# PRELIMINARY REPORT OF 040729

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

### last update on Thu Jul 29 13:01:13 GMT 2004


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## 1 - Introduction

This report is based on the analysis of wave mode level-1 cross spectra (ASA_WVS_1P), global monitoring products (ASA_GM1_1P), which are the available few hours after the acquisition, on the browse (BP) products and
on the Module Stepping (MS) product.

## 2 - Summary

### 2.1 - Instrument Unavailability

No unavailabilities during the reported period.

### 2.2 - Browse Visual Inspection

No anomalies observed on available browse products

### 2.3 - 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 | 20040728 170207 |
| H | 20040727 173345 |

**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 | -3.478740 | 0.005796 | 0.021566 |
| 7 | P1 | -3.321278 | 0.012983 | 0.028158 |
| 11 | P1 | -4.593890 | 0.031624 | -0.042010 |
| 15 | P1 | -5.719327 | 0.055807 | -0.021237 |
| 19 | P1 | -3.445466 | 0.004176 | -0.011234 |
| 22 | P1 | -4.559740 | 0.011084 | -0.016817 |

| | | | | |
|---|---|---|---|---|
| 24 | P1 | -4.943299 | 0.017436 | -0.017293 |
| 30 | P1 | -6.884040 | 0.025722 | -0.034706 |
| 3 | P1 | -16.178755 | 0.131946 | -0.037921 |
| 7 | P1 | -13.968962 | 0.080877 | 0.035721 |
| 11 | P1 | -20.015232 | 0.259303 | -0.164960 |
| 15 | P1 | -11.788141 | 0.042740 | 0.019865 |
| 19 | P1 | -13.841260 | 0.031198 | -0.027447 |
| 22 | P1 | -16.339460 | 0.357196 | 0.054350 |
| 24 | P1 | -14.605285 | 0.277600 | 0.024393 |
| 30 | P1 | -17.677538 | 0.411811 | 0.059083 |

**P2 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|---|---|---|---|---|
| 3 | P2 | -22.347200 | 0.079602 | 0.084637 |
| 7 | P2 | -22.738771 | 0.116676 | 0.105831 |
| 11 | P2 | -15.484011 | 0.133169 | 0.121344 |
| 15 | P2 | -7.121256 | 0.089260 | 0.076792 |
| 19 | P2 | -9.560282 | 0.144605 | 0.041485 |
| 22 | P2 | -17.436871 | 0.102809 | 0.134732 |
| 24 | P2 | -20.773205 | 0.083029 | 0.049468 |
| 30 | P2 | -19.371698 | 0.077429 | 0.095226 |

**P3 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|---|---|---|---|---|
| 3 | P3 | -8.143327 | 0.001900 | -0.000701 |
| 7 | P3 | -8.143325 | 0.001900 | -0.000712 |
| 11 | P3 | -8.143328 | 0.001900 | -0.000724 |
| 15 | P3 | -8.143328 | 0.001900 | -0.000736 |
| 19 | P3 | -8.143328 | 0.001900 | -0.000746 |
| 22 | P3 | -8.143326 | 0.001900 | -0.000752 |
| 24 | P3 | -8.143324 | 0.001900 | -0.000764 |
| 30 | P3 | -8.143279 | 0.001898 | -0.000896 |

**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 | -2.992193 | 0.120140 | 0.442165 |
| 7 | P1 | -2.914029 | 0.125903 | -0.259561 |
| 11 | P1 | -3.831072 | 0.029362 | 0.003934 |
| 15 | P1 | -3.964977 | 0.761435 | 1.086217 |
| 19 | P1 | -3.404482 | 0.043432 | -0.168685 |
| 22 | P1 | -5.700607 | 0.049361 | 0.138785 |
| 24 | P1 | -3.967637 | 0.070000 | 0.292205 |
| 30 | P1 | -6.154648 | 0.079168 | -0.135847 |
| 3 | P1 | -10.820333 | 0.365299 | 0.624146 |
| 7 | P1 | -9.931046 | 0.290265 | -0.447274 |
| 11 | P1 | -11.912244 | 0.221360 | -0.337236 |
| 15 | P1 | -11.781829 | 0.272617 | 0.370933 |
| 19 | P1 | -15.239714 | 0.647699 | -0.896230 |
| 22 | P1 | -22.092813 | 6.233099 | -2.703905 |
| 24 | P1 | -17.468229 | 0.316461 | -0.406835 |
| 30 | P1 | -21.067978 | 3.755435 | 2.076307 |

**P2 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|---|---|---|---|---|
| 3 | P2 | -18.055285 | 0.076407 | 0.180133 |
| 7 | P2 | -22.842026 | 0.232960 | 0.115003 |
| 11 | P2 | -10.976115 | 0.203881 | -0.197556 |
| 15 | P2 | -4.957387 | 0.041887 | -0.000763 |
| 19 | P2 | -6.863477 | 0.051885 | 0.167986 |
| 22 | P2 | -7.553339 | 0.095076 | 0.174765 |
| 24 | P2 | -11.028856 | 0.148058 | -0.045561 |
| 30 | P2 | -22.282549 | 0.128854 | 0.067196 |

**P3 Cyclic statistics**

| row | pulse | mean (dB) | stdev (dB) | slope(dB/cycle) |
|---|---|---|---|---|
| 3 | P3 | -7.983356 | 0.003600 | -0.006894 |
| 7 | P3 | -7.983482 | 0.003597 | -0.007153 |
| 11 | P3 | -7.983356 | 0.003600 | -0.006800 |
| 15 | P3 | -7.983279 | 0.003611 | -0.007037 |
| 19 | P3 | -7.983290 | 0.003607 | -0.007161 |
| 22 | P3 | -7.983396 | 0.003590 | -0.007061 |
| 24 | P3 | -7.983300 | 0.003628 | -0.007136 |
| 30 | P3 | -7.983352 | 0.003600 | -0.007035 |

## 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 | 0.000491826 |
| | stdev | 2.15319e-07 |
| MEAN Q | mean | 0.000533977 |
| | stdev | 2.46678e-07 |

### 5.2 - Input stdev I/Q

| channel | stat | DSS-B |
|---|---|---|
| STDEV I | mean | 0.129117 |
| | stdev | 0.00105417 |
| STDEV Q | mean | 0.129370 |
| | stdev | 0.00106577 |



### 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 |

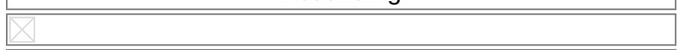
### 6.2 - Absolute Doppler for WVS

| Evolution of Absolute Doppler |
|---|
| |
| Acsending |
| |
| Descending |

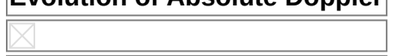
### 6.3 - Doppler evolution versus ANX for WVS

| Evolution Doppler error versus ANX |
| --- |
| |

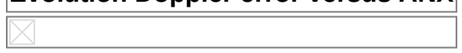
## 6.4 - Unbiased Doppler Error for GM1

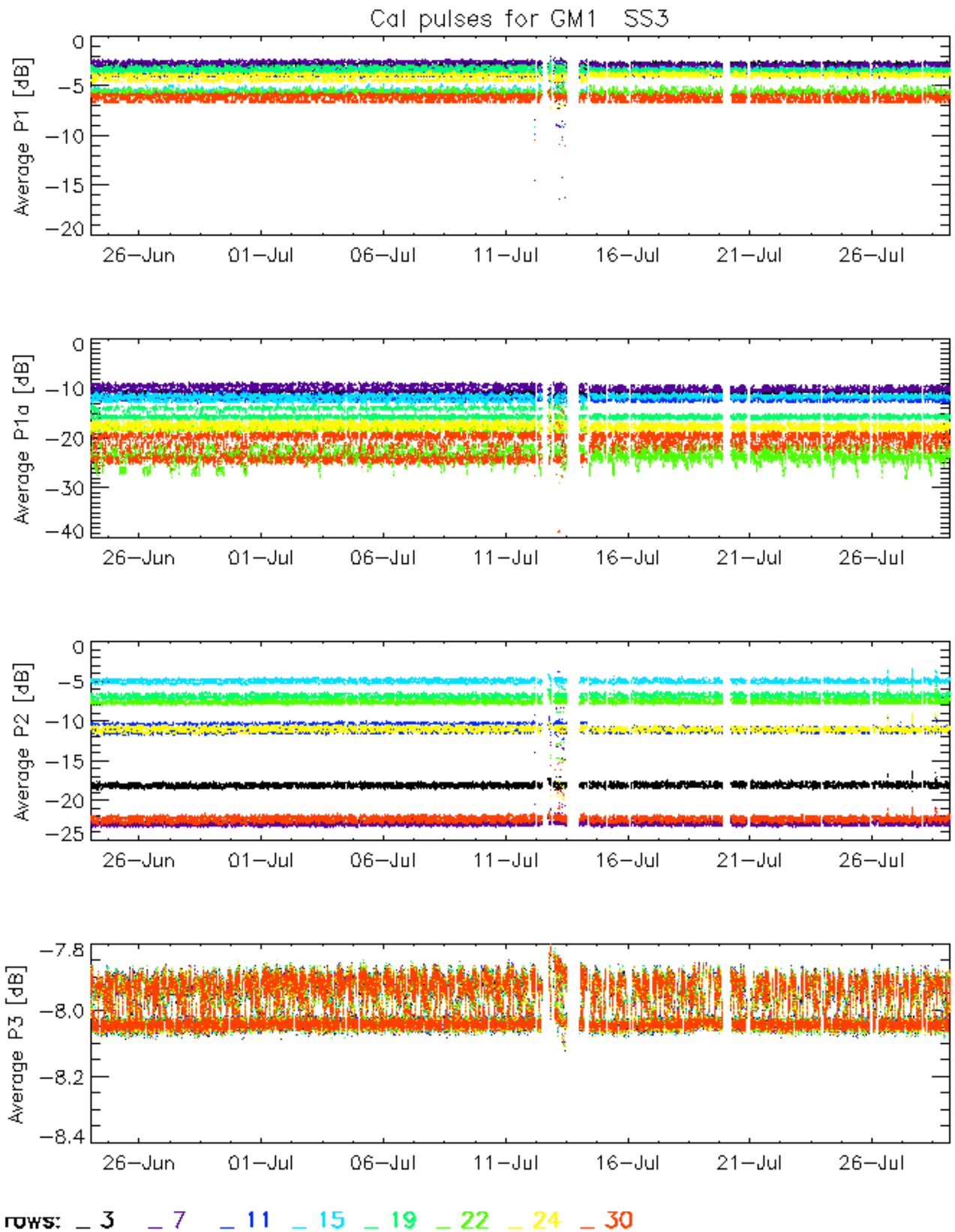
| Evolution of unbiased Doppler error (Real - Expected) |
| --- |
| |
| Acsending |
|  |
| Descending |

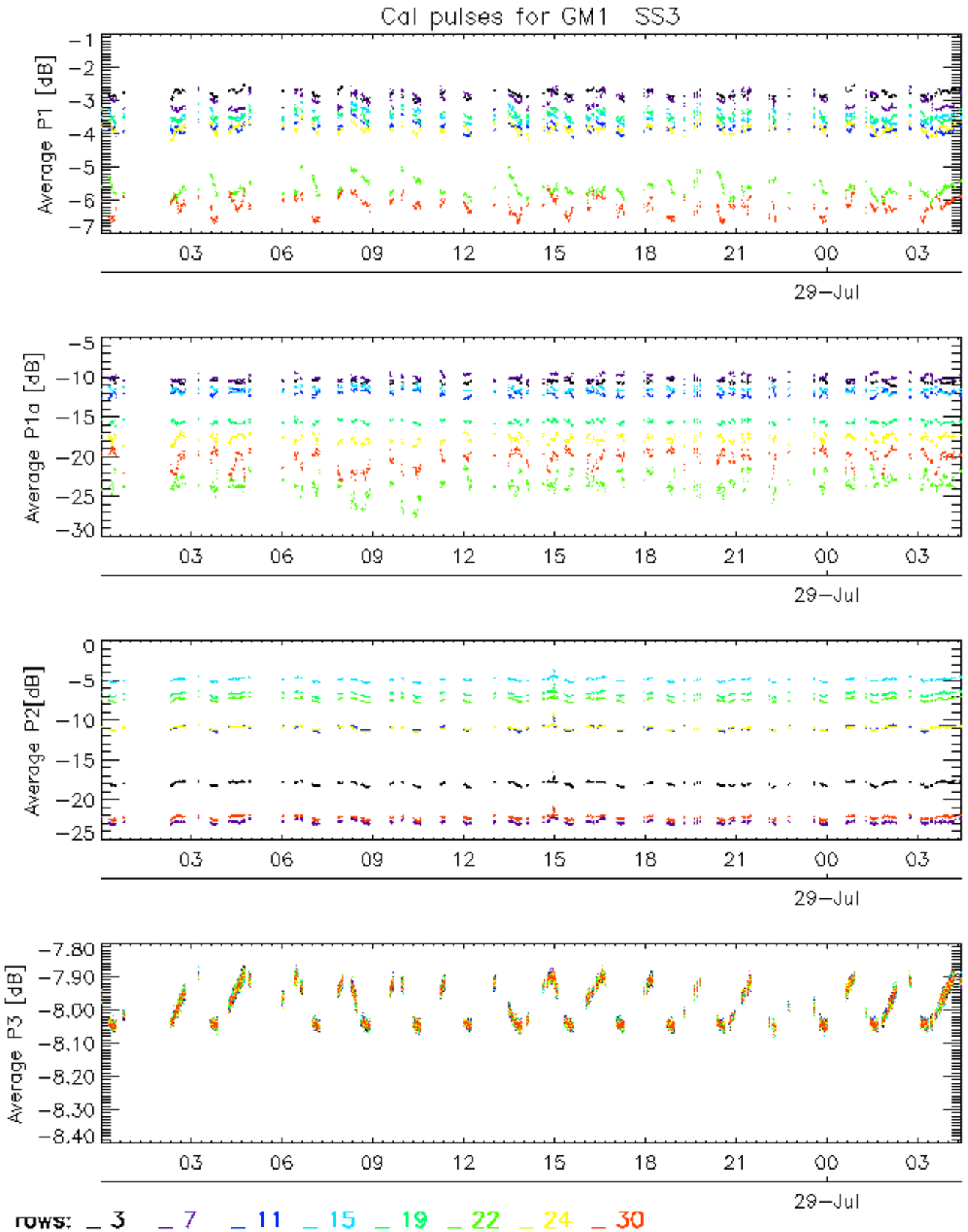
## 6.5 - Absolute Doppler for GM1

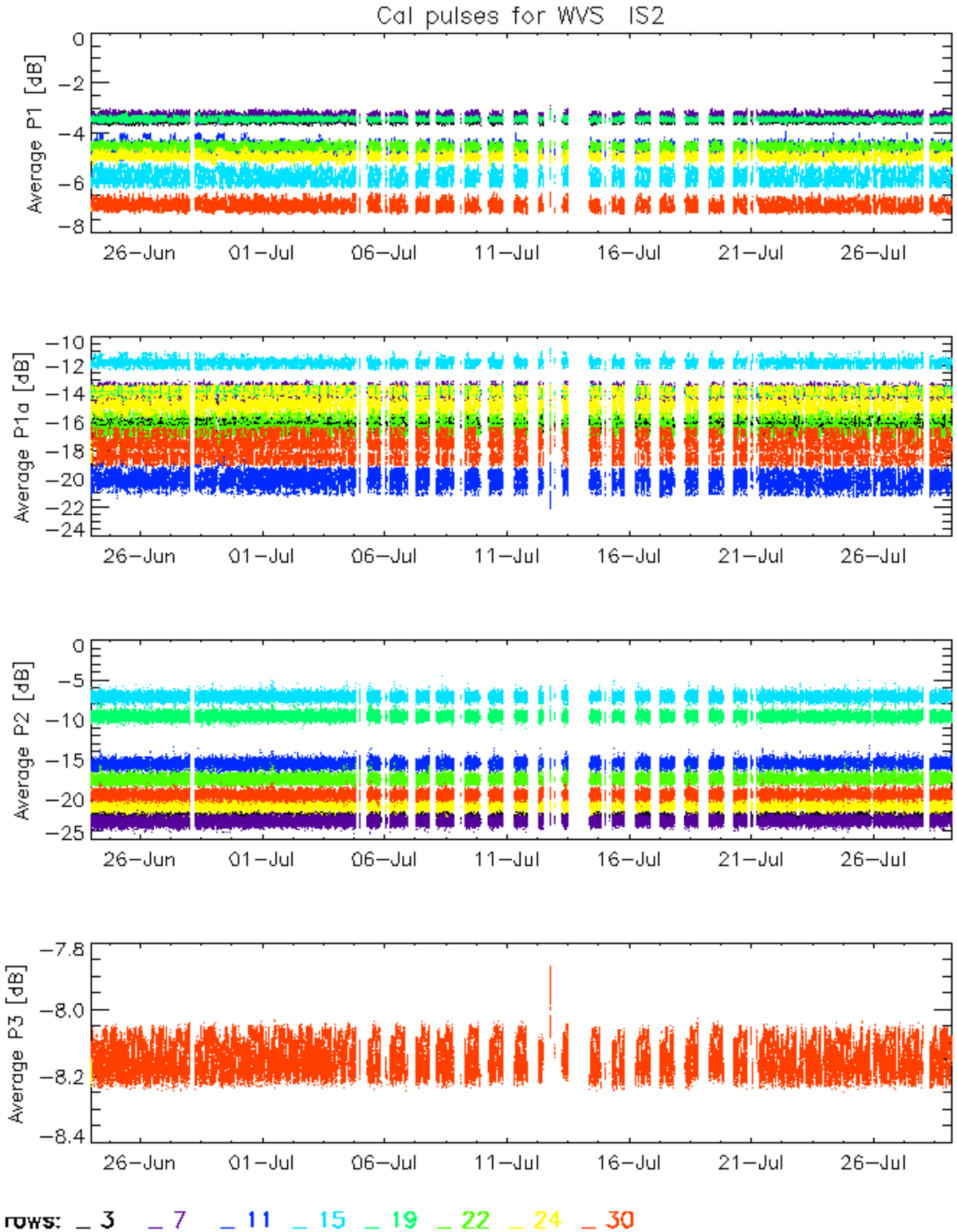
| Evolution of Absolute Doppler |
| --- |
|  |
| Acsending |
| |
| Descending |

