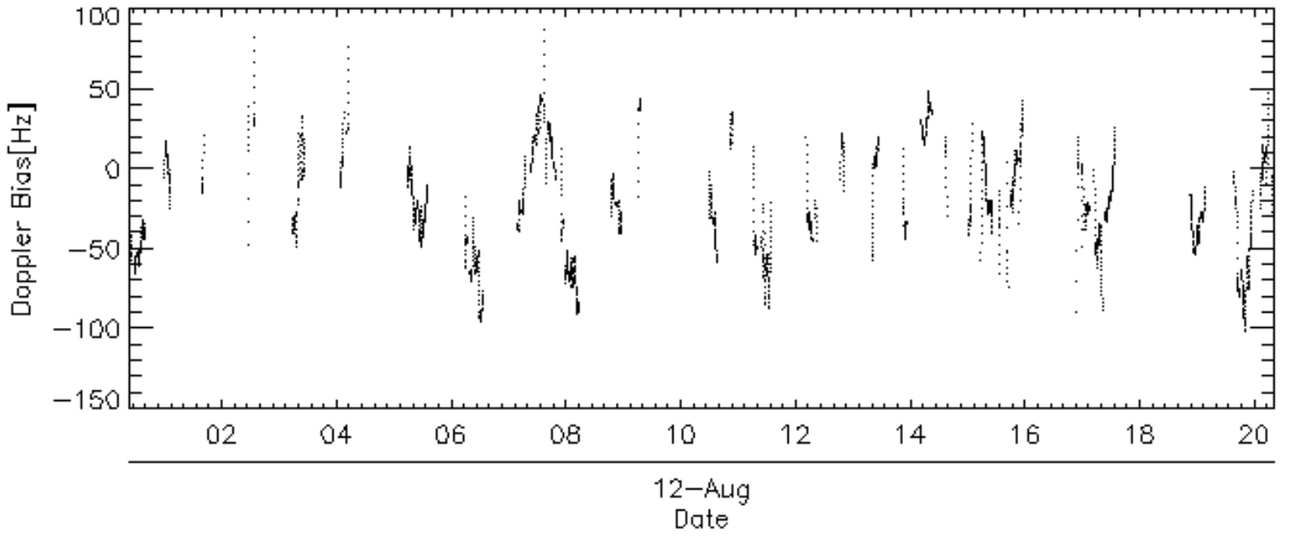

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

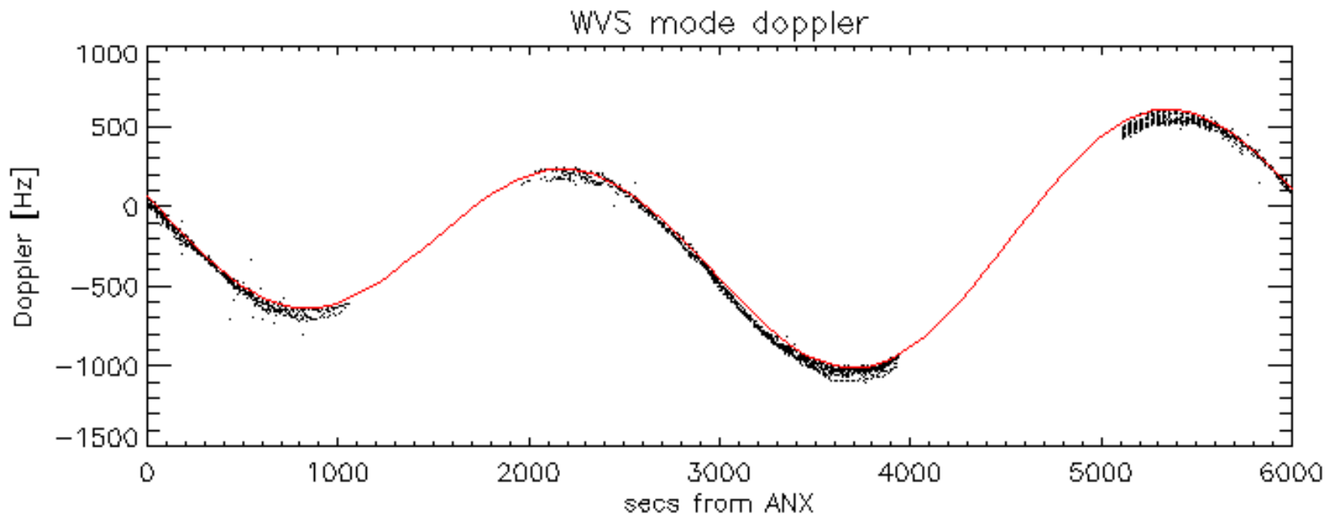

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

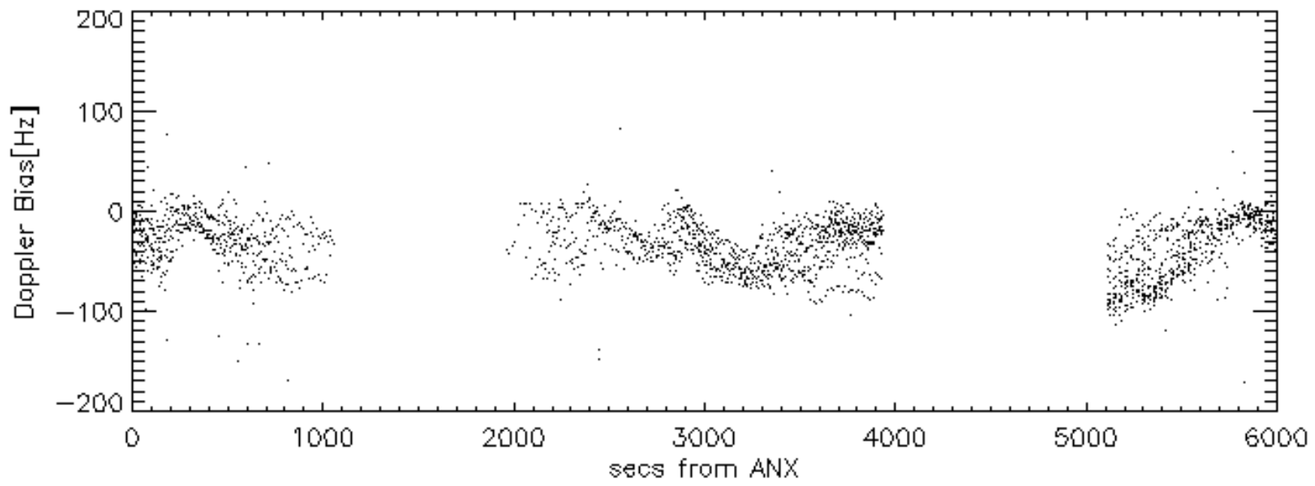

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

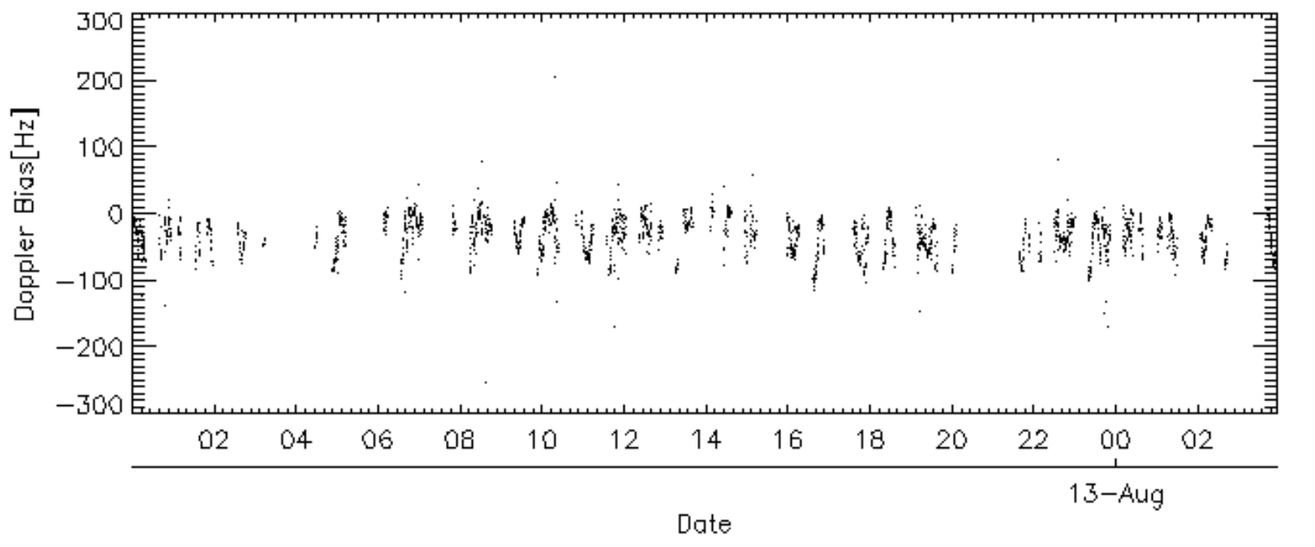

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

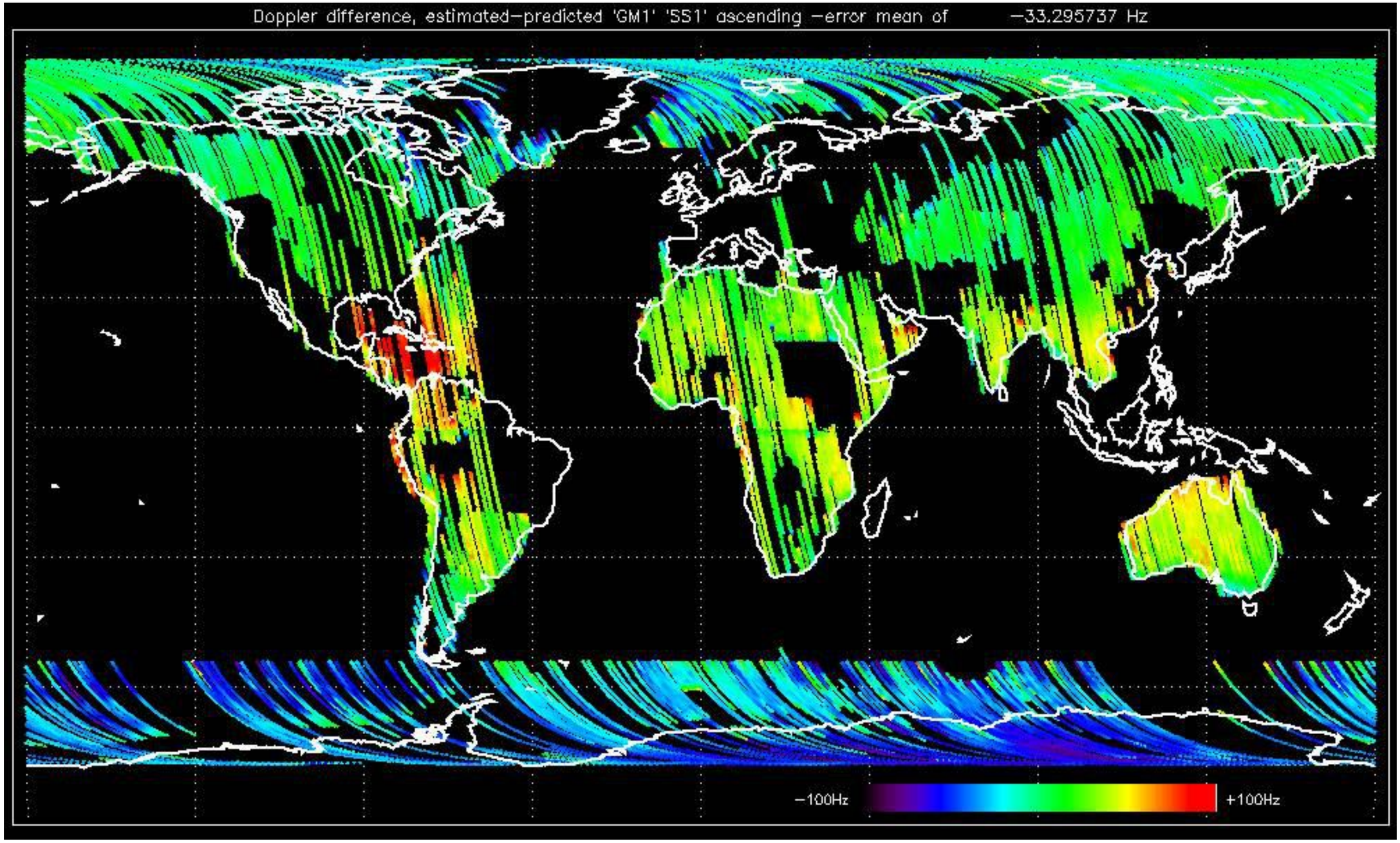

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

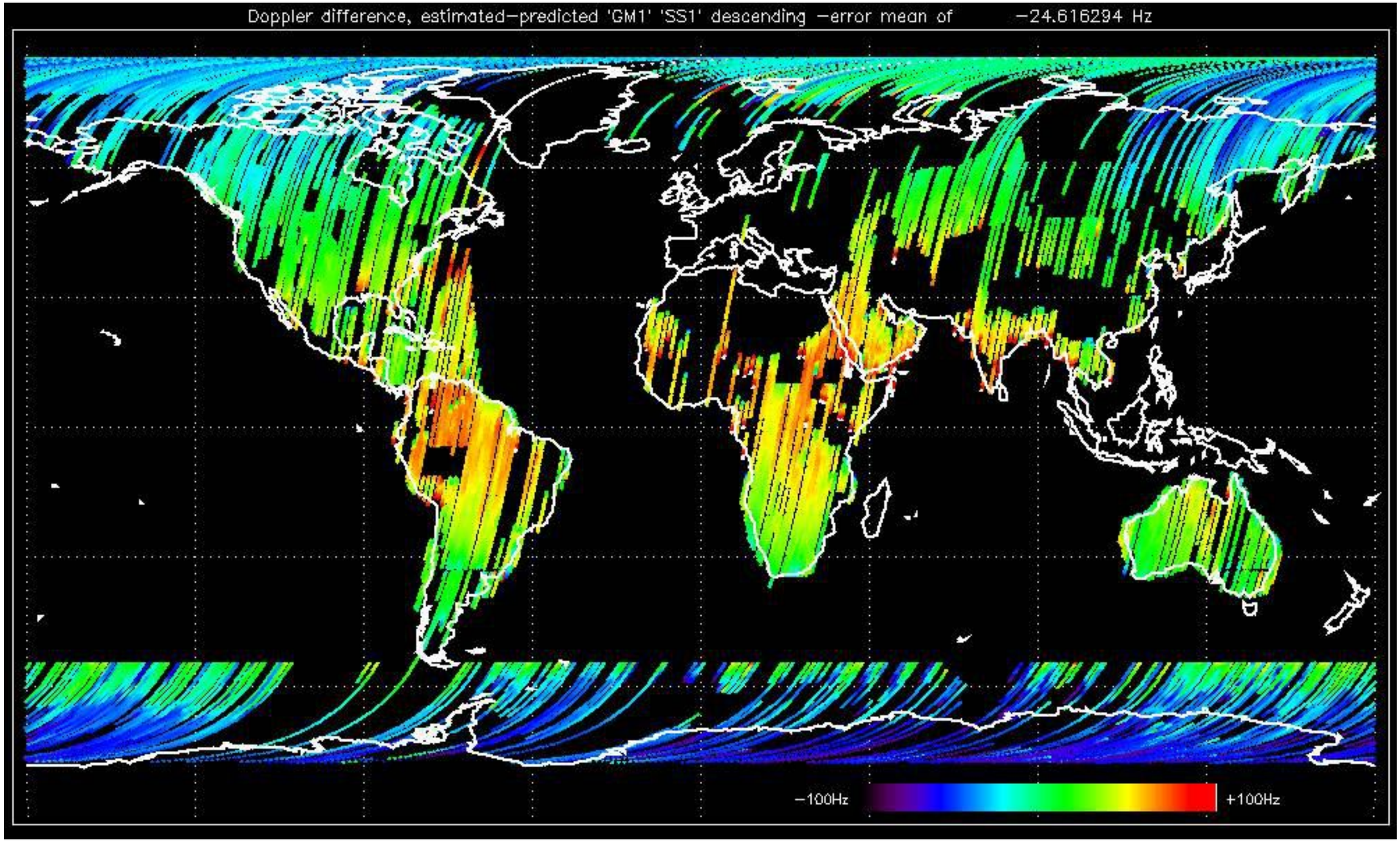

Doppler Bias[Hz]
100
50
0
−50
−100
−150
02
04
06
08
10
12
14
16
18
20
12−Aug
Date

