REPORT OF 050418

last update on Mon Apr 18 12:47:10 GMT 2005

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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

No unavailabilities during the reported period.

2.2 - Auxiliary files

Summary of the auxiliary files used from 2005-04-17 00:00:00 to 2005-04-18 12:47:10

PDHS-K					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	30	44	3	6	3
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	30	44	3	6	3
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	30	44	3	6	3
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	30	44	3	6	3

PDHS-E					
AUXILIARY FILE	**WVS**	**GM1**	**IMM**	**APM**	**WSM**
ASA_CON_AXVIEC20050324_172815_20030601_000000_20051231_000000	46	60	6	10	4
ASA_INS_AXVIEC20041215_180208_20030211_000000_20051231_000000	46	60	6	10	4
ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	46	60	6	10	4
ASA_XCH_AXVIEC20041215_180350_20020301_000000_20051231_000000	46	60	6	10	4

2.3 - Browse Visual Inspection

2.2 - Browse Visual Inspection

No anomalies observed on available browse products

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	20050417 023112
H	20050416 030249

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	-3.343318	0.013569	-0.011025
7	P1	-3.117043	0.009605	-0.003089
11	P1	-4.668605	0.031848	-0.001954
15	P1	-5.607779	0.043560	0.063400
19	P1	-3.702395	0.003990	-0.025292
22	P1	-4.546770	0.011956	-0.076114
26	P1	-4.911665	0.019740	0.044409
30	P1	-7.181602	0.022961	0.066528
3	P1	-15.795106	0.338869	0.037312
7	P1	-15.532567	0.086173	0.001151
11	P1	-21.088581	0.452305	-0.337974
15	P1	-11.533998	0.054526	0.155315
19	P1	-14.314580	0.028076	0.000293
22	P1	-15.773709	0.315022	-0.271613
26	P1	-17.631659	0.178778	0.036683
30	P1	-17.926620	0.365106	0.182438

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-22.051294	0.081959	0.032473
7	P2	-22.227144	0.097267	0.041643
11	P2	-14.244966	0.109014	0.149919
15	P2	-7.058843	0.091672	-0.036226
19	P2	-9.644357	0.094749	-0.034210
22	P2	-16.886259	0.096506	0.024974

26	P2	-16.454012	0.094029	-0.041290
30	P2	-18.828350	0.085336	-0.000614

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.166461	0.004503	-0.004616
7	P3	-8.166461	0.004503	-0.004616
11	P3	-8.166460	0.004503	-0.004612
15	P3	-8.166460	0.004503	-0.004612
19	P3	-8.166460	0.004503	-0.004612
22	P3	-8.166460	0.004503	-0.004612
26	P3	-8.166460	0.004503	-0.004612
30	P3	-8.166461	0.004503	-0.004614

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	-2.724621	0.026885	-0.097656
7	P1	-3.006715	0.046227	0.002770
11	P1	-3.980013	0.027476	-0.024070
15	P1	-3.543059	0.037090	-0.017811
19	P1	-3.612924	0.013989	-0.036405
22	P1	-5.709745	0.042357	0.081531
26	P1	-7.299690	0.025805	-0.032611
30	P1	-6.271322	0.060301	-0.088171
3	P1	-10.706723	0.165986	-0.129708
7	P1	-10.343600	0.176647	-0.092523

11	P1	-12.537314	0.140203	-0.109450
15	P1	-11.700737	0.100817	0.032457
19	P1	-15.594245	0.052630	-0.078821
22	P1	-24.809927	1.539038	-0.611201
26	P1	-15.555409	0.245185	-0.209259
30	P1	-20.146660	1.223121	0.110946

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.753647	0.039970	0.000141
7	P2	-22.308331	0.045630	0.034710
11	P2	-10.093410	0.058752	0.021416
15	P2	-5.018584	0.033890	-0.107425
19	P2	-6.858862	0.050268	-0.096387
22	P2	-7.081380	0.038632	-0.042989
26	P2	-23.868246	0.037318	-0.084048
30	P2	-21.900911	0.042724	-0.063834

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.002419	0.003481	-0.020752
7	P3	-8.002589	0.003466	-0.020455
11	P3	-8.002488	0.003473	-0.020535
15	P3	-8.002566	0.003479	-0.020879
19	P3	-8.002615	0.003478	-0.020905
22	P3	-8.002559	0.003462	-0.020557
26	P3	-8.002535	0.003467	-0.020595
30	P3	-8.002481	0.003472	-0.020659

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	0.000478699
	stdev	2.16759e-07
MEAN Q	mean	0.000490471
	stdev	2.33778e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.129523
	stdev	0.00105050
STDEV Q	mean	0.129787
	stdev	0.00106244

5.3 - Gain imbalance I/Q

6 - Telemetry analysis

Summary of analysis for the last 3 days 2005041[678]
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

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

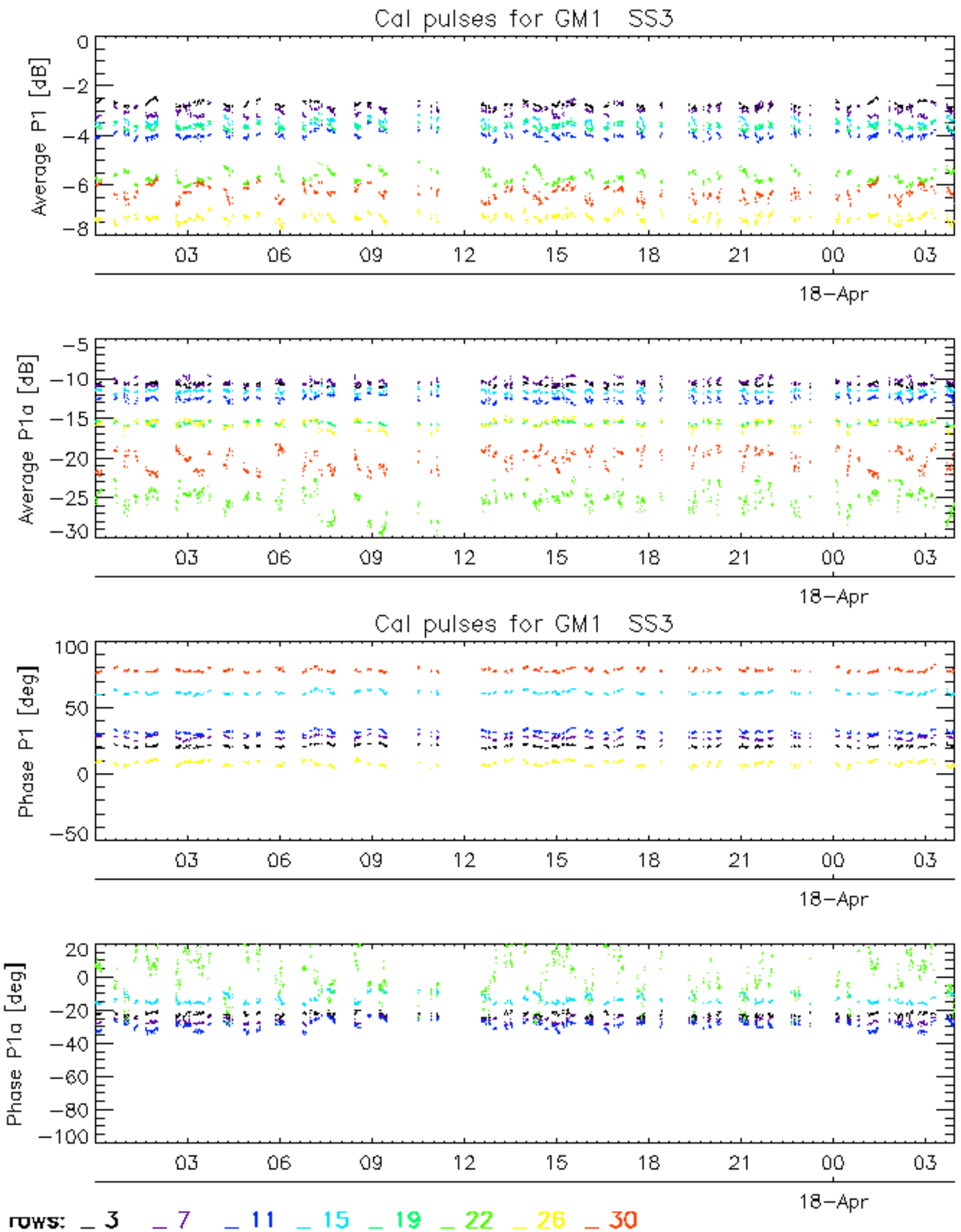
Evolution of unbiased Doppler error (Real - Expected)
☒
Acsending
☒
Descending

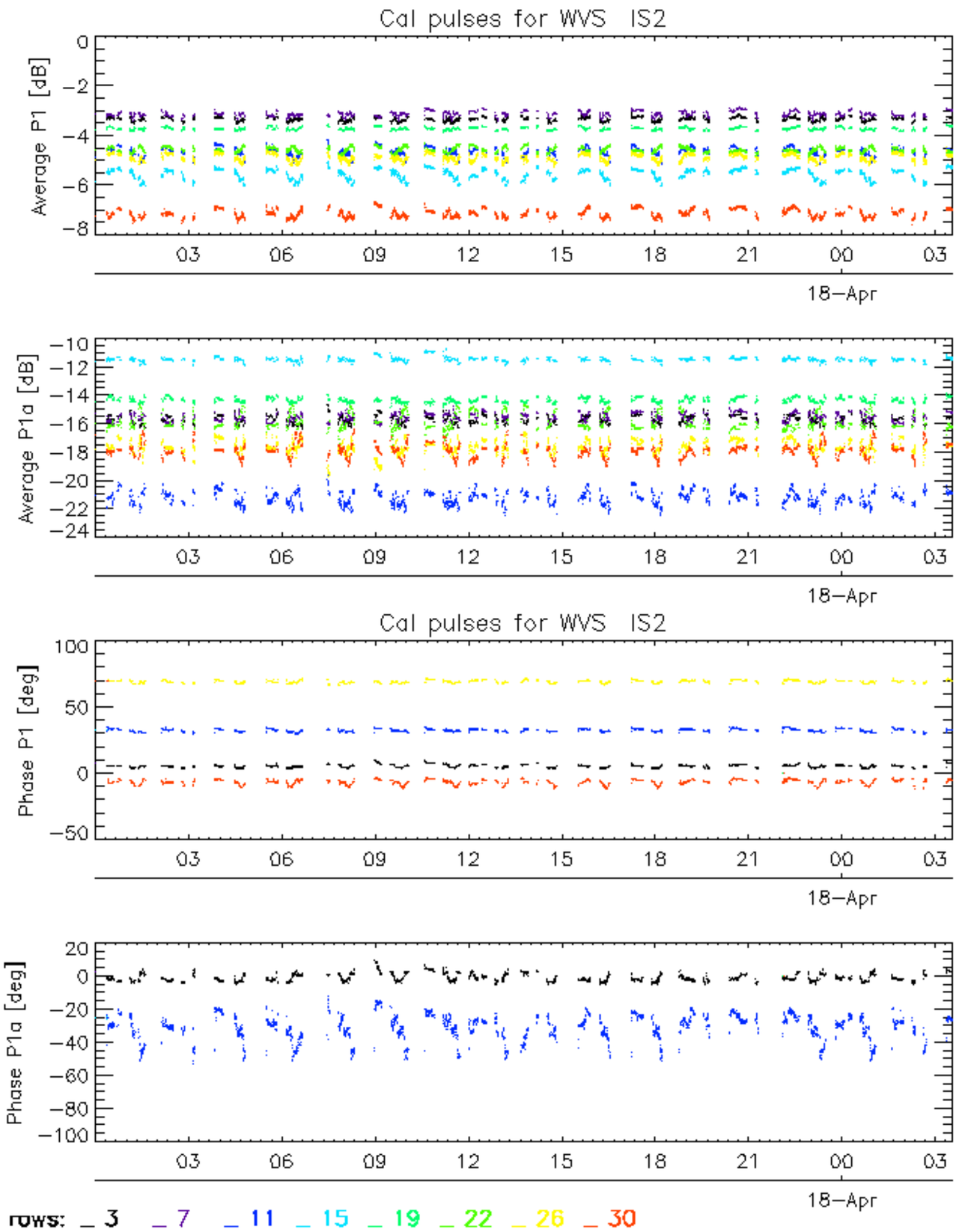
6.5 - Absolute Doppler for GM1

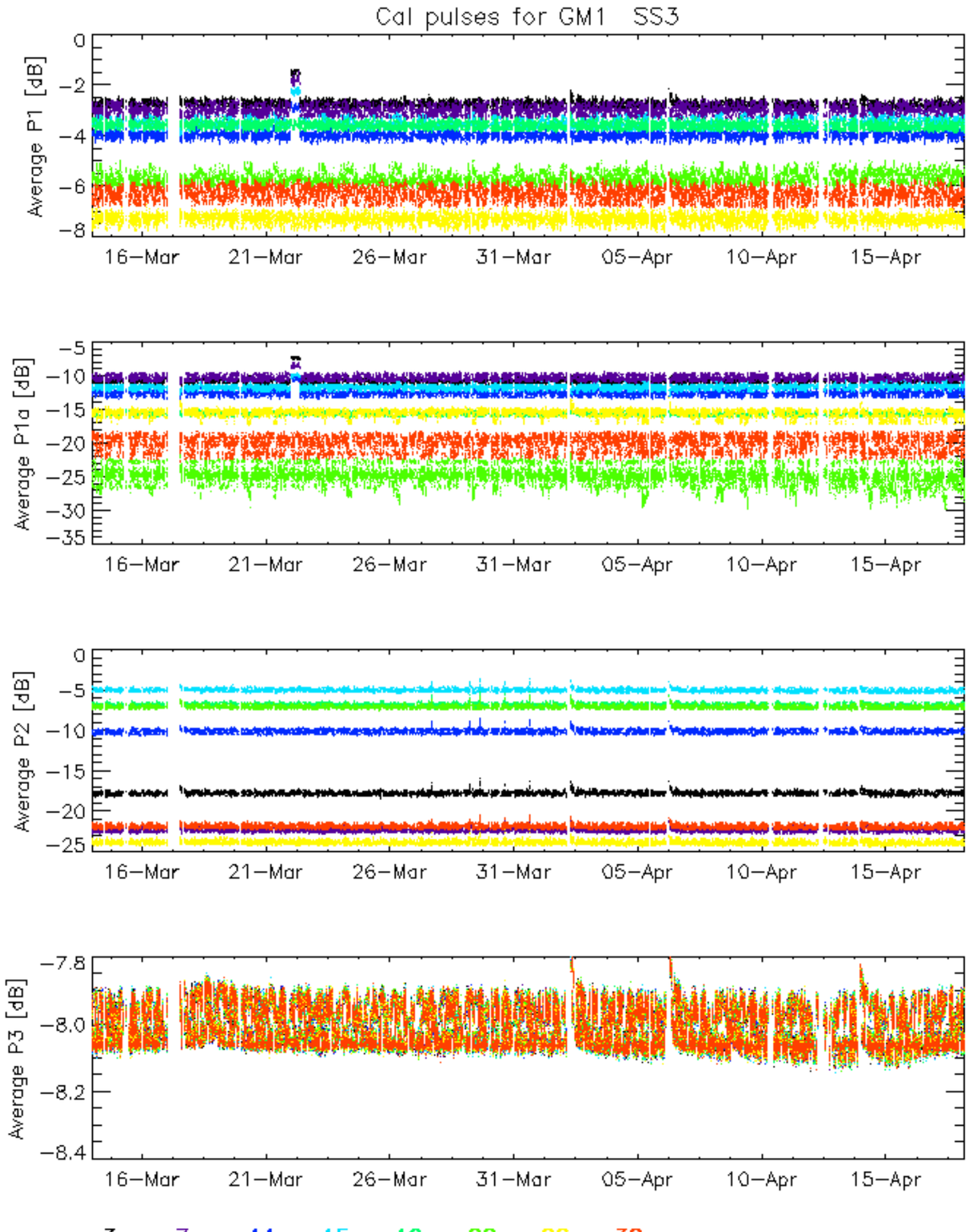
Evolution of Absolute Doppler
☒
Acsending
☒
Descending

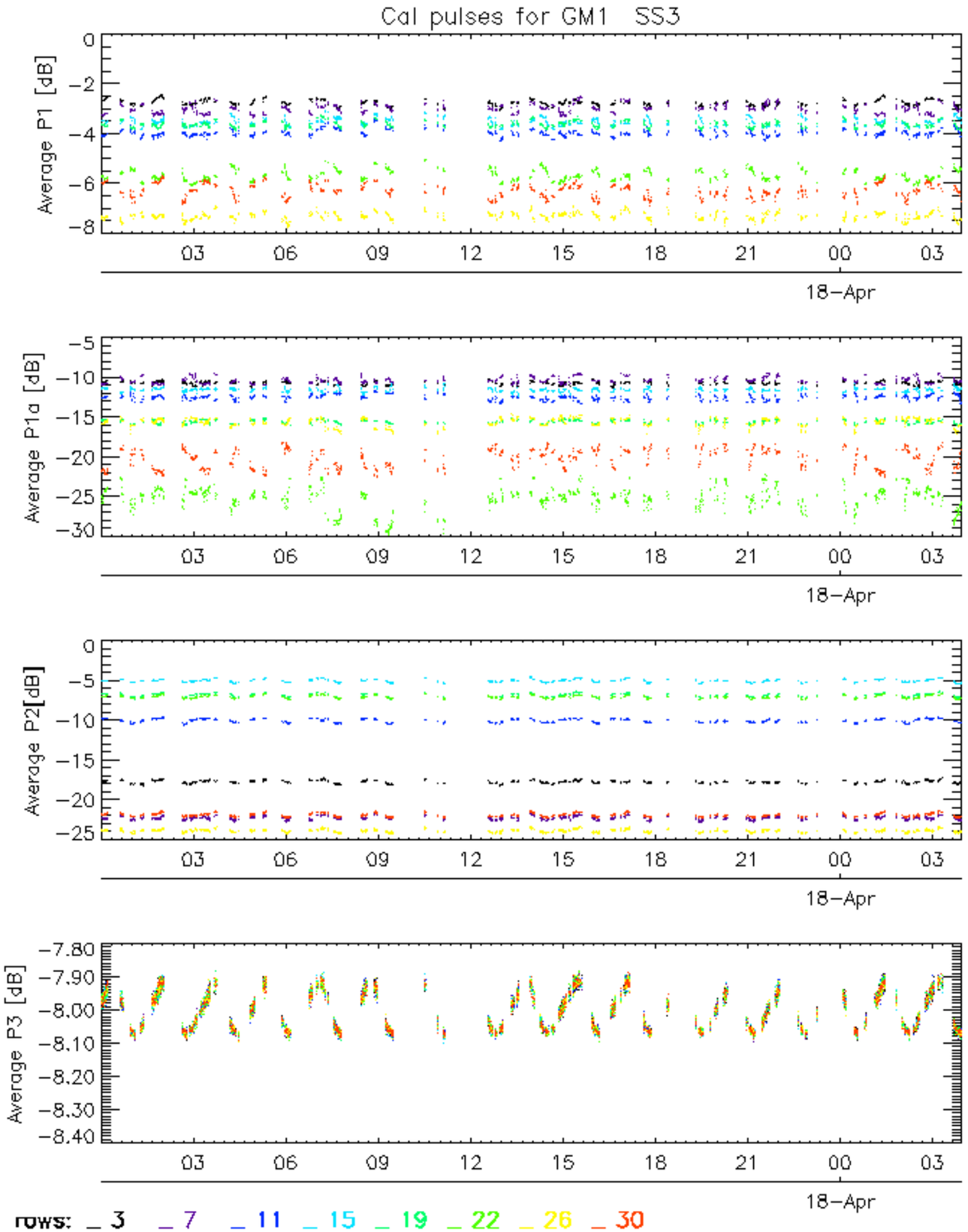
6.6 - Doppler evolution versus ANX for GM1

