PRELIMINARY REPORT OF 060801

last update on Tue Aug 1 16:35:47 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 2006-07-31 00:00:00 to 2006-08-01 16:35:47

PDHS-K					
AUXILIARY FILE	WVS	GM1	IMM	APM	WSM

ASA_CON_AXVIEC20051013_151540_20050916_195733_20061231_000000	39	75	9	7	13
ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	39	75	9	7	13
ASA_INS_AXVIEC20051219_161945_20030211_000000_20061231_000000	39	75	9	7	13
ASA_XCH_AXVIEC20051219_162547_20020301_000000_20081231_000000	39	75	9	7	13

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20051013_151540_20050916_195733_20061231_000000	39	58	25	19	100
ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	39	58	25	19	100
ASA_INS_AXVIEC20051219_161945_20030211_000000_20061231_000000	39	58	25	19	100
ASA_XCH_AXVIEC20051219_162547_20020301_000000_20081231_000000	39	58	25	19	100

2.3 - Browse Visual Inspection

No anomalies observed on available browse products

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	20060731 180519
H	20060730 183656

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	-3.935701	0.011535	-0.026920
7	P1	-3.099038	0.010342	0.013138
11	P1	-4.085119	0.013664	0.002103
15	P1	-6.173487	0.011385	-0.003386
19	P1	-3.405891	0.009909	-0.053855
22	P1	-4.551813	0.010223	-0.030424
26	P1	-3.926105	0.020075	0.030199
30	P1	-5.762749	0.009416	-0.001370
3	P1	-16.516390	0.302944	-0.062113
7	P1	-17.192087	0.102708	-0.013268
11	P1	-16.979515	0.278449	0.029202
15	P1	-13.101143	0.146612	0.066915
19	P1	-14.465136	0.053715	-0.103203
22	P1	-16.013876	0.426884	0.031093
26	P1	-15.116010	0.237345	0.071271
30	P1	-17.101751	0.346997	-0.022670

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-20.963915	0.087710	0.134702
7	P2	-21.906811	0.104935	0.085505
11	P2	-15.787812	0.120881	0.058448
15	P2	-7.127275	0.099765	0.023207
19	P2	-9.131852	0.091297	0.011671
22	P2	-18.150034	0.086243	-0.003209
26	P2	-16.399590	0.092973	-0.010737
30	P2	-19.517660	0.092822	0.042865

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.174405	0.003043	0.003345
7	P3	-8.174405	0.003043	0.003345
11	P3	-8.174405	0.003043	0.003345
15	P3	-8.174405	0.003043	0.003345
19	P3	-8.174405	0.003043	0.003345
22	P3	-8.174405	0.003043	0.003345
26	P3	-8.174405	0.003043	0.003345
30	P3	-8.174405	0.003043	0.003345

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	-3.810932	0.022466	-0.073473
7	P1	-2.557034	0.007947	0.029082
11	P1	-2.855883	0.014307	0.020032
15	P1	-3.572360	0.029127	-0.022101
19	P1	-3.423184	0.024652	-0.029077
22	P1	-5.087655	0.019892	0.025636
26	P1	-5.861801	0.015940	-0.019717
30	P1	-5.196098	0.032877	-0.016584
3	P1	-11.597558	0.077856	-0.103821
7	P1	-9.967543	0.034615	0.035204
11	P1	-10.247446	0.056211	-0.004975
15	P1	-10.753583	0.143701	0.040406
19	P1	-15.556004	0.506150	-0.122469
22	P1	-20.918501	1.234191	0.057296

26	P1	-16.283390	0.381824	0.208679
30	P1	-17.920782	0.409466	-0.130118

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-16.601910	0.071327	0.199907
7	P2	-22.384281	0.124126	0.138102
11	P2	-11.043051	0.041638	0.071967
15	P2	-4.909121	0.045301	0.031803
19	P2	-6.872253	0.040912	0.031237
22	P2	-8.195166	0.036413	0.009757
26	P2	-24.181673	0.060999	0.027977
30	P2	-22.008945	0.049324	0.047761

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.013279	0.003750	0.009757
7	P3	-8.013297	0.003752	0.010061
11	P3	-8.013195	0.003768	0.009526
15	P3	-8.013262	0.003759	0.009798
19	P3	-8.013278	0.003760	0.009808
22	P3	-8.013404	0.003749	0.009553
26	P3	-8.013318	0.003750	0.009633
30	P3	-8.013256	0.003755	0.009650

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	0.000562814
	stdev	1.70172e-07
MEAN Q	mean	0.000536313
	stdev	2.14926e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.137726
	stdev	0.00110533
STDEV Q	mean	0.138086
	stdev	0.00112332

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2006073[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_1PNPDE20060730_004000_000001542049_00474_23073_2510.N1	1	0
ASA_IMM_1PNPDE20060730_005617_000000362049_00475_23074_2509.N1	1	0
ASA_WSM_1PNPDE20060730_113206_000001042049_00481_23080_4951.N1	0	2
ASA_WSM_1PNPDE20060731_184222_000002982049_00500_23099_5132.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

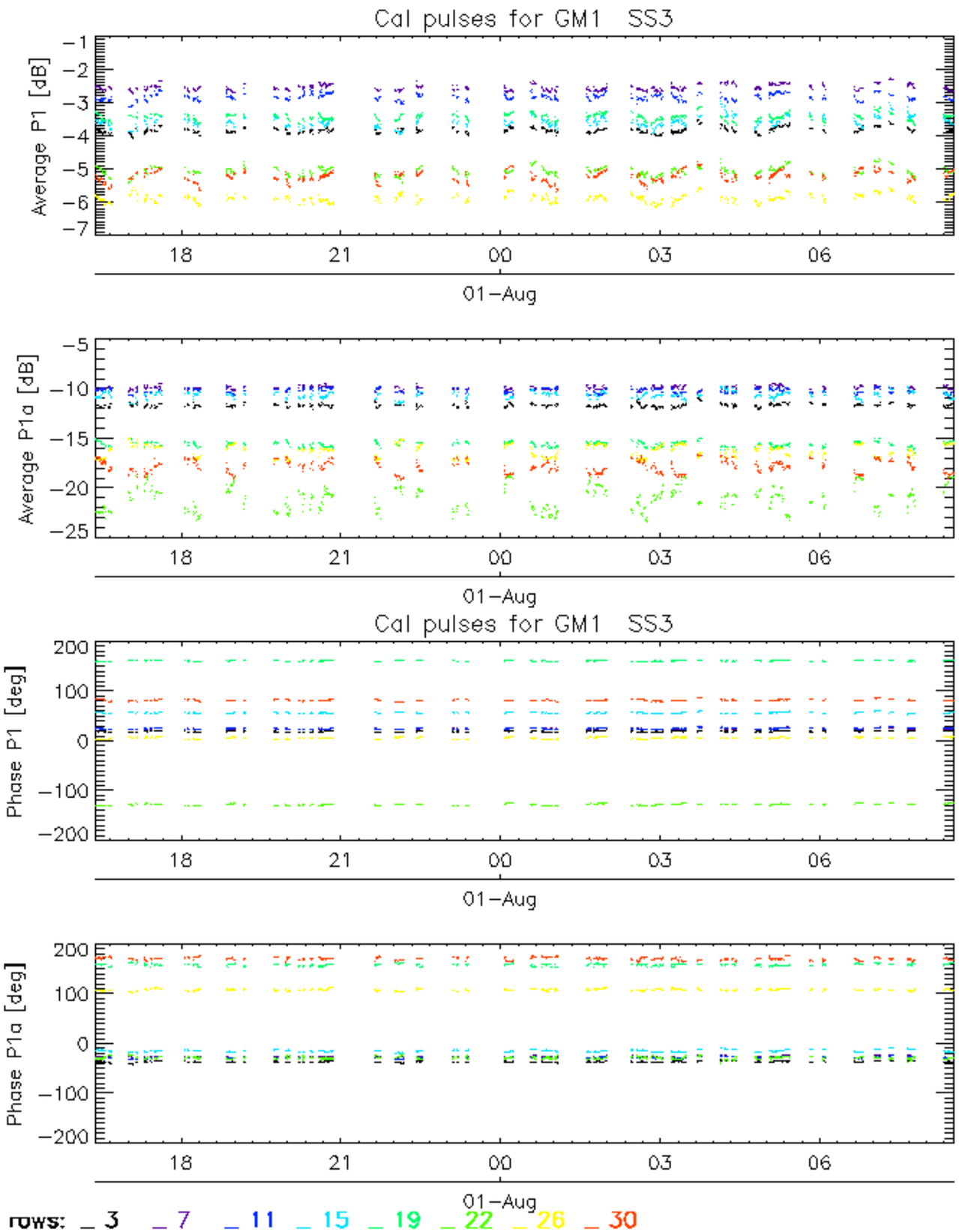
Evolution of unbiased Doppler error (Real - Expected)
Acsending
Descending

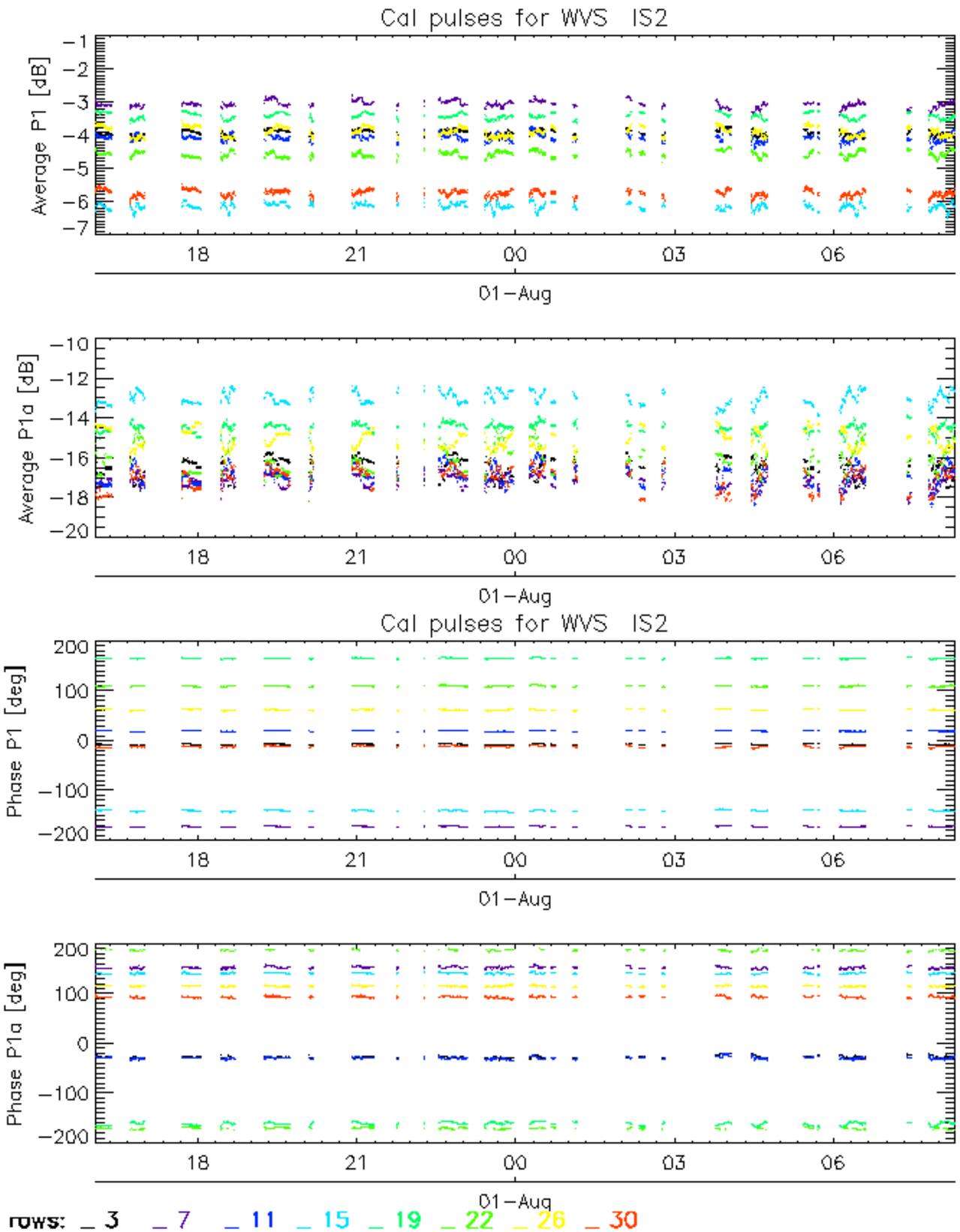
7.5 - Absolute Doppler for GM1

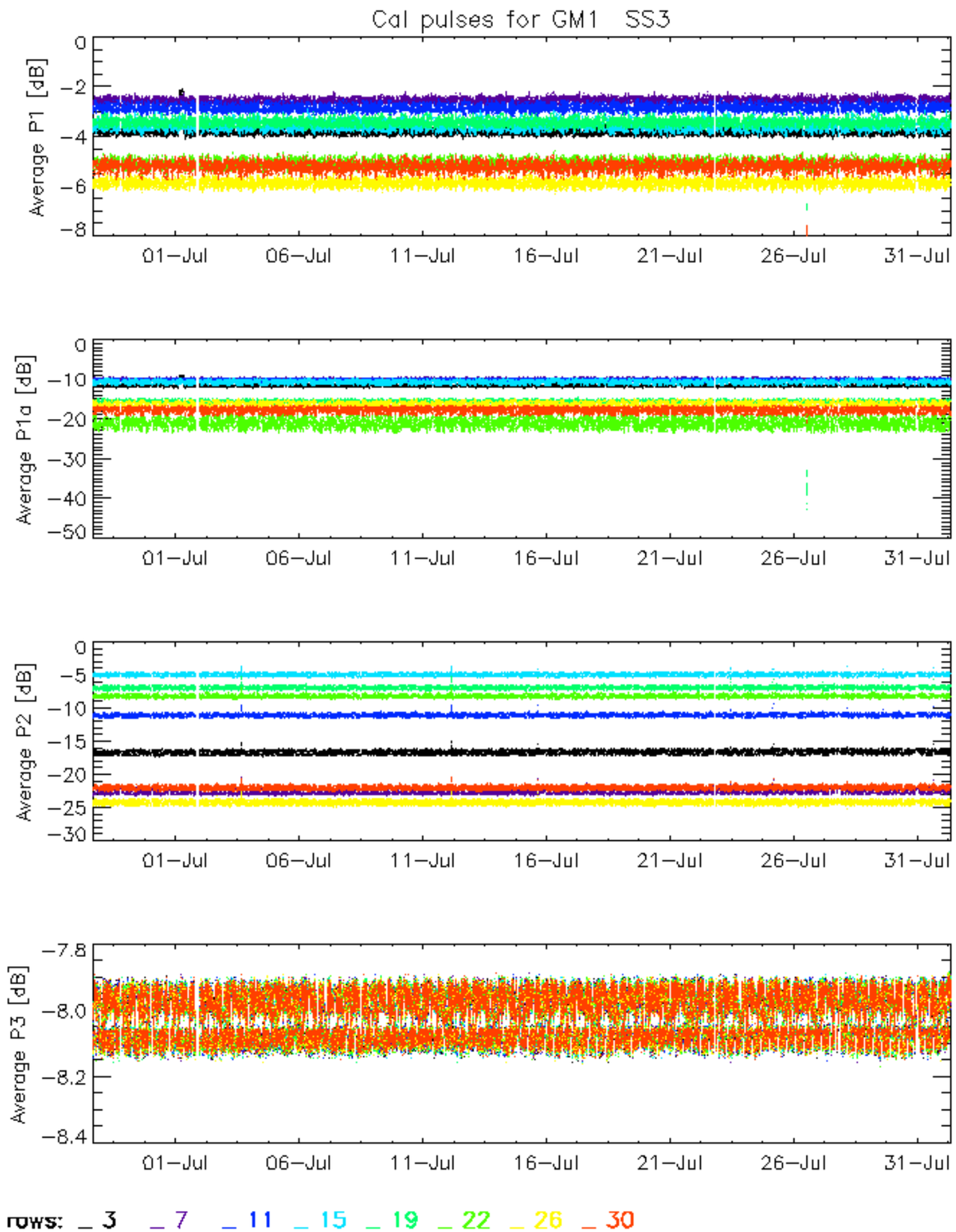
Evolution of Absolute Doppler
Acsending
Descending

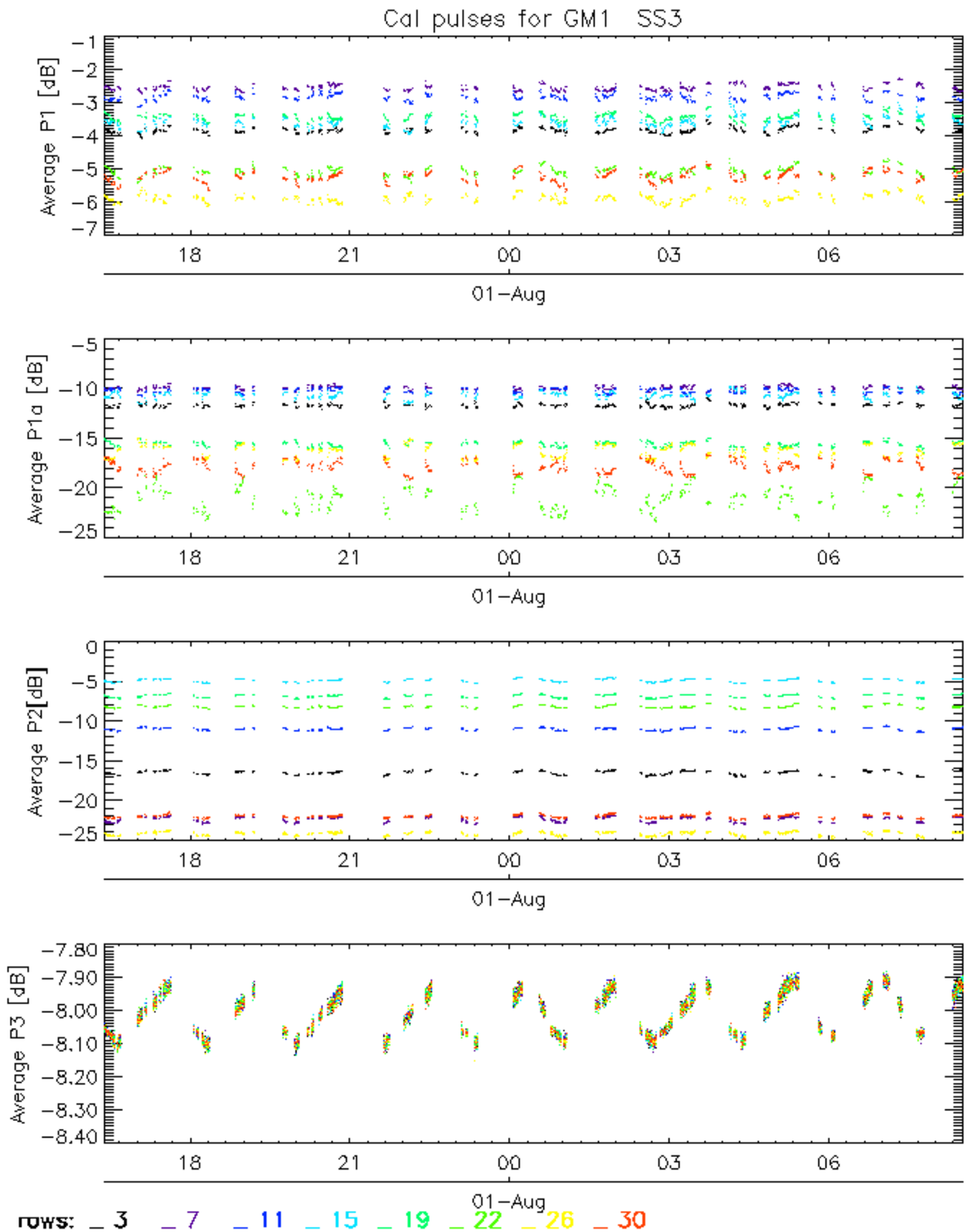
7.6 - Doppler evolution versus ANX for GM1

