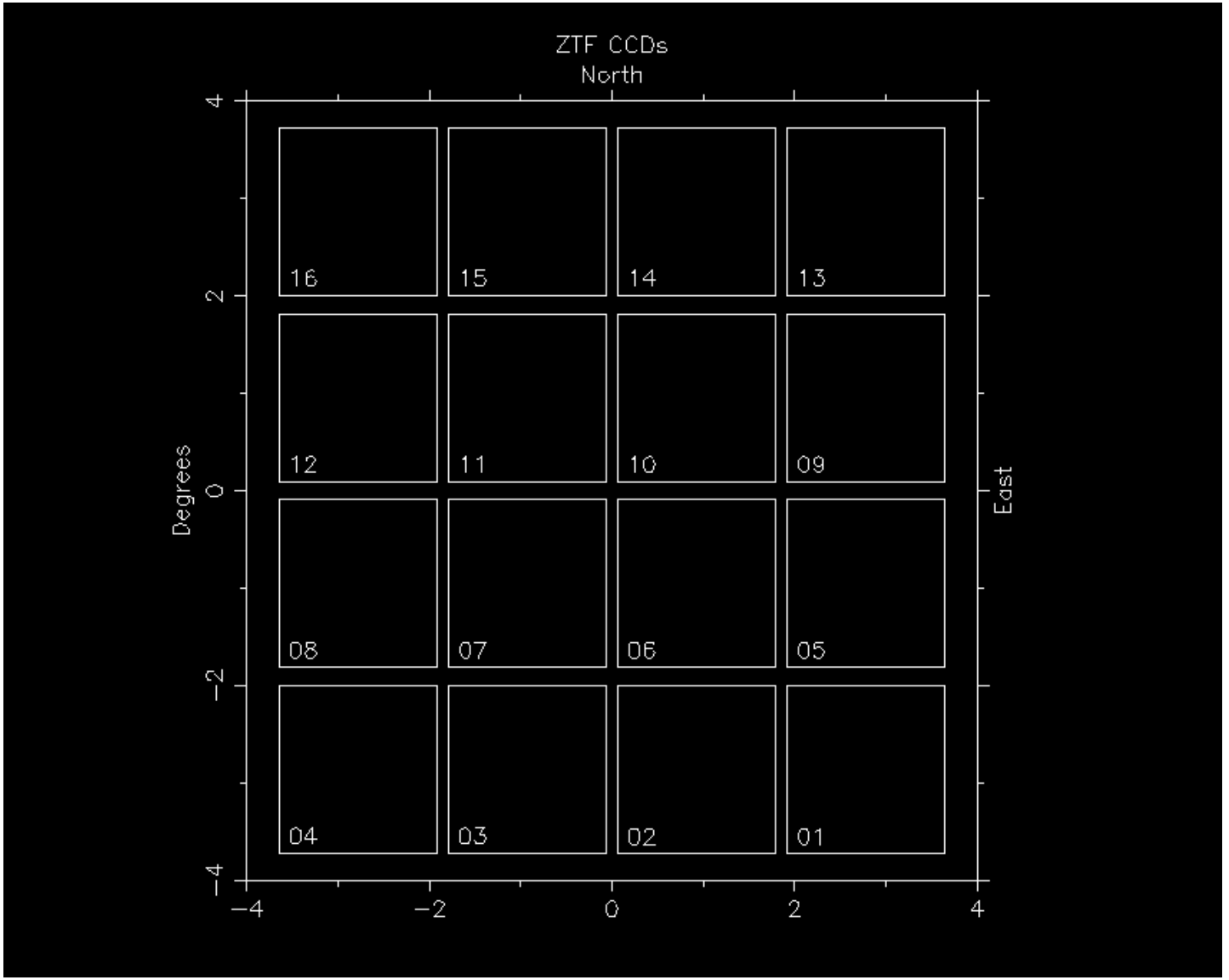
ZTF

(Zwicky Transient Facility)

