REPORT OF 050407

last update on Thu Apr 7 14:12:08 GMT 2005

1 - Introduction

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

ASAR unavailable from 06-APR-2005 02:53:21 to 06-APR-2005 06:10:08 due to Tile D2 PSUs off.

2.2 - Auxiliary files

Summary of the auxiliary files used from 2005-04-06 00:00:00 to 2005-04-07 14:12:08

PDHS-K					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	35	52	4	4	0
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	35	52	4	4	0
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	35	52	4	4	0
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	35	52	4	4	0

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	19	28	0	5	7
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	19	28	0	5	7
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	19	28	0	5	7
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	19	28	0	5	7

2.3 - Browse Visual Inspection

2.2 - Browse Visual Inspection

No anomalies observed from browse visual inspection.

2.4 - Data Analysis

2.3 - 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	20050405 085034
H	20050406 081857

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

Nominal evolution of calibration pulses after ASAR switch on.

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	-3.346135	0.013420	0.017019
7	P1	-3.110292	0.008557	-0.033504
11	P1	-4.680198	0.030173	0.024403
15	P1	-5.634351	0.038635	0.036067
19	P1	-3.692693	0.003881	-0.019254
22	P1	-4.527827	0.011929	-0.037541
26	P1	-4.927860	0.018350	0.044004
30	P1	-7.193871	0.019198	-0.004619
3	P1	-15.859473	0.329681	0.137680
7	P1	-15.534762	0.073502	-0.023909
11	P1	-21.029770	0.456742	-0.199585
15	P1	-11.561591	0.051191	0.054315
19	P1	-14.309582	0.025379	-0.010604
22	P1	-15.684605	0.309925	-0.178507
26	P1	-17.625372	0.192095	-0.071045
30	P1	-17.951103	0.427813	0.046441

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-22.059929	0.081413	0.062455
7	P2	-22.241114	0.095059	0.098418
11	P2	-14.308850	0.109923	0.231790
15	P2	-7.044425	0.090241	-0.013070
19	P2	-9.633812	0.093250	-0.006172
22	P2	-16.894426	0.094232	0.055677

26	P2	-16.441628	0.092670	-0.000360
30	P2	-18.836355	0.084293	0.047942

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.163819	0.004793	0.002793
7	P3	-8.163819	0.004793	0.002793
11	P3	-8.163819	0.004793	0.002793
15	P3	-8.163819	0.004793	0.002793
19	P3	-8.163819	0.004793	0.002793
22	P3	-8.163819	0.004793	0.002793
26	P3	-8.163819	0.004793	0.002793
30	P3	-8.163819	0.004793	0.002793

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	-2.711258	0.026445	-0.002537
7	P1	-3.021934	0.047936	0.023836
11	P1	-3.986008	0.026577	-0.002827
15	P1	-3.554252	0.034418	0.002567
19	P1	-3.604319	0.013665	-0.014473
22	P1	-5.735456	0.036310	0.019759
26	P1	-7.292131	0.024958	-0.002614
30	P1	-6.239965	0.054295	-0.062472
3	P1	-10.709197	0.169852	0.002184
7	P1	-10.343992	0.179052	0.019296

11	P1	-12.531935	0.135668	-0.009090
15	P1	-11.729389	0.104189	0.012910
19	P1	-15.572958	0.047534	-0.008166
22	P1	-24.623455	1.252501	-0.210234
26	P1	-15.494642	0.197502	-0.025070
30	P1	-20.206184	1.220165	0.149792

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.757393	0.039309	0.072271
7	P2	-22.324036	0.042780	0.072954
11	P2	-10.105628	0.056416	0.115666
15	P2	-4.988418	0.028369	-0.032196
19	P2	-6.829987	0.042510	-0.023378
22	P2	-7.073049	0.037531	0.031951
26	P2	-23.846113	0.033285	-0.017574
30	P2	-21.883577	0.040025	0.001995

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-7.996156	0.003327	-0.003091
7	P3	-7.996204	0.003327	-0.003479
11	P3	-7.996154	0.003330	-0.003478
15	P3	-7.996175	0.003331	-0.003261
19	P3	-7.996190	0.003339	-0.003319
22	P3	-7.996282	0.003324	-0.003404
26	P3	-7.996251	0.003329	-0.003699
30	P3	-7.996140	0.003330	-0.003605

4.3 - cal pulses monitoring (all rows)

4.3.1 - Evolution for WVS

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4.3.2 - Evolution for GM1

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5 - RAW data statistics

No anomalies observed.

5.1 - Input mean I/Q

channel	stat	DSS-B
MEAN I	mean	0.000461383
	stdev	2.24235e-07
MEAN Q	mean	0.000476770
	stdev	2.34446e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.128678
	stdev	0.00105434
STDEV Q	mean	0.128935
	stdev	0.00106614

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2005040[567]
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_1PNPDK20050405_125652_000001402036_00110_16196_1901.N1	1	0
ASA_WSM_1PNPDE20050405_164339_000000362036_00112_16198_5132.N1	0	1

7 - Doppler Analysis

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

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

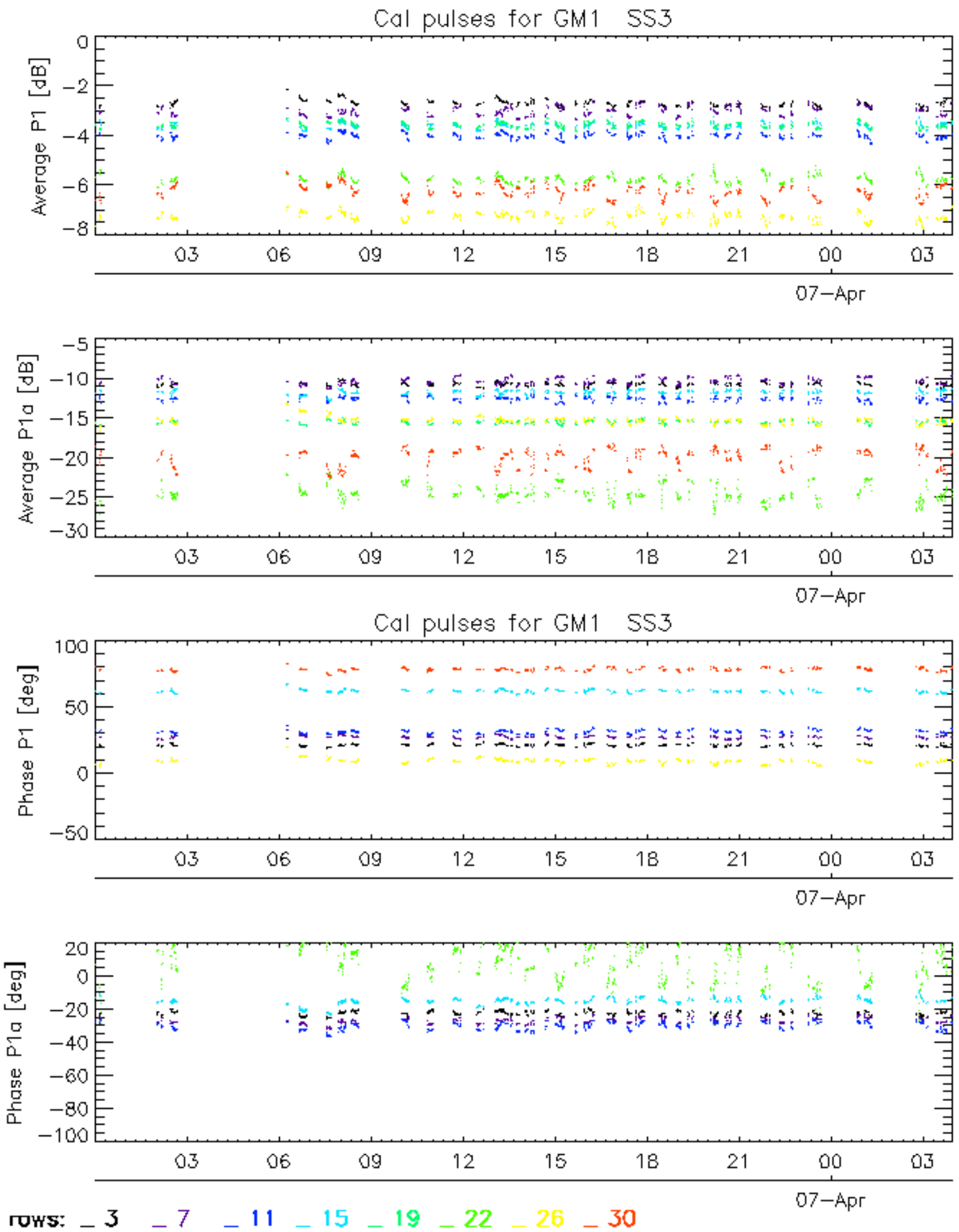
Evolution of Absolute Doppler

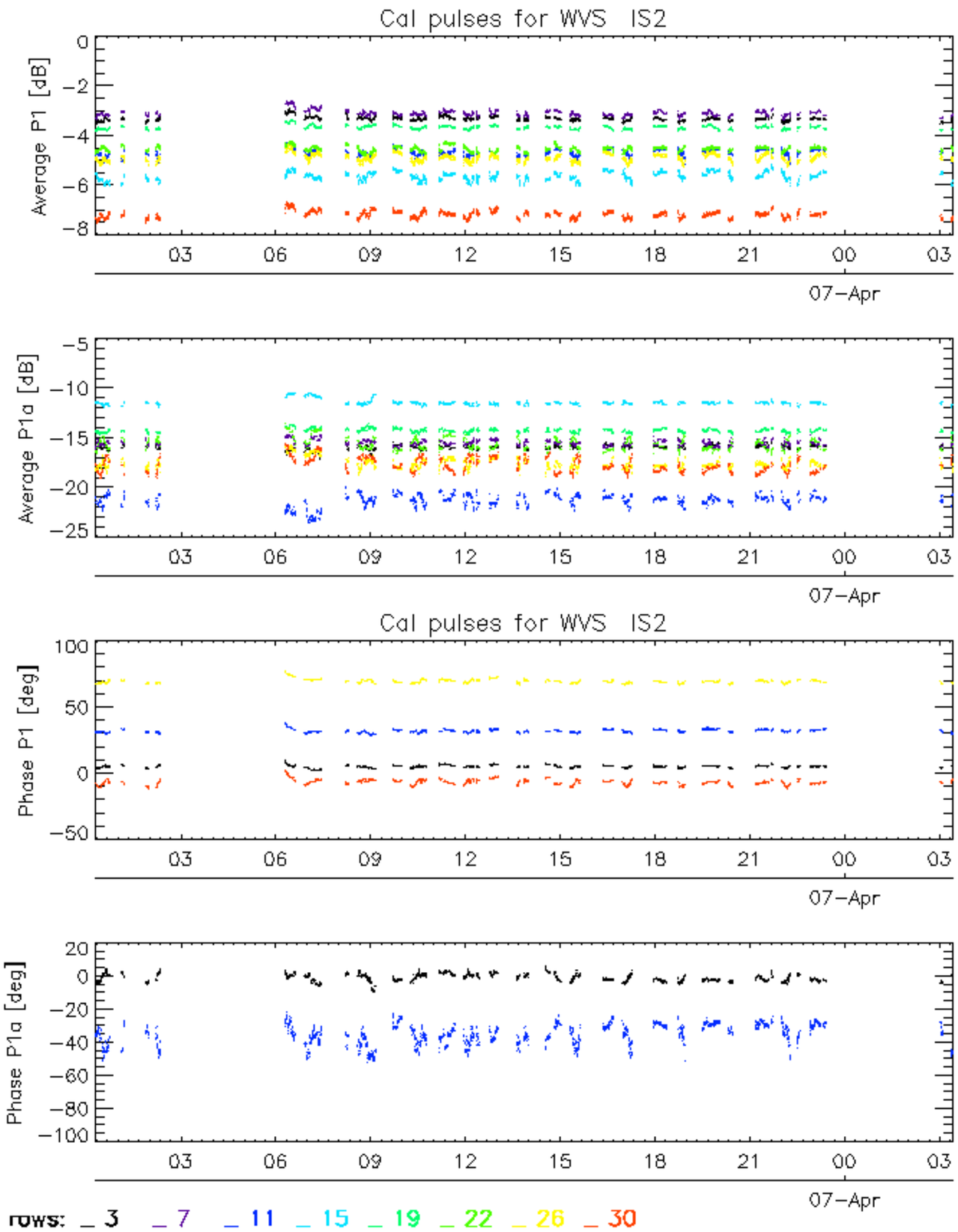
Acsending

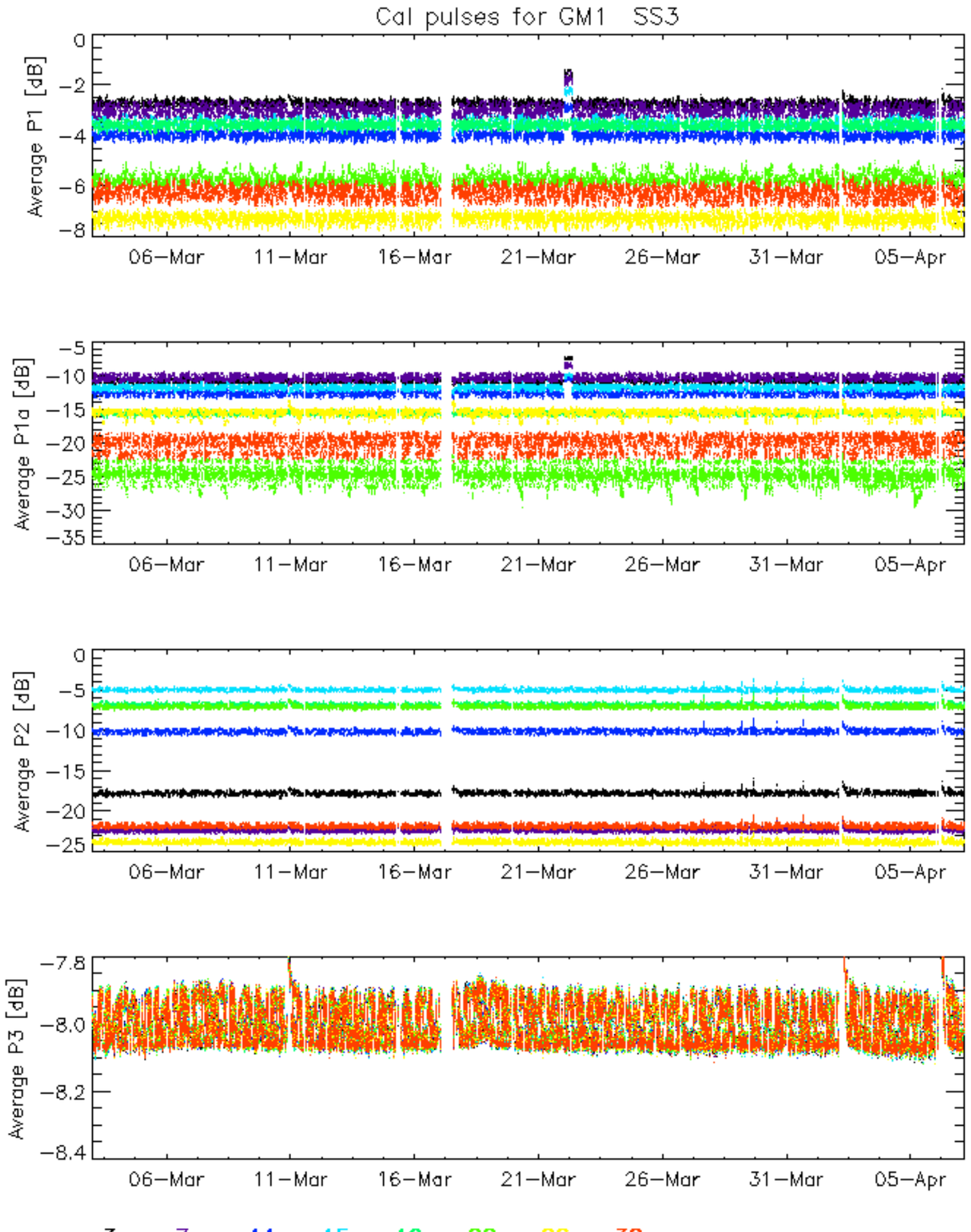
Descending

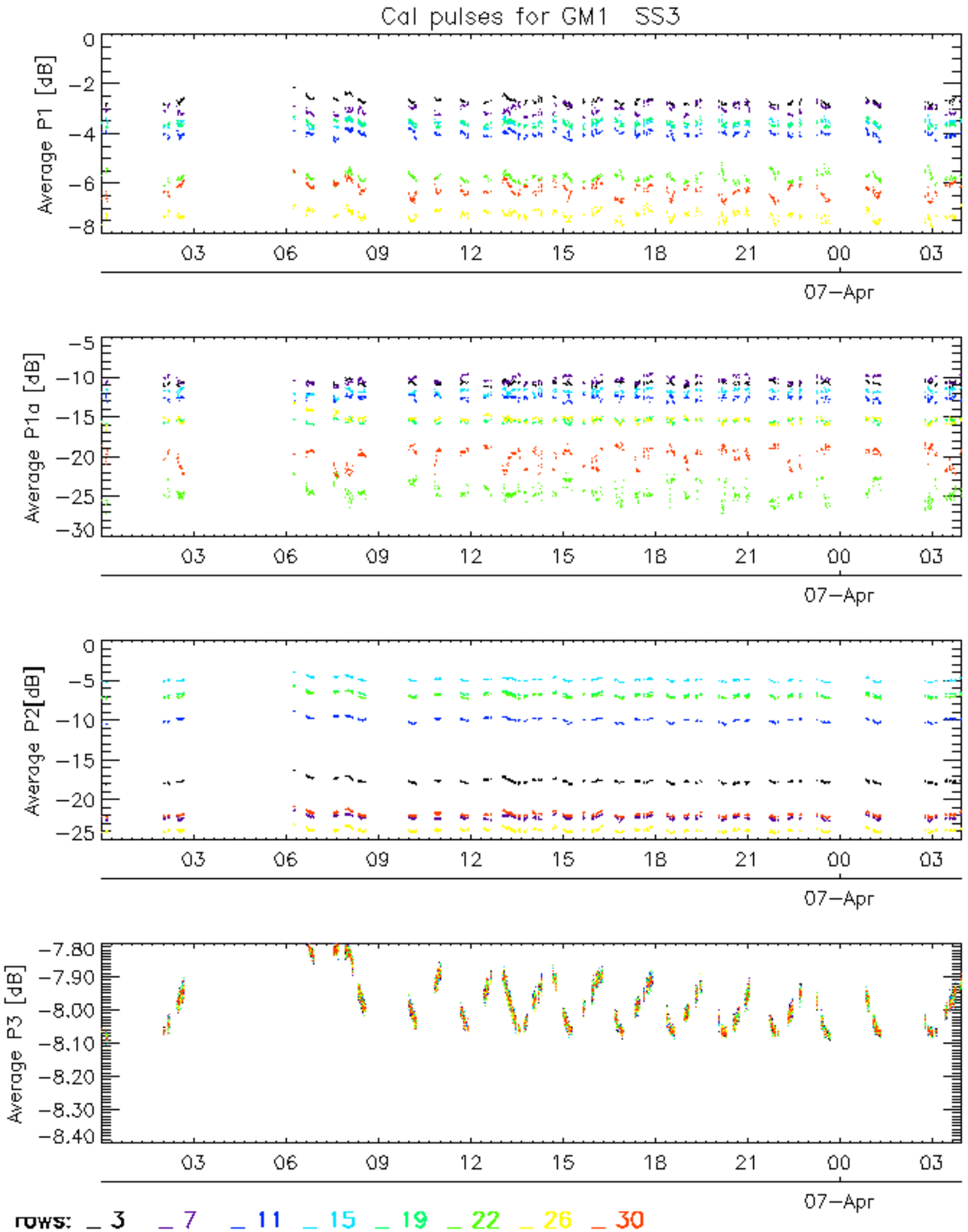
6.6 - Doppler evolution versus ANX for GM1