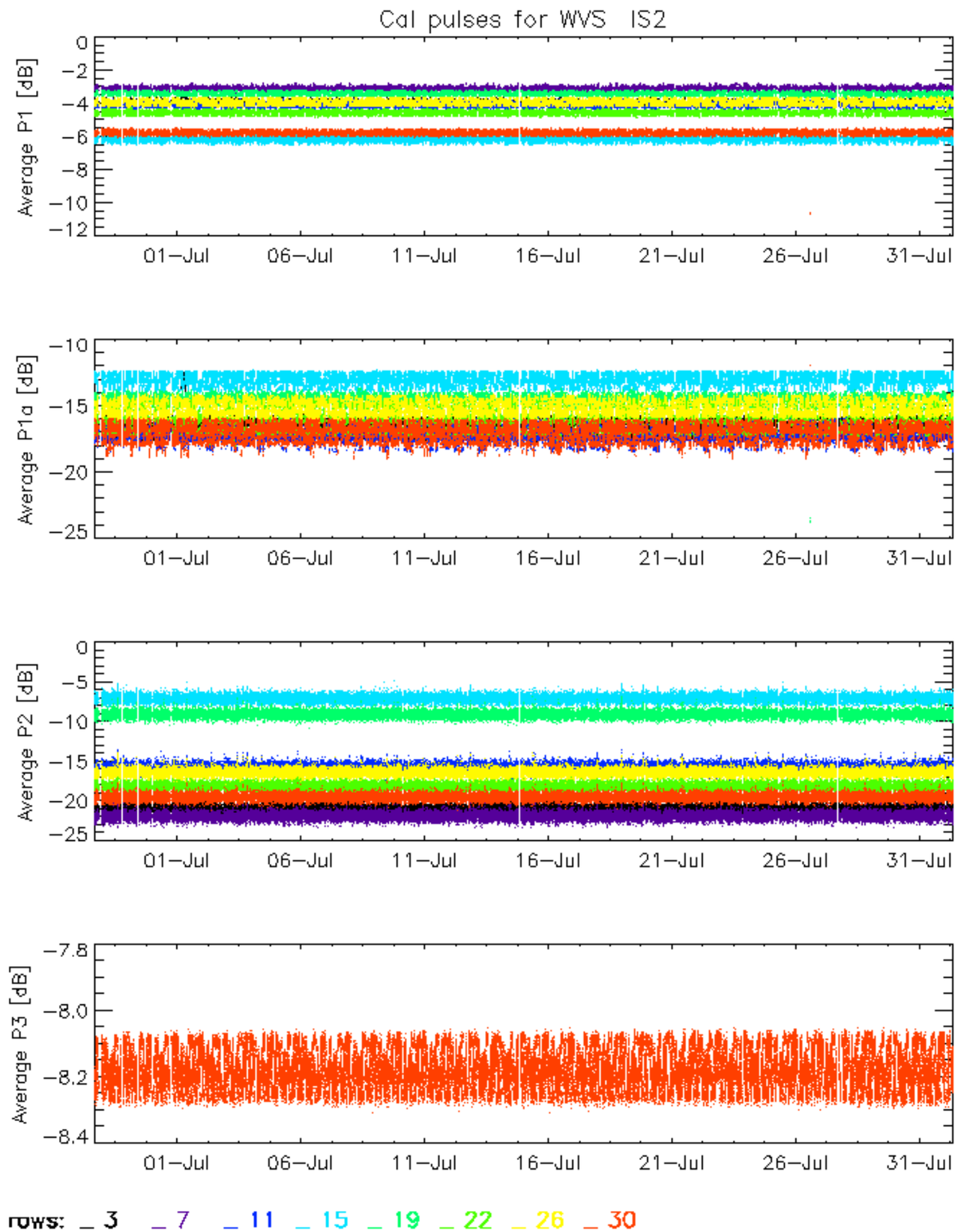
Evolution Doppler error versus ANX

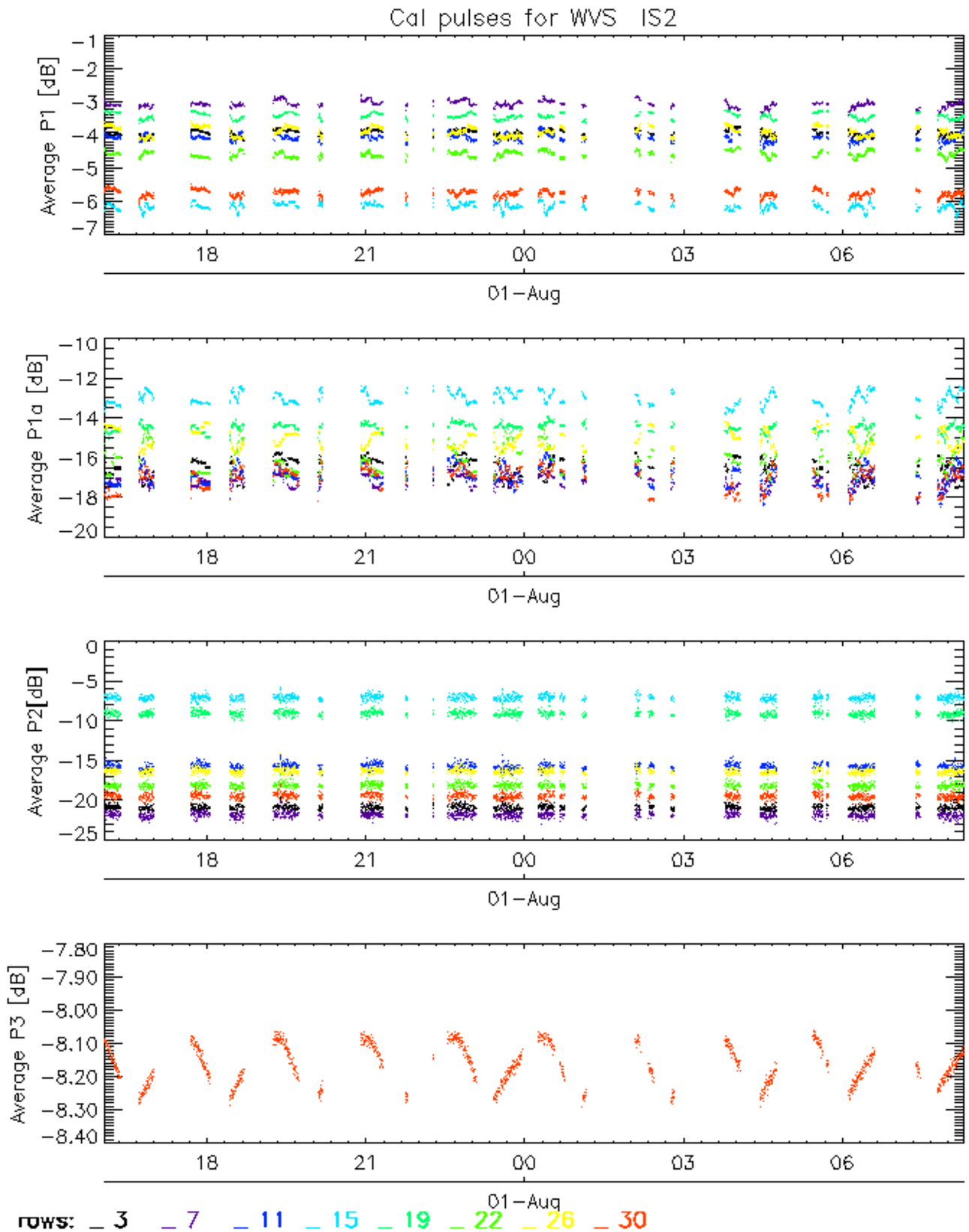

Cal pulses for GM1 SS3
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
18
21
00
03
06
01−Aug
Average P1a [dB]
−5
−10
−15
−20
−25
Cal pulses for GM1 SS3
Phase P1 [deg]
200
100
0
−100
−200
Phase P1a [deg]
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
18
21
00
03
06
01−Aug
Average P1a [dB]
−10
−12
−14
−16
−18
−20
18
21
00
03
06
01−Aug
Cal pulses for WVS IS2
Phase P1 [deg]
200
100
0
−100
−200
18
21
00
03
06
01−Aug
Phase P1a [deg]
200
100
0
−100
−200
18
21
00
03
06
01−Aug
rows: 3 7 11 15 19 22 26 30


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

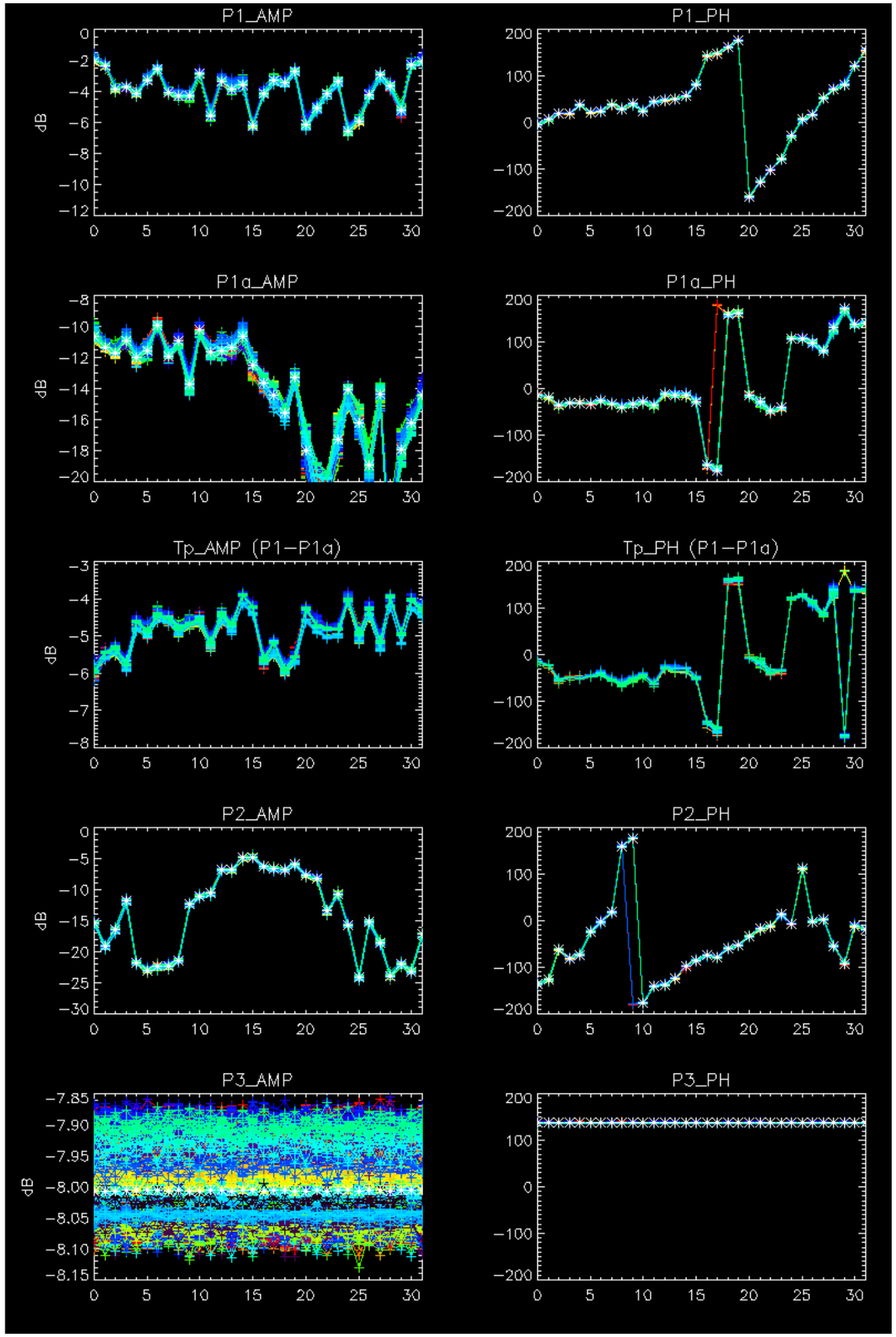

Cal pulses for GM1 SS3
Average P1 [dB]
Average P1a [dB]
Average P2[dB]
Average P3 [dB]
18
21
00
03
06
01−Aug
rows: 3 7 11 15 19 22 26 30

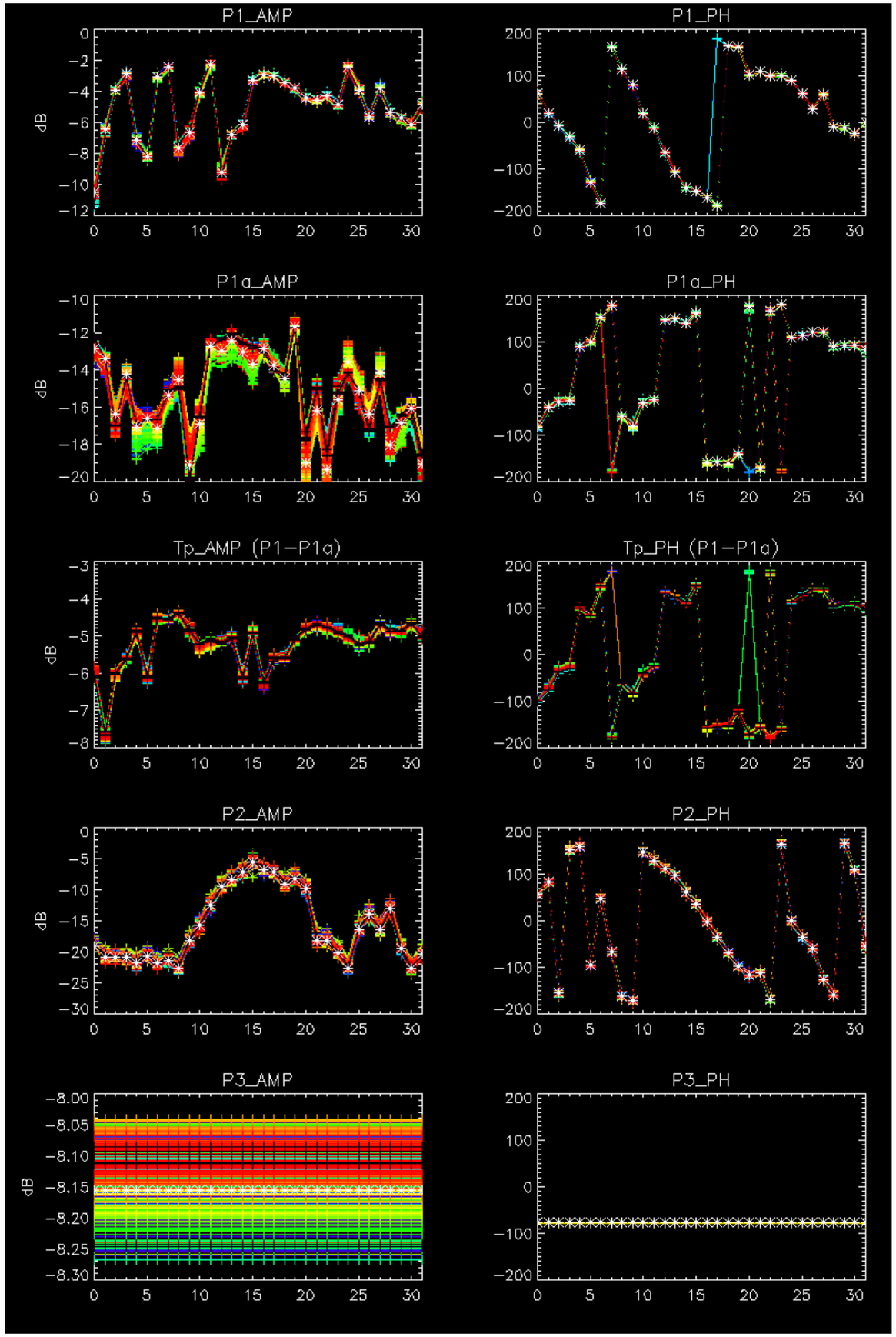

Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
−10
−12
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
31−Jul
Average P1a [dB]
−10
−15
−20
−25
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
Average P1a [dB]
Average P2[dB]
Average P3 [dB]
18
21
00
03
06
01-Aug
rows: 3 7 11 15 19 22 26 30

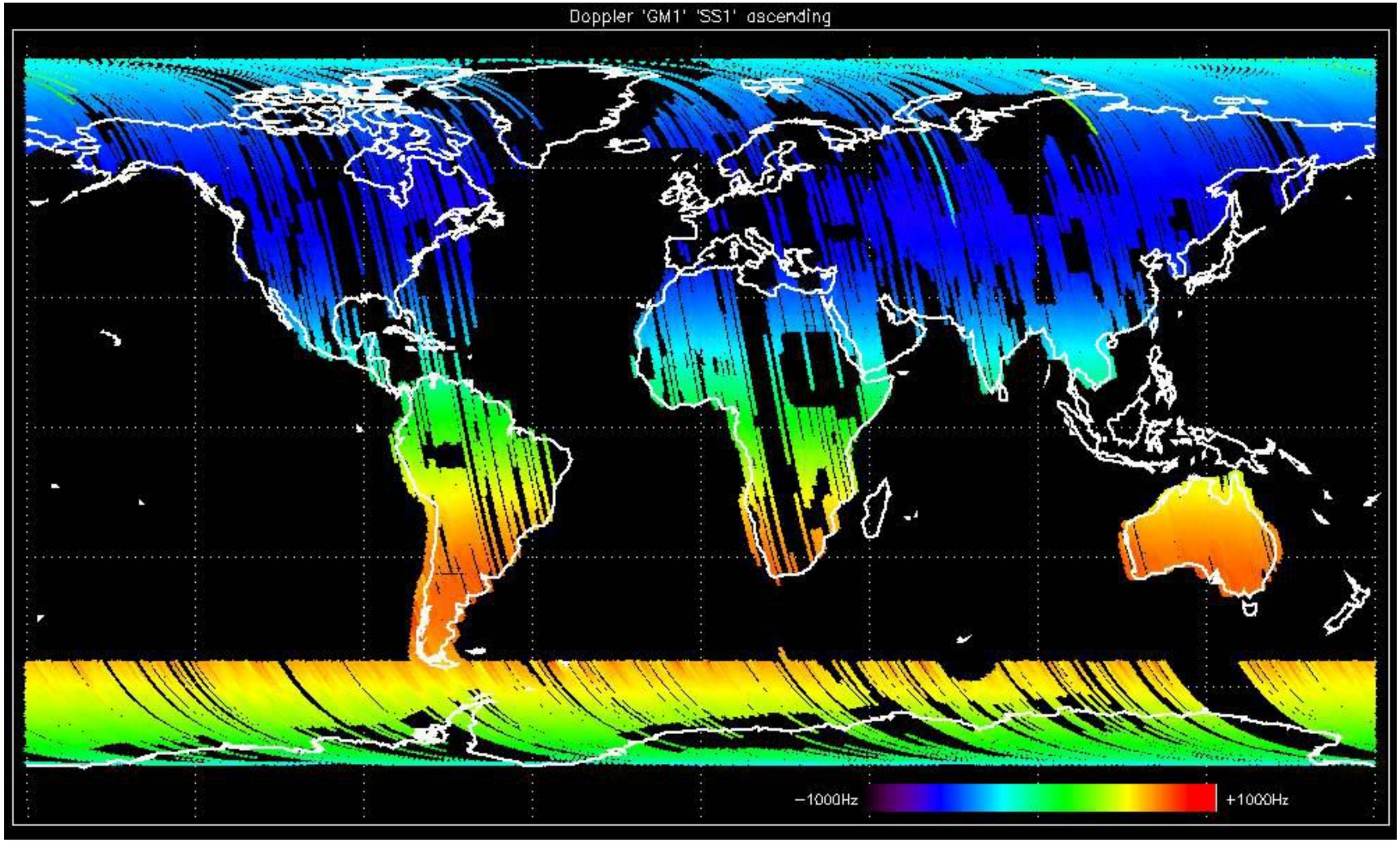
No anomalies observed on available browse products

