PRELIMINARY REPORT OF 050925

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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 2005-09-24 00:00:00 to 2005-09-25 10:50:01

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

ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	29	0	0	0	0
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	29	0	0	0	0
ASA_XCA_AXVIEC20050803_152145_20040412_000000_20051231_000000	29	0	0	0	0
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	29	0	0	0	0

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	42	55	37	8	49
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	42	55	37	8	49
ASA_XCA_AXVIEC20050803_152145_20040412_000000_20051231_000000	42	55	37	8	49
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	42	55	37	8	49

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	20050923 055514
H	20050924 084449

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	-3.435560	0.086369	-0.477870
7	P1	-3.105533	0.034326	0.295268
11	P1	-4.557896	0.138643	0.711696
15	P1	-5.766855	0.069014	-0.505378
19	P1	-3.505416	0.237601	1.021995
22	P1	-4.572212	0.022322	0.193216
26	P1	-4.698910	0.095411	0.529236
30	P1	-6.676267	0.669909	2.082455
3	P1	-15.900083	1.844793	-0.781285
7	P1	-16.436544	5.386407	-2.258810
11	P1	-20.664423	11.283060	5.149518
15	P1	-12.884133	11.376916	-4.394052
19	P1	-14.134507	0.342575	1.333579
22	P1	-17.042150	25.114893	-3.889080
26	P1	-18.233826	21.736725	-1.964940
30	P1	-18.236439	8.635699	-0.096098

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-21.759663	0.099780	-0.216238
7	P2	-22.180157	0.324366	-1.201930
11	P2	-14.655393	3.060742	-4.460031
15	P2	-7.126620	0.124320	-0.290344
19	P2	-9.348420	0.234792	0.684809
22	P2	-17.061708	0.253935	-1.021002
26	P2	-16.374315	0.138577	0.466658
30	P2	-19.122023	0.275959	-1.102220

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.161709	0.004552	-0.031342
7	P3	-8.161709	0.004552	-0.031342
11	P3	-8.161709	0.004552	-0.031342
15	P3	-8.161709	0.004552	-0.031342
19	P3	-8.161709	0.004552	-0.031342
22	P3	-8.161709	0.004552	-0.031342
26	P3	-8.161709	0.004552	-0.031342
30	P3	-8.161709	0.004552	-0.031342

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	-2.938666	0.224333	-0.780463
7	P1	-2.989825	0.083787	-0.097330
11	P1	-3.720850	0.295330	1.300118
15	P1	-3.572941	0.036572	0.237387
19	P1	-3.471822	0.089783	0.536638
22	P1	-5.429726	0.253229	0.993268
26	P1	-6.664832	1.040866	2.455037
30	P1	-5.795371	0.594143	1.721650
3	P1	-11.316426	0.570587	-1.081413
7	P1	-11.779272	21.480713	-3.166113
11	P1	-13.839100	38.764496	-1.990575
15	P1	-13.231252	35.771805	-3.619636
19	P1	-15.319661	0.224593	0.334740
22	P1	-23.881077	6.266455	5.799640
26	P1	-16.439596	6.902923	-4.210609
30	P1	-20.030376	2.064173	0.471442

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.489799	0.064903	-0.355428
7	P2	-22.350533	0.345732	-1.461628
11	P2	-10.227013	1.266631	-3.029776
15	P2	-5.019090	0.050149	0.206960
19	P2	-6.752065	0.126322	0.183176
22	P2	-7.309812	0.250081	-1.214992
26	P2	-23.923117	0.040505	0.097767
30	P2	-22.018955	0.076238	-0.304595

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.006045	0.003564	-0.018614
7	P3	-8.005974	0.003566	-0.018163
11	P3	-8.005942	0.003564	-0.017868
15	P3	-8.005918	0.003571	-0.018302
19	P3	-8.006081	0.003556	-0.018748
22	P3	-8.005885	0.003556	-0.018200
26	P3	-8.005975	0.003562	-0.018515
30	P3	-8.005888	0.003580	-0.018767

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	0.000487390
	stdev	2.05202e-07
MEAN Q	mean	0.000506341
	stdev	2.23930e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.131089
	stdev	0.00100421
STDEV Q	mean	0.131363
	stdev	0.00101602

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2005092[345]
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_1PNPDE20050924_111215_000000532041_00066_18657_6501.N1	1	0
ASA_WSM_1PNPDE20050923_163431_000001522041_00055_18646_0167.N1	0	2
ASA_WSM_1PNPDE20050923_181716_000000672041_00056_18647_0174.N1	0	32
ASA_WSM_1PNPDE20050923_231615_000000672041_00059_18650_0236.N1	0	52
ASA_WSM_1PNPDE20050924_042035_000003362041_00062_18653_0286.N1	0	39

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)

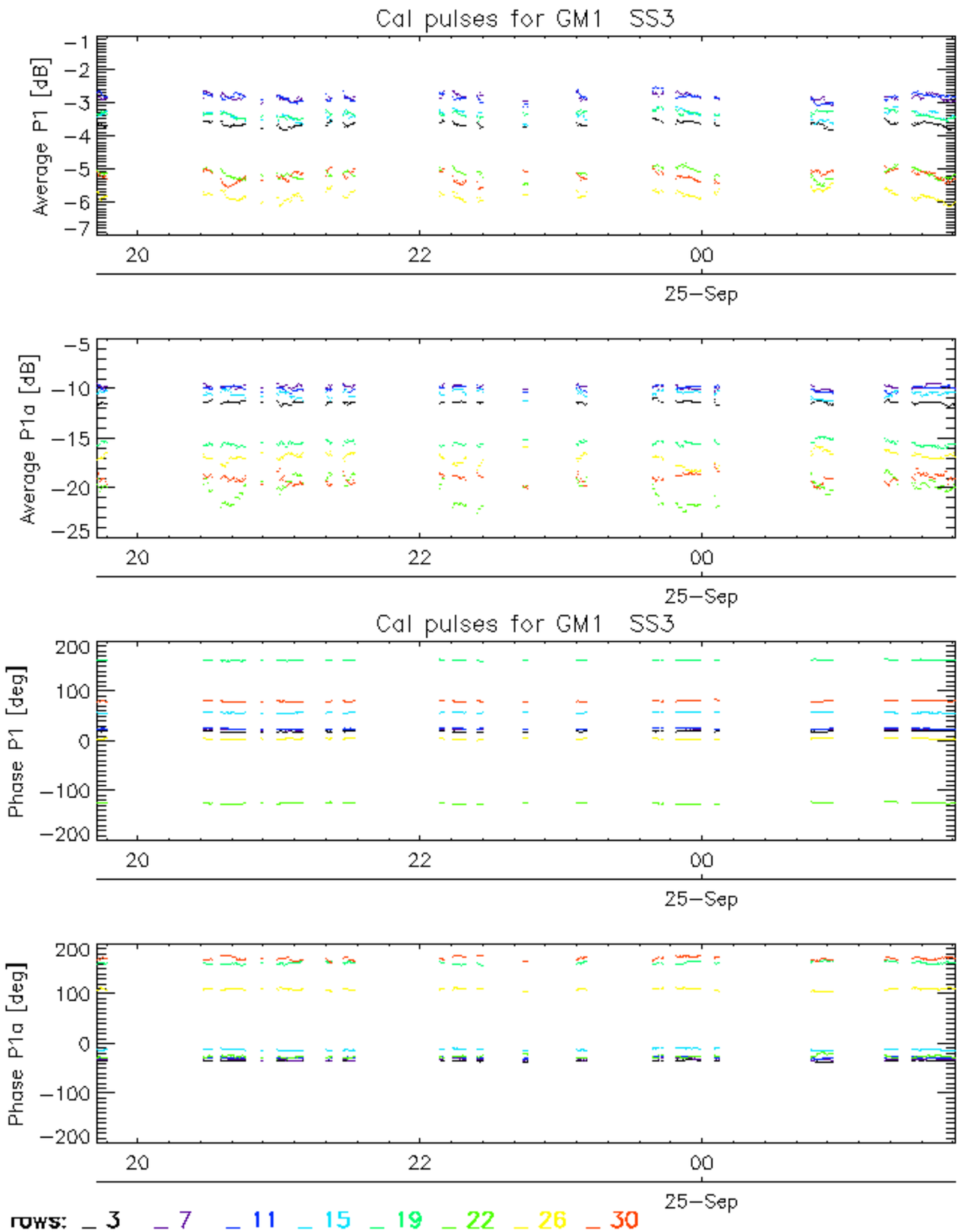
Acsending
☒
Descending

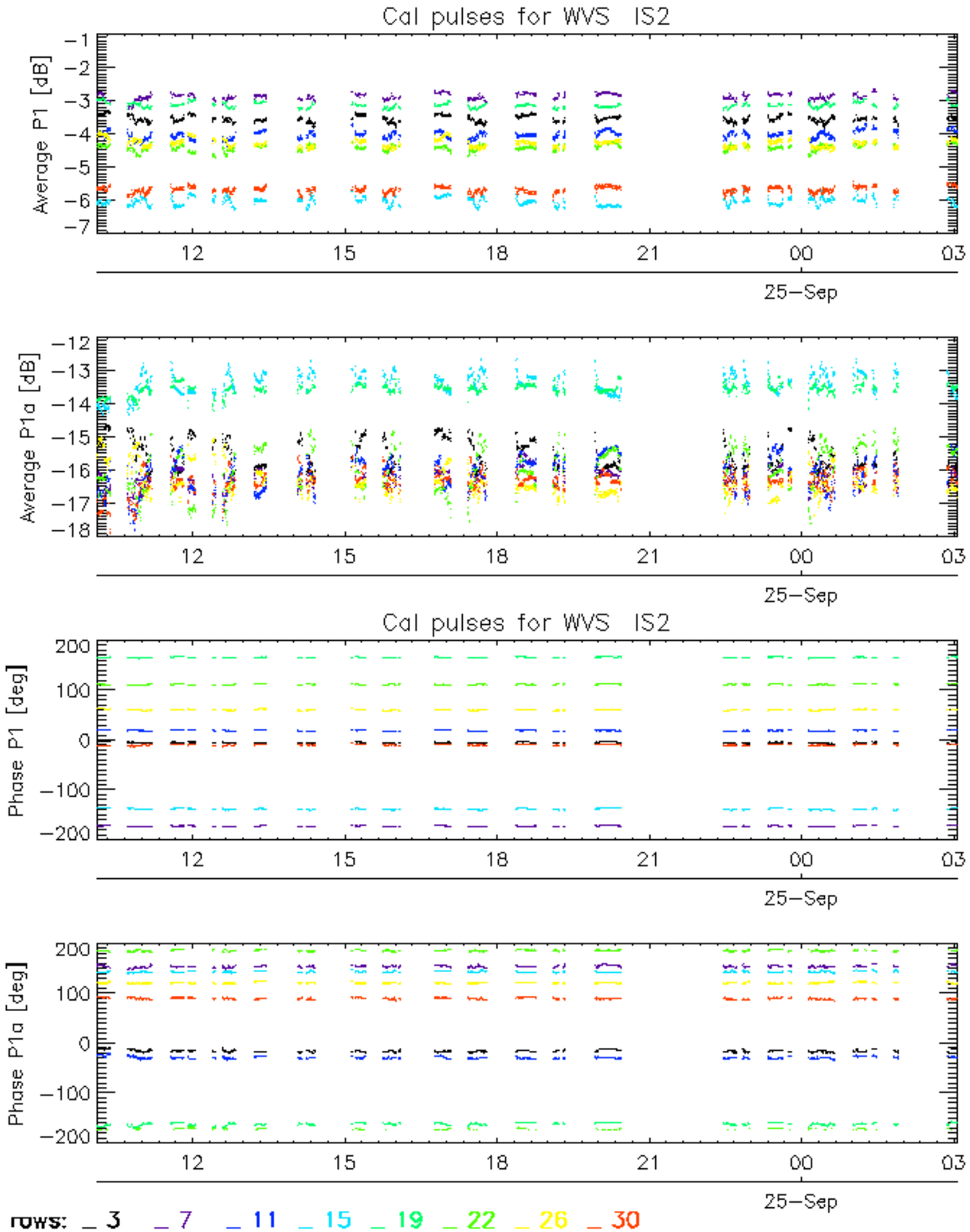
7.5 - Absolute Doppler for GM1

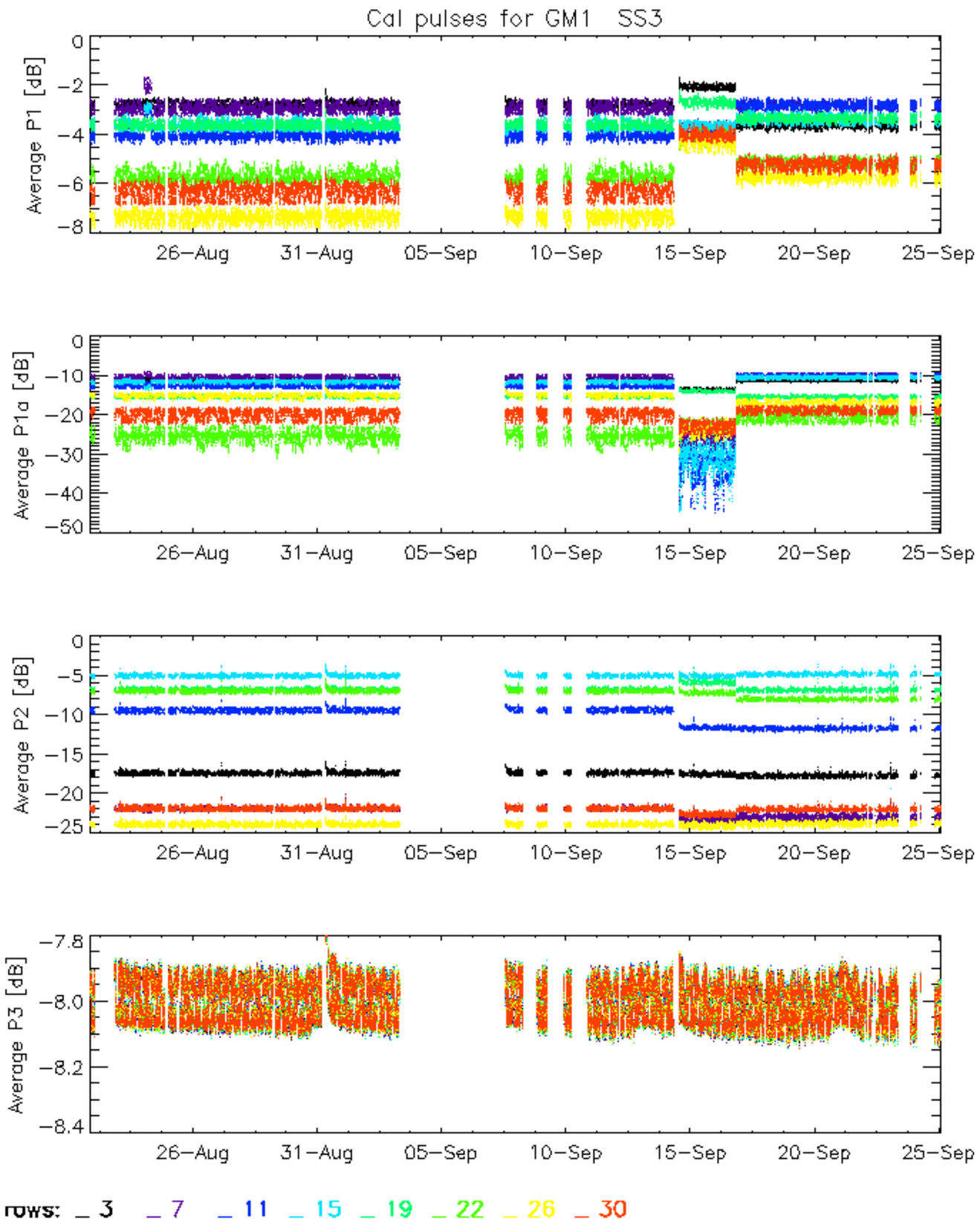
Evolution of Absolute Doppler
☒
Acsending
☒
Descending

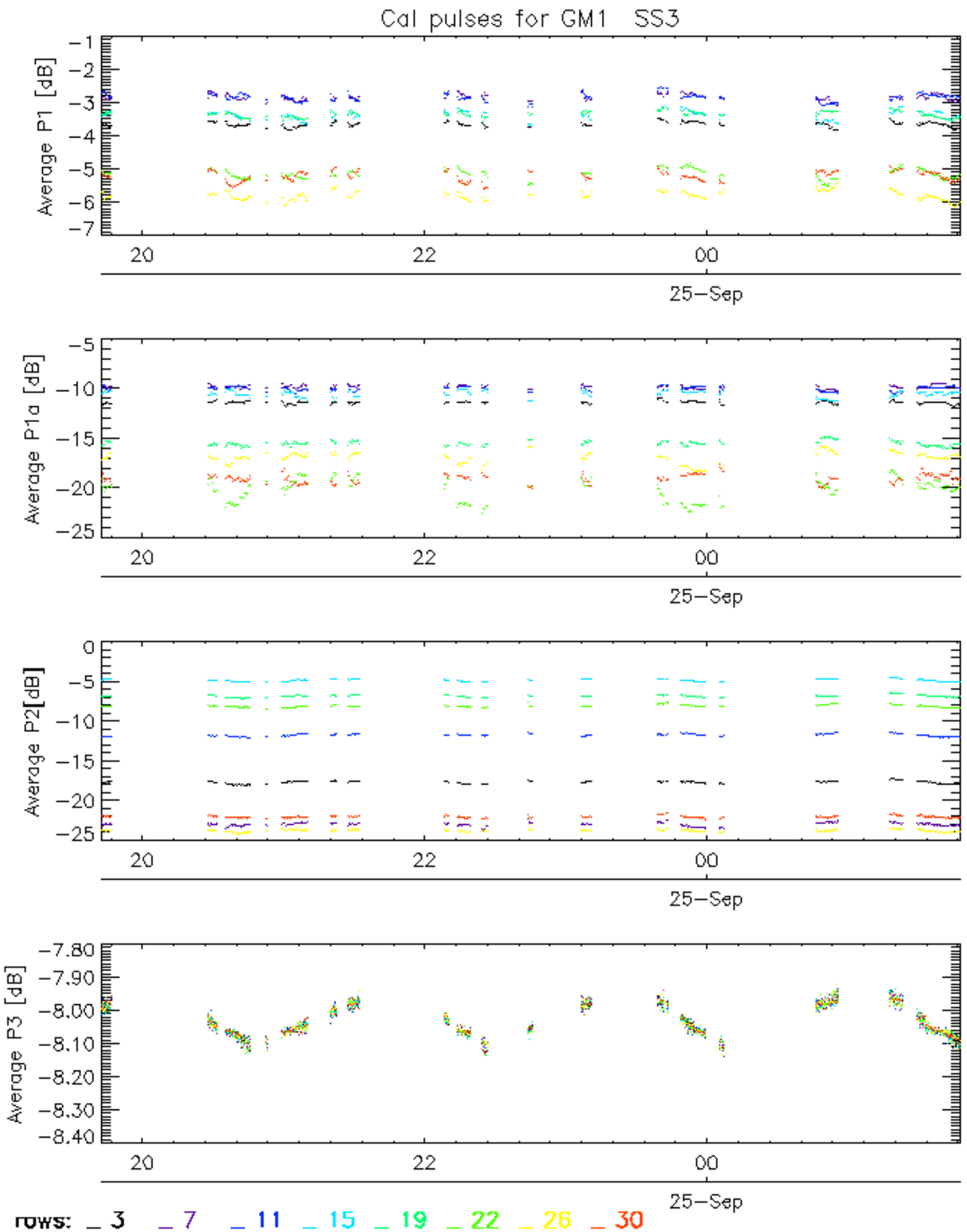
7.6 - Doppler evolution versus ANX for GM1