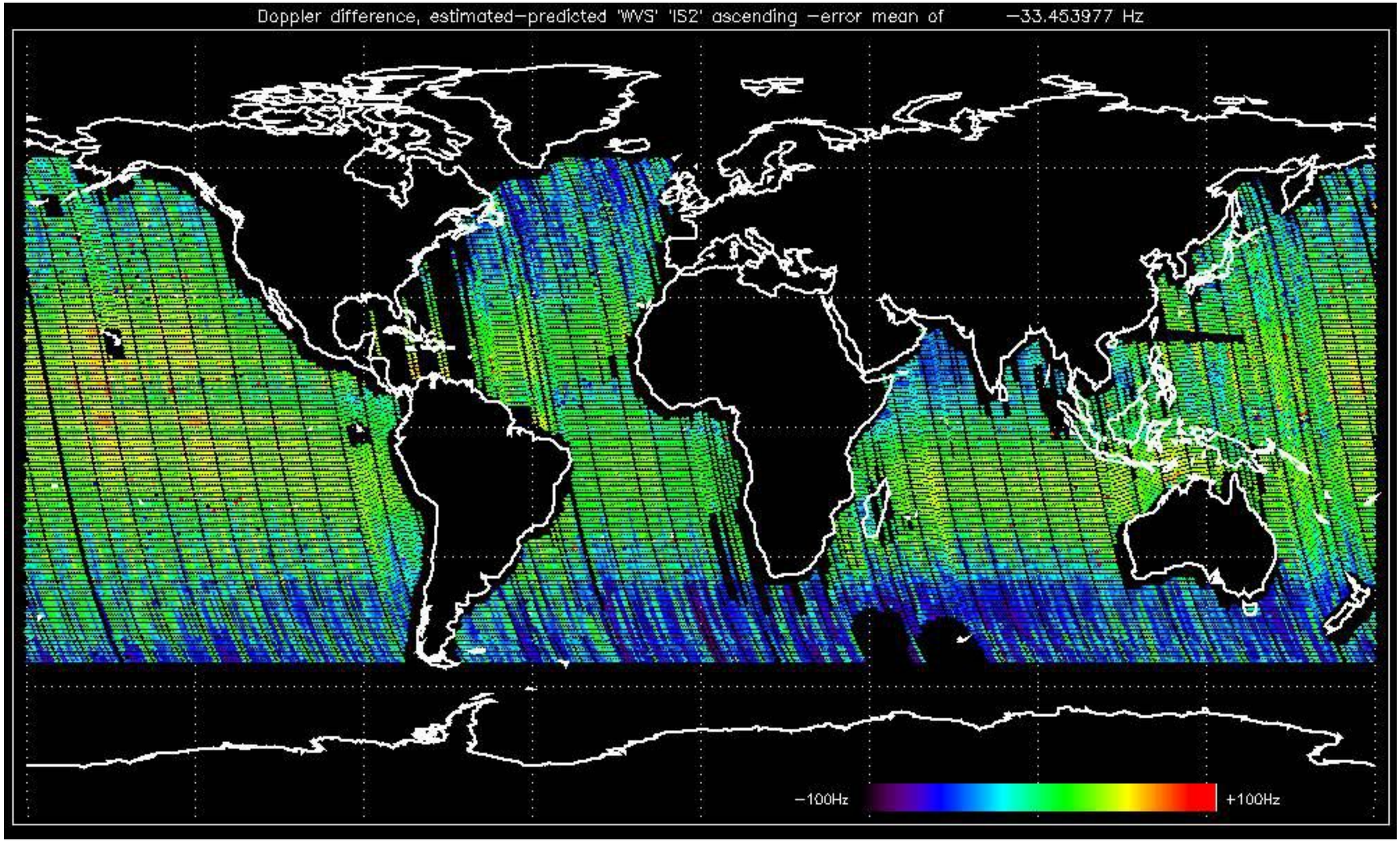

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

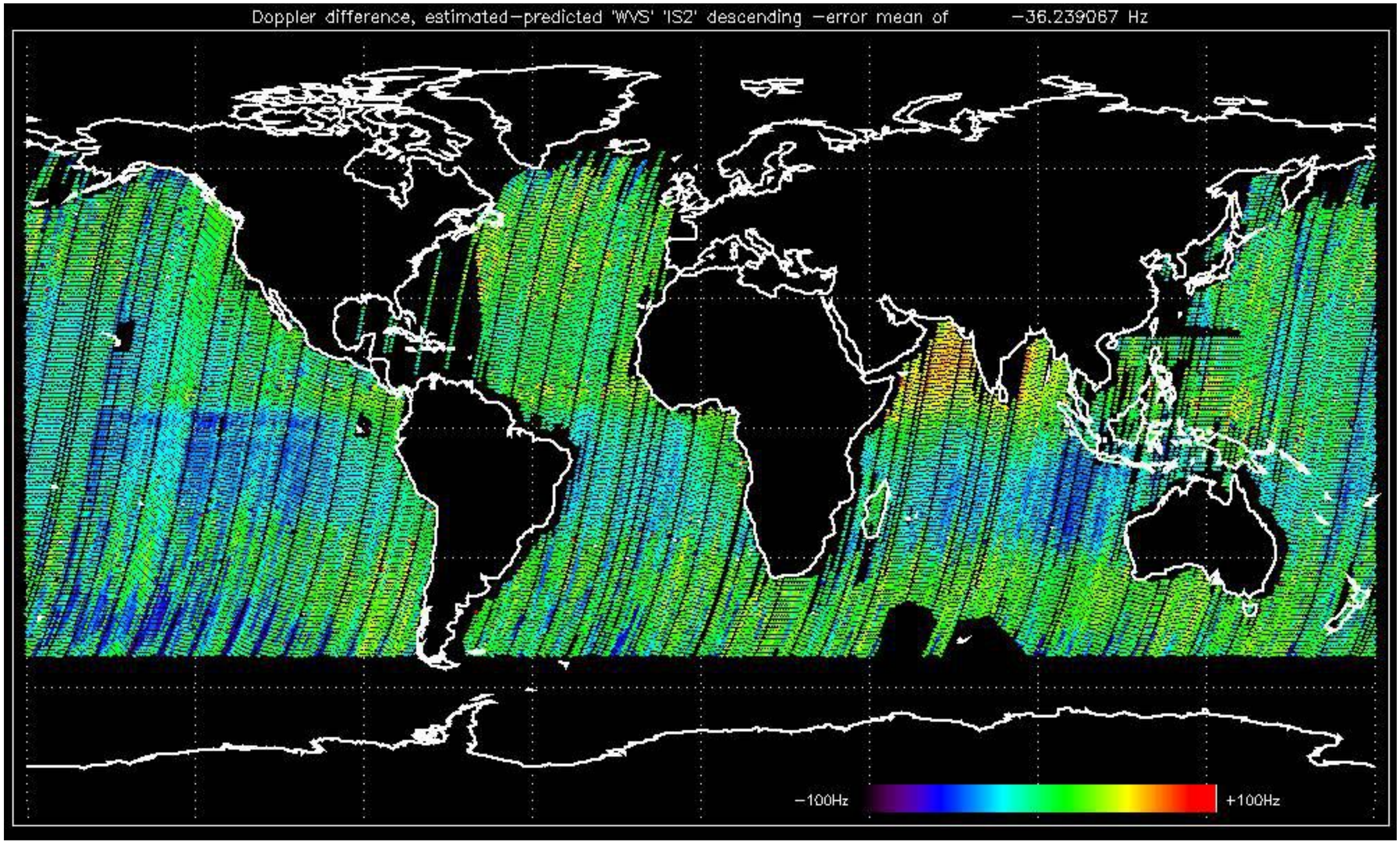

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


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


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −33.295737 Hz
−100Hz
+100Hz

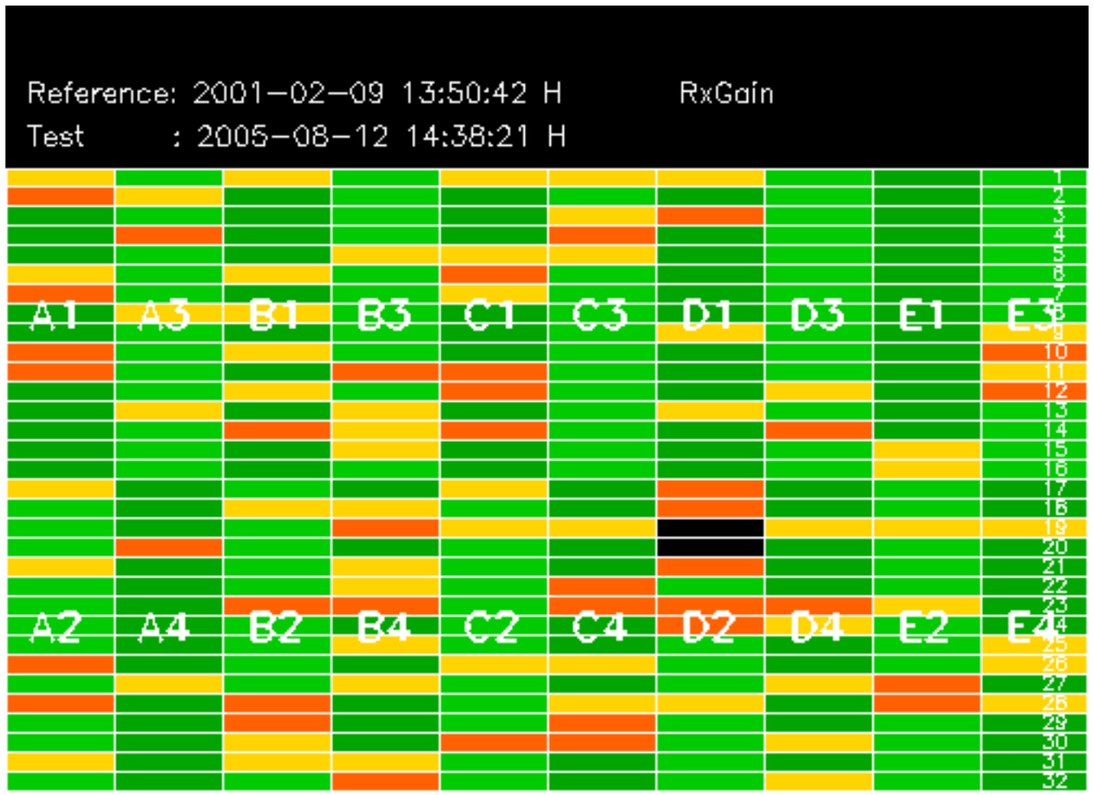