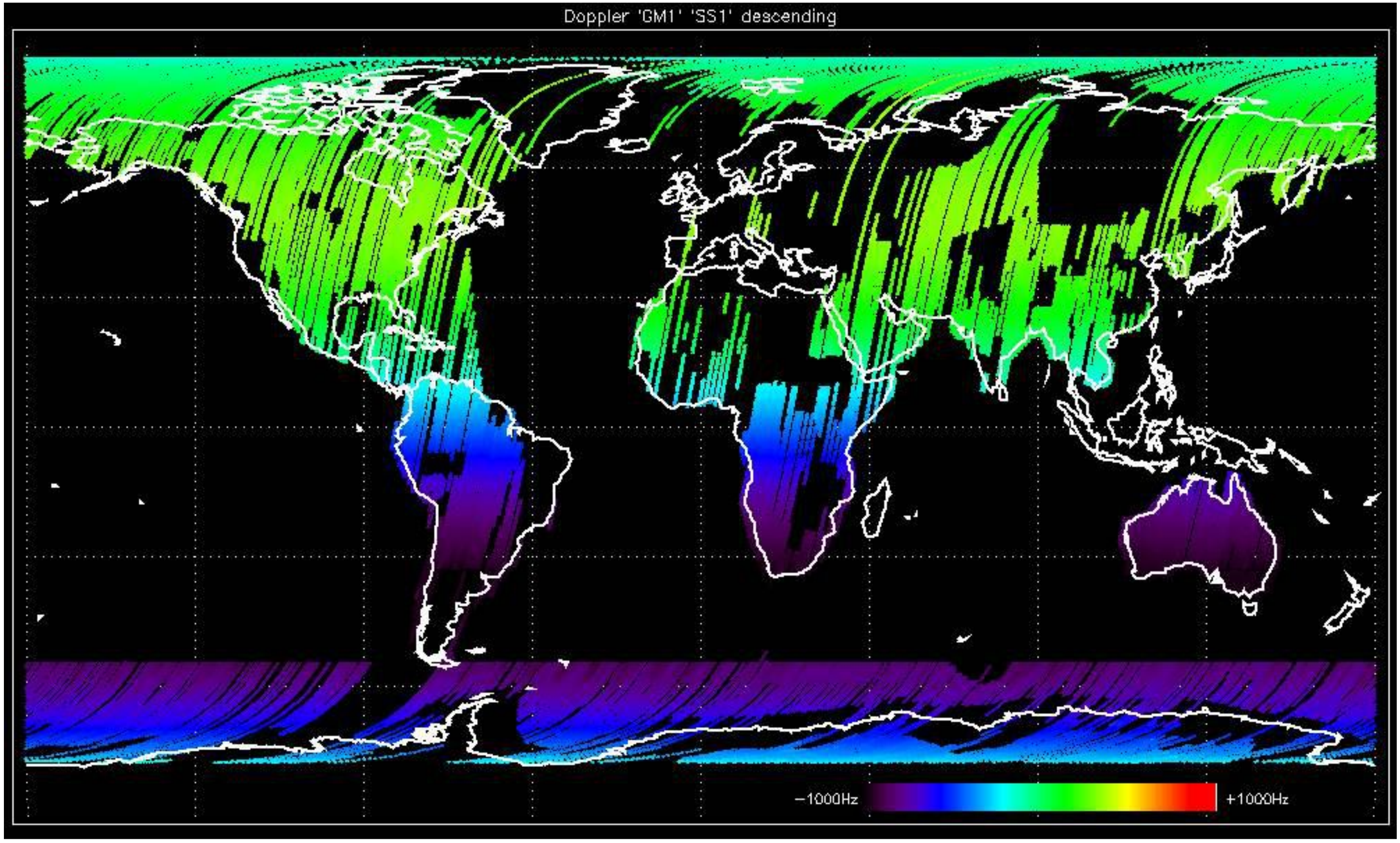
No anomalies observed.

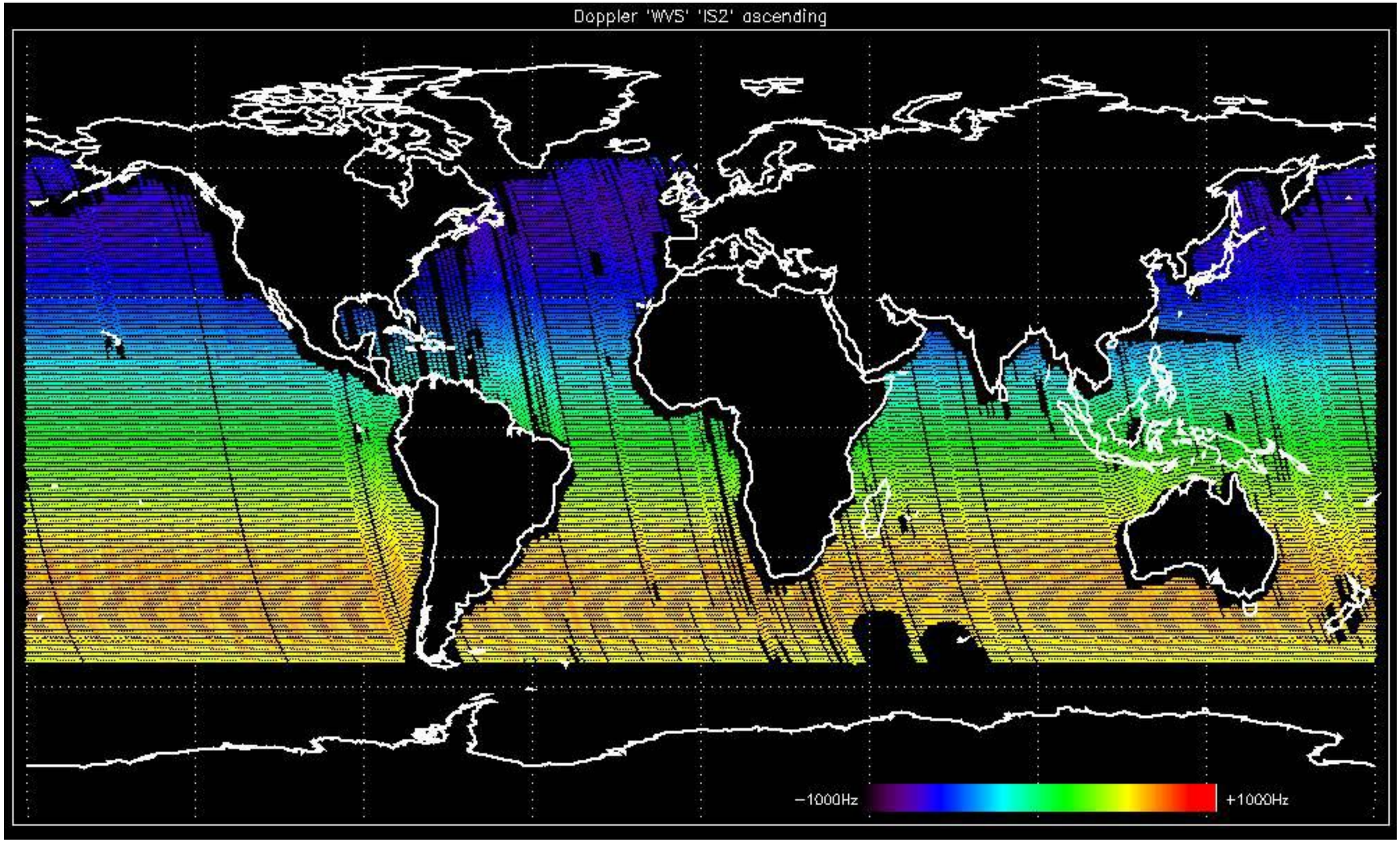

P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
Tp_AMP (P1−P1a)
dB
Tp_PH (P1−P1a)
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH

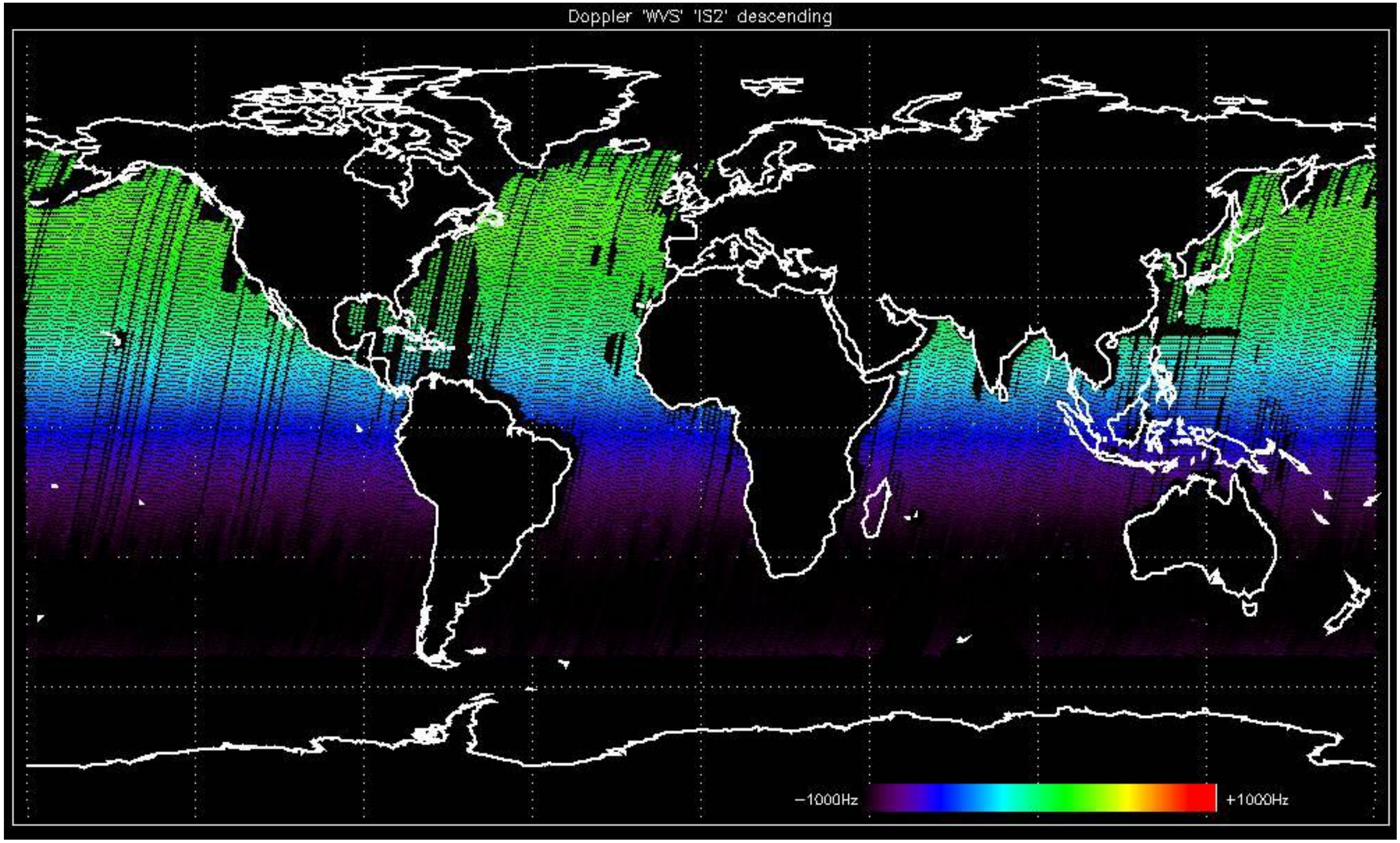

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

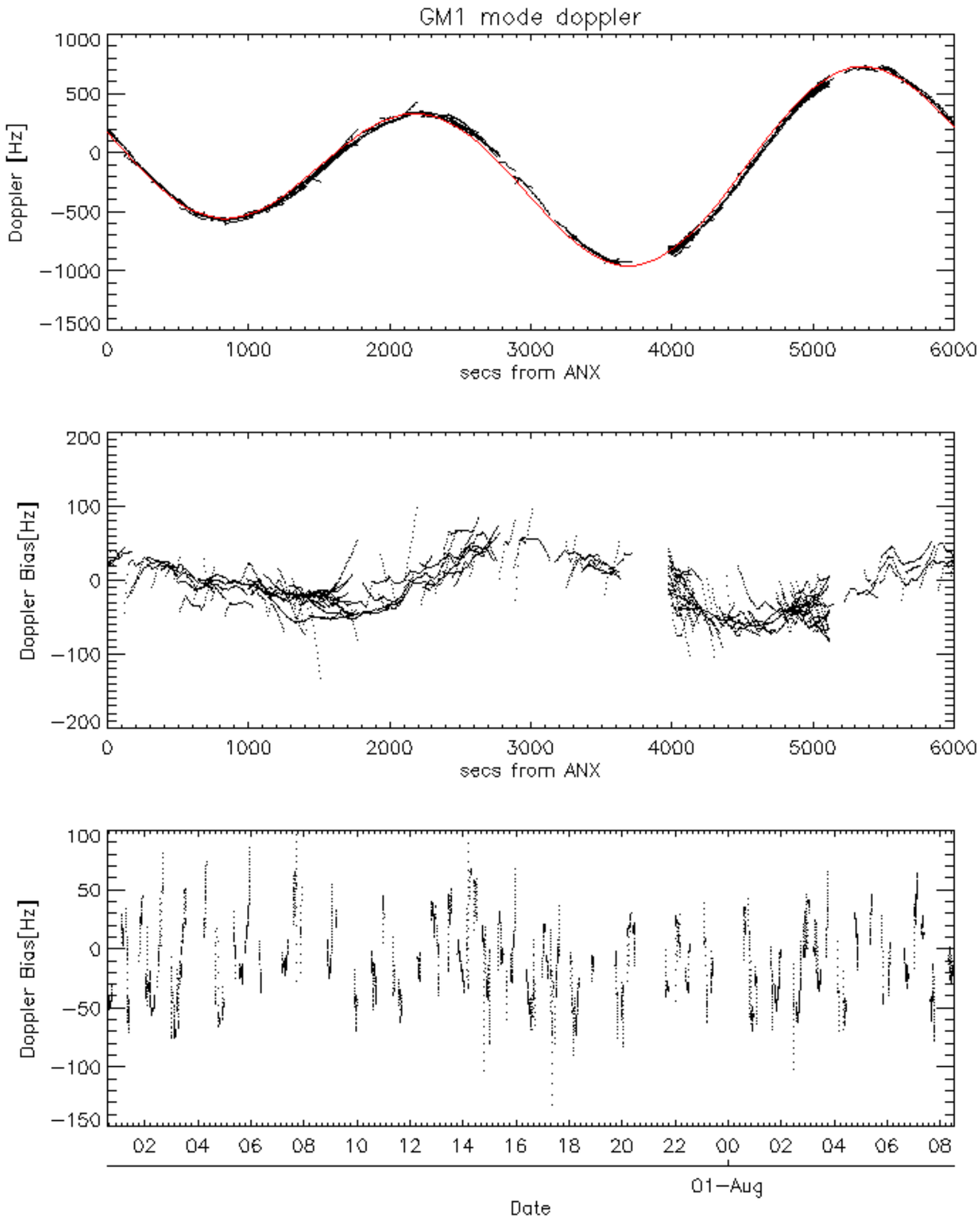
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