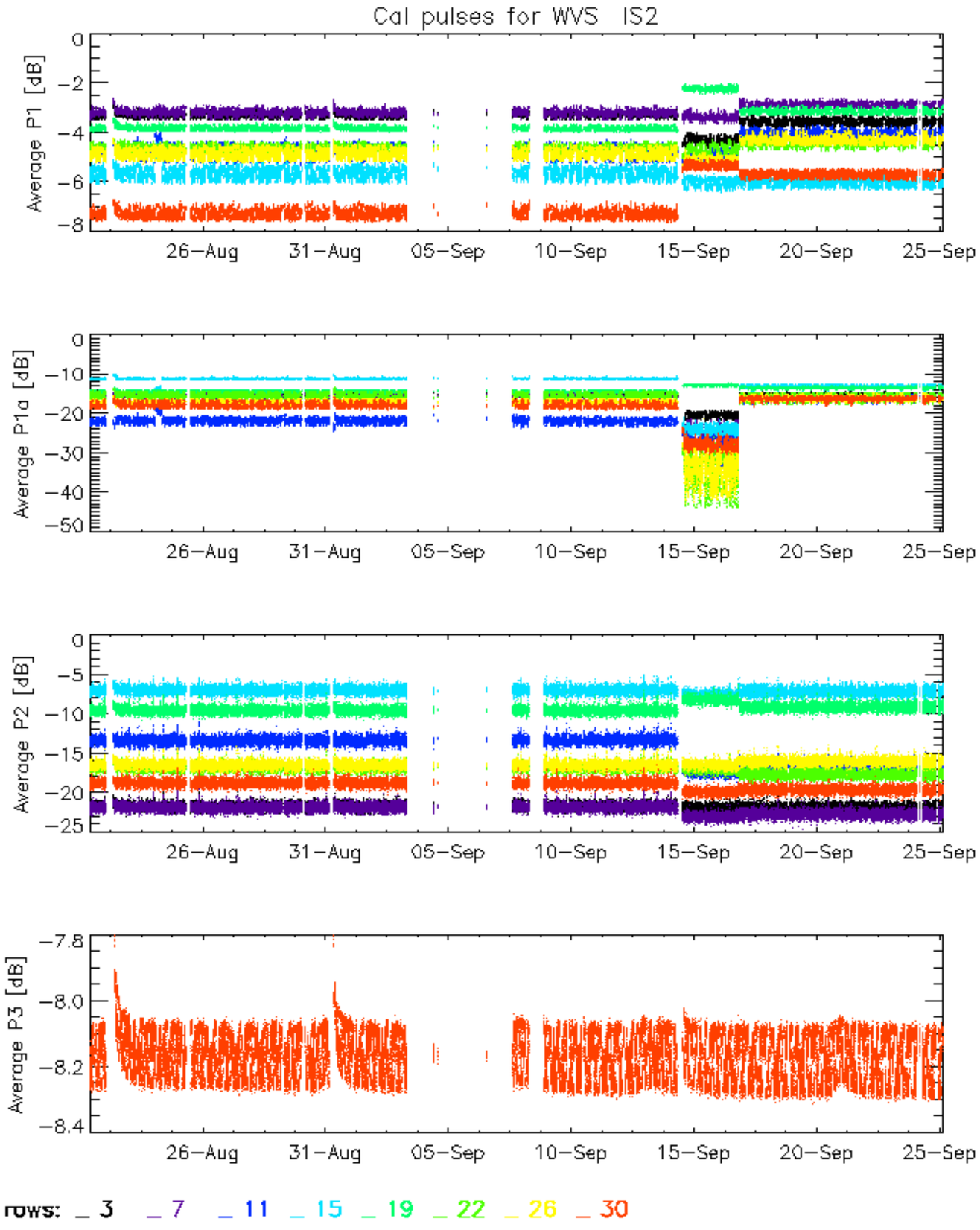
Evolution Doppler error versus ANX
☒

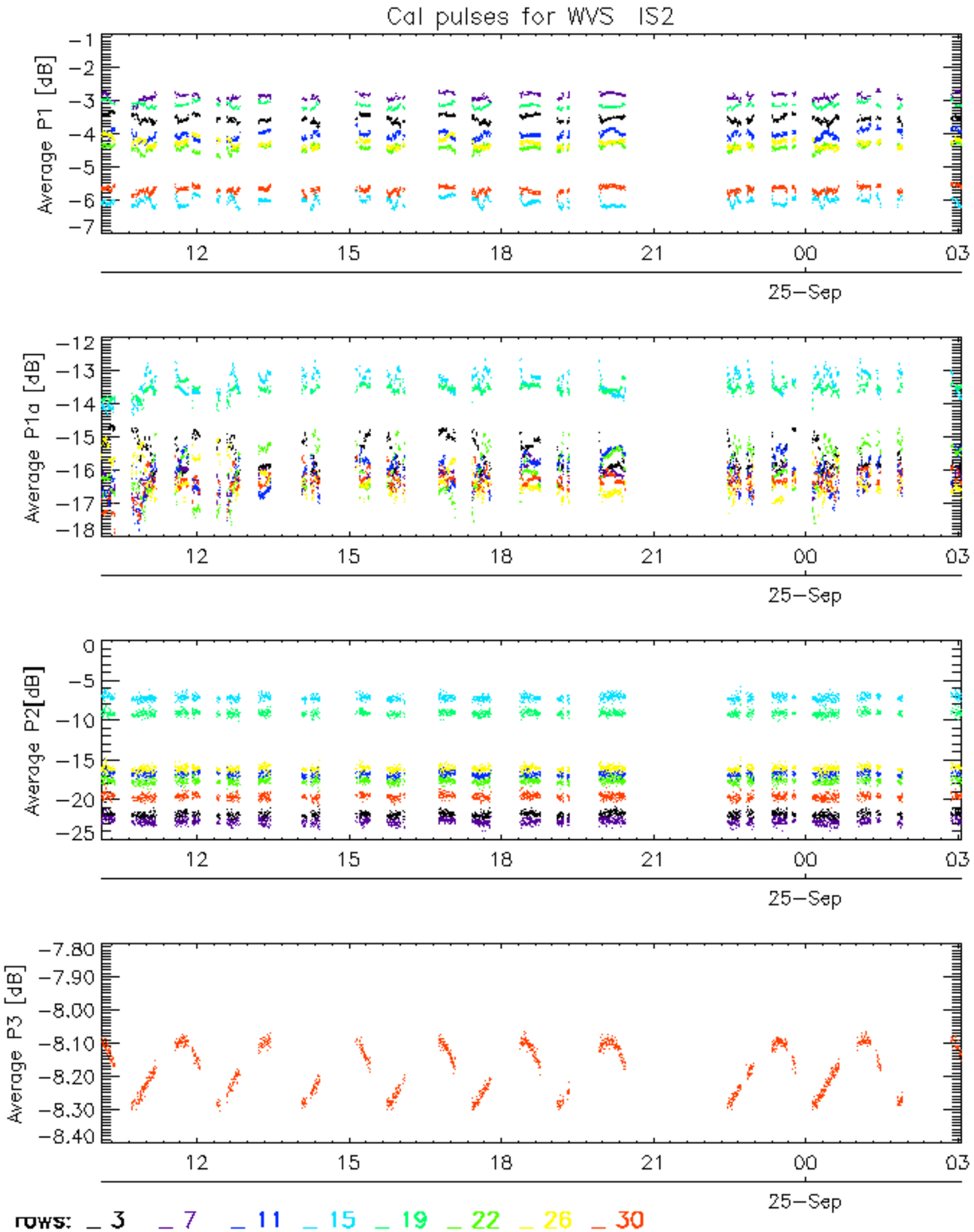

Cal pulses for GM1 SS3
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
20
22
00
25−Sep
Average P1a [dB]
−5
−10
−15
−20
−25
20
22
00
25−Sep
Cal pulses for GM1 SS3
Phase P1 [deg]
200
100
0
−100
−200
20
22
00
25−Sep
Phase P1a [deg]
200
100
0
−100
−200
20
22
00
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
12
15
18
21
00
03
25−Sep
Average P1a [dB]
−12
−13
−14
−15
−16
−17
−18
12
15
18
21
00
03
25−Sep
Cal pulses for WVS IS2
Phase P1 [deg]
200
100
0
−100
−200
12
15
18
21
00
03
25−Sep
Phase P1a [deg]
200
100
0
−100
−200
12
15
18
21
00
03
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

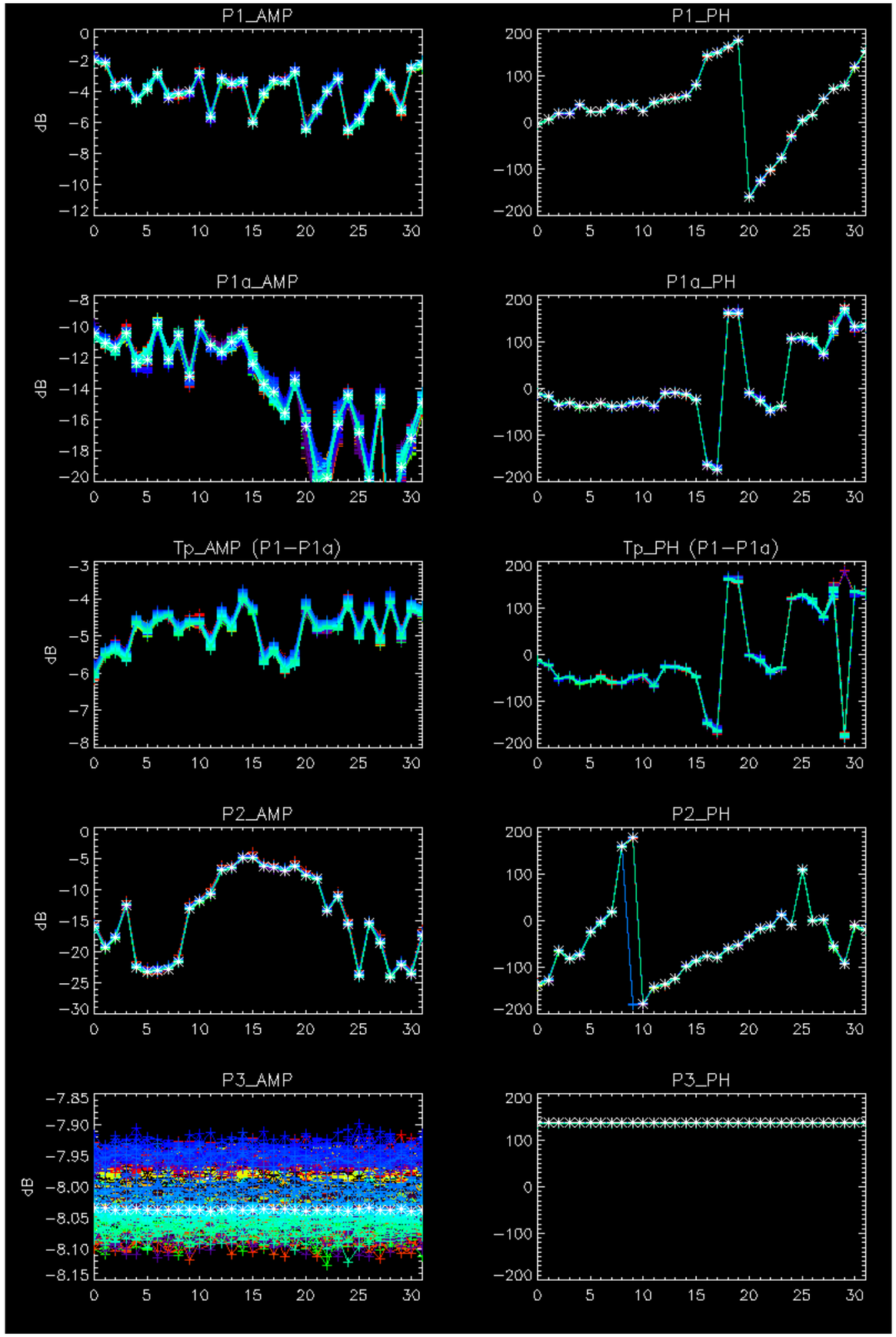

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
0
−10
−20
−30
−40
−50
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

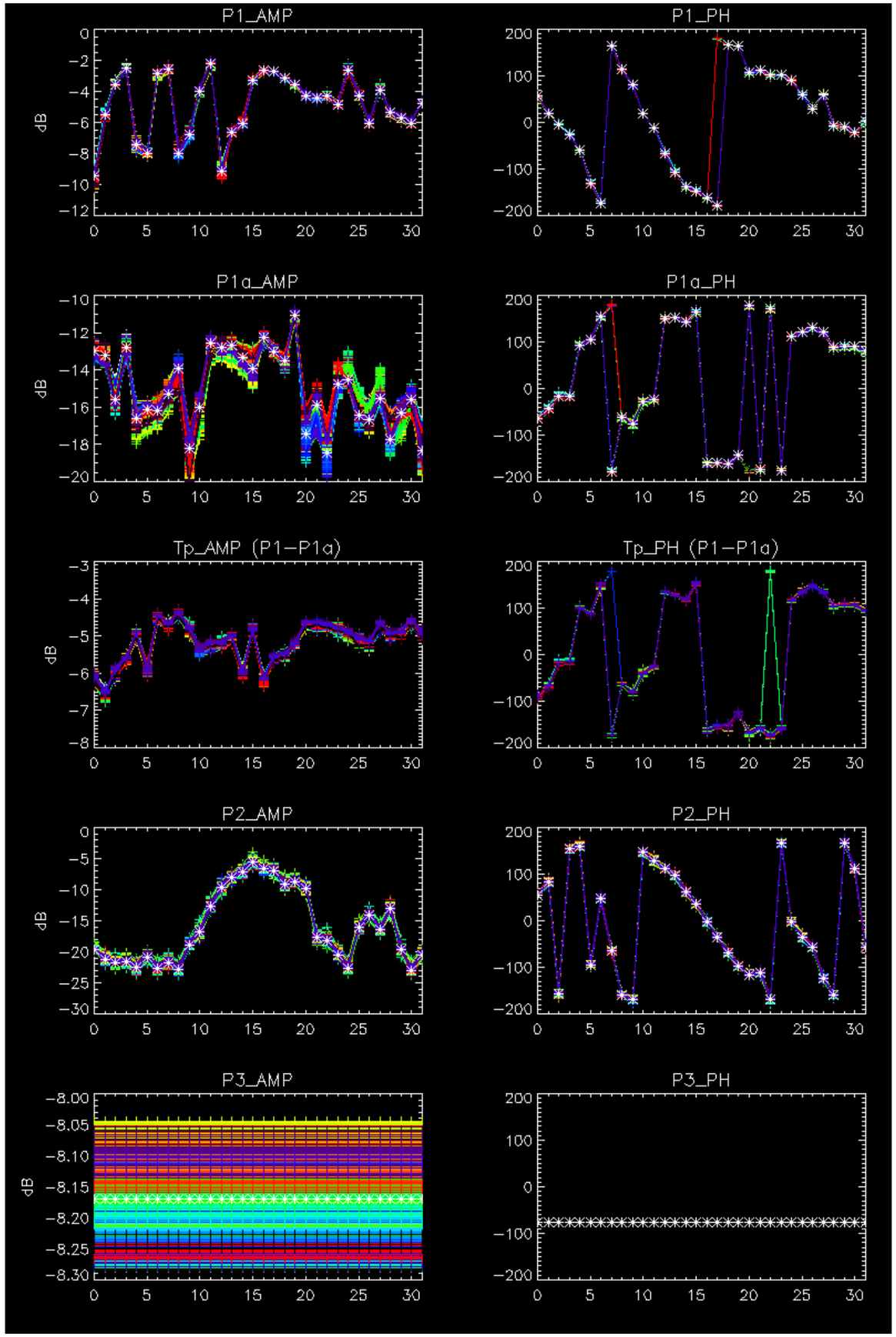

Cal pulses for GM1 SS3
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
20
22
00
25−Sep
Average P1a [dB]
−5
−10
−15
−20
−25
20
22
00
25−Sep
Average P2[dB]
0
−5
−10
−15
−20
−25
20
22
00
25−Sep
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
20
22
00
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
0
−10
−20
−30
−40
−50
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
12
15
18
21
00
03
25−Sep
Average P1a [dB]
−12
−13
−14
−15
−16
−17
−18
12
15
18
21
00
03
25−Sep
Average P2[dB]
0
−5
−10
−15
−20
−25
12
15
18
21
00
03
25−Sep
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
12
15
18
21
00
03
25−Sep
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

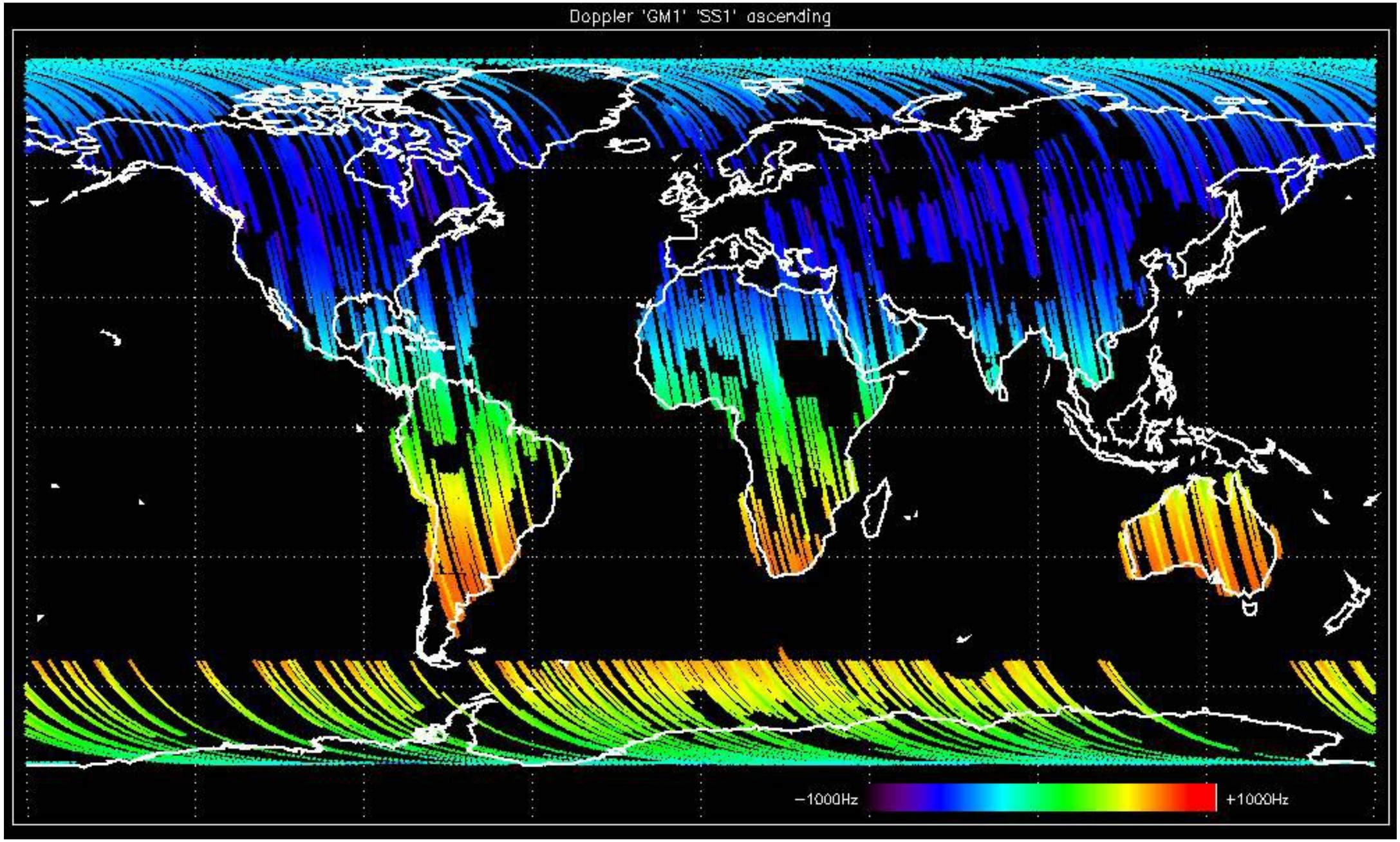
No anomalies observed.

