PRELIMINARY REPORT OF 050112

ATTENTION: This report is automatically generated no comments are provided on data analysis

last update on Wed Jan 12 11:03:04 GMT 2005

1. Introduction
2. Summary
    - Instrument Unavailability
    - Auxiliary files used
    - Browse Visual Inspection
    - Module Stepping Results
    - Data Analysis
3. Module Stepping
4. Internal Calibration pulses
    - Daily statistics
    - Cyclic statistics
    - cal pulses monitoring (all rows)
5. Raw Data Statistics
    - raw data mean I and Q
    - raw data stdev I and Q
    - raw gain imbalance
6. Wave Doppler analysis
    - Unbiased Doppler Error for WVS
    - Absolute Doppler for WVS
    - Doppler evolution versus ANX for WVS
    - Unbiased Doppler Error for GM1
    - Absolute Doppler for GM1
    - Doppler evolution versus ANX for GM1

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 2005-01-11 00:00:00 to 2005-01-12 11:03:04

PDHS-K					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	26	43	4	3	3
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	26	43	4	3	3
ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000	26	43	4	3	3
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	26	43	4	3	3

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	42	45	0	10	3
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	42	45	0	10	3
ASA_CON_AXVIEC20041215_175442_20030601_000000_20051231_000000	42	45	0	10	3
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	42	45	0	10	3

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

The MS mode provides an internal health check on an individual module basis.
The purpose of this mode is to identify to identify any malfunctionning modules and to identify modules for which calibration offsets are to be applied.
No anomalies observed on available MS products:

Polarisation	Start Time
V	20050111 042856
H	20050110 050033

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	-3.430901	0.007041	0.036522
7	P1	-3.086554	0.011014	0.017757
11	P1	-4.644610	0.021399	0.007267
15	P1	-5.652127	0.040247	0.029199
19	P1	-3.660751	0.006144	0.004139
22	P1	-4.570936	0.017052	0.018869
26	P1	-4.943554	0.025939	0.048195
30	P1	-7.124377	0.013750	-0.020329
3	P1	-15.934373	0.106607	0.014756
7	P1	-15.518904	0.100281	0.063568
11	P1	-20.795139	0.314487	-0.066850
15	P1	-11.634636	0.076618	0.046866
19	P1	-14.174952	0.032968	0.010122
22	P1	-16.028759	0.453868	0.141094
26	P1	-17.715002	0.247595	0.123596
30	P1	-17.872210	0.316646	0.016401

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-22.324287	0.087110	0.101237
7	P2	-22.524940	0.176510	0.111190
11	P2	-14.813330	0.187259	0.168268
15	P2	-7.149295	0.116580	0.074233
19	P2	-9.729304	0.218703	0.108985
22	P2	-17.133808	0.099633	0.110052
26	P2	-16.528616	0.116792	0.083656

30	P2	-18.949633	0.083682	0.061973

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.205628	0.007092	0.029274
7	P3	-8.205625	0.007092	0.029243
11	P3	-8.205655	0.007092	0.029421
15	P3	-8.205701	0.007095	0.029704
19	P3	-8.205690	0.007093	0.029641
22	P3	-8.205675	0.007091	0.029536
26	P3	-8.205631	0.007092	0.029287
30	P3	-8.205375	0.007100	0.031163

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	-2.824322	0.011664	0.001510
7	P1	-2.956457	0.023868	0.008745
11	P1	-3.942563	0.025661	-0.011016
15	P1	-3.507410	0.029536	-0.006329
19	P1	-3.610460	0.012822	0.000673
22	P1	-5.638278	0.067855	-0.043601
26	P1	-6.529480	0.024929	-0.038764
30	P1	-6.300115	0.044684	0.018823
3	P1	-10.766394	0.050367	-0.139300
7	P1	-10.138303	0.136055	-0.023503
11	P1	-12.491107	0.110298	-0.082286

15	P1	-11.750827	0.054925	-0.025629
19	P1	-15.641166	0.047022	0.025238
22	P1	-24.085241	1.880069	0.092870
26	P1	-14.929362	0.366724	0.313614
30	P1	-20.075775	0.874847	0.112137

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-18.006062	0.037257	0.089852
7	P2	-22.571585	0.034197	0.117921
11	P2	-10.610523	0.038018	0.203458
15	P2	-5.049557	0.025632	0.039921
19	P2	-6.945045	0.037230	0.055544
22	P2	-7.275769	0.028807	0.088880
26	P2	-23.950903	0.019521	0.036598
30	P2	-21.995302	0.024495	0.066868

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.038410	0.003009	0.023047
7	P3	-8.038425	0.003011	0.022988
11	P3	-8.038363	0.003008	0.022784
15	P3	-8.038497	0.003008	0.023105
19	P3	-8.038362	0.003019	0.023228
22	P3	-8.038426	0.003012	0.022922
26	P3	-8.038405	0.003015	0.023387
30	P3	-8.038367	0.003001	0.022815

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	0.000464179
	stdev	2.24527e-07
MEAN Q	mean	0.000538340
	stdev	2.37101e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.128000
	stdev	0.000964533
STDEV Q	mean	0.128232
	stdev	0.000974681

5.3 - Gain imbalance I/Q

6 - Doppler Analysis

Preliminary report.The data is not yet controled

6.1 - Unbiased Doppler Error for WVS

Evolution of unbiased Doppler error (Real - Expected)
Acsending

Descending

6.2 - Absolute Doppler for WVS

Evolution of Absolute Doppler
☒
Acsending
☒
Descending

6.3 - Doppler evolution versus ANX for WVS

Evolution Doppler error versus ANX
☒

6.4 - Unbiased Doppler Error for GM1

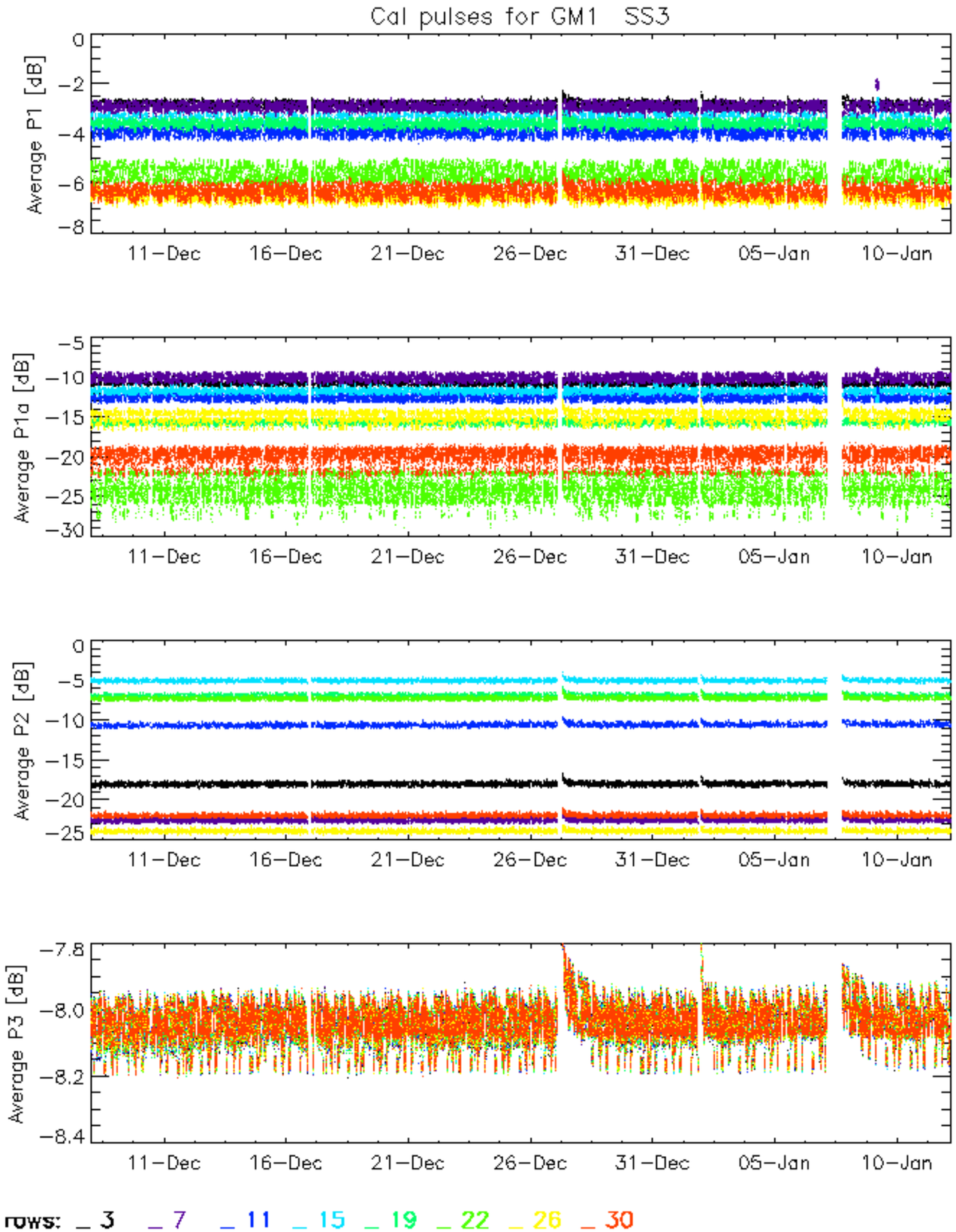
Evolution of unbiased Doppler error (Real - Expected)
☒
Acsending
☒
Descending

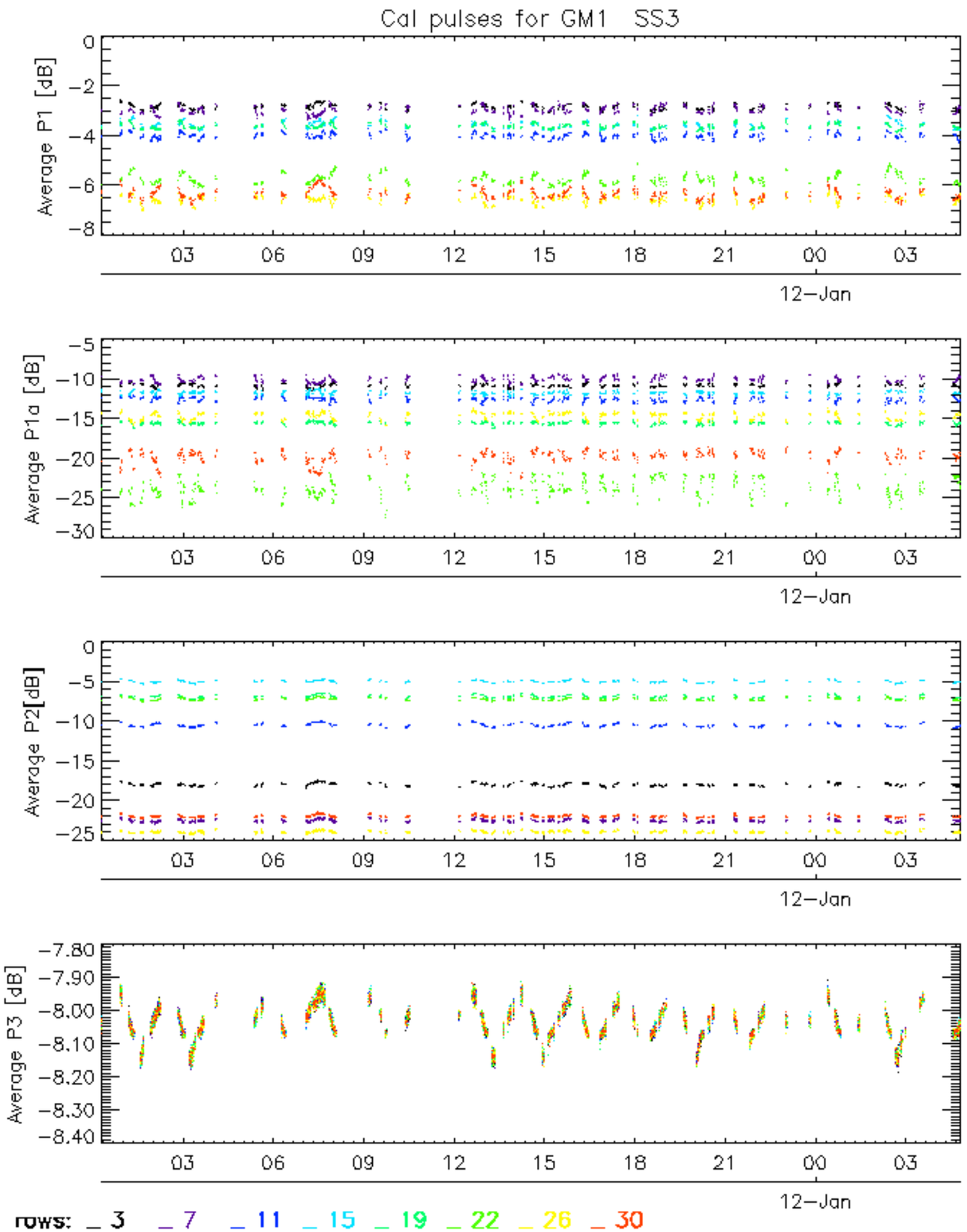
6.5 - Absolute Doppler for GM1

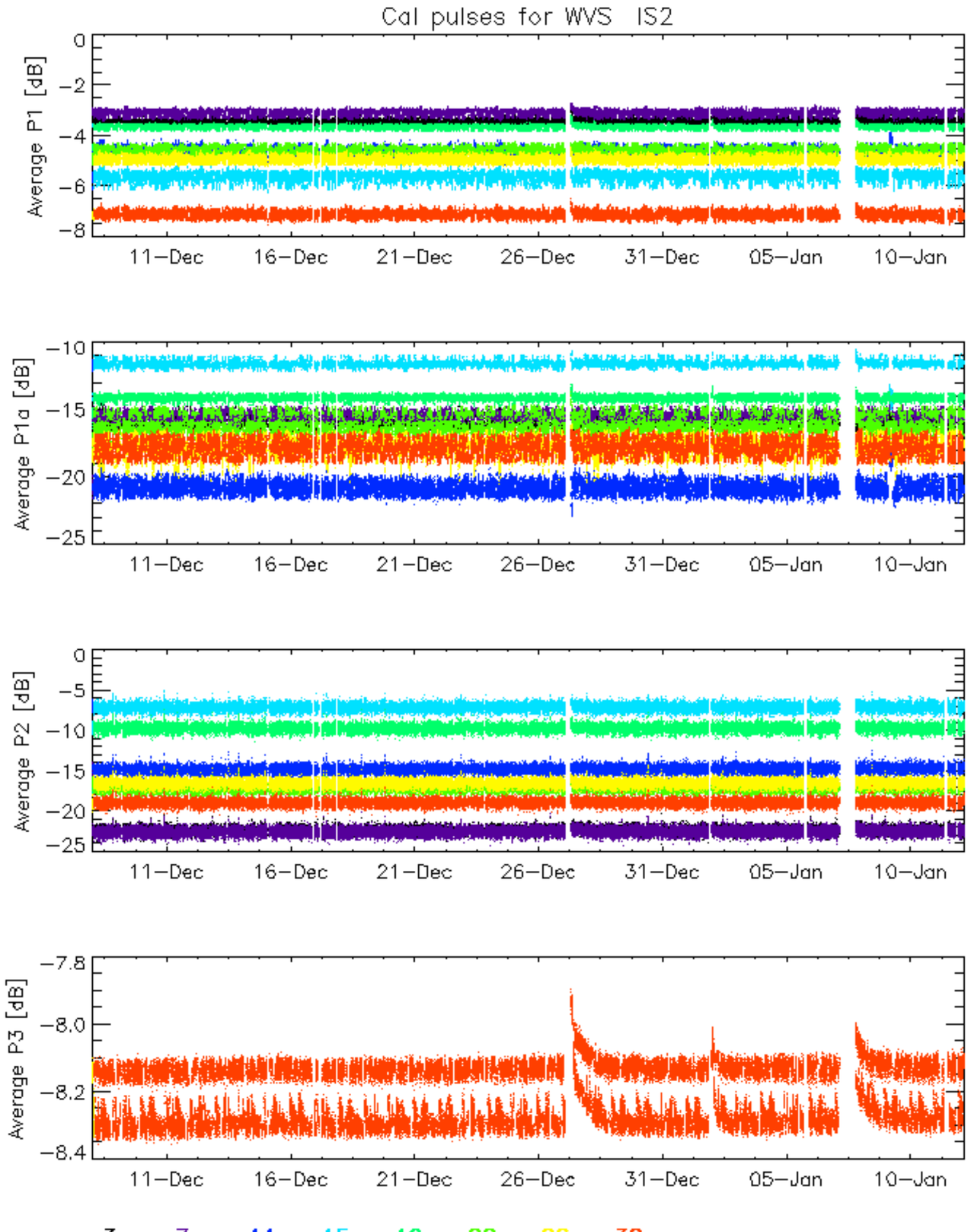
Evolution of Absolute Doppler
☒
Acsending
☒
Descending