Nightly Operations and Monitoring

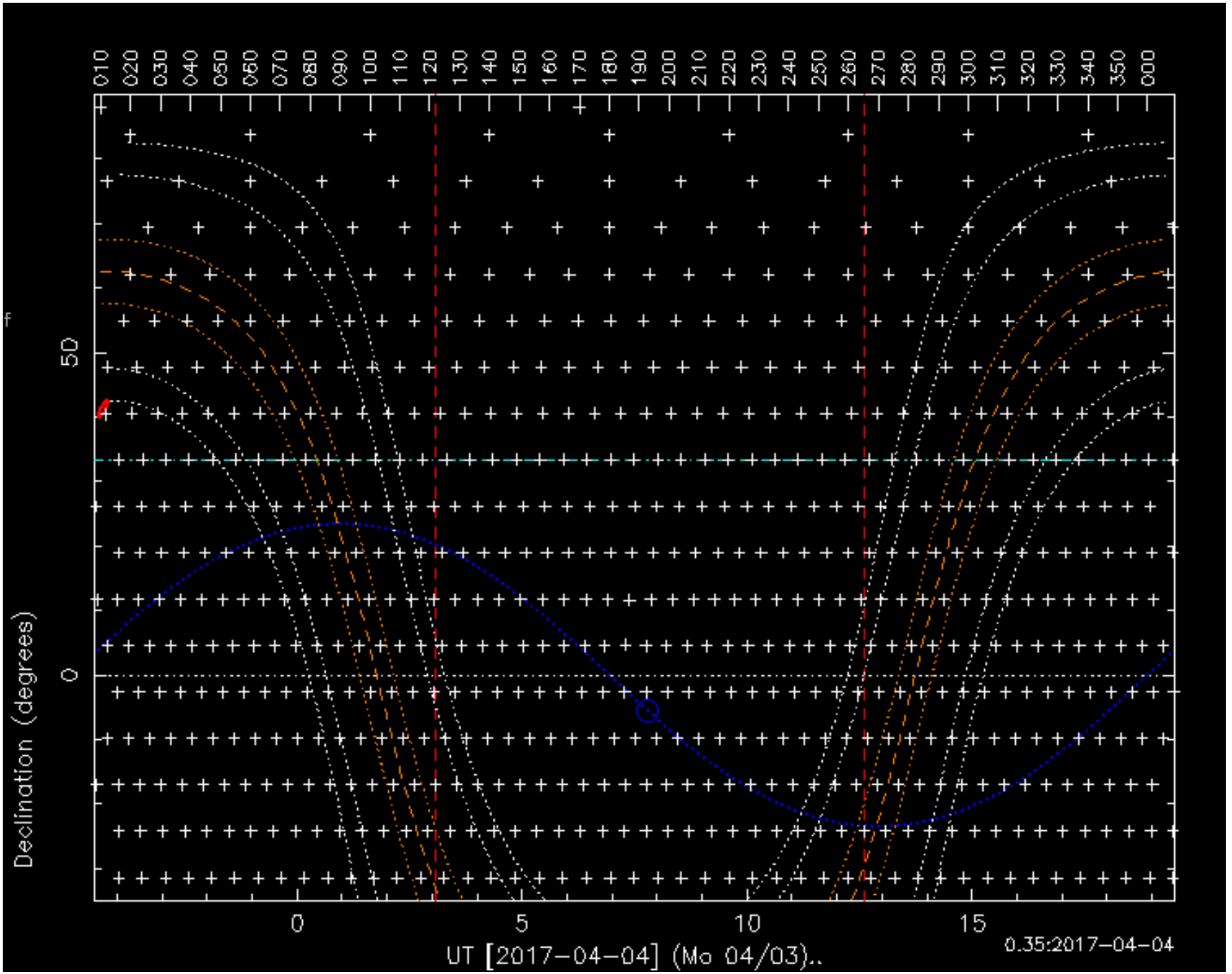
Tom Barlow, March 19, 2018

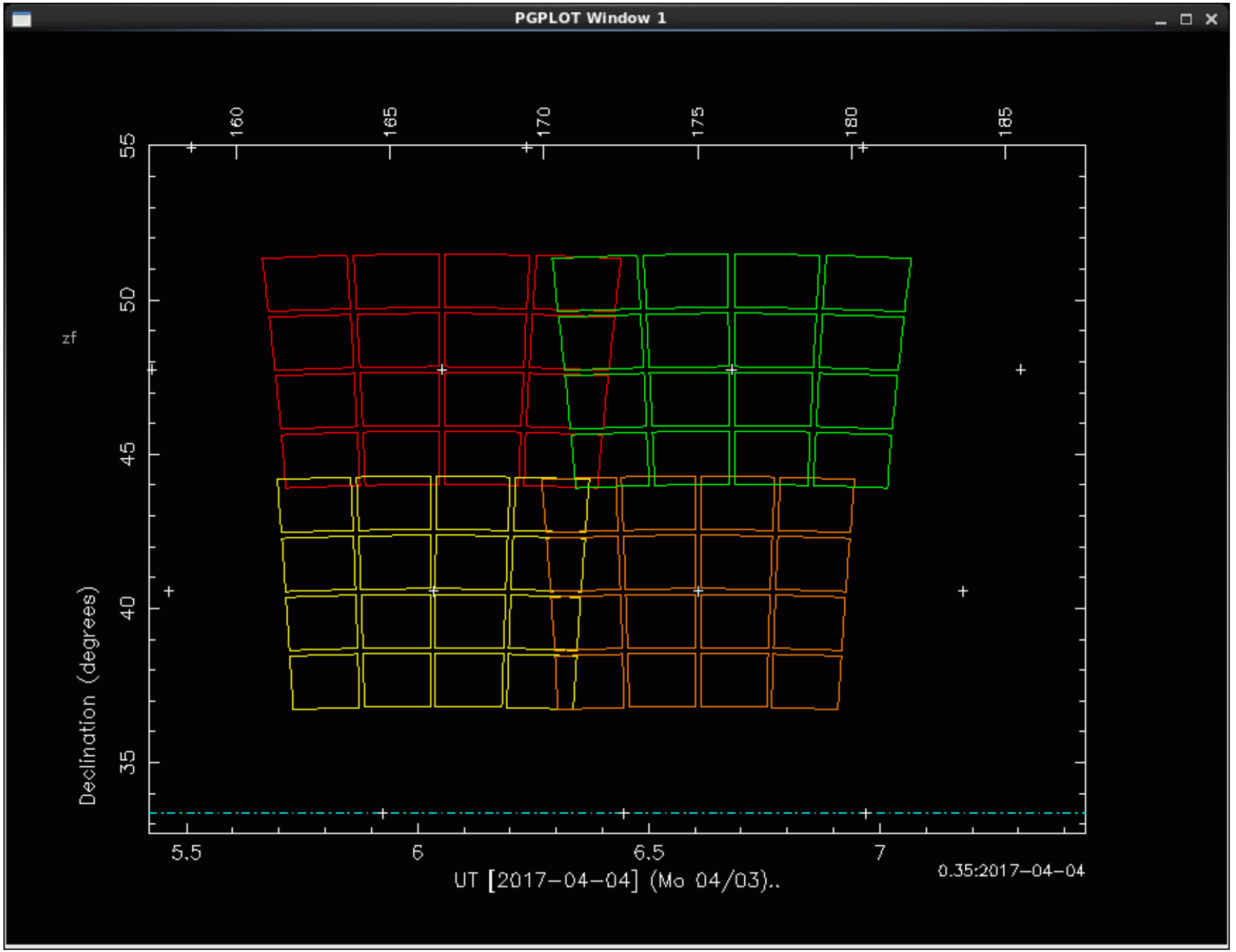


Each CCD is 6K x 6K and about 1.73 degrees on a side.

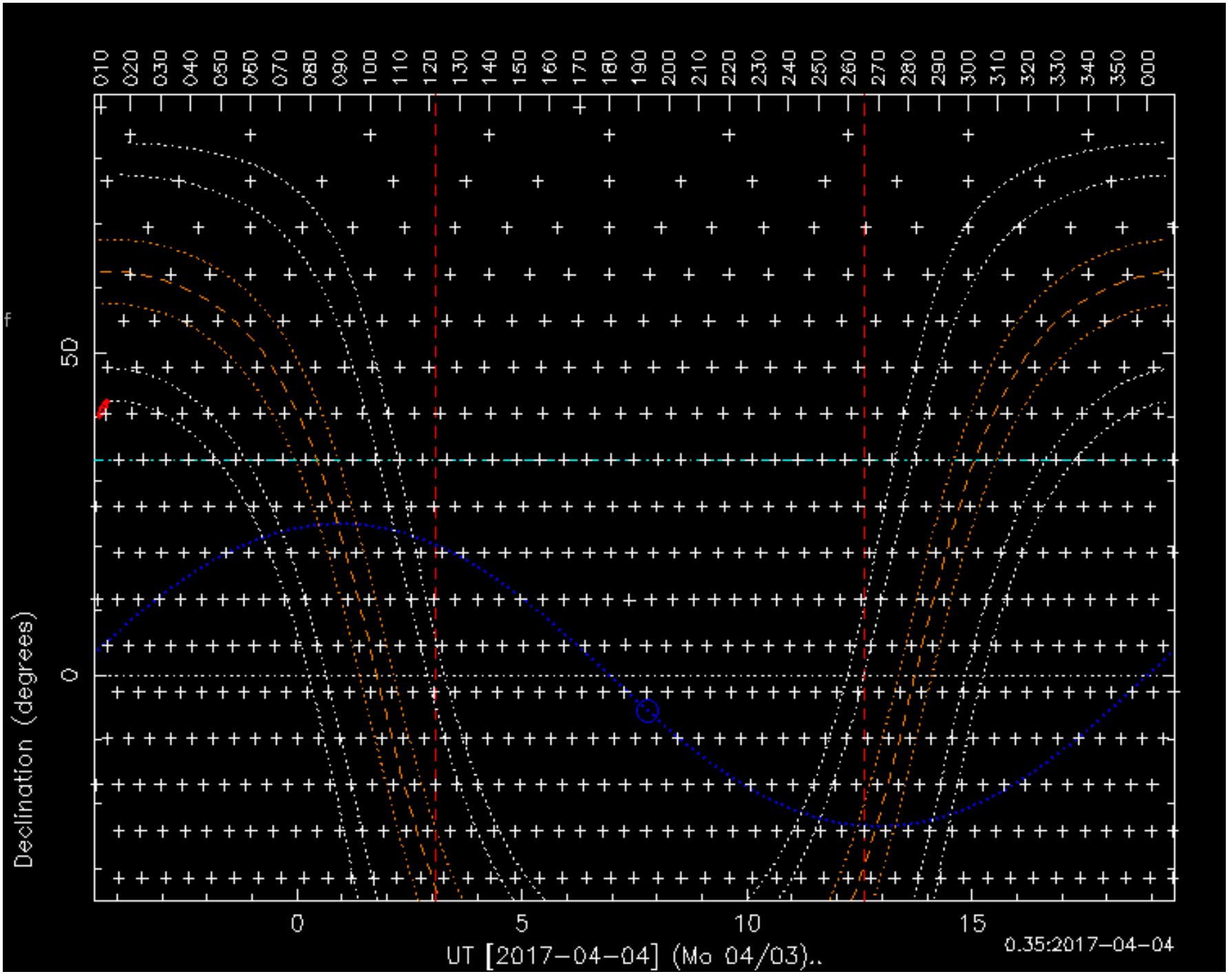
East-West gaps 8 arcmin. North-South gaps 11 arcmin.

