REPORT OF 040429

last update on Thu Apr 29 13:22:31 GMT 2004

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

Antenna reset on 29-apr-2004 08:32:08 to 10:1818 due to tile D3 repeated temperature anomalies

2.2 - Browse Visual Inspection

Tx Power drop impacts on science data. Anomaly clearly visible on GM and WS browse products

2.3 - Data Analysis

-Tx Power drop affect the first 8 rows of the antenna (PSU1 and 2). Impact visible on p1 and p1a calibration pulses of WV data (no GM yet available).
Anomaly start on 28-APR-2004 between 18:37:09 and 20:49:21

-Stable raw data statistics.
-Nominal Doppler behavior.

3 - Module Stepping Mode

MS of 28-APR-2004 is missing.

Polarisation	Start Time
V	20040427 202831
H	20040427 202711

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
☒	☒
☒	☒
☒	☒
☒	☒

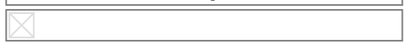
4 - Internal calibration Results

-Tx Power drop affect the first 8 rows of the antenna (PSU1 and 2). Impact visible on p1 and p1a calibration pulses of WV data (no GM yet available).
Anomaly start on 28-APR-2004 between 18:37:09 and 20:49:21

4.1 - Daily statistics

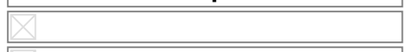
4.1.1 - Evolution for WVS

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

P1 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P1	-3.587226	0.036643	-0.067983
7	P1	-3.309962	0.031520	-0.061283
11	P1	-4.625584	0.024397	0.051817
15	P1	-4.972613	0.039802	0.065367
19	P1	-3.354677	0.005731	-0.036136
22	P1	-4.515024	0.014236	0.014043
24	P1	-5.017416	0.014925	0.076251
28	P1	-4.592170	0.013601	0.000750

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)

3	P2	-22.401186	0.079841	-0.012698
7	P2	-22.877209	0.116163	-0.019743
11	P2	-15.882702	0.138827	0.149555
15	P2	-7.160380	0.088636	-0.001485
19	P2	-9.515995	0.146363	0.013168
22	P2	-17.649670	0.094753	0.059434
24	P2	-20.983318	0.103467	0.049231
28	P2	-16.606184	0.080969	-0.002545

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.132034	0.003100	-0.009820
7	P3	-8.132036	0.003100	-0.009821
11	P3	-8.132041	0.003100	-0.009822
15	P3	-8.132047	0.003099	-0.009786
19	P3	-8.132055	0.003099	-0.009744
22	P3	-8.132063	0.003099	-0.009679
24	P3	-8.132070	0.003100	-0.009656
28	P3	-8.132084	0.003094	-0.009127

4.2.2 - Evolution for GM1

Evolution of cal pulses for GM1

P1 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P1	-4.189267	0.099747	-0.052386
7	P1	-3.410447	0.346344	-0.044073
11	P1	-4.650103	0.076192	0.022390
15	P1	-3.613997	0.507761	-0.096399
19	P1	-2.882288	0.080496	-0.058069
22	P1	-4.693516	0.103704	0.006044
24	P1	-7.069945	0.040209	0.040200
28	P1	-6.637105	0.117957	-0.043418

P2 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P2	-17.608799	0.285730	-0.015076
7	P2	-13.446250	0.186664	0.006640
11	P2	-12.058211	0.149654	0.043408
15	P2	-5.733962	0.025626	-0.057985
19	P2	-6.564982	0.051750	-0.091950
22	P2	-15.016015	0.601394	-0.040640
24	P2	-19.698757	0.043718	0.029837
28	P2	-17.113579	0.062540	-0.058666

P3 Cyclic statistics

row	pulse	mean (dB)	stdev (dB)	slope(dB/cycle)
3	P3	-8.026141	0.003370	-0.013100
7	P3	-8.026226	0.003372	-0.013058
11	P3	-8.026124	0.003364	-0.012842
15	P3	-8.026143	0.003371	-0.013115
19	P3	-8.026134	0.003375	-0.013139
22	P3	-8.026214	0.003359	-0.013196
24	P3	-8.026186	0.003394	-0.012972
28	P3	-8.026175	0.003398	-0.013225

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	0.000481839
	stdev	2.35676e-07
MEAN Q	mean	0.000486432
	stdev	2.71058e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.127694
	stdev	0.00117806
STDEV Q	mean	0.127948
	stdev	0.00119152

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

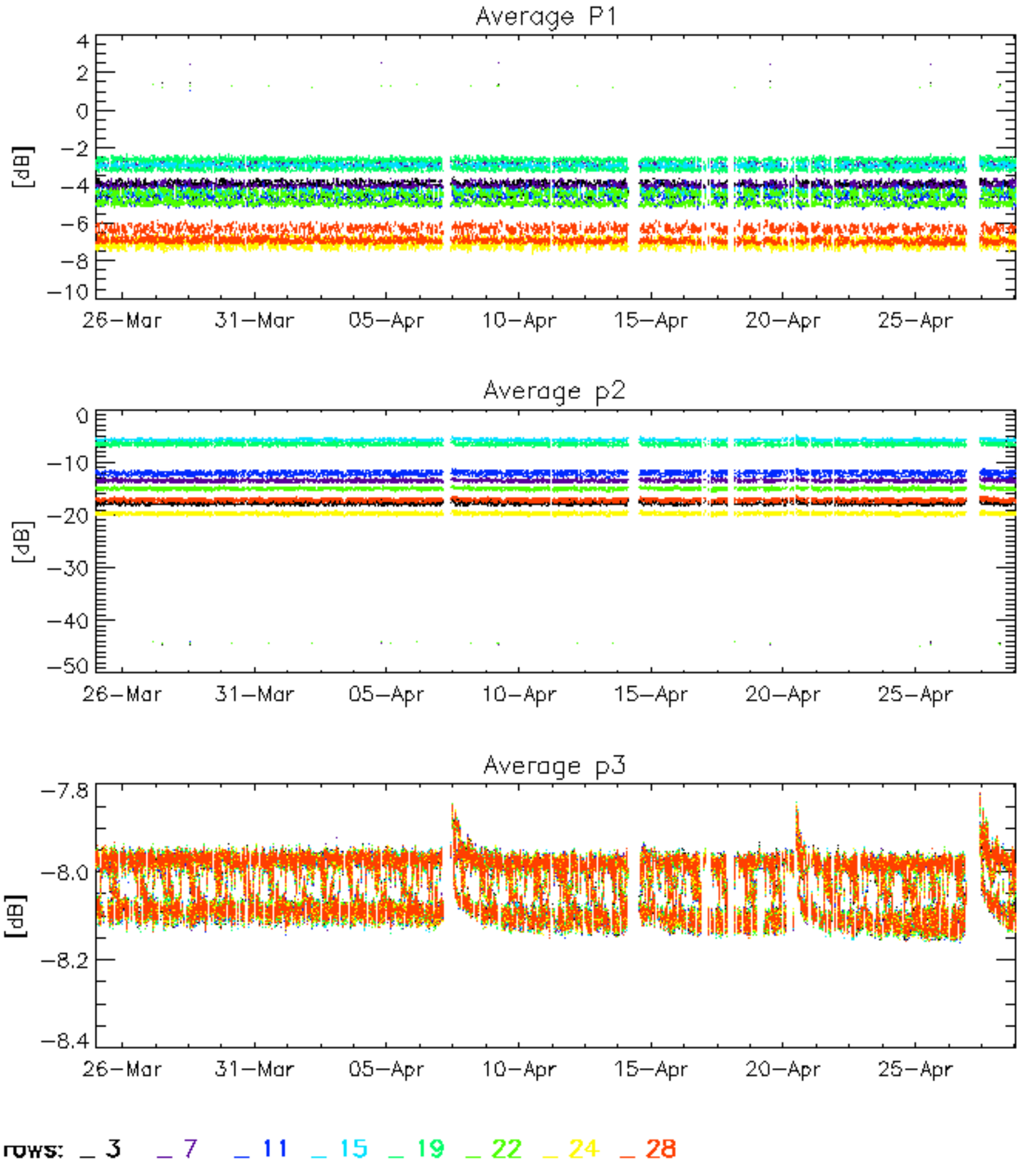
Evolution of Absolute Doppler

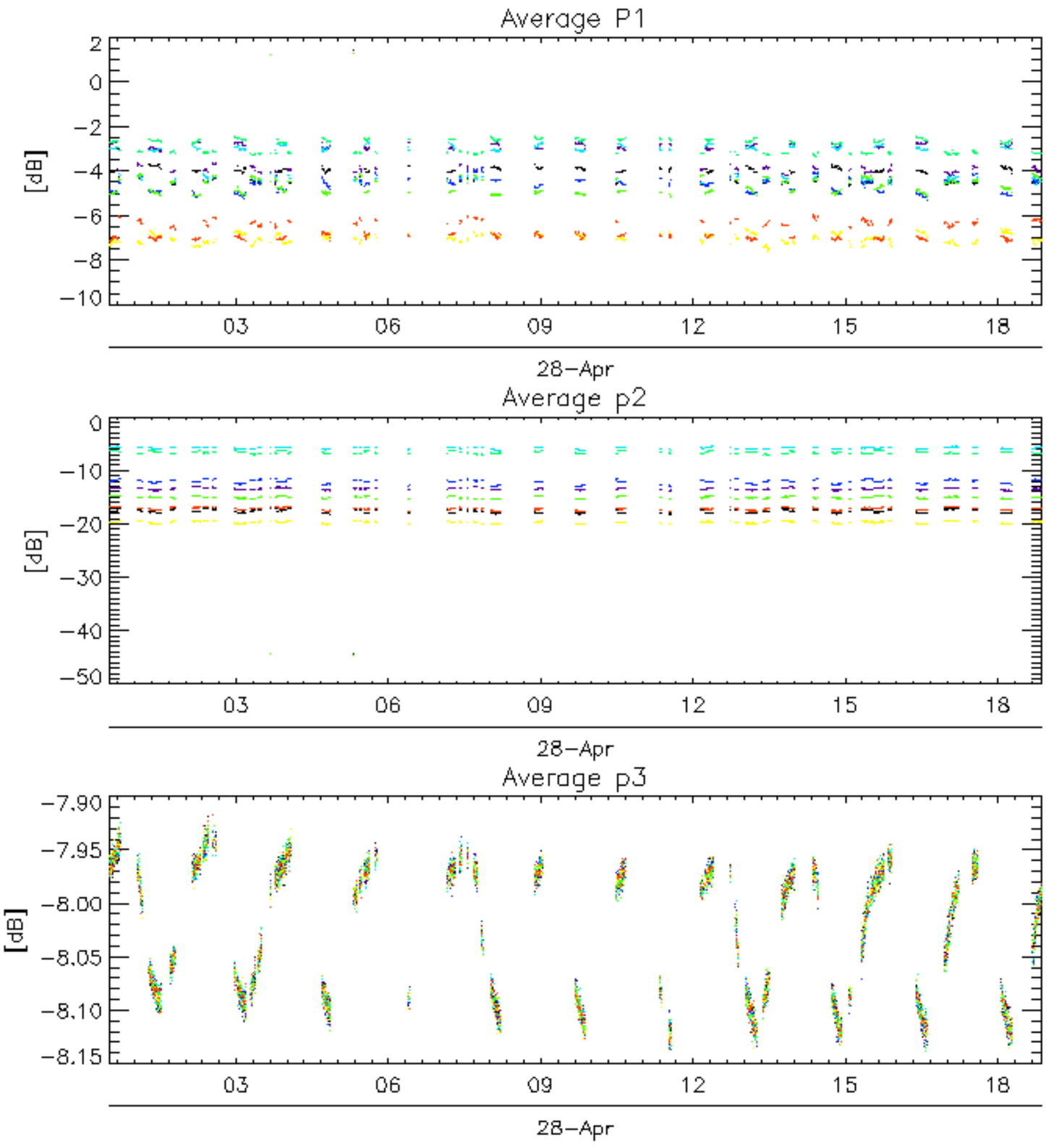
Acsending

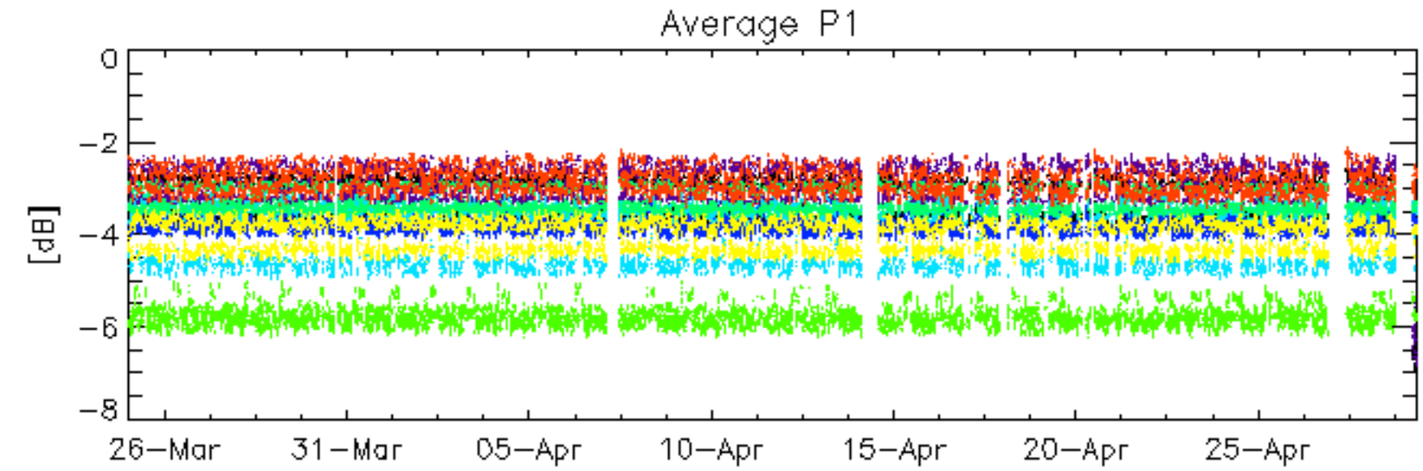
Descending

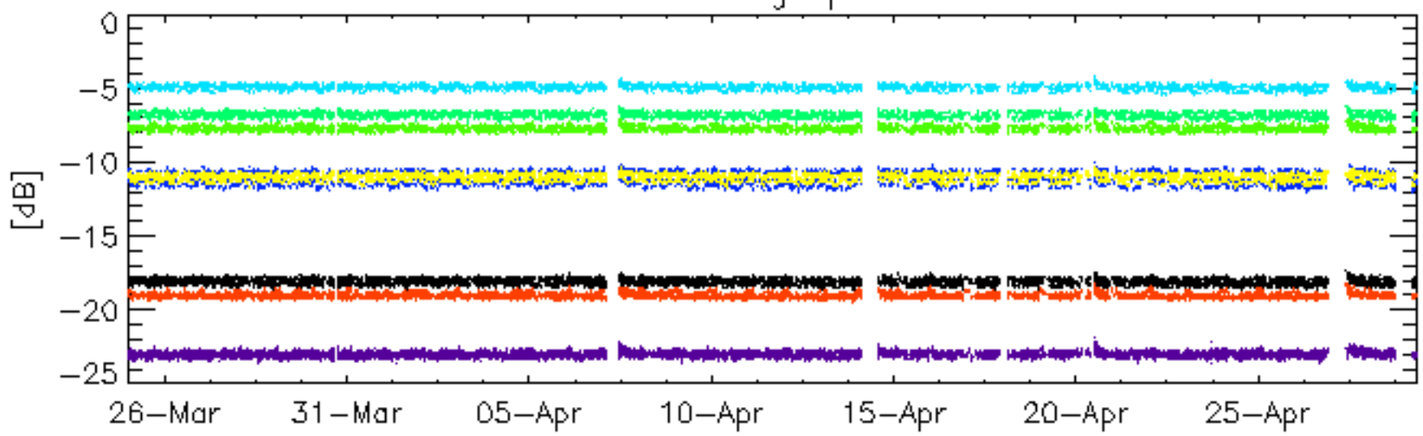
6.6 - Doppler evolution versus ANX for GM1

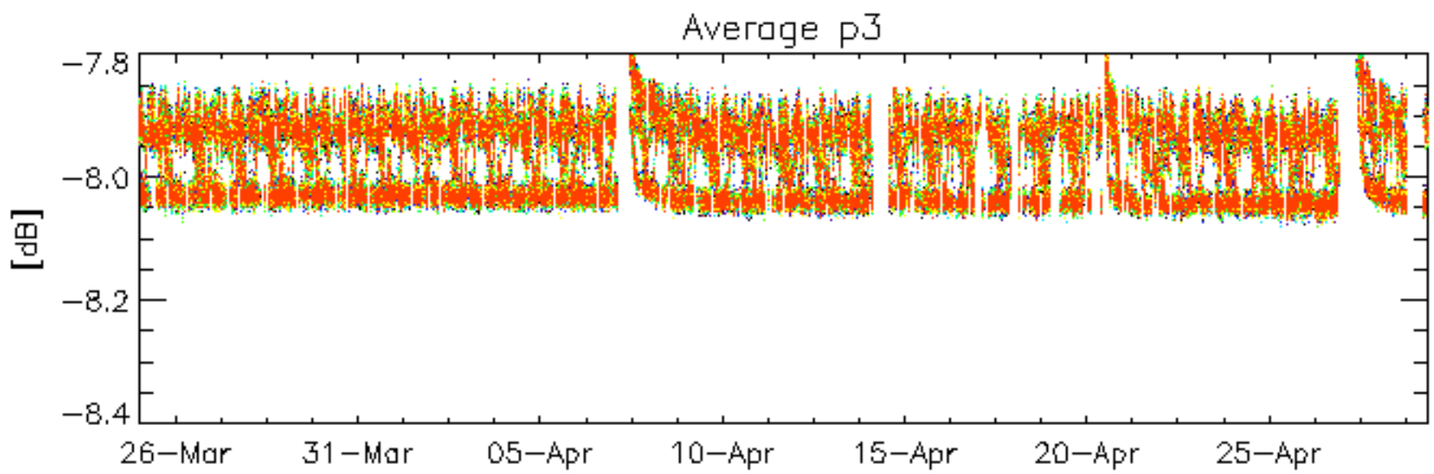
Evolution Doppler error versus ANX
☒


Average P1
[dB]
4
2
0
−2
−4
−6
−8
−10
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr
Average p2
[dB]
0
−10
−20
−30
−40
−50
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr
Average p3
[dB]
−7.8
−8.0
−8.2
−8.4
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 28