Doppler difference, estimated−predicted 'GM1' 'SS1' descending −error mean of −24.616294 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −33.453977 Hz
−100Hz
+100Hz

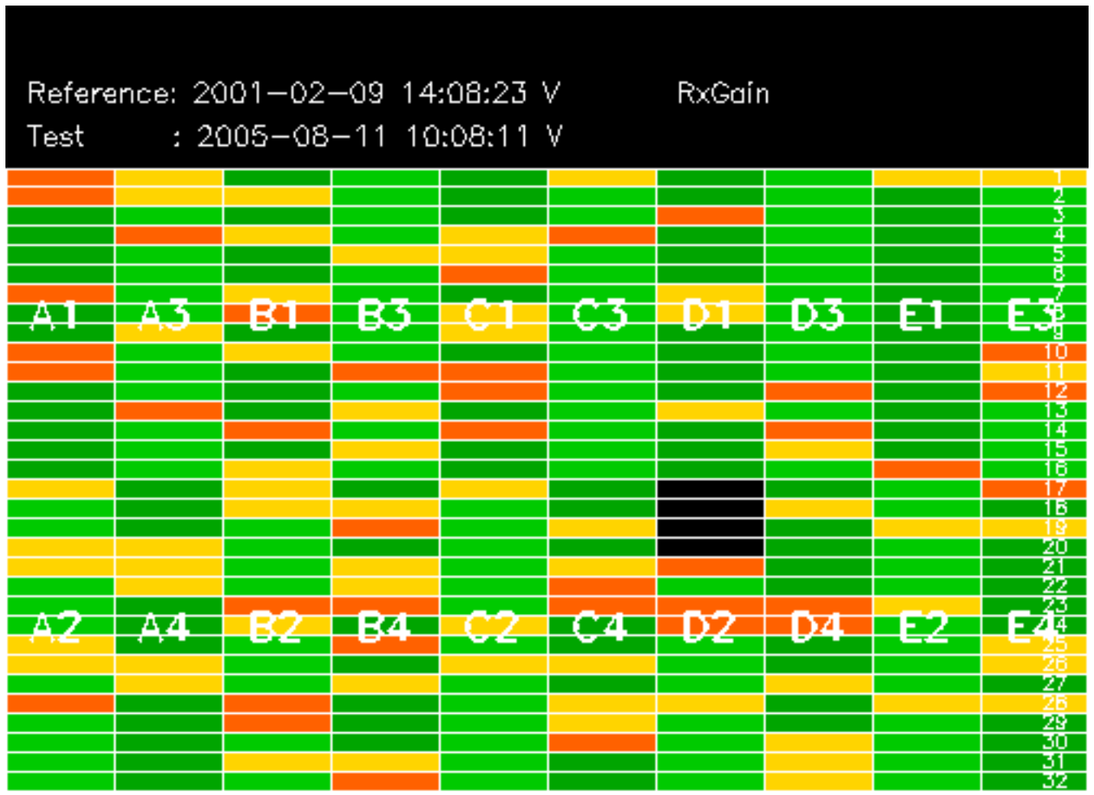

Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −36.239067 Hz
−100Hz
+100Hz

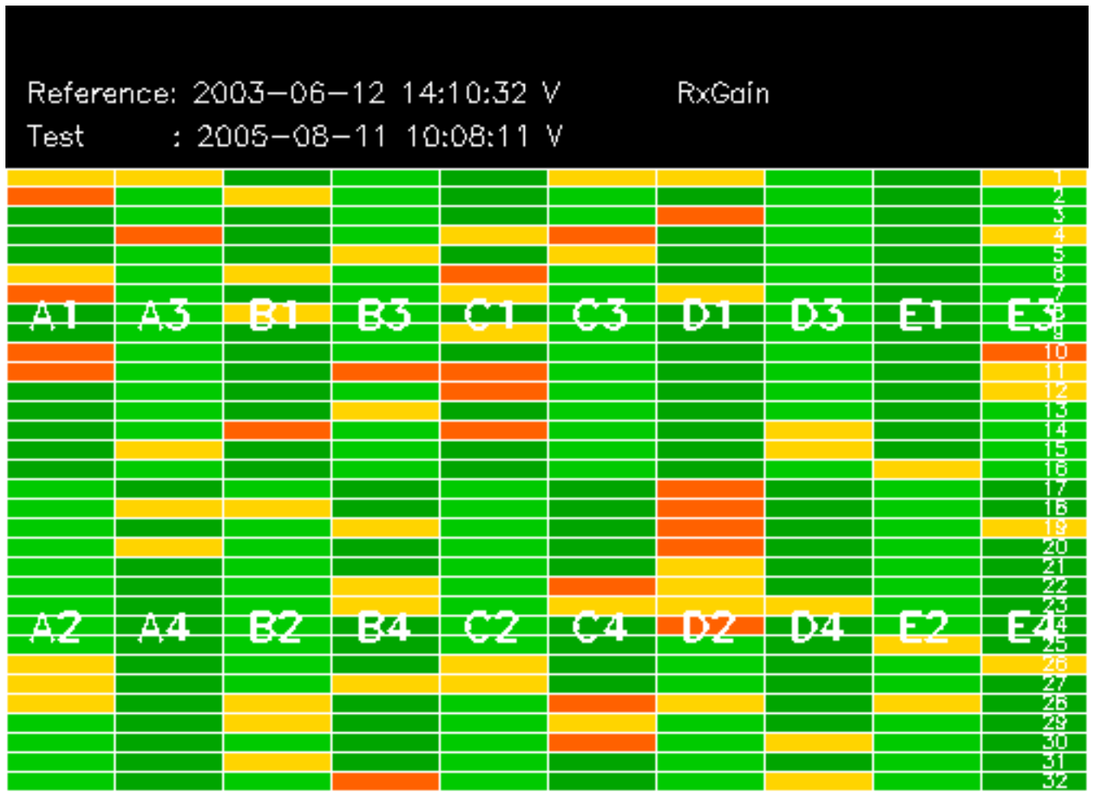
No anomalies observed on available MS products:

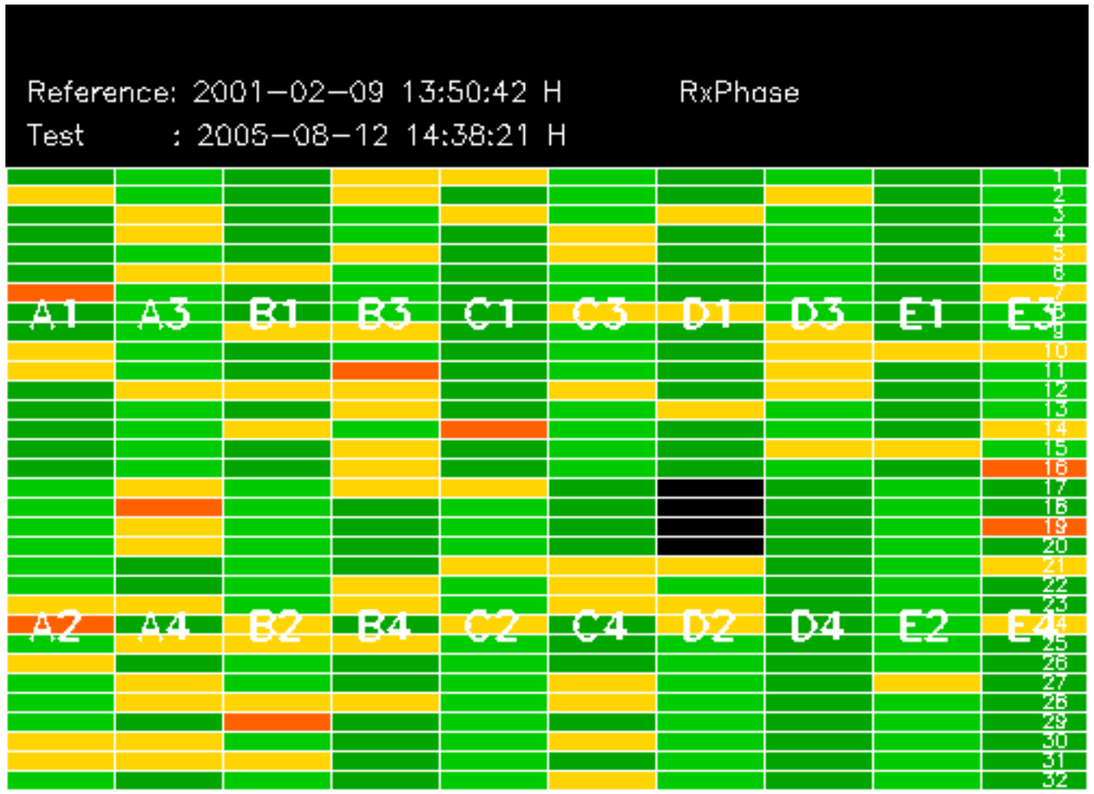
No anomalies observed.