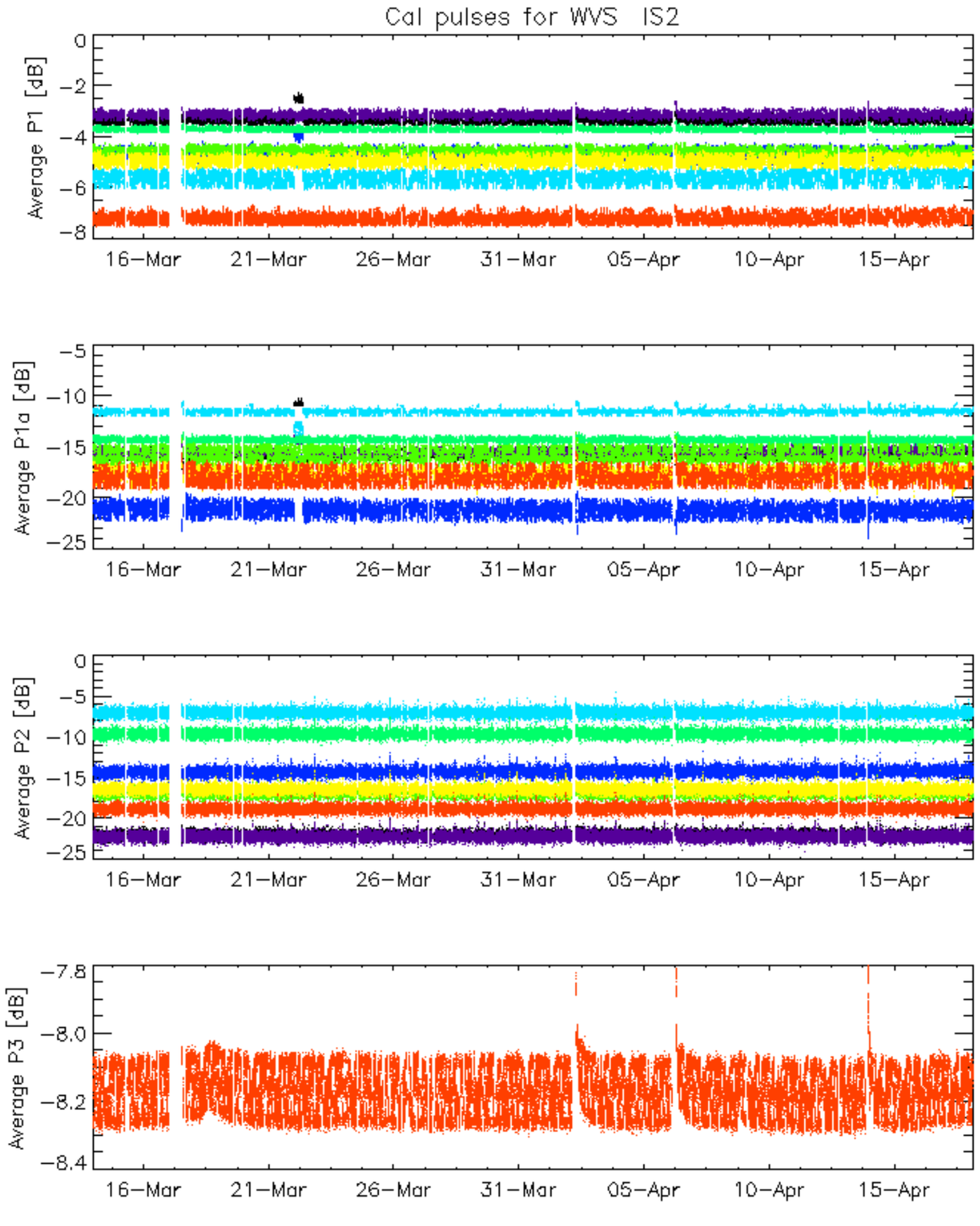
Evolution Doppler error versus ANX
☒

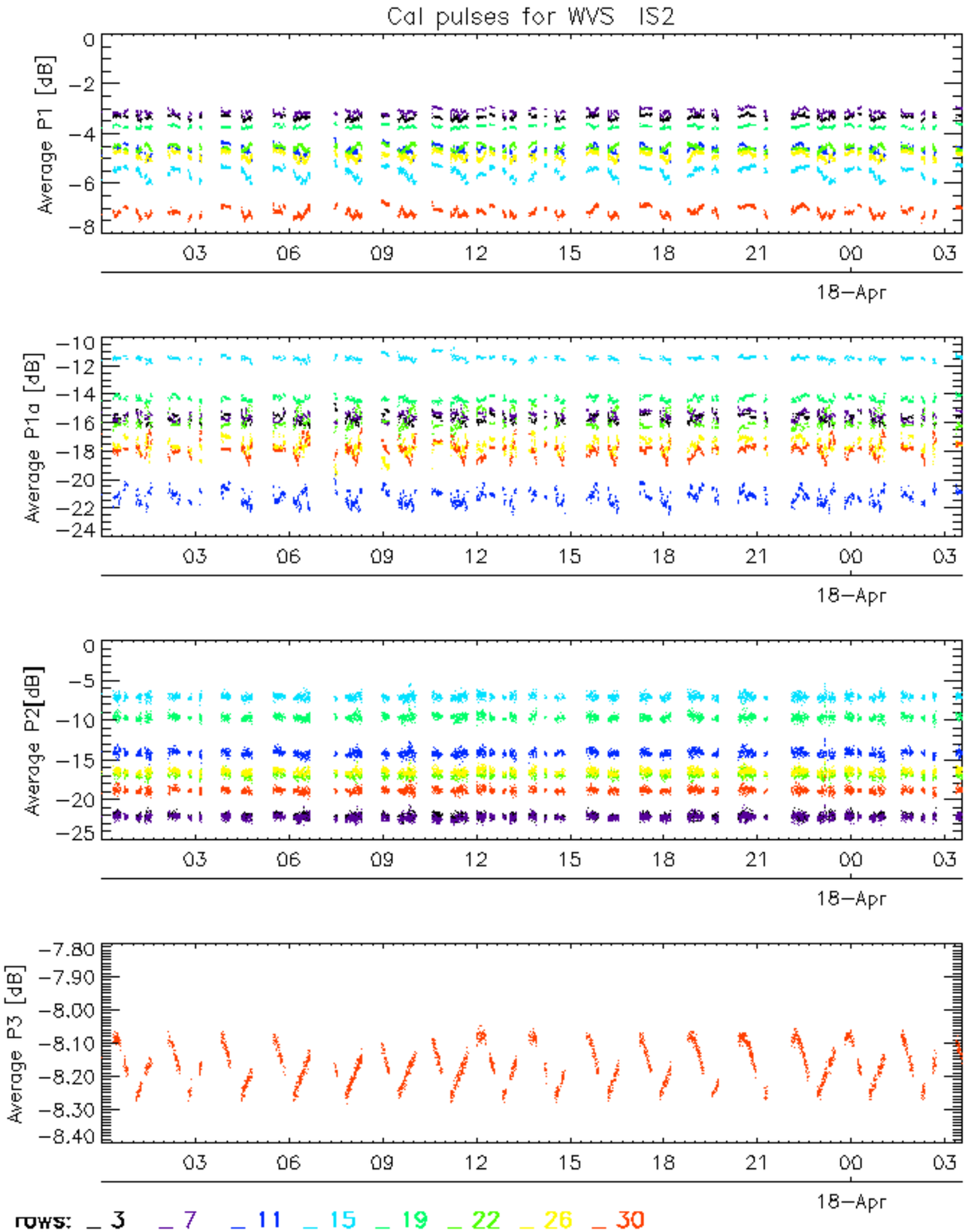

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
18−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Cal pulses for GM1 SS3
Phase P1 [deg]
100
50
0
−50
Phase P1a [deg]
20
0
−20
−40
−60
−80
−100
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
18−Apr
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
−24
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
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

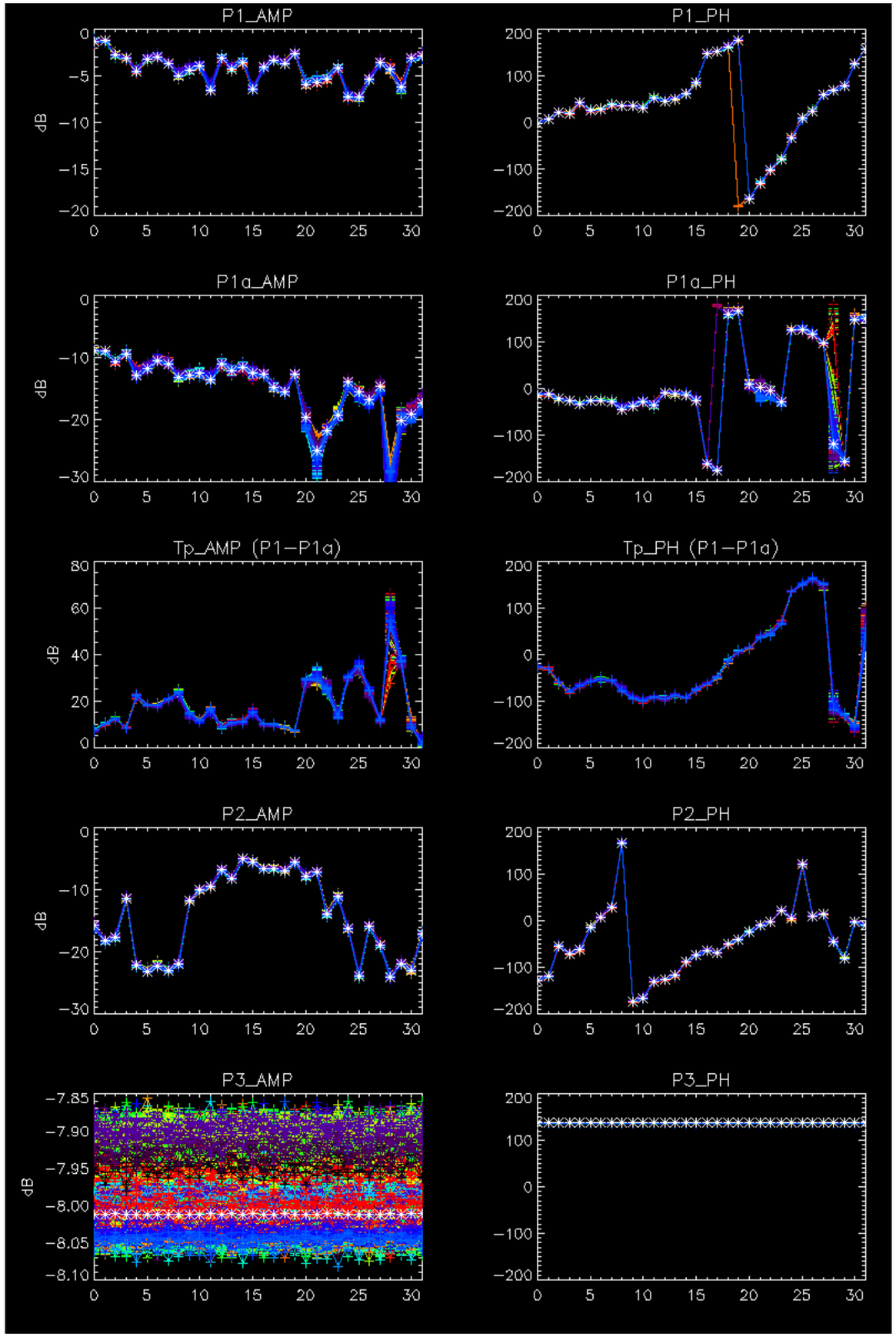

Cal pulses for GM1 SS3
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
18−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

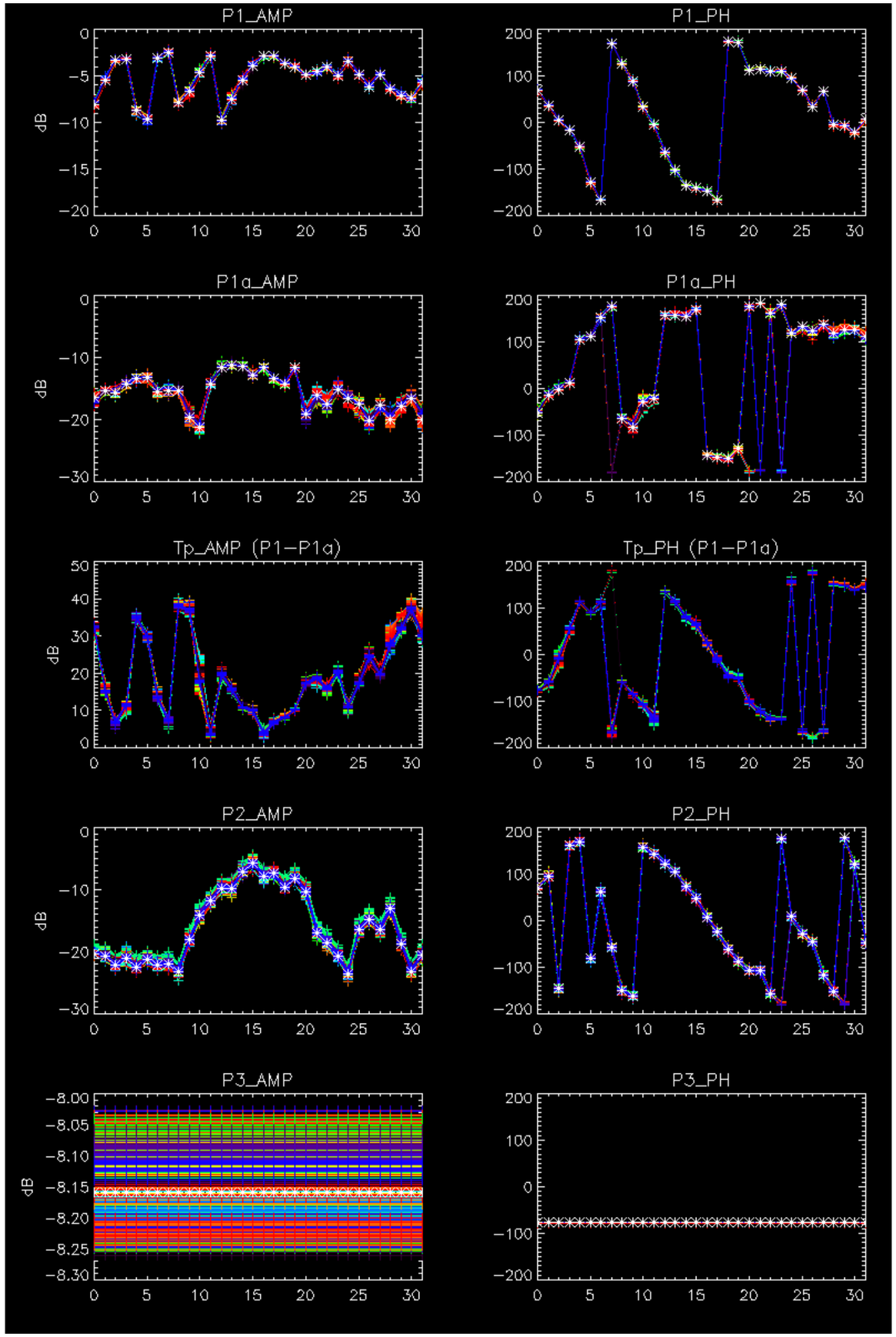

Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
16−Mar
21−Mar
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
Average P1a [dB]
−5
−10
−15
−20
−25
Average P2 [dB]
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
rows: 3 7 11 15 19 22 26 30


Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
18−Apr
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
−24
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 on available browse products