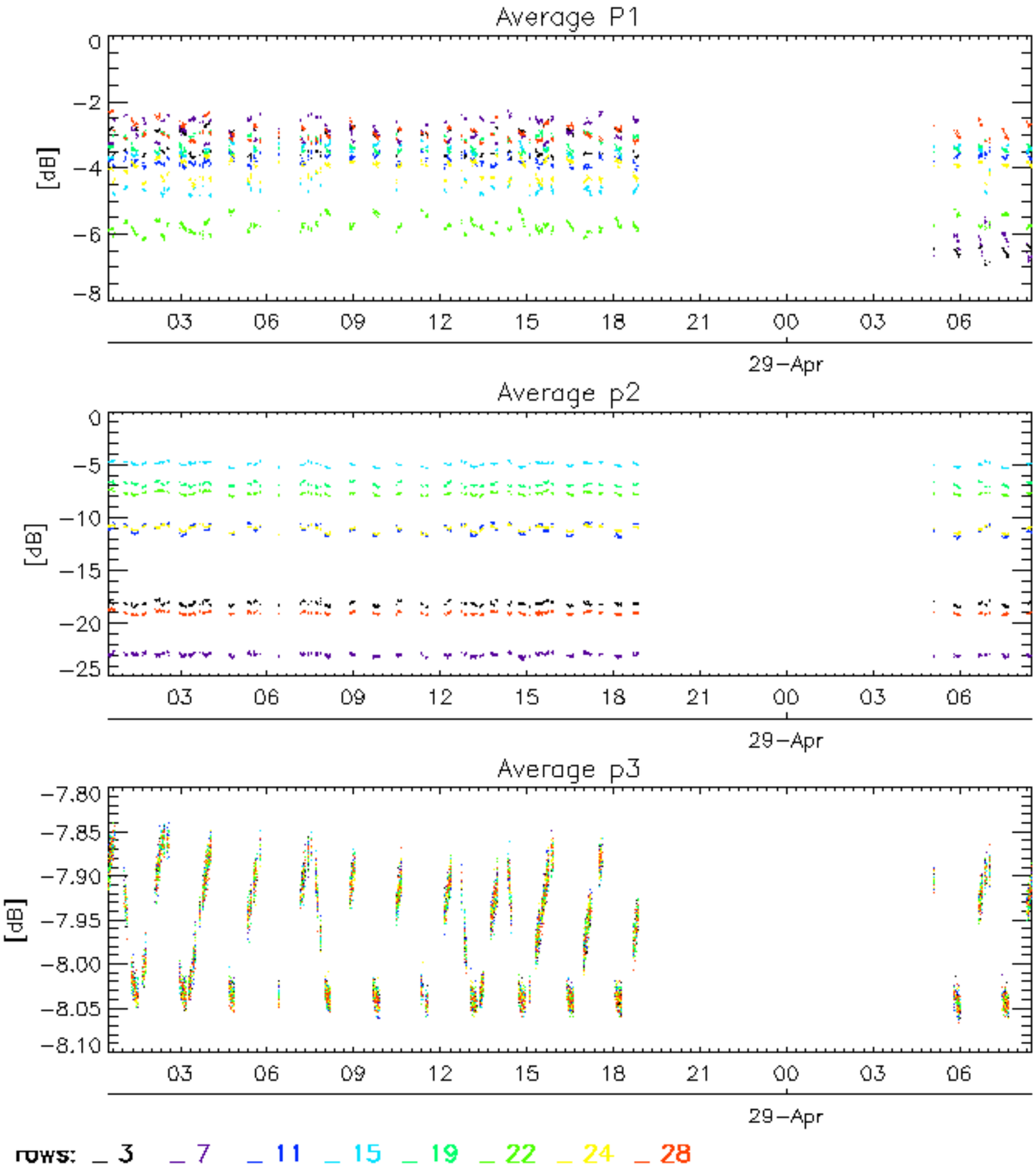

Average P1
[dB]
2
0
−2
−4
−6
−8
−10
03
06
09
12
15
18
28−Apr
Average p2
[dB]
0
−10
−20
−30
−40
−50
03
06
09
12
15
18
28−Apr
Average p3
[dB]
−7.90
−7.95
−8.00
−8.05
−8.10
−8.15
03
06
09
12
15
18
28−Apr
rows: 3 7 11 15 19 22 24 28

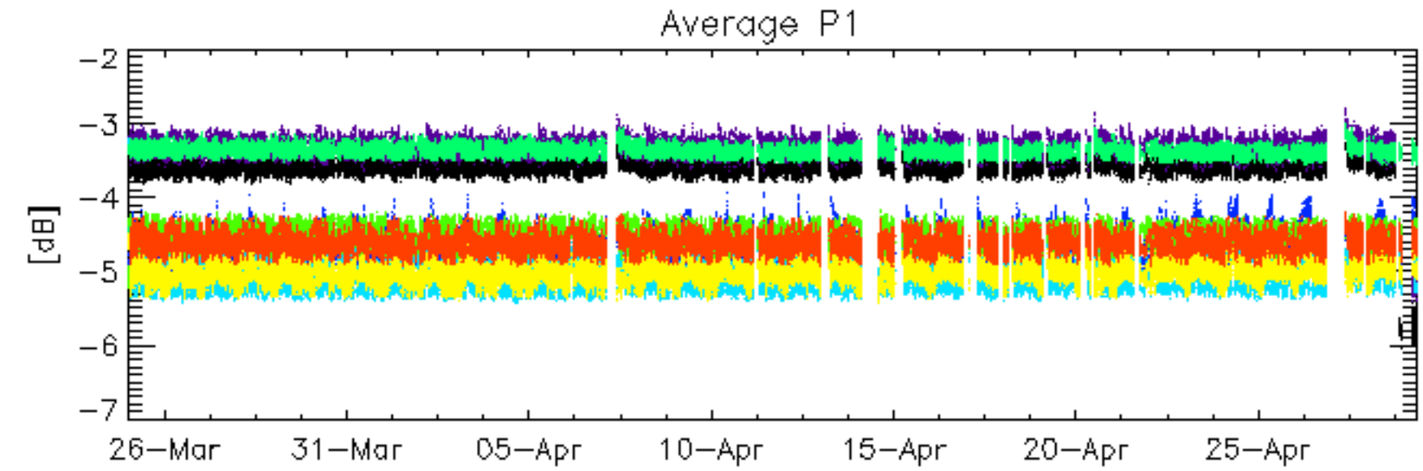


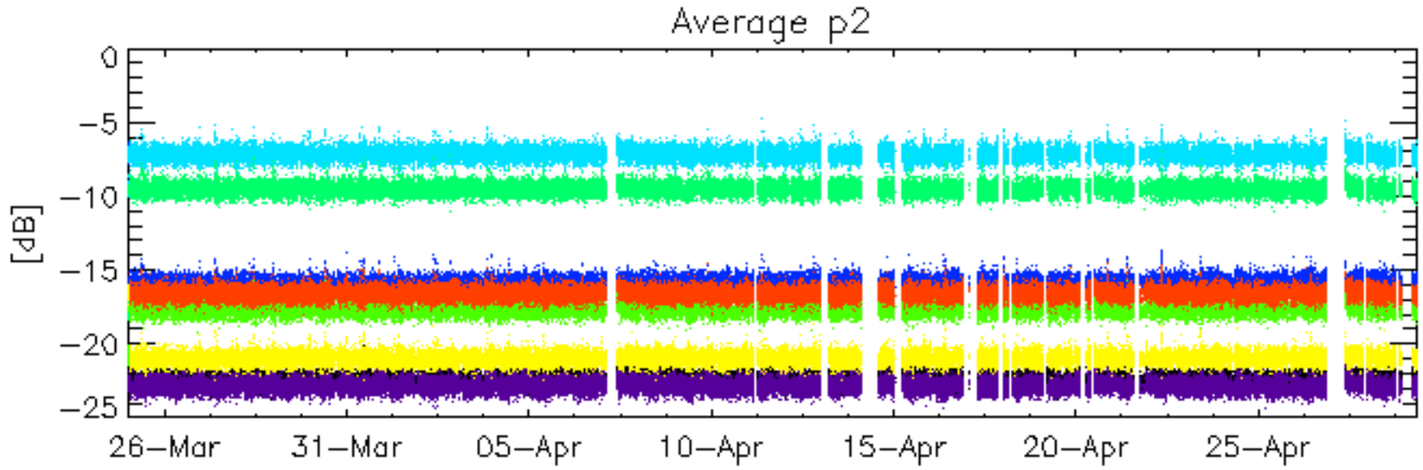


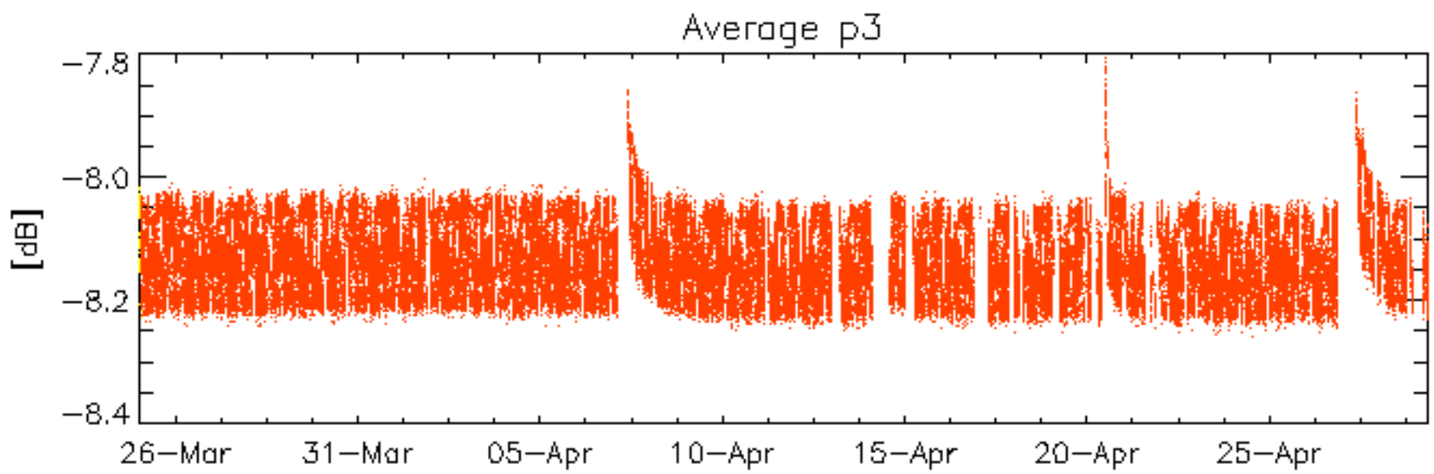


rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 28

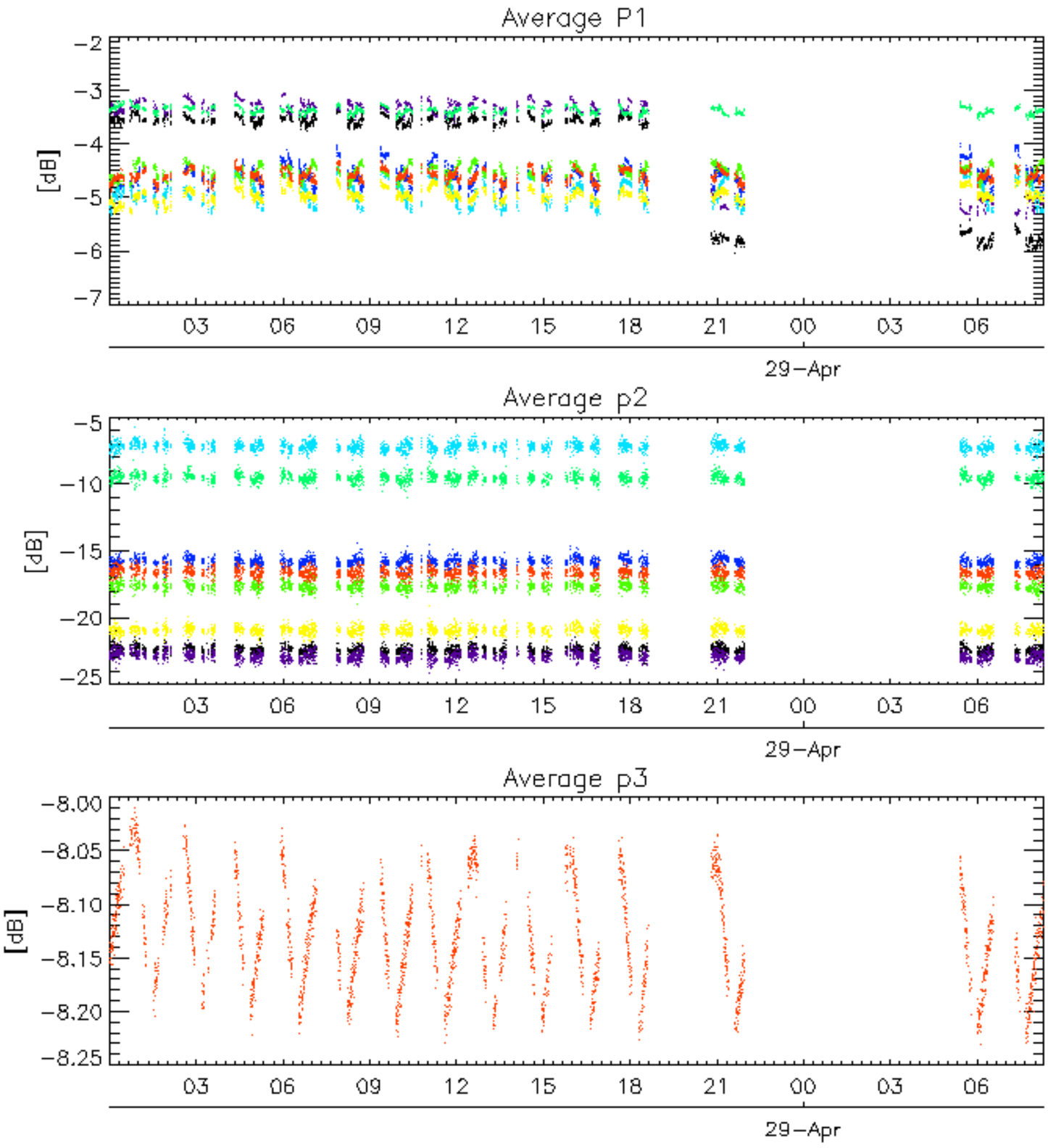

Average P1
[dB]
0
−2
−4
−6
−8
03
06
09
12
15
18
21
00
03
06
29−Apr
Average p2
[dB]
0
−5
−10
−15
−20
−25
03
06
09
12
15
18
21
00
03
06
29−Apr
Average p3
[dB]
−7.80
−7.85
−7.90
−7.95
−8.00
−8.05
−8.10
03
06
09
12
15
18
21
00
03
06
29−Apr
rows: 3 7 11 15 19 22 24 28


Average P1
[dB]
−2
−3
−4
−5
−6
−7
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr


Average p2
[dB]
0
−5
−10
−15
−20
−25
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr

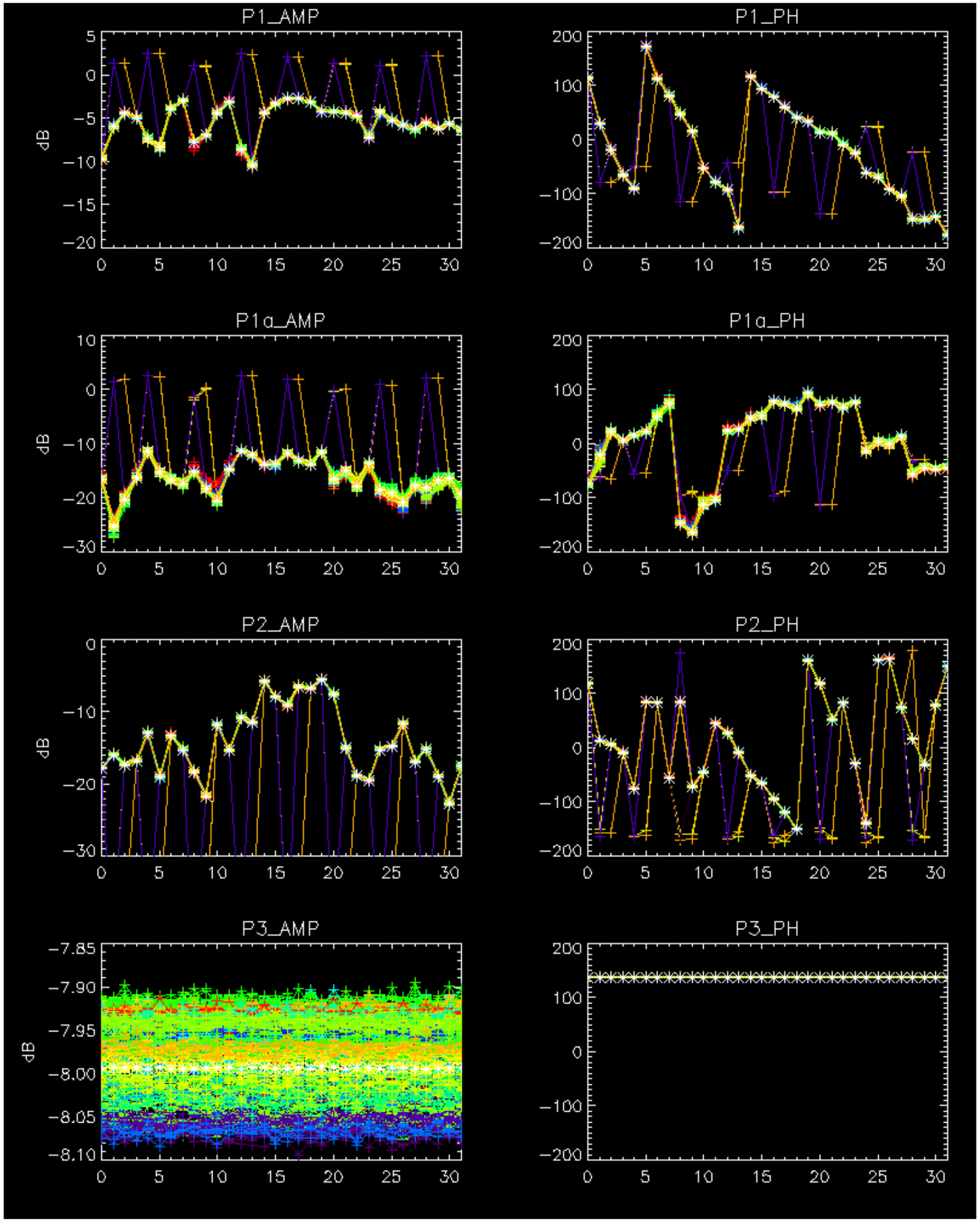

Average p3
[dB]
−7.8
−8.0
−8.2
−8.4
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr