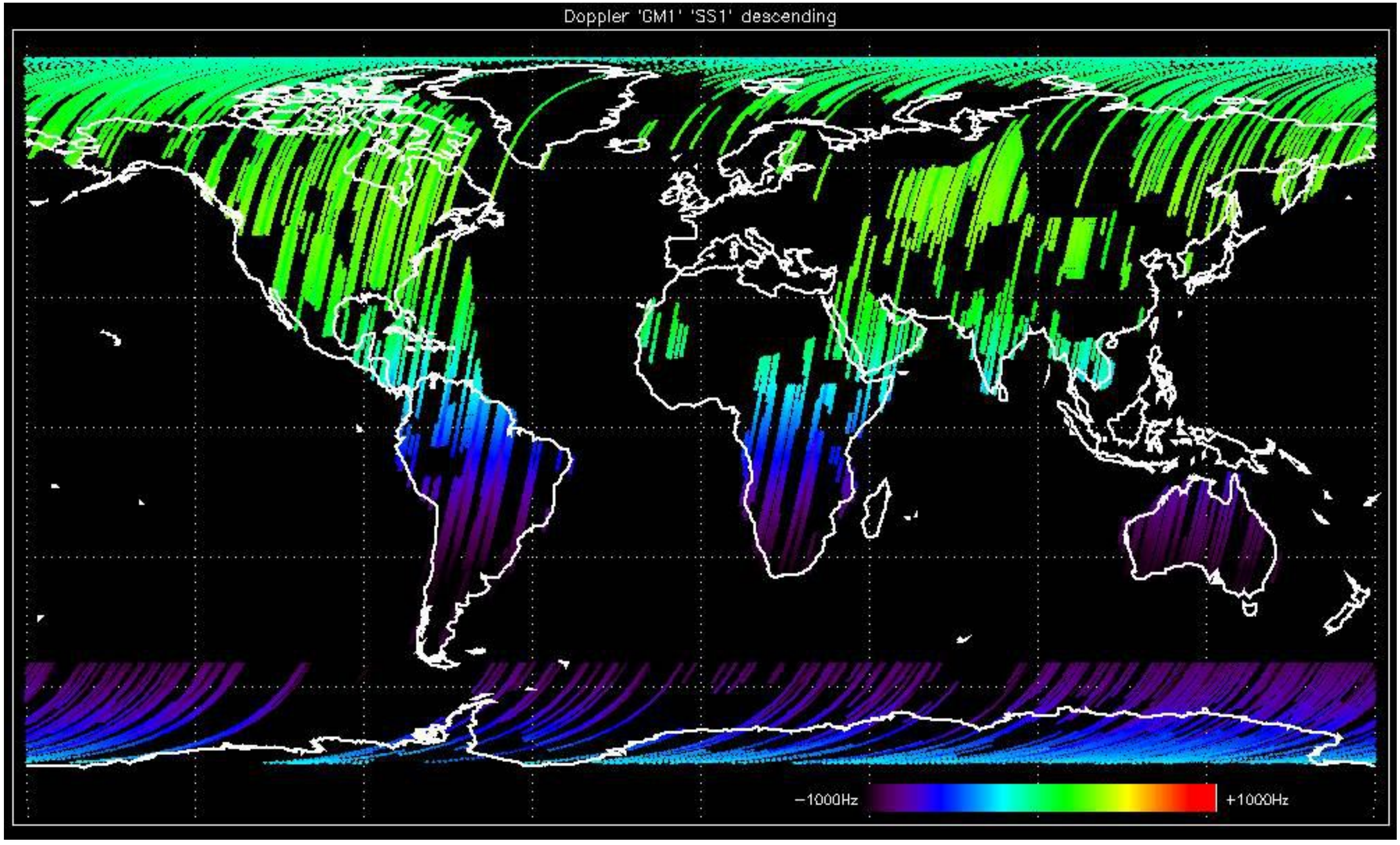

P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
Tp_AMP (P1−P1a)
dB
Tp_PH (P1−P1a)
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH

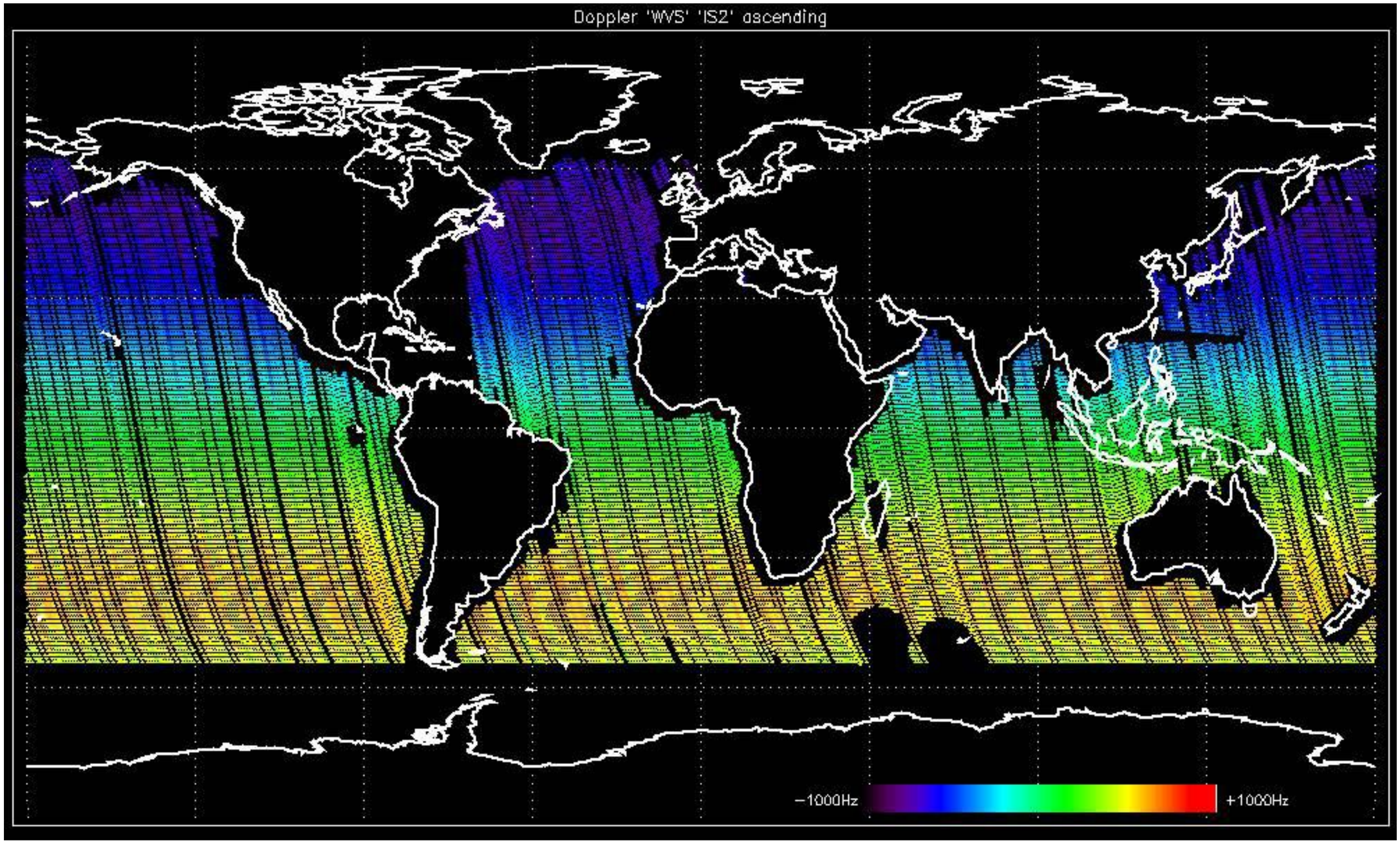

P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
Tp_AMP (P1−P1a)
dB
Tp_PH (P1−P1a)
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH

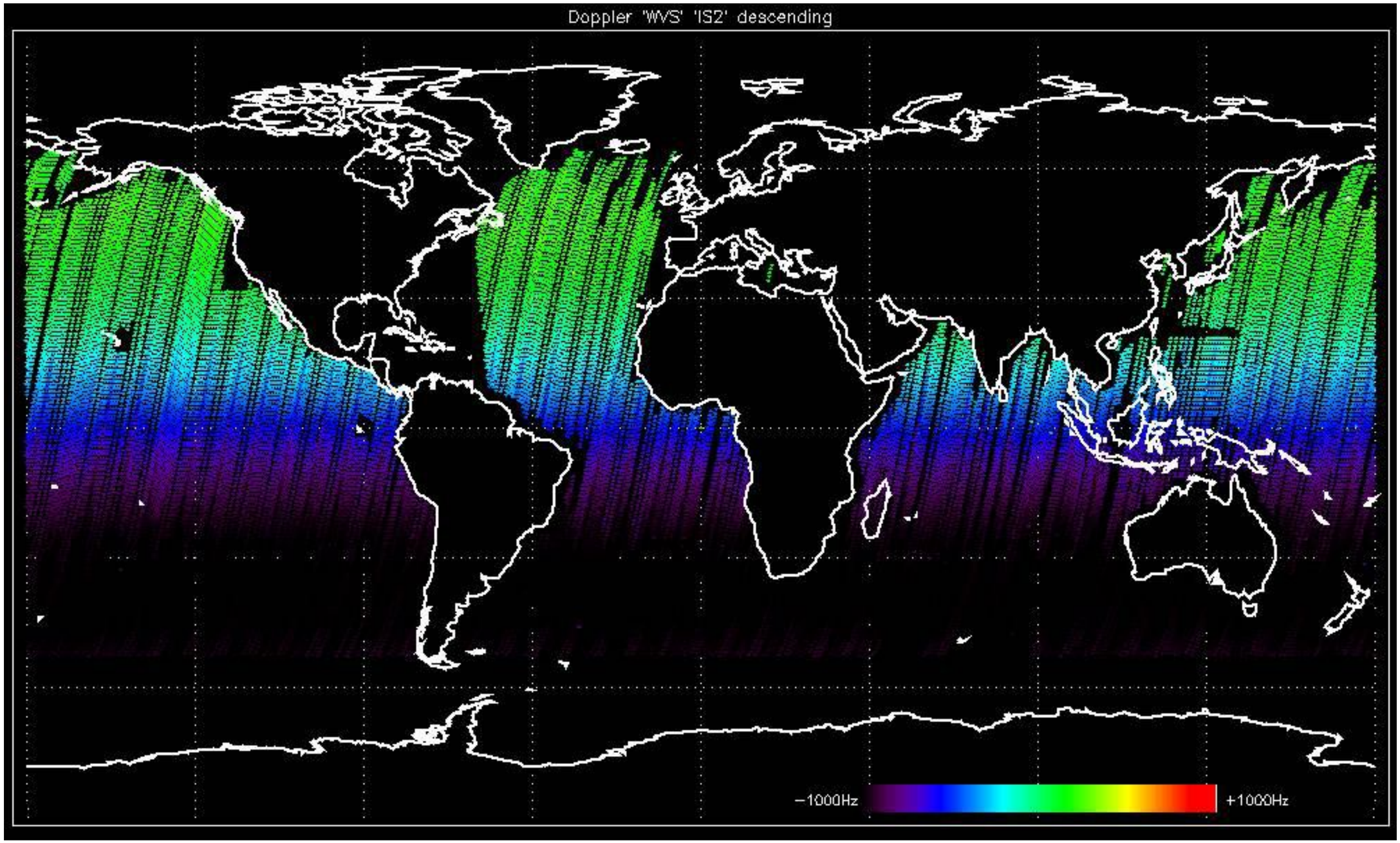
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

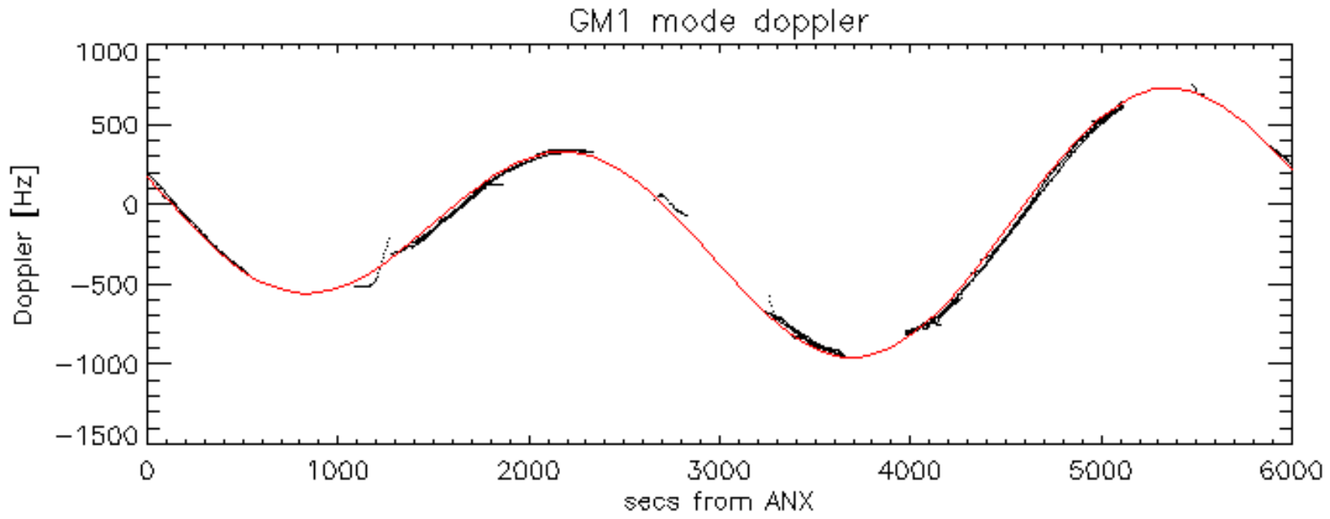
Preliminary report.The data is not yet controled

