

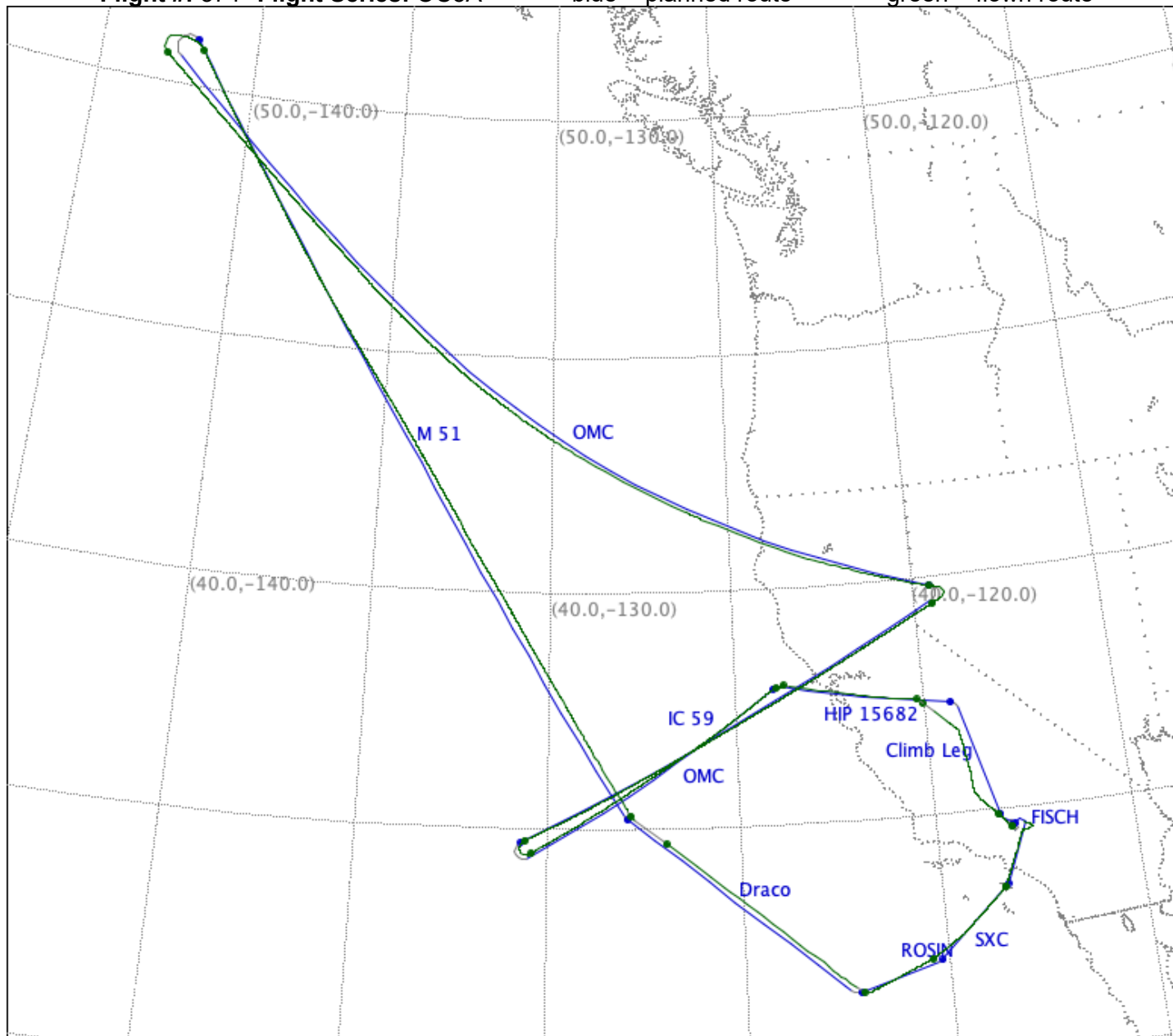
MISSION ID: 2017-02-14_GR_F374

Date: 2017-02-14 UT Instrument: GREAT

Flight #: 374 Flight Series: OC5A

blue = planned route

green = flown route

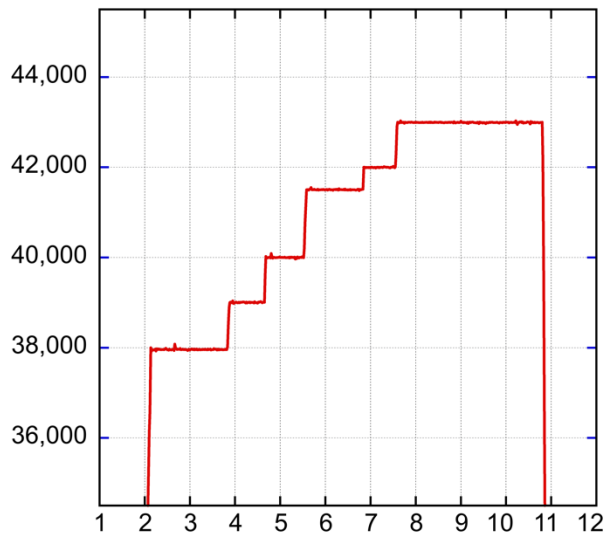


**Flight notes:
No irregularities.**

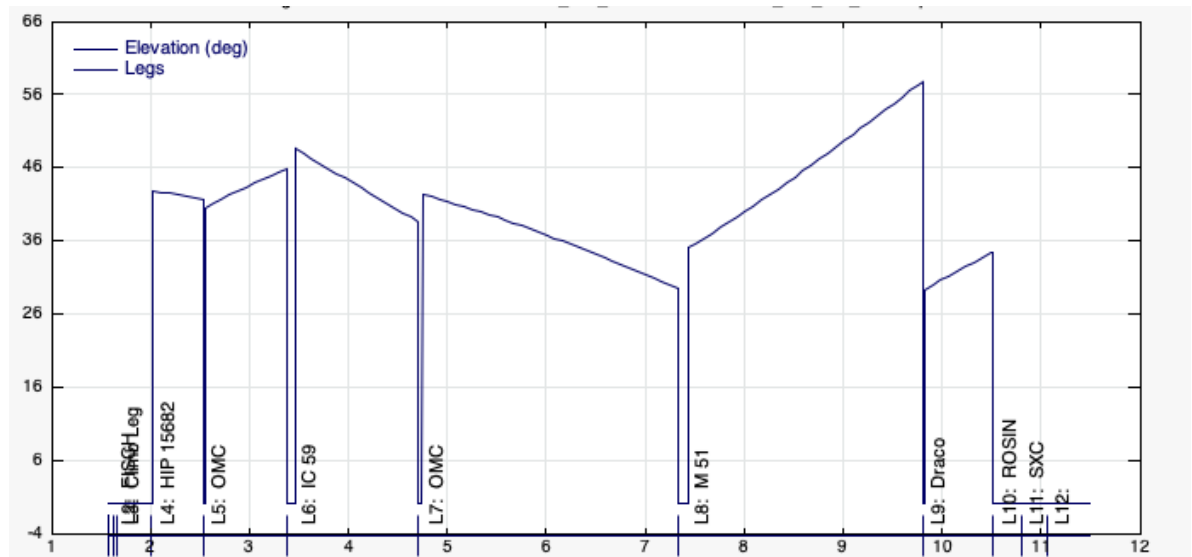
Flight 374 Mission ID 2017-02-14_GR_F374
 Palmdale to Palmdale Take off date UTC: 14-FEB-2017
 Departure UTC: 01:43 Arrival UTC: 11:25
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 15682	03h22m01.72s	-09d39m02.0s	2:07	30	
5	04_0066	Tielens	OMC_BAR_PEAK	05h35m20.90s	-05d25m04.8s	2:38	50	
6	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	3:33	74	
7	04_0066	Tielens	OMC_BAR_PEAK	05h35m20.90s	-05d25m04.8s	4:51	155	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:31	143	
9	05_0208	Schneider	DRACO_NOSE1	16h49m06.00s	59d55m58.0s	9:55	41	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



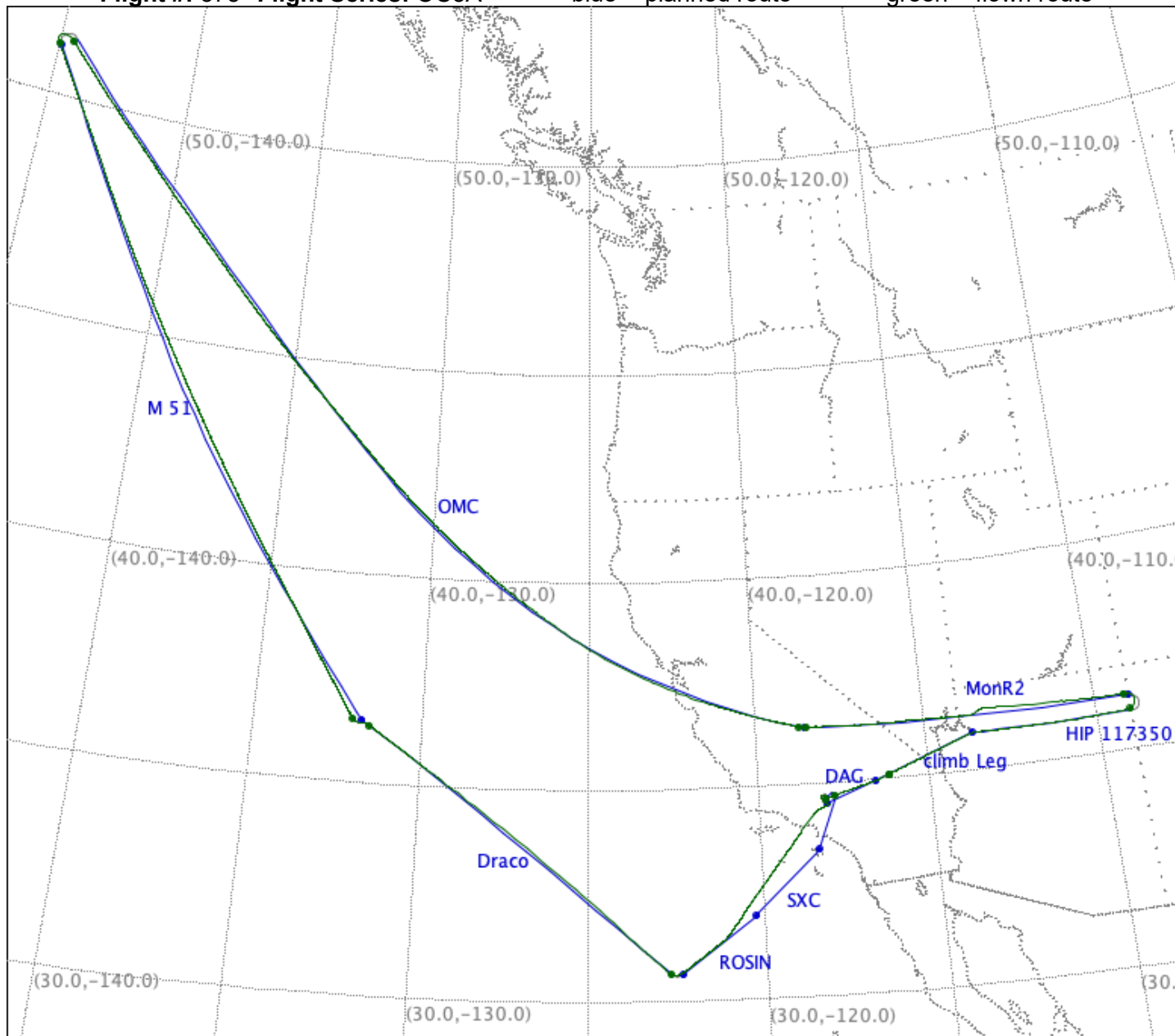
MISSION ID: 2017-02-15_GR_F375

Date: 2017-02-15 UT Instrument: GREAT

Flight #: 375 Flight Series: OC5A

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

Flight 375 Mission ID
Palmdale to Palmdale

2017-02-15_GR_F375
Take off date UTC:
15-FEB-2017

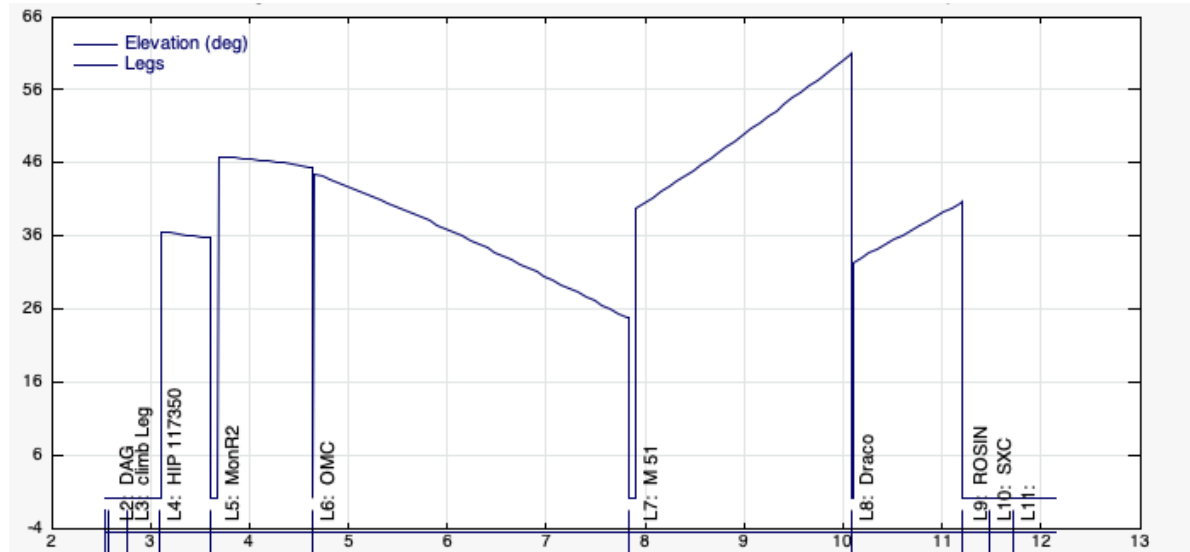
Departure UTC: 02:34
Arrival UTC: 12:08

L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 117350	23h47m37.86s	85d04m42.2s	3:05	30	
5	04_0081	Schneider	MONR2	06h07m46.20s	-06d23m08.3s	3:40	57.5	Air Traffic Control requested temporary deviation; 15min lost
6	04_0066	Tielens	OMC_CENTER	05h35m27.67s	-05d22m33.7s	4:38	191	
7	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	8:00	131	
8	05_0208	Schneider	DRACO_NOSE1	16h49m06.00s	59d55m58.0s	10:11	66.2	

Flown altitude (ft.) vs. time (UTC hrs.)

Planned target elevation (deg.) vs. time (UTC hrs.)



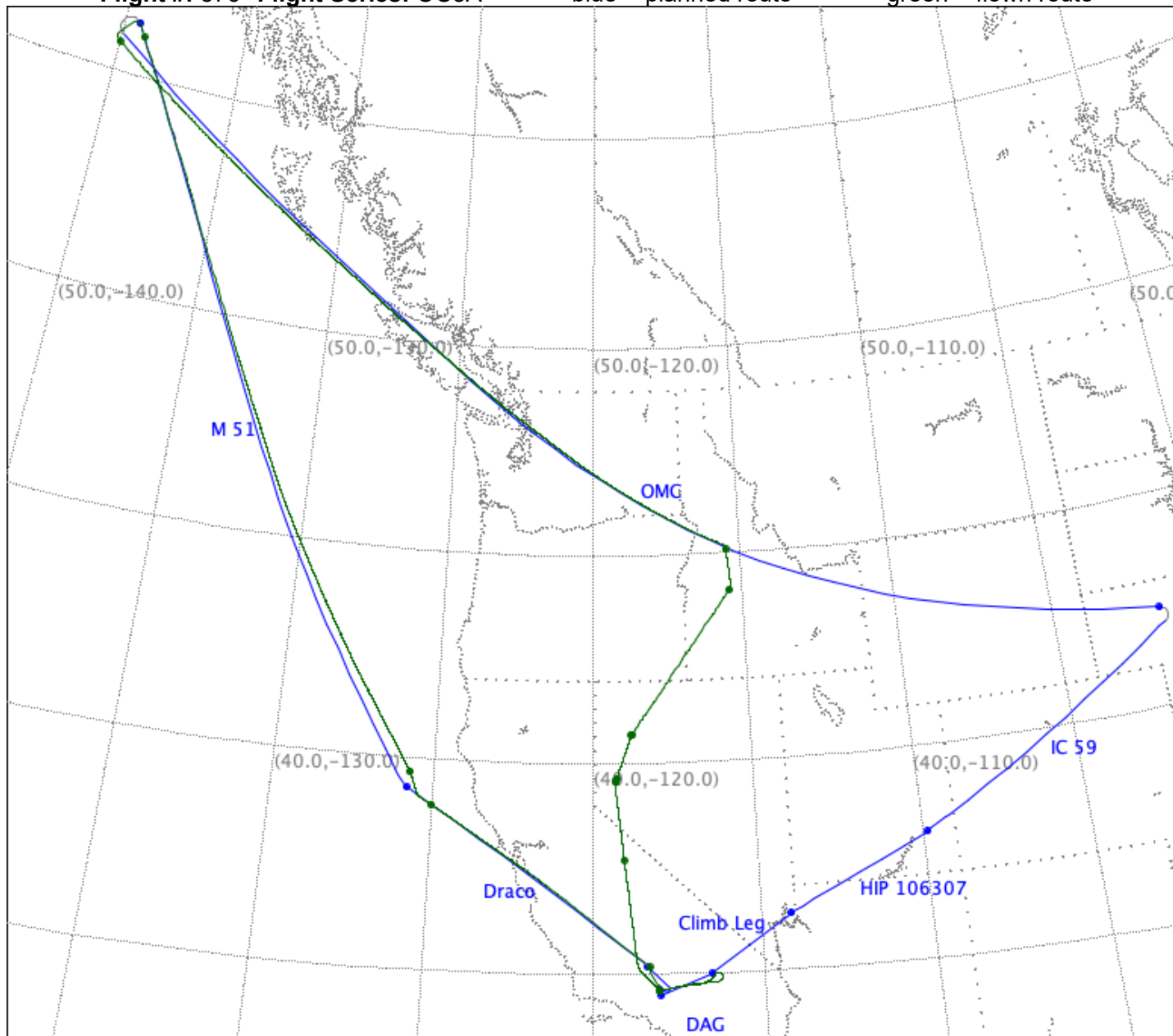
MISSION ID: 2017-02-16_GR_F376

Date: 2017-02-16 UT Instrument: GREAT

Flight #: 376 Flight Series: OC5A

blue = planned route

green = flown route

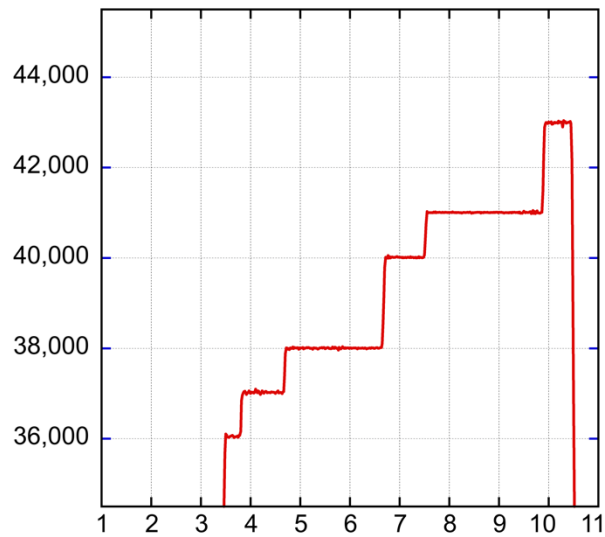


Flight notes: Late departure (2hr delay).

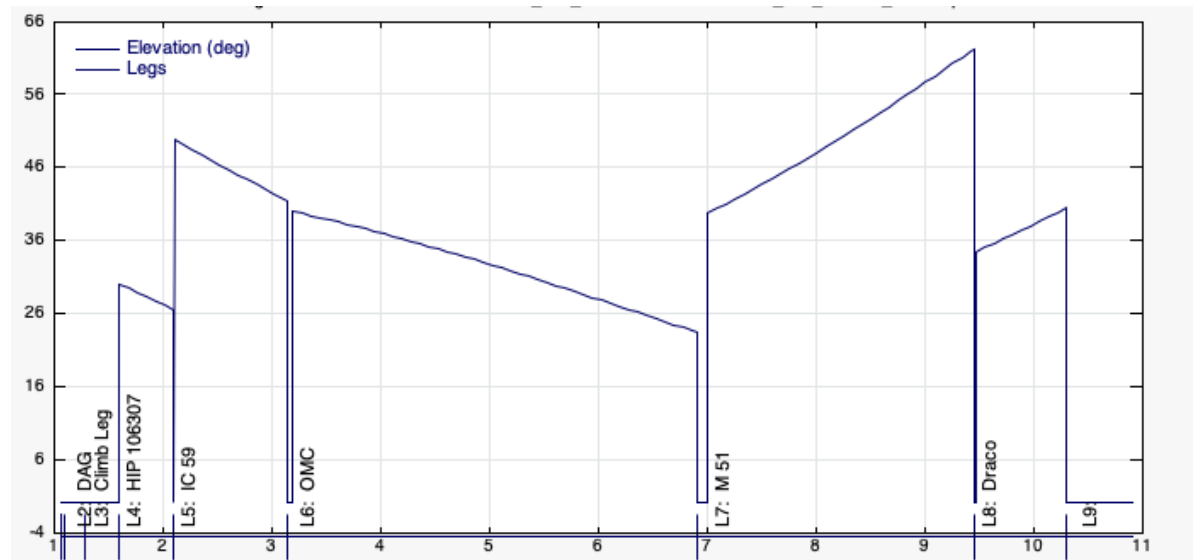
Flight 376 Mission ID 2017-02-16_GR_F376
 Palmdale to Palmdale Take off date UTC: 16-FEB-2017
 Departure UTC: 03:06 Arrival UTC: 10:51
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 106307	21h31m50.33s	61d44m31.4s	1:39	30	
5	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	2:09	62	Leg not flown due to late departure
6	04_0066	Tielens	OMC_CENTER	05h35m27.67s	-05d22m33.7s	3:14	223	Late departure; lost first 85min of leg
7	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:03	147	
8	05_0208	Schneider	DRACO_FRONT	16h50m54.00s	60d54m37.0s	9:31	50	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



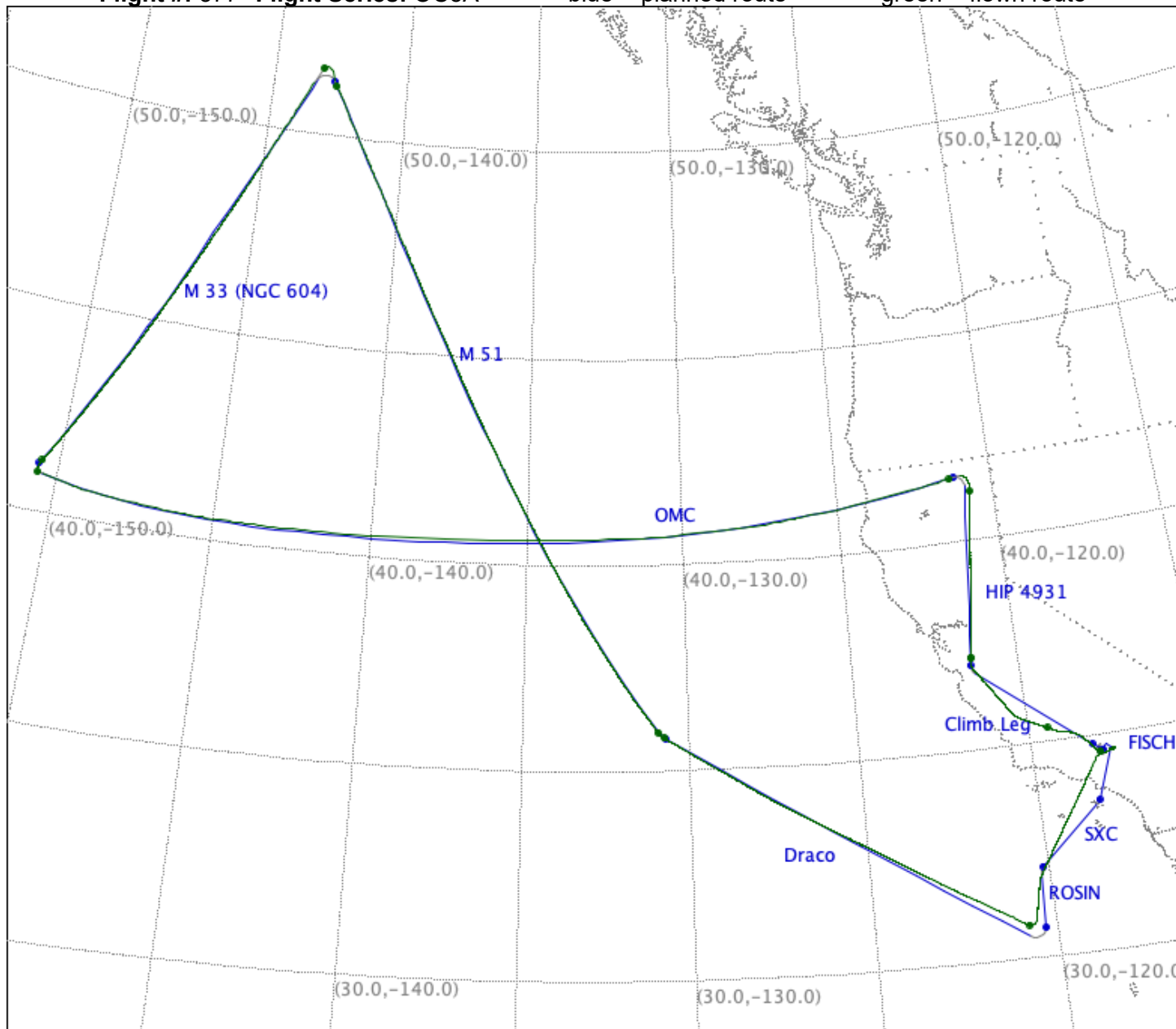
MISSION ID: 2017-02-17_GR_F377

Date: 2017-02-17 UT Instrument: GREAT

Flight #: 377 Flight Series: OC5A

blue = planned route

green = flown route



Flight notes:
No irregularities.

Flight 377 Mission ID
 Palmdale to Palmdale

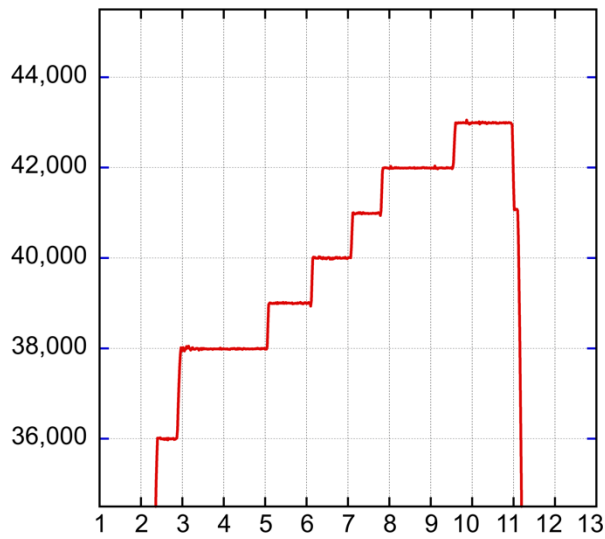
2017-02-17_GR_F377
 Take off date UTC:
 17-FEB-2017

Departure UTC: 01:57
 Arrival UTC: 11:44

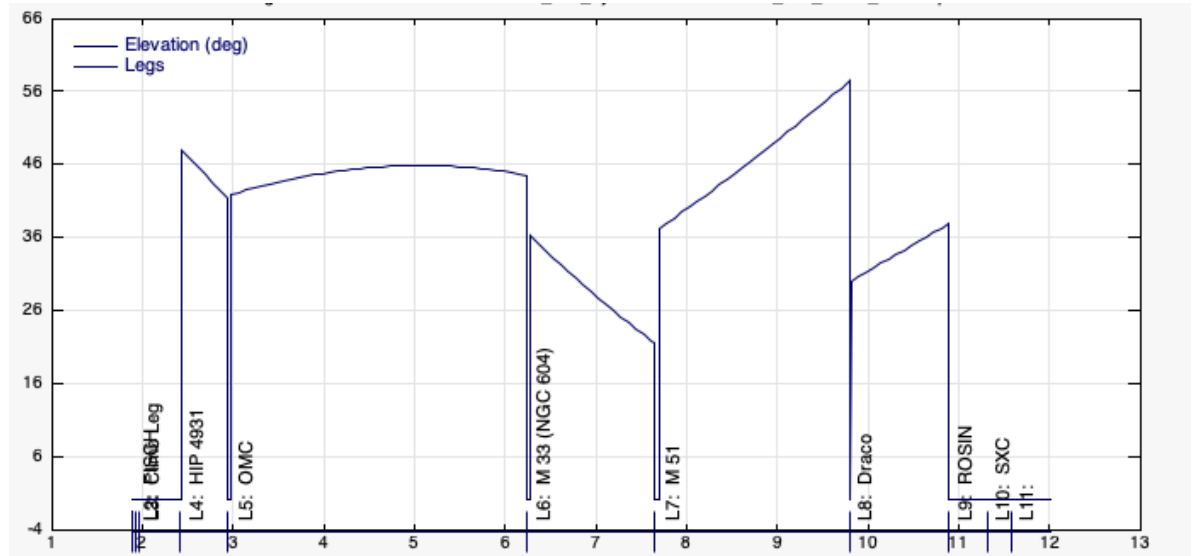
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 4931	01h03m16.59s	22d47m06.0s	2:31	30	
5	04_0066	Tielens	OMC_CENTER	05h35m27.67s	-05d22m33.7s	3:04	195	
6	04_0038	Kramer	M33-NGC595-4	01h33m33.90s	30d41m49.8s	6:22	82	
7	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:47	126	
8	05_0208	Schneider	DRACO_FRONT	16h50m54.00s	60d54m37.0s	9:54	65	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



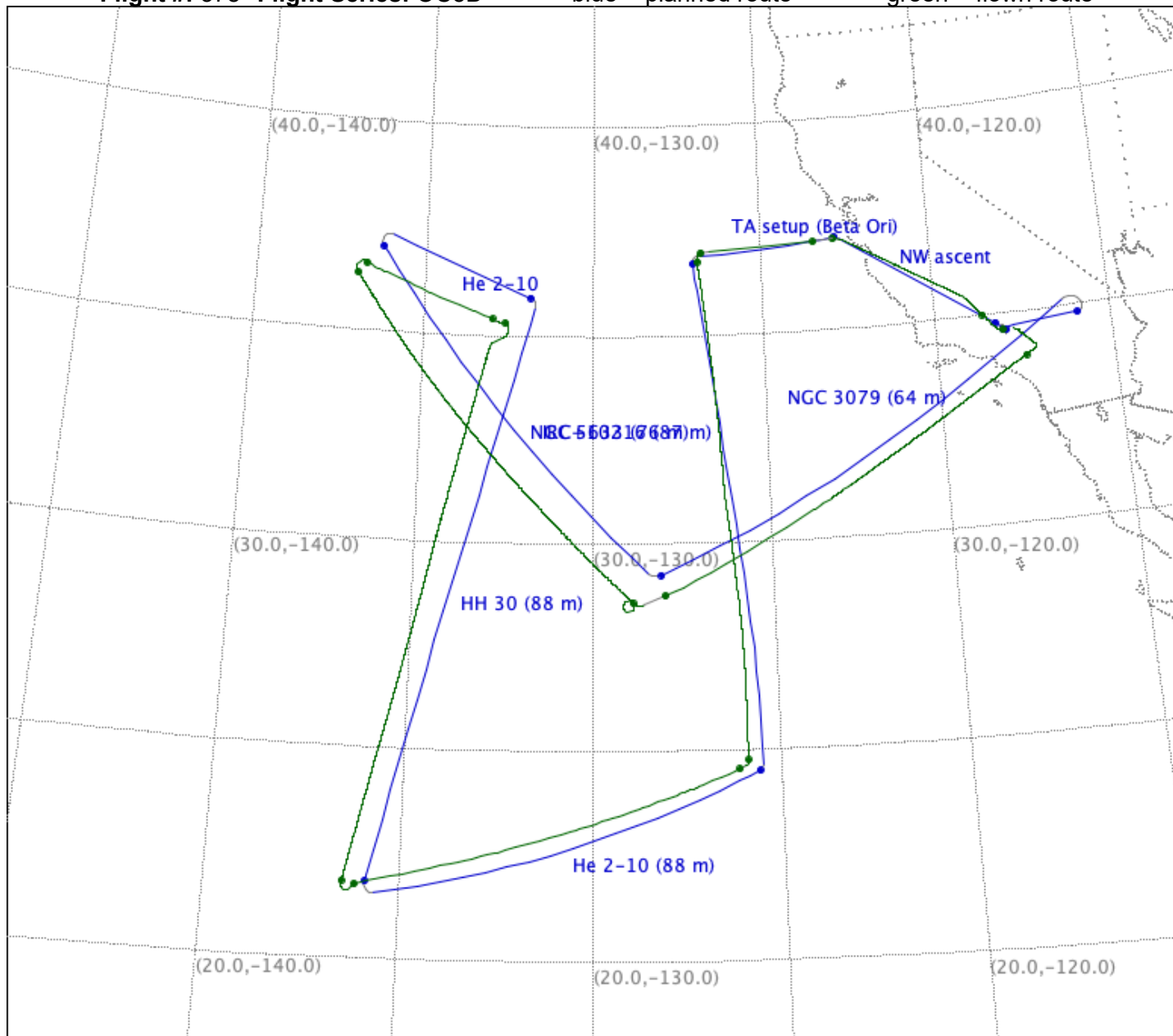
MISSION ID: 2017-02-25_FI_F378

Date: 2017-02-25 UT Instrument: FIFI-LS

Flight #: 378 Flight Series: OC5B

blue = planned route

green = flown route

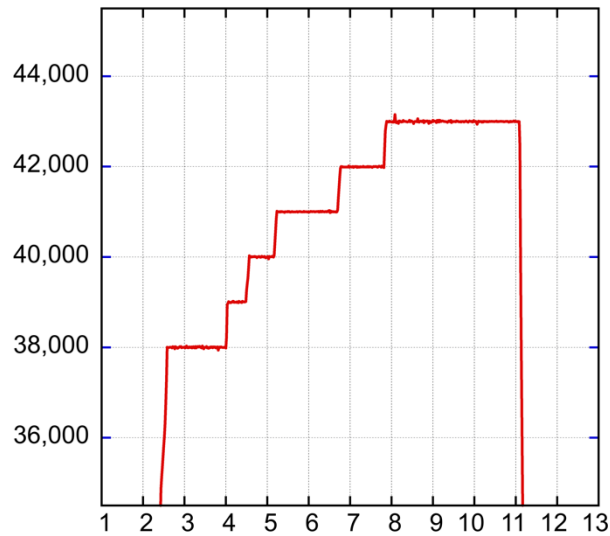


Flight notes: No irregularities.

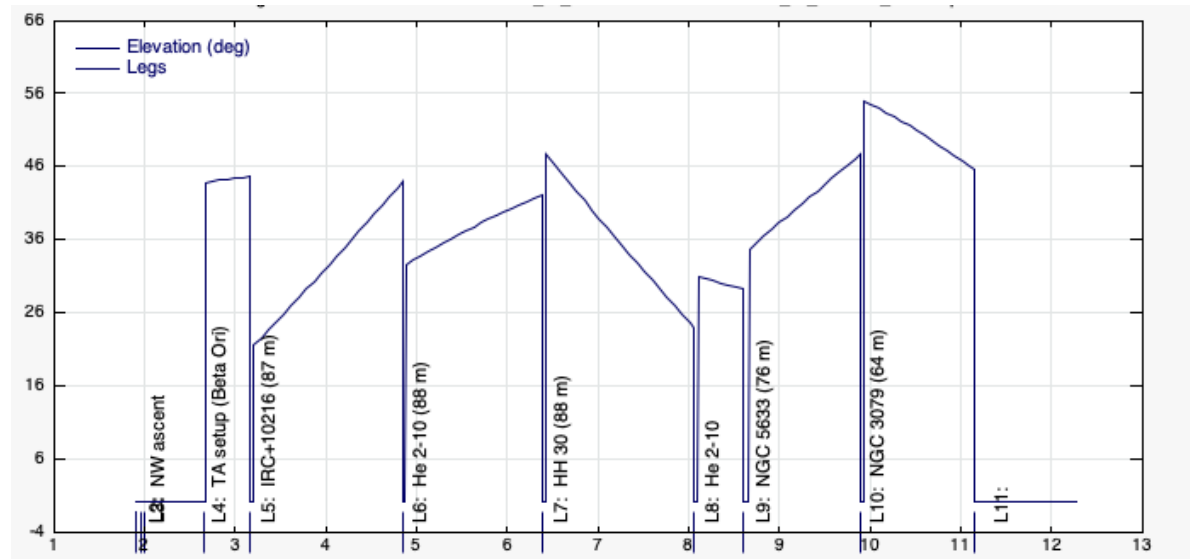
Flight 378 Mission ID 2017-02-25_FI_F378
 Palmdale to Palmdale Take off date UTC: 25-FEB-2017
 Departure UTC: 02:02 Arrival UTC: 11:38

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Beta Ori	05h14m32.00s	-08d12m06.0s	2:45	30	
5	90_0031	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	3:18	99	
6	70_0508	GTO	He 2-10	08h36m15.13s	-26d24m33.8s	4:58	90	FIFI-LS computer communication issues; 45min lost diagnosing
7	05_0200	Eisloeffel	HH30	04h31m37.50s	18d12m24.5s	6:31	98	
8	70_0508	GTO	He 2-10	08h36m15.13s	-26d24m33.8s	8:11	30	
9	05_0192	Herrera-Camus	NGC5633	14h27m28.38s	46d08m47.5s	8:45	76	
10	05_0020	Li	NGC3079 bubble	10h01m58.80s	55d40m51.0s	10:01	74	FIFI-LS red grating control failure; inoperable whole leg.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



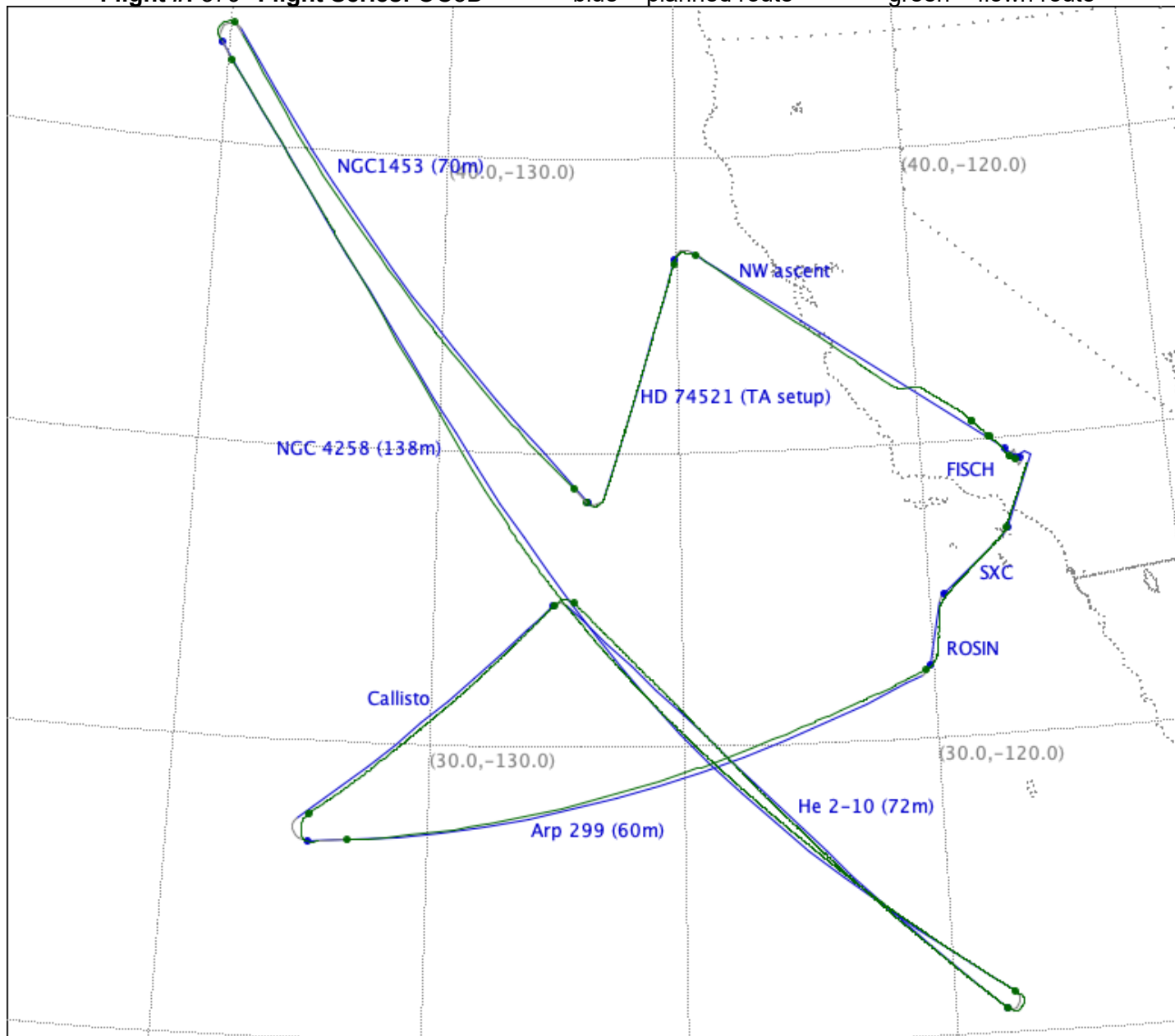
MISSION ID: 2017-02-28_FI_F379

Date: 2017-02-28 UT Instrument: FIFI-LS

Flight #: 379 Flight Series: OC5B

blue = planned route

green = flown route

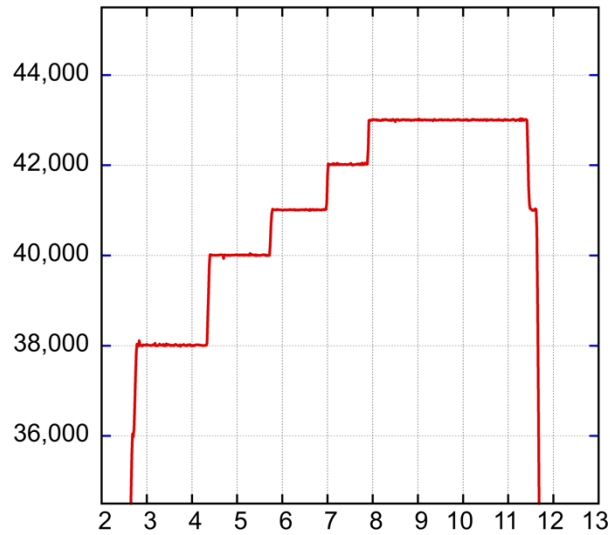


**Flight notes:
No irregularities.**

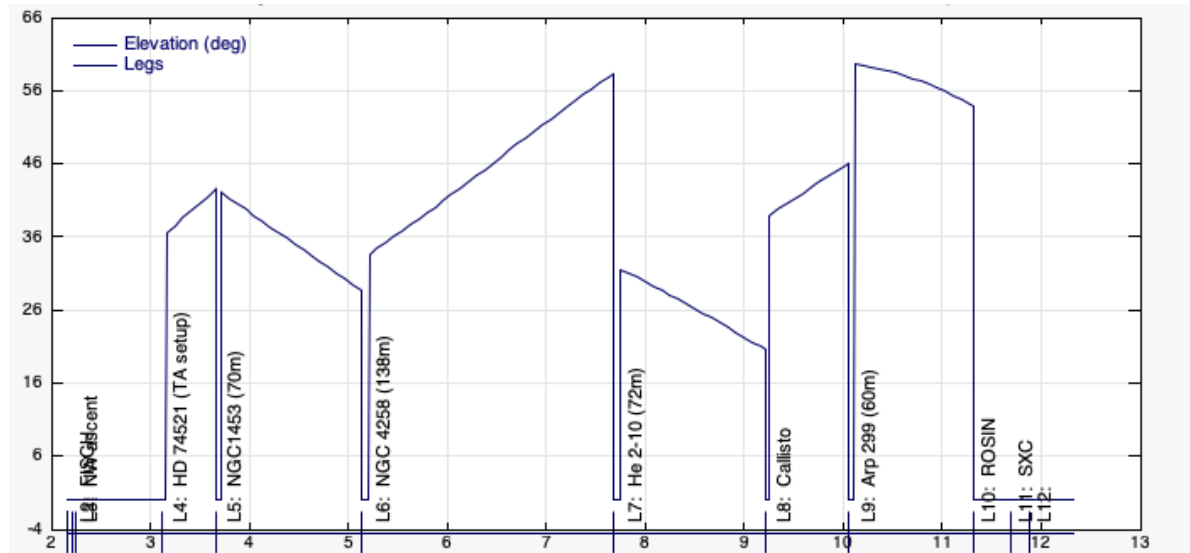
Flight 379 Mission ID 2017-02-28_FI_F379
 Palmdale to Palmdale Take off date UTC: 28-FEB-2017
 Departure UTC: 02:15 Arrival UTC: 12:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			BI Cnc	08h44m45.00s	10d04m54.0s	3:15	30	
5	05_0144	Temi	NGC1453	03h46m27.20s	-03d58m07.0s	3:48	85	
6	05_0014	Appleton	NGC 4258-North	12h18m57.13s	47d19m09.6s	5:17	148	
7	70_0508	GTO	He 2-10	08h36m15.13s	-26d24m33.8s	7:50	88	
8	90_0033	Calibration	Callisto	13h24m42.07s	-07d16m32.0s	9:20	48	
9	05_0111	Stacey	Arp 299 A	11h28m32.30s	58d33m44.9s	10:12	72	Vignetting by upper telescope door likely at beginning of leg.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



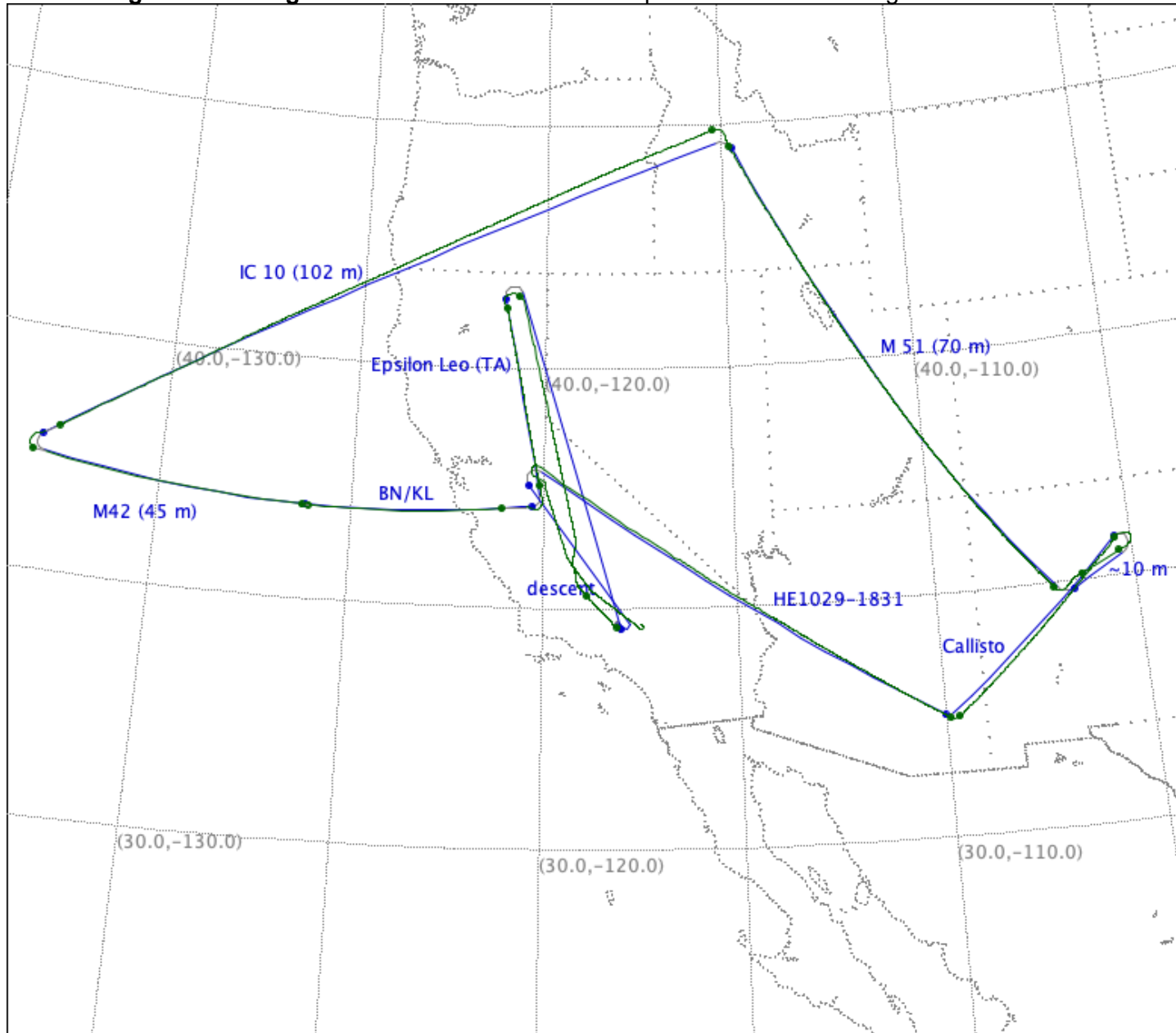
MISSION ID: 2017-03-01_FI_F380

Date: 2017-03-01 UT Instrument: FIFI-LS

Flight #: 380 Flight Series: OC5B

blue = planned route

green = flown route

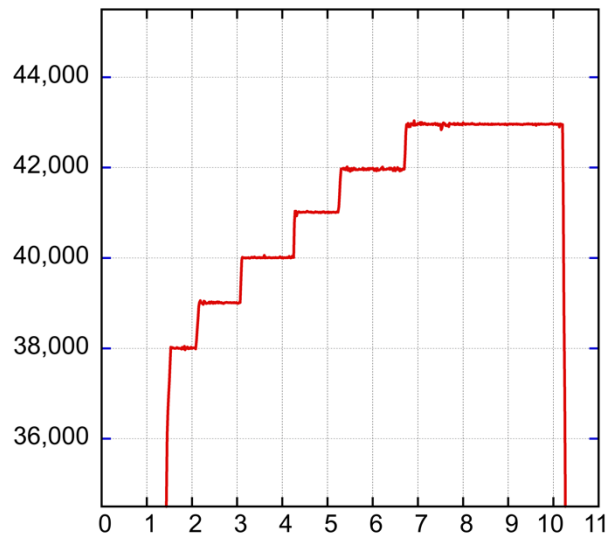


Flight notes: No irregularities.

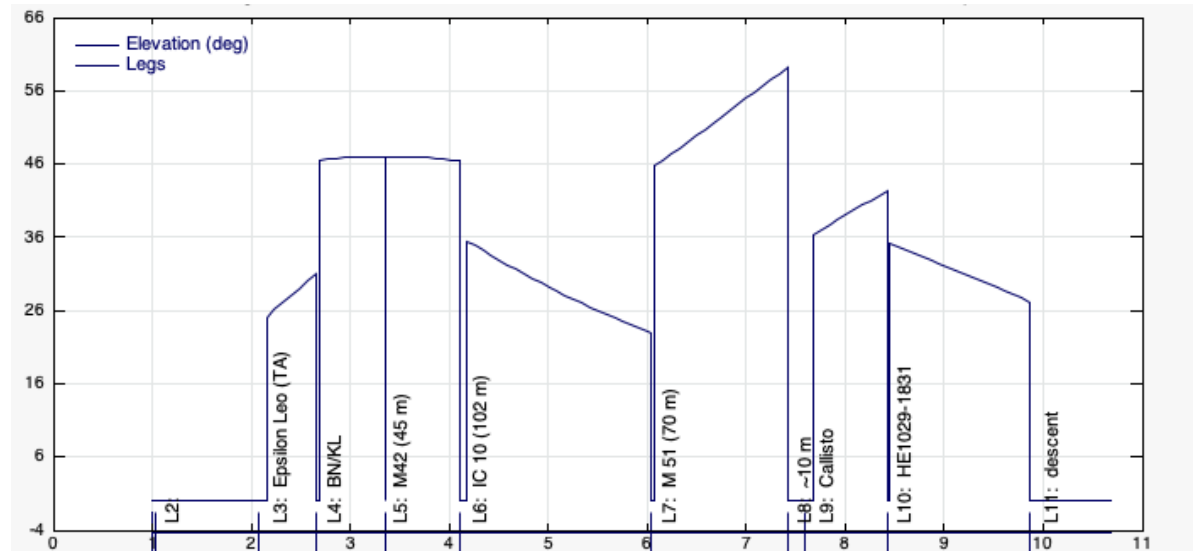
Flight 380 Mission ID 2017-03-01_FI_F380
 Palmdale to Palmdale Take off date UTC: 01-MAR-2017
 Departure UTC: 01:15 Arrival UTC: 10:40

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Epsilon Leo	09h45m51.00s	23d46m27.0s	2:12	30	
4	71_0013	Engineering	BN/KL	05h35m14.16s	-05d22m21.5s	2:44	40	
5	70_0508	GTO	M42	05h35m15.32s	-05d22m47.7s	3:24	45	
6	05_0084	Polles	IC10	00h20m19.80s	59d18m58.0s	4:13	112	
7	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:07	80	
9	90_0033	Calibration	Callisto	13h24m28.12s	-07d14m46.6s	7:43	45	
10	05_0077	Husemann	HE1029-1831	10h31m57.29s	-18d46m33.9s	8:29	85	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



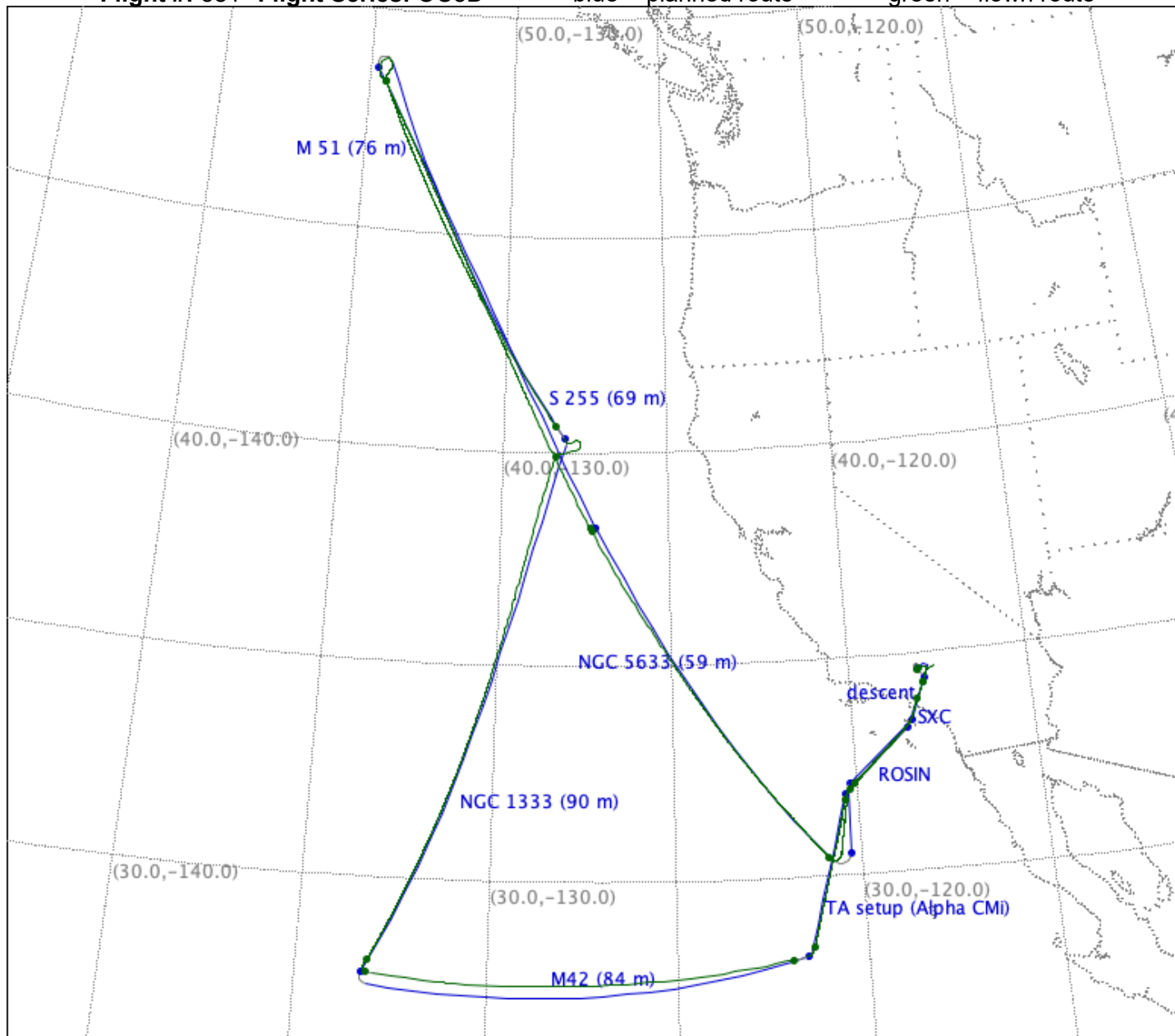
MISSION ID: 2017-03-02_FI_F381

Date: 2017-03-02 UT Instrument: FIFI-LS

Flight #: 381 Flight Series: OC5B

blue = planned route

green = flown route

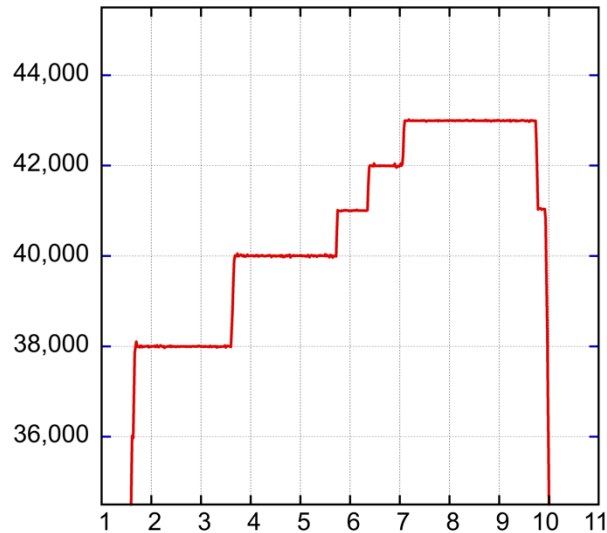


Flight notes: No irregularities.

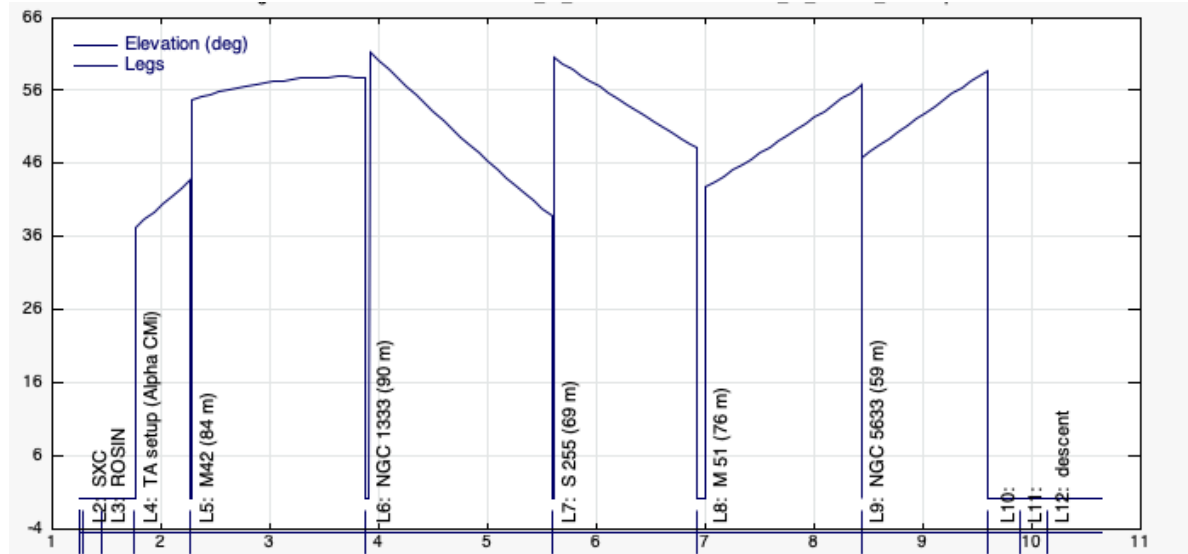
Flight 381 Mission ID 2017-03-02_FI_F381
 Palmdale to Palmdale Take off date UTC: 02-MAR-2017
 Departure UTC: 01:15 Arrival UTC: ~10:41

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha CMi	07h39m17.00s	05d13m12.0s	1:50	30	
5	70_0508	GTO	M42	05h35m15.32s	-05d22m47.7s	2:21	95	
6	05_0110	Peeters	NGC1333	03h29m09.30s	31d21m47.2s	3:59	100	Possible vignetting by upper telescope door at beginning of leg
7	05_0202	Stecklum	S255IR-NIRS3	06h12m54.01s	17d59m23.1s	5:40	79	
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	7:04	86	
9	05_0192	Herrera-Camus	NGC5633	14h27m28.38s	46d08m47.5s	8:30	69	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



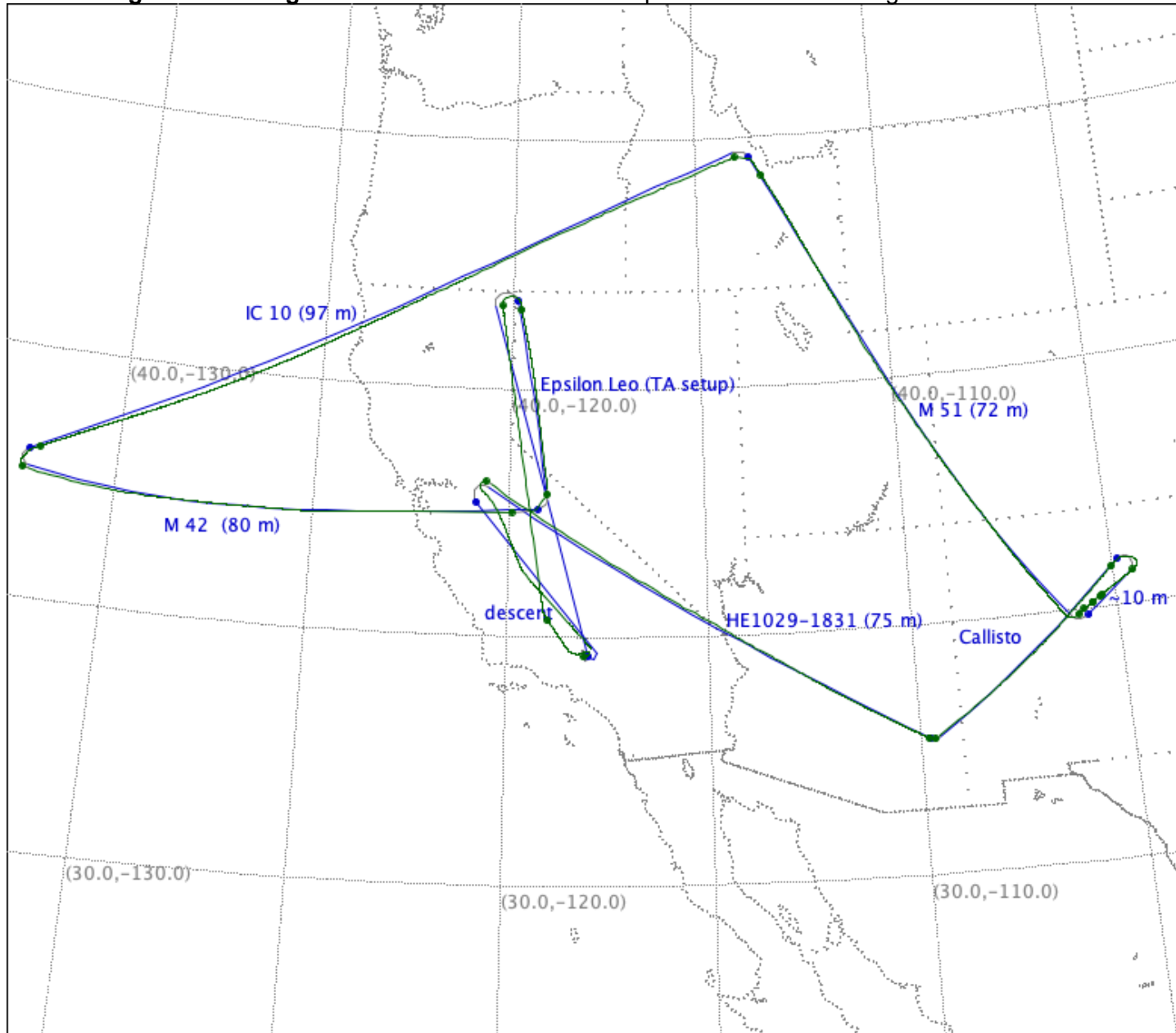
MISSION ID: 2017-03-03_FI_F382

Date: 2017-03-03 UT Instrument: FIFI-LS

Flight #: 382 Flight Series: OC5B

blue = planned route

green = flown route

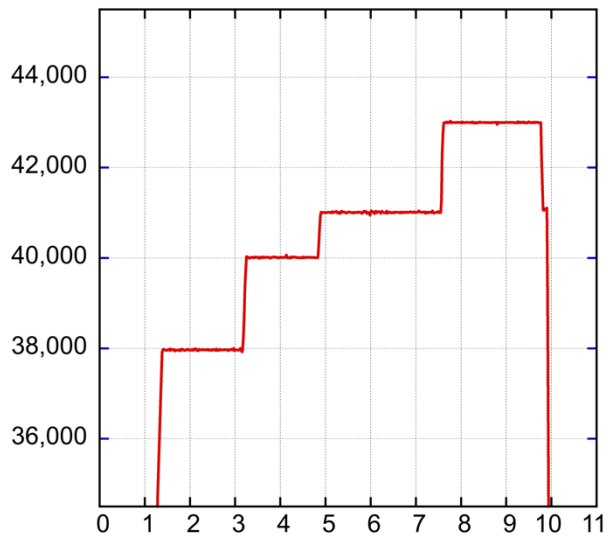


Flight notes: No irregularities.