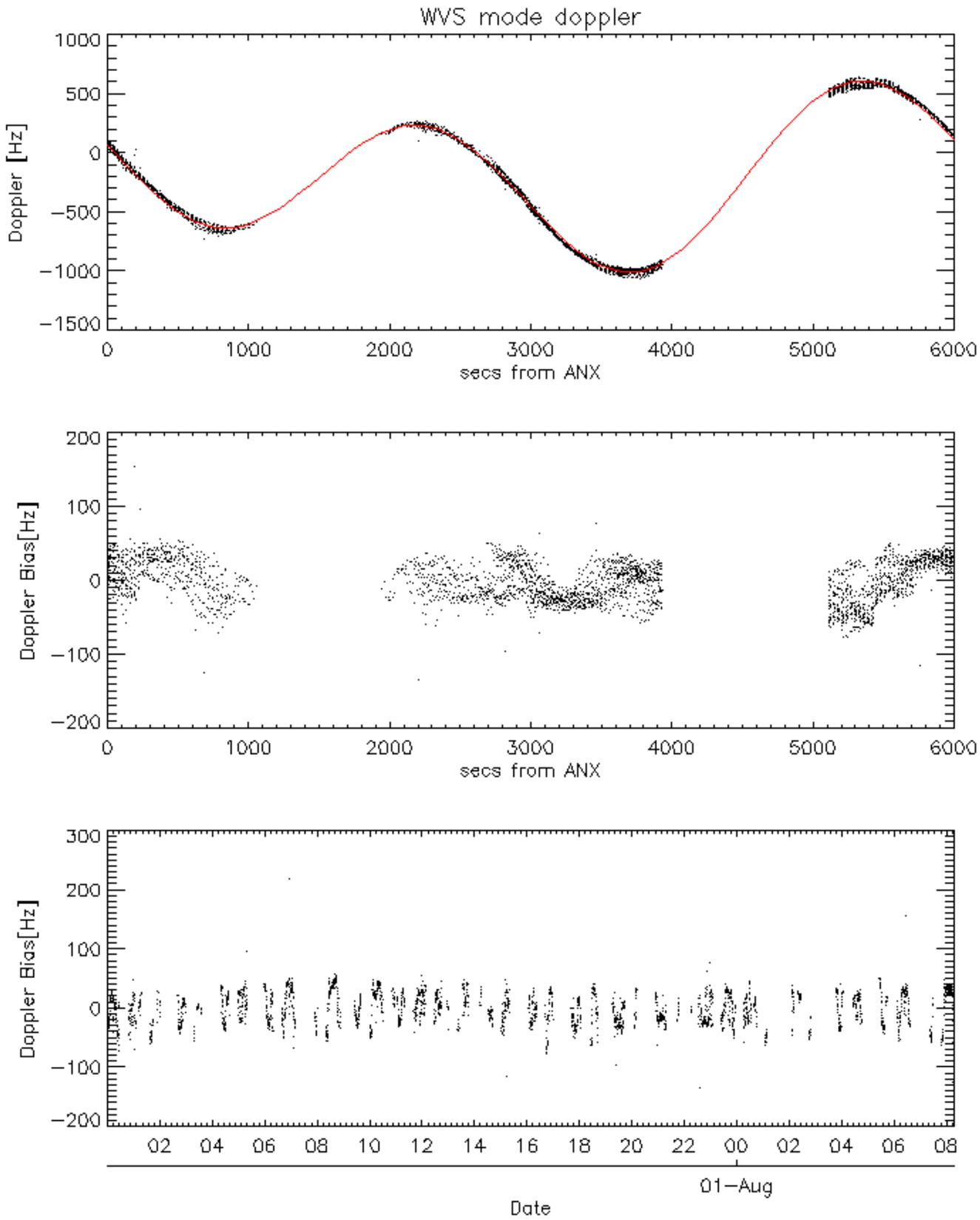

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

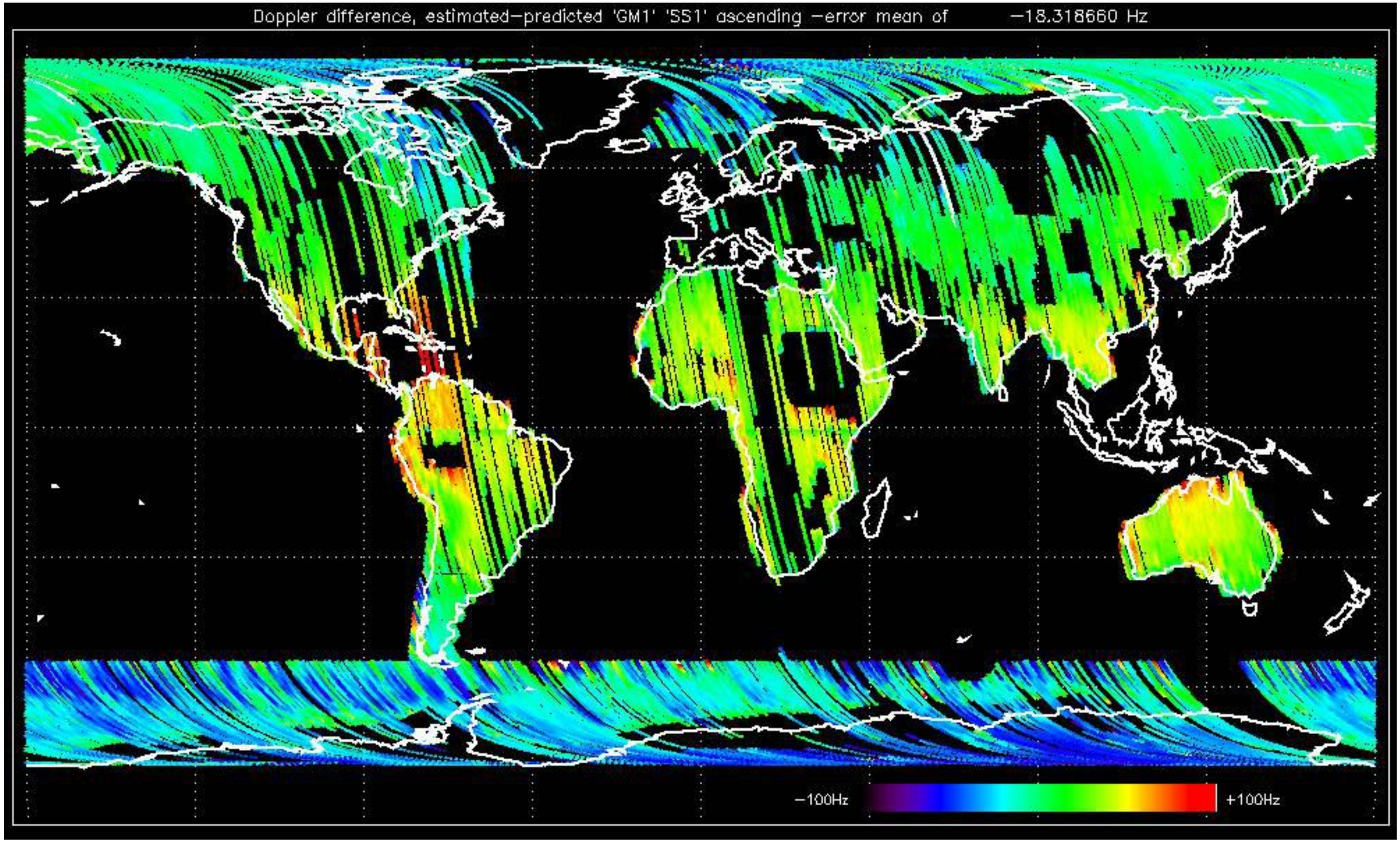

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

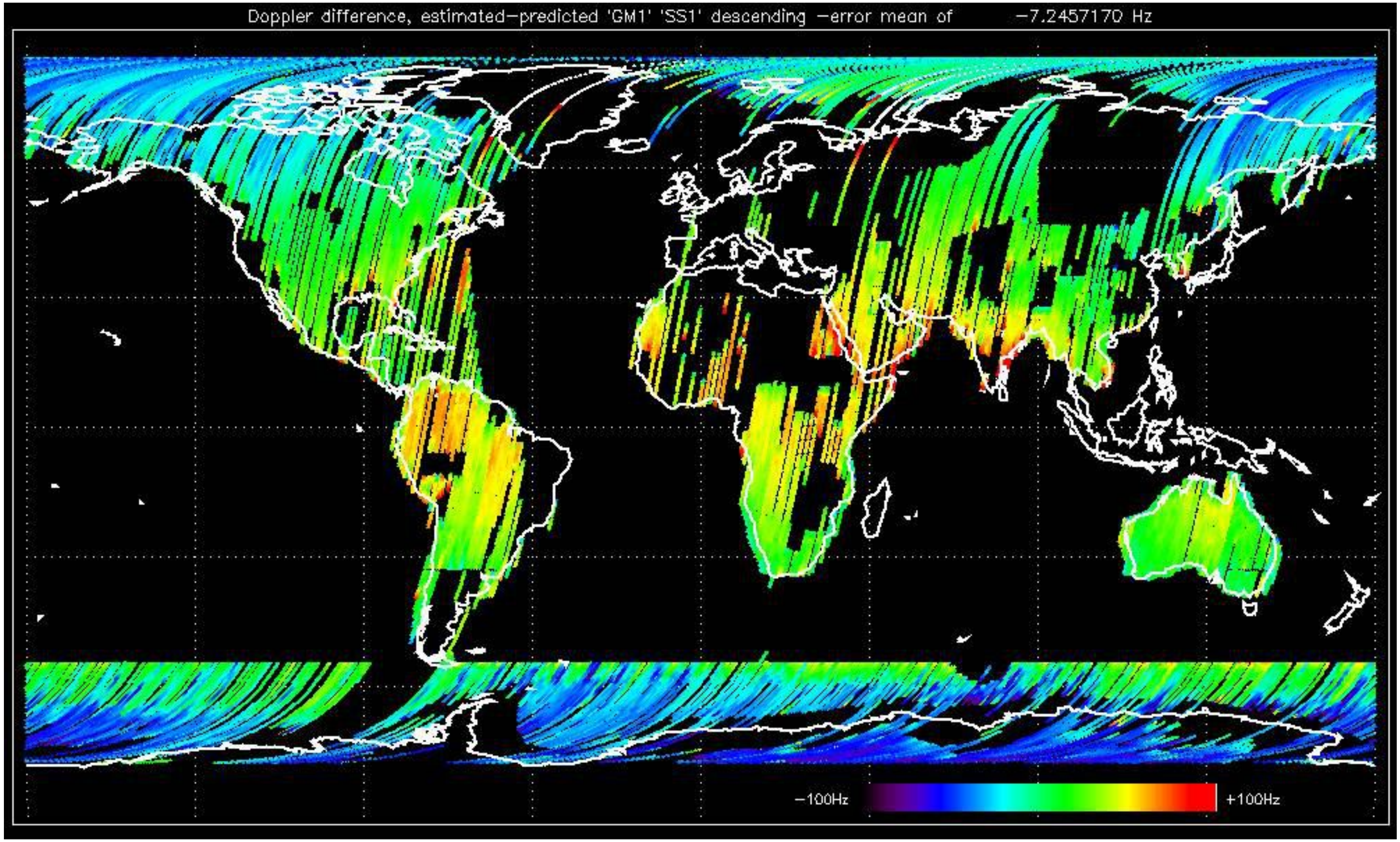

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

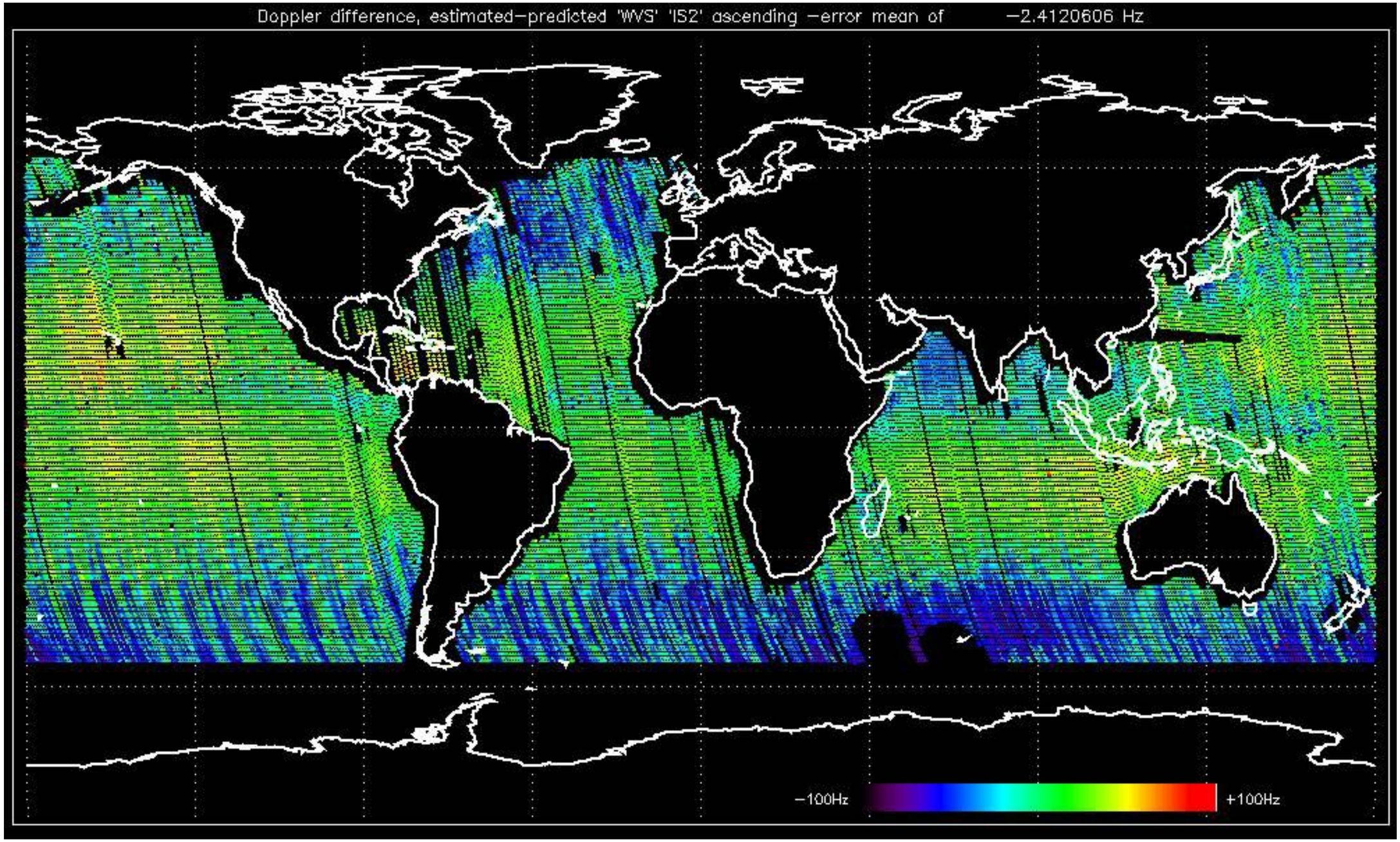

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

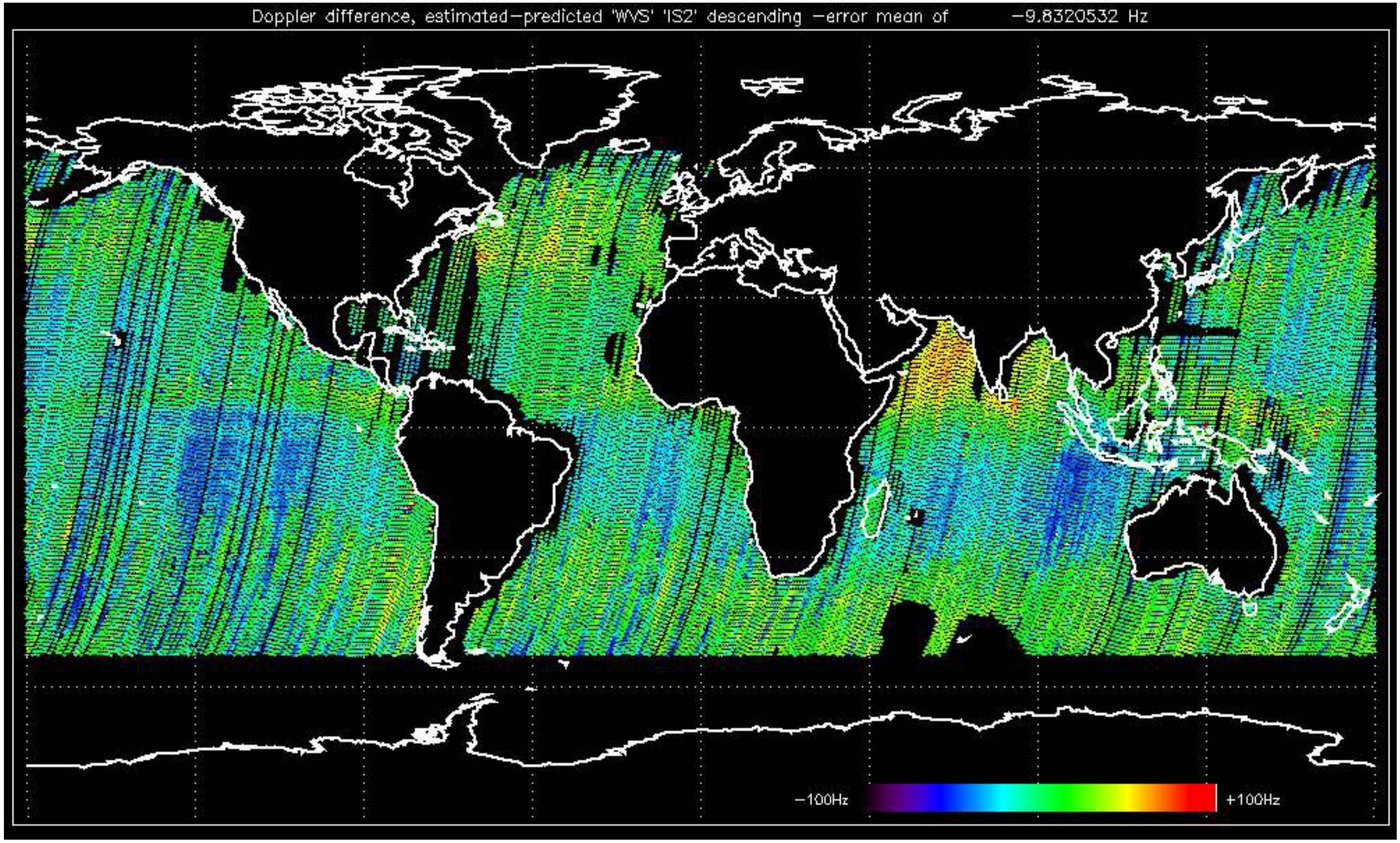

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX
Doppler Bias[Hz]
100
50
0
−50
−100
−150
02
04
06
08
10
12
14
16
18
20
22
00
02
04
06
08
01−Aug
Date


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
02
04
06
08
10
12
14
16
18
20
22
00
02
04
06
08
01−Aug
Date


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −18.318660 Hz
−100Hz
+100Hz

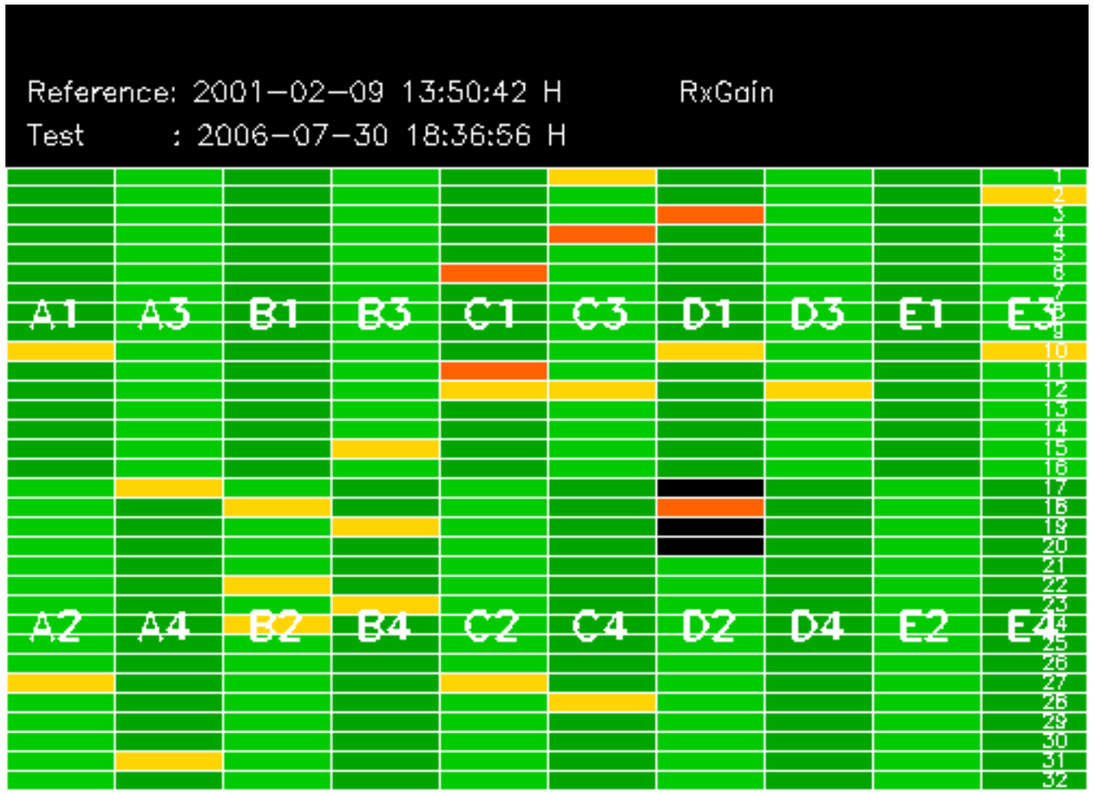

Doppler difference, estimated−predicted 'GM1' 'SS1' descending −error mean of −7.2457170 Hz
−100Hz
+100Hz