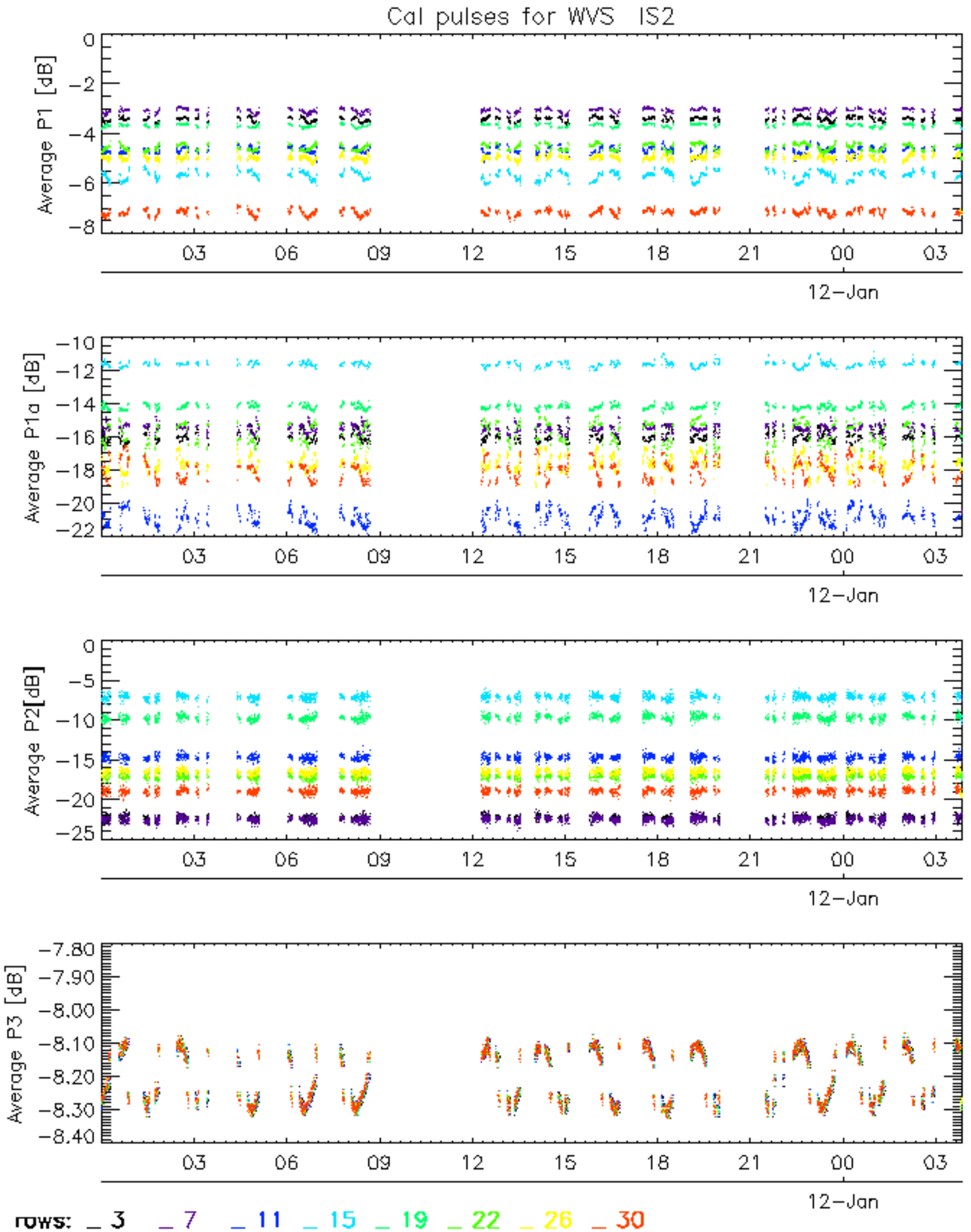
6.6 - Doppler evolution versus ANX for GM1

Evolution Doppler error versus ANX

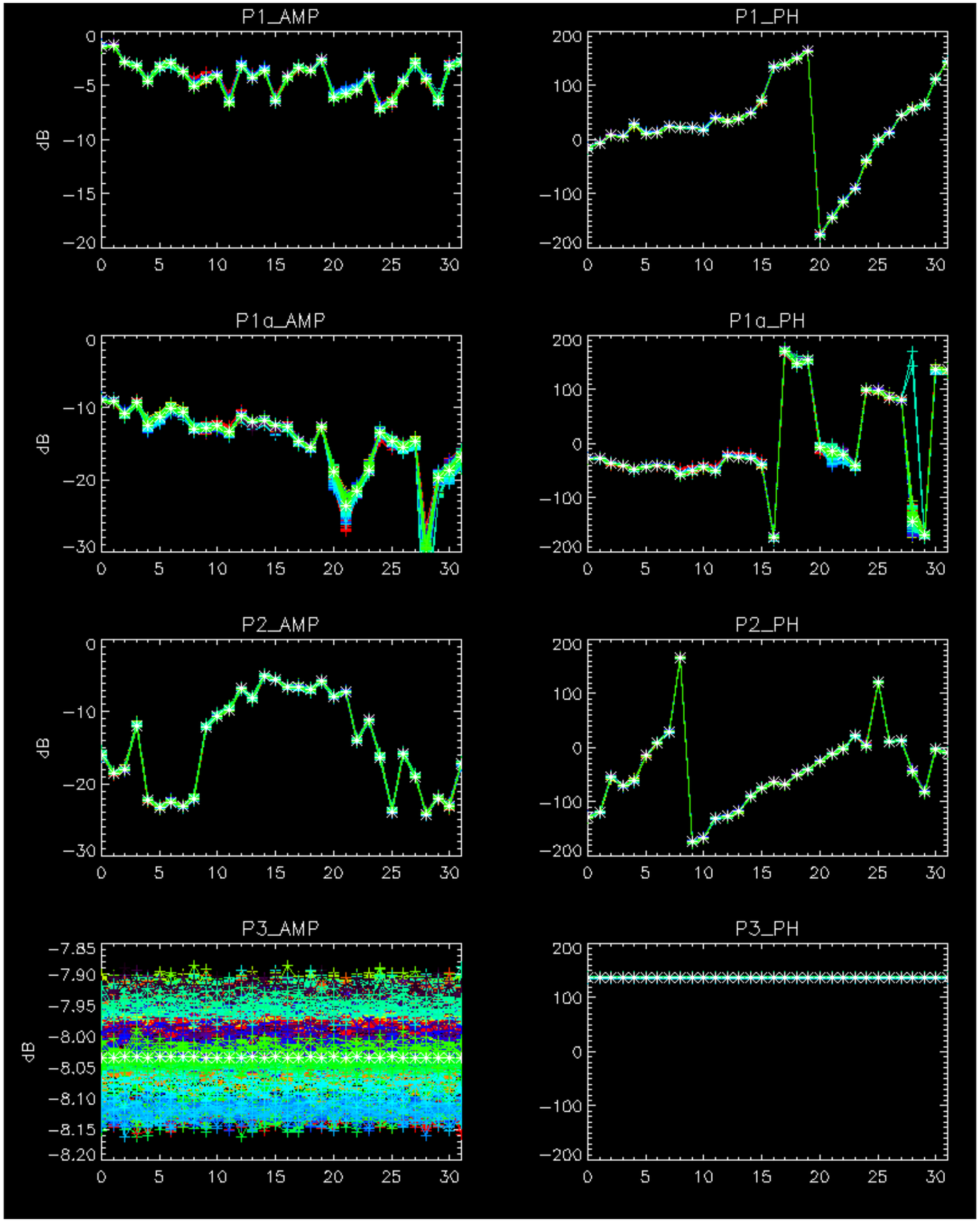

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

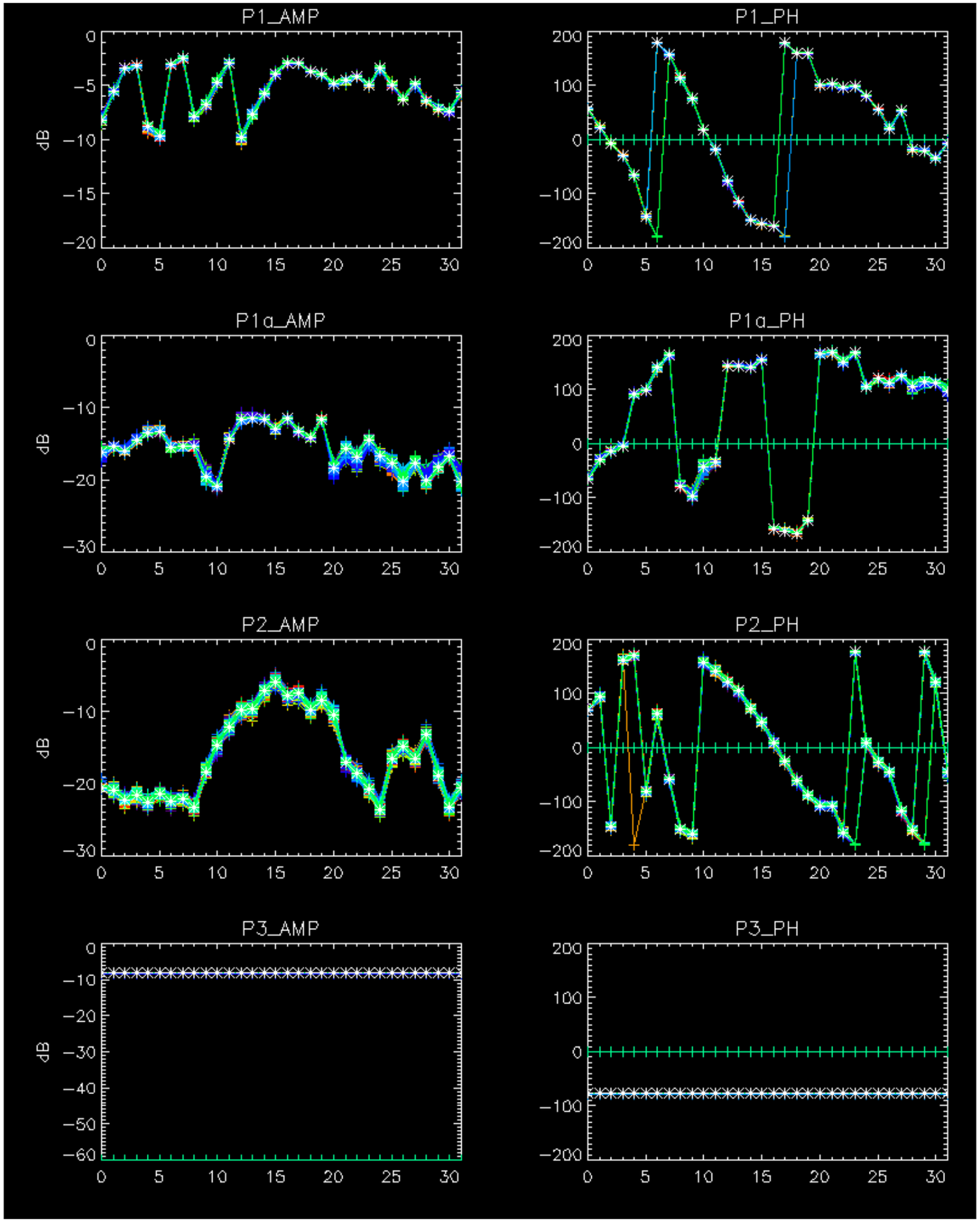

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
12−Jan
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan
Average P1a [dB]
−10
−15
−20
−25
Average P2 [dB]
−5
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
12−Jan
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
Average P2[dB]
−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

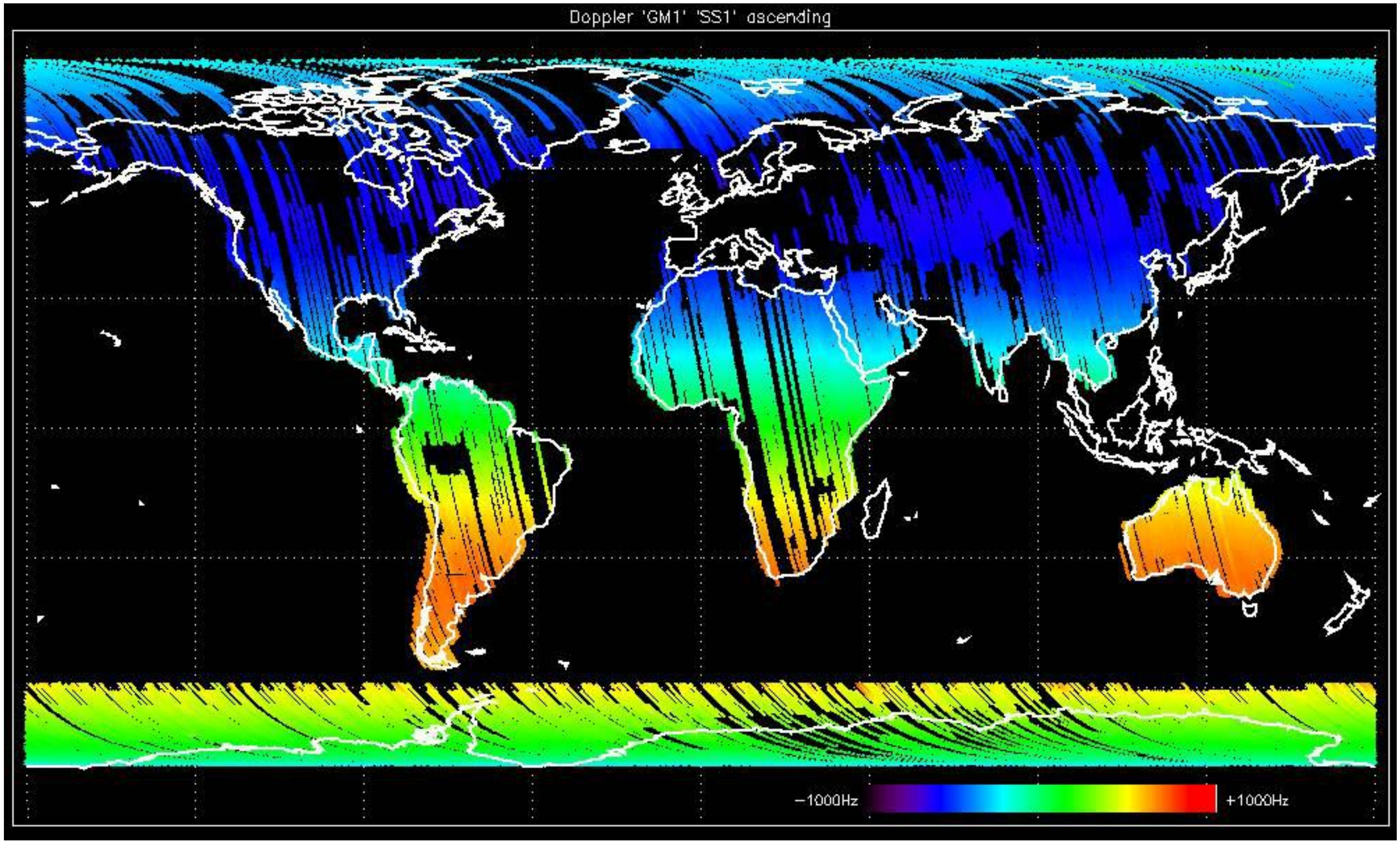
No anomalies observed.