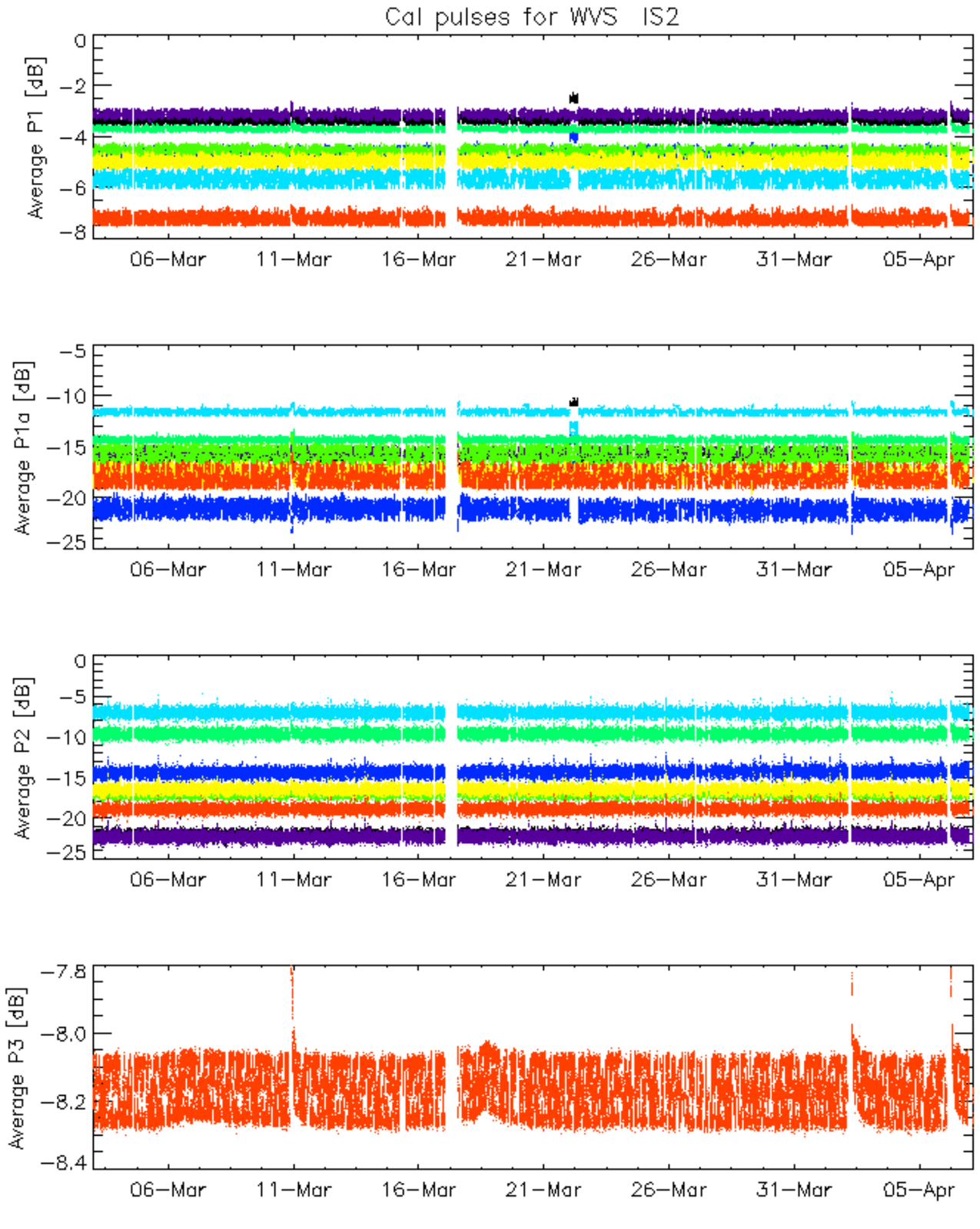
Evolution Doppler error versus ANX

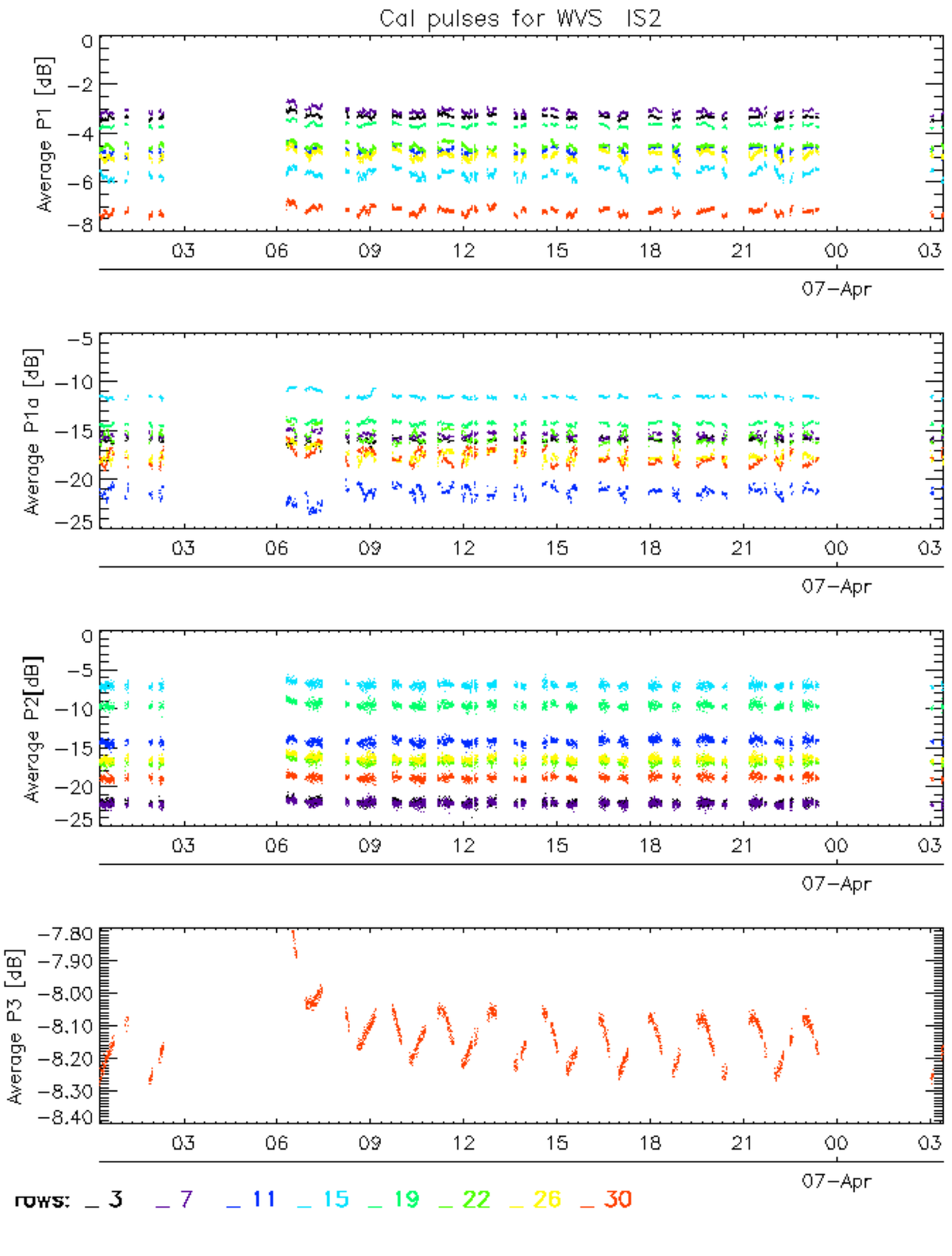


Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
07−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Cal pulses for GM1 SS3
Phase P1 [deg]
100
50
0
−50
Phase P1a [deg]
20
0
−20
−40
−60
−80
−100
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
07−Apr
Average P1a [dB]
−5
−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
Average P1a [dB]
−5
−10
−15
−20
−25
−30
−35
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

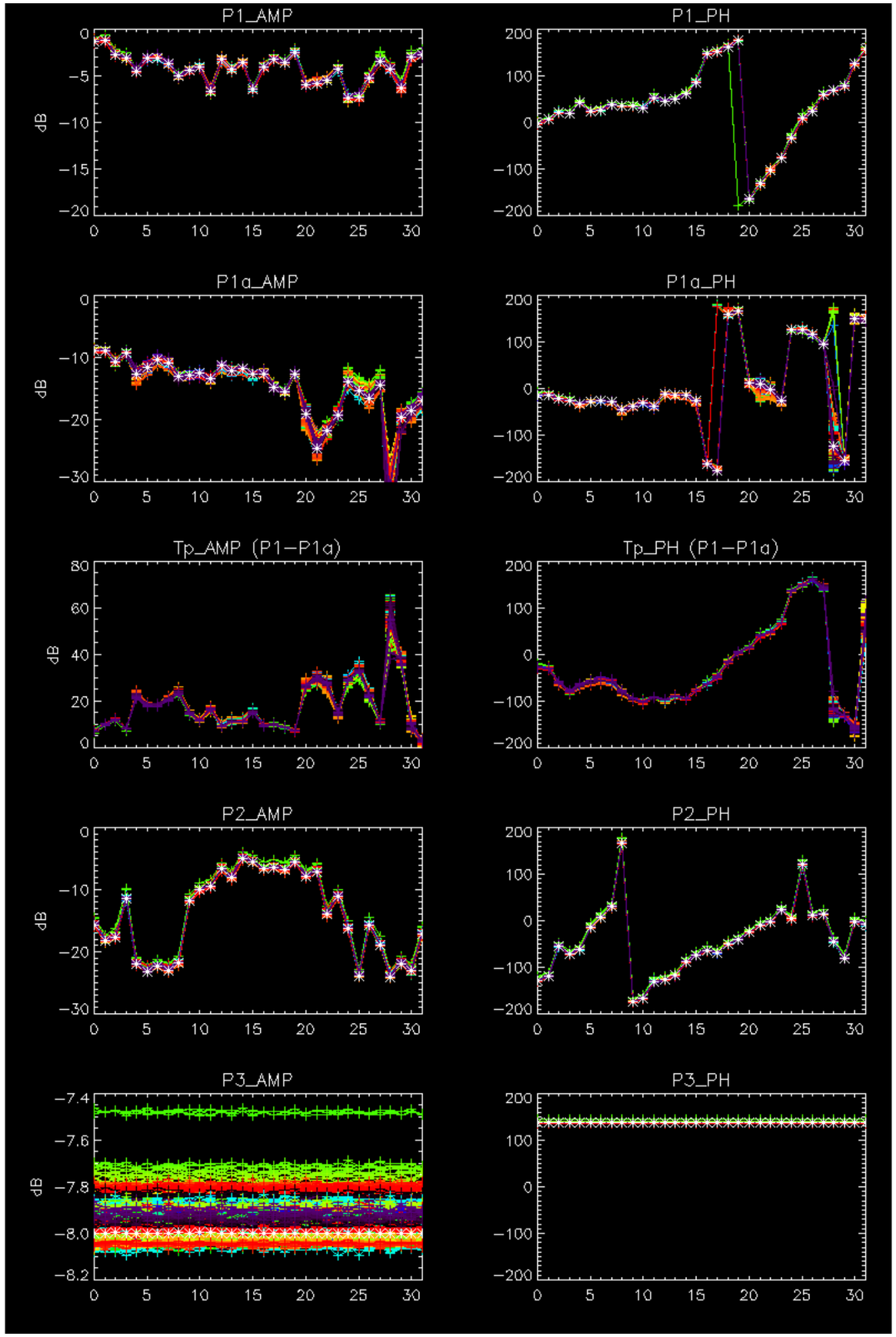

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
07−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

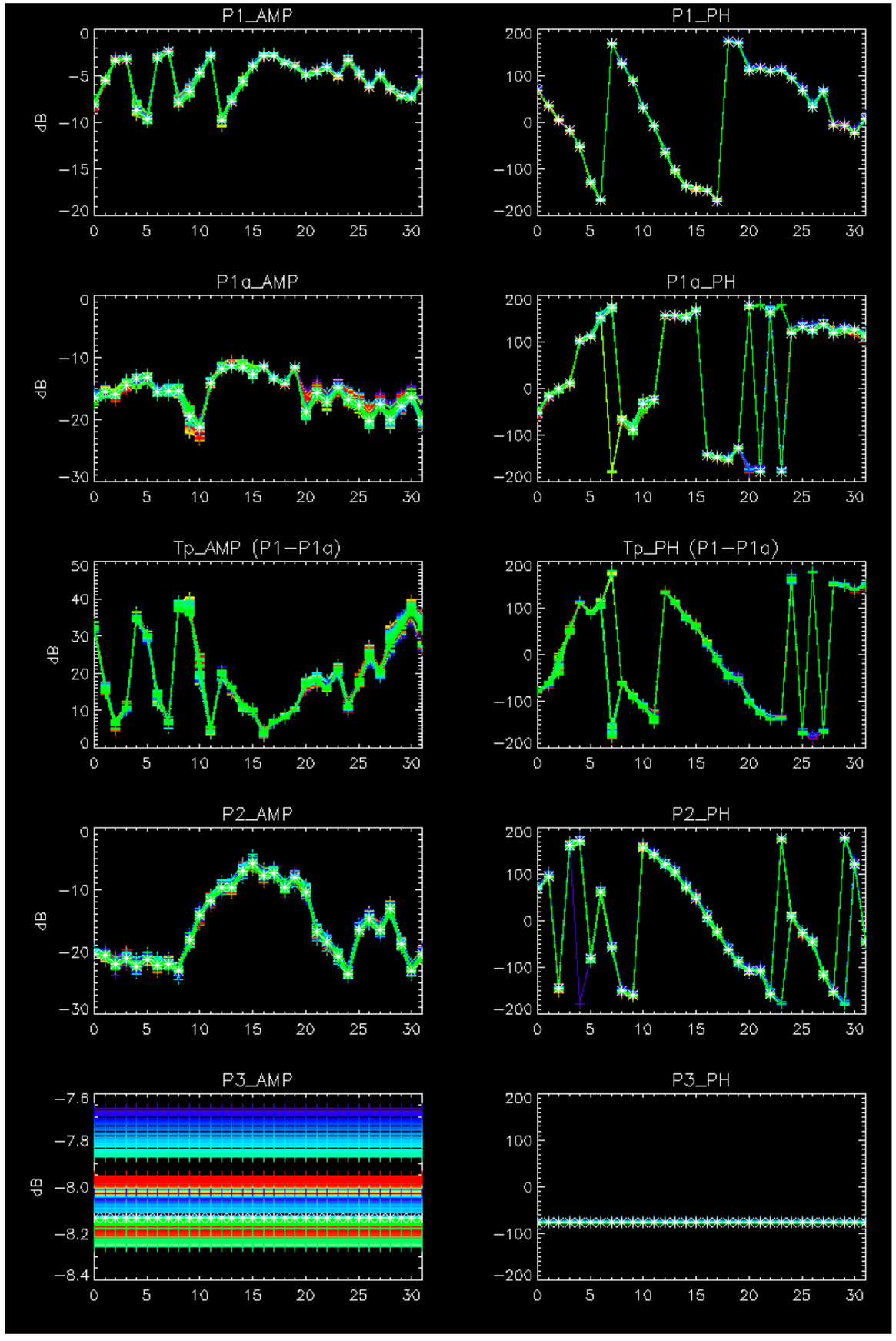

Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
−5
−10
−15
−20
−25
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
07−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
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

No anomalies observed from browse visual inspection.

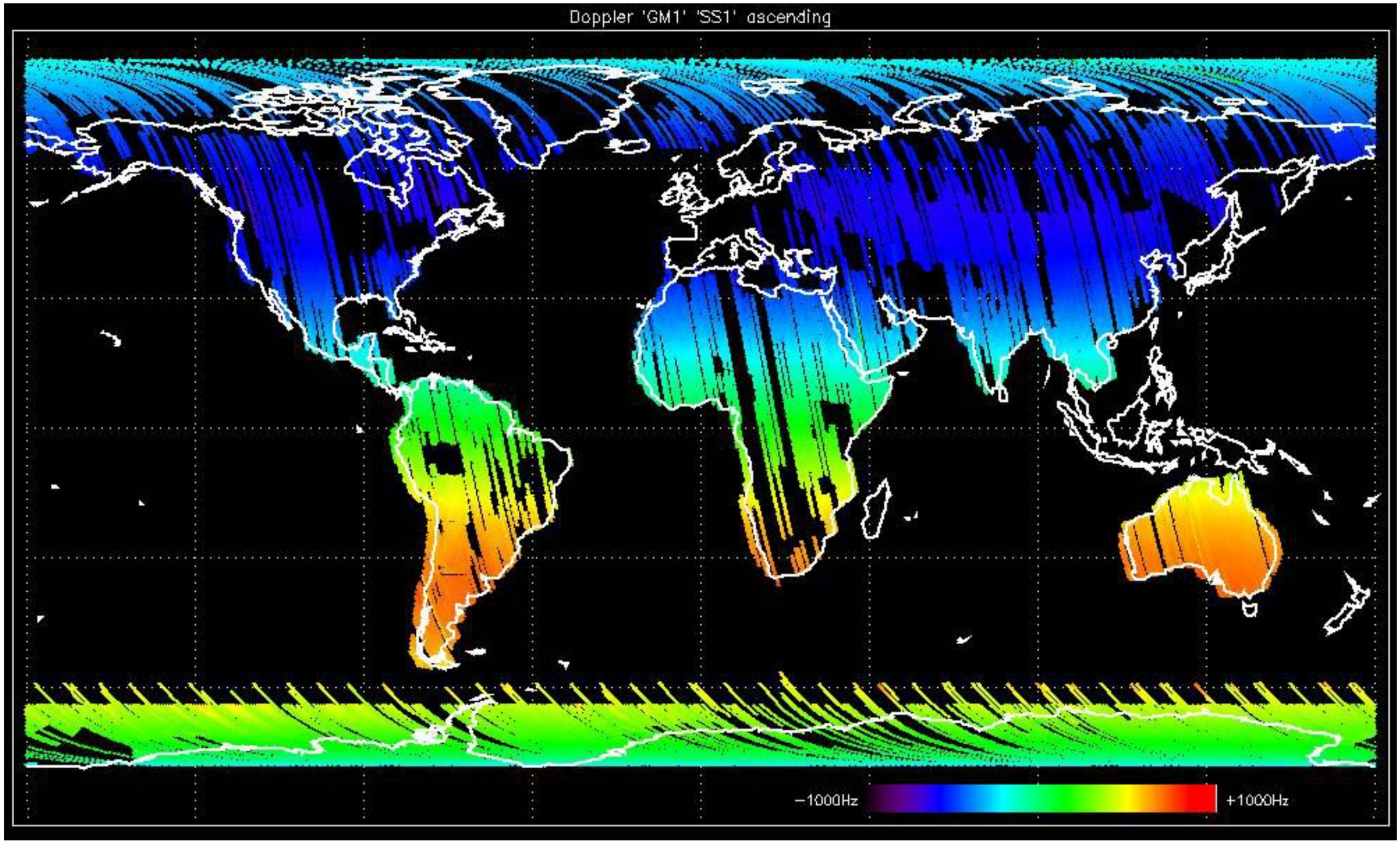
Nominal evolution of calibration pulses after ASAR switch on.