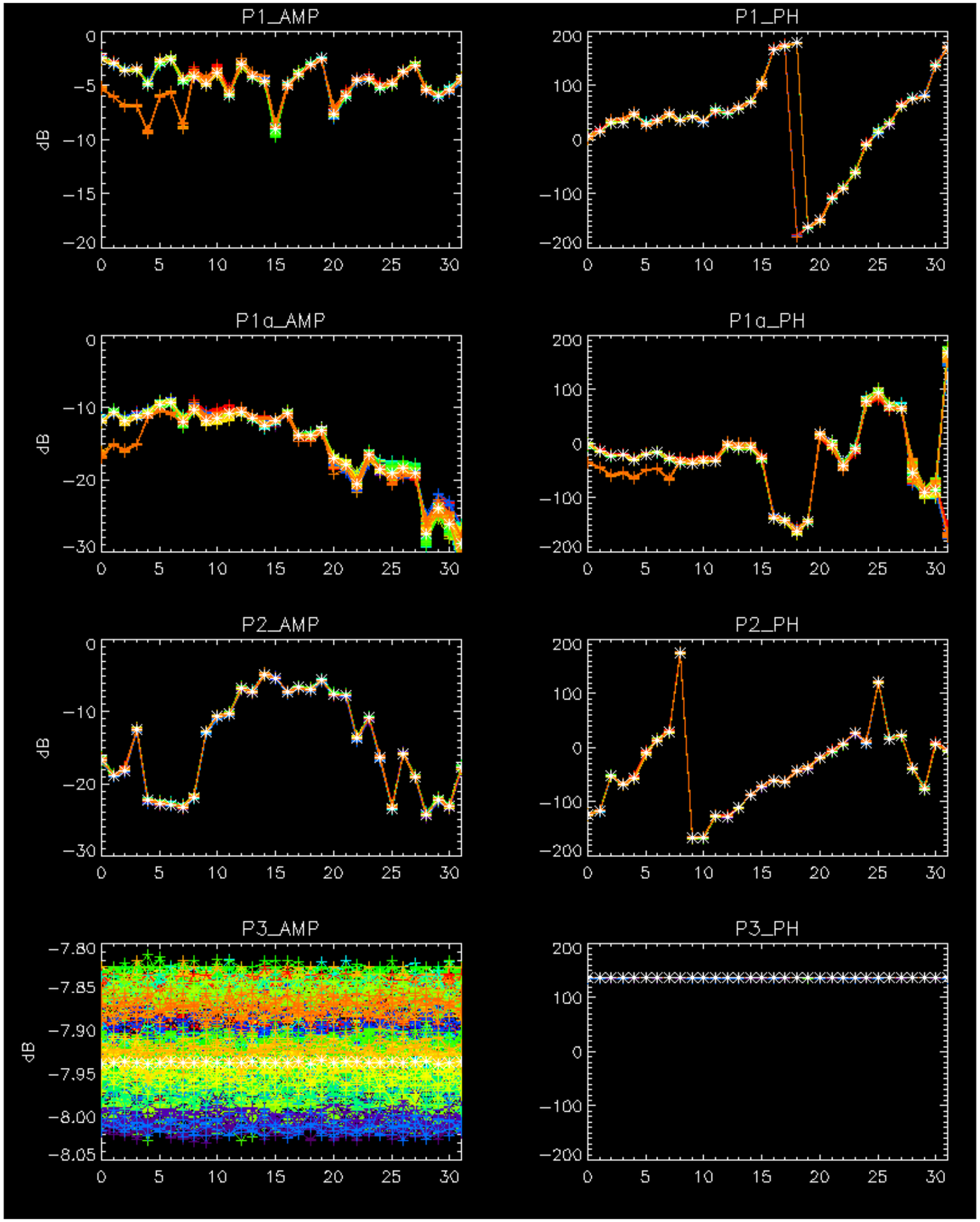

rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 28

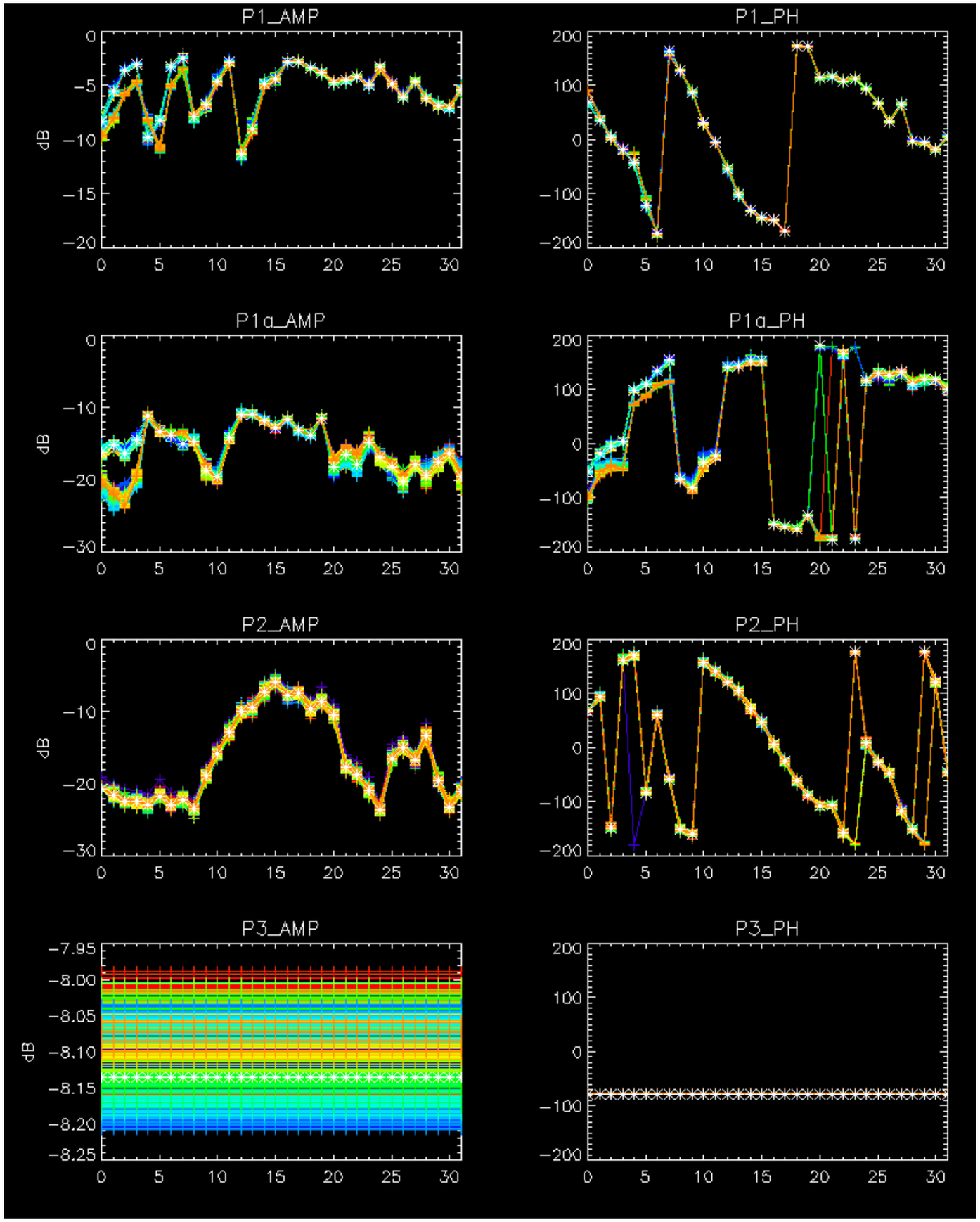

Average P1
[dB]
−2
−3
−4
−5
−6
−7
03
06
09
12
15
18
21
00
03
06
29−Apr
Average p2
[dB]
−5
−10
−15
−20
−25
03
06
09
12
15
18
21
00
03
06
29−Apr
Average p3
[dB]
−8.00
−8.05
−8.10
−8.15
−8.20
−8.25
03
06
09
12
15
18
21
00
03
06
29−Apr
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 28

Tx Power drop impacts on science data. Anomaly clearly visible on GM and WS browse products

-Tx Power drop affect the first 8 rows of the antenna (PSU1 and 2). Impact visible on p1 and p1a calibration pulses of WV data (no GM yet available).
Anomaly start on 28-APR-2004 between 18:37:09 and 20:49:21


P1_AMP
dB
P1_PH
P1a_AMP
dB
P1a_PH
P2_AMP
dB
P2_PH
P3_AMP
dB
P3_PH


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
−7.80
−7.85
−7.90
−7.95
−8.00
−8.05
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30


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
−7.95
−8.00
−8.05
−8.10
−8.15
−8.20
−8.25
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30