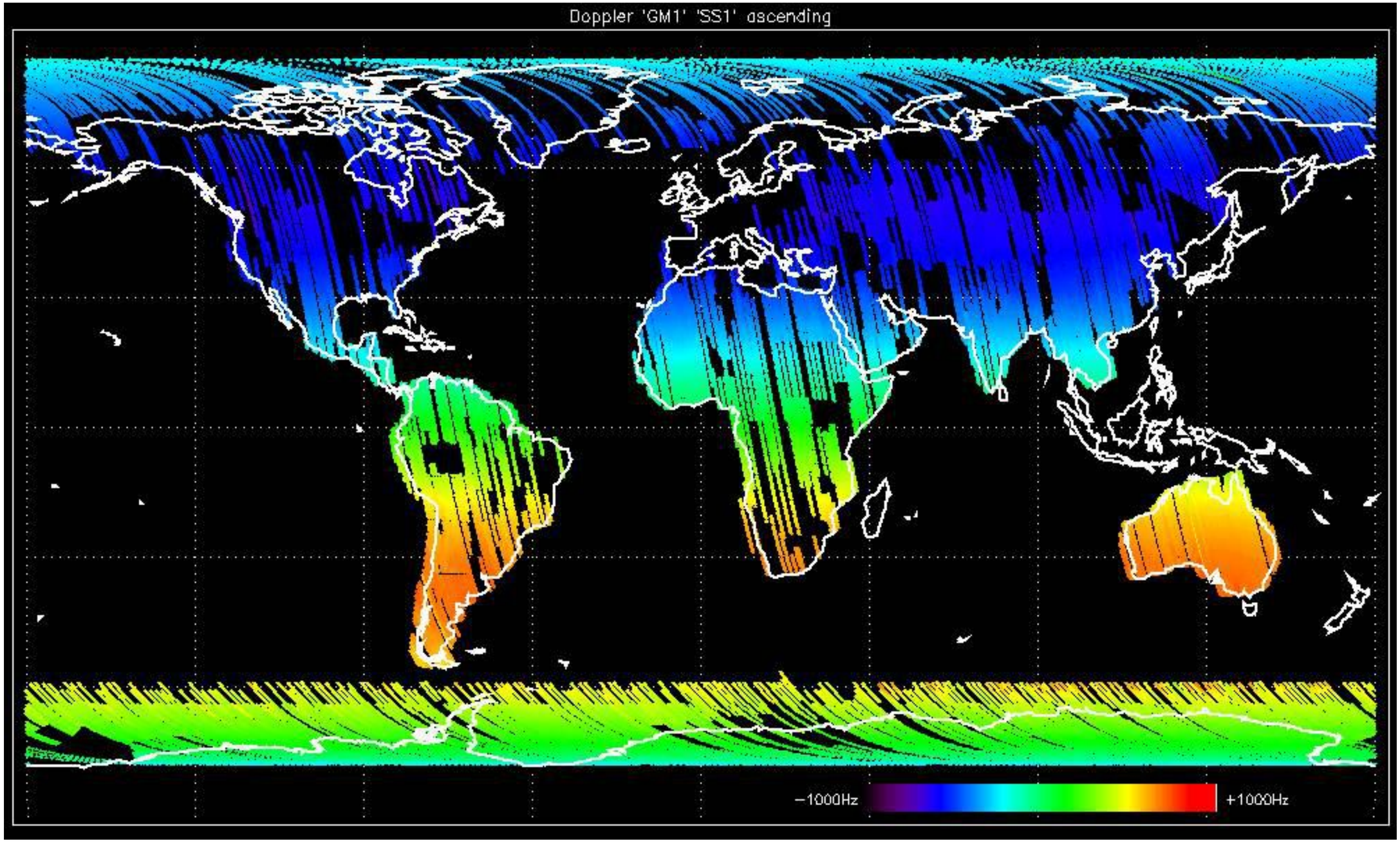
No anomalies observed.

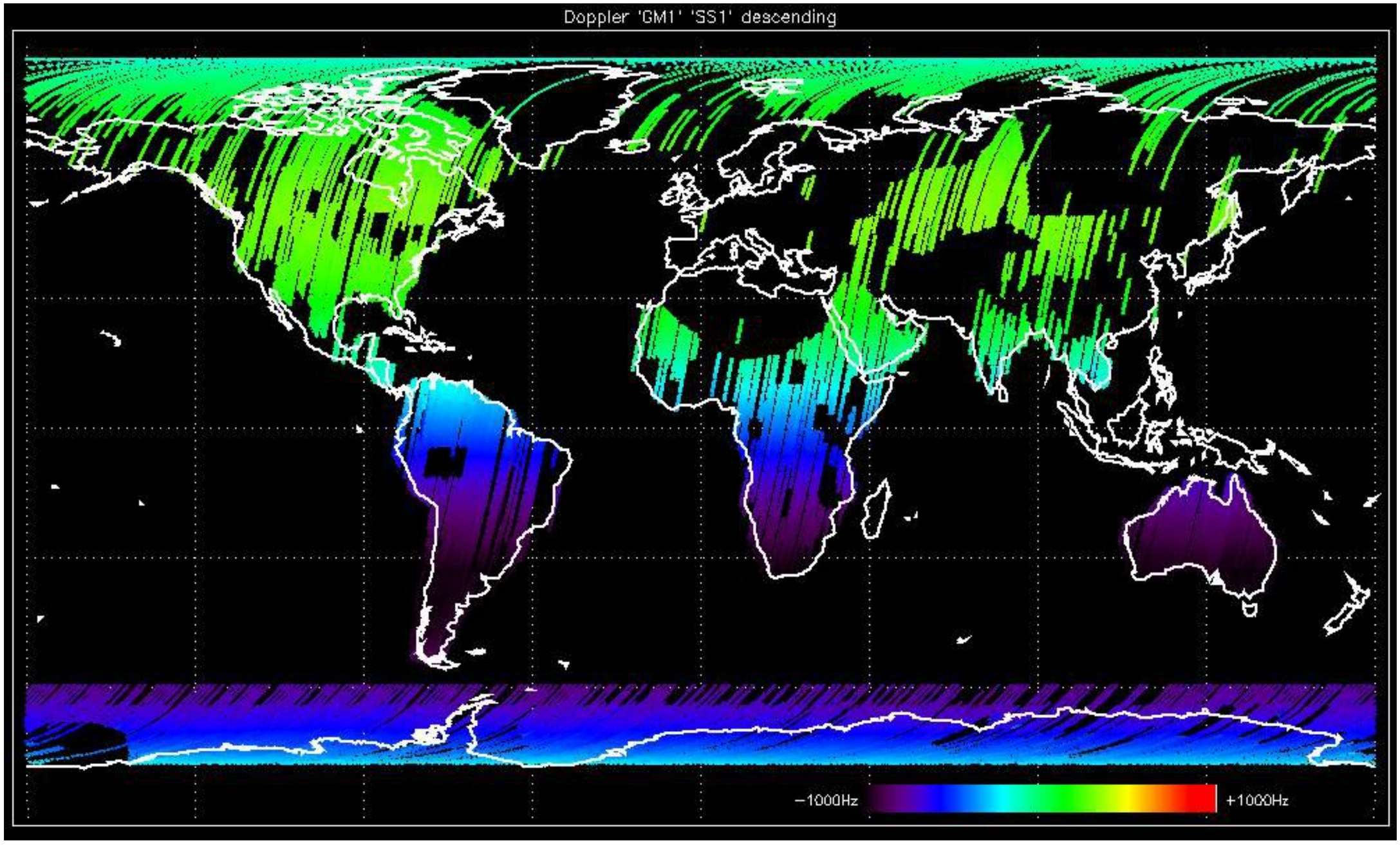

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

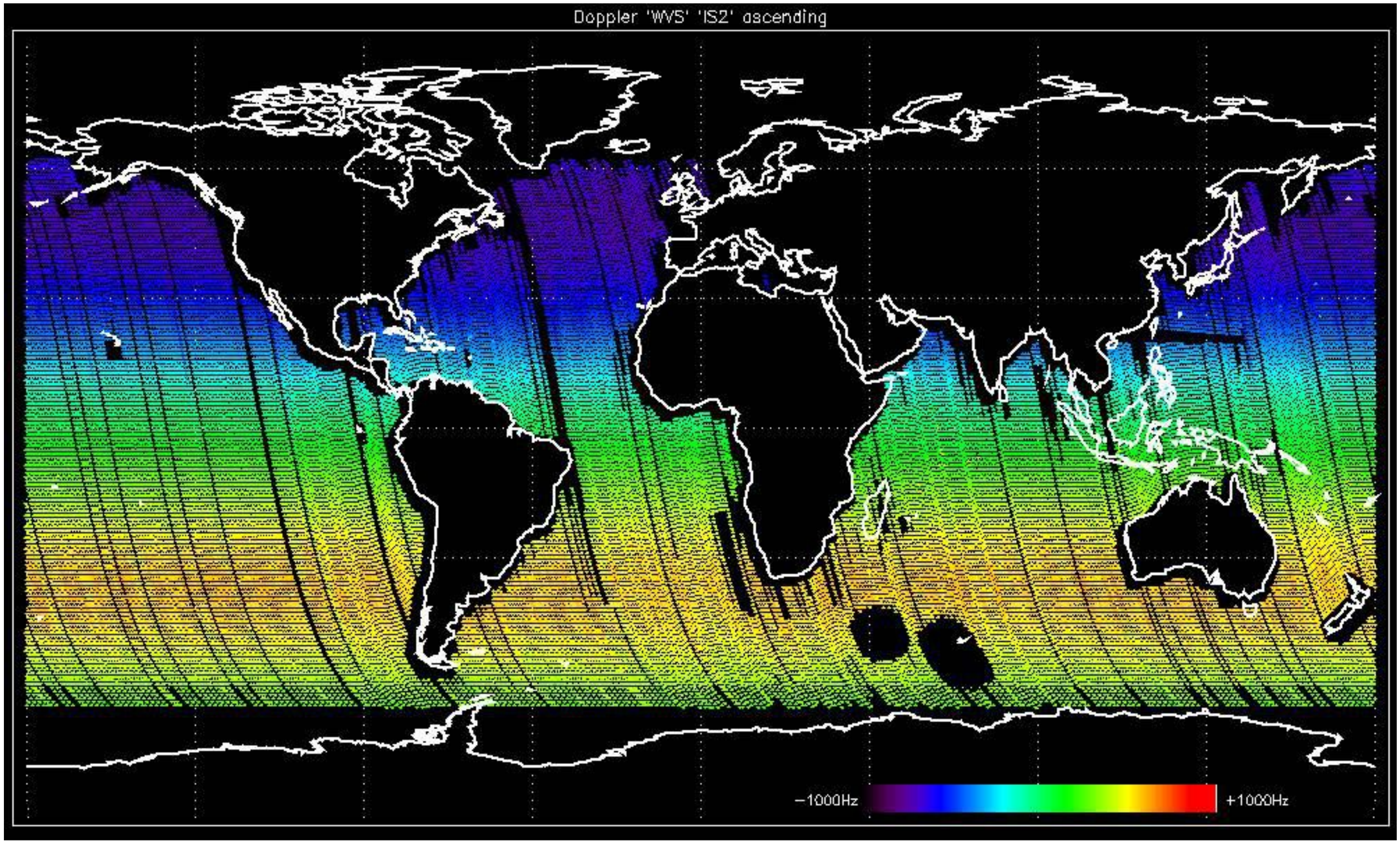

P1_AMP
P1_PH
P1a_AMP
P1a_PH
Tp_AMP (P1−P1a)
Tp_PH (P1−P1a)
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

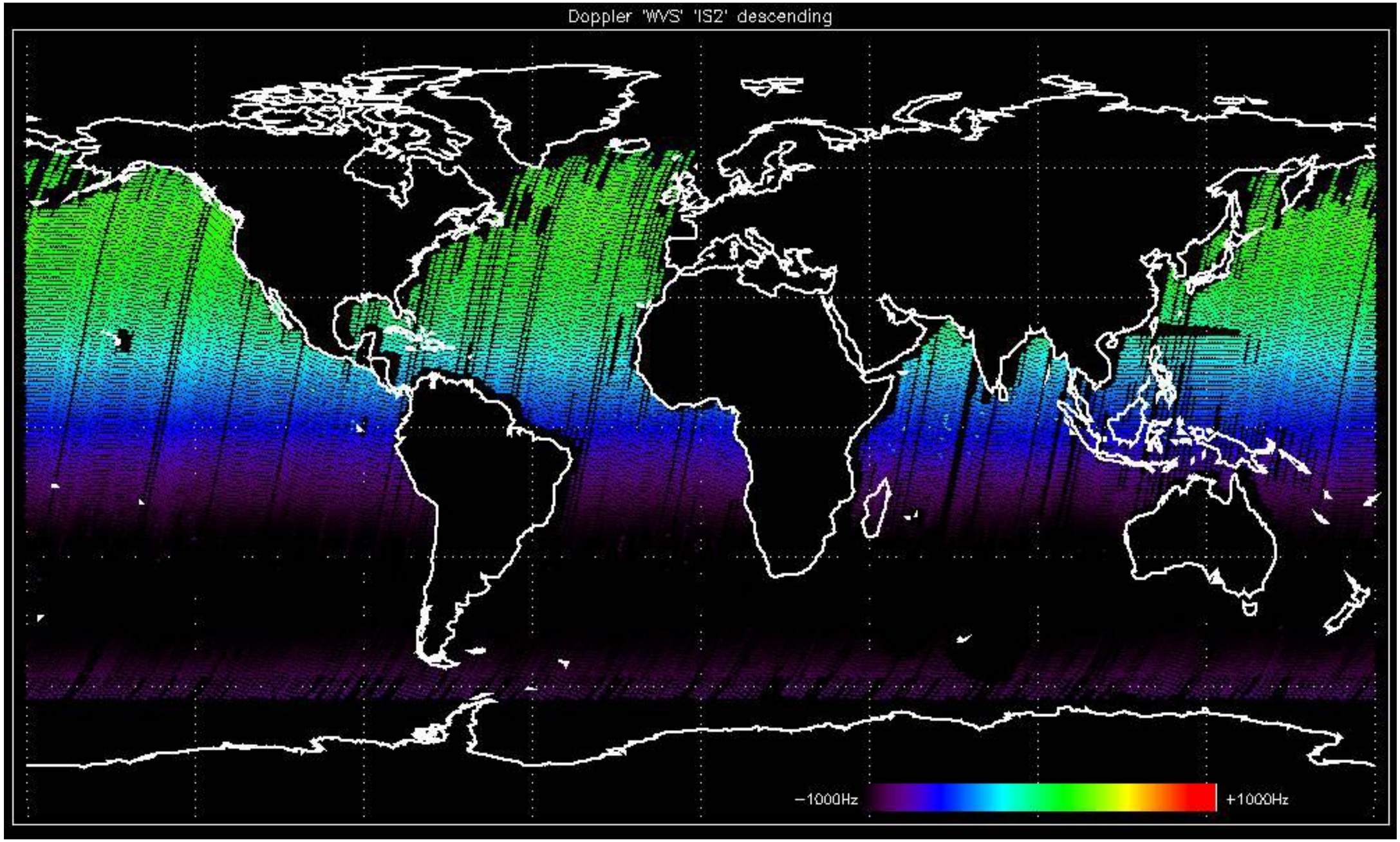
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

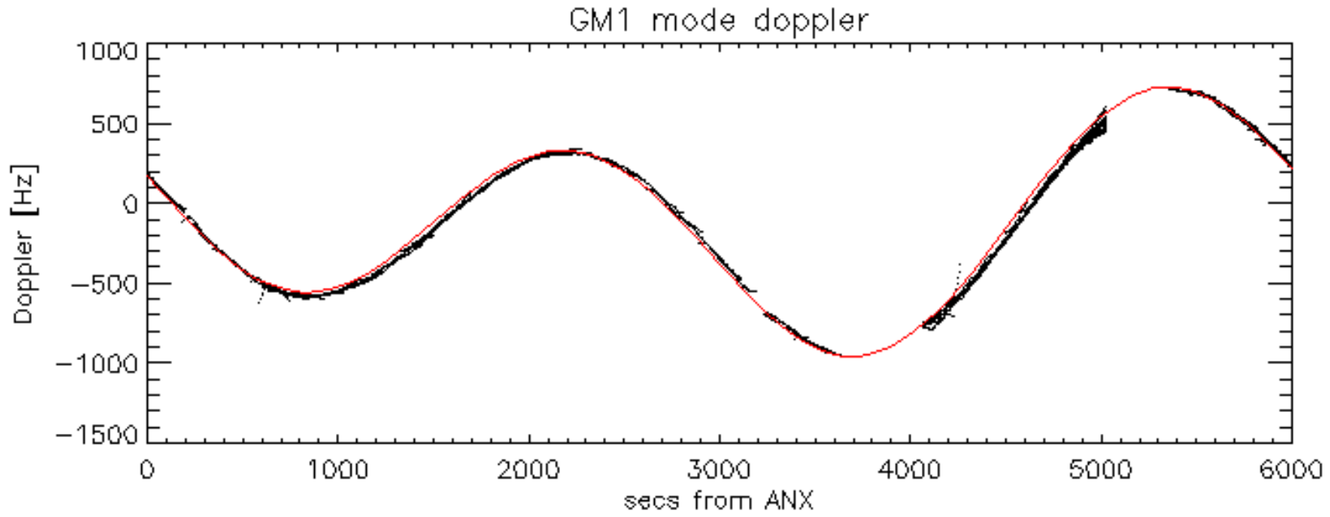
No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