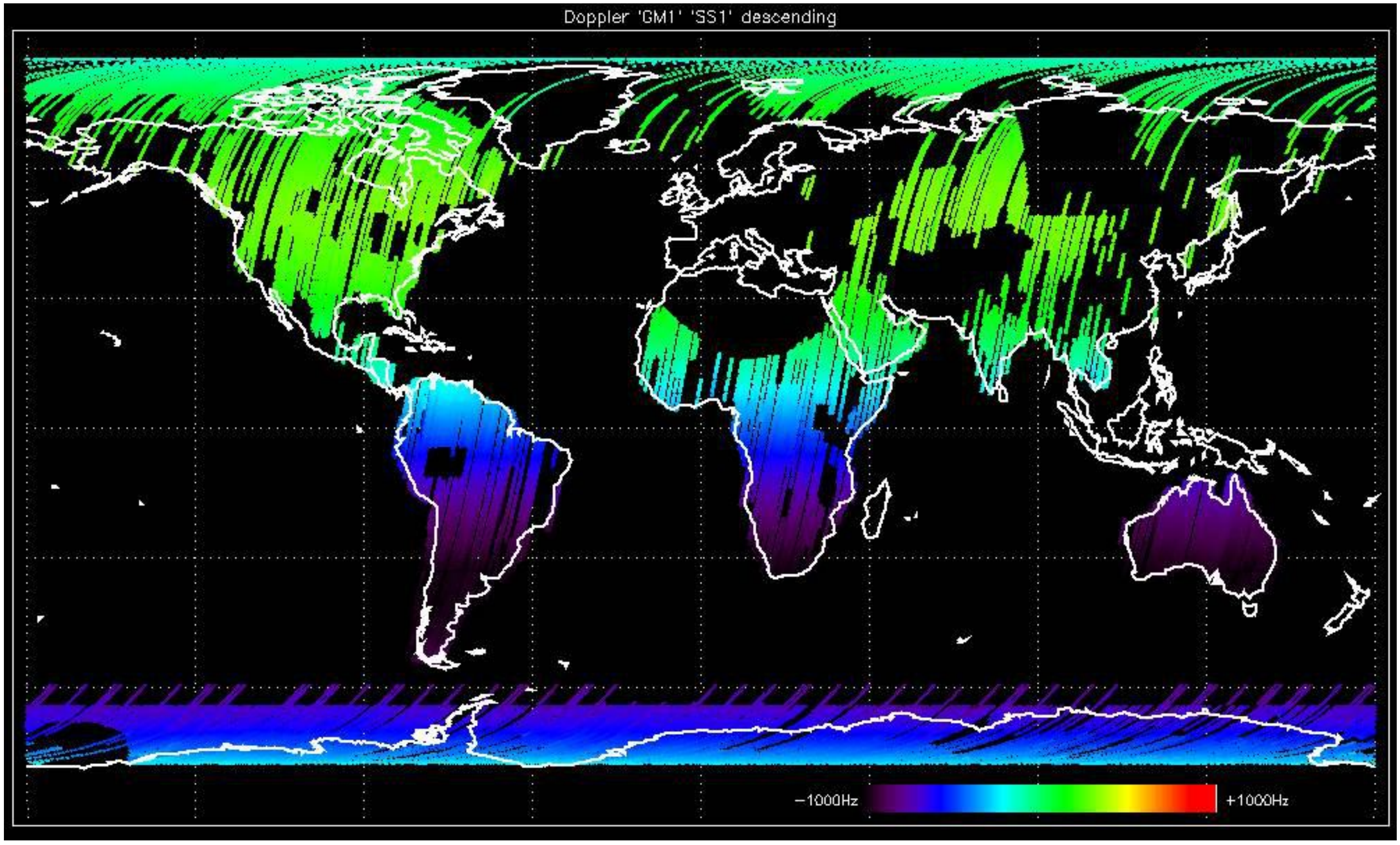

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

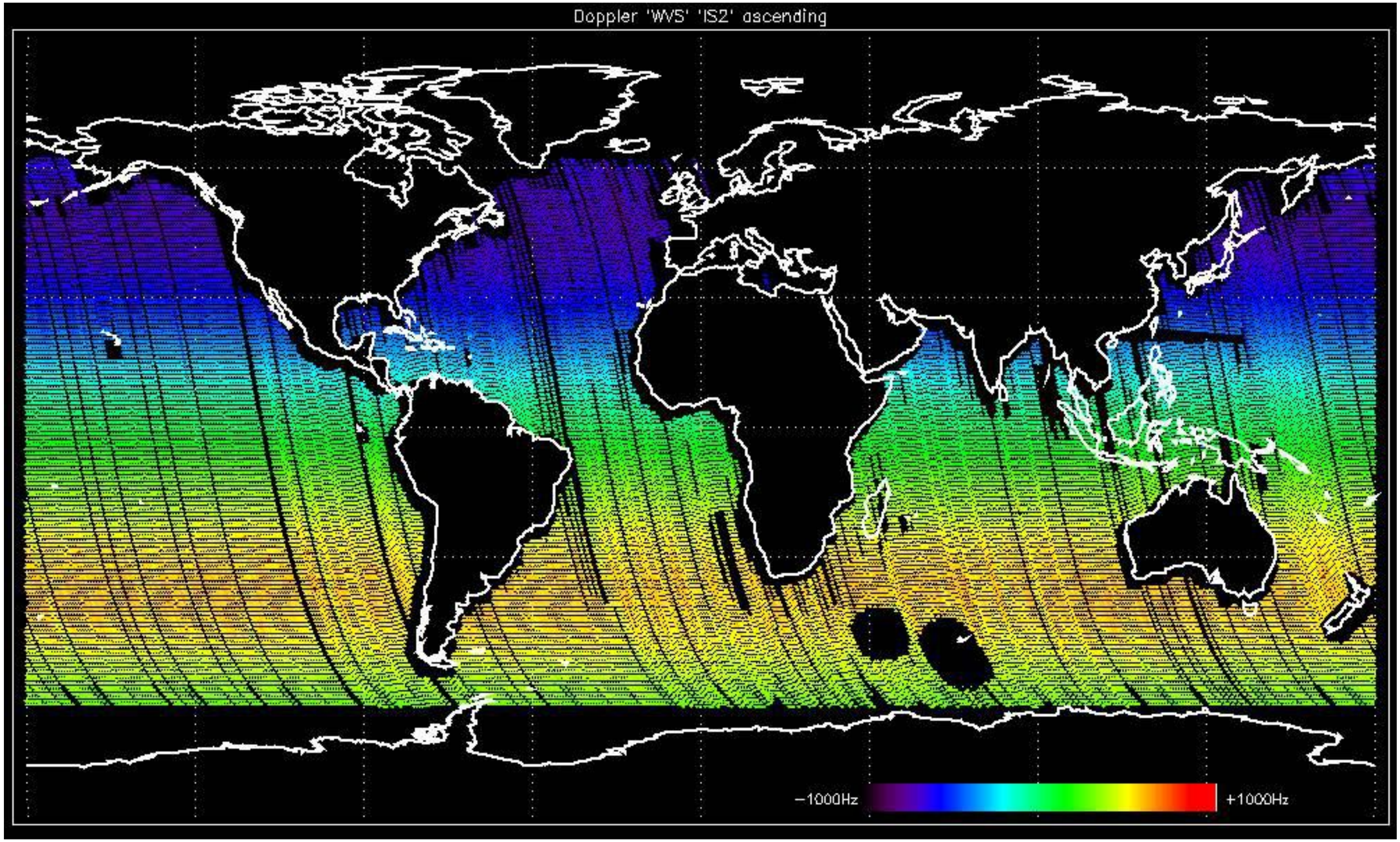

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

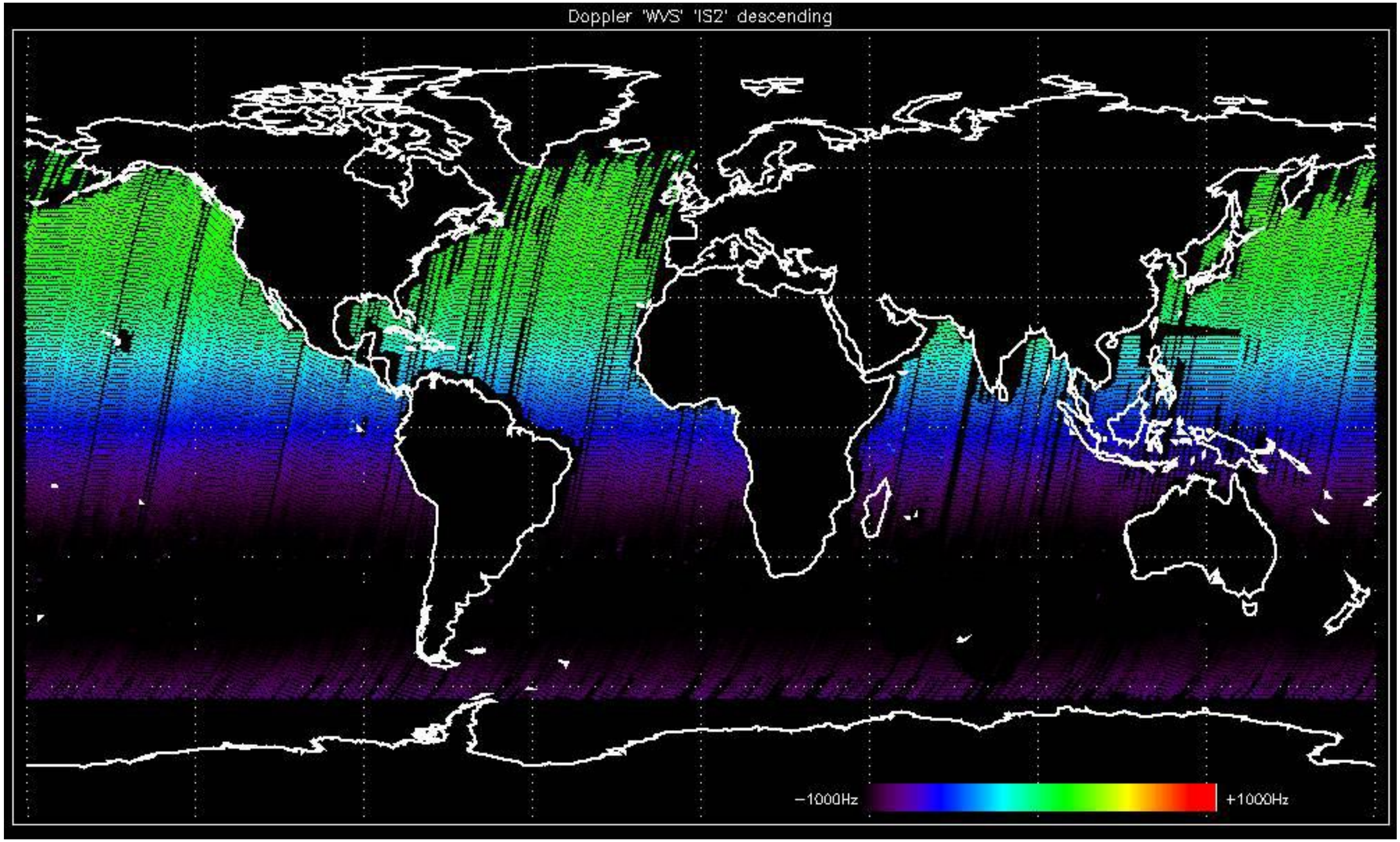
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

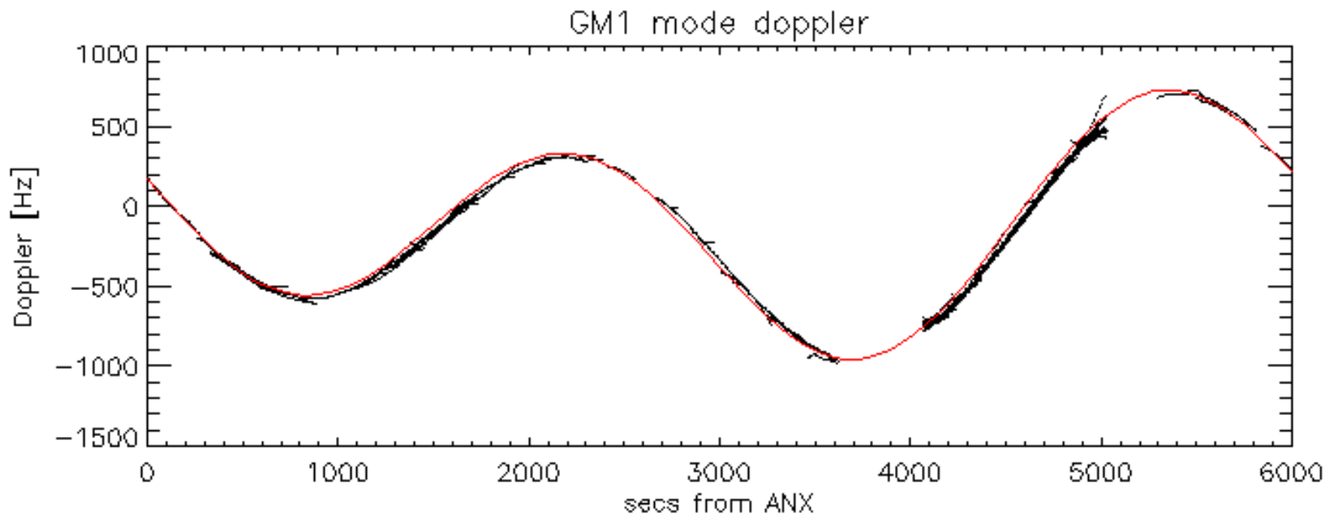
No anomalies observed in DOppler evolution.
Doppler analysis performed over the last 35 days.