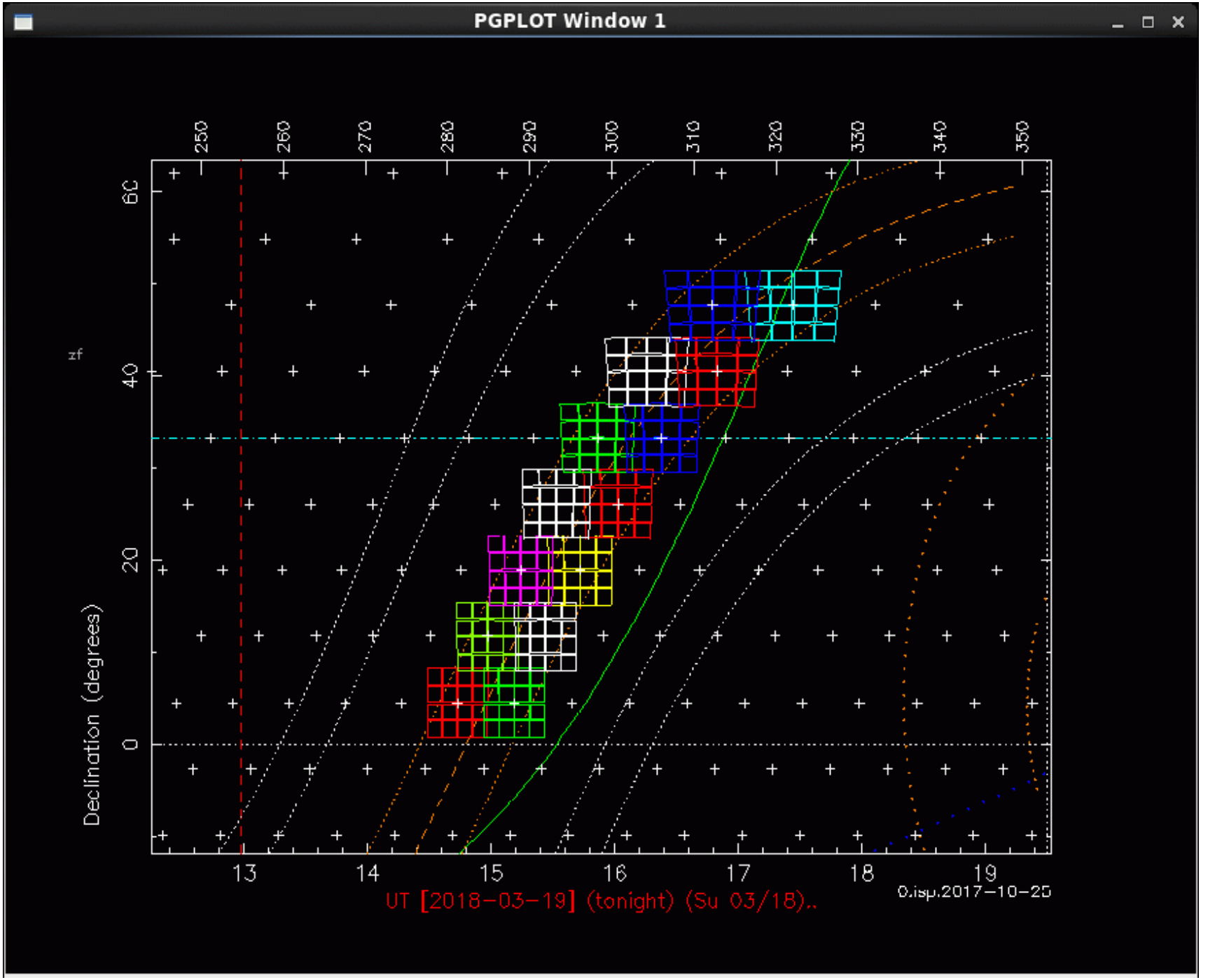
Field size is 7.5 degrees E-W and 7.3 degrees N-S.

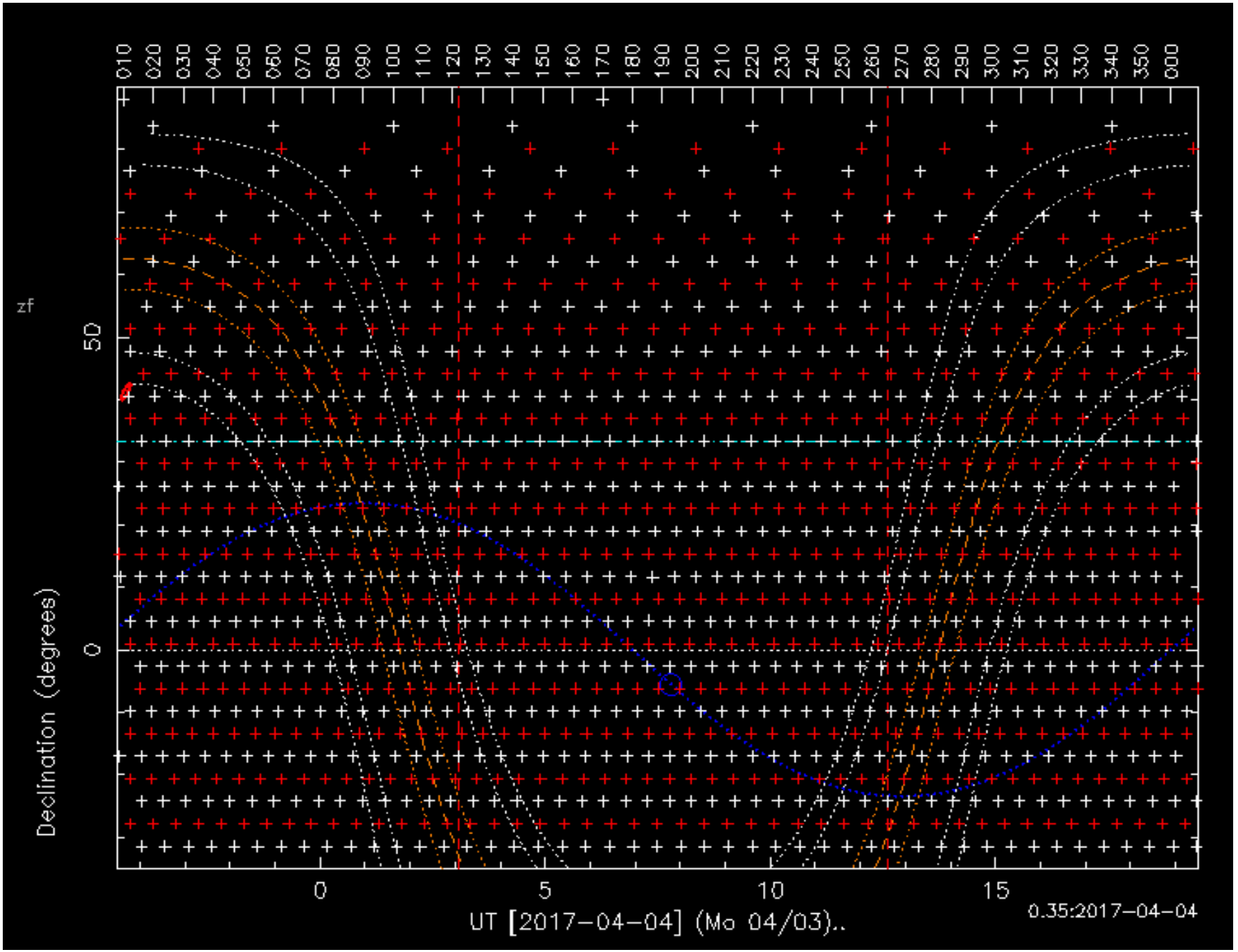

010 020 030 040 050 060 070 080 090 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 000
50
0
Declination (degrees)
0
5
10
15
UT [2017-04-04] (Mo 04/03)..
0.35:2017-04-04