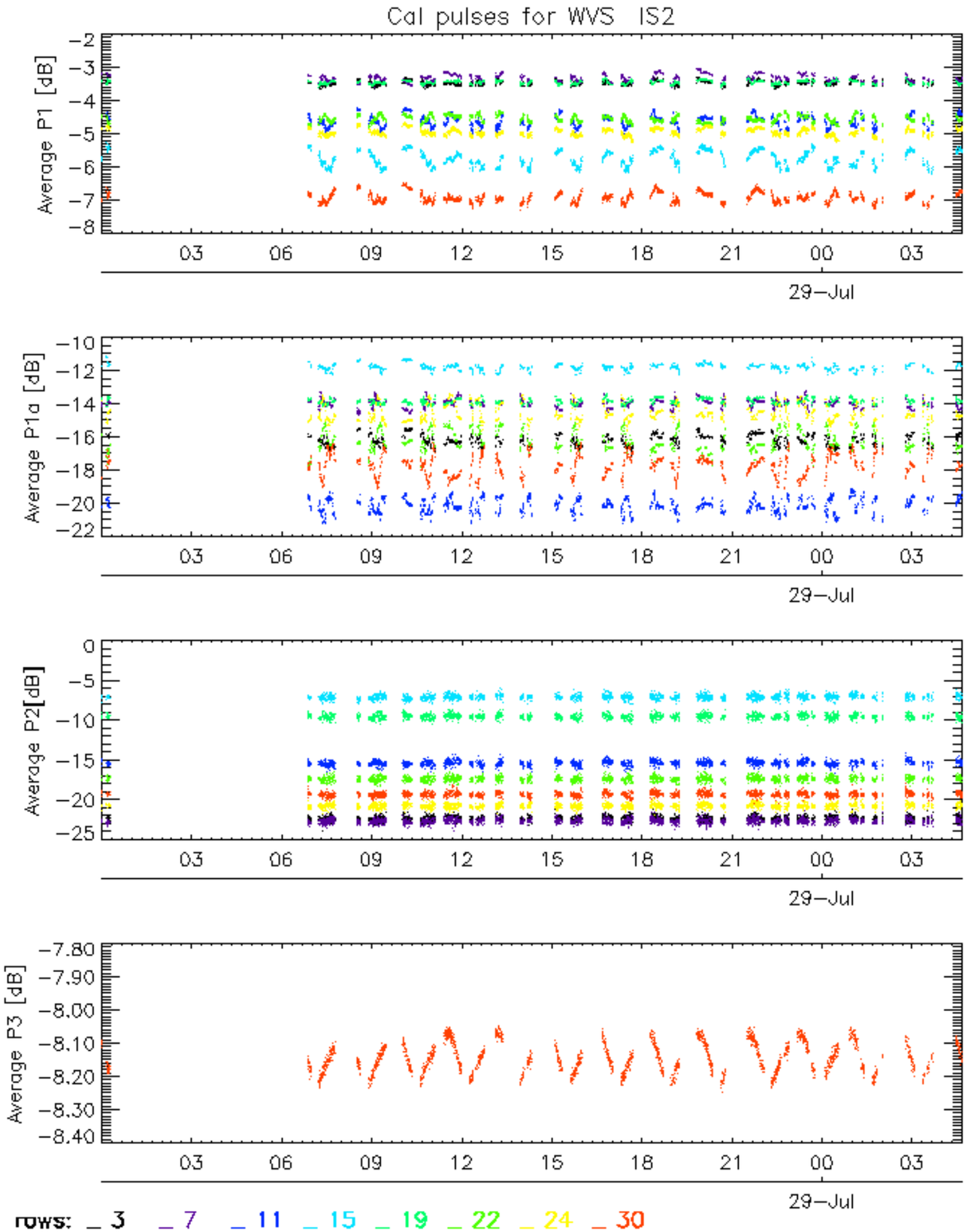
## 6.6 - Doppler evolution versus ANX for GM1

| Evolution Doppler error versus ANX |
| --- |
|  |


Cal pulses for GM1 SS3
Average P1 [dB]
0
−5
−10
−15
−20
Average P1a [dB]
0
−10
−20
−30
−40
Average P2 [dB]
0
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Jun
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 30

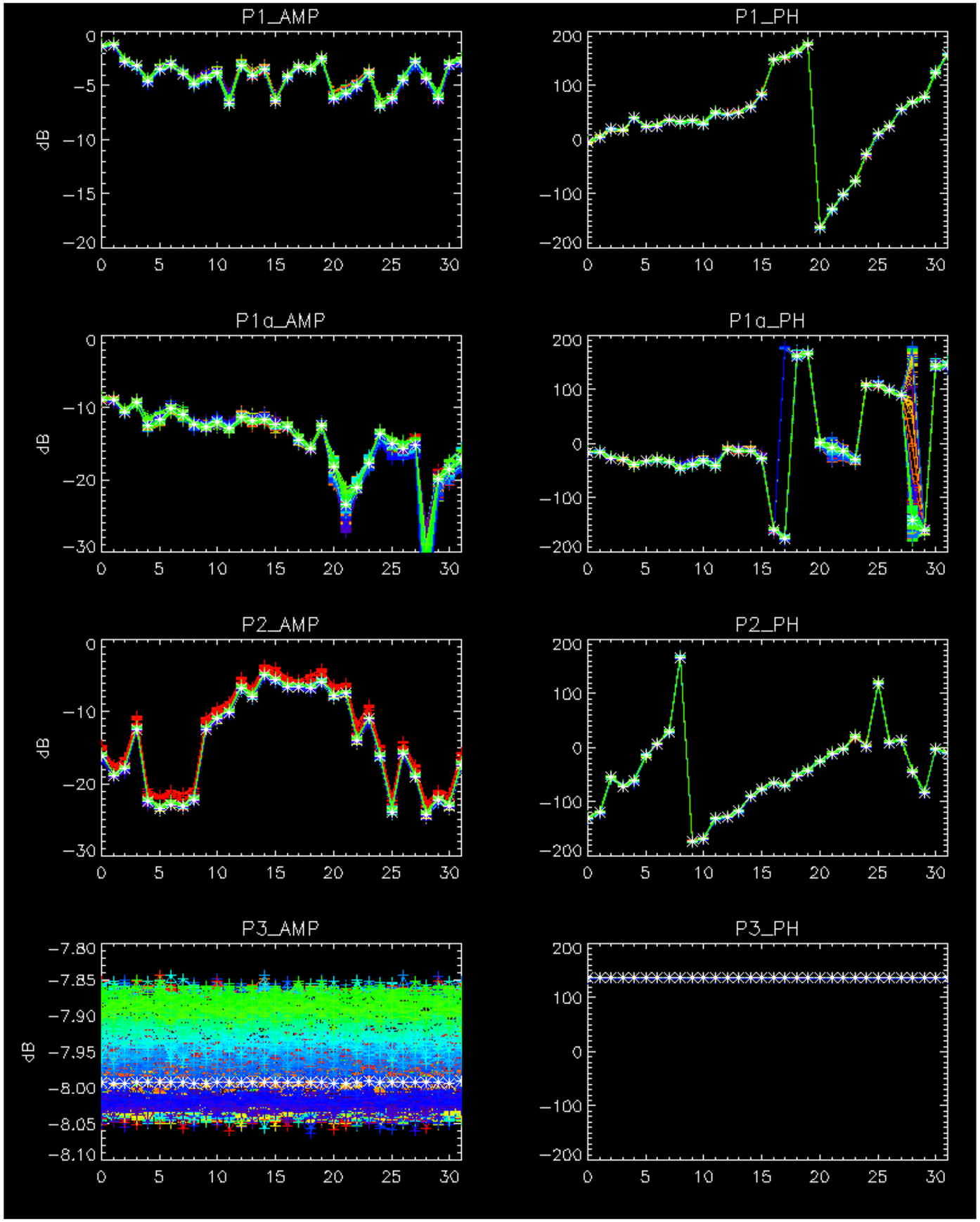

Cal pulses for GM1 SS3
Average P1 [dB]
−1
−2
−3
−4
−5
−6
−7
03
06
09
12
15
18
21
00
03
29−Jul
Average P1a [dB]
−5
−10
−15
−20
−25
−30
Average P2[dB]
0
Average P3 [dB]
−7.80
−7.90
−8.00
−8.10
−8.20
−8.30
−8.40
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 30

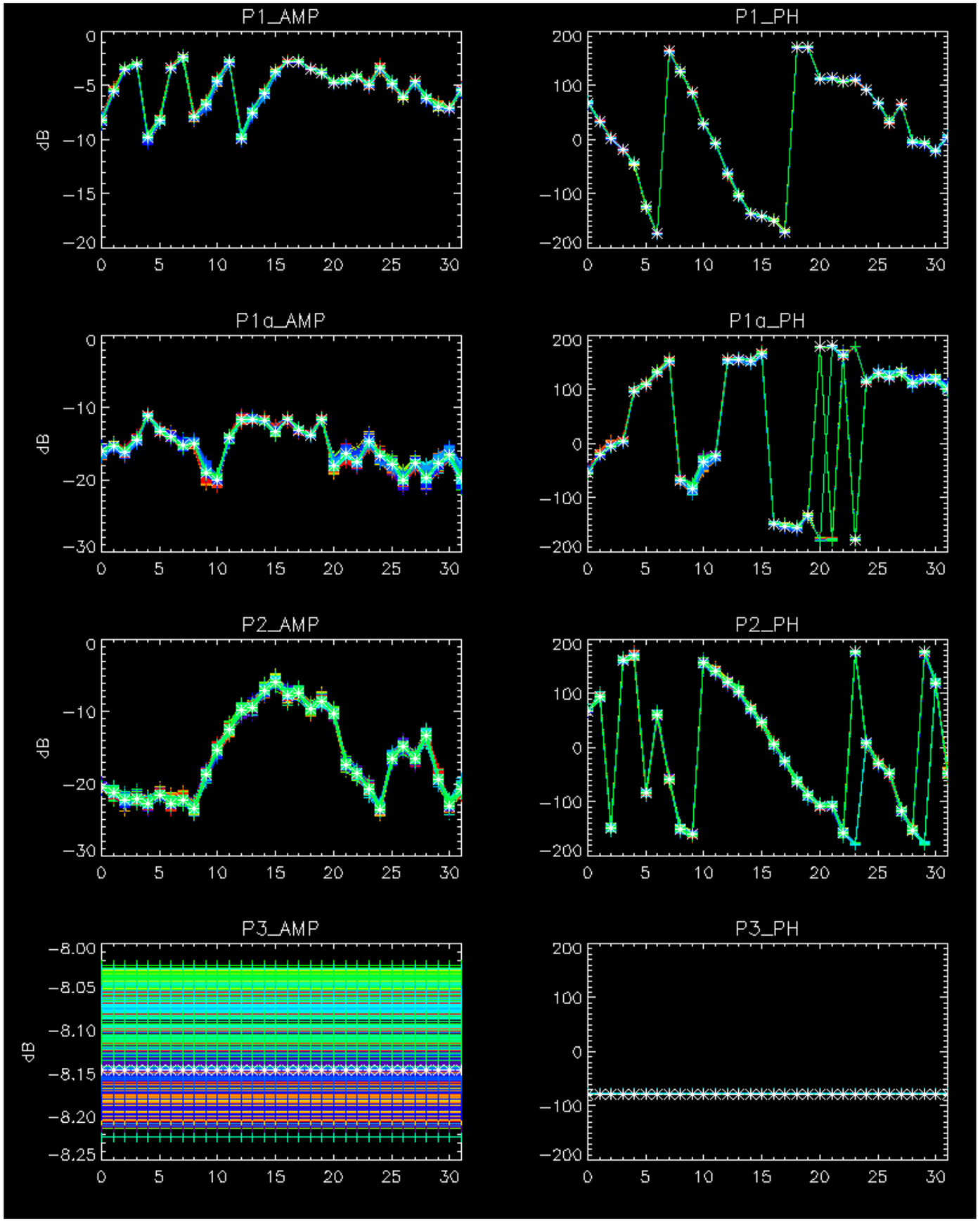

Cal pulses for WVS IS2
Average P1 [dB]
0
−2
−4
−6
−8
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
−24
Average P2 [dB]
−5
−10
−15
−20
−25
Average P3 [dB]
−7.8
−8.0
−8.2
−8.4
26−Jun
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul
rows: _ 3 _ 7 _ 11 _ 15 _ 19 _ 22 _ 24 _ 30


Cal pulses for WVS IS2
Average P1 [dB]
−2
−3
−4
−5
−6
−7
−8
03
06
09
12
15
18
21
00
03
29−Jul
Average P1a [dB]
−10
−12
−14
−16
−18
−20
−22
Average P2[dB]
0
−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 _ 24 _ 30

No anomalies observed on available browse products

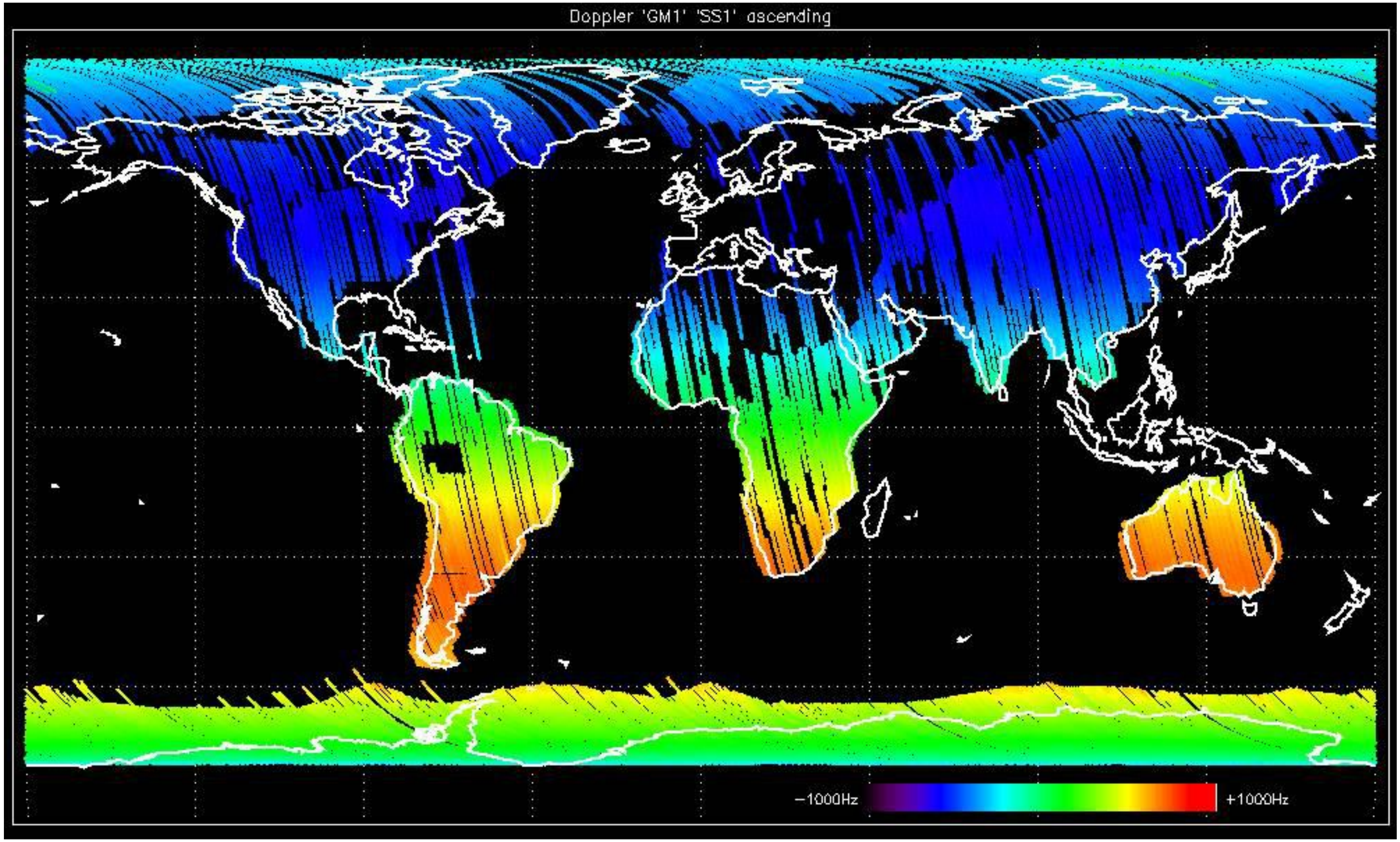
No anomalies observed.

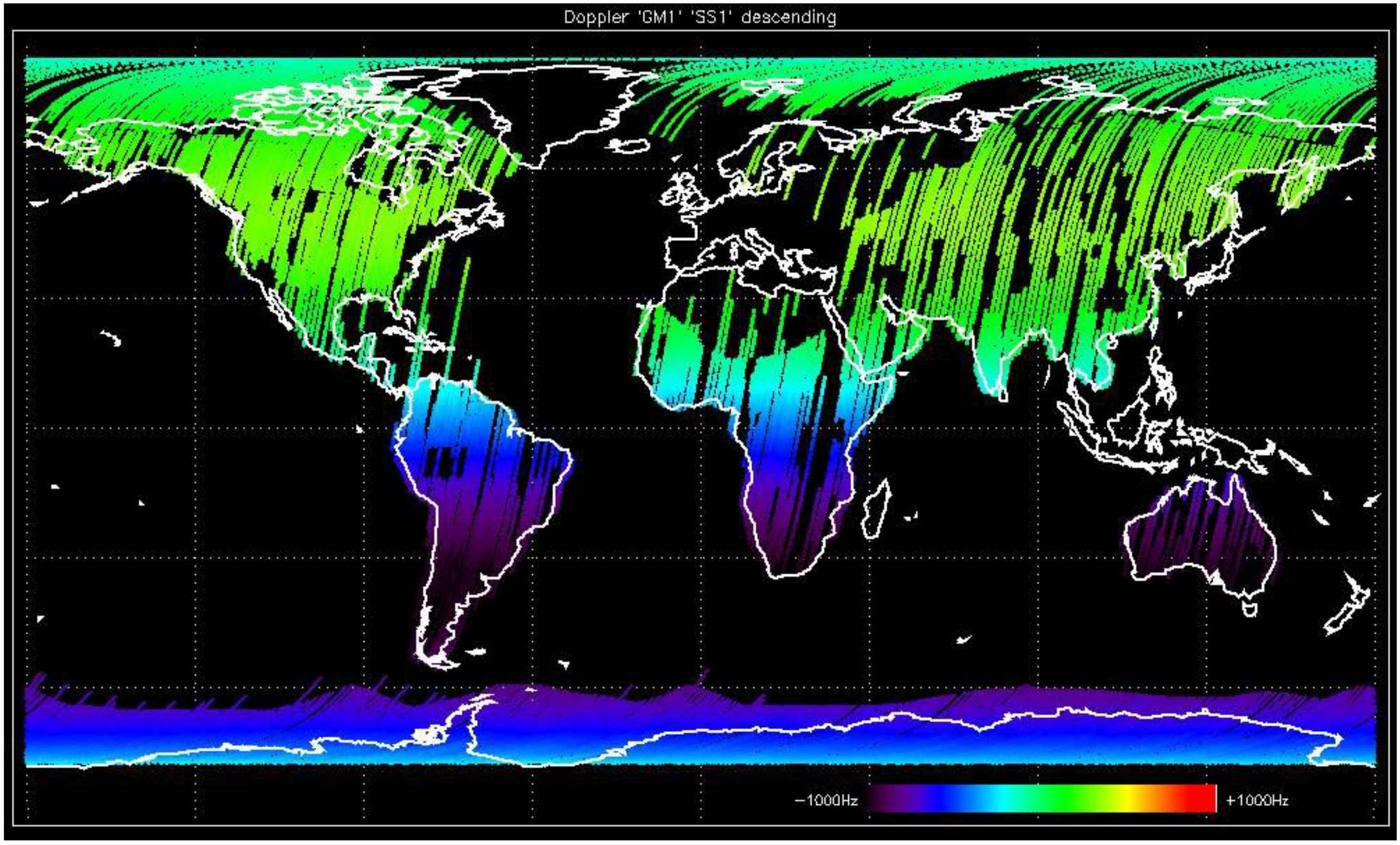

P1_AMP
dB
0
−5
−10
−15
−20
0 5 10 15 20 25 30
P1_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P1a_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P1a_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P2_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P2_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P3_AMP
dB
−7.80
−7.85
−7.90
−7.95
−8.00
−8.05
−8.10
0 5 10 15 20 25 30
P3_PH
200
100
0
−100
−200
0 5 10 15 20 25 30