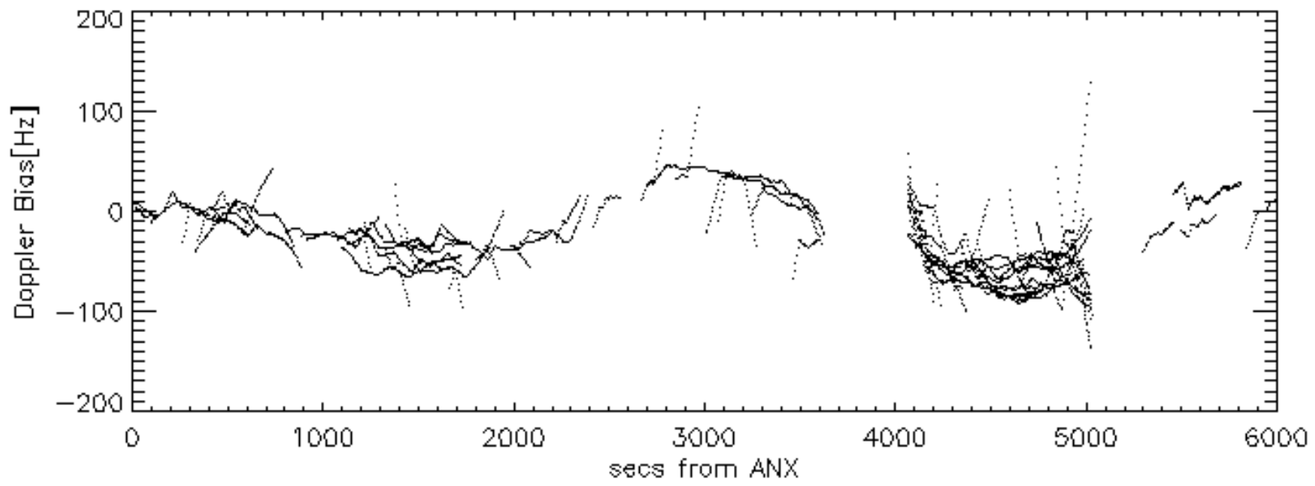

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

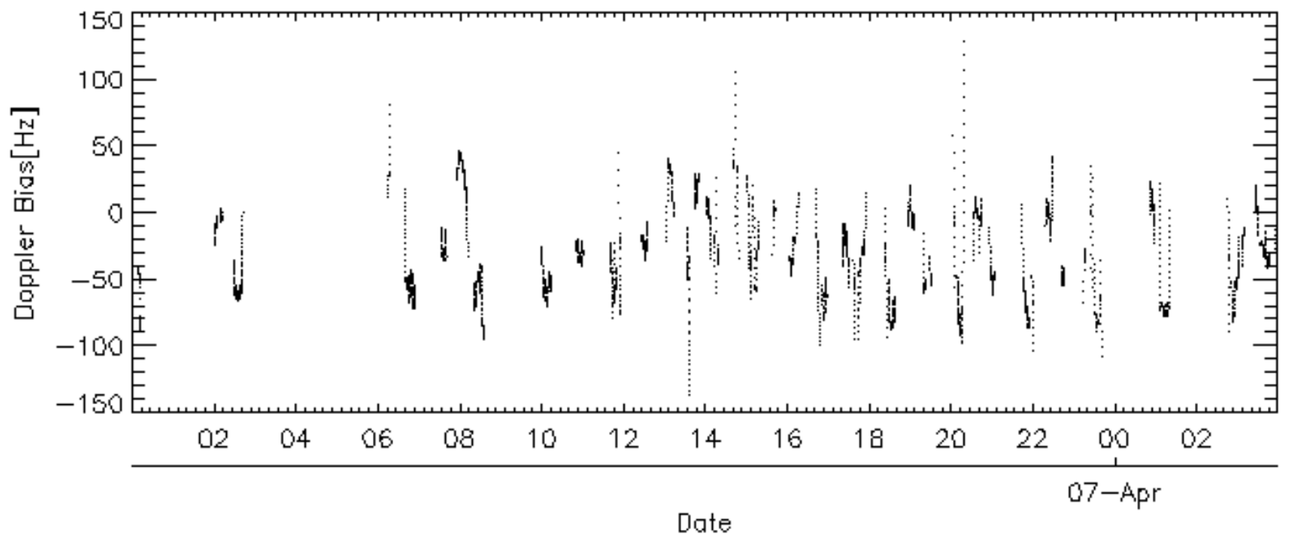

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

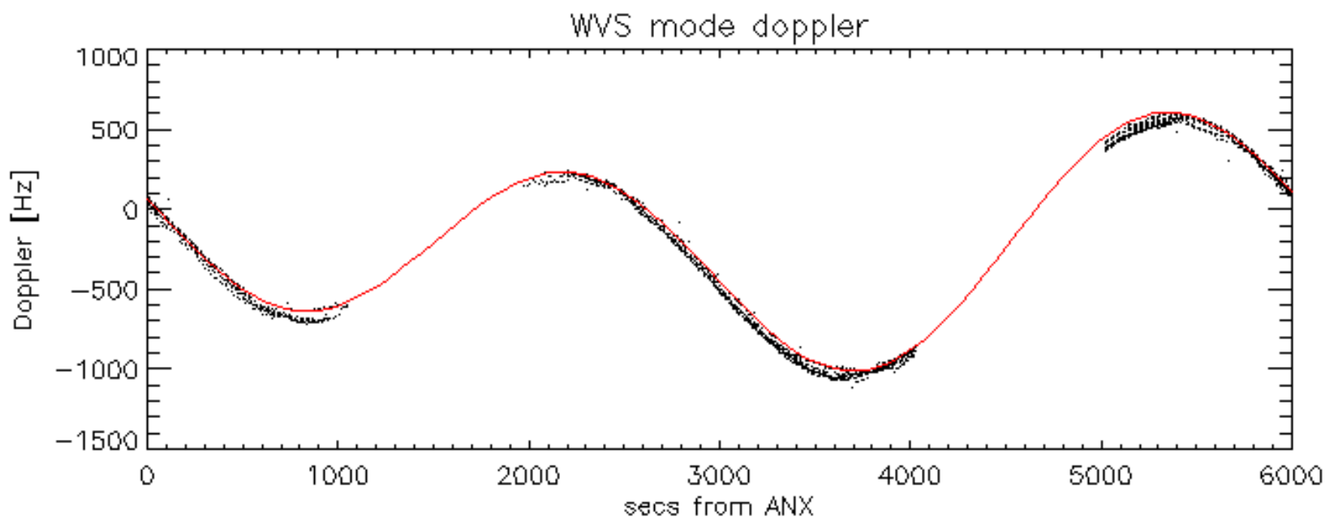

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

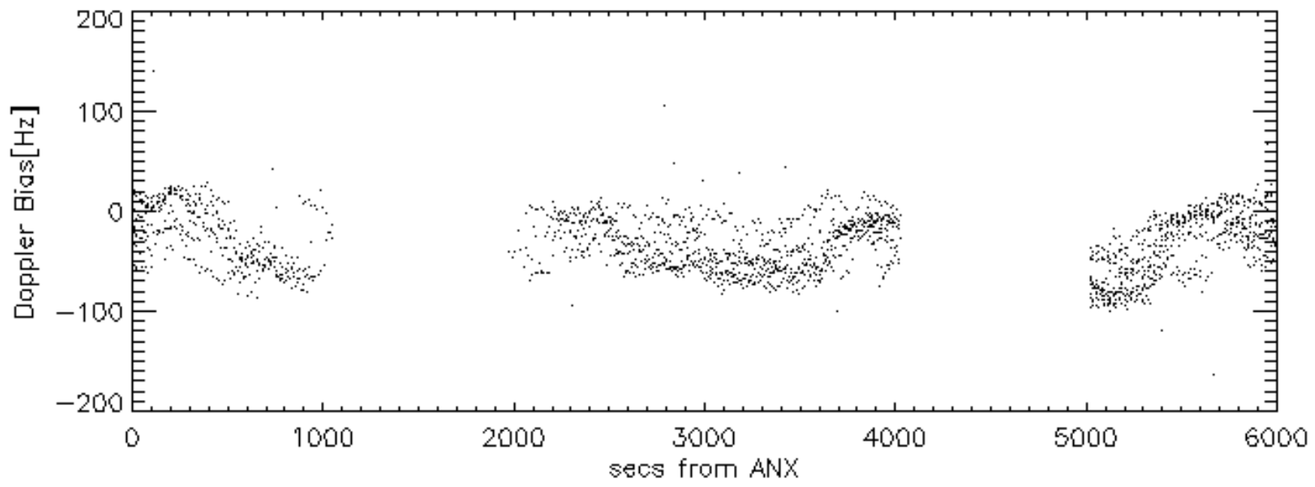

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

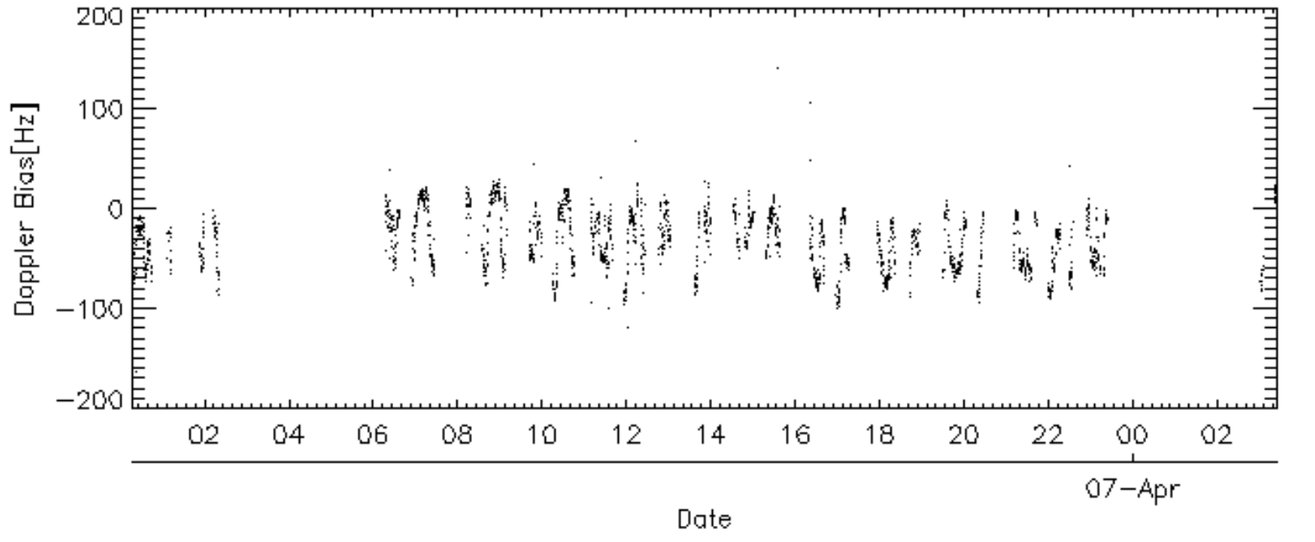

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

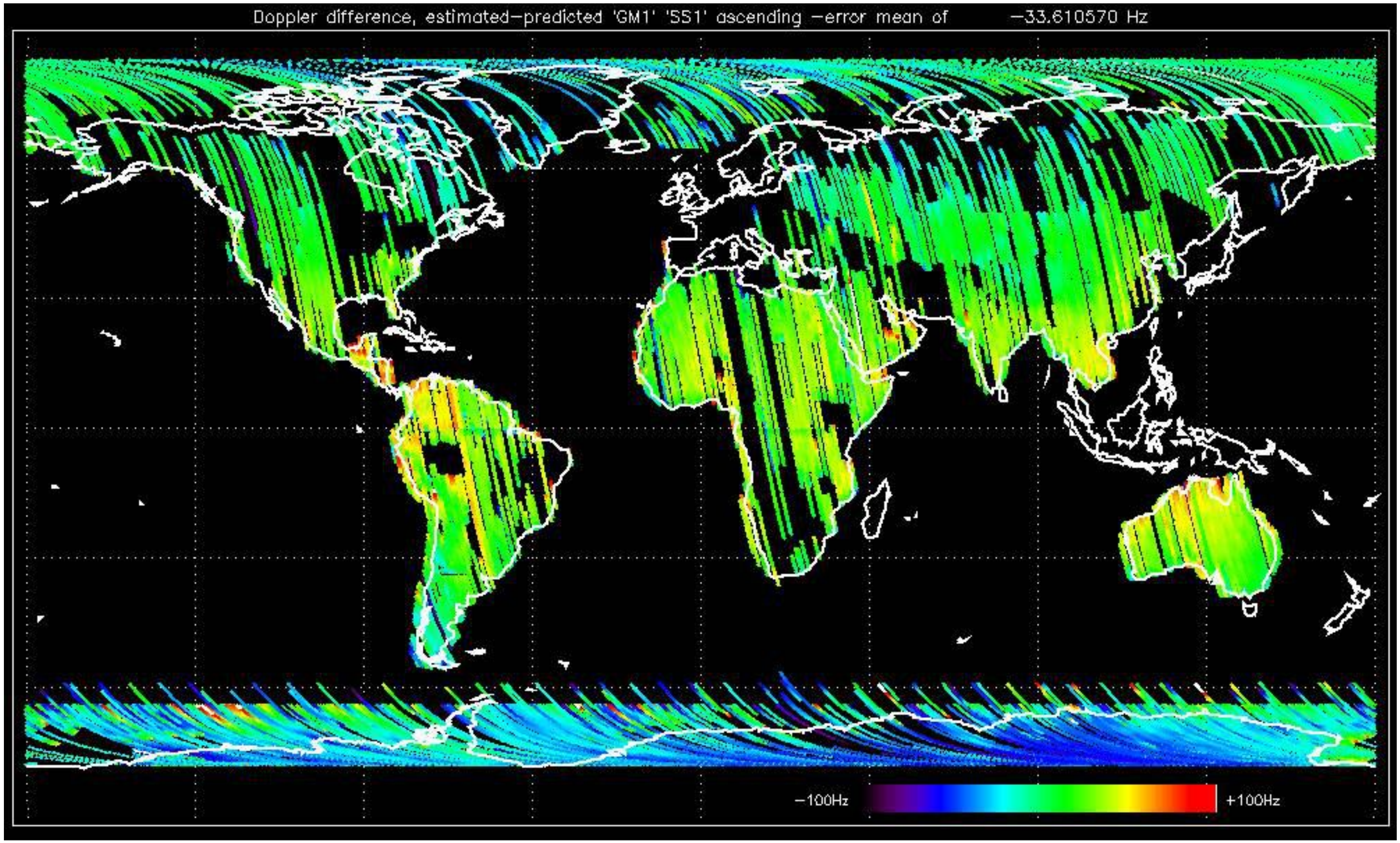

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

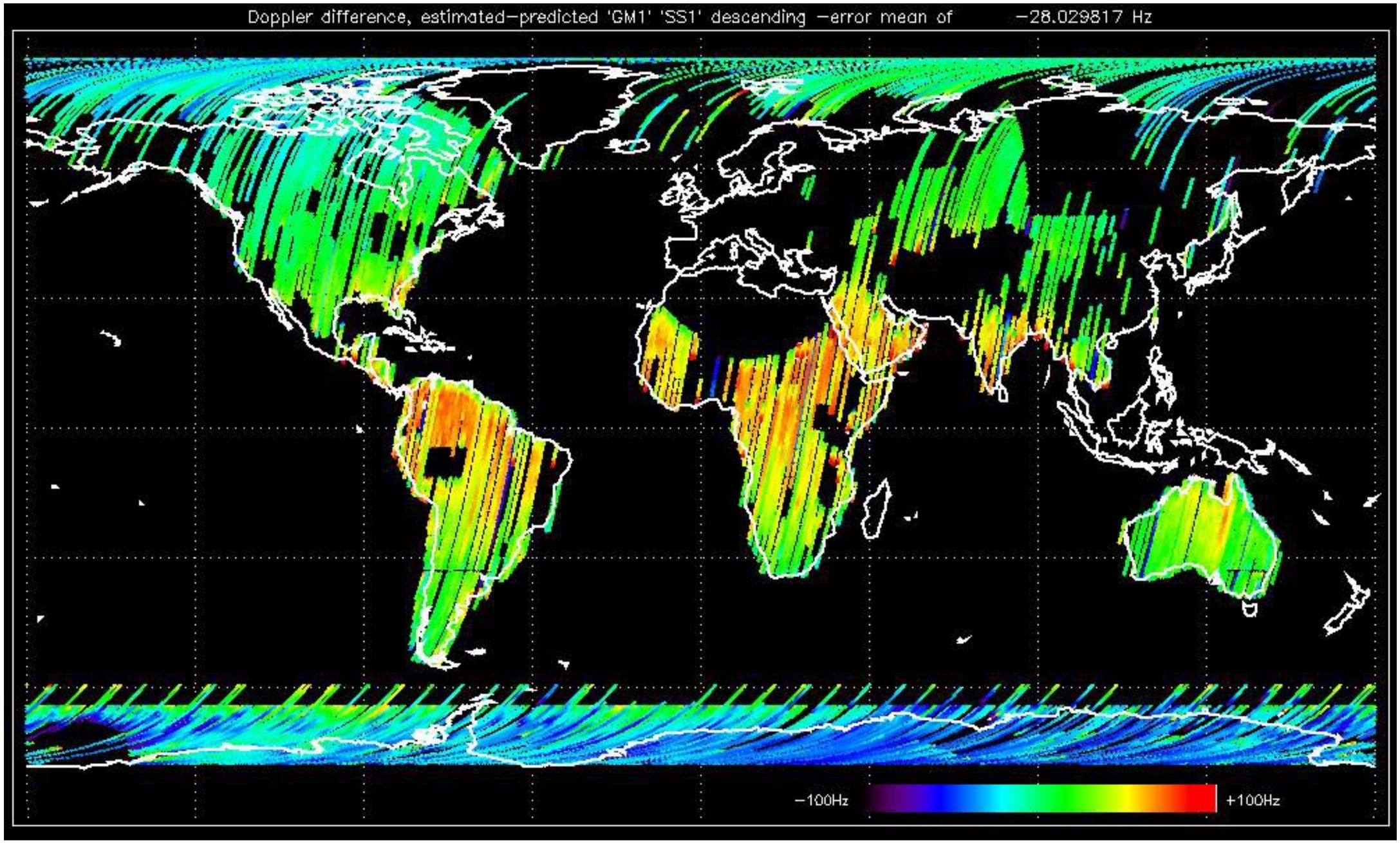

Doppler Bias[Hz]
150
100
50
0
−50
−100
−150
02
04
06
08
10
12
14
16
18
20
22
00
02
07−Apr
Date