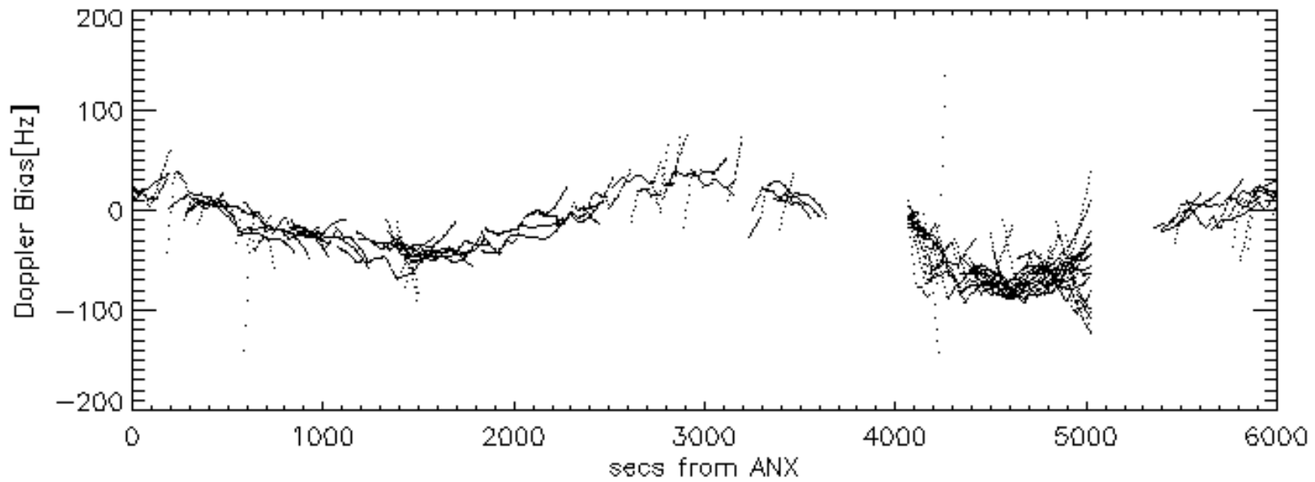

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

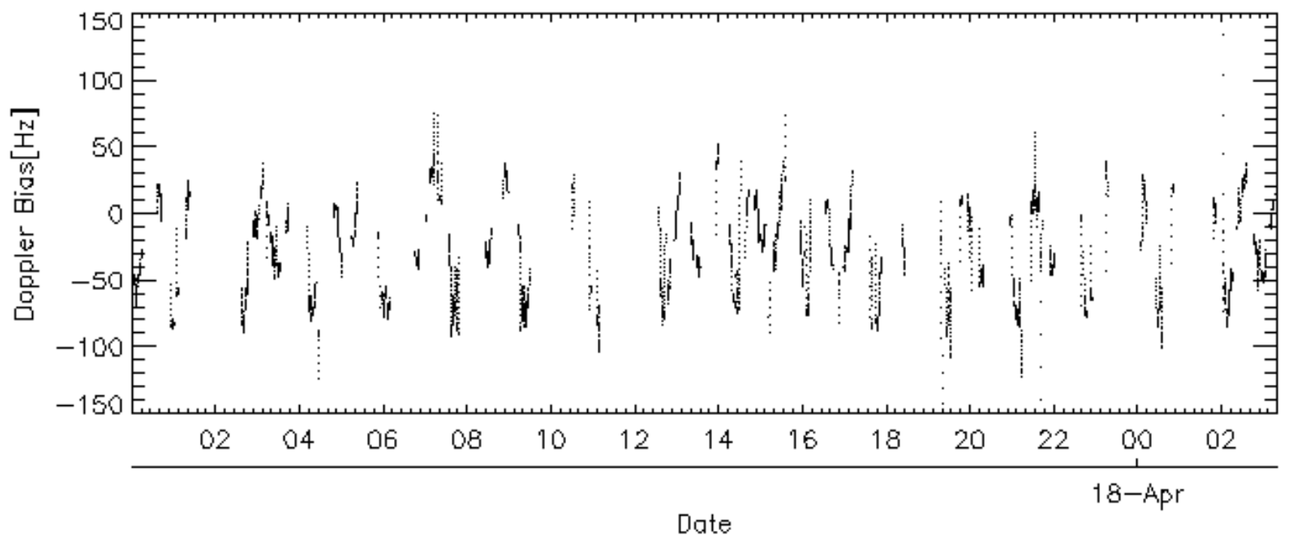

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

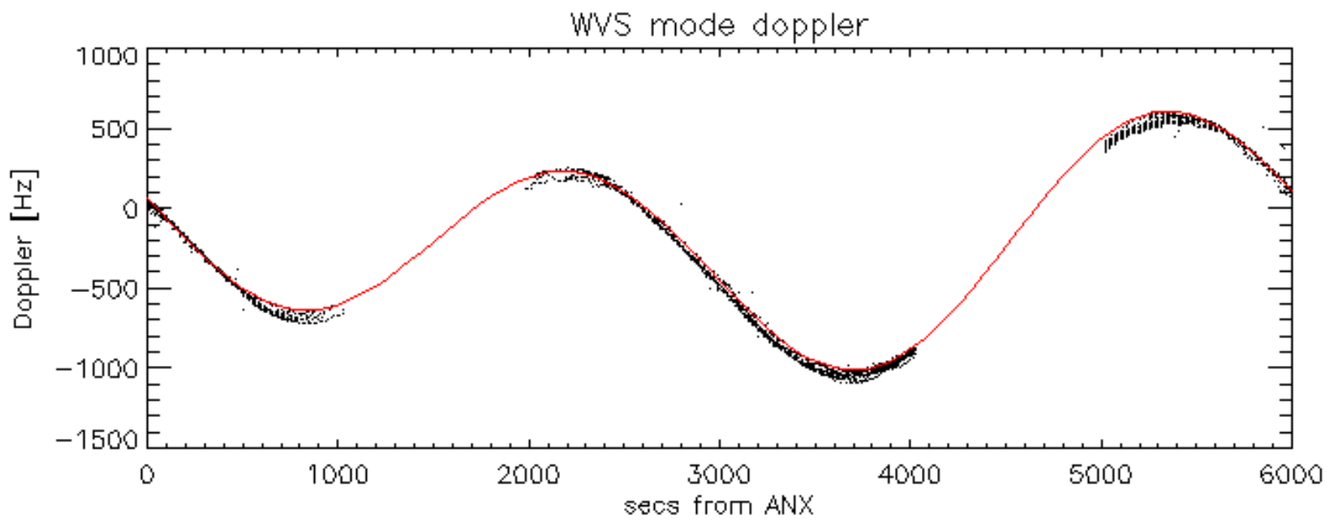

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

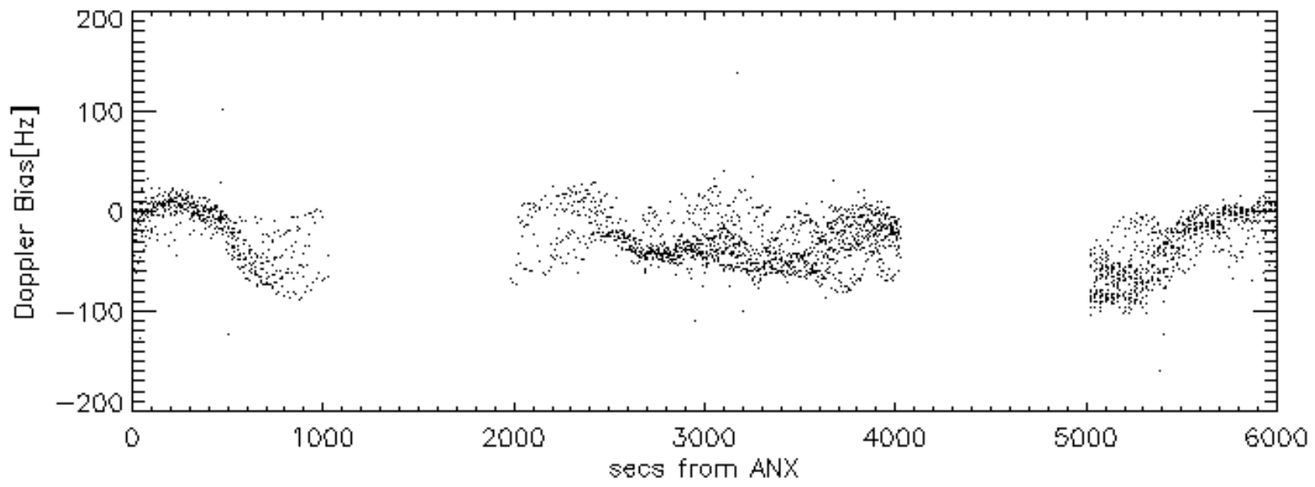

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

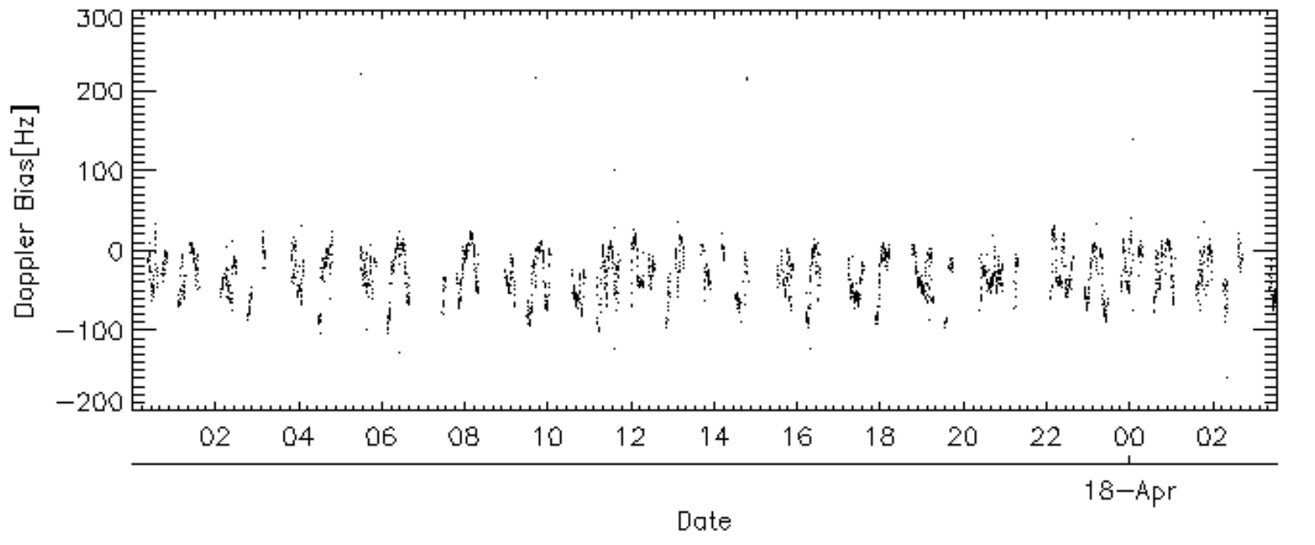

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

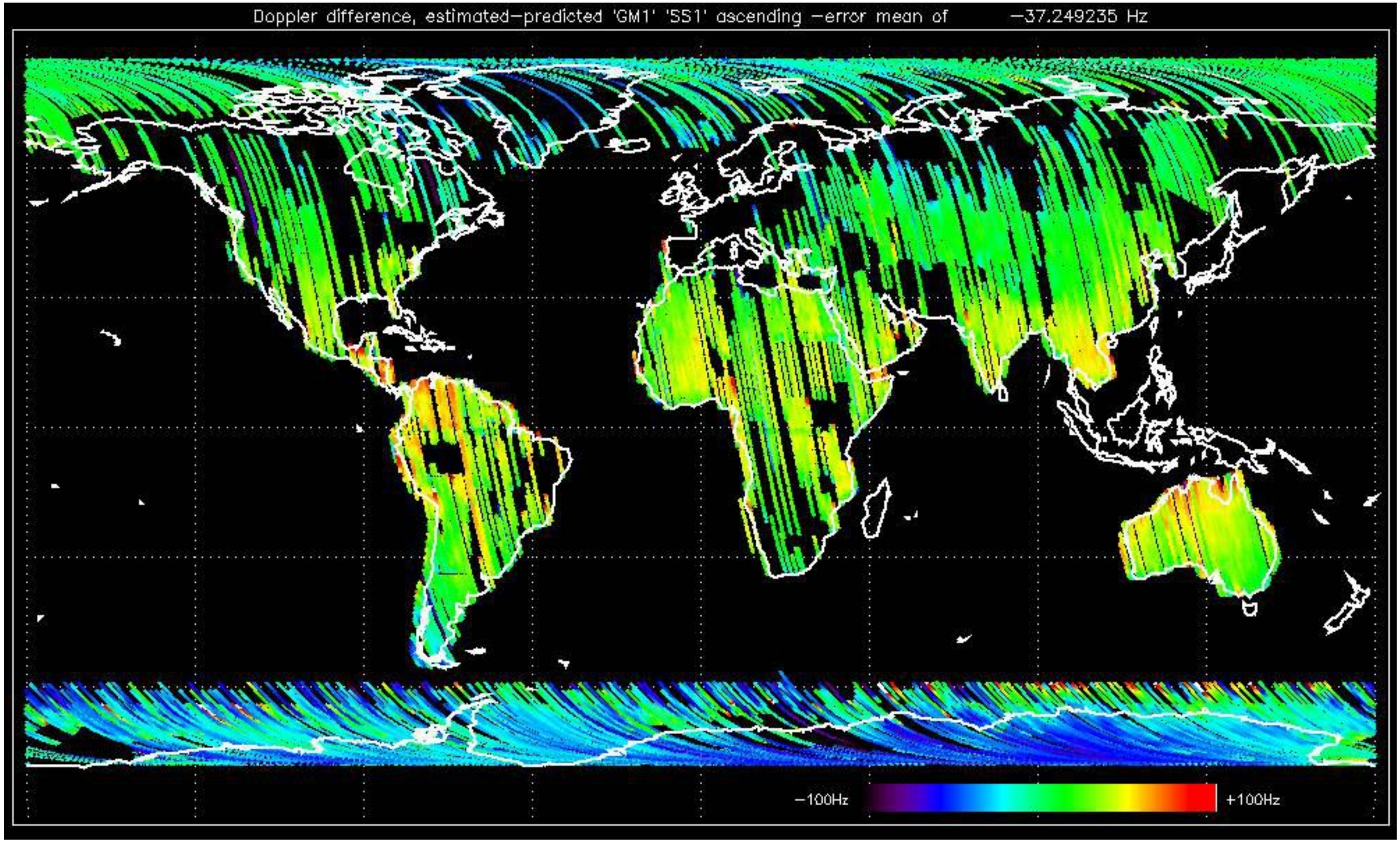

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

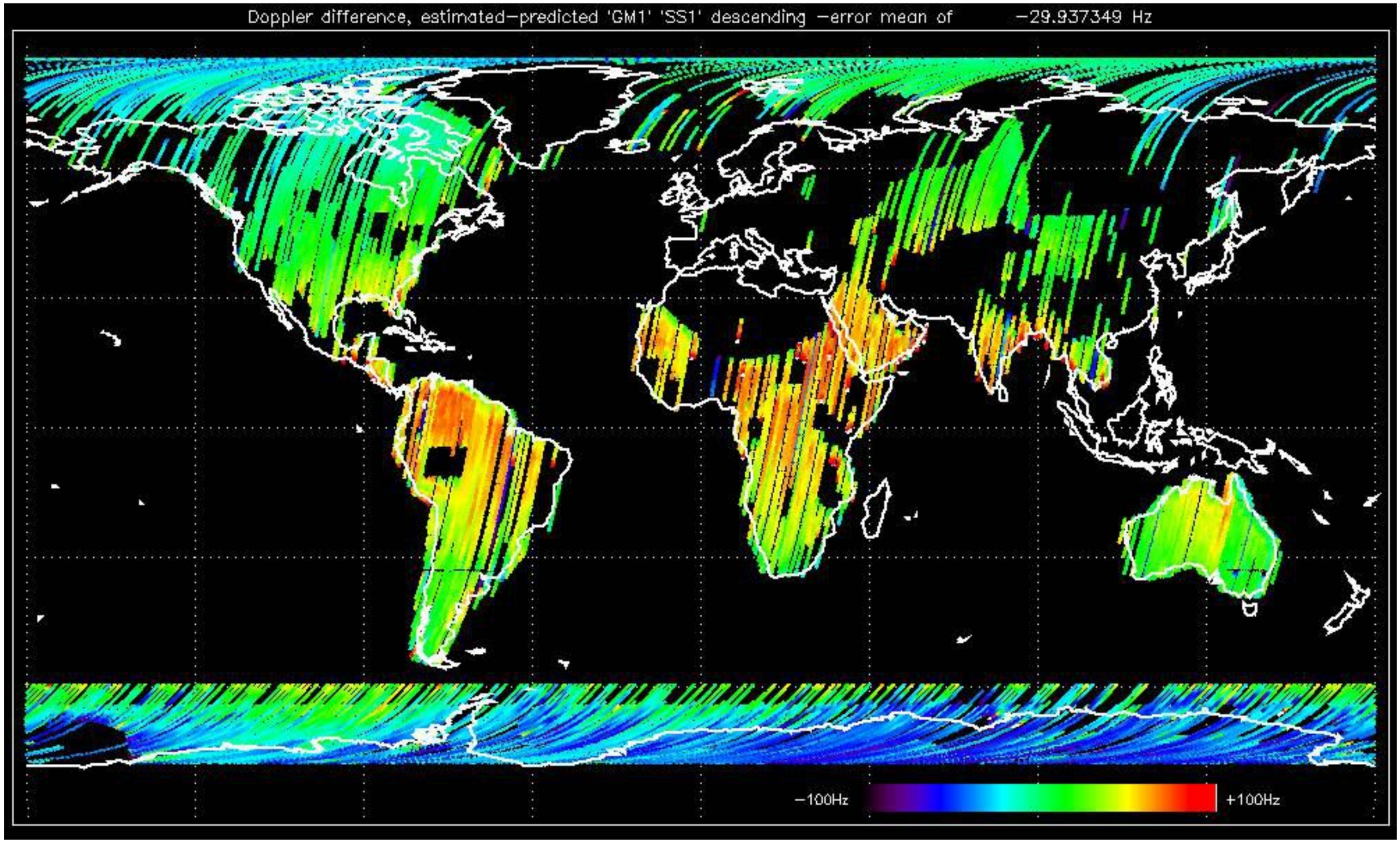

Doppler Bias[Hz]
150
100
50
0
−50
−100
−150
02
04
06
08
10
12
14
16
18
20
22
00
02
18−Apr
Date