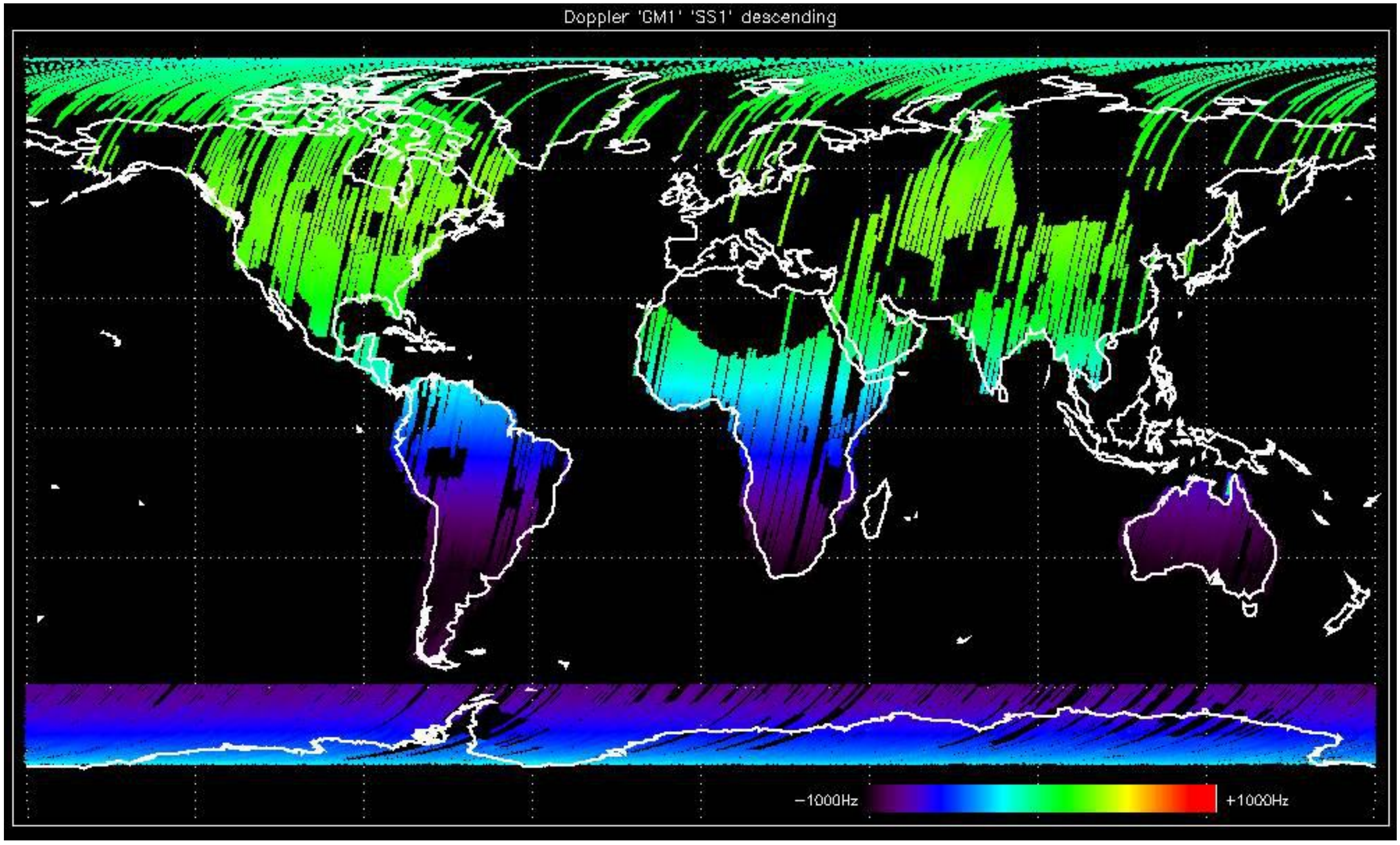

P1_AMP
dB
0
−5
−10
−15
−20
0 5 10 15 20 25 30
P1_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P1a_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P1a_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P2_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P2_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P3_AMP
dB
−7.85
−7.90
−7.95
−8.00
−8.05
−8.10
−8.15
−8.20
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30

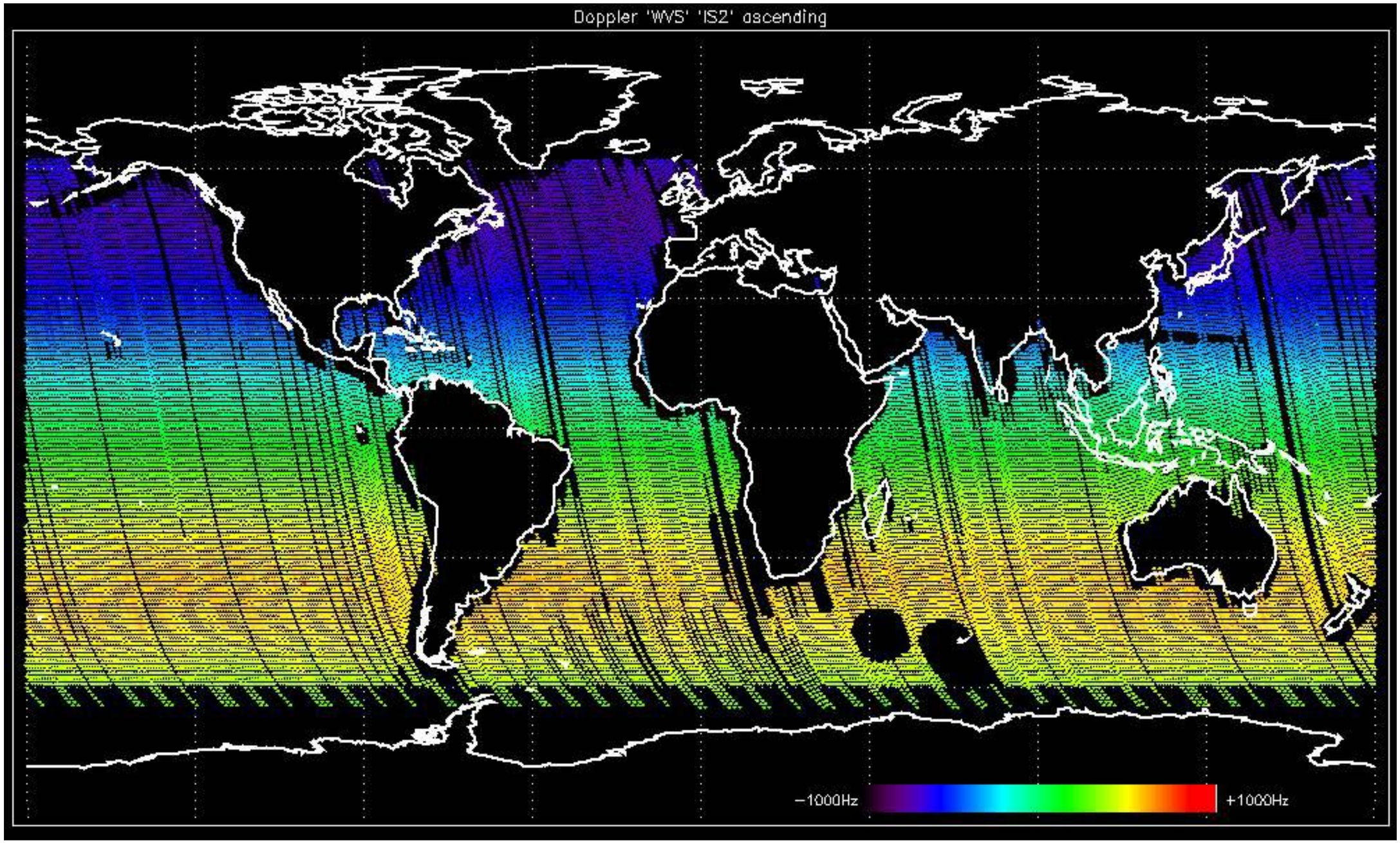

P1_AMP
P1_PH
P1a_AMP
P1a_PH
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

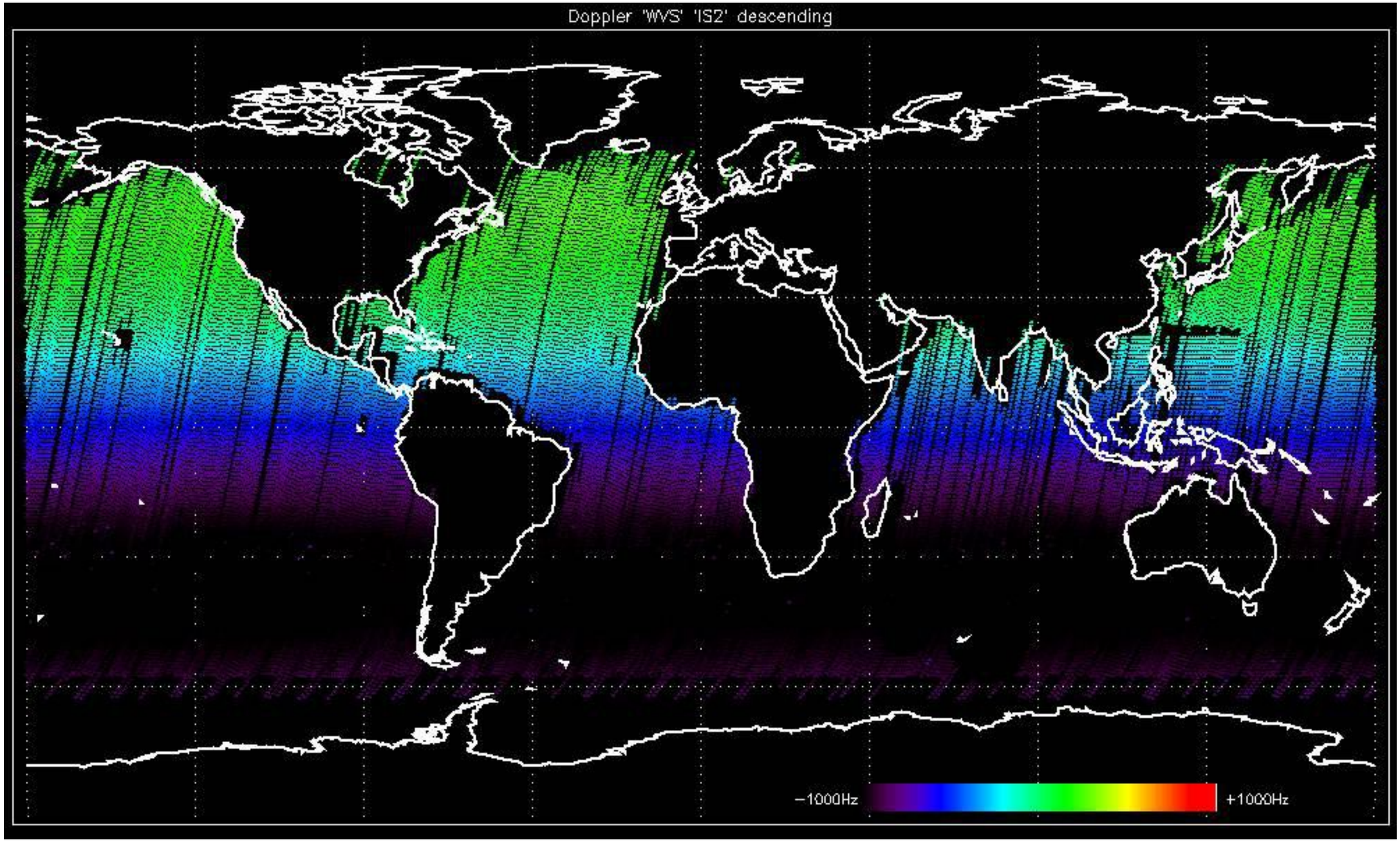
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

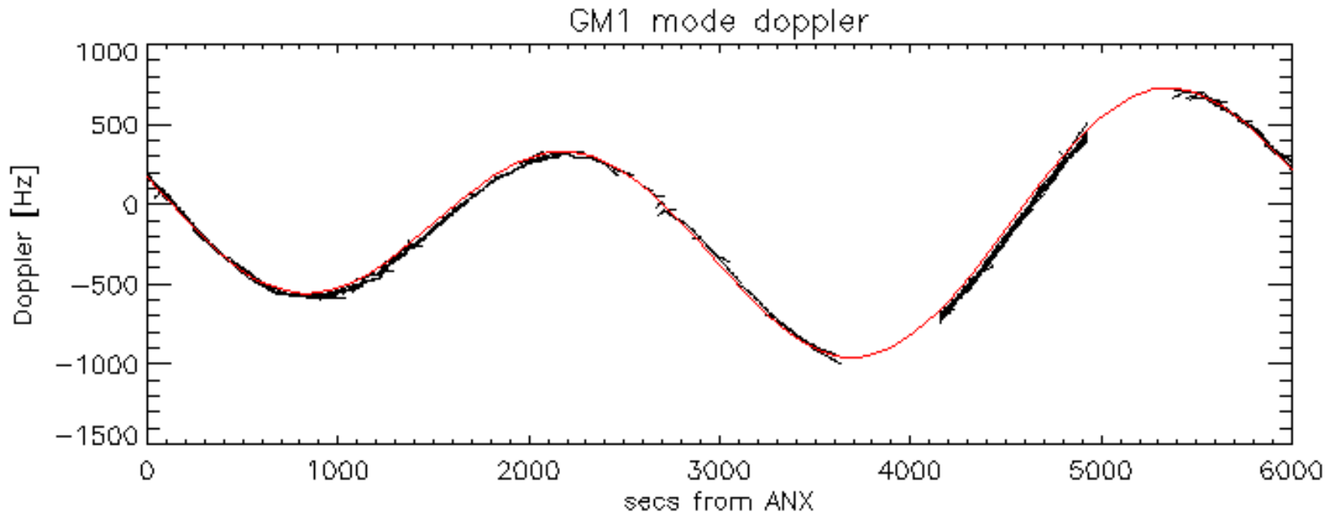
Preliminary report.The data is not yet controled