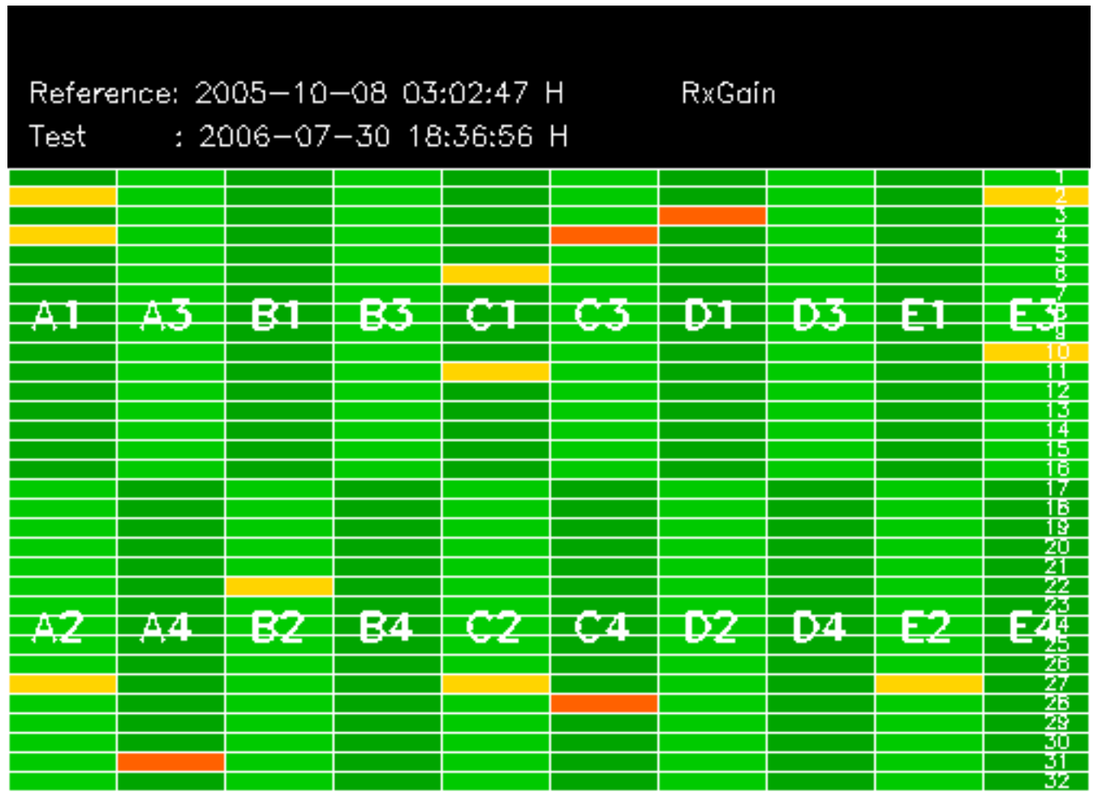

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −2.4120606 Hz
−100Hz
+100Hz

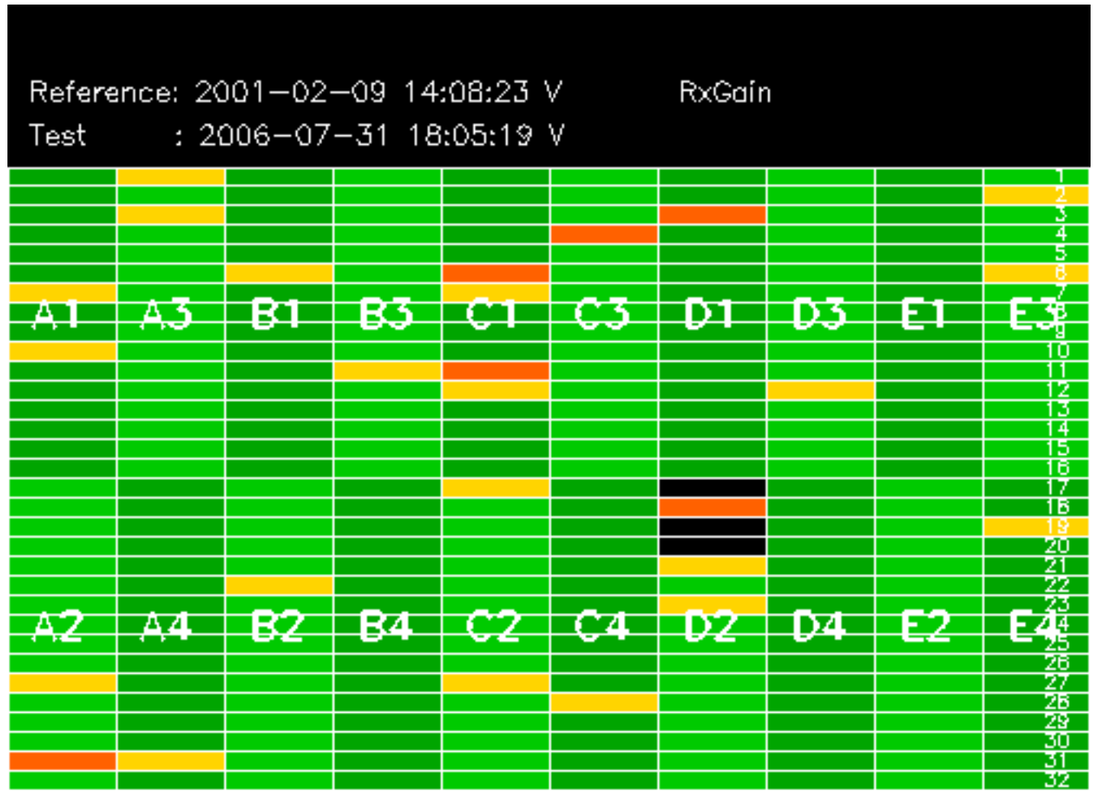

Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −9.8320532 Hz
−100Hz
+100Hz

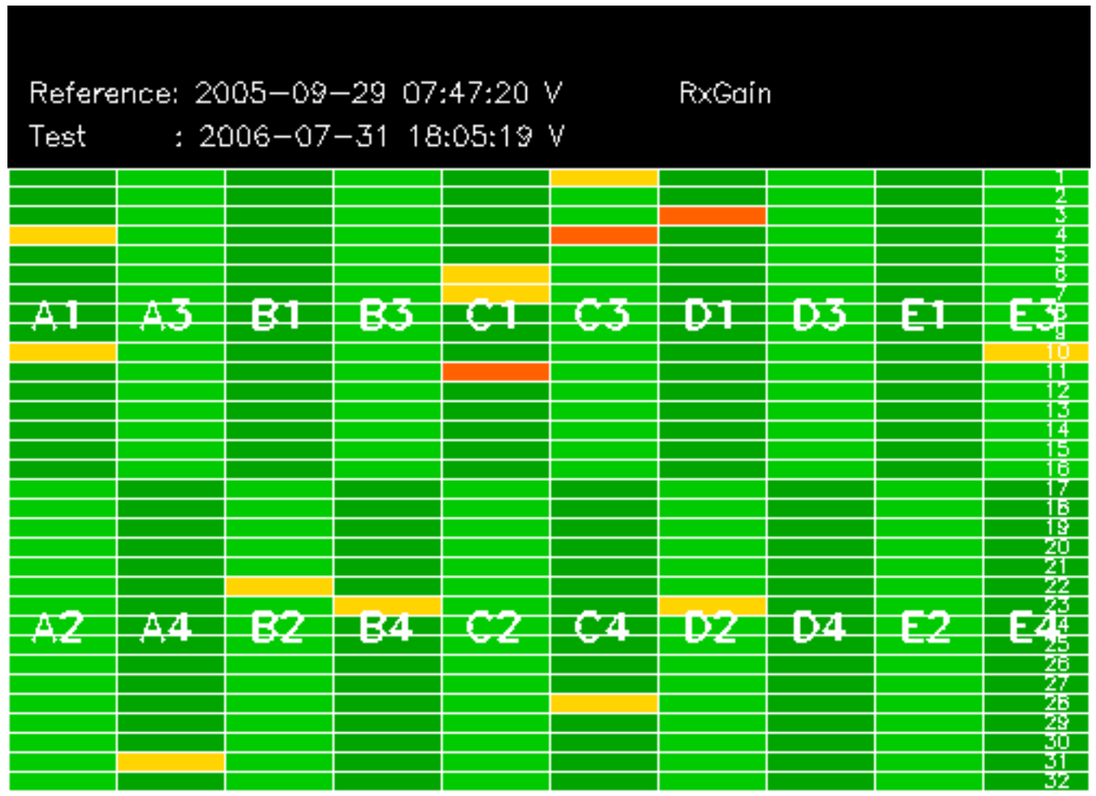
No anomalies observed on available MS products:

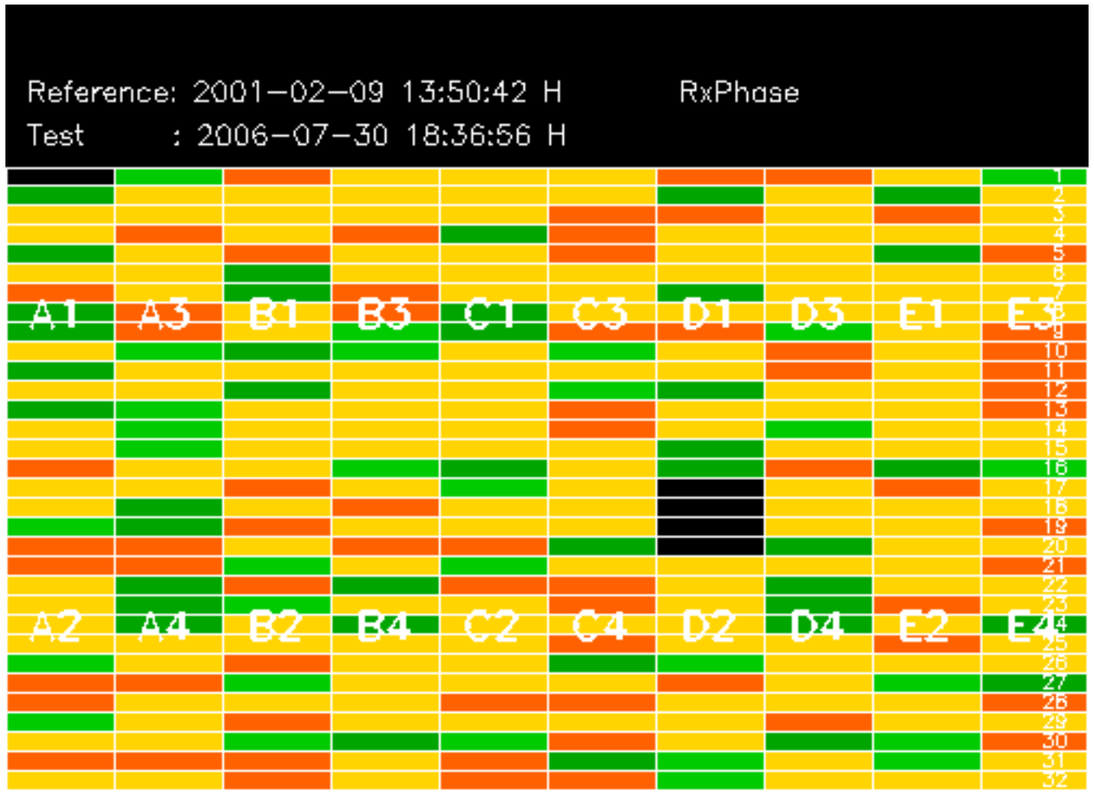
No anomalies observed.

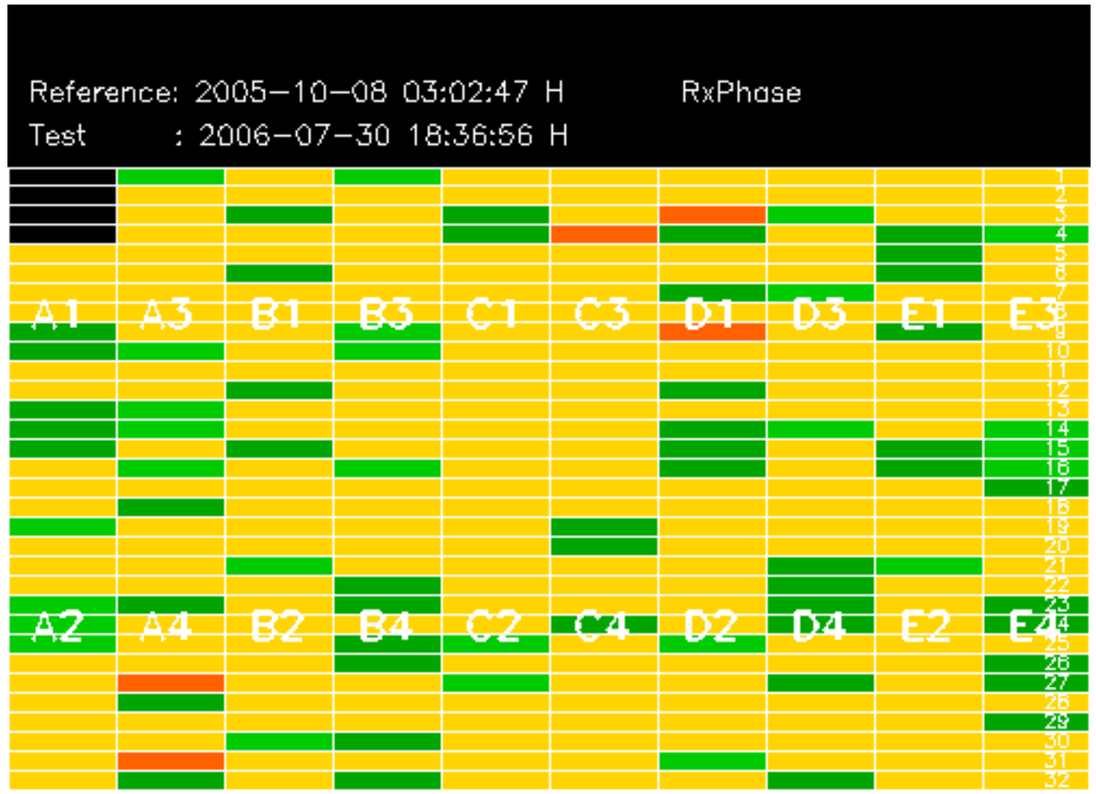

Reference: 2001-02-09 13:50:42 H
RxGain
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

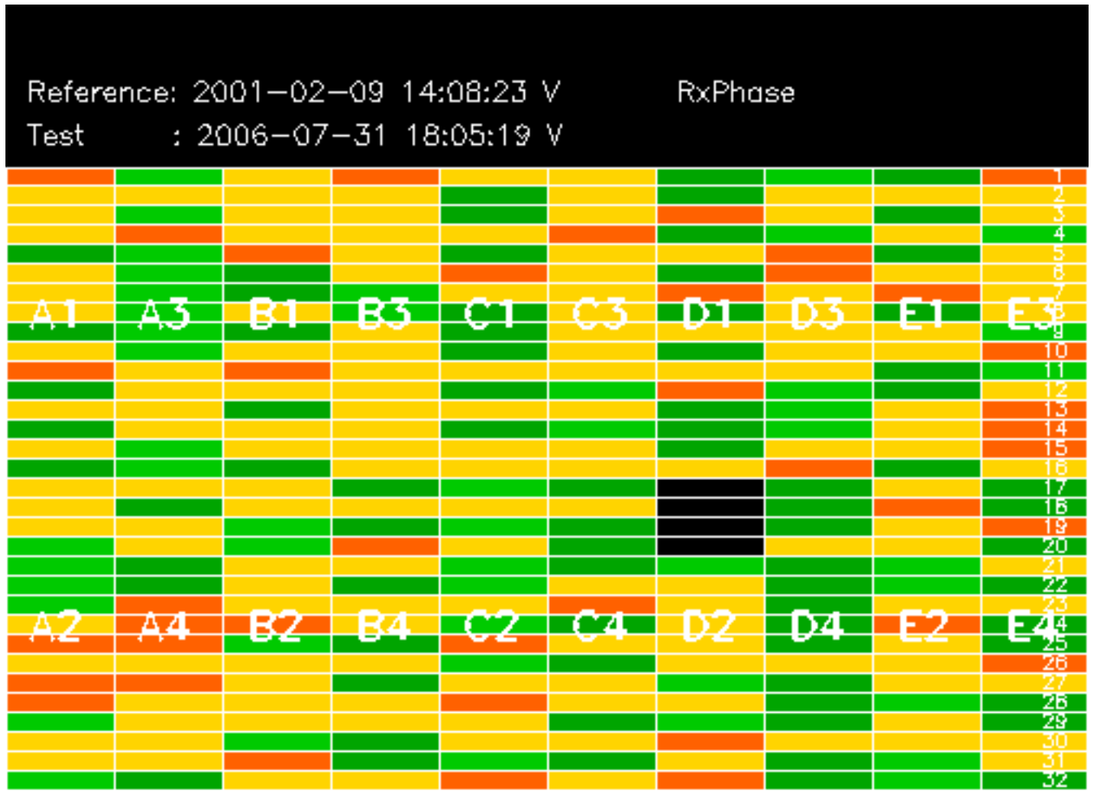

Reference: 2005-10-08 03:02:47 H
RxGain
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

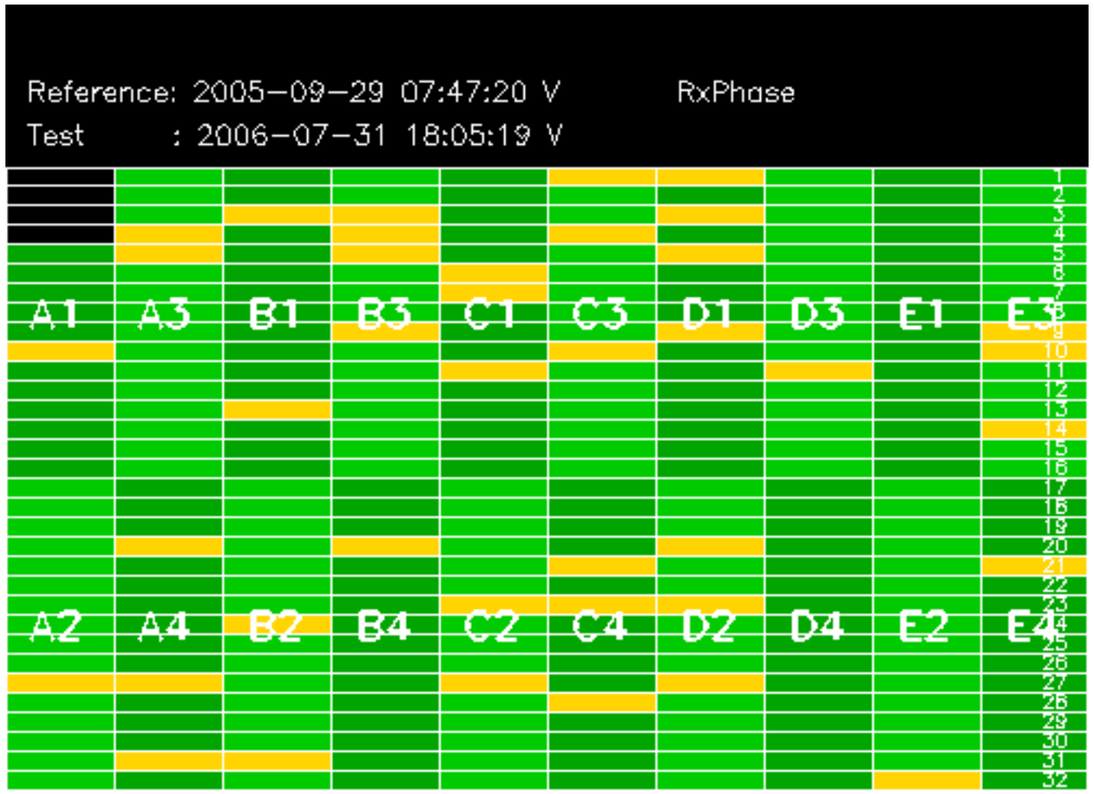

Reference: 2001-02-09 14:08:23 V
RxGain
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

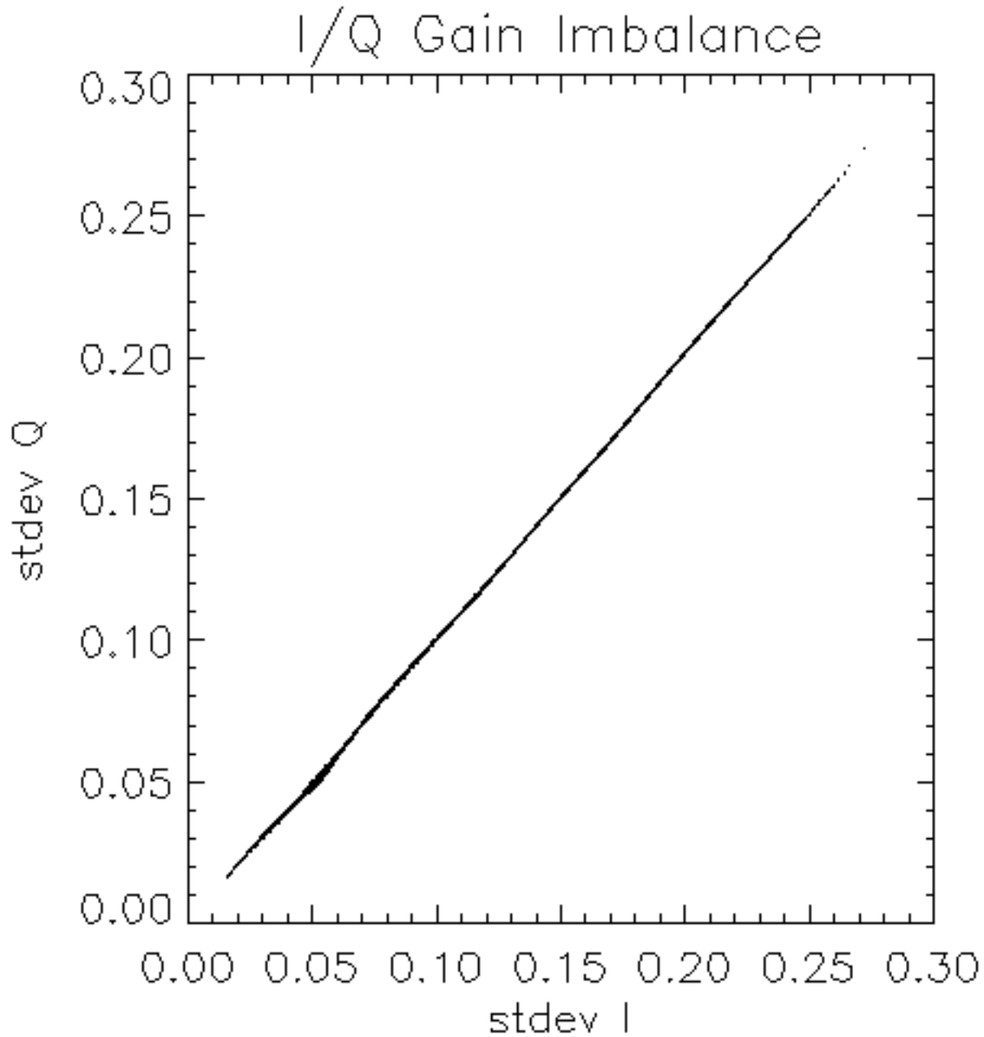

Reference: 2005-09-29 07:47:20 V
RxGain
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