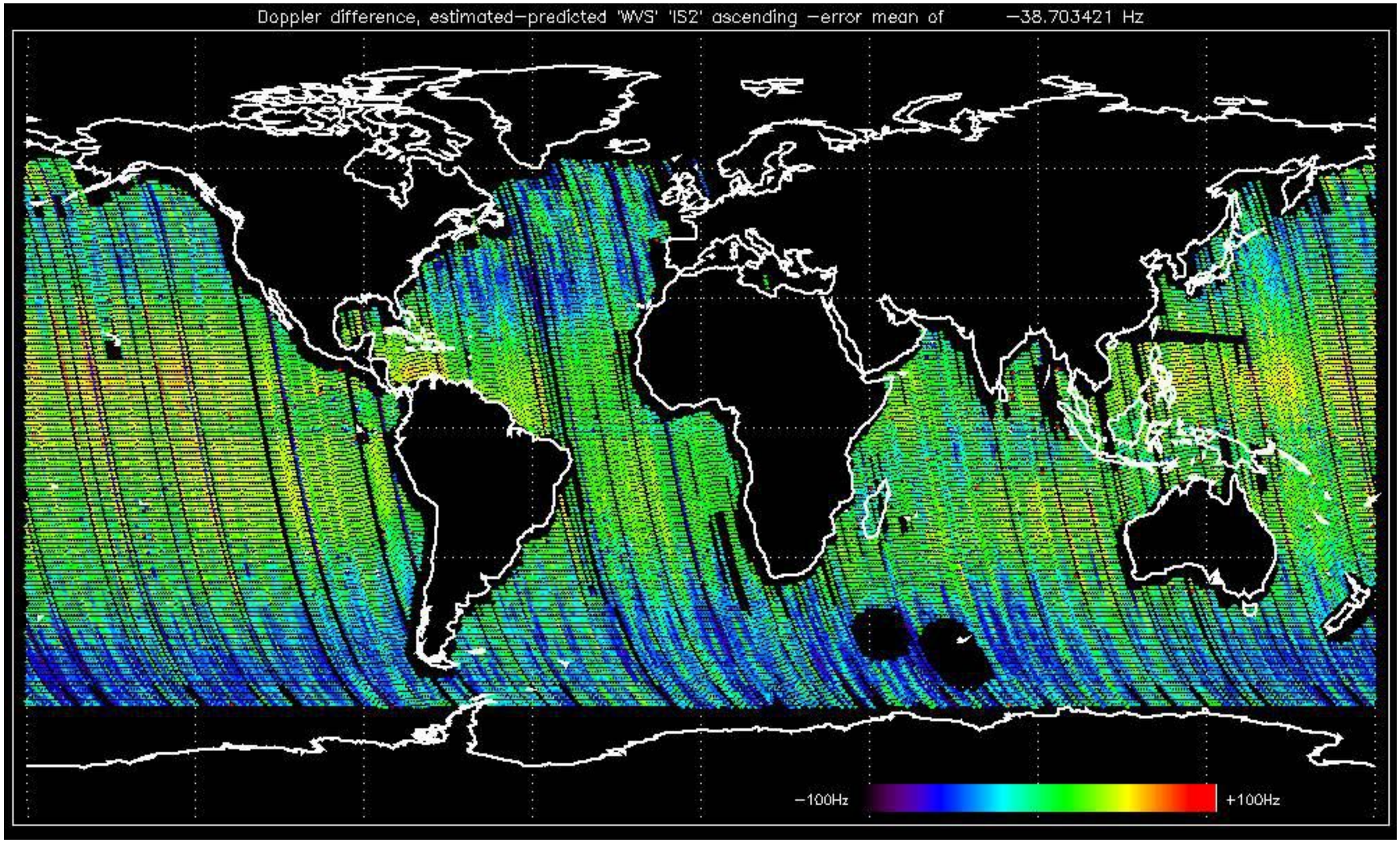

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

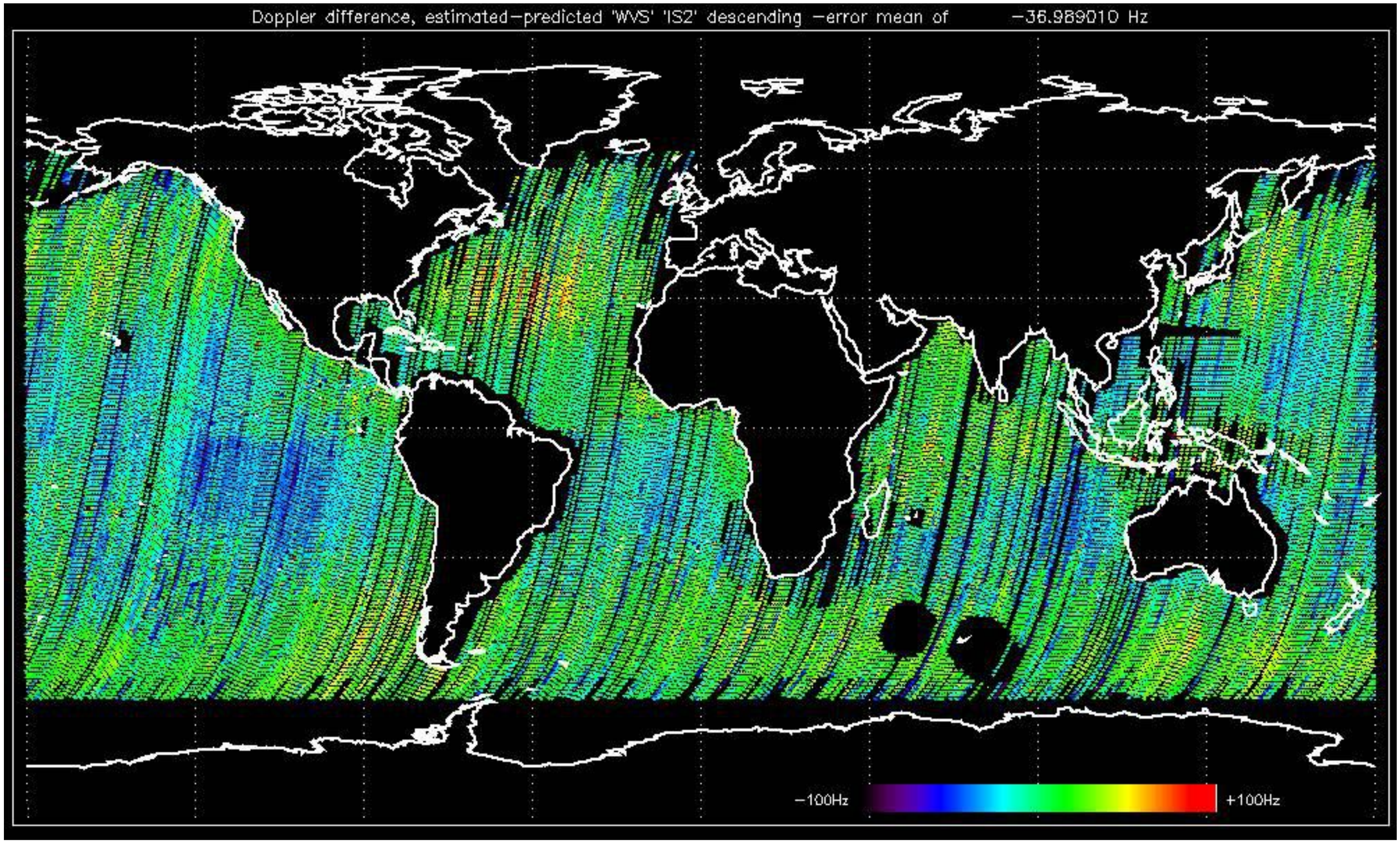

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


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


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −33.610570 Hz
−100Hz
+100Hz

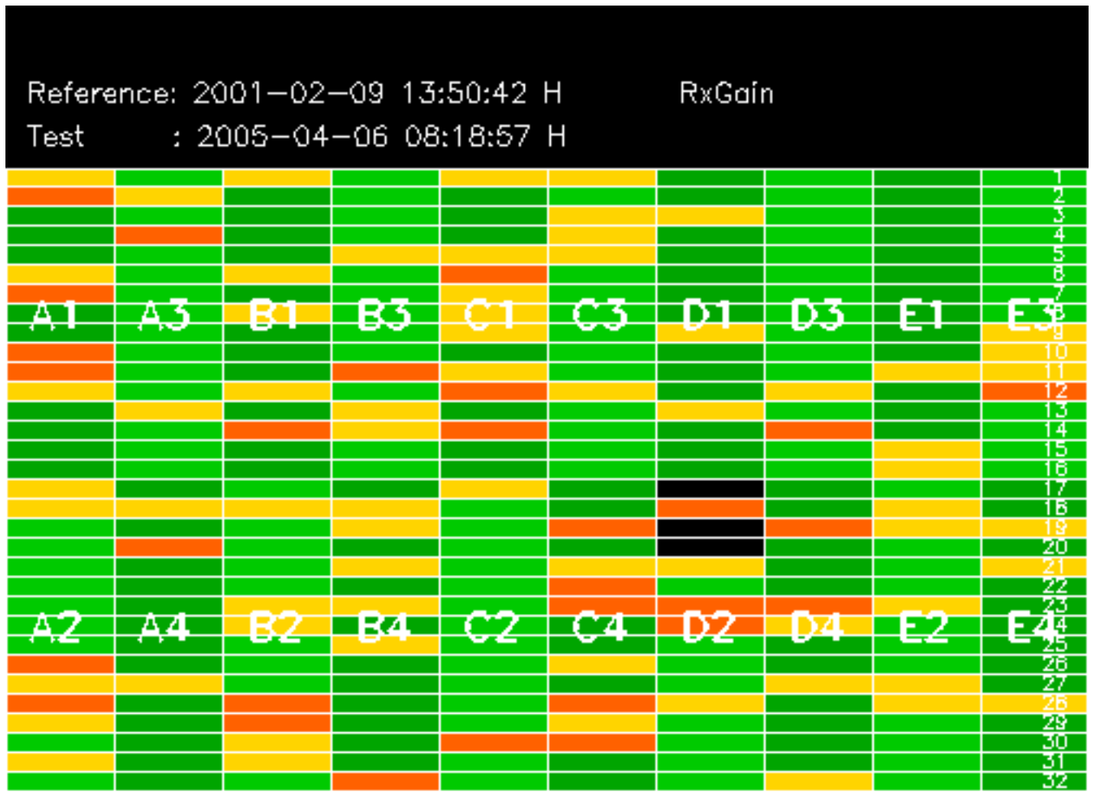

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -28.029817 Hz
-100Hz
+100Hz

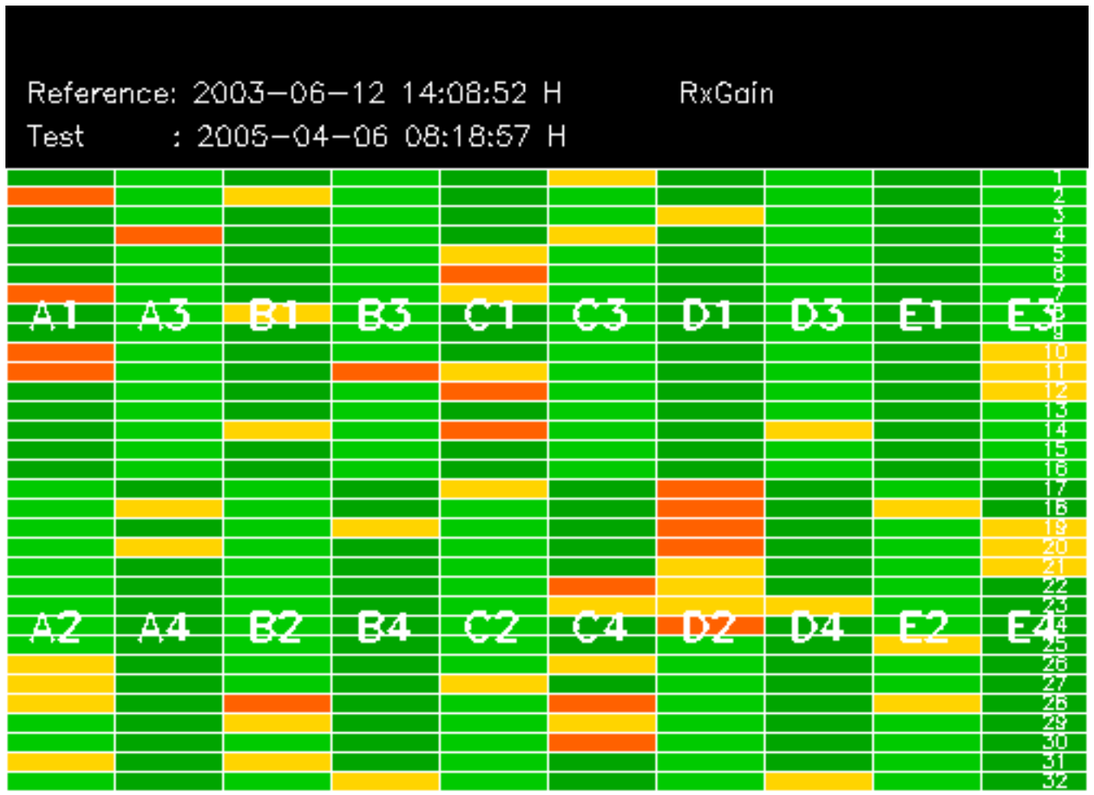

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −38.703421 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −36.989010 Hz
−100Hz
+100Hz

No anomalies observed on available MS products:

No anomalies observed.


Reference: 2001-02-09 13:50:42 H
Test : 2005-04-06 08:18:57 H
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 14:08:52 H
Test : 2005-04-06 08:18:57 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
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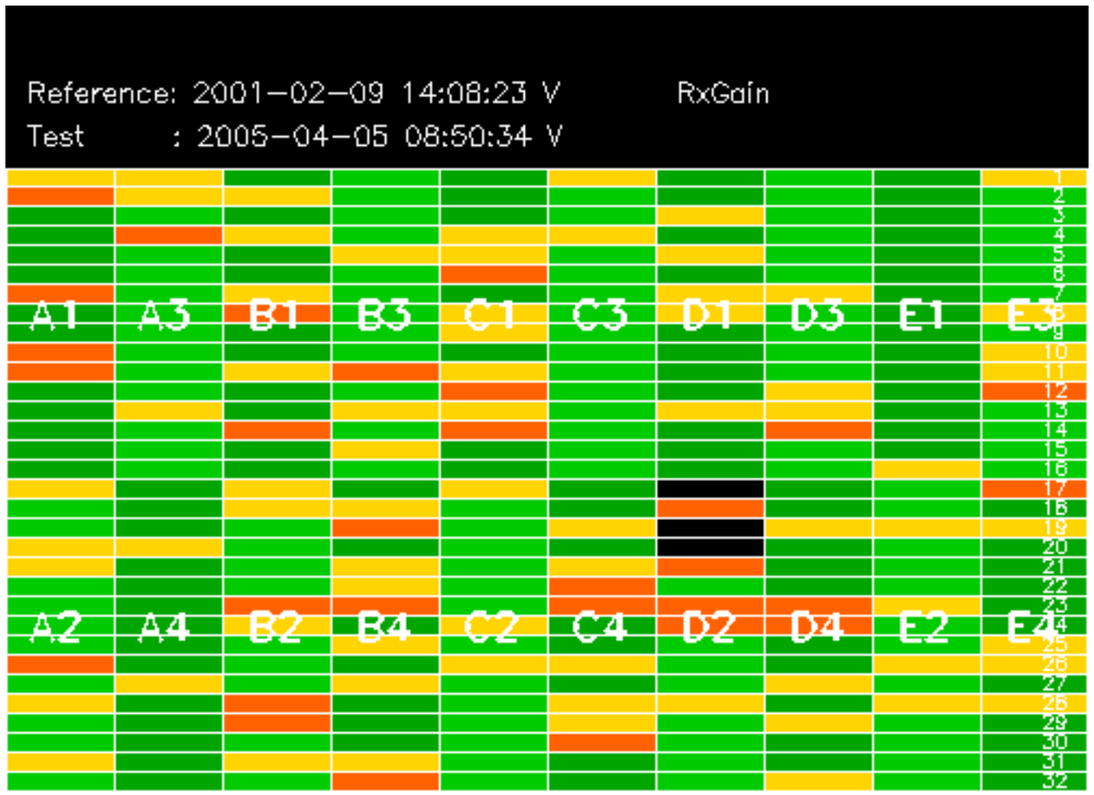
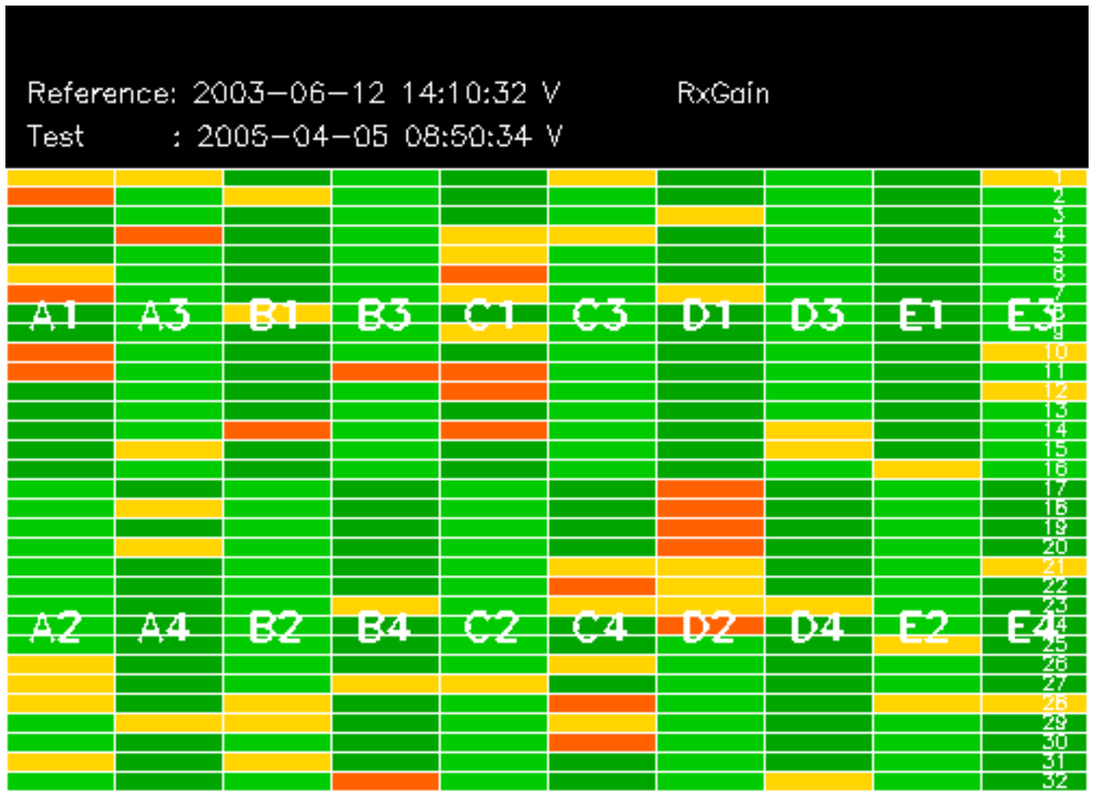
30
31
32


Reference: 2001-02-09 14:08:23 V
Test : 2005-04-05 08:50:34 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 : 2005-04-05 08:50:34 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
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16
17
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23
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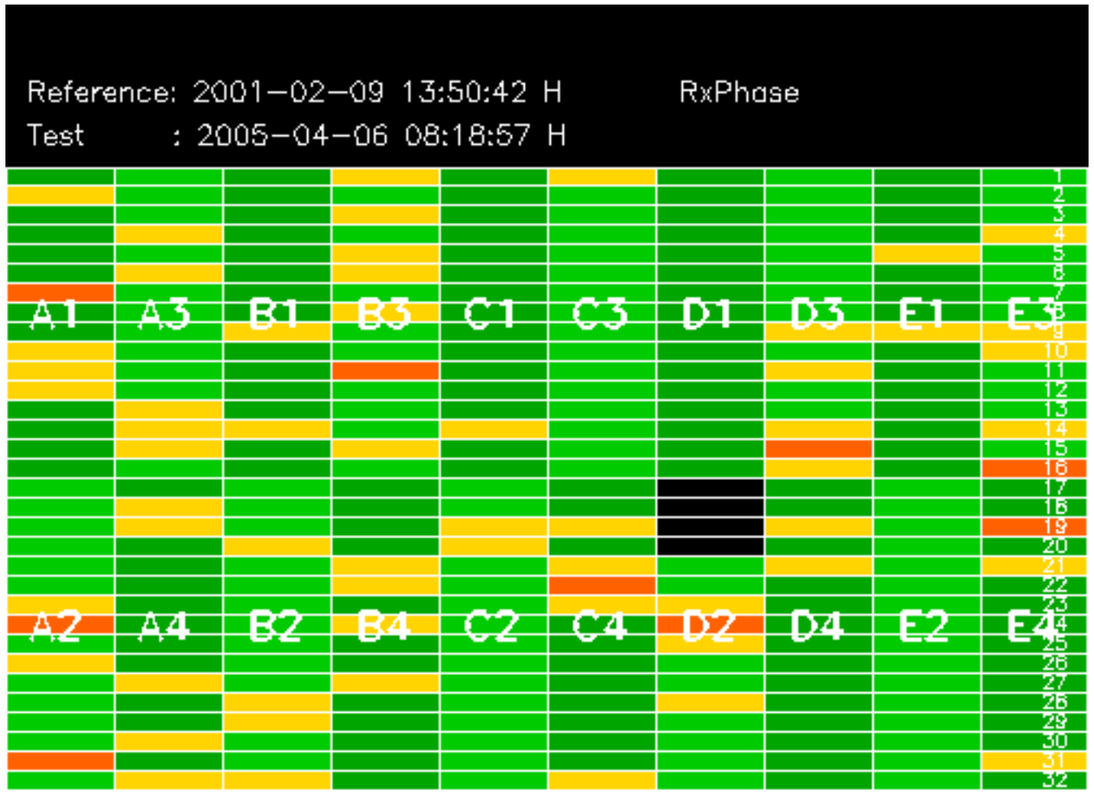
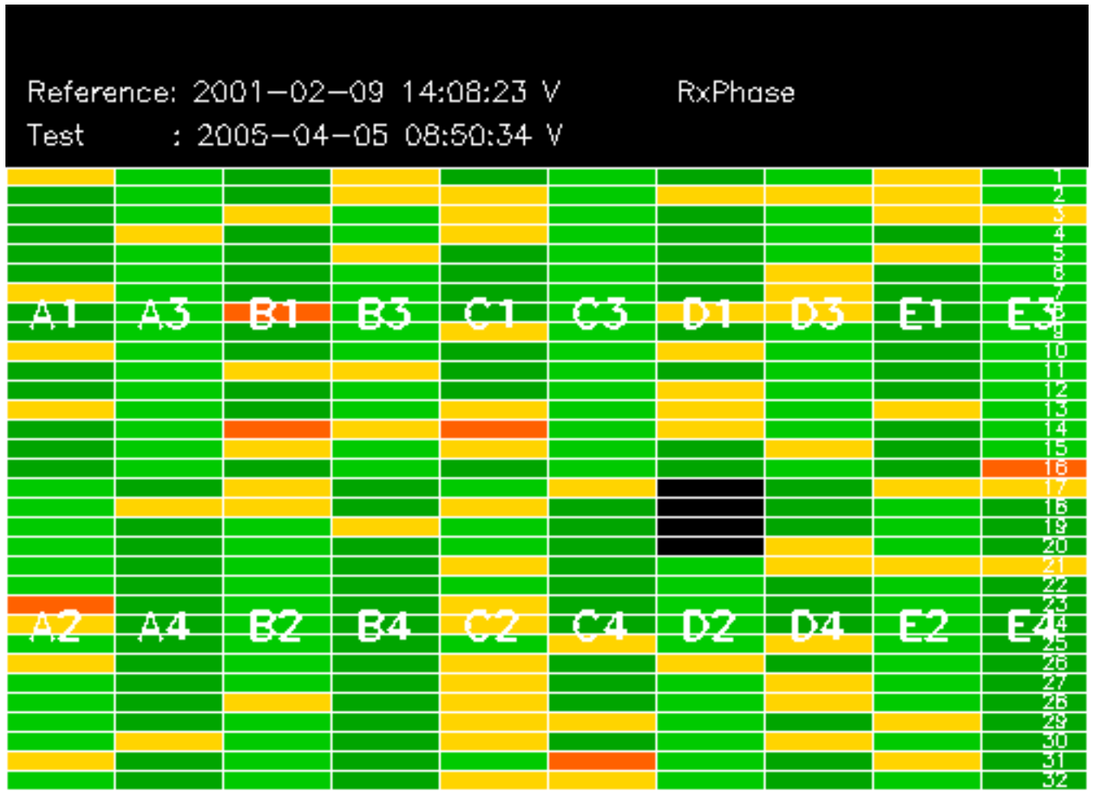
31
32


Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-04-06 08:18:57 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 : 2005-04-06 08:18:57 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 : 2005-04-05 08:50:34 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
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8
9
10
11
12
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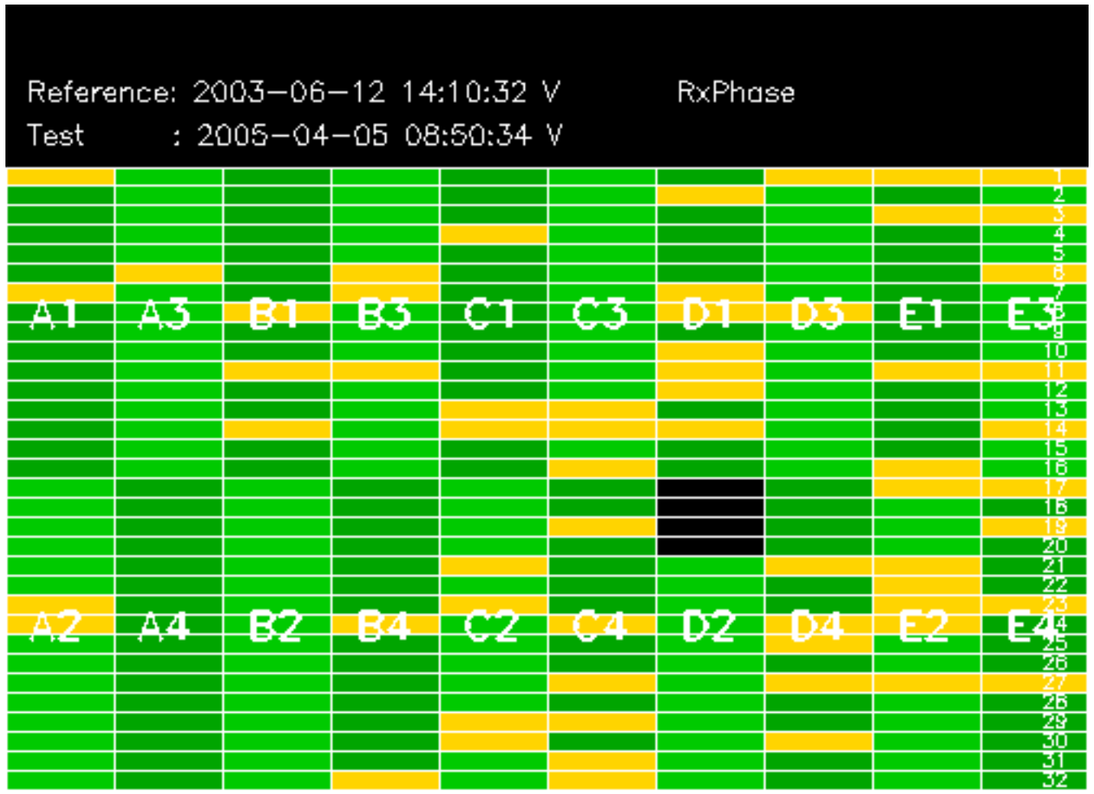
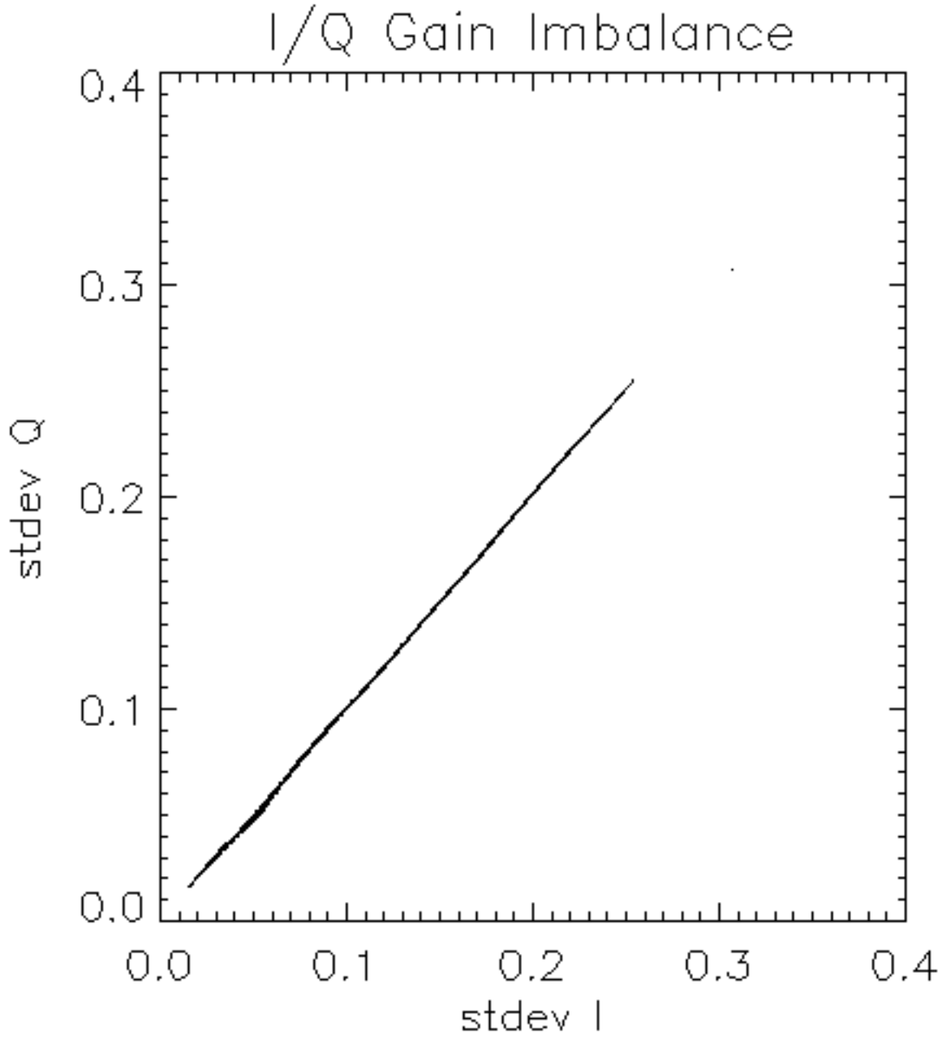
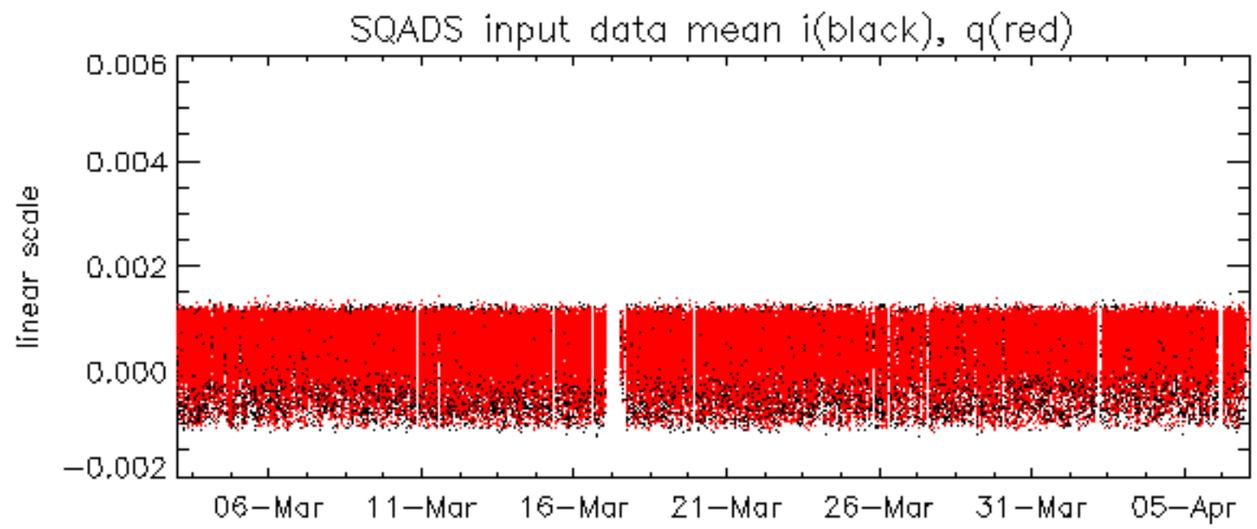
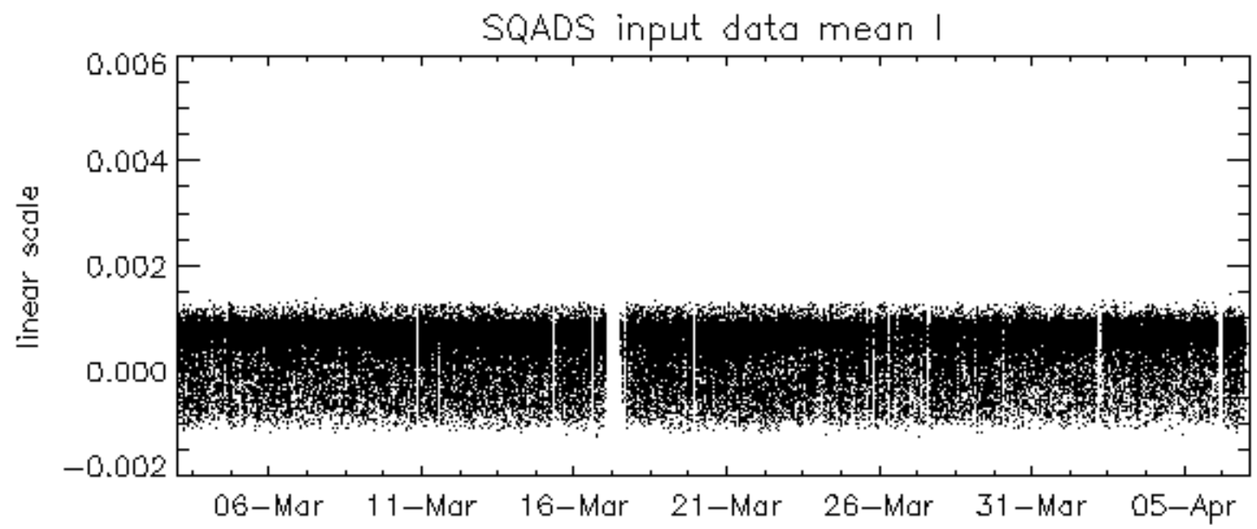
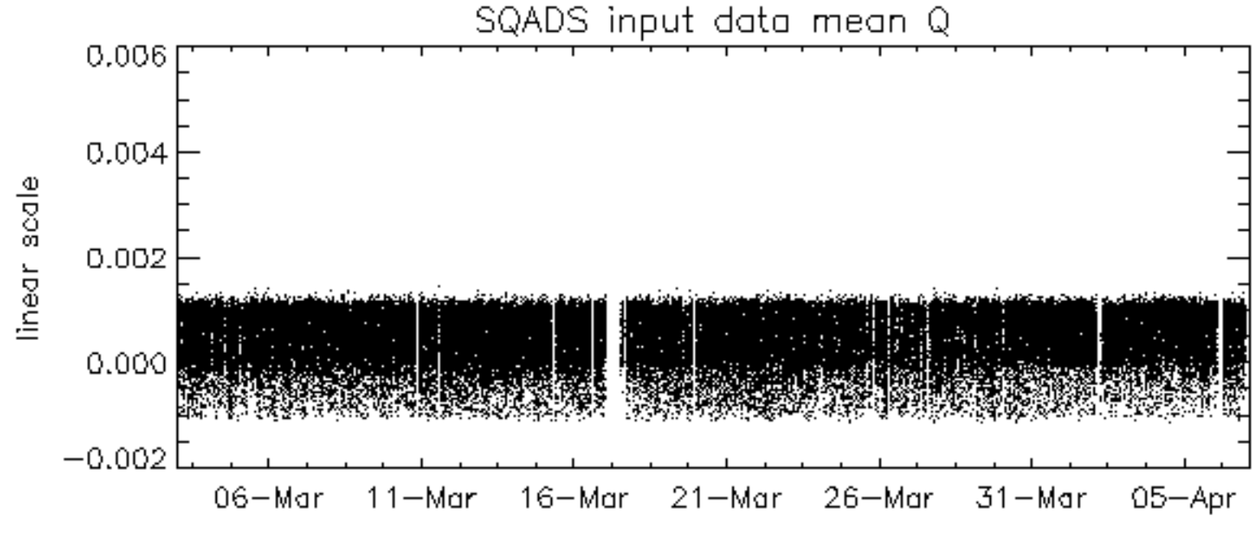
29
30
31
32

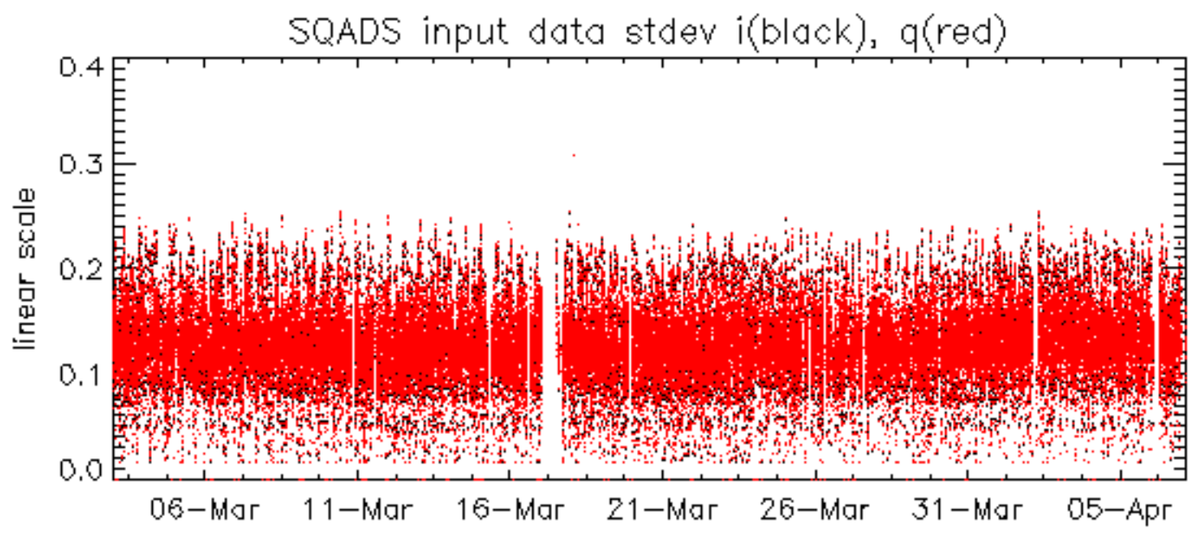

Reference: 2003-06-12 14:10:32 V
Test : 2005-04-05 08:50:34 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