-Tx Power drop affect the first 8 rows of the antenna (PSU1 and 2). Impact visible on p1 and p1a calibration pulses of WV data (no GM yet available).
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-Stable raw data statistics.
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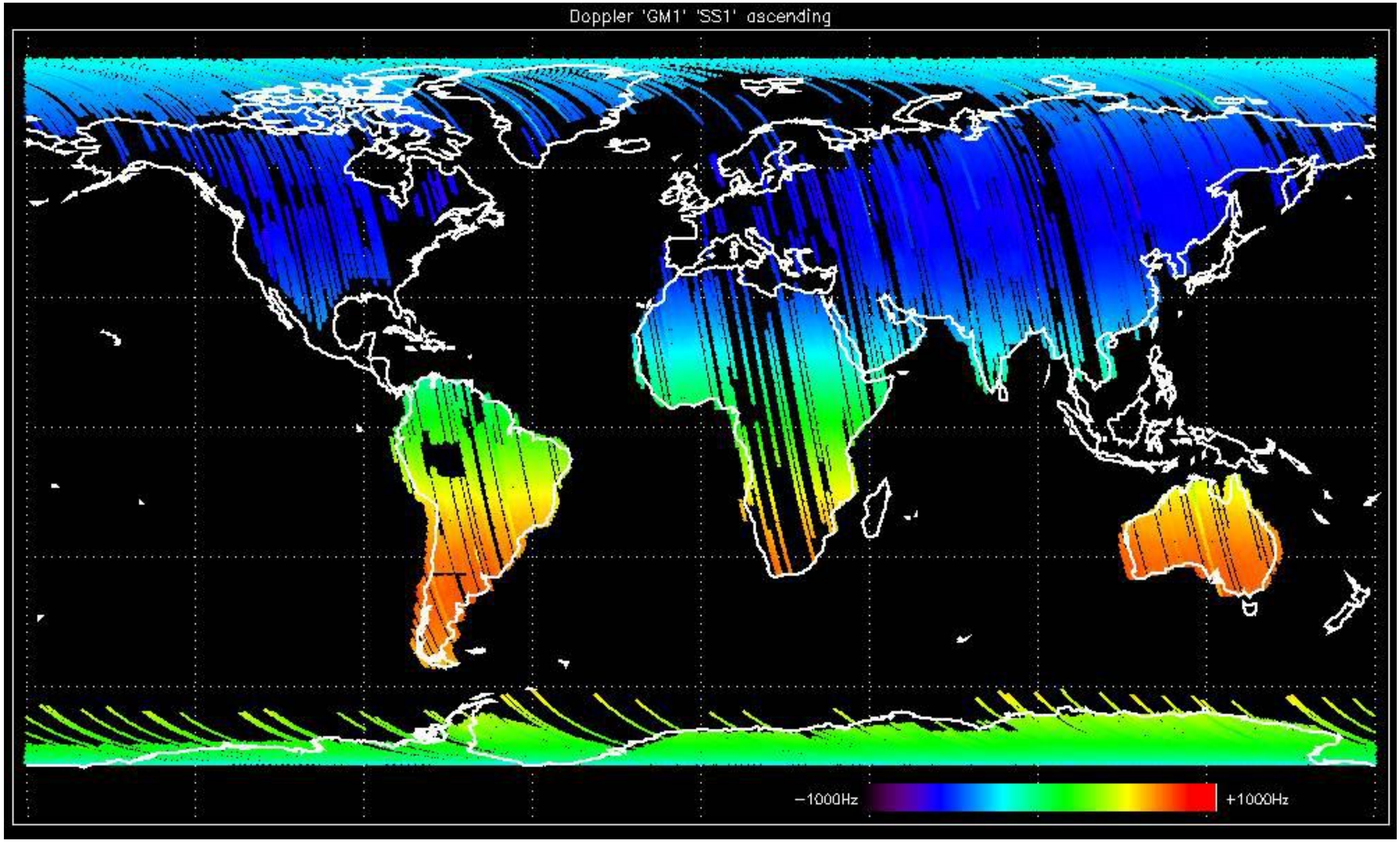
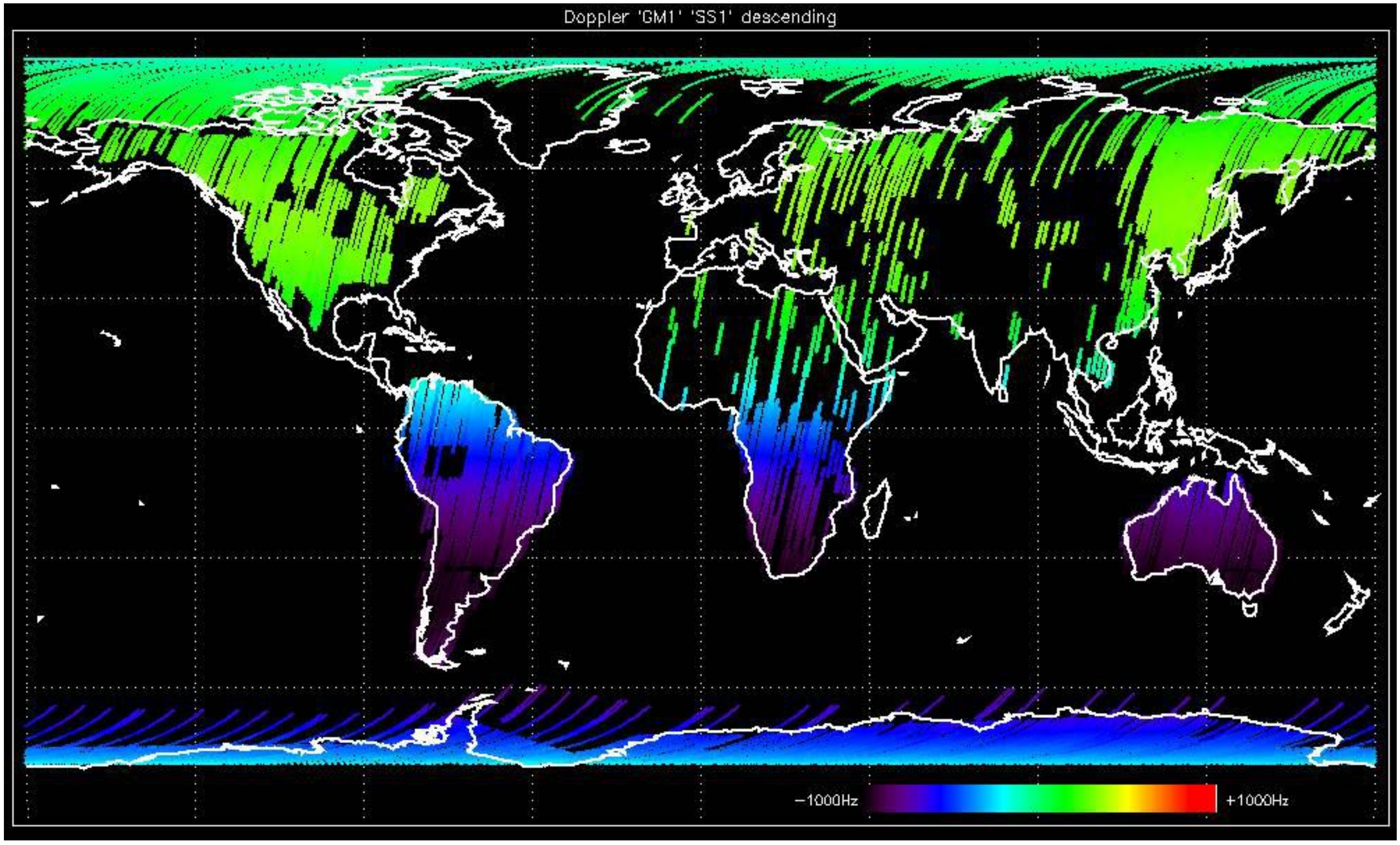
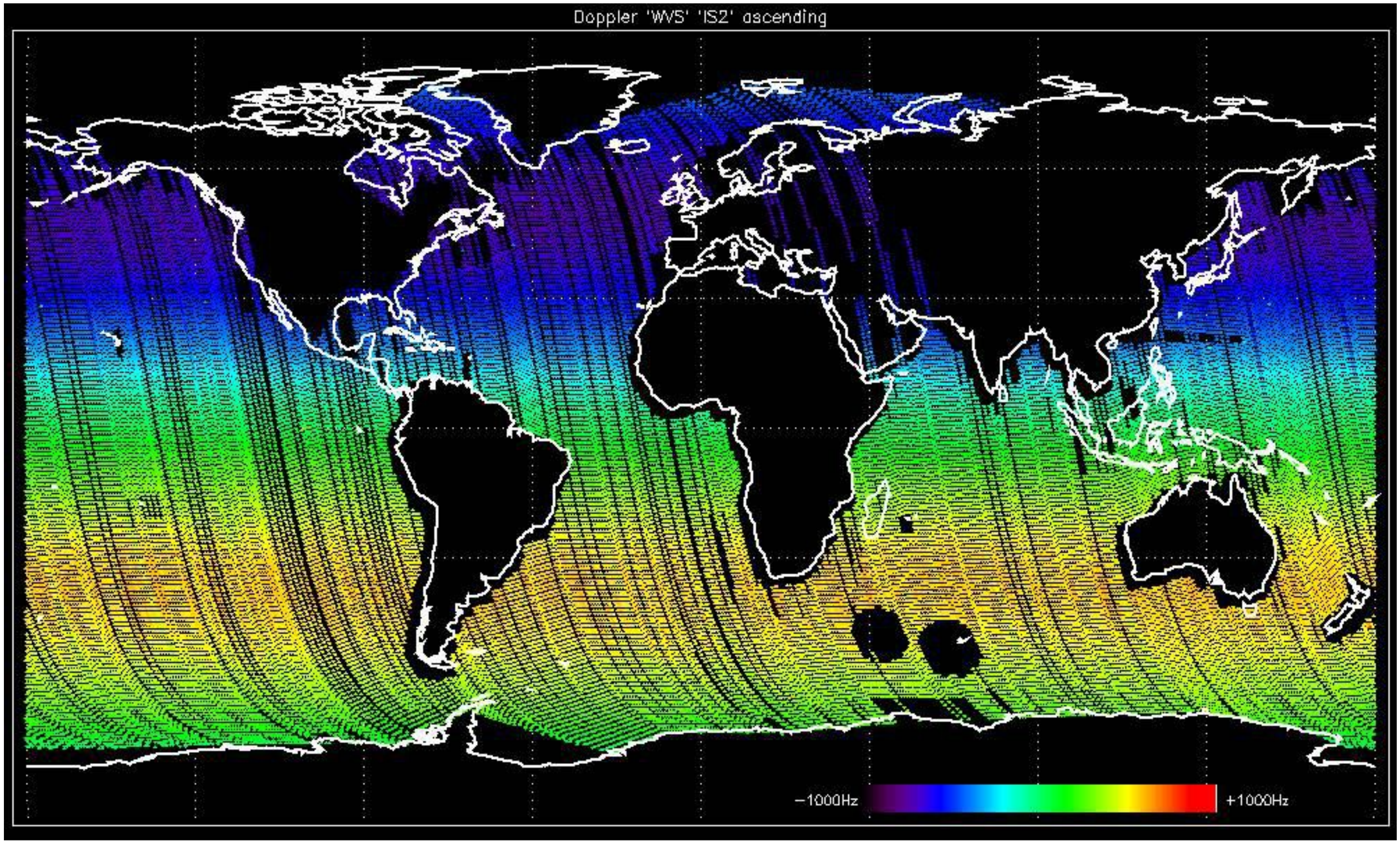
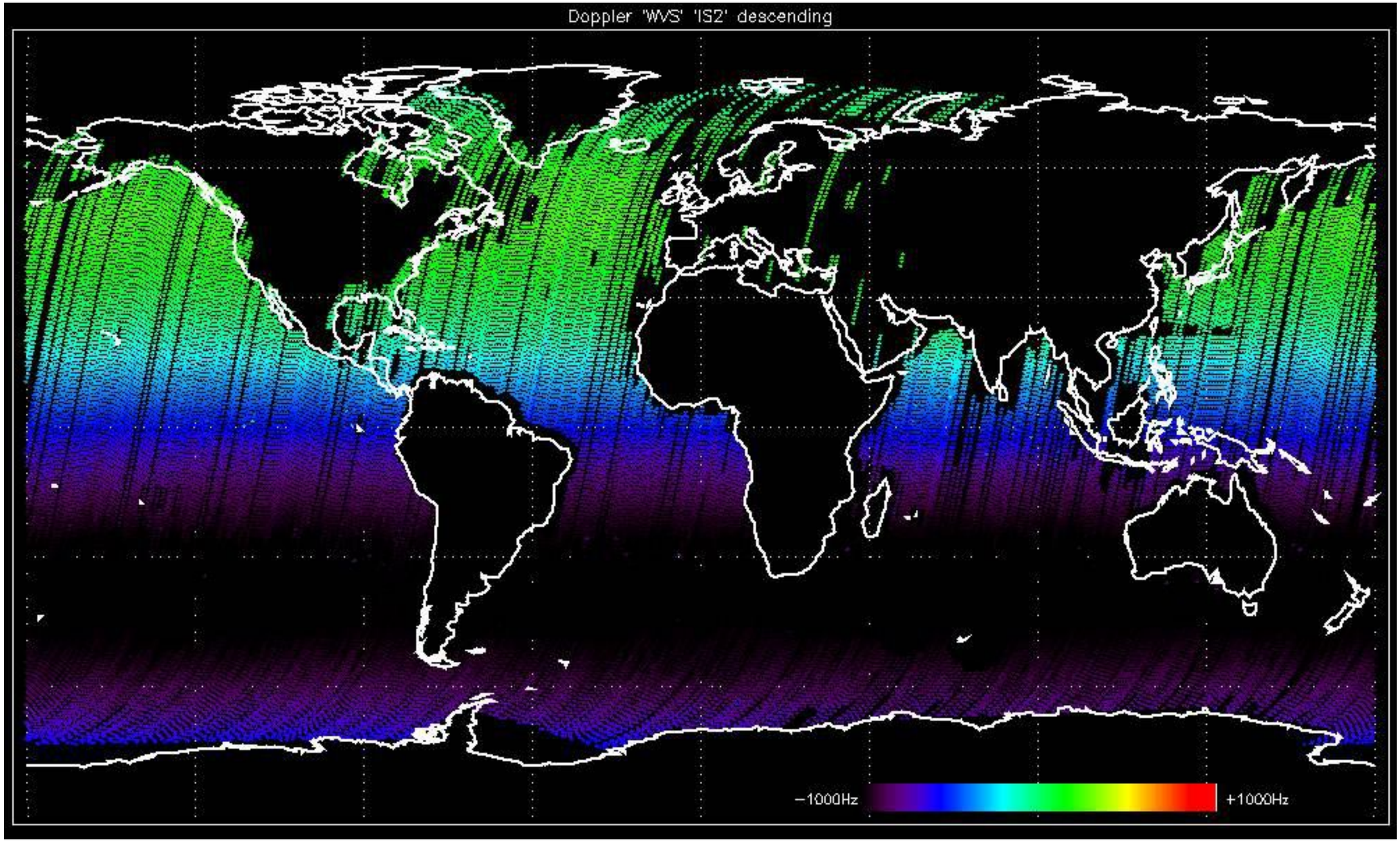
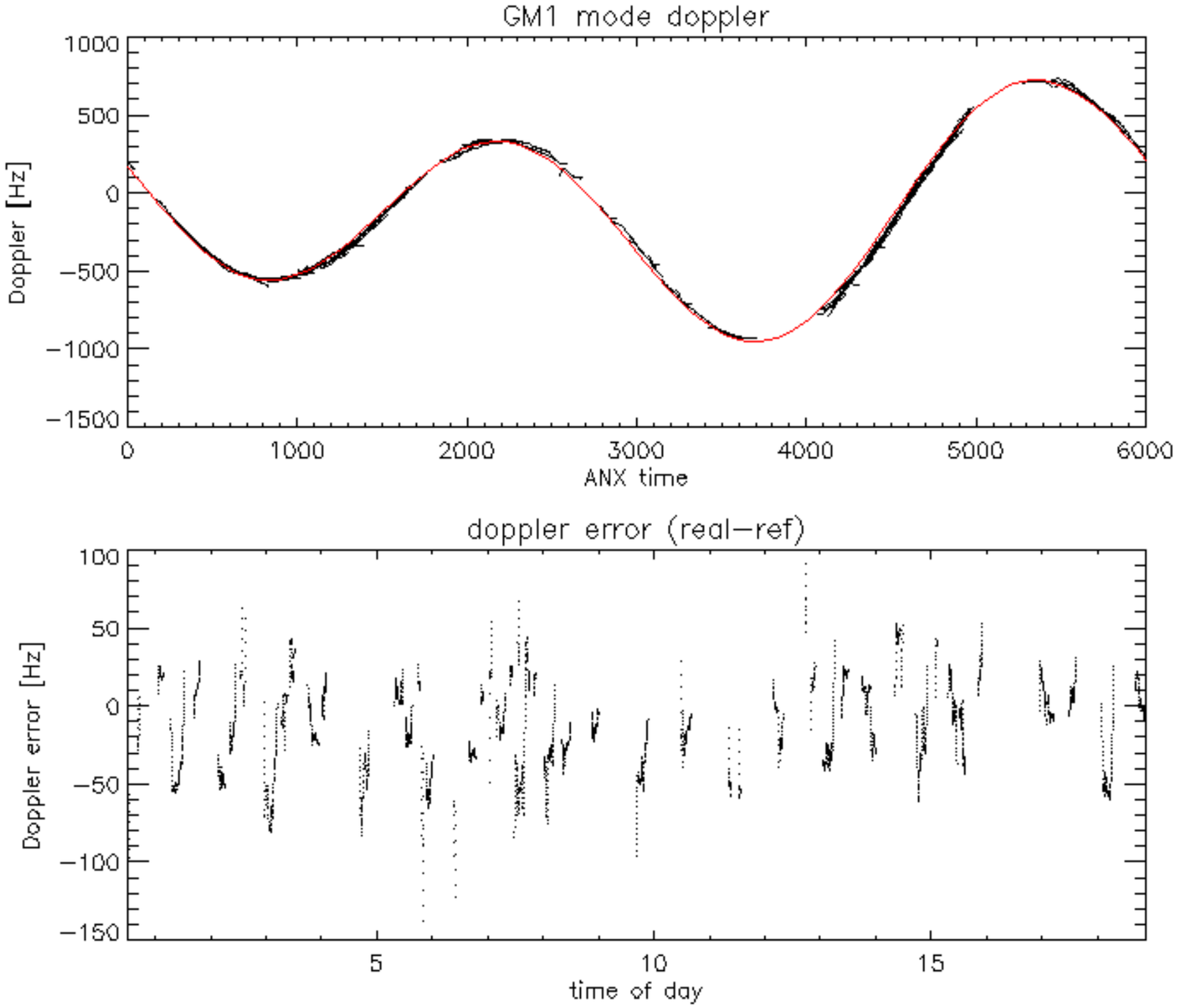
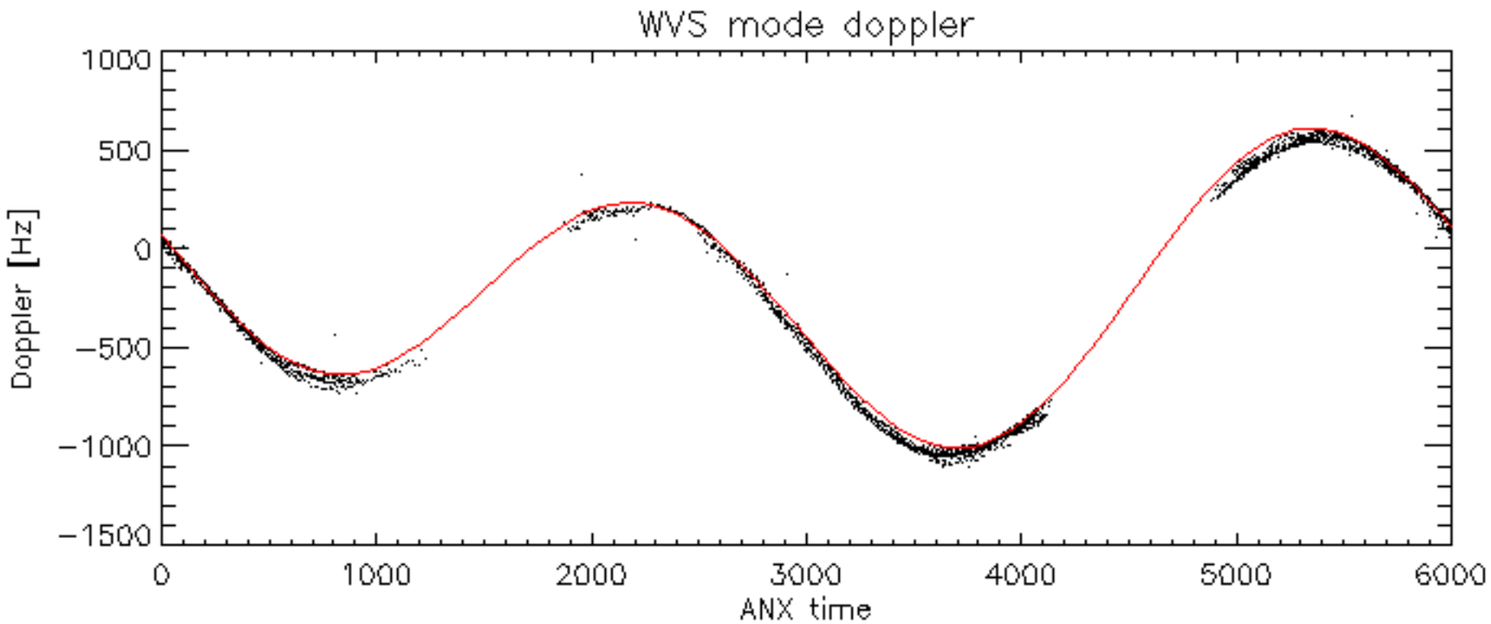