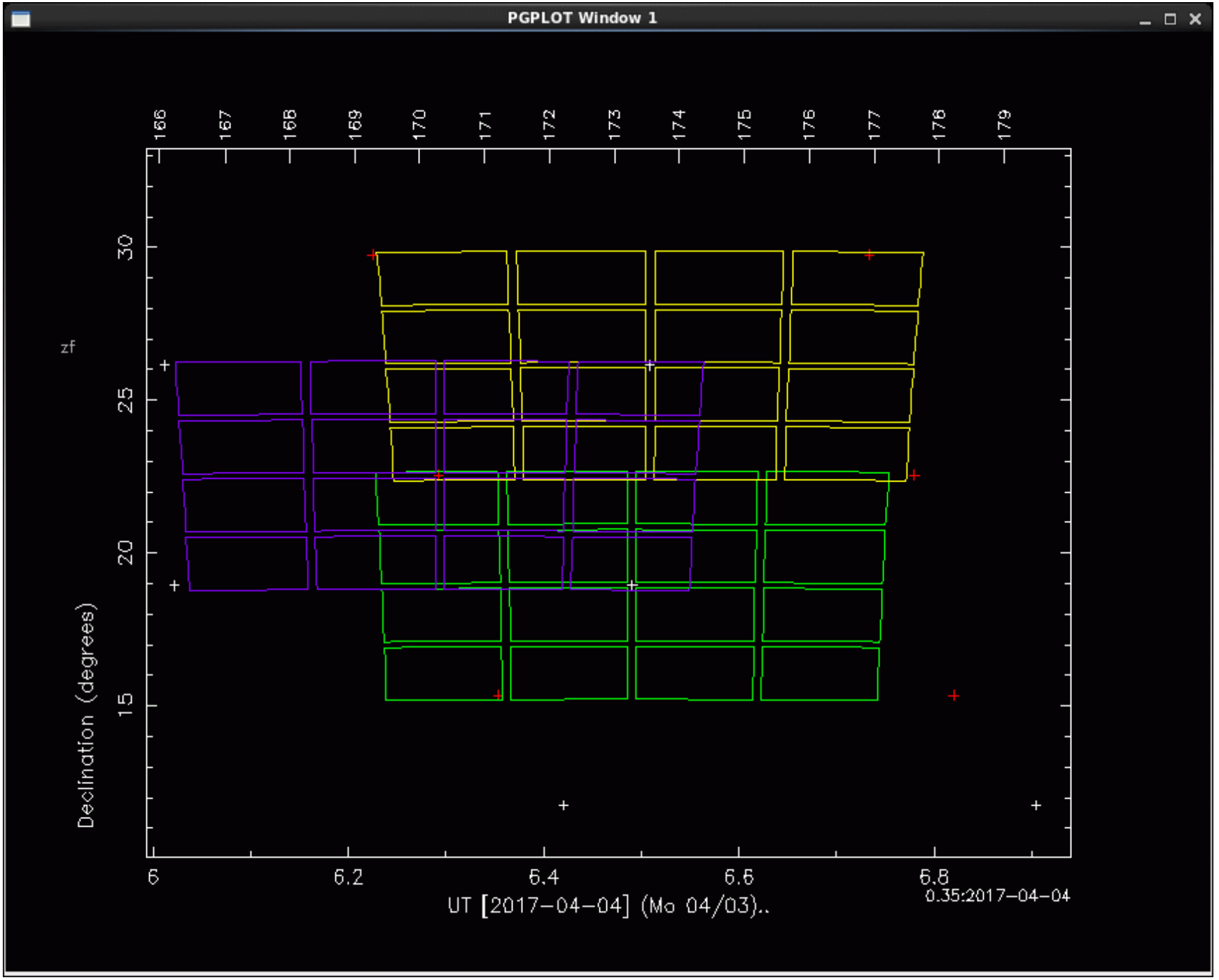


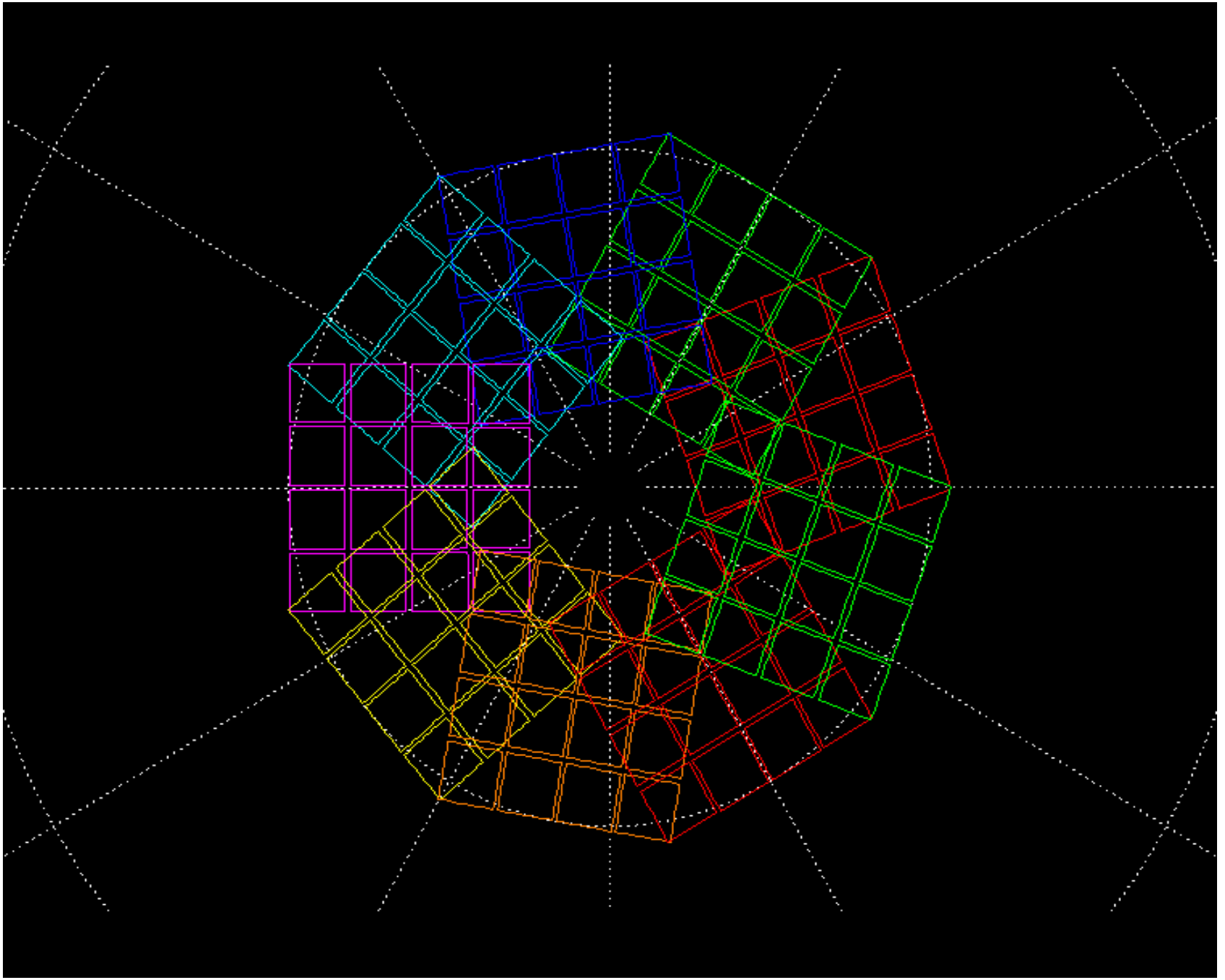
Overlap in Declination is about 0.2 degrees.