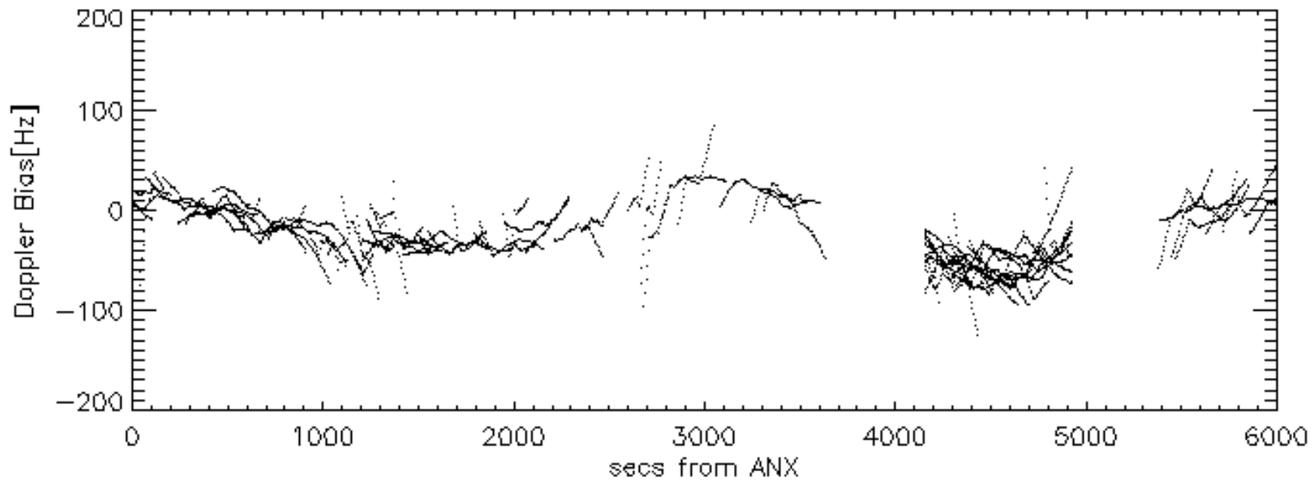

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

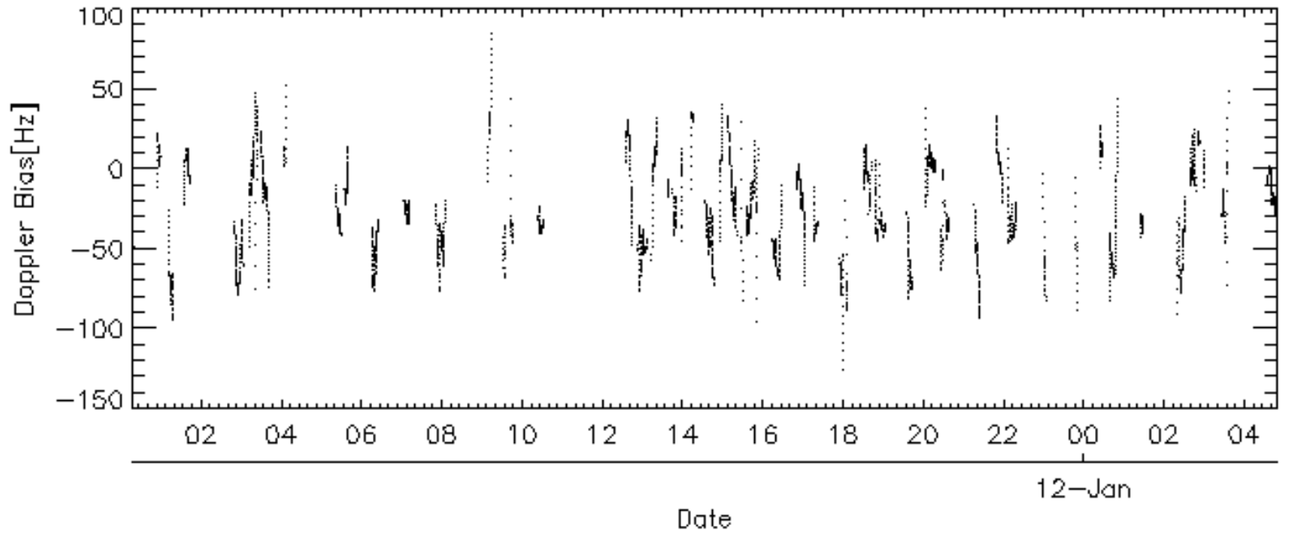

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

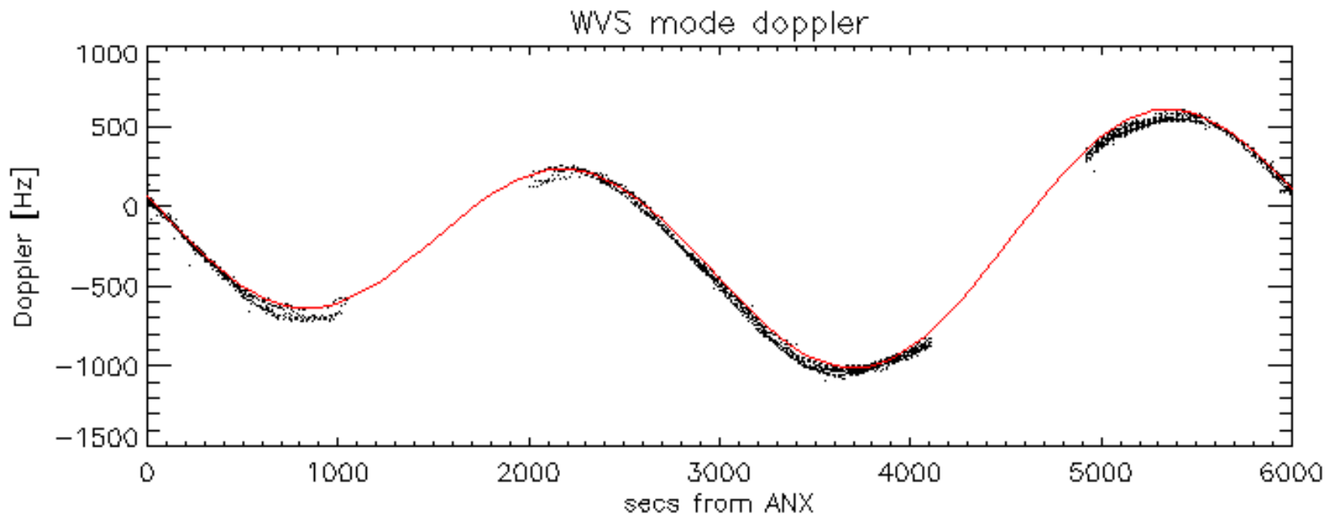

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

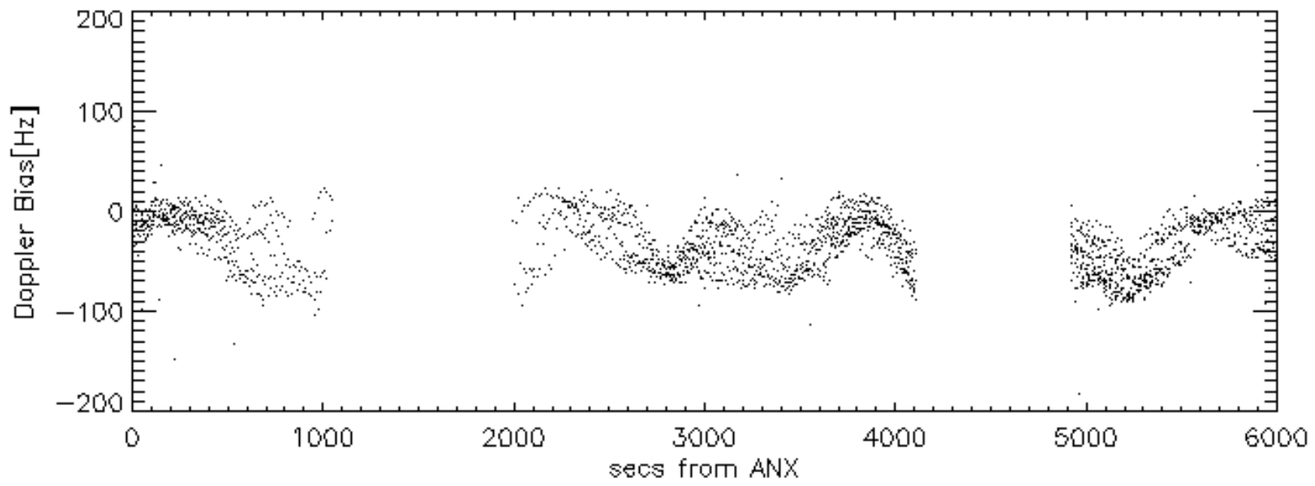

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

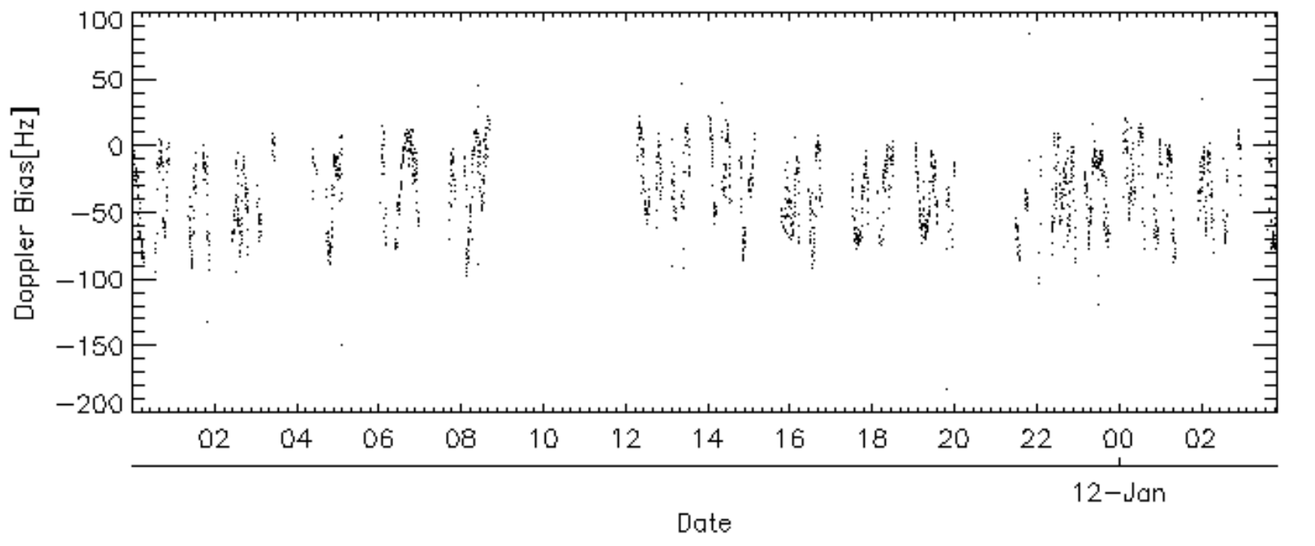

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

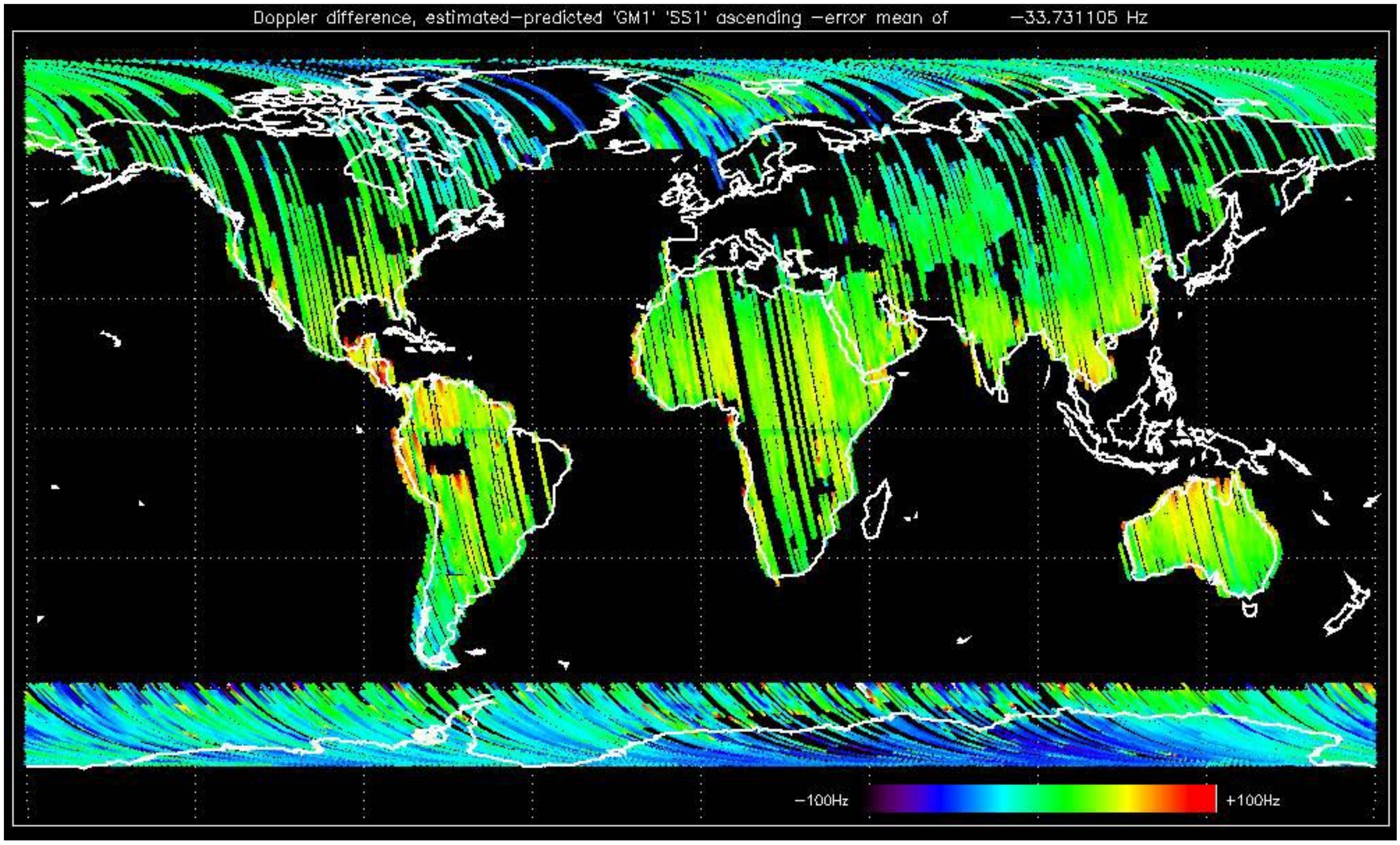

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

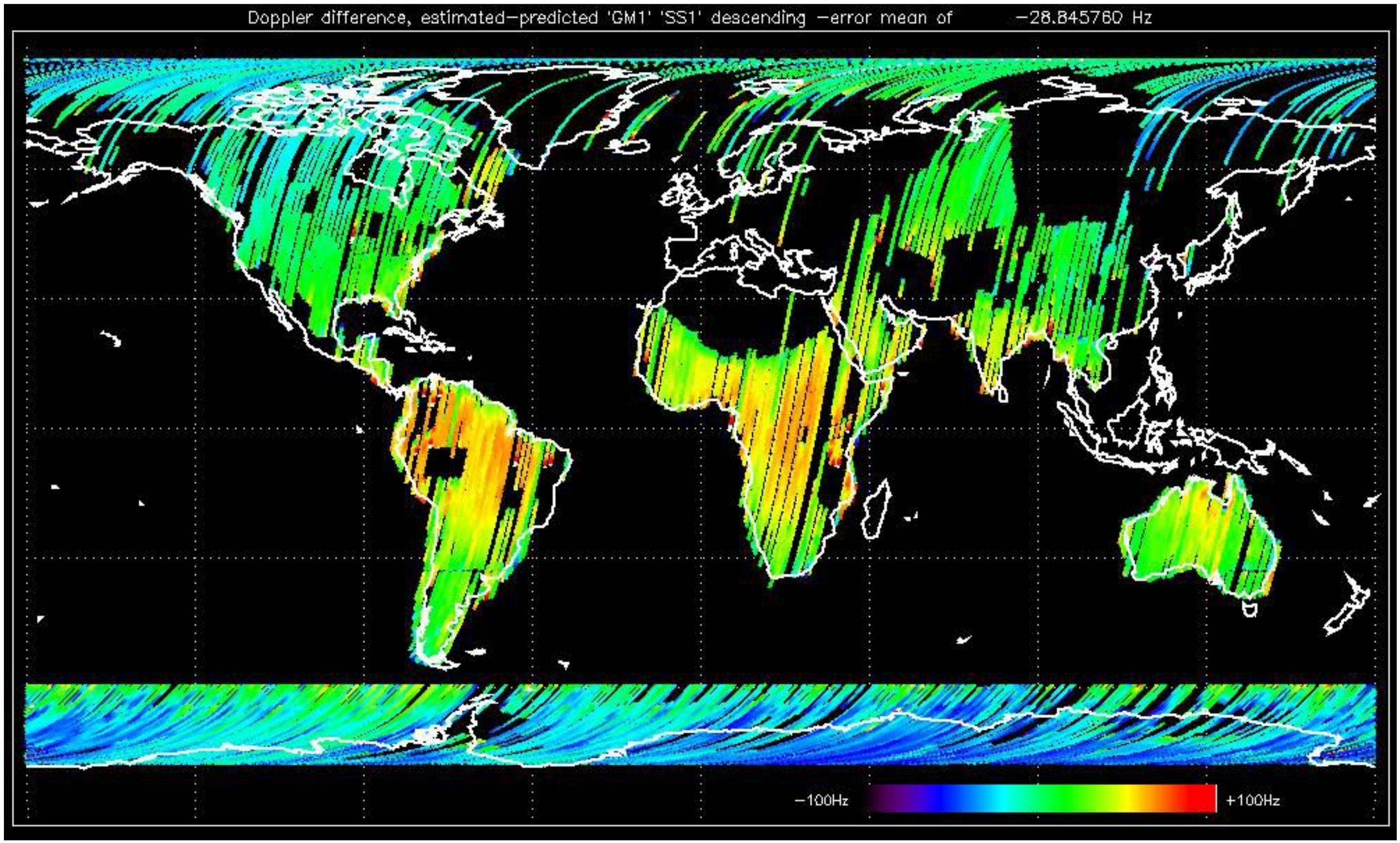

Doppler Bias[Hz]
100
50
0
−50
−100
−150
02
04
06
08
10
12
14
16
18
20
22
00
02
04
12−Jan
Date