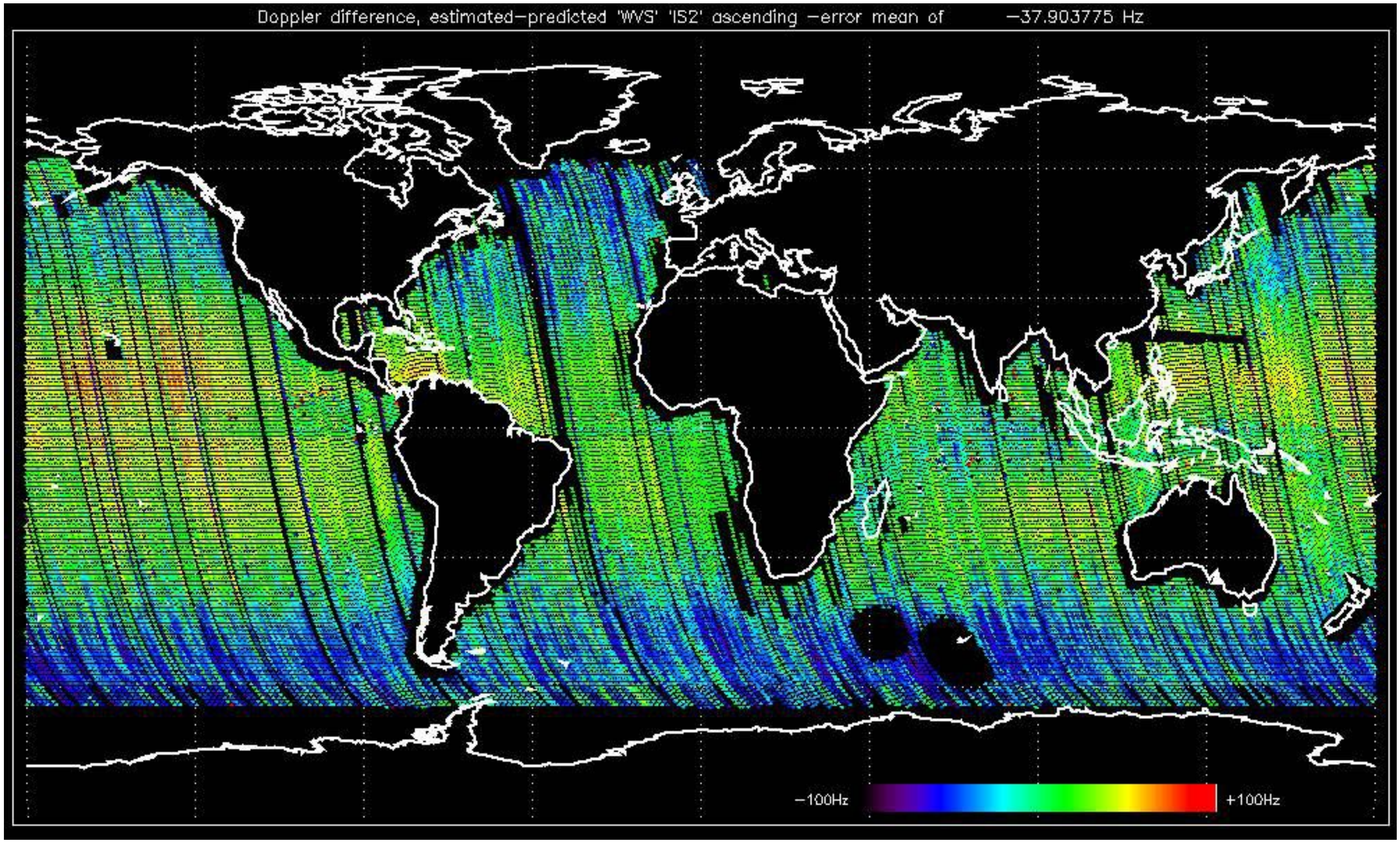

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

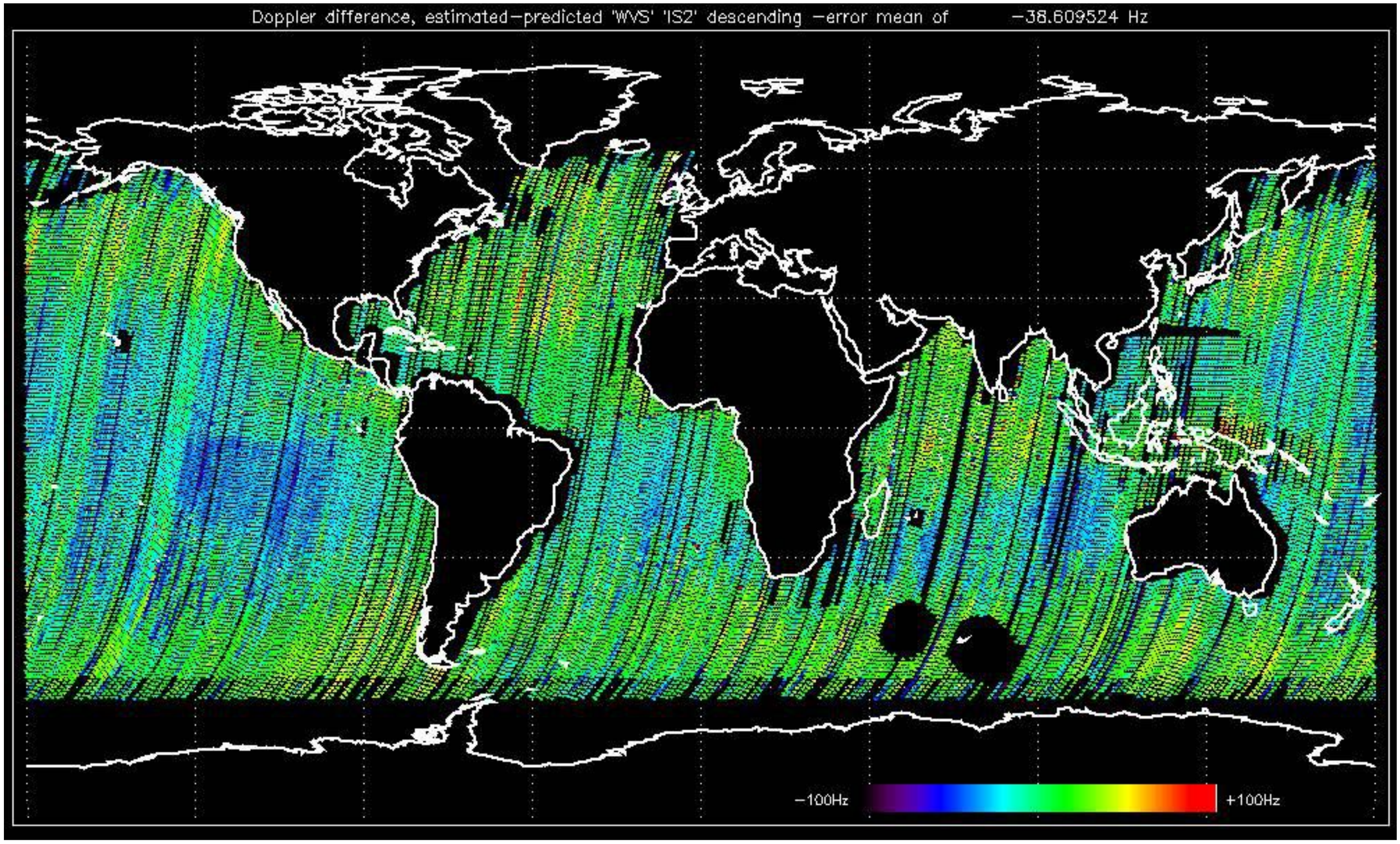

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


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


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −37.249235 Hz
−100Hz
+100Hz


Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -29.937349 Hz
-100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −37.903775 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −38.609524 Hz
−100Hz
+100Hz

No anomalies observed on available MS products:

No anomalies observed.

Reference: 2001-02-09 13:50:42 H
RxGain
Test : 2005-04-16 03:02:49 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
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31
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Reference: 2003-06-12 14:08:52 H
Test : 2005-04-16 03:02:49 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
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8
9
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29
30
31
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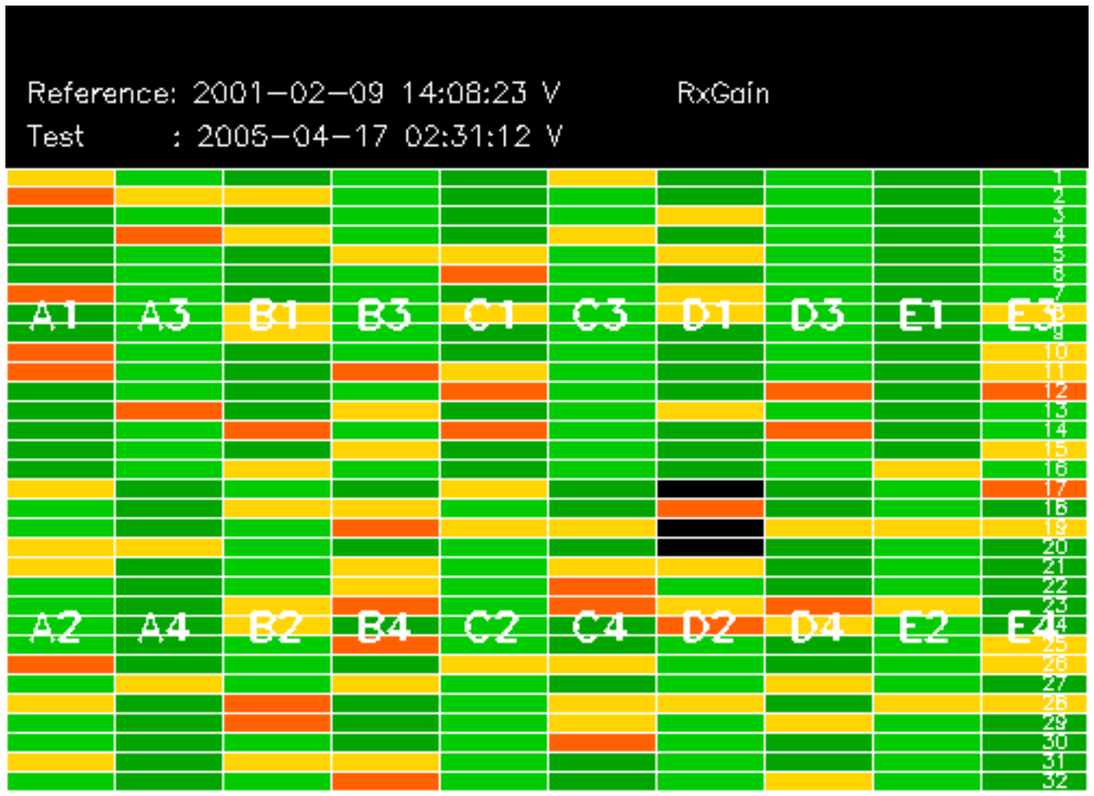
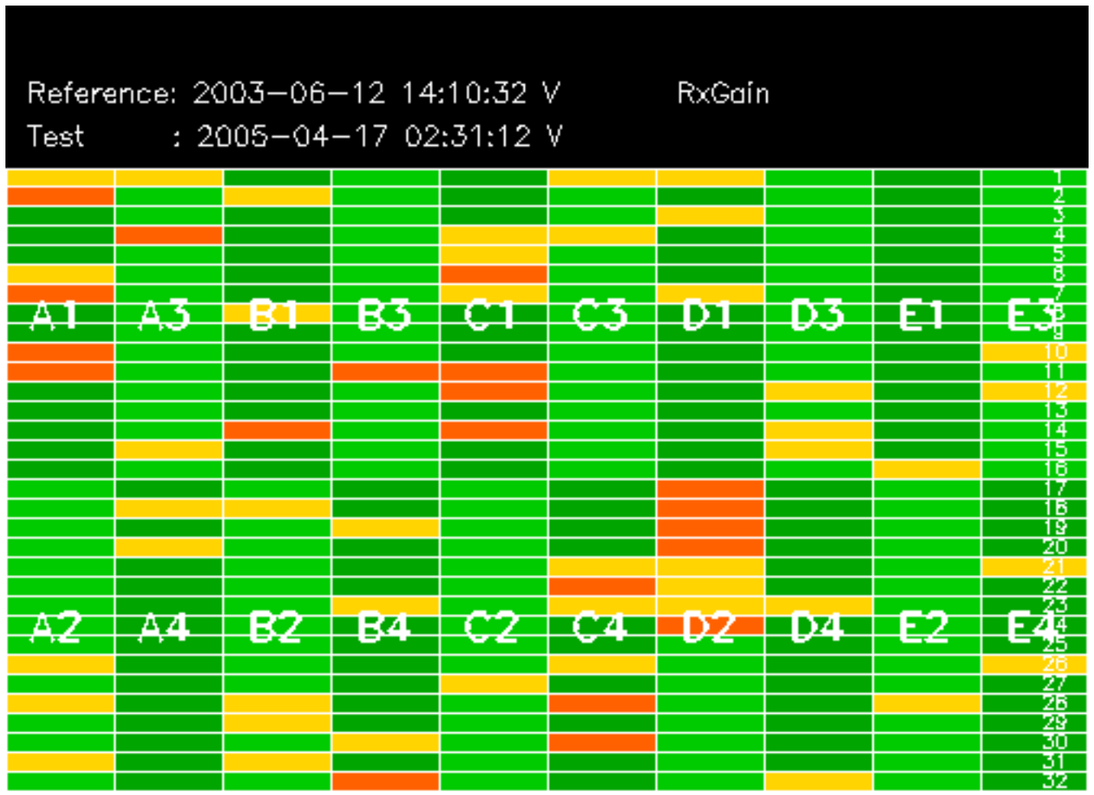