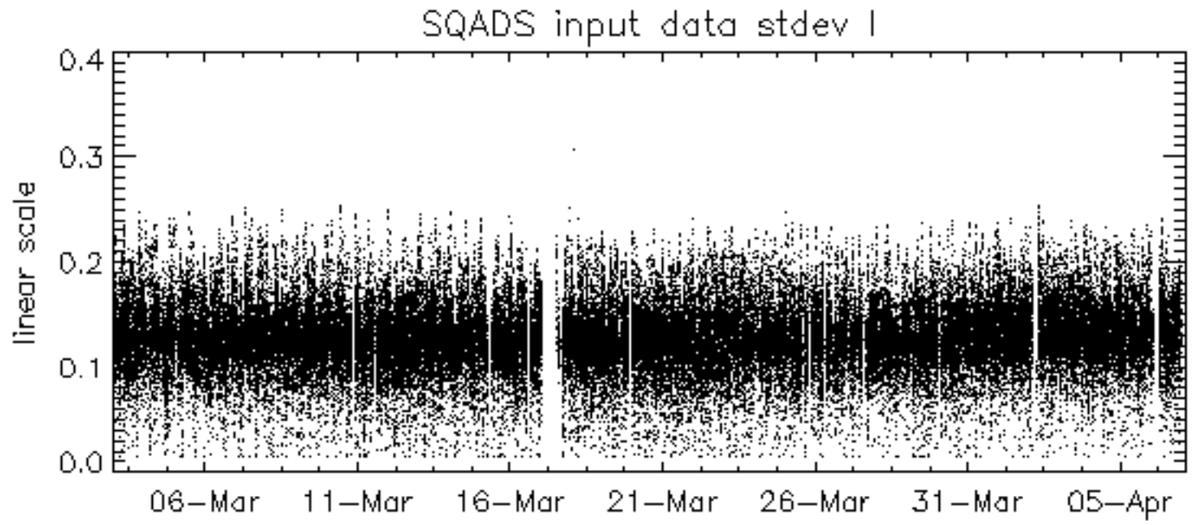

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

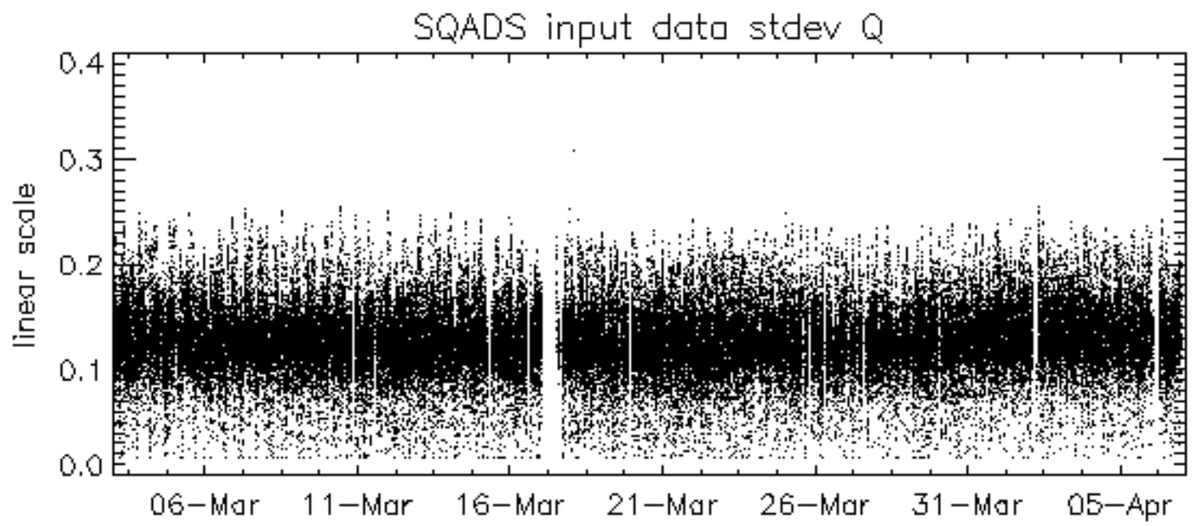

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr

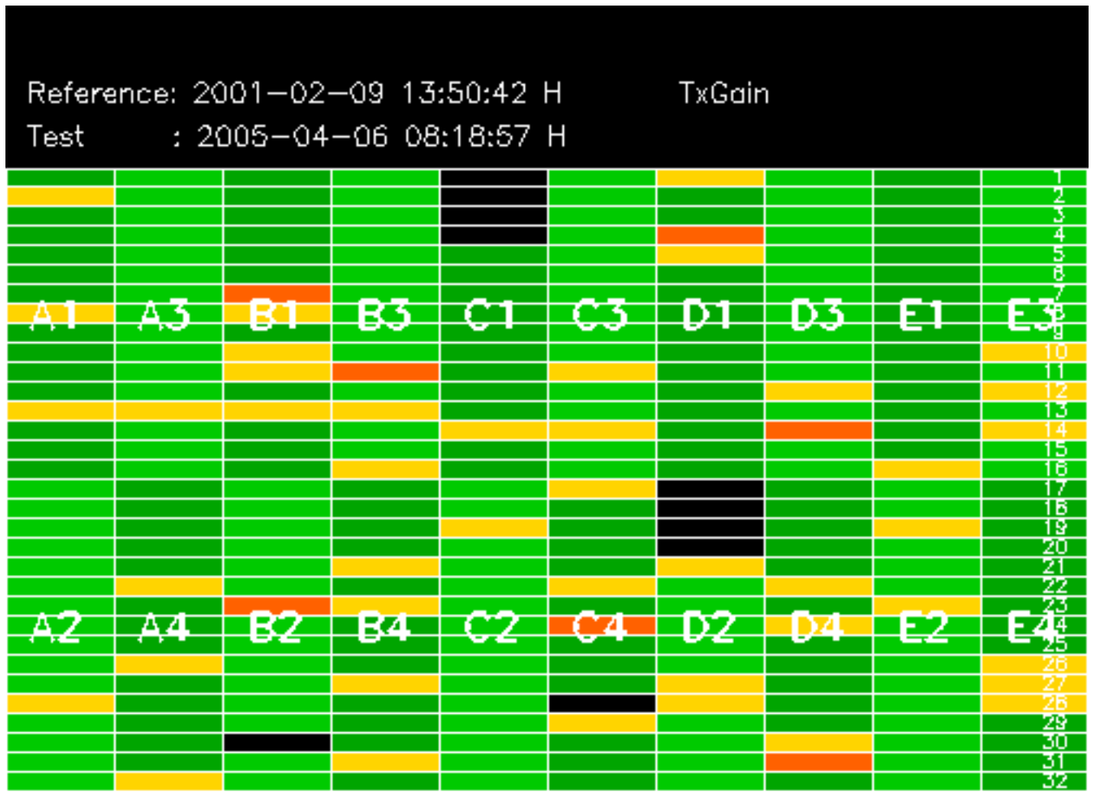

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr


SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr


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


SQADS input data stdev I
linear scale
0.4
0.3
0.2
0.1
0.0
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr


SQADS input data stdev Q
linear scale
0.4
0.3
0.2
0.1
0.0
06−Mar
11−Mar
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr


Reference: 2001-02-09 13:50:42 H
Test : 2005-04-06 08:18:57 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
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8
9
10
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17
18
19
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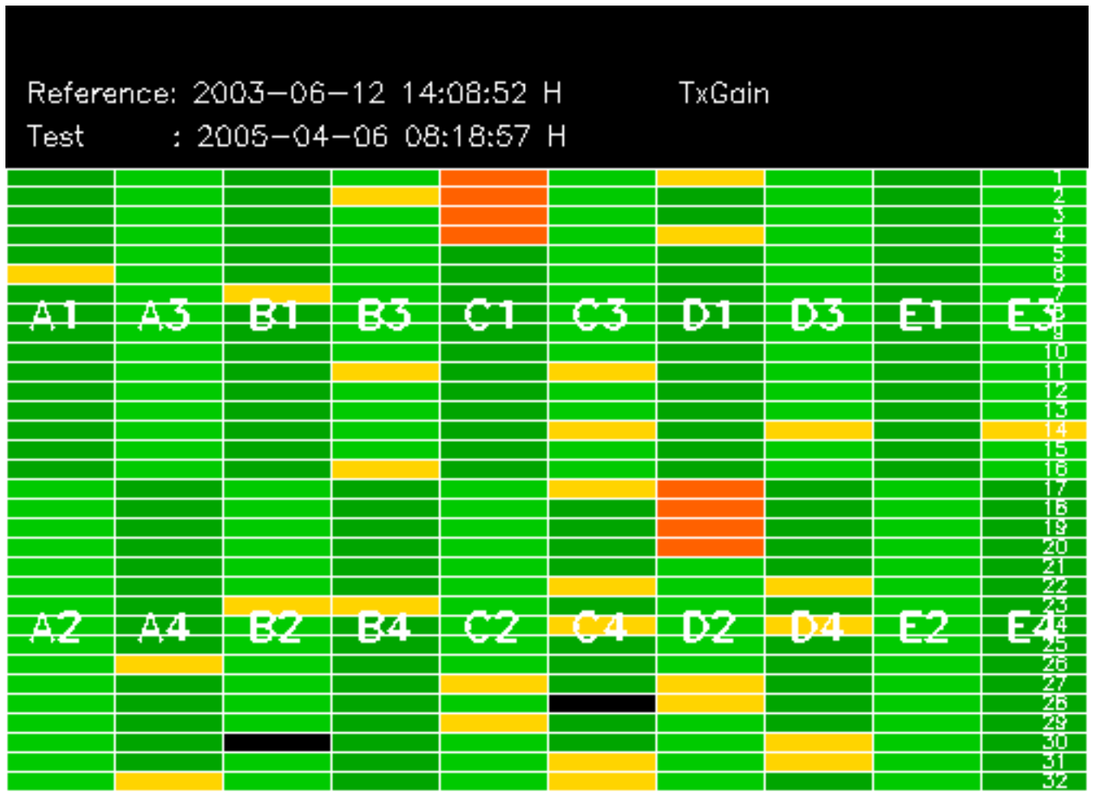
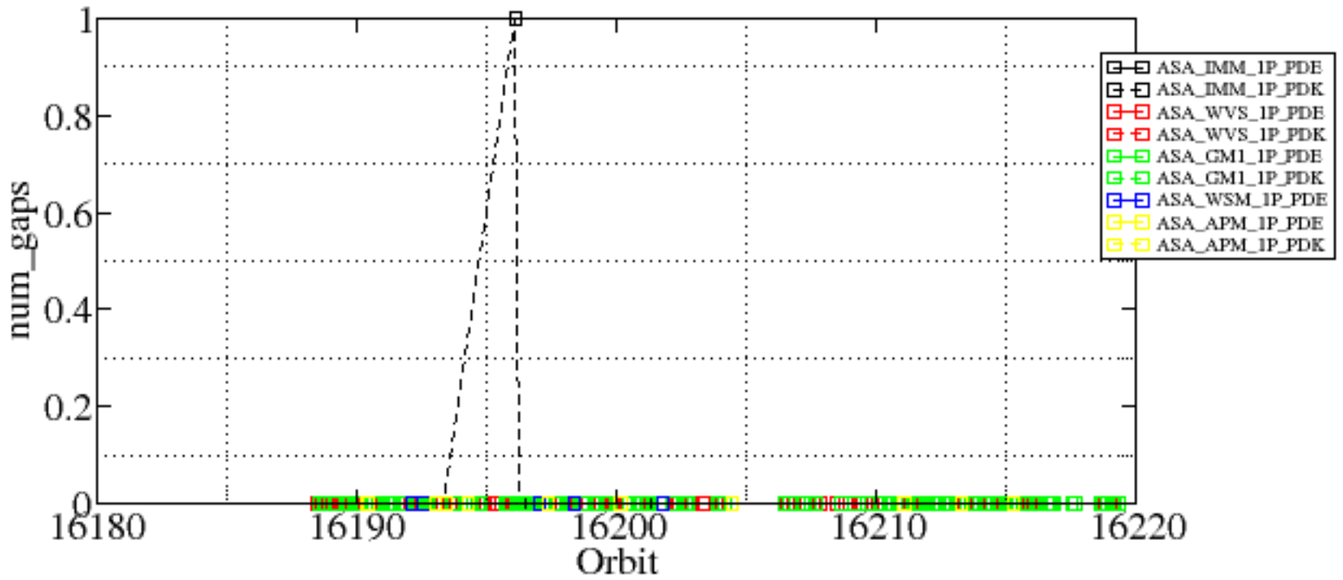
26
27
28
29
30
31
32

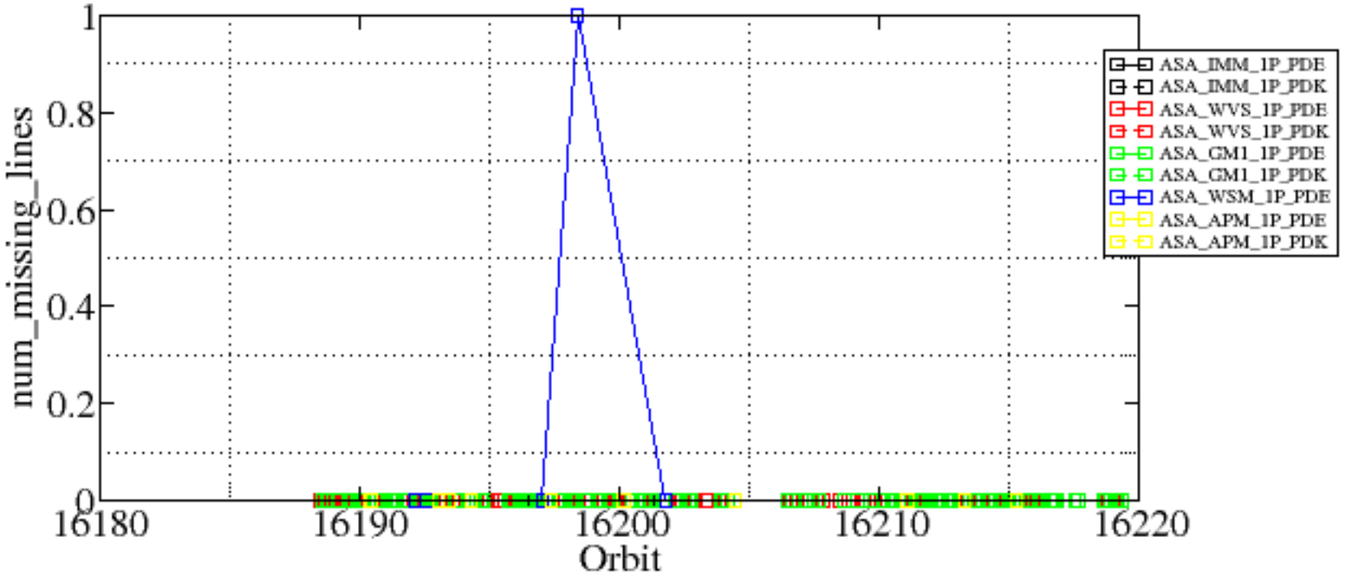

Reference: 2003-06-12 14:08:52 H
Test : 2005-04-06 08:18:57 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

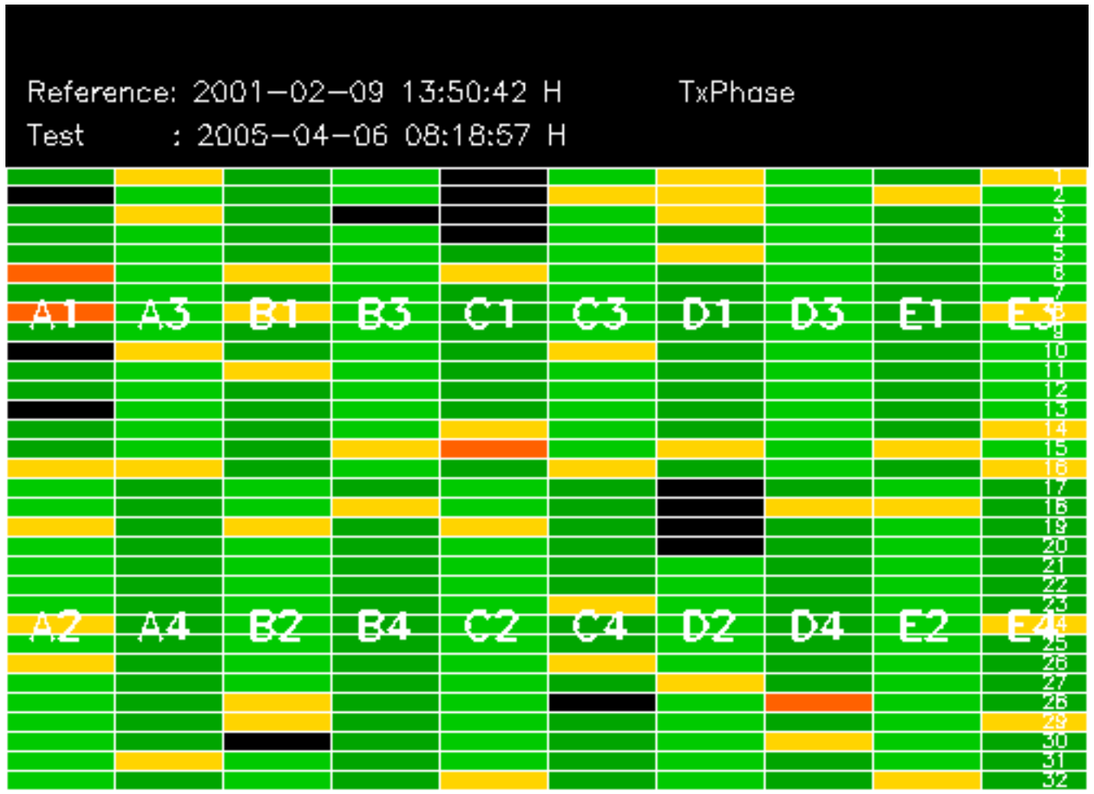

Reference: 2001-02-09 14:08:23 V
Test : 2005-04-05 08:50:34 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2005-04-05 08:50:34 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

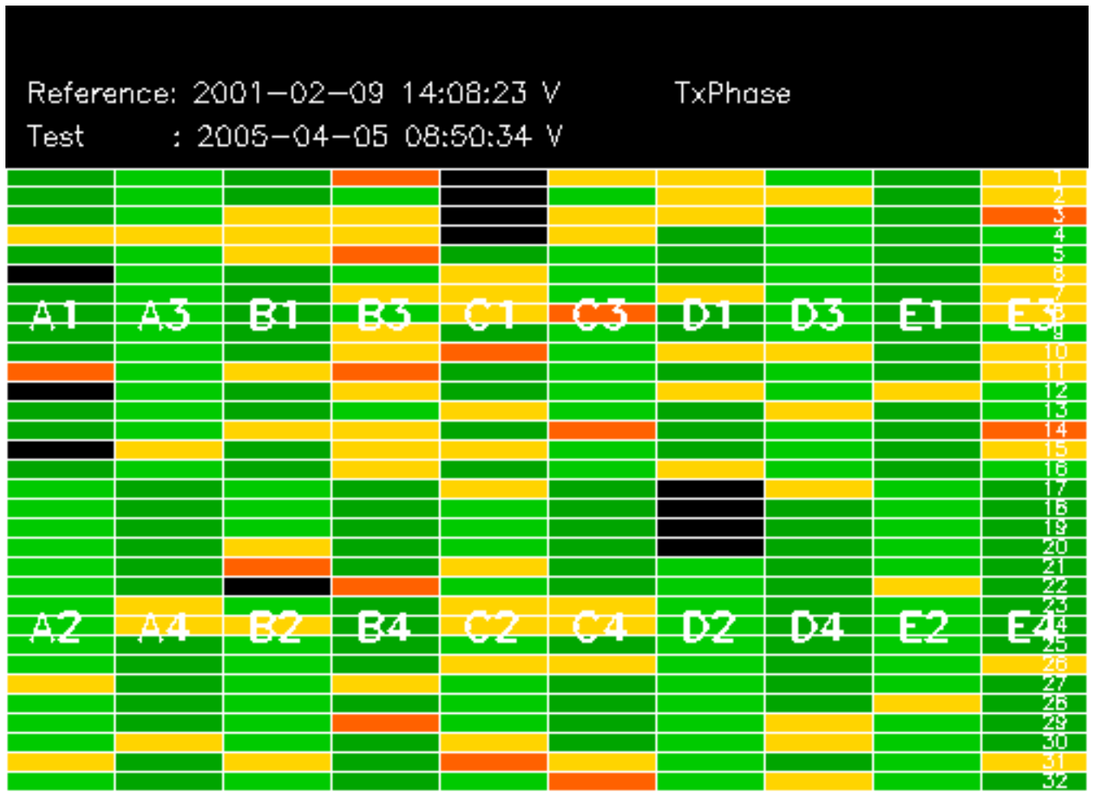
Summary of analysis for the last 3 days 2005040[567]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems
<table border=1>
<tr> <th>Filename </th><th> num_gaps</th><th>num_missing_lines</th></tr>
<tr> <td>ASA_IMM_1PNPDK20050405_125652_000001402036_00110_16196_1901.N1 </td> <td>1 </td> <td>0 </td></tr>
<tr> <td>ASA_WSM_1PNPDE20050405_164339_000000362036_00112_16198_5132.N1 </td> <td>0 </td> <td>1 </td></tr>
</table>