Reference: 2001-02-09 13:50:42 H
RxGain
Test : 2005-08-12 14:38:21 H
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

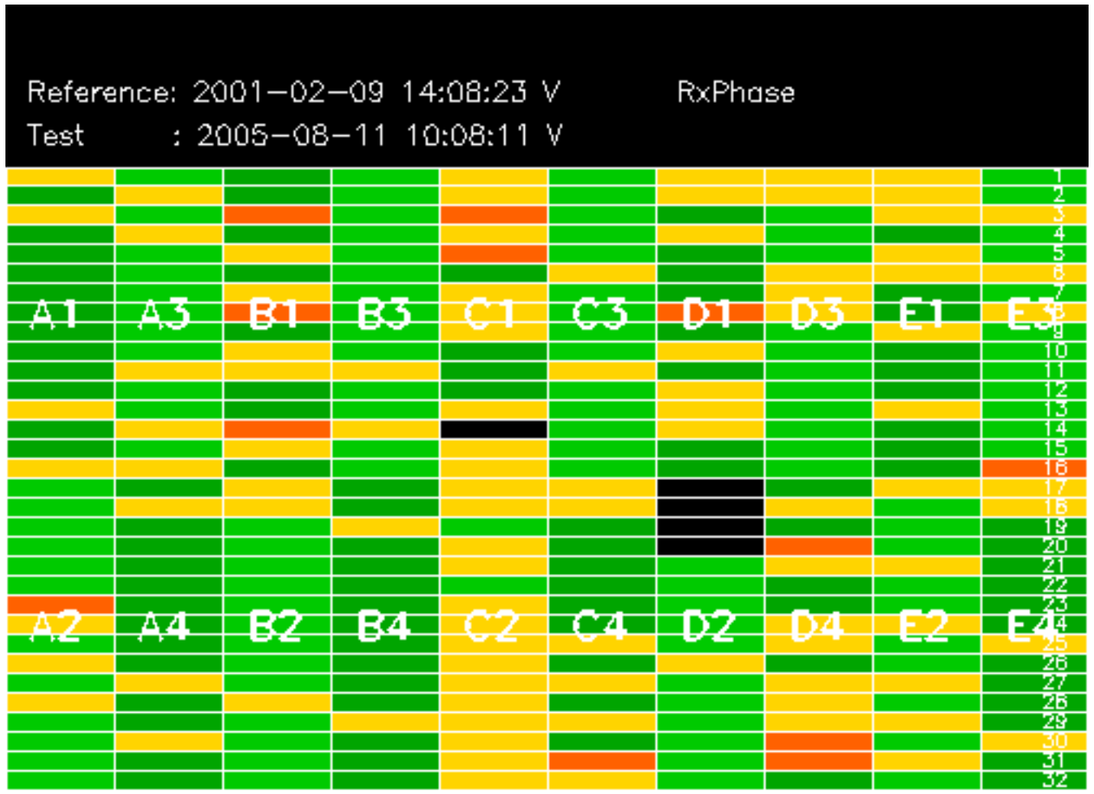
Reference: 2003-06-12 14:08:52 H
Test : 2005-08-12 14:38:21 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

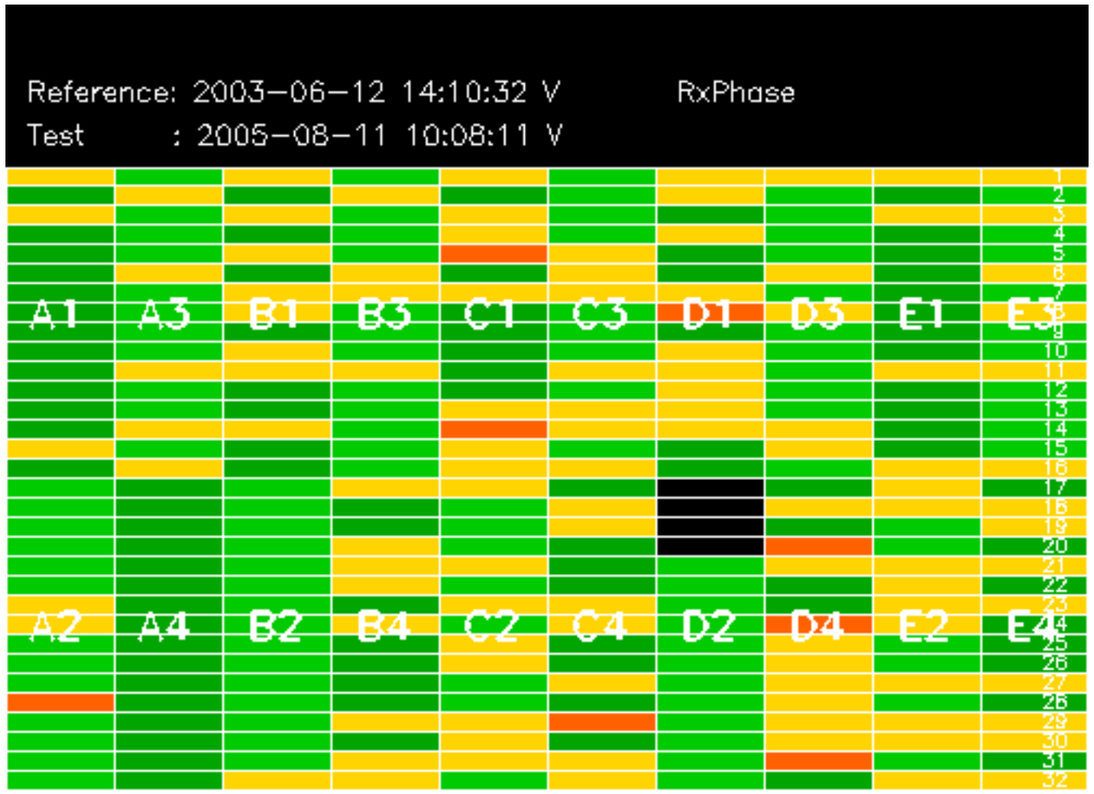

Reference: 2001-02-09 14:08:23 V
Test : 2005-08-11 10:08:11 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

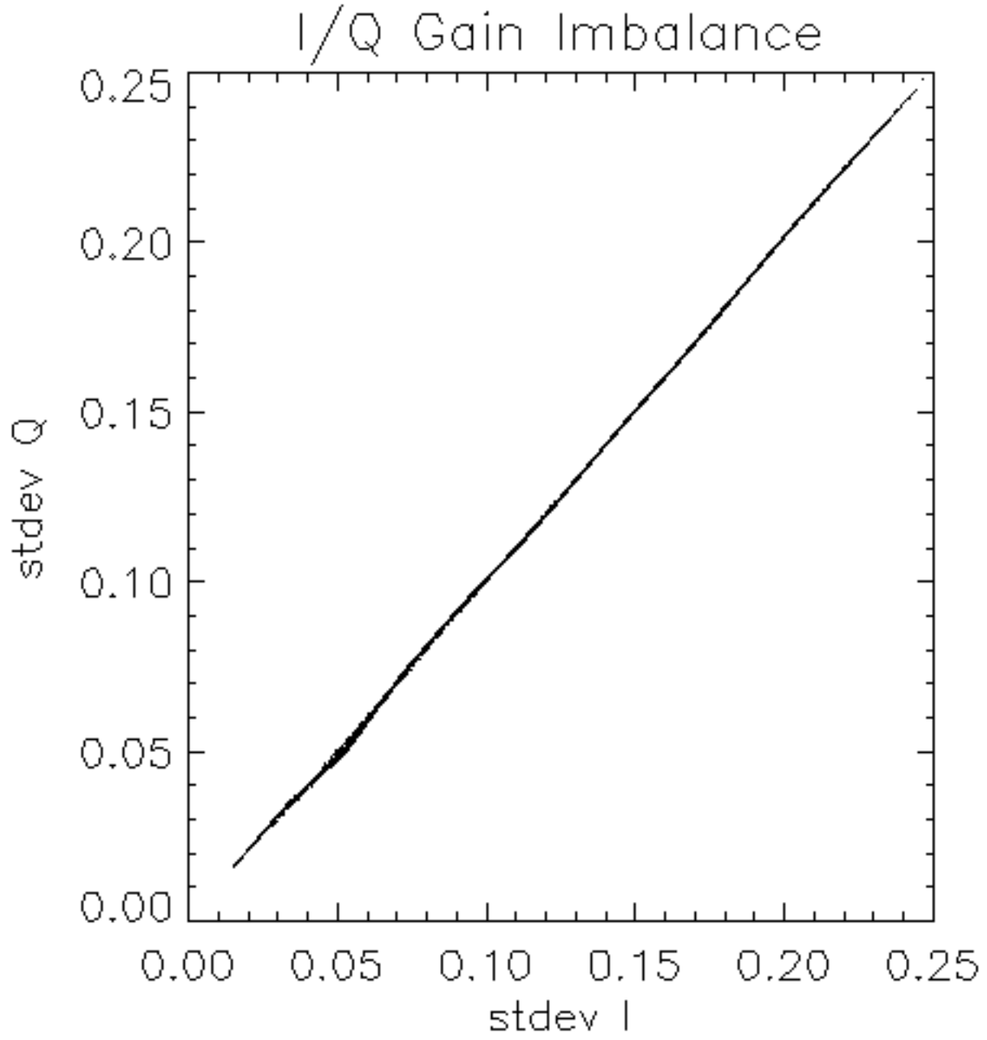

Reference: 2003-06-12 14:10:32 V
Test : 2005-08-11 10:08:11 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

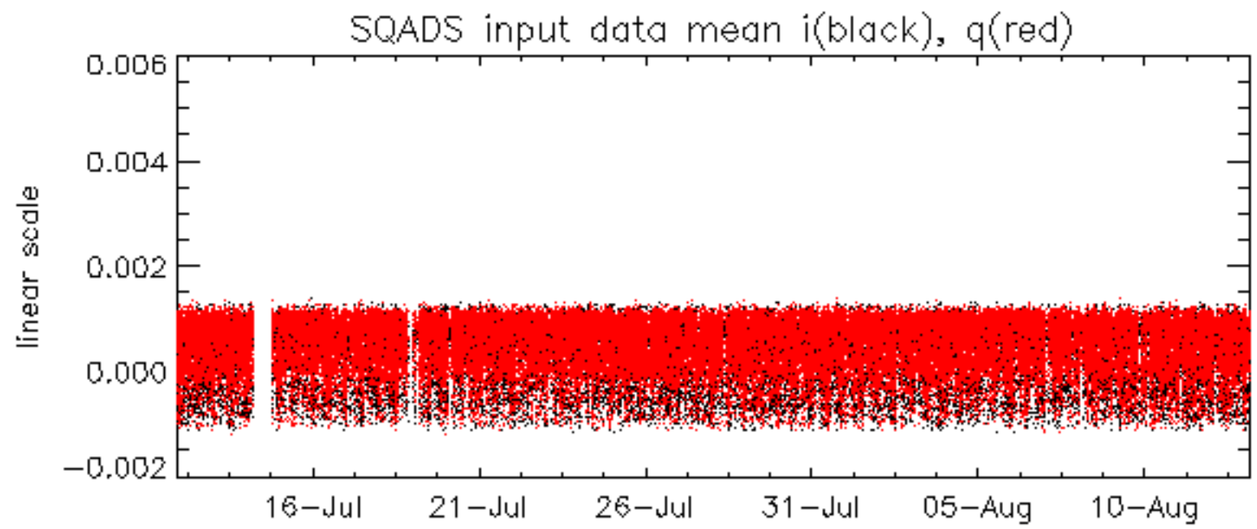

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-08-12 14:38:21 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

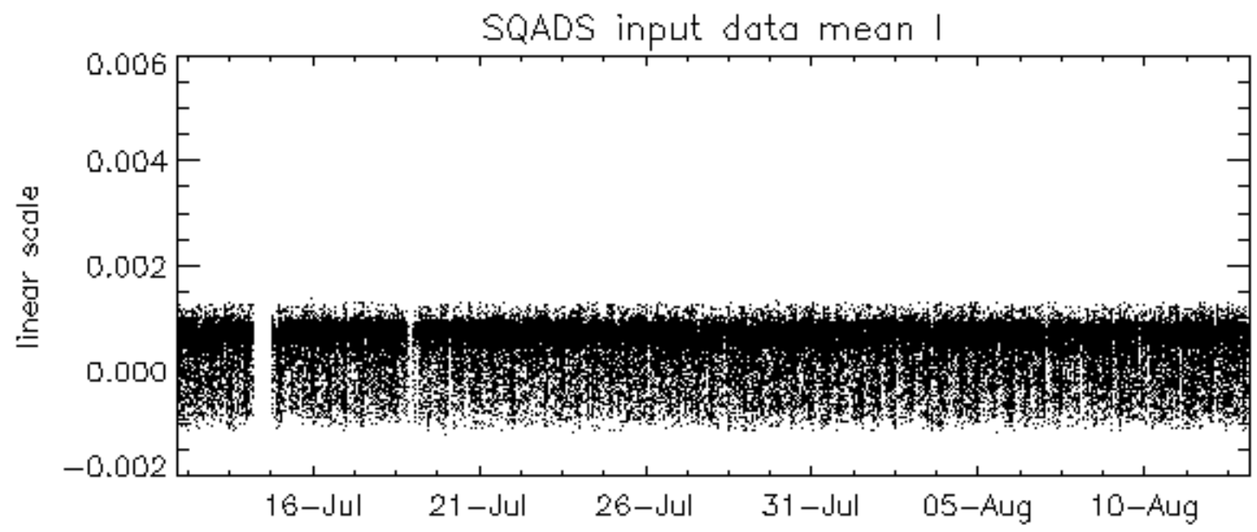
Reference: 2003-06-12 14:08:52 H
Test : 2005-08-12 14:38:21 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