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

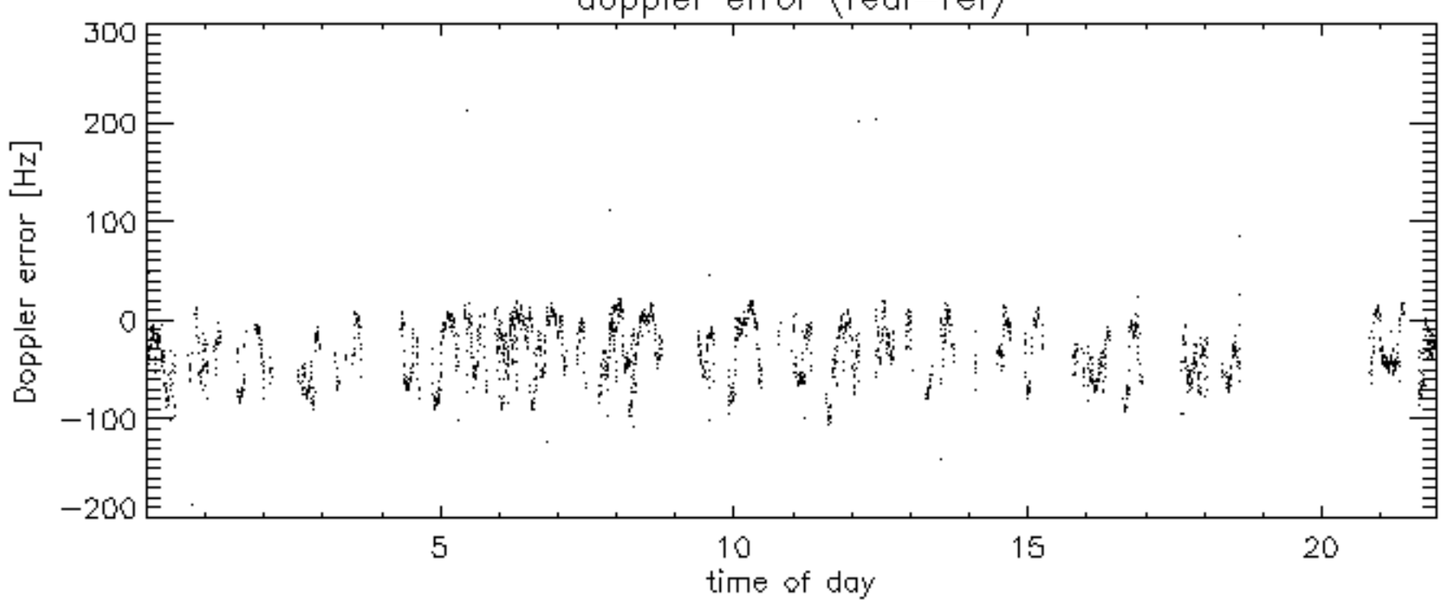

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

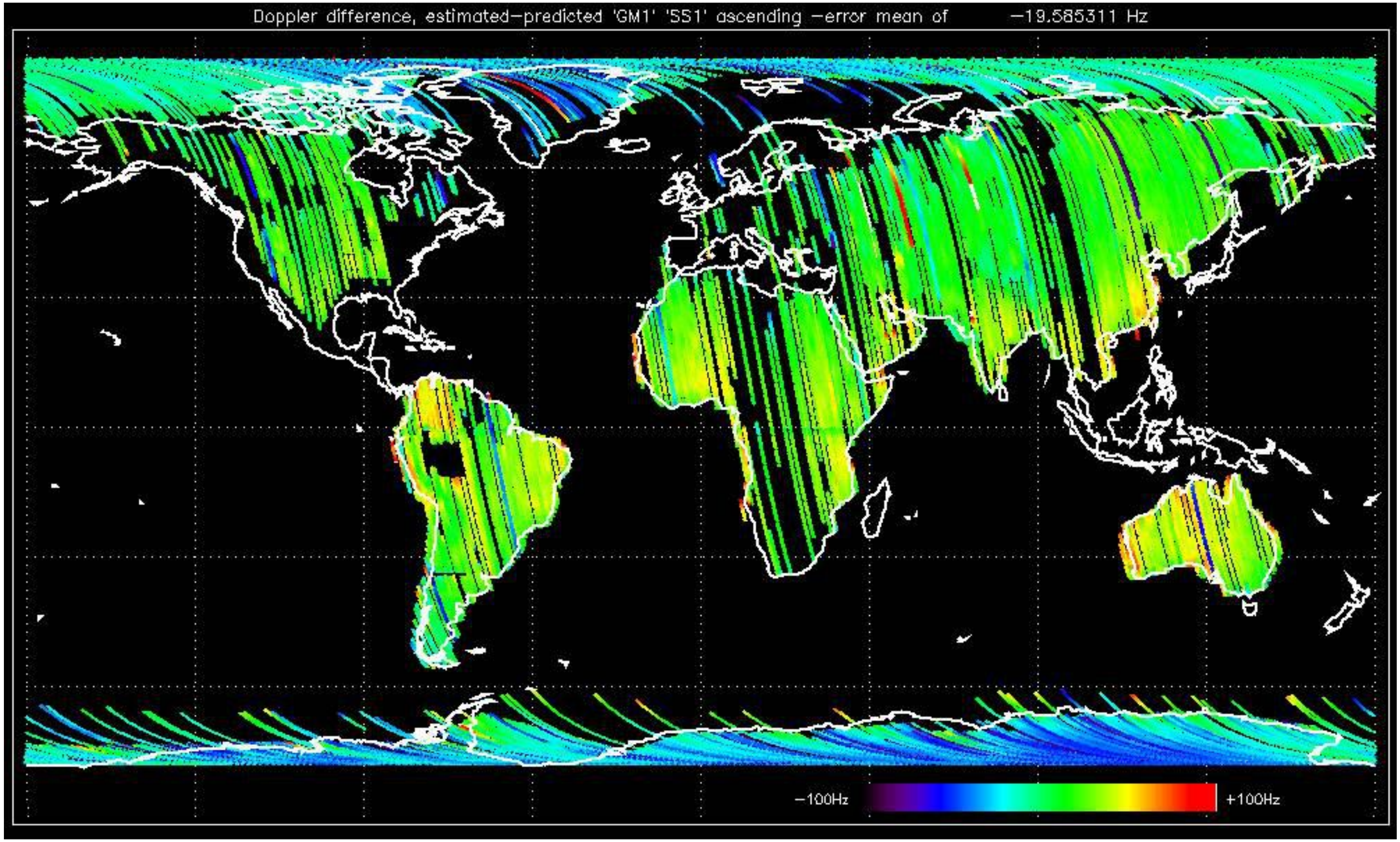

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

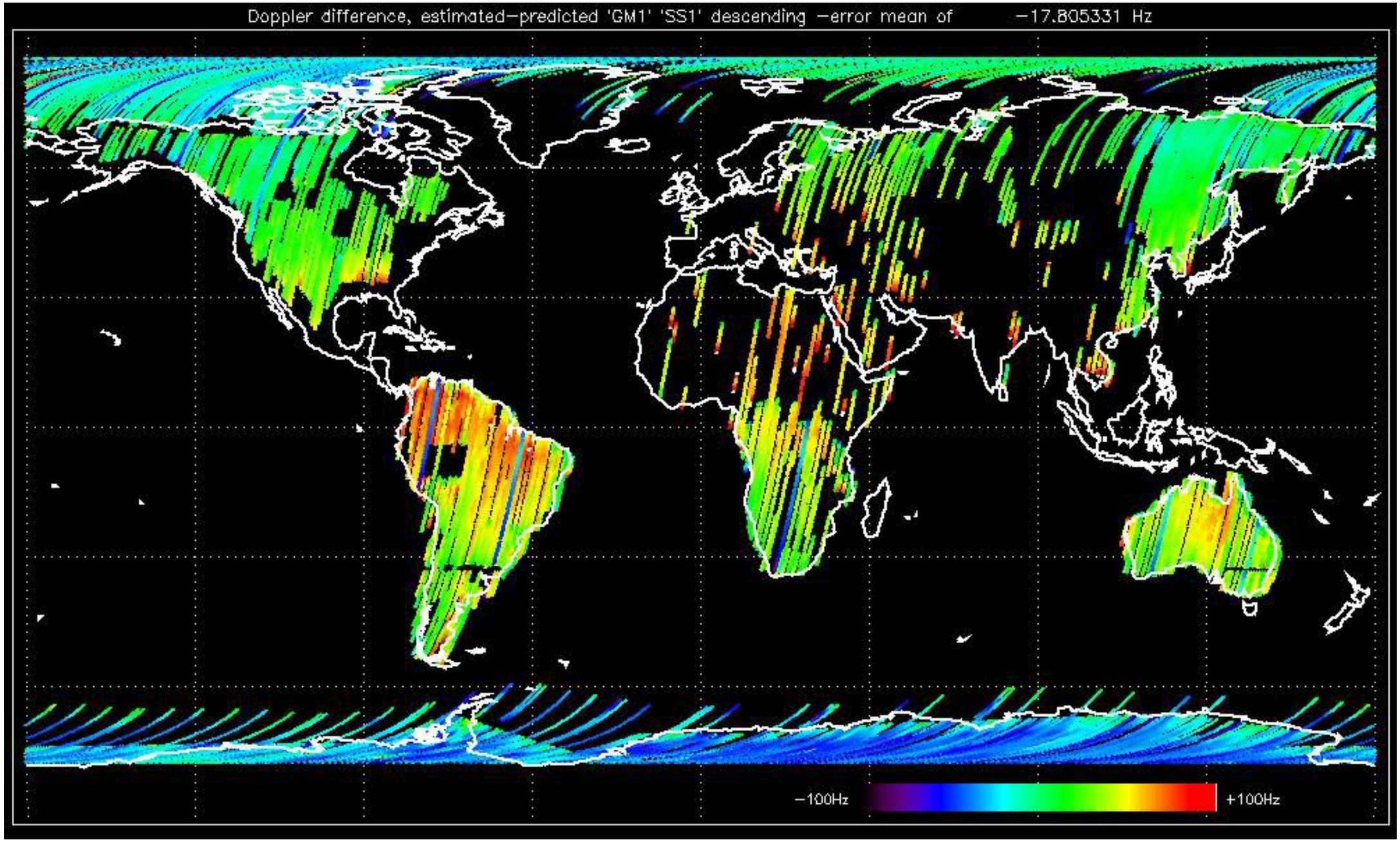

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

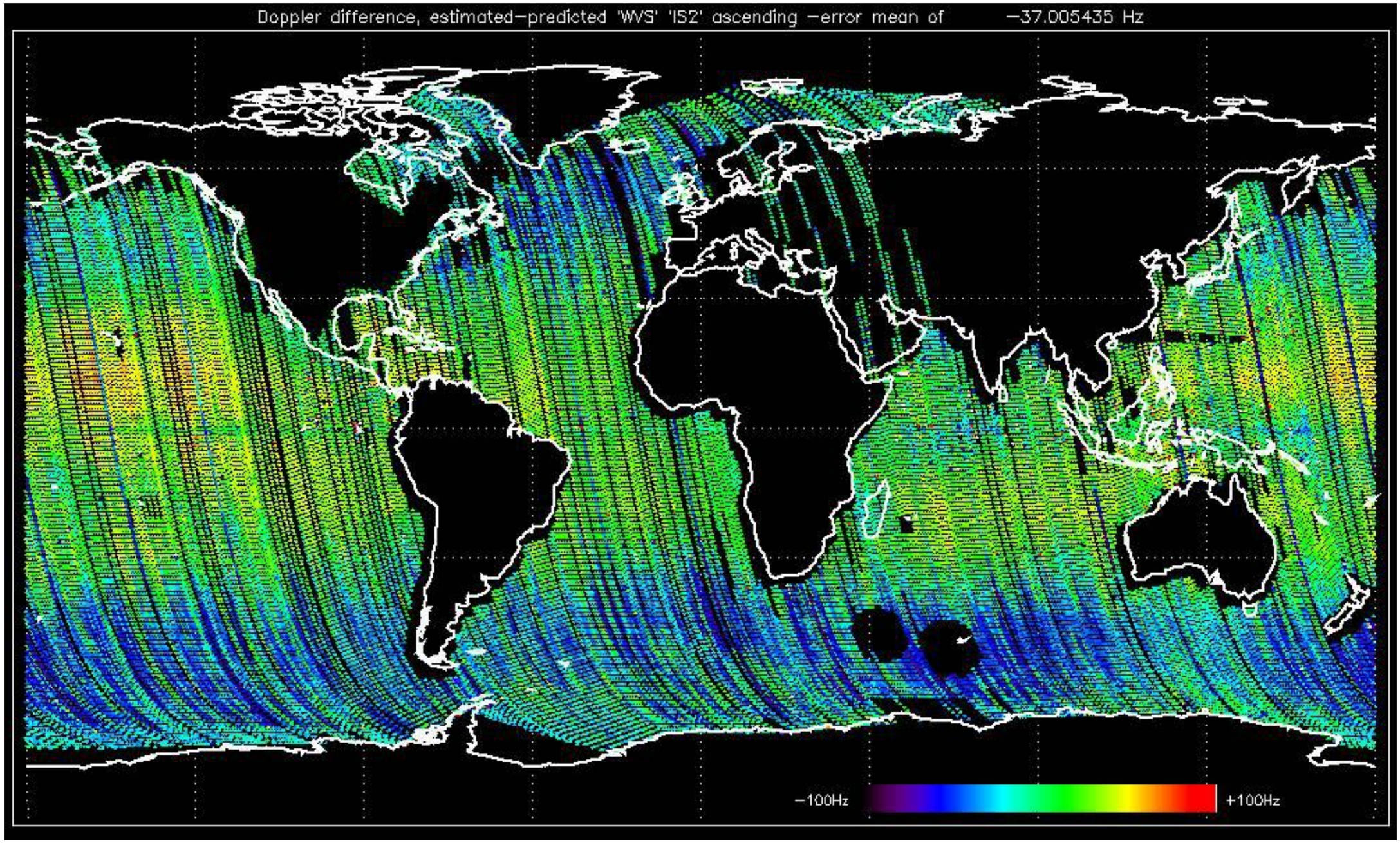

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
ANX time
doppler error (real−ref)
Doppler error [Hz]
100
50
0
−50
−100
−150
5
10
15
time of day

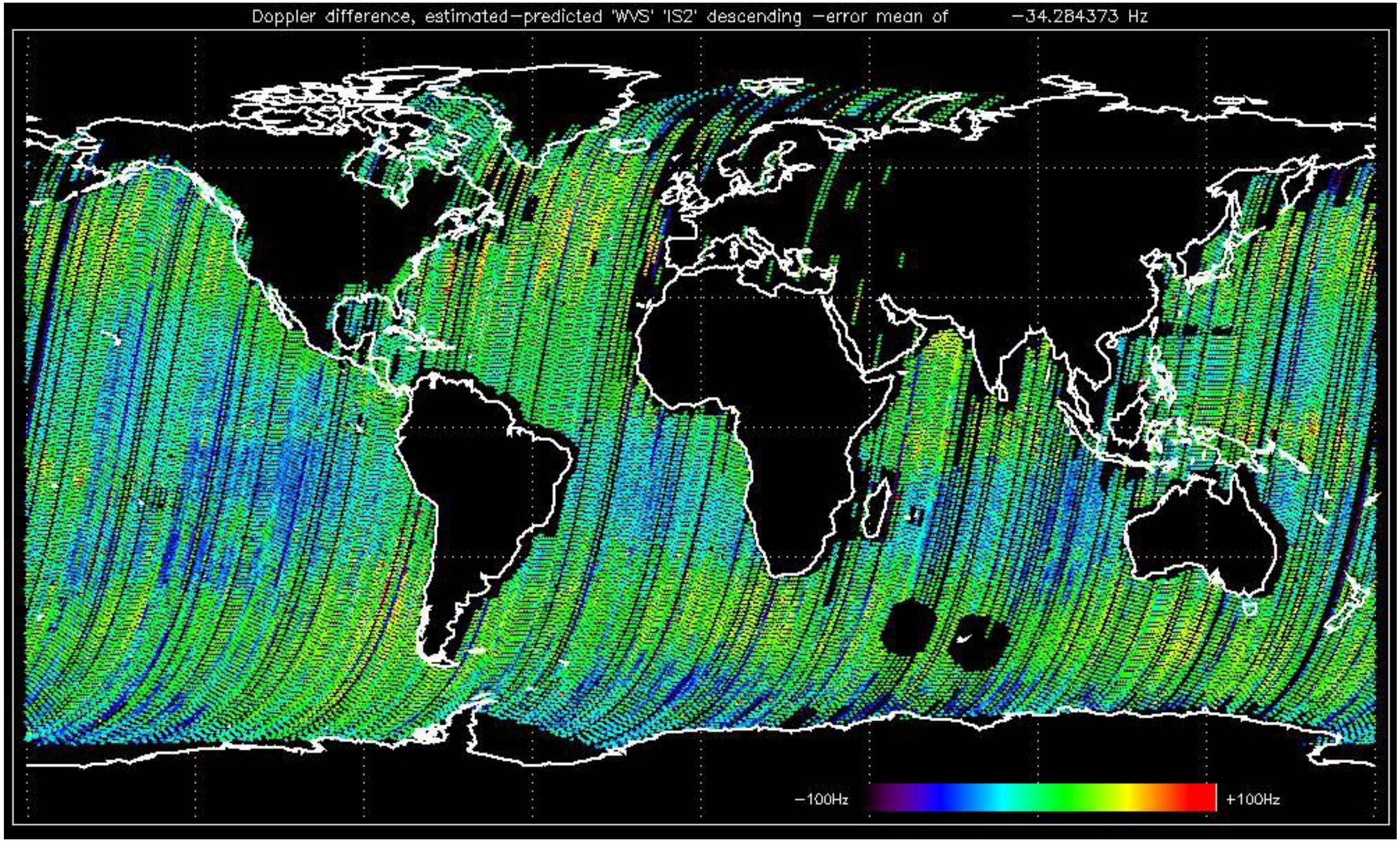

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
ANX time


doppler error (real−ref)
Doppler error [Hz]
300
200
100
0
−100
−200
5
10
15
20
time of day


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −19.585311 Hz
−100Hz
+100Hz

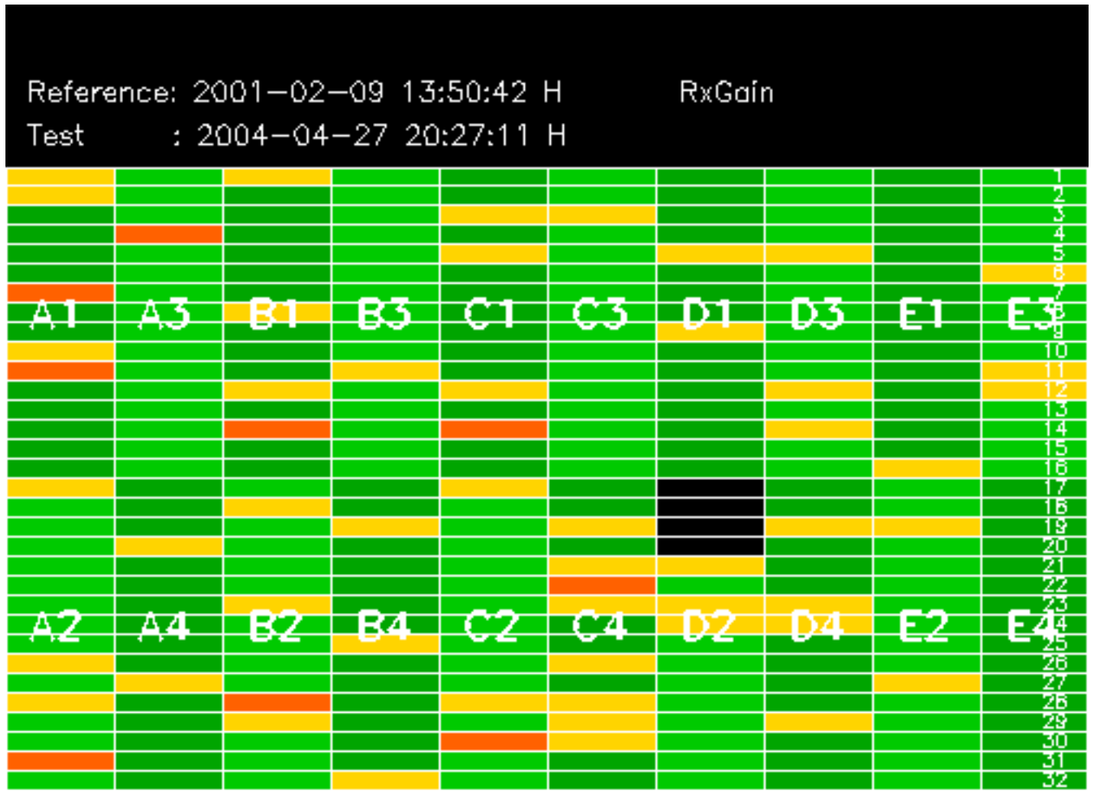

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -17.805331 Hz
-100Hz
+100Hz

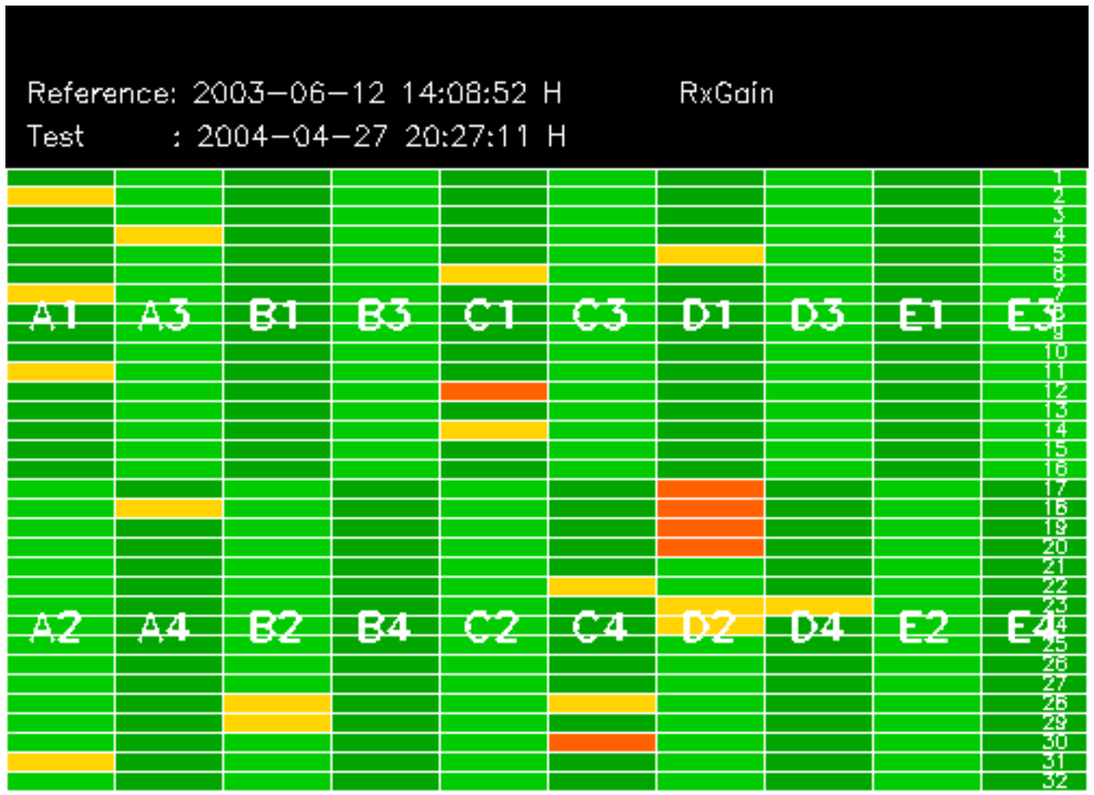

Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −37.005435 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −34.284373 Hz
−100Hz
+100Hz

MS of 28-APR-2004 is missing.

No anomalies observed.