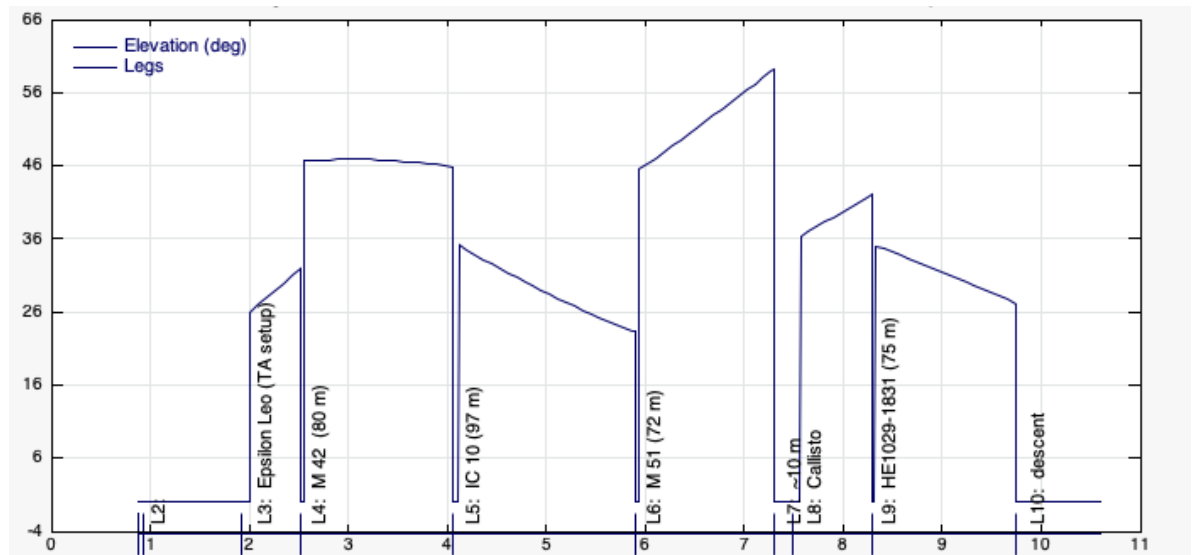
Flight 382 Mission ID 2017-03-03_FI_F382
 Palmdale to Palmdale Take off date UTC: 03-MAR-2017
 Departure UTC: 00:57 Arrival UTC: 10:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Epsilon Leo	09h45m51.00s	23d46m27.0s	2:03	30	
4	70_0508	GTO	M42	05h35m15.32s	-05d22m47.7s	2:36	90	
5	05_0084	Polles	IC10	00h20m19.80s	59d18m58.0s	4:09	107	
6	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	5:59	82	
8	90_0033	Calibration	Callisto	13h23m42.45s	-07d09m24.5s	7:36	44	
9	05_0077	Husemann	HE1029-1831	10h31m57.29s	-18d46m33.9s	8:22	85	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



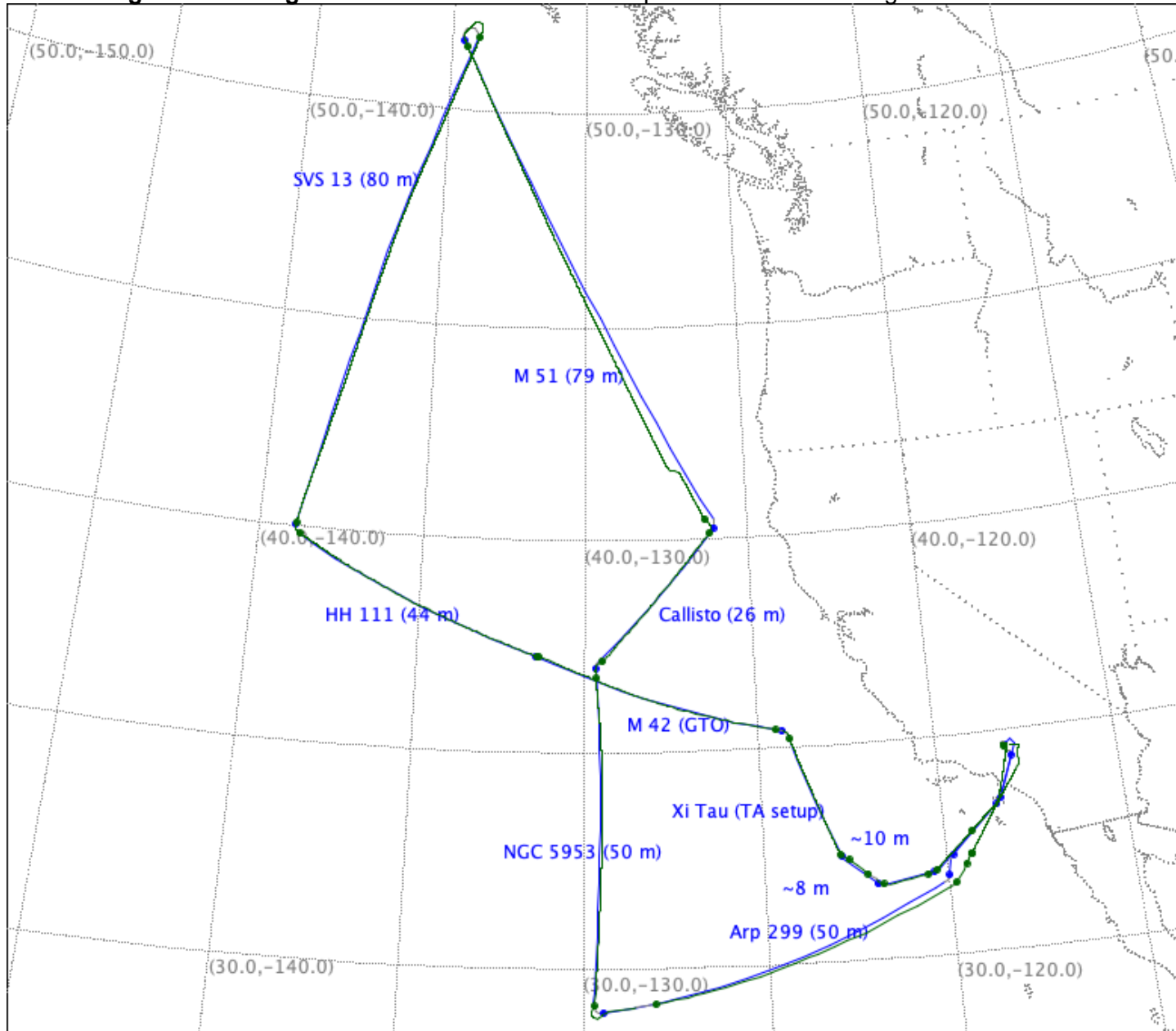
MISSION ID: 2017-03-07_FI_F383

Date: 2017-03-07 UT Instrument: FIFI-LS

Flight #: 383 Flight Series: OC5B

blue = planned route

green = flown route

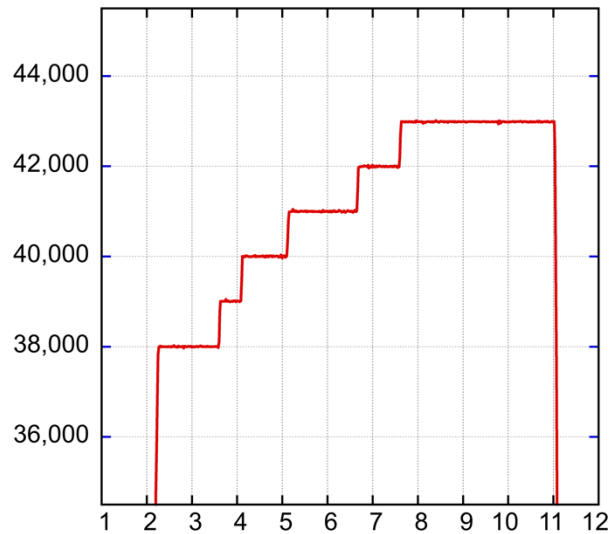


Flight notes: No irregularities.

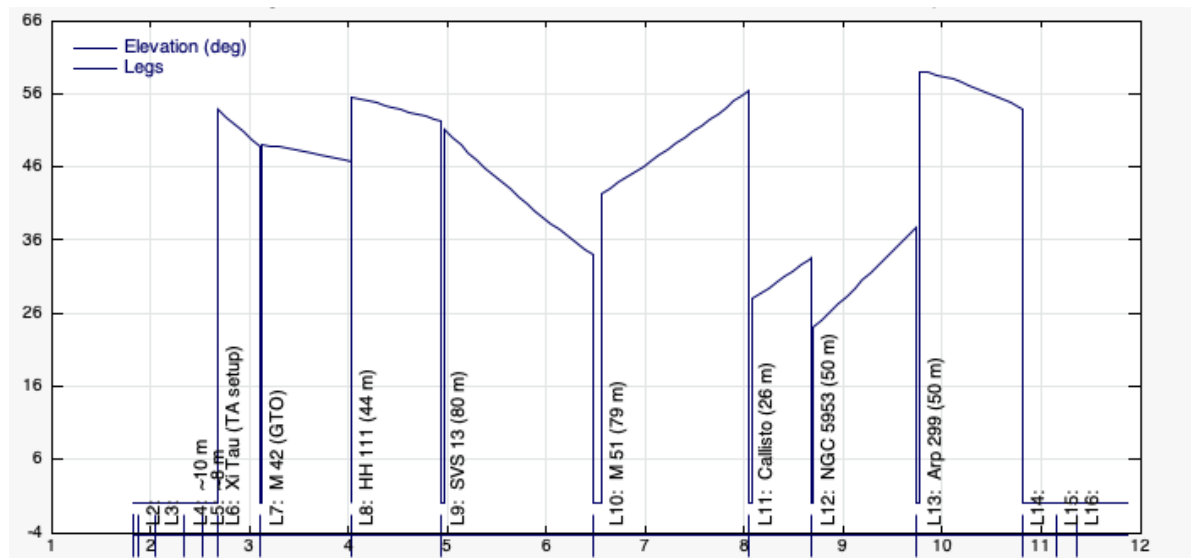
Flight 383 Mission ID 2017-03-03_FI_F383
 Palmdale to Palmdale Take off date UTC: 07-MAR-2017
 Departure UTC: 00:57 Arrival UTC: 10:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			Xi Tau	03h27m10.00s	09d43m57.0s	2:45	25	
7	70_0508	GTO	M42	05h35m15.32s	-05d22m47.7s	3:11	54	
8	05_0200	Eisloeffel	HH111	05h51m44.20s	02d48m34.0s	4:05	54	
9	05_0200	Eisloeffel	SVS13	03h29m03.74s	31d16m03.9s	5:01	90	
10	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:37	89	
11	90_0033	Calibration	Callisto	13h21m42.40s	-06d56m25.8s	8:08	36	
12	05_0192	Herrera-Camus	NGC5953	15h34m32.38s	15d11m37.6s	8:45	62	
13	05_0111	Stacey	Arp 299 A	11h28m32.30s	58d33m44.9s	9:50	62	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



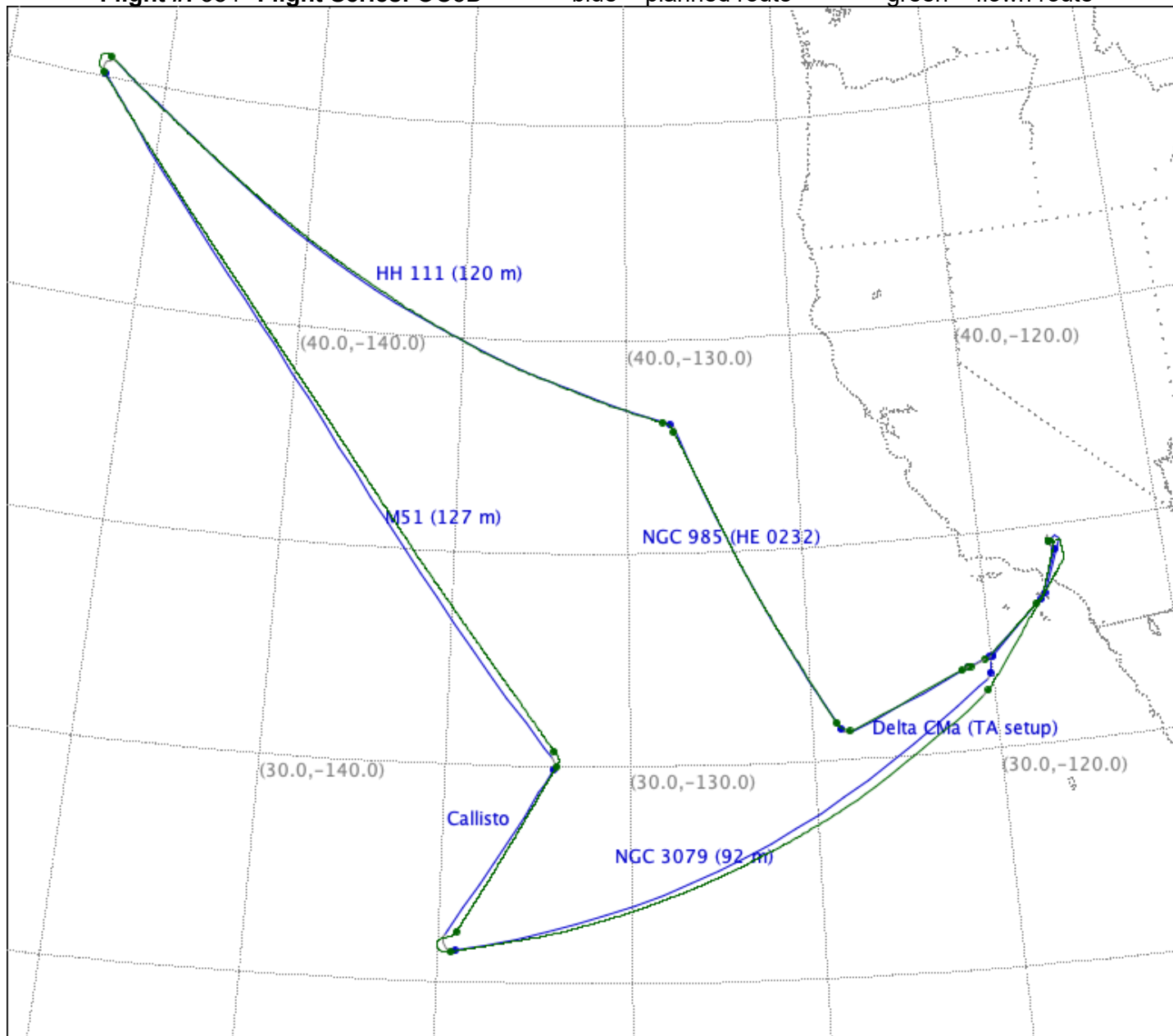
MISSION ID: 2017-03-08_FI_F384

Date: 2017-03-08 UT Instrument: FIFI-LS

Flight #: 384 Flight Series: OC5B

blue = planned route

green = flown route

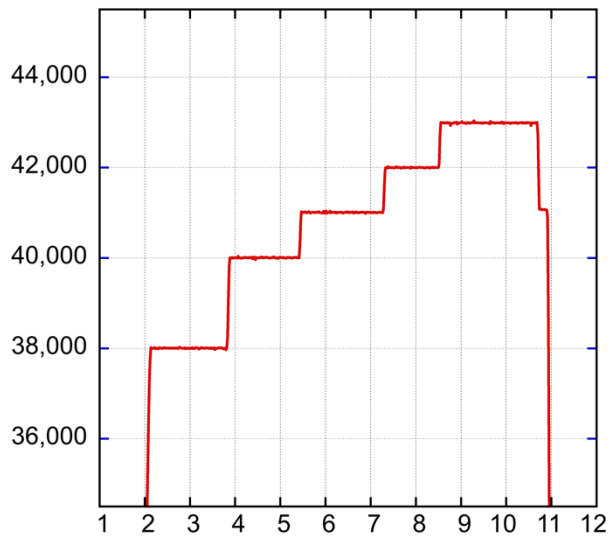


**Flight notes:
No irregularities.**

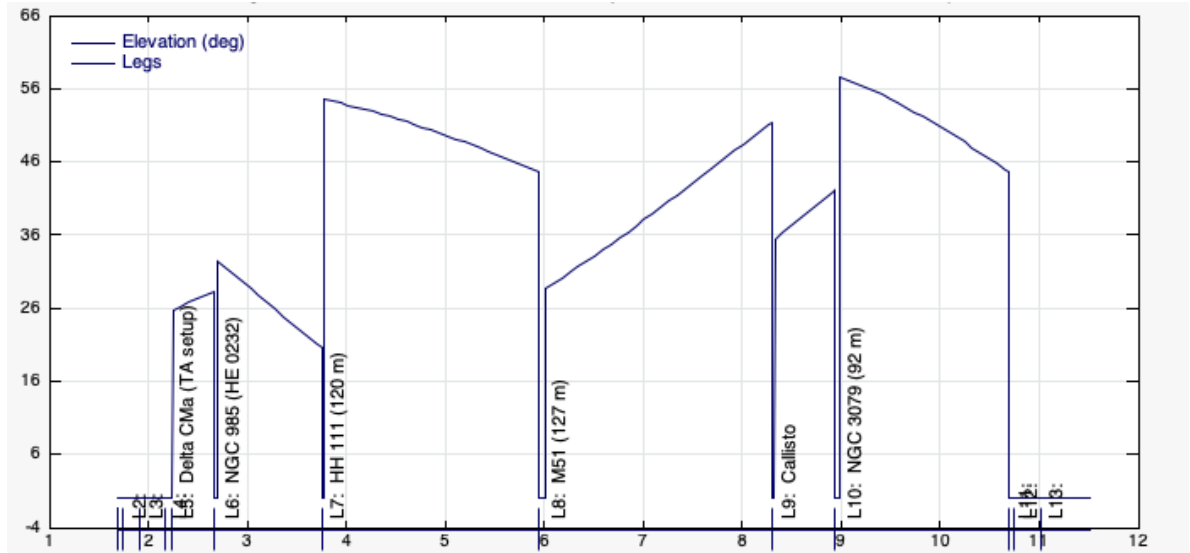
Flight 384 Mission ID 2017-03-08_FI_F384
 Palmdale to Palmdale Take off date UTC: 08-MAR-2017
 Departure UTC: 01:41 Arrival UTC: 11:21

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Delta CMa	07h08m23.00s	-26d23m35.0s	2:18	25	
6	05_0077	Husemann	HE0232-0900	02h34m37.77s	-08d47m15.4s	2:46	63	Bright sky caused acquisition and guiding issues at beginning of leg led to loss of half the observing time on leg
7	05_0200	Eisloeffel	HH111	05h51m44.20s	02d48m34.0s	3:50	130	
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:04	137	
9	90_0033	Calibration	Callisto	13h21m17.08s	-06d53m50.9s	8:23	36	
10	05_0020	Li	NGC3079 bubble	10h01m58.80s	55d40m51.0s	9:03	102	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



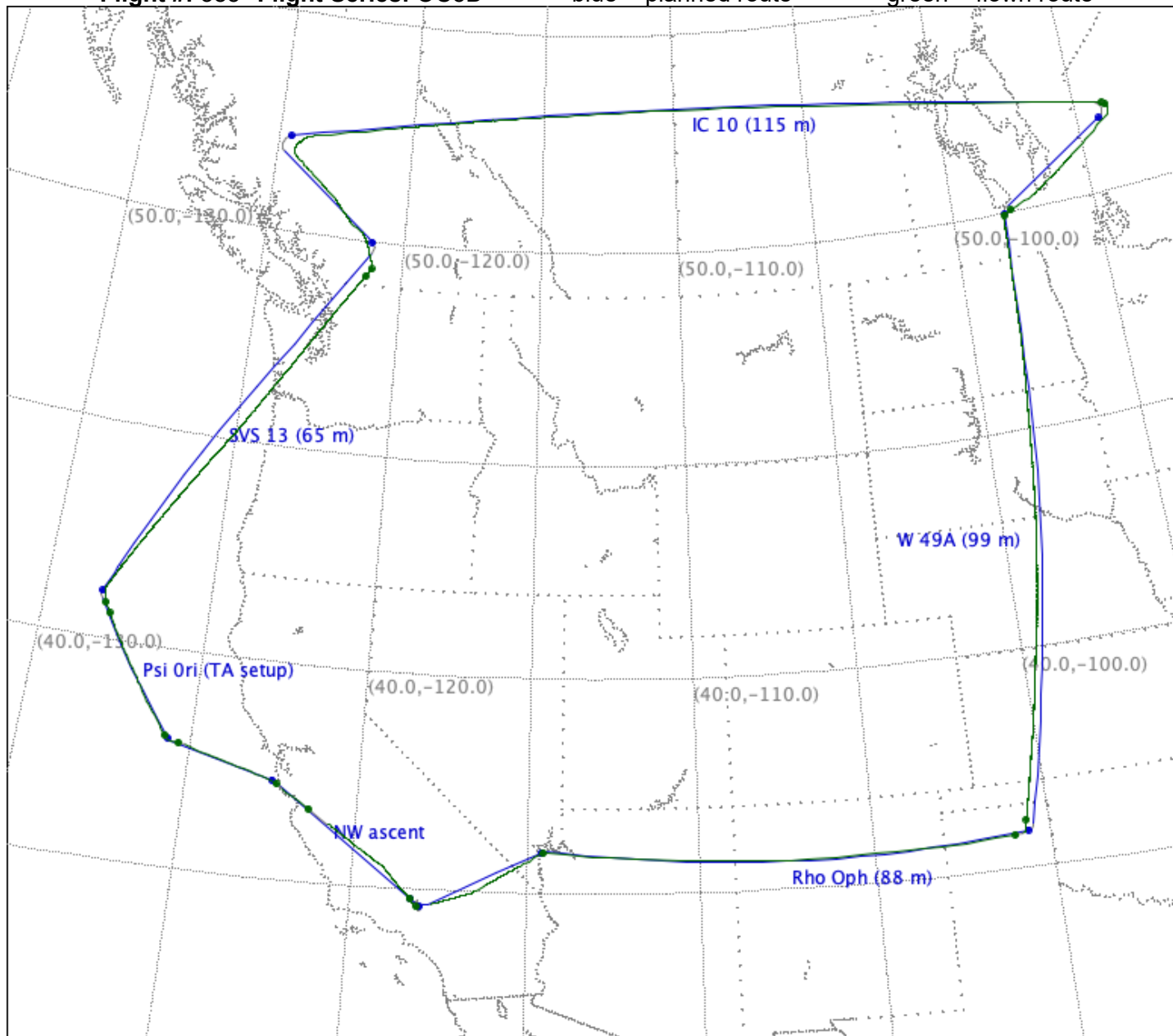
MISSION ID: 2017-03-09_FI_F385

Date: 2017-03-09 UT Instrument: FIFI-LS

Flight #: 385 Flight Series: OC5B

blue = planned route

green = flown route

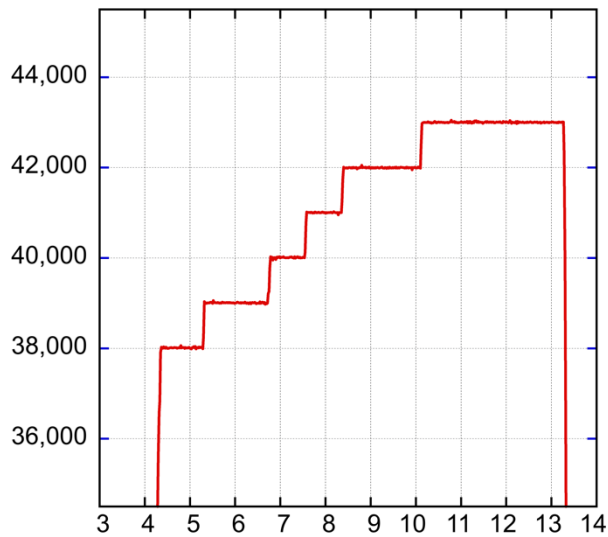


Flight notes:
No irregularities.

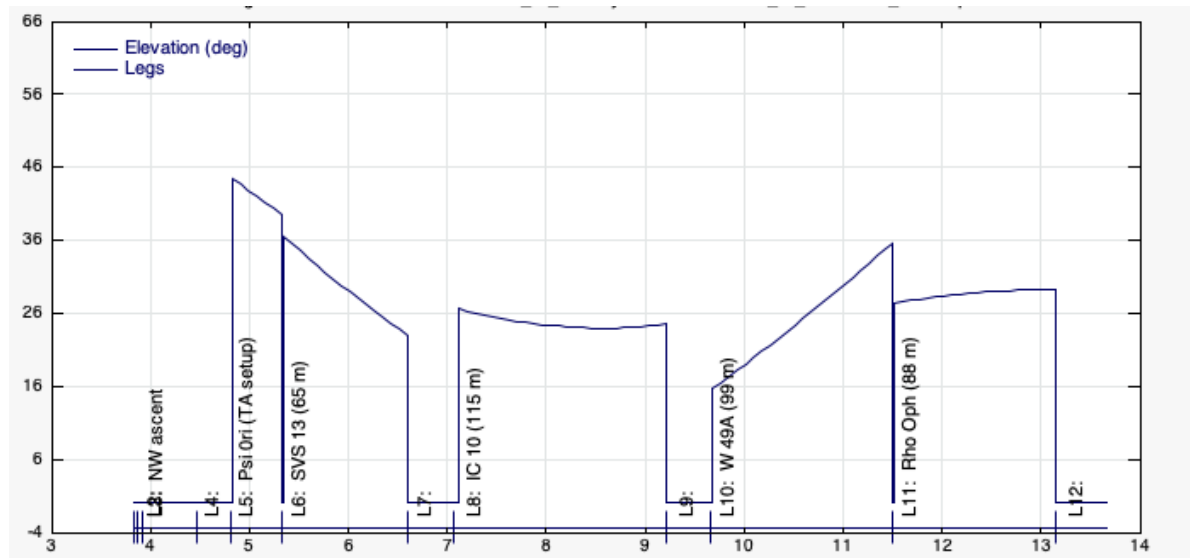
Flight 385 Mission ID 2017-03-09_FI_F385
 Palmdale to Palmdale Take off date UTC: 09-MAR-2017
 Departure UTC: 03:55 Arrival UTC: 13:44

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HD 35715	05h26m50.00s	03d05m44.0s	4:54	30	
6	05_0200	Eisloeffel	SVS13	03h29m03.74s	31d16m03.9s	5:25	75	FIFI-LS software crash at start of leg led to minor loss of time.
8	05_0084	Polles	IC10	00h20m19.80s	59d18m58.0s	7:12	125	
10	05_0110	Peeters	W49A	19h10m13.00s	09d07m27.2s	9:45	109	Possible vignetting by lower telescope door at beginning of leg.
11	05_0110	Peeters	Ophiuchus-W	16h27m07.60s	-24d28m02.0s	11:36	98	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



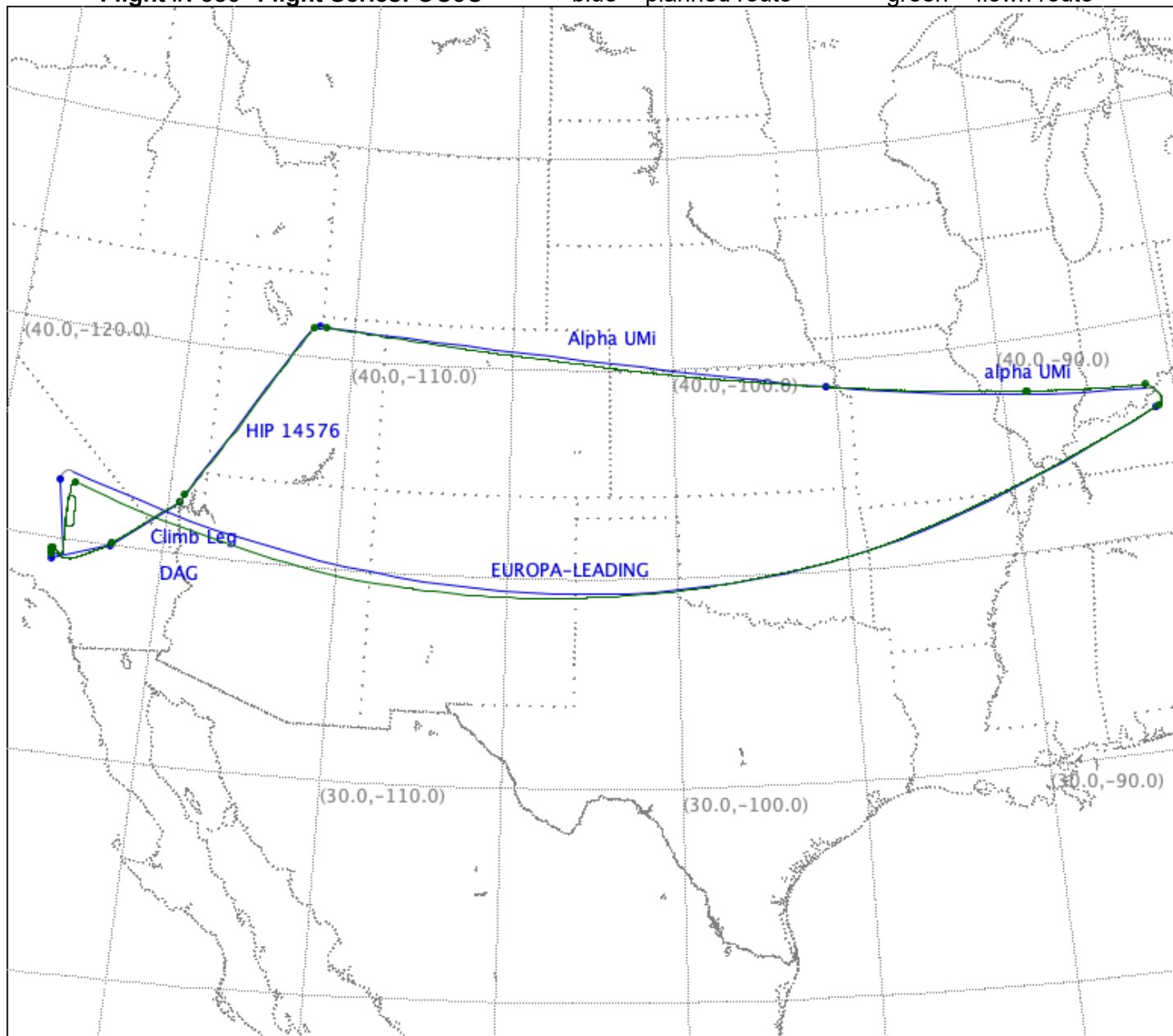
MISSION ID: 2017-03-15_EX_F386

Date: 2017-03-15 UT Instrument: EXES

Flight #: 386 Flight Series: OC5C

blue = planned route

green = flown route

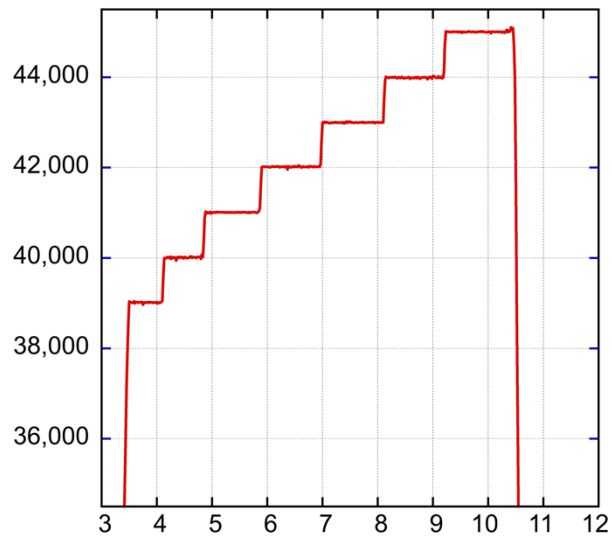


**Flight notes:
No irregularities.**

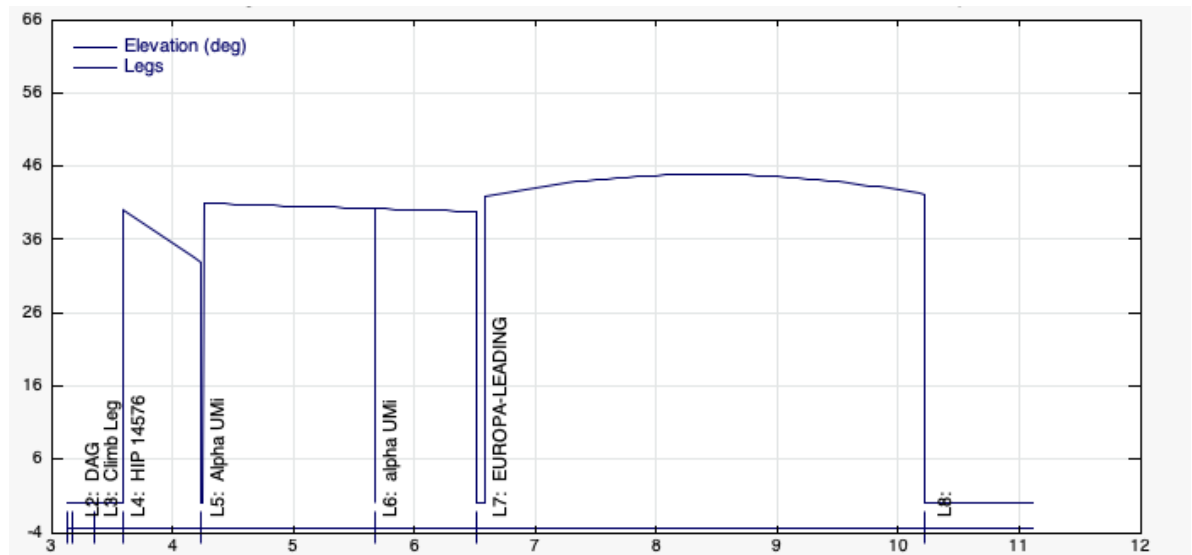
Flight 386 Mission ID 2017-03-15_EX_F386
 Palmdale to Palmdale Take off date UTC: 15-MAR-2017
 Departure UTC: 03:07 Arrival UTC: 10:56

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 14576	03h08m10.13s	40d57m20.3s	3:38	38	
5			Alpha UMi	02h31m49.10s	89d15m50.8s	4:18	85	
6	05_0153	Sparks	alpha UMi	02h31m49.09s	89d15m50.8s	5:43	50	
7	05_0153	Sparks	EUROPA-LEADING	13h19m35.13s	-06d43m00.5s	6:37	218.3	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



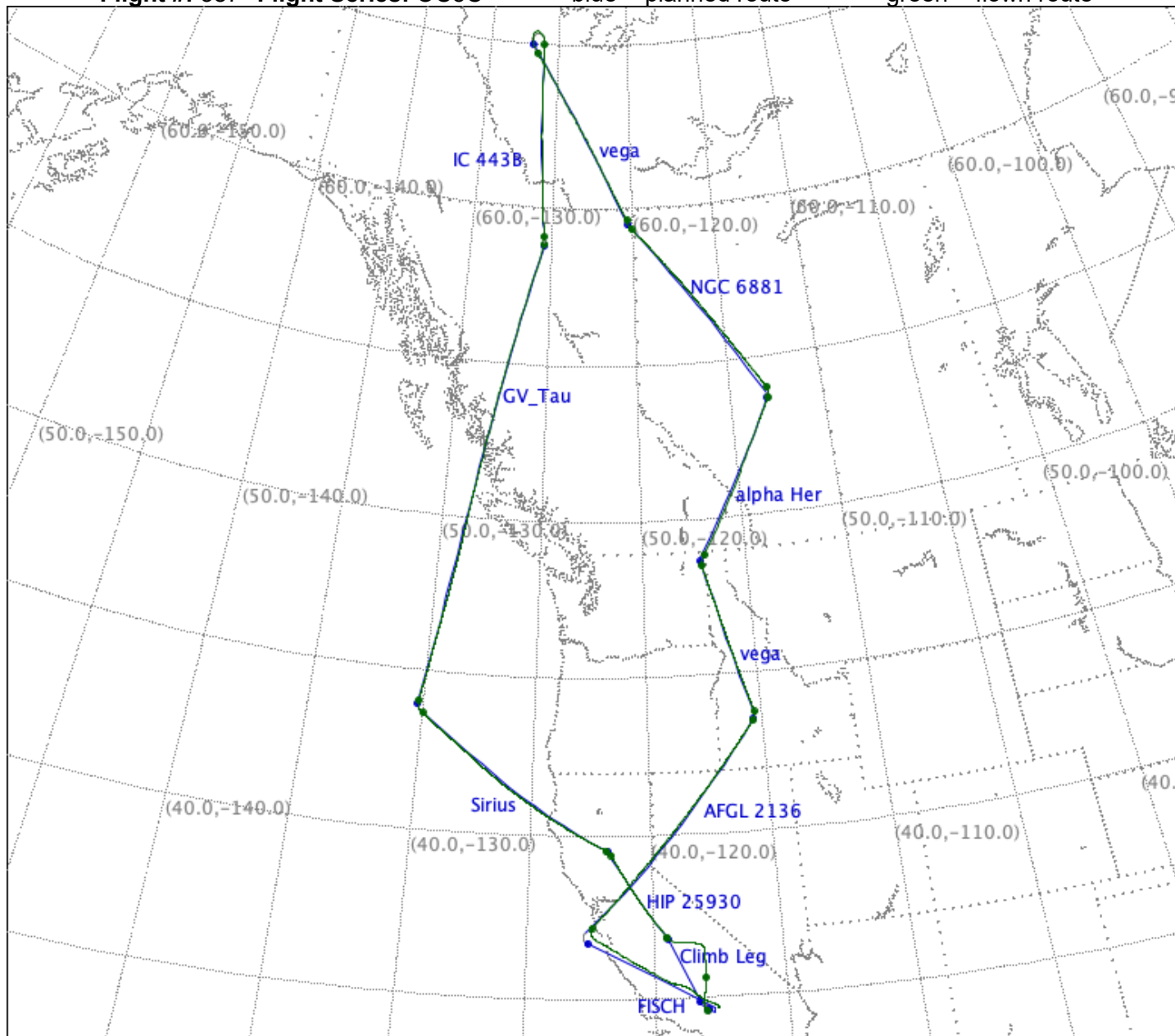
MISSION ID: 2017-03-16_EX_F387

Date: 2017-03-16 UT Instrument: EXES

Flight #: 387 Flight Series: OC5C

blue = planned route

green = flown route

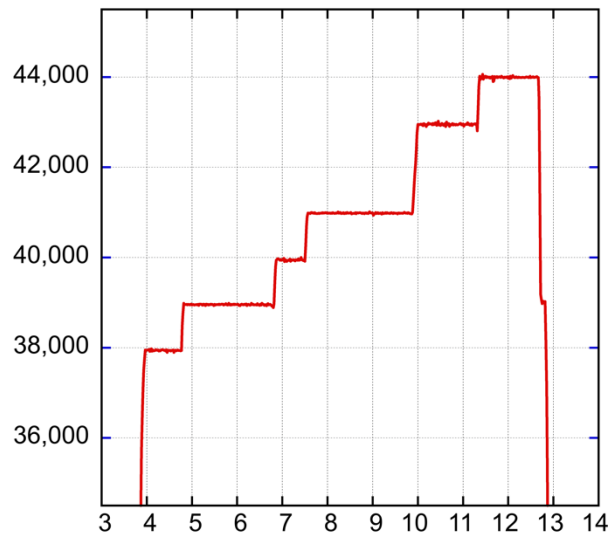


Flight notes: No irregularities.

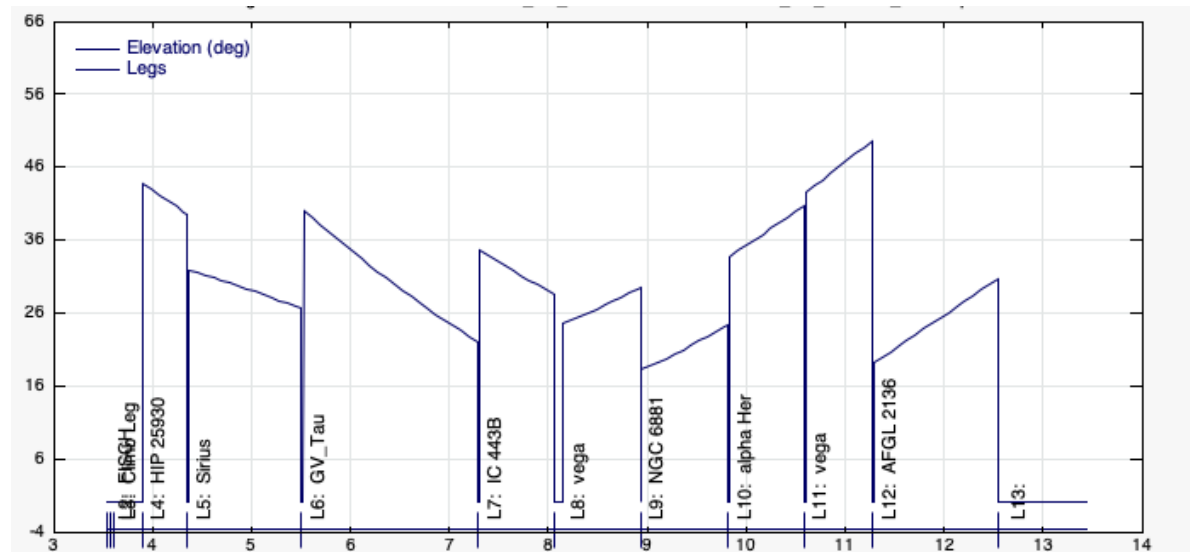
Flight 387 Mission ID 2017-03-16_EX_F387
 Palmdale to Palmdale Take off date UTC: 16-MAR-2017
 Departure UTC: 03:31 Arrival UTC: 13:14

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 25930	05h32m00.40s	-00d17m56.7s	3:59	27	
5	05_0097	Carr	Sirius	06h45m08.90s	-16d42m58.0s	4:27	68	
6	05_0097	Carr	GV Tau_HCOOH	04h29m23.70s	24d33m00.0s	5:37	106	Possible guiding stability issues.
7	75_0018	Discretionary	IC 443B	06h17m13.97s	22d23m16.0s	7:23	45	
8	05_0121	Dinerstein	vega	18h36m56.34s	38d47m01.3s	8:14	47	
9	05_0121	Dinerstein	NGC 6881	20h10m52.40s	37d24m42.0s	9:02	52	EXES software communication failure; 20mins lost recovering.
10	05_0073	Harper	alpha Her	17h14m38.80s	14d23m25.0s	9:55	45	
11	05_0041	Tielens	vega	18h36m56.34s	38d47m01.3s	10:41	40	
12	05_0041	Tielens	AFGL 2136	18h22m26.50s	-13d30m15.0s	11:23	75	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



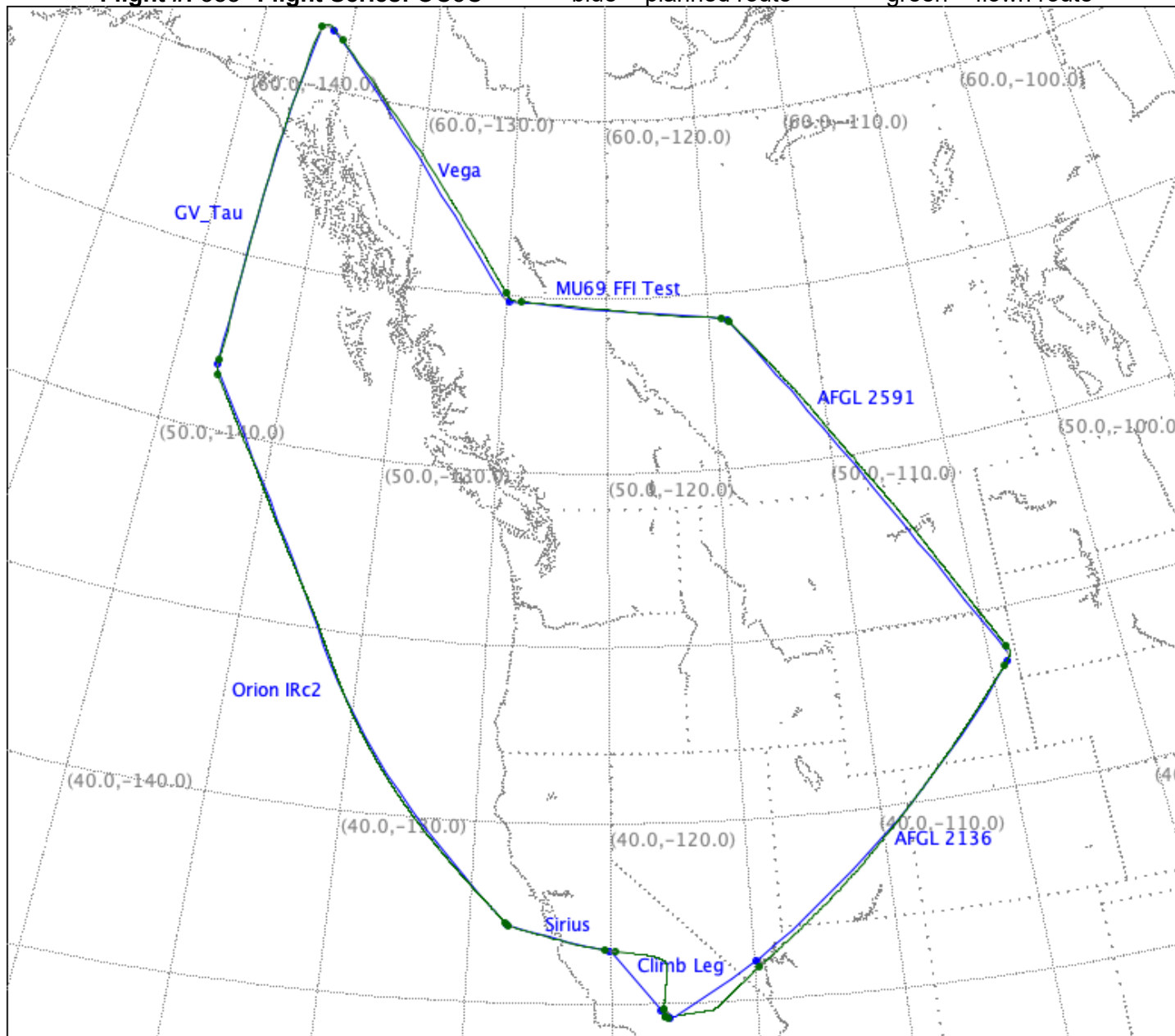
MISSION ID: 2017-03-17_EX_F388

Date: 2017-03-17 UT Instrument: EXES

Flight #: 388 Flight Series: OC5C

blue = planned route

green = flown route

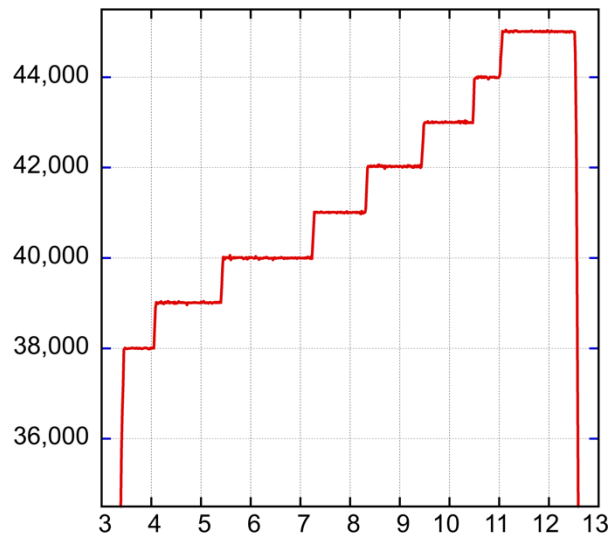


Flight notes:
No irregularities.

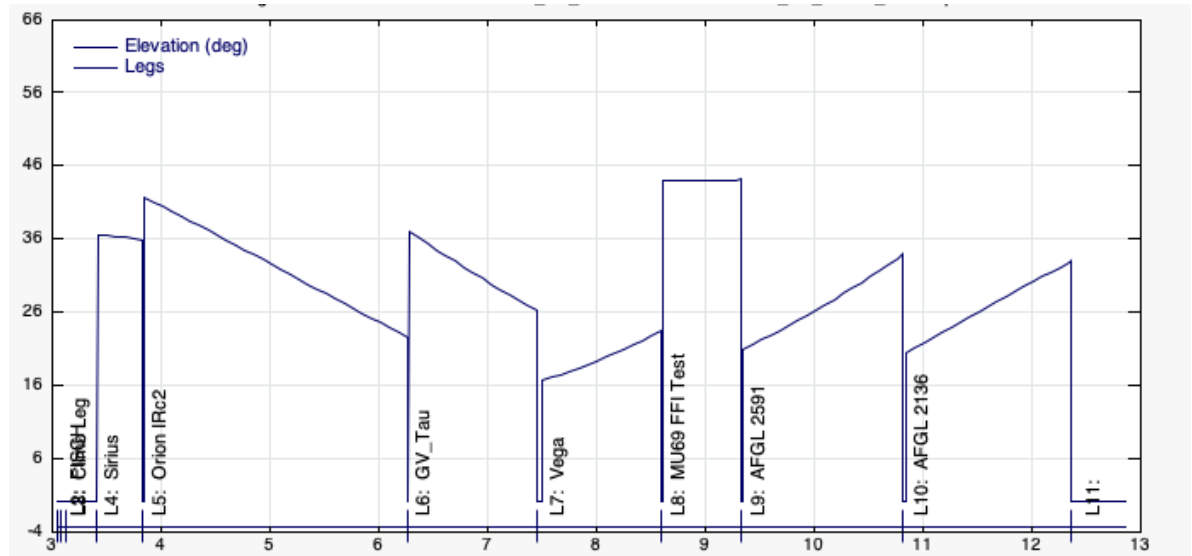
Flight 388 Mission ID 2017-03-17_EX_F388
 Palmdale to Palmdale Take off date UTC: 17-MAR-2017
 Departure UTC: 03:01 Arrival UTC: 12:59

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Sirius	06h45m08.92s	-16d42m58.0s	3:31	25	
5	05_0043	Rangwala	Orion IRc2	05h35m14.40s	-05d22m29.0s	3:56	145	Turbulence.
6	05_0097	Carr	GV_Tau_HCOOH	04h29m23.70s	24d33m00.0s	6:22	70	
7	05_0097	Carr	Vega	18h36m56.34s	38d47m01.3s	7:36	65	
8	71_0012	Engineering	mu69	23h21m14.00s	80d33m15.0s	8:42	43	
9	05_0041	Tielens	AFGL 2591	20h29m24.80s	40d11m19.0s	9:26	88	
10	05_0041	Tielens	AFGL 2136	18h22m26.50s	-13d30m15.0s	10:56	91	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



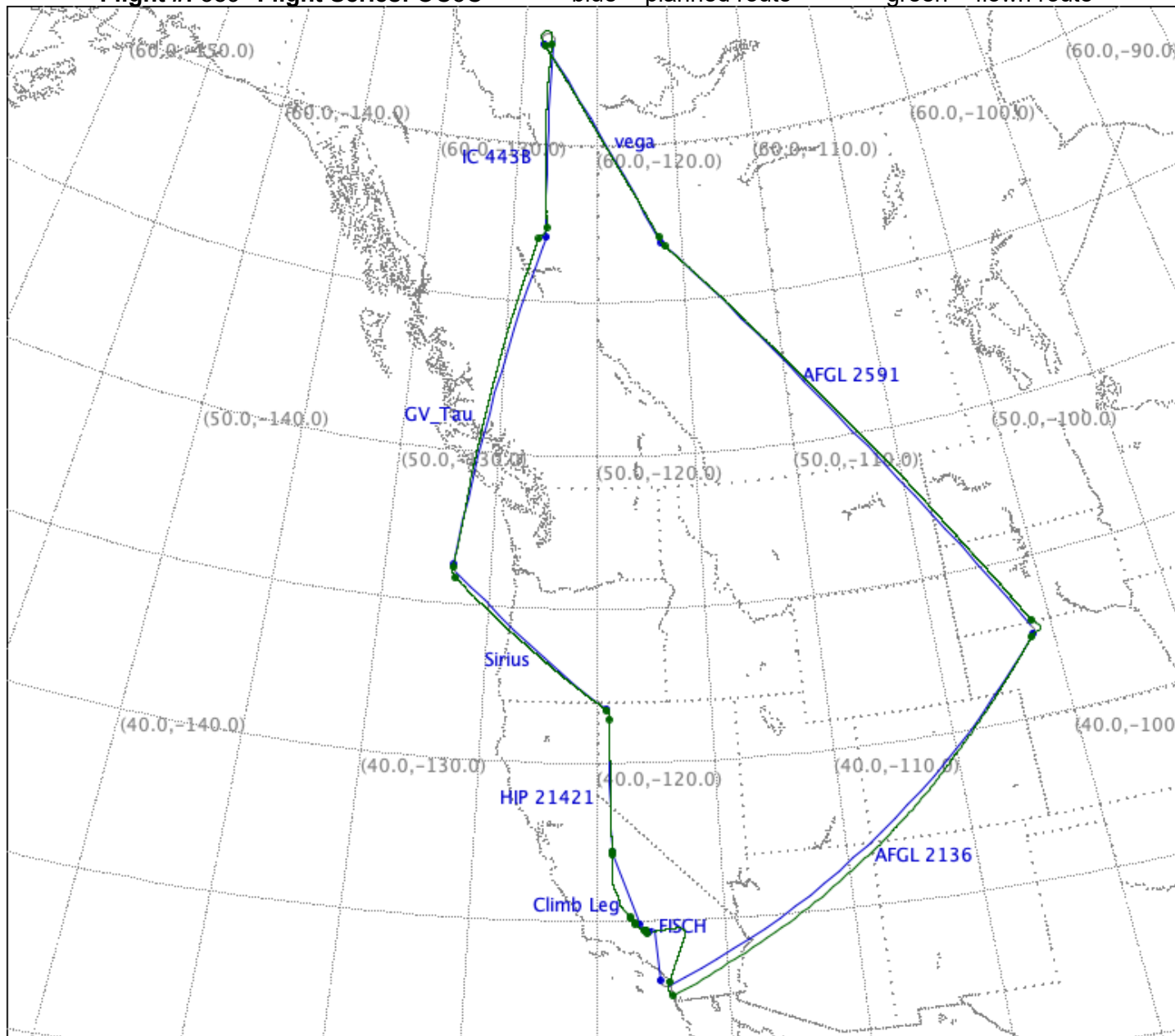
MISSION ID: 2017-03-21_EX_F389

Date: 2017-03-21 UT Instrument: EXES

Flight #: 389 Flight Series: OC5C

blue = planned route

green = flown route

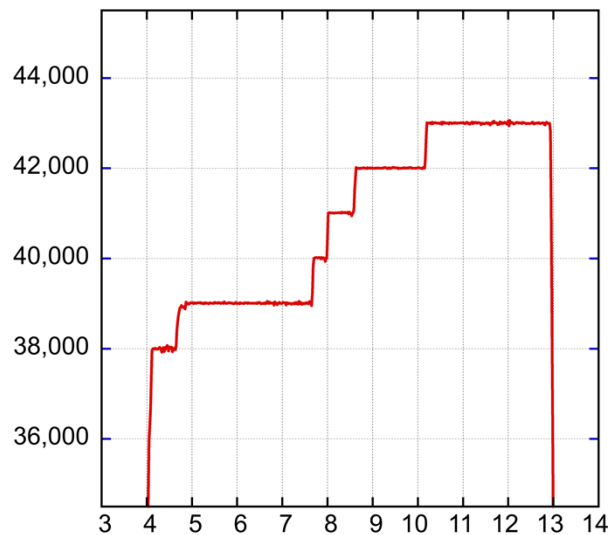


Flight notes:
No irregularities.