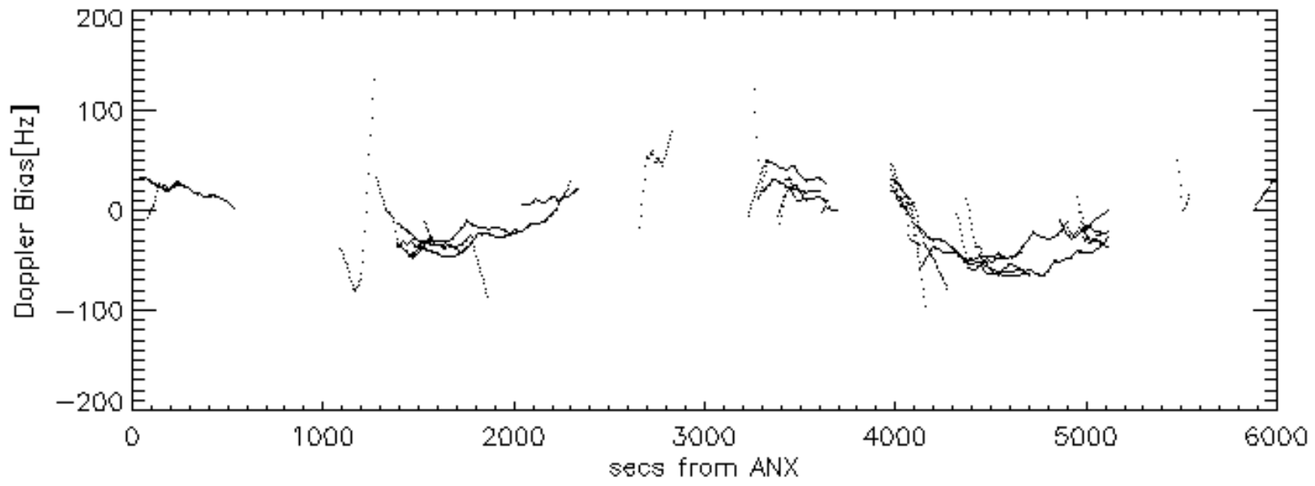

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

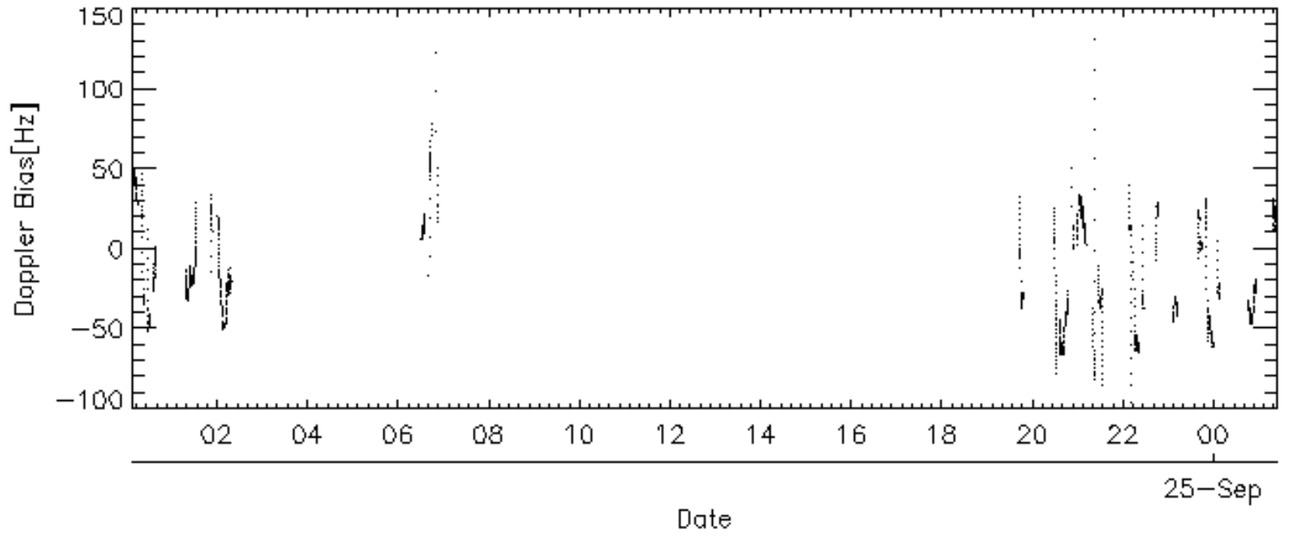

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

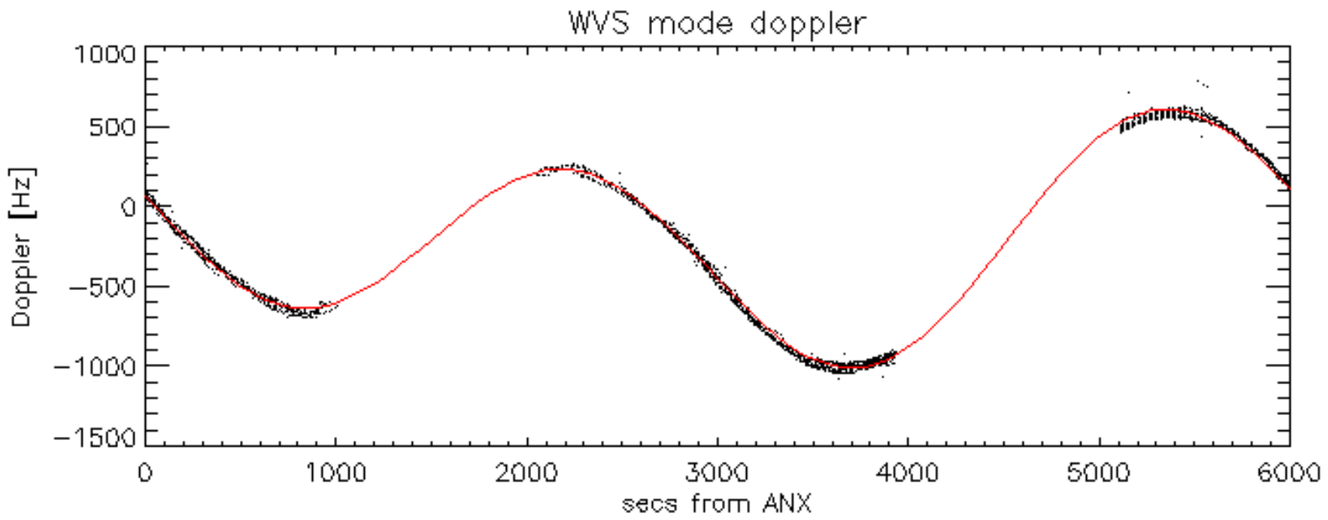

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

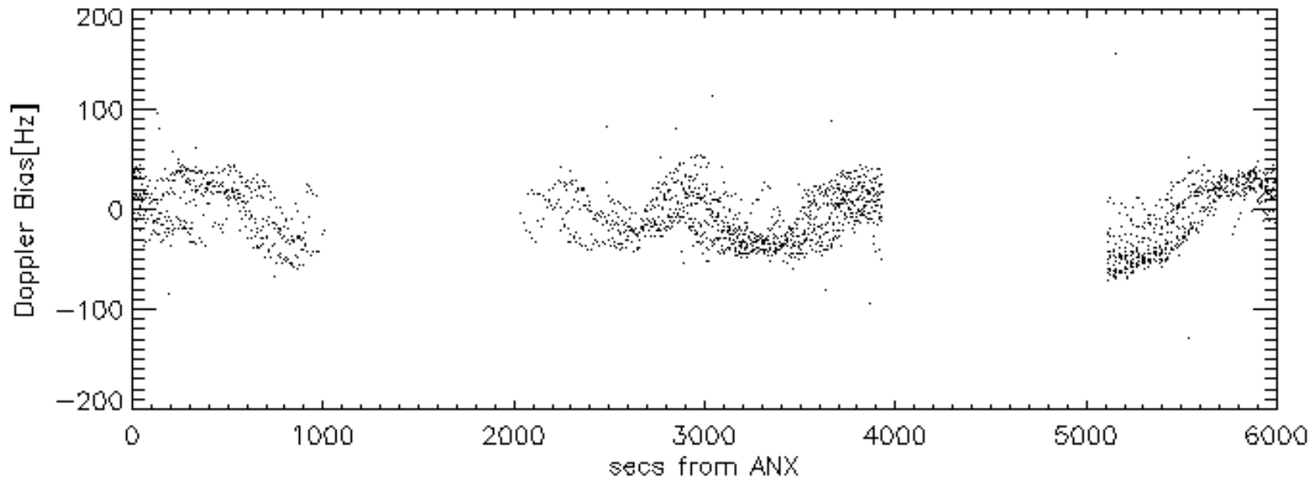

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

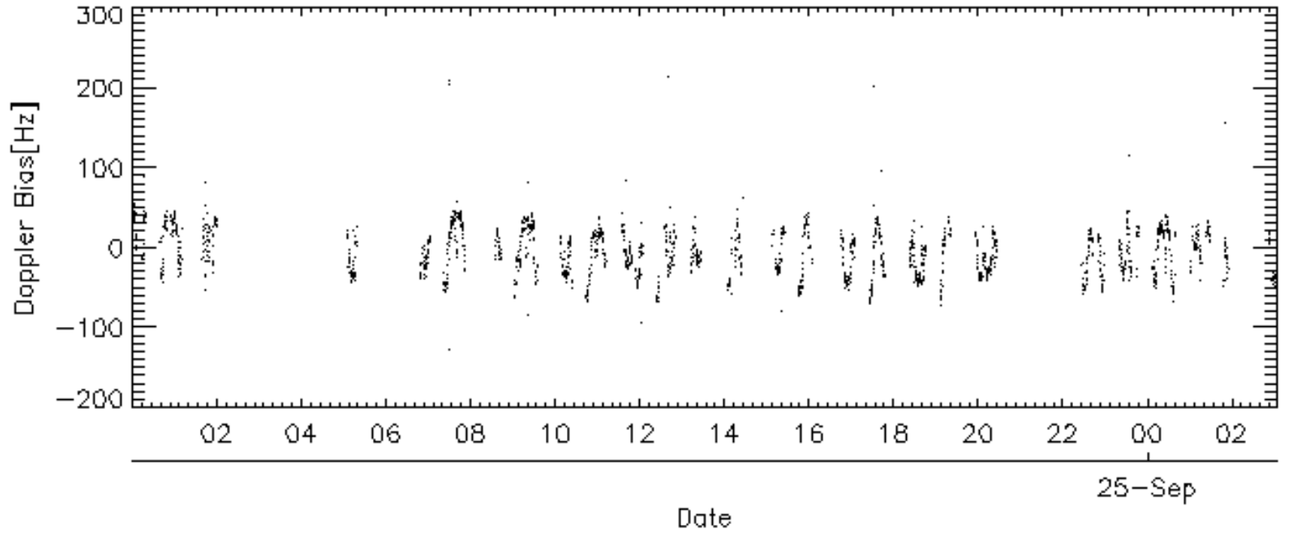

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

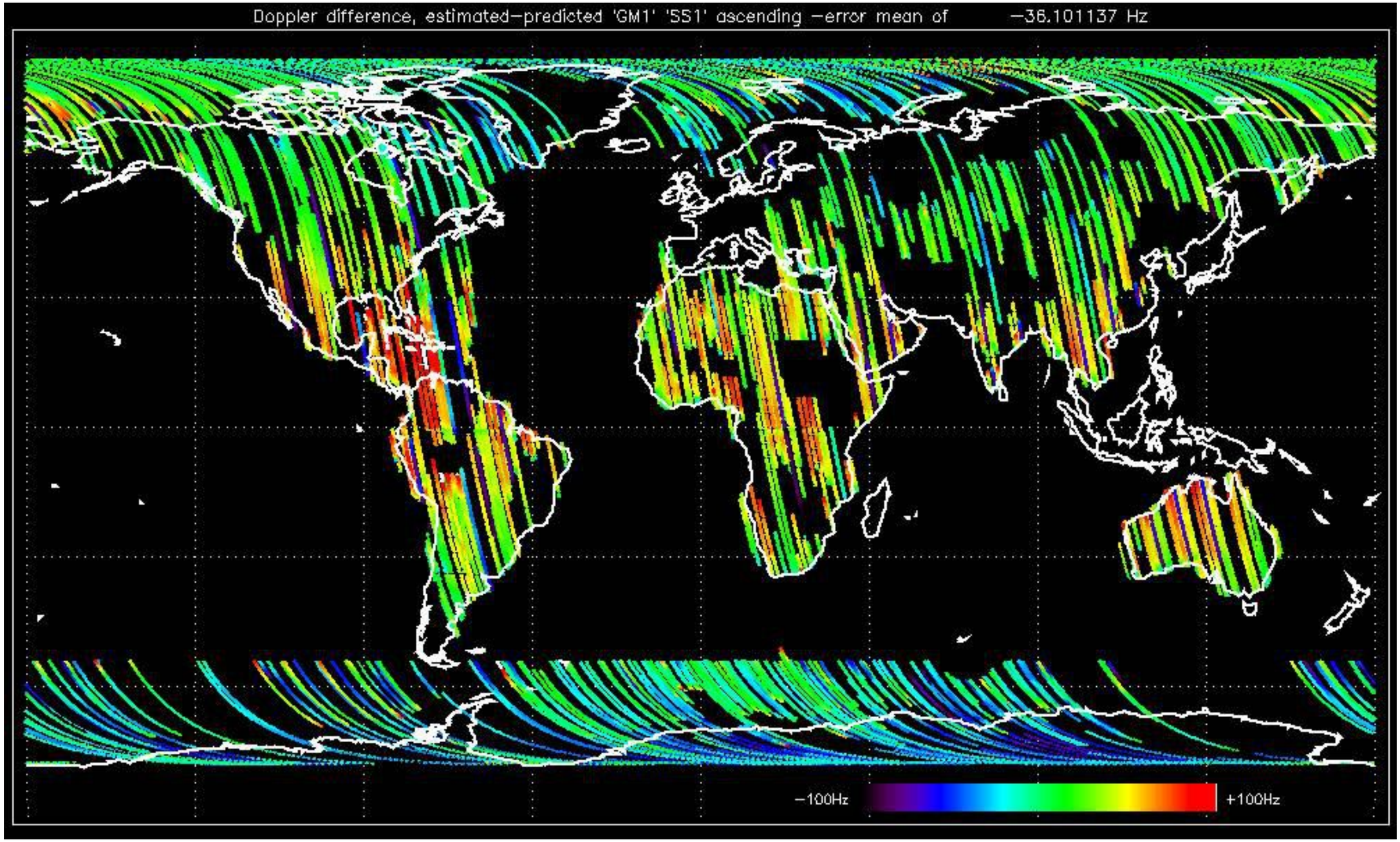

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

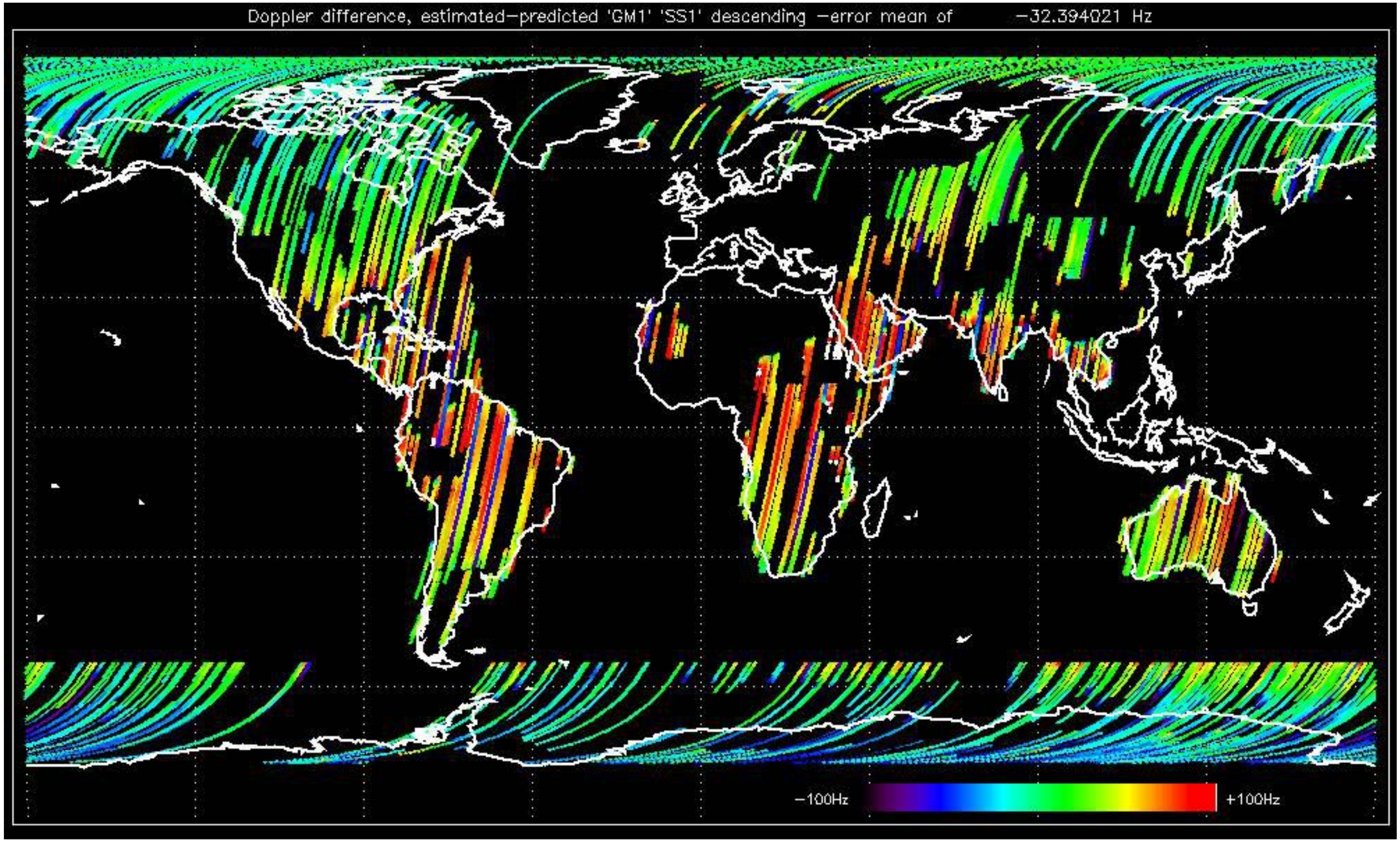

Doppler Bias[Hz]
150
100
50
0
−50
−100
02
04
06
08
10
12
14
16
18
20
22
00
25−Sep
Date