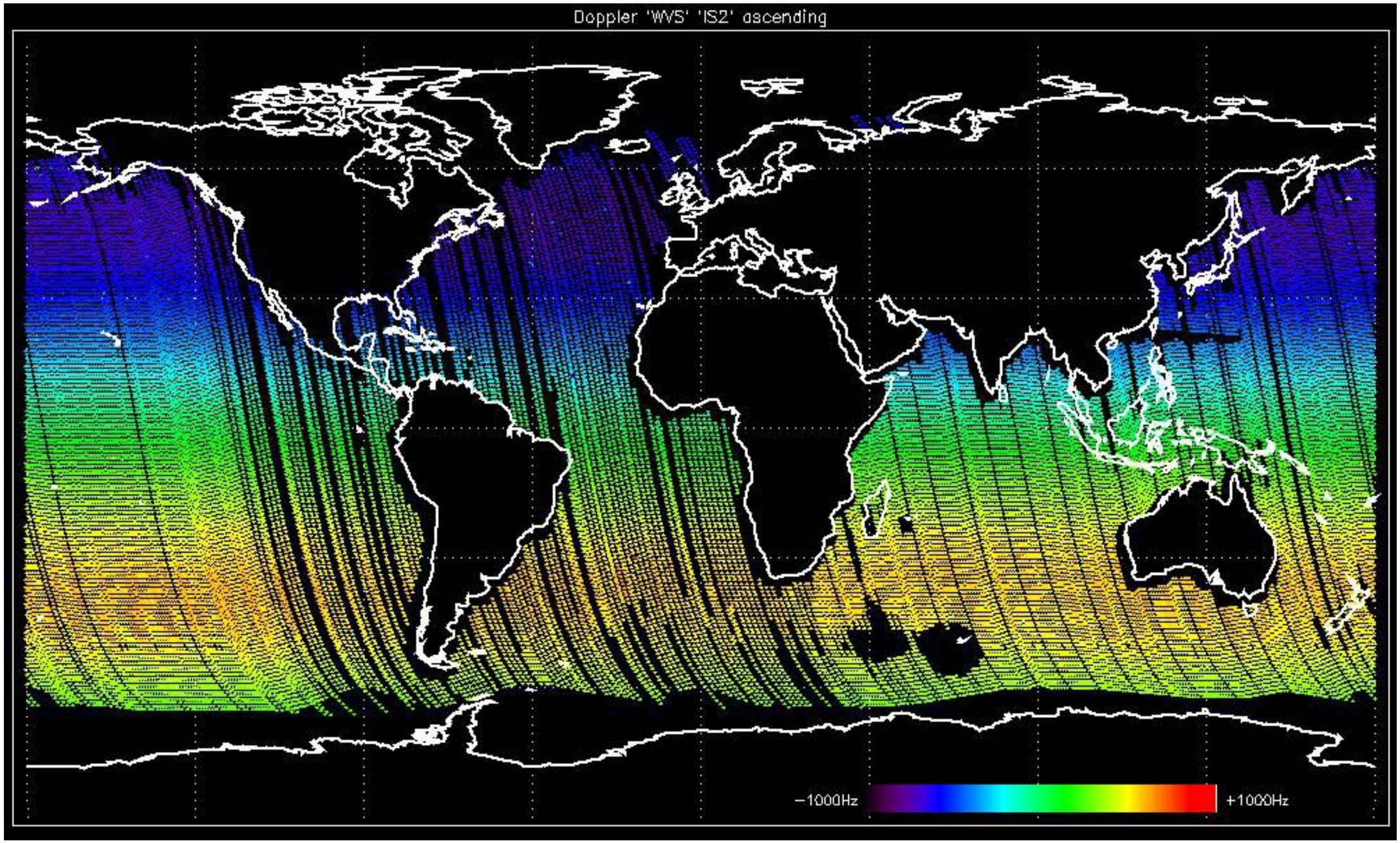

P1_AMP
dB
0
−5
−10
−15
−20
0 5 10 15 20 25 30
P1_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P1a_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P1a_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P2_AMP
dB
0
−10
−20
−30
0 5 10 15 20 25 30
P2_PH
200
100
0
−100
−200
0 5 10 15 20 25 30
P3_AMP
dB
−8.00
−8.05
−8.10
−8.15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

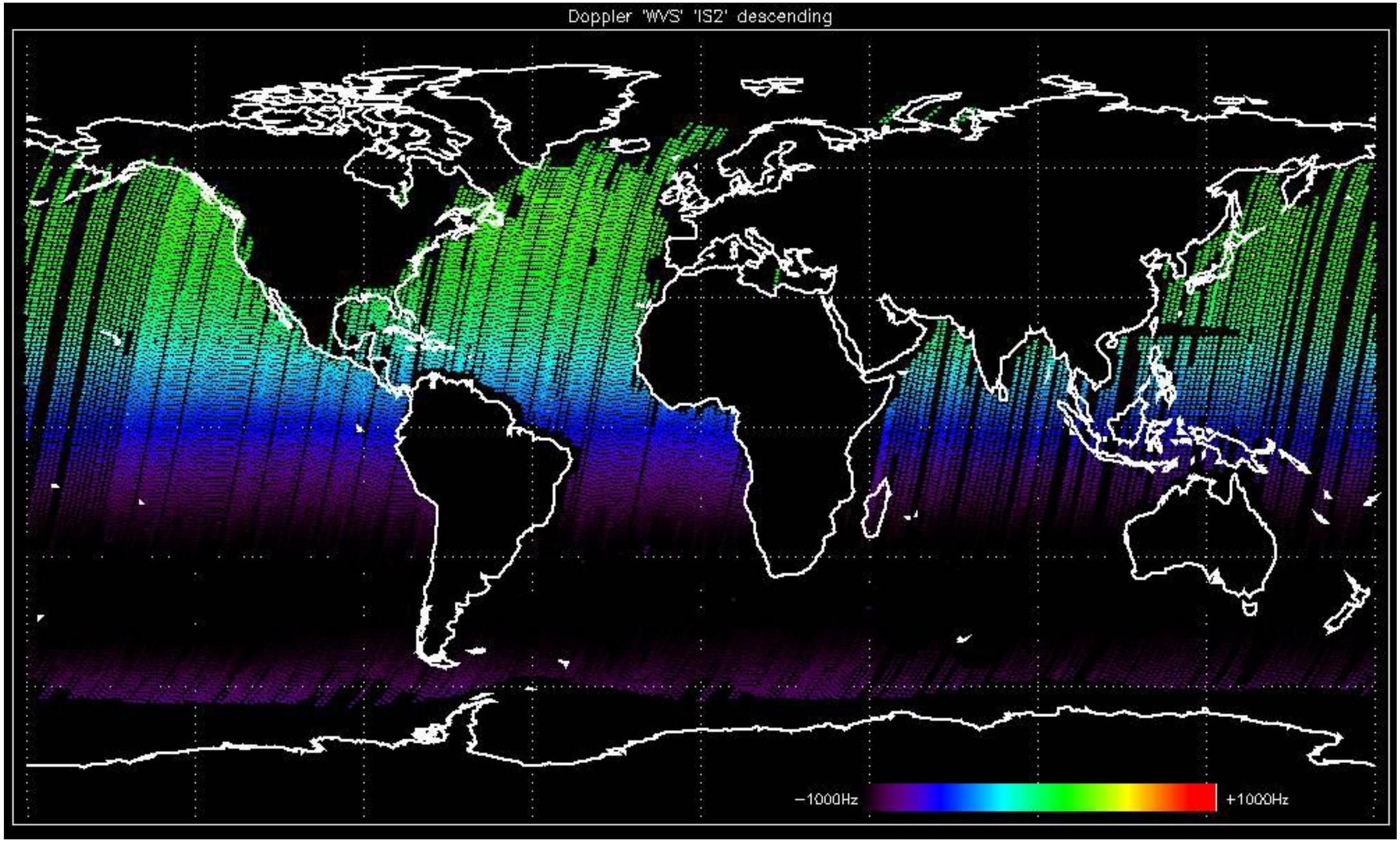
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

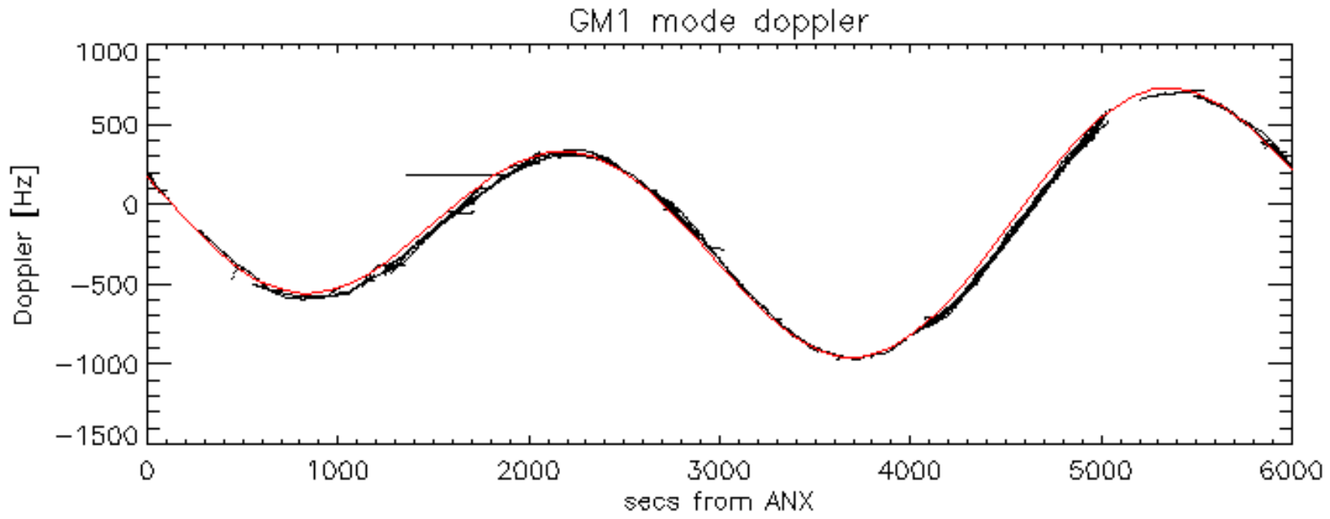
Preliminary report.The data is not yet controled