Reference: 2001-02-09 13:50:42 H
Test : 2004-04-27 20:27:11 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 : 2004-04-27 20:27:11 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
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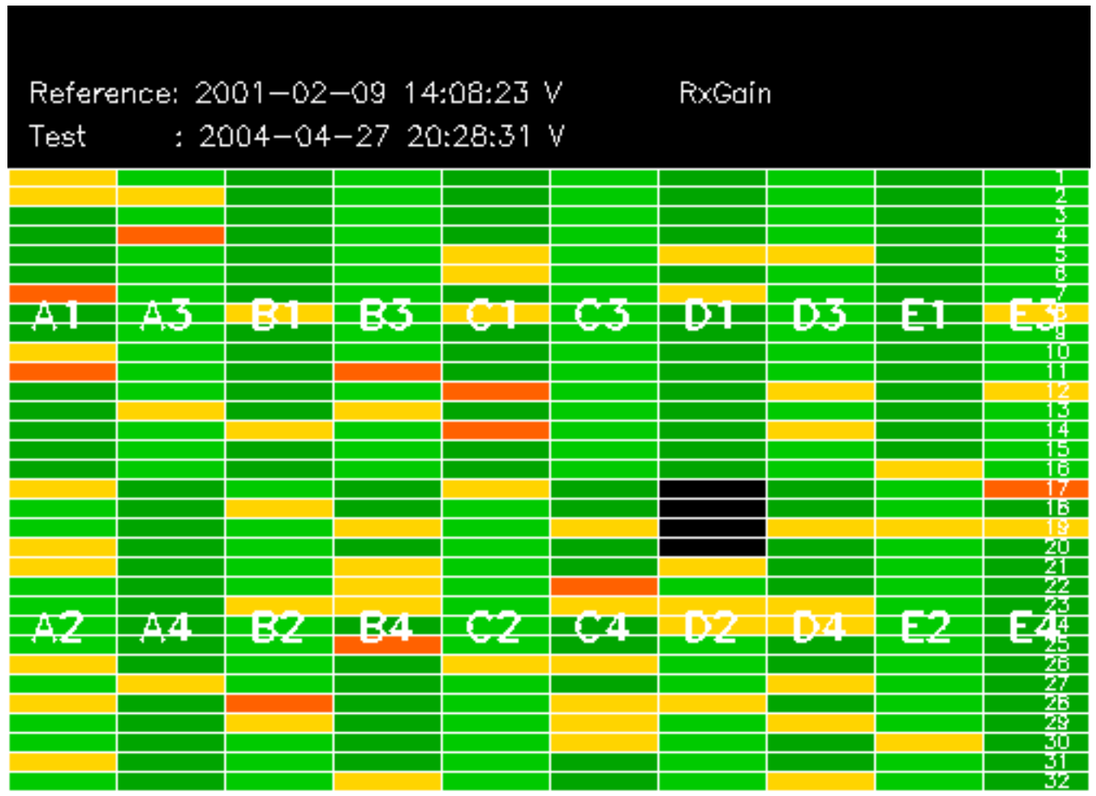
Reference: 2001-02-09 14:08:23 V
Test : 2004-04-27 20:28:31 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
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D4
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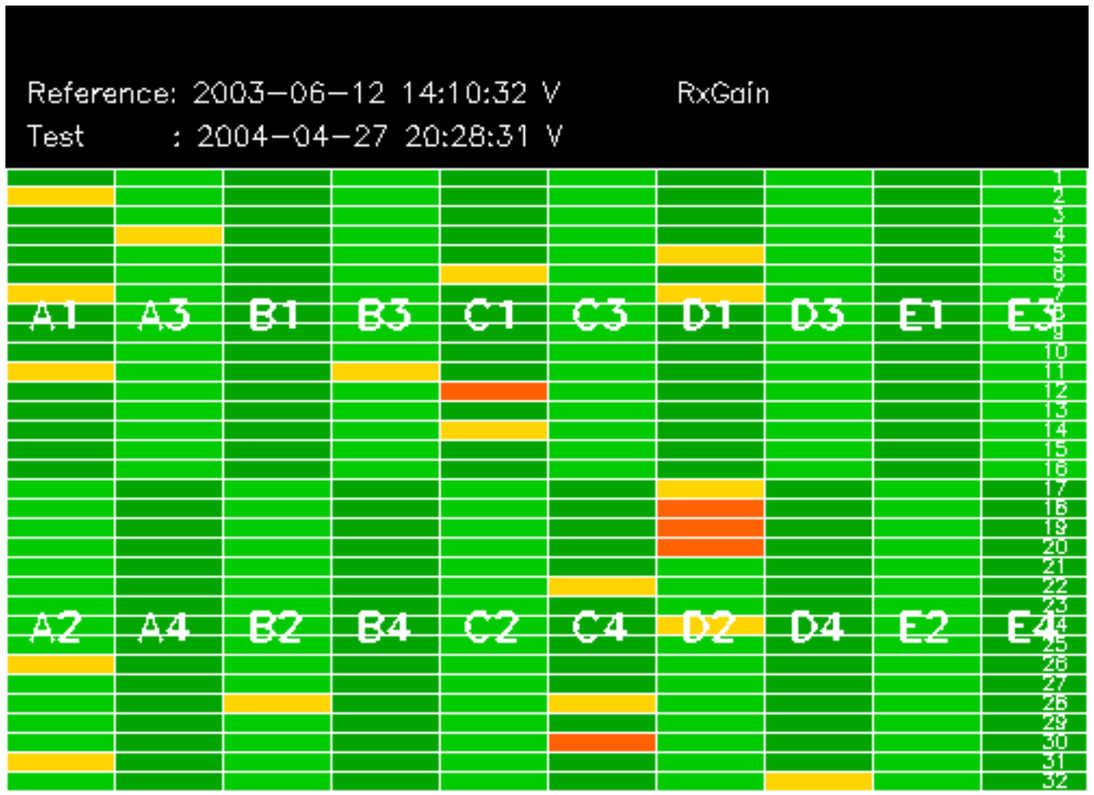
Reference: 2003-06-12 14:10:32 V
Test : 2004-04-27 20:28:31 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
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E4
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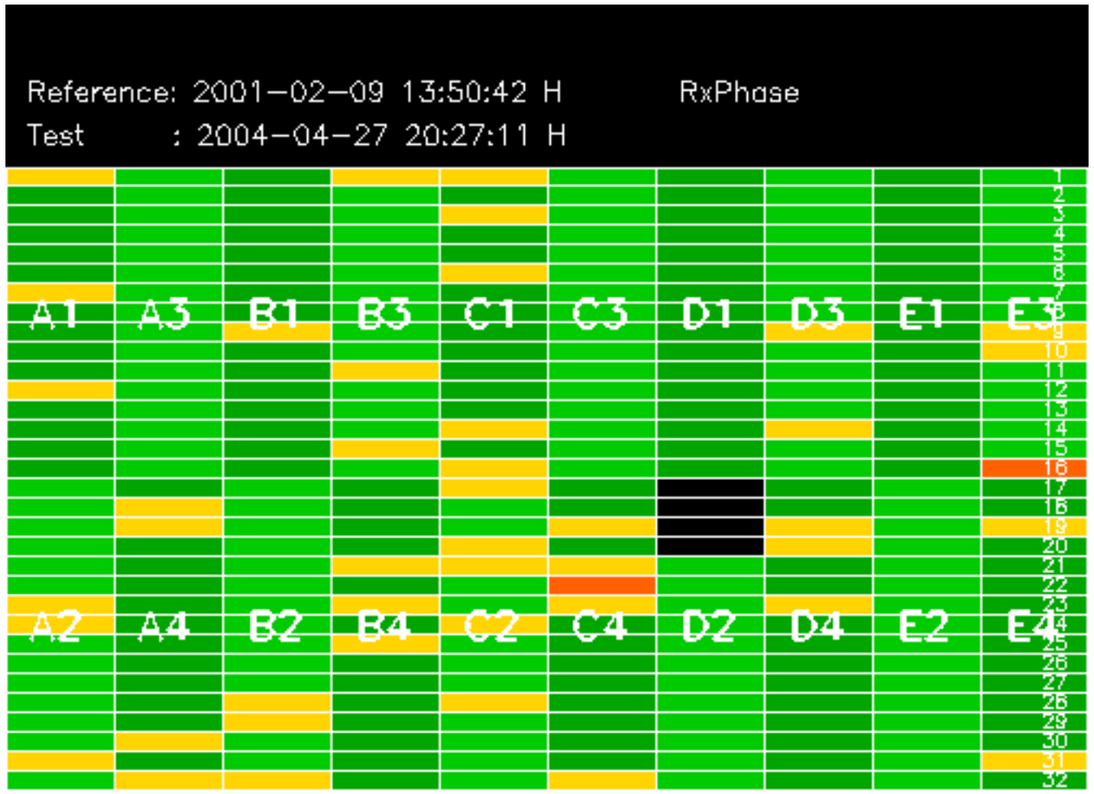
Reference: 2001-02-09 13:50:42 H
Test : 2004-04-27 20:27:11 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
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B4
C2
C4
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D4
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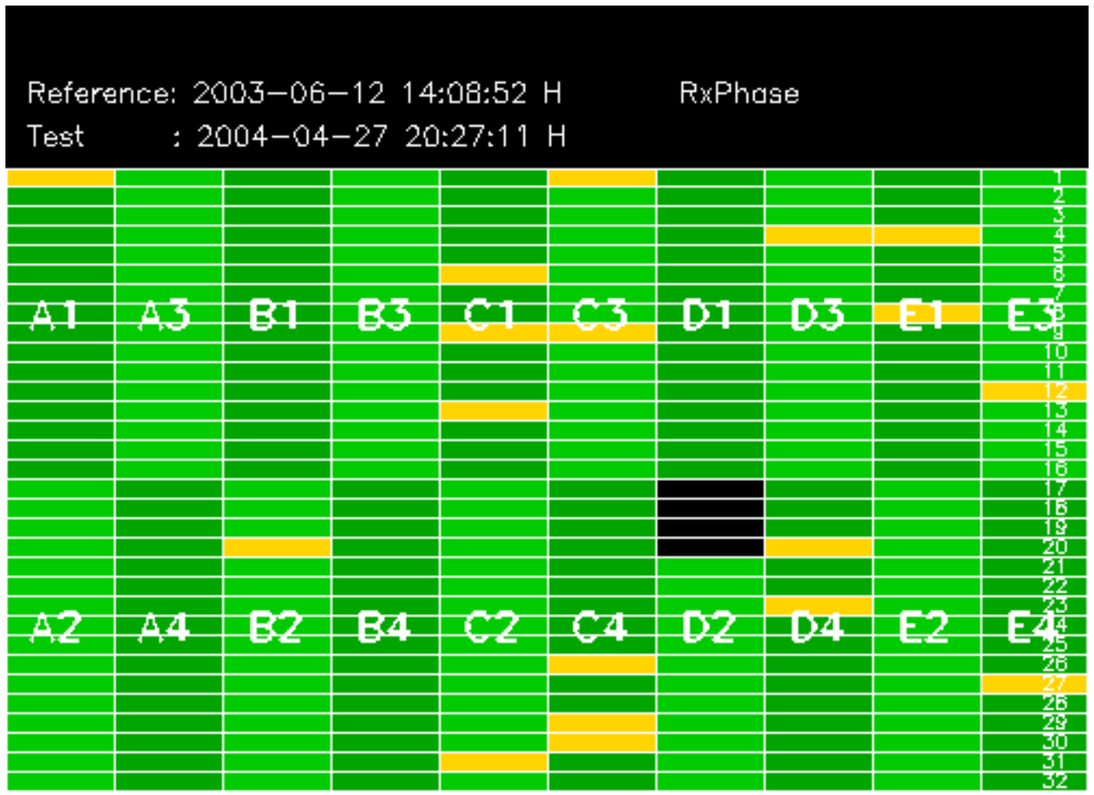
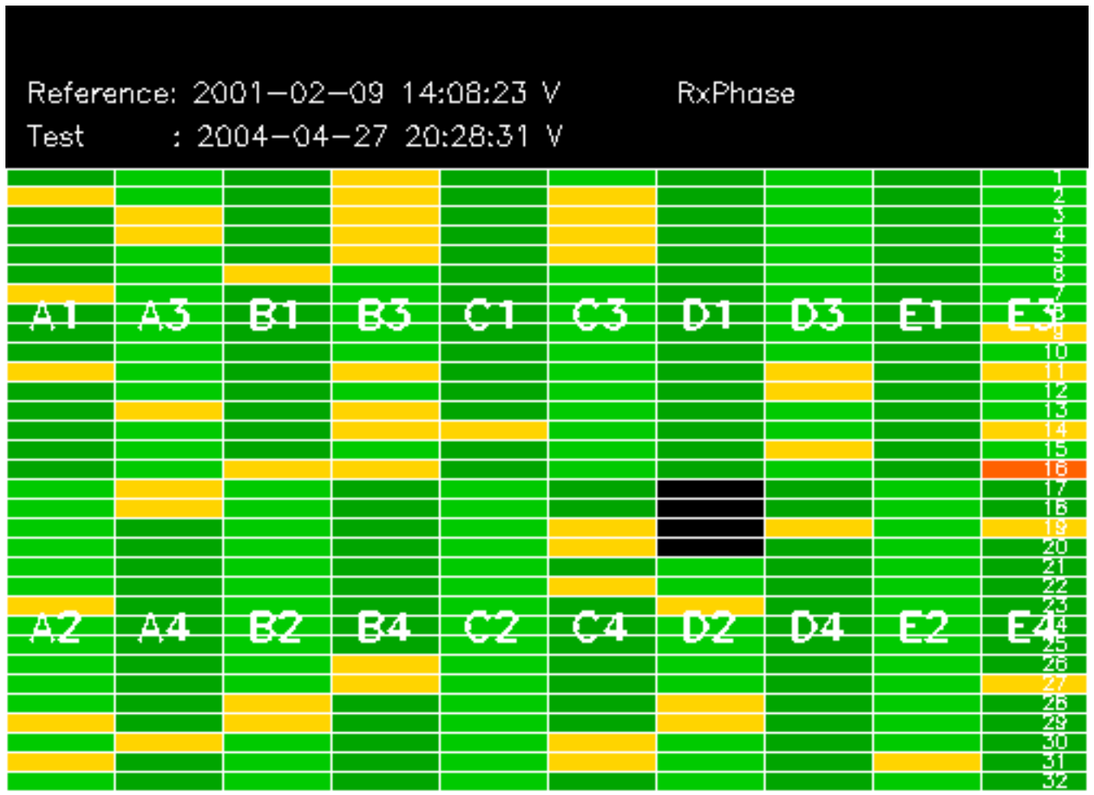