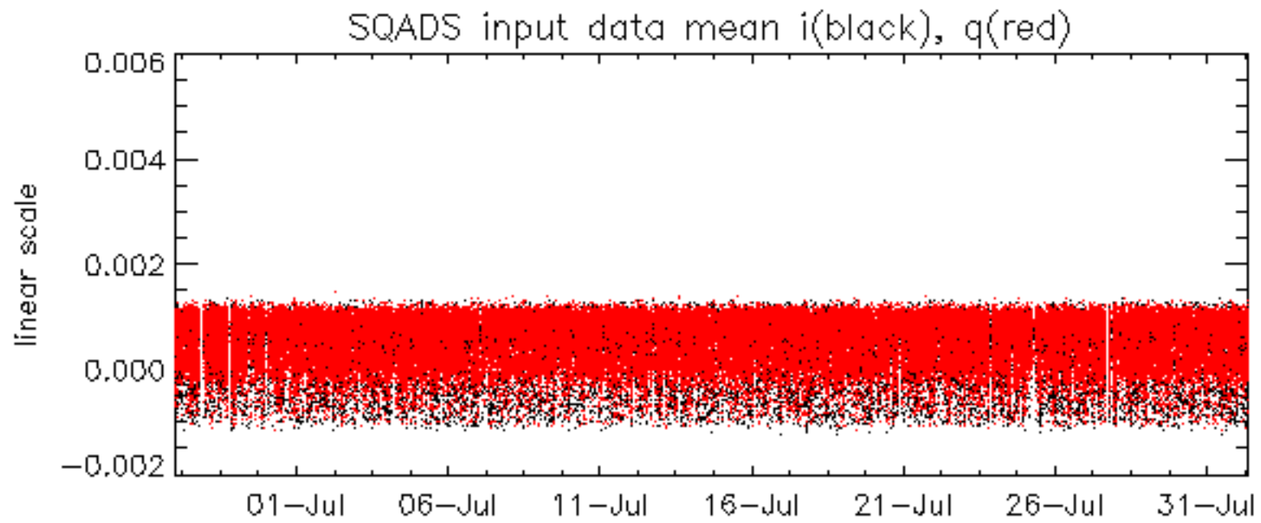

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

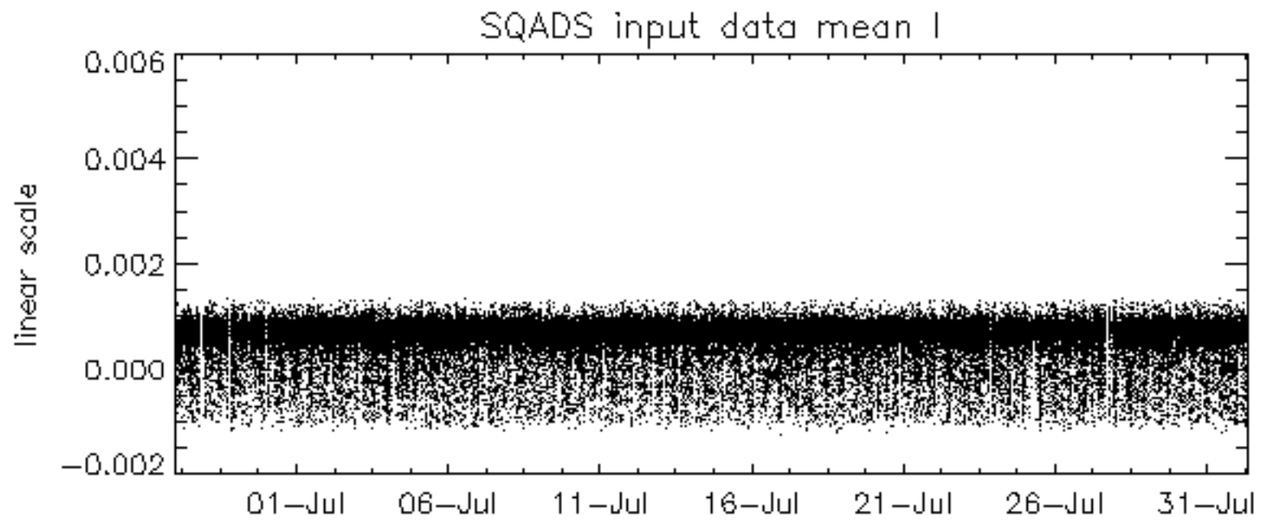

Reference: 2005-10-08 03:02:47 H
RxPhase
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

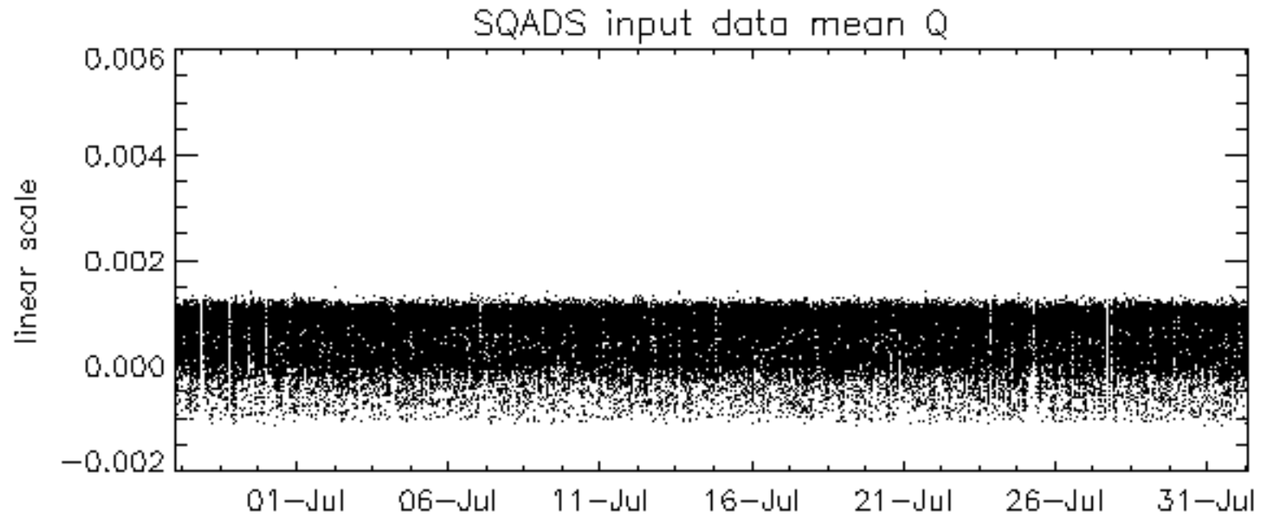

Reference: 2001-02-09 14:08:23 V
RxPhase
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

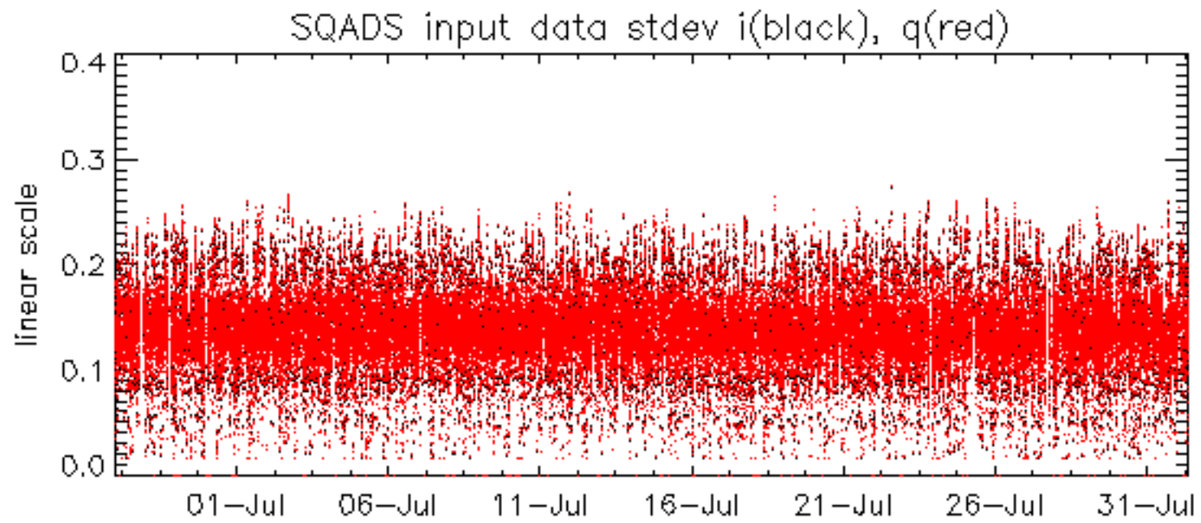

Reference: 2005-09-29 07:47:20 V
RxPhase
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

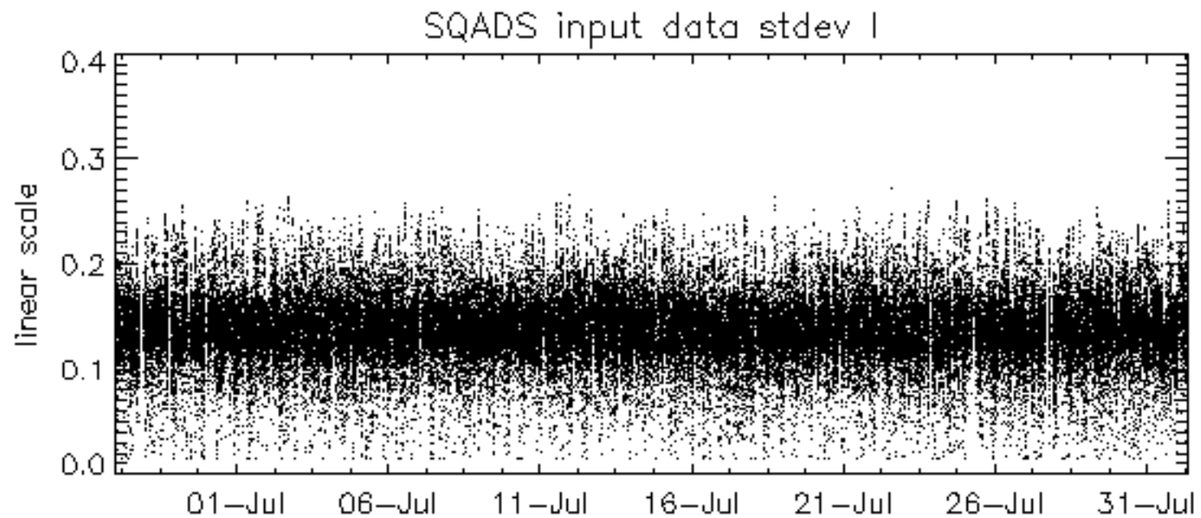

I/Q Gain Imbalance
0.30
0.25
0.20
0.15
0.10
0.05
0.00
stdev Q
0.00 0.05 0.10 0.15 0.20 0.25 0.30
stdev I