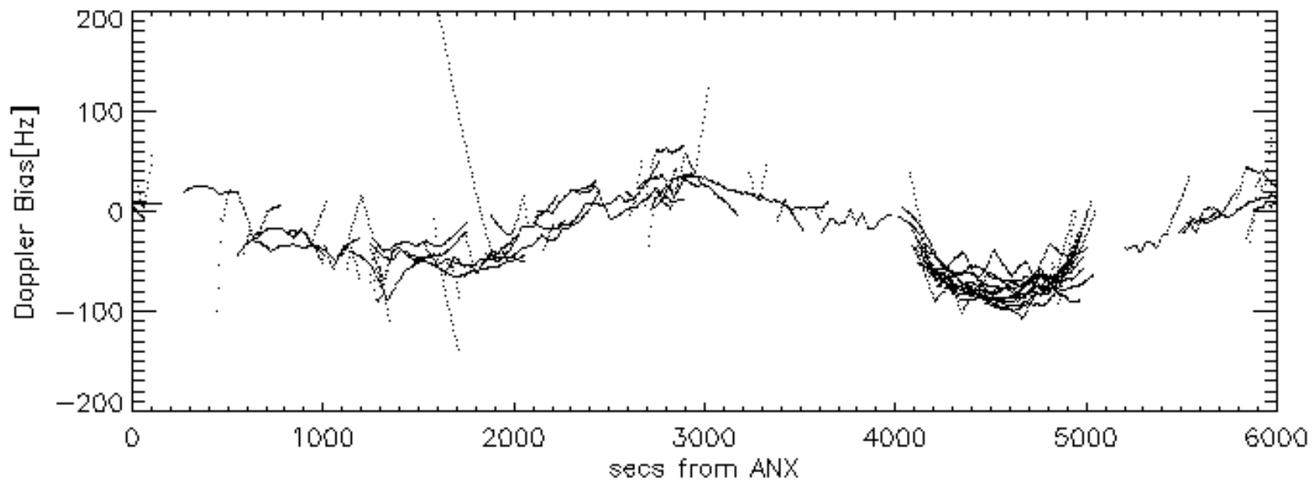

Doppler 'GM1' 'SS1' ascending
−1000Hz
+1000Hz

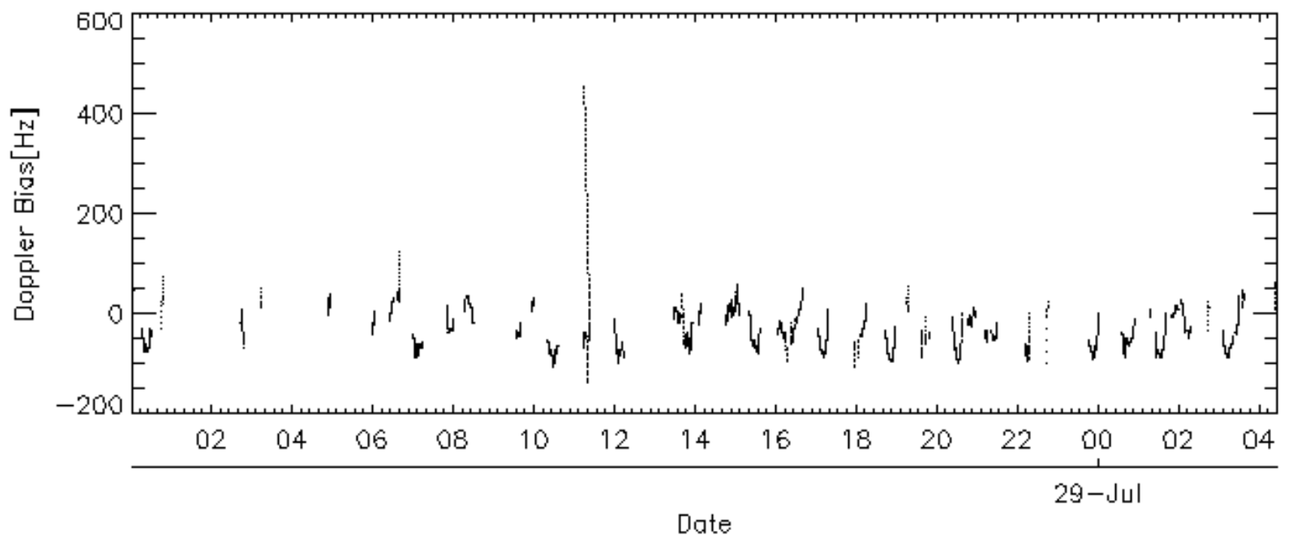

Doppler 'GM1' 'SS1' descending
−1000Hz
+1000Hz

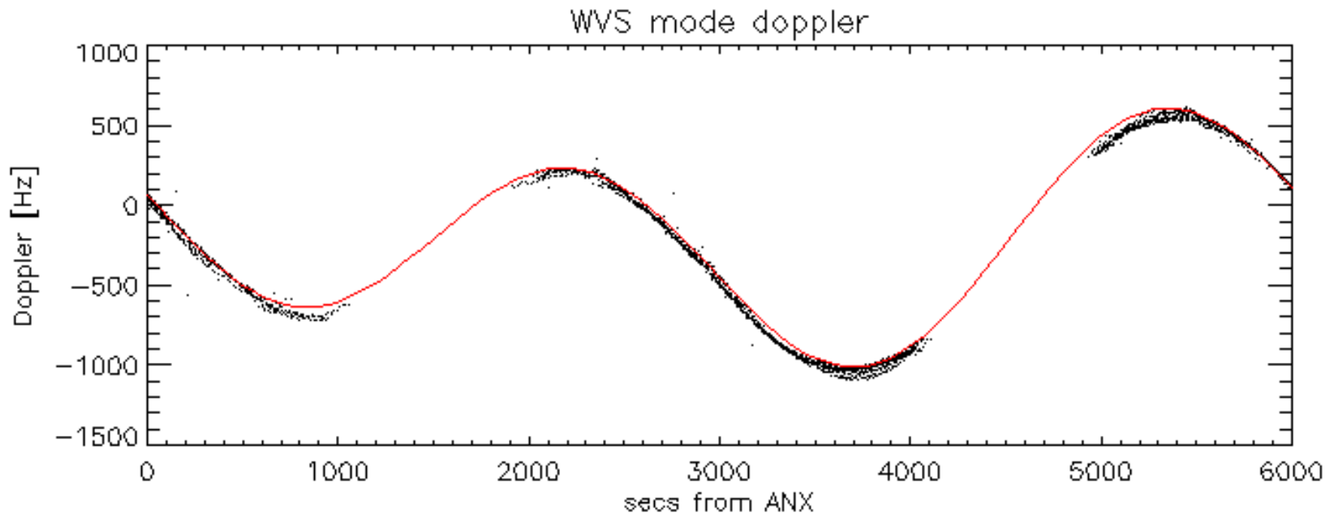

Doppler 'WVS' 'IS2' ascending
−1000Hz
+1000Hz

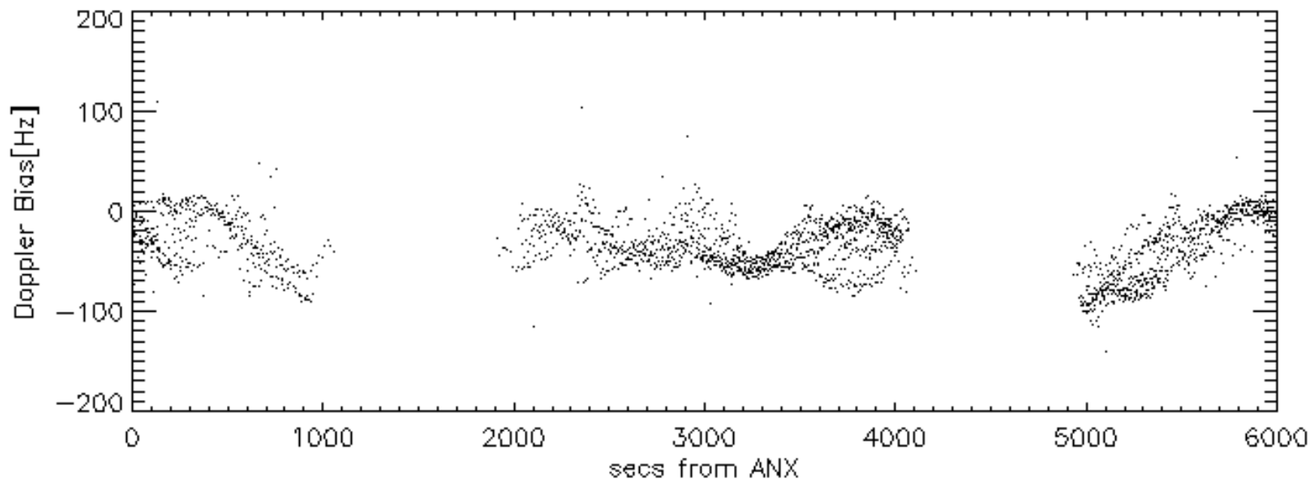

Doppler 'WVS' 'IS2' descending
−1000Hz
+1000Hz

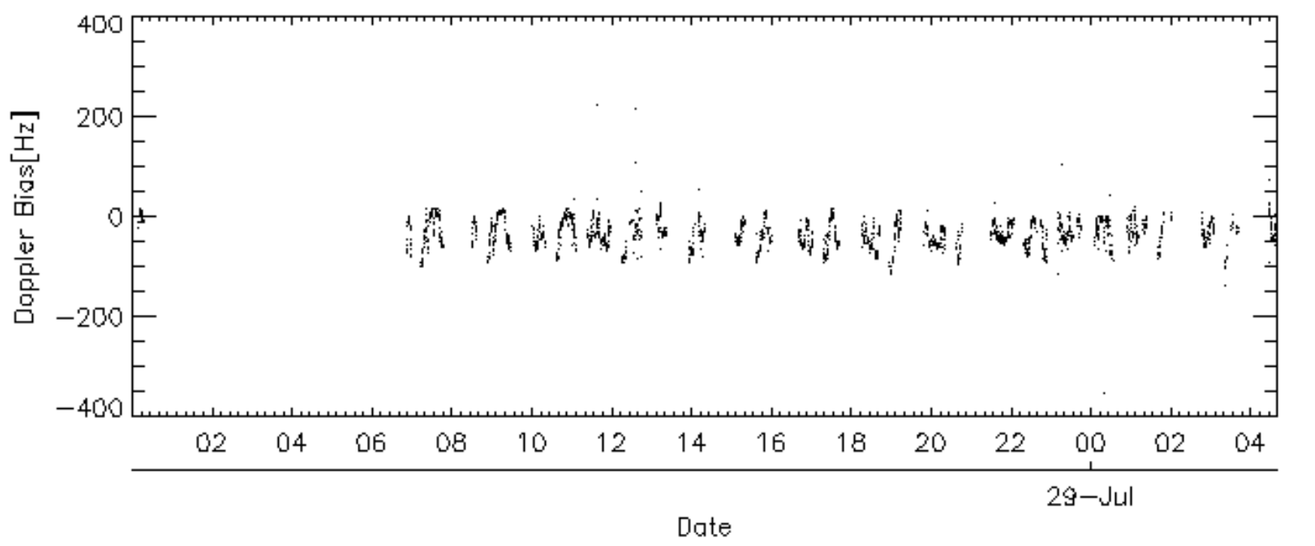

GM1 mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

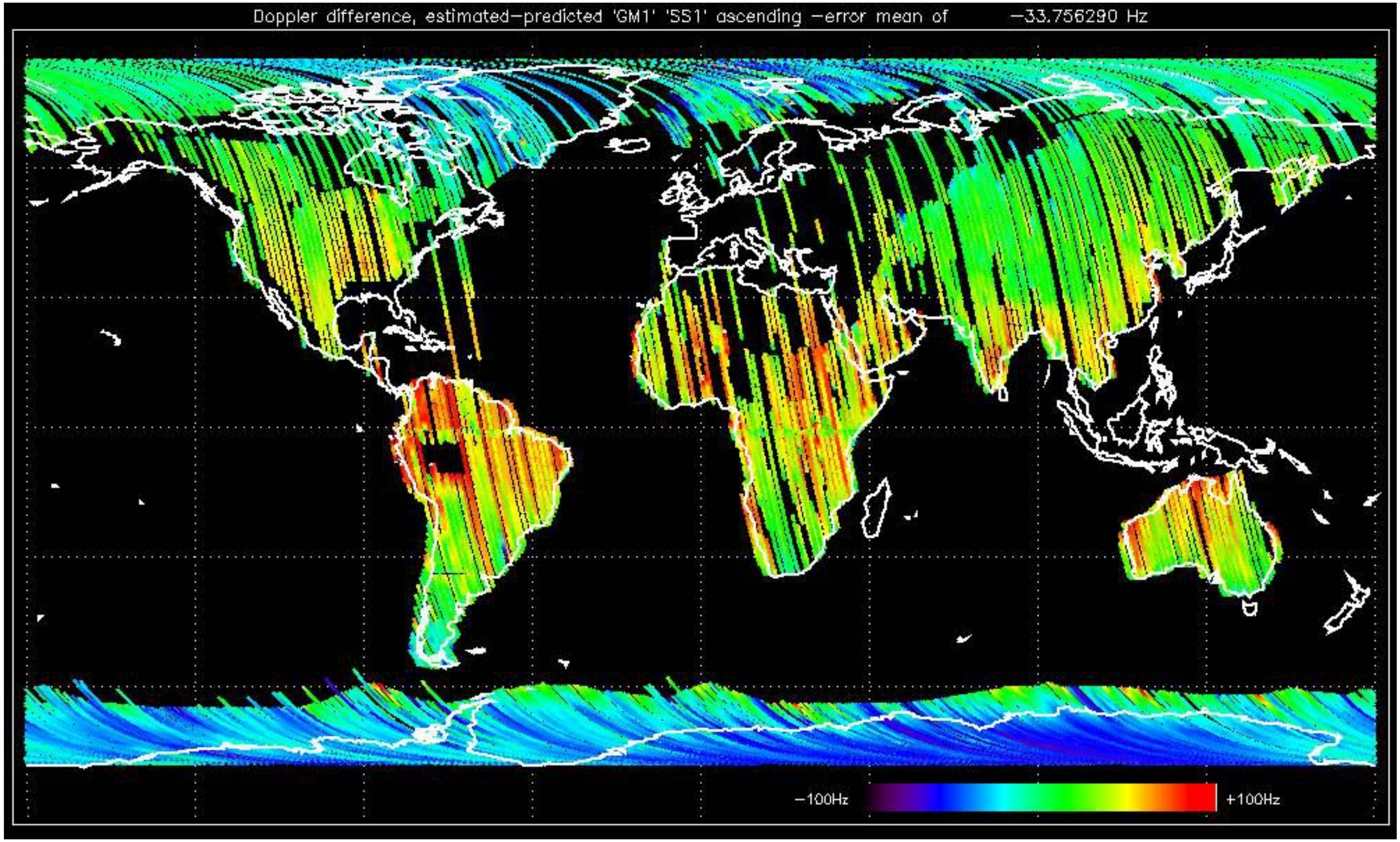

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX

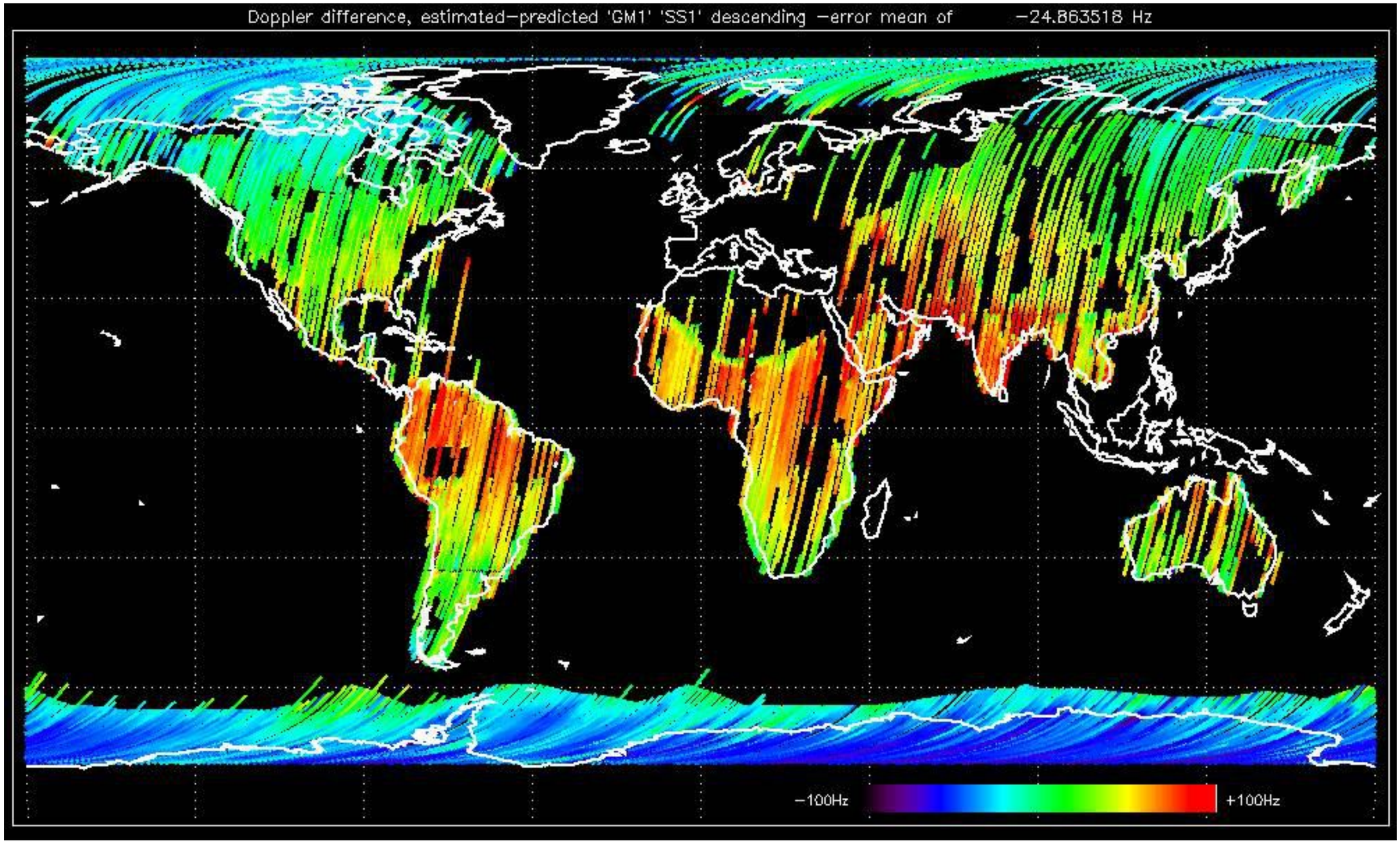

Doppler Bias[Hz]
600
400
200
0
−200
02
04
06
08
10
12
14
16
18
20
22
00
02
04
29−Jul
Date

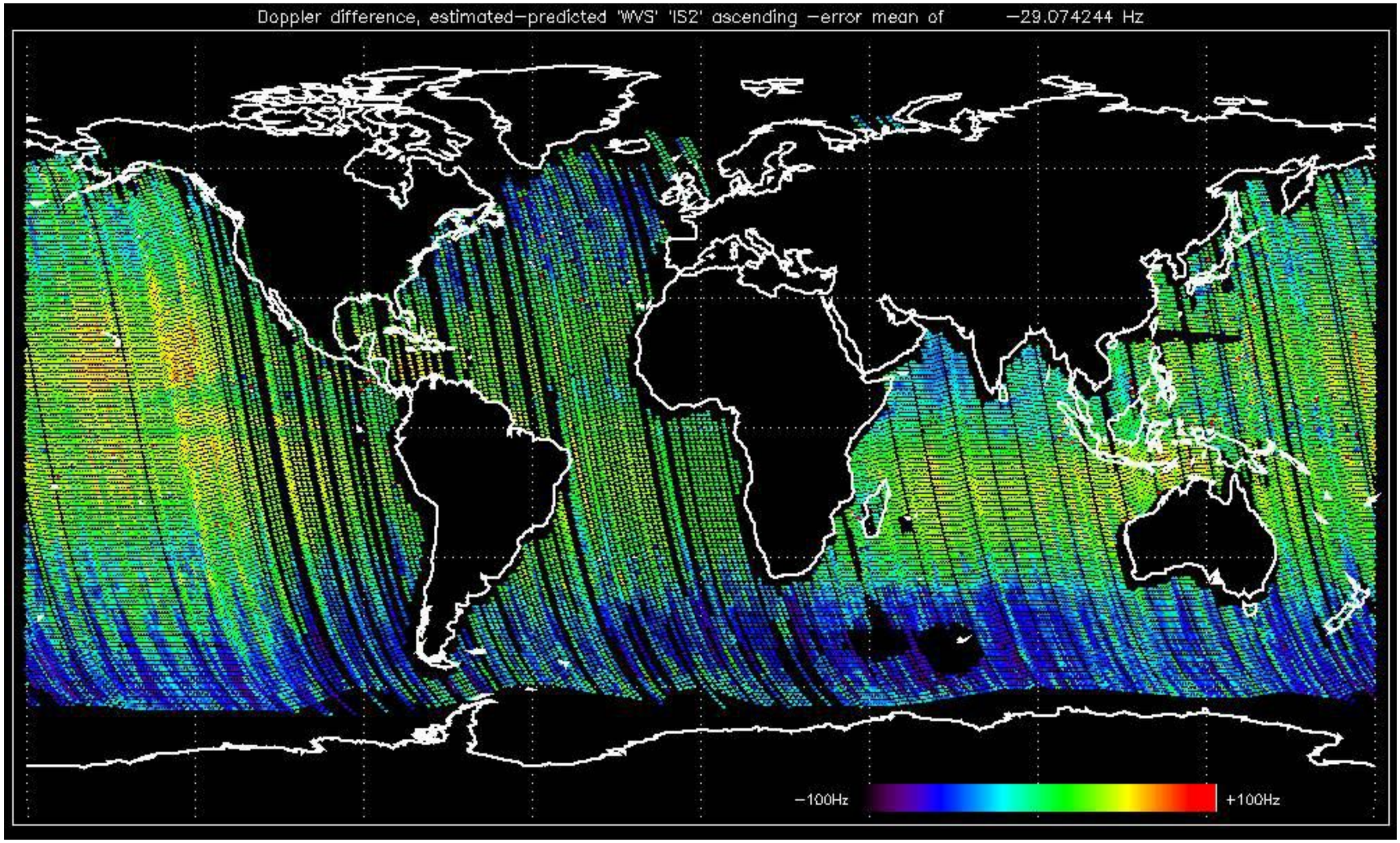

WVS mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
0
1000
2000
3000
4000
5000
6000
secs from ANX

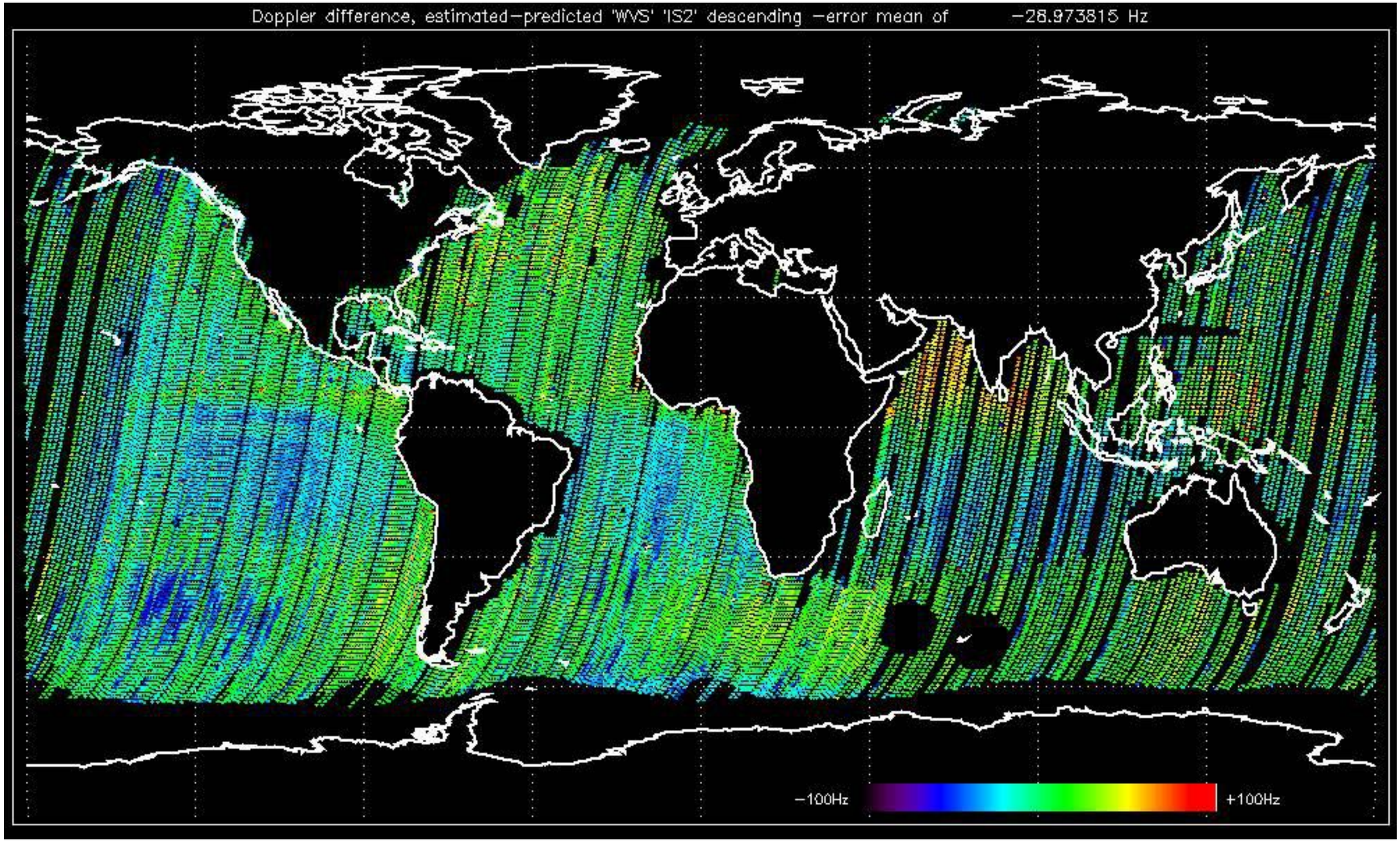

Doppler Bias[Hz]
200
100
0
−100
−200
0
1000
2000
3000
4000
5000
6000
secs from ANX