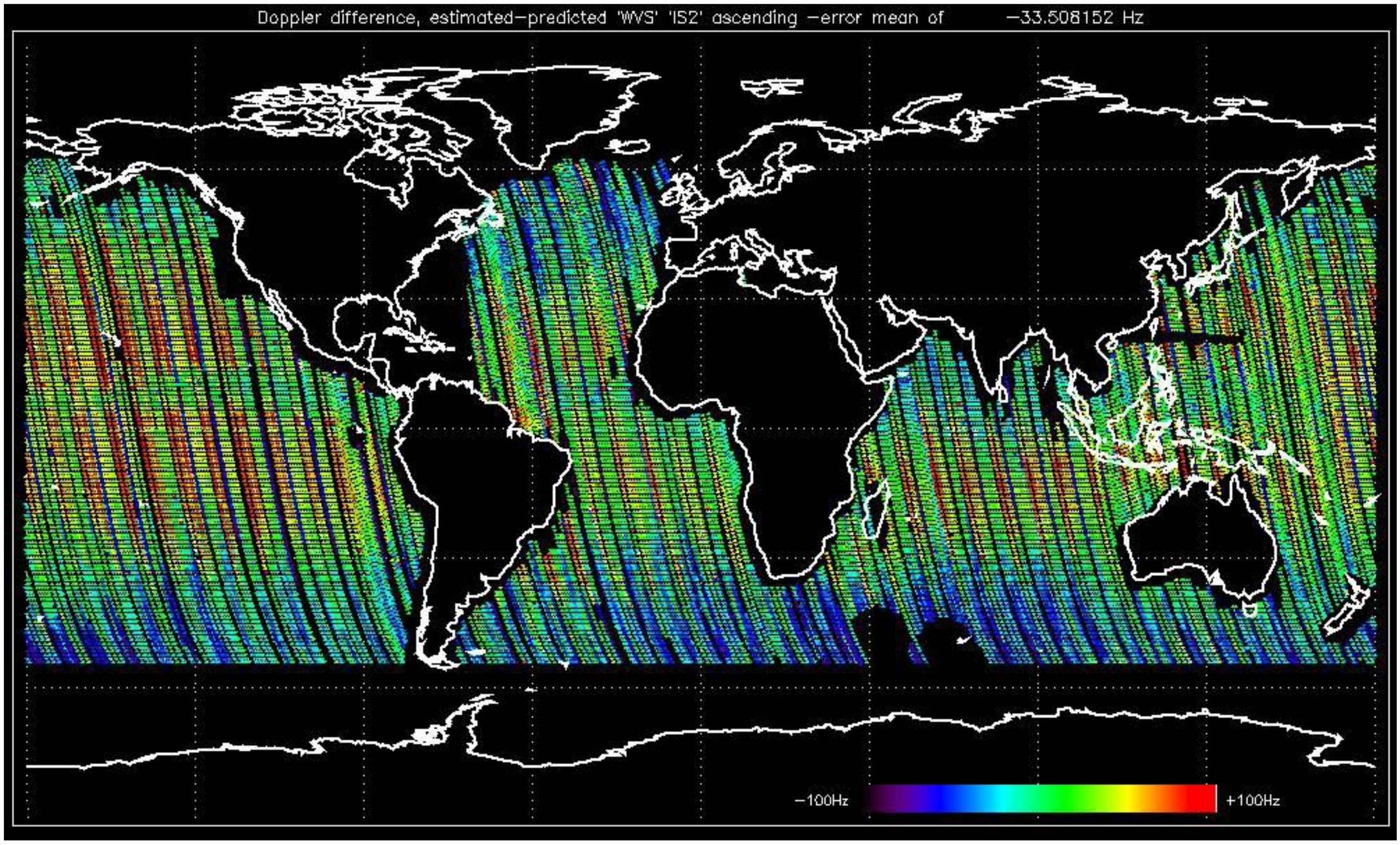

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

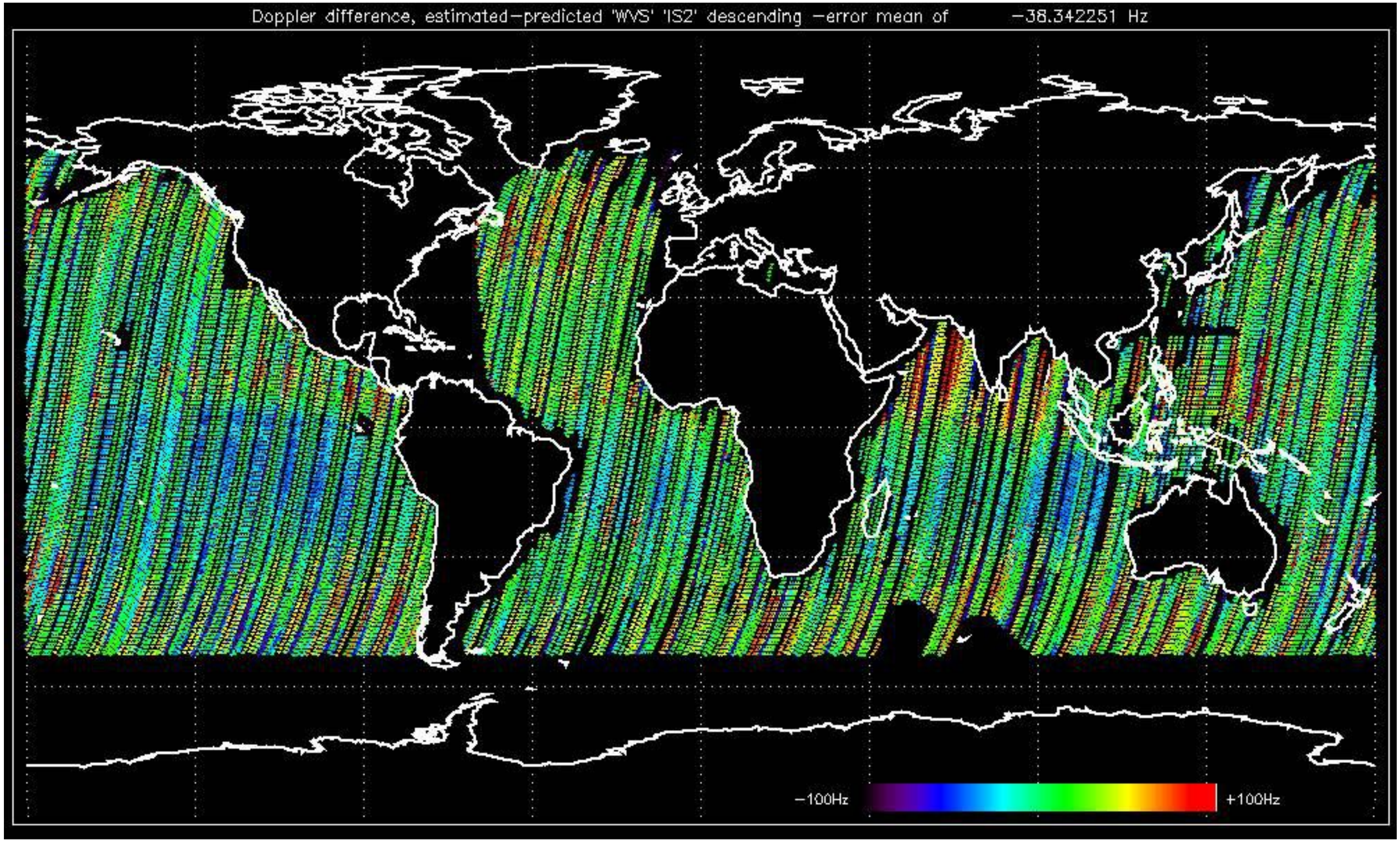

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


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


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −36.101137 Hz
−100Hz
+100Hz

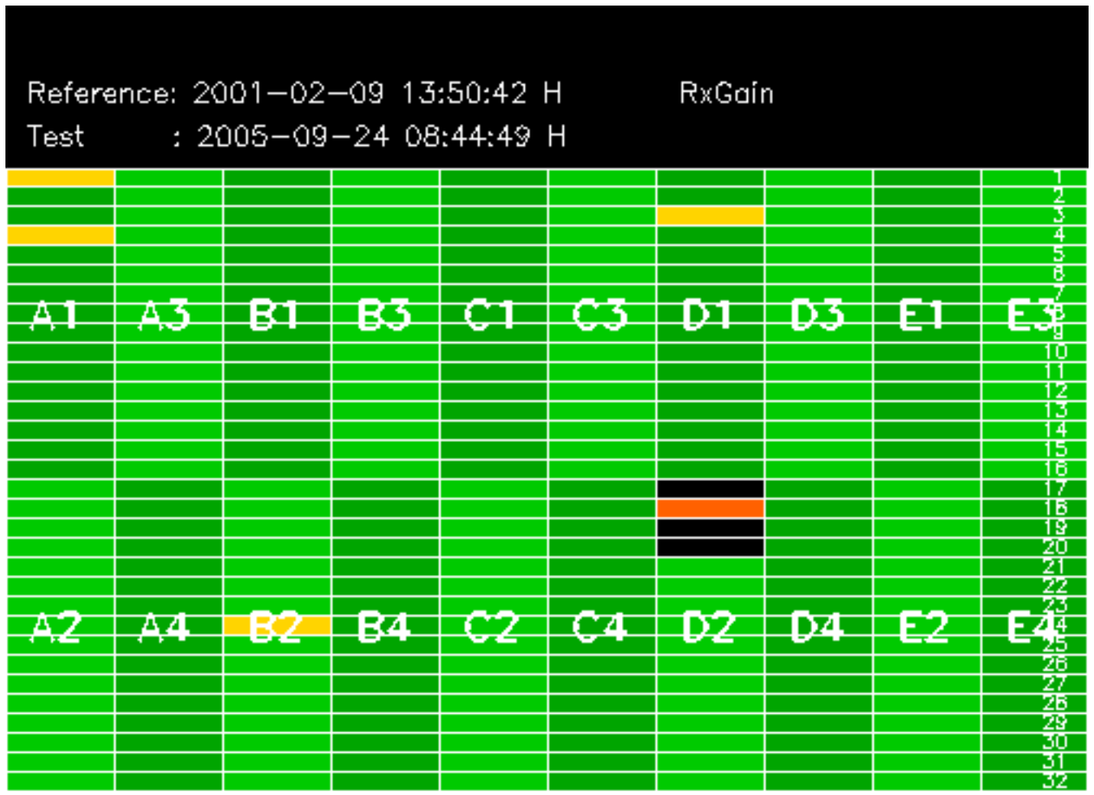

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -32.394021 Hz
-100Hz
+100Hz

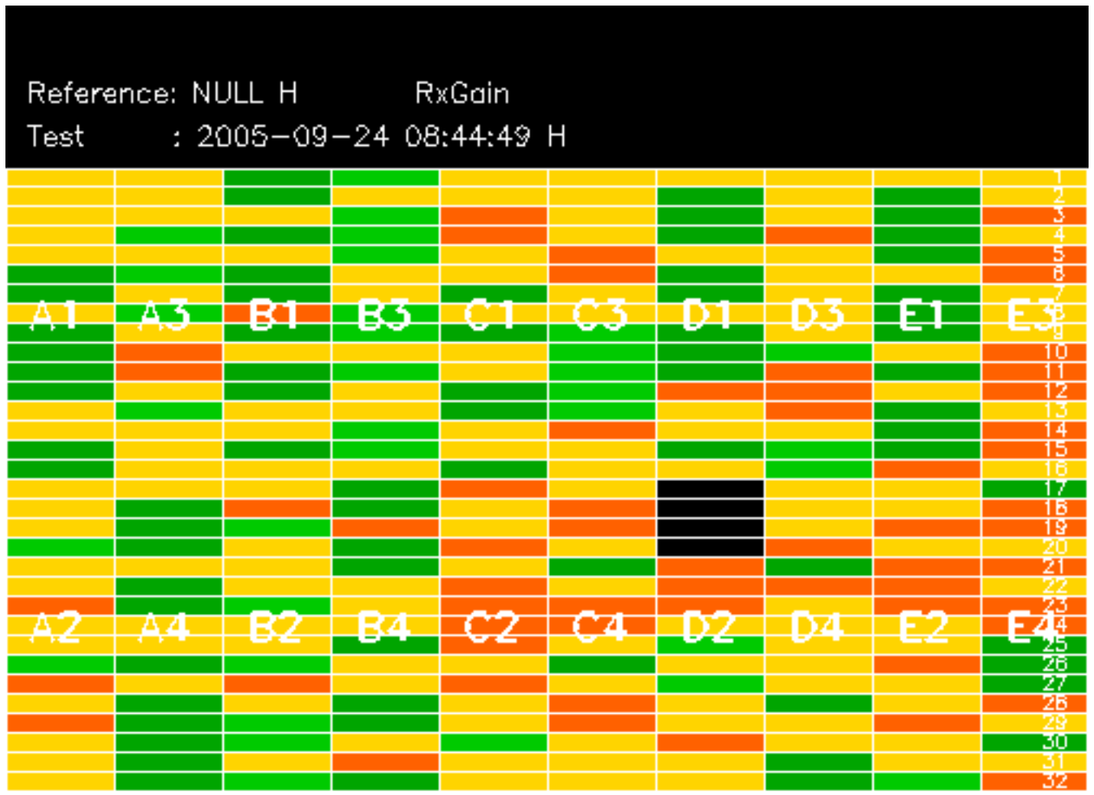

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −33.508152 Hz
−100Hz
+100Hz

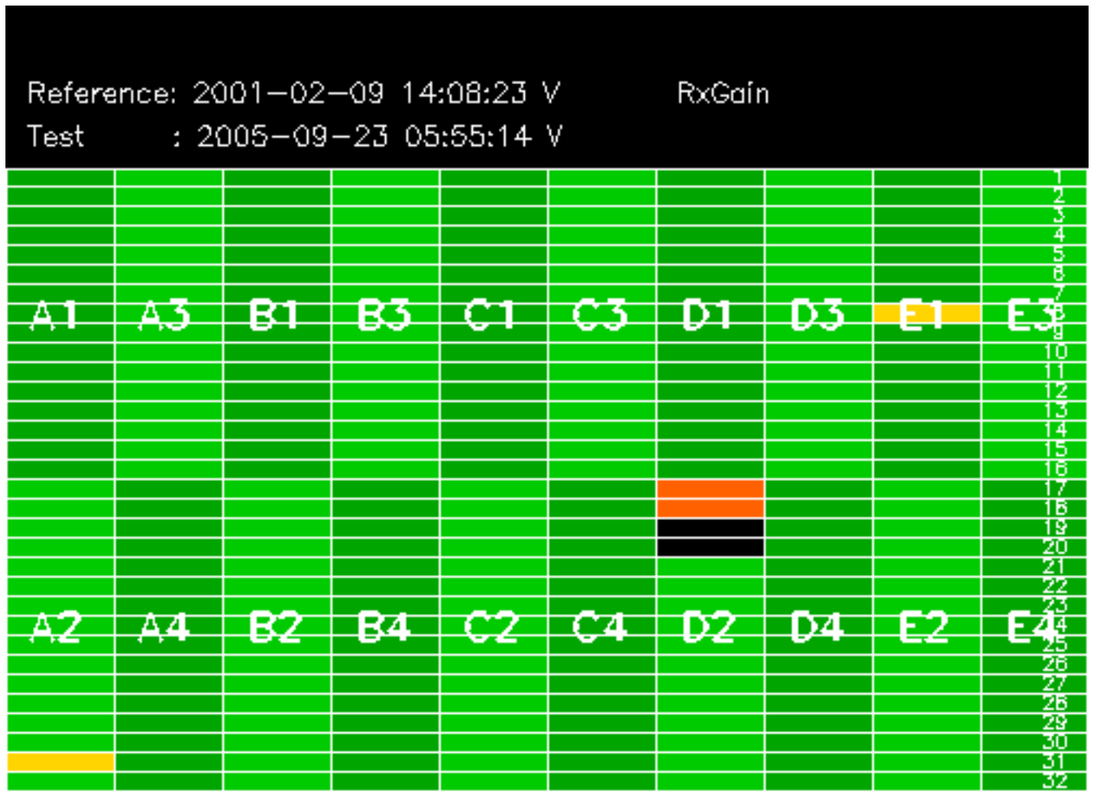

Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −38.342251 Hz
−100Hz
+100Hz

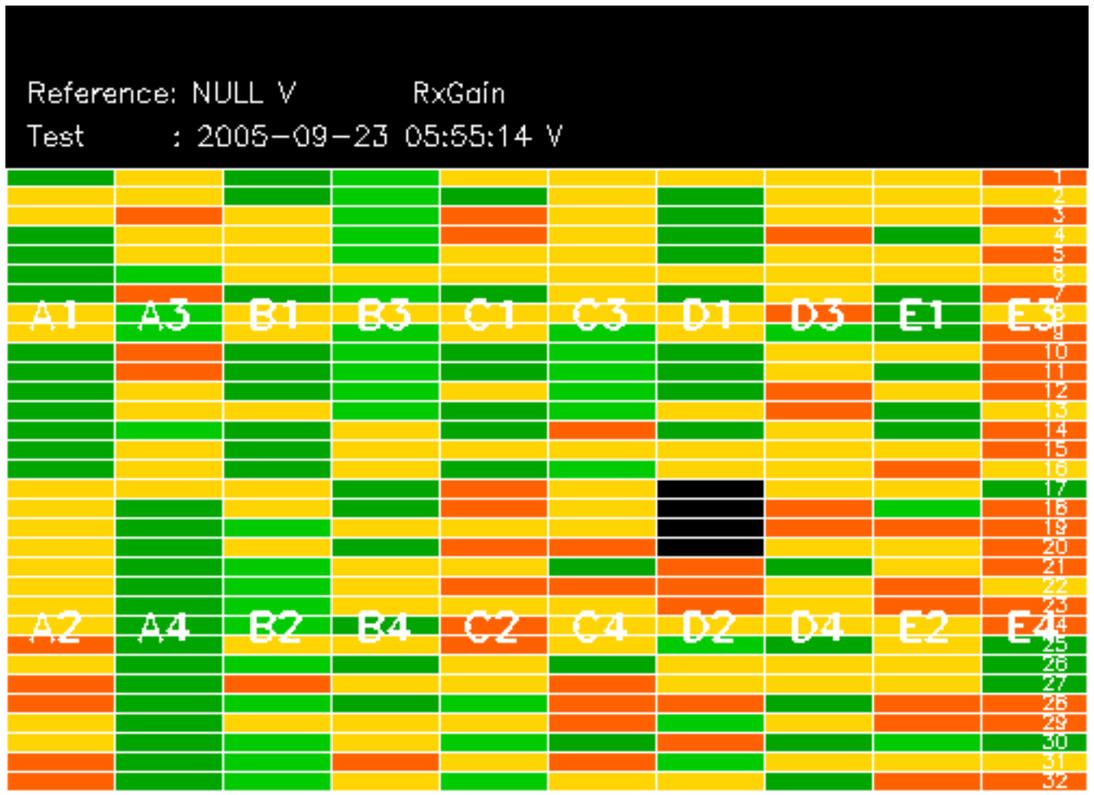
No anomalies observed on available MS products:

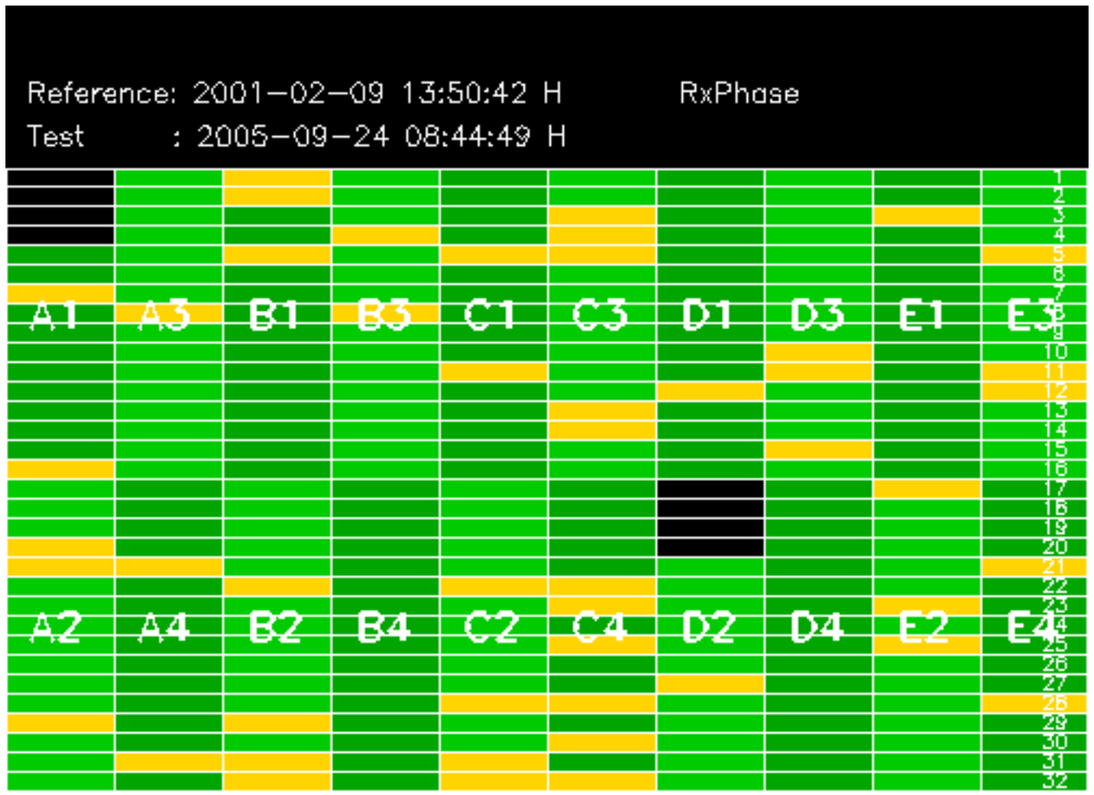
No anomalies observed.

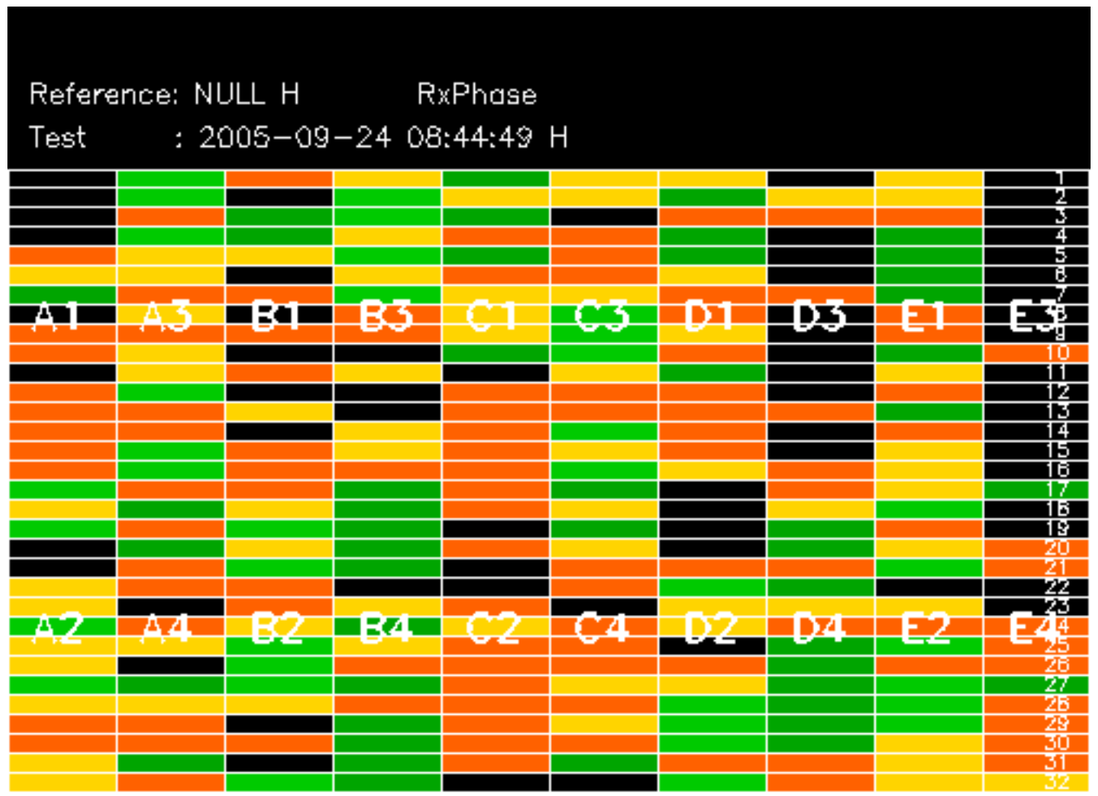

Reference: 2001-02-09 13:50:42 H
Test : 2005-09-24 08:44:49 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

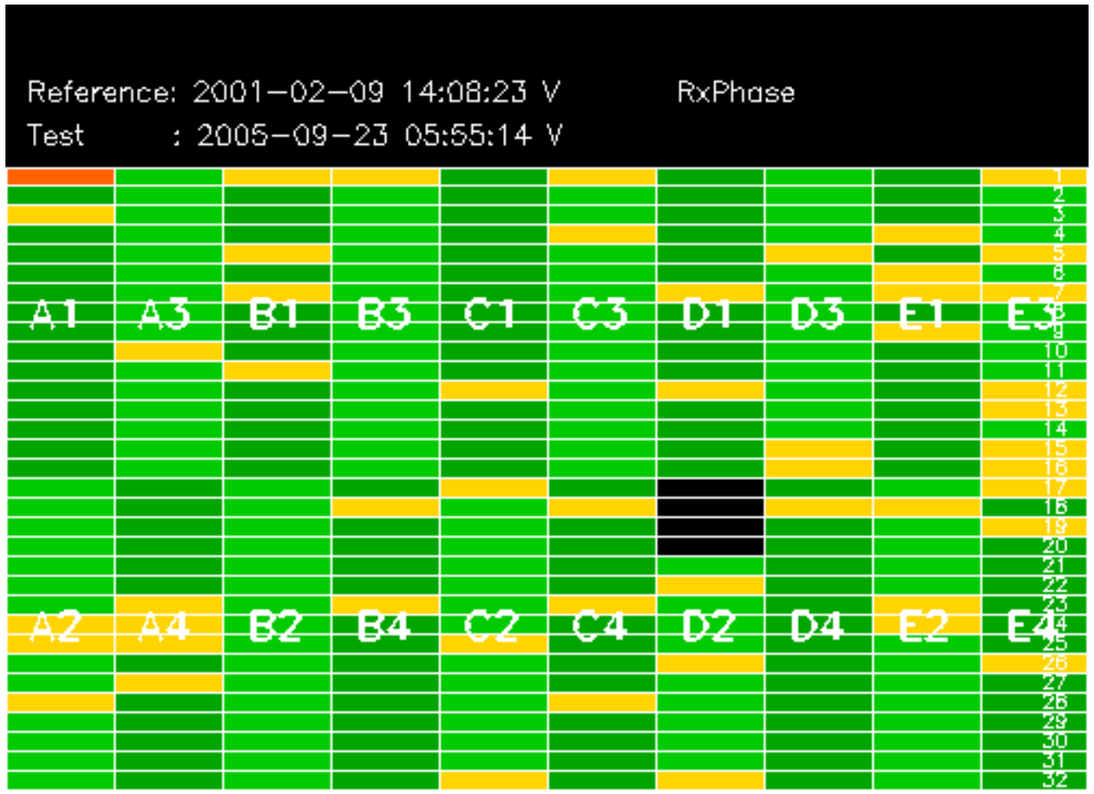

Reference: NULL H RxGain
Test : 2005-09-24 08:44:49 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