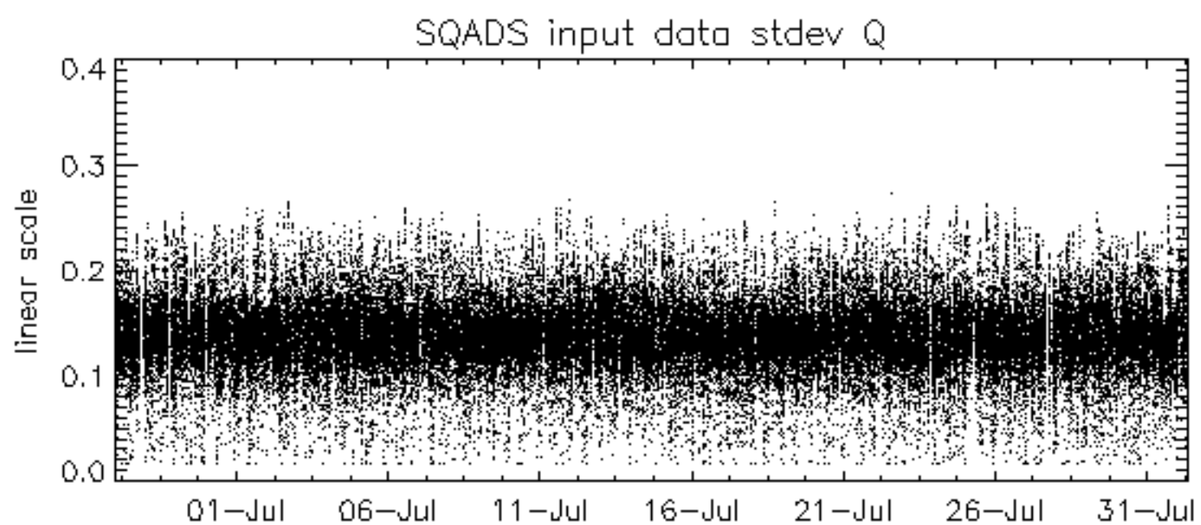

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
31−Jul

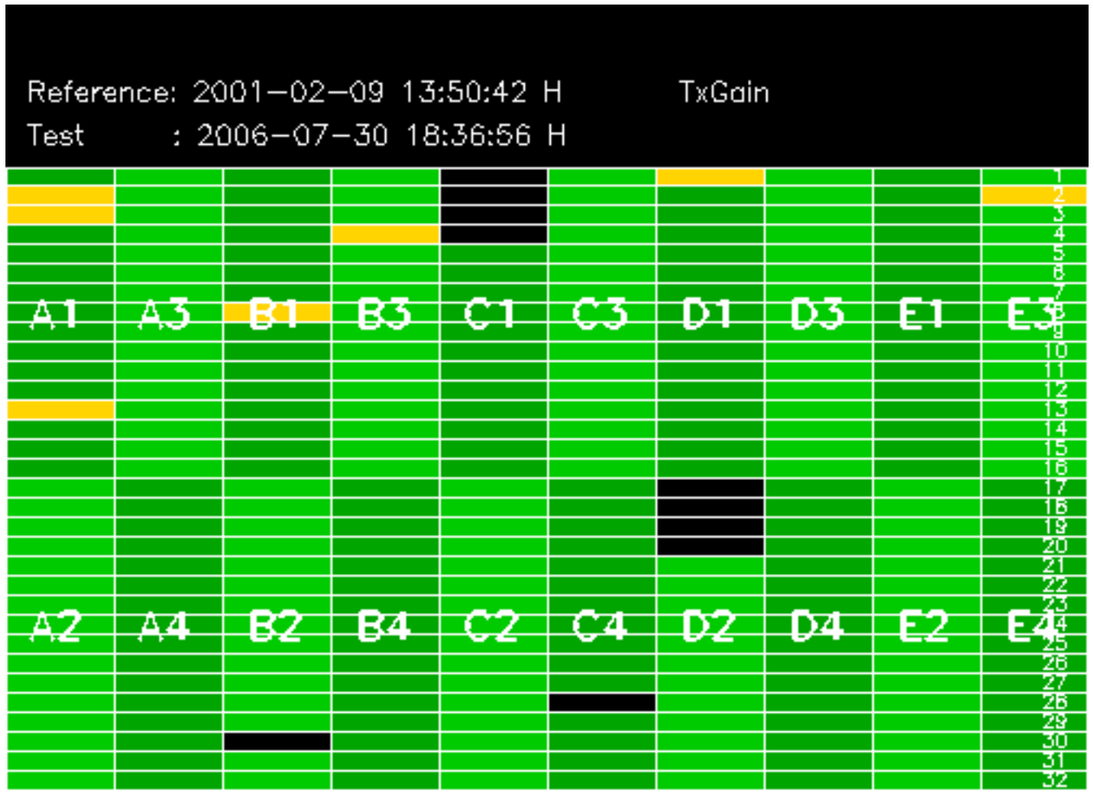

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
31−Jul

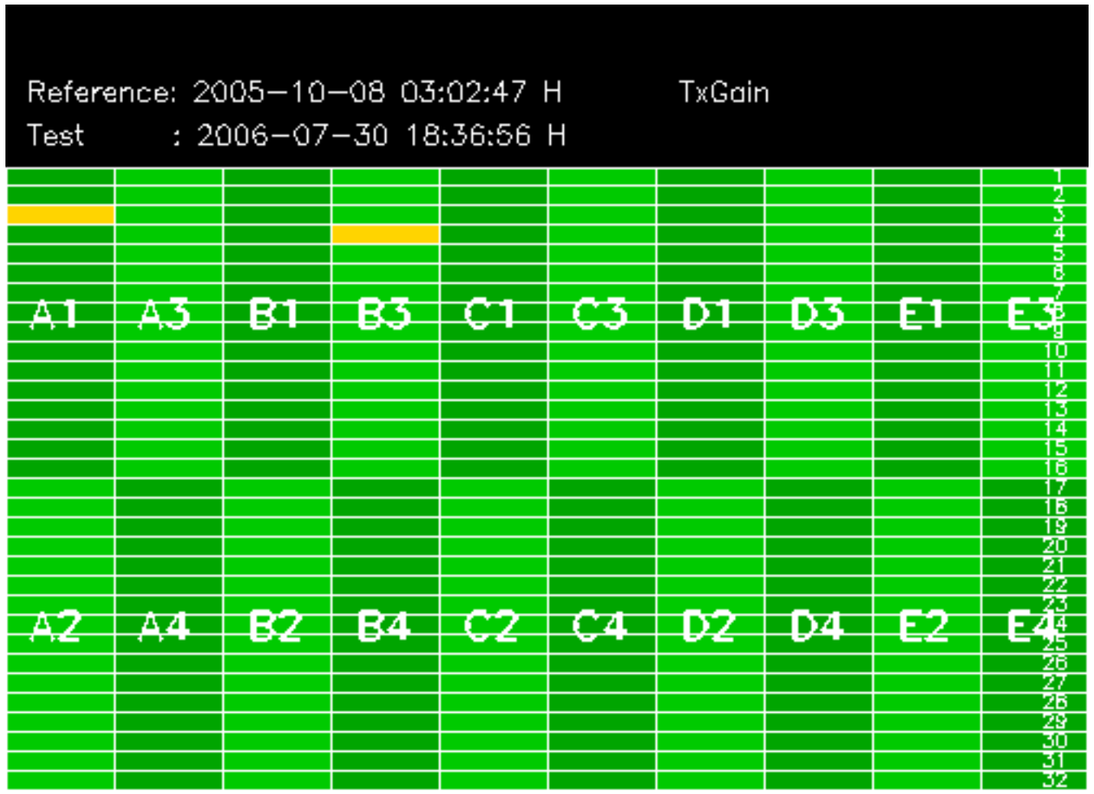

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
31−Jul

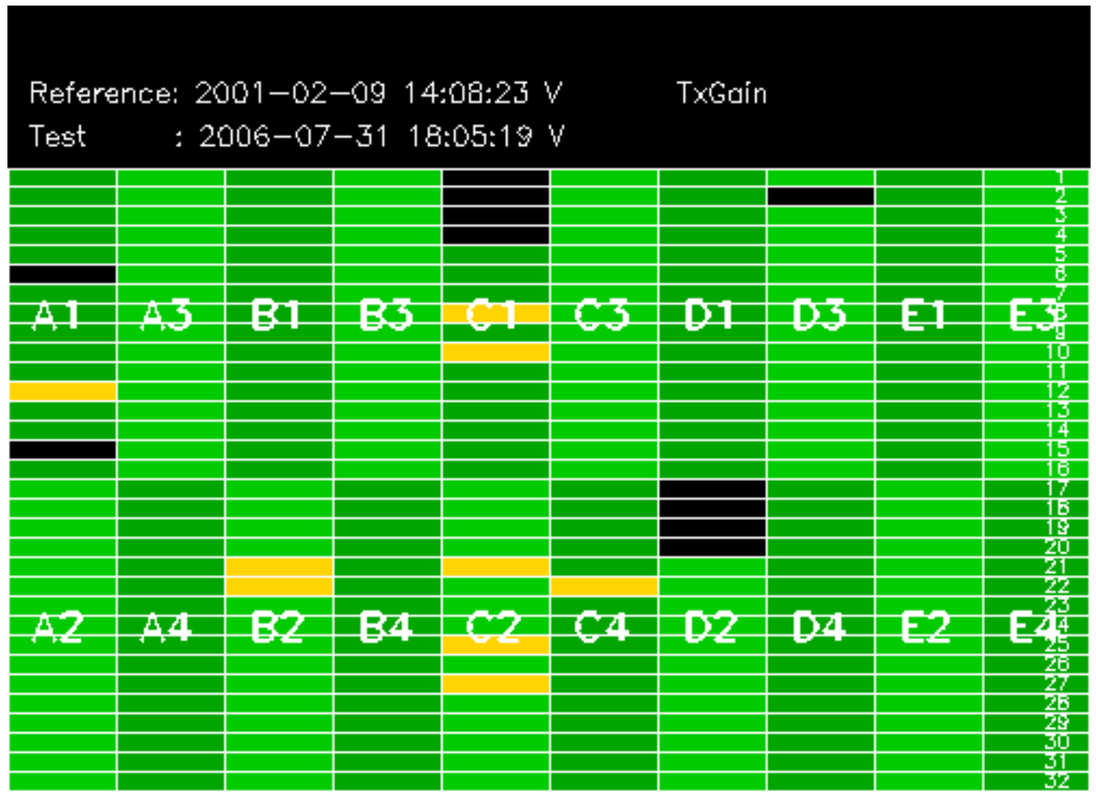

SQADS input data stdev i(black), q(red)
linear scale
0.0
0.1
0.2
0.3
0.4
01–Jul
06–Jul
11–Jul
16–Jul
21–Jul
26–Jul
31–Jul

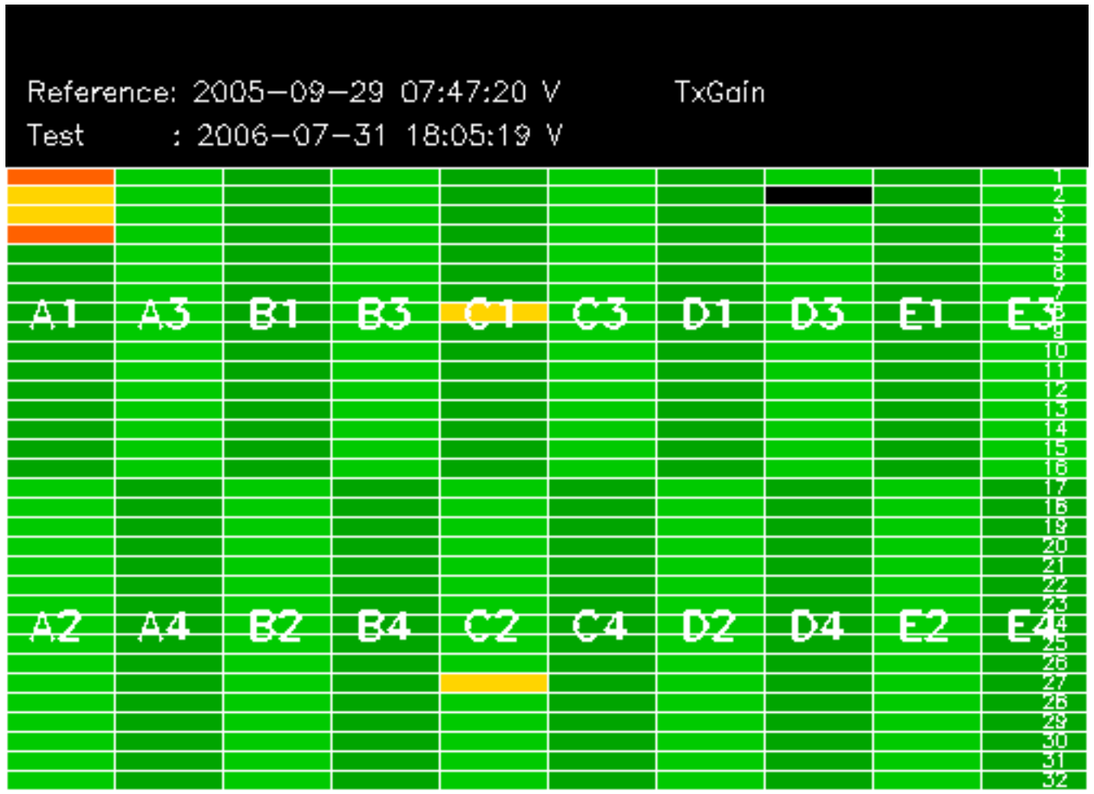

SQADS input data stdev I
linear scale
0.0
0.1
0.2
0.3
0.4
01–Jul
06–Jul
11–Jul
16–Jul
21–Jul
26–Jul
31–Jul


SQADS input data stdev Q
linear scale
0.0
0.1
0.2
0.3
0.4
01–Jul
06–Jul
11–Jul
16–Jul
21–Jul
26–Jul
31–Jul


Reference: 2001-02-09 13:50:42 H
TxGain
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

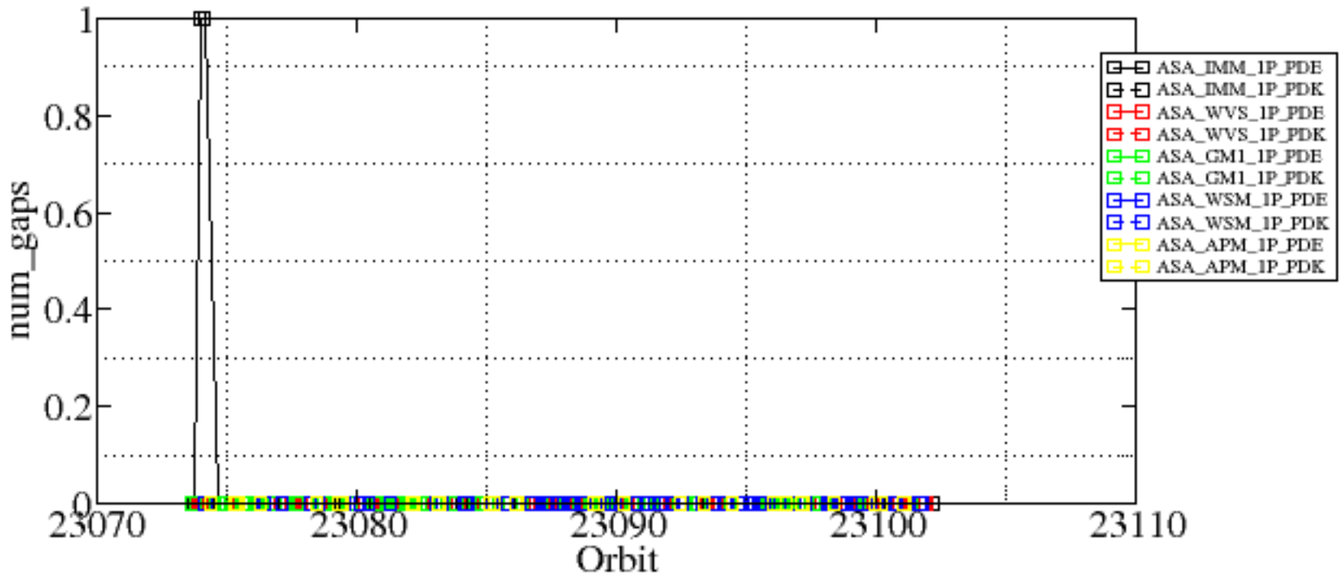

Reference: 2005-10-08 03:02:47 H
TxGain
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

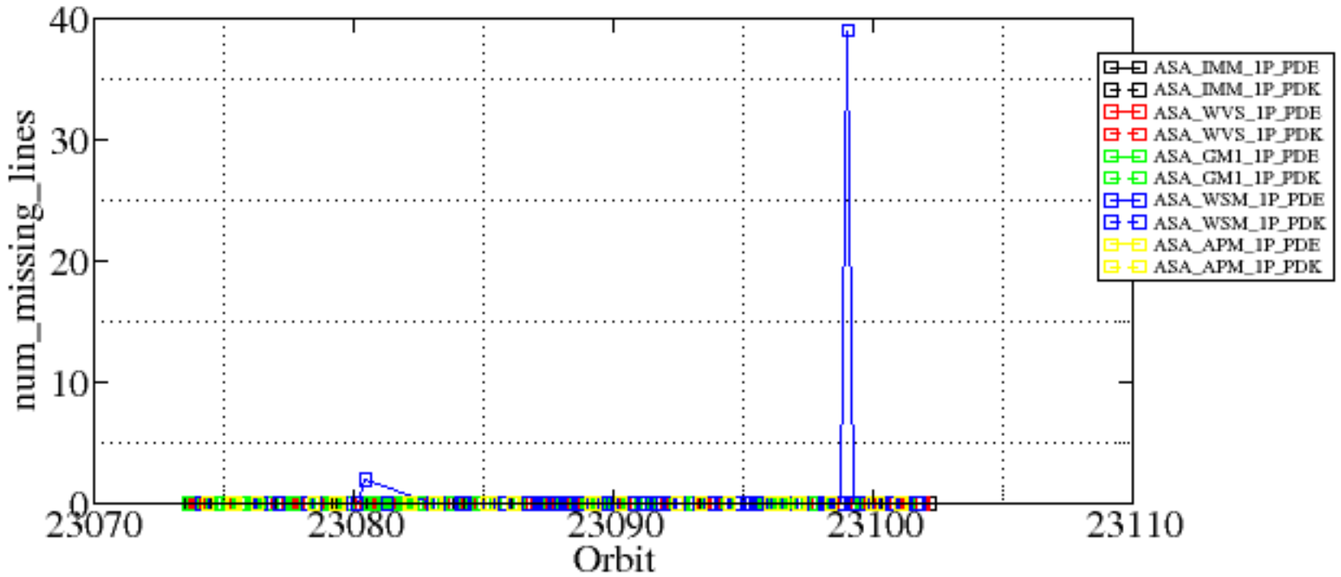

Reference: 2001-02-09 14:08:23 V
TxGain
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

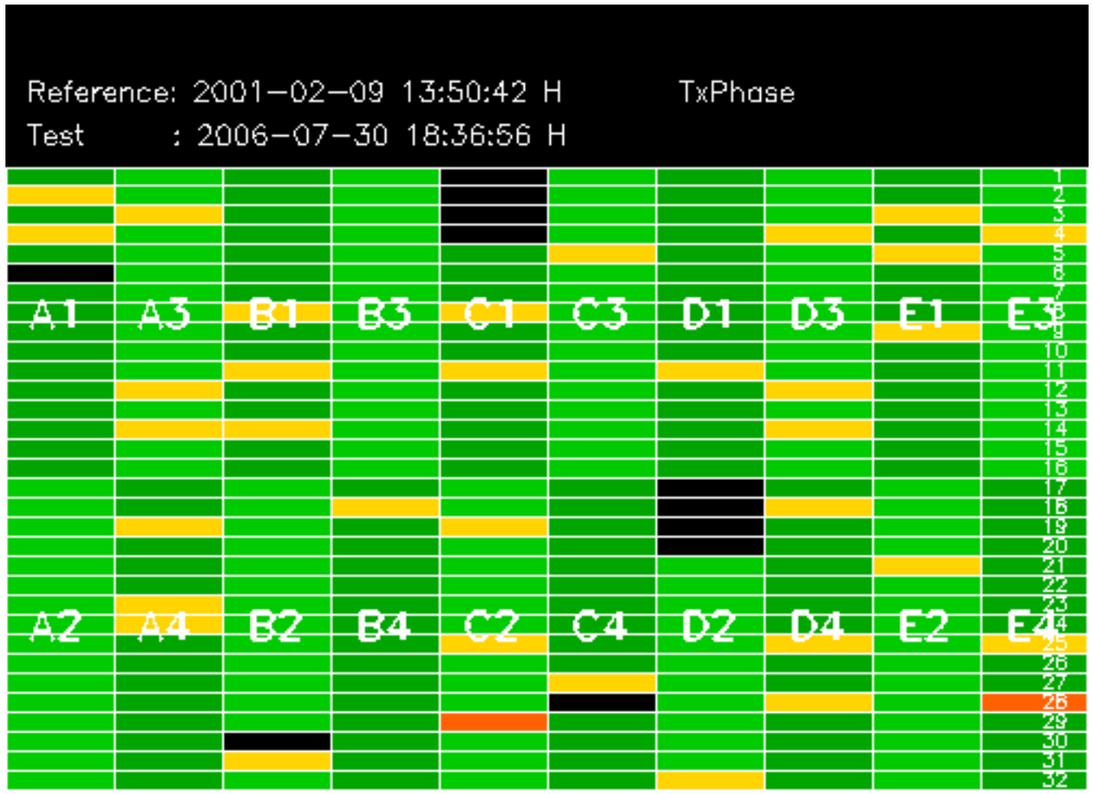

Reference: 2005-09-29 07:47:20 V
TxGain
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

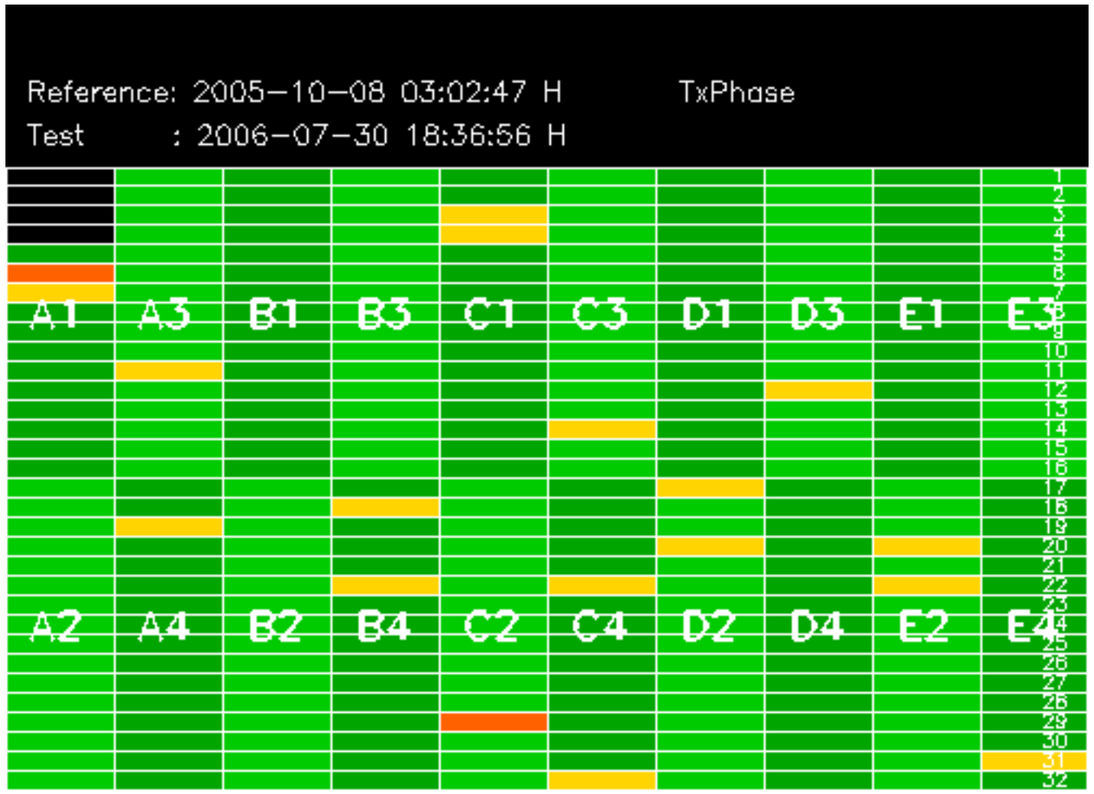
Summary of analysis for the last 3 days 2006073[011]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems

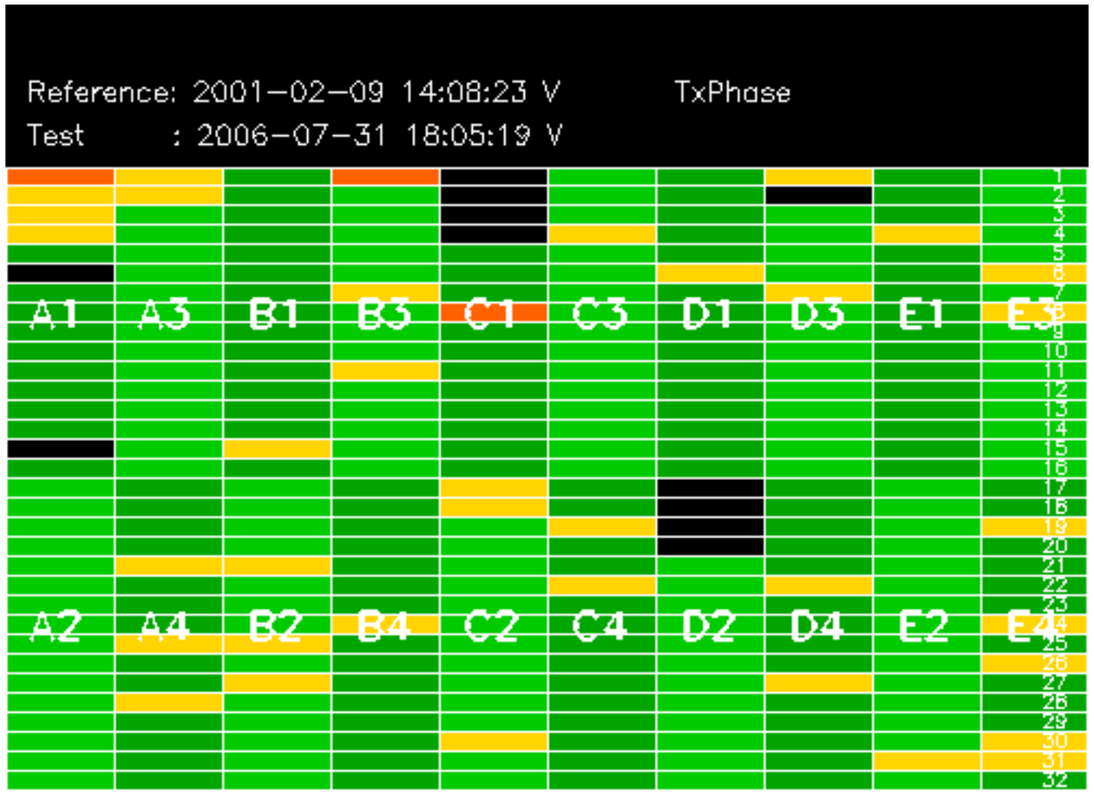
<table border=1>
<tr> <th>Filename </th><th> num_gaps</th><th>num_missing_lines</th></tr>
<tr> <td>ASA_IMM_1PNPDE20060730_004000_000001542049_00474_23073_2510.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_IMM_1PNPDE20060730_005617_000000362049_00475_23074_2509.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20060730_113206_000001042049_00481_23080_4951.N1 </td> <td>0 </td> <td>2 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20060731_184222_000002982049_00500_23099_5132.N1 </td> <td>0 </td> <td>39 </td></tr>
</table>