Doppler Bias[Hz]
400
200
0
−200
−400
02
04
06
08
10
12
14
16
18
20
22
00
02
04
29−Jul
Date


Doppler difference, estimated−predicted 'GM1' 'SS1' ascending −error mean of −33.756290 Hz
−100Hz
+100Hz

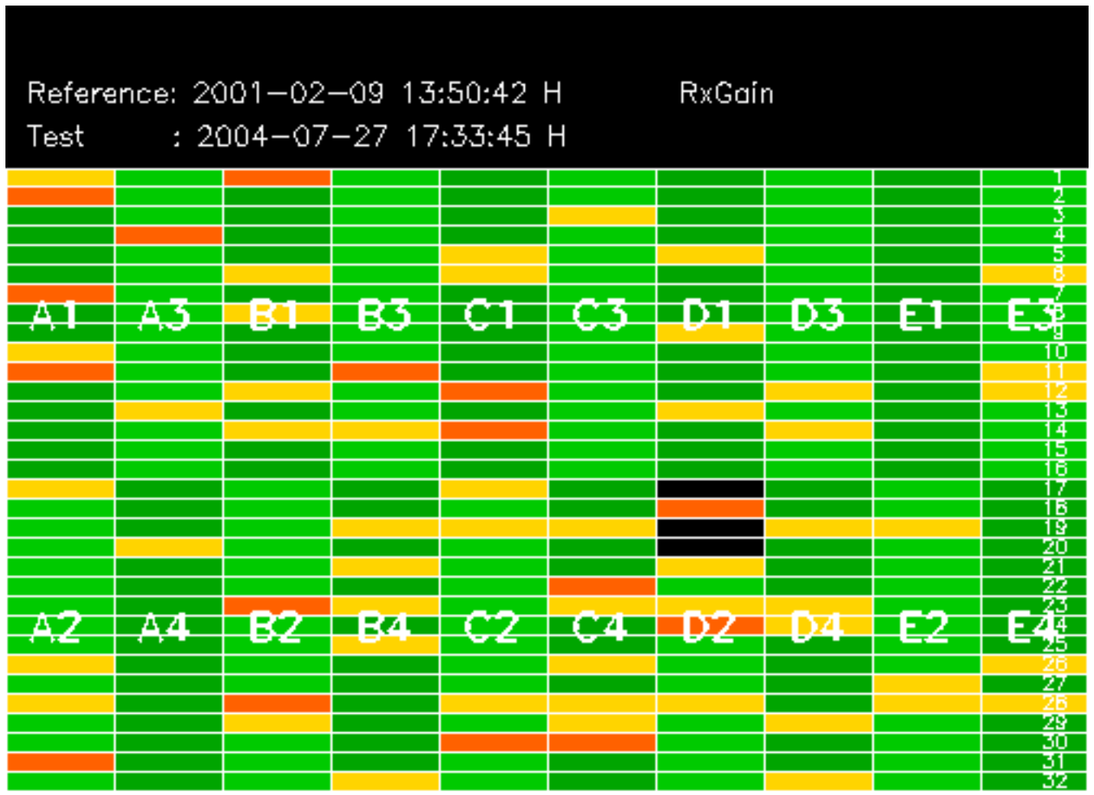

Doppler difference, estimated-predicted 'GM1' 'SS1' descending -error mean of -24.863518 Hz
-100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' ascending −error mean of −29.074244 Hz
−100Hz
+100Hz


Doppler difference, estimated−predicted 'WVS' 'IS2' descending −error mean of −28.973815 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 : 2004-07-27 17:33:45 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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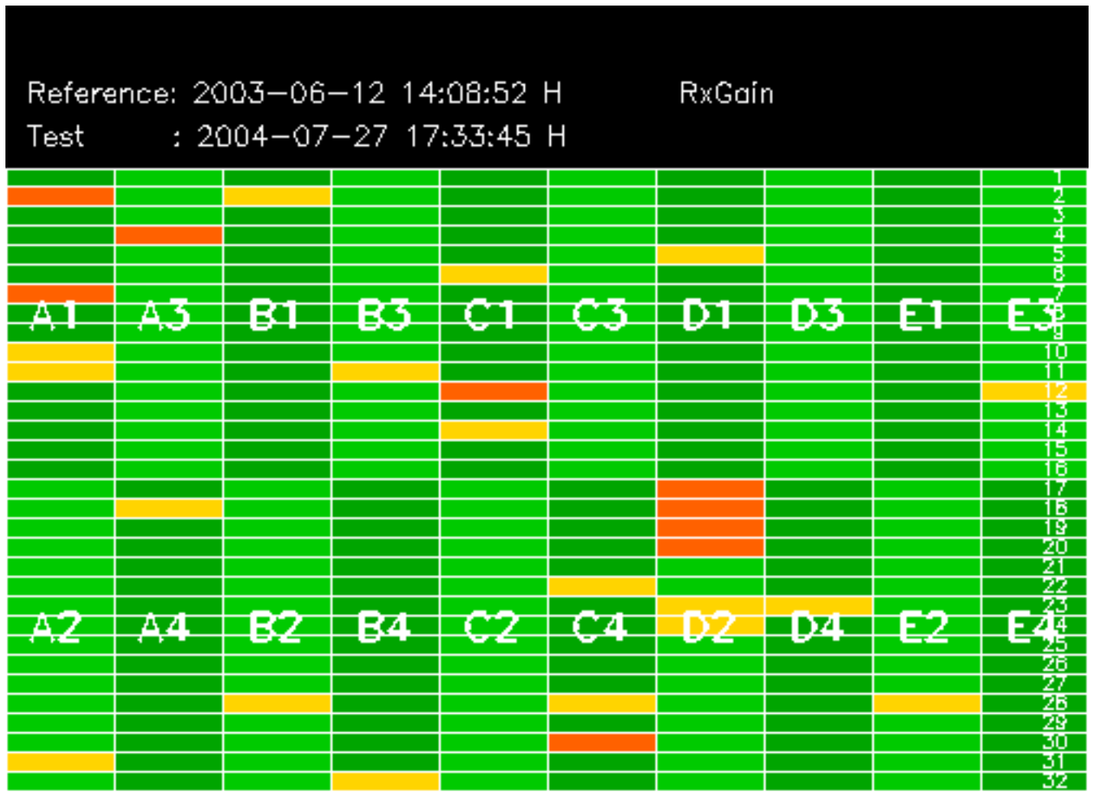
Reference: 2003-06-12 14:08:52 H
Test : 2004-07-27 17:33:45 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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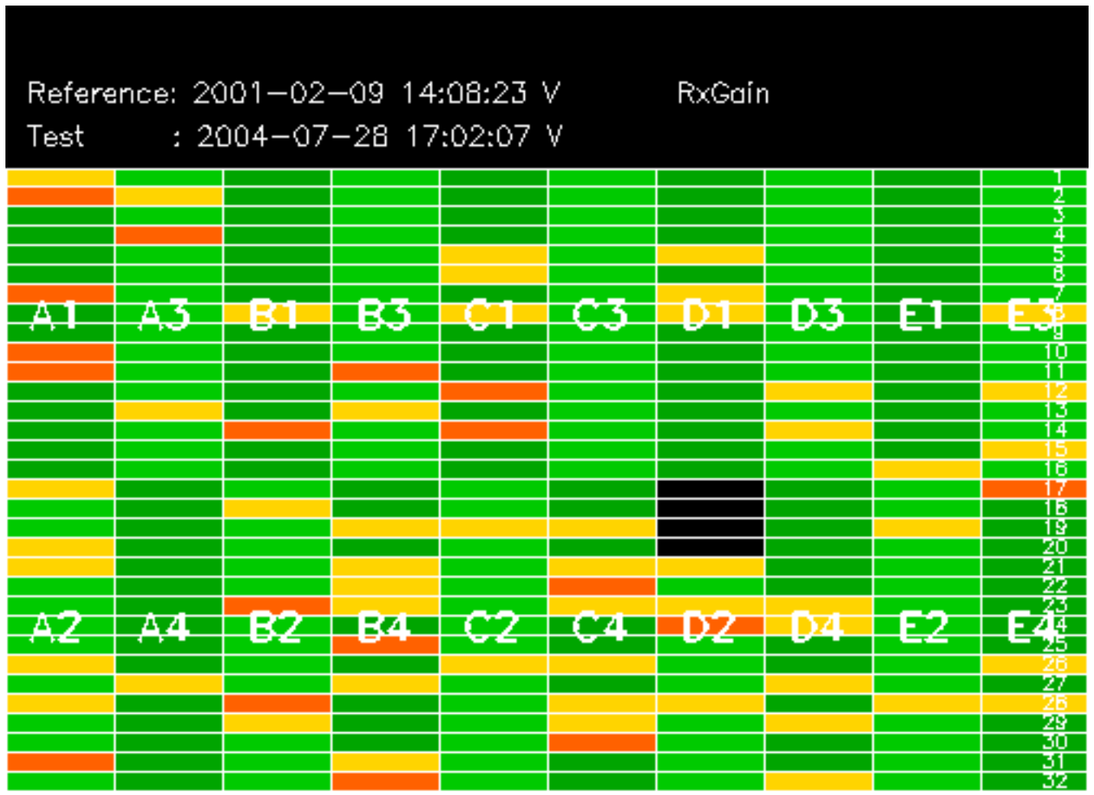
Reference: 2001-02-09 14:08:23 V
Test : 2004-07-28 17:02:07 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
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8
9
10
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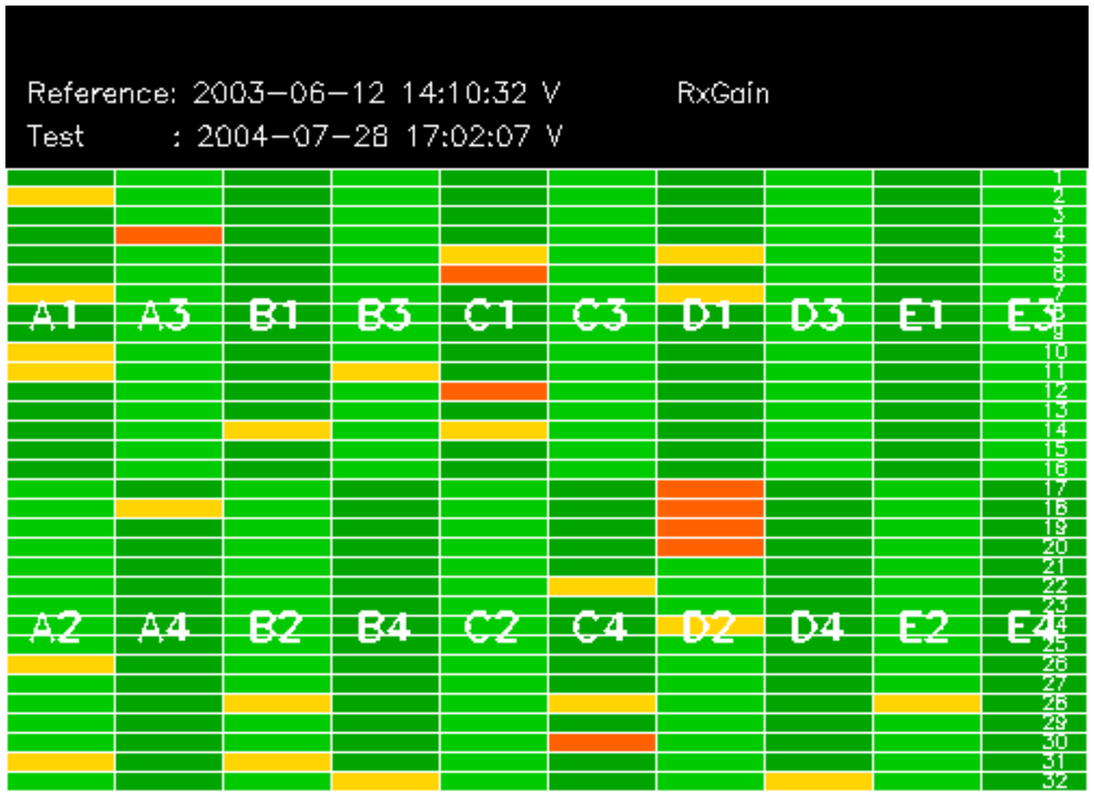
Reference: 2003-06-12 14:10:32 V
Test : 2004-07-28 17:02:07 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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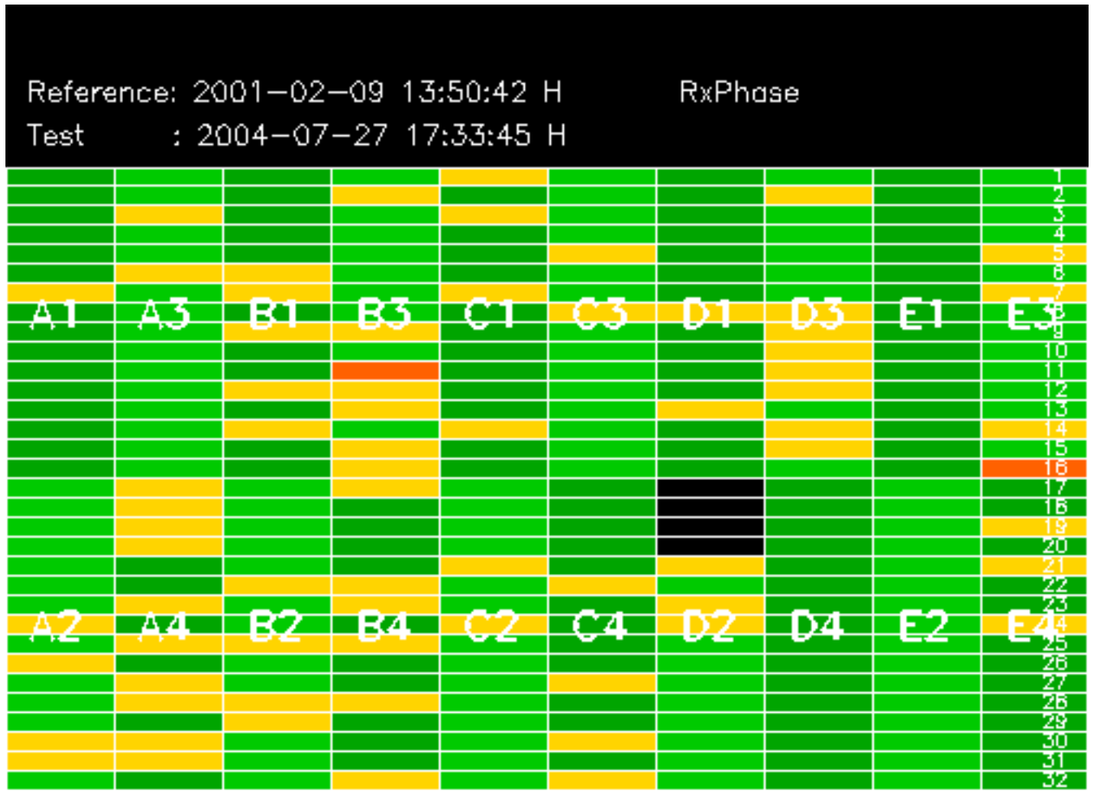
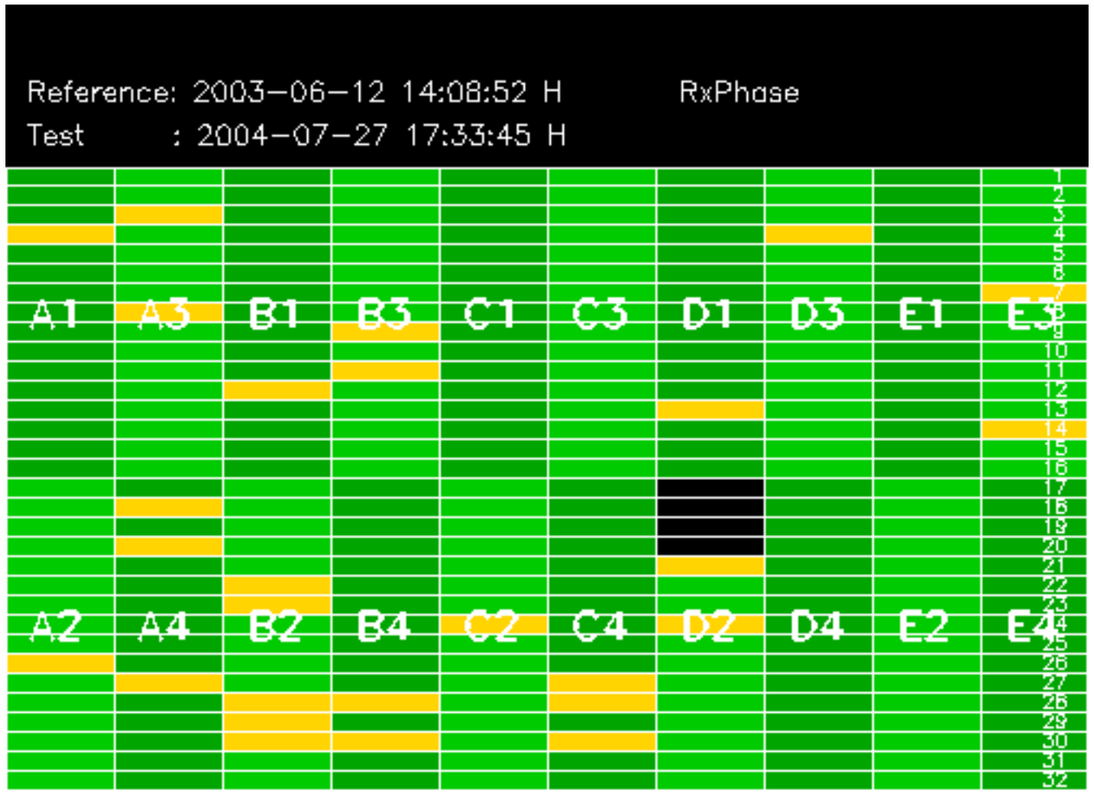