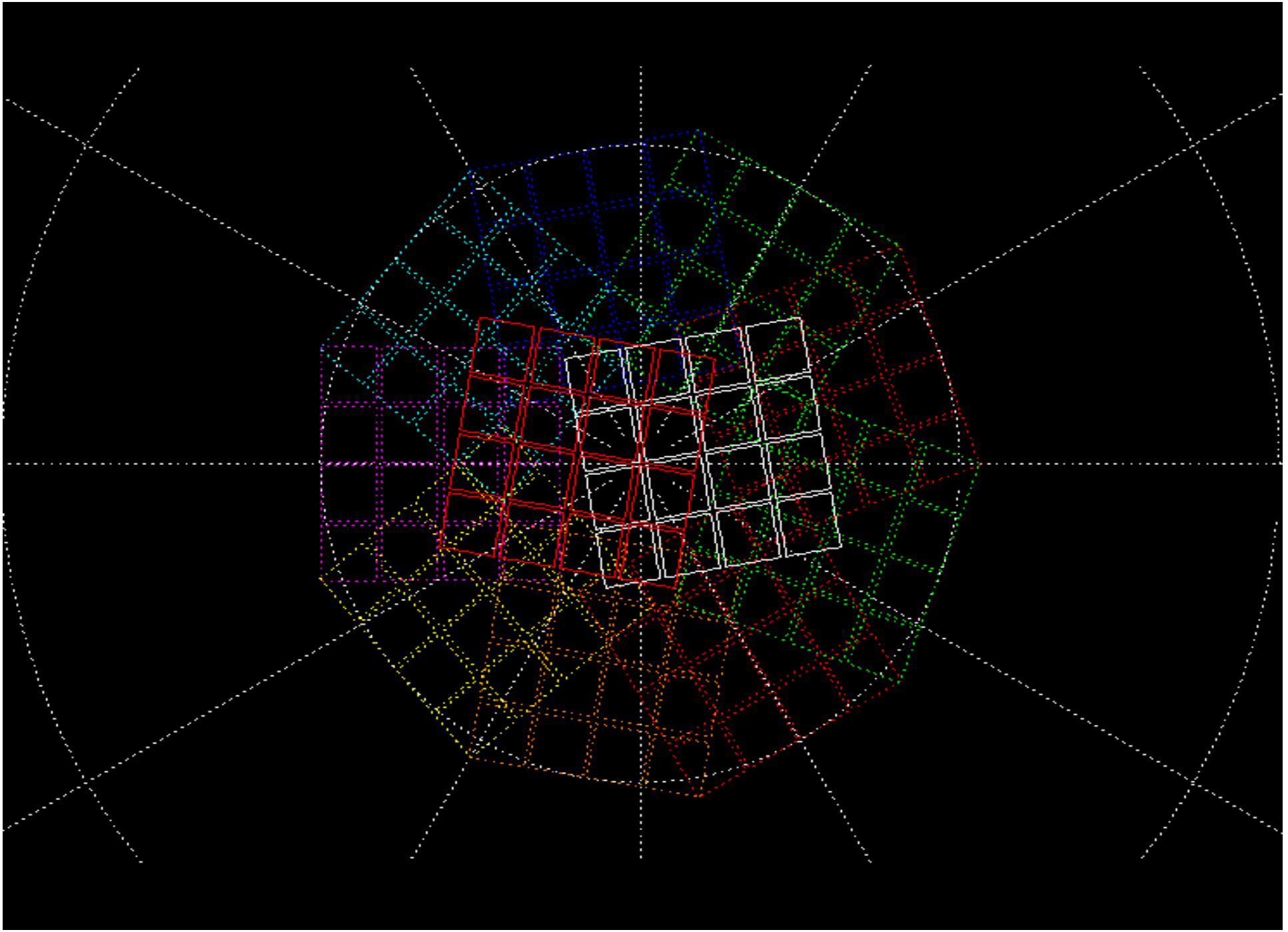

010 020 030 040 050 060 070 080 090 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 000
50
0
Declination (degrees)
0
5
10
15
UT [2017-04-04] (Mo 04/03)..
0.35:2017-04-04

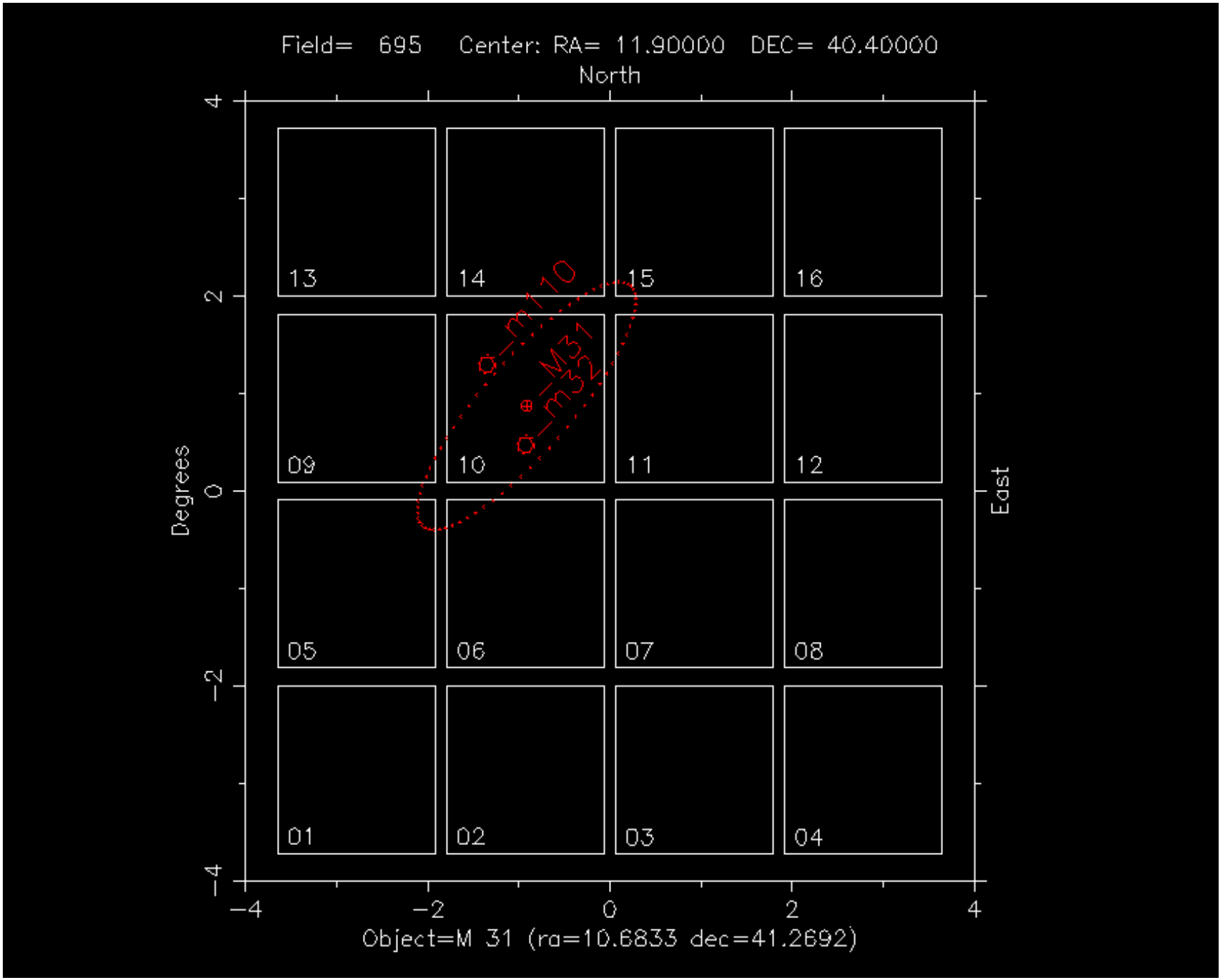

PGPLOT Window 1
250
260
270
280
290
300
310
320
330
340
350
60
40
20
0
zf
Declination (degrees)
13
14
15
16
17
18
19
UT [2018-03-19] (tonight) (Su 03/18)..
0.isp.2017-10-25