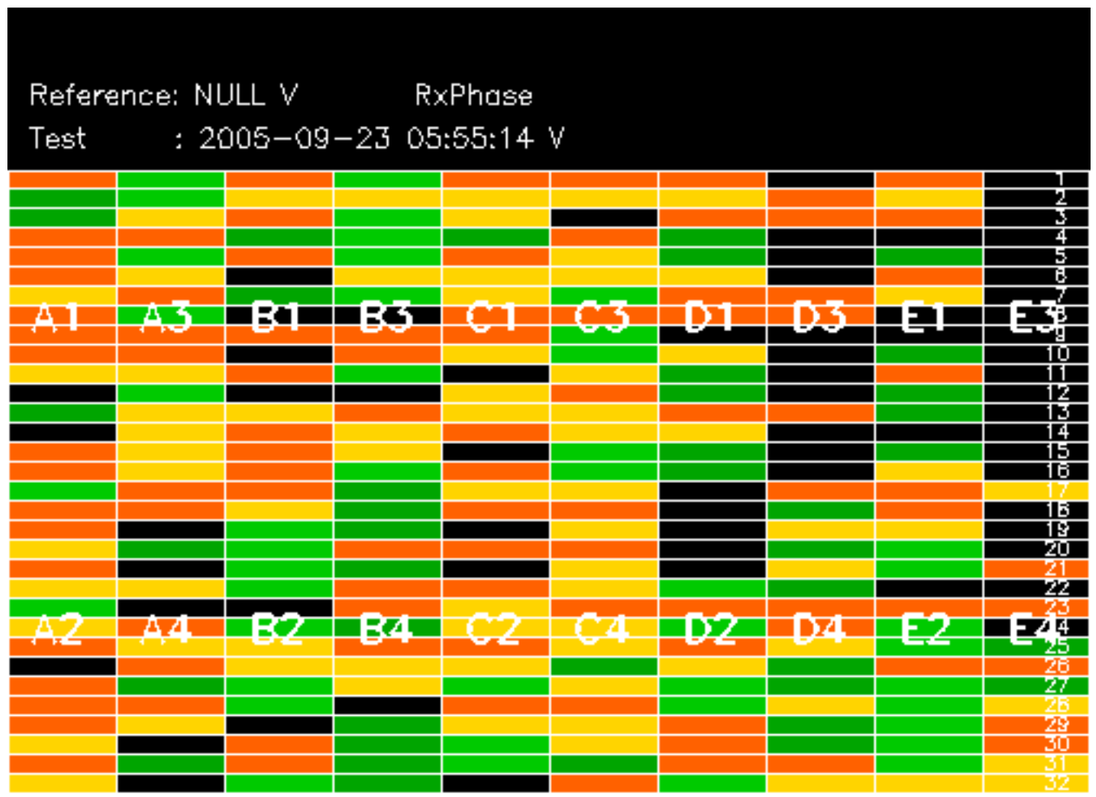

Reference: 2001-02-09 14:08:23 V
Test : 2005-09-23 05:55:14 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

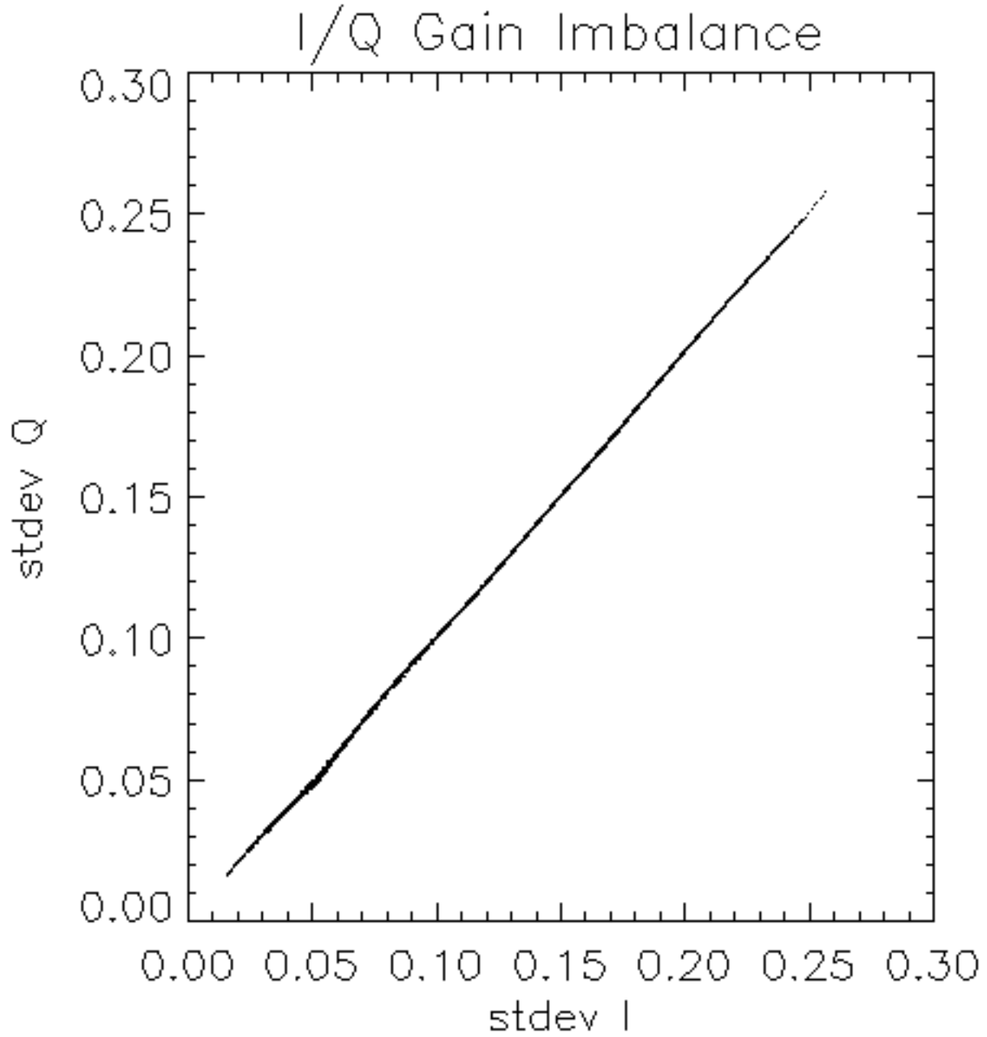

Reference: NULL V RxGain
Test : 2005-09-23 05:55:14 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

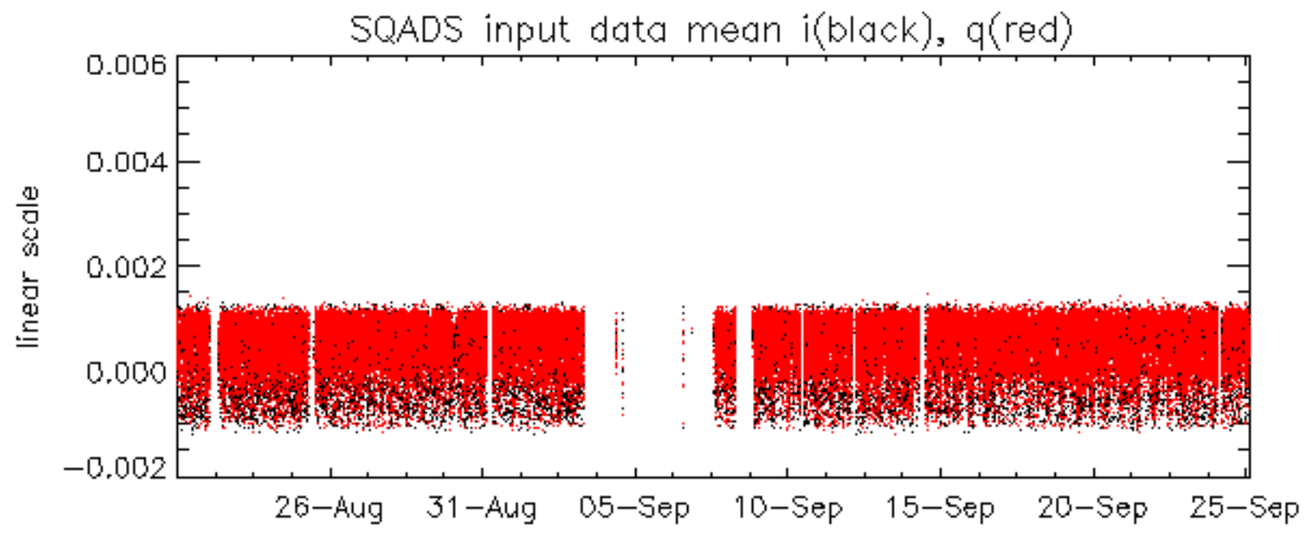

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-09-24 08:44:49 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

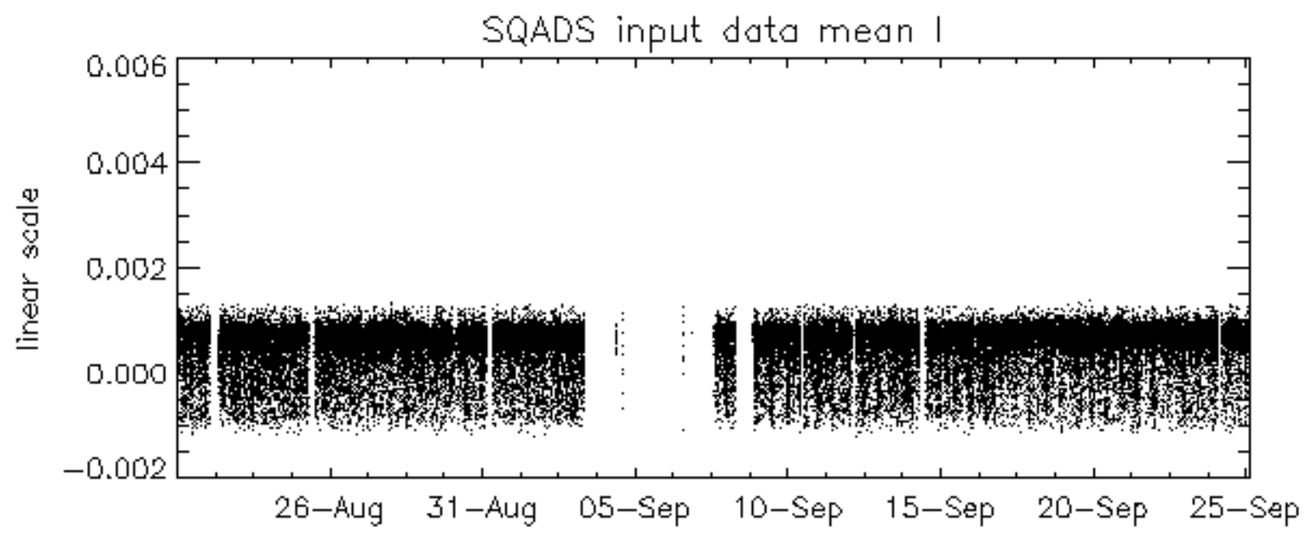

Reference: NULL H RxPhase
Test : 2005-09-24 08:44:49 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

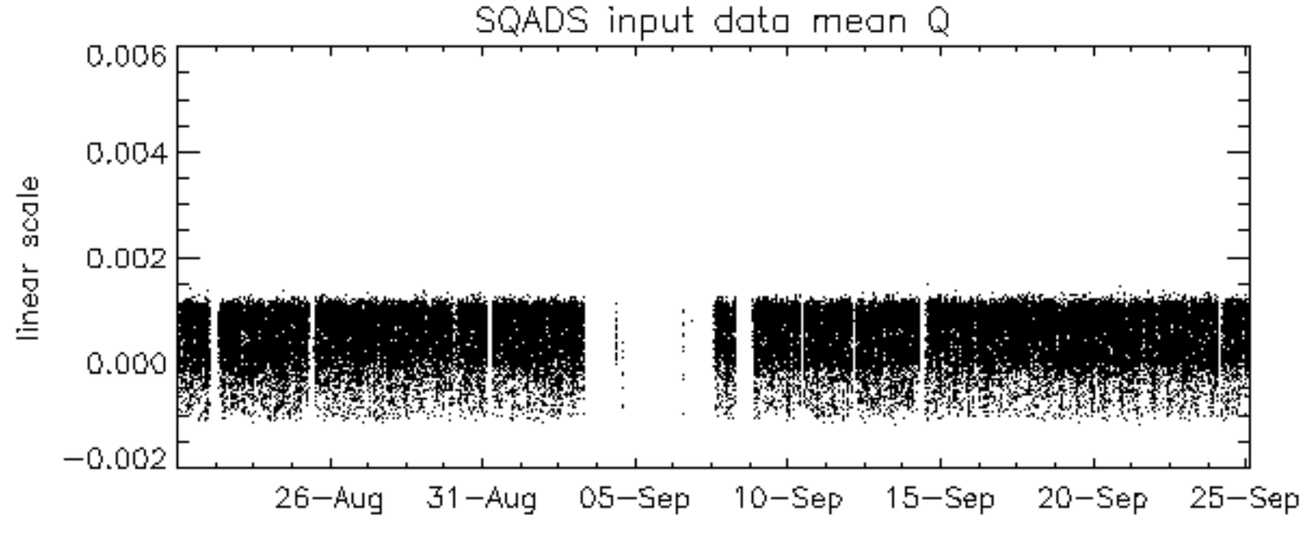

Reference: 2001-02-09 14:08:23 V
Test : 2005-09-23 05:55:14 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

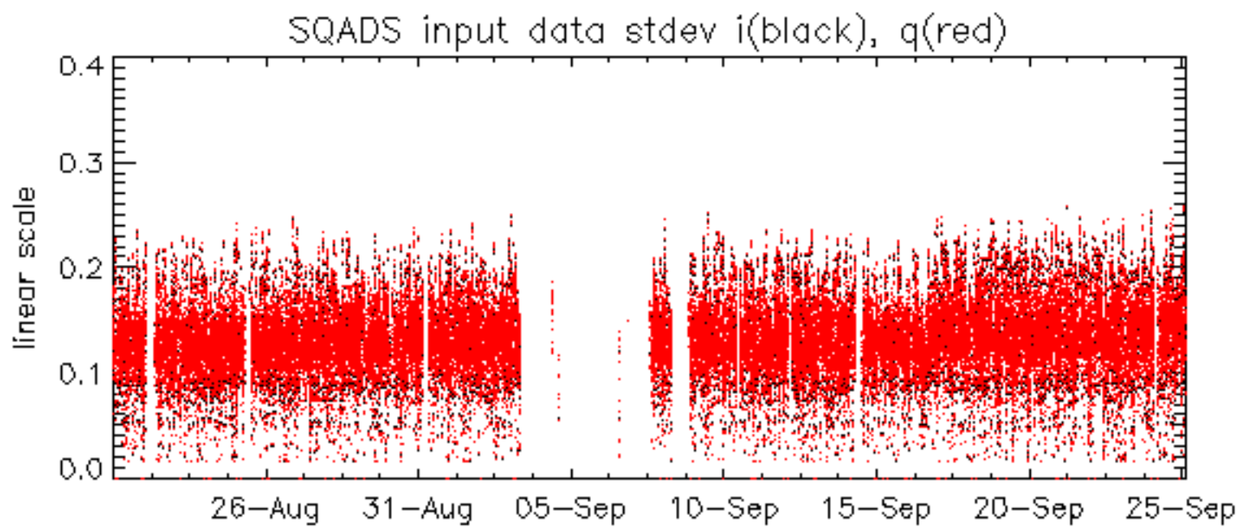

Reference: NULL V RxPhase
Test : 2005-09-23 05:55:14 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

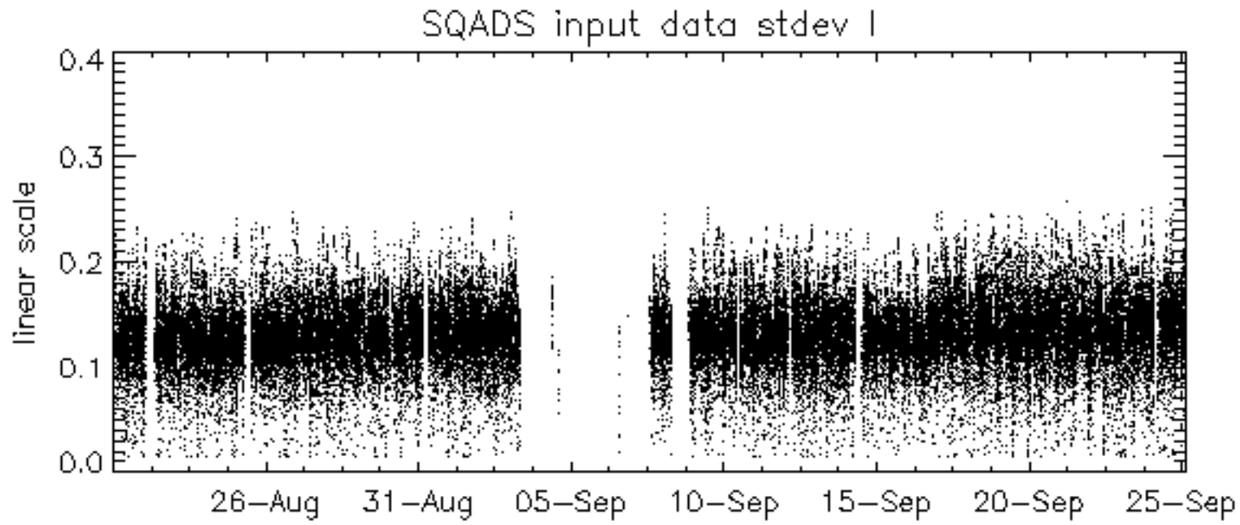

I/Q Gain Imbalance
0.30
0.25
0.20
0.15
0.10
0.05
0.00
stdev Q
0.00 0.05 0.10 0.15 0.20 0.25 0.30
stdev I

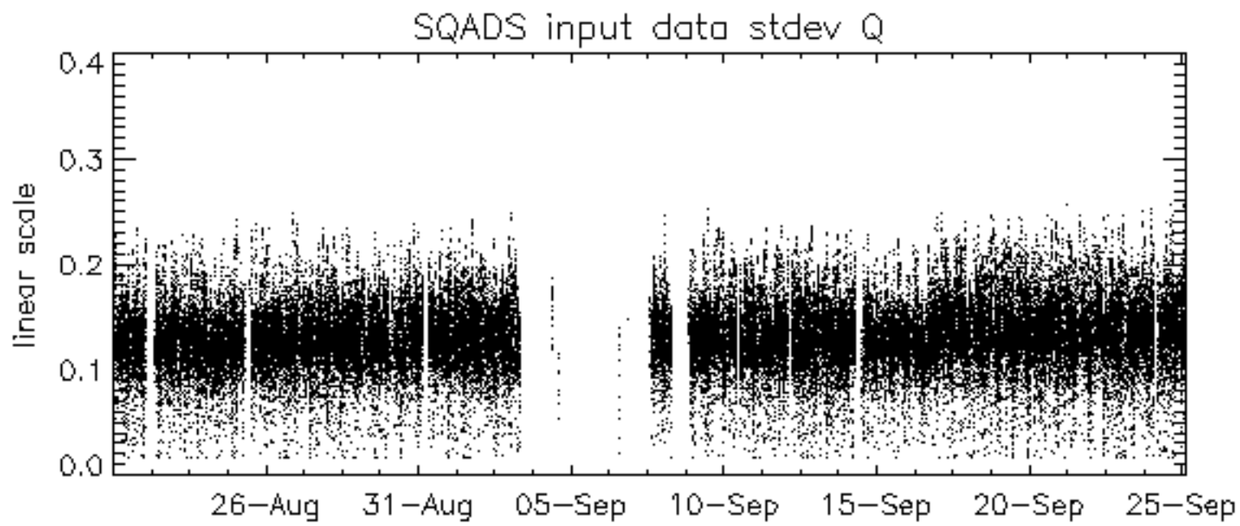

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep

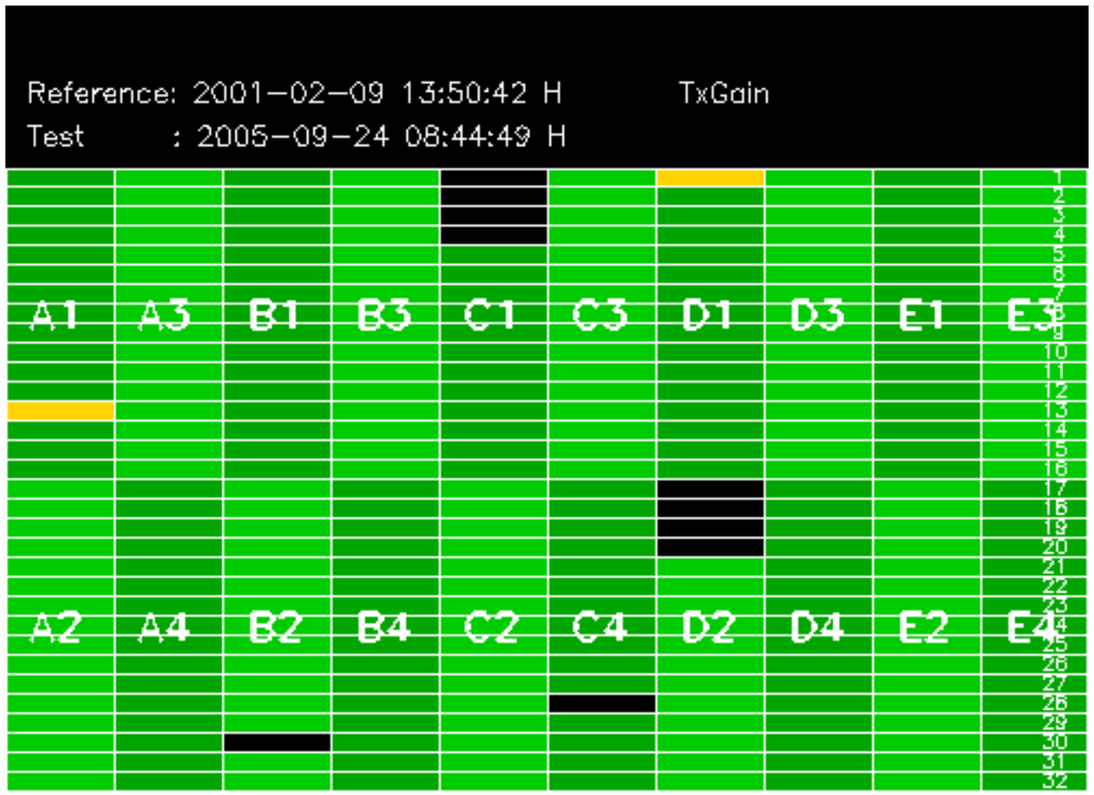

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep


SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep


SQADS input data stdev i(black), q(red)
linear scale
0.4
0.3
0.2
0.1
0.0
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep