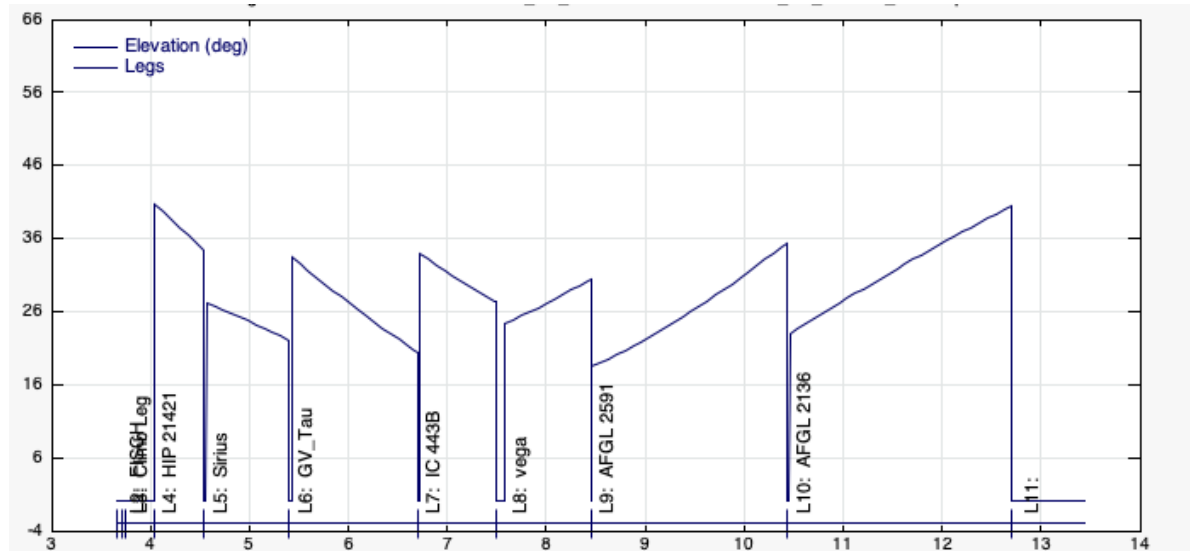
Flight 389 Mission ID 2017-03-21_EX_F389
 Palmdale to Palmdale Take off date UTC: 21-MAR-2017
 Departure UTC: 03:40 Arrival UTC: 13:21

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 21421	04h35m55.24s	16d30m33.5s	4:08	30	
5	05_0097	Carr	Sirius	06h45m08.90s	-16d42m58.0s	4:39	50	
6	05_0097	Carr	GV_Tau_HCOOH	04h29m23.70s	24d33m00.0s	5:31	77	
7	75_0018	Discretionary	IC 443B	06h17m13.97s	22d23m16.0s	6:48	46	
8	05_0041	Tielens	vega	18h36m56.34s	38d47m01.3s	7:40	52	
9	05_0041	Tielens	AFGL 2591	20h29m24.80s	40d11m19.0s	8:33	118	
10	05_0041	Tielens	AFGL 2136	18h22m26.50s	-13d30m15.0s	10:33	135	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



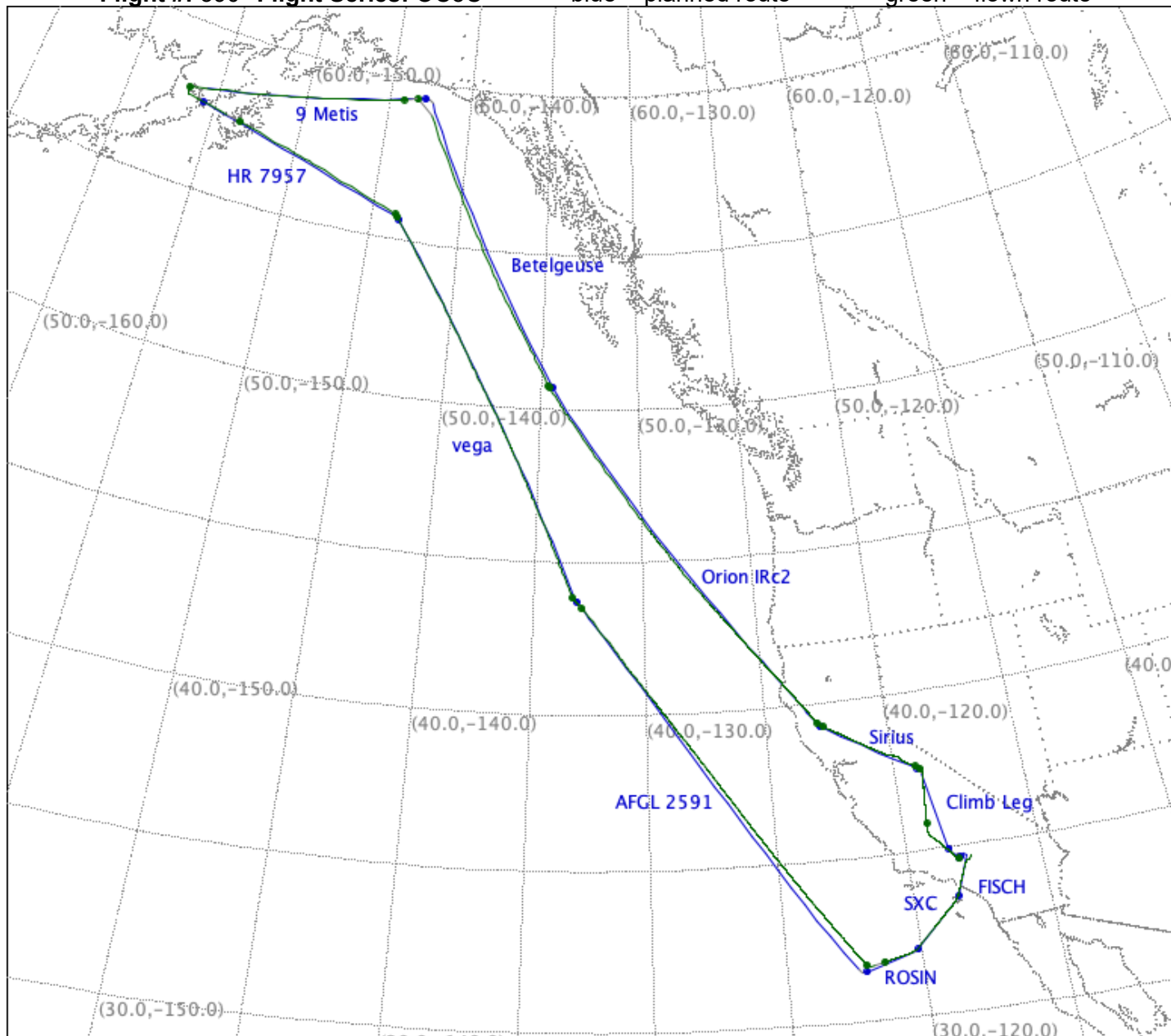
MISSION ID: 2017-03-22_EX_F390

Date: 2017-03-22 UT Instrument: EXES

Flight #: 390 Flight Series: OC5C

blue = planned route

green = flown route

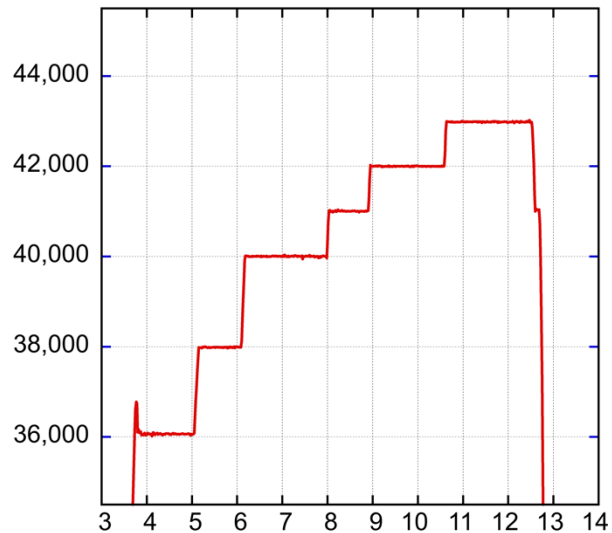


Flight notes: No irregularities.

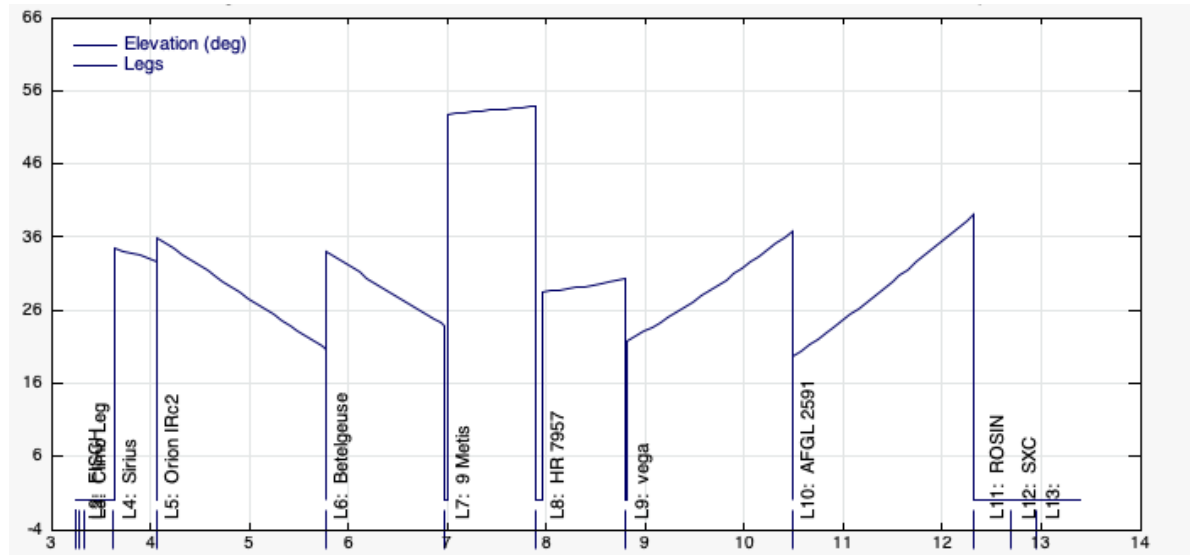
Flight 390 Mission ID 2017-03-22_EX_F390
 Palmdale to Palmdale Take off date UTC: 22-MAR-2017
 Departure UTC: 03:15 Arrival UTC: 13:13

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Sirius	06h45m08.92s	-16d42m58.0s	3:44	25	
5	05_0043	Rangwala	Orion IRc2	05h35m14.40s	-05d22m29.0s	4:10	102	
6	05_0073	Harper	Betelgeuse	05h55m10.30s	07d24m25.0s	5:52	72	
7	05_0073	Harper	9 Metis	10h11m47.45s	20d47m07.3s	7:06	53	
8	71_0011	Engineering	HR 7957	20h45m17.38s	61d50m19.6s	8:03	50	
9	05_0041	Tielens	vega	18h36m56.34s	38d47m01.3s	8:54	100	
10	05_0041	Tielens	AFGL 2591	20h29m24.80s	40d11m19.0s	10:35	110	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



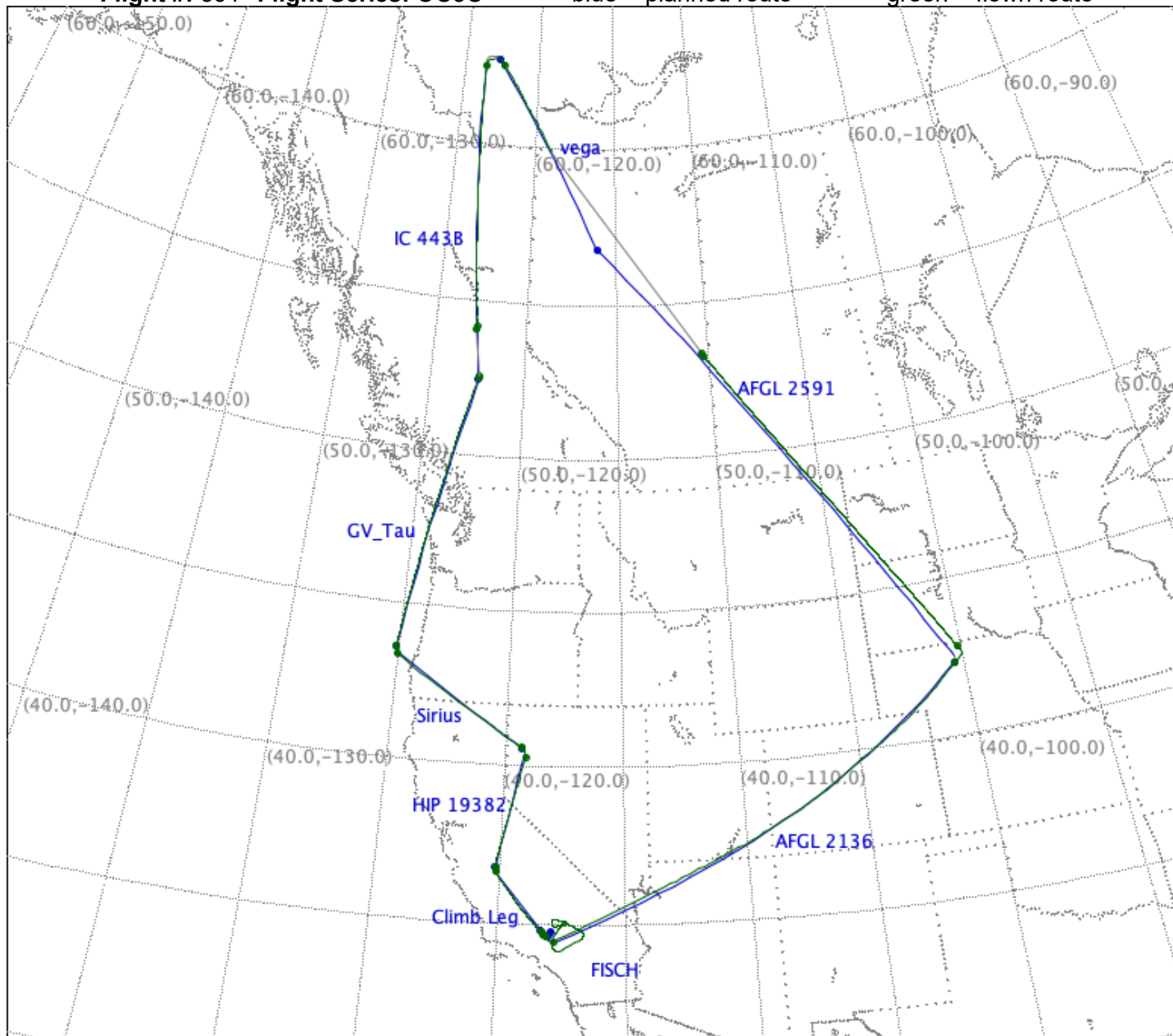
MISSION ID: 2017-03-23_EX_F391

Date: 2017-03-23 UT Instrument: EXES

Flight #: 391 Flight Series: OC5C

blue = planned route

green = flown route



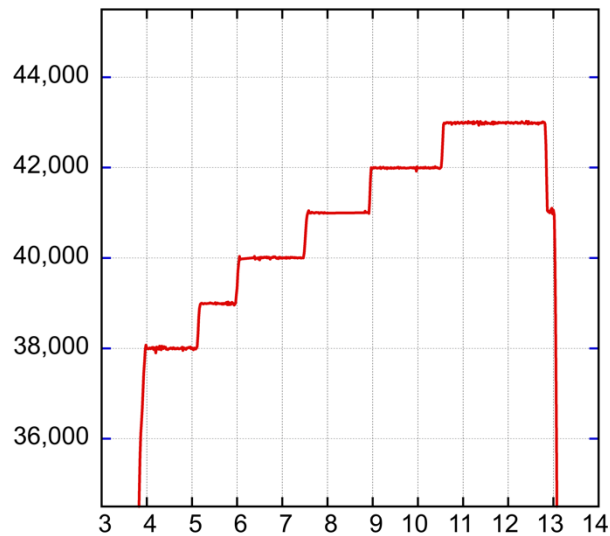
Flight notes:

Multiple software/hardware failures led to significant losses of data collection time on legs 6-9.

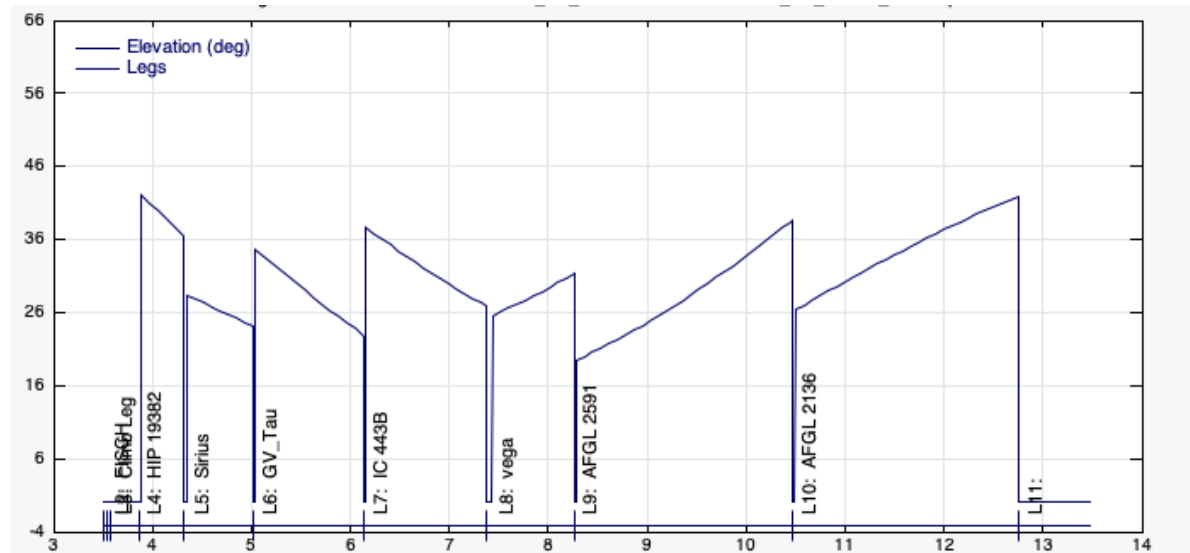
Flight 391 Mission ID 2017-03-23_EX_F391
 Palmdale to Palmdale Take off date UTC: 23-MAR-2017
 Departure UTC: 03:28 Arrival UTC: 13:30

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 19382	04h09m07.42s	28d05m06.6s	3:58	26	
5	05_0097	Carr	Sirius	06h45m08.90s	-16d42m58.0s	4:26	40	
6	05_0097	Carr	GV_Tau_HCOOH	04h29m23.70s	24d33m00.0s	5:08	66	Turbulence and observatory control software crash led to loss of 25% of leg
7	75_0018	Discretionary	IC 443B	06h17m13.97s	22d23m16.0s	6:14	73	Recovery from observatory control software crash led to loss of first 40% of leg
8	05_0041	Tielens	vega	18h36m56.34s	38d47m01.3s	7:31	50	Telescope power issue; whole leg lost
9	05_0041	Tielens	AFGL 2591	20h29m24.80s	40d11m19.0s	8:22	131	Recovery from telescope power loss led to loss of first 35min of leg.
10	05_0041	Tielens	AFGL 2136	18h22m26.50s	-13d30m15.0s	10:35	135	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

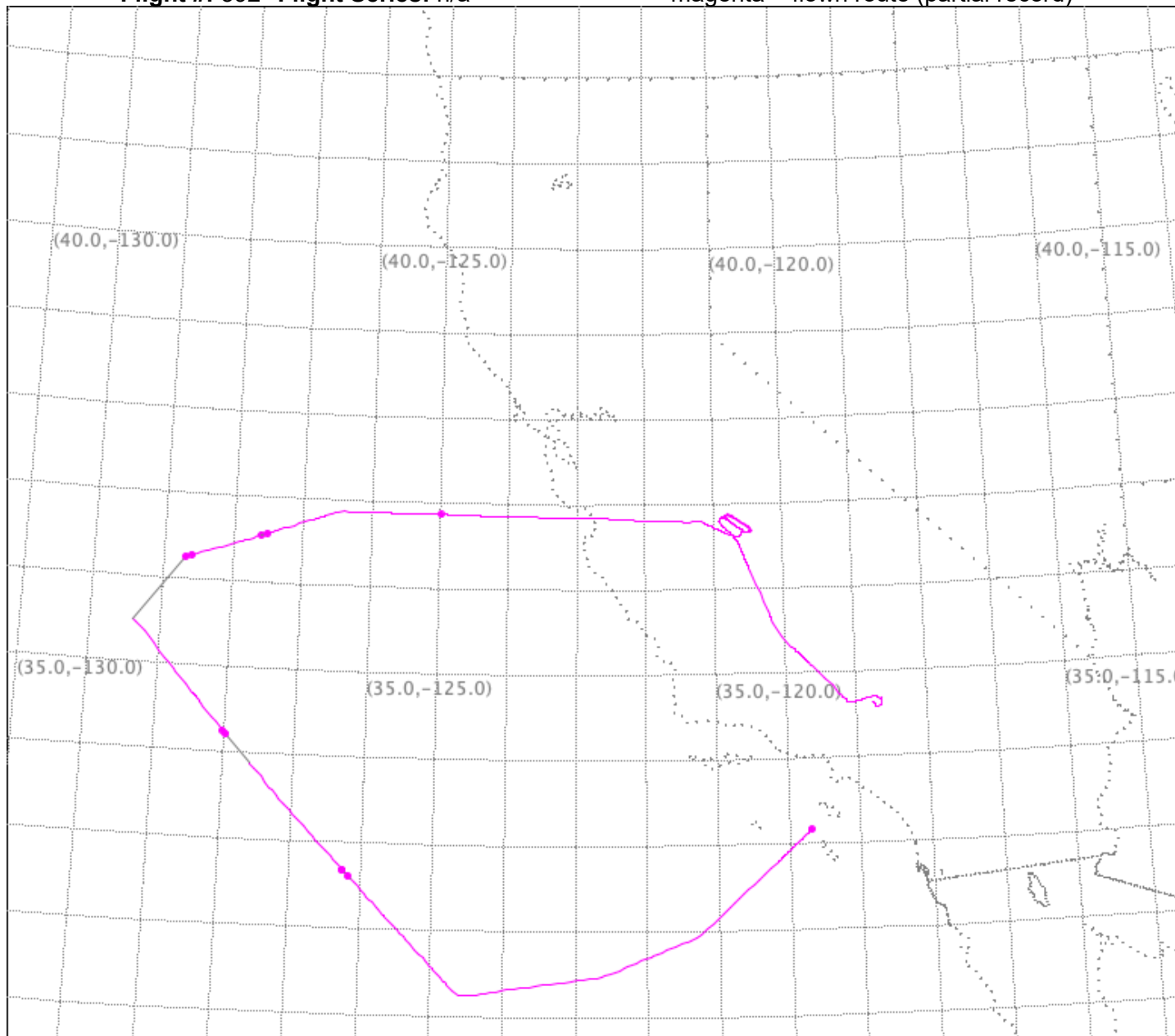


MISSION ID: 2017-05-08_NO_F392

Date: 2017-05-08 UT Instrument: n/a

Flight #: 392 Flight Series: n/a

magenta = flown route (partial record)



Flight notes:
Engine check flight – no science.

Flight 392
Palmdale to
Palmdale

Mission ID 2017-05-08_NO_F392
Take off date UTC:
08-MAY-2017

Departure UTC: 16:43
Arrival UTC: 21:13

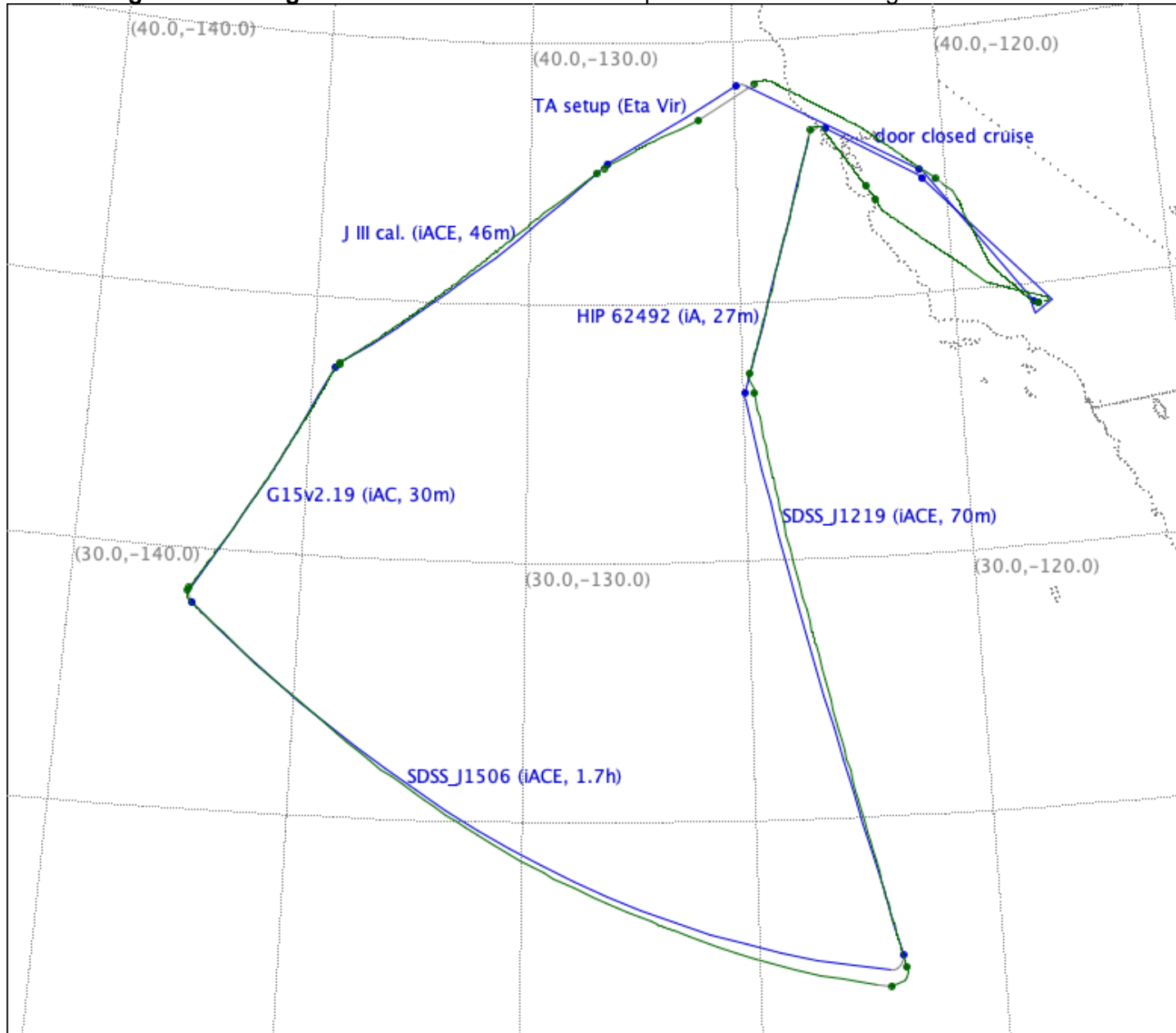
MISSION ID: 2017-05-11_HA_F393

Date: 2017-05-11 UT Instrument: HAWC+

Flight #: 393 Flight Series: OC5E

blue = planned route

green = flown route

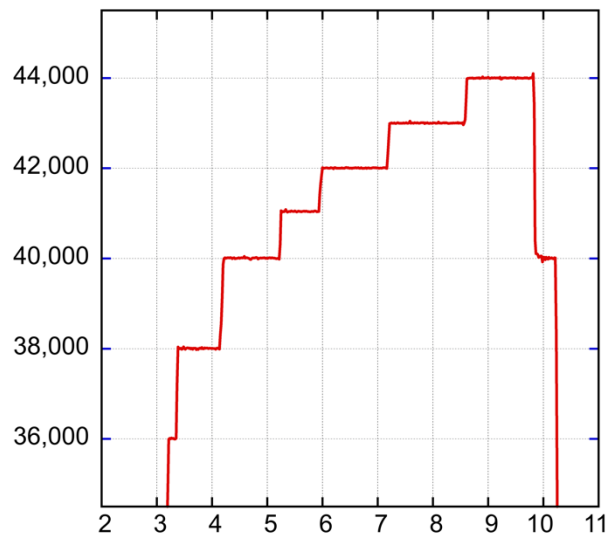


Flight notes: No irregularities.

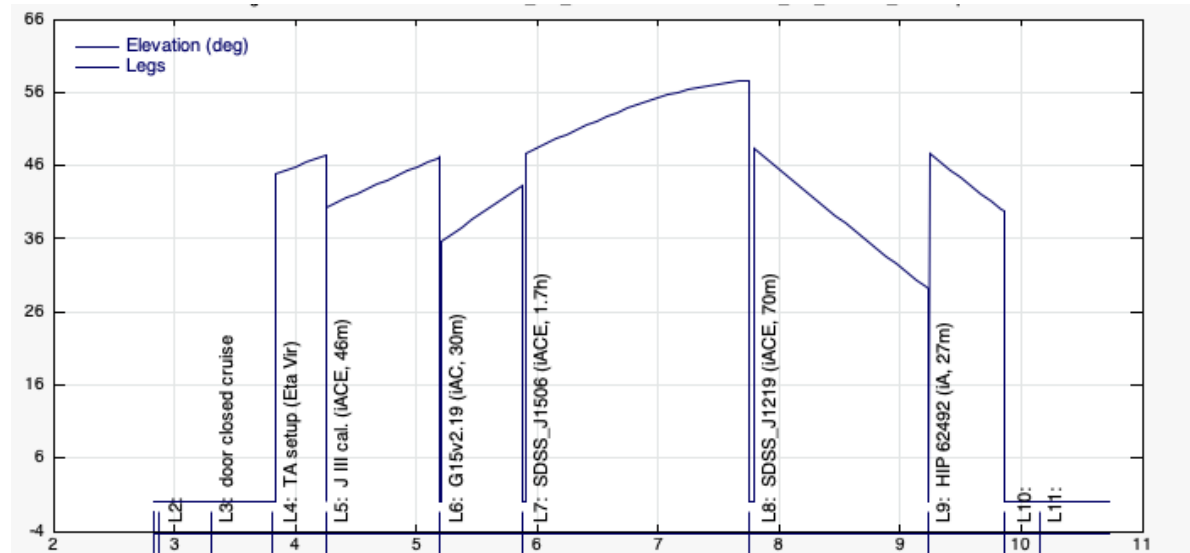
Flight 393 Mission ID 2017-05-11_HA_F393
 Palmdale to Palmdale Take off date UTC: 11-MAY-2017
 Departure UTC: 02:49 Arrival UTC: 10:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Eta Vir	12h19m54.00s	-00d40m01.0s	3:50	25	
5	90_0083	Calibration	Ganymede	12h55m05.08s	-04d14m59.2s	4:15	56	
6	05_0087	Cooray	G15v2.19	14h29m35.21s	-00d28m35.9s	5:12	40	HAWC+ cryo software crashes led to loss of half the leg.
7	05_0129	Tremonti	SDSS_J1506+5402	15h06m36.30s	54d02m20.9s	5:54	110	Possible vignetting by upper telescope door at end of leg.
8	05_0129	Tremonti	SDSS_J1219+0336	12h19m55.77s	03d36m15.9s	7:48	86	Potential positional offset in first few scans
9	05_0140	Weinberger	HIP 62492	12h48m22.00s	30d46m01.0s	9:14	37	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



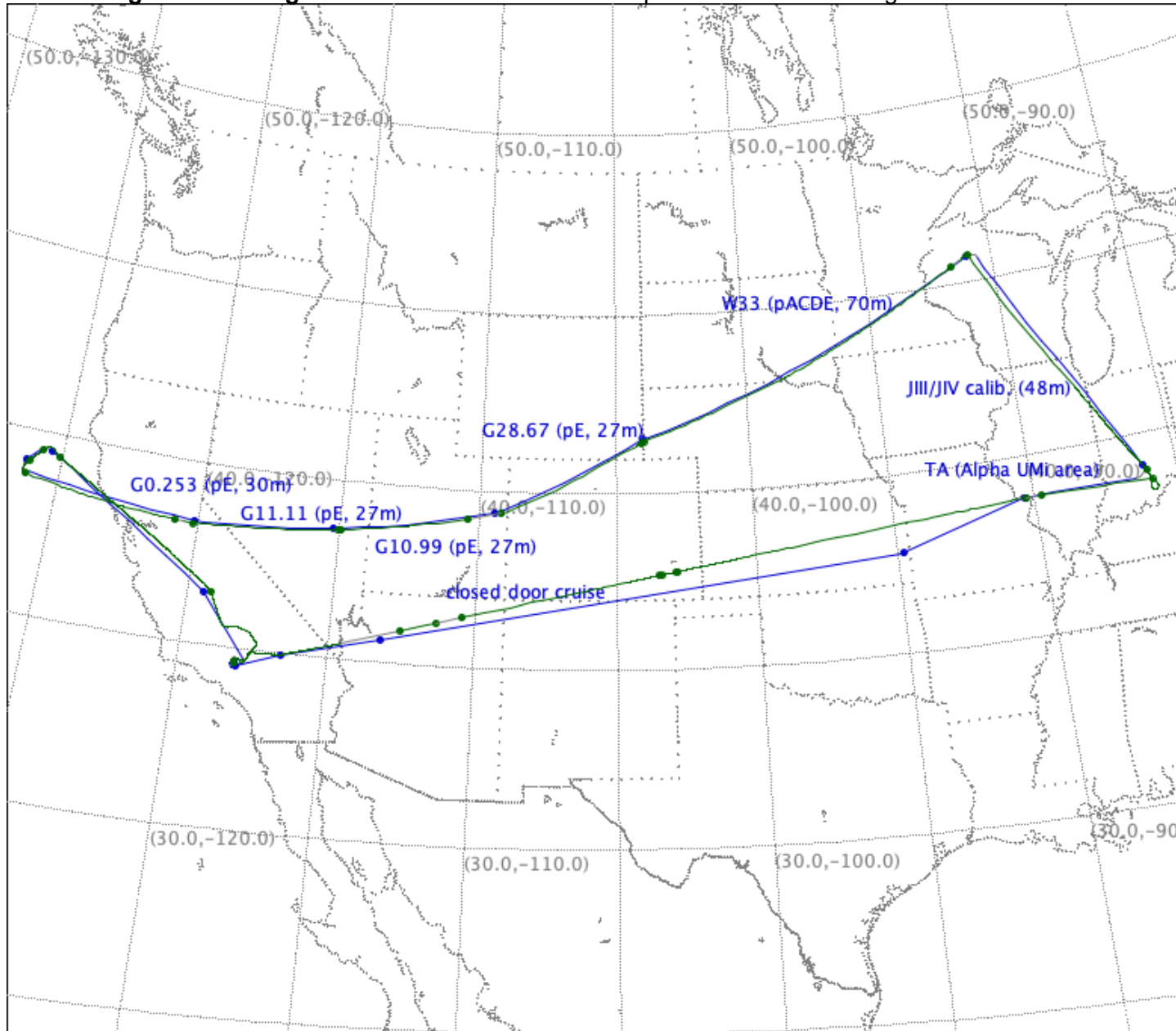
MISSION ID: 2017-05-12_HA_F394

Date: 2017-05-12 UT Instrument: HAWC+

Flight #: 394 Flight Series: OC5E

blue = planned route

green = flown route



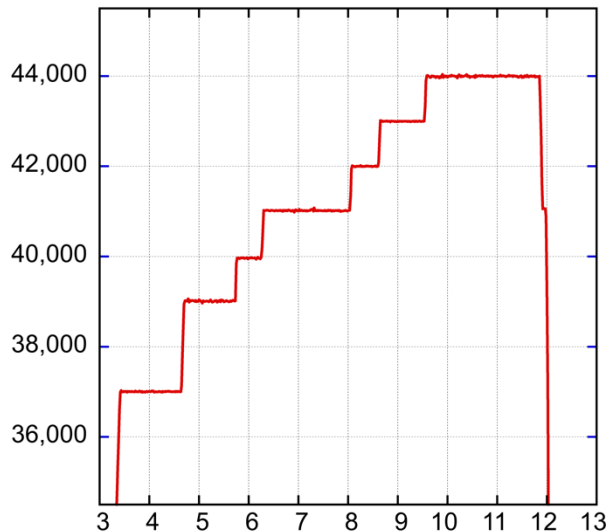
Flight notes:

First 3hr of flight had no planned science to prolong HAWC+ cooling for priority pre-dawn targets.

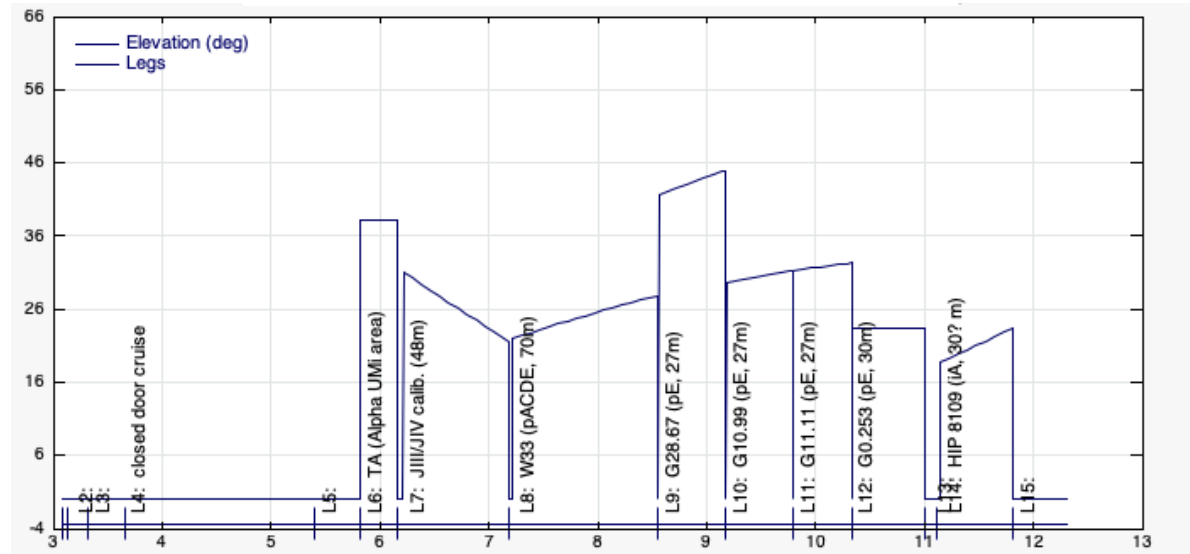
Flight 394 Mission ID 2017-05-12_HA_F394
 Palmdale to Palmdale Take off date UTC: Departure UTC: Arrival UTC:
 Palmdale day-month-year ~03:05 12:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			Alpha UMi	02h33m00.00s	89d16m00.0s	5:55	20	
7	90_0085	Calibration	Callisto	12h54m05.06s	-04d08m06.7s	6:18	58	Software error led to 50% loss of observing time on leg
8	05_0038	Vaillancourt	W33	18h14m14.00s	-17d55m50.0s	7:19	80	Scripting error led to 25% loss of observing time on leg
9	05_0206	Pillai	G28.67+3.82	18h29m59.96s	-02d01m29.0s	8:39	37	
10	05_0206	Pillai	G10.99-0.08	18h10m06.00s	-19d27m58.2s	9:16	37	
11	05_0206	Pillai	G11.11-0.12	18h10m31.67s	-19d22m29.6s	9:53	32	Telescope control error; 20min lost to recovery
12	05_0206	Pillai	G0.253+0.016	17h46m08.70s	-28d42m03.7s	10:25	40	
14	05_0140	Weinberger	HIP 8109	01h44m14.00s	54d53m11.0s	11:14	40	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



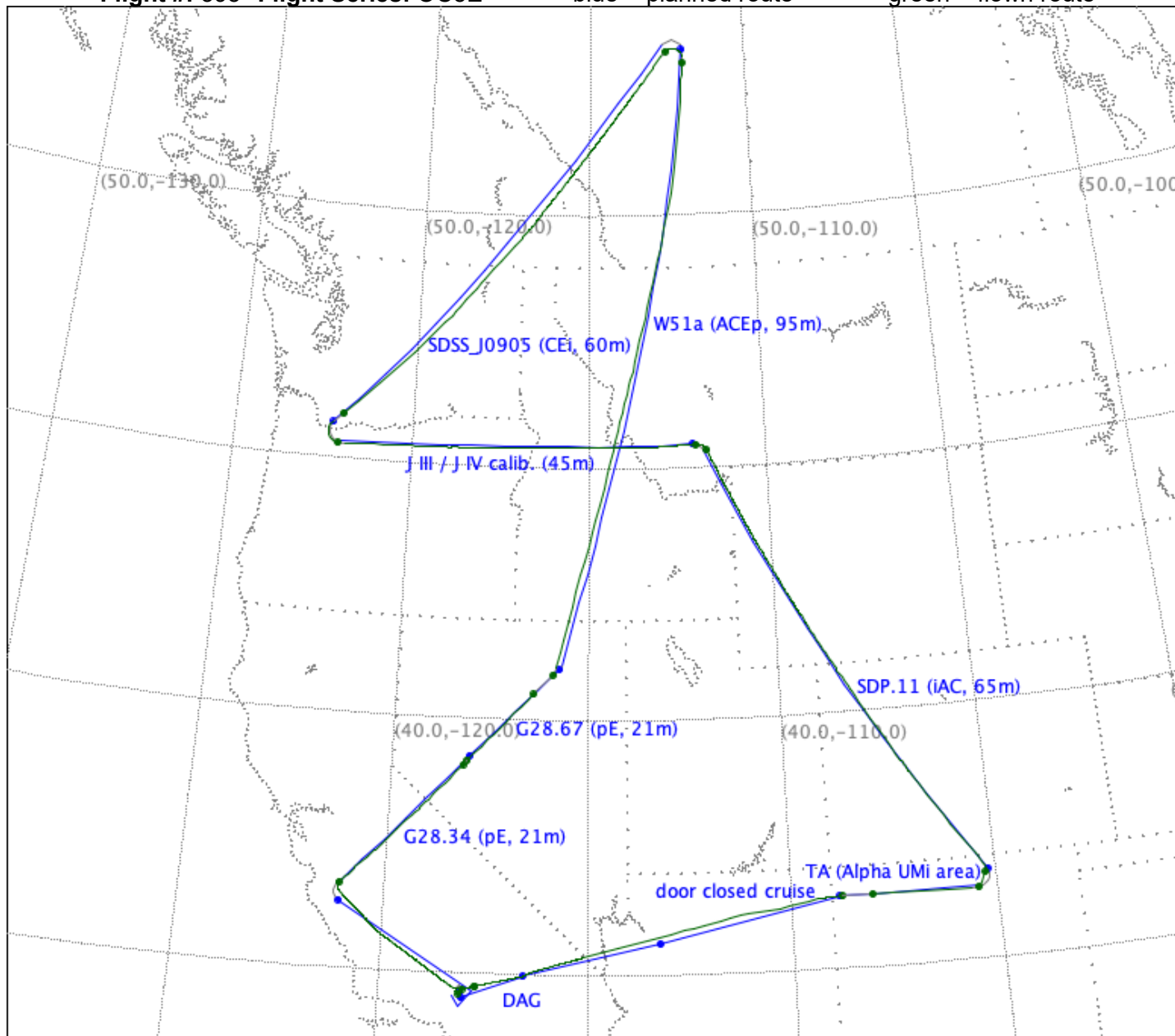
MISSION ID: 2017-05-13_HA_F395

Date: 2017-05-13 UT Instrument: HAWC+

Flight #: 395 Flight Series: OC5E

blue = planned route

green = flown route



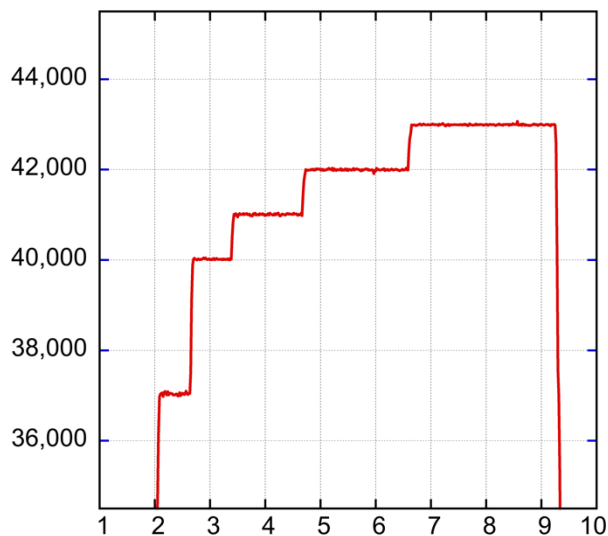
Flight notes:

First 1hr of flight had no planned science to prolong HAWC+ cooling for priority pre-dawn targets.

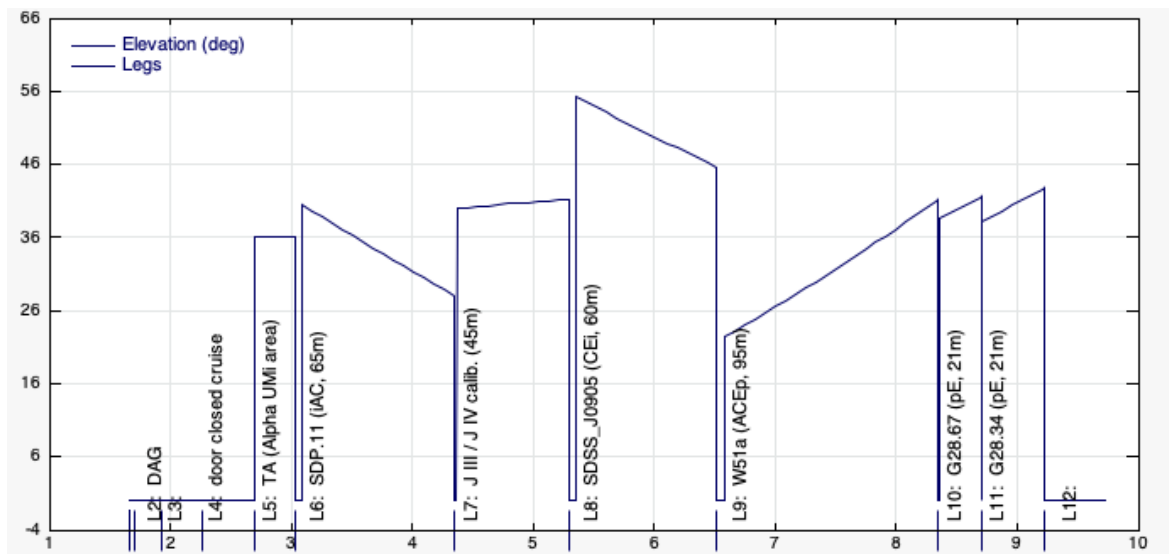
Flight 395 Mission ID 2017-05-13_HA_F395
 Palmdale to Palmdale Take off date UTC: 13-MAY-2017
 Departure UTC: 01:41 Arrival UTC: 09:44

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Alpha UMi	02h32m00.00s	89d15m51.0s	2:41	20	
6	05_0087	Cooray	SDP.11	09h03m11.57s	00d39m06.4s	3:05	75	
7	90_0083	Calibration	Callisto	12h53m41.19s	-04d05m53.6s	4:21	55	
8	05_0129	Tremonti	SDSS_J0905+5759	09h05m23.59s	57d59m12.4s	5:20	70	
9	05_0038	Vaillancourt	W51a	19h23m44.50s	14d30m15.0s	6:34	106	
10	05_0206	Pillai	G28.67+3.82	18h29m59.96s	-02d01m29.0s	8:21	21	Acquisition and guiding issues led to loss of observing time on leg
11	05_0206	Pillai	G28.34+0.06	18h42m53.30s	-04d02m10.8s	8:42	31	Target not observed; leg used to complete G28.67+3.82 observations from the previous leg

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



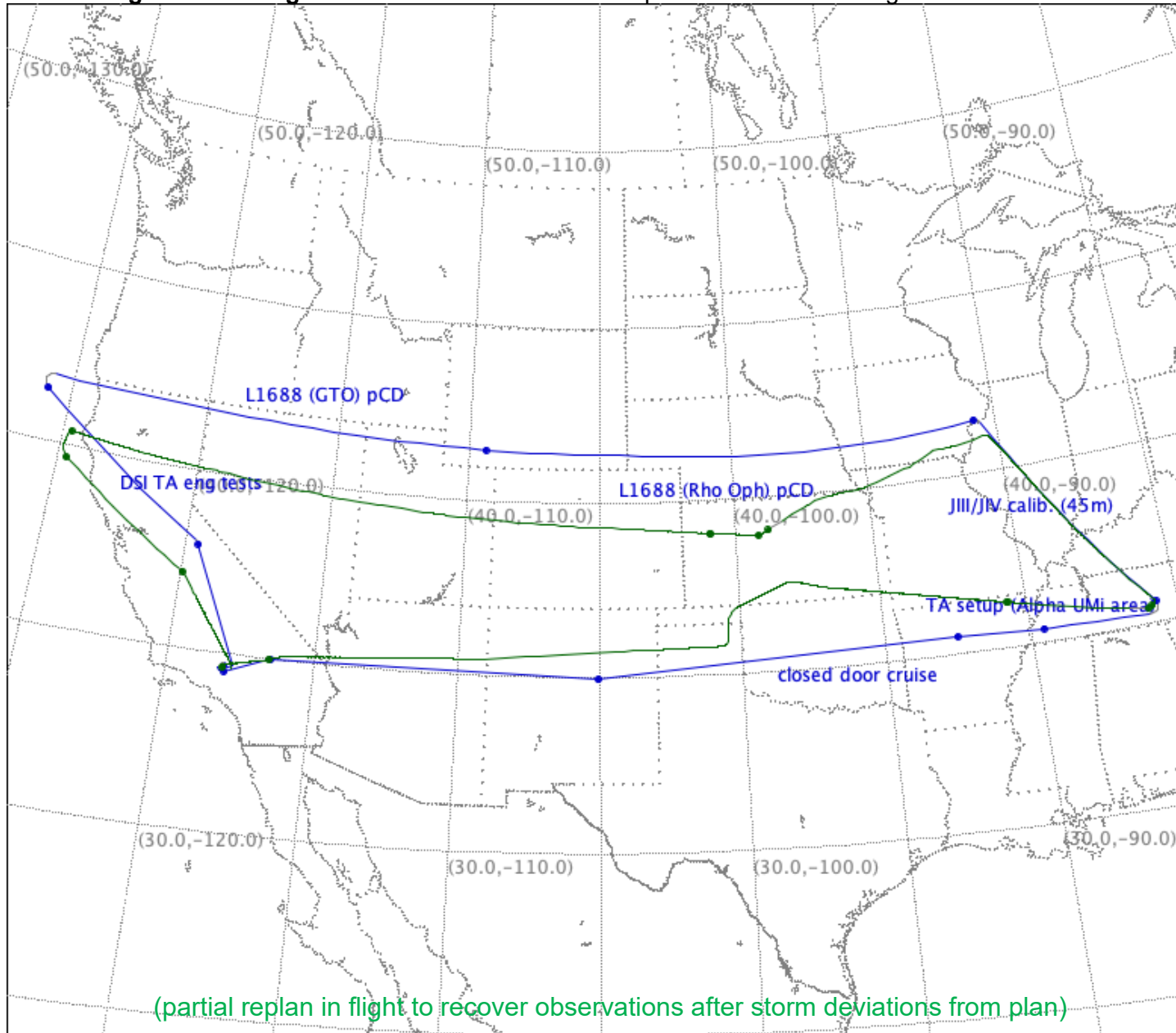
MISSION ID: 2017-05-17_HA_F396

Date: 2017-05-17 UT Instrument: HAWC+

Flight #: 396 Flight Series: OC5E

blue = planned route

green = flown route



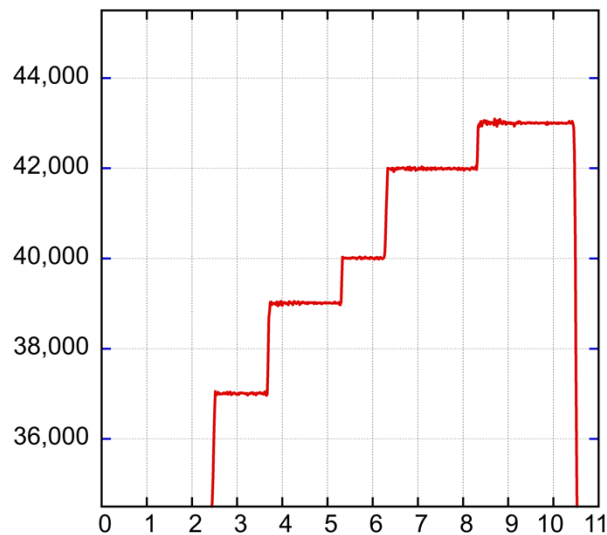
Flight notes:

Significant course deviations to avoid storms. First 2.5hr of flight had no planned science to prolong HAWC+ cooling for priority pre-dawn targets.

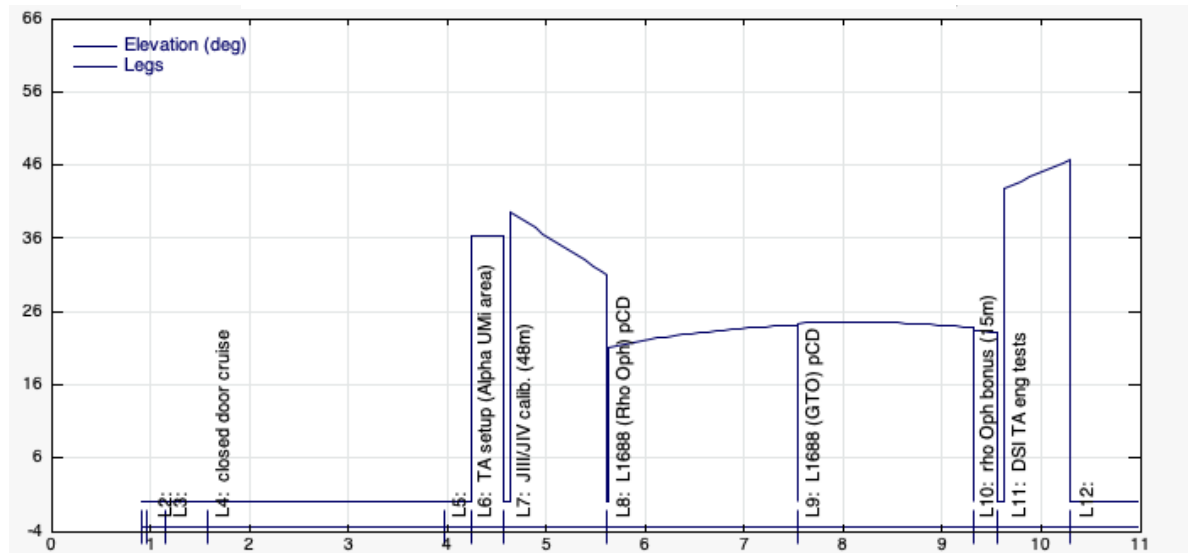
Flight 396 Mission ID 2017-05-17_HA_F396
 Palmdale to Palmdale Take off date UTC: 17-MAY-2017
 Departure UTC: 02:02 Arrival UTC: 10:50

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			Alpha UMi area	02h32m00.00s	89d16m00.0s	4:50	20	Replaced with HIP 76519
7	90_0085	Calibration	Callisto	12h52m46.26s	-04d01m49.3s	5:14	55	
8	05_0133	Novak	L1688 Oph E	16h27m05.70s	-24d37m23.3s	6:11	110	First 1hr of leg lost to deviation from planned route to avoid storms
9	70_0511	GTO	L1688	16h26m32.20s	-24d23m32.2s	8:41	101	Significant turbulence.
10		engineering	HIP 108378	21h57m24.00s	66d08m21.0s	9:46	39	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



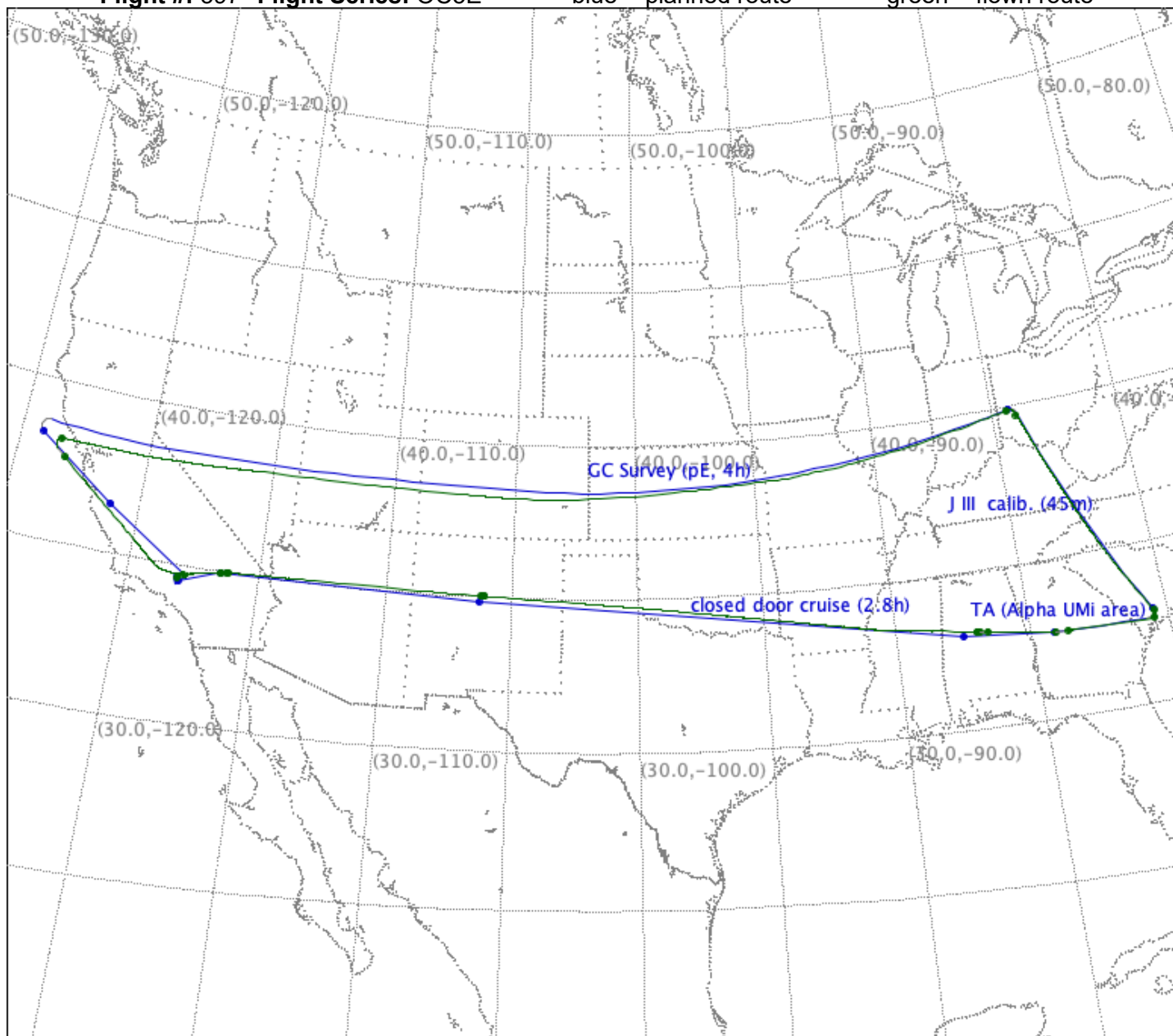
MISSION ID: 2017-05-18_HA_F397

Date: 2017-05-18 UT Instrument: HAWC+

Flight #: 397 Flight Series: OC5E

blue = planned route

green = flown route



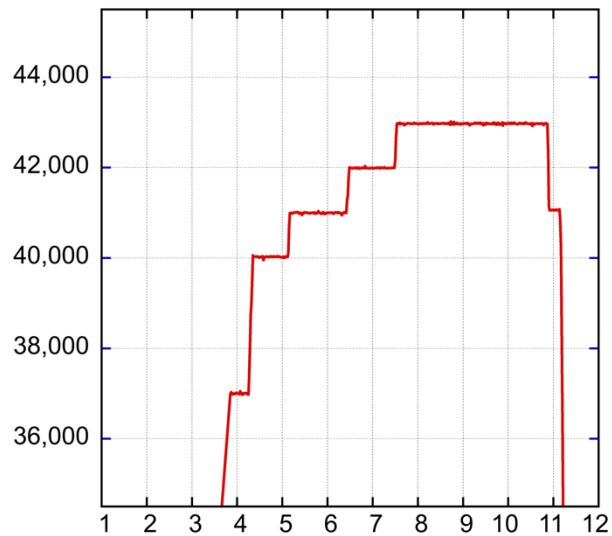
Flight notes:

First 3hr of flight had no planned science to prolong HAWC+ cooling for priority pre-dawn targets.

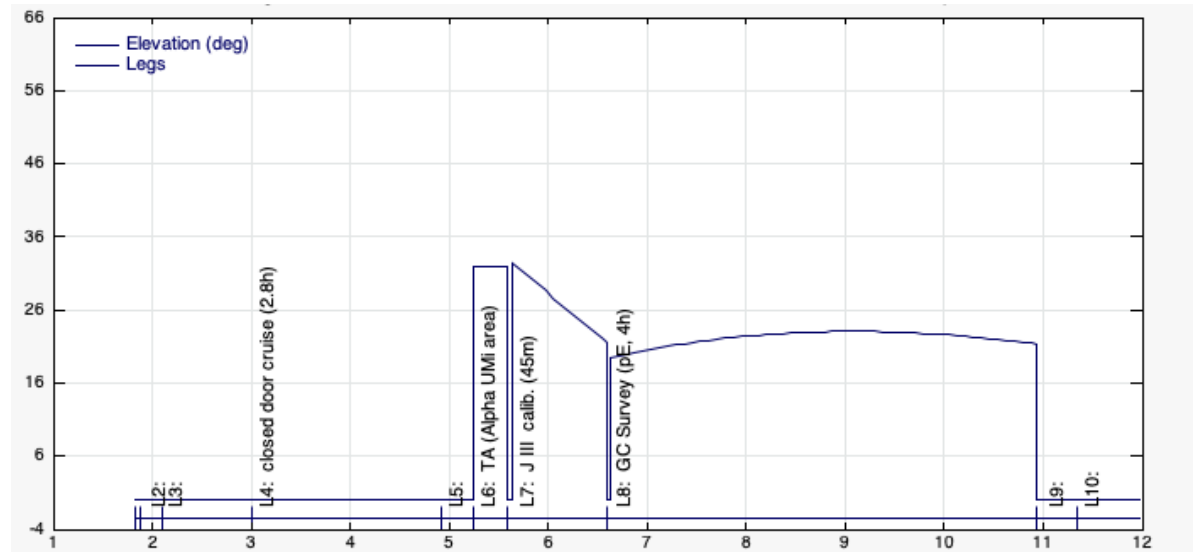
Flight 397 Mission ID 2017-05-18_HA_F397
 Palmdale to Palmdale Take off date UTC: 18-MAY-2017
 Departure UTC: 01:52 Arrival UTC: 11:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			Alpha UMi	02h32m00.00s	89d16m00.0s	5:07	20	
7	90_0085	Calibration	Ganymede	12h53m04.81s	-04d04m03.0s	5:30	57	
8	05_0018	Chuss	GC Survey 1	17h44m54.78s	-29d26m56.4s	6:29	258	Vignetting by lower telescope door at beginning of leg.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



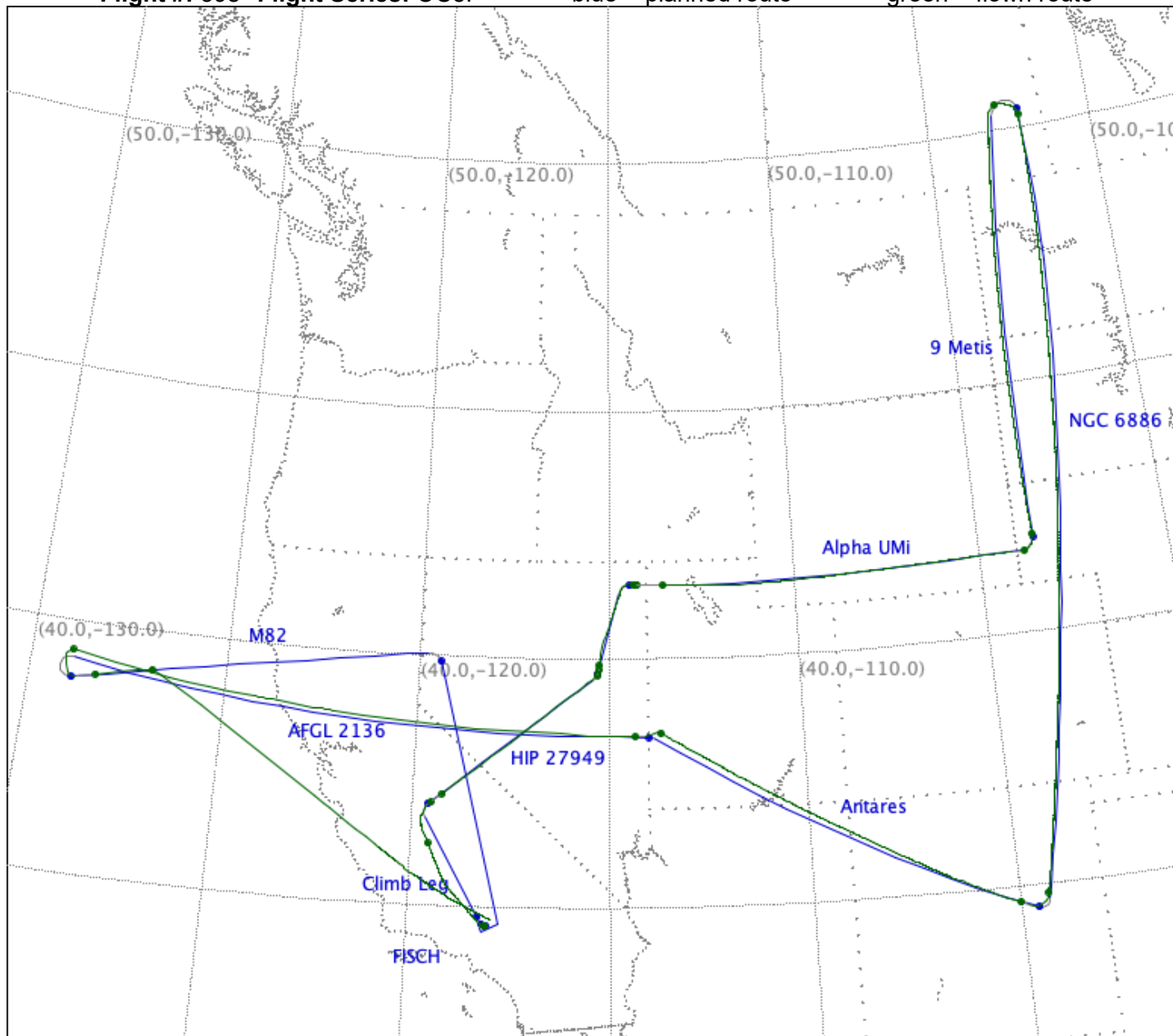
MISSION ID: 2017-05-25_EX_F398

Date: 2017-05-25 UT Instrument: EXES

Flight #: 398 Flight Series: OC5F

blue = planned route

green = flown route

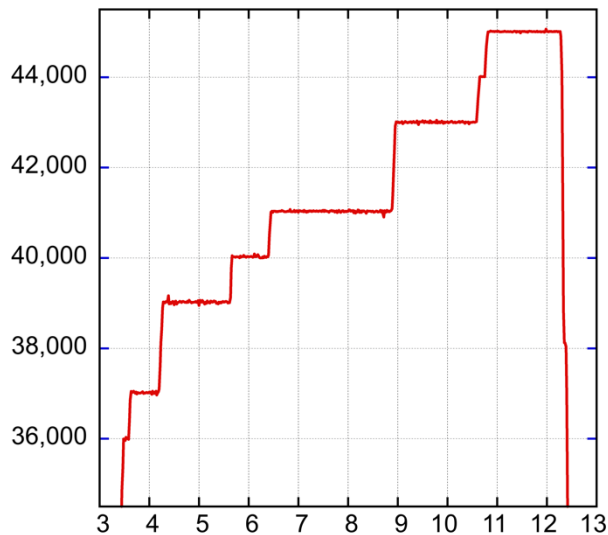


Flight notes: No irregularities.