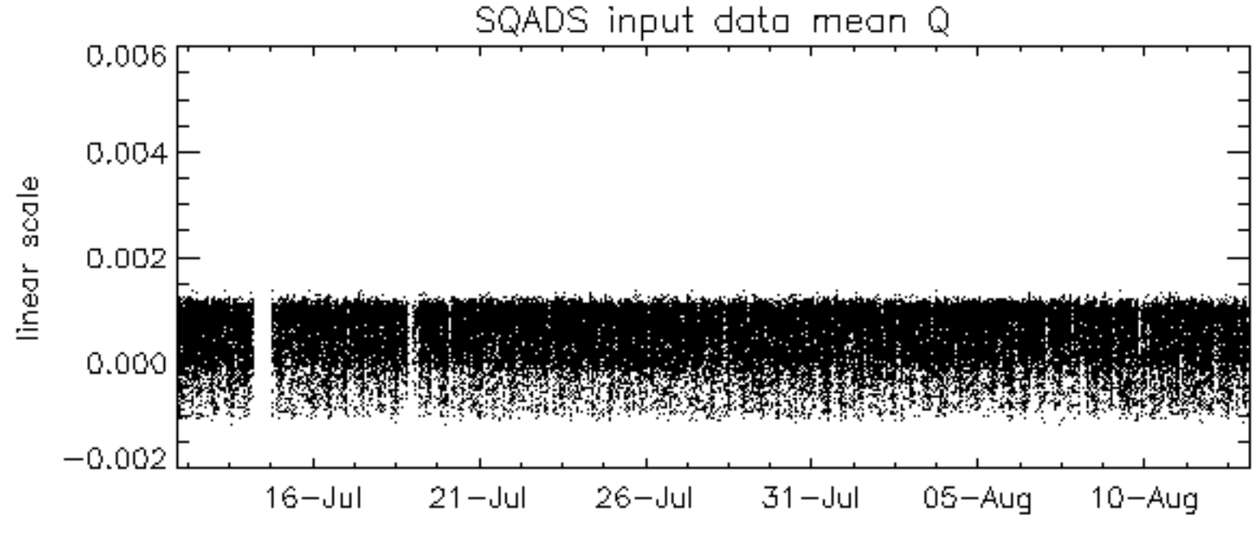

Reference: 2001-02-09 14:08:23 V
Test : 2005-08-11 10:08:11 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

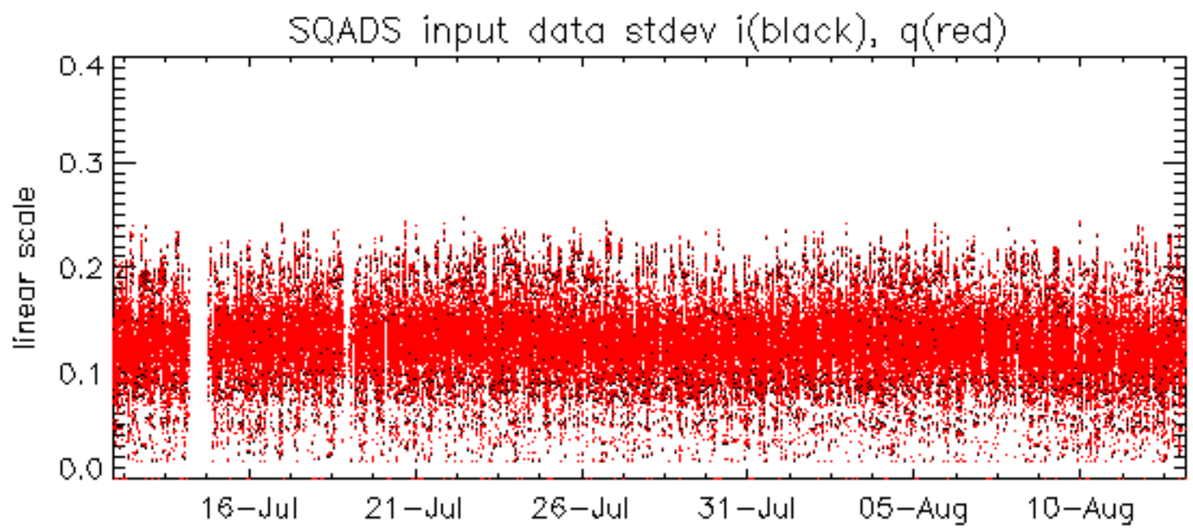

Reference: 2003-06-12 14:10:32 V
Test : 2005-08-11 10:08:11 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

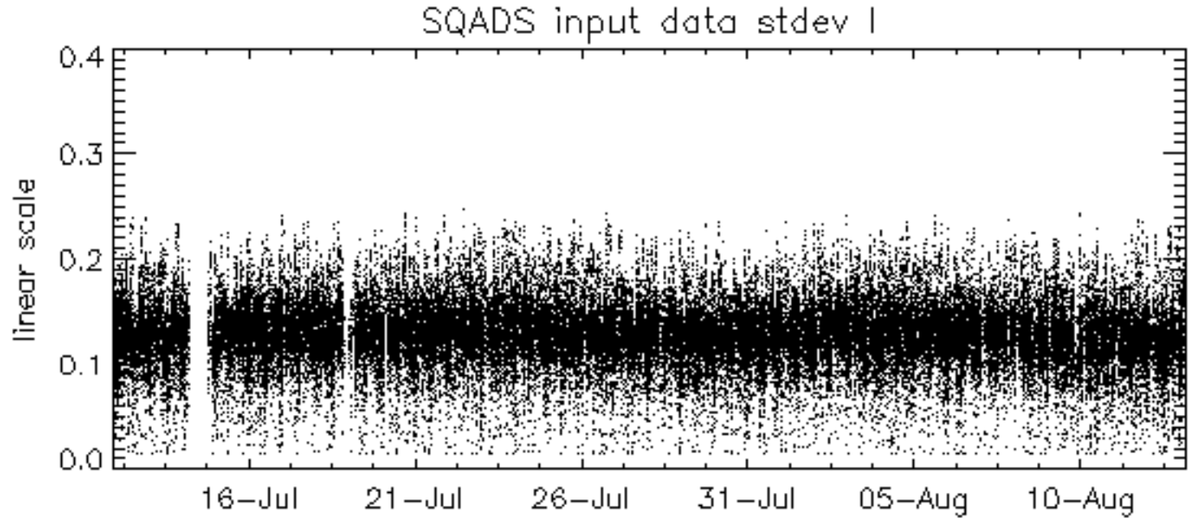

I/Q Gain Imbalance
0.25
0.20
0.15
0.10
0.05
0.00
stdev Q
0.00
0.05
0.10
0.15
0.20
0.25
stdev I

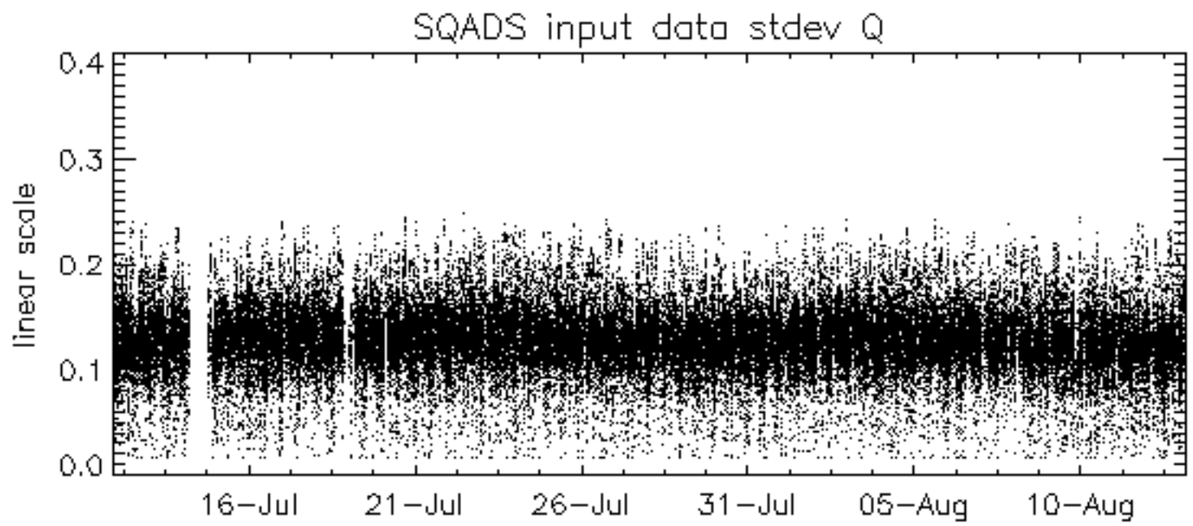

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Jul
21−Jul
26−Jul
31−Jul
05−Aug
10−Aug

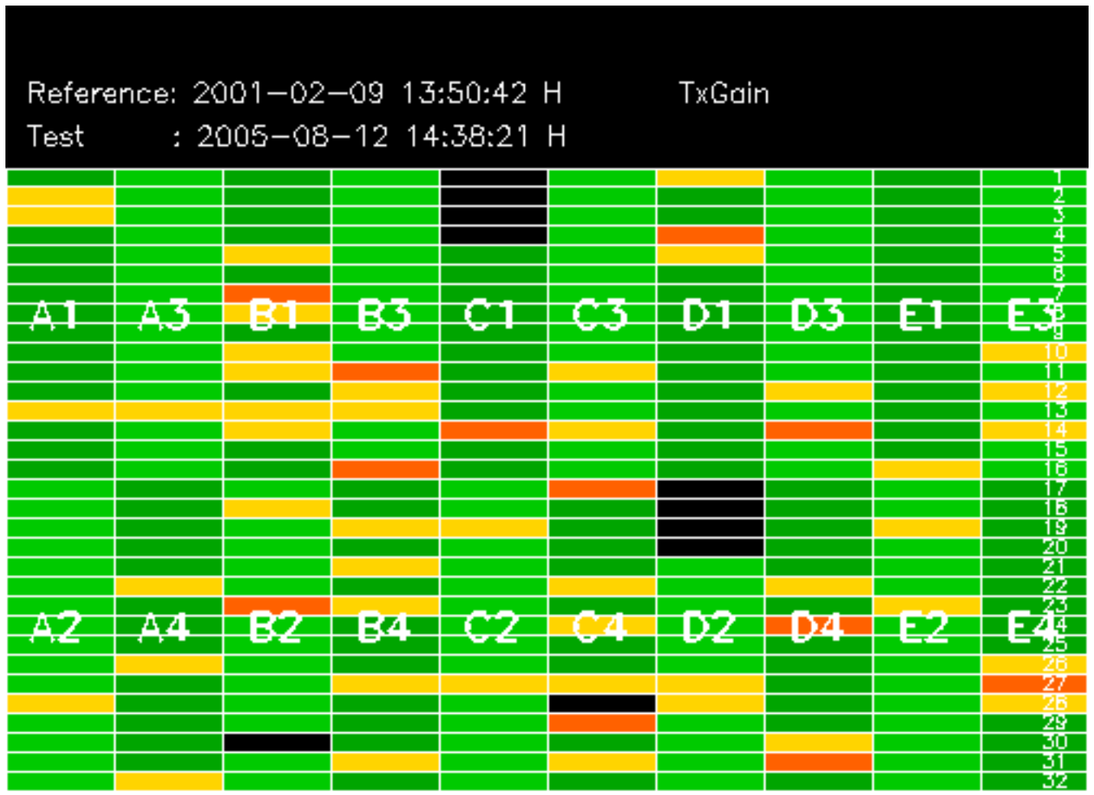

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Jul
21−Jul
26−Jul
31−Jul
05−Aug
10−Aug

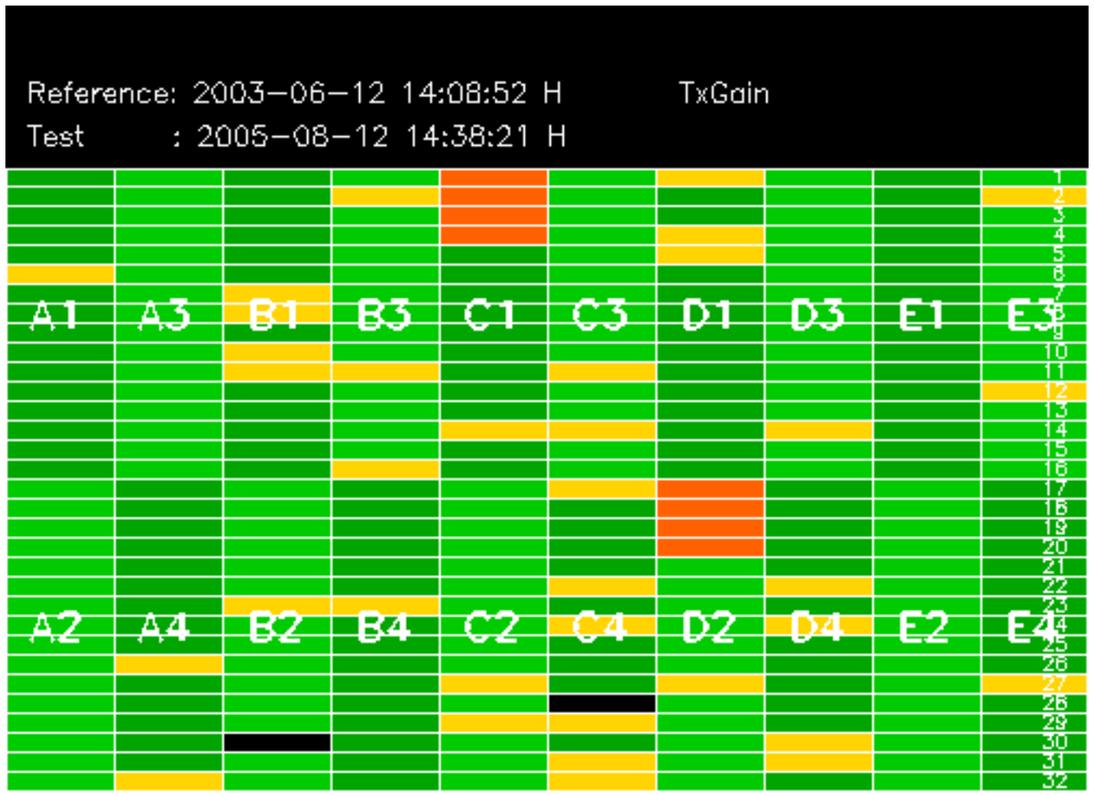

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Jul
21−Jul
26−Jul
31−Jul
05−Aug
10−Aug