SQADS input data stdev I
linear scale
0.4
0.3
0.2
0.1
0.0
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep


SQADS input data stdev Q
linear scale
0.4
0.3
0.2
0.1
0.0
26−Aug
31−Aug
05−Sep
10−Sep
15−Sep
20−Sep
25−Sep


Reference: 2001-02-09 13:50:42 H
Test : 2005-09-24 08:44:49 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
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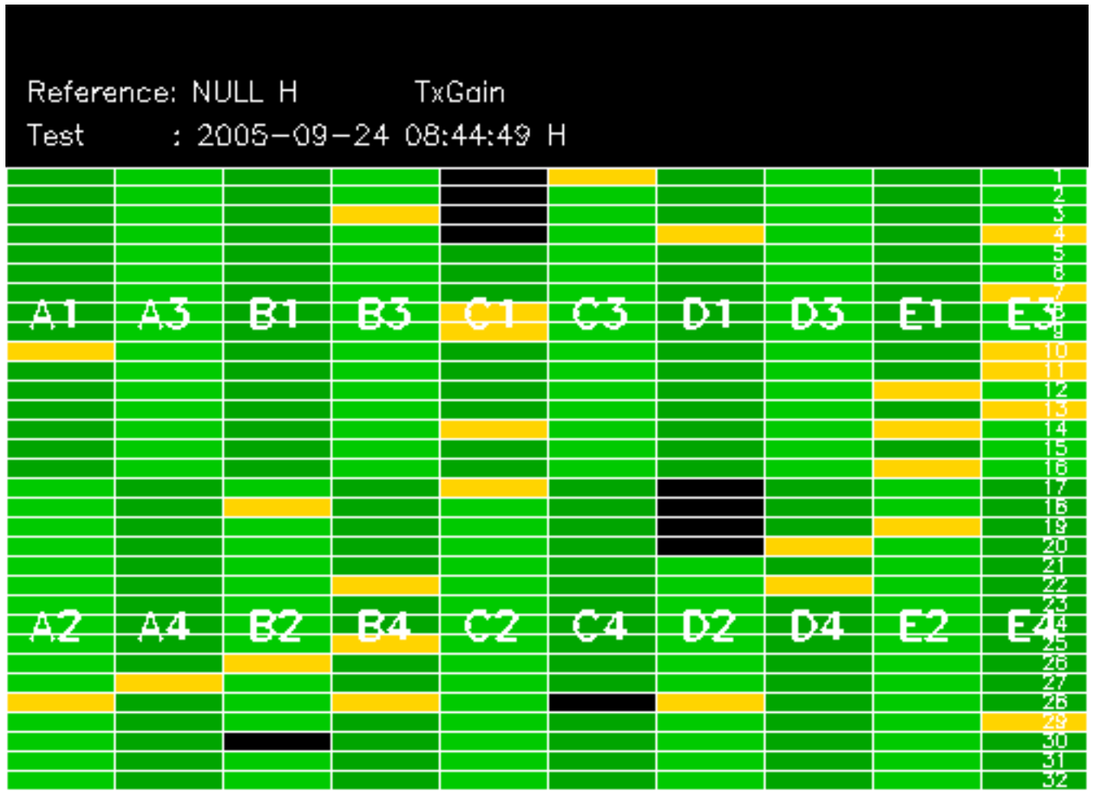
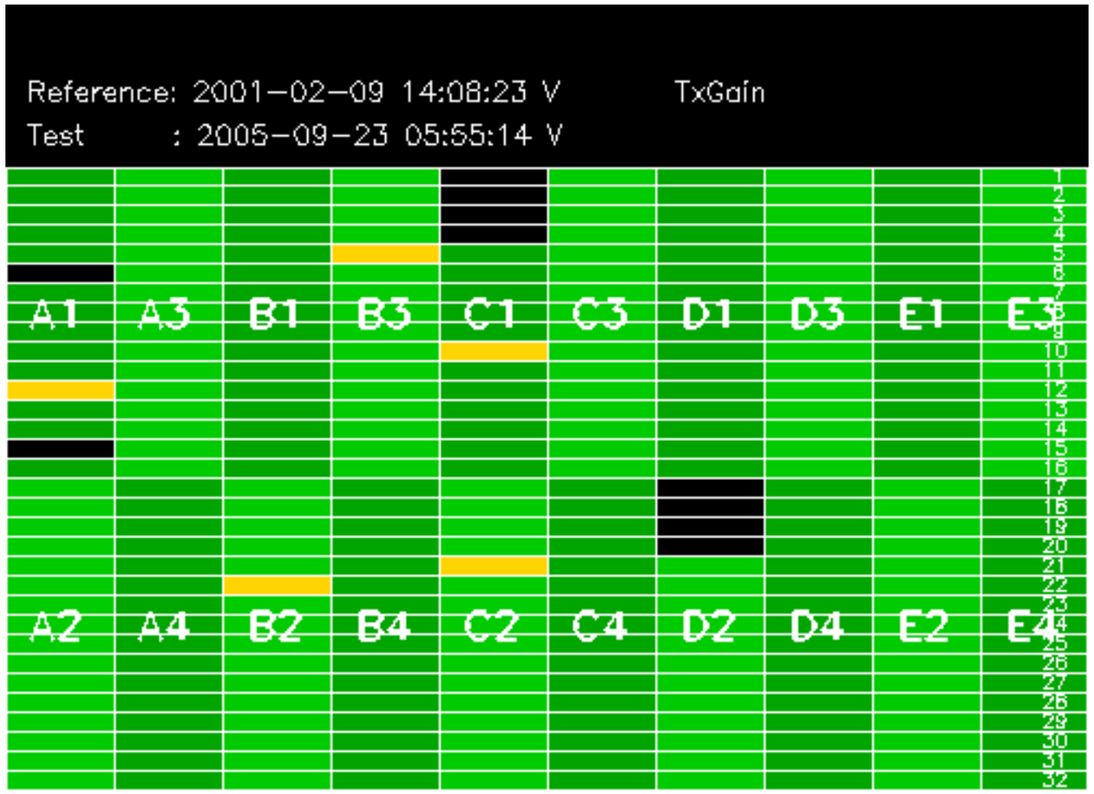
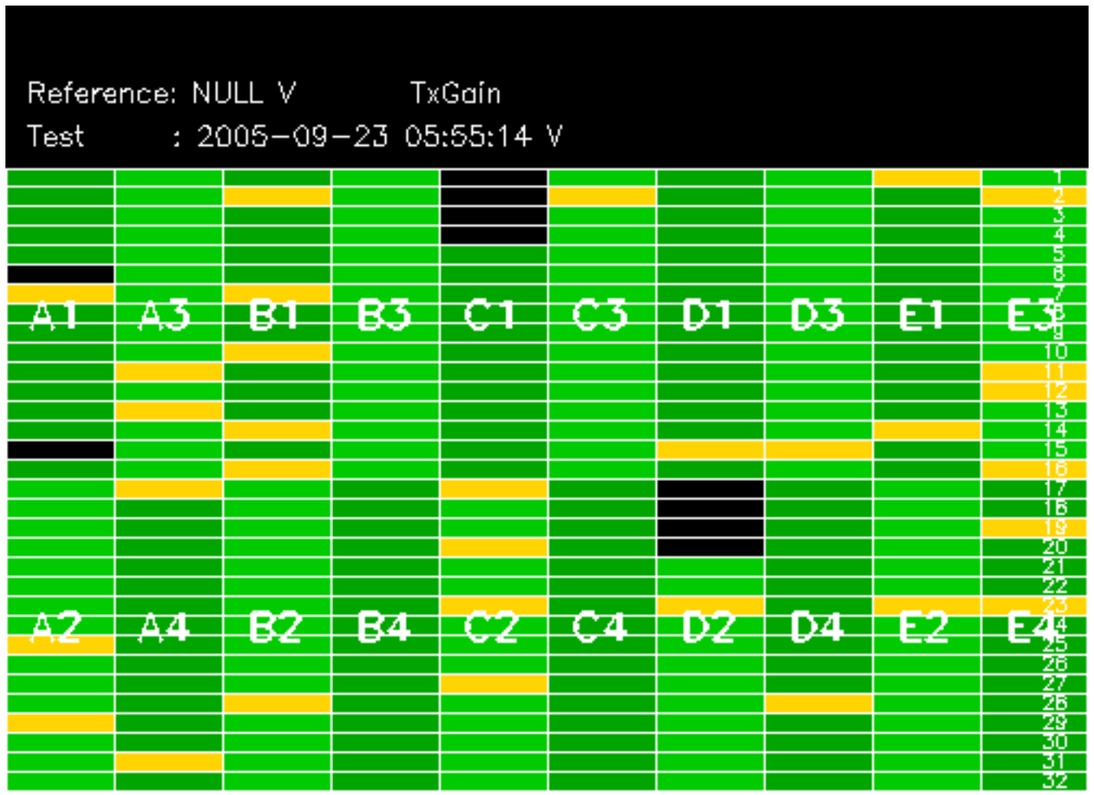
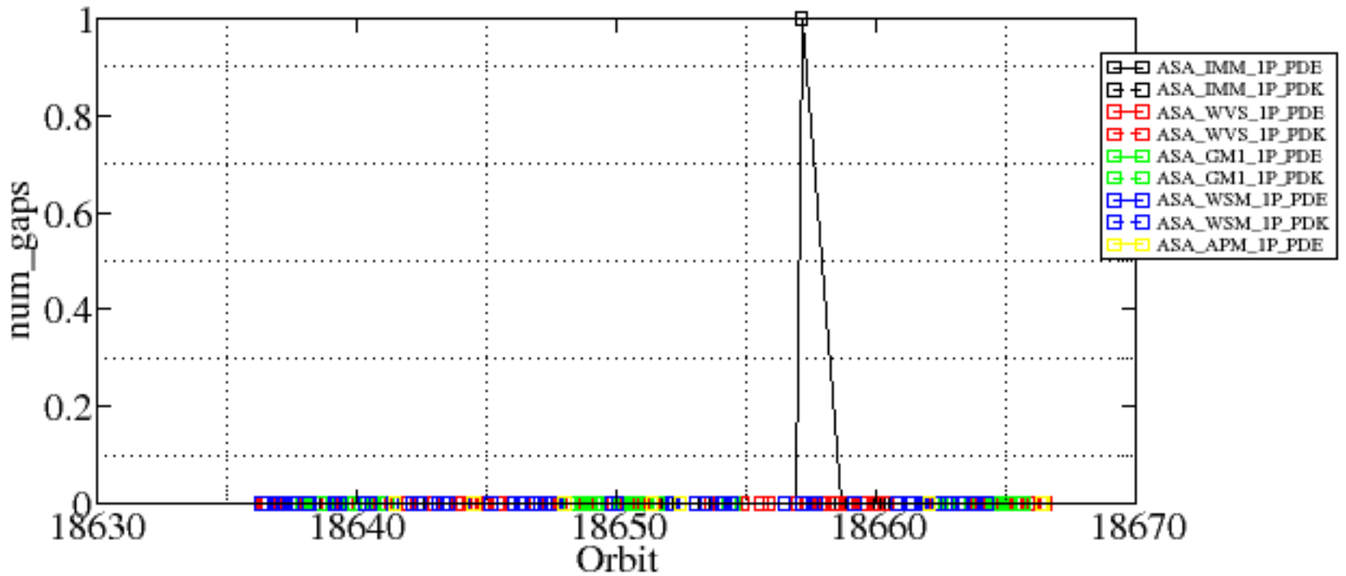
29
30
31
32

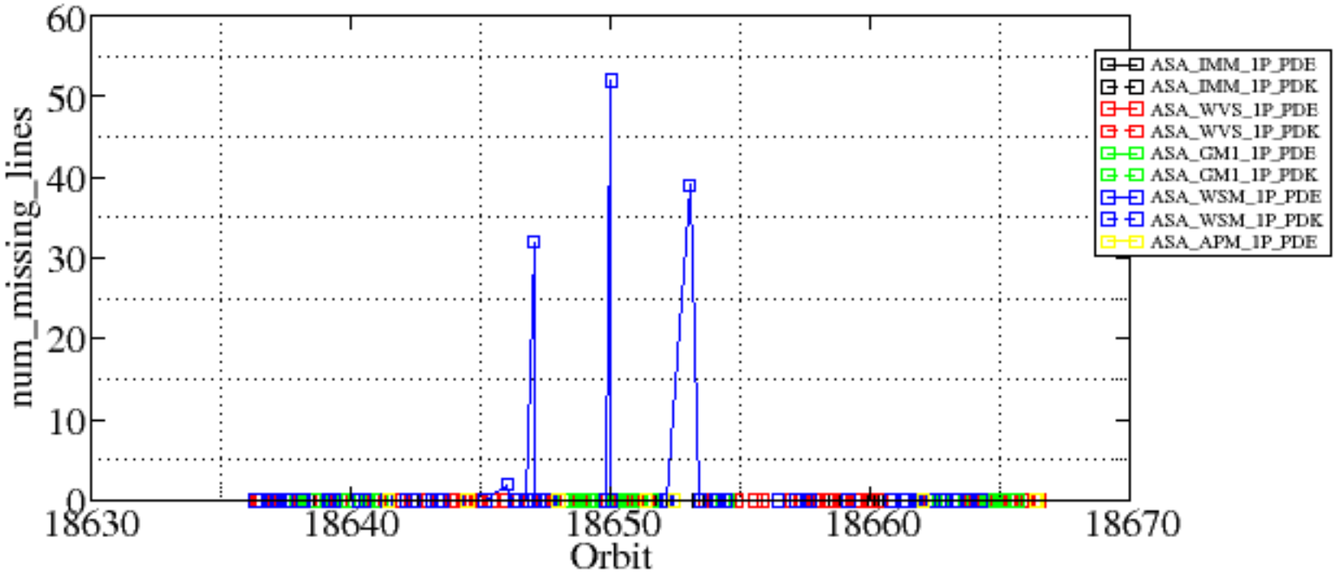

Reference: NULL H TxGain
Test : 2005-09-24 08:44:49 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

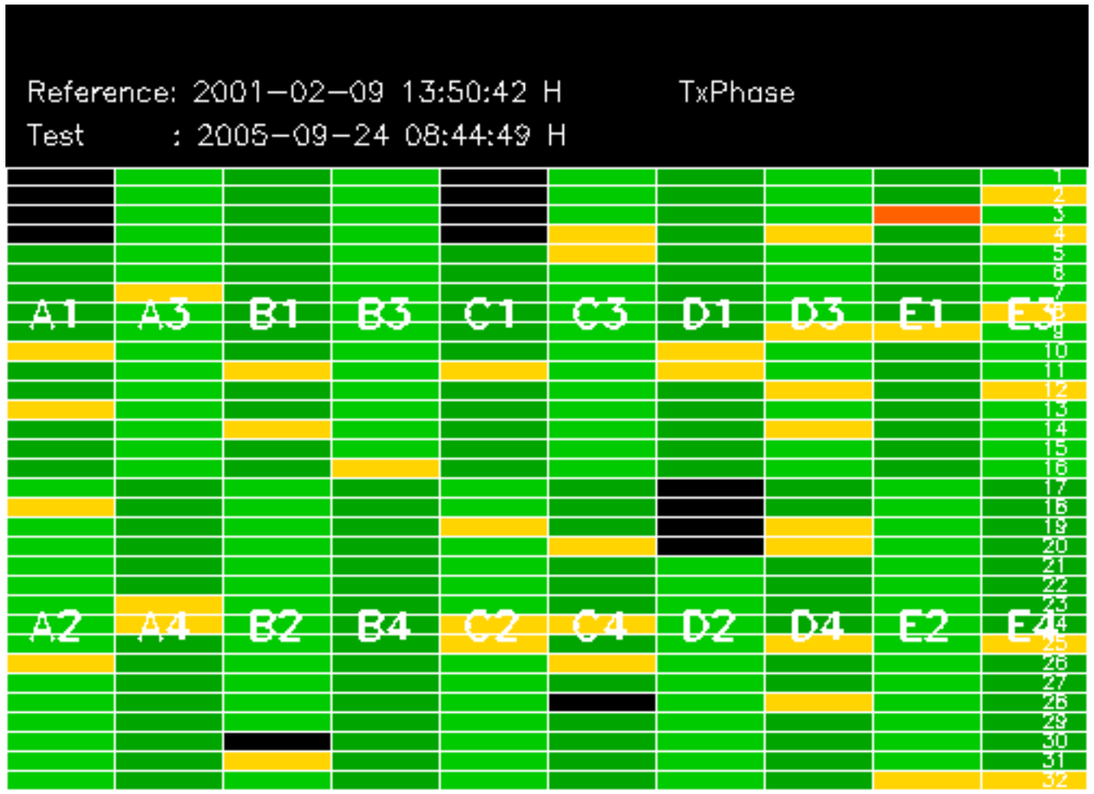

Reference: 2001-02-09 14:08:23 V
Test : 2005-09-23 05:55:14 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

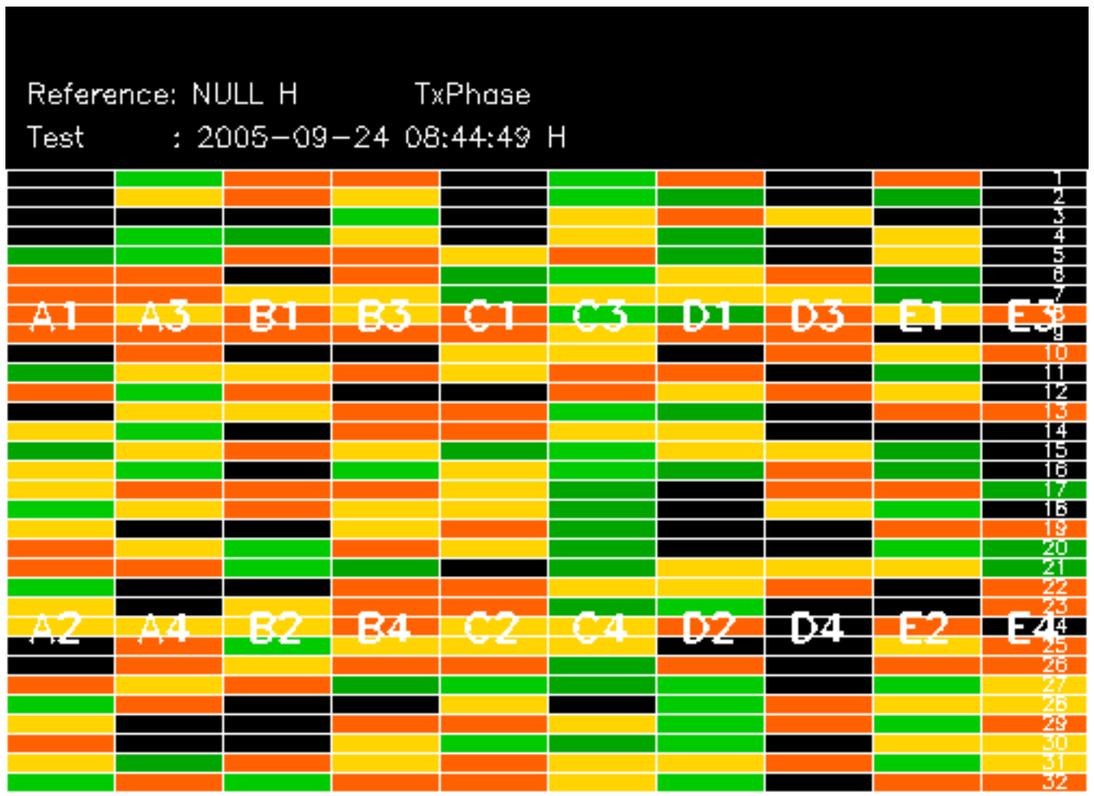

Reference: NULL V TxGain
Test : 2005-09-23 05:55:14 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