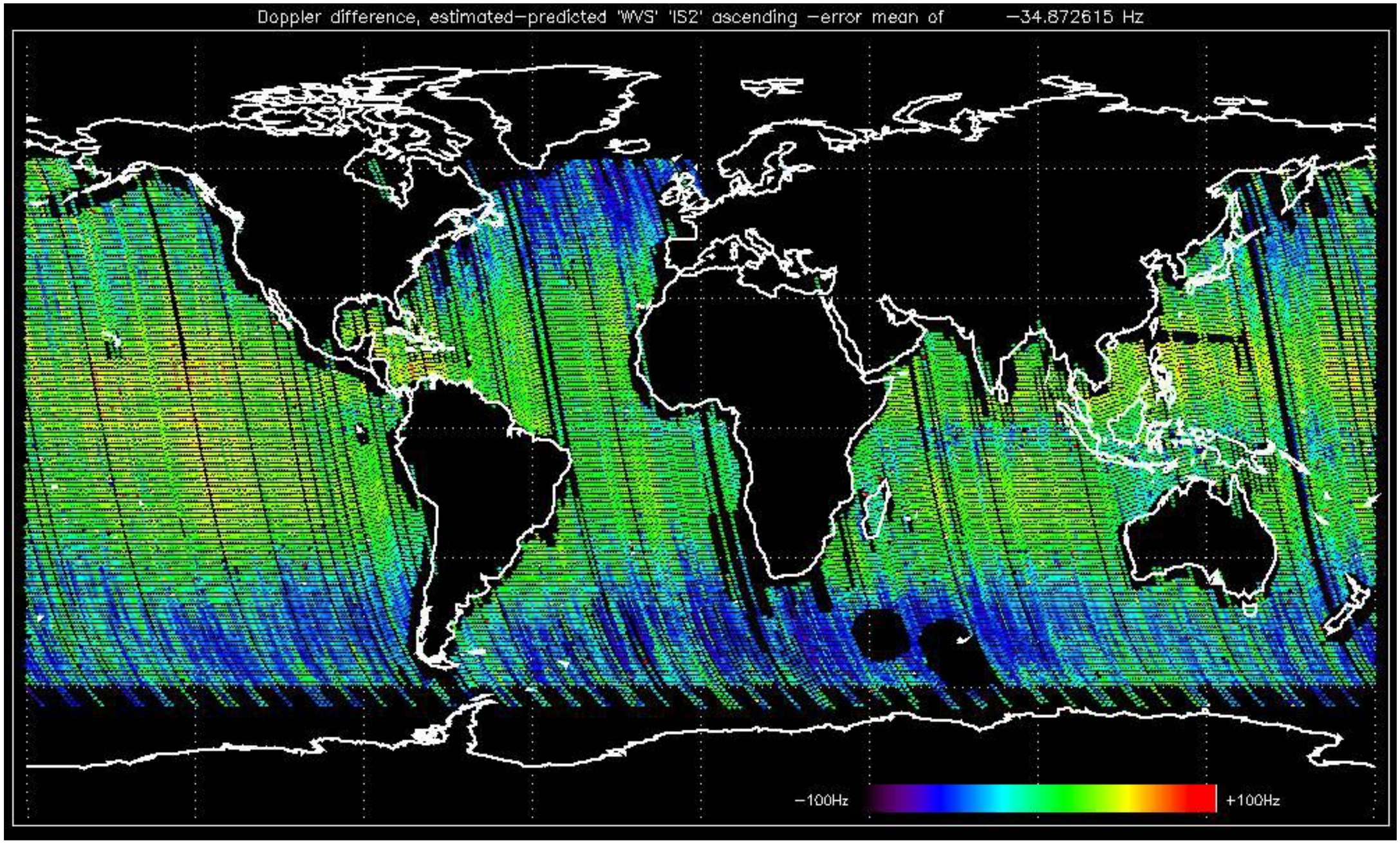

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

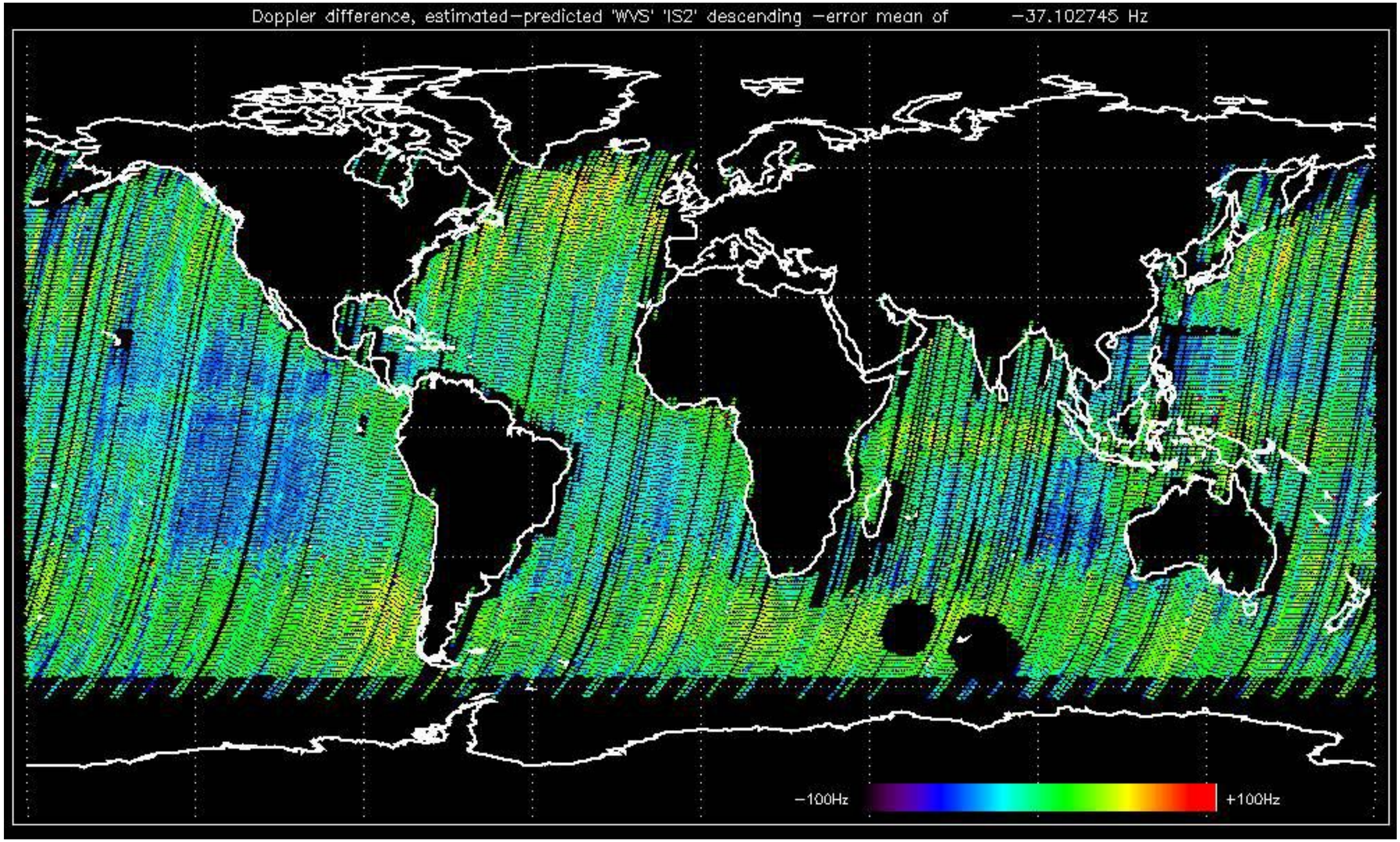

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


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


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −33.731105 Hz
−100Hz
+100Hz

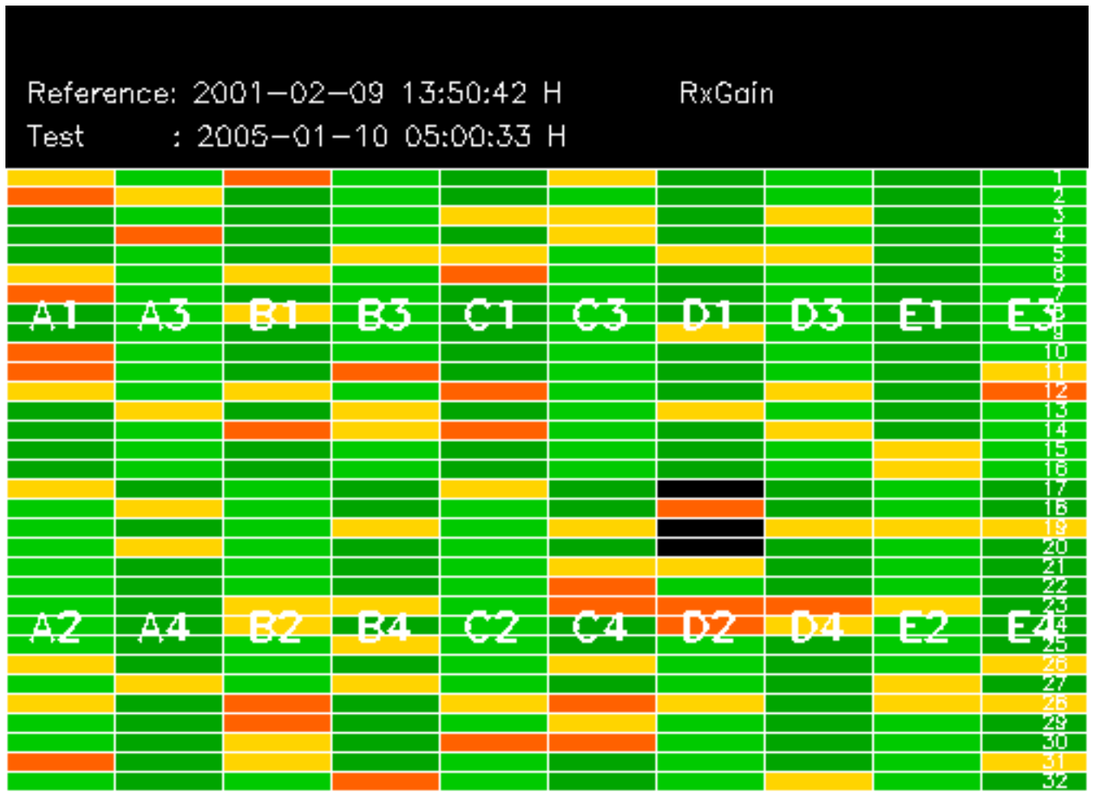

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -28.845760 Hz
-100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −34.872615 Hz
−100Hz
+100Hz

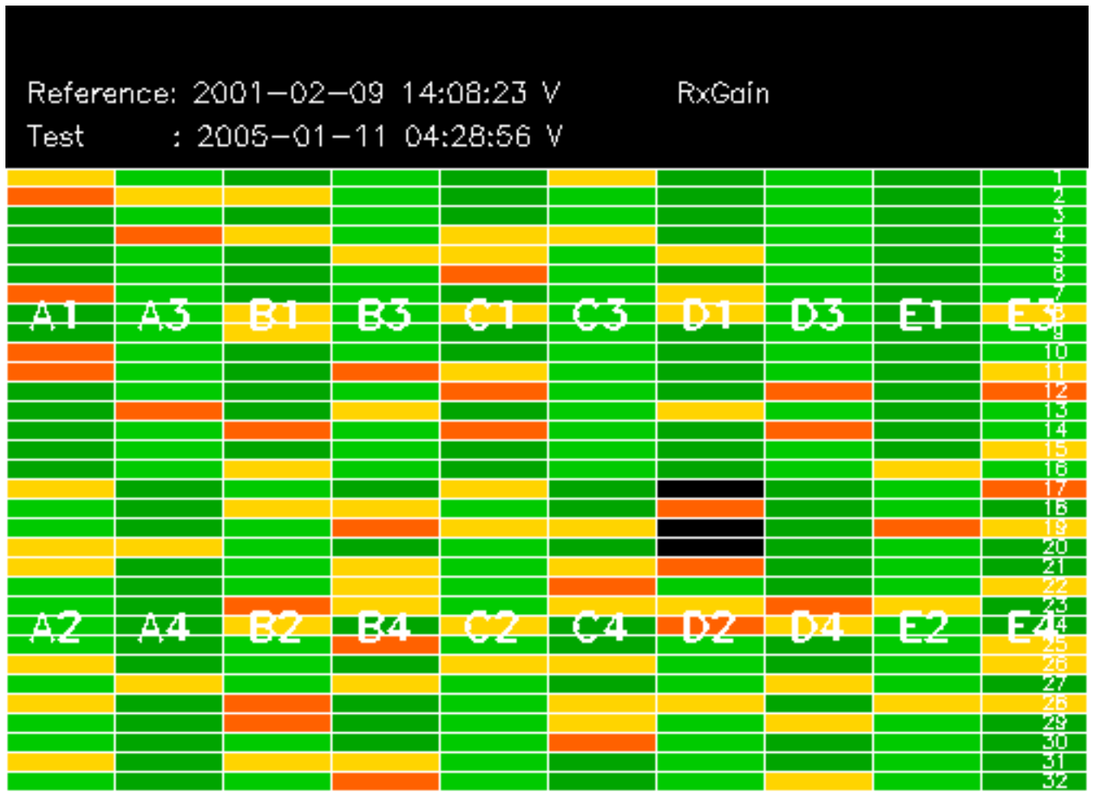

Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −37.102745 Hz
−100Hz
+100Hz

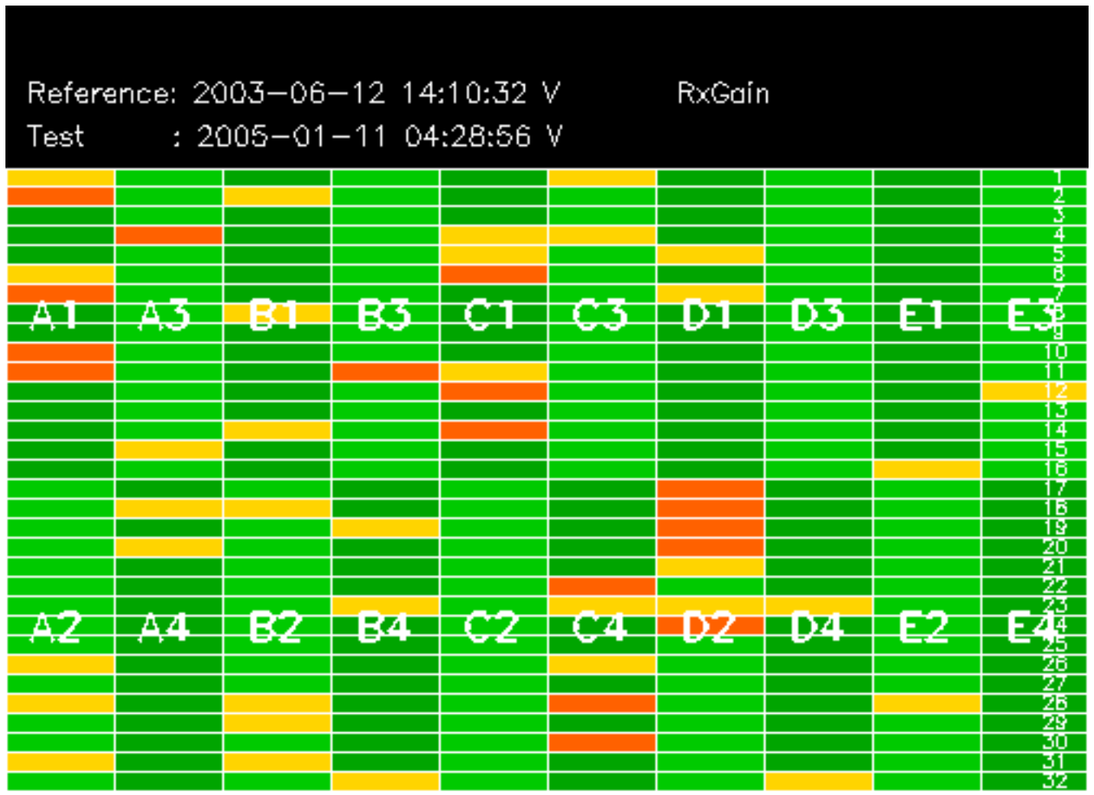
The MS mode provides an internal health check on an individual module basis.
The purpose of this mode is to identify to identify any malfunctionning modules and
to identify modules for which calibration offsets are to be applied.
No anomalies observed on available MS products:

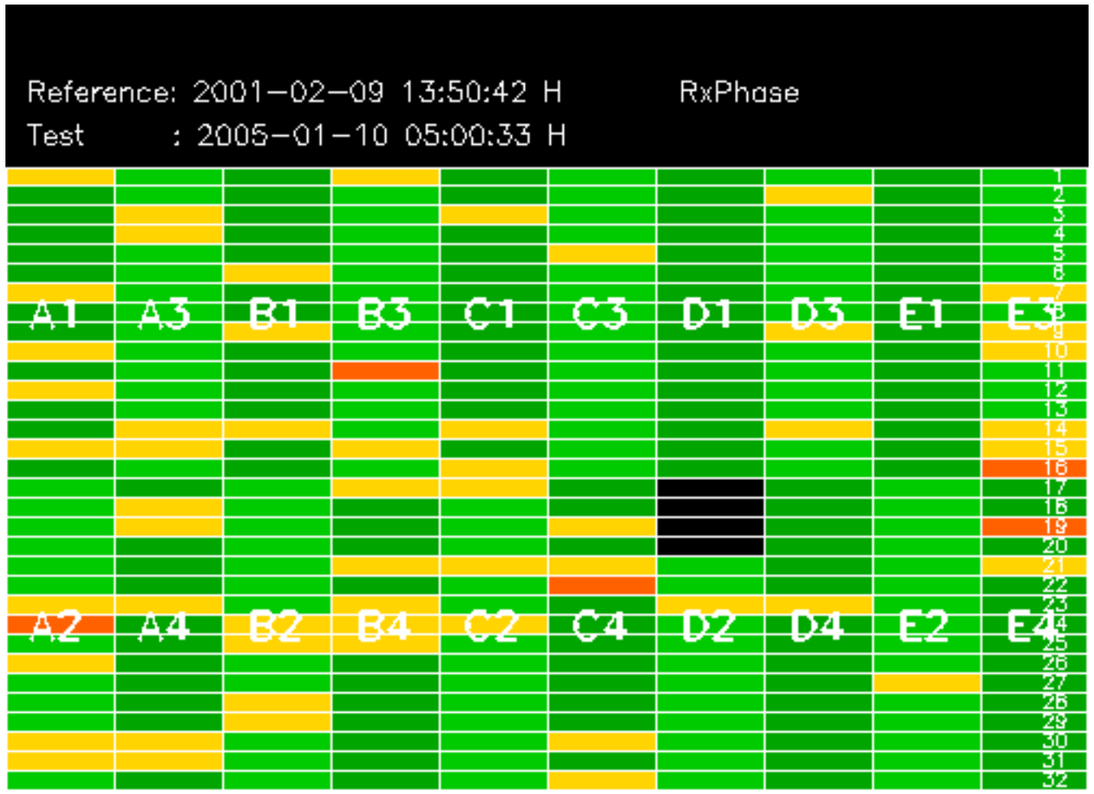
No anomalies observed.