SQADS input data stdev i(black), q(red)
linear scale
0.4
0.3
0.2
0.1
0.0
16-Jul
21-Jul
26-Jul
31-Jul
05-Aug
10-Aug


SQADS input data stdev I
linear scale
0.4
0.3
0.2
0.1
0.0
16-Jul
21-Jul
26-Jul
31-Jul
05-Aug
10-Aug


SQADS input data stdev Q
linear scale
0.4
0.3
0.2
0.1
0.0
16-Jul
21-Jul
26-Jul
31-Jul
05-Aug
10-Aug


Reference: 2001-02-09 13:50:42 H
Test : 2005-08-12 14:38:21 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 : 2005-08-12 14:38:21 H
TxGain
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
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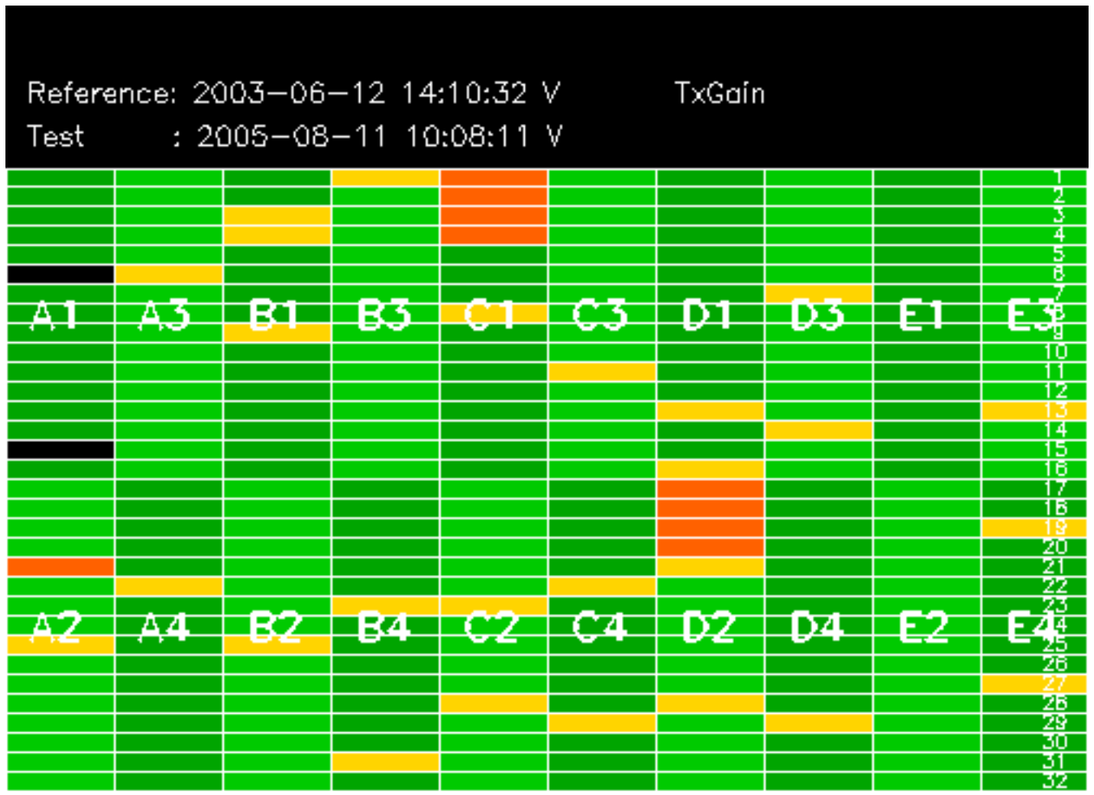
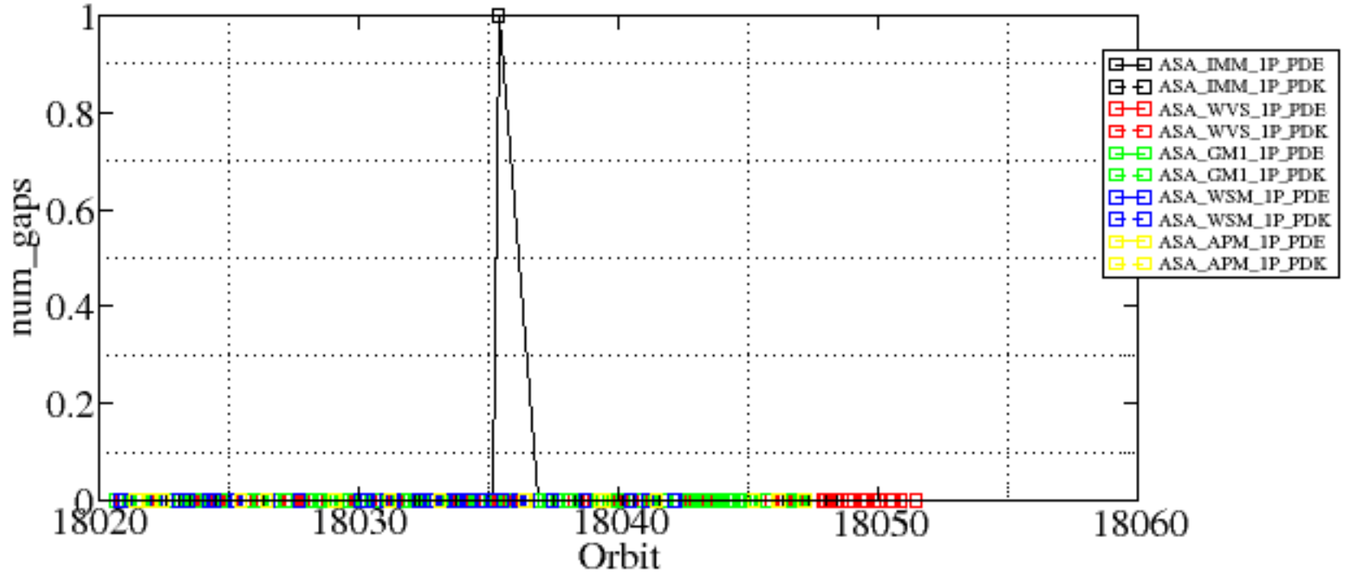
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

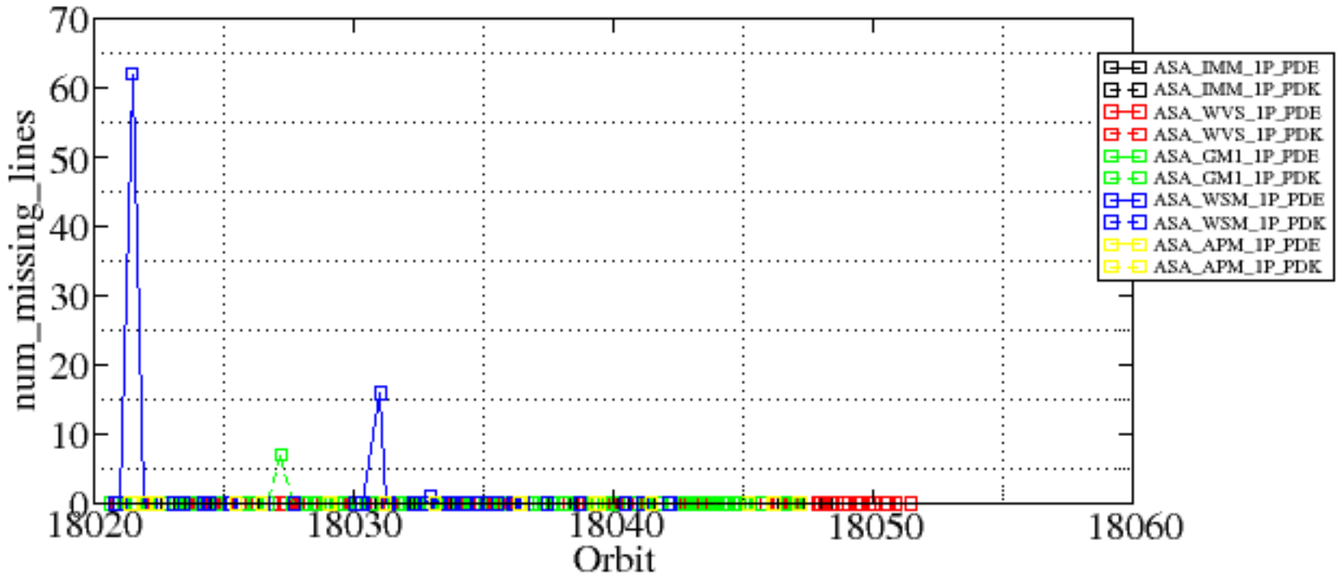
Reference: 2001-02-09 14:08:23 V
Test : 2005-08-11 10:08:11 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

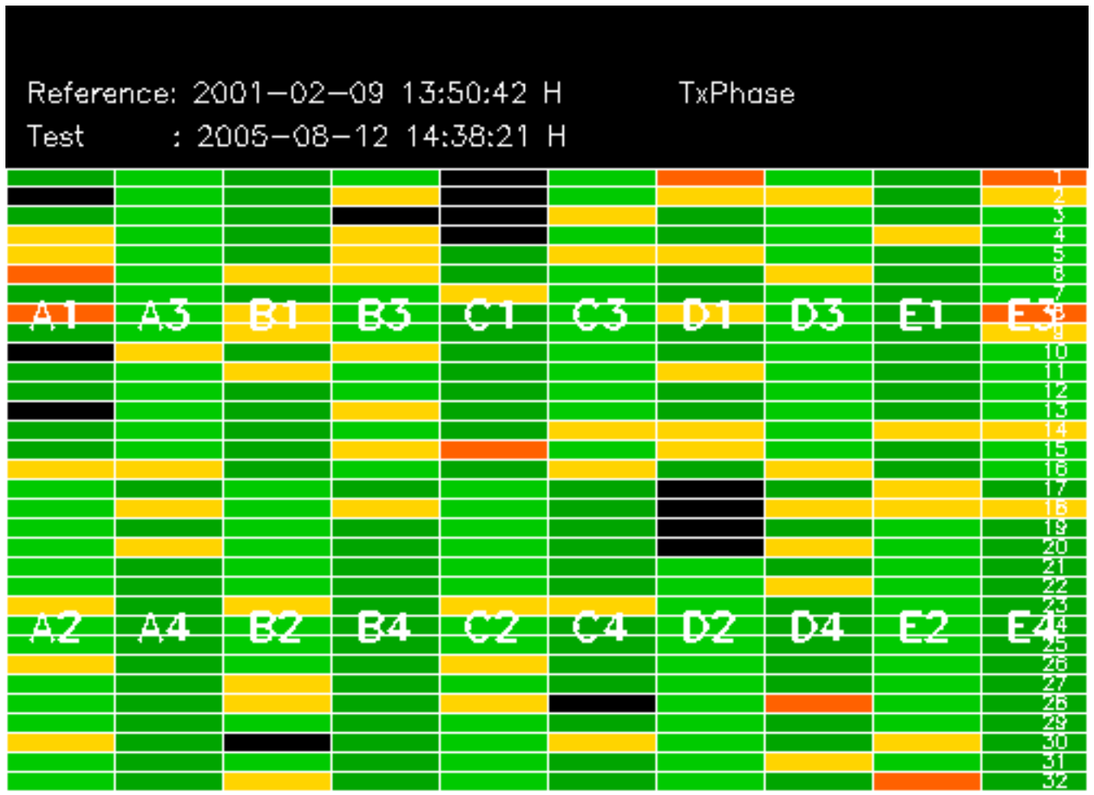

Reference: 2003-06-12 14:10:32 V
Test : 2005-08-11 10:08:11 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