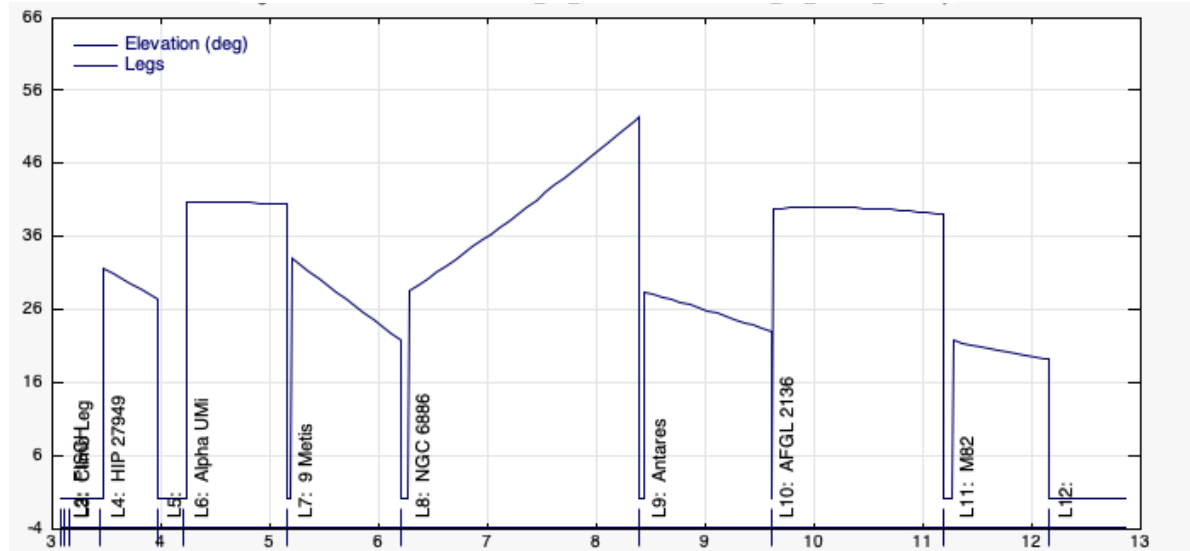
Flight 398 Mission ID 2017-05-25_EX_F398
 Palmdale to Palmdale Take off date UTC: 25-MAY-2017
 Departure UTC: 03:03 Arrival UTC: 12:47

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 27949	05h54m50.78s	55d42m25.0s	3:29	30	
6			Alpha UMi	02h31m49.10s	89d15m50.8s	4:15	55	
7	05_0121	Dinerstein	9 Metis	10h31m14.19s	15d30m30.2s	5:12	60	Turbulence.
8	05_0121	Dinerstein	NGC 6886	20h12m42.80s	19d59m22.0s	6:17	127	
9	05_0073	Dinerstein	Antares	16h29m24.40s	-26d25m55.0s	8:27	70	
10	05_0041	Tielens	AFGL 2136	18h22m26.50s	-13d30m15.0s	9:37	94	
11	75_0017	Discretionary	M82	09h55m52.43s	69d40m46.9s	11:17	53	Early Return to Palmdale base to avoid sunrise.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



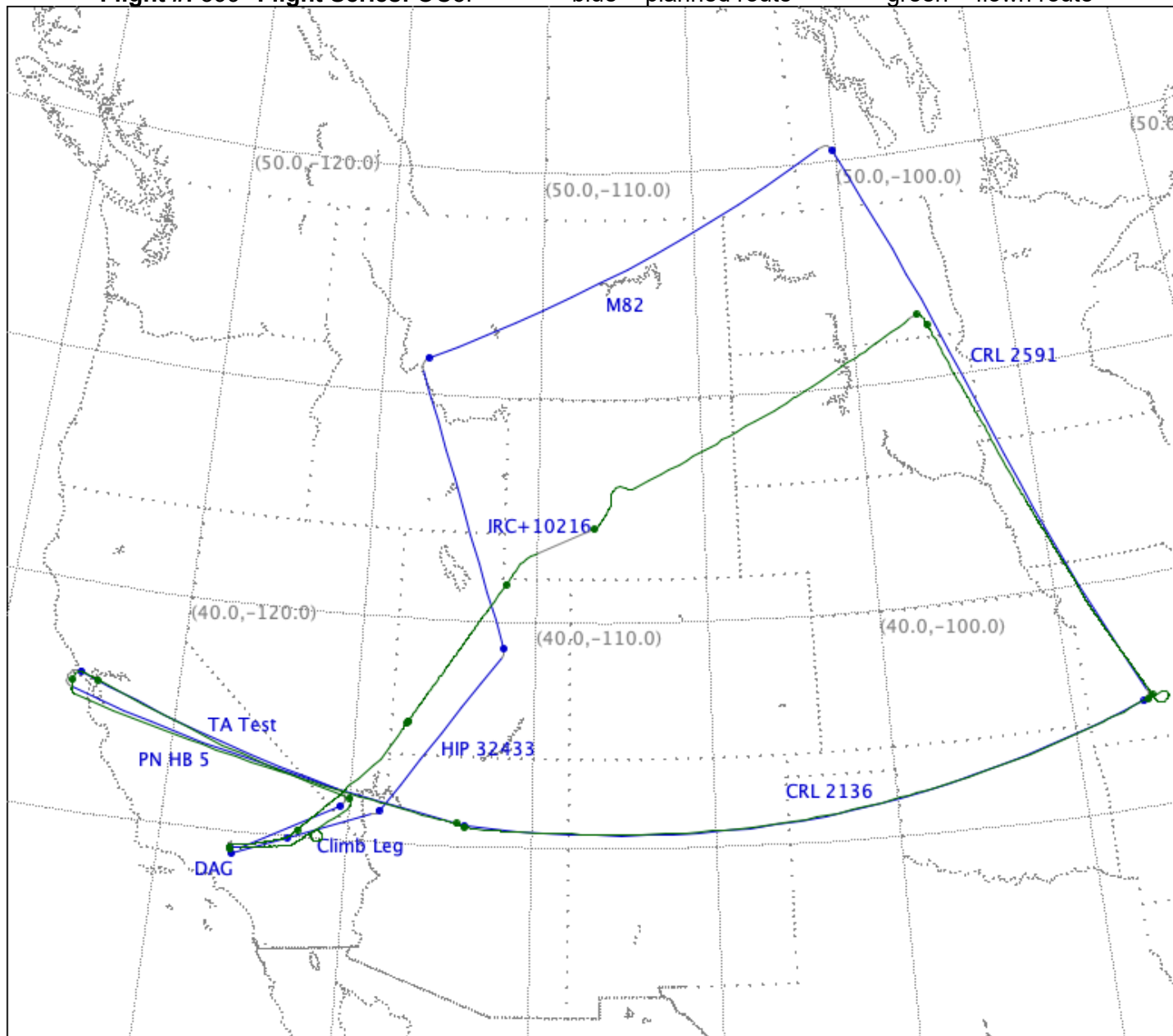
MISSION ID: 2017-05-26_EX_F399

Date: 2017-05-26 UT Instrument: EXES

Flight #: 399 Flight Series: OC5F

blue = planned route

green = flown route



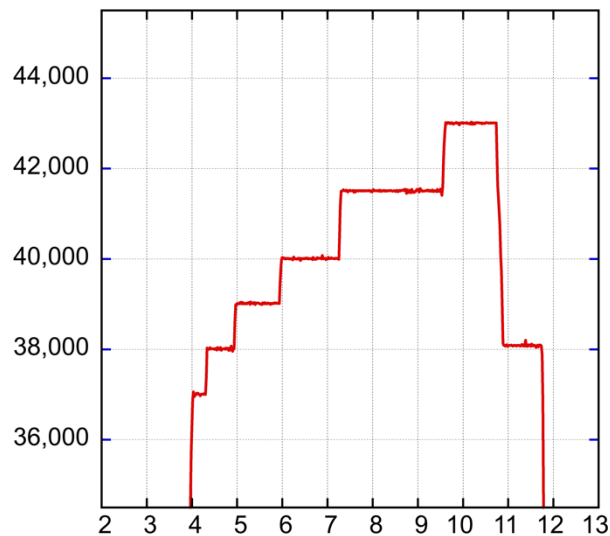
Flight notes:

Late departure led to loss of first leg and part of second leg.

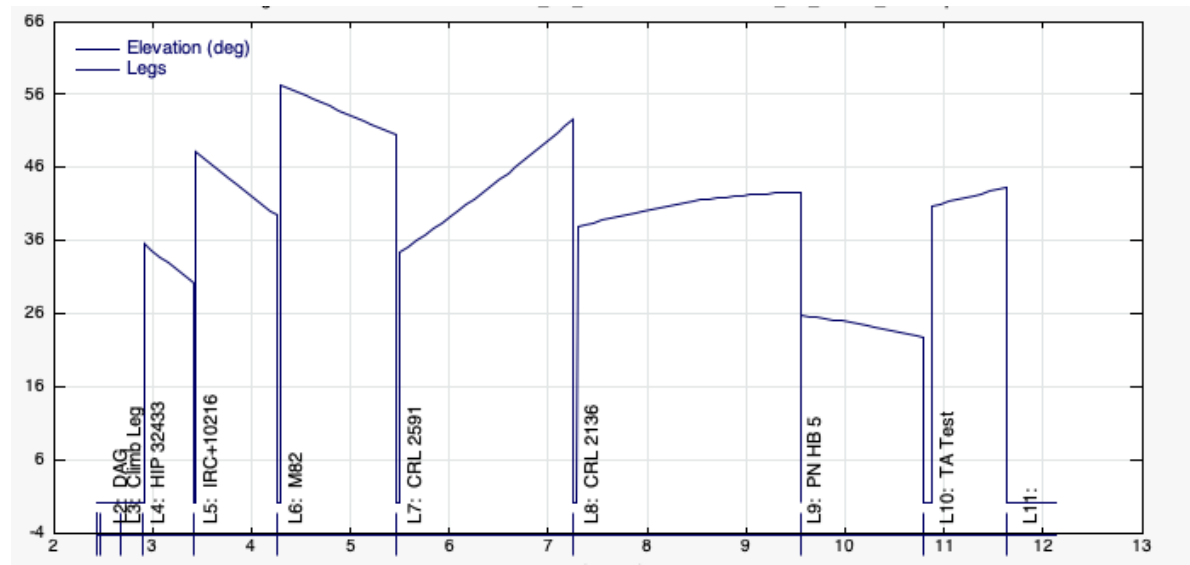
Flight 399 Mission ID 2017-05-26_EX_F399
 Palmdale to Palmdale Take off date UTC: 26-MAY-2017
 Departure UTC: 03:35 Arrival UTC: 12:12

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 32433	06h46m11.31s	42d15m56.0s	2:53	30	
5	75_0019	Discretionary	IRC+10216	09h47m57.41s	13d16m43.6s	3:25	49	Late departure; Leg not flown
6	75_0017	Discretionary	M82	09h55m52.43s	69d40m46.9s	4:17	70	Late departure led to joining this leg late; telescope control error occurred at beginning of leg; total lost time was 20min.
7	05_0207	Goto	CRL 2591	20h29m24.87s	40d11m19.4s	5:29	105	Late departure led to joining this leg late; 25min lost
8	05_0207	Goto	CRL 2136	18h22m26.59s	-13d30m15.7s	7:17	135	
9	05_0121	Dinerstein	PN HB 5	17h47m56.10s	-29d59m41.0s	9:32	75	
10		engineering	HIP 114984	23h17m18.90s	75d17m56.5s	10:52	45	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

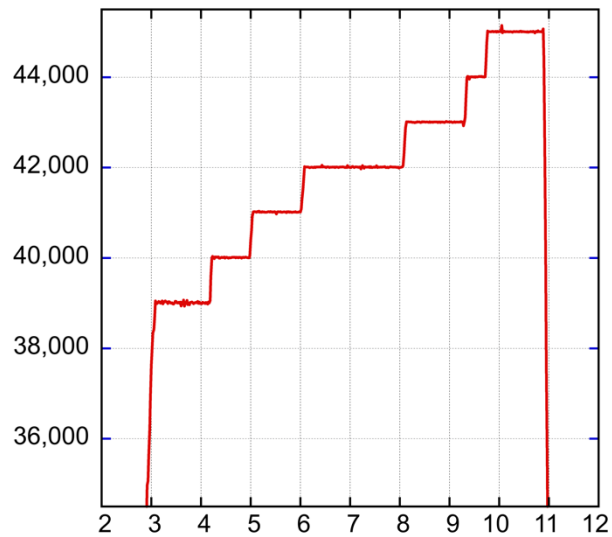


Flight notes: No irregularities.

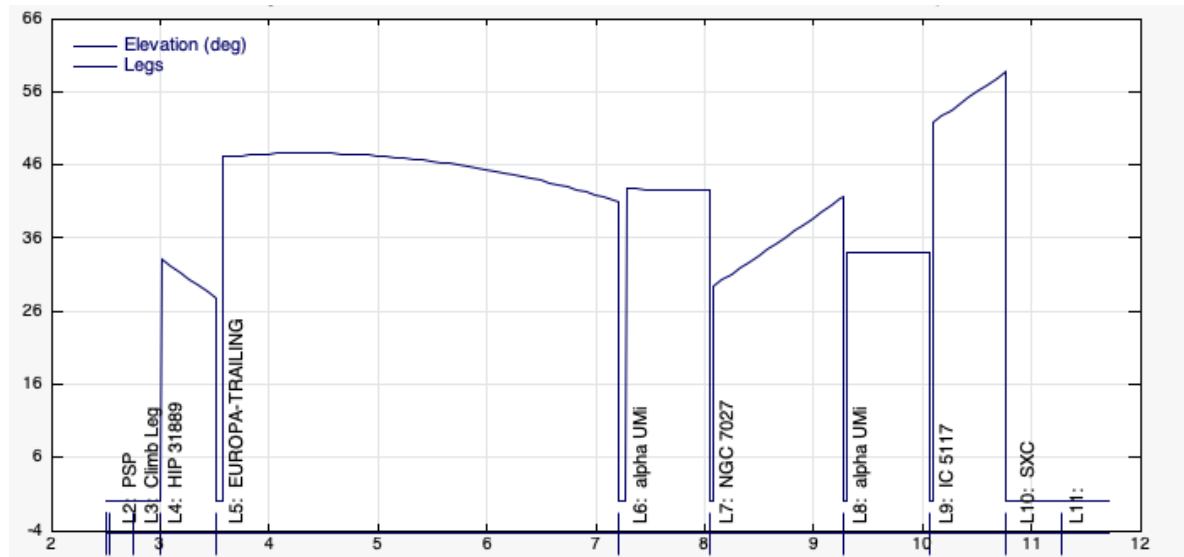
Flight 400 Mission ID 2017-05-27_EX_F400
 Palmdale to Palmdale Take off date UTC: 27-MAY-2017
 Departure UTC: 02:31 Arrival UTC: 11:23

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 31889	06h39m57.89s	44d00m50.8s	3:01	30	
5	05_0153	Sparks	EUROPA-TRAILING	12h50m49.01s	-03d51m42.1s	3:34	218.3	Turbulence.
6	05_0153	Sparks	alpha UMi	02h31m49.09s	89d15m50.8s	7:17	46	
7	05_0121	Dinerstein	NGC 7027	21h07m01.80s	42d14m10.0s	8:04	72	
8	05_0121	Dinerstein	alpha UMi	02h31m49.09s	89d15m50.8s	9:18	46	
9	05_0121	Dinerstein	IC 5117	21h32m30.90s	44d35m47.0s	10:06	40	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



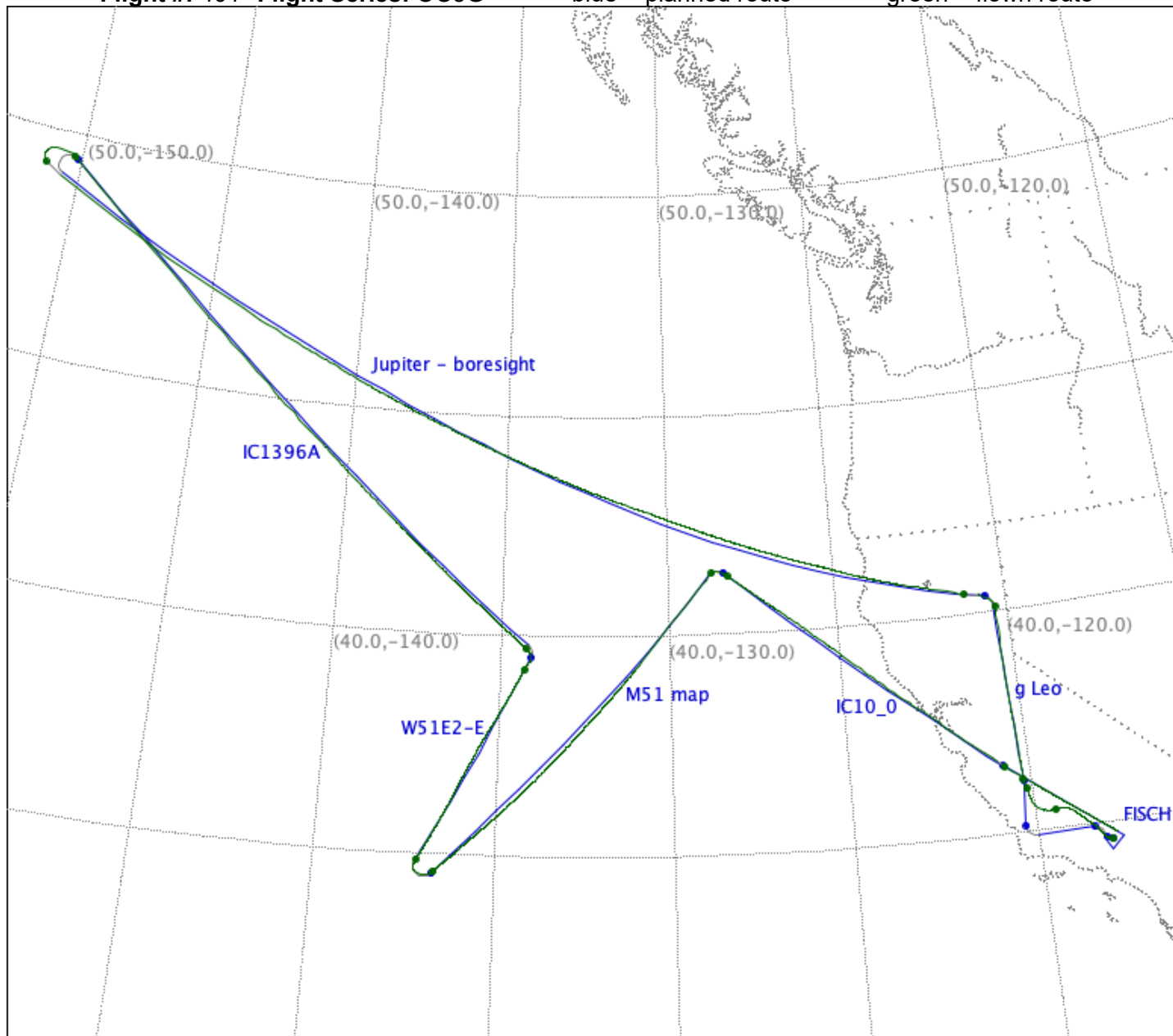
MISSION ID: 2017-06-07_GR_F401

Date: 2017-06-07 UT Instrument: GREAT

Flight #: 401 Flight Series: OC5G

blue = planned route

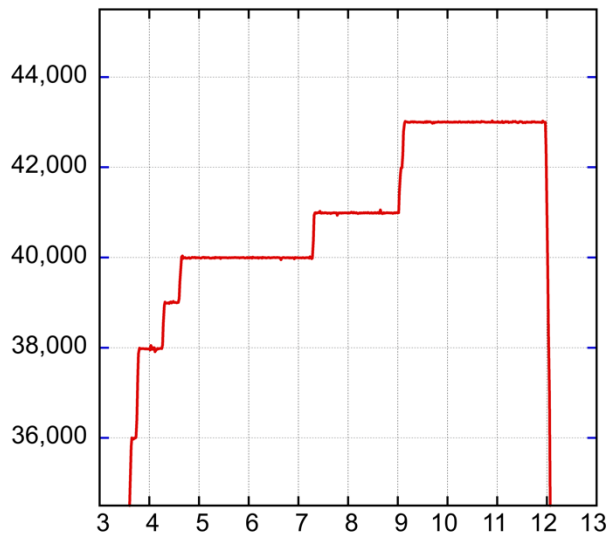
green = flown route



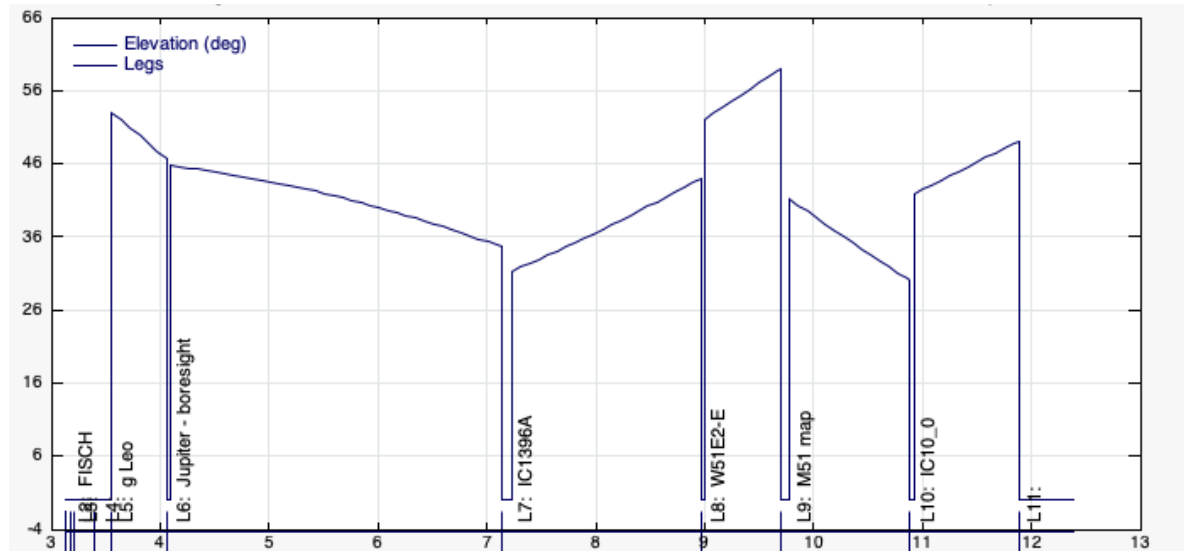
Flight notes: UpGREAT commissioning flight

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
Flight 401 Mission ID Palmdale to Palmdale			2017-06-07_GR_F401	Departure UTC: 03:11	Arrival UTC: 12:25	Consortium flight HFA/LFA		
5			HIP 48455	09h51m53.04s	24d23m43.3s	3:34	30	
6	90_0008	Calibration	Jupiter	12h49m58.27s	-03d49m32.7s	4:06	183	Clouds.
7	83_0427	GREAT Consortium	IC1396A	21h36m50.70s	57d31m10.0s	7:15	104	
8	83_0501	GREAT Consortium	W51E2-E	19h23m43.96s	14d30m34.5s	9:01	42	Turbulence.
9	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	9:48	66	Turbulence.
10	83_0503	GREAT Consortium	IC10	00h20m27.74s	59d17m38.3s	10:56	58	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



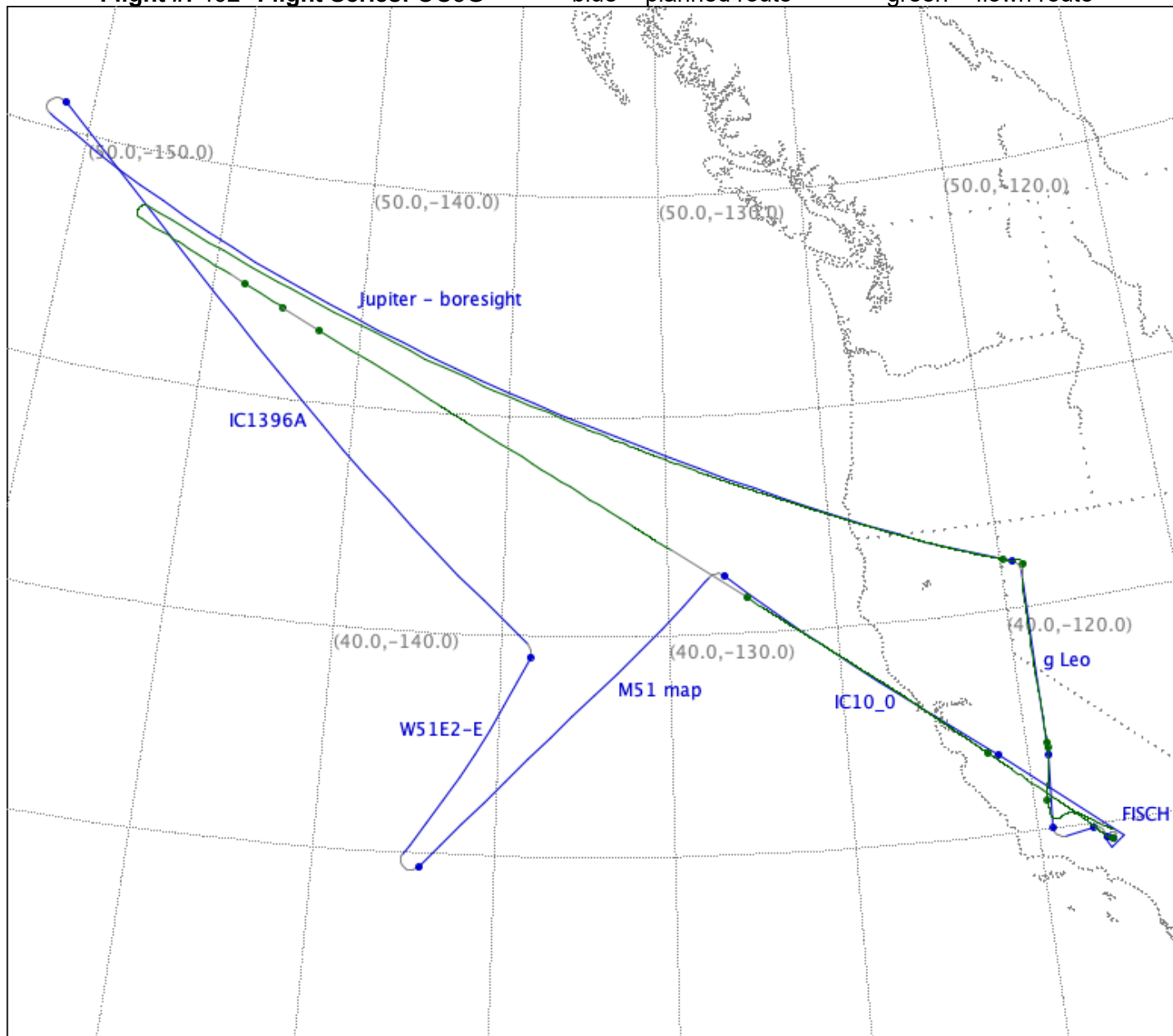
MISSION ID: 2017-06-08_GR_F402

Date: 2017-06-08 UT Instrument: GREAT

Flight #: 402 Flight Series: OC5G

blue = planned route

green = flown route



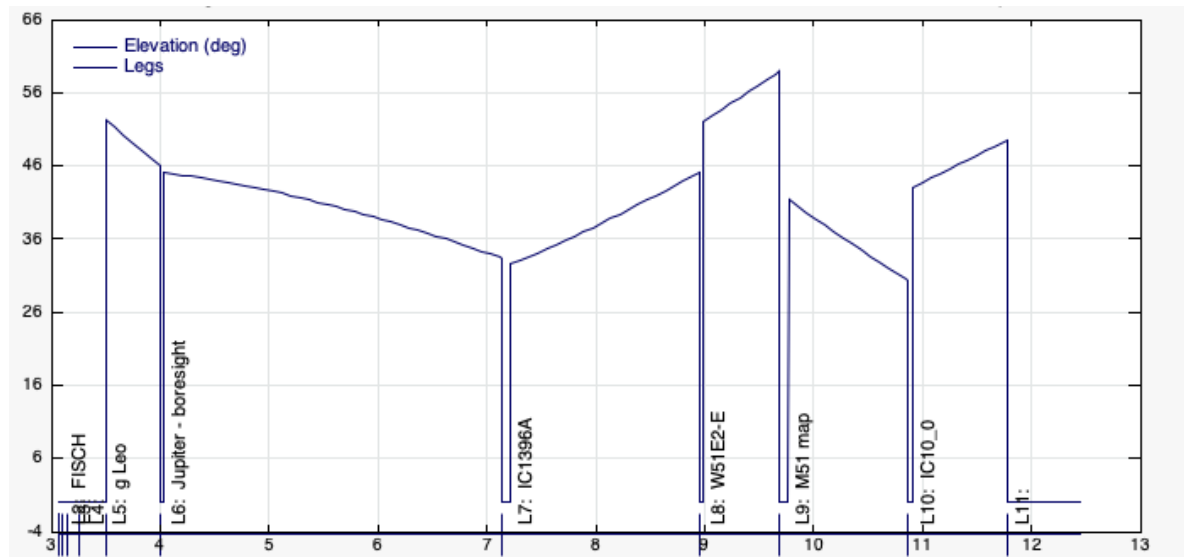
Flight notes:

GREAT software/hardware issues led to abort of flight and early return to Palmdale base.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 48455	09h51m53.04s	24d23m43.3s	3:37	30	Clouds.
6	90_0008	Calibration	Jupiter	12h49m56.62s	-03d49m39.4s	4:09	186	Clouds; GREAT suffered irrecoverable software/hardware issues; early return to base.
7	83_0427	GREAT Consortium	IC1396A	21h36m50.70s	57d31m10.0s	7:20	104	Leg not flown; early return to base
8	83_0501	GREAT Consortium	W51E2-E	19h23m43.96s	14d30m34.5s	9:06	42	Leg not flown; early return to base
9	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	9:53	66	Leg not flown; early return to base
10	83_0503	GREAT Consortium	IC10	00h20m27.74s	59d17m38.3s	11:02	52	Leg not flown; early return to base

Flown altitude (ft.) vs. time (UTC hrs.)

Planned target elevation (deg.) vs. time (UTC hrs.)



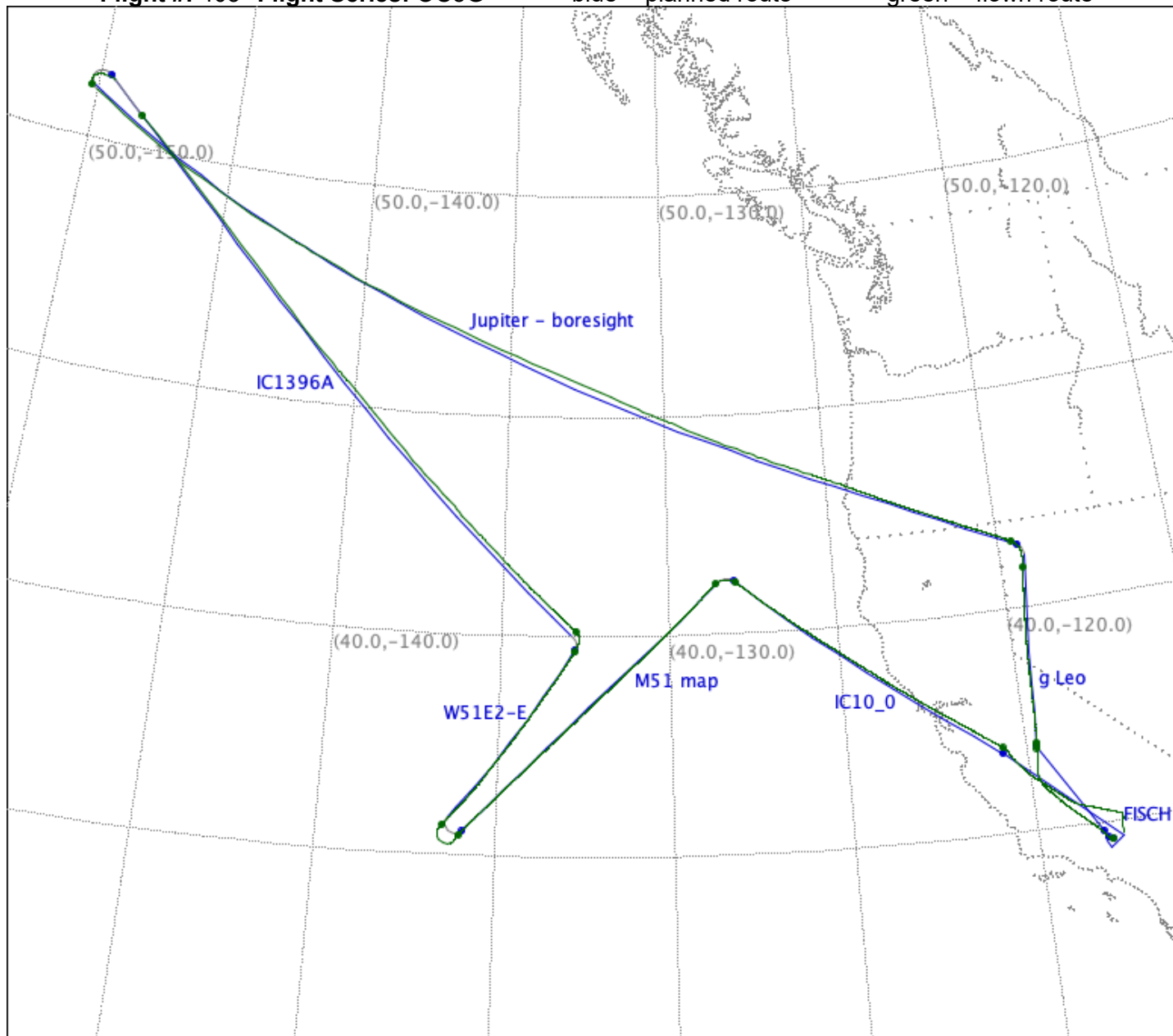
MISSION ID: 2017-06-09_GR_F403

Date: 2017-06-09 UT Instrument: GREAT

Flight #: 403 Flight Series: OC5G

blue = planned route

green = flown route

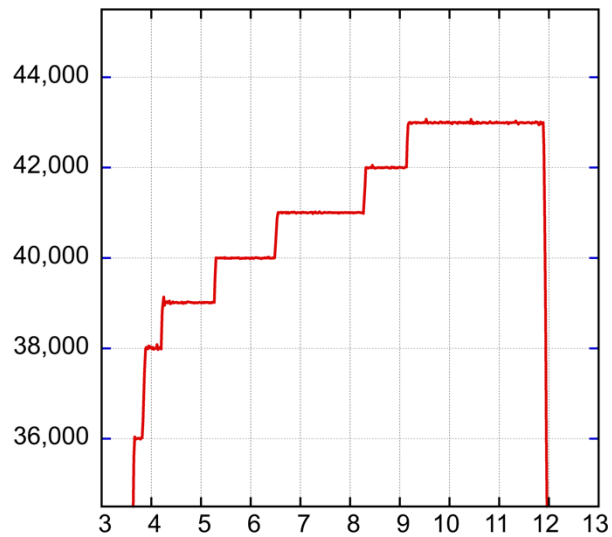


Flight notes:
No irregularities.

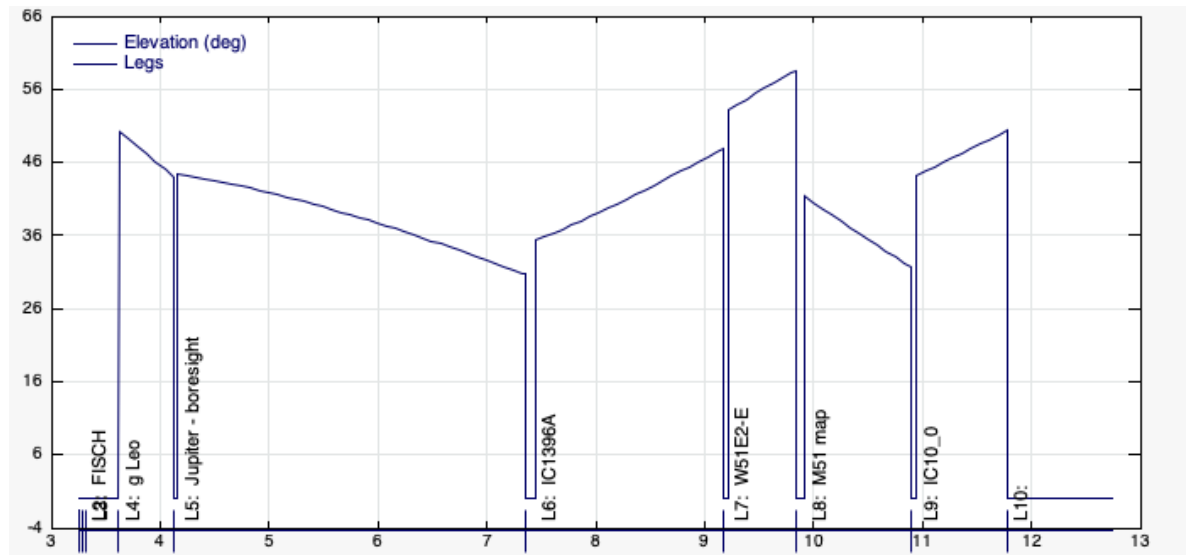
Flight 403 Mission ID 2017-06-09_GR_F403
 Palmdale to Palmdale Take off date UTC: 09-JUN-2017
 Departure UTC: 03:14 Arrival UTC: 12:26 Consortium flight HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 48455	09h51m53.04s	24d23m43.3s	3:38	30	
5	90_0008	Calibration	Jupiter	12h49m55.63s	-03d49m50.4s	4:10	192	
6	83_0427	GREAT Consortium	IC1396A	21h36m50.70s	57d31m10.0s	7:27	104	
7	83_0501	GREAT Consortium	W51E2-E	19h23m43.96s	14d30m34.5s	9:13	37	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	9:55	59	Turbulence. 4min lost.
9	83_0503	GREAT Consortium	IC10	00h20m27.74s	59d17m38.3s	10:57	50	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



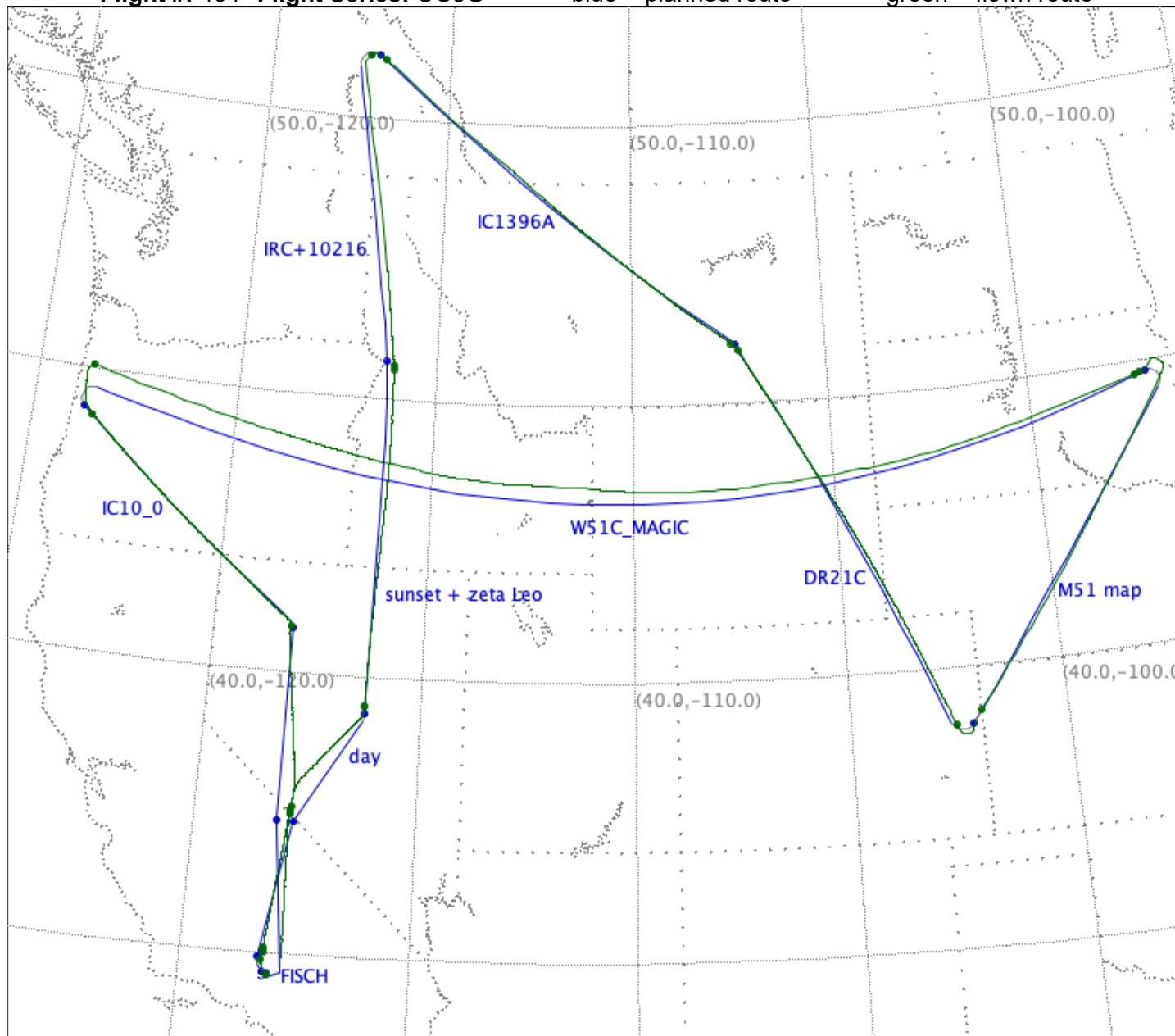
MISSION ID: 2017-06-10_GR_F404

Date: 2017-06-10 UT Instrument: GREAT

Flight #: 404 Flight Series: OC5G

blue = planned route

green = flown route

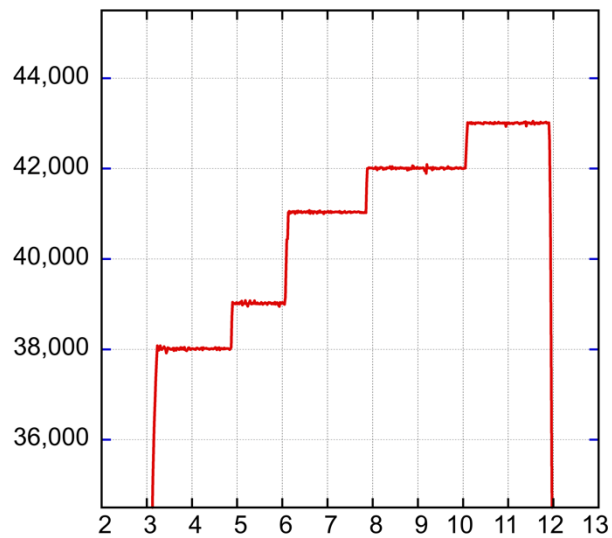


Flight notes: No irregularities.

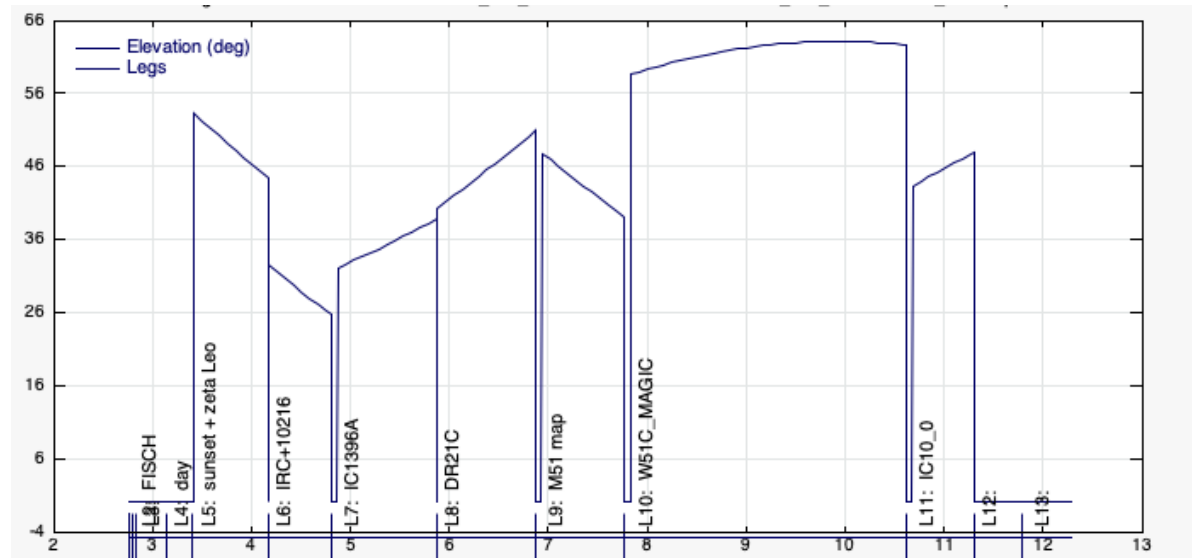
Flight 404 Mission ID 2017-06-10_GR_F404
 Palmdale to Palmdale Take off date UTC: 10-JUN-2017
 Departure UTC: 02:46 Arrival UTC: 12:24 Consortium flight HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 50335	10h16m41.42s	23d25m02.3s	3:25	45	
6	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	4:10	38	
7	83_0427	GREAT Consortium	IC1396A	21h36m50.70s	57d31m10.0s	4:52	60	
8	04_0111	Chambers	DR21C	20h39m00.90s	42d19m42.0s	5:53	60	
9	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	6:56	50	
10	83_0508	GREAT Consortium	W51C_MAGIC	19h22m54.36s	14d12m40.0s	7:50	167	
11	83_0503	GREAT Consortium	IC10	00h20m27.74s	59d17m38.3s	10:41	37	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



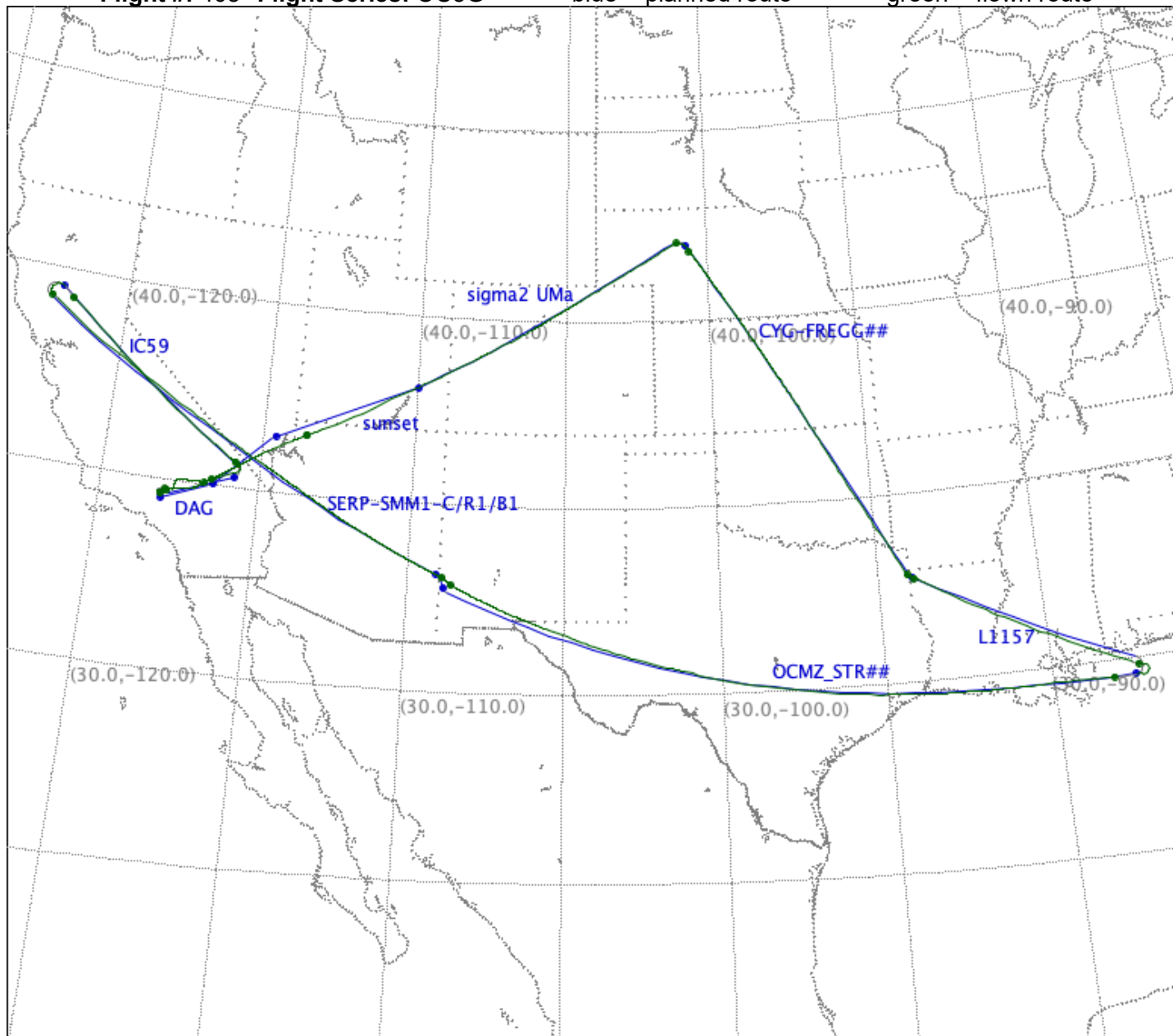
MISSION ID: 2017-06-13_GR_F405

Date: 2017-06-13 UT Instrument: GREAT

Flight #: 405 Flight Series: OC5G

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 405 Mission ID
Palmdale to Palmdale

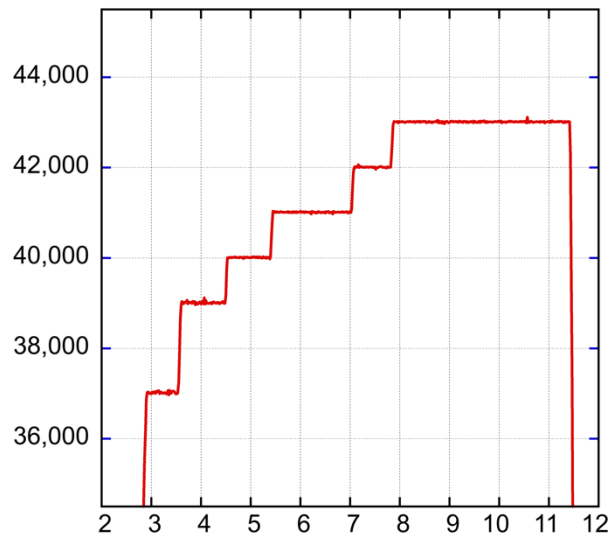
2017-06-13_GR_F405
Take off date UTC:
13-JUN-2017

Departure UTC: 02:19
Arrival UTC: 11:47

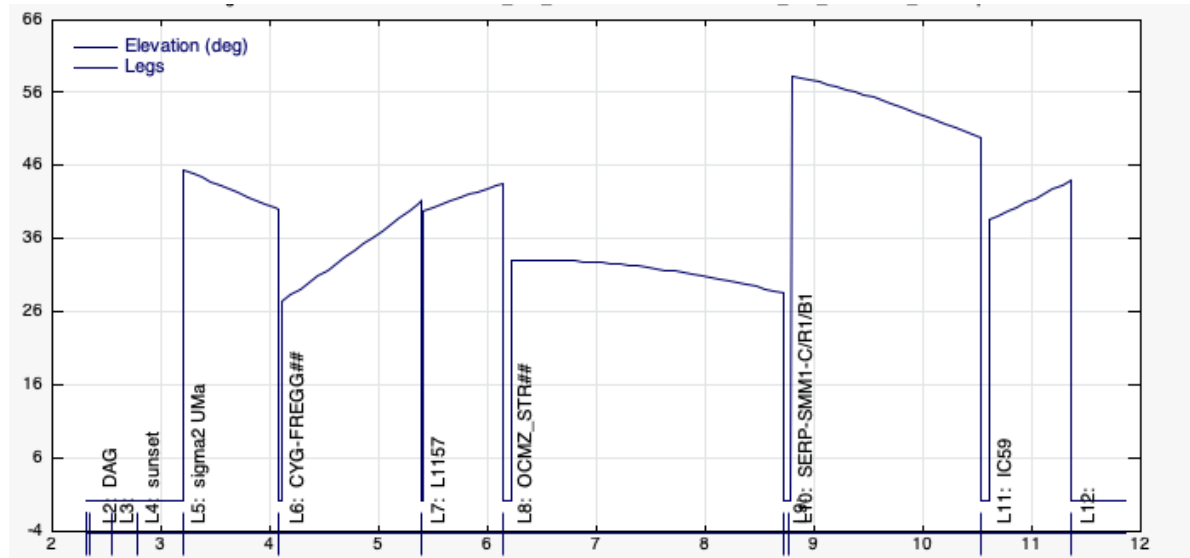
HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 45038A	09h10m23.55s	67d08m02.5s	3:12	52	
6	05_0176	Sahai	CYG-FREGG10	20h34m47.00s	41d14m43.0s	4:06	77	
7	05_0106	Kristensen	L1157	20h39m06.30s	68d02m15.8s	5:24	44	Clouds.
8	05_0076	Bally	OCMZ_STR1B	17h49m07.94s	-27d46m28.8s	6:12	150	
10	05_0067	Tolls	SERP-SMM1-C	18h29m50.50s	01d15m17.7s	8:47	104	
11	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	10:36	45	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



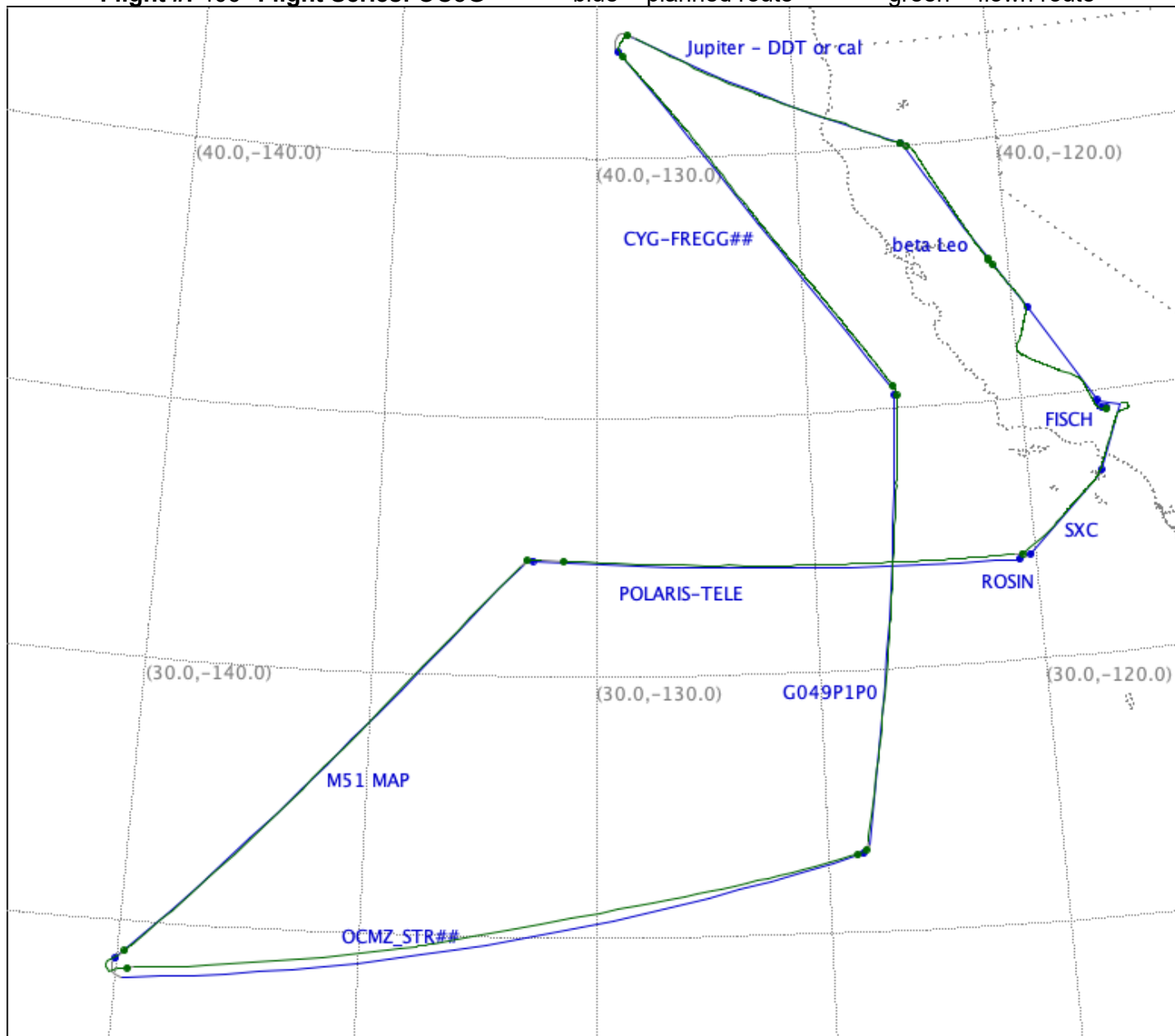
MISSION ID: 2017-06-14_GR_F406

Date: 2017-06-14 UT Instrument: GREAT

Flight #: 406 Flight Series: OC5G

blue = planned route

green = flown route

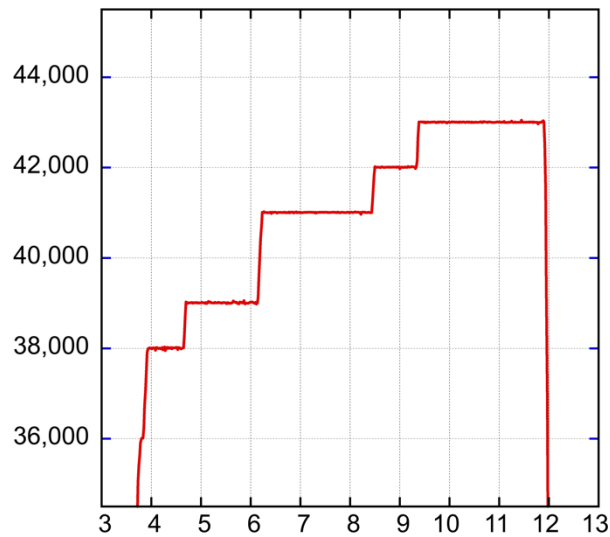


Flight notes:
No irregularities.