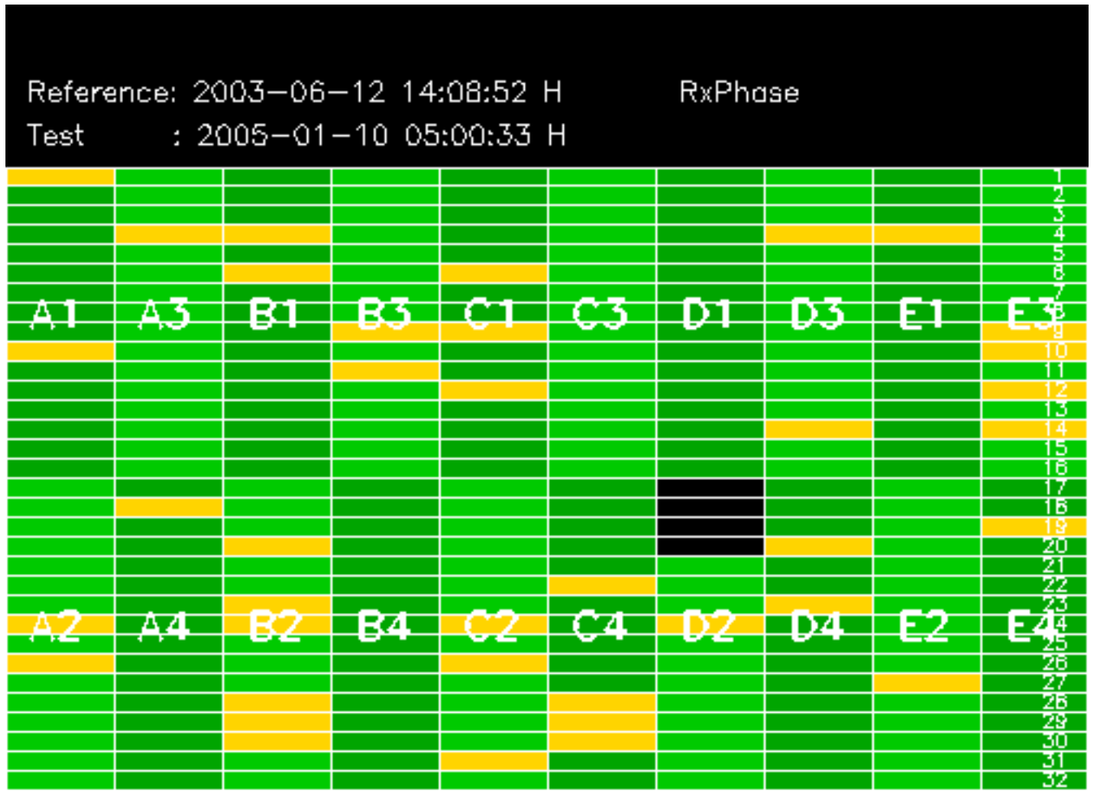

Reference: 2001-02-09 13:50:42 H
RxGain
Test : 2005-01-10 05:00:33 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

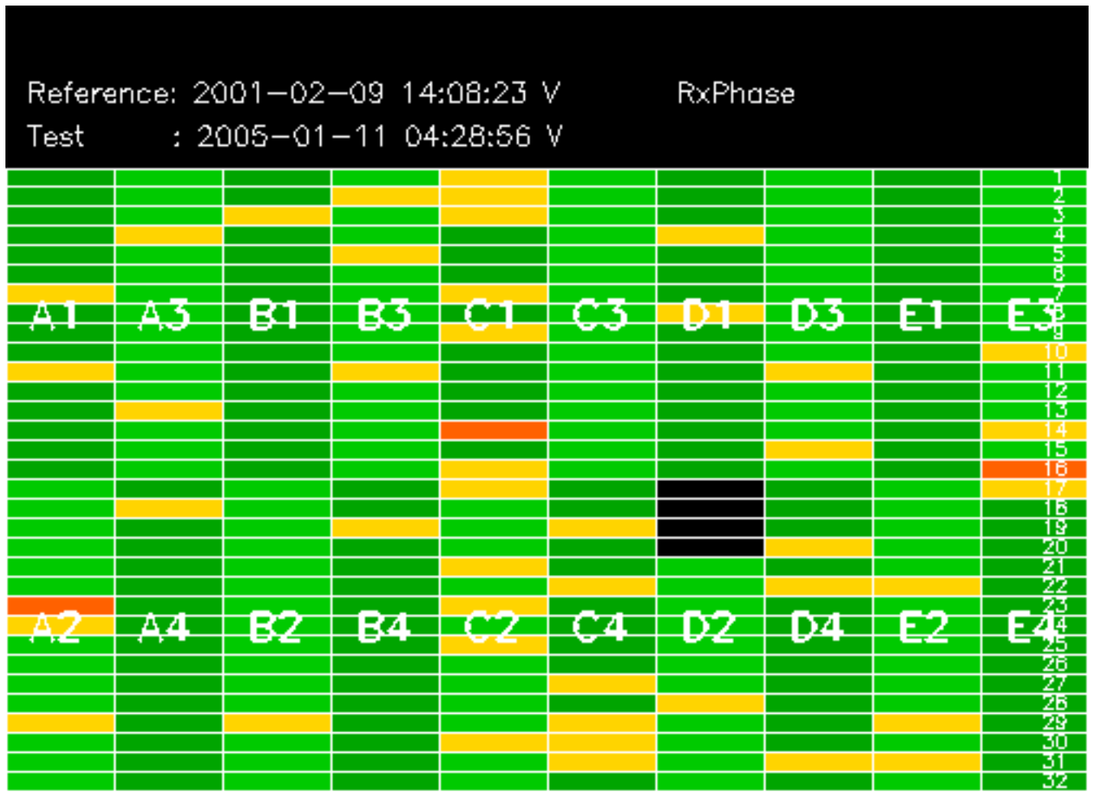
Reference: 2003-06-12 14:08:52 H
Test : 2005-01-10 05:00:33 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

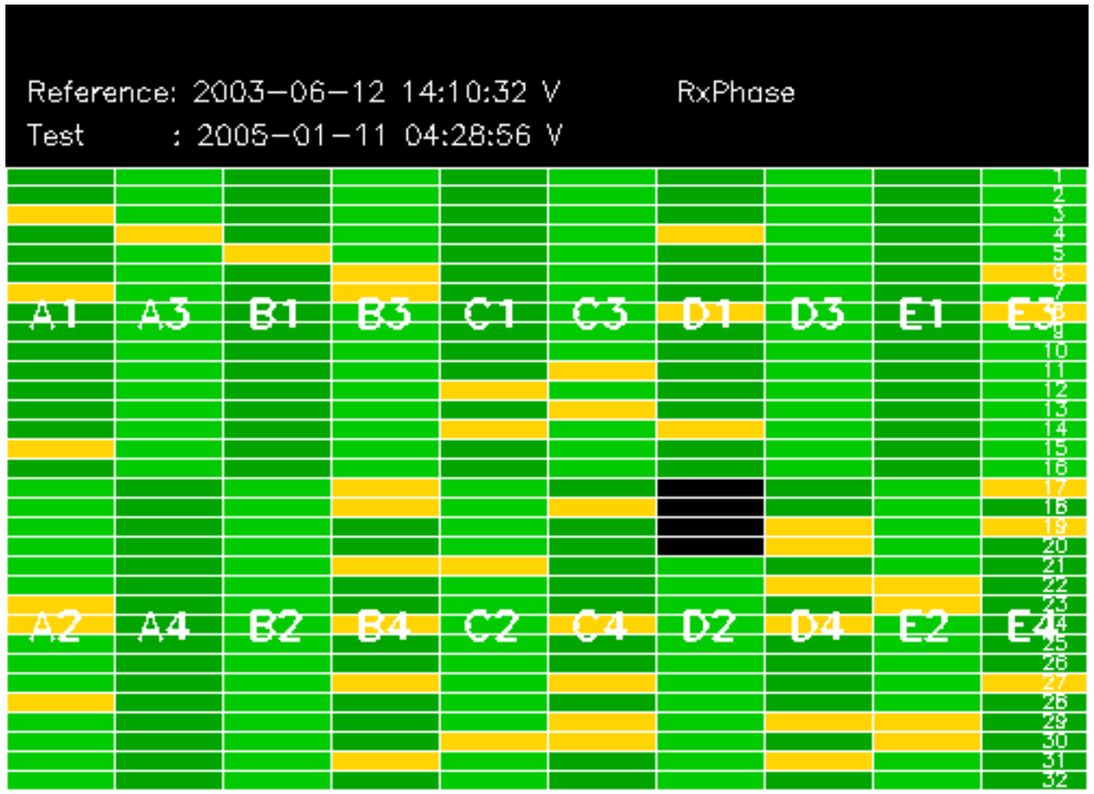

Reference: 2001-02-09 14:08:23 V
Test : 2005-01-11 04:28:56 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

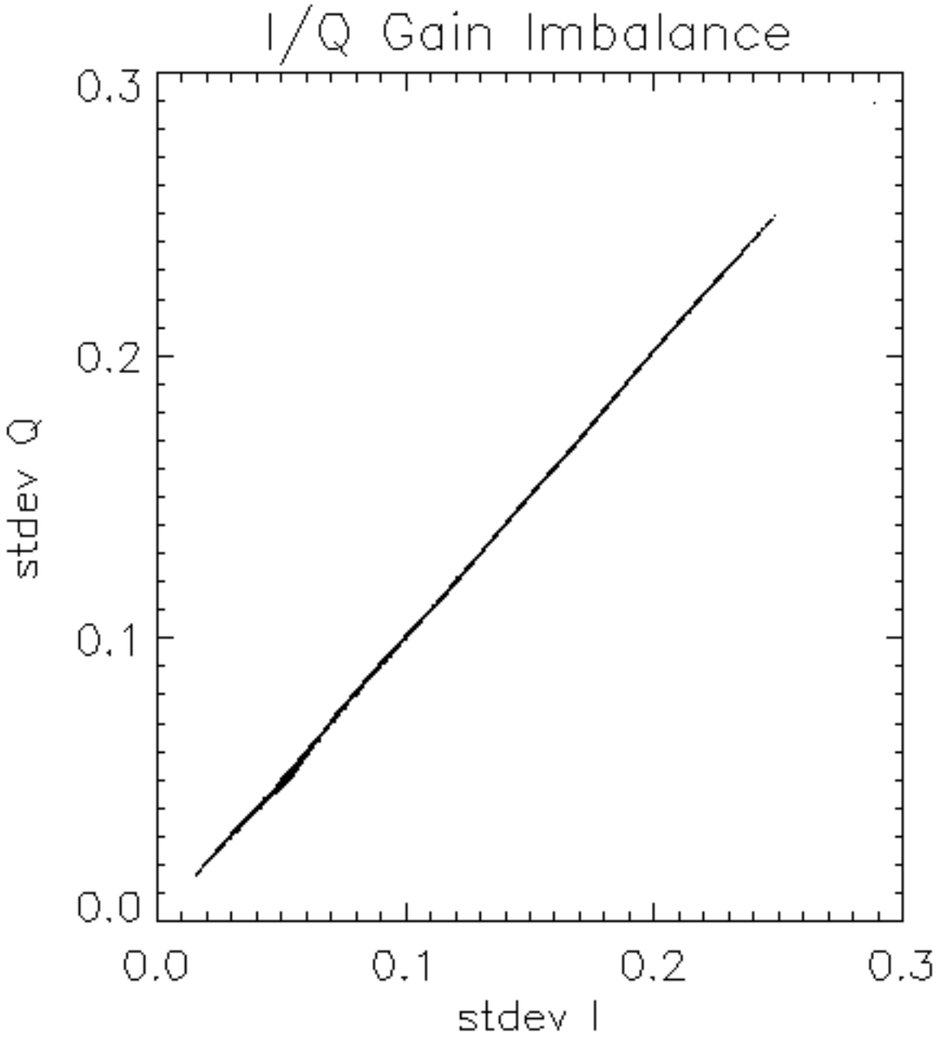

Reference: 2003-06-12 14:10:32 V
Test : 2005-01-11 04:28:56 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

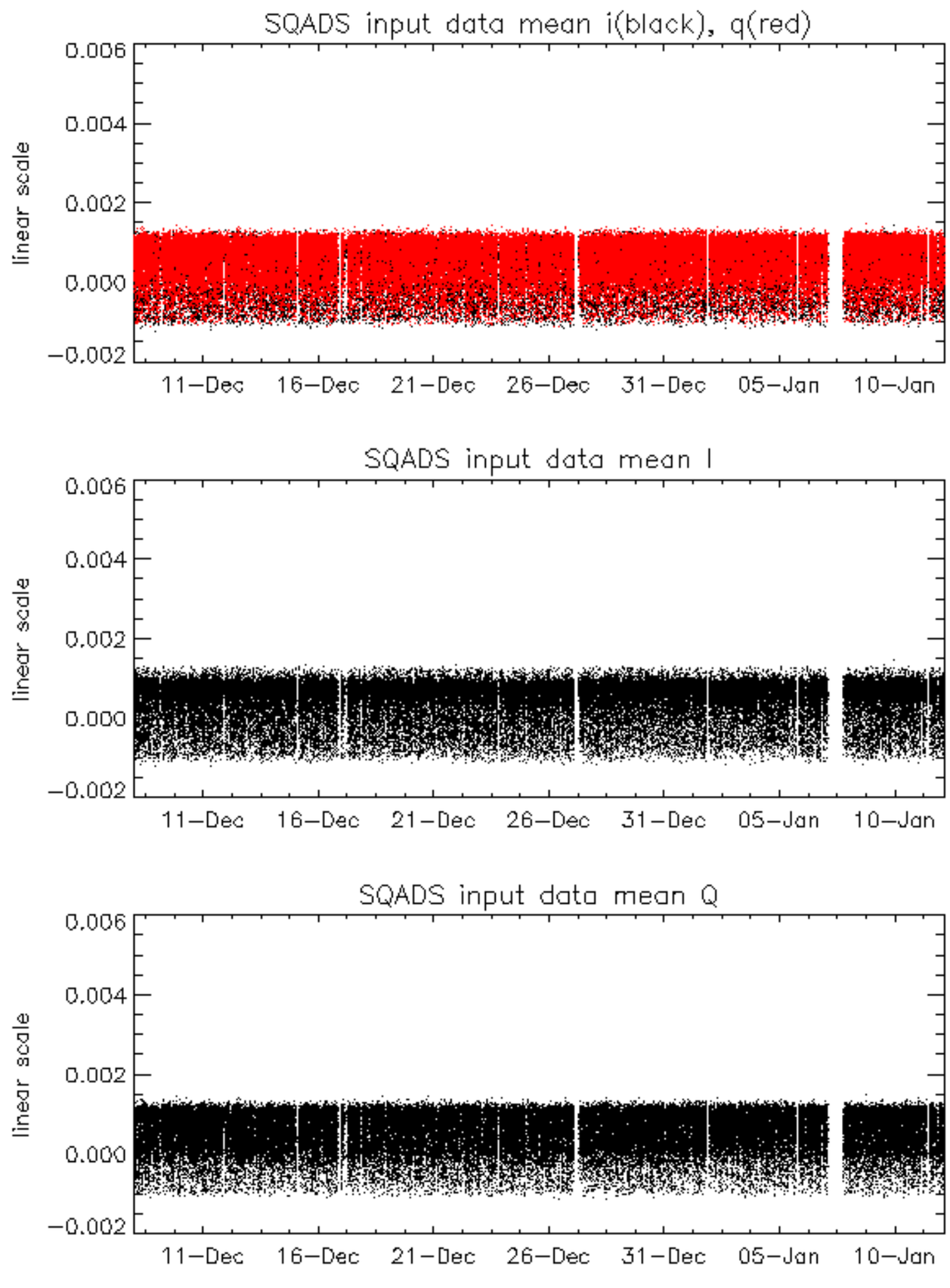

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-01-10 05:00:33 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