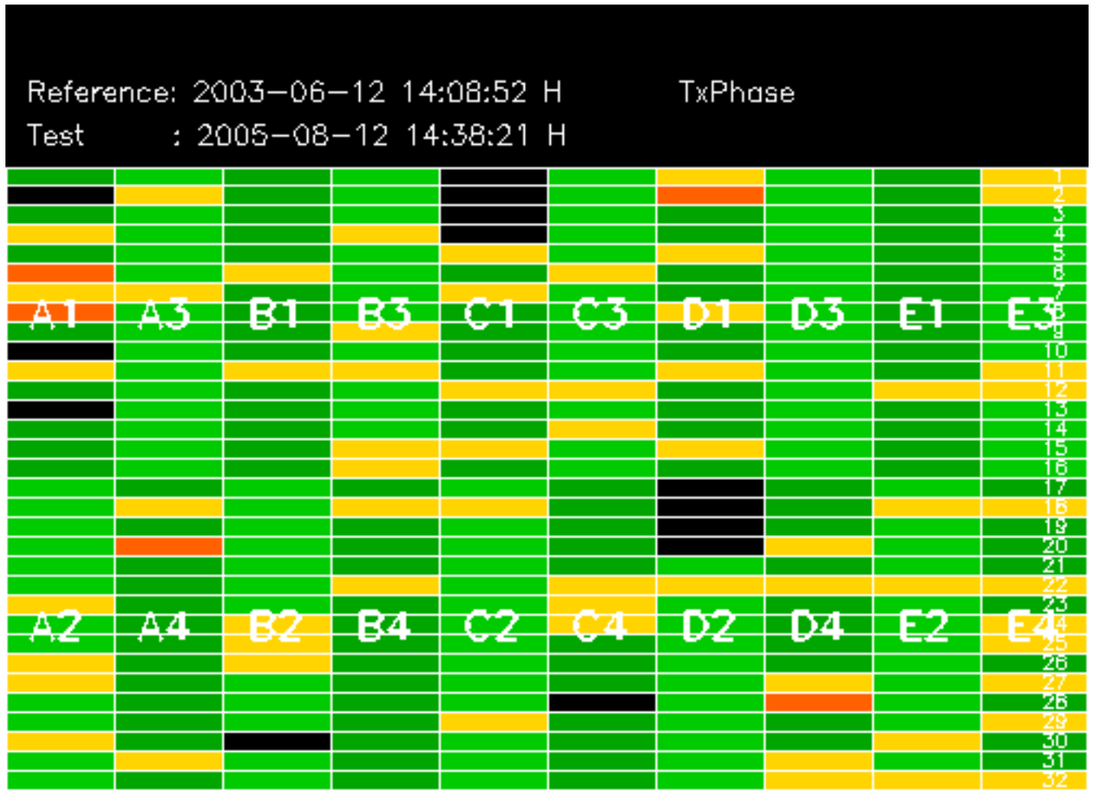
Summary of analysis for the last 3 days 2005081[123]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems

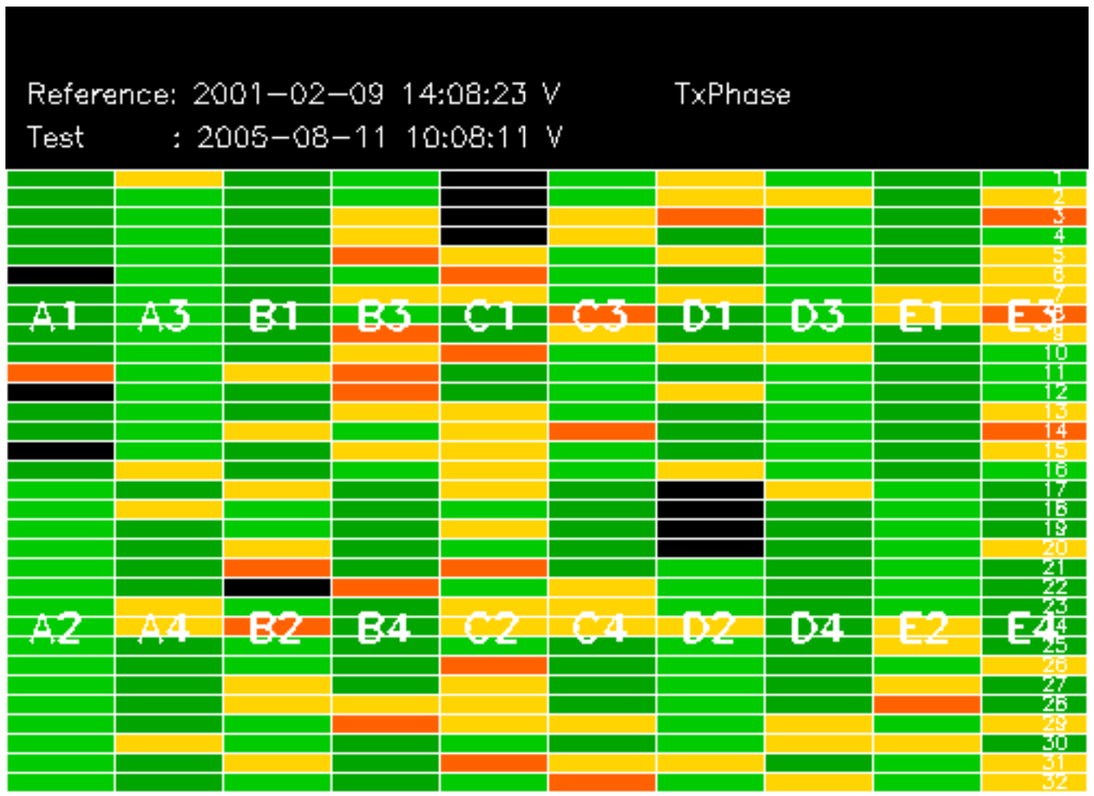
<table border=1>
<tr> <th>Filename </th><th> num_gaps</th><th>num_missing_lines</th></tr>
<tr> <td>ASA_IMM_1PNPDE20050812_004347_000001572039_00446_18035_2259.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_GM1_1PNPDK20050811_110131_000003742039_00438_18027_2062.N1 </td> <td>0 </td> <td>7 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050811_012533_000003612039_00432_18021_3986.N1 </td> <td>0 </td> <td>62 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050811_172656_000001042039_00442_18031_4067.N1 </td> <td>0 </td> <td>16 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050811_204047_000001152039_00443_18032_4103.N1 </td> <td>0 </td> <td>1 </td></tr>
</table>

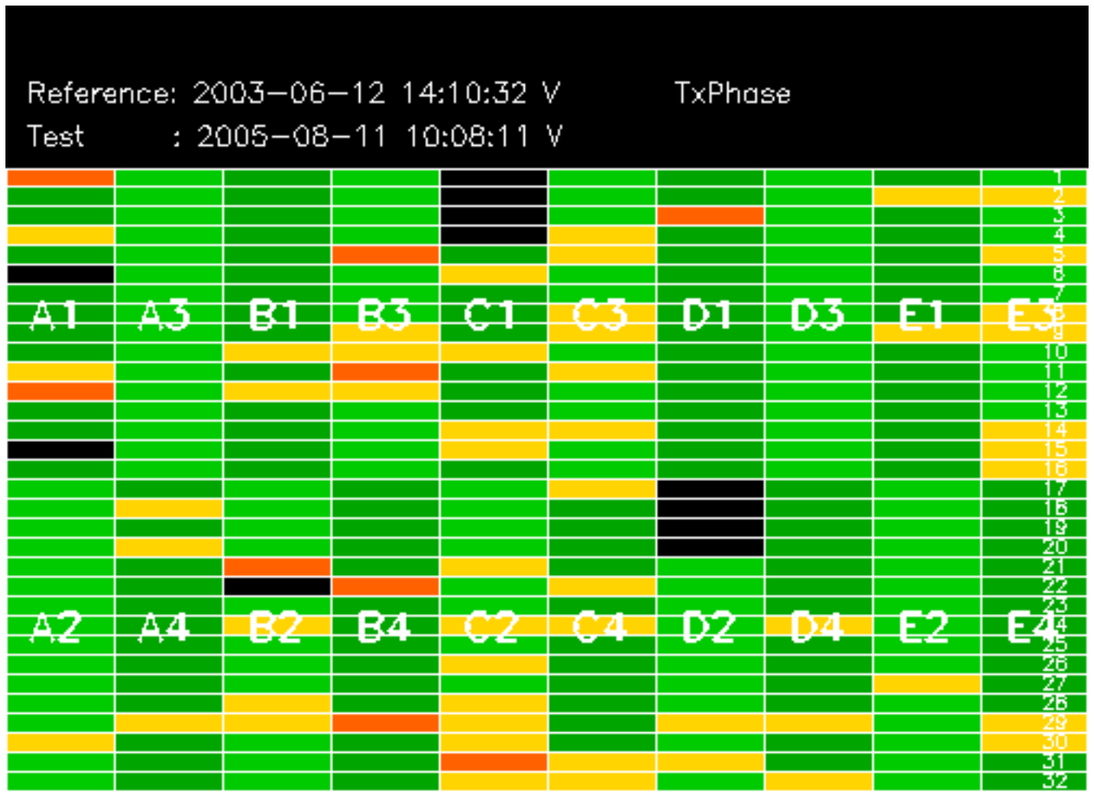

num_gaps
Orbit
1
0.8
0.6
0.4
0.2
0
18020
18030
18040
18050
18060
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_WSM_1P_PDK
ASA_APM_1P_PDE
ASA_APM_1P_PDK


num_missing_lines
70
60
50
40
30
20
10
0
18020
18030
18040
18050
18060
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
ASA_APM_1P_PDK


Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2005-08-12 14:38:21 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
TxPhase
Test : 2005-08-12 14:38:21 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 : 2005-08-11 10:08:11 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 : 2005-08-11 10:08:11 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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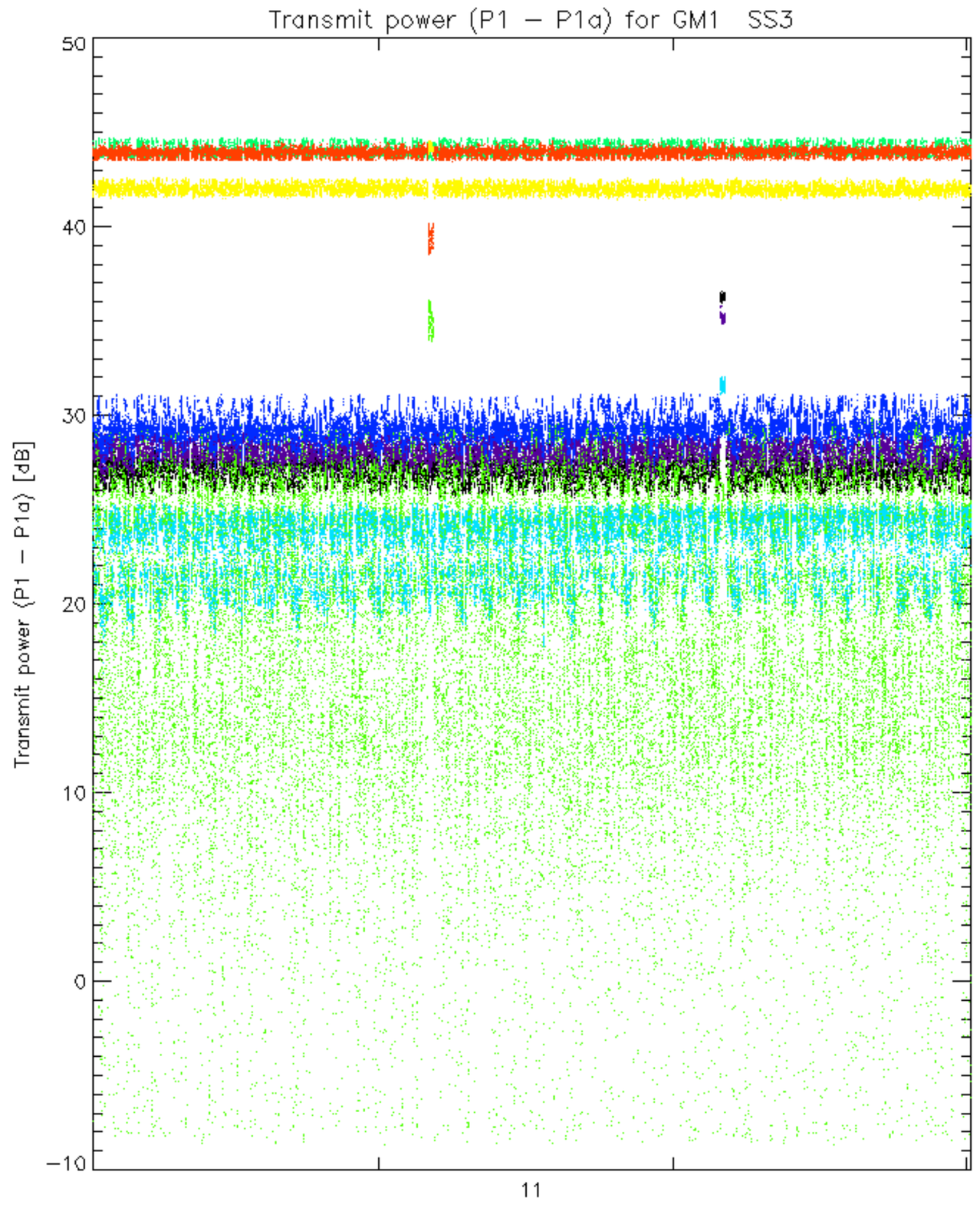
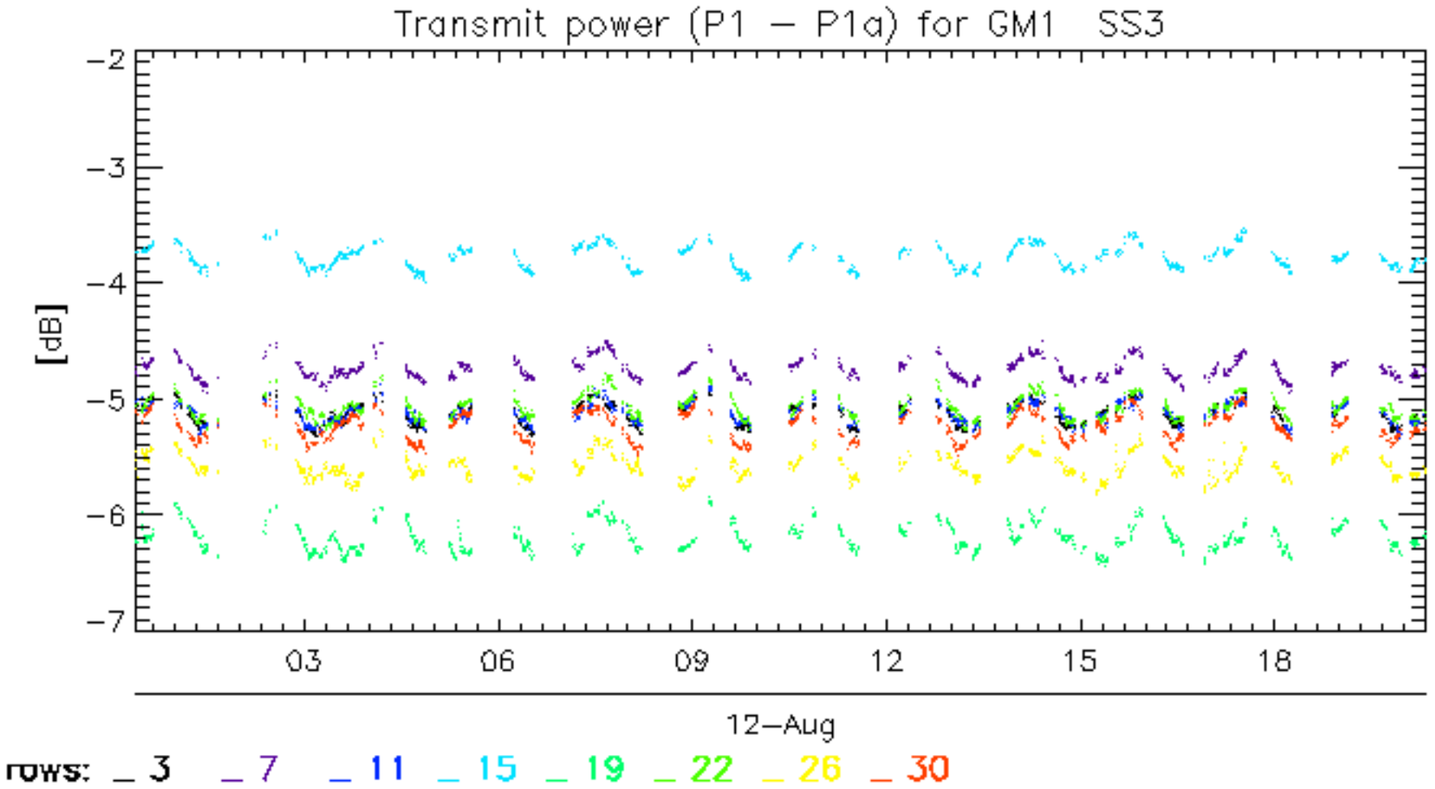
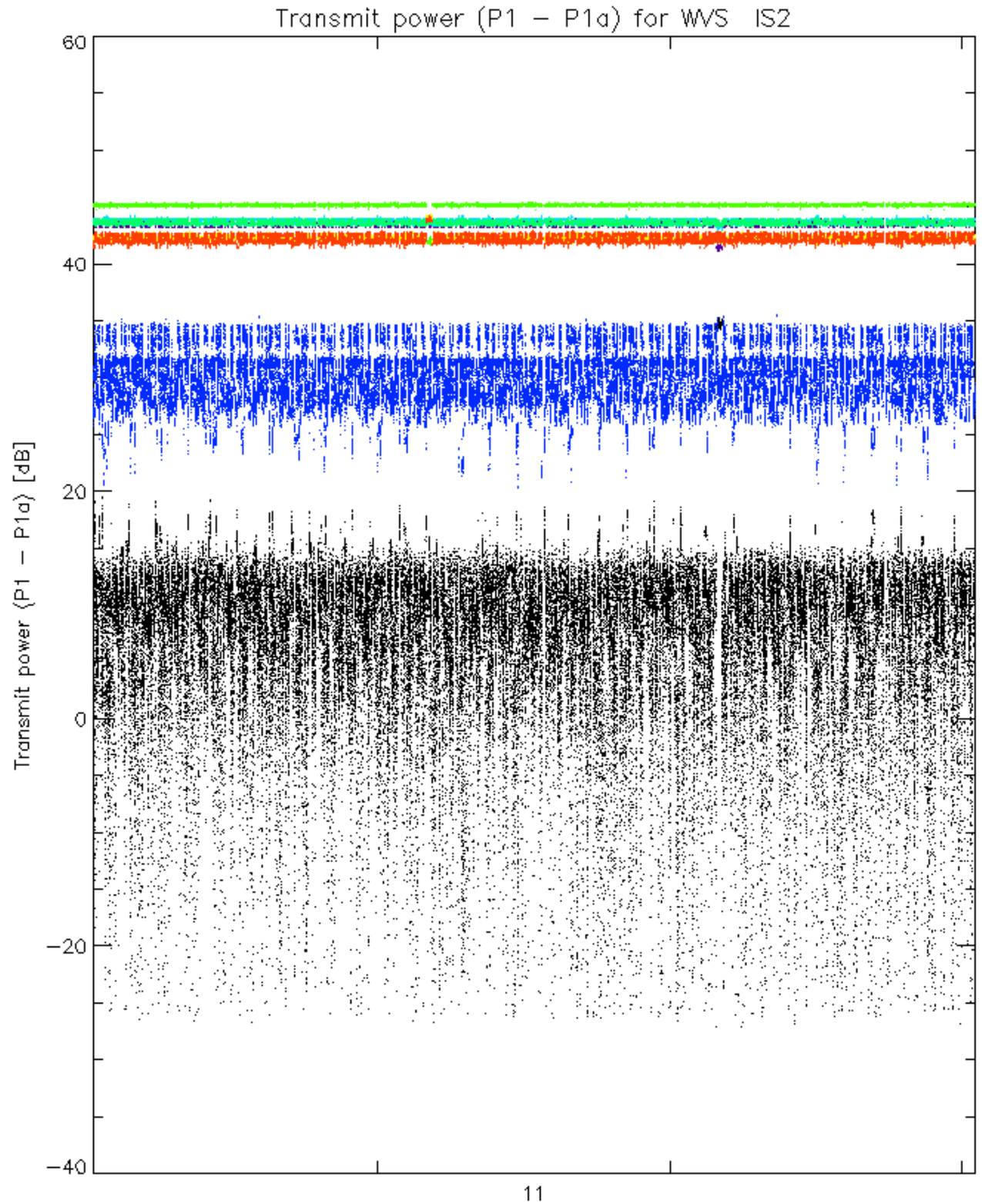
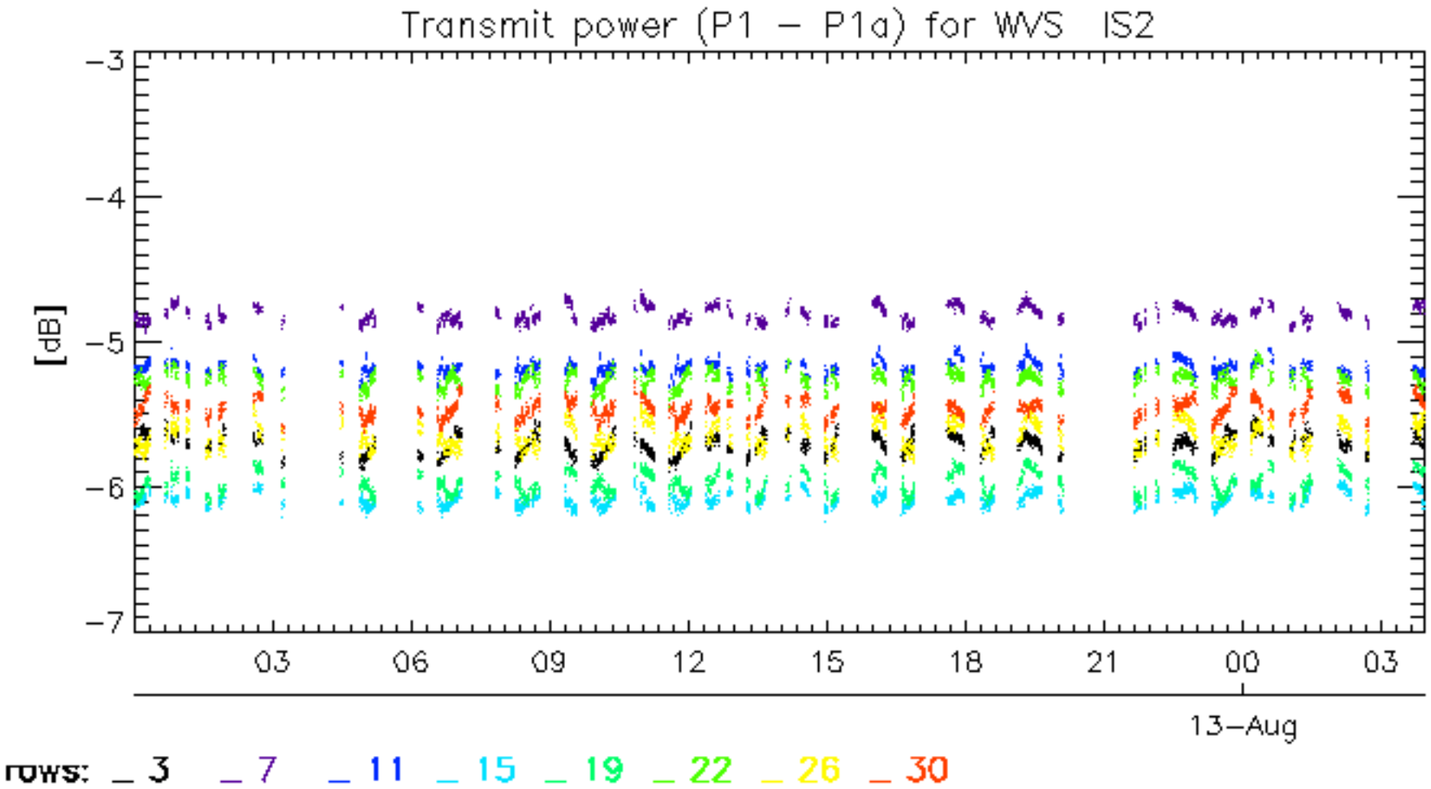

Transmit power (P1 – P1a) for GM1 SS3
Transmit power (P1 – P1a) [dB]
50
40
30
20
10
0
−10
11
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
−2
−3
−4
−5
−6
−7
03
06
09
12
15
18
12–Aug
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]
11
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
[dB]
−3
−4
−5
−6
−7
03
06
09
12
15
18
21
00
03
13–Aug
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.