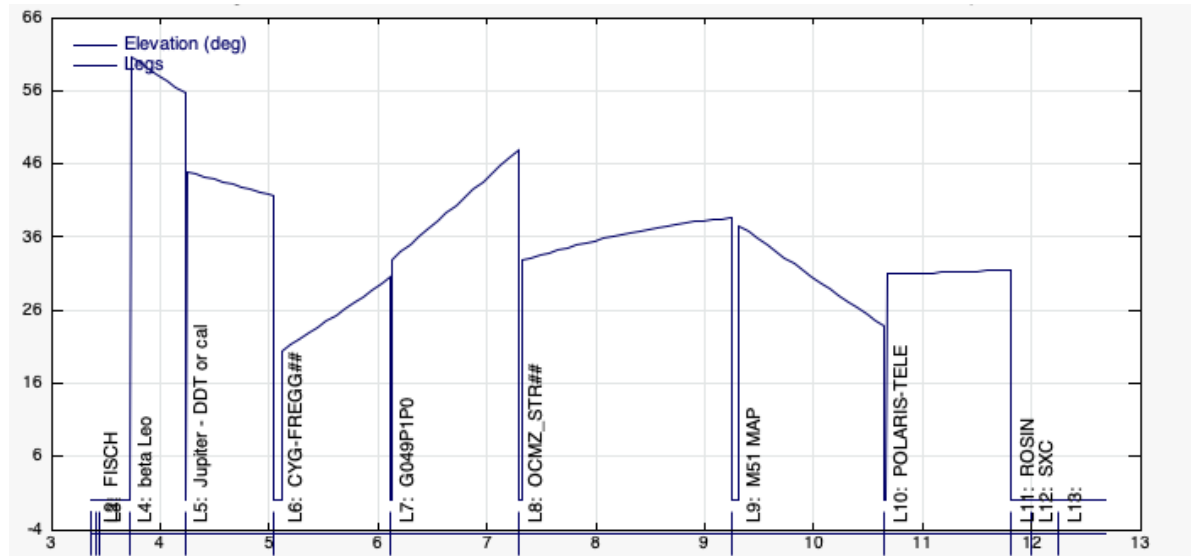
Flight 406 Mission ID 2017-06-14_GR_F406
 Palmdale to Palmdale Take off date UTC: 14-JUN-2017
 Departure UTC: 03:18 Arrival UTC: 12:23
 HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 57632	11h49m03.58s	14d34m19.4s	3:44	30	
5	90_0008	Calibration	Jupiter	12h50m00.61s	-03d51m48.2s	4:15	48	
6	05_0176	Sahai	CYG-FREGG10	20h34m47.00s	41d14m43.0s	5:07	60	
7	05_0015	Langer	G049.1	19h21m39.38s	14d23m30.6s	6:08	70	
8	05_0076	Bally	OCMZ_STR1B	17h49m07.94s	-27d46m28.8s	7:19	116	
9	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	9:19	80	
10	75_0020	Discretionary	POLARIS-TELE	01h59m32.00s	87d39m41.0s	10:40	68	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



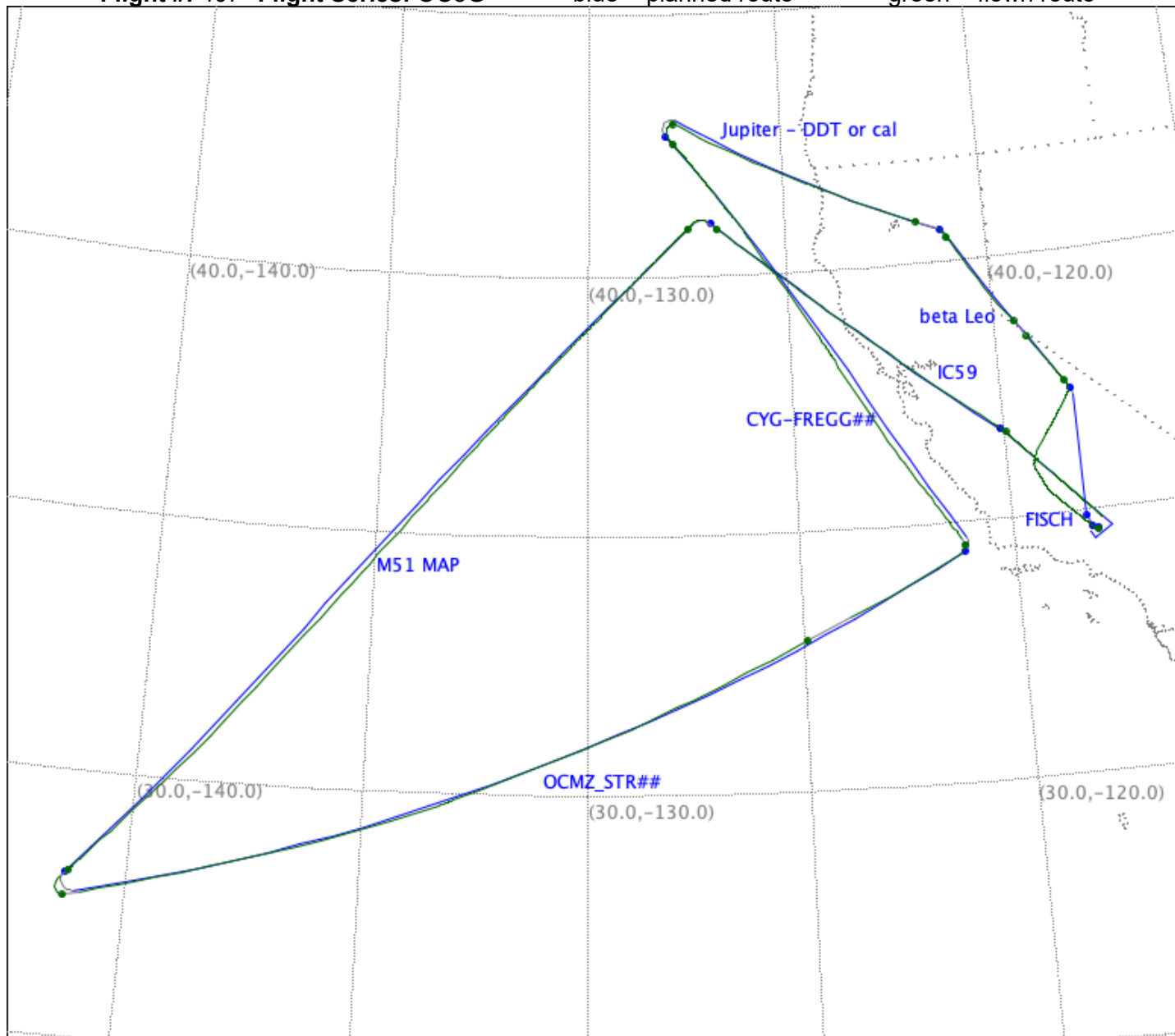
MISSION ID: 2017-06-15_GR_F407

Date: 2017-06-15 UT Instrument: GREAT

Flight #: 407 Flight Series: OC5G

blue = planned route

green = flown route



Flight notes:
No irregularities.

Flight 407 Mission ID
 Palmdale to Palmdale

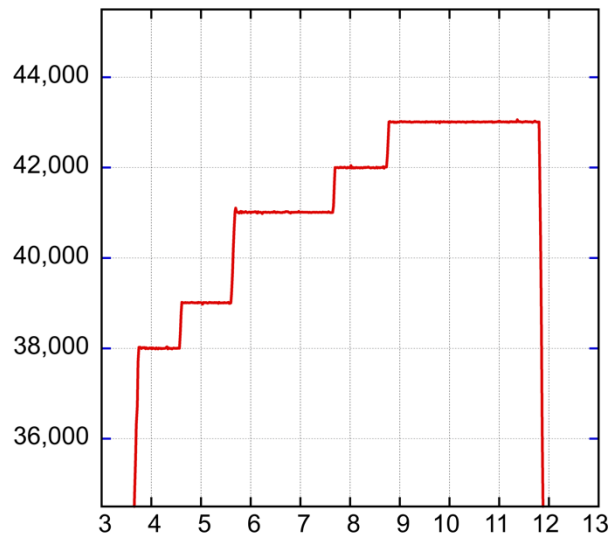
2017-06-15_GR_F407
 Take off date UTC:
 15-JUN-2017

Departure UTC: 03:14
 Arrival UTC: 12:22

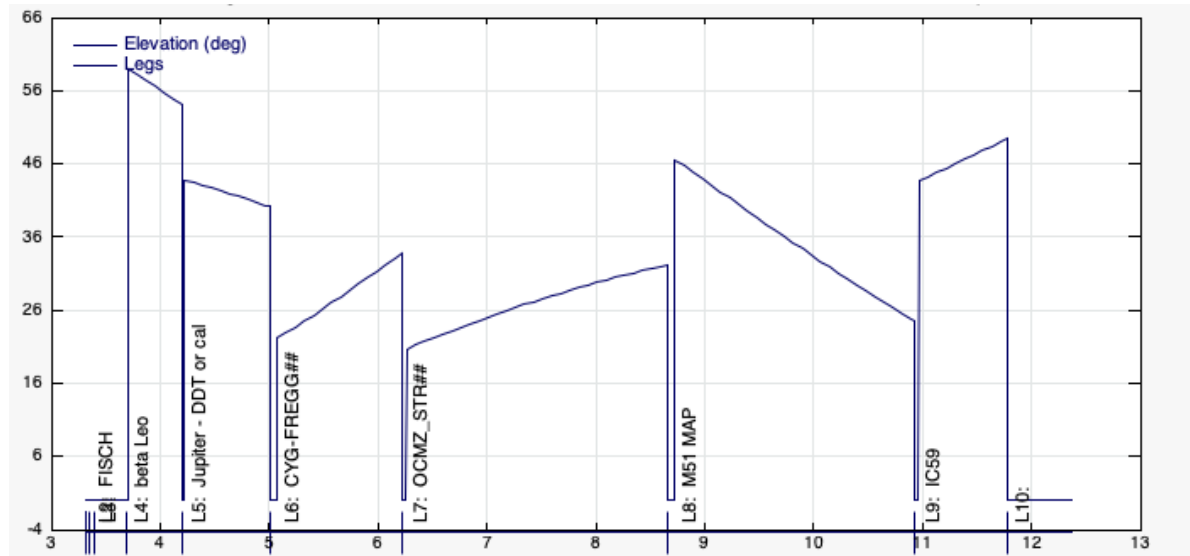
HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 57632	11h49m03.58s	14d34m19.4s	3:42	30	
5	90_0008	Calibration	Jupiter	12h50m03.58s	-03d52m24.2s	4:13	47	
6	05_0176	Sahai	CYG-FREGG10	20h34m47.00s	41d14m43.0s	5:04	69	
7	05_0076	Bally	OCMZ_STR1B	17h49m07.94s	-27d46m28.8s	6:16	144	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	8:44	132	
9	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	10:58	49	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

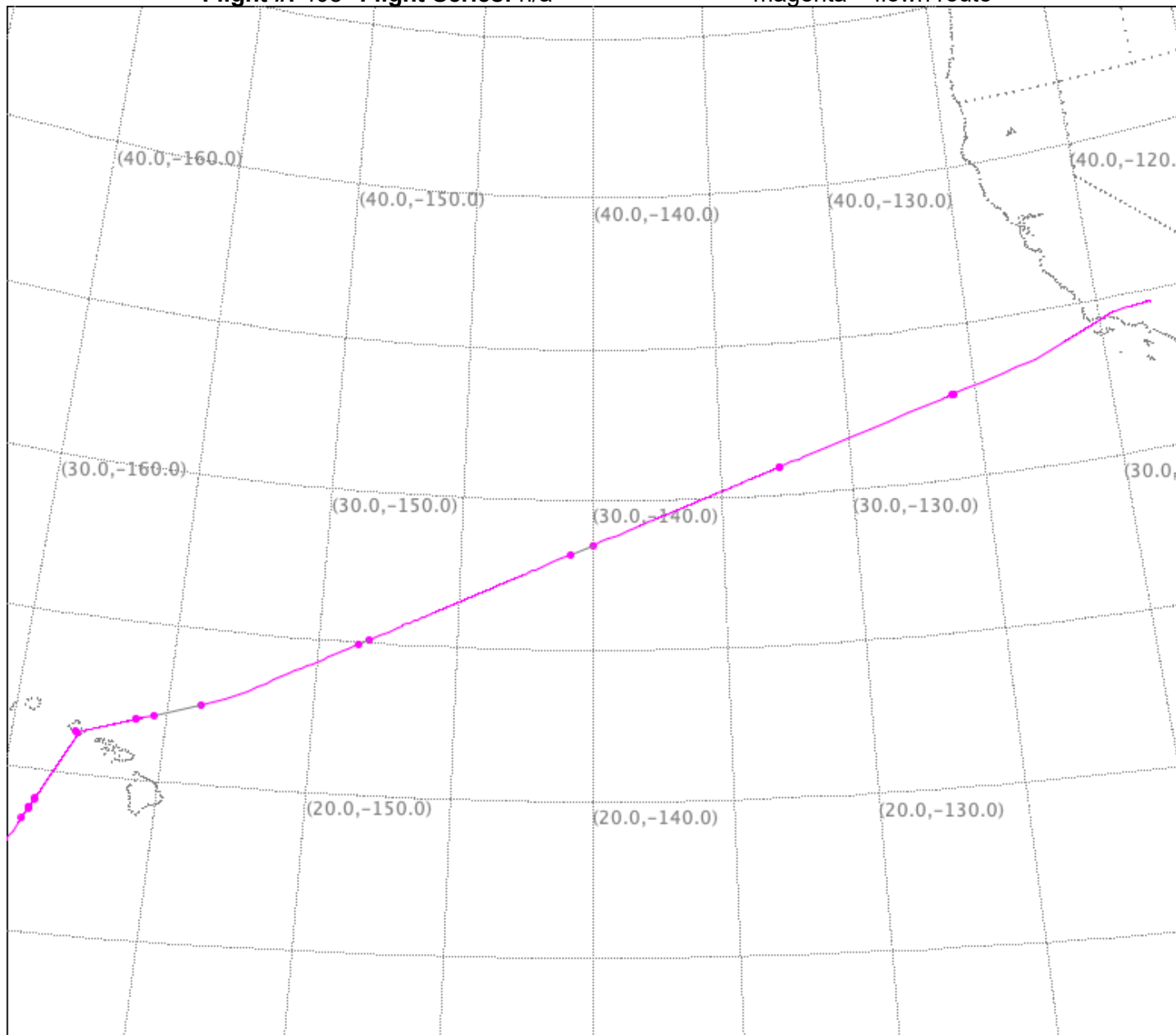


MISSION ID: 2017-06-22_NO_F408

Date: 2017-06-22 UT Instrument: n/a

Flight #: 408 Flight Series: n/a

magenta = flown route



Flight notes:

Ferry flight from Palmdale, CA to Honolulu, HI (no planned science).

Flight 408
Palmdale to
Honolulu

Mission ID 2017-06-22_NO_F408
Take off date UTC:
22-JUN-2017

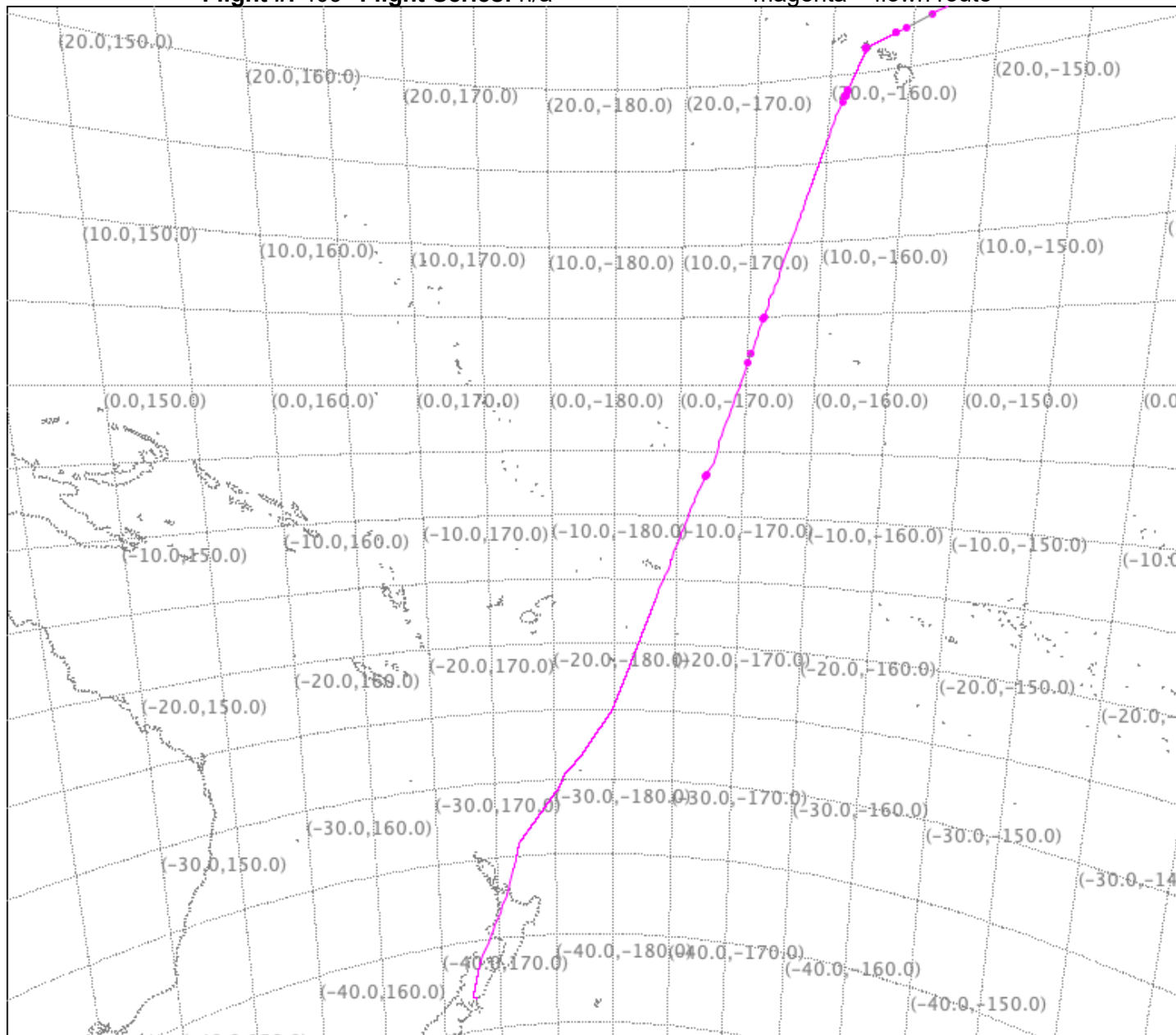
Departure UTC: Arrival UTC:
HH:MM HH:MM

MISSION ID: 2017-06-22_NO_F409

Date: 2017-06-22 UT Instrument: n/a

Flight #: 409 Flight Series: n/a

magenta = flown route



Flight notes:

Ferry flight from Honolulu, HI to Christchurch, New Zealand (no planned science).

Flight 409
Honolulu to
Christchurch

Mission ID 2017-06-22_NO_F409
Take off date UTC:
22-JUN-2017

Departure UTC: Arrival UTC:
HH:MM HH:MM

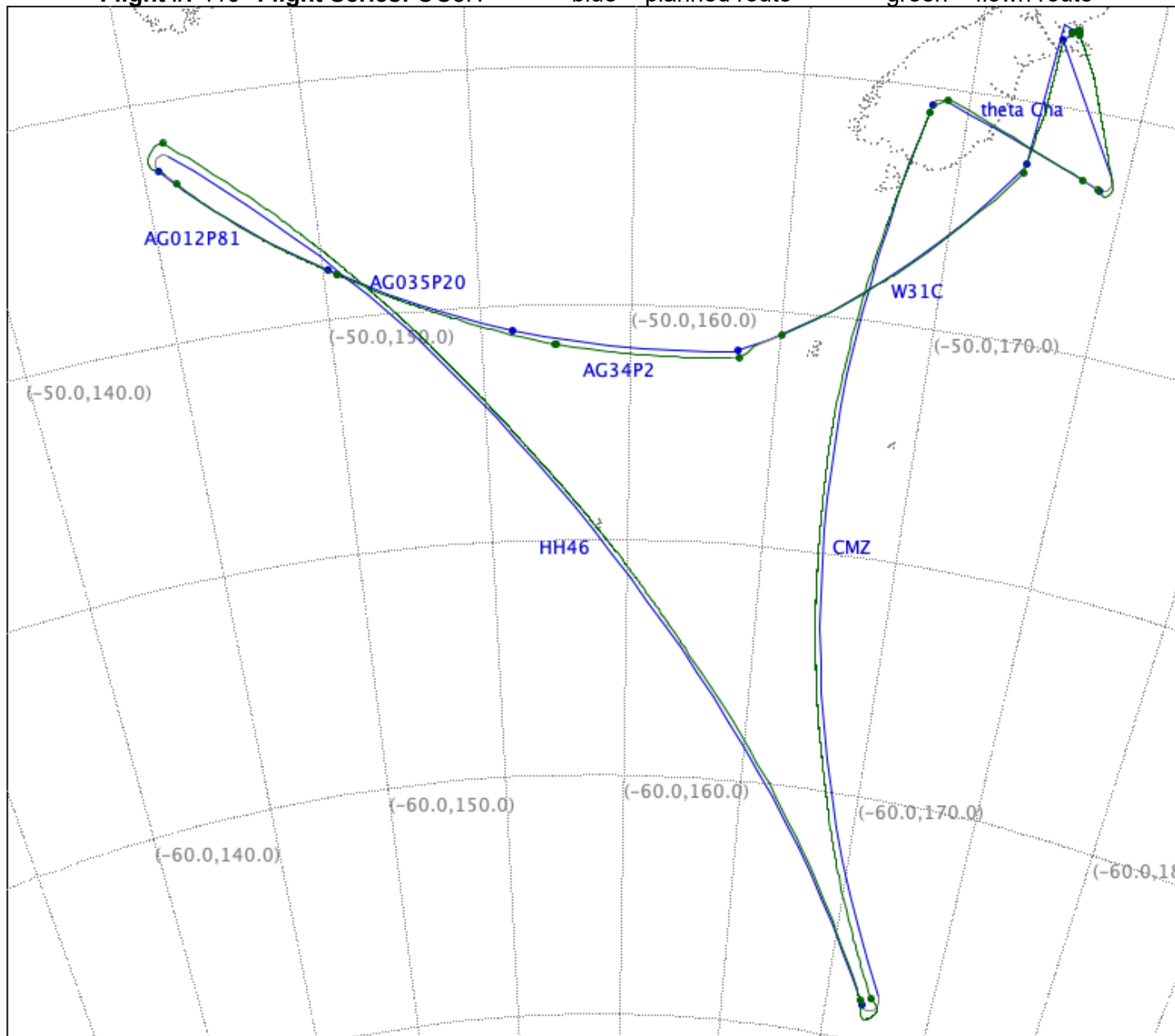
MISSION ID: 2017-06-26_GR_F410

Date: 2017-06-26 UT Instrument: GREAT

Flight #: 410 Flight Series: OC5H

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 410 Mission ID
Christchurch-
Christchurch

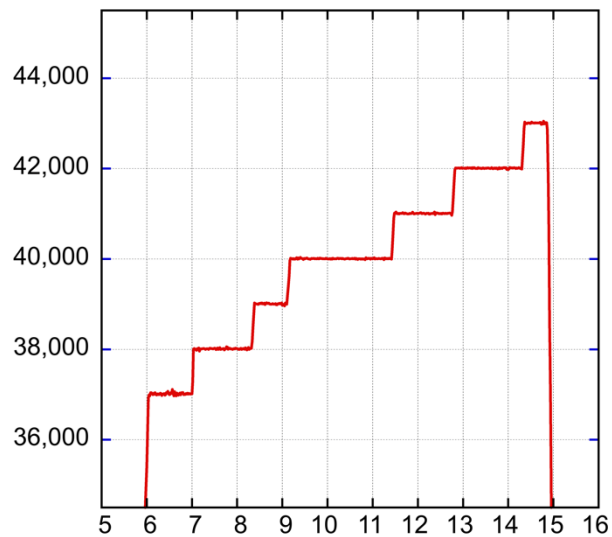
2017-06-26_GR_F410
Take off date UTC:
26-JUN-2017

Departure UTC: 05:34
Arrival UTC: 15:18

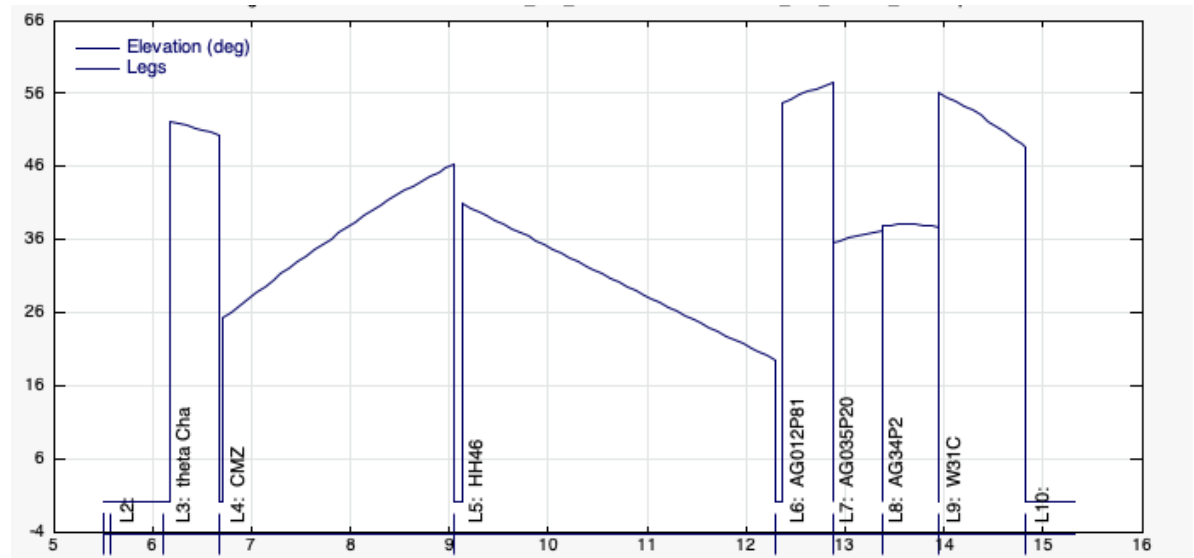
HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 40888	08h20m38.54s	-77d29m04.1s	6:10	30	
4	05_0033	Guesten	CMZ	17h45m37.22s	-28d56m10.2s	6:43	140	
5	05_0196	Leurini	HH46	08h25m43.90s	-51d00m36.0s	9:07	190	
6	05_0197	Leurini	AG012.81	18h14m13.55s	-17d55m32.0s	12:22	30	
7	05_0197	Leurini	AG035.20	18h58m13.08s	01d40m38.2s	12:52	30	
8	05_0205	Menten	AG34.2	18h53m18.49s	01d14m58.7s	13:22	34	
9	05_0205	Menten	W31C	18h10m28.70s	-19d55m50.0s	13:56	52	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



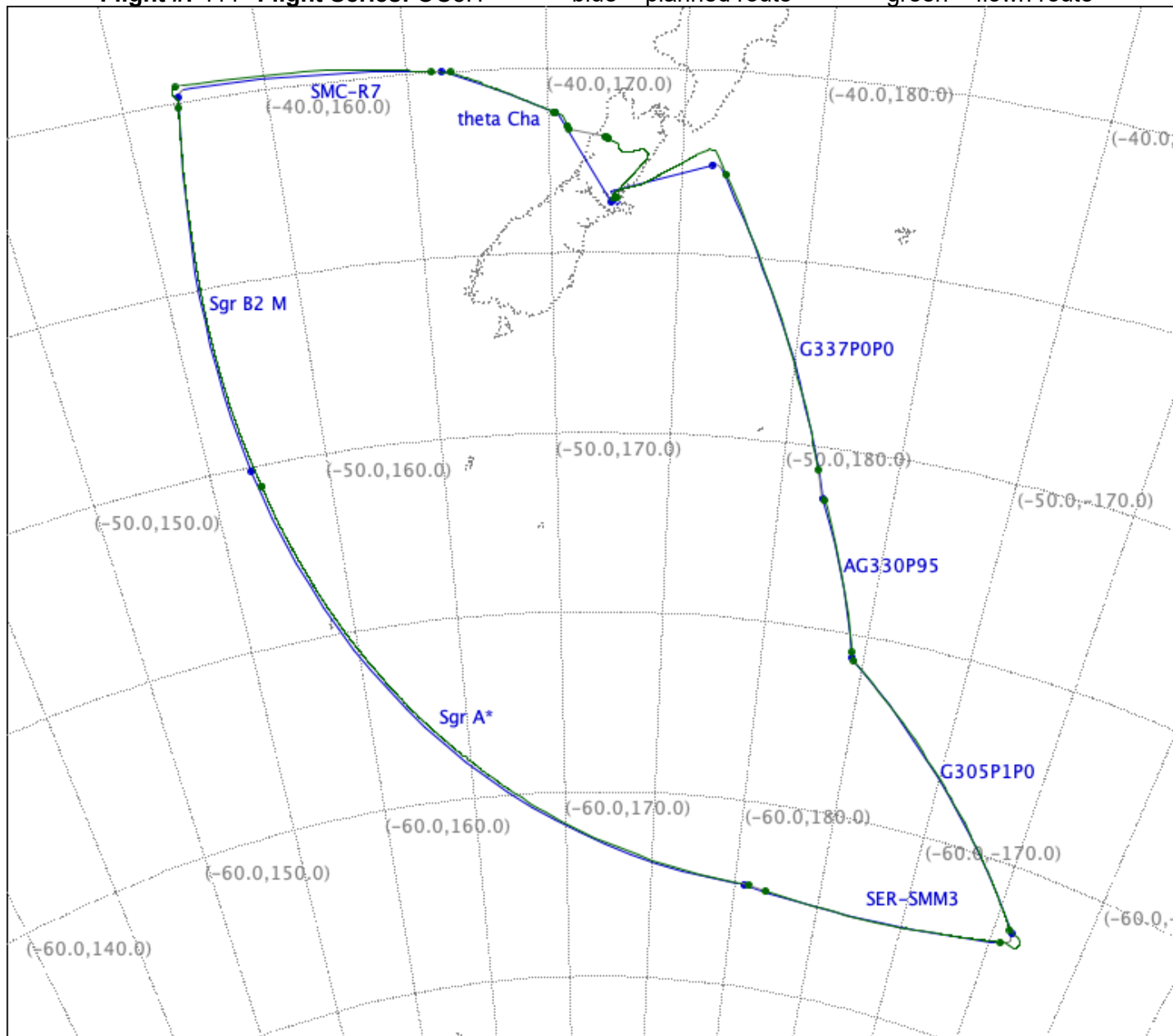
MISSION ID: 2017-06-28_GR_F411

Date: 2017-06-28 UT Instrument: GREAT

Flight #: 411 Flight Series: OC5H

blue = planned route

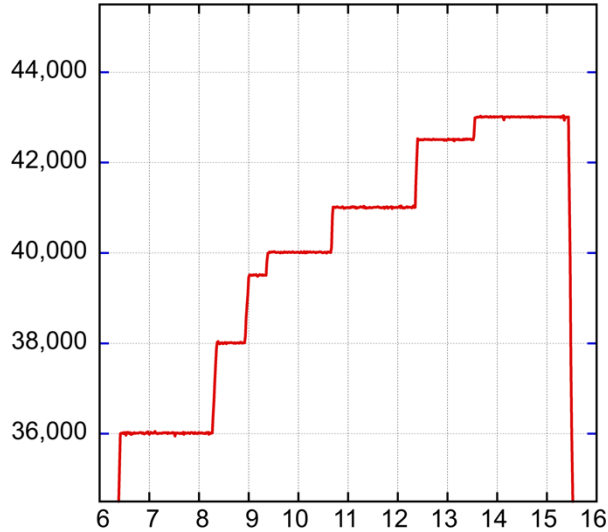
green = flown route



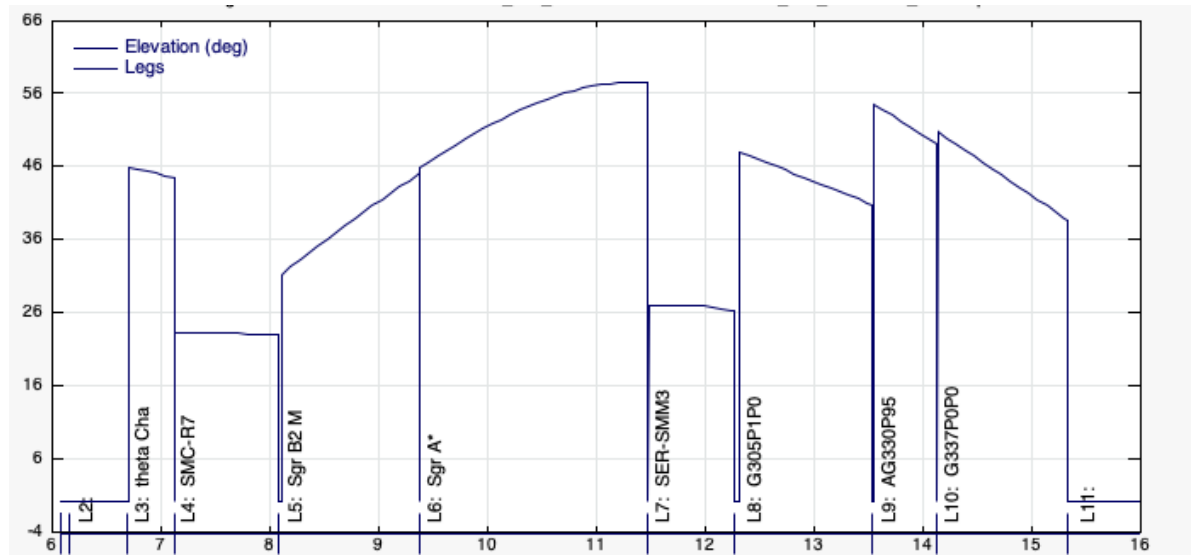
**Flight notes:
No irregularities.**

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP40888	08h20m38.54s	-77d29m04.1s	6:42	25	
4	05_0210	Herrera-Camus	SMC-R7	00h52m53.00s	-73d11m06.0s	7:07	57	
5	05_0209	Giesen	SRGB2M	17h47m20.16s	-28d23m04.5s	8:07	76	
6	05_0102	Morris	SGRASTAR	17h45m40.04s	-29d00m28.1s	9:43	126	
7	05_0106	Kristensen	SER-SMM3	18h29m59.20s	01d14m00.3s	11:29	47	
8	05_0015	Langer	G305.1	13h10m28.49s	-62d47m28.9s	12:19	73	
9	05_0197	Leurini	AG330.95	16h09m52.37s	-51d54m57.6s	13:33	35	
10	05_0015	Langer	G337.0	16h35m17.99s	-47d31m43.3s	14:08	72	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



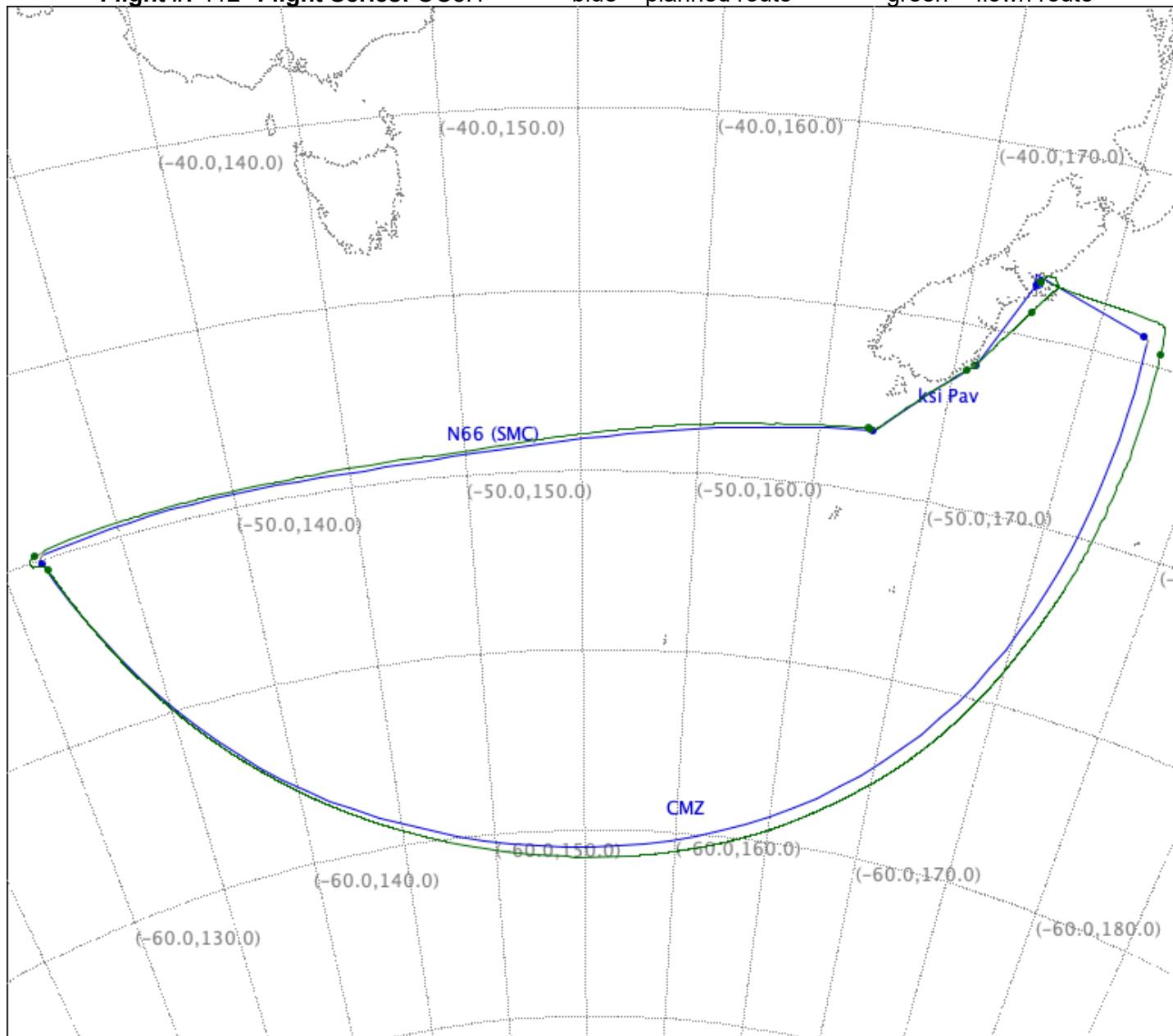
MISSION ID: 2017-06-29_GR_F412

Date: 2017-06-29 UT Instrument: GREAT

Flight #: 412 Flight Series: OC5H

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

Flight 412 Mission ID
Christchurch-
Christchurch

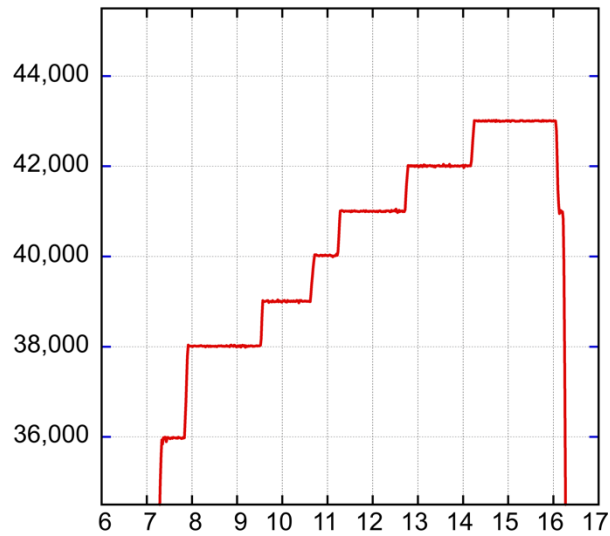
2017-06-29_GR_F412
Take off date UTC:
29-JUN-2017

Departure UTC: 06:51
Arrival UTC: 16:47

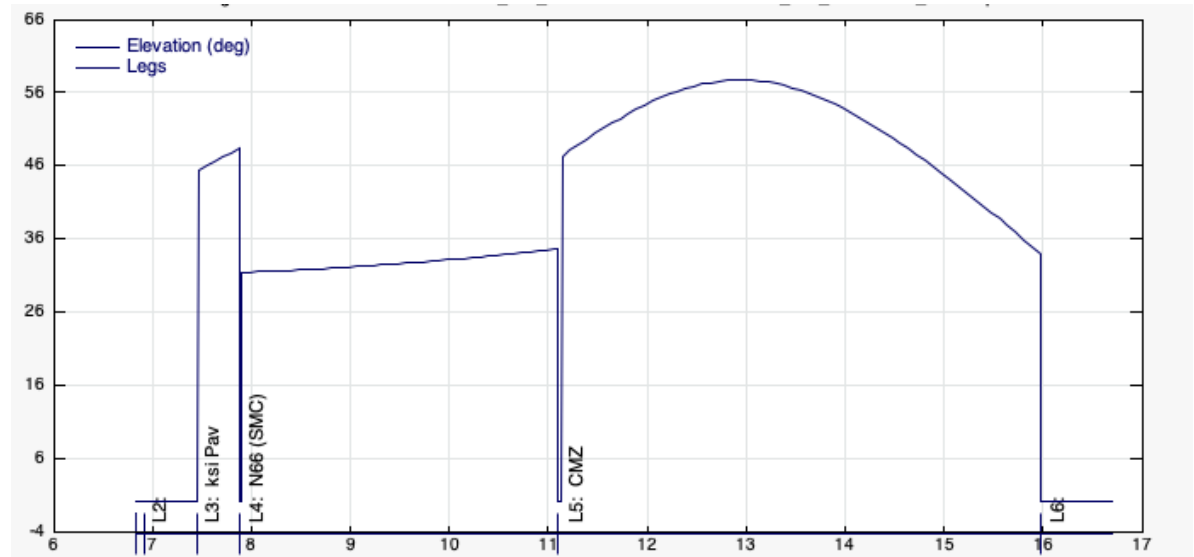
HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 90098	18h23m13.62s	-61d29m38.1s	7:27	25	
4	83_0415	GREAT Consortium	SMC N66 ridge	00h59m06.90s	-72d10m29.6s	7:54	192	
5	05_0033	Guesten	CMZ	17h45m37.22s	-28d56m10.2s	11:08	290	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



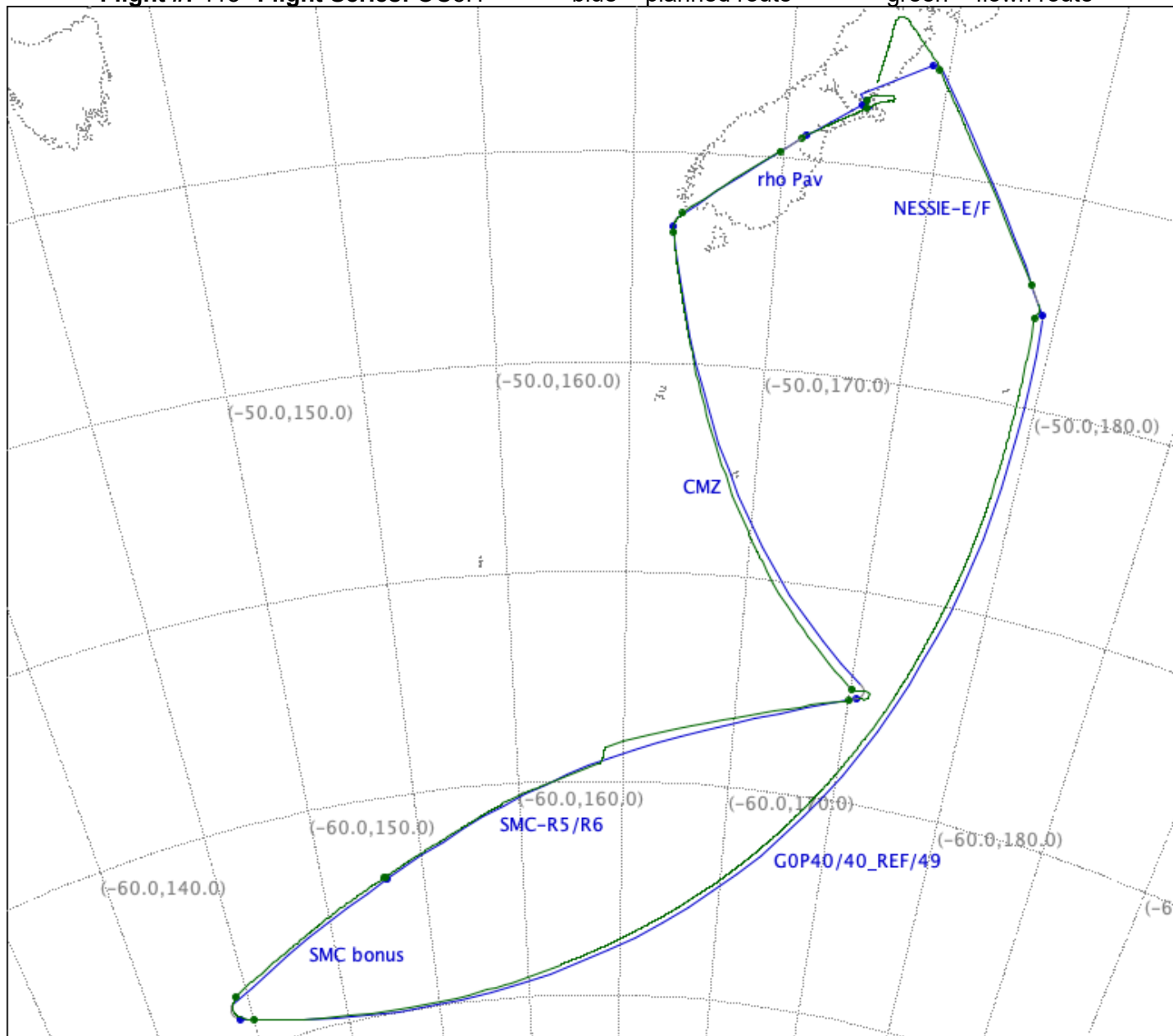
MISSION ID: 2017-07-03_GR_F413

Date: 2017-07-03 UT Instrument: GREAT

Flight #: 413 Flight Series: OC5H

blue = planned route

green = flown route



Flight notes:
No irregularities.

Flight 413 Mission ID
 Christchurch-Christchurch

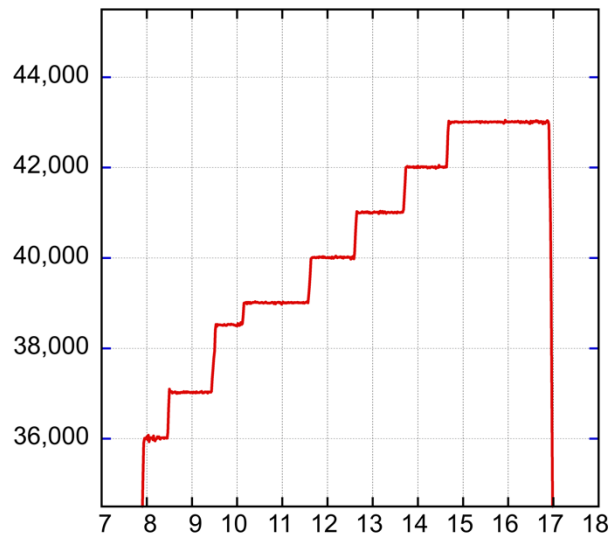
2017-07-03_GR_F413
 Take off date UTC:
 03-JUL-2017

Departure UTC: 07:30
 Arrival UTC: 17:17

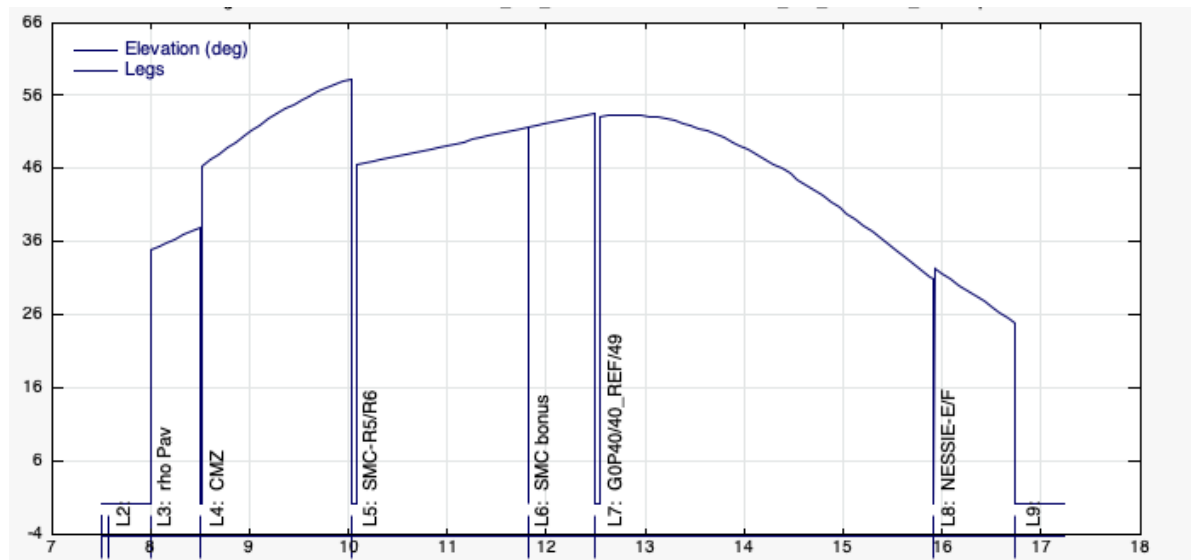
HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 101773	20h37m35.31s	-61d31m47.7s	8:00	30	
4	05_0022	Harris	SGRB2_CMZ	17h47m24.60s	-28d23m16.3s	8:31	90	
5	05_0210	Herrera-Camus	SMC-R5	00h45m18.00s	-73d22m43.0s	10:04	104	
6	05_0210	Herrera-Camus	SMC-R5	00h45m18.00s	-73d22m43.0s	12:23	40	
7	05_0021	Ragan	G0.40	17h46m27.39s	-28d30m47.9s	12:32	202	
8	05_0122	Jackson	NESSIE-E	16h44m49.13s	-46d25m18.4s	15:55	49	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



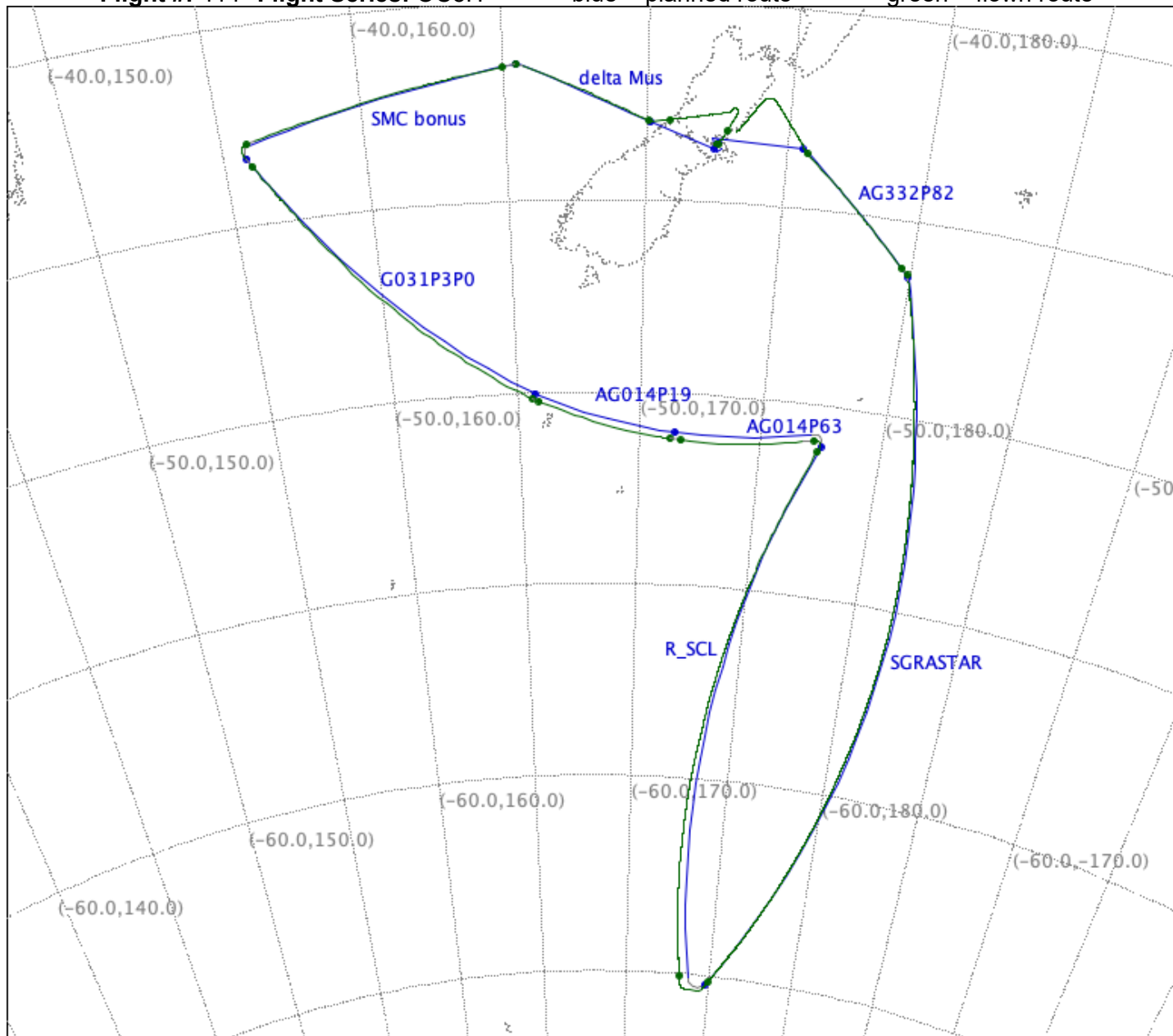
MISSION ID: 2017-07-04_GR_F414

Date: 2017-07-04 UT Instrument: GREAT

Flight #: 414 Flight Series: OC5H

blue = planned route

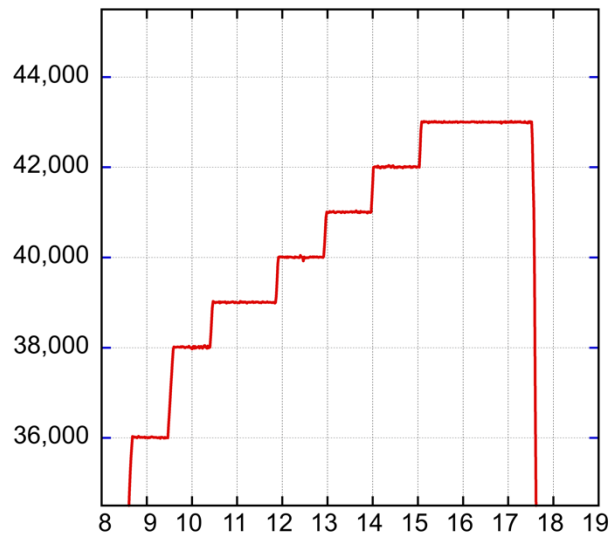
green = flown route



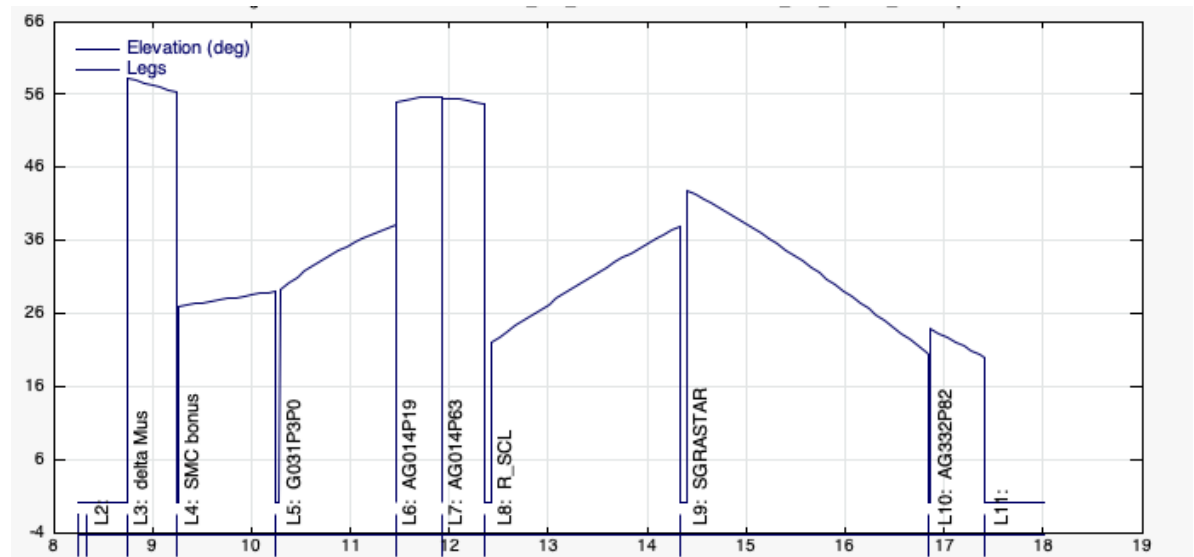
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 63613	13h02m16.26s	-71d32m55.9s	8:45	30	
4	05_0210	Herrera-Camus	SMC-R7	00h52m53.00s	-73d11m06.0s	9:15	59	
5	05_0015	Langer	G031.3	18h48m25.08s	-01d28m23.4s	10:17	70	
6	05_0197	Leurini	AG014.19	18h16m58.80s	-16d42m16.2s	11:27	28	
7	05_0197	Leurini	AG014.63	18h19m15.21s	-16d30m04.5s	12:10	26	
8	05_0058	Olofsson	R_SCL	01h26m58.09s	-32d32m35.4s	12:25	115	
9	05_0102	Morris	SGRASTAR	17h45m40.04s	-29d00m28.1s	14:24	147	
10	05_0197	Leurini	AG332.82	16h20m10.85s	-50d53m14.2s	16:52	33	SI had tuning problems; some data partially compromised.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



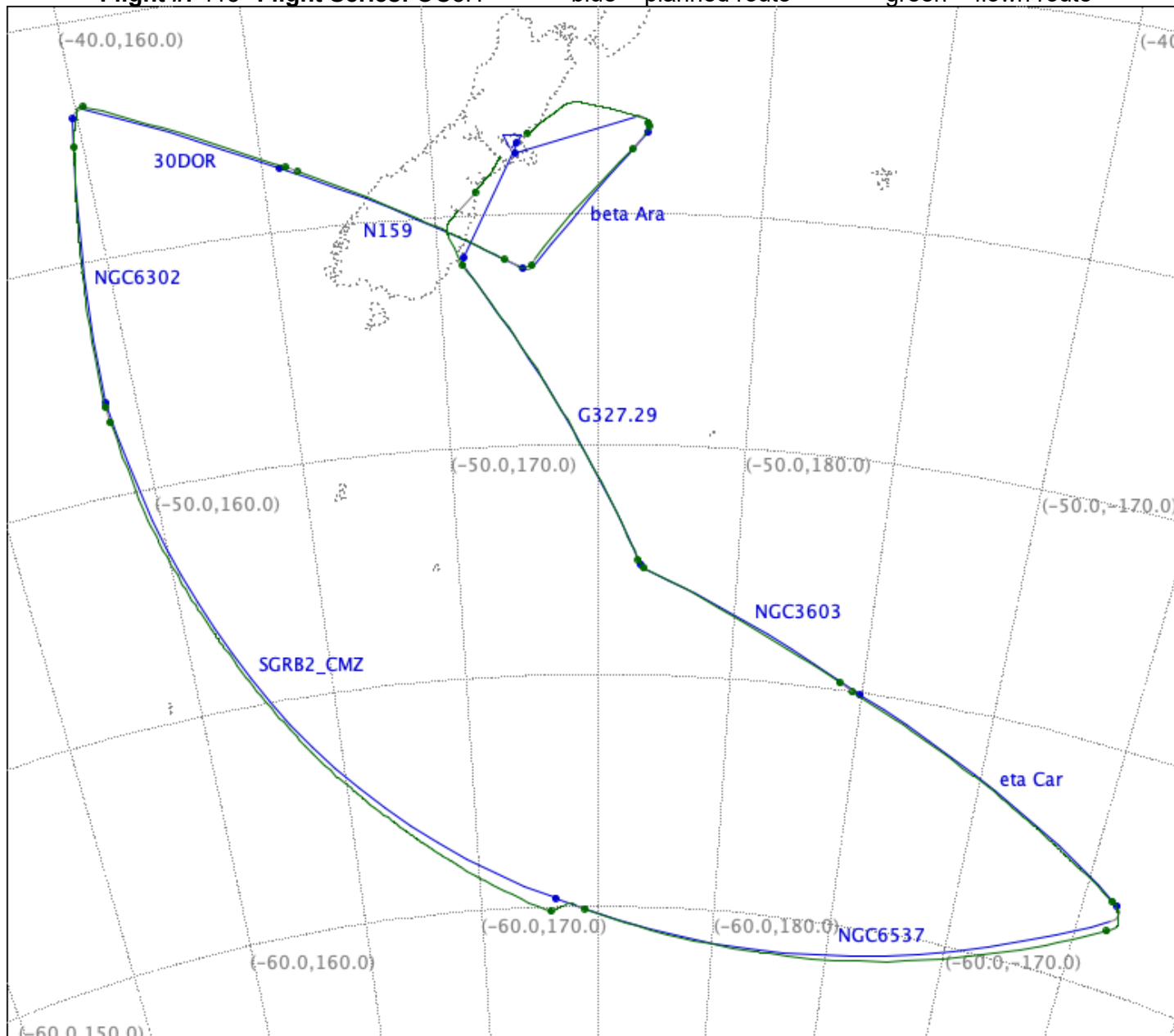
MISSION ID: 2017-07-05_GR_F415

Date: 2017-07-05 UT Instrument: GREAT

Flight #: 415 Flight Series: OC5H

blue = planned route

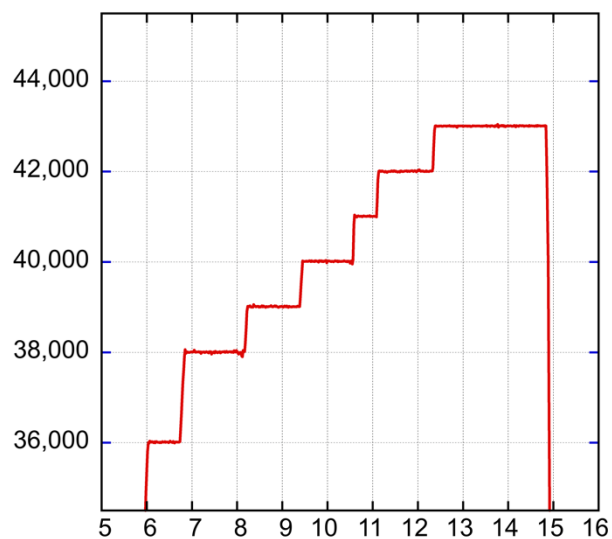
green = flown route



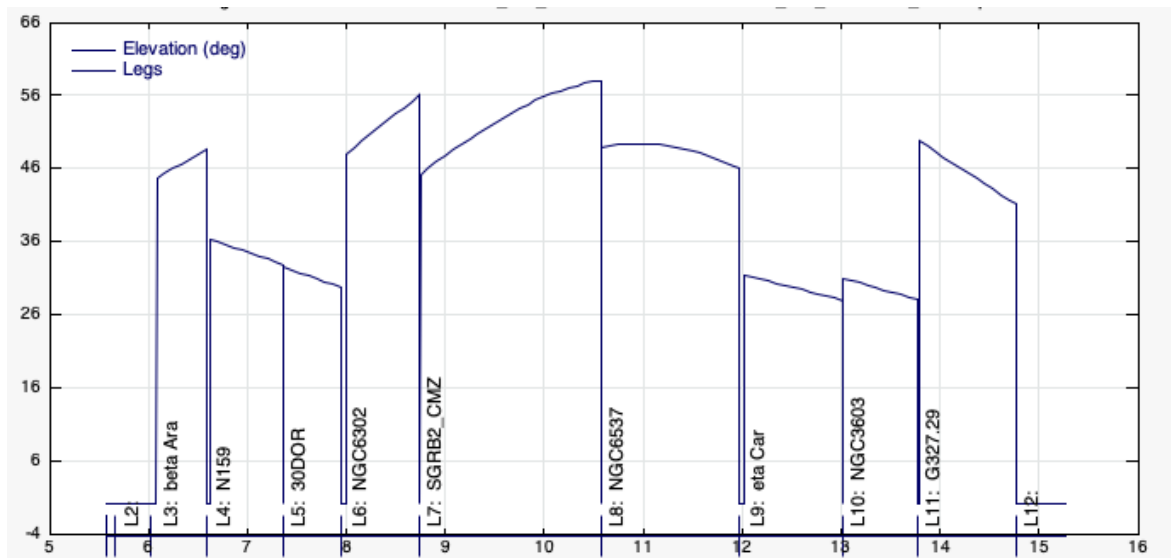
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 85258	17h25m17.99s	-55d31m47.6s	6:05	30	
4	83_0509	GREAT Consortium	N159	05h39m51.10s	-69d45m12.9s	6:37	45	
5	83_0509	GREAT Consortium	30DOR	05h39m03.00s	-69d07m36.0s	7:57	35	
6	83_0413	GREAT Consortium	NGC6302	17h13m44.21s	-37d06m15.9s	7:59	45	
7	83_0510	GREAT Consortium	SGRB2_CMZ	17h47m24.60s	-28d23m16.3s	8:44	110	
8	83_0418	GREAT Consortium	NGC6537	18h05m13.10s	-19d50m34.9s	10:34	83	
9	83_0512	GREAT Consortium	eta Car	10h45m03.41s	-59d41m03.8s	12:01	60	
10	83_0412	GREAT Consortium	NGC3603	11h15m15.10s	-61d17m35.0s	13:01	45	
11	83_0513	GREAT Consortium	G327.29	15h53m08.55s	-54d37m05.1s	13:47	59	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



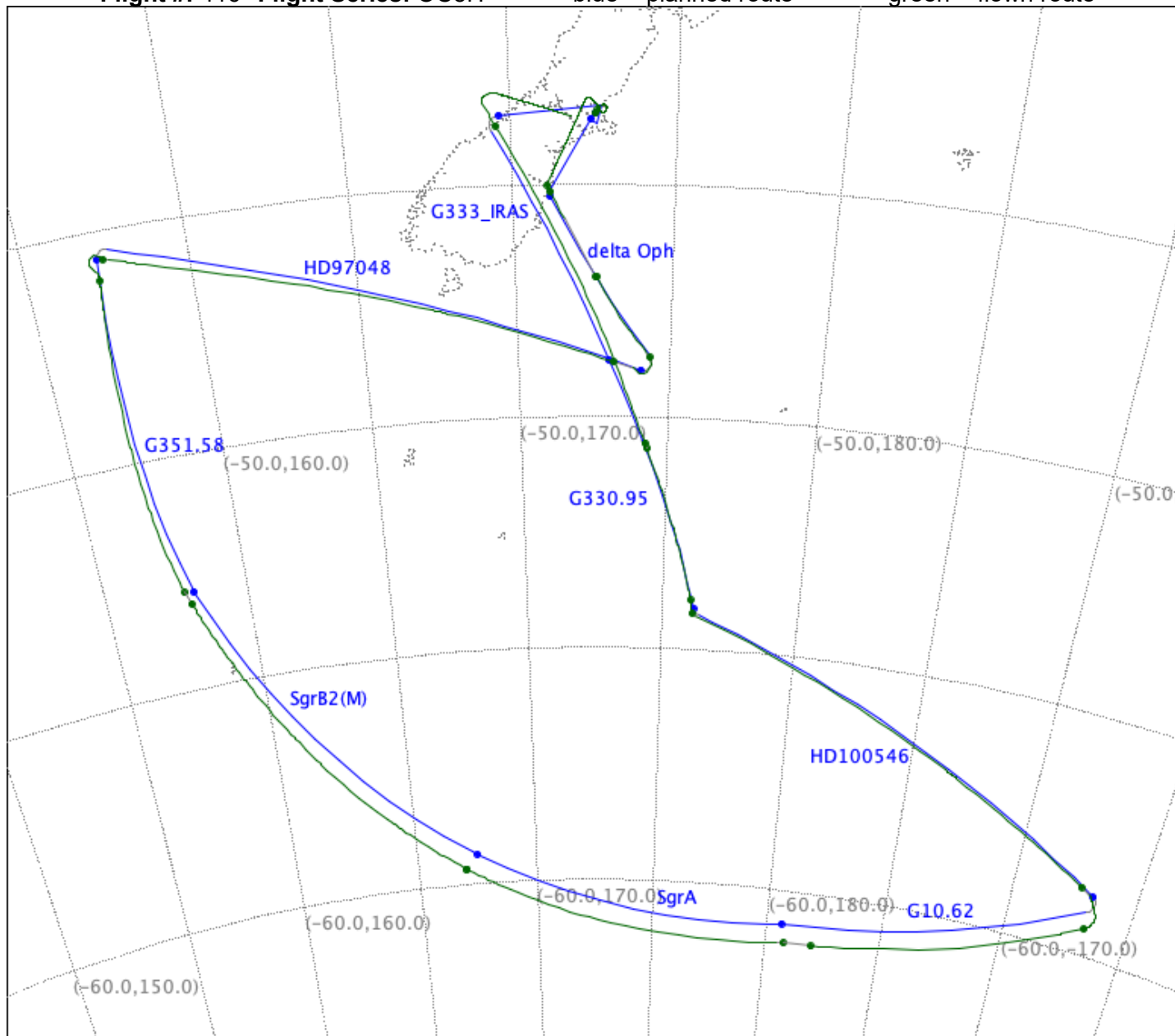
MISSION ID: 2017-07-06_GR_F416

Date: 2017-07-06 UT Instrument: GREAT

Flight #: 416 Flight Series: OC5H

blue = planned route

green = flown route

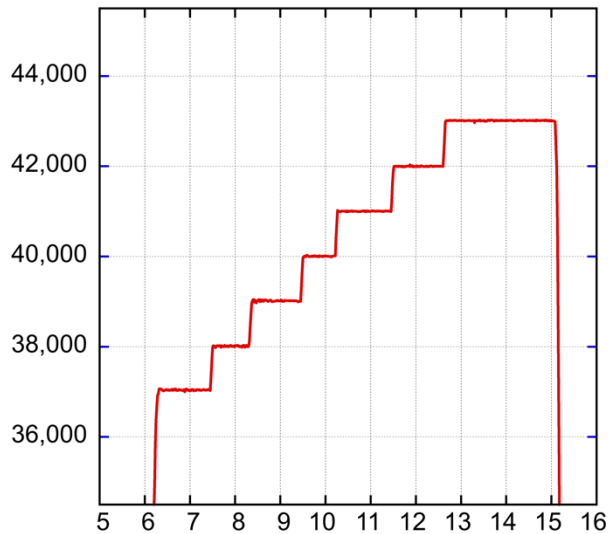


Flight notes: No irregularities.