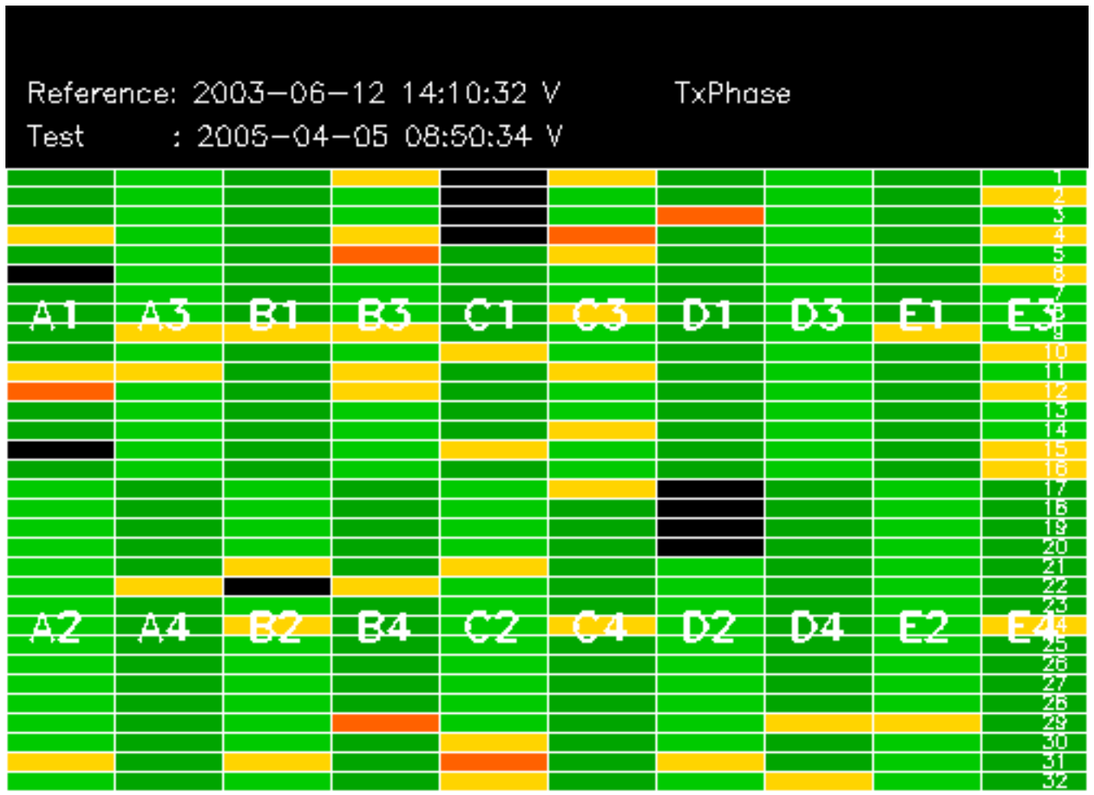

num_gaps
1
0.8
0.6
0.4
0.2
0
16180
16190
16200
16210
16220
Orbit
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_APM_1P_PDE
ASA_APM_1P_PDK

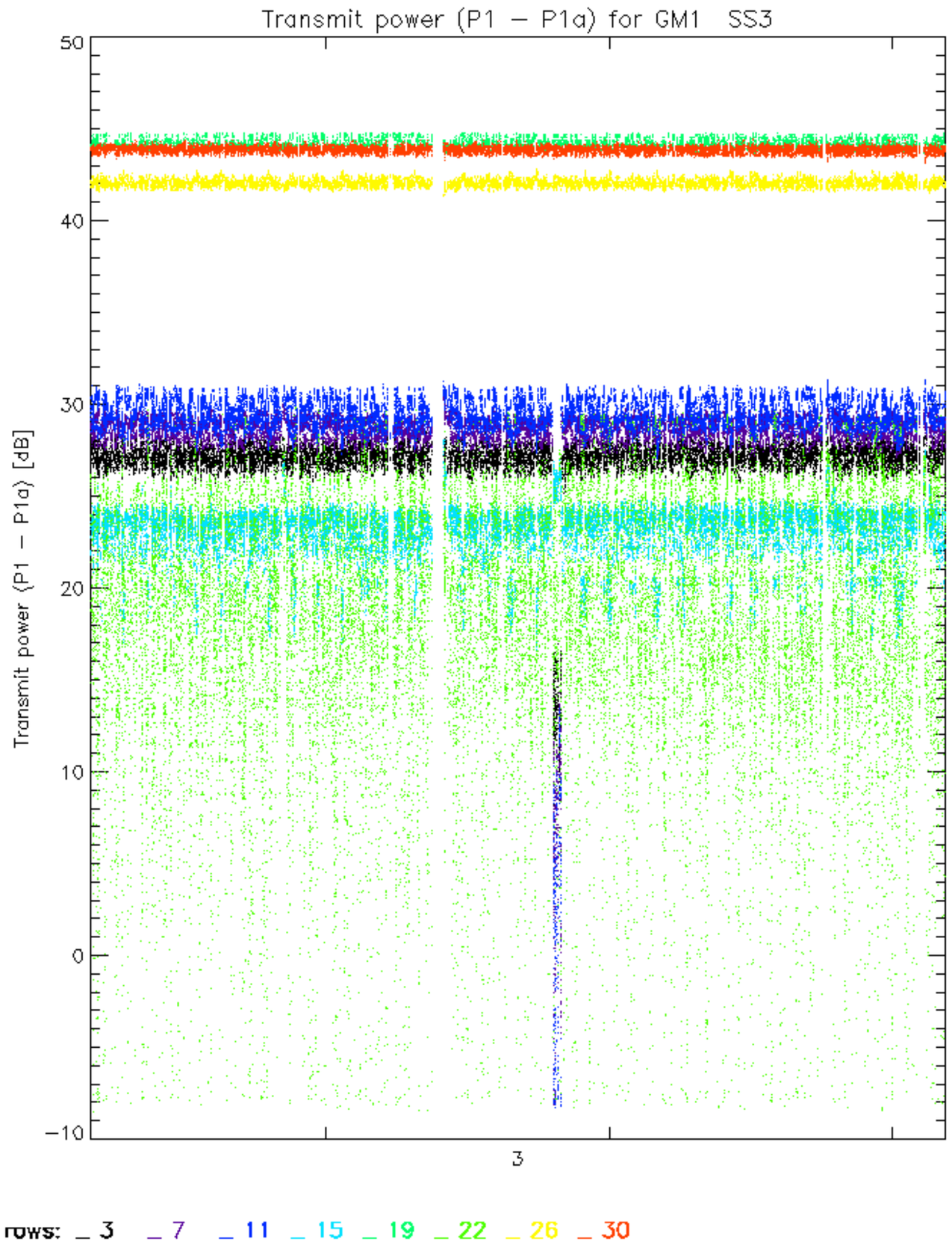

num_missing_lines
1
0.8
0.6
0.4
0.2
0
16180
16190
16200
16210
16220
Orbit
ASA_IMM_1P_PDE
ASA_IMM_1P_PDK
ASA_WVS_1P_PDE
ASA_WVS_1P_PDK
ASA_GM1_1P_PDE
ASA_GM1_1P_PDK
ASA_WSM_1P_PDE
ASA_APM_1P_PDE
ASA_APM_1P_PDK

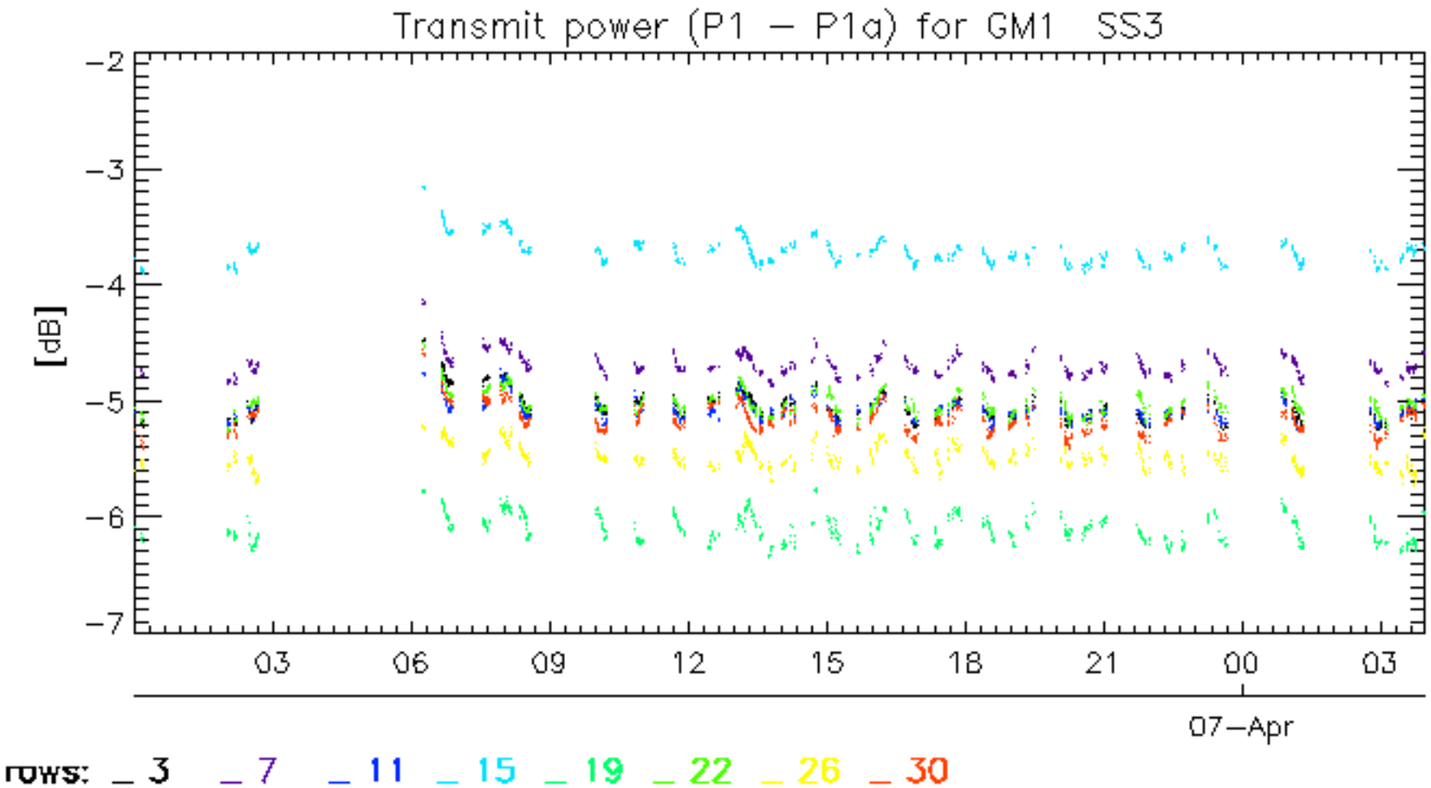

Reference: 2001-02-09 13:50:42 H
Test : 2005-04-06 08:18:57 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

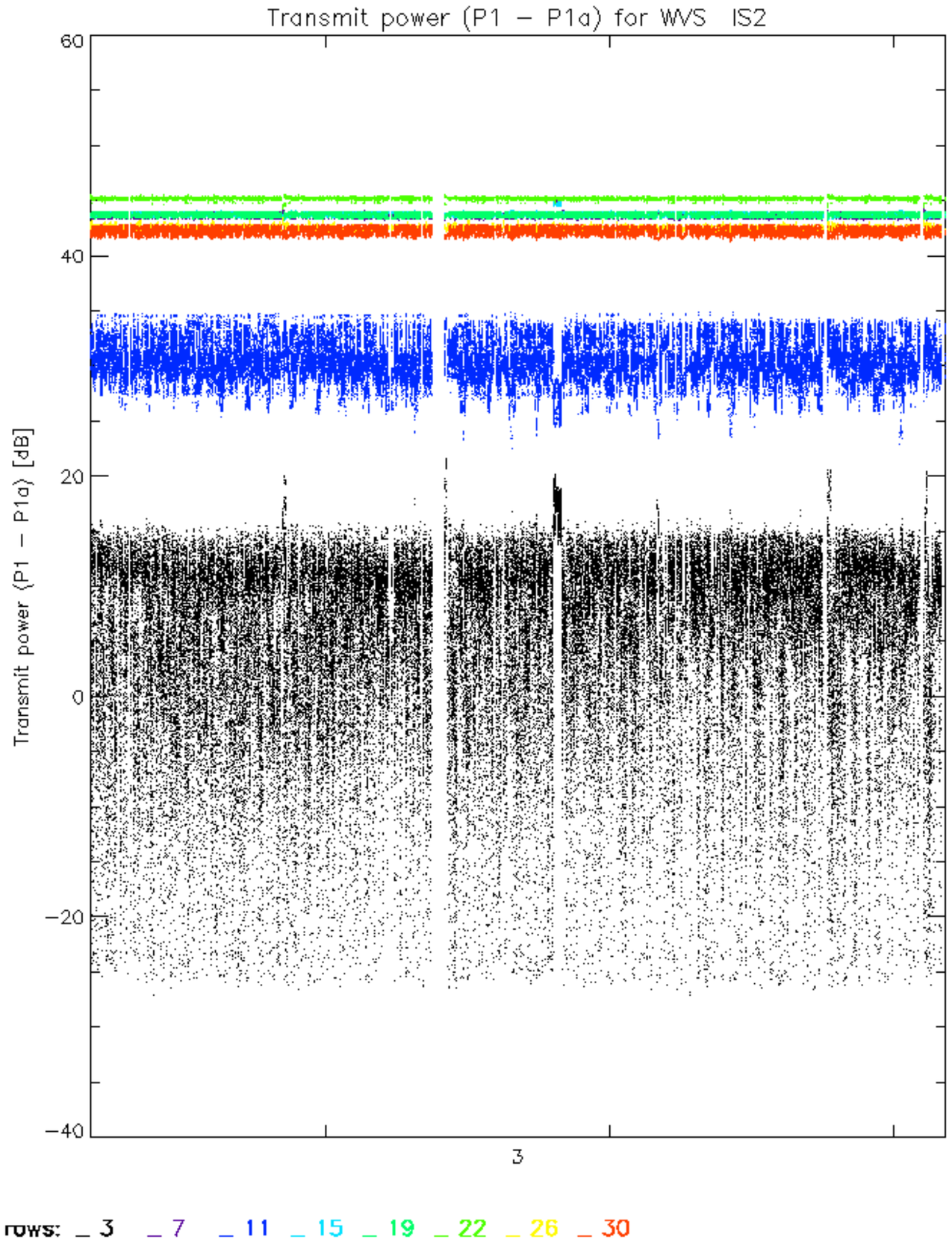

Reference: 2003-06-12 14:08:52 H
Test : 2005-04-06 08:18:57 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

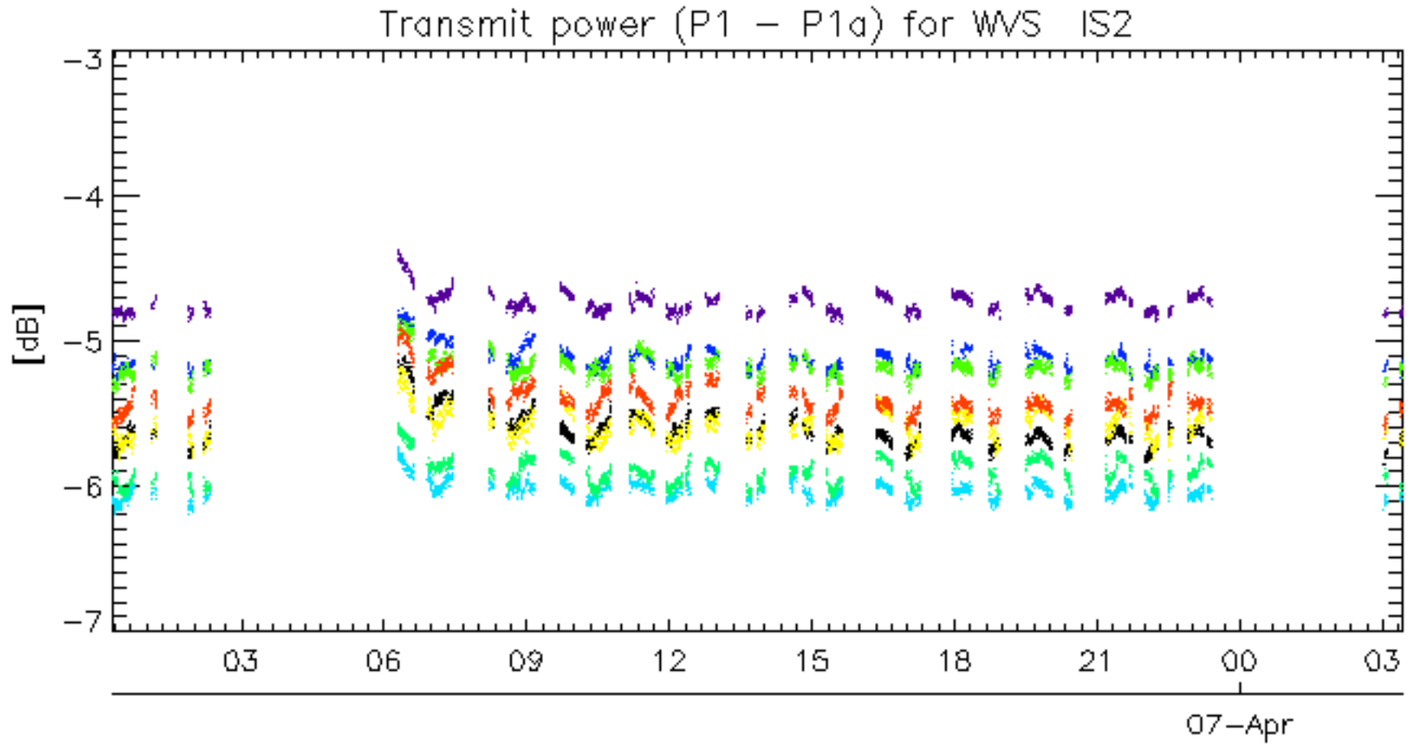

Reference: 2001-02-09 14:08:23 V
TxPhase
Test : 2005-04-05 08:50:34 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2005-04-05 08:50:34 V
TxPhase
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
3
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
21
00
03
07–Apr
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]
3
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
07–Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

ASAR unavailable from 06-APR-2005 02:53:21 to 06-APR-2005 06:10:08 due to Tile D2 PSUs off.