Reference: 2003-06-12 14:08:52 H
Test : 2004-04-27 20:27:11 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2001-02-09 14:08:23 V
Test : 2004-04-27 20:28:31 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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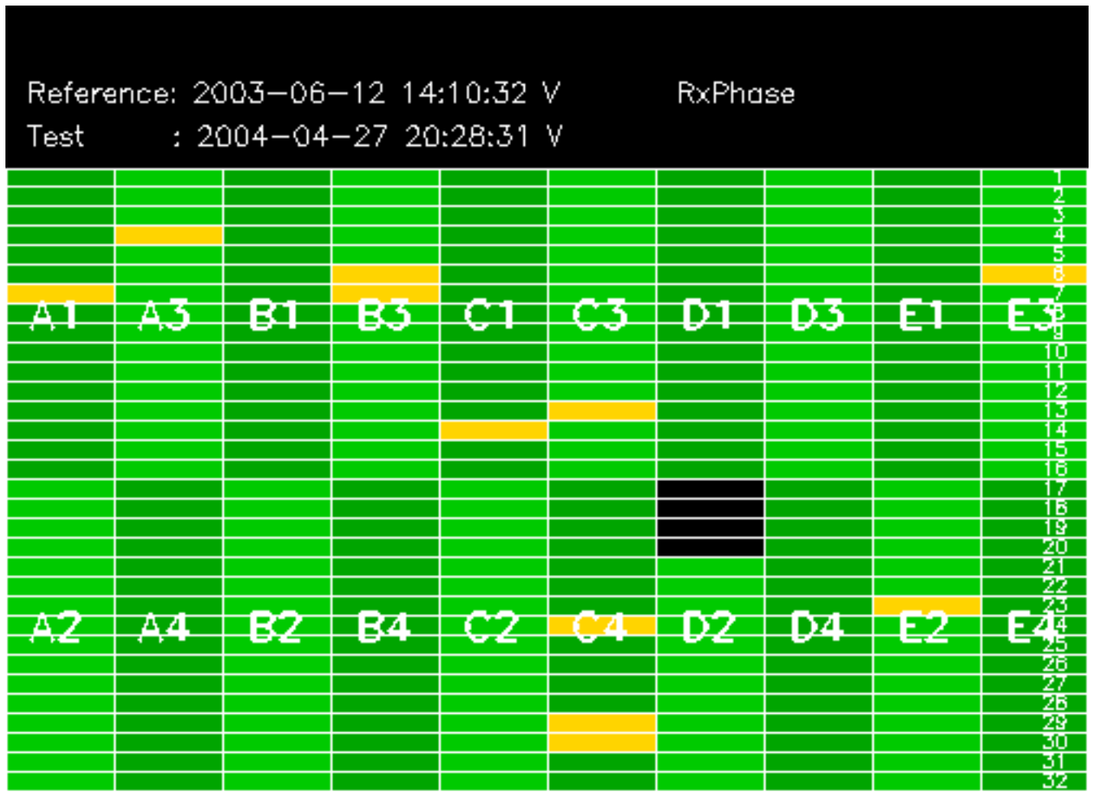
Reference: 2003-06-12 14:10:32 V
Test : 2004-04-27 20:28:31 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
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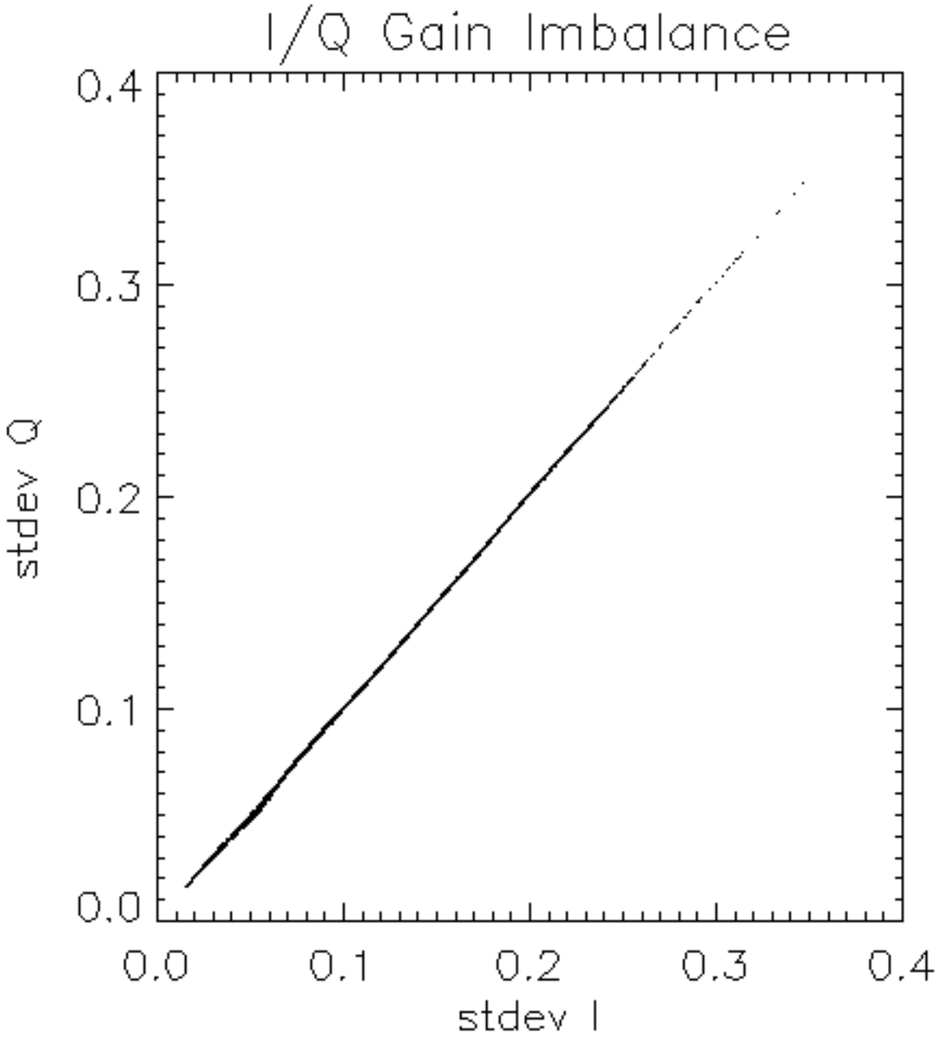
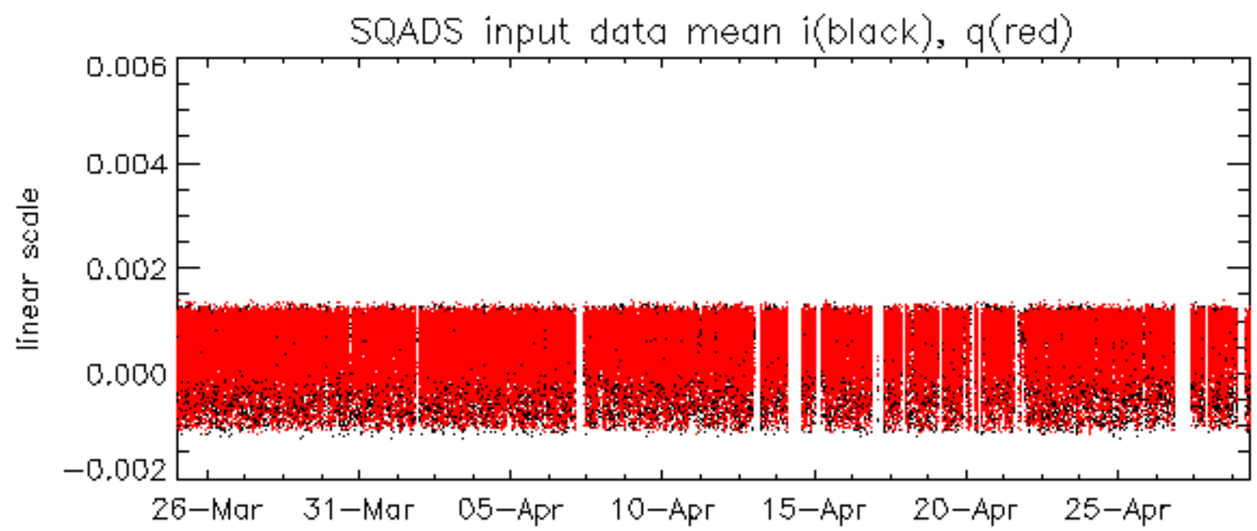
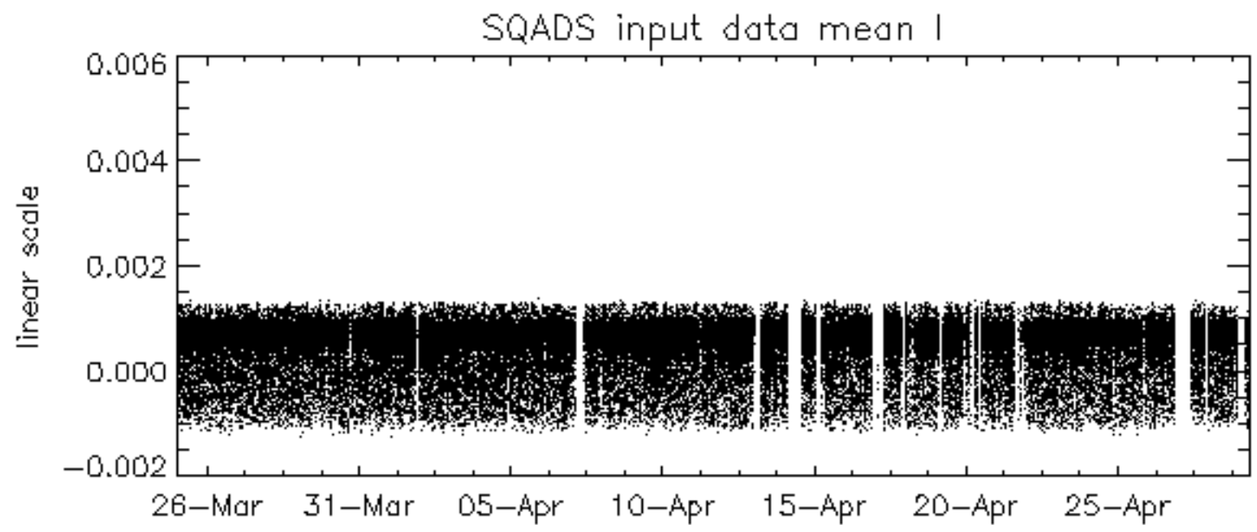
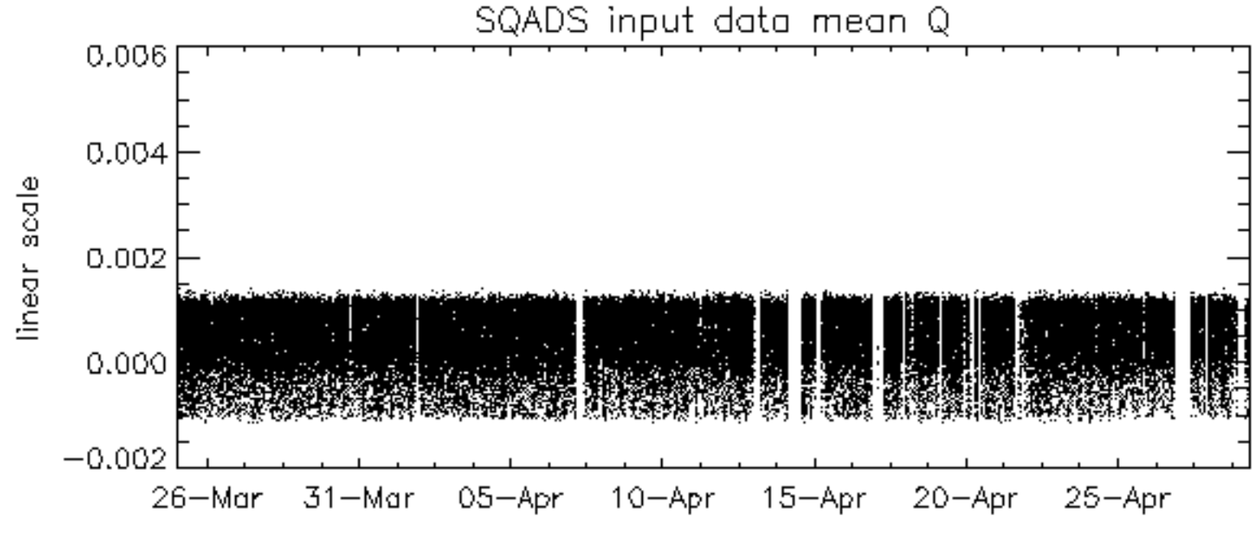
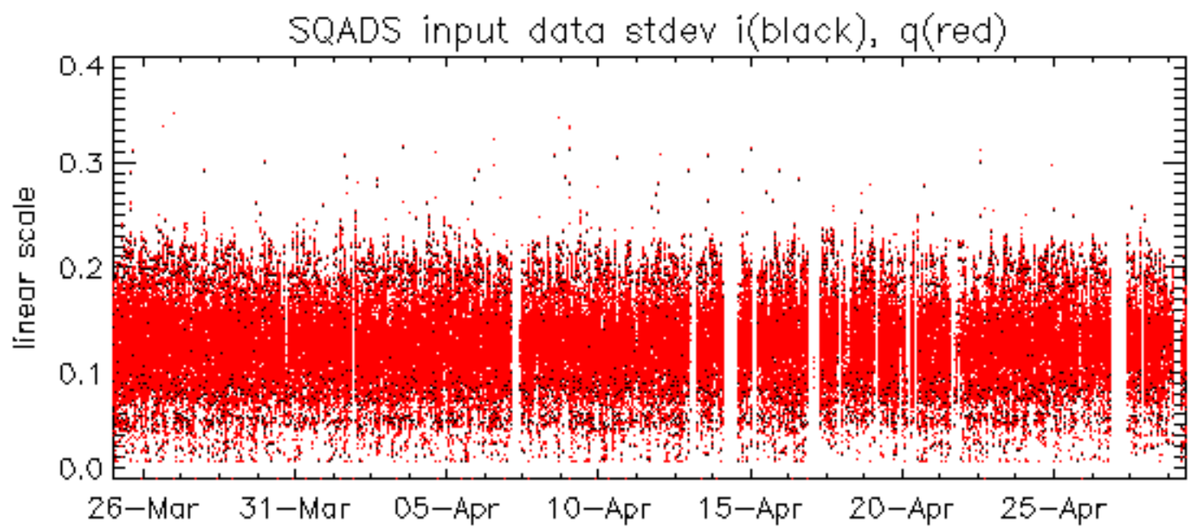
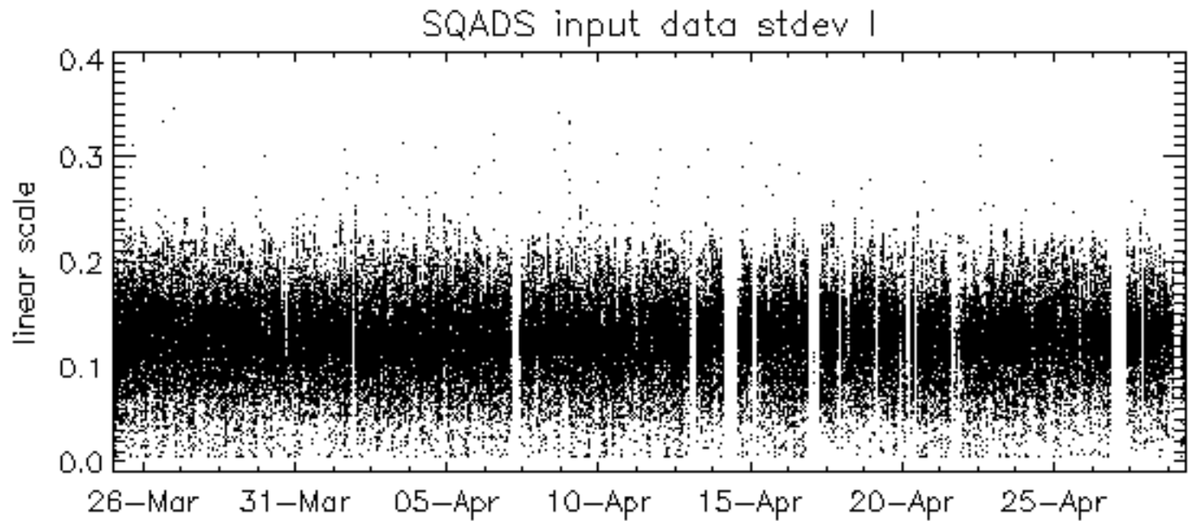

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

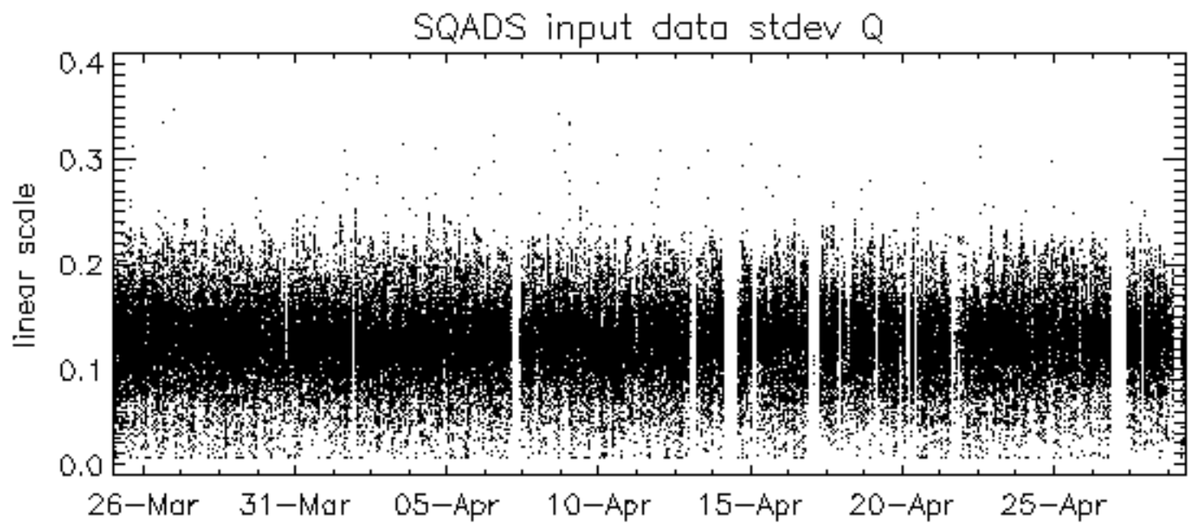

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr

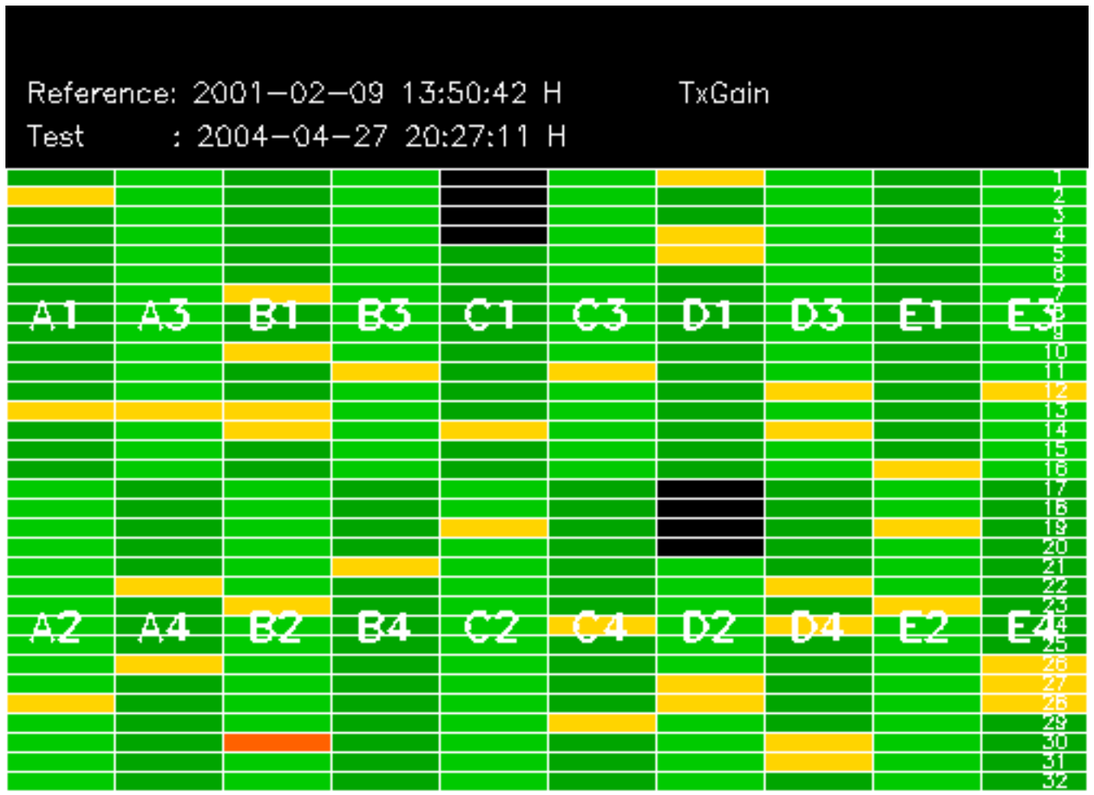

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr

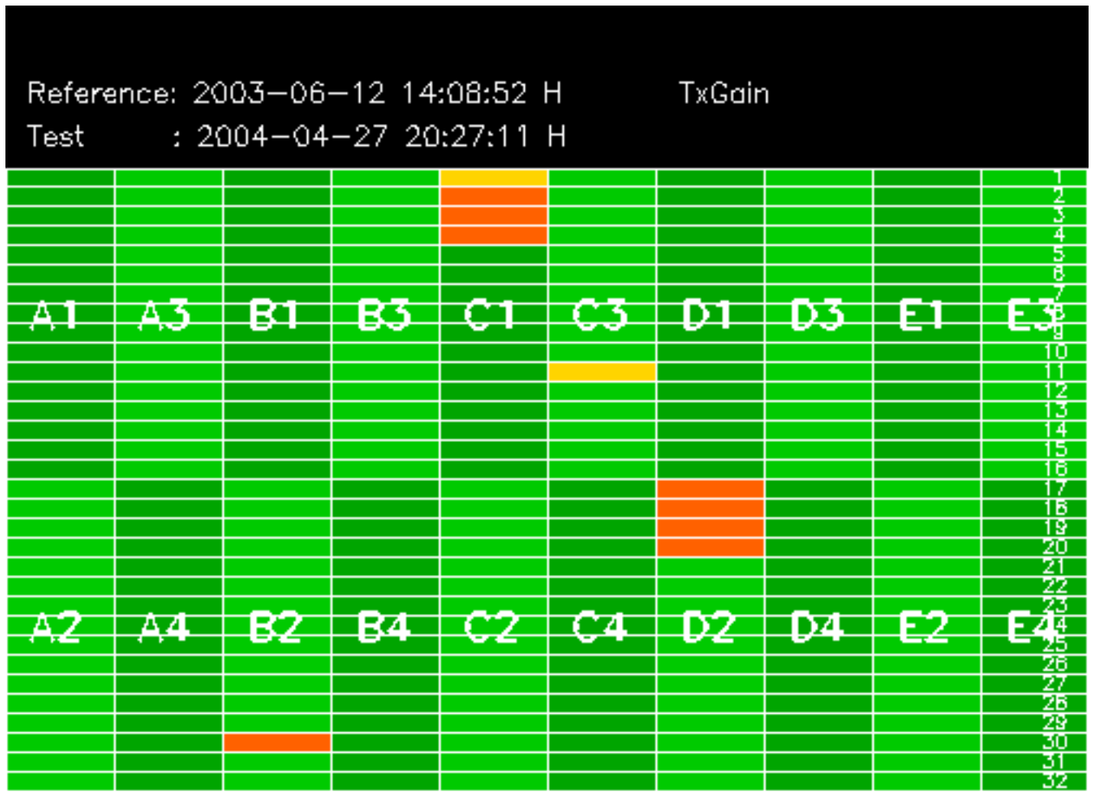

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Mar
31−Mar
05−Apr
10−Apr
15−Apr
20−Apr
25−Apr