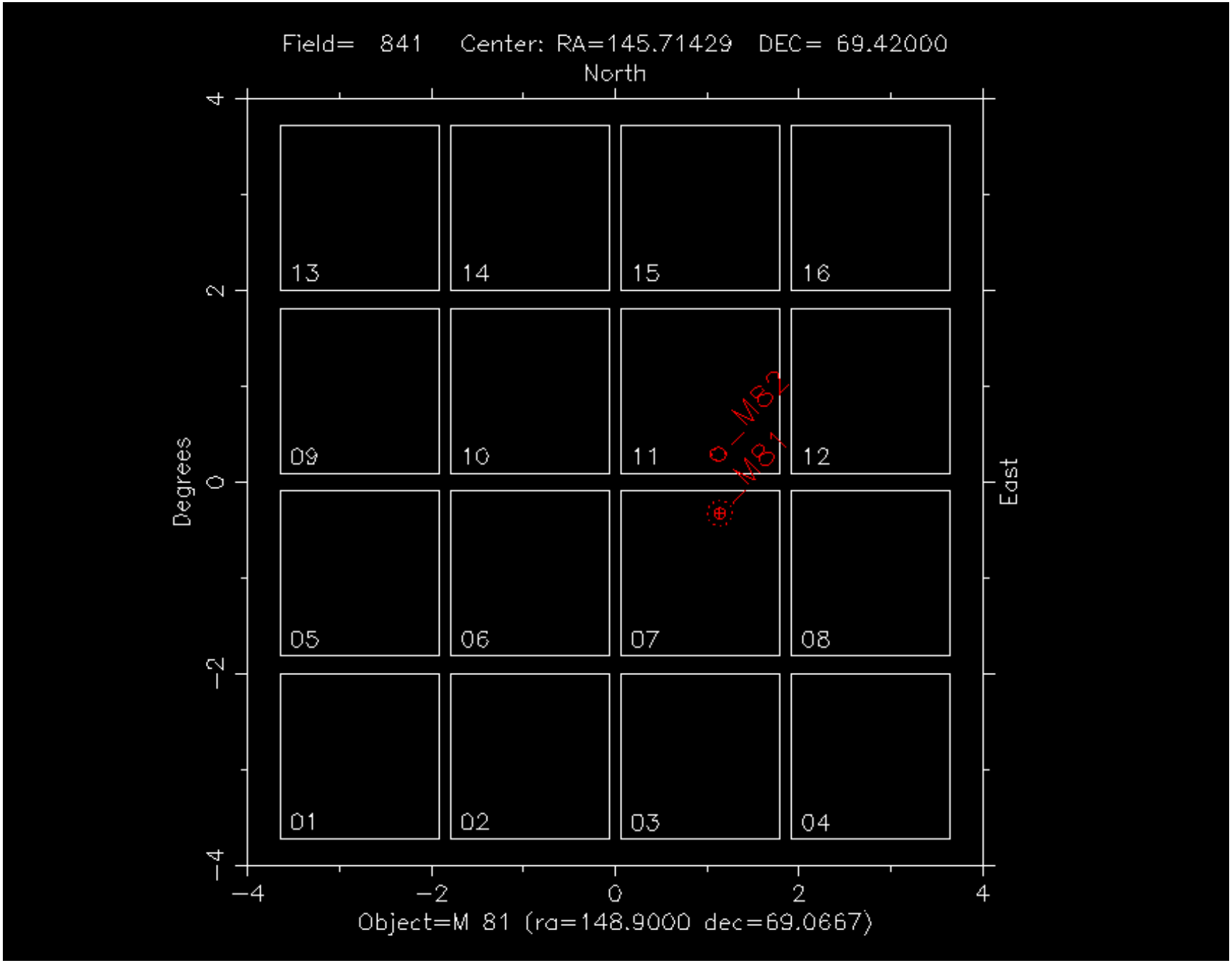

010 020 030 040 050 060 070 080 090 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 000
zf
50
0
Declination (degrees)
0
5
10
15
UT [2017-04-04] (Mo 04/03)..
0.35:2017-04-04


PGPLOT Window 1
166
167
168
169
170
171
172
173
174
175
176
177
178
179
30
25
20
15
zf
Declination (degrees)
6
6.2
6.4
6.6
6.8
UT [2017-04-04] (Mo 04/03)..
0.35:2017-04-04






Field= 695 Center: RA= 11.90000 DEC= 40.40000
North
East
Degrees
13
14
15
16
09
10
11
12
05
06
07
08
01
02
03
04
g_m110
g_M31
g_m32
4
2
0
−2
−4
Object=M 31 (ra=10.6833 dec=41.2692)


Field= 841 Center: RA=145.71429 DEC= 69.42000
North
East
Degrees
13
14
15
16
09
10
11
12
05
06
07
08
01
02
03
04
M82
M81
4
2
0
−2
−4
Object=M 81 (ra=148.9000 dec=69.0667)