Reference: 2001-02-09 13:50:42 H
Test : 2004-07-27 17:33:45 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:08:52 H
Test : 2004-07-27 17:33:45 H
RxPhase
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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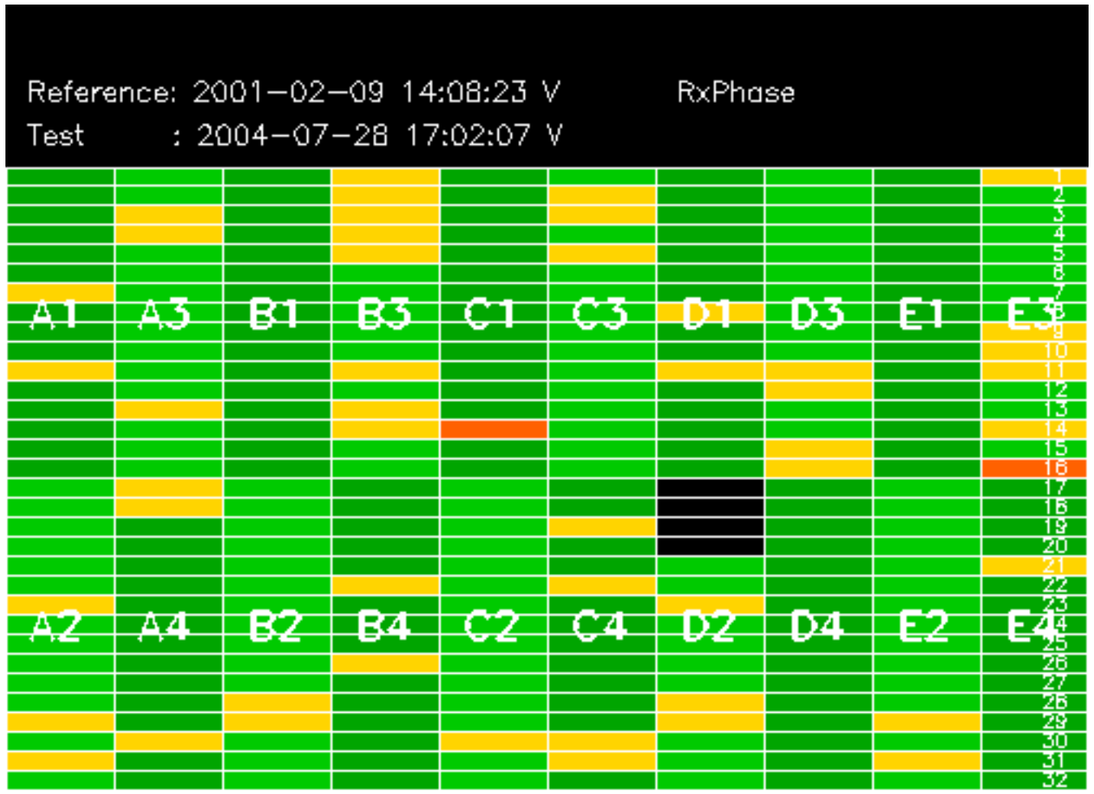
Reference: 2001-02-09 14:08:23 V
Test : 2004-07-28 17:02:07 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
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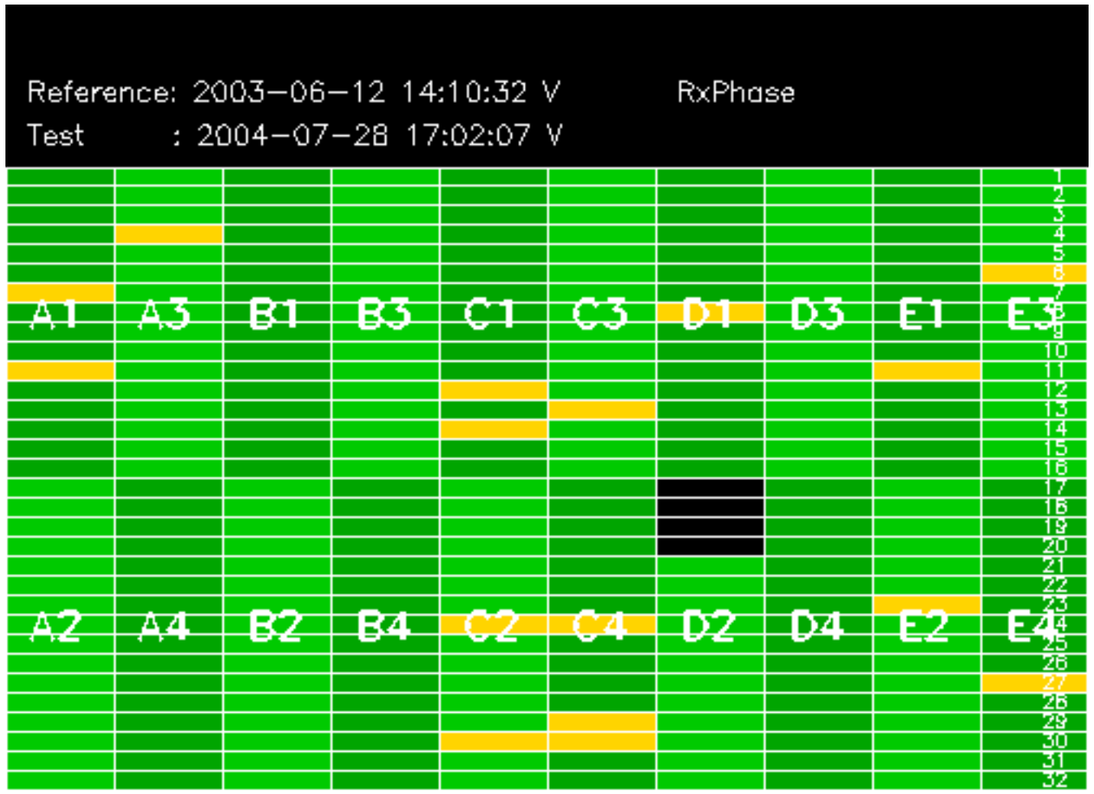
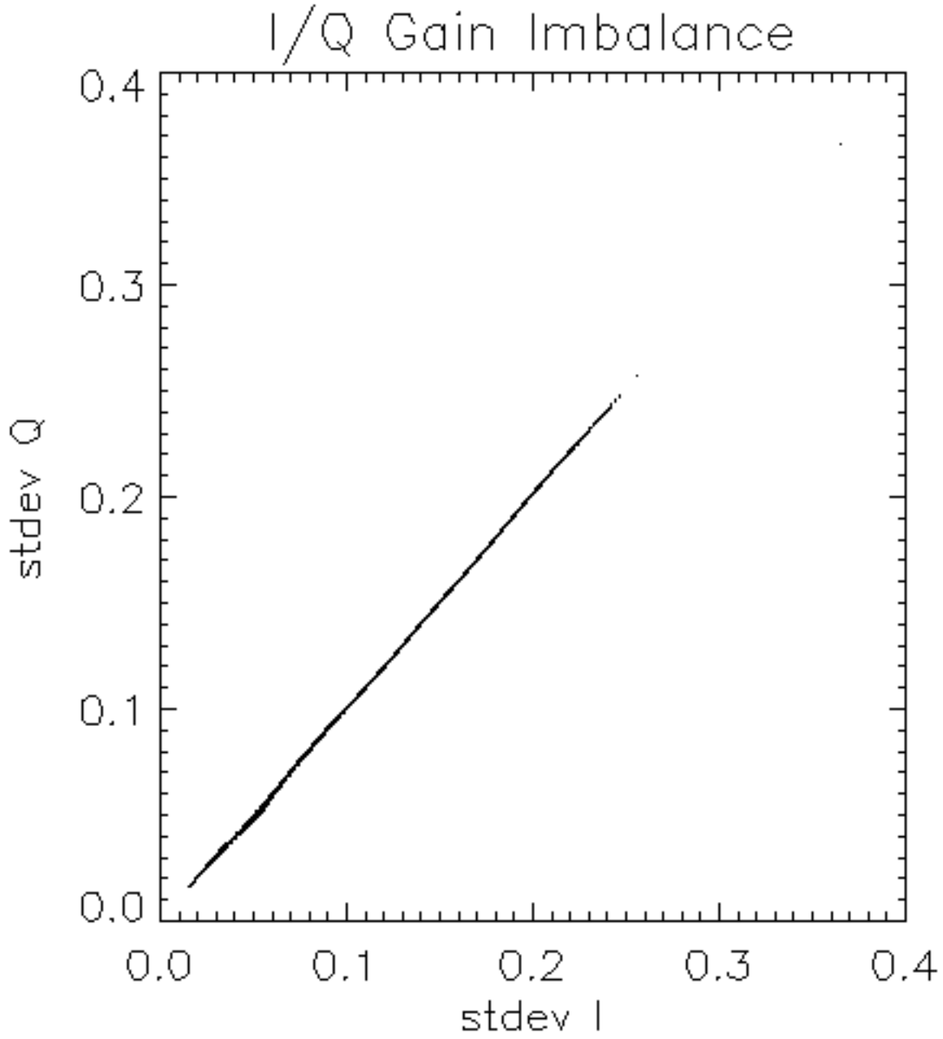
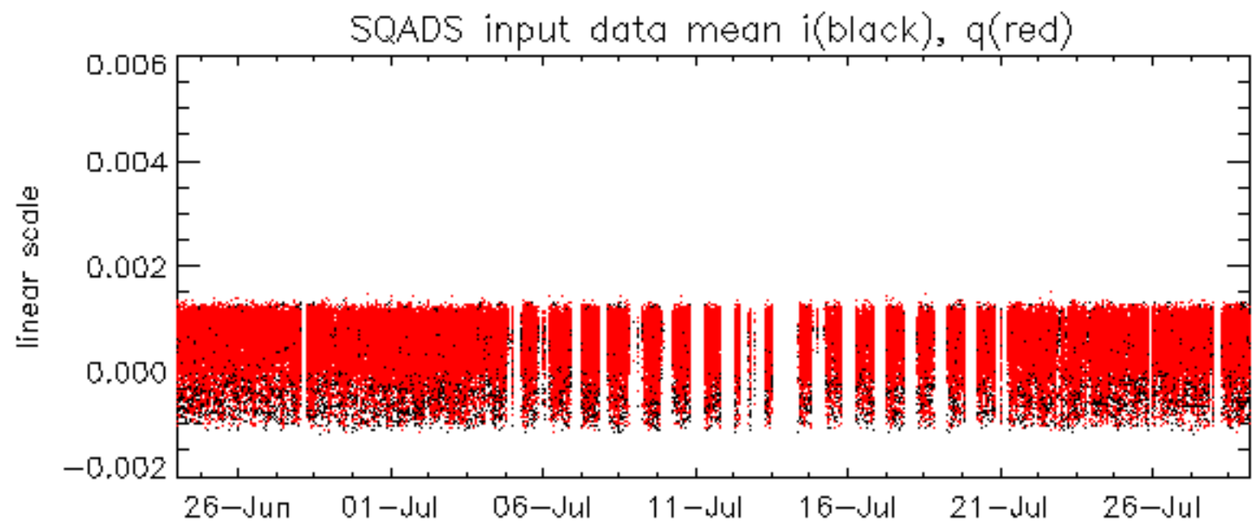
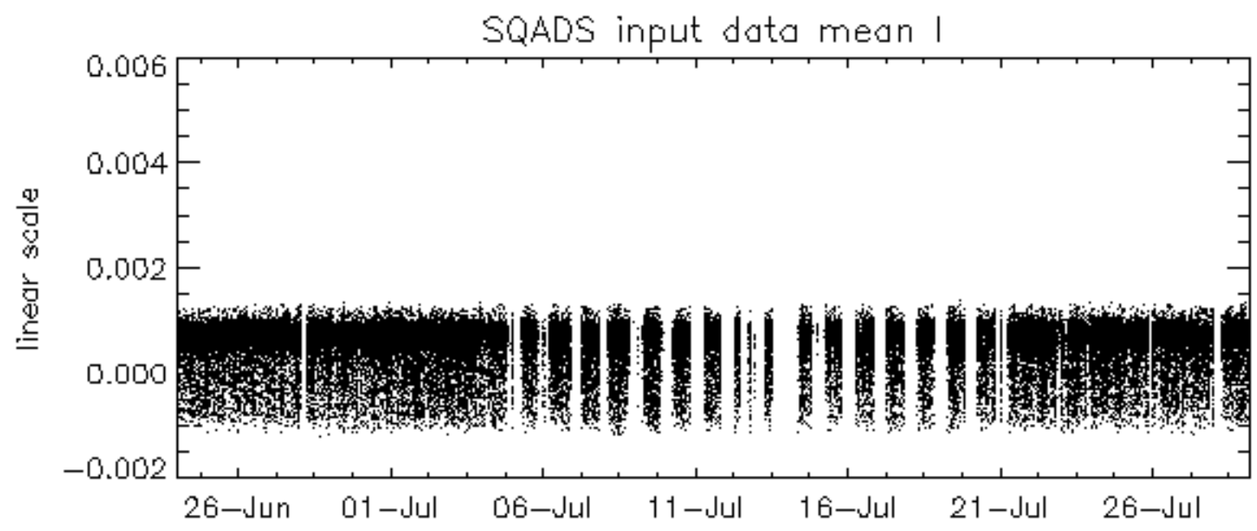
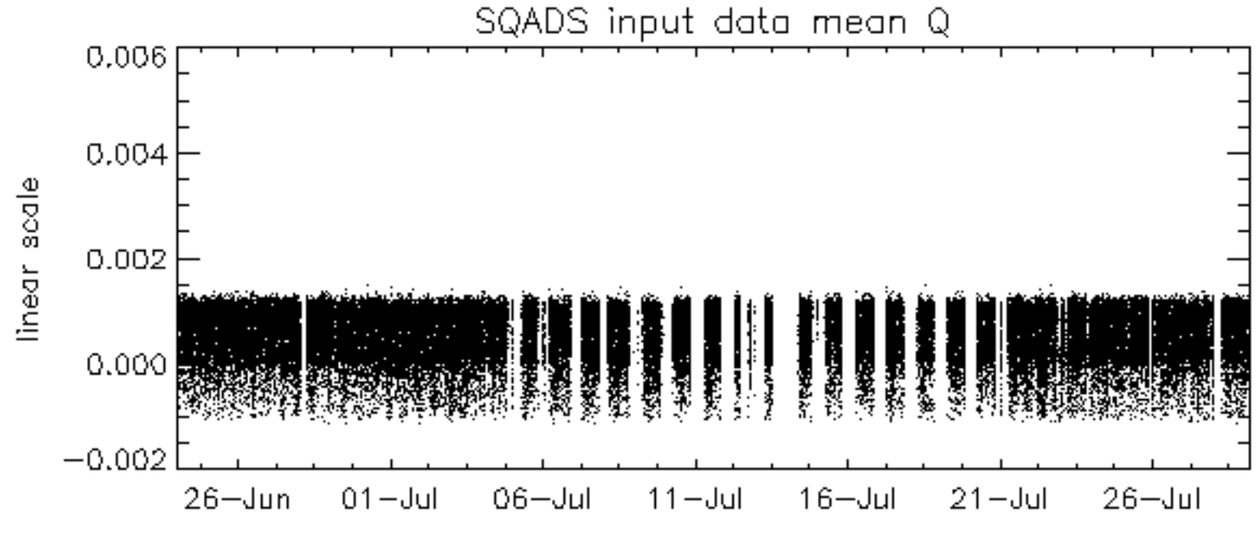
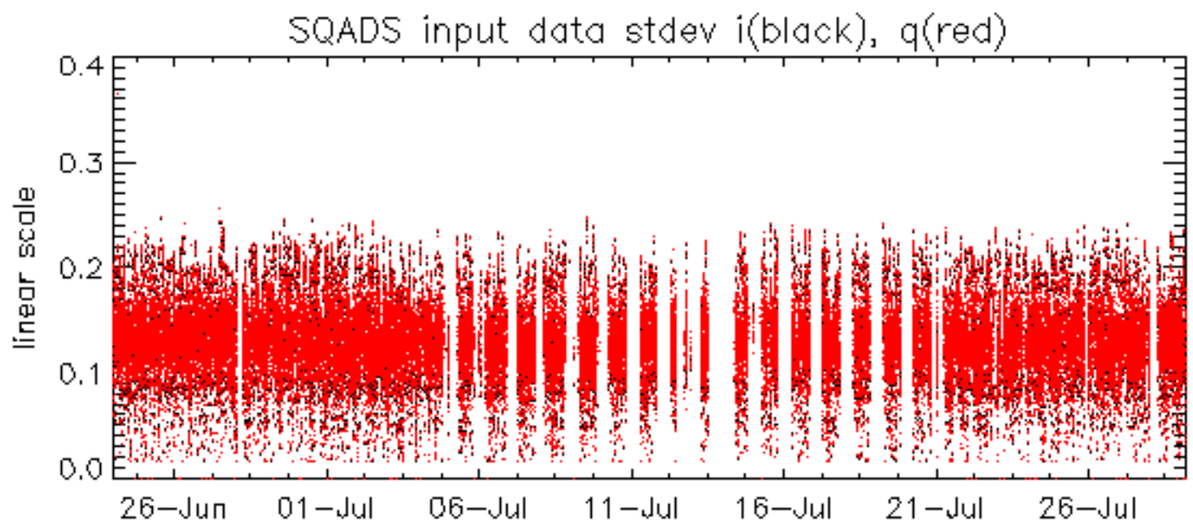

Reference: 2003-06-12 14:10:32 V
Test : 2004-07-28 17:02:07 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

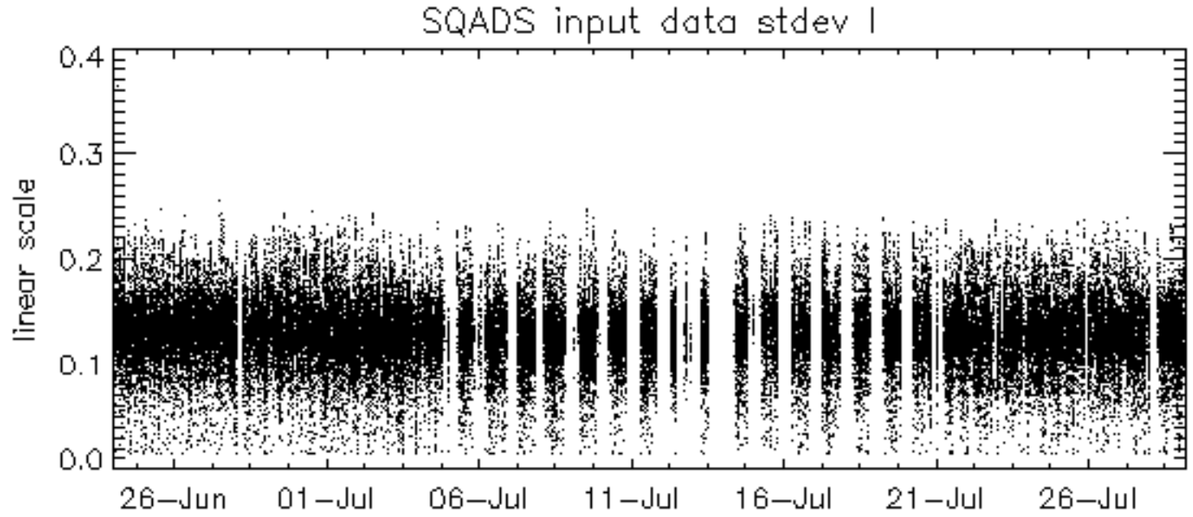

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

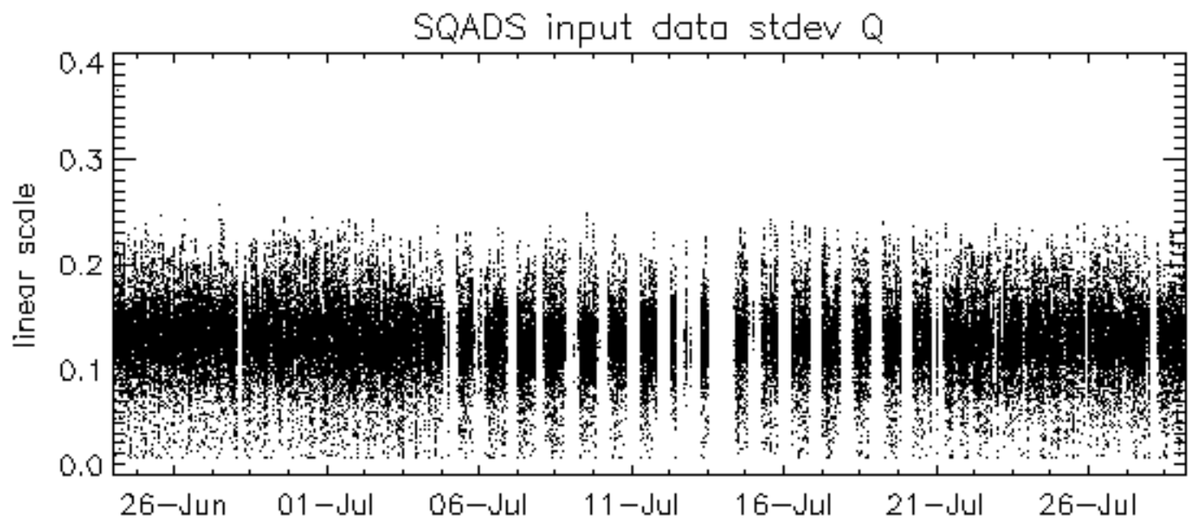

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Jun
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul

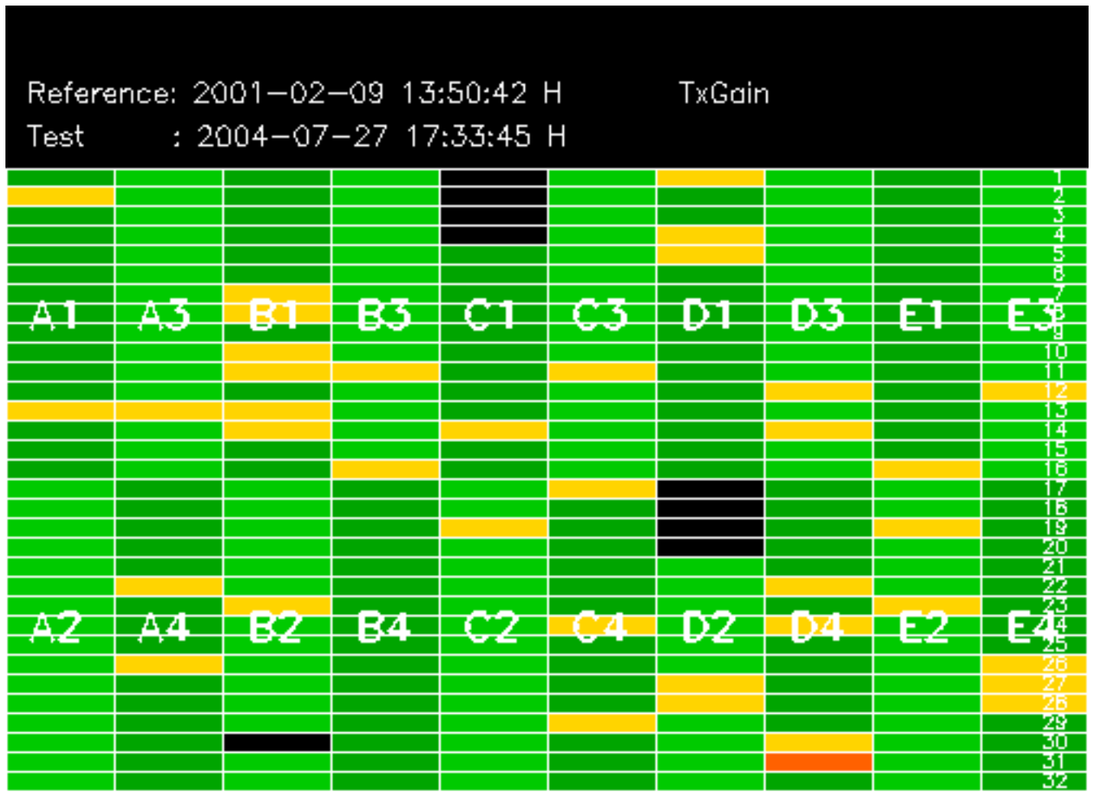

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Jun
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul

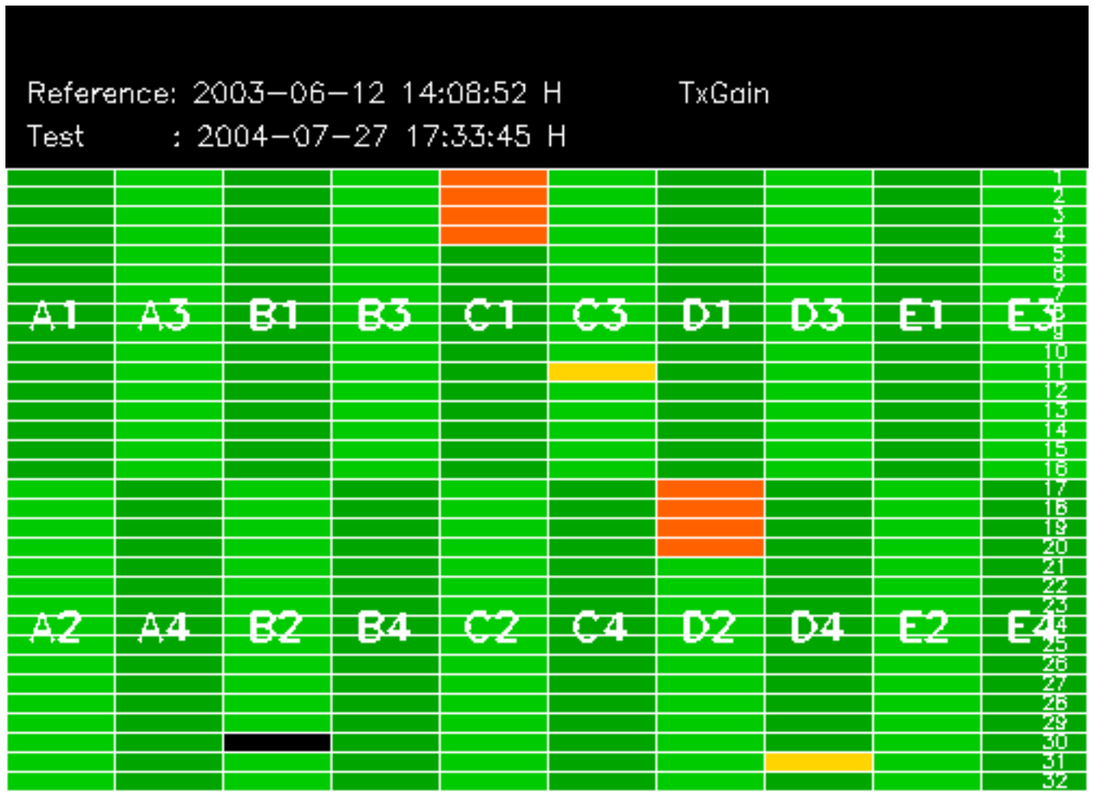

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
26−Jun
01−Jul
06−Jul
11−Jul
16−Jul
21−Jul
26−Jul


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


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


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


Reference: 2001-02-09 13:50:42 H
Test : 2004-07-27 17:33:45 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 : 2004-07-27 17:33:45 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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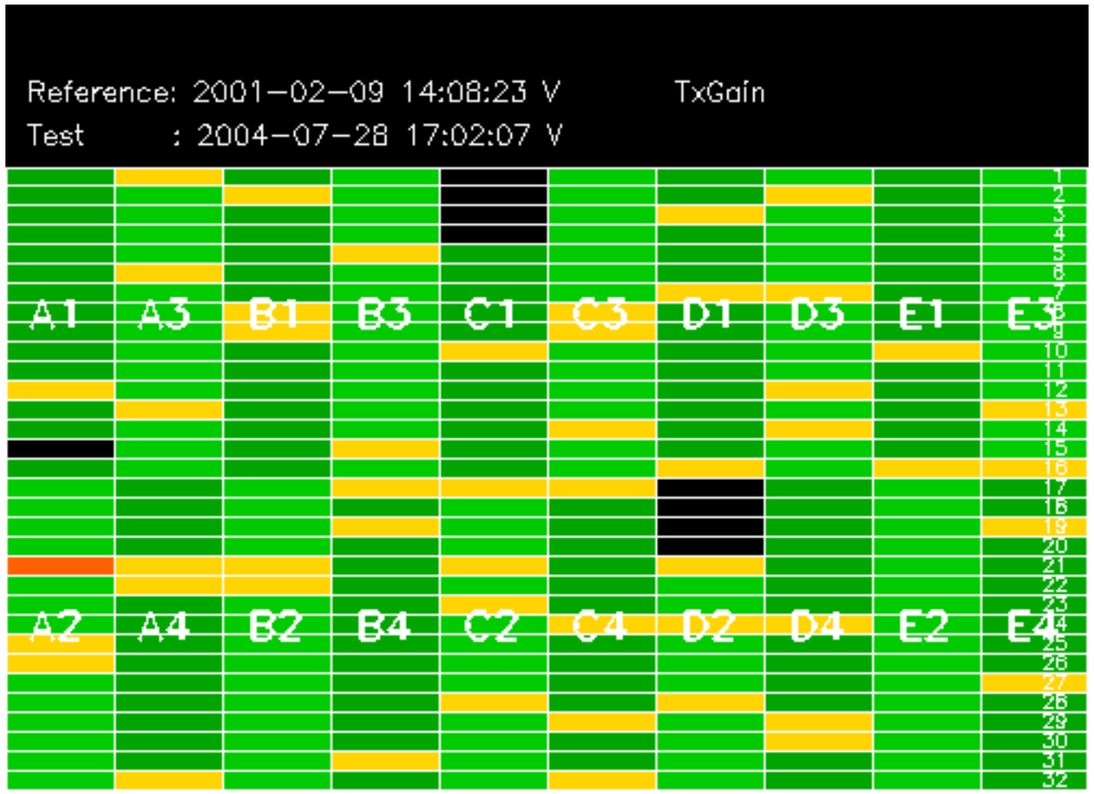
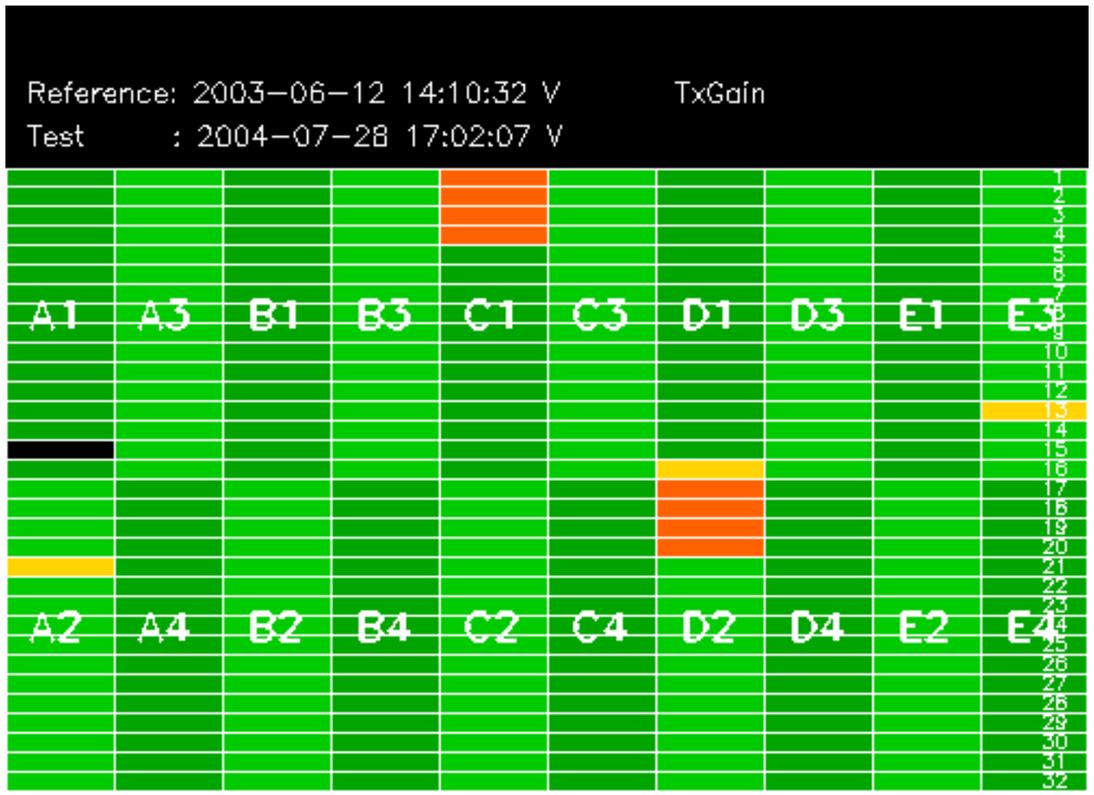
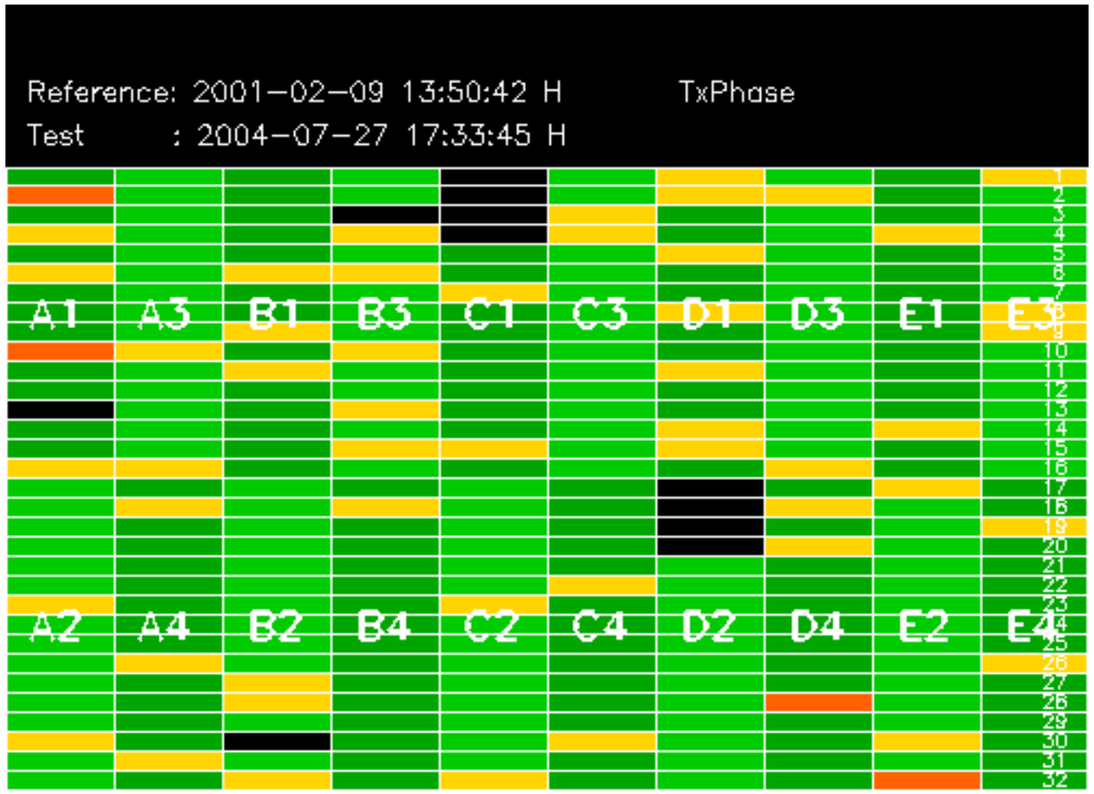
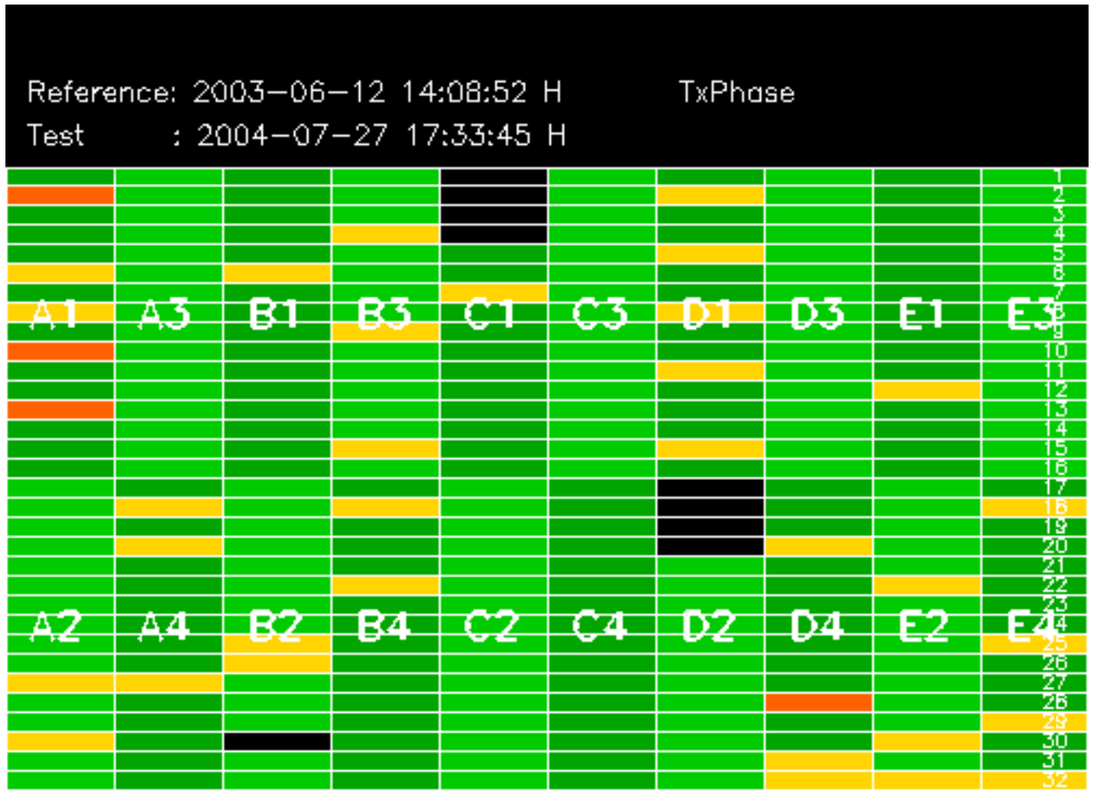
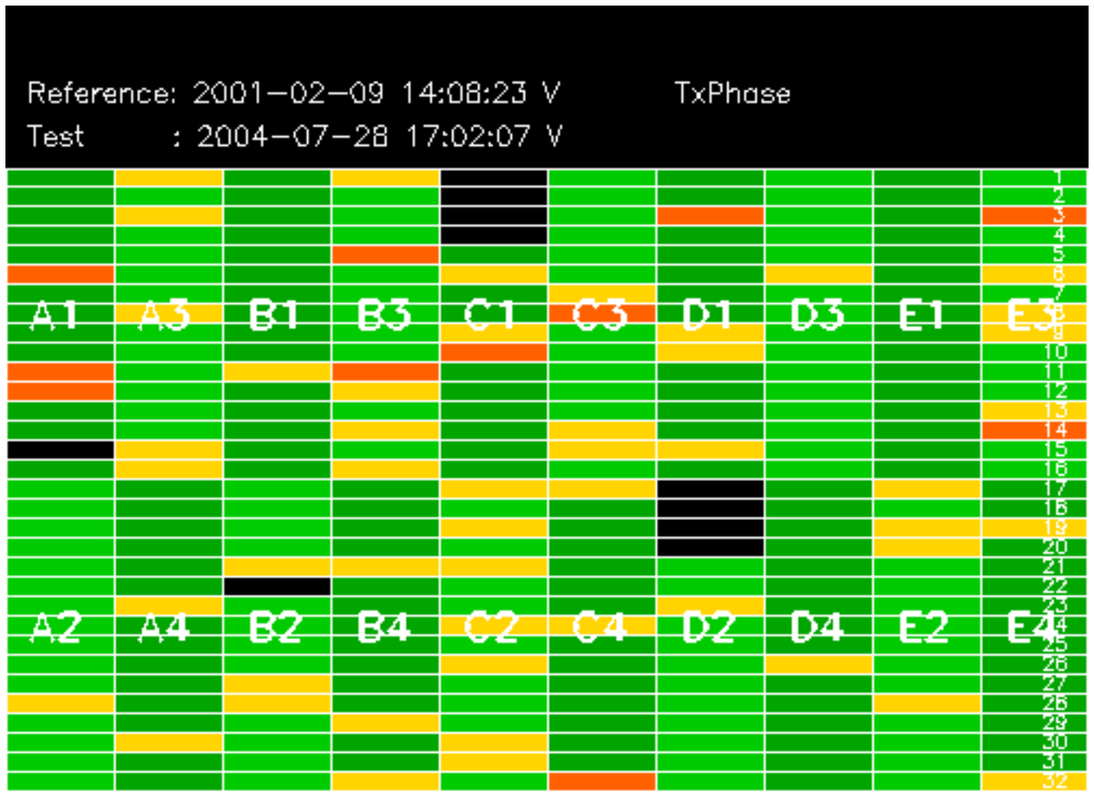
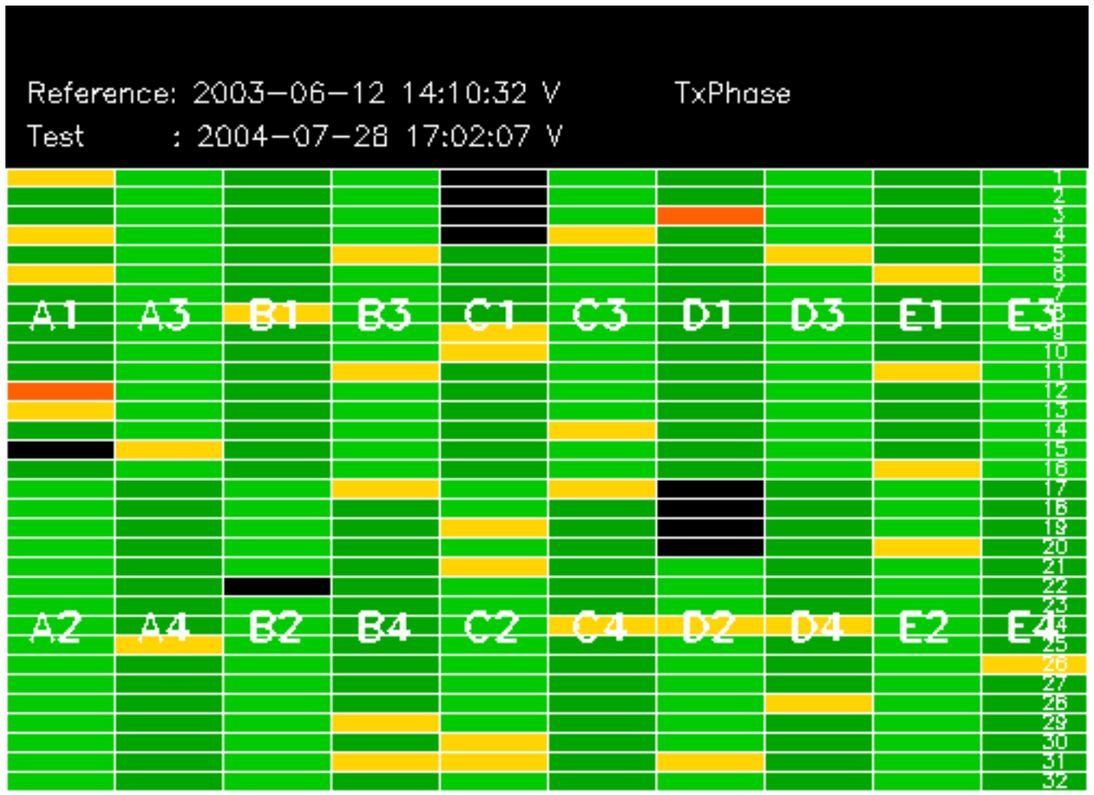