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


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


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


Reference: 2001-02-09 13:50:42 H
Test : 2004-04-27 20:27:11 H
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 14:08:52 H
Test : 2004-04-27 20:27:11 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
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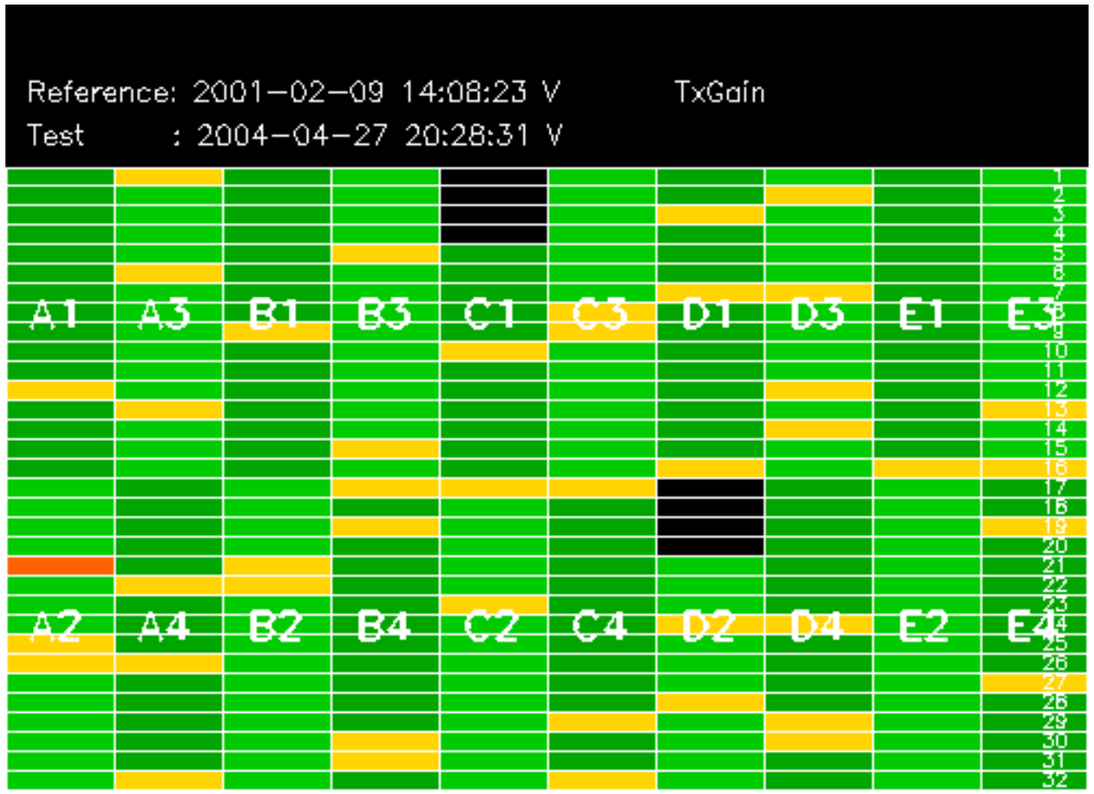
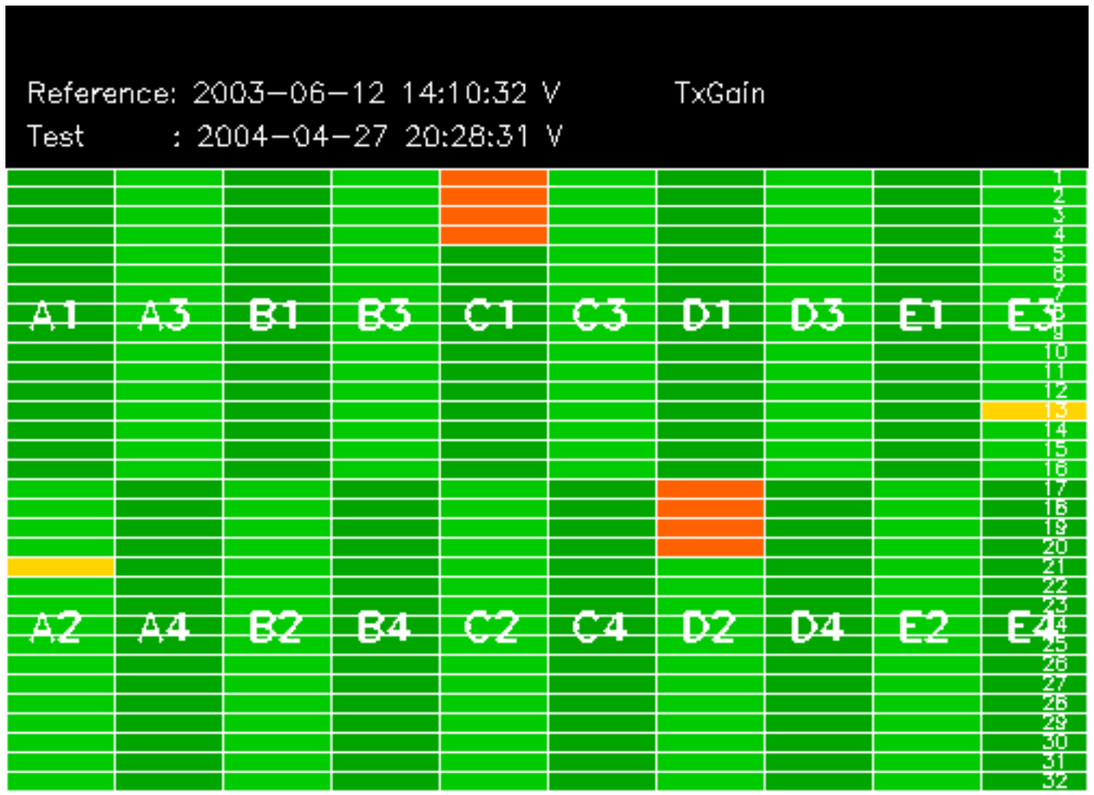

Reference: 2001-02-09 14:08:23 V
Test : 2004-04-27 20:28:31 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2004-04-27 20:28:31 V
TxGain
A1
A3
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B3
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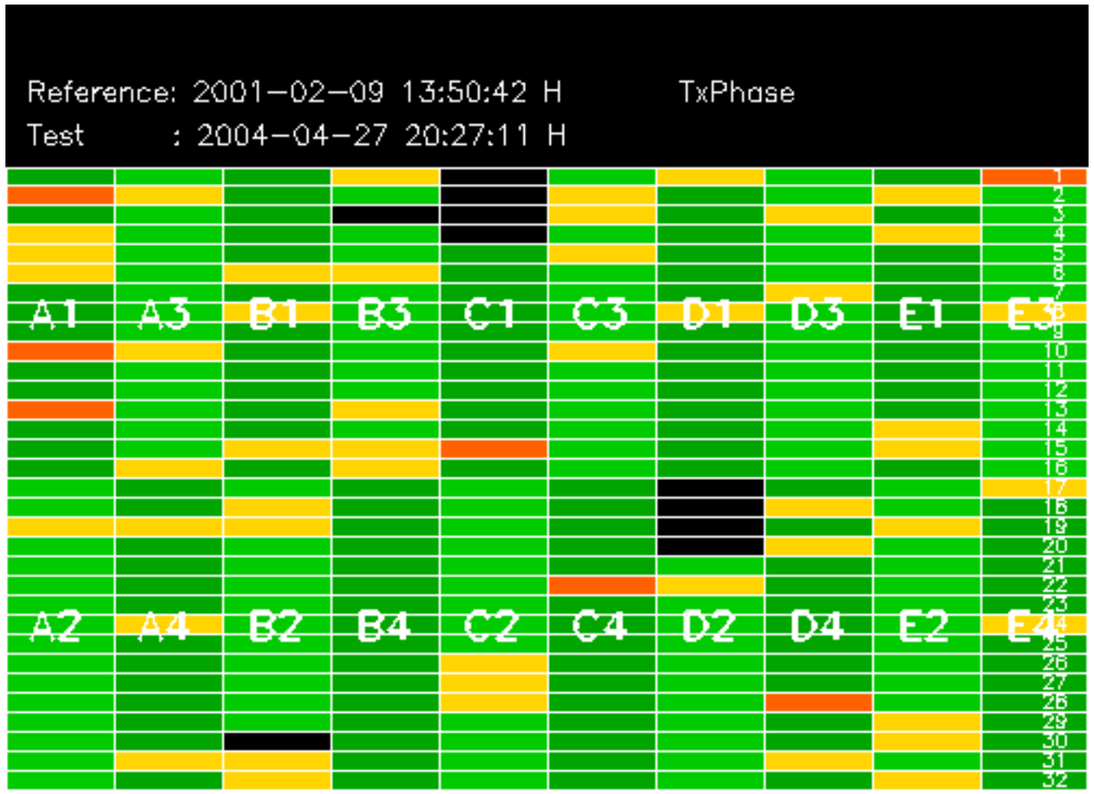
Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2004-04-27 20:27:11 H
A1
A3
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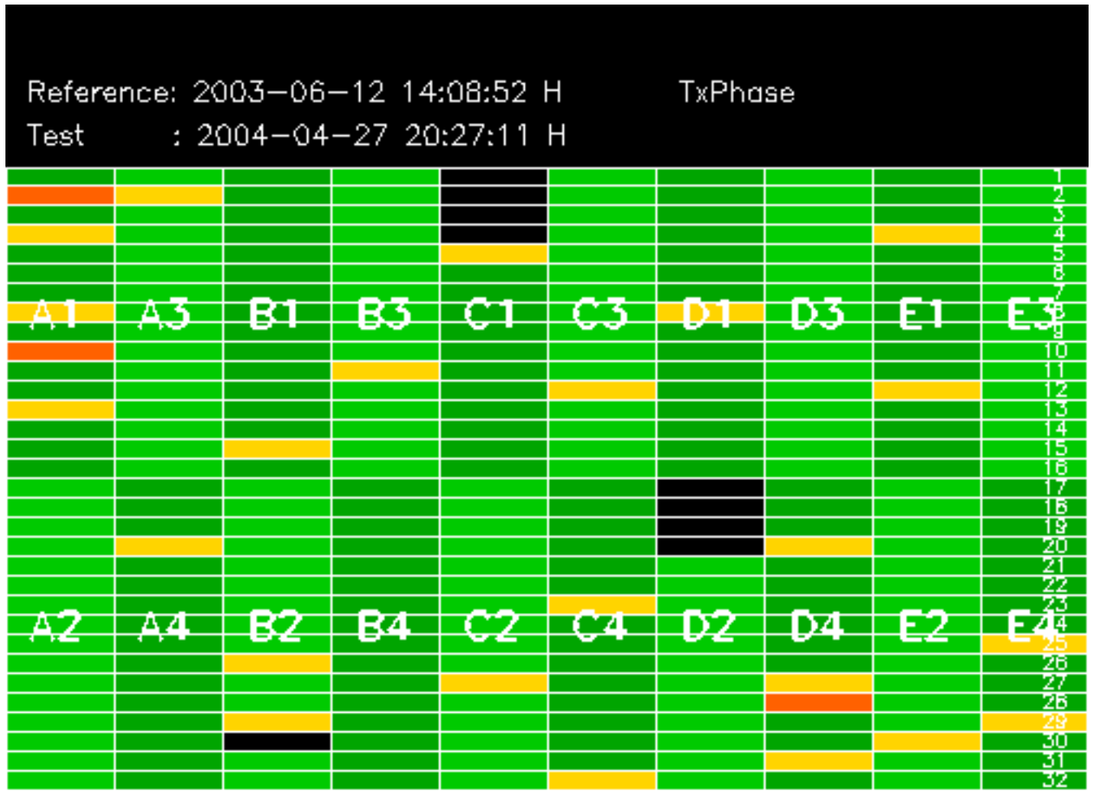
Reference: 2003-06-12 14:08:52 H
Test : 2004-04-27 20:27:11 H
TxPhase
A1
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B1
B3
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C3
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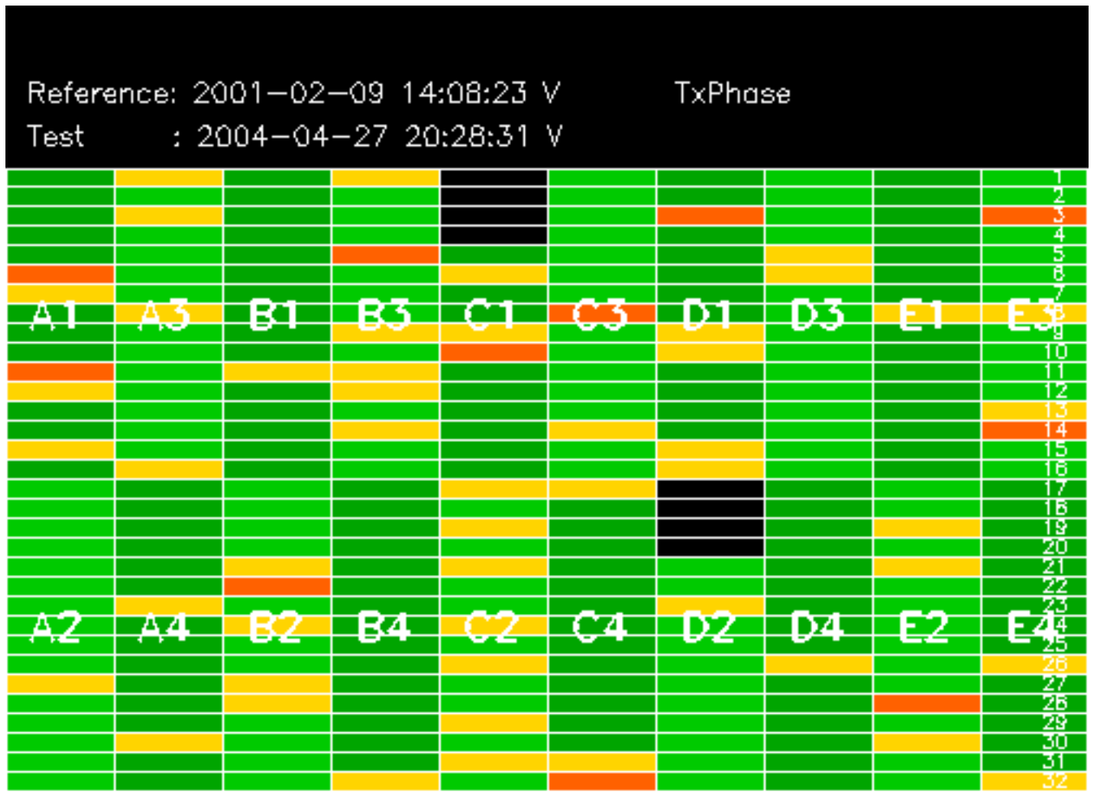
Reference: 2001-02-09 14:08:23 V
Test : 2004-04-27 20:28:31 V
TxPhase
A1
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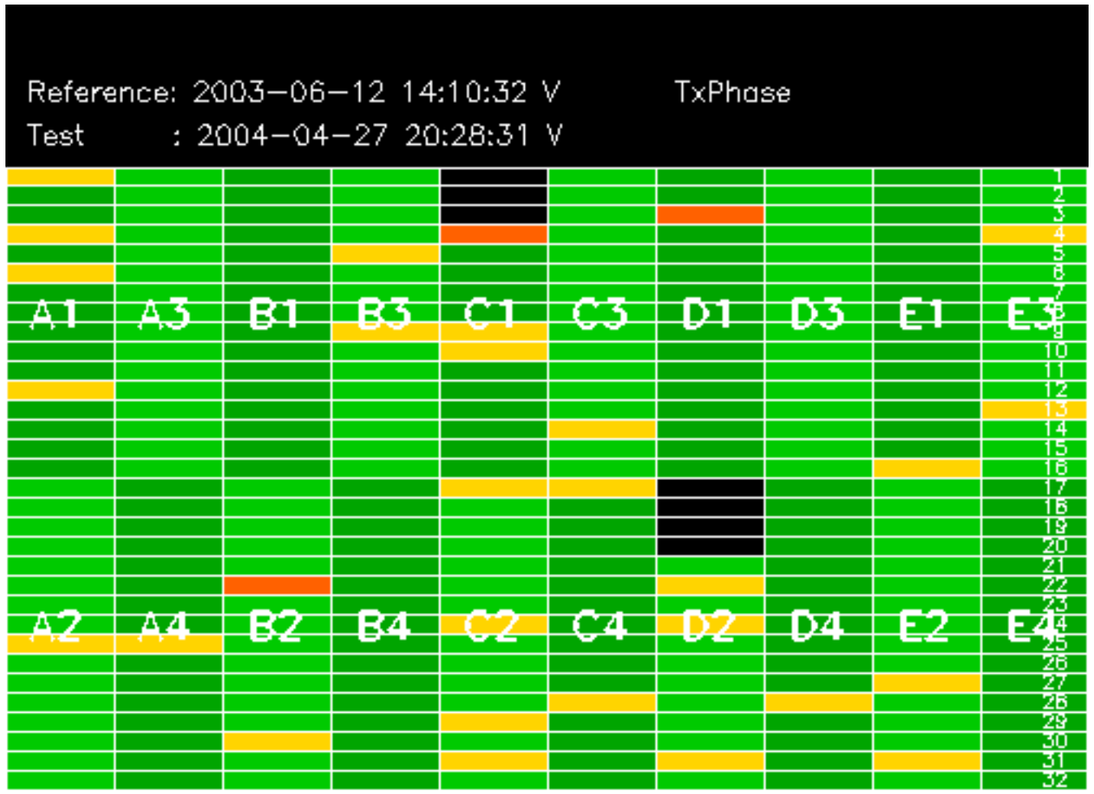
Reference: 2003-06-12 14:10:32 V
Test : 2004-04-27 20:28:31 V
TxPhase
A1
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Antenna reset on 29-apr-2004 08:32:08 to 10:1818 due to tile D3 repeated temperature anomalies