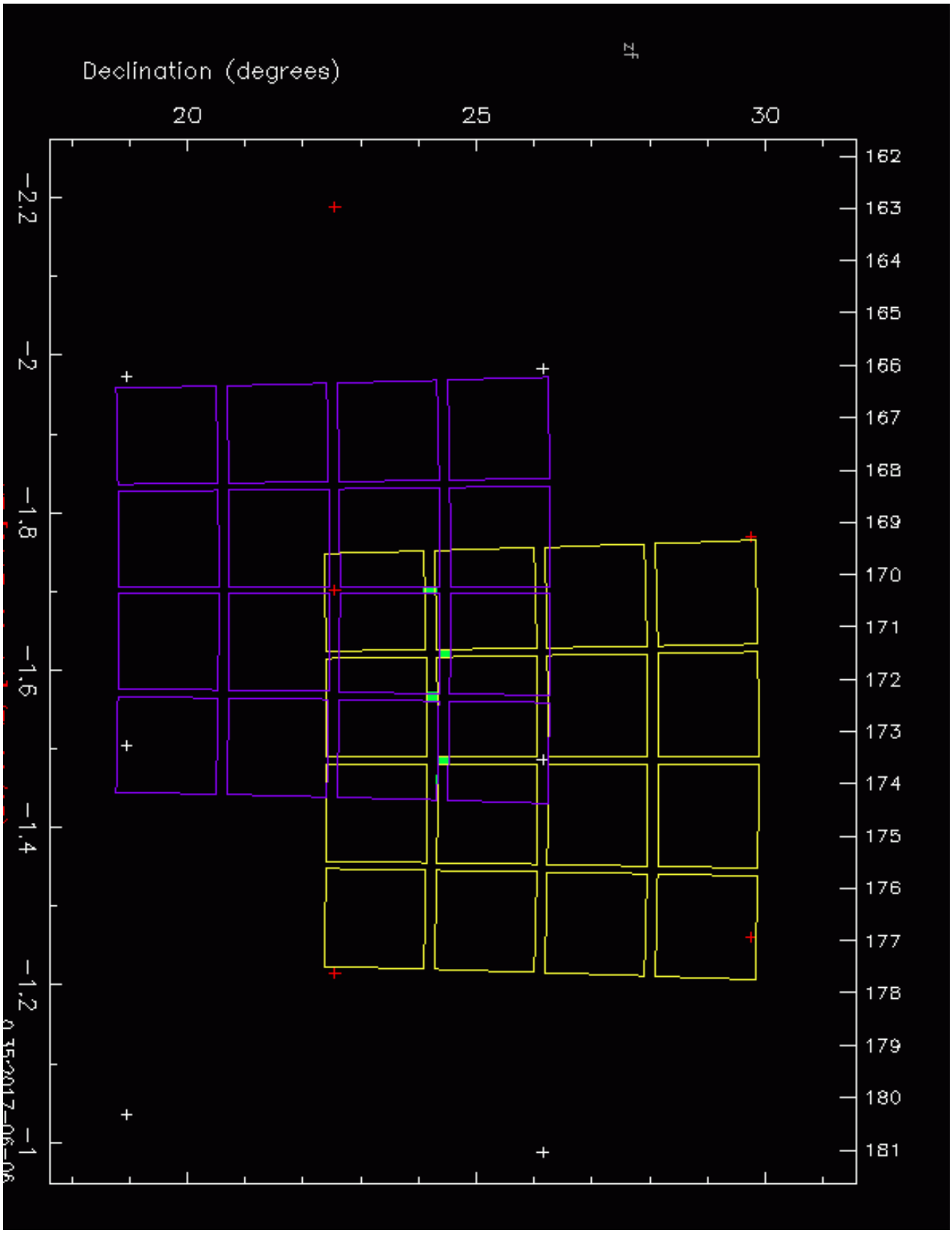
Sky Coverage Statistics

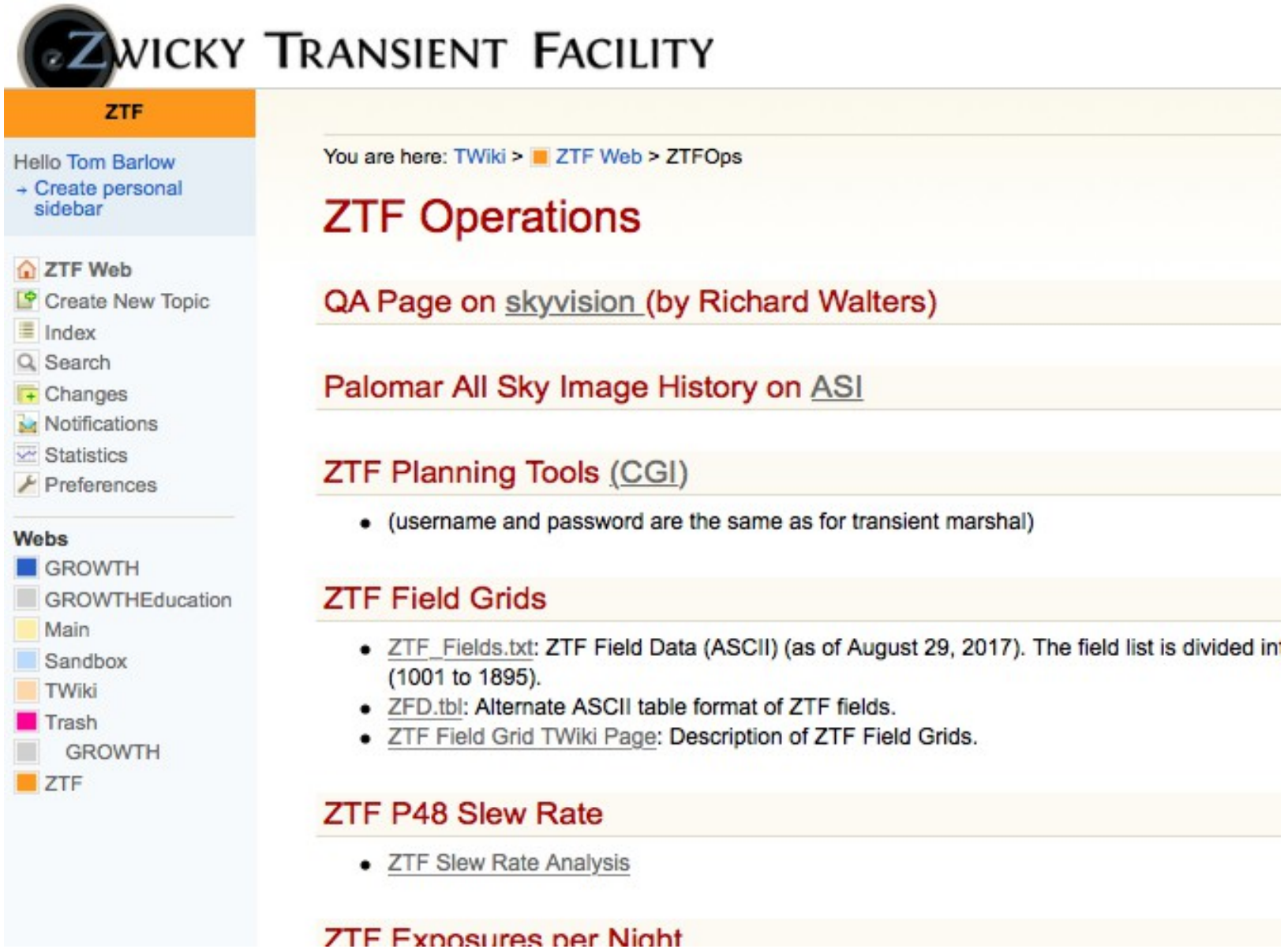
A random position on the sky has an 87.5% chance of falling on a CCD using the primary grid pattern. Combining both the primary and secondary grids, this probability increases to 99.2% . Due to the overlap of the primary grid, 13% of the time a position will fall on a CCD on more than field of the primary grid.

Number of CCDs	Primary	Pri+Sec
>= 1 (of 16)	0.875	0.9922
>= 2 (of 16)	0.133	0.823
>= 1 (of inner 4)	0.254	0.505
>= 1 (of inner 12)	0.699	0.964

Uncovered Sky

The primary and secondary grids combined leave about 0.8% of the sky uncovered. The gaps in sky coverage (0.8%) in the primary + secondary grids is due to the intersection of N-S and E-W CCD gaps (Primary+Secondary Gaps), these gaps or unavoidable unless the fields were placed very close together.


Declination (degrees)
20
25
30
-2.2
-2
-1.8
-1.6
-1.4
-1.2
-1
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181



http://yupana.caltech.edu/cgi-bin/ptf/tb/zoc?begin

ZTF Planning Tools (CGI)

- Create a list of fields visible on a given night.
- Show object position on ZTF field grid.
- Show field IDs on sky.
- Make a testing queue for ROS on ZTF.
- Create an exposure queue table with airmass and hour angle checks.

- **Create a list of fields visible on a given night: (help)**

  - UT date of night (YYYY-MM-DD):
  - Maximum airmass: 2.00
  - Minimum declination (degrees): -40.00
  - Minimum visibility (hours): 1.00
  - Galactic Latitude (degrees): Min: 0.00 Max: 90.00
  - Ecliptic Latitude (degrees): Min: 0.00 Max: 90.00
  - Minimum Moon Separation (degrees): 0.00
  - Primary grid: ☑
  - Secondary grid: ☐
  - Range of nights:
    - UT date of first night: ... last night:

  SUBMIT (Field Table) SUBMIT (Stats Only) RESET

- **Show object position on ZTF field grid. (help)**

- Upload file with list of objects (name,ra,dec): Choose File no file selected Upload
  (if file used, select and upload before continuing)

http://skyvision.caltech.edu/ztf/

P48 Observatory Status

UT Time	2018-03-19 13:01:40.060
LST	+17:02:19.8
Sun Altitude(Deg)	16.33
Current Field	NA
Tel RA(Deg)	+19:57:10.78
Tel DEC(Deg)	-41:30:12.1
Last Filter State	FILTER_ZTF_R Last Changed: 2018-03-16 17:44:03.000
Dome Status	**Closed**
Motion Status	9
Hexapod Focus	1.290000
Hexapod Tip	0.345817
Hexapod Tilt	0.291499
Temperature(C)	4.7
Humidity (%)	28
Wind Speed (m/s)	3
Dew Point Depression(C)	16.7

Last Image Stats | DIQ Trend | Robot Log

Last Image Stats

2.53	2.47	2.45	2.45	2.54	2.53	2.53	2.51
2.29	2.27	2.28	2.25	2.31	2.32	2.39	2.43
2.49	2.41	2.36	2.31	2.34	2.35	2.39	2.42
2.42	2.37	2.31	2.28	2.3	2.31	2.31	2.31
2.39	2.33	2.35	2.35	2.38	2.41	2.43	2.43
2.7	2.62	2.5	2.5	2.35	2.36	2.4	2.43
2.35	2.27	2.37	2.38	2.41	2.41	2.4	2.48
2.58	2.41	2.33	2.29	2.31	2.36	2.44	2.6

Base Image:

Avg DIQ : 2.4

Min DIQ : 2.25

Max DIQ : 2.7

Notes:NA=Value not calculated in qa file

Blank fields indicate no qa file found for that quadrant

Yellow links indicate warning processing flag

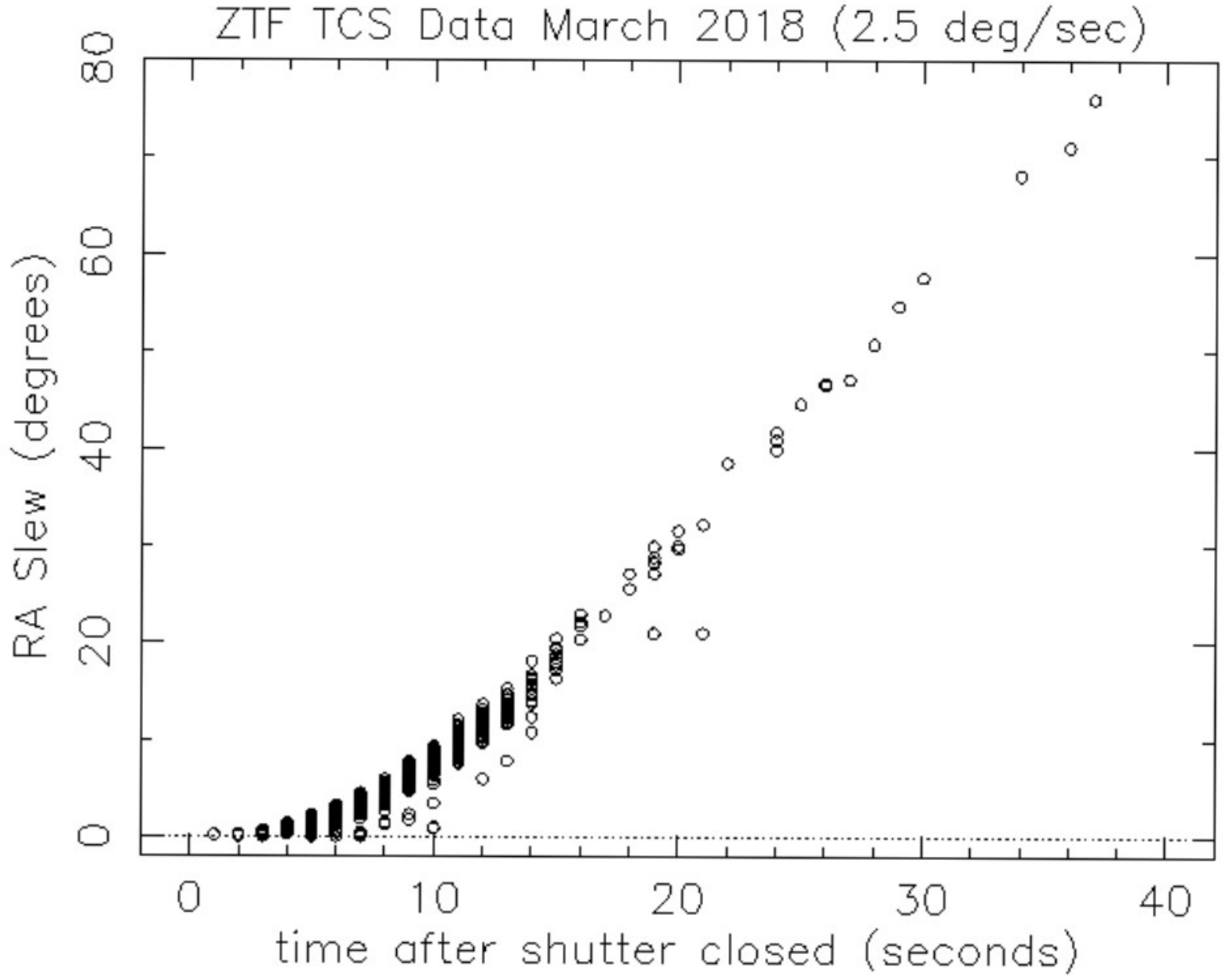
Red links indicate fatal processing flag

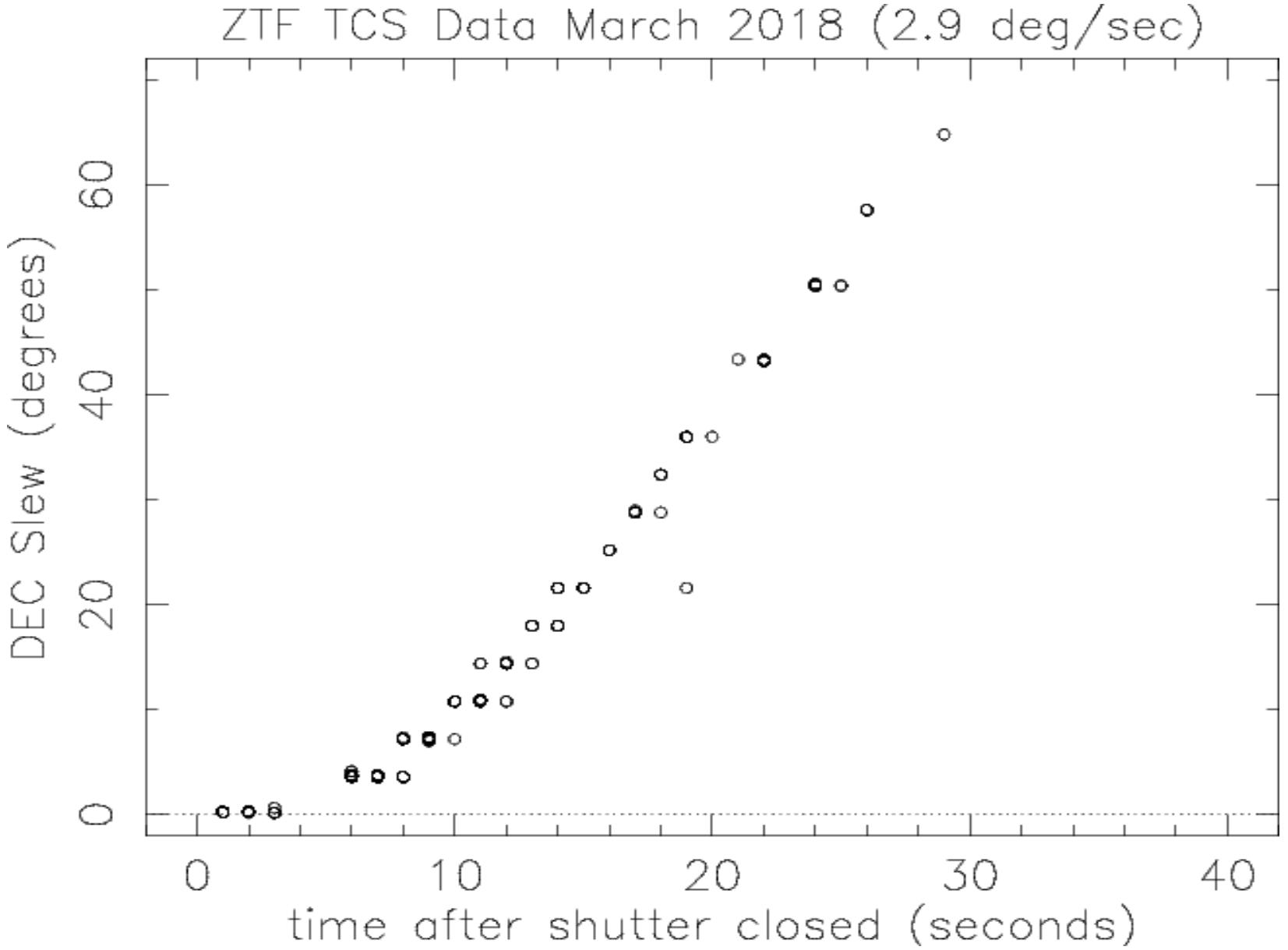
(•) DIQ ( ) Zero Point ( ) Ellipticity

http://www.astro.caltech.edu/~tb/ztfops/sky/

ZTF Nightly Summary

Expos_Log	Dura	Open	NExp	NCal	TotEff	AdjEff	MdnFW	AllSky
2018-03-19	10.12	--	0	0	--	--	--	2018-03-19
2018-03-18	10.16	--	0	0	--	--	--	2018-03-18
2018-03-17	10.20	--	0	0	--	--	--	2018-03-17
2018-03-16	10.23	--	0	0	--	--	--	2018-03-16
2018-03-15	10.26	--	0	43	--	--	--	2018-03-15
2018-03-14	10.30	--	0	43	--	--	--	2018-03-14
2018-03-13	10.33	--	141	43	--	--	--	2018-03-13
2018-03-12	10.37	--	0	43	--	--	--	2018-03-12
2018-03-11	10.41	--	0	0	--	--	--	2018-03-11
2018-03-10	10.44	--	0	0	--	--	--	2018-03-10
2018-03-09	10.47	--	867	43	--	--	--	2018-03-09
2018-03-08	10.51	--	683	44	--	--	--	2018-03-08
2018-03-07	10.54	--	761	43	--	--	--	2018-03-07
2018-03-06	10.58	--	814	43	--	--	--	2018-03-06
2018-03-05	10.61	--	912	44	--	--	--	2018-03-05
2018-03-04	10.64	--	60	43	--	--	--	2018-03-04
2018-03-03	10.68	--	0	79	--	--	--	2018-03-03
2018-03-02	10.71	--	0	0	--	--	--	2018-03-02
2018-03-01	10.74	--	80	44	--	--	--	2018-03-01


ZTF TCS Data March 2018 (2.5 deg/sec)
RA Slew (degrees)
0
20
40
60
80
0
10
20
30
40
time after shutter closed (seconds)


ZTF TCS Data March 2018 (2.9 deg/sec)
DEC Slew (degrees)
0
20
40
60
0
10
20
30
40
time after shutter closed (seconds)