Summary of analysis for the last 3 days 2005092[345]
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_1PNPDE20050924_111215_000000532041_00066_18657_6501.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050923_163431_000001522041_00055_18646_0167.N1 </td> <td>0 </td> <td>2 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050923_181716_000000672041_00056_18647_0174.N1 </td> <td>0 </td> <td>32 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050923_231615_000000672041_00059_18650_0236.N1 </td> <td>0 </td> <td>52 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050924_042035_000003362041_00062_18653_0286.N1 </td> <td>0 </td> <td>39 </td></tr>
</table>


num_gaps
1
0.8
0.6
0.4
0.2
0
18630
18640
18650
18660
18670
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


num_missing_lines
60
50
40
30
20
10
0
18630
18640
18650
18660
18670
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
Test : 2005-09-24 08:44:49 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: NULL H TxPhase
Test : 2005-09-24 08:44:49 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
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8
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12
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14
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16
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18
19
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21
22
23
24
25
26
27
28
29
30
31
32

Reference: 2001-02-09 14:08:23 V
Test : 2005-09-23 05:55:14 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
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9
10
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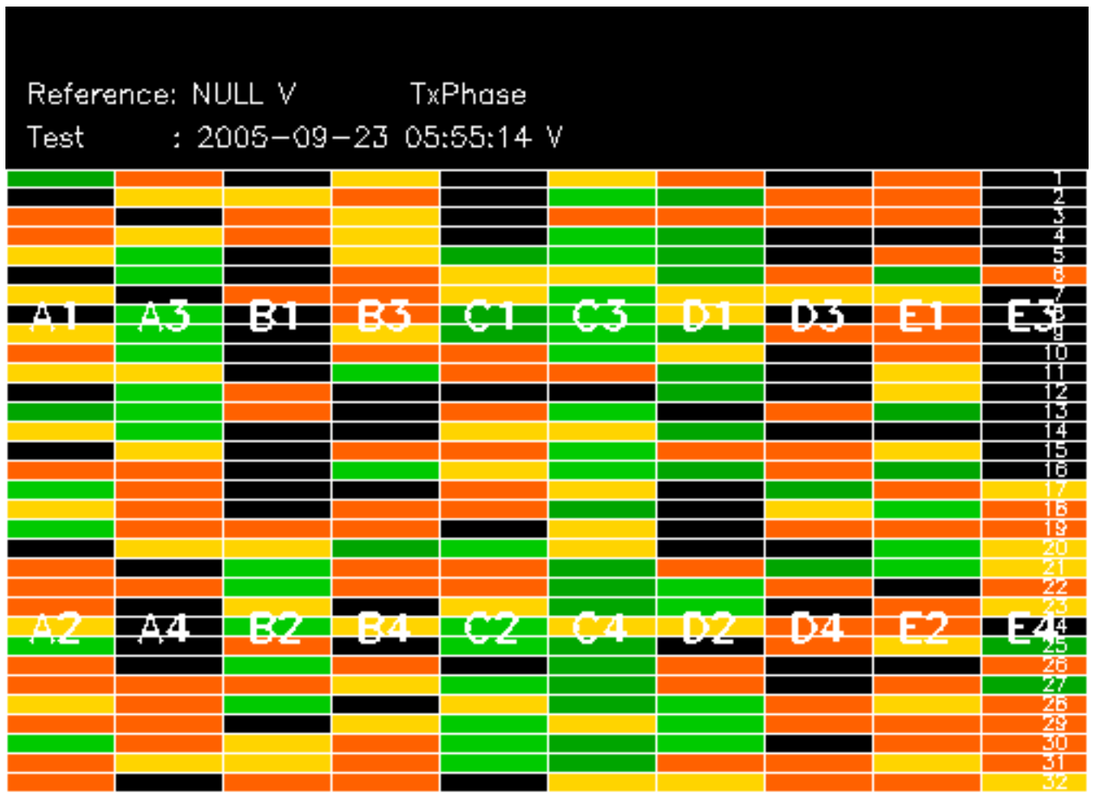
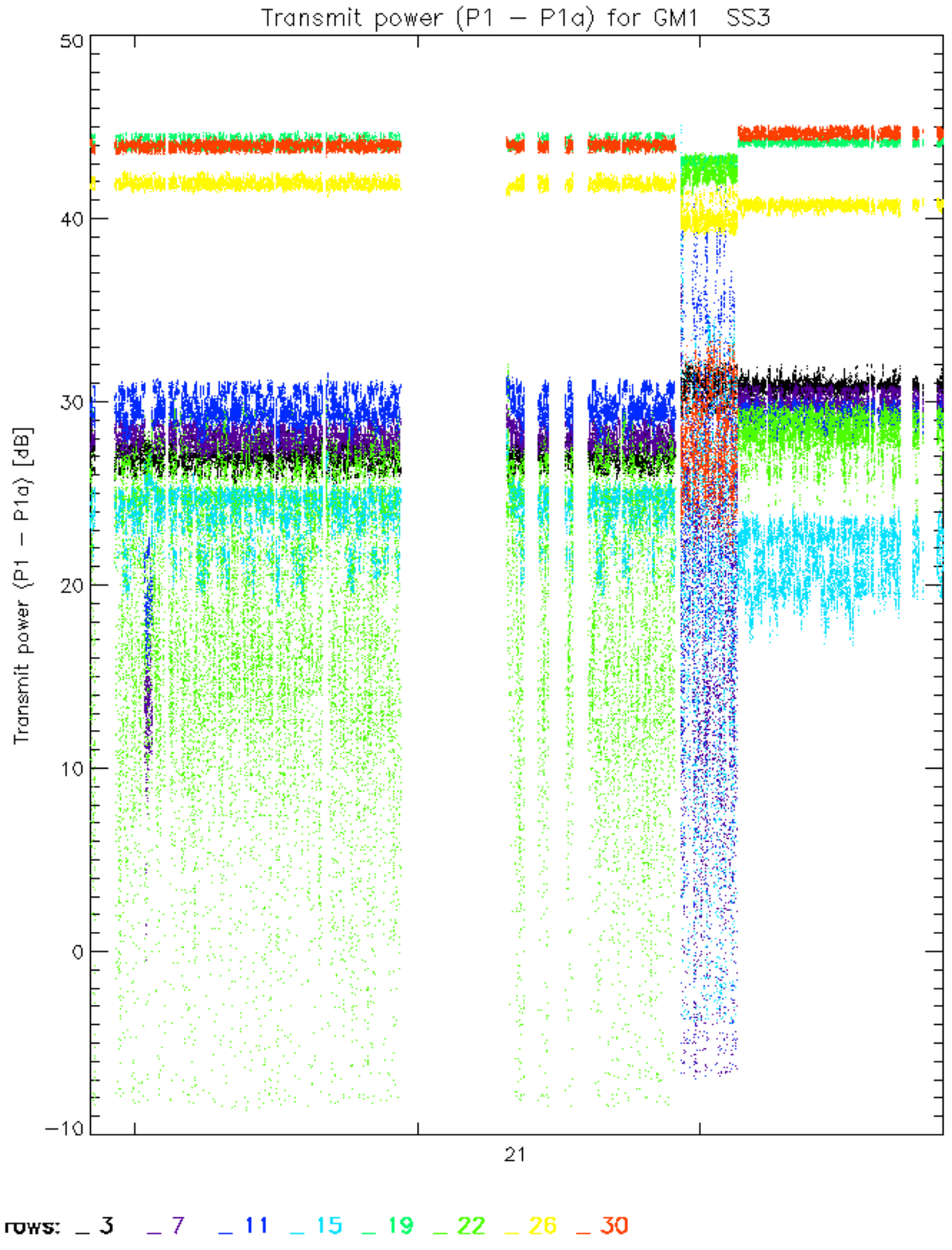
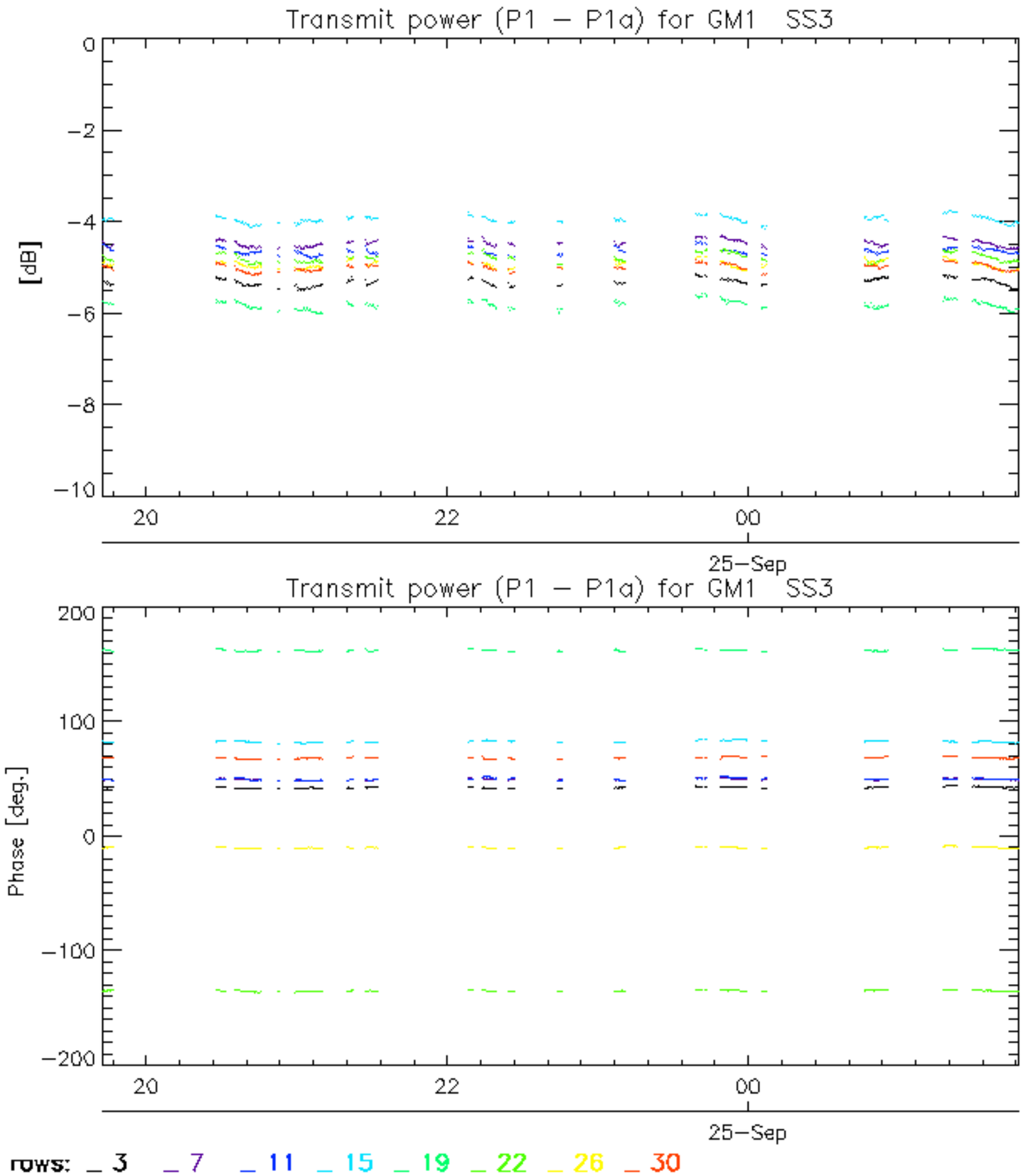
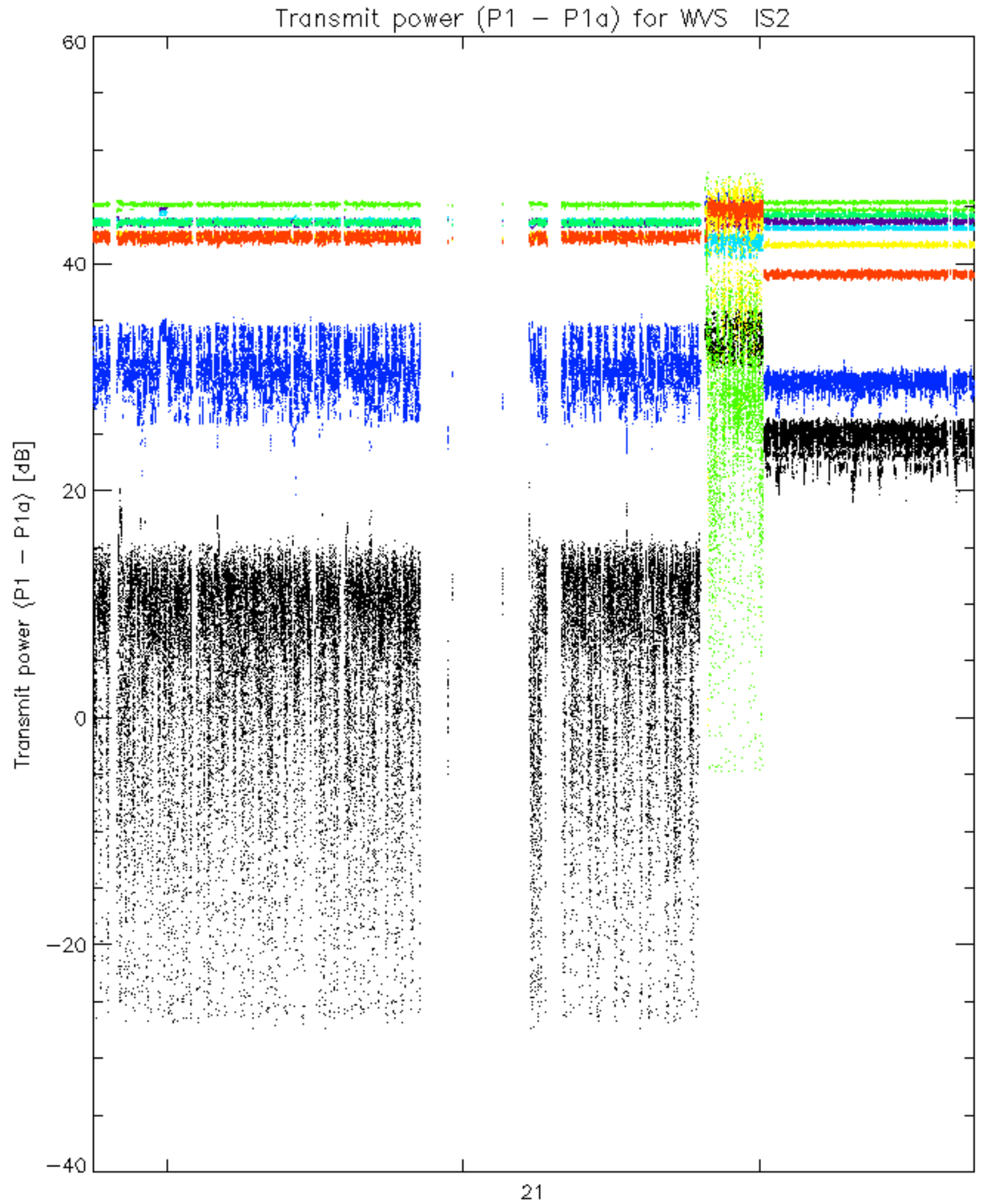
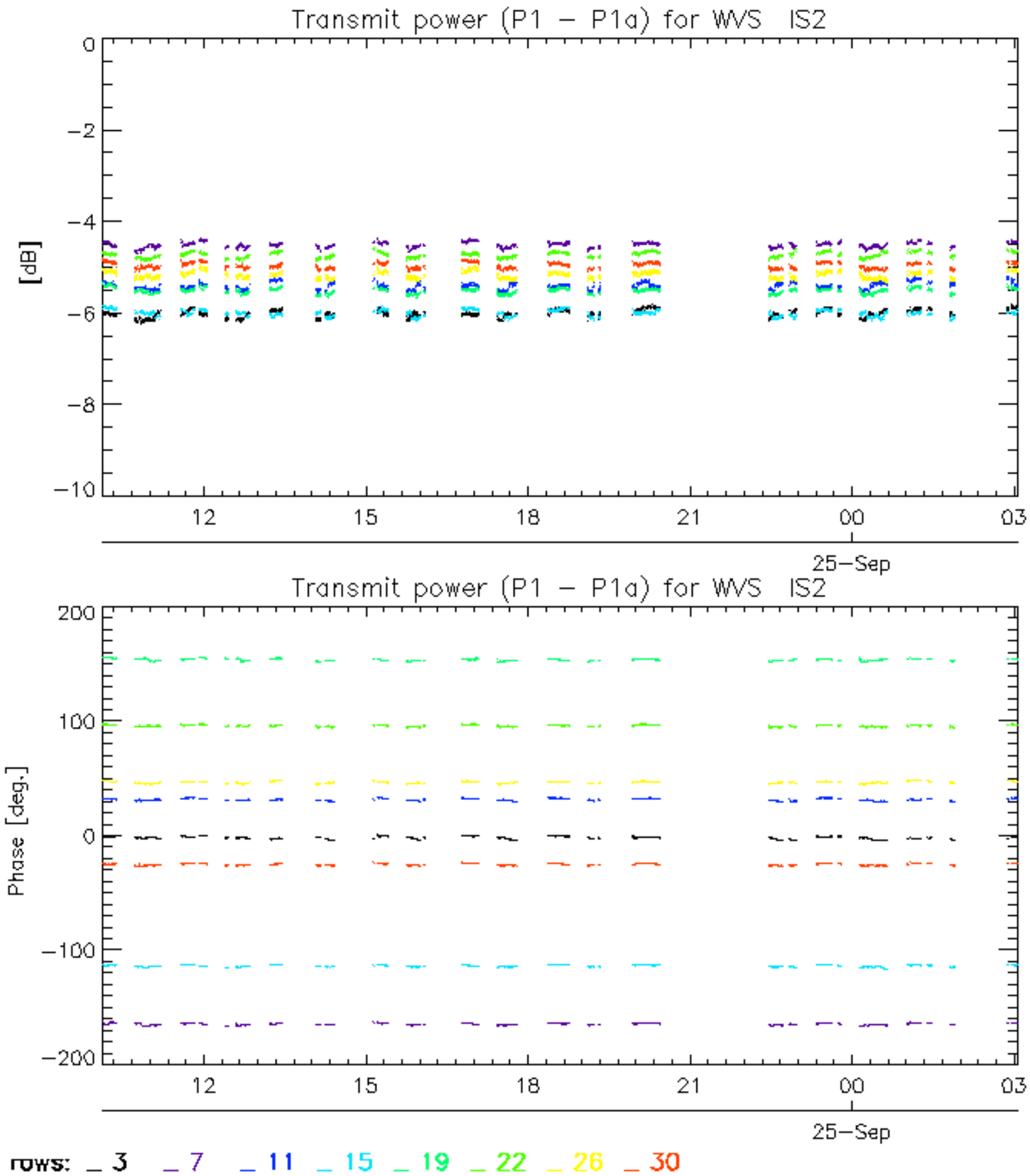
32


Reference: NULL V TxPhase
Test : 2005-09-23 05:55:14 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
40
30
20
10
0
−10
21
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
0
−2
−4
−6
−8
−10
20
22
00
25−Sep
Transmit power (P1 – P1a) for GM1 SS3
Phase [deg.]
200
100
0
−100
−200
20
22
00
25−Sep
rows: 3 7 11 15 19 22 26 30


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


Transmit power (P1 – P1a) for WVS IS2
0
−2
−4
−6
−8
−10
[dB]
12
15
18
21
00
03
25–Sep
Transmit power (P1 – P1a) for WVS IS2
200
100
0
−100
−200
Phase [deg.]
12
15
18
21
00
03
25–Sep
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.