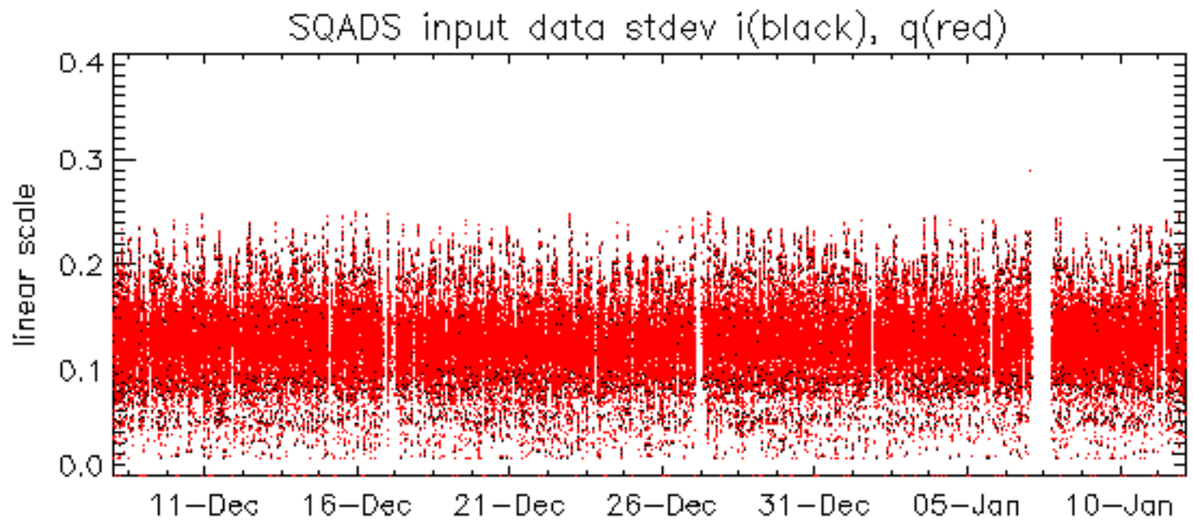

Reference: 2003-06-12 14:08:52 H
RxPhase
Test : 2005-01-10 05:00:33 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

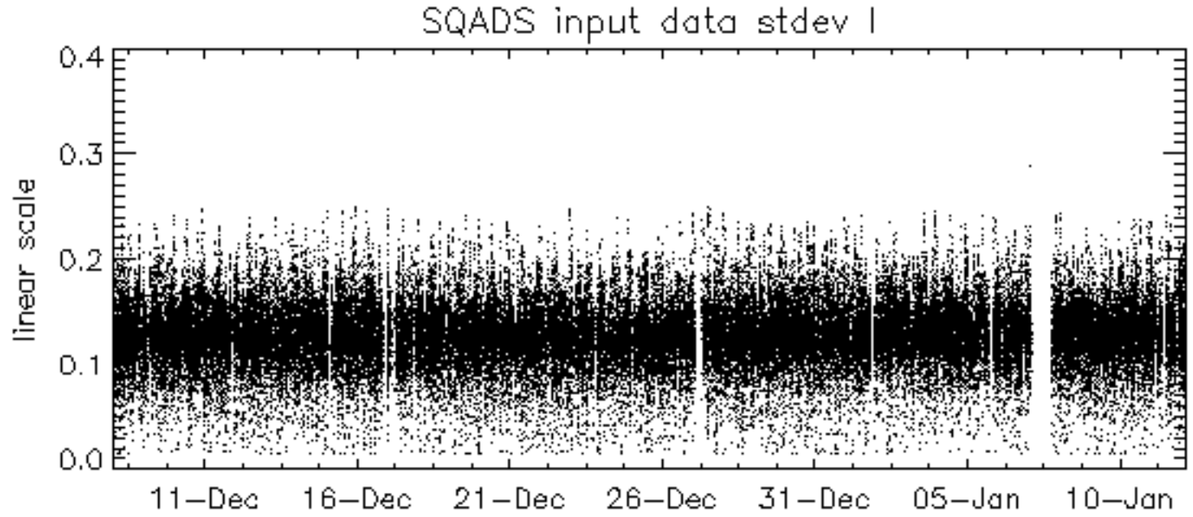

Reference: 2001-02-09 14:08:23 V
Test : 2005-01-11 04:28:56 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

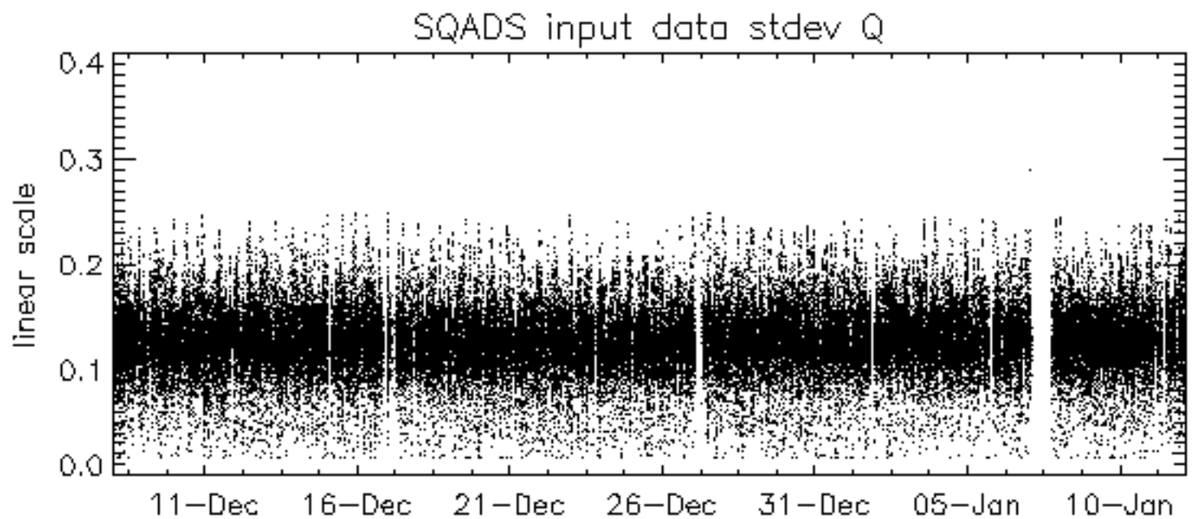

Reference: 2003-06-12 14:10:32 V
Test : 2005-01-11 04:28:56 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

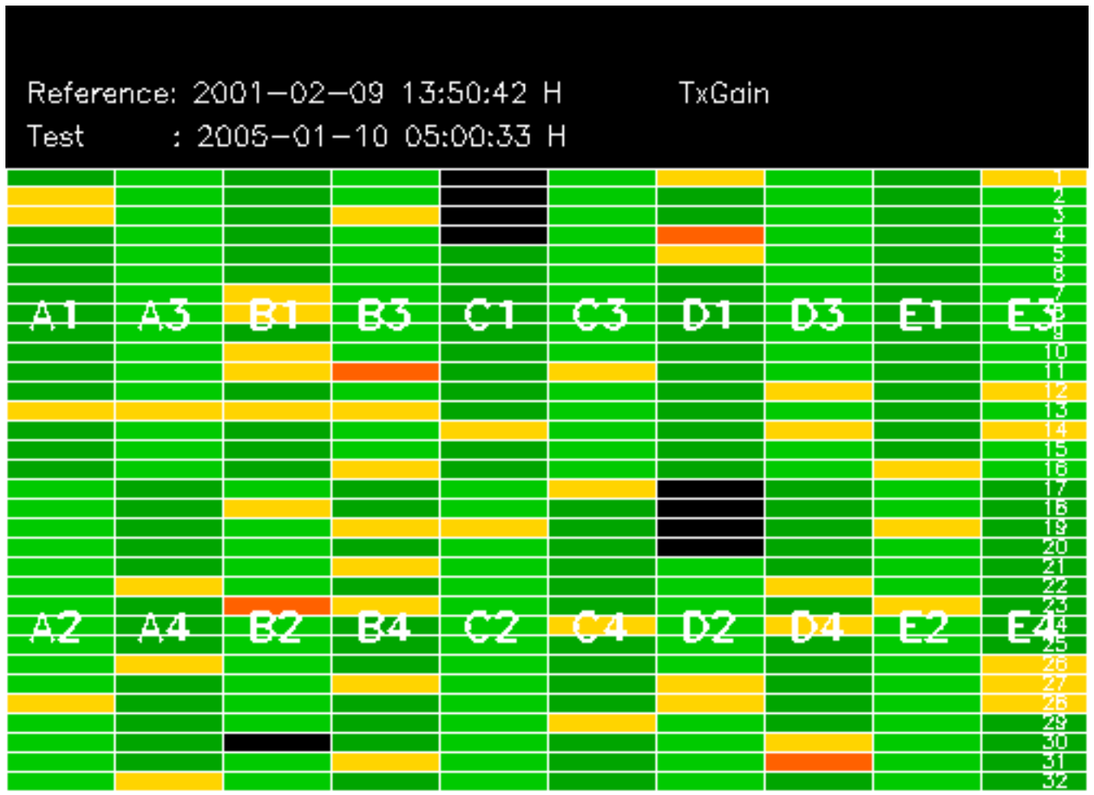

I/Q Gain Imbalance
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
stdev I

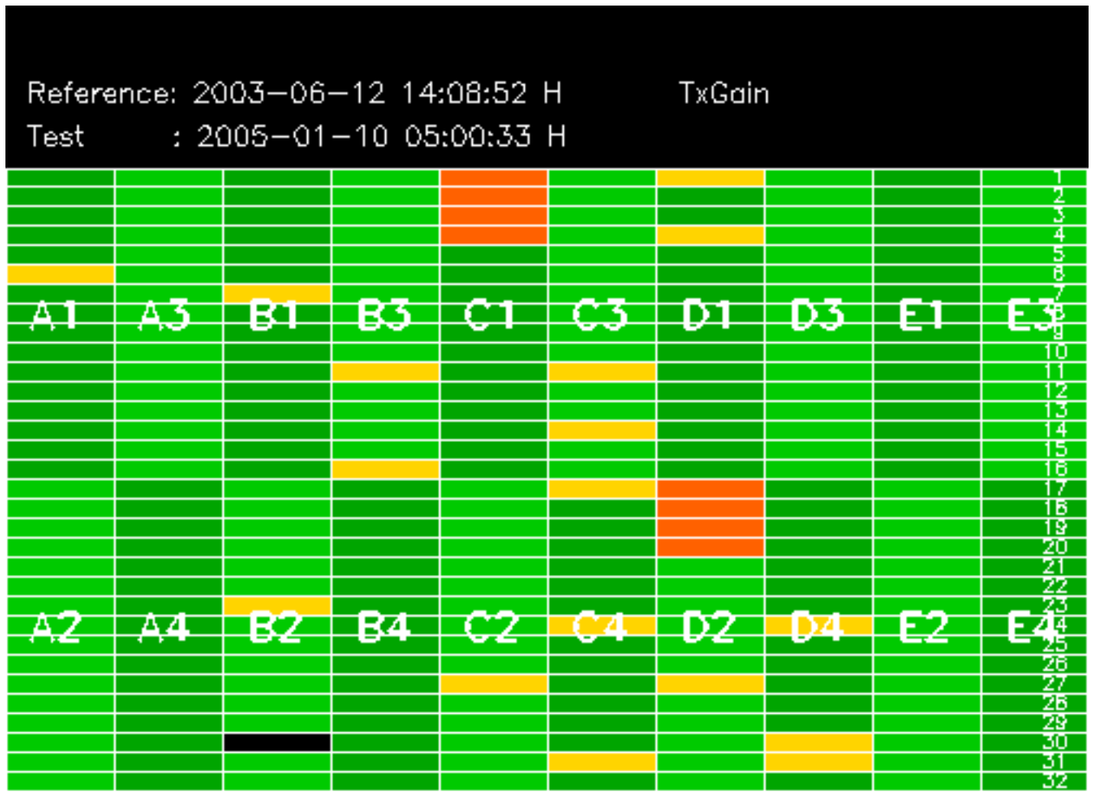

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan
SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan
SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan


SQADS input data stdev i(black), q(red)
linear scale
0.4
0.3
0.2
0.1
0.0
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan


SQADS input data stdev I
linear scale
0.4
0.3
0.2
0.1
0.0
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan

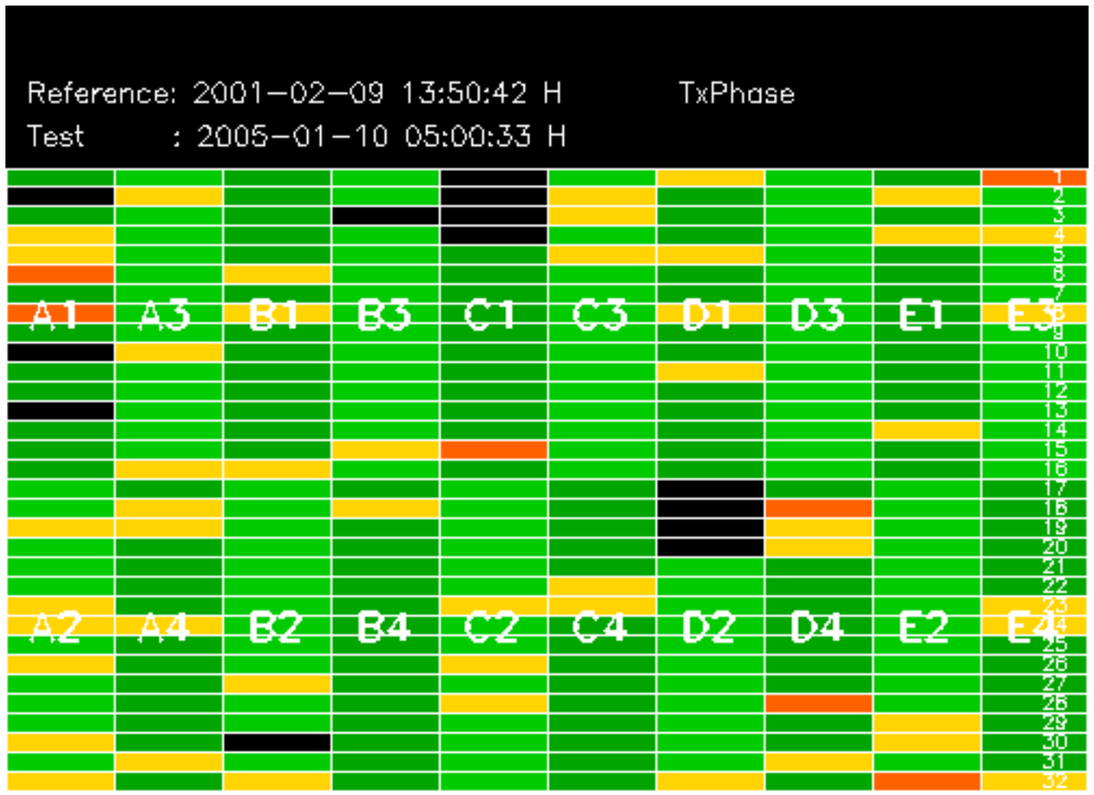

SQADS input data stdev Q
linear scale
0.4
0.3
0.2
0.1
0.0
11−Dec
16−Dec
21−Dec
26−Dec
31−Dec
05−Jan
10−Jan

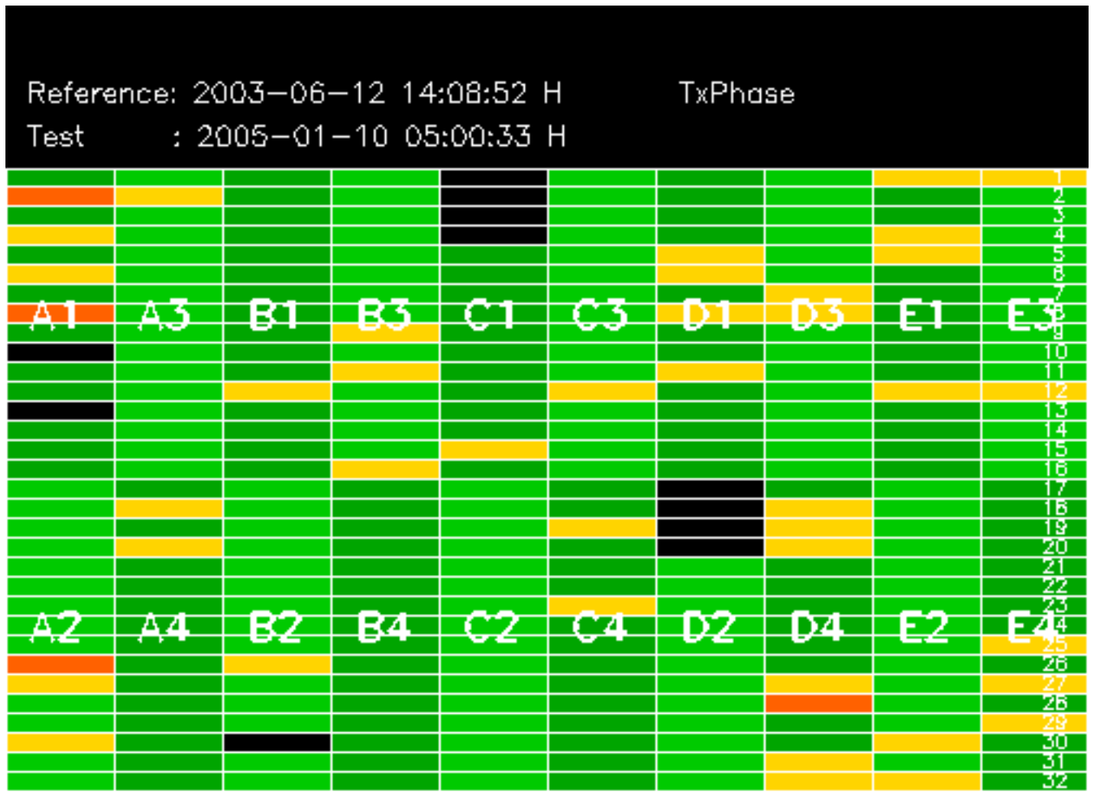

Reference: 2001-02-09 13:50:42 H
Test : 2005-01-10 05:00:33 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