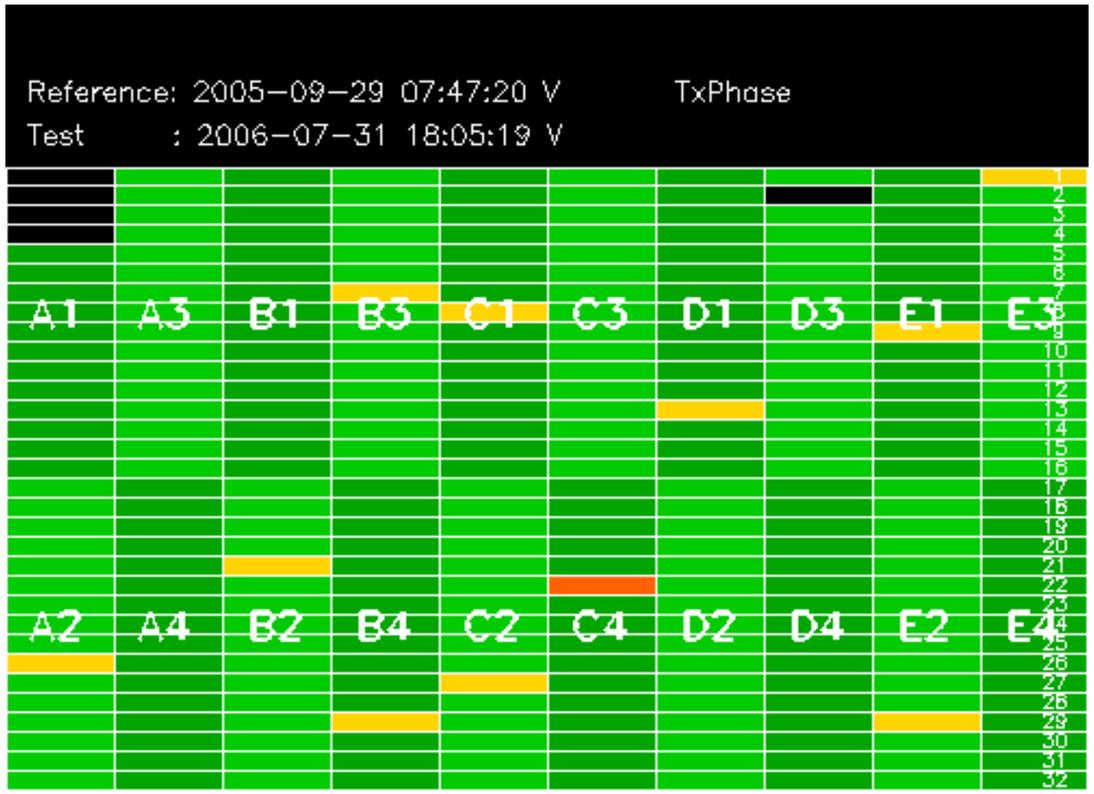

num_gaps
1
0.8
0.6
0.4
0.2
0
23070
23080
23090
23100
23110
Orbit
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_WSM_1P_PDK
ASA_APM_1P_PDE
ASA_APM_1P_PDK

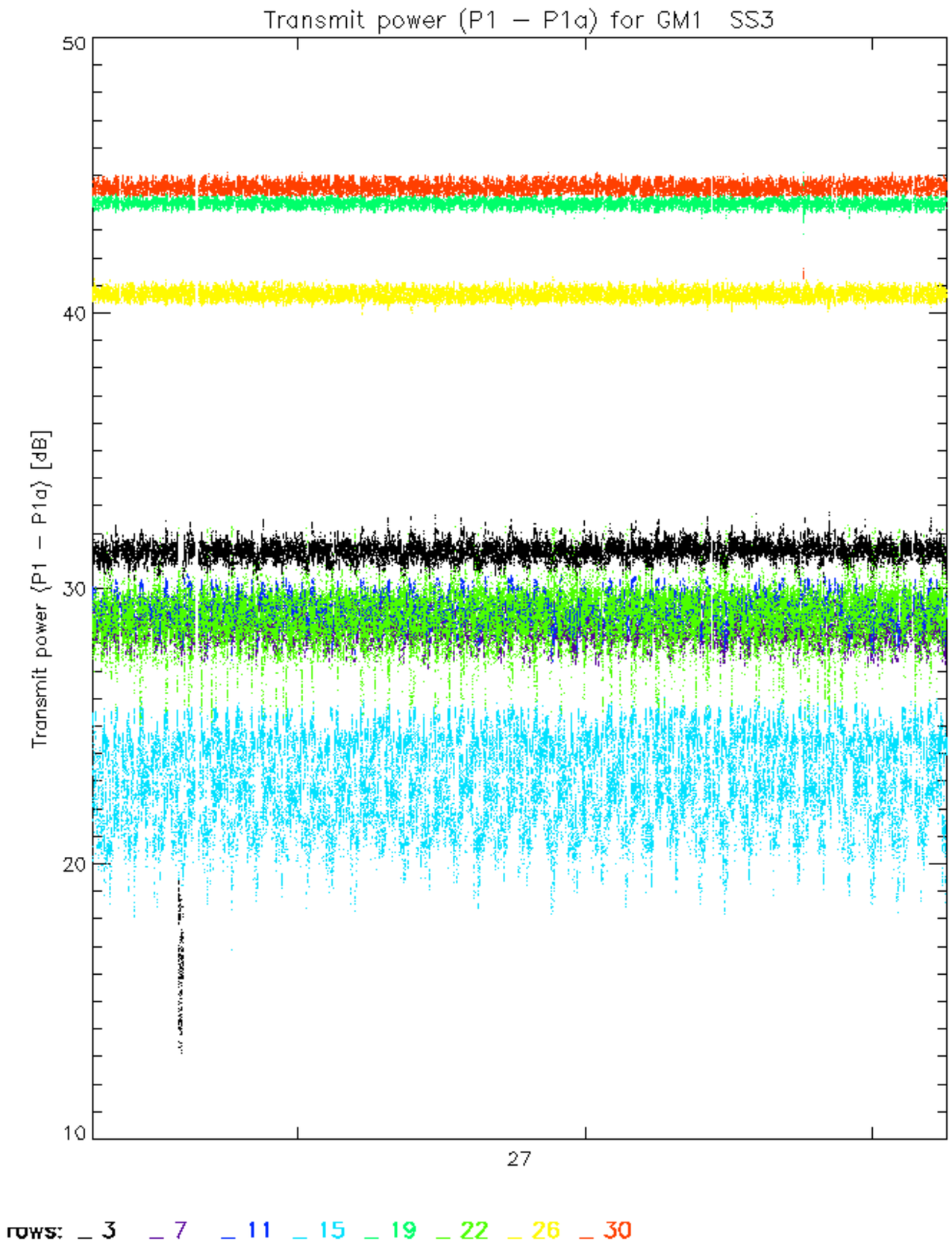

num_missing_lines
40
30
20
10
0
23070
23080
23090
23100
23110
Orbit
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_WSM_1P_PDK
ASA_APM_1P_PDE
ASA_APM_1P_PDK

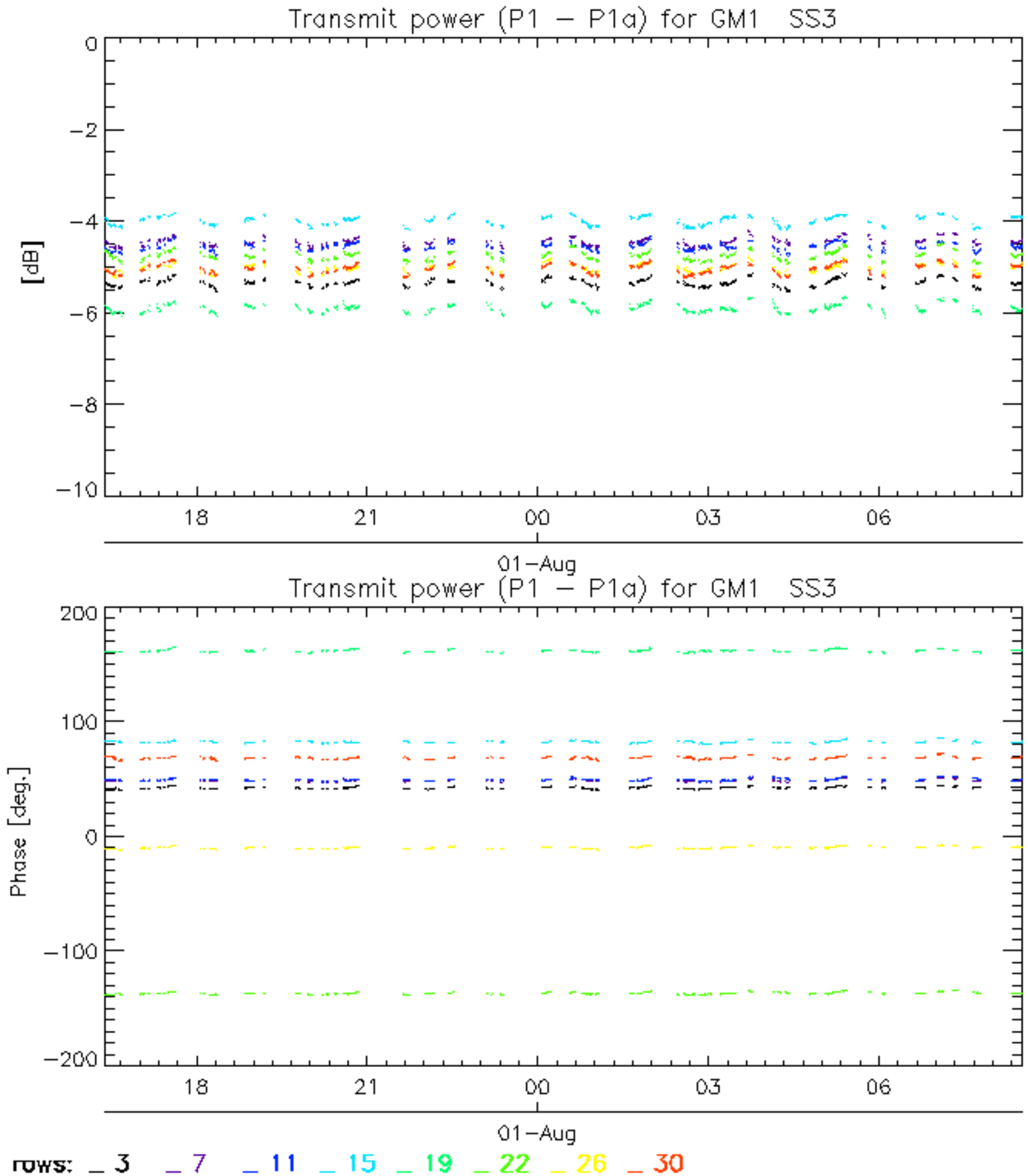

Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

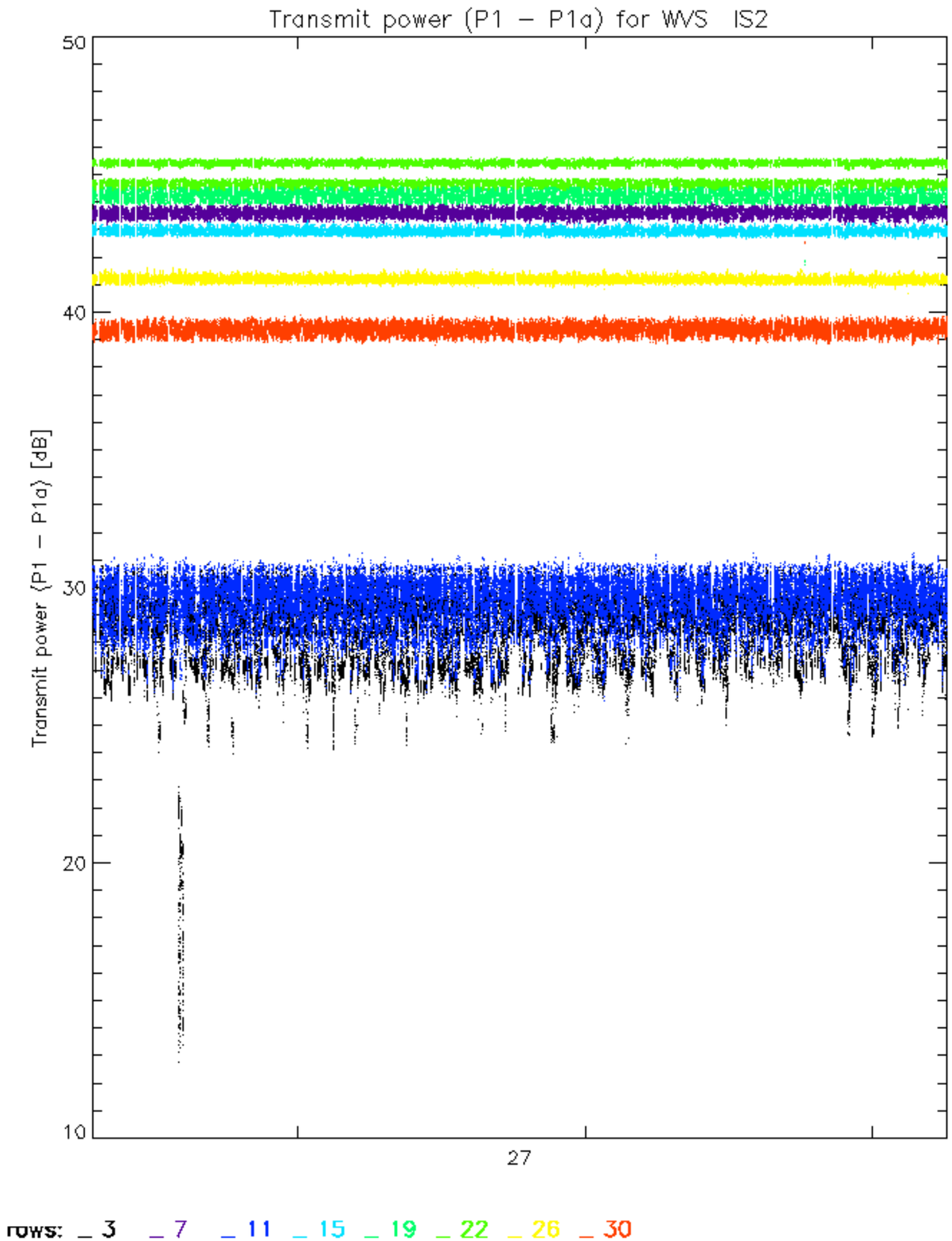

Reference: 2005-10-08 03:02:47 H
TxPhase
Test : 2006-07-30 18:36:56 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

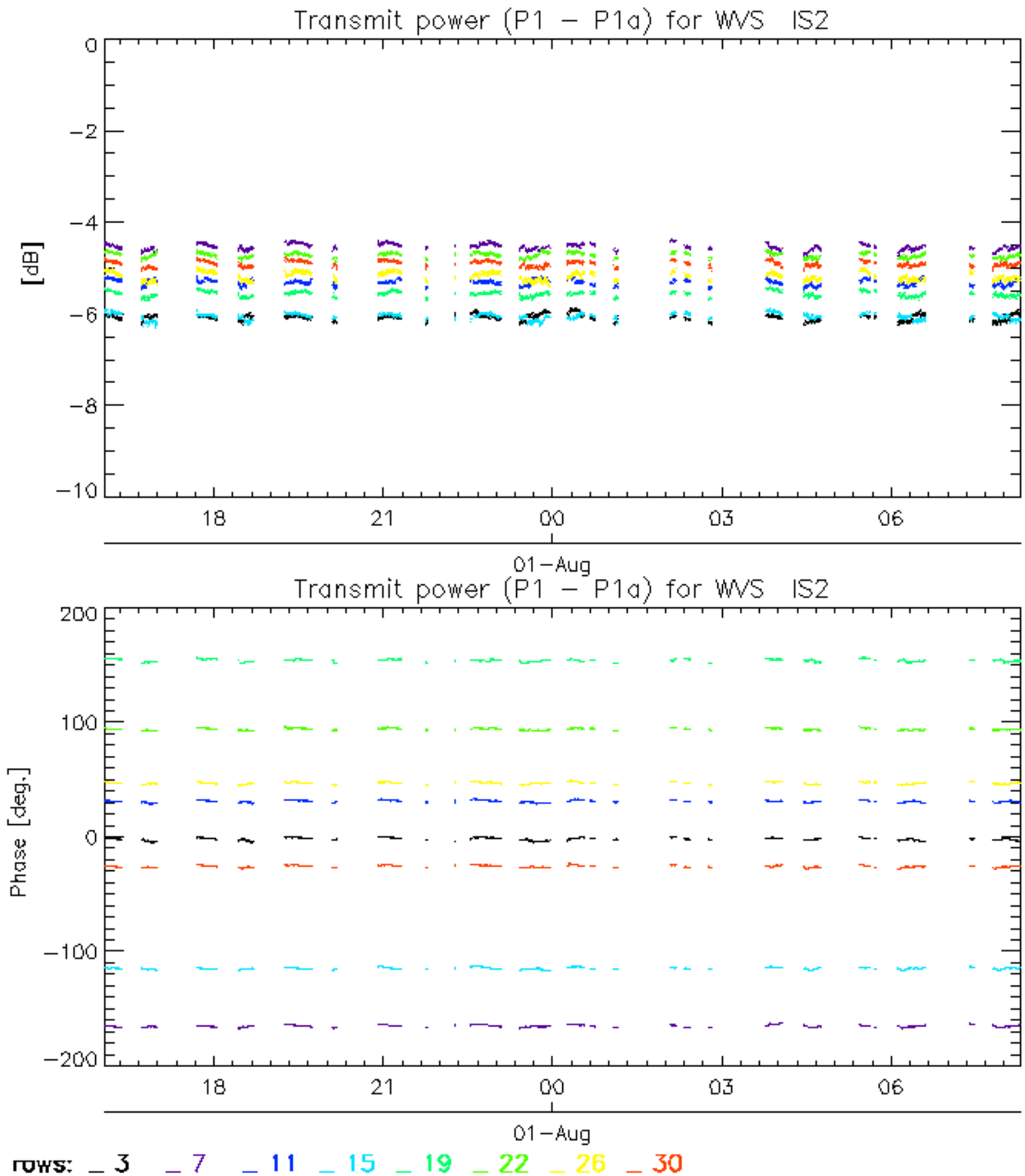

Reference: 2001-02-09 14:08:23 V
TxPhase
Test : 2006-07-31 18:05:19 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2005-09-29 07:47:20 V
TxPhase
Test : 2006-07-31 18:05:19 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
27
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
0
−2
−4
−6
−8
−10
18
21
00
03
06
01−Aug
Transmit power (P1 – P1a) for GM1 SS3
Phase [deg.]
200
100
0
−100
−200
18
21
00
03
06
01−Aug
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
Transmit power (P1 – P1a) [dB]
50
40
30
20
10
27
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
[dB]
0
−2
−4
−6
−8
−10
18
21
00
03
06
01−Aug
Transmit power (P1 – P1a) for WVS IS2
Phase [deg.]
200
100
0
−100
−200
18
21
00
03
06
01−Aug
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.