Reference: 2001-02-09 14:08:23 V
Test : 2005-04-17 02:31:12 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2005-04-17 02:31:12 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
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8
9
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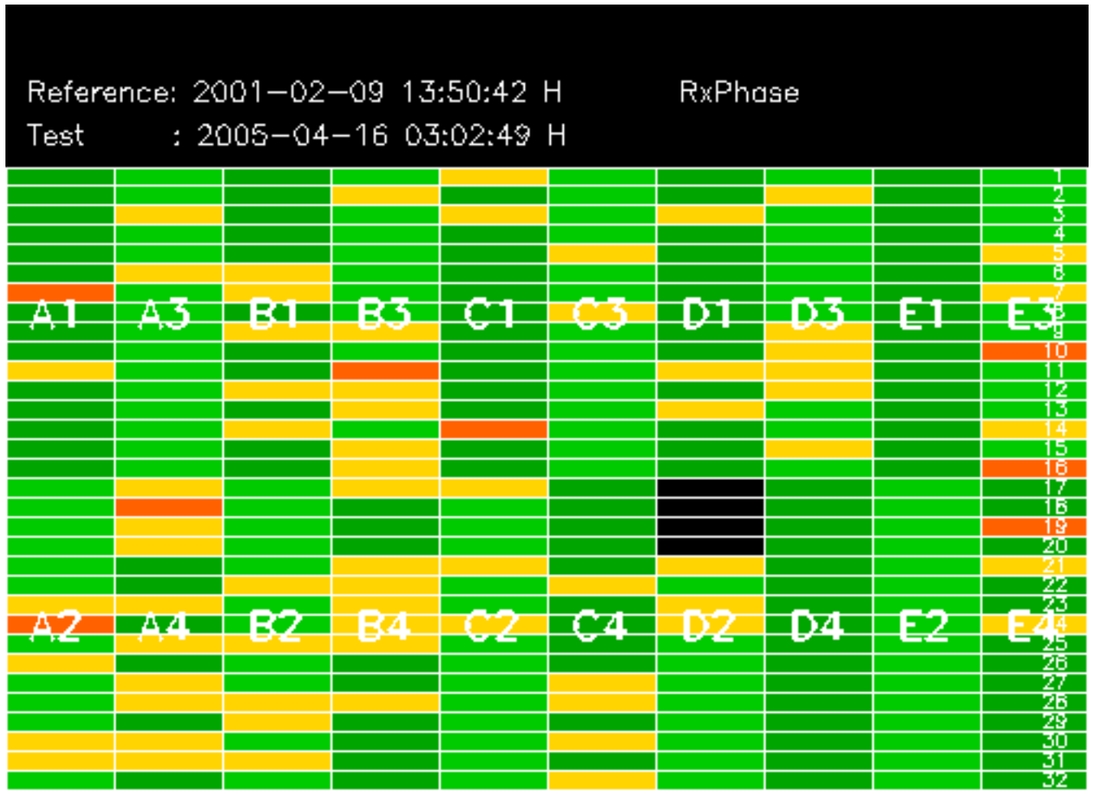
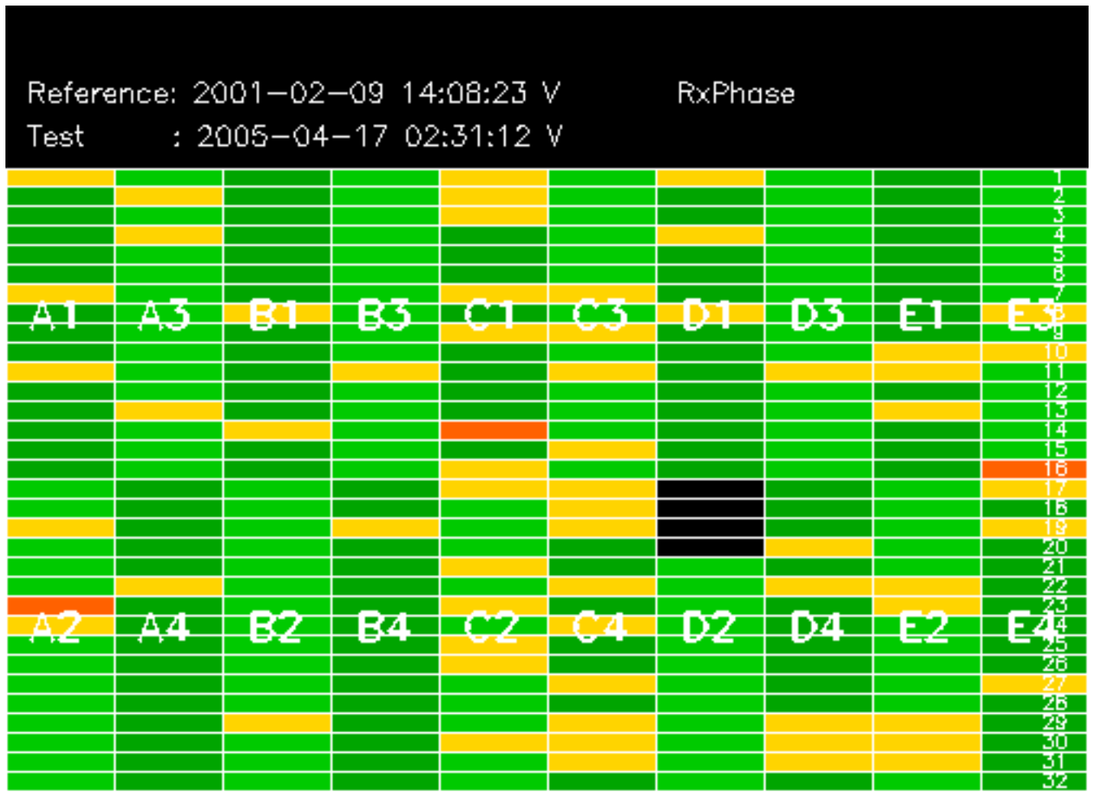
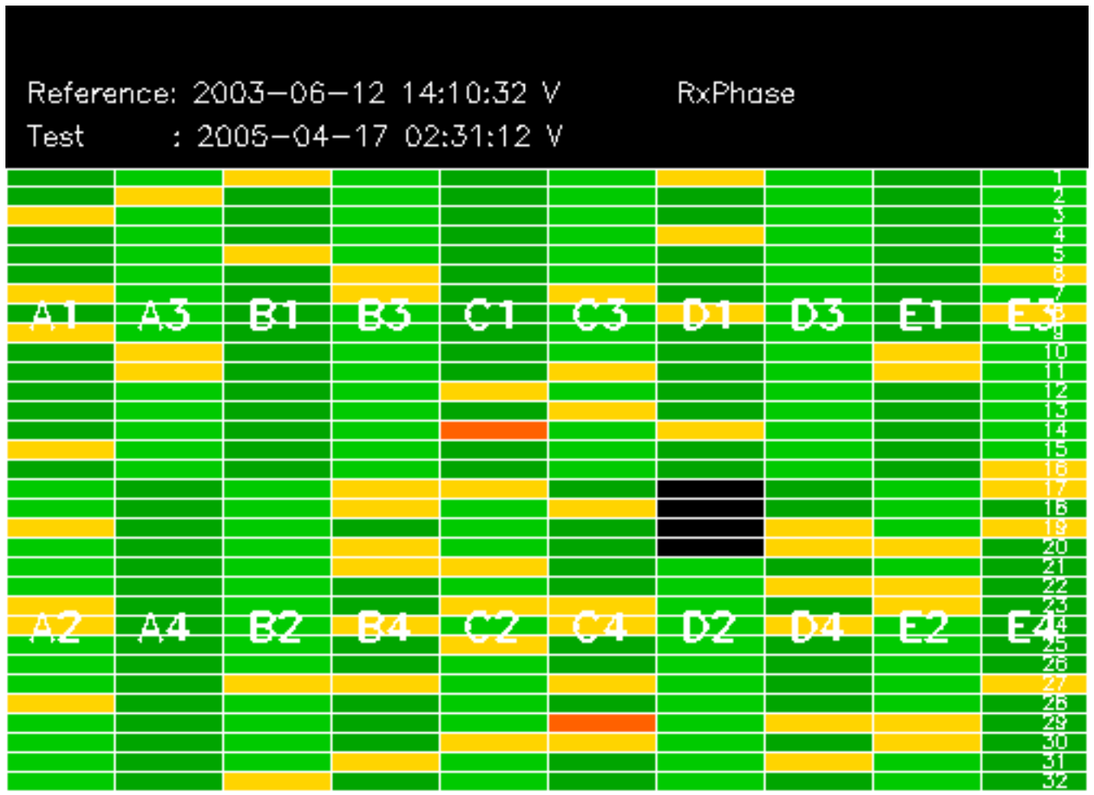
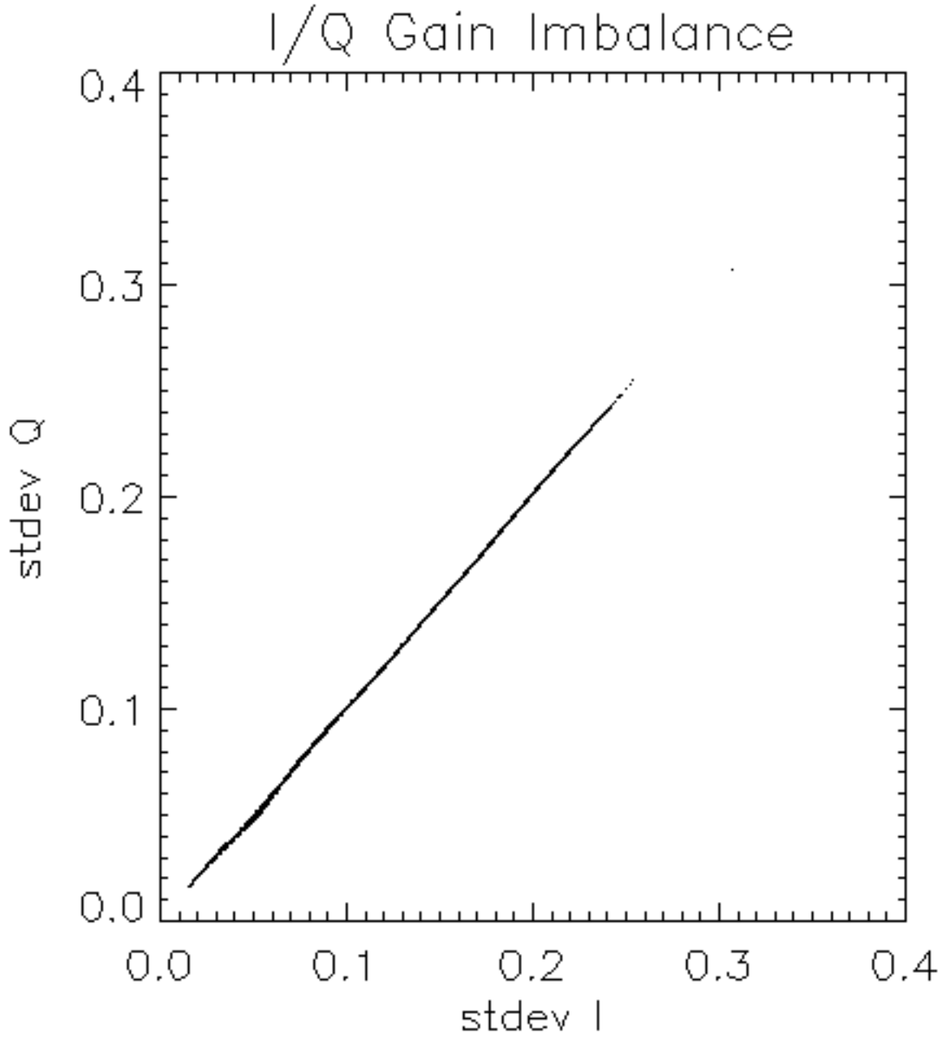
31
32

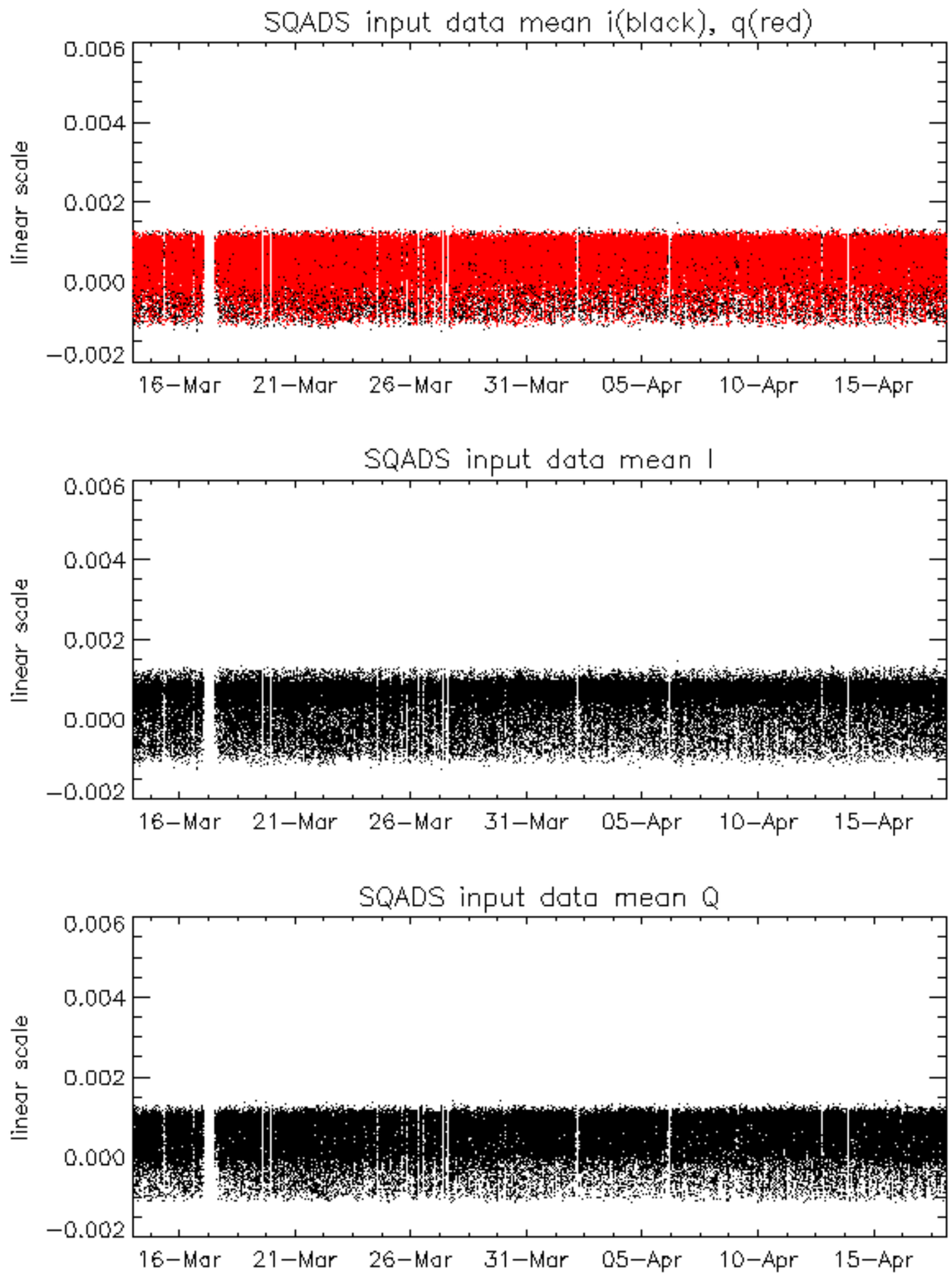

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2005-04-16 03:02:49 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

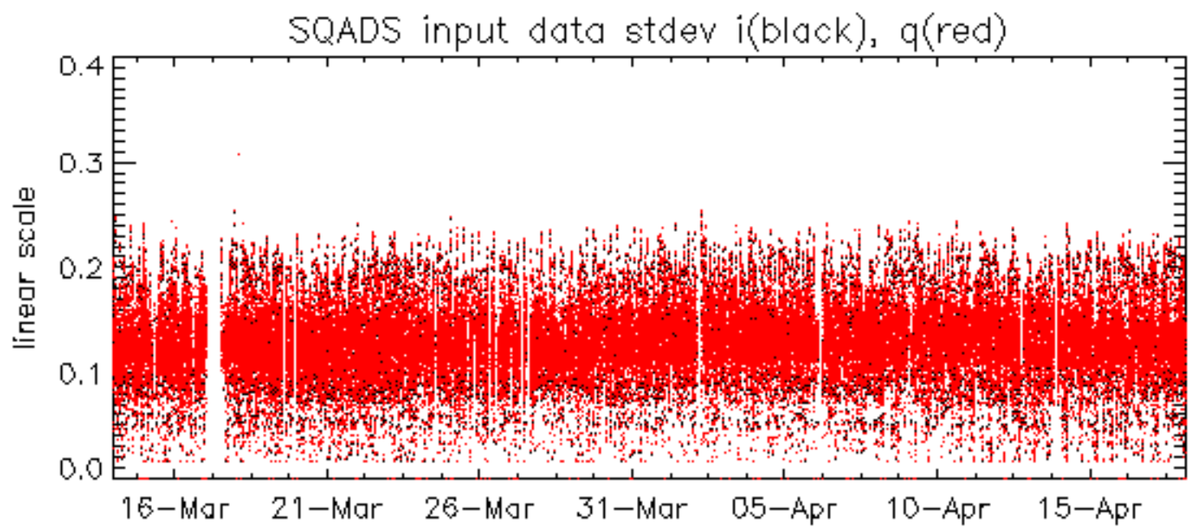
Reference: 2003-06-12 14:08:52 H
Test : 2005-04-16 03:02:49 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

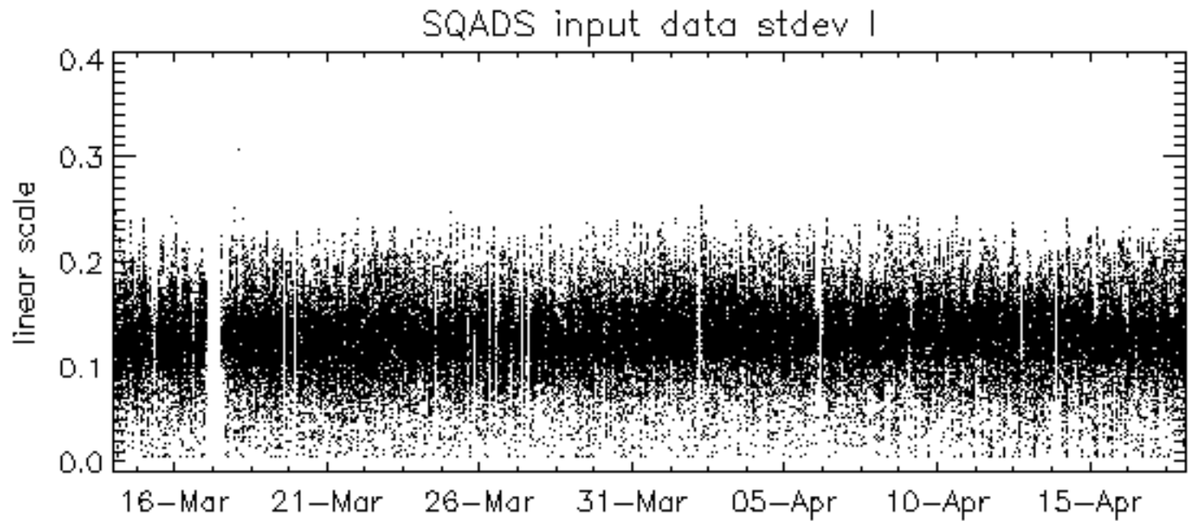

Reference: 2001-02-09 14:08:23 V
RxPhase
Test : 2005-04-17 02:31:12 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

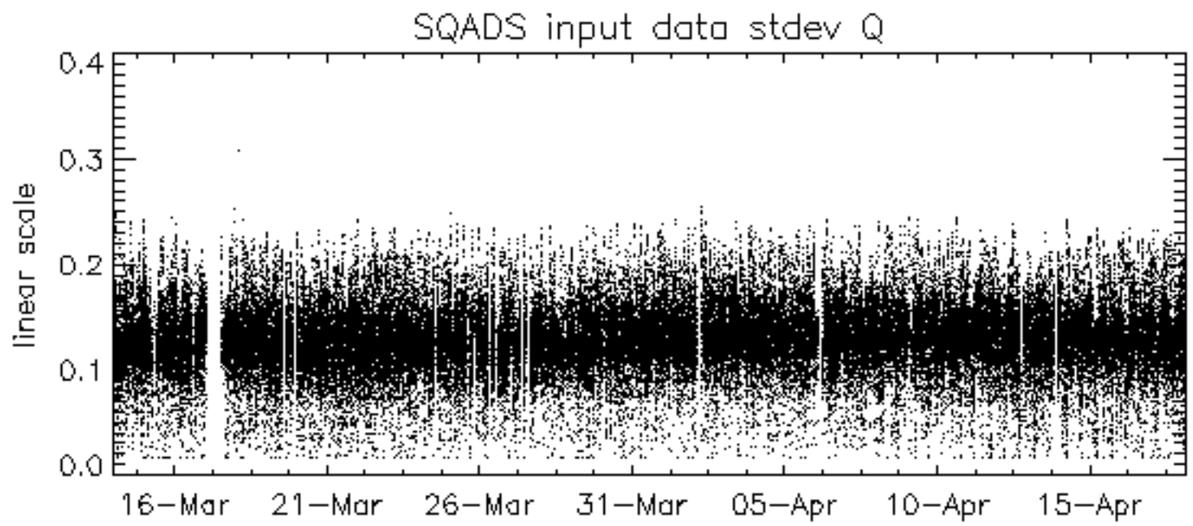

Reference: 2003-06-12 14:10:32 V
Test : 2005-04-17 02:31:12 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