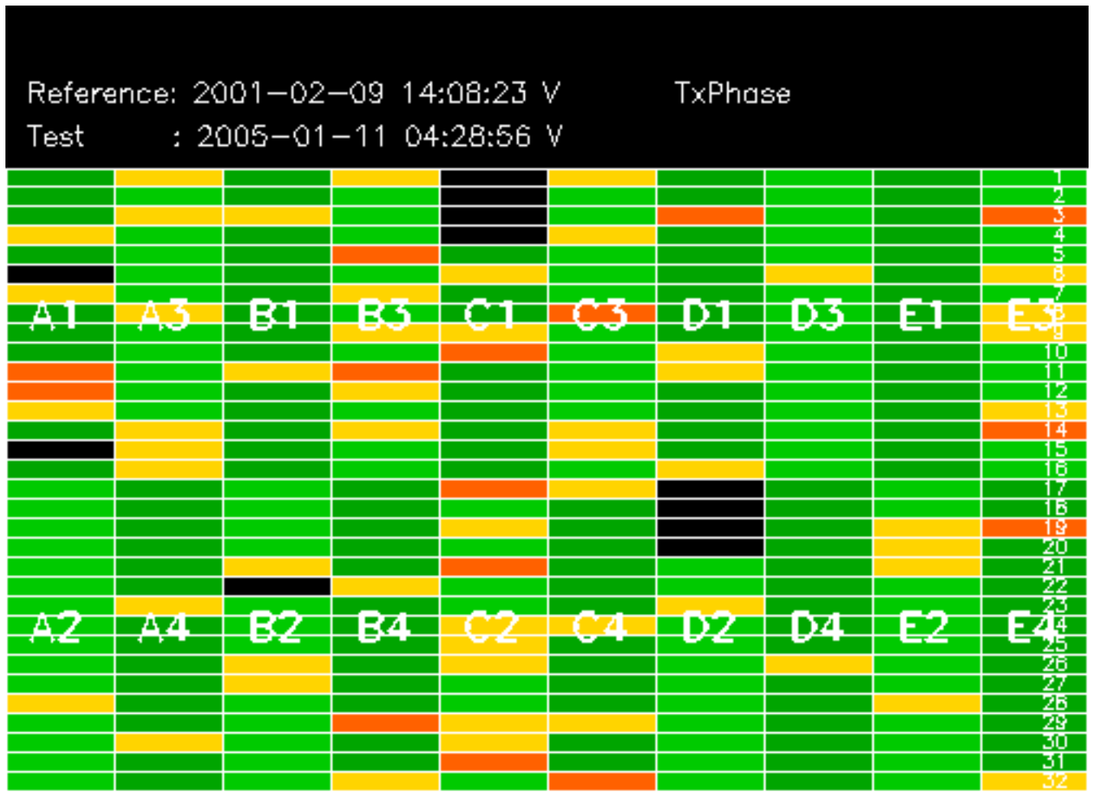

Reference: 2003-06-12 14:08:52 H
Test : 2005-01-10 05:00:33 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Reference: 2001-02-09 14:08:23 V
Test : 2005-01-11 04:28:56 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

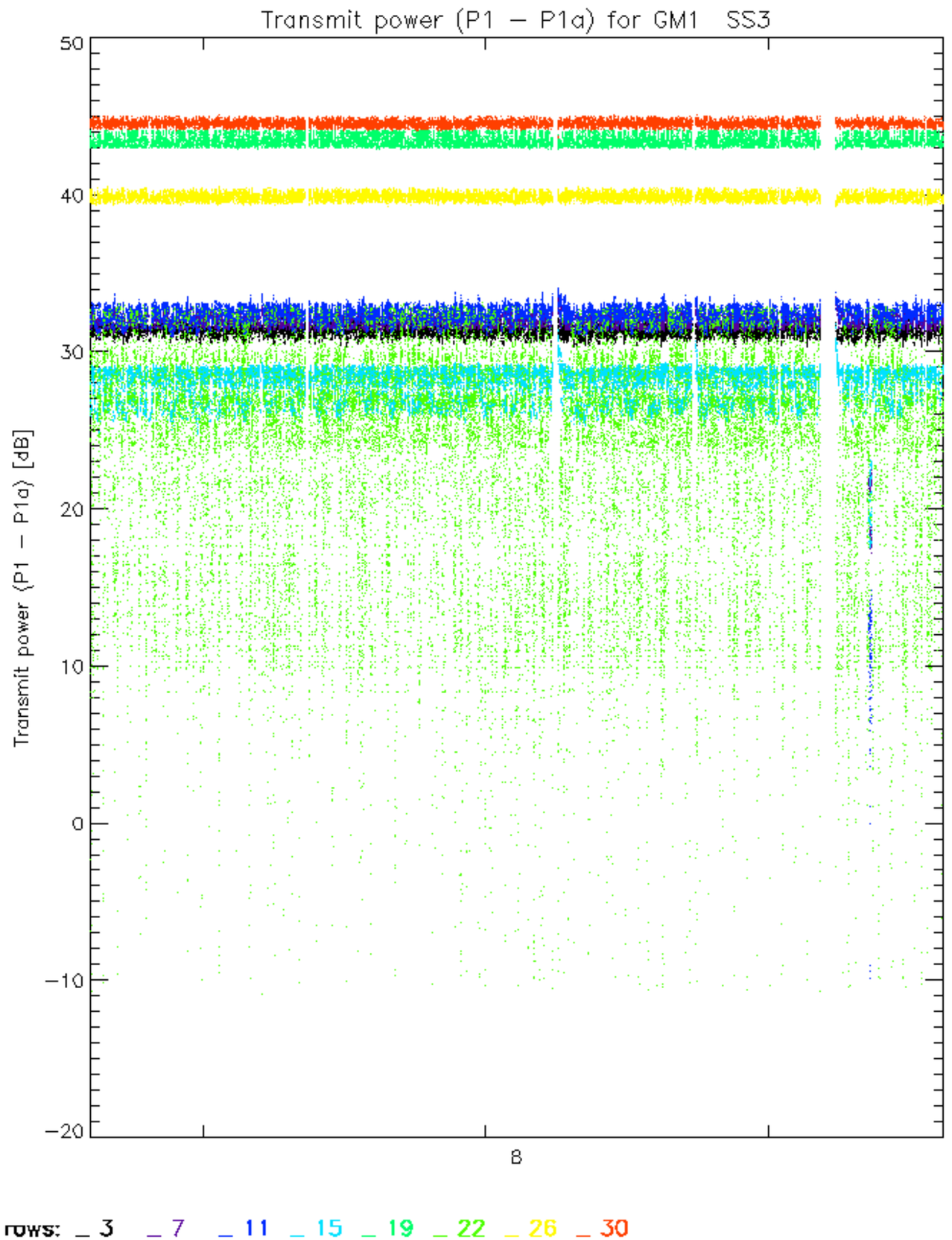
Reference: 2003-06-12 14:10:32 V
Test : 2005-01-11 04:28:56 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

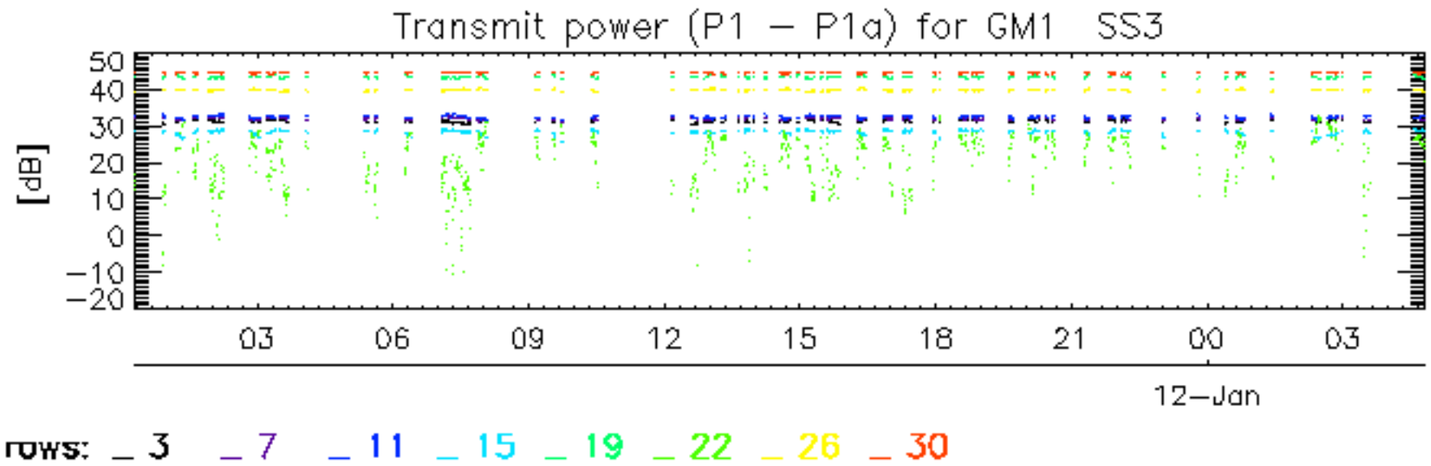

Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2005-01-10 05:00:33 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

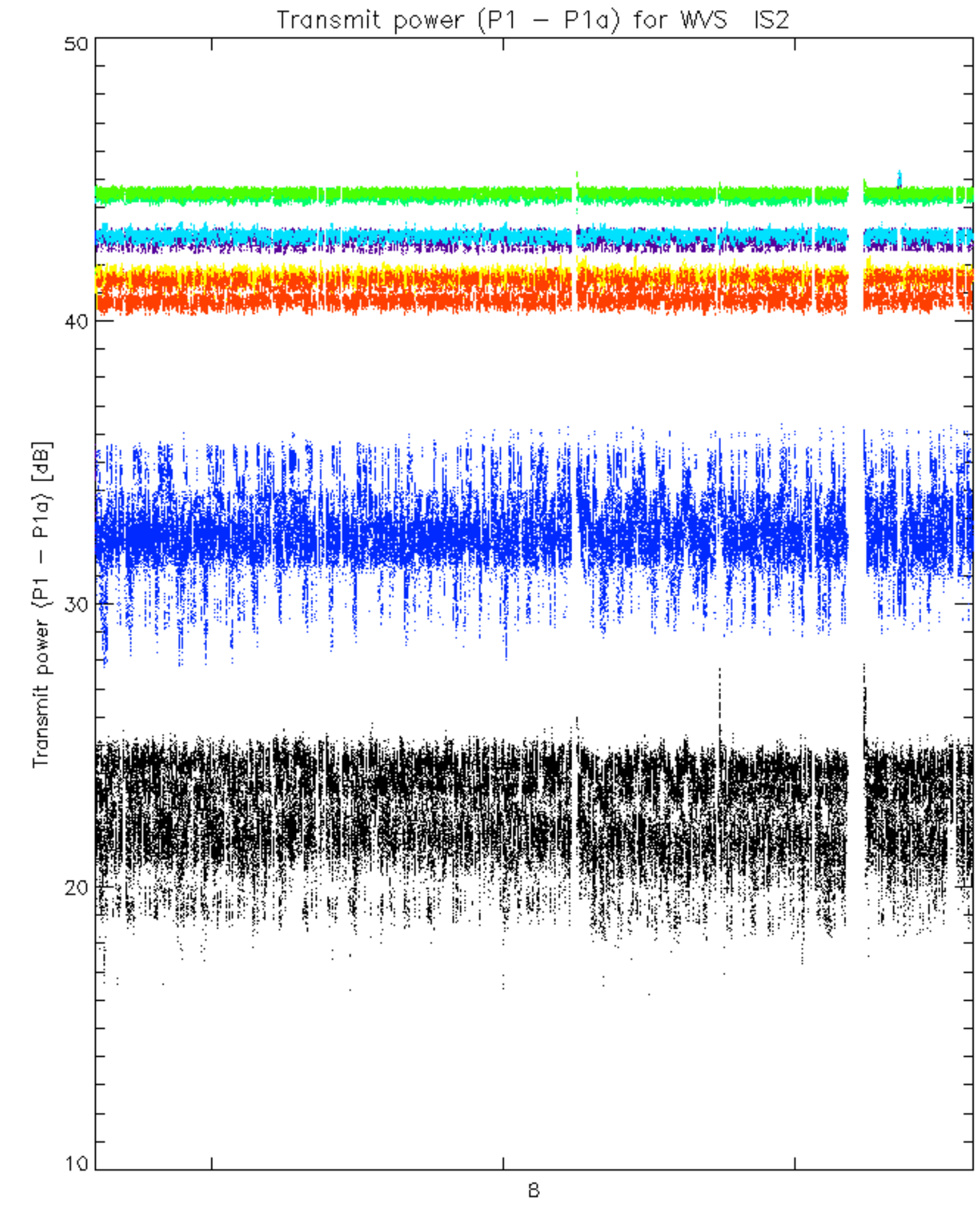

Reference: 2003-06-12 14:08:52 H
Test : 2005-01-10 05:00:33 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

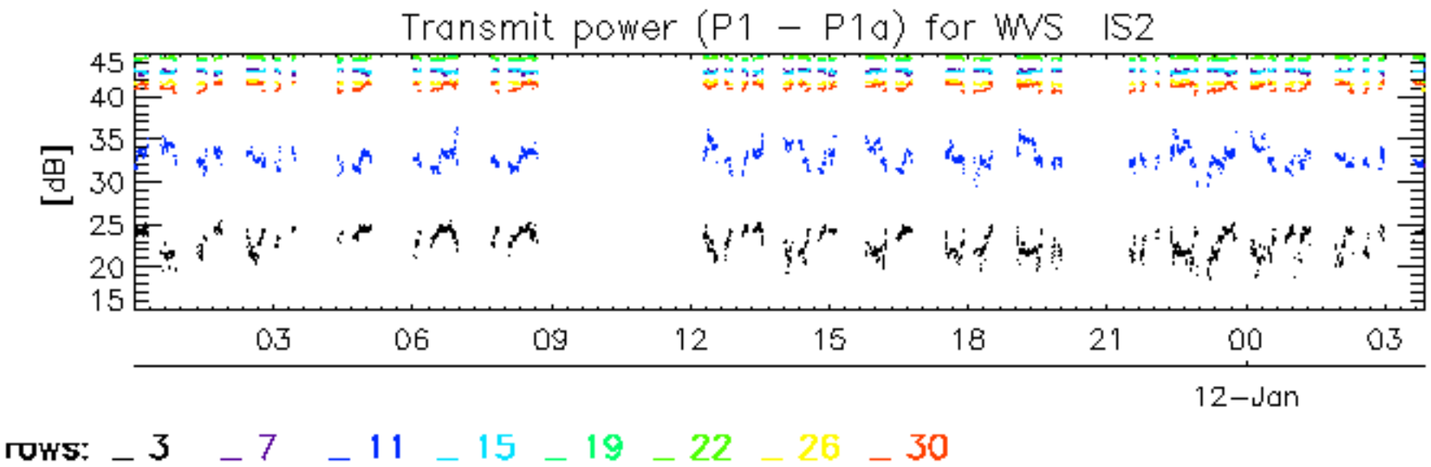

Reference: 2001-02-09 14:08:23 V
Test : 2005-01-11 04:28:56 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Reference: 2003-06-12 14:10:32 V
Test : 2005-01-11 04:28:56 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
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


Transmit power (P1 – P1a) for GM1 SS3
Transmit power (P1 – P1a) [dB]
50
40
30
20
10
0
−10
−20
8
rows: 3 7 11 15 19 22 26 30


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


Transmit power (P1 – P1a) for WVS IS2
50
40
30
20
10
Transmit power (P1 – P1a) [dB]
8
rows: 3 7 11 15 19 22 26 30


Transmit power (P1 – P1a) for WVS IS2
[dB]
45
40
35
30
25
20
15
03
06
09
12
15
18
21
00
03
12–Jan
rows: 3 7 11 15 19 22 26 30

No unavailabilities during the reported period.