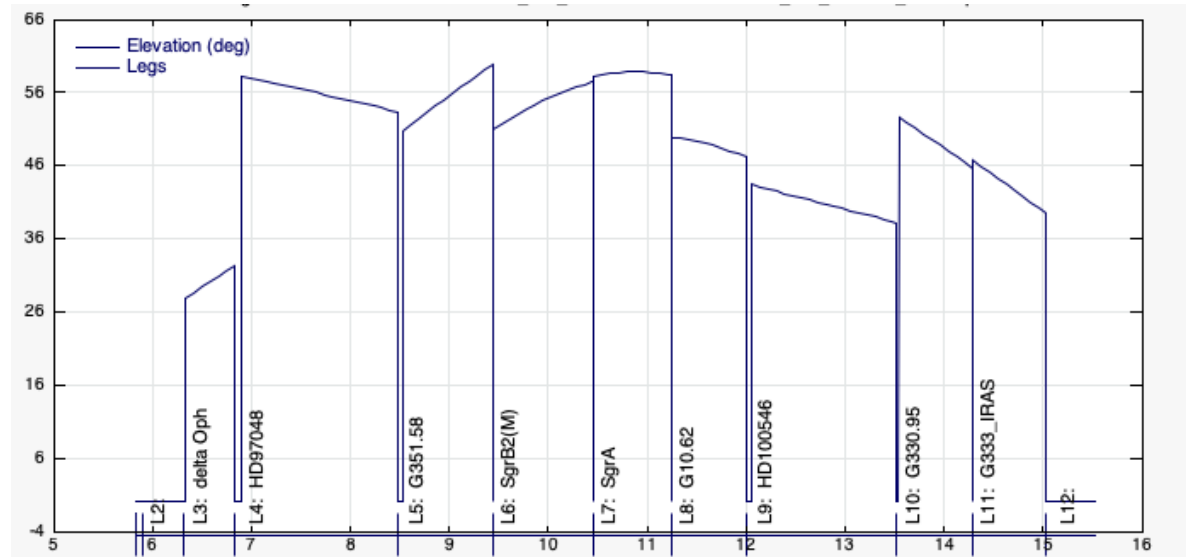
Flight 416 Mission ID 2017-07-06_GR_F416
 Christchurch-Christchurch Take off date UTC: 06-JUL-2017
 Departure UTC: 05:48 Arrival UTC: 15:33 Consortium flight HFA/LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 79593	16h14m20.74s	-03d41m39.6s	6:20	30	
4	83_0514	GREAT Consortium	HD97048	11h08m03.32s	-77d39m17.5s	6:53	95	
5	83_0513	GREAT Consortium	G351.58	17h25m25.03s	-36d12m45.3s	8:31	55	
6	83_0513	GREAT Consortium	SgrB2(M)	17h47m20.16s	-28d23m04.5s	9:26	61	
7	83_0513	GREAT Consortium	SgrA	17h45m40.04s	-29d00m28.1s	10:42	47	
8	83_0513	GREAT Consortium	G10.62	18h10m28.70s	-19d55m50.0s	11:14	45	
9	83_0514	GREAT Consortium	HD100546	11h33m25.40s	-70d11m41.2s	12:03	88	
10	83_0513	GREAT Consortium	G330.95	16h09m53.01s	-51d54m55.0s	13:32	45	
11	83_0422	GREAT Consortium	G333_IRAS	16h21m02.00s	-50d35m09.0s	14:17	44	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



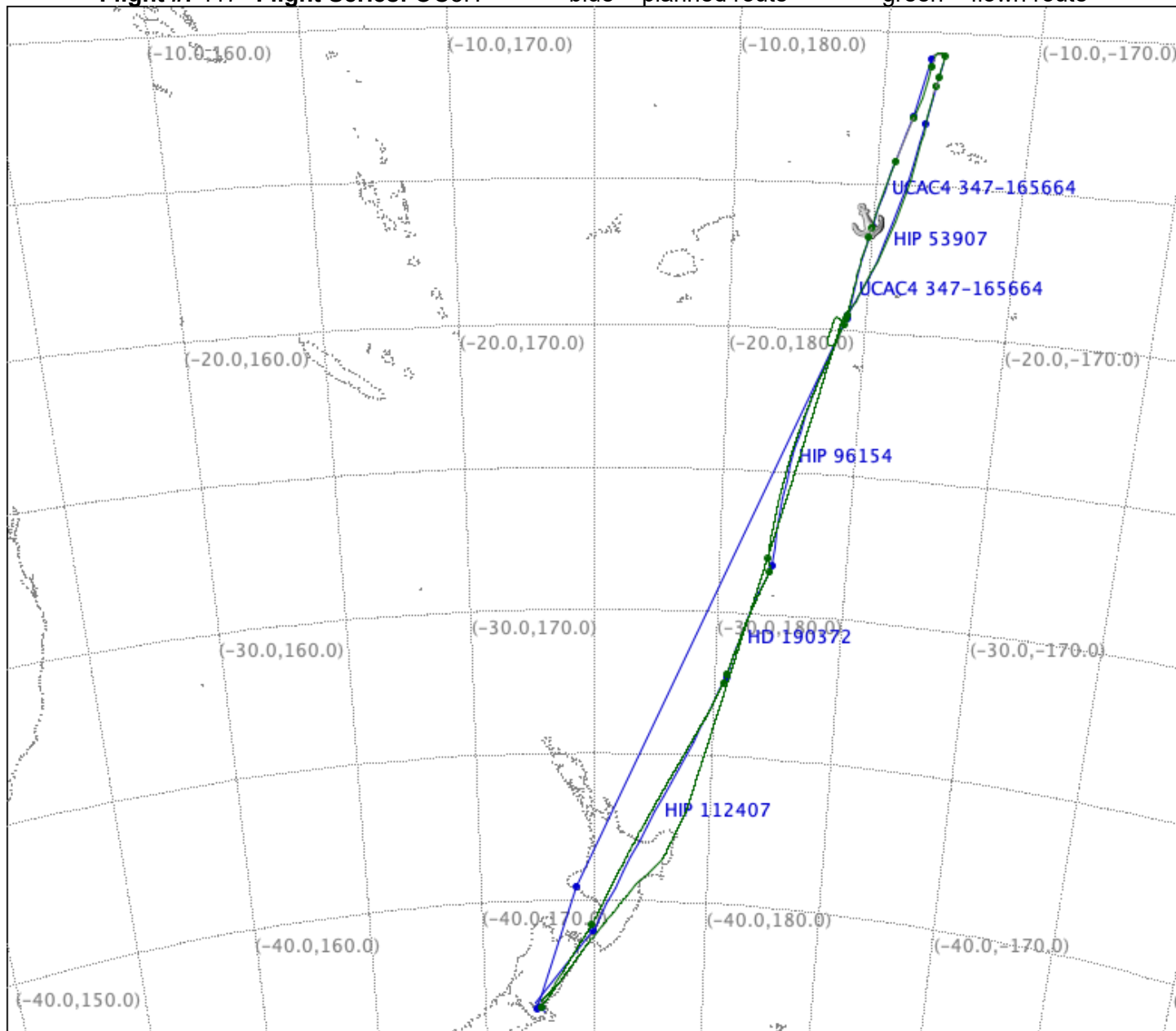
MISSION ID: 2017-07-10_FF_F417

Date: 2017-07-10 UT Instrument: FPI+

Flight #: 417 Flight Series: OC5H

blue = planned route

green = flown route

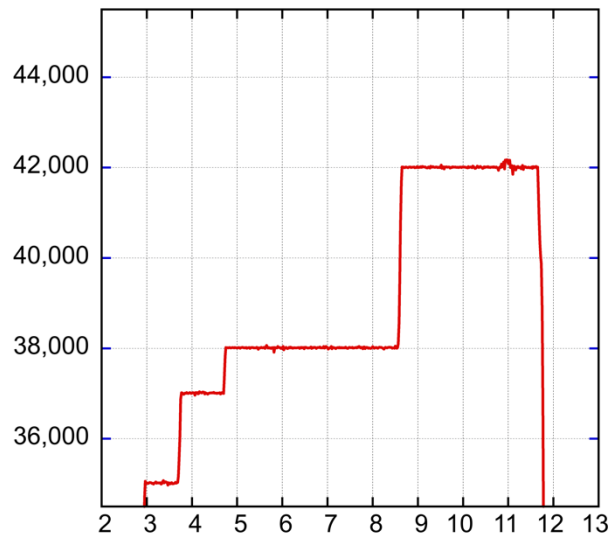


Flight notes: MU69 occultation flight using FPI+.

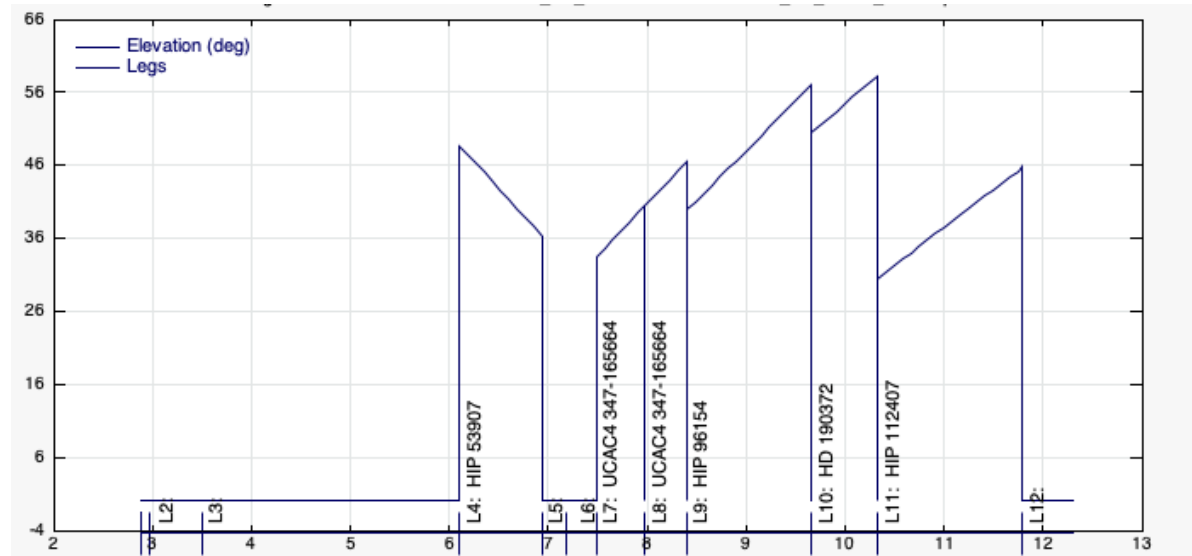
Flight 417 Mission ID 2017-07-10_FF_F417
 Christchurch-Christchurch Take off date UTC: 10-JUL-2017
 Departure UTC: 14:33 Arrival UTC: 00:18 +1 day

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 53907	11h01m49.68s	-02d29m04.5s	5:54	50	
7			UCAC4 347-165664	19h00m41.62s	-20d38m44.5s	7:19	29.5	
8			UCAC4 347-165664	19h00m41.62s	-20d38m44.5s	8:14	25	
9			HIP 96154	19h33m03.16s	-30d21m46.1s	8:14	75	
10			HD 190372	20h06m26.69s	-42d17m26.8s	9:30	40	
11			HIP 112407	22h46m04.39s	-45d50m30.6s	10:10	88	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



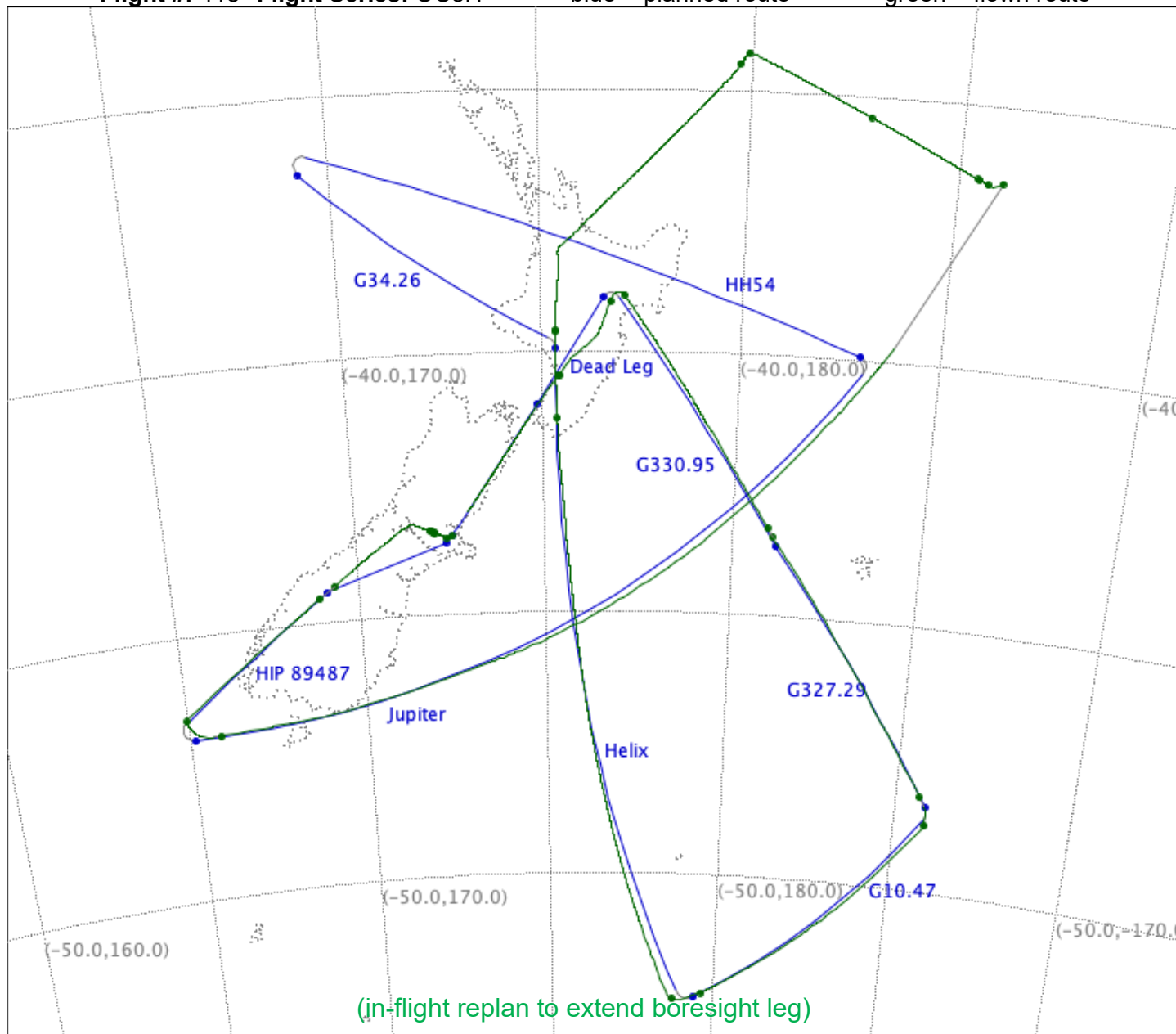
MISSION ID: 2017-07-11_GR_F418

Date: 2017-07-11 UT Instrument: GREAT

Flight #: 418 Flight Series: OC5H

blue = planned route

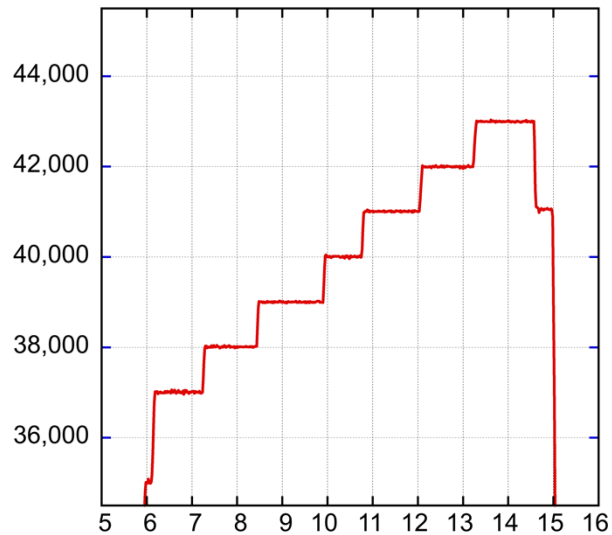
green = flown route



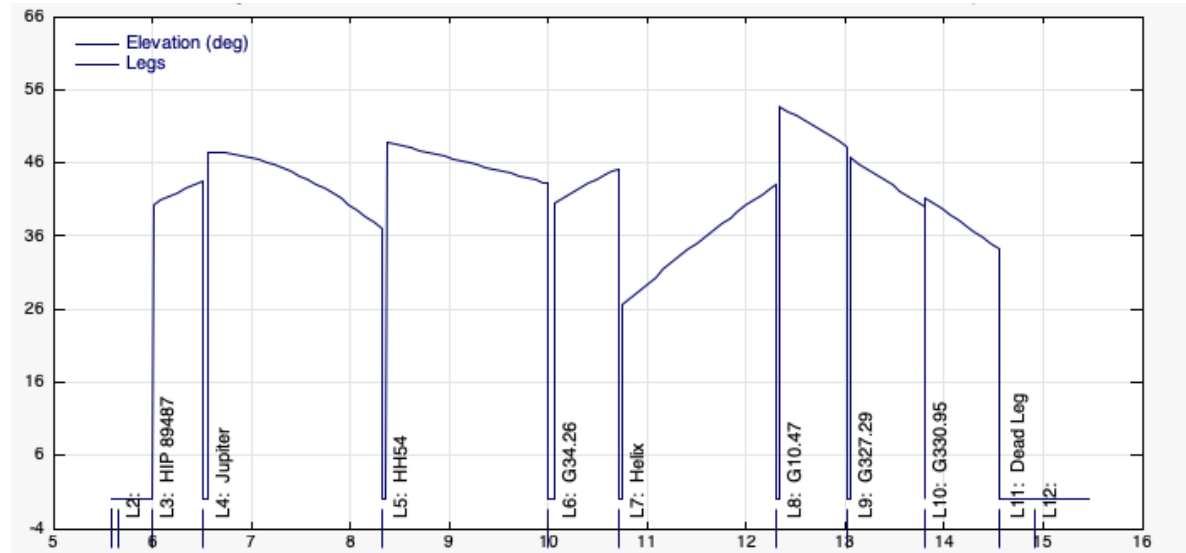
Flight notes: In-flight replan to extend pointing setup leg.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 89487	18h15m40.62s	-63d03m19.3s	6:00	30	
4	90_0008	Calibration	Jupiter	12h55m04.56s	-04d31m13.4s	6:34	105	Leg extended.
5	83_0515	GREAT Consortium	HH54	12h55m50.88s	-76d56m20.8s	8:22	98	Leg reduced – partial data.
6	83_0513	GREAT Consortium	G34.26	18h53m18.49s	01d14m58.7s	10:04	39	Leg sacrificed – no data.
7	83_0516	GREAT Consortium	Helix-WR	22h29m09.20s	-20d48m59.0s	10:45	93	
8	83_0513	GREAT Consortium	G10.47	18h08m38.20s	-19d51m50.0s	12:20	41	
9	83_0513	GREAT Consortium	G327.29	15h53m08.55s	-54d37m05.1s	13:03	45	
10	83_0513	GREAT Consortium	G330.95	16h09m53.01s	-51d54m55.0s	13:48	45	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



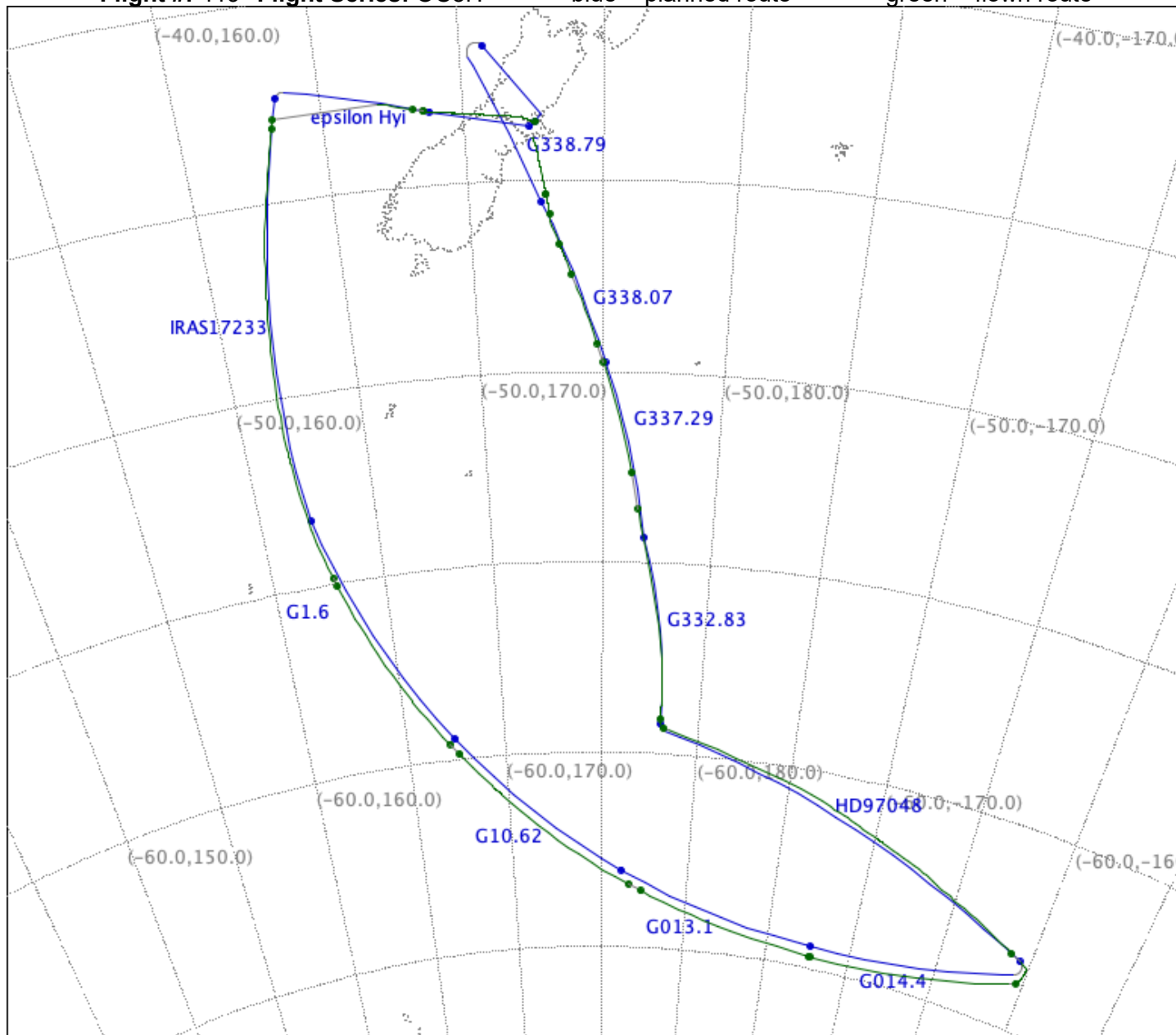
MISSION ID: 2017-07-14_GR_F419

Date: 2017-07-14 UT Instrument: GREAT

Flight #: 419 Flight Series: OC5H

blue = planned route

green = flown route

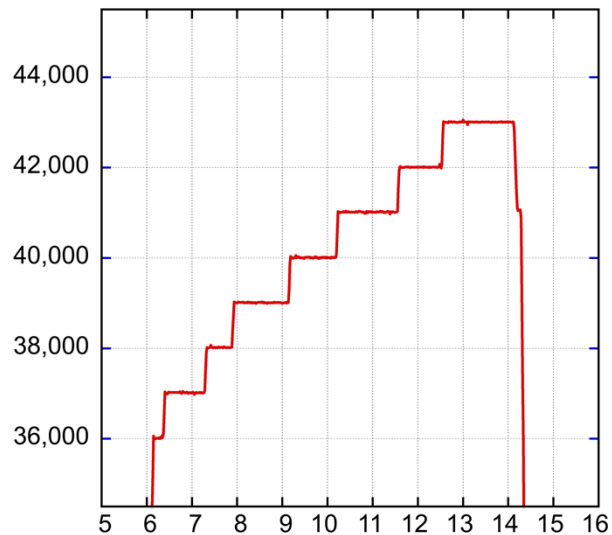


Flight notes:

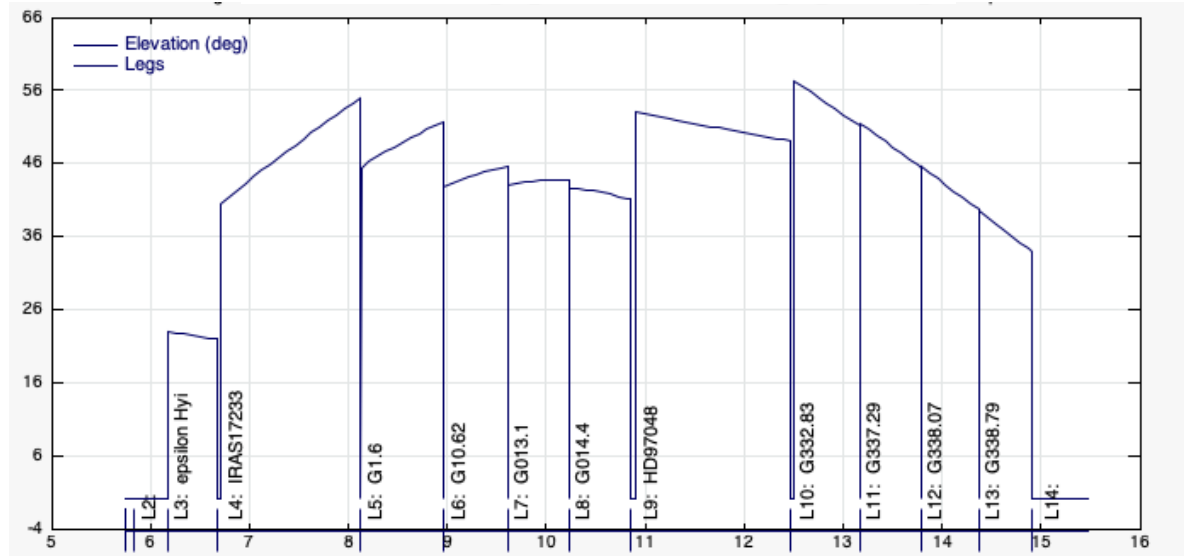
Early return to Christchurch base due to predicted fog at landing site.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 12394	02h39m35.36s	-68d16m01.0s	6:10	30	
4	83_0517	GREAT Consortium	IRAS17233	17h26m42.45s	-36d09m18.0s	6:42	85	
5	83_0518	GREAT Consortium	G1.6	17h49m18.60s	-27d33m54.0s	8:07	50	
6	83_0513	GREAT Consortium	G10.62	18h10m28.70s	-19d55m50.0s	9:17	39	
7	83_0519	GREAT Consortium	G013.1	18h14m01.32s	-17d28m38.6s	9:56	37	
8	83_0519	GREAT Consortium	G014.4	18h17m22.09s	-16d24m59.4s	10:33	37	
9	83_0514	GREAT Consortium	HD97048	11h08m03.32s	-77d39m17.5s	10:54	94	
10	83_0513	GREAT Consortium	G332.83	16h20m10.65s	-50d53m17.6s	12:30	40	
11	83_0519	GREAT Consortium	G337.29	16h36m34.76s	-47d16m51.2s	13:10	37	
12	83_0519	GREAT Consortium	G338.07	16h39m28.60s	-46d40m34.5s	13:47	35	Observations ended early to return to base before predicted fog.
13	83_0519	GREAT Consortium	G338.79	16h40m22.55s	-45d51m04.0s	14:22	32	Leg not flown; early return to base

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



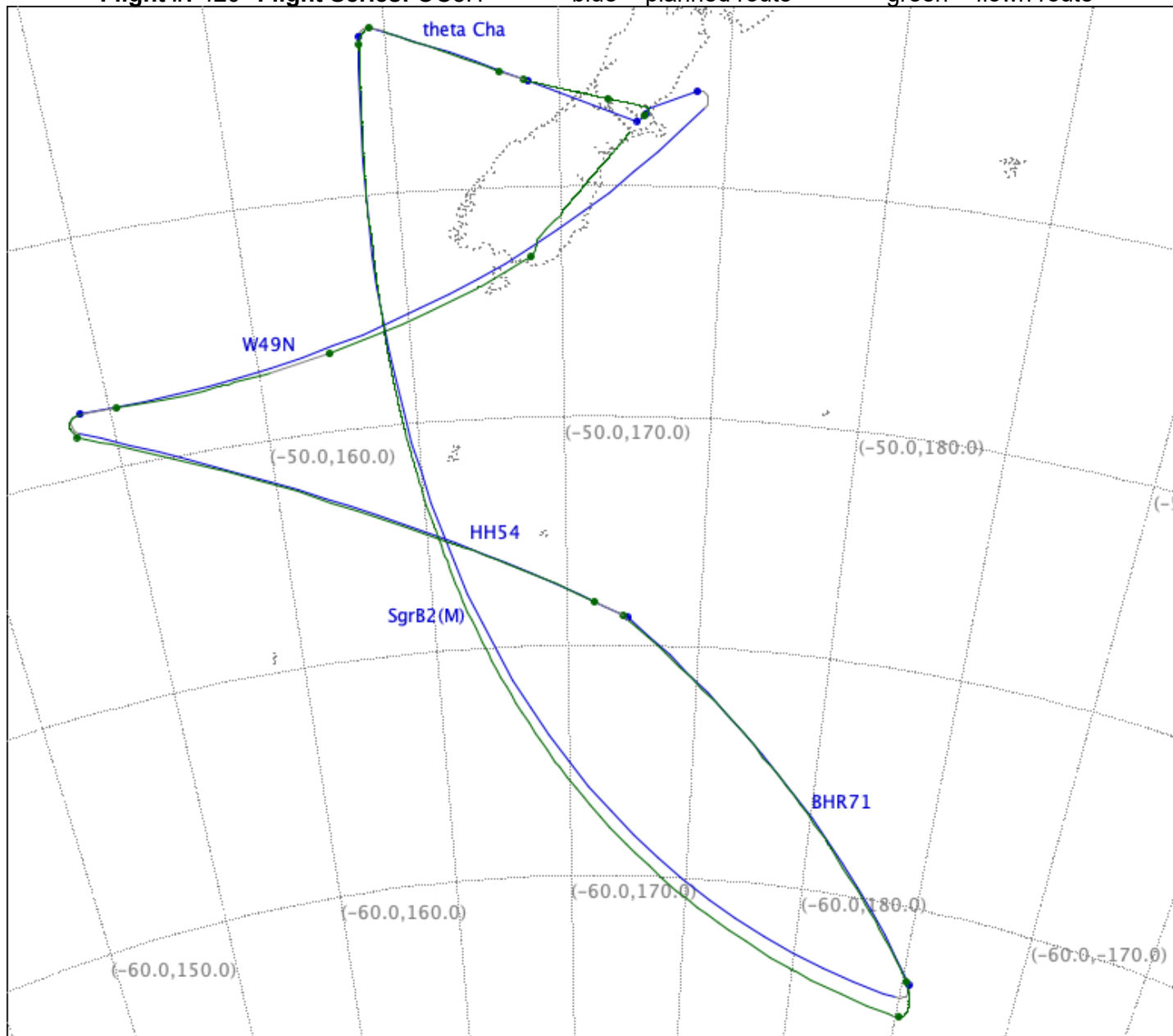
MISSION ID: 2017-07-15_GR_F420

Date: 2017-07-15 UT Instrument: GREAT

Flight #: 420 Flight Series: OC5H

blue = planned route

green = flown route

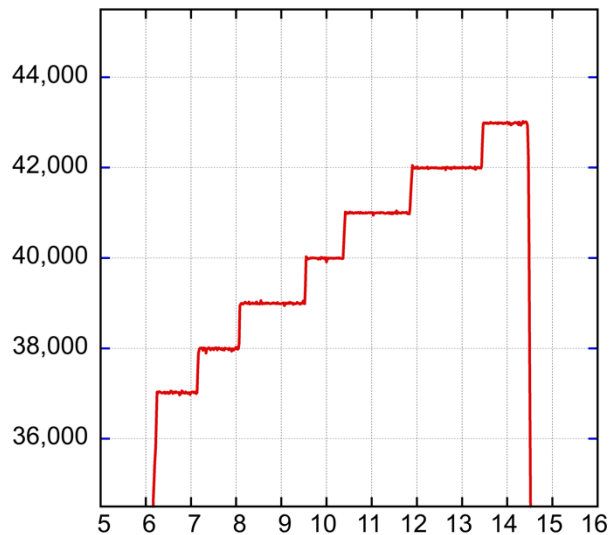


Flight notes:

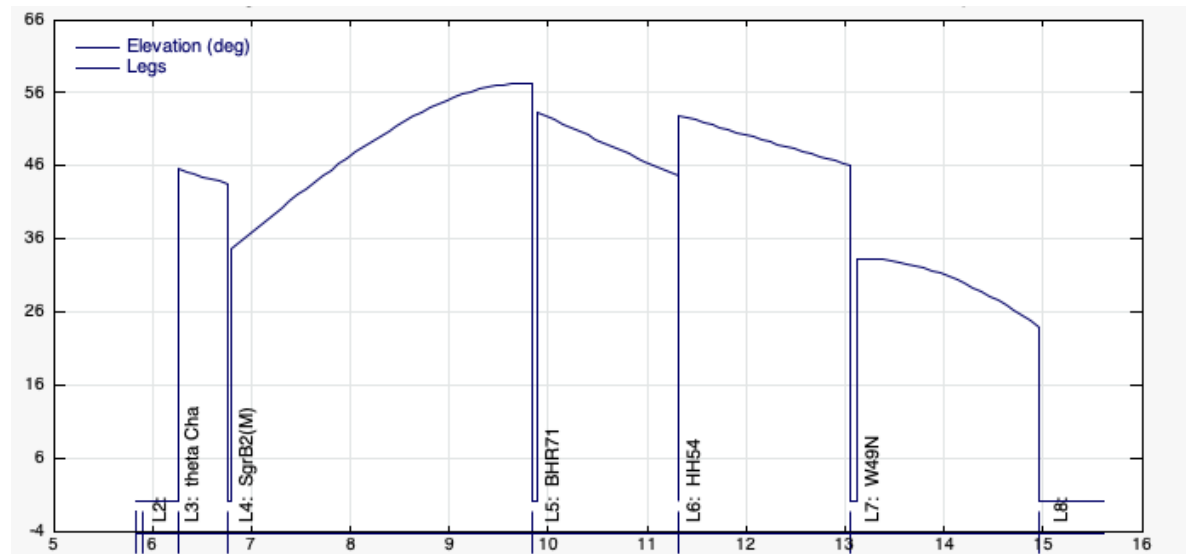
Early return to Christchurch base due to predicted fog at landing site.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 40888	08h20m38.54s	-77d29m04.1s	6:15	30	
4	83_0520	GREAT Consortium	SgrB2(M)	17h47m20.16s	-28d23m04.5s	6:48	182	
5	83_0521	GREAT Consortium	BHR71	12h01m36.82s	-65d08m50.2s	9:53	85	
6	83_0515	GREAT Consortium	HH54	12h55m50.88s	-76d56m20.8s	11:19	104	
7	83_0520	GREAT Consortium	W49N	19h10m13.20s	09d06m12.0s	13:07	110	Observations ended early to return to base before predicted fog.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



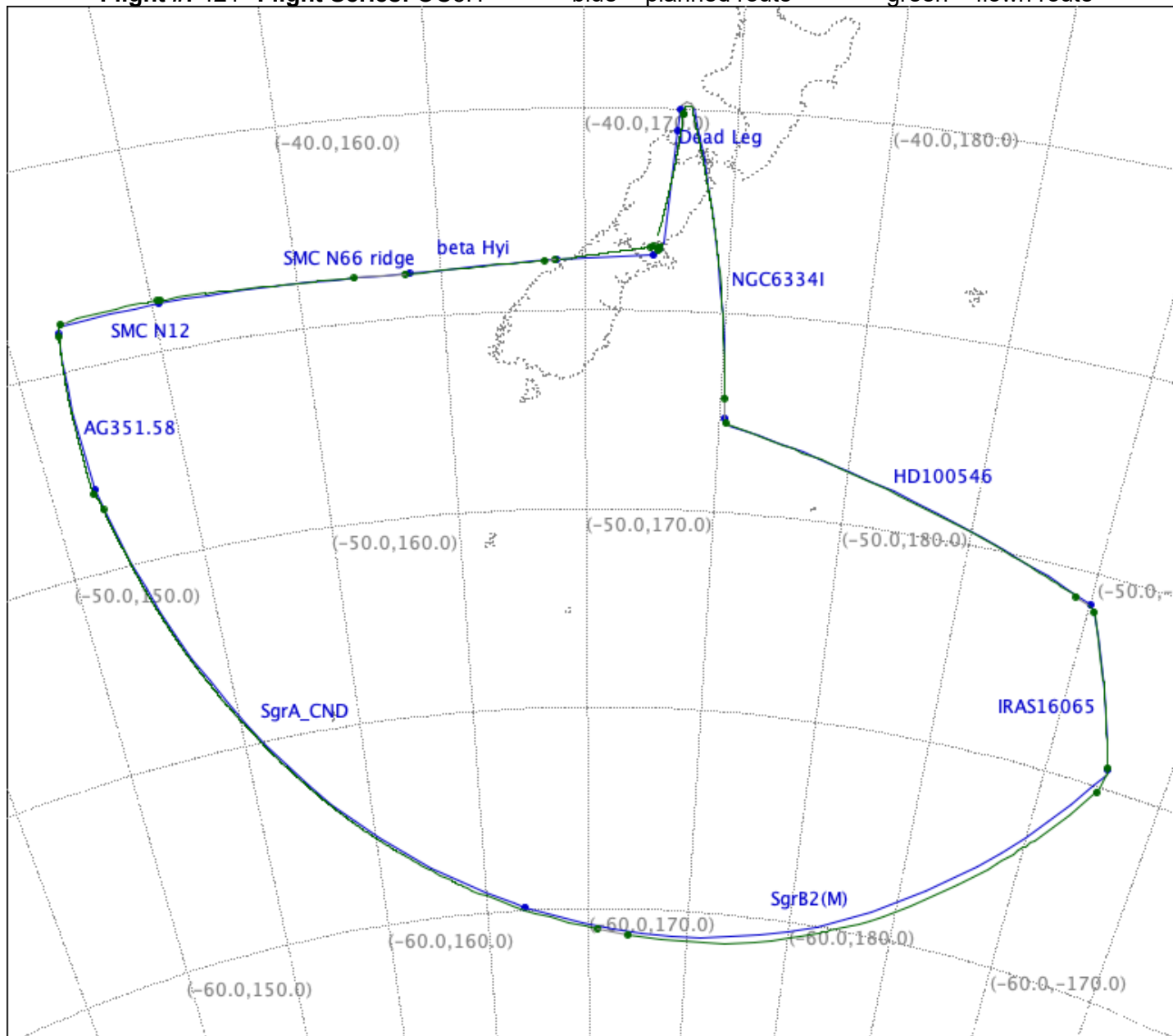
MISSION ID: 2017-07-16_GR_F421

Date: 2017-07-16 UT Instrument: GREAT

Flight #: 421 Flight Series: OC5H

blue = planned route

green = flown route

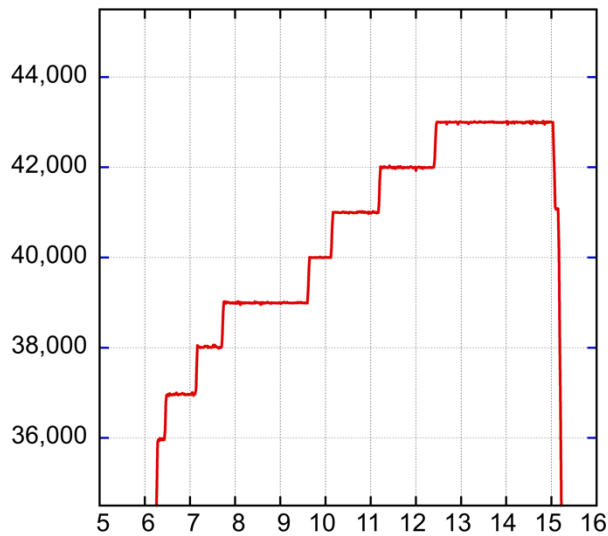


Flight notes: No irregularities.

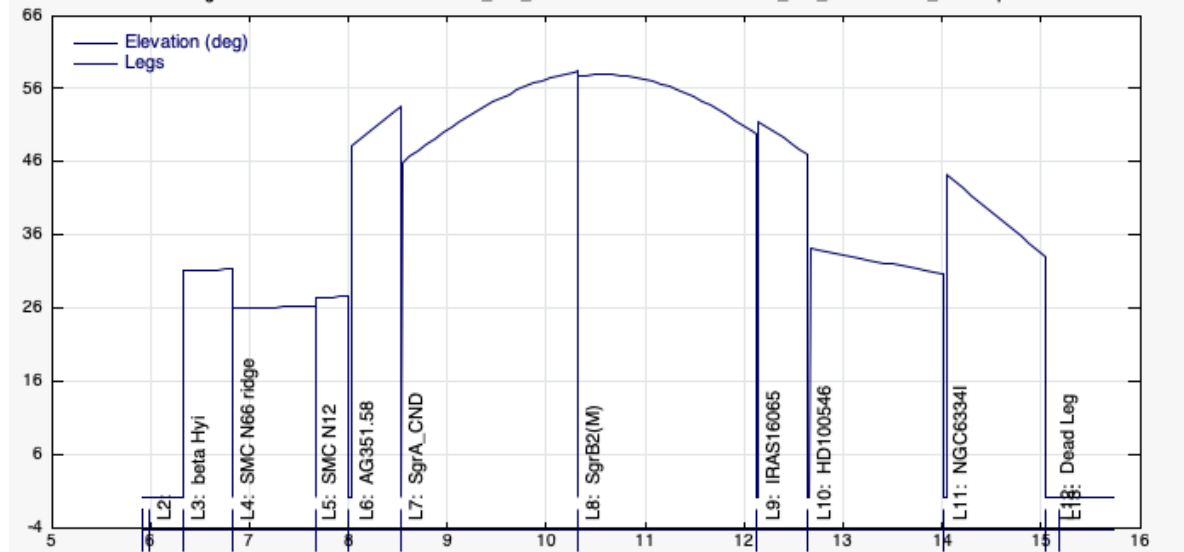
Flight 421 Mission ID 2017-07-16_GR_F421
 Christchurch-Christchurch Take off date UTC: 16-JUL-2017
 Departure UTC: 05:53 Arrival UTC: 15:50 Consortium flight 4G/HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 2021	00h25m45.07s	-77d15m15.3s	6:20	30	
4	83_0415	GREAT Consortium	SMC N66 ridge	00h59m06.90s	-72d10m29.6s	6:50	50	
5	83_0415	GREAT Consortium	SMC N12	00h46m40.20s	-73d06m11.0s	8:00	20	
6	83_0522	GREAT Consortium	AG351.58	17h25m24.90s	-36d12m44.0s	8:02	30	
7	83_0523	GREAT Consortium	SgrA_CND	17h45m40.04s	-29d00m28.1s	8:32	107	
8	83_0520	GREAT Consortium	SgrB2(M)	17h47m20.16s	-28d23m04.5s	10:34	108	
9	83_0522	GREAT Consortium	IRAS16065	16h10m20.01s	-52d06m13.3s	12:08	30	
10	83_0514	GREAT Consortium	HD100546	11h33m25.40s	-70d11m41.2s	12:39	81	
11	83_0517	GREAT Consortium	NGC6334I	17h20m53.44s	-35d46m57.9s	14:02	60	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



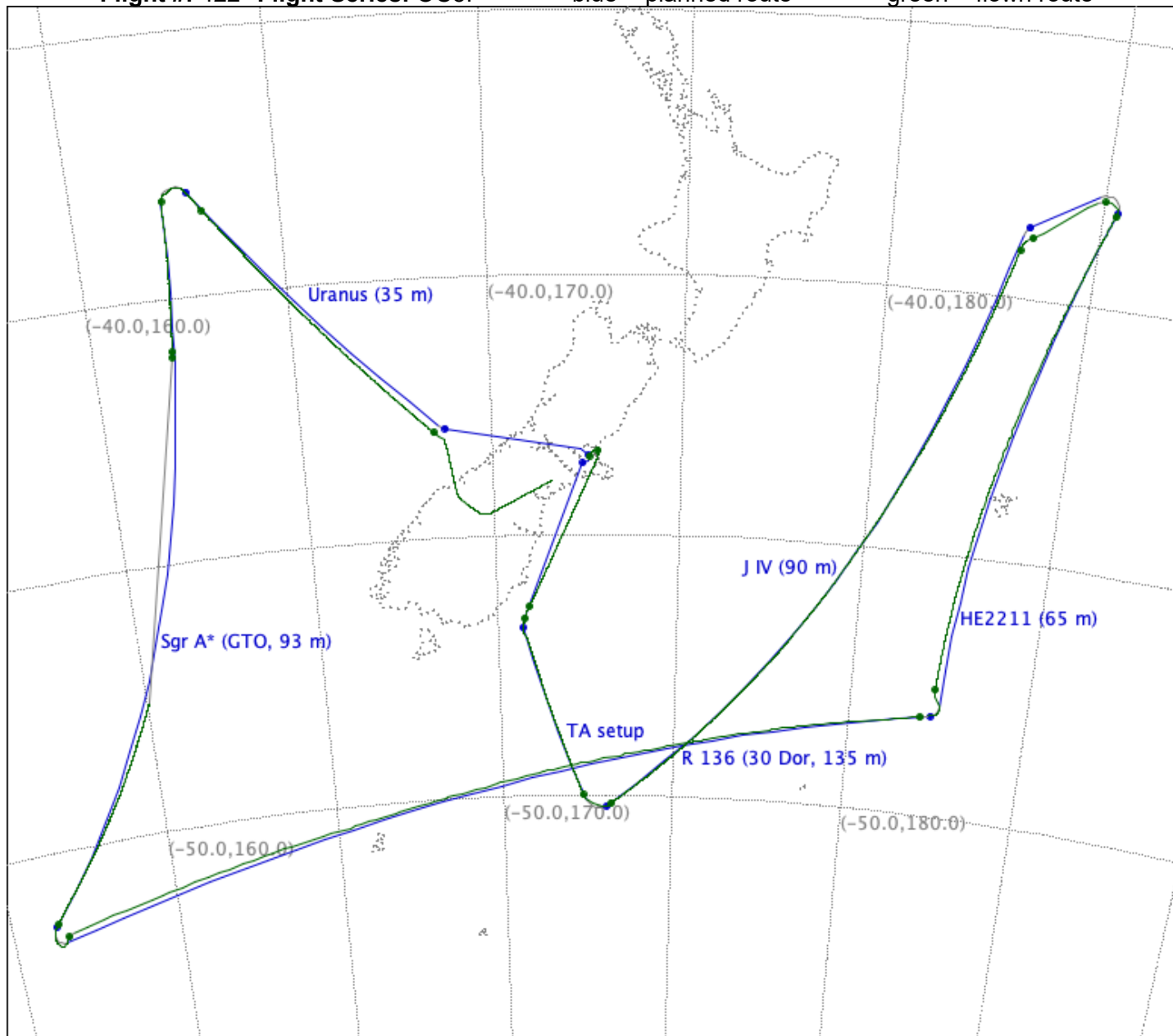
MISSION ID: 2017-07-26_FI_F422

Date: 2017-07-26 UT Instrument: FIFI-LS

Flight #: 422 Flight Series: OC5I

blue = planned route

green = flown route

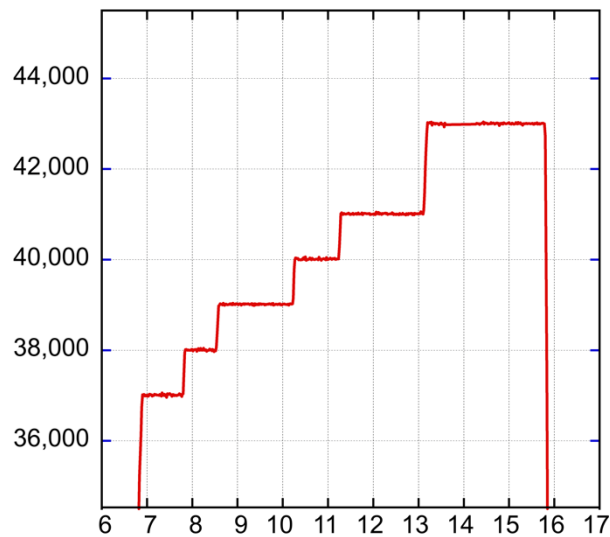


Flight notes: No irregularities.

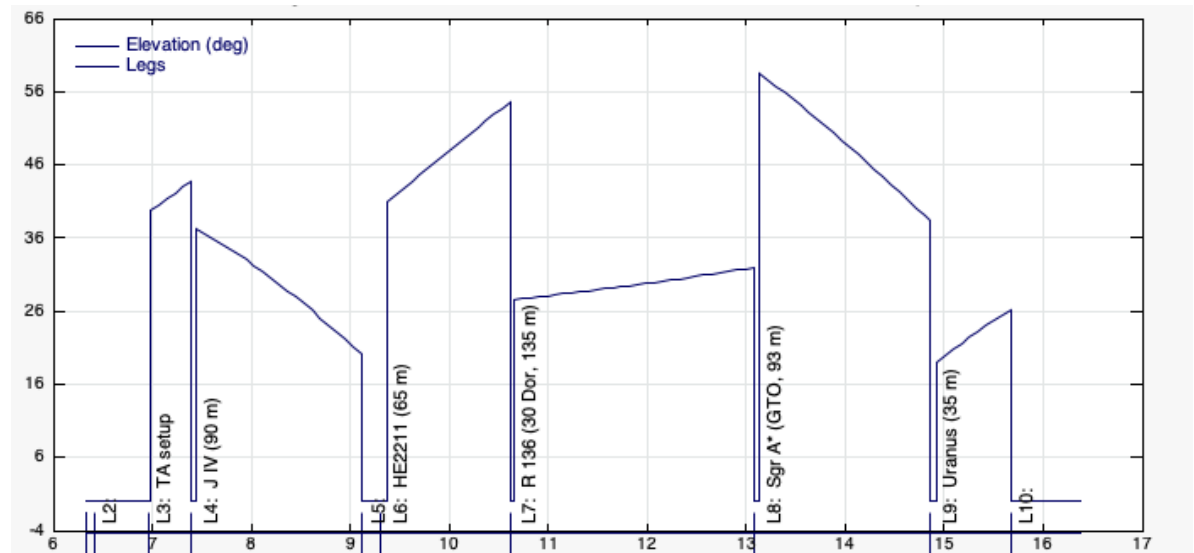
Flight 422 Mission ID 2017-07-26_FI_F422
 Christchurch-Christchurch Take off date UTC: 26-JUL-2017
 Departure UTC: 06:24 Arrival UTC: 16:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Mu Sgr	18h13m46.00s	-21d13m46.0s	6:59	25	
4	90_0033	Calibration	Callisto	13h01m12.00s	-05d13m35.1s	7:27	100	Vignetting at end of leg due to lower telescope door.
6	05_0077	Husemann	HE2211-3903	22h14m42.01s	-38d48m22.9s	9:22	75	
7	05_0100	Chevance	RMC136	05h38m53.08s	-69d04m28.6s	10:39	145	
8	70_0508	GTO	SgrA*	17h45m40.04s	-29d00m28.2s	13:08	103	55min lost due to telescope control software crash and recovery.
9	90_0033	Calibration	Uranus	01h45m50.94s	10d18m38.6s	14:55	45	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



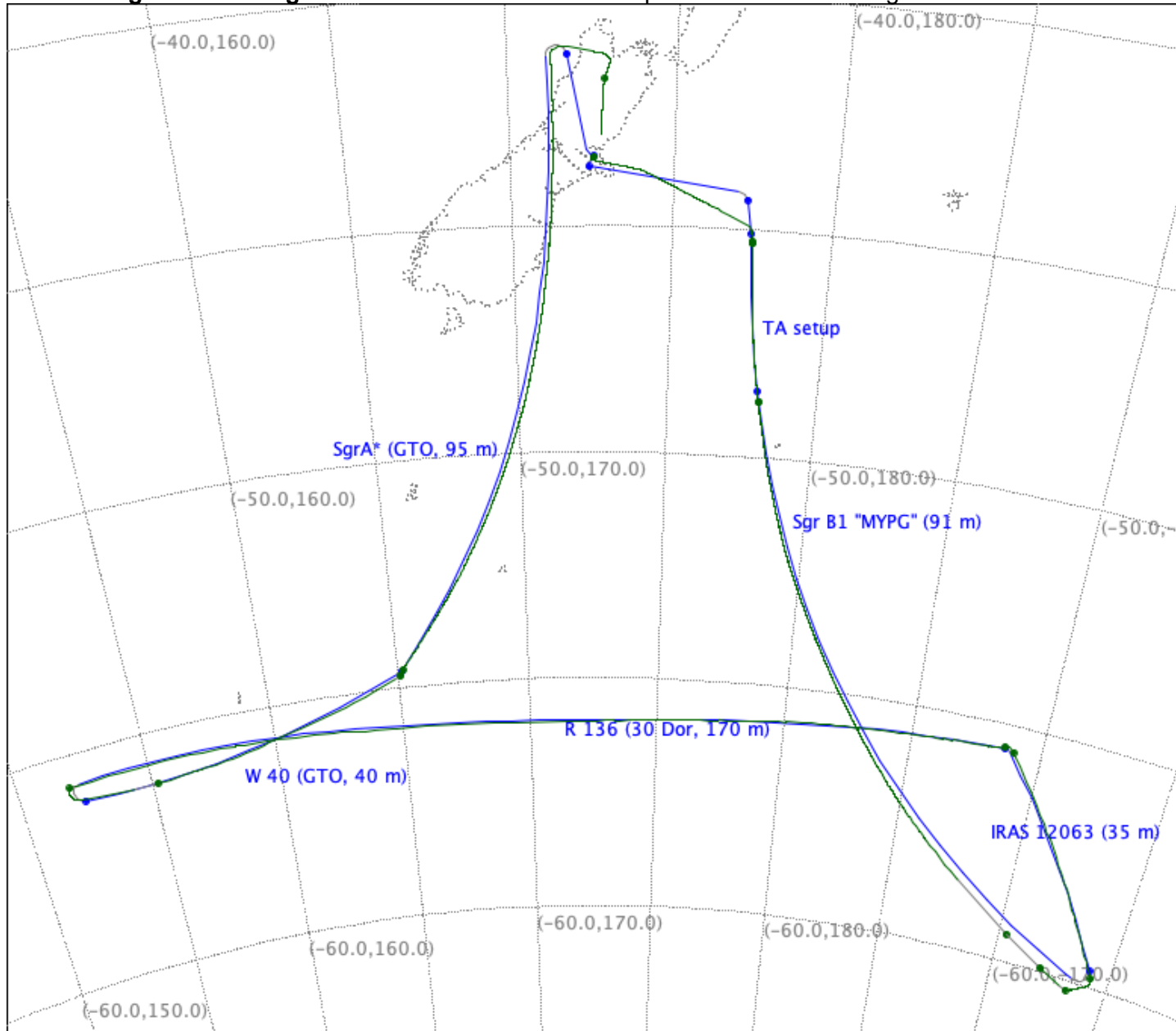
MISSION ID: 2017-07-27_FI_F423

Date: 2017-07-27 UT Instrument: FIFI-LS

Flight #: 423 Flight Series: OC5I

blue = planned route

green = flown route

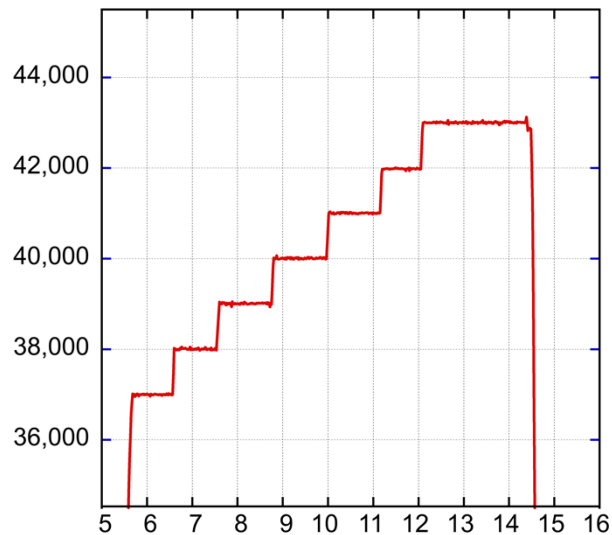


Flight notes: No irregularities.