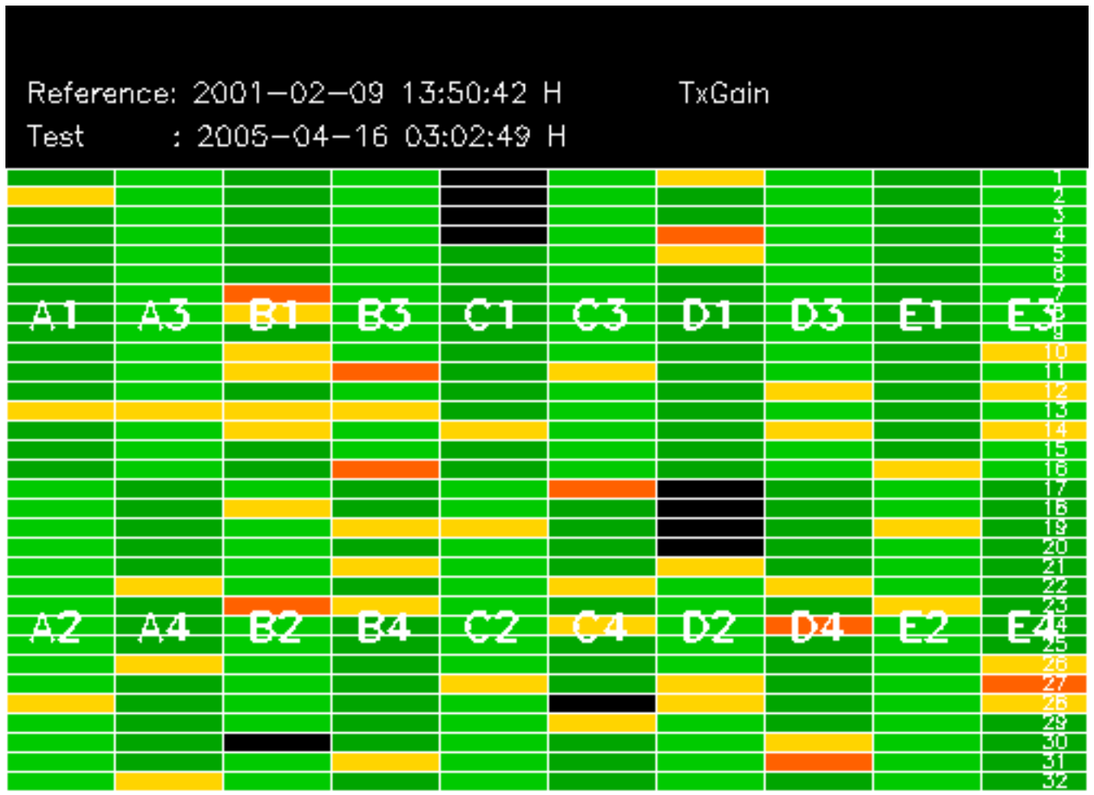

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I


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


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


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


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


Reference: 2001-02-09 13:50:42 H
Test : 2005-04-16 03:02:49 H
TxGain
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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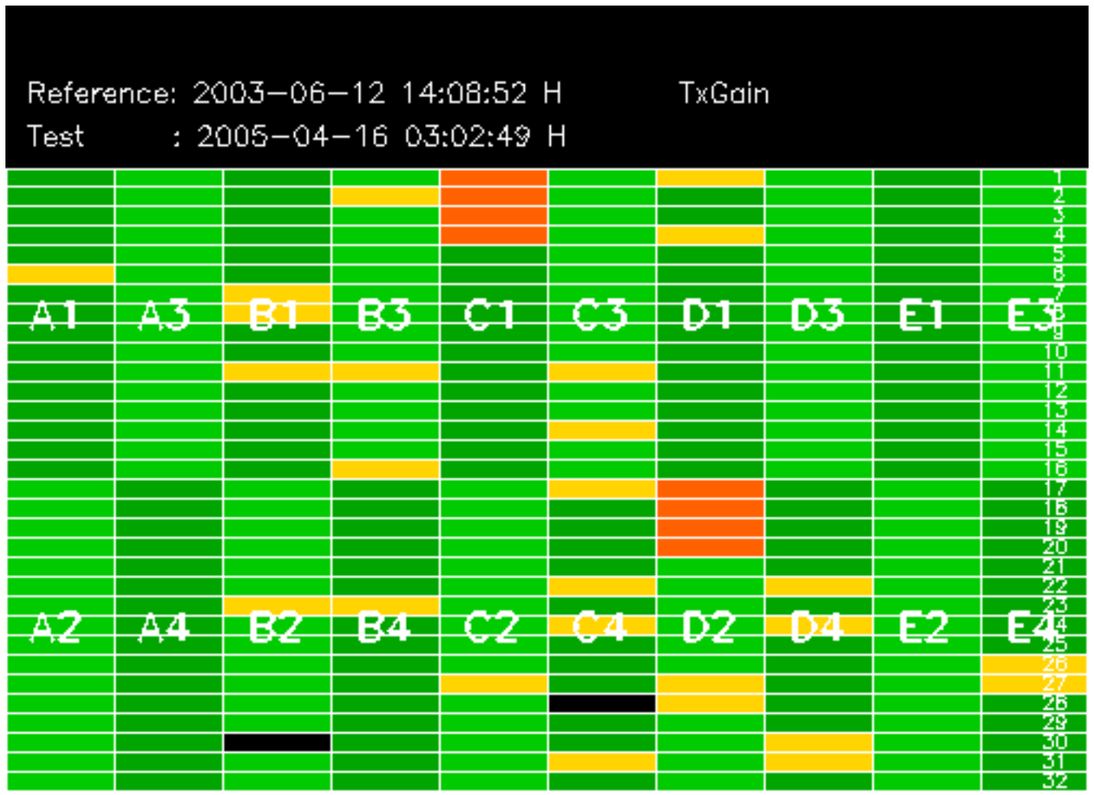
Reference: 2003-06-12 14:08:52 H
Test : 2005-04-16 03:02:49 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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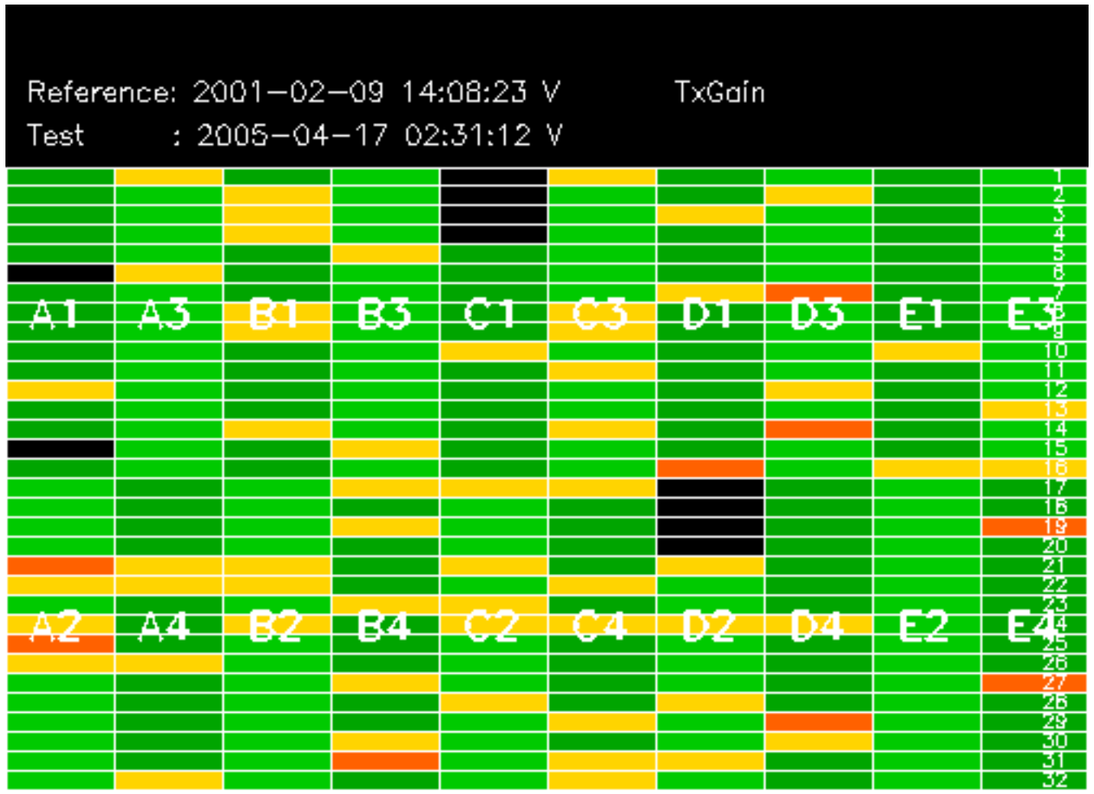
Reference: 2001-02-09 14:08:23 V
Test : 2005-04-17 02:31:12 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
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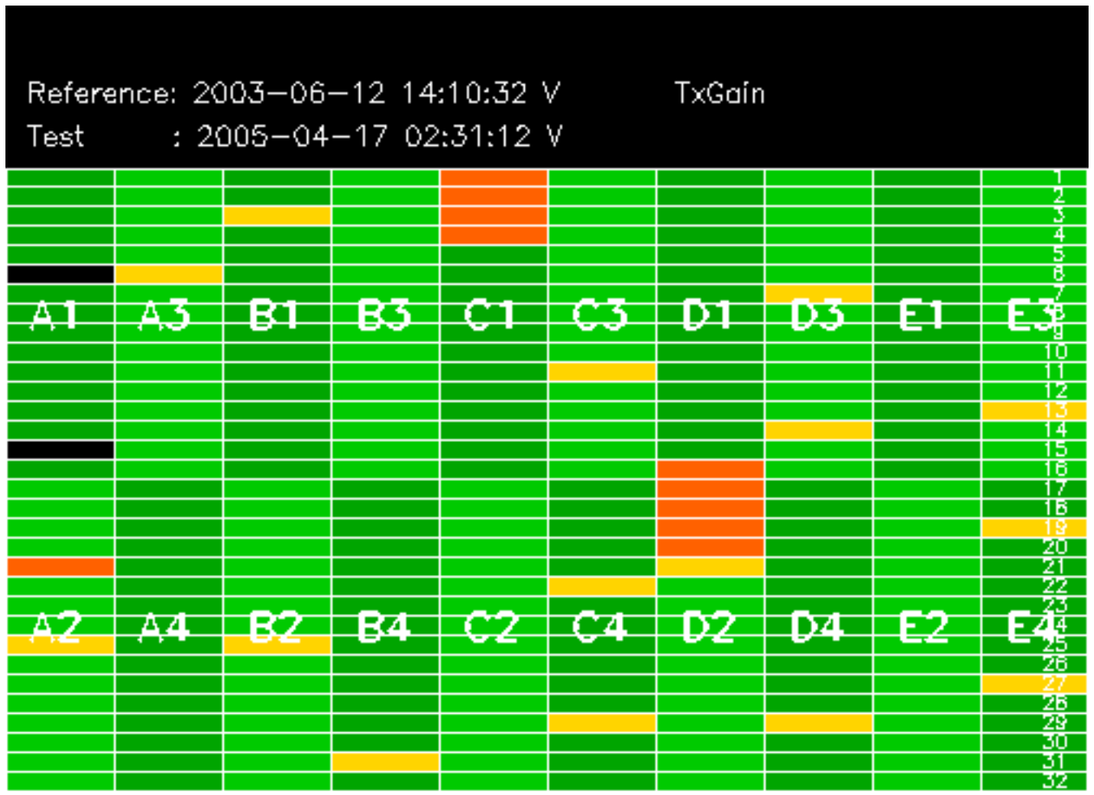
Reference: 2003-06-12 14:10:32 V
Test : 2005-04-17 02:31:12 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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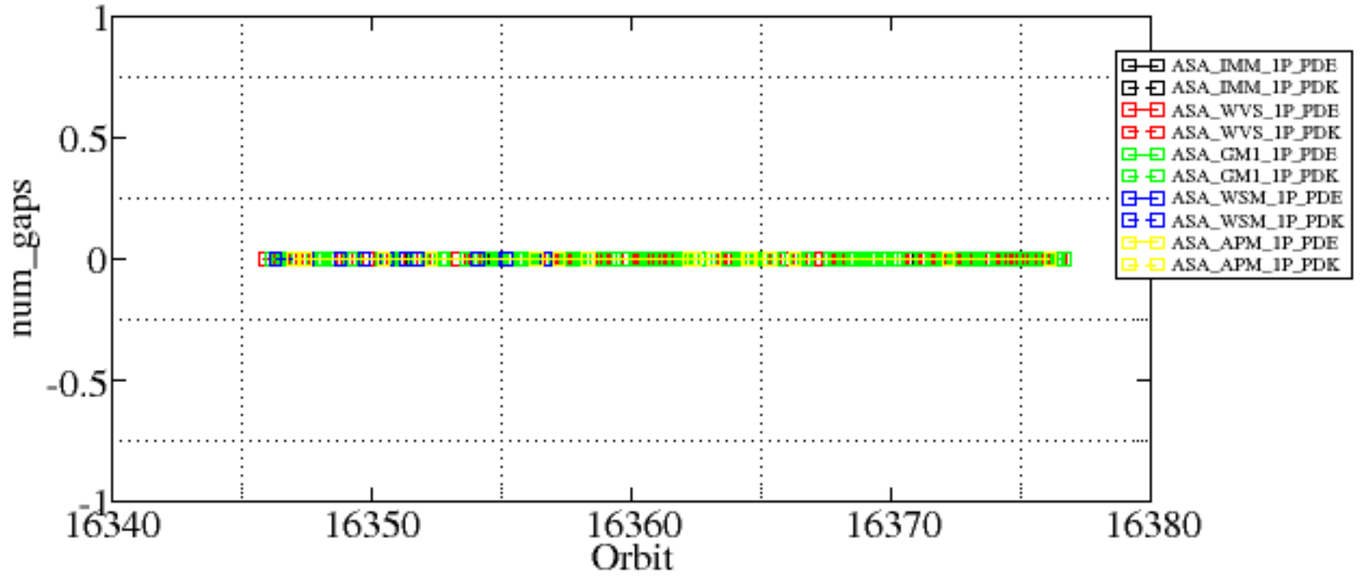
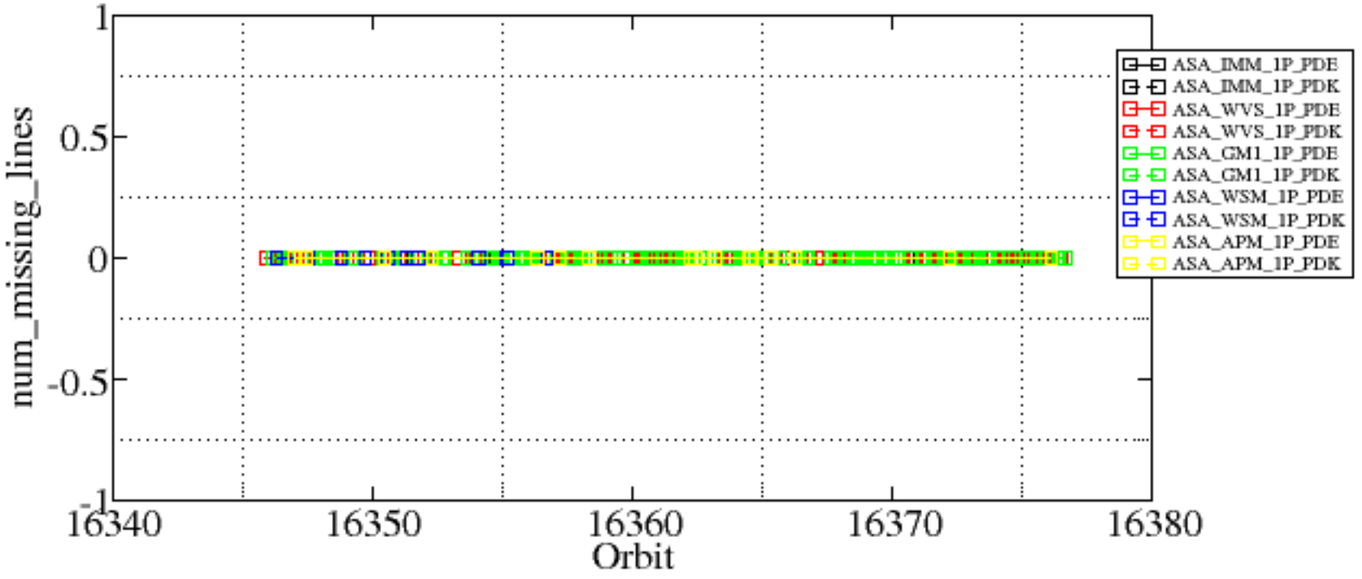
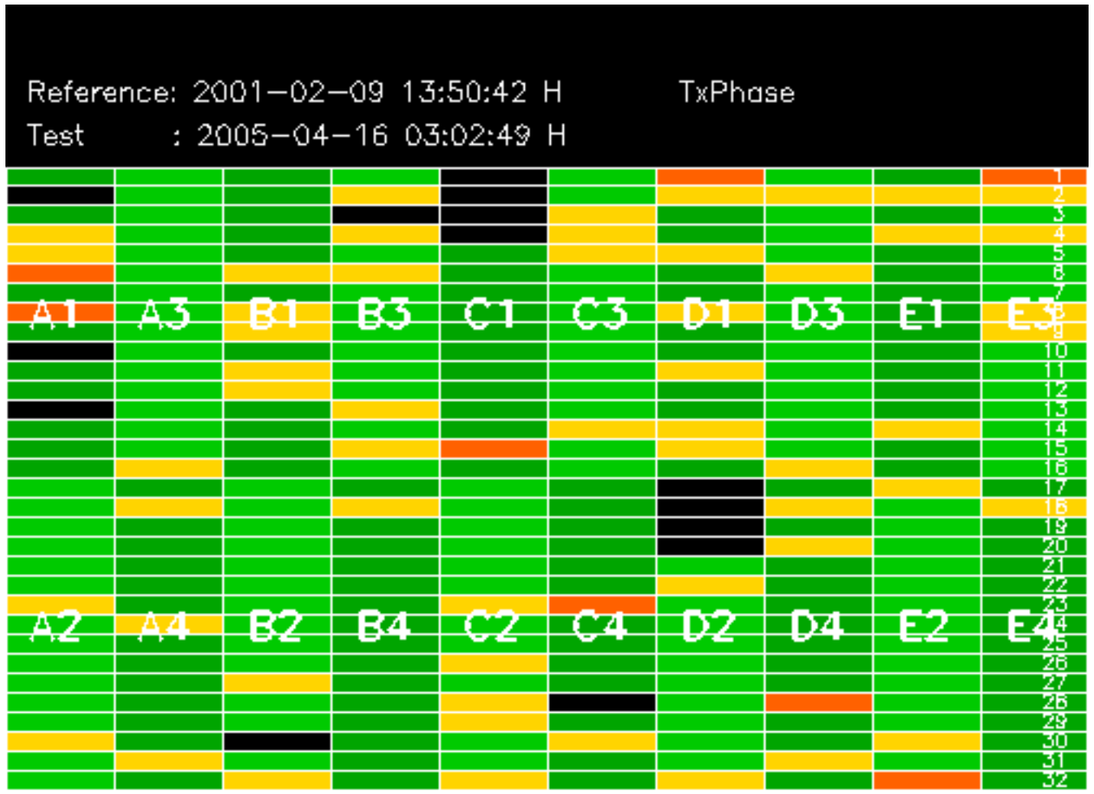
Summary of analysis for the last 3 days 2005041[678]
The assumptions is taken that the SQADS num_gaps and num_missing_lines fields are reliable indicators of telemetry problems
<table border=1>
<tr> <th>Filename   </th><th> num_gaps</th><th>num_missing_lines</th></tr>
</table>