Reference: 2001-02-09 14:08:23 V
Test : 2004-07-28 17:02:07 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2004-07-28 17:02:07 V
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 13:50:42 H
TxPhase
Test : 2004-07-27 17:33:45 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 : 2004-07-27 17:33:45 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
Test : 2004-07-28 17:02:07 V
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 14:10:32 V
Test : 2004-07-28 17:02:07 V
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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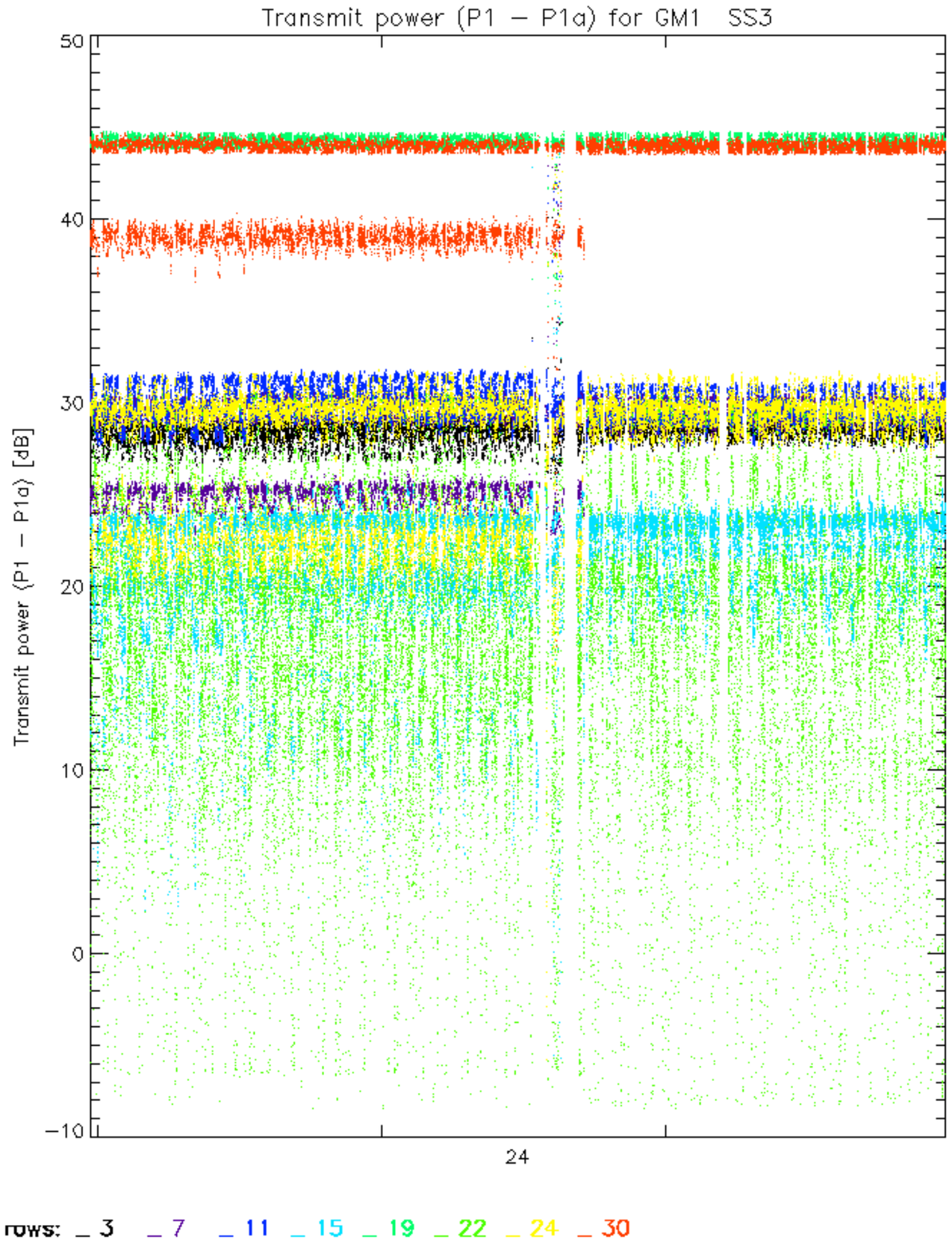
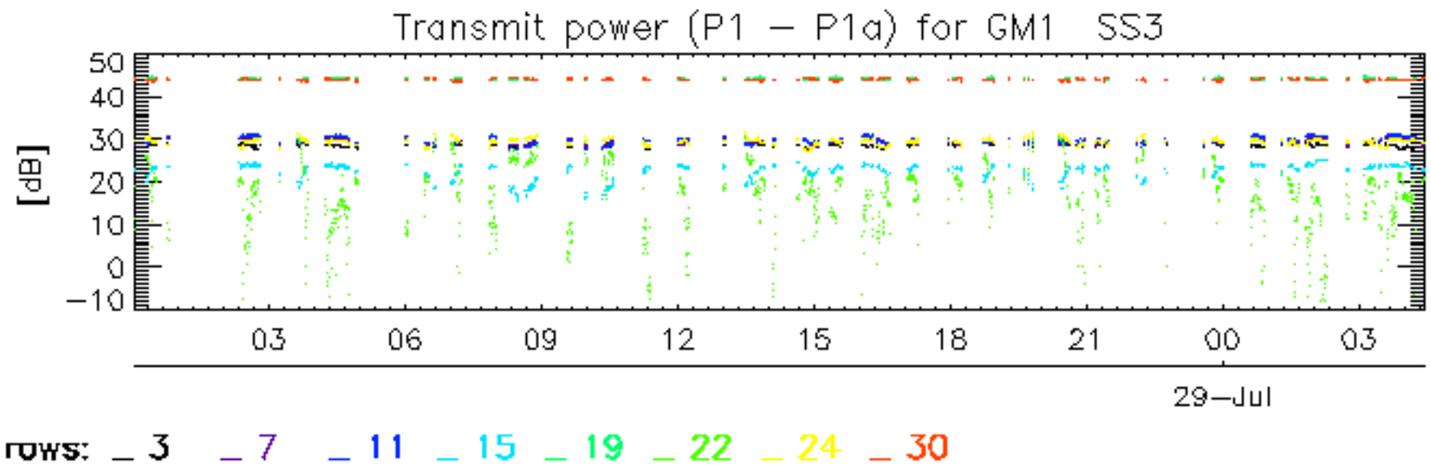
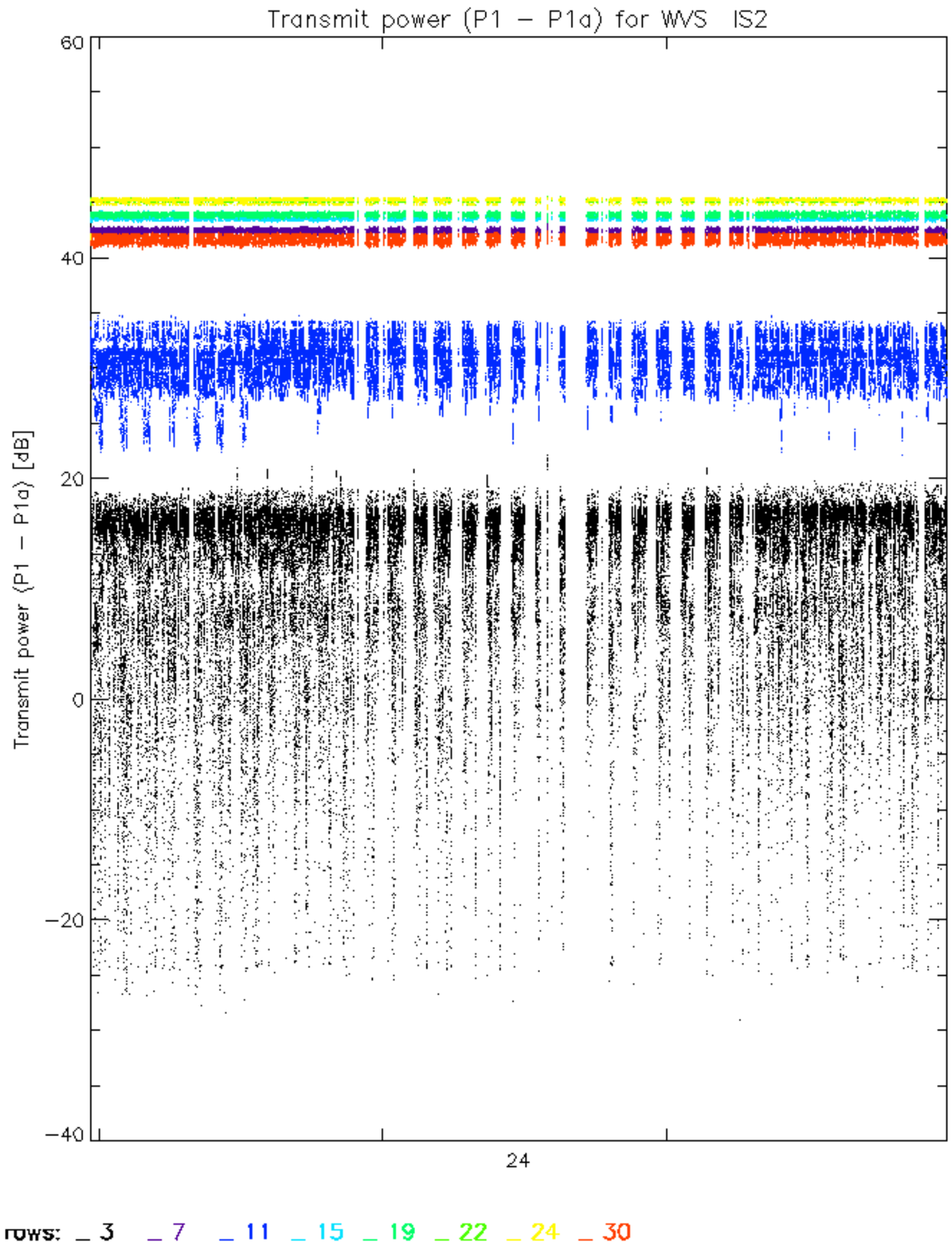
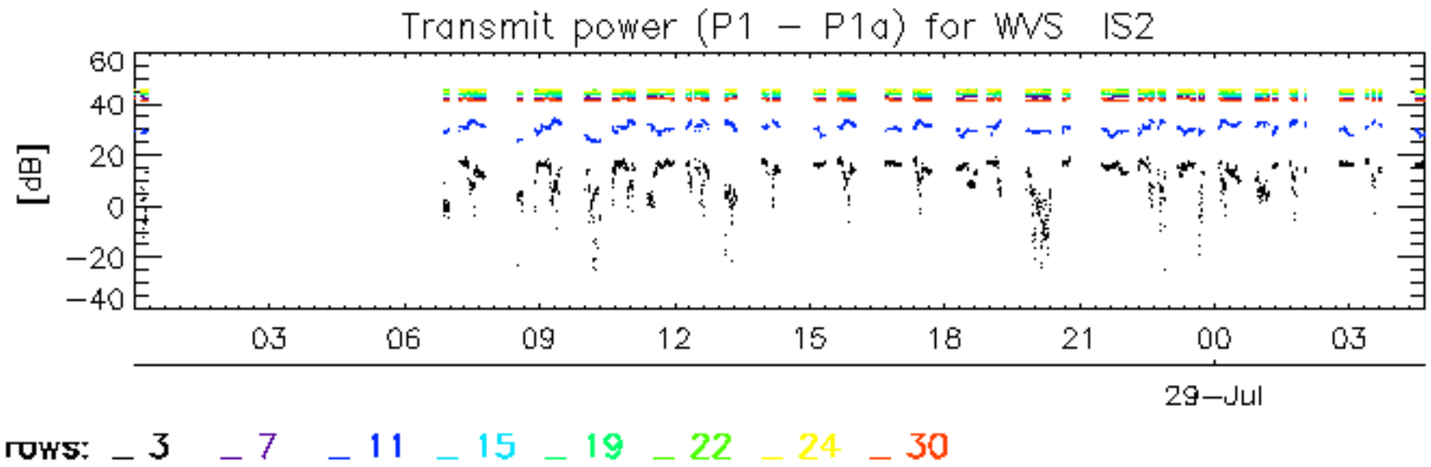

Transmit power (P1 – P1a) for GM1 SS3
Transmit power ⟨P1 – P1a⟩ [dB]
50
40
30
20
10
0
−10
24
rows: 3 7 11 15 19 22 24 30


Transmit power (P1 – P1a) for GM1 SS3
[dB]
50
40
30
20
10
0
−10
03
06
09
12
15
18
21
00
03
29–Jul
rows: 3 7 11 15 19 22 24 30


Transmit power (P1 – P1a) for WVS IS2
60
40
20
0
−20
−40
Transmit power ⟨P1 – P1a⟩ [dB]
24
rows: 3 7 11 15 19 22 24 30


Transmit power (P1 – P1a) for WVS IS2
[dB]
60
40
20
0
−20
−40
03
06
09
12
15
18
21
00
03
29–Jul
rows: 3 7 11 15 19 22 24 30

No unavailabilities during the reported period.