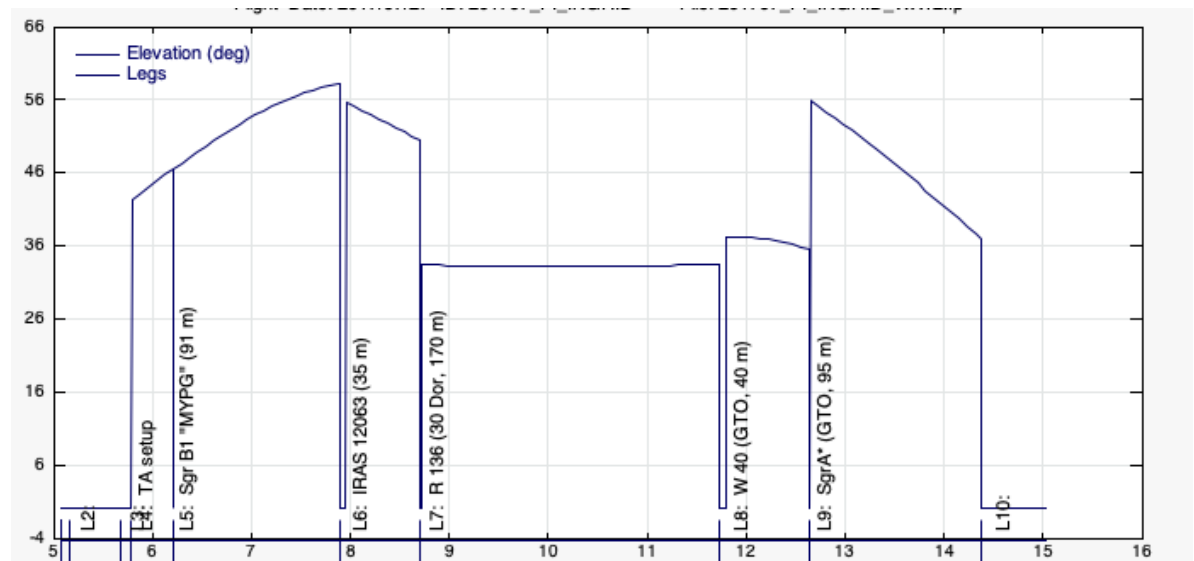
Flight 423 Mission ID 2017-07-27_FI_F423
 Christchurch-Christchurch Take off date UTC: 27-JUL-2017
 Departure UTC: 05:11 Arrival UTC: 14:59

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HD 161247	17h45m37.00s	-28d24m28.0s	5:47	25	
5	05_0082	Simpson	MYPG-88micron	17h47m01.25s	-28d31m36.0s	6:32	101	Observatory control software crash; 15min lost
6	05_0110	Peeters	IRAS12063-6259	12h09m01.00s	-63d15m53.3s	7:57	45	
7	05_0100	Chevance	RMC136	05h38m53.08s	-69d04m28.6s	8:43	180	
8	70_0508	GTO	W40-SMM1	18h31m21.00s	-02d06m20.0s	11:48	50	
9	70_0508	GTO	SgrA*	17h45m40.04s	-29d00m28.2s	12:38	104	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



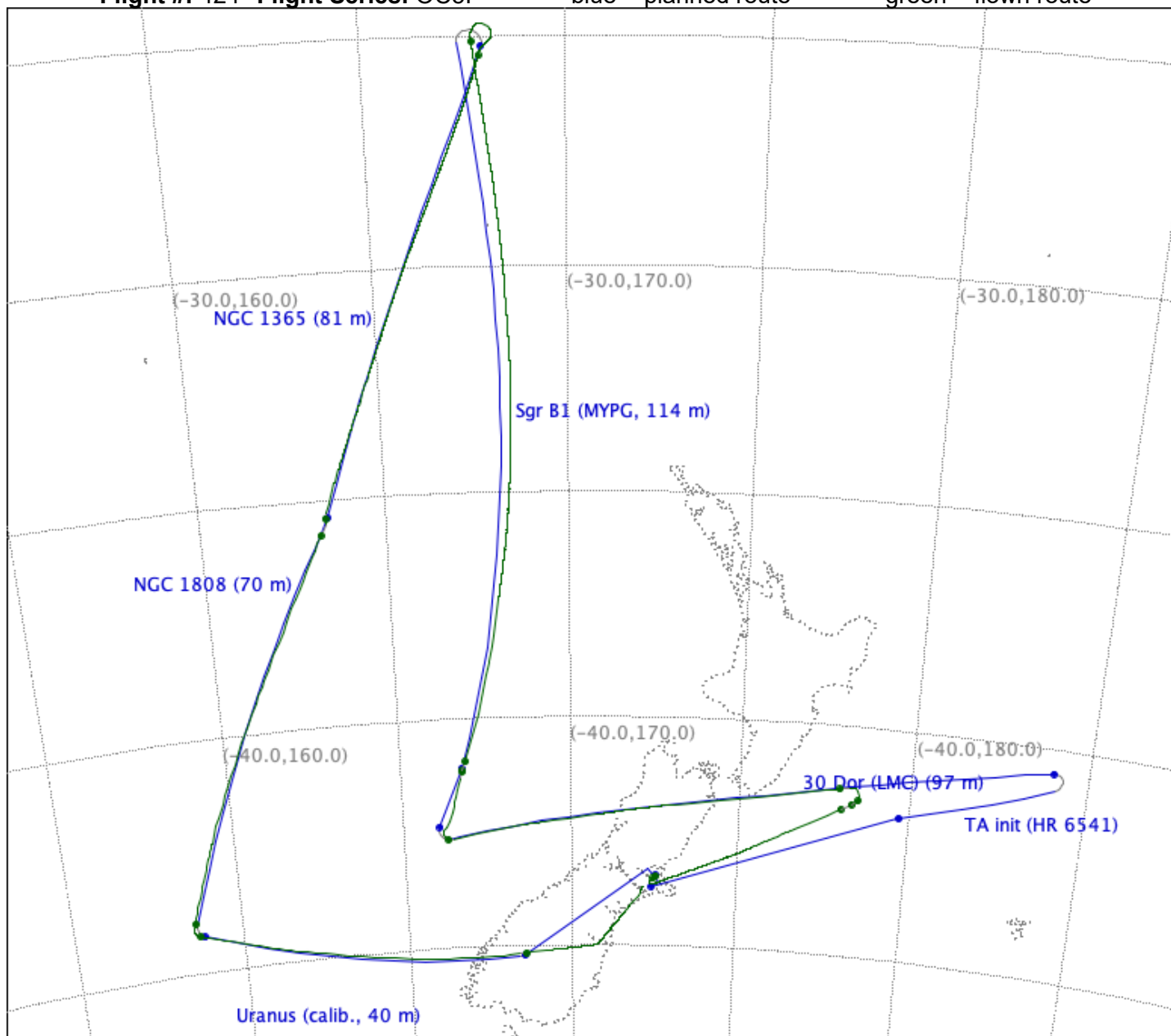
MISSION ID: 2017-07-28_FI_F424

Date: 2017-07-28 UT Instrument: FIFI-LS

Flight #: 424 Flight Series: OC5I

blue = planned route

green = flown route



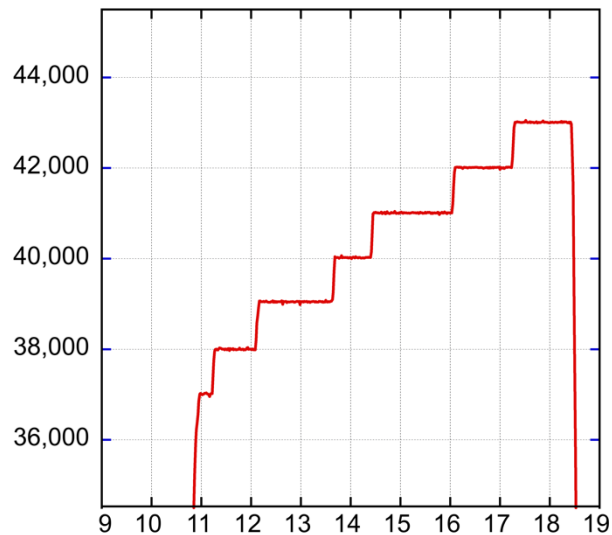
Flight notes:

Late departure led to partial loss of observing time on first leg.

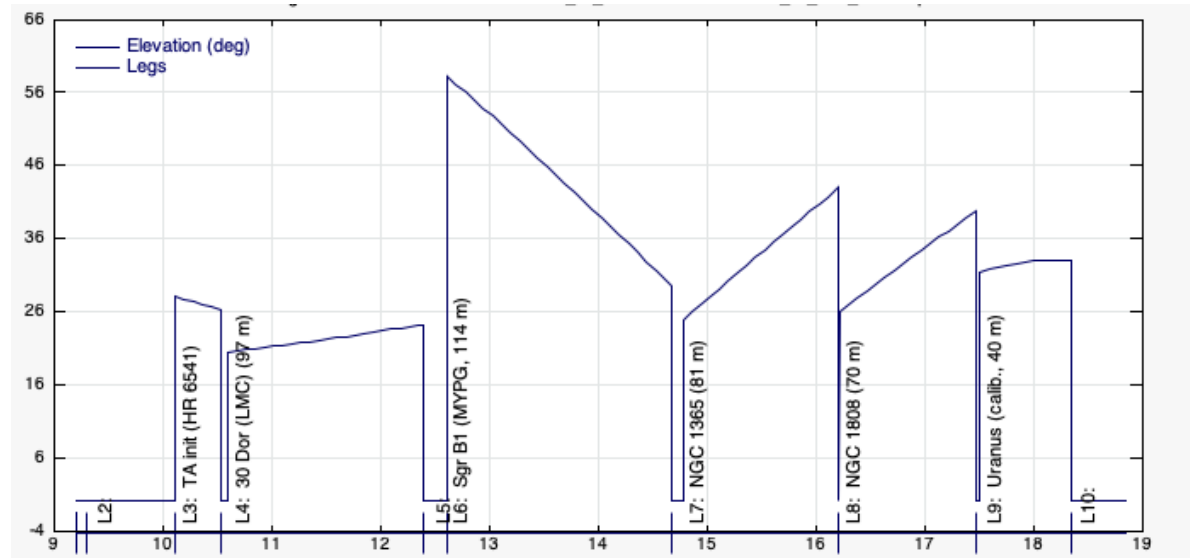
Flight 424 Mission ID 2017-07-28_FI_F424
 Christchurch-Christchurch Take off date UTC: 28-JUL-2017
 Departure UTC: 09:28 Arrival UTC: 19:08

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HR 6541	17h33m23.00s	19d15m22.0s	10:06	25	
4	05_0100	Chevance	RMC136	05h38m53.08s	-69d04m28.6s	10:36	107	Late departure led to loss of most of leg.
6	05_0082	Simpson	MYPG-88micron	17h47m01.25s	-28d31m36.0s	12:36	124	
7	05_0111	Stacey	NGC 1365	03h33m36.53s	-36d08m28.4s	14:47	86	
8	05_0111	Stacey	NGC 1808	05h07m42.34s	-37d30m47.0s	16:13	75	
9	90_0033	Calibration	Uranus	01h45m53.53s	10d18m49.9s	17:30	50	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



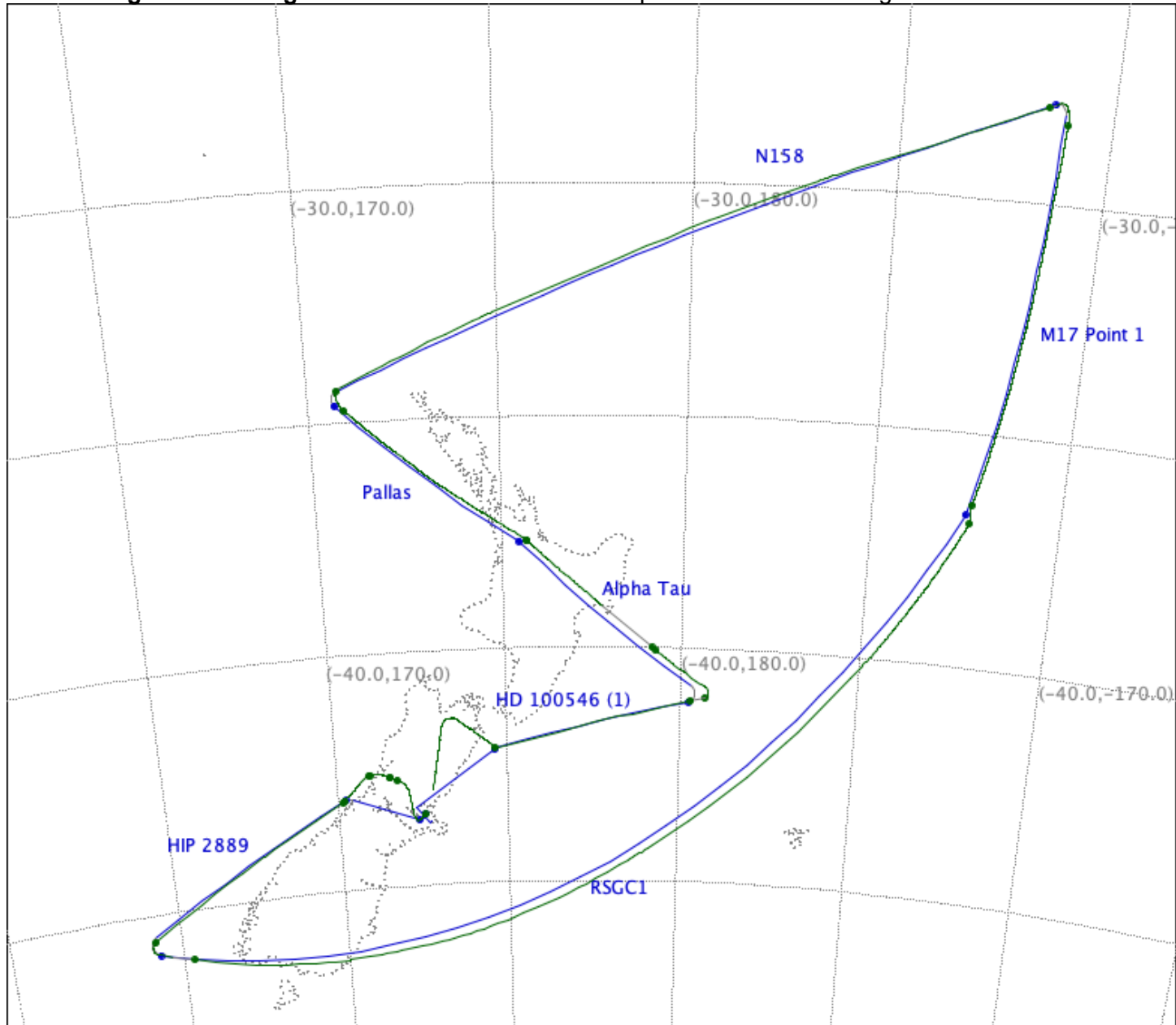
MISSION ID: 2017-08-02_FO_F425

Date: 2017-08-02 UT Instrument: FORCAST

Flight #: 425 Flight Series: OC5J

blue = planned route

green = flown route

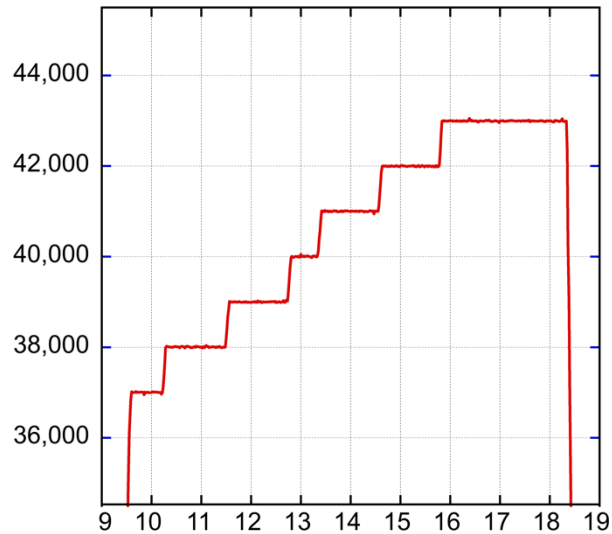


Flight notes:
No irregularities.

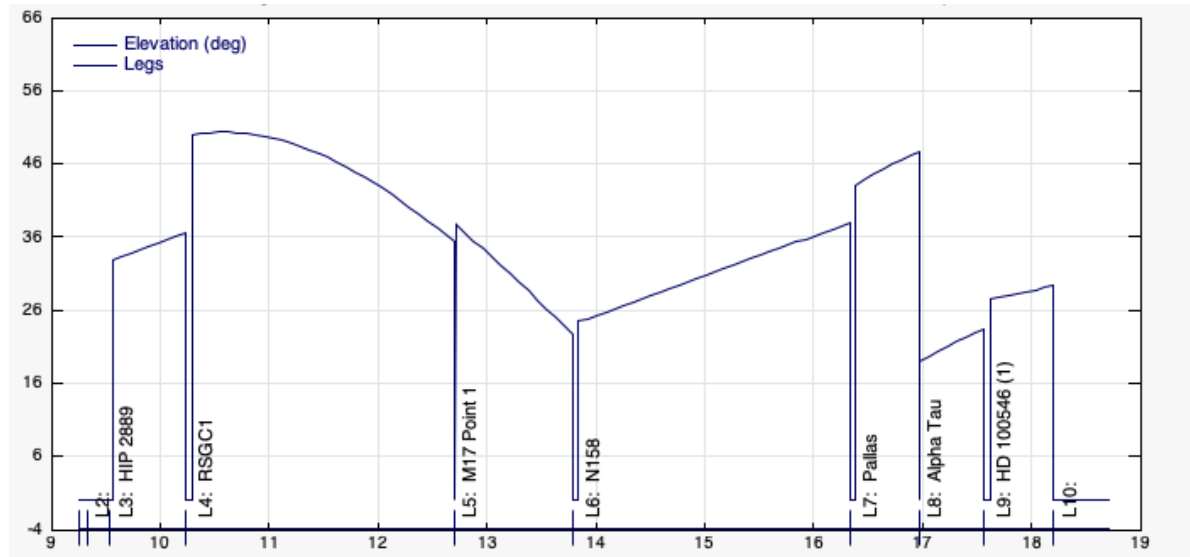
Flight 425 Mission ID 2017-08-02_FO_F425
 Christchurch-Christchurch Take off date UTC: 02-AUG-2017
 Departure UTC: 09:08 Arrival UTC: 18:53

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 2889	00h36m37.65s	-65d07m28.0s	9:33	40	
4	05_0064	Smith	RSGC1	18h37m58.00s	-06d53m00.0s	10:17	145	
5	05_0008	De Buizer	M17	18h20m19.92s	-16d09m46.5s	12:42	65	
6	05_0042	Jones	N158	05h39m07.47s	-69d30m14.5s	13:50	150	
7	90_0049	Calibration	2 Pallas	02h48m55.67s	-01d33m08.0s	16:23	35	Troubles acquiring, setting pointing, and then observatory control software crash led to loss of entire leg.
8	90_0063	Calibration	Alpha Tau	04h35m55.24s	16d30m33.5s	16:58	35	Observatory control software crash led to loss of entire leg.
9	05_0138	Shuping	HD 100546	11h33m25.40s	-70d11m41.0s	17:37	30	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



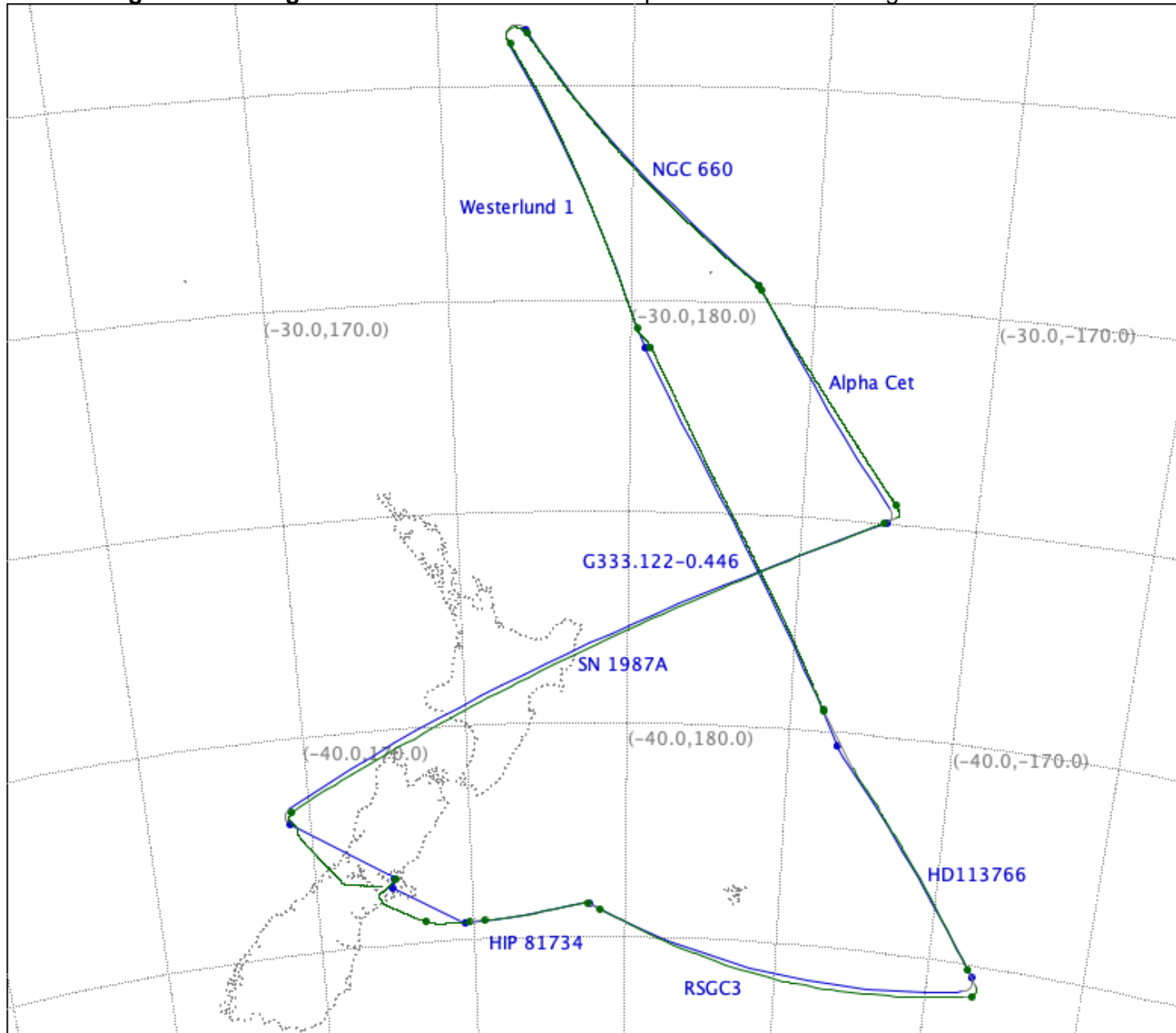
MISSION ID: 2017-08-03_FO_F426

Date: 2017-08-03 UT Instrument: FORCAST

Flight #: 426 Flight Series: OC5J

blue = planned route

green = flown route

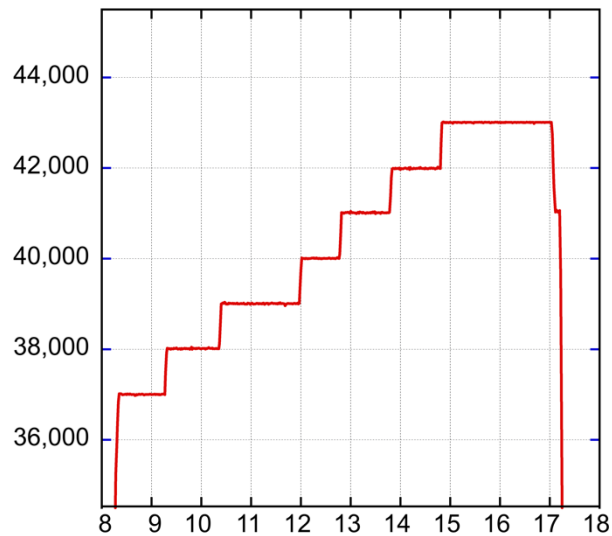


Flight notes: No irregularities.

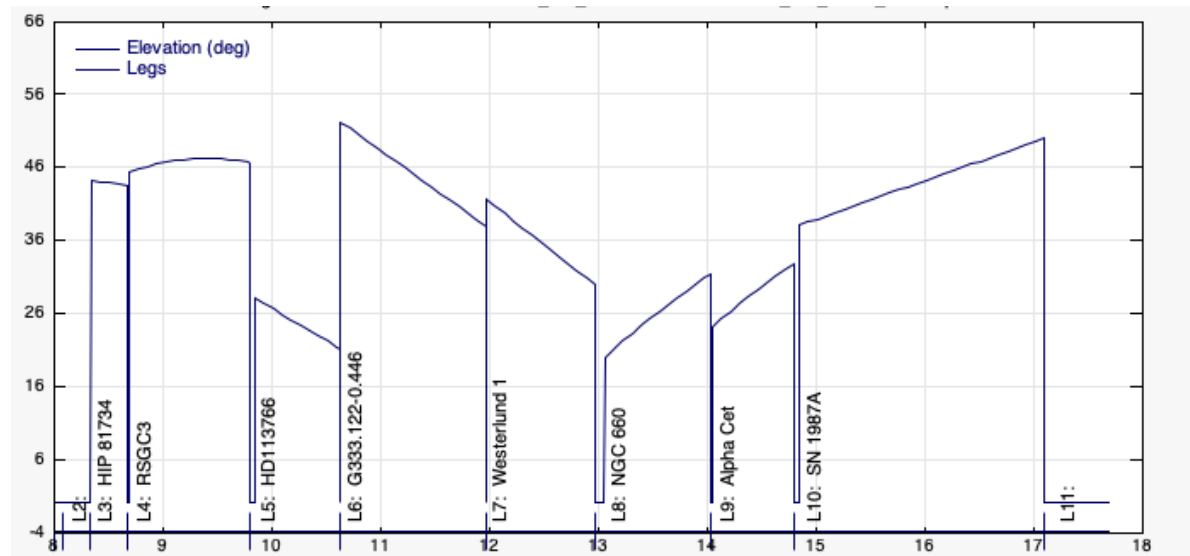
Flight 426 Mission ID 2017-08-03_FO_F426
 Christchurch-Christchurch Take off date UTC: 03-AUG-2017
 Departure UTC: 07:54 Arrival UTC: 17:37

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 81734	16h41m42.48s	01d10m52.4s	8:20	20	
4	05_0064	Smith	RSGC3	18h45m20.00s	-03d24m43.0s	8:41	66	
5	05_0019	Su	HD113766	13h06m35.80s	-46d02m02.0s	9:51	47	
6	05_0008	De Buizer	G333.122-0.446	16h21m02.89s	-50d35m48.5s	10:38	80	
7	05_0064	Smith	Westerlund 1	16h47m04.00s	-45d51m04.0s	11:58	60	
8	05_0167	Yeh	NGC 660	01h43m02.30s	13d38m44.0s	13:03	59	
9	90_0062	Calibration	Alpha Cet	03h02m16.77s	04d05m23.1s	14:03	45	
10	05_0050	Matsuura	SN 1987A	05h35m28.00s	-69d16m11.0s	14:51	135	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

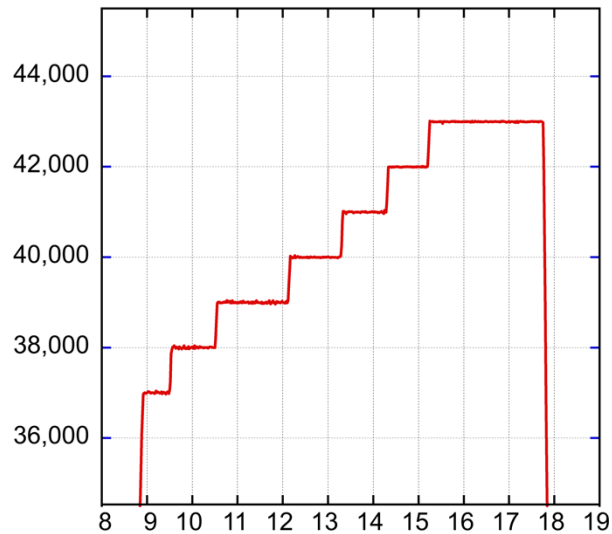


Flight notes: No irregularities.

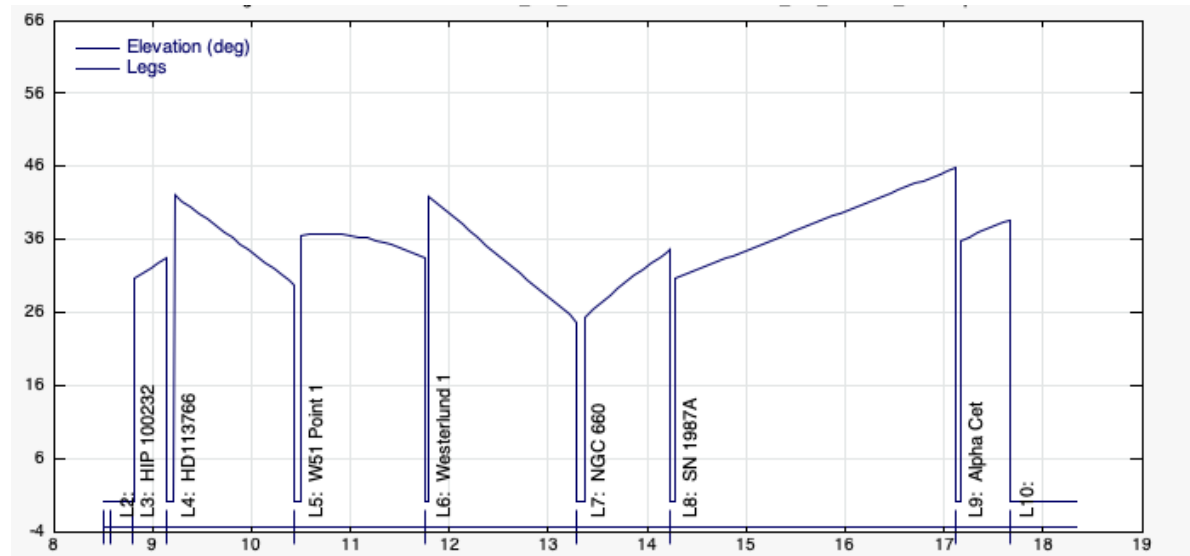
Flight 427 Mission ID 2017-08-06_FO_F427
 Christchurch-Christchurch Take off date UTC: 06-AUG-2017
 Departure UTC: 08:24 Arrival UTC: 18:26

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 100232	20h19m43.26s	-01d04m42.6s	8:49	20	
4	05_0019	Su	HD113766	13h06m35.80s	-46d02m02.0s	9:13	73	
5	05_0008	De Buizer	W51	19h23m24.07s	14d27m28.0s	10:30	75	Pointing of telescope seems to be off by 30".
6	05_0064	Smith	Westerlund 1	16h47m04.00s	-45d51m04.0s	11:47	90	Pointing still seems to be off.
7	05_0167	Yeh	NGC 660	01h43m02.30s	13d38m44.0s	13:22	52	Faint guides stars led to issues acquiring and guiding; 10min lost.
8	05_0050	Matsuura	SN 1987A	05h35m28.00s	-69d16m11.0s	14:17	170	
9	90_0062	Calibration	Alpha Cet	03h02m16.77s	04d05m23.1s	17:10	30	Pointing still seems to be off.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



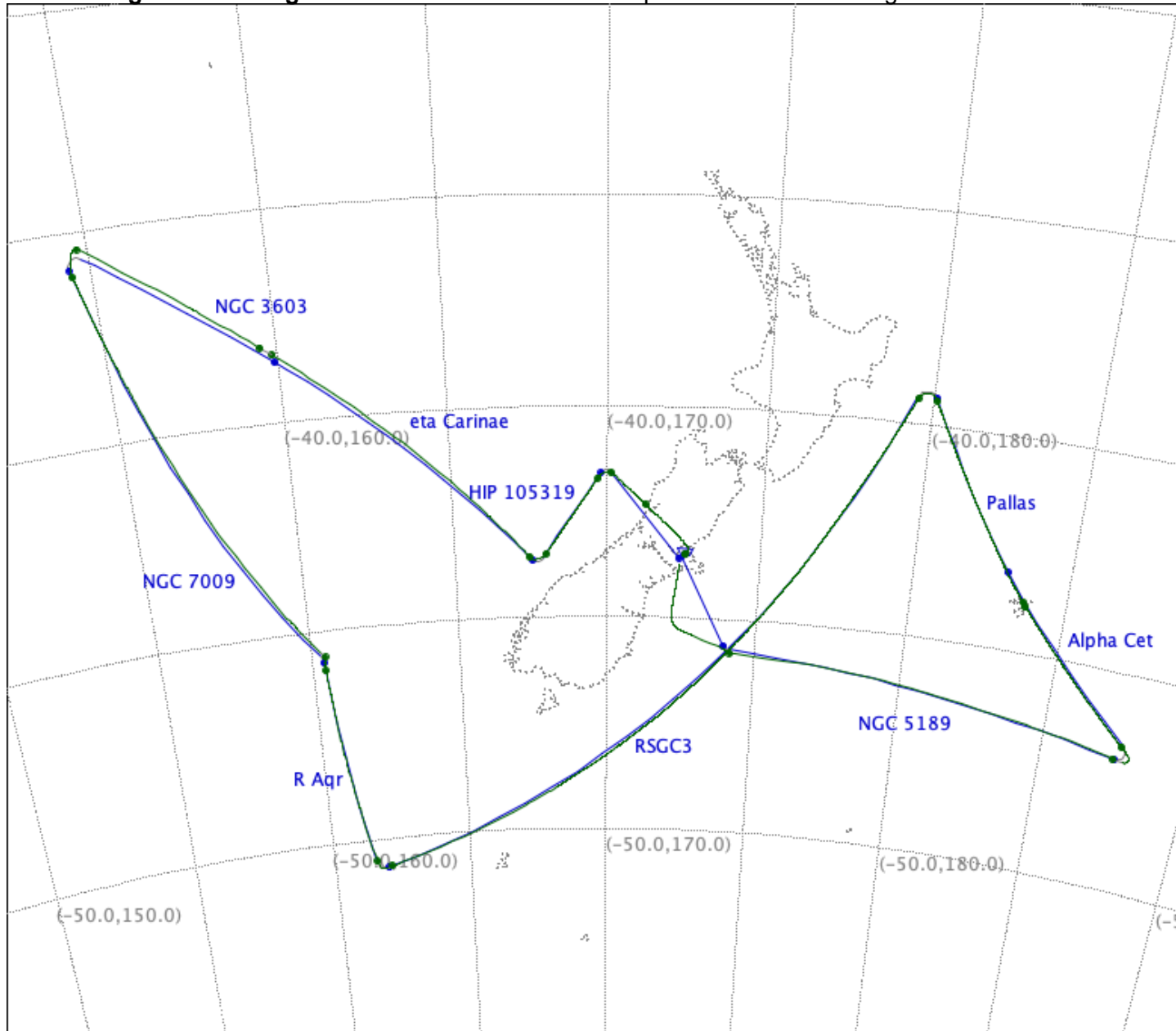
MISSION ID: 2017-08-07_FO_F428

Date: 2017-08-07 UT Instrument: FORCAST

Flight #: 428 Flight Series: OC5J

blue = planned route

green = flown route

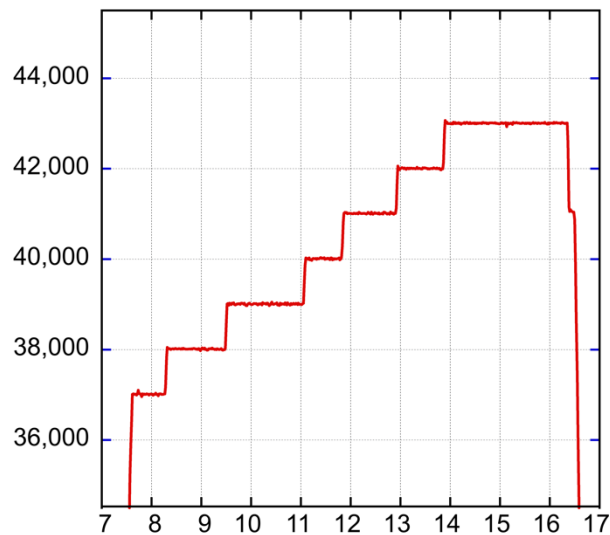


Flight notes: No irregularities.

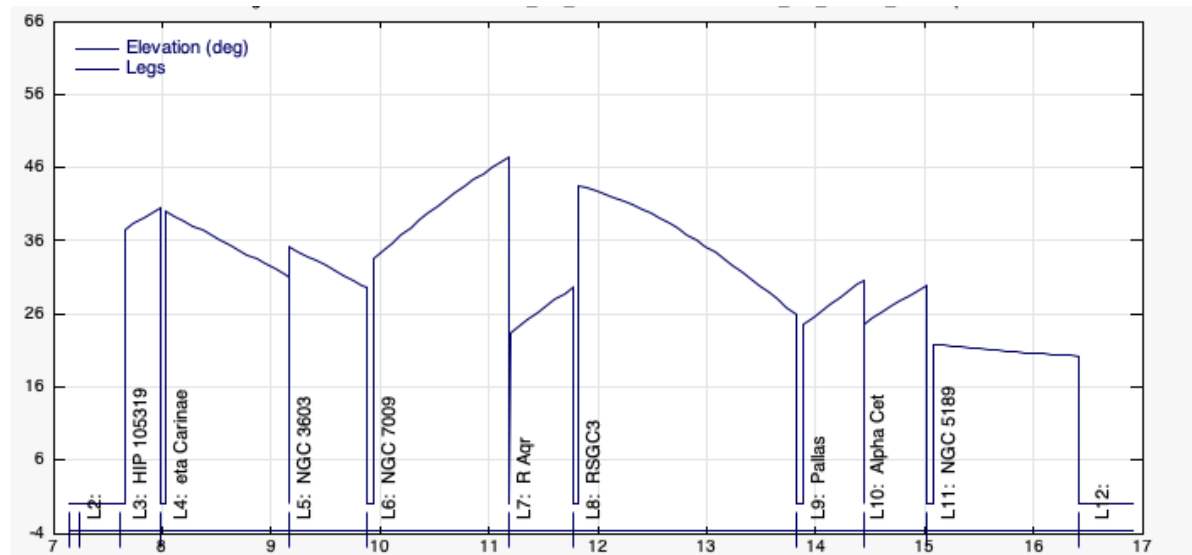
Flight 428 Mission ID 2017-08-07_FO_F428
 Christchurch-Christchurch Take off date UTC: 07-AUG-2017
 Departure UTC: 07:12 Arrival UTC: 16:56

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 105319	21h19m51.99s	-53d26m57.9s	7:39	20	
4	05_0089	Morris	eta Carinae	10h45m03.50s	-59d41m03.0s	8:01	68	
5	05_0008	De Buizer	NGC 3603	11h15m33.61s	-61d15m28.8s	9:49	43	
6	05_0063	Guzman-Ramirez	NGC 7009	21h04m10.80s	-11d21m48.0s	9:56	74	Full Moon nearby causing some guiding stability issues.
7	05_0094	Omelian	R Aqr	23h43m49.40s	-15d17m04.0s	11:11	35	
8	05_0064	Smith	RSGC3	18h45m20.00s	-03d24m43.0s	11:49	120	
9	90_0049	Calibration	2 Pallas	02h53m46.82s	-02d15m24.6s	13:53	33	
10	90_0062	Calibration	Alpha Cet	03h02m16.77s	04d05m23.1s	14:26	35	
11	05_0063	Guzman-Ramirez	NGC 5189	13h33m32.80s	-65d58m27.0s	15:05	80	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



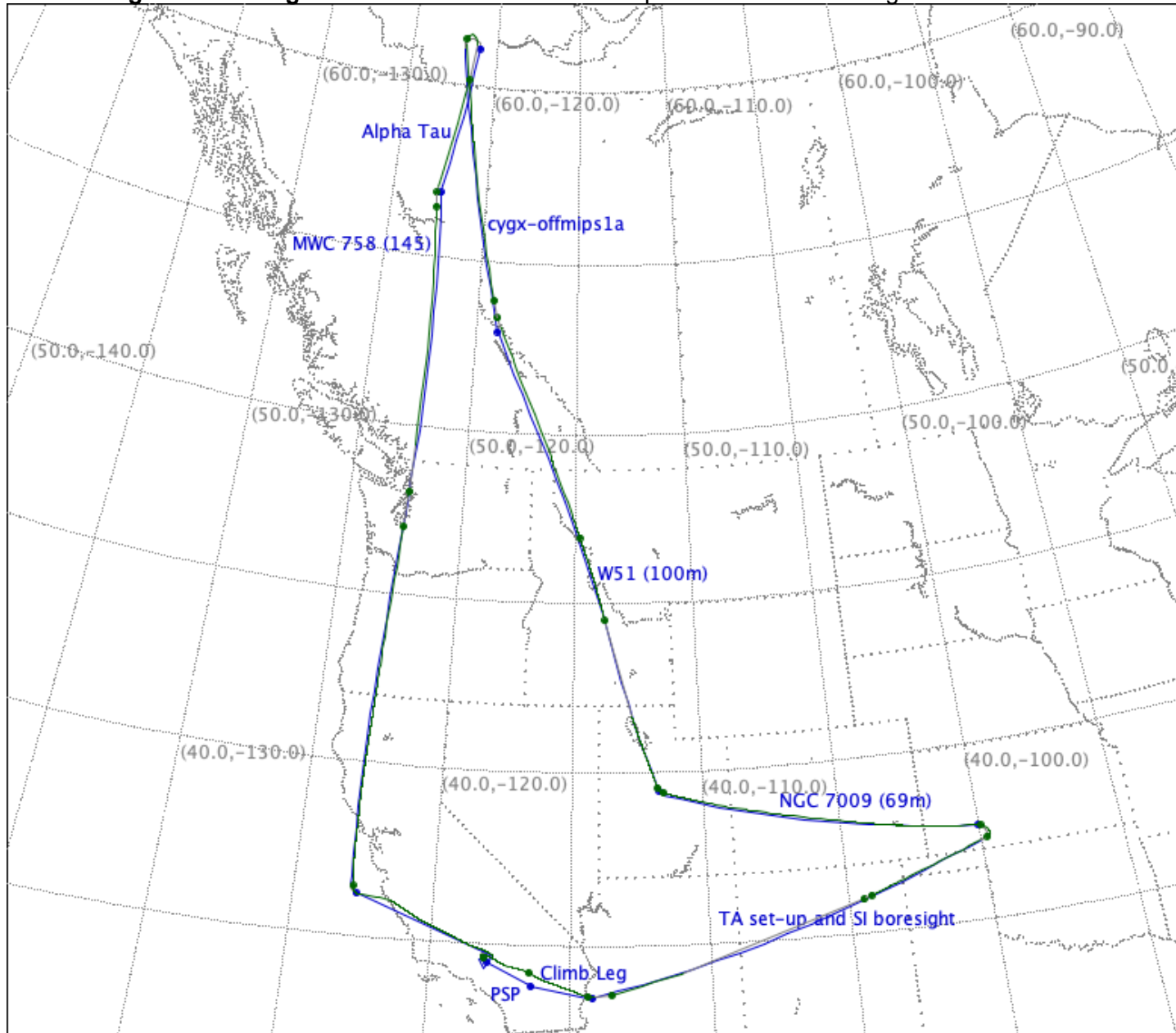
MISSION ID: 2017-09-21_FO_F432

Date: 2017-09-21 UT Instrument: FORCAST

Flight #: 432 Flight Series: OC5K

blue = planned route

green = flown route

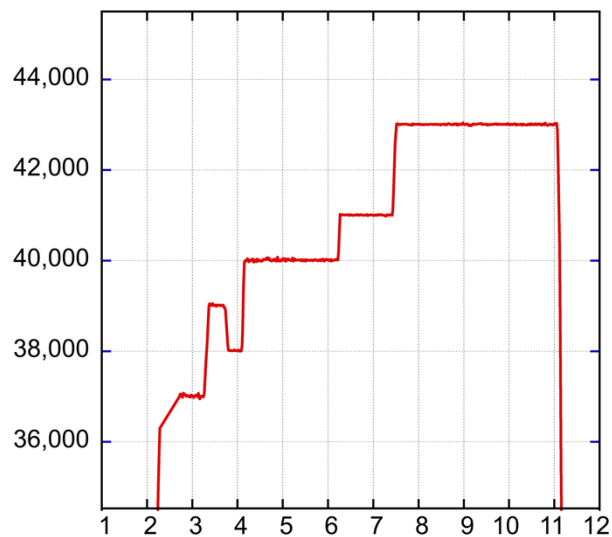


Flight notes: No irregularities.

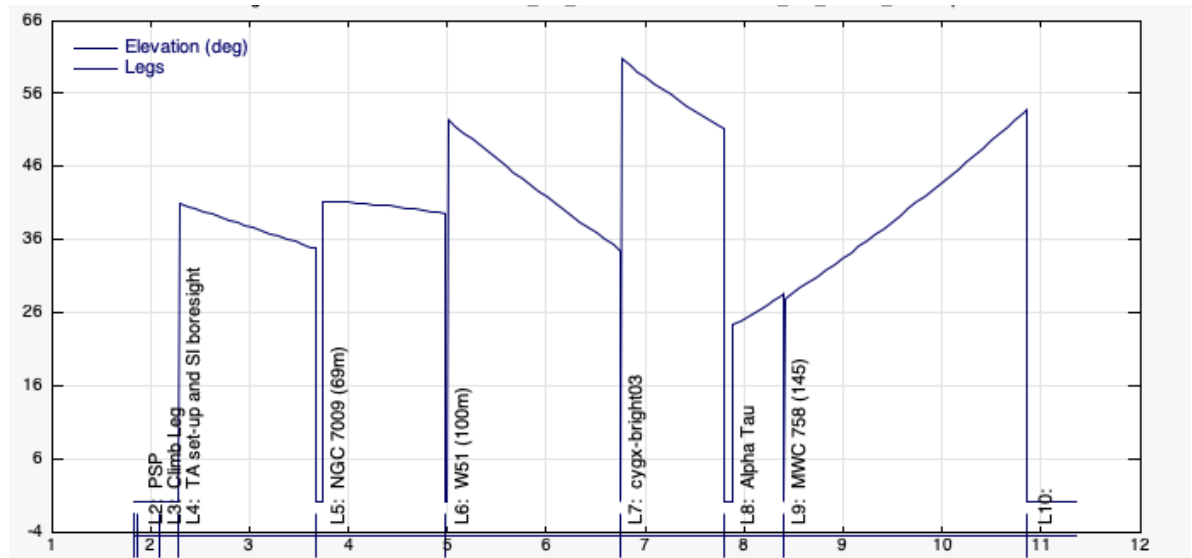
Flight 432 Mission ID 2017-09-21_FO_F432
 Palmdale to Palmdale Take off date UTC: 21-SEP-2017
 Departure UTC: 01:50 Arrival UTC: 11:30

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	2:17	83	
5	05_0063	Guzman-Ramirez	NGC 7009	21h04m10.80s	-11d21m48.0s	3:44	74	Guiding stability issues
6	05_0008	De Buizer	W51	19h23m24.07s	14d27m28.0s	5:00	105	Observatory control software crash led to 26min loss on leg.
7	05_0181	Gutermuth	Cyg X	20h21m47.00s	37d26m48.0s	6:45	62	Vignetting at beginning of leg by telescope upper door led to a 15min loss on leg.
8	90_0071	Calibration	Alpha Tau	04h35m55.24s	16d30m33.5s	7:53	31	
9	05_0138	Shuping	MWC 758	05h30m27.50s	25d19m57.0s	8:24	147	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



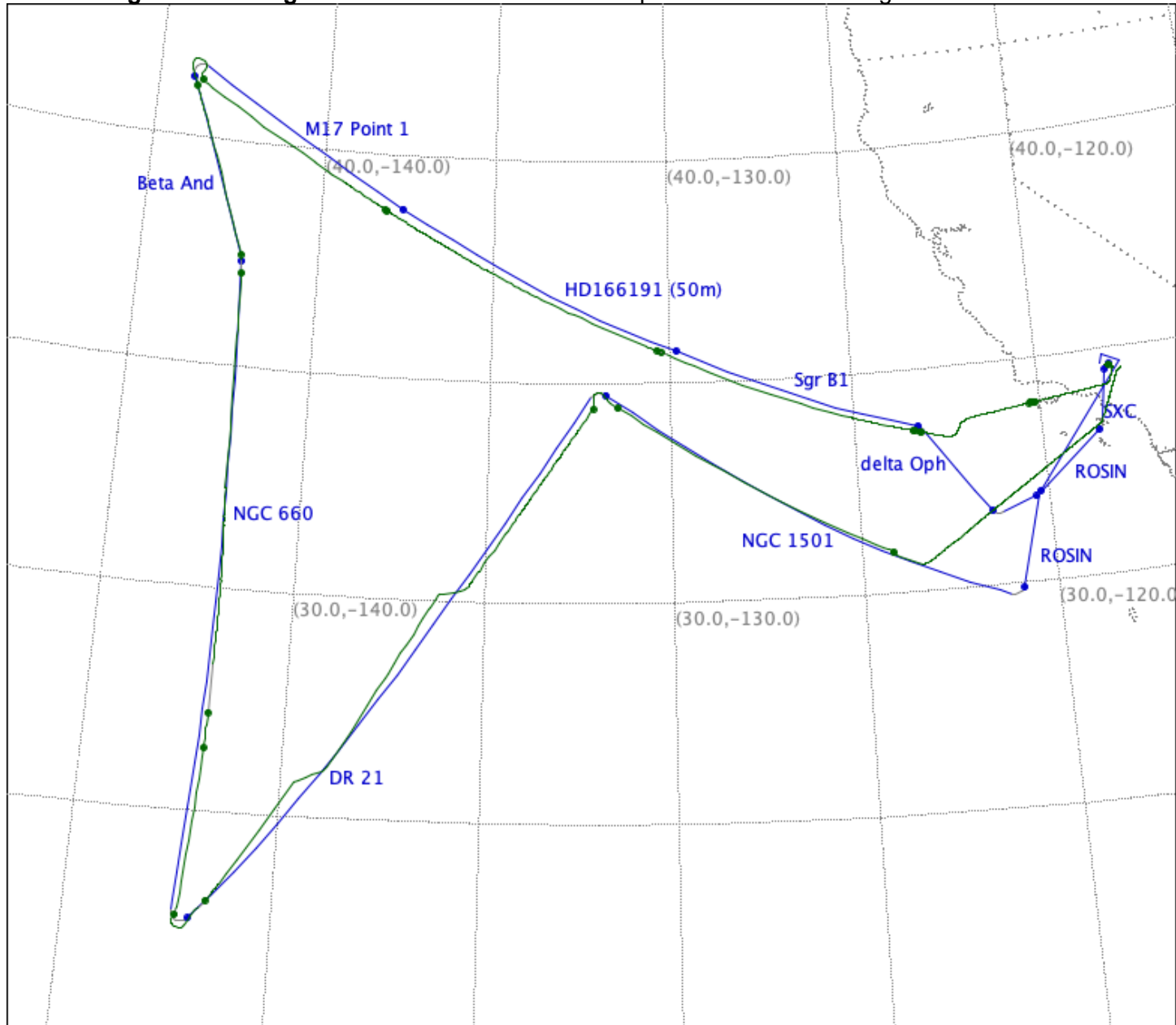
MISSION ID: 2017-09-26_FO_F433

Date: 2017-09-26 UT Instrument: FORCAST

Flight #: 433 Flight Series: OC5K

blue = planned route

green = flown route



Flight notes:

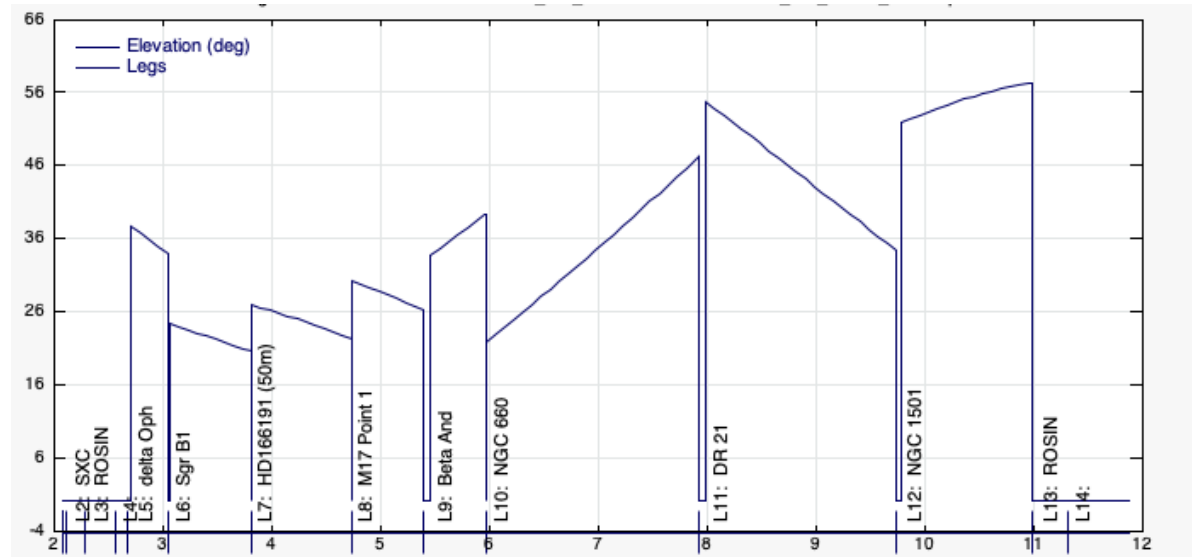
Late departure led to partial loss of first science leg.

Flight 433 Mission ID 2017-09-26_FO_F433
 Palmdale to Palmdale Take off date UTC: 26-SEP-2017
 Departure UTC: 02:13 Arrival UTC: 11:47

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 79593	16h14m20.71s	-03d41m40.9s	2:39	20	
6	05_0145	Cotera	SgrB1	17h47m10.00s	-28d31m05.5s	3:00	45	Late take-off led to loss of first 15min of leg.
7	05_0019	Su	HD166191	18h10m30.30s	-23d34m00.0s	3:46	55	
8	05_0008	De Buizer	M17	18h20m19.92s	-16d09m46.5s	5:16	40	
9	90_0071	Calibration	Beta And	01h09m43.92s	35d37m14.0s	5:24	30.3	
10	05_0167	Yeh	NGC 660	01h43m02.30s	13d38m44.0s	5:55	117	Difficult acquisition and faint guide stars; image quality might be affected; 20min lost due to observatory control software crash
11	05_0181	Gutermuth	Cyg X	20h32m25.00s	40d19m45.0s	7:56	105	
12	05_0063	Guzman-Ramirez	NGC 1501	04h06m59.30s	60d55m14.0s	9:44	72	No detection led to early return to base.

Flown altitude (ft.) vs. time (UTC hrs.)

Planned target elevation (deg.) vs. time (UTC hrs.)



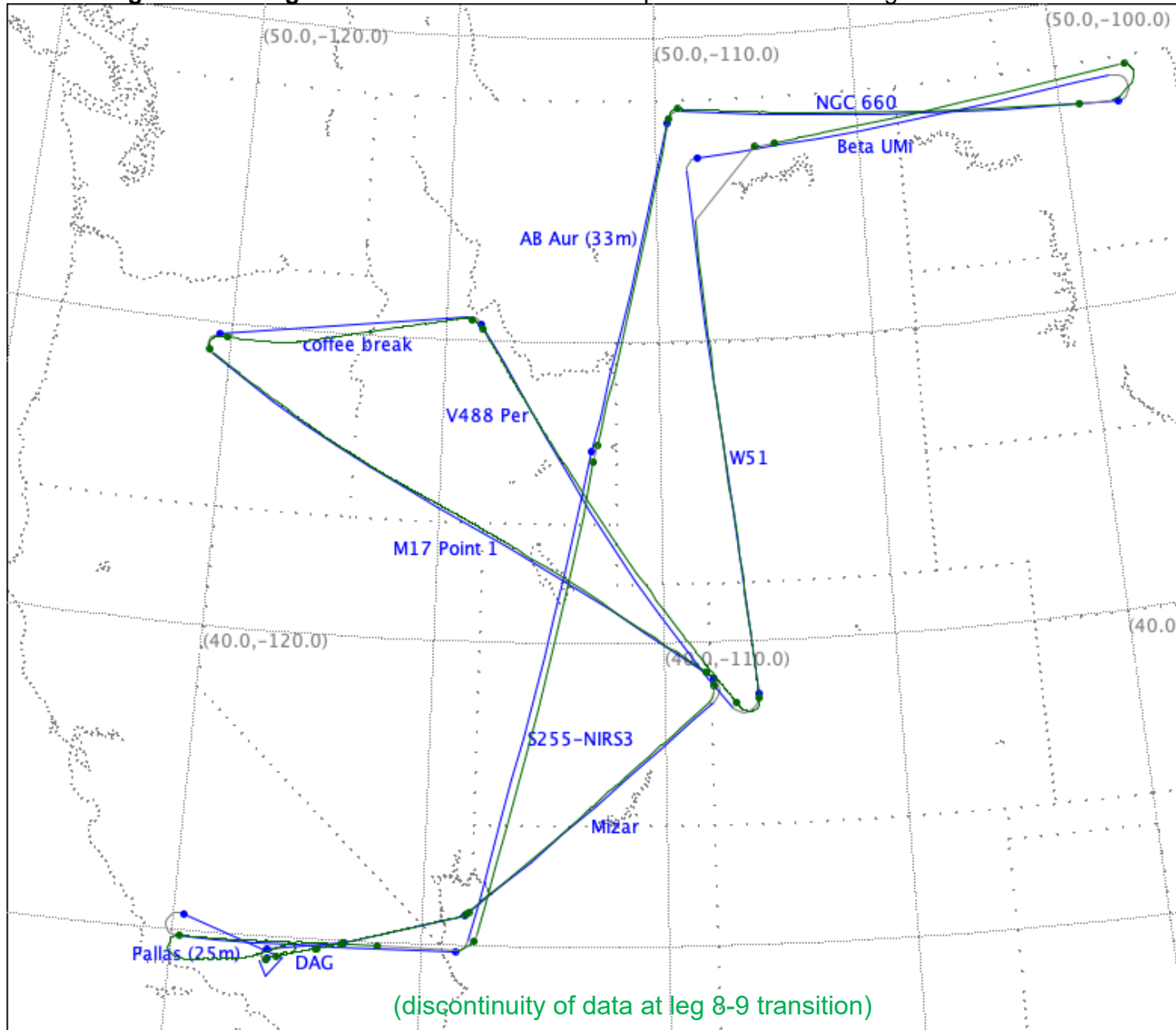
MISSION ID: 2017-09-27_FO_F434

Date: 2017-09-27 UT Instrument: FORCAST

Flight #: 434 Flight Series: OC5K

blue = planned route

green = flown route

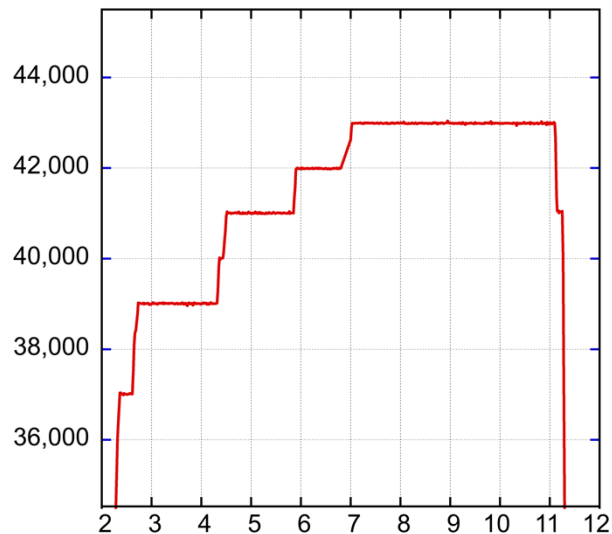


Flight notes: No irregularities.