num_gaps
1
0.5
0
-0.5
-1
16340
16350
16360
16370
16380
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
1
0.5
0
-0.5
-1
16340
16350
16360
16370
16380
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
Test : 2005-04-16 03:02:49 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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18
19
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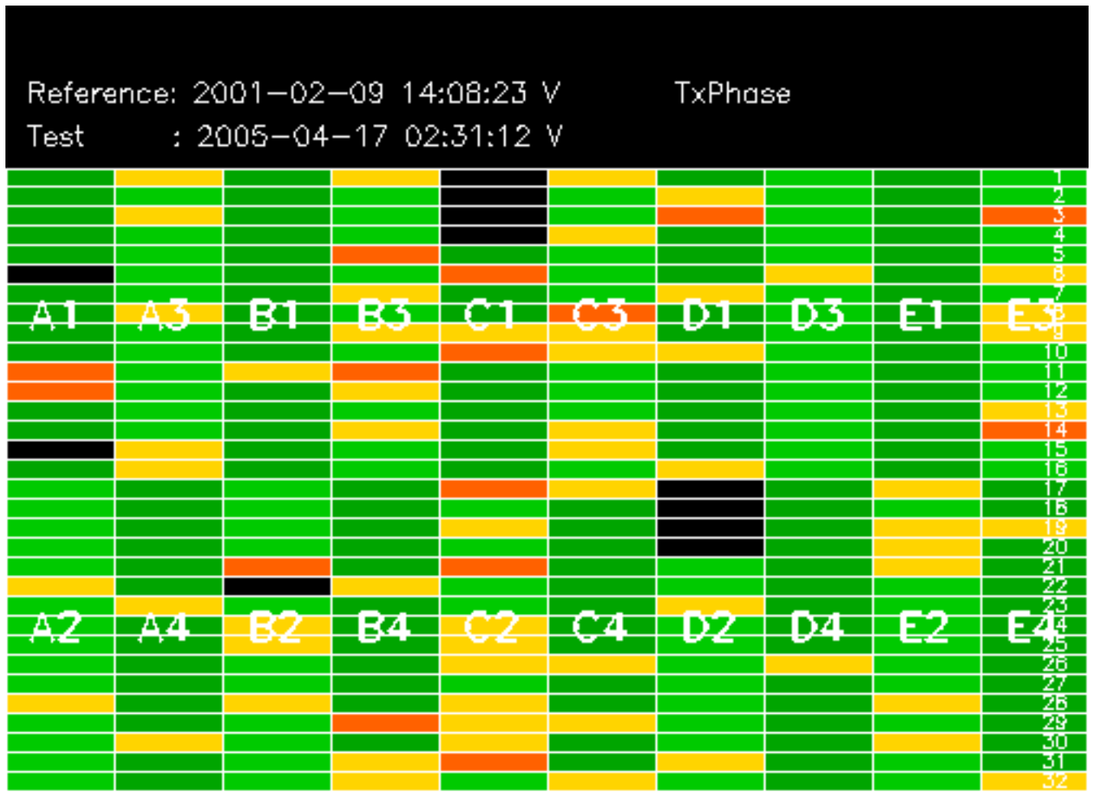
24
25
26
27
28
29
30
31
32

Reference: 2003-06-12 14:08:52 H
Test : 2005-04-16 03:02:49 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 : 2005-04-17 02:31:12 V
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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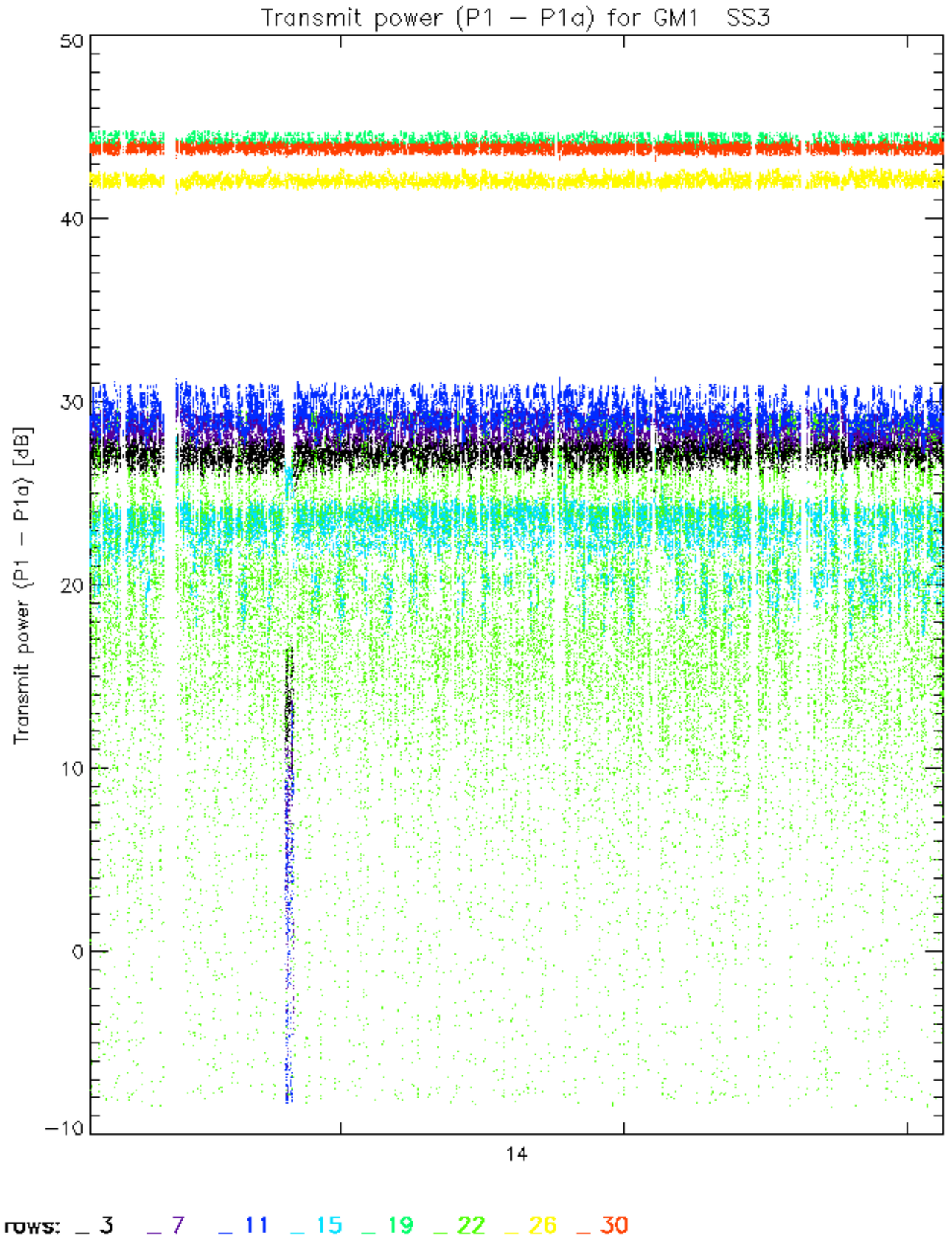
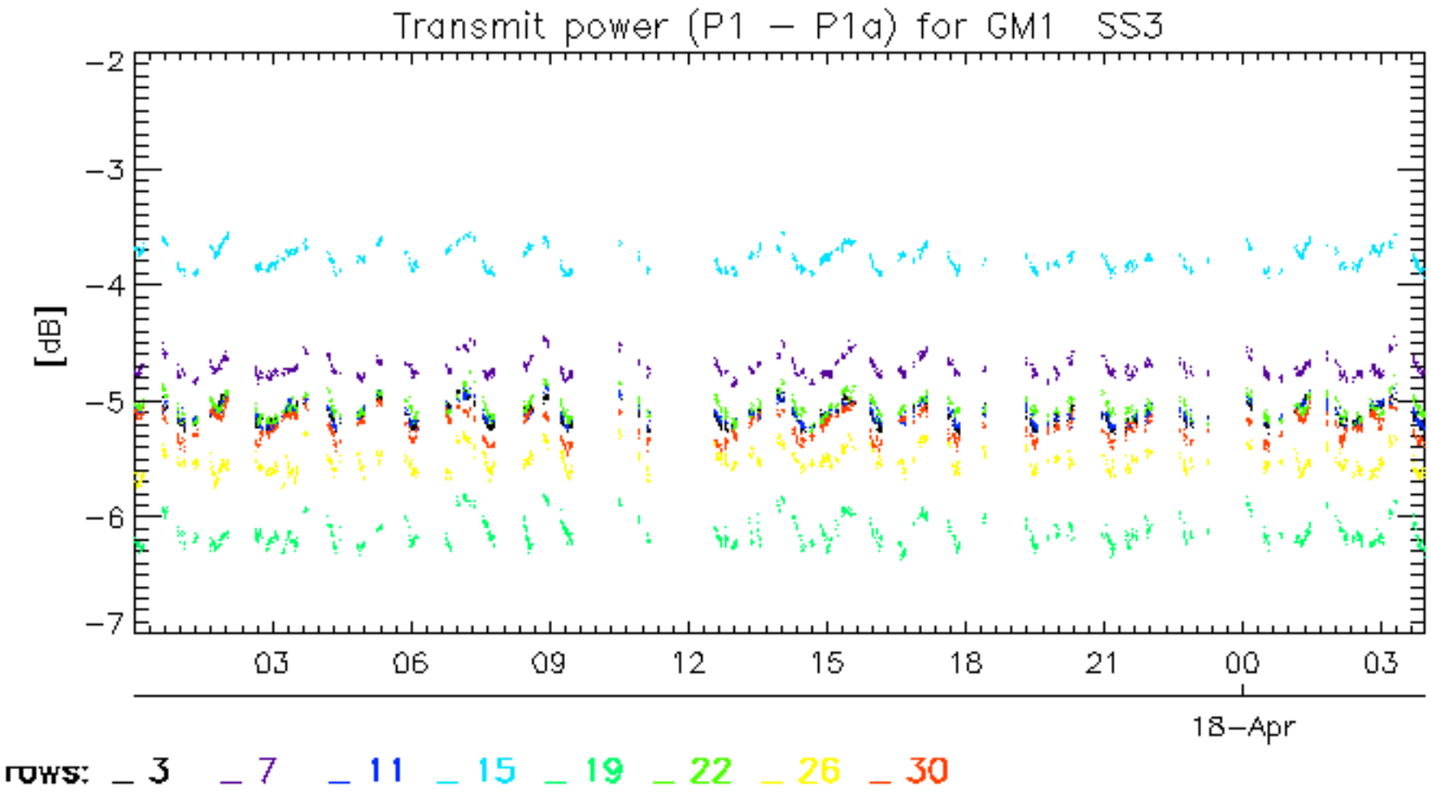
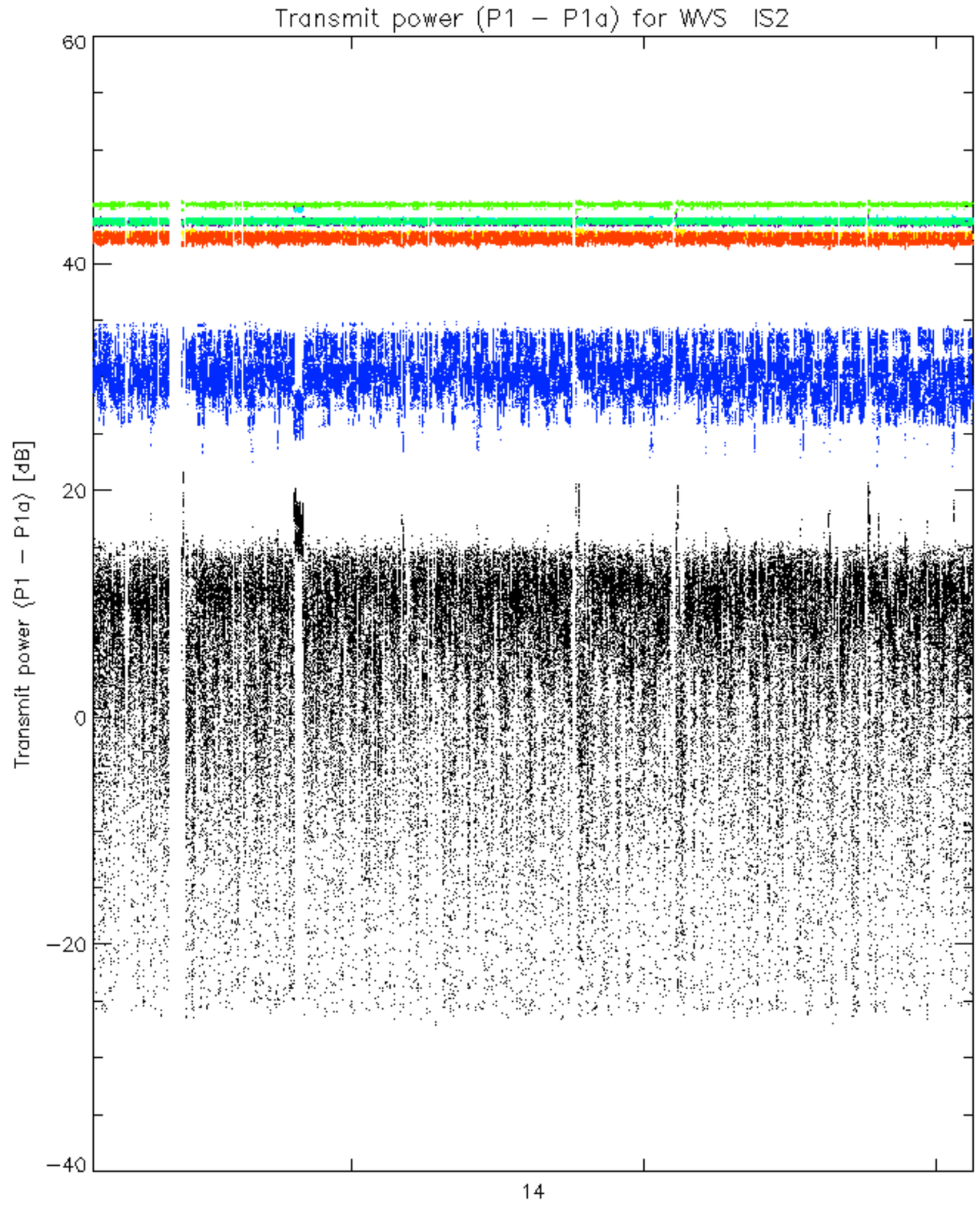
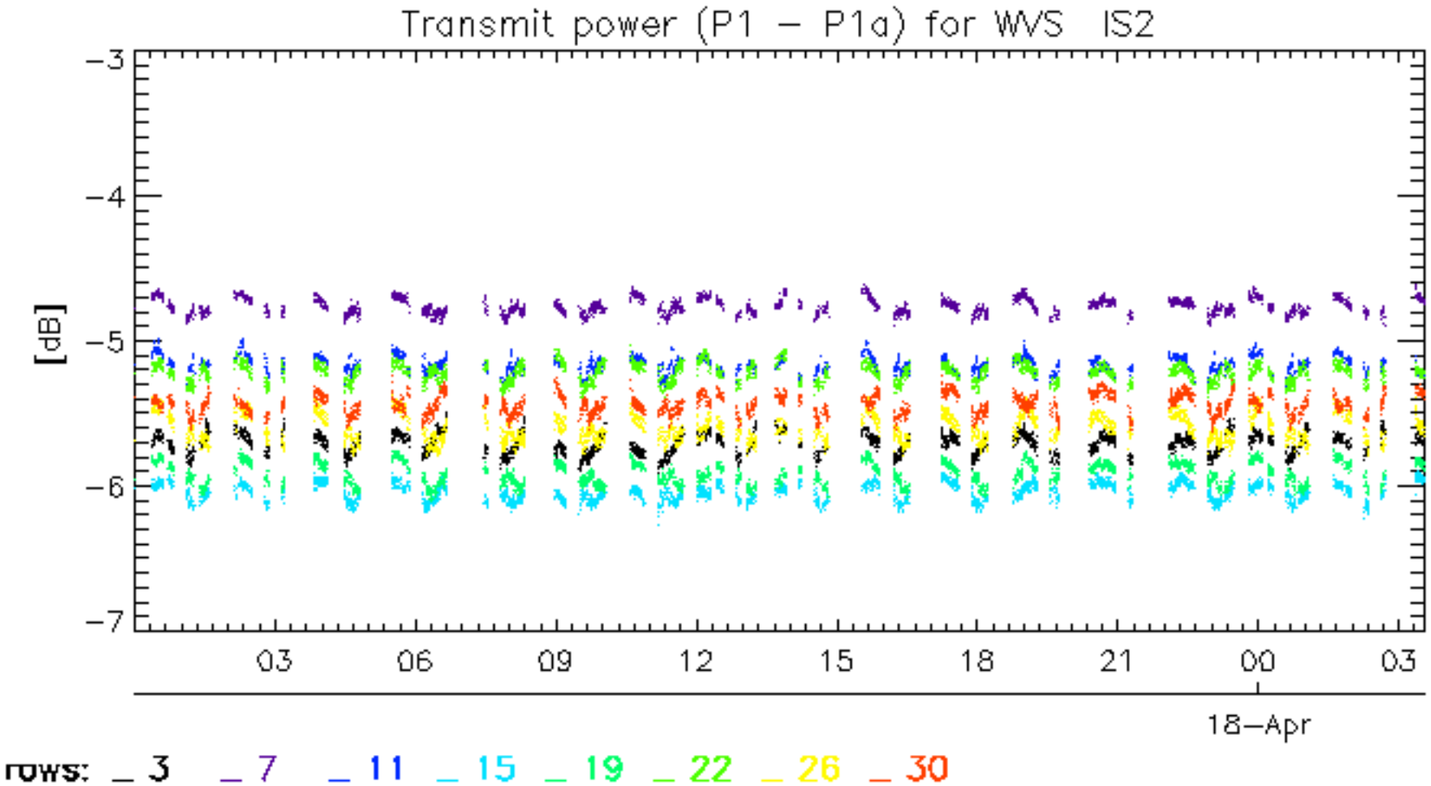
25
26
27
28
29
30
31
32

Reference: 2003-06-12 14:10:32 V
Test : 2005-04-17 02:31:12 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
14
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
18–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]
14
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
18–Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 26 _ 30

No unavailabilities during the reported period.