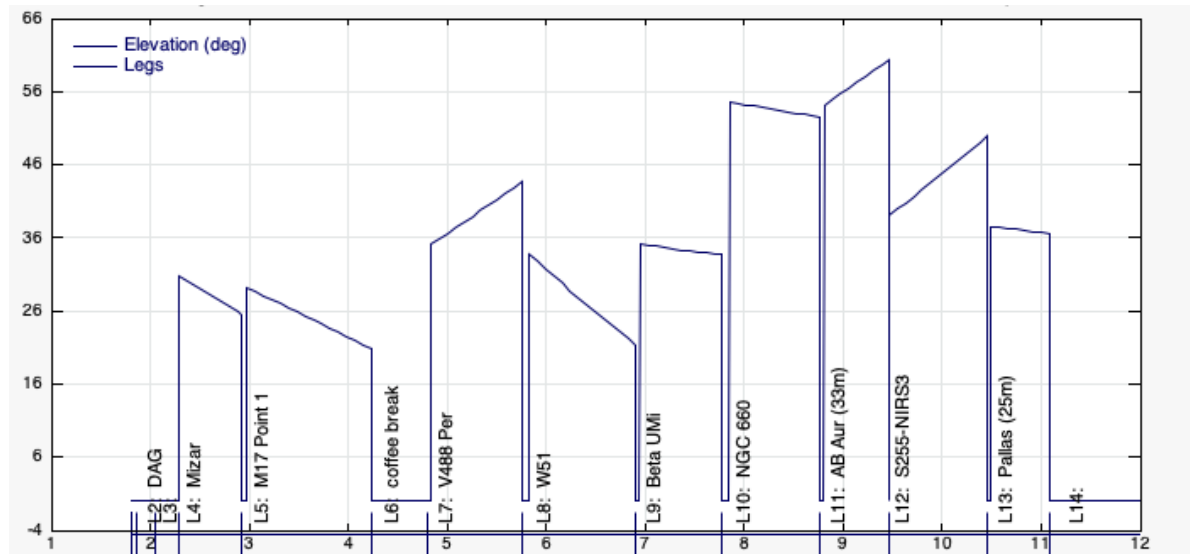
Flight 434 Mission ID 2017-09-27_FO_F434
 Palmdale to Palmdale Take off date UTC: 27-SEP-2017
 Departure UTC: 01:50 Arrival UTC: 11:36

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 65378A	13h23m55.54s	54d55m31.3s	2:18	38	
5	05_0008	De Buizer	M17	18h20m19.92s	-16d09m46.5s	2:59	75	
7	05_0130	Chavez	V488 Per	03h28m18.60s	48d39m48.0s	4:51	55	
8	05_0008	De Buizer	W51	19h23m24.07s	14d27m28.0s	5:50	65	
9	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	6:57	49	
10	05_0167	Yeh	NGC 660	01h43m02.30s	13d38m44.0s	7:52	55	
11	05_0138	Shuping	AB Aur	04h55m45.80s	30d33m04.0s	8:49	39	
12	05_0202	Stecklum	S255-NIRS3	06h12m54.01s	17d59m23.1s	9:28	60	
13	90_0059	Calibration	2 Pallas	03h20m17.08s	-14d36m23.7s	10:30	35	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



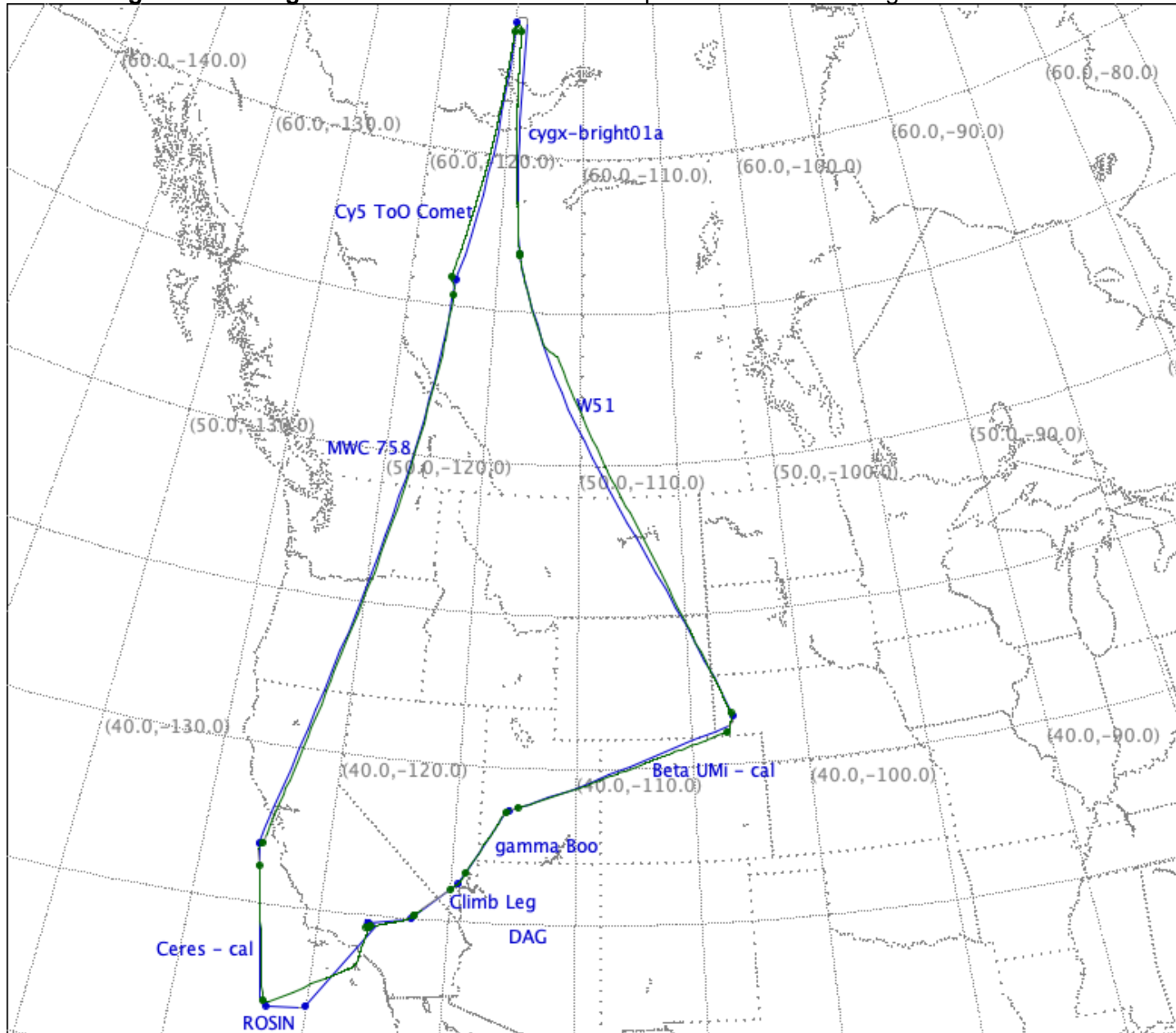
MISSION ID: 2017-09-28_FO_F435

Date: 2017-09-28 UT Instrument: FORCAST

Flight #: 435 Flight Series: OC5K

blue = planned route

green = flown route

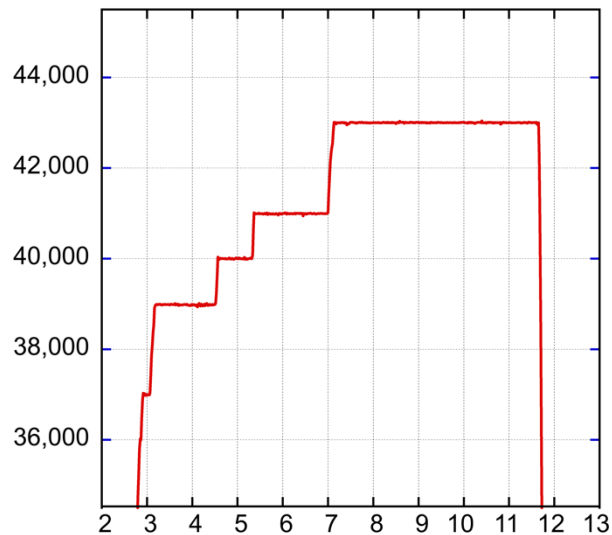


Flight notes: No irregularities.

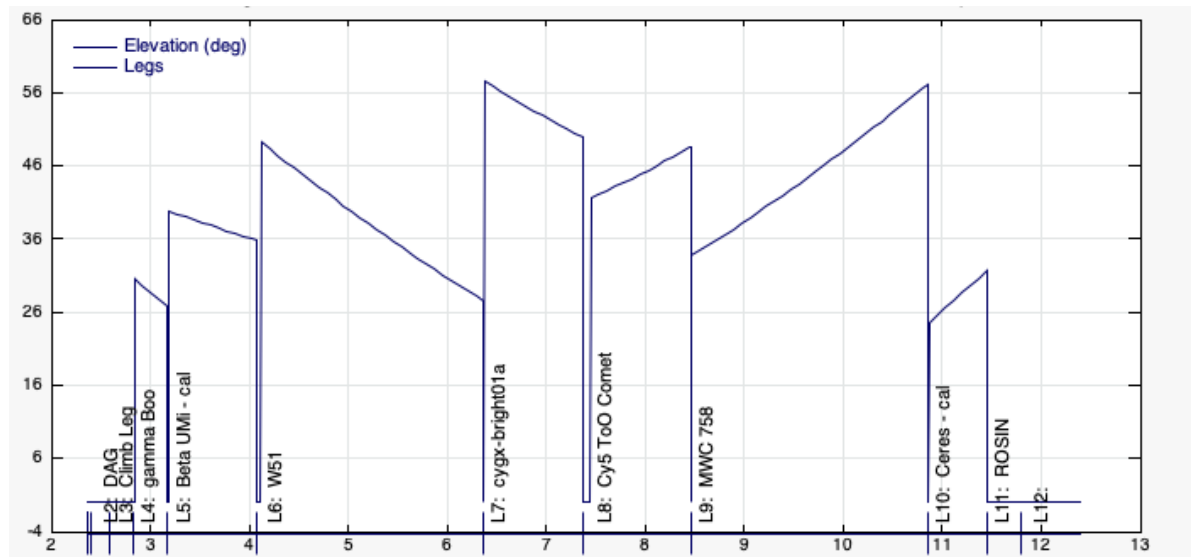
Flight 435 Mission ID 2017-09-28_FO_F435
 Palmdale to Palmdale Take off date UTC: 28-SEP-2017
 Departure UTC: 02:23 Arrival UTC: 12:08

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 71075	14h32m04.67s	38d18m29.7s	2:50	20	
5	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	3:11	53	Turbulence.
6	05_0008	De Buizer	W51	19h23m24.07s	14d27m28.0s	4:07	135	
7	05_0181	Gutermuth	Cyg X	20h32m25.00s	40d19m45.0s	6:22	60	
8	05_0182	Wooden	C/2017 O1	04h20m22.10s	32d23m20.6s	7:27	61	
9	05_0138	Shuping	MWC 758	05h30m27.50s	25d19m57.0s	8:28	143	
10	90_0059	Calibration	1 Ceres	08h17m09.29s	23d14m23.3s	10:52	35	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



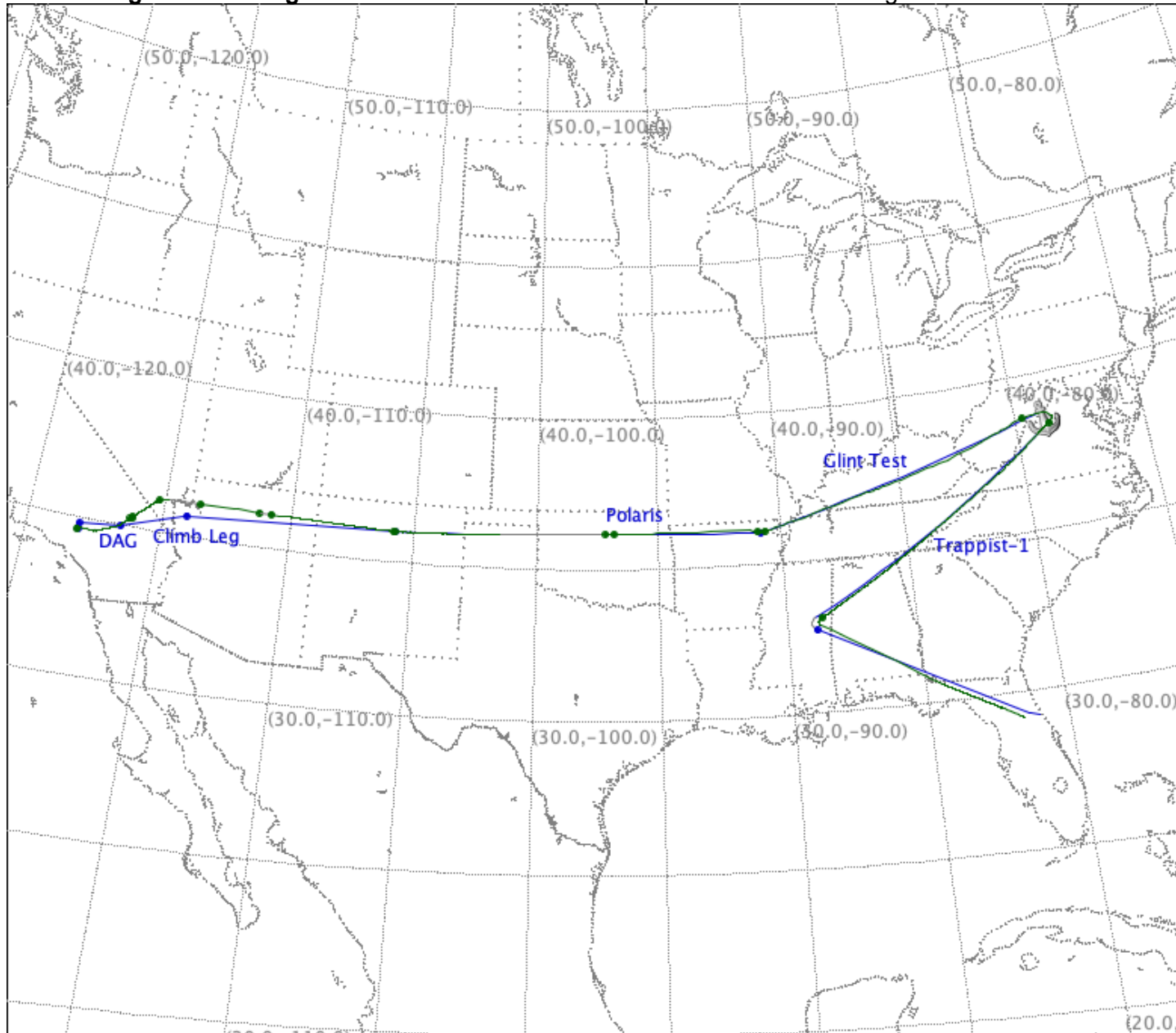
MISSION ID: 2017-10-02_FP_F436

Date: 2017-10-02 UT Instrument: FLITECAM+HIPO

Flight #: 436 Flight Series: OC5L

blue = planned route

green = flown route



Flight notes:

Daylight open door observing engineering tests, ferry from Palmdale, CA to Daytona Beach, FL.

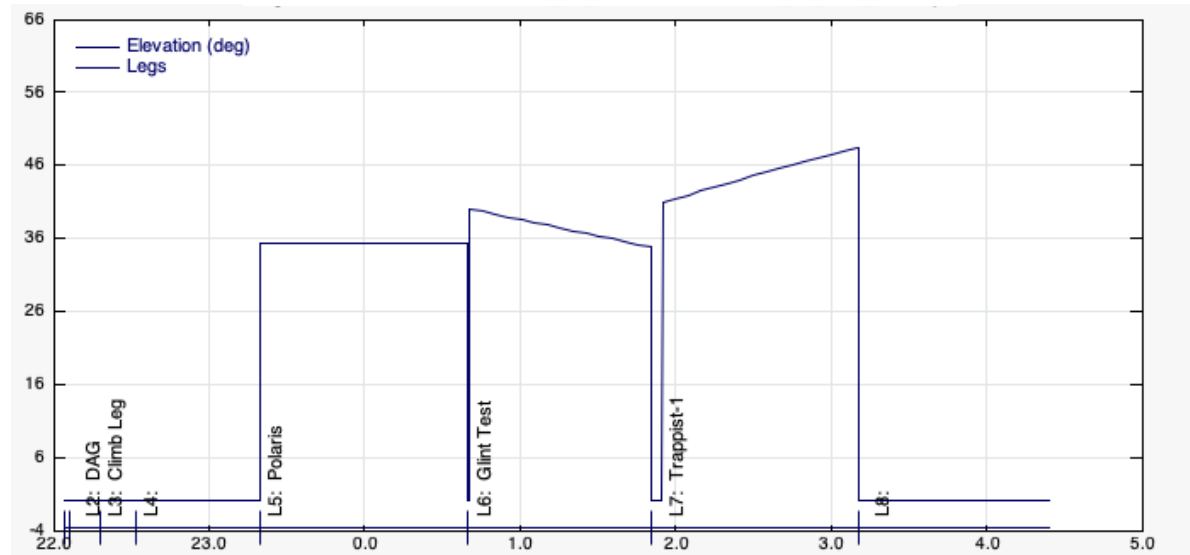
Flight 436 Mission ID 2017-10-02_FP_F436
 Palmdale to
 Daytona
 Beach

Take off date UTC: 02-OCT-2017
 Departure UTC: 22:01
 Arrival UTC: 04:20

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5	71_0015	Engineering	Polaris	02h31m49.09s	89d15m50.8s	23:15	80	Daylight tracking test.
6	71_0016	Engineering	HIP 72607	14h50m42.33s	74d09m19.8s	0:35	70	
7	75_0023	Discretionary	Trappist-1	23h06m29.36s	-05d02m29.2s	1:50	76	

Flown altitude (ft.) vs. time (UTC hrs.)

Planned target elevation (deg.) vs. time (UTC hrs.)



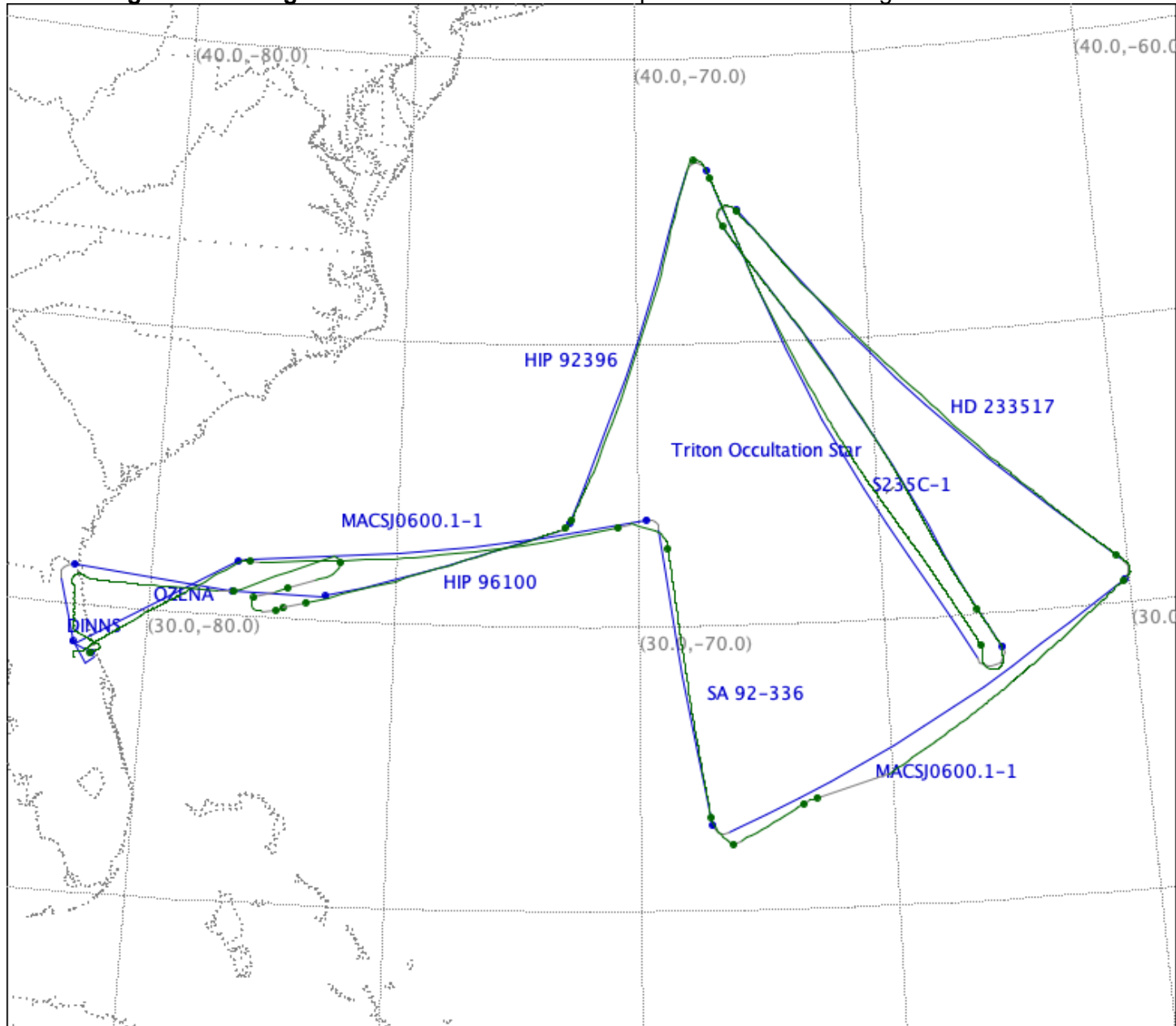
MISSION ID: 2017-10-04_FP_F437

Date: 2017-10-04 UT Instrument: FLITECAM+HIPO

Flight #: 437 Flight Series: OC5L

blue = planned route

green = flown route

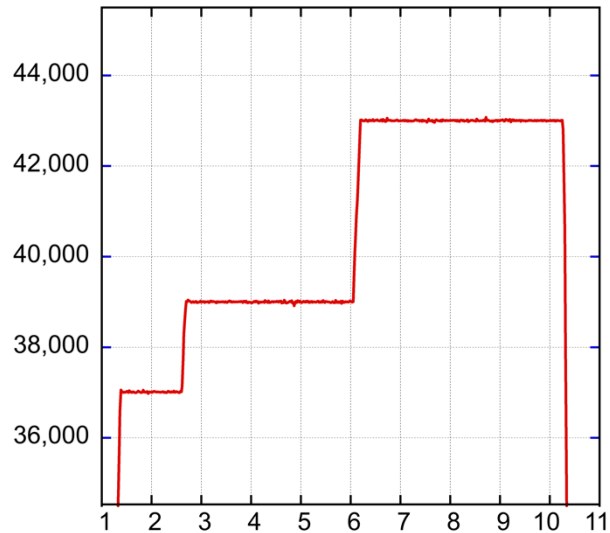


Flight notes: No irregularities.

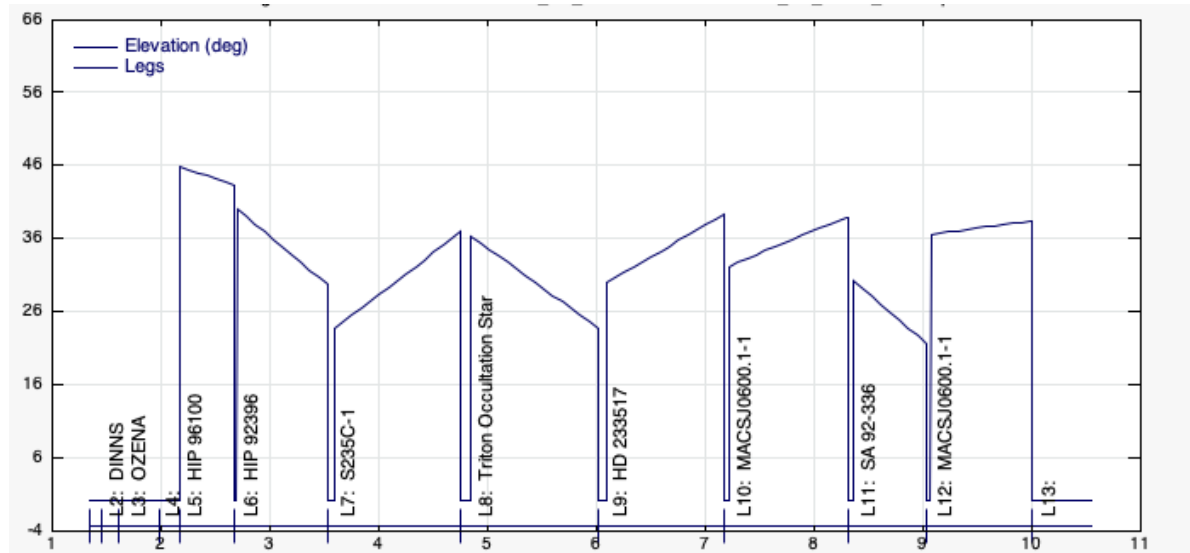
Flight 437 Mission ID 2017-10-04_FP_F437
Daytona Beach to Daytona Beach
Take off date UTC: 04-OCT-2017
Departure UTC: 00:56
Arrival UTC: 10:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 96100	19h32m21.59s	69d39m40.2s	2:11	30	Turbulence.
6	90_0017	Calibration	HIP 92396	18h49m44.09s	31d37m46.1s	2:43	50	
7	75_0021	Discretionary	S235C	05h40m50.99s	35d38m22.3s	3:36	70	Clouds.
8	05_0125	Person	Triton Occultation Star (Tr20171005) Calibration Run	22h54m18.43s	-08d00m08.3s	4:52	70	Bright Moon nearby.
9	01_0124	Peeters	HD 233517	08h22m46.71s	53d04m49.2s	6:06	65	Turbulence.
10	05_0180	Egami	MACSJ0600.1	06h00m23.78s	-20d06m40.0s	7:14	66	
11	90_0004	Calibration	SA 92-336	00h55m01.40s	00d47m22.4s	8:23	40	
12	05_0180	Egami	MACSJ0600.1	06h00m23.78s	-20d06m40.0s	9:05	56	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



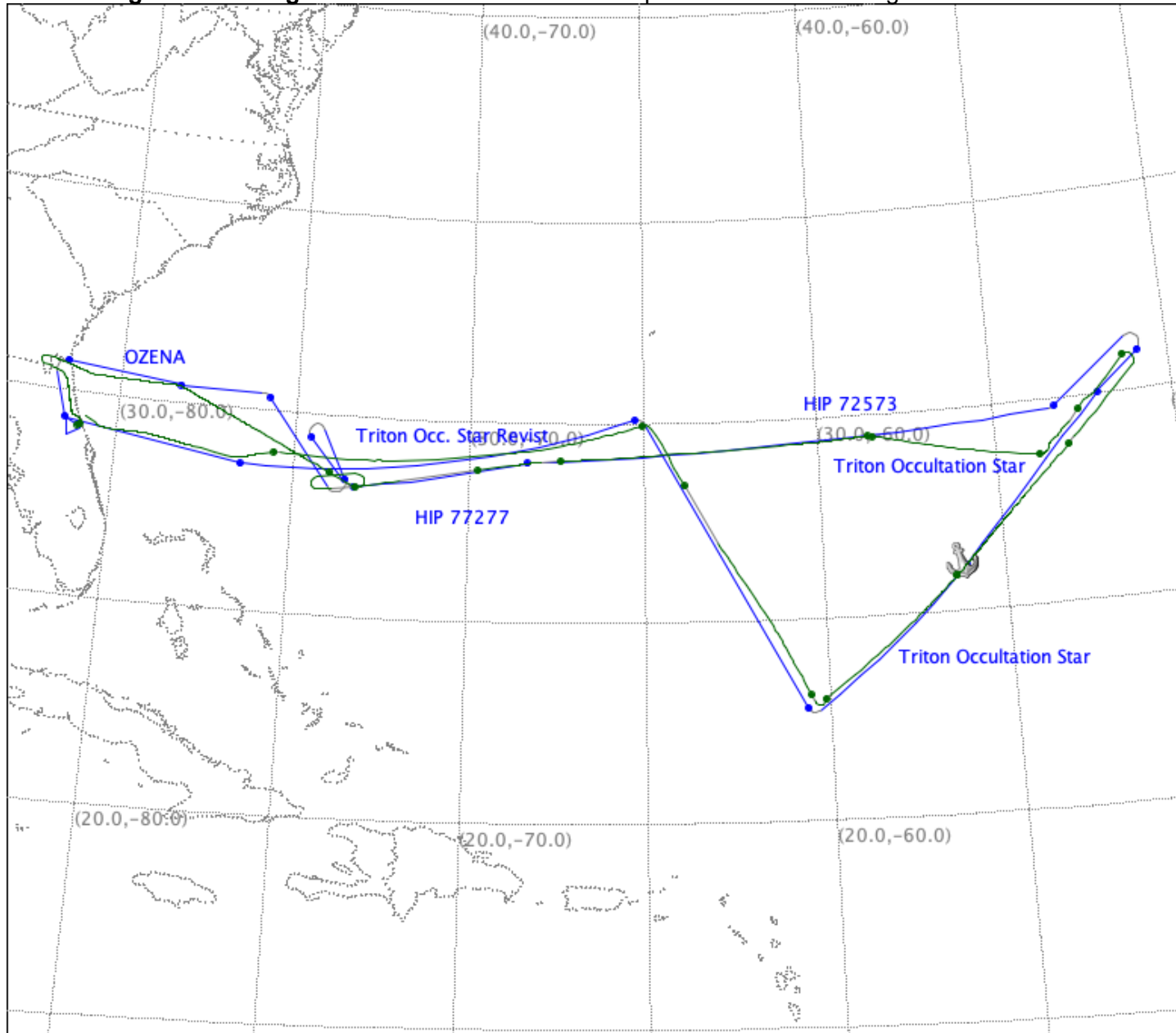
MISSION ID: 2017-10-05_FP_F438

Date: 2017-10-05 UT Instrument: FLITECAM+HIPO

Flight #: 438 Flight Series: OC5L

blue = planned route

green = flown route

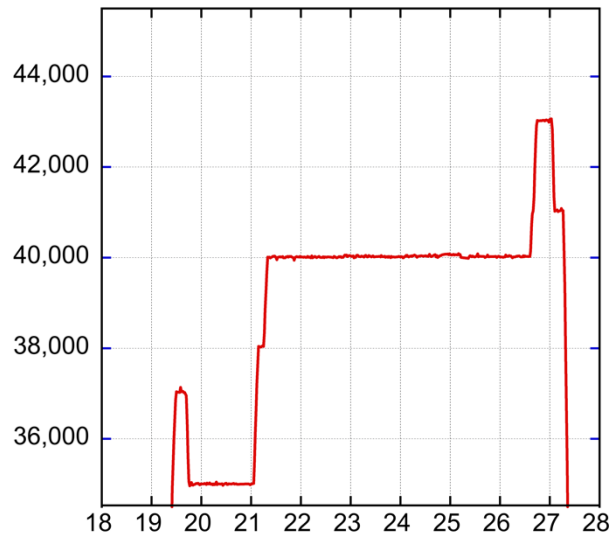


Flight notes: Triton occultation flight.

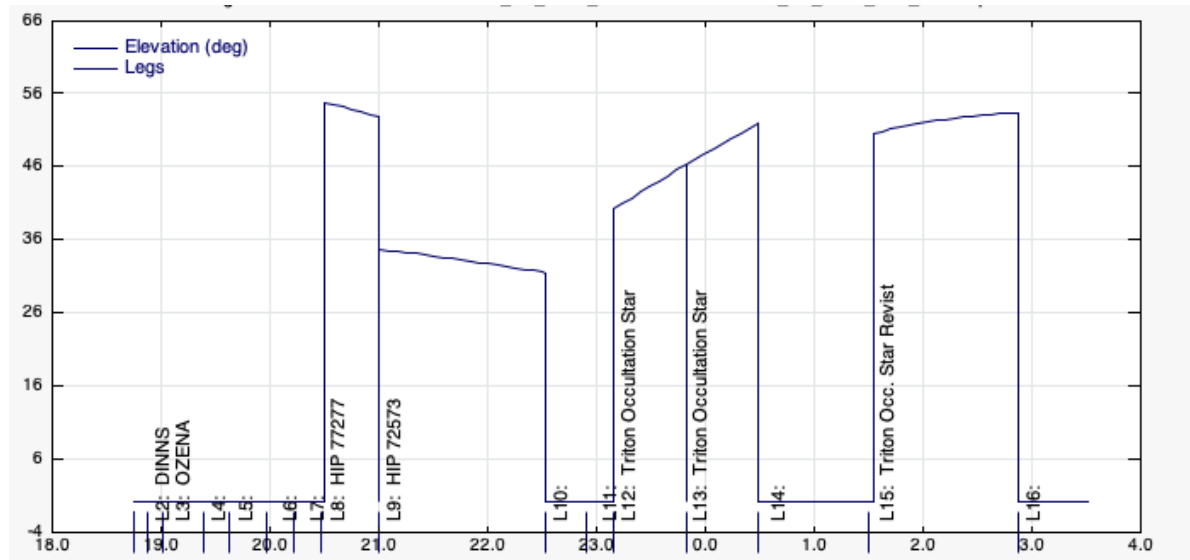
Flight 438 Mission ID 2017-10-05_FP_F438
 Daytona Beach to Daytona Beach
 Take off date UTC: 05-OCT-2017
 Departure UTC: 18:52
 Arrival UTC: 03:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
8			HIP 77277	15h46m40.01s	62d35m58.4s	20:29	30	Clouds.
9			HIP 72573	14h50m20.42s	82d30m43.0s	20:59	92	Clouds.
12	05_0125	Person	Triton Occultation Star (Tr20171005) Calibration Run	22h54m18.43s	-08d00m08.3s	23:05	40	
13	05_0125	Person	Triton Occultation Star (Tr20171005) Calibration Run	22h54m18.43s	-08d00m08.3s	0:10	40	
15	05_0125	Person	Triton Occultation Star (Tr20171005) Calibration Run	22h54m18.43s	-08d00m08.3s	1:33	80	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



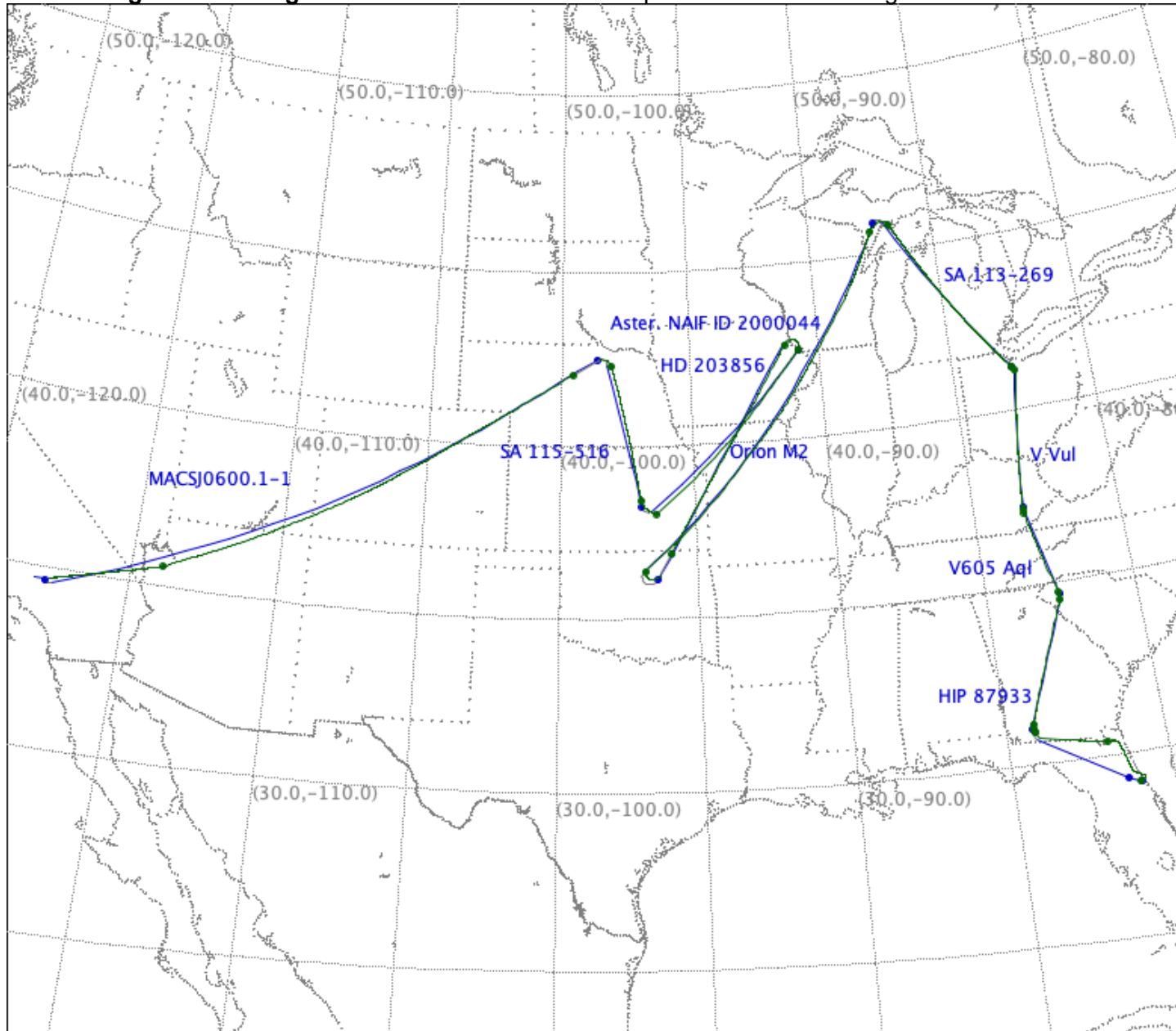
MISSION ID: 2017-10-07_FP_F439

Date: 2017-10-07 UT Instrument: FLITECAM+HIPO

Flight #: 439 Flight Series: OC5L

blue = planned route

green = flown route



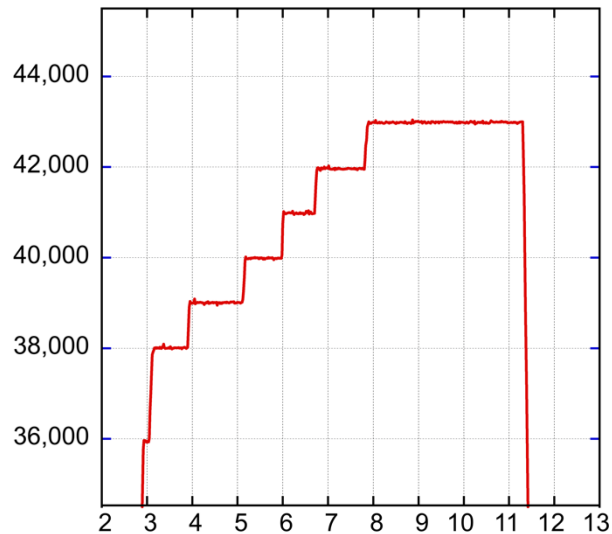
Flight notes: No irregularities.

Flight 439 Mission ID 2017-10-07_FP_F439
Daytona
Beach to
Palmdale

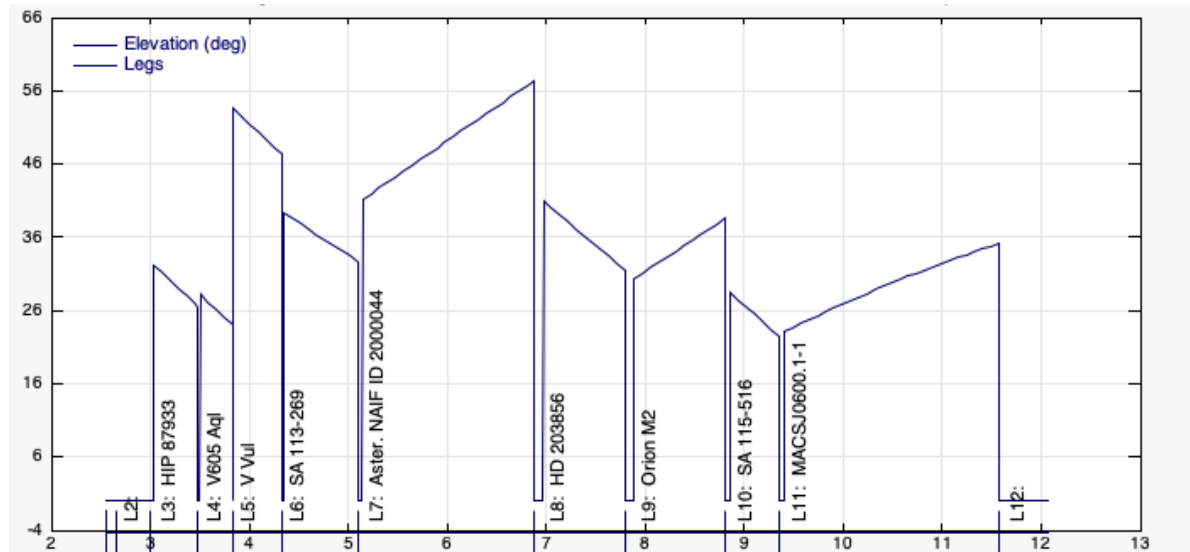
Take off date UTC: 07-OCT-2017
Departure UTC: 02:29
Arrival UTC: 11:51

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 87933	17h57m45.89s	29d14m52.4s	3:02	27	
4	03_0024	Evans	V605 Aql	19h18m20.48s	01d46m59.6s	3:30	20	FLITECAM computer network issues; leg lost
5	02_0015	Gehrz	V Vul	20h36m32.02s	26d36m14.5s	3:50	29	20min lost recovering from FLITECAM computer networking issue
6	90_0004	Calibration	SA 113-259	21h41m44.84s	00d17m40.0s	4:20	45	
7	04_0050	Rivkin	Asteroid with naif_id =2000044	03h02m44.72s	10d58m54.4s	5:08	104	
8	90_0017	Calibration	HD 203856	21h23m35.53s	40d01m07.0s	6:58	50	Clouds led to loss of half of the leg.
9	04_0058	Knight	Orion M2	05h35m37.00s	-05d29m21.0s	7:53	55	
10	90_0004	Calibration	SA 115-427	23h43m14.43s	01d06m47.0s	8:51	30	
11	05_0180	Egami	MACSJ0600.1	06h00m23.78s	-20d06m40.0s	9:24	130	80% through the leg pilots requested early return to base due to insufficient fuel.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



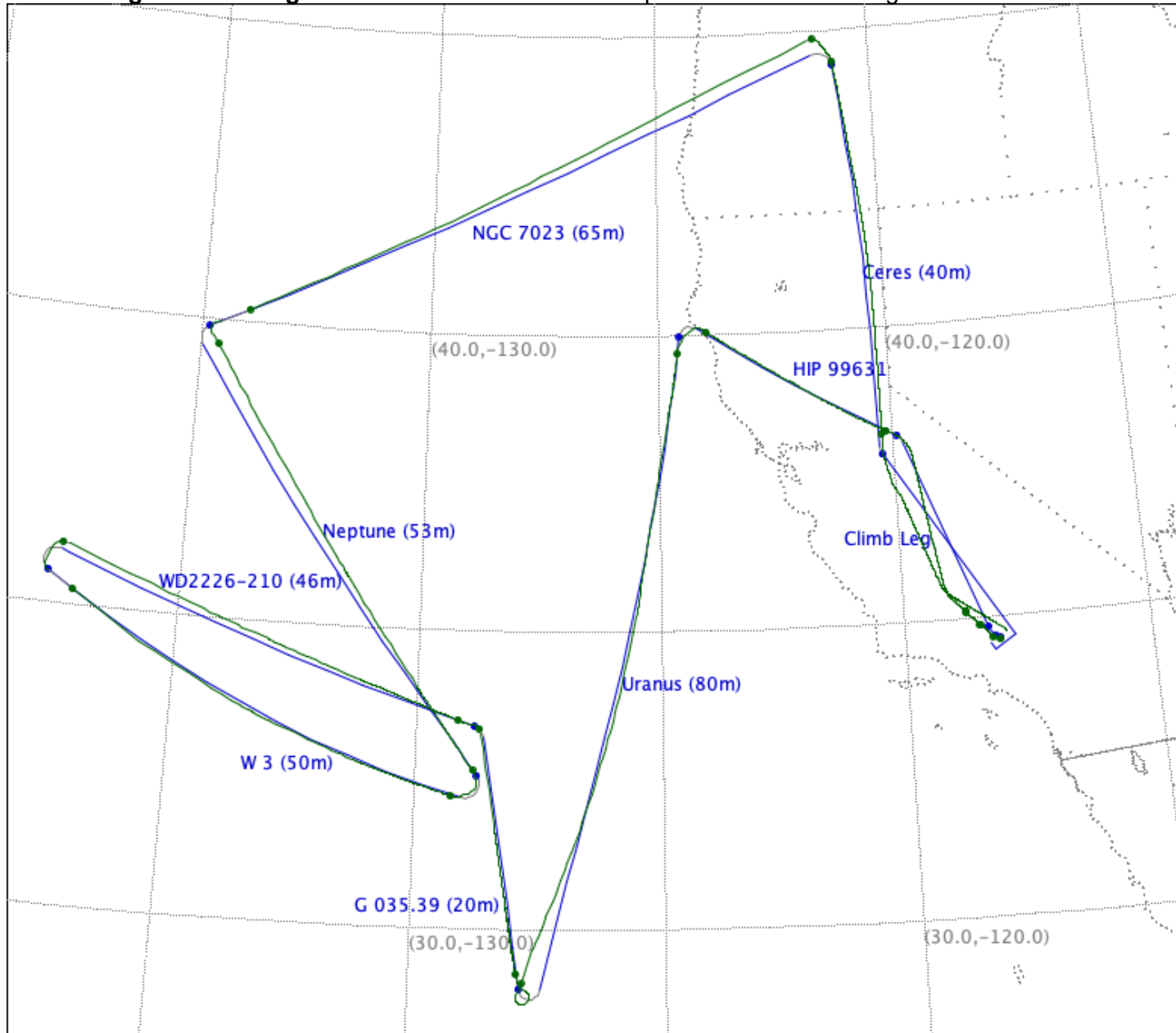
MISSION ID: 2017-10-17_HA_F440

Date: 2017-10-17 UT Instrument: HAWC+

Flight #: 440 Flight Series: OC5N

blue = planned route

green = flown route

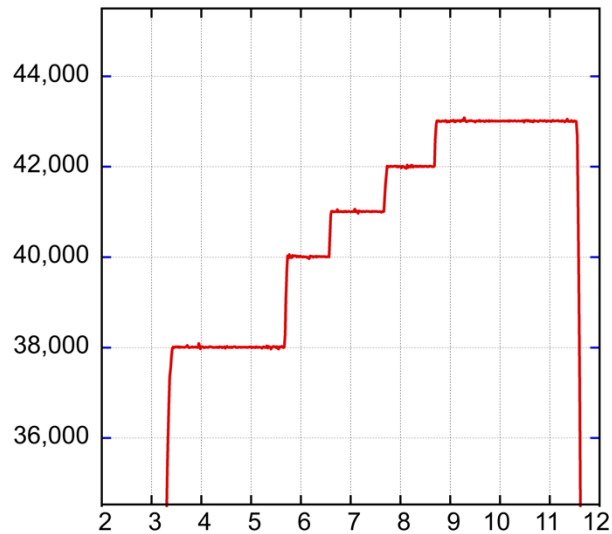


Flight notes: No irregularities.

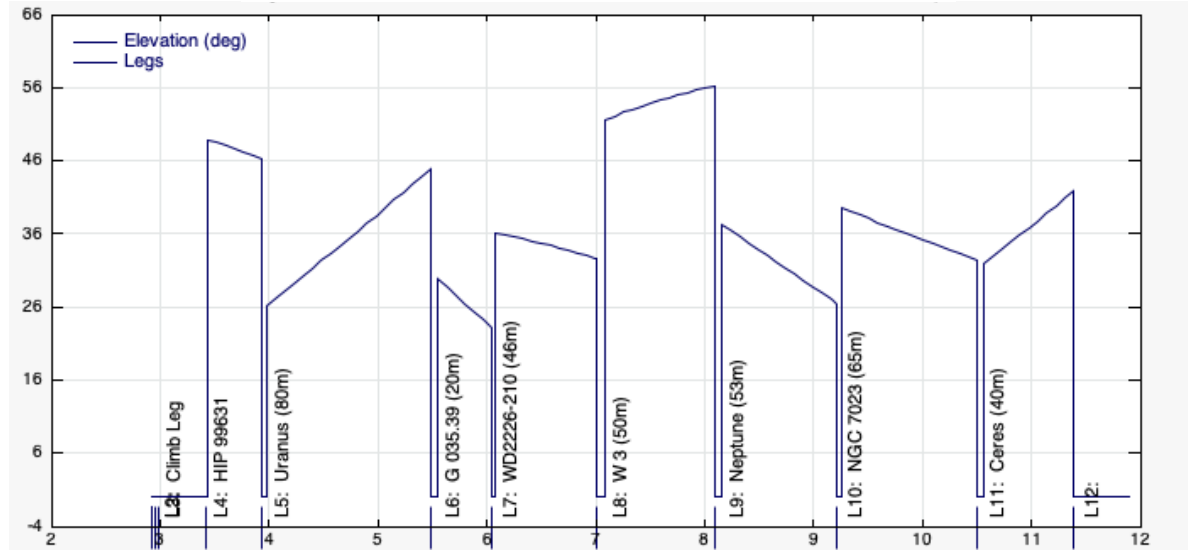
Flight 440 Mission ID 2017-10-17_HA_F440
 Palmdale to Palmdale Take off date UTC: 17-OCT-2017
 Departure UTC: 02:52 Arrival UTC: 12:03

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 99631	20h13m13.88s	-01d00m33.6s	3:25	30	
5	90_0086	Calibration	Uranus Barycenter	01h38m44.56s	09d37m06.3s	3:58	90	Turbulence.
6	05_0206	Pillai	G035.39-00.33	18h57m08.12s	02d08m32.6s	5:33	30	Trouble pointing to right field; half of planned data collected
7	05_0054	Ertel	WD2226-210	22h29m38.50s	-20d50m13.0s	6:04	56	
8	90_0086	Calibration	W3	02h25m40.20s	62d06m05.2s	7:05	60	Vignetting at end of leg led to some loss in observing time.
9	90_0083	Calibration	Neptune	22h53m26.37s	-08d05m27.1s	8:09	63.3	
10	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	9:15	75	
11	90_0083	Calibration	1 Ceres	08h44m17.02s	22d45m27.4s	10:33	50	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



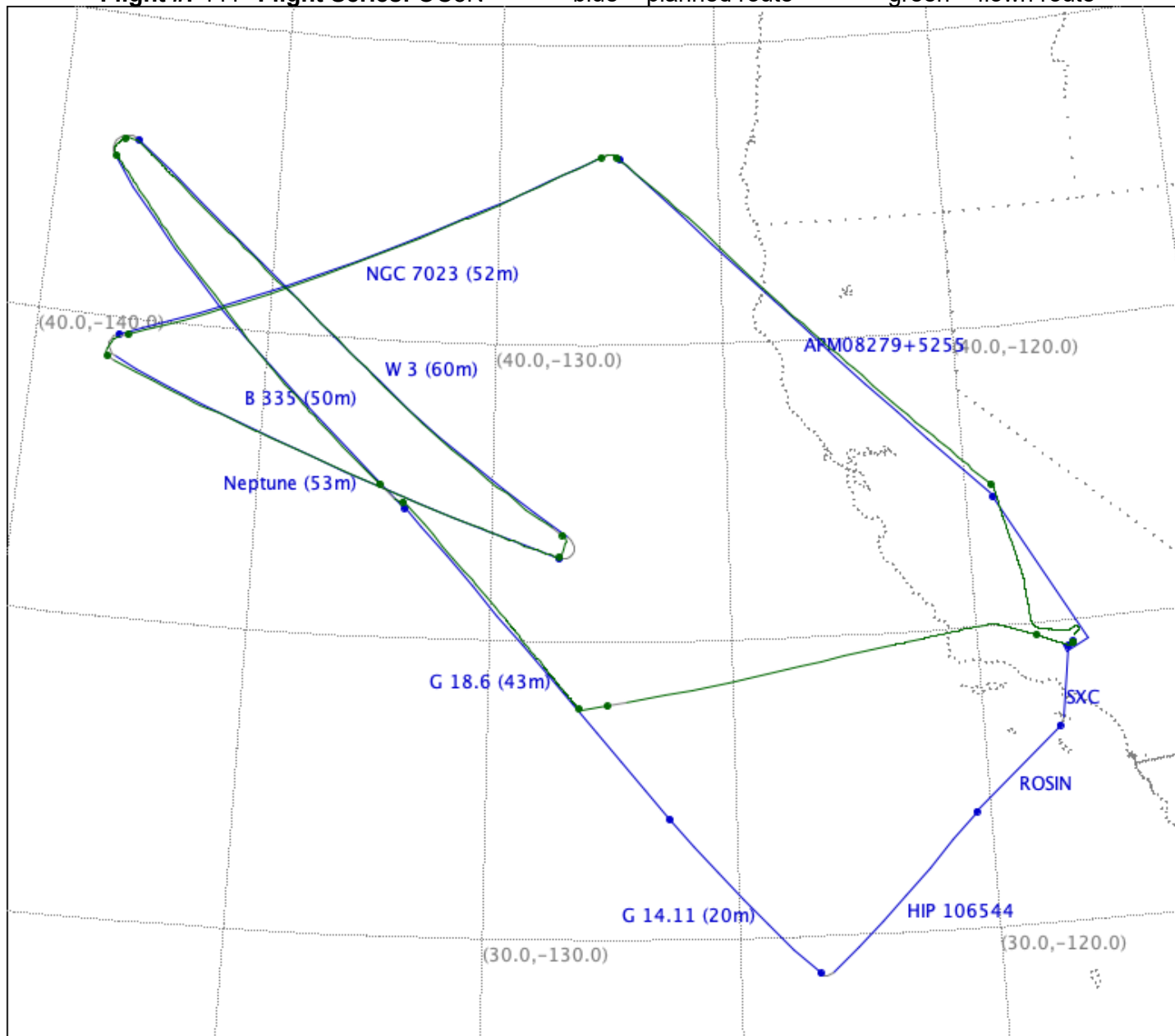
MISSION ID: 2017-10-18_HA_F441

Date: 2017-10-18 UT Instrument: HAWC+

Flight #: 441 Flight Series: OC5N

blue = planned route

green = flown route



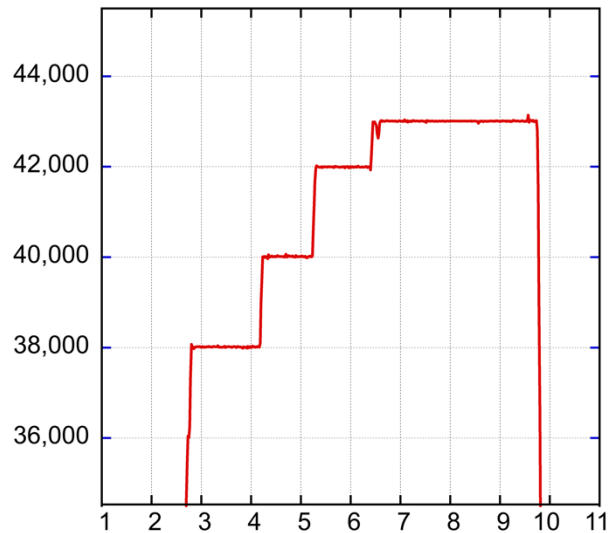
Flight notes:

Late departure led to loss of first science leg and part of second; frequent turbulence.

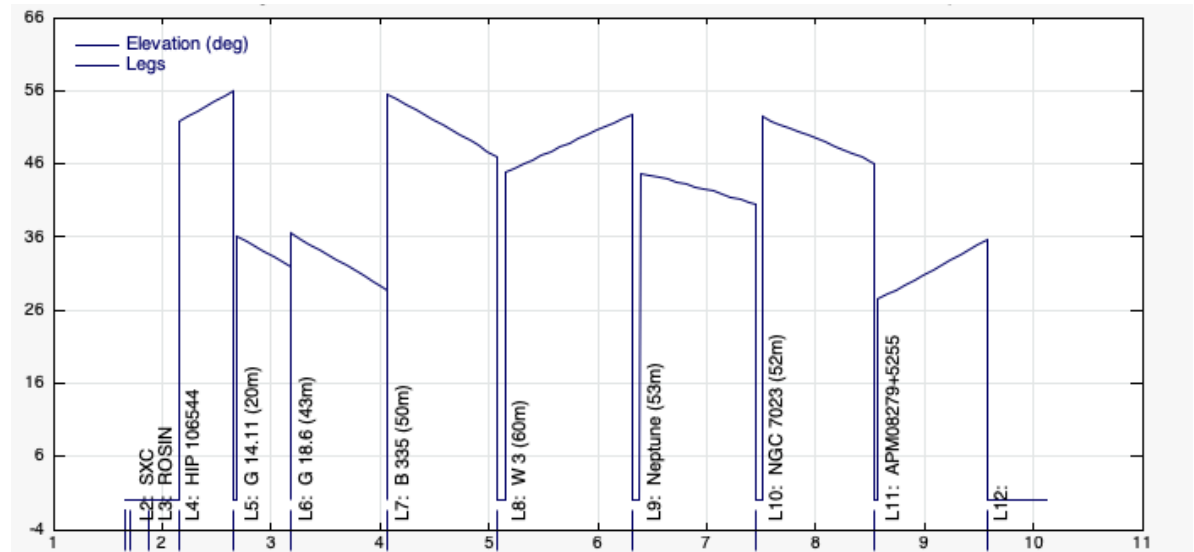
Flight 441 Mission ID 2017-10-18_HA_F441
 Palmdale to Palmdale Take off date UTC: 18-OCT-2017
 Departure UTC: 02:19 Arrival UTC: 10:08

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 106544	21h34m42.77s	01d49m45.0s	2:09	30	
5	05_0206	Pillai	G14.11-0.56	18h18m09.27s	-16d58m05.5s	2:41	30	Late take-off; leg not flown
6	05_0109	Stephens	G18.6 Field 1	18h25m09.64s	-12d43m28.2s	3:11	53	Late take-off led to loss of first 30% of leg; turbulence
7	05_0189	Brauer	[HSW99] B 335 SMM 1	19h37m00.70s	07d34m08.0s	4:04	60	Turbulence.
8	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	5:09	70	
9	90_0083	Calibration	Neptune	22h53m22.59s	-08d05m49.5s	6:23	63.3	Turbulence.
10	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	7:30	62	Poor guiding at beginning of leg
11	05_0165		APM08279+5255	08h31m41.69s	52d45m17.5s	8:34	60	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



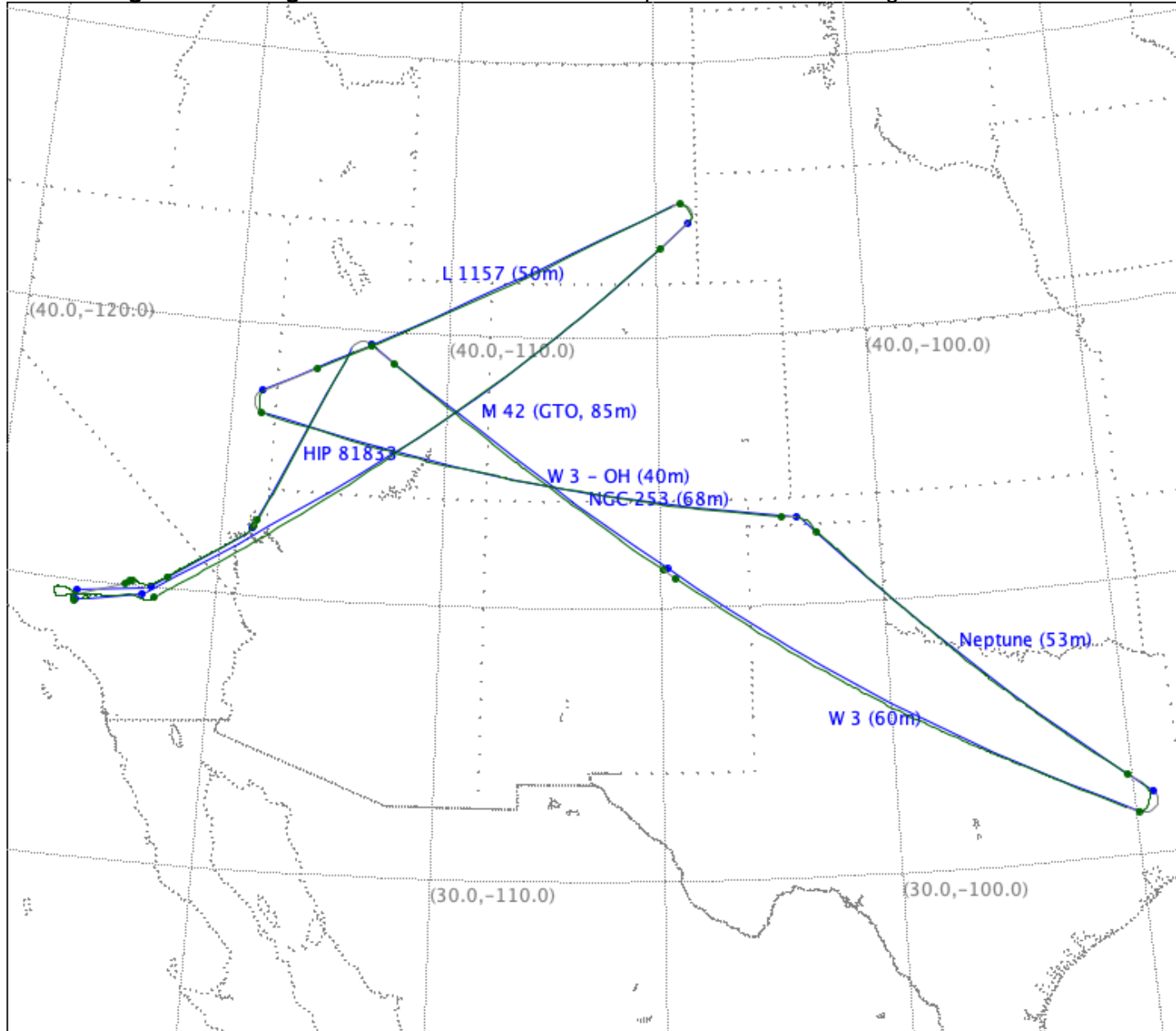
MISSION ID: 2017-10-19_HA_F442

Date: 2017-10-19 UT Instrument: HAWC+

Flight #: 442 Flight Series: OC5N

blue = planned route

green = flown route

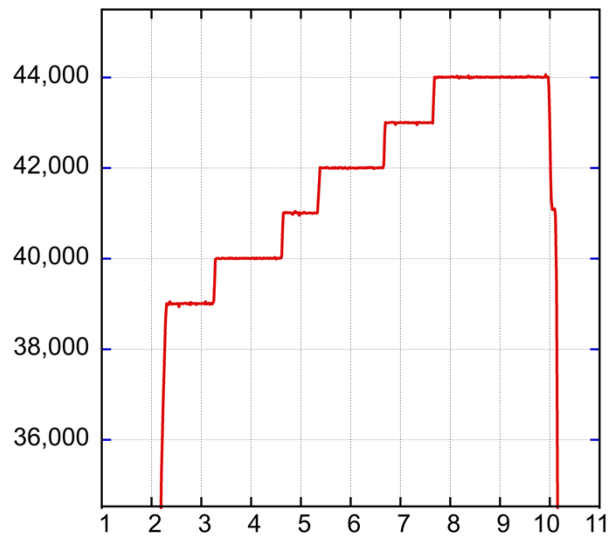


Flight notes: No irregularities.

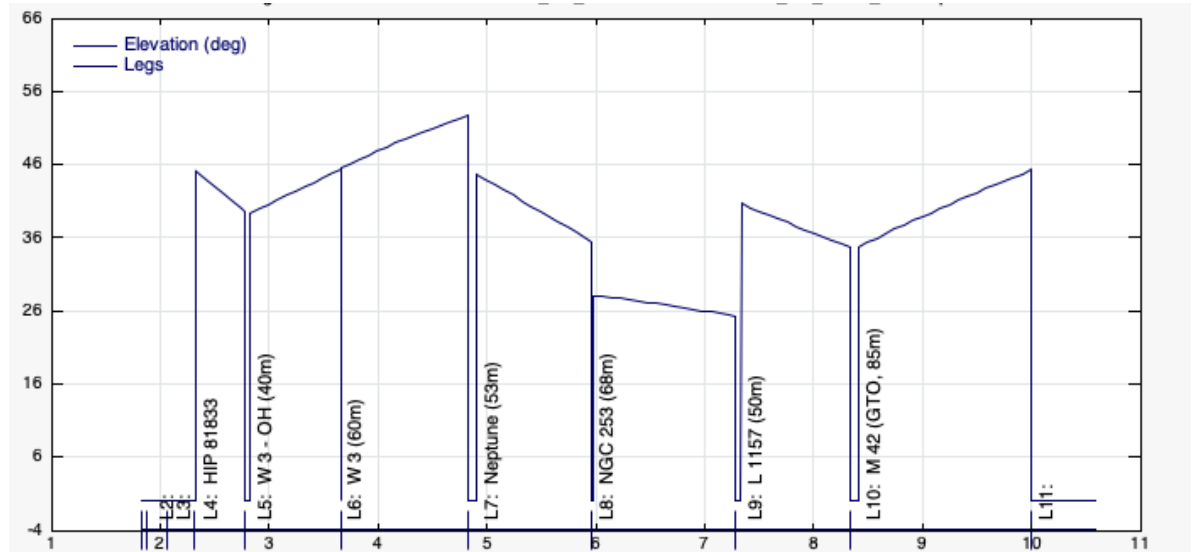
Flight 442 Mission ID 2017-10-19_HA_F442
 Palmdale to Palmdale Take off date UTC: 19-OCT-2017
 Departure UTC: 01:49 Arrival UTC: 10:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 81833	16h42m53.76s	38d55m20.1s	2:19	27	
5	70_0509	GTO	W3(OH)	02h27m04.10s	61d52m22.1s	2:49	50	
6	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	4:09	70	Turbulence.
7	90_0083	Calibration	Neptune	22h53m18.89s	-08d06m11.3s	4:54	63	Climbed to avoid clouds mid-leg.
8	70_0509	GTO	NGC253	00h47m33.13s	-25d17m19.7s	5:58	78	
9	70_0509	GTO	L1157	20h39m06.41s	68d02m12.8s	7:20	60	
10	70_0509	GTO	OMC1	05h35m15.12s	-05d22m22.8s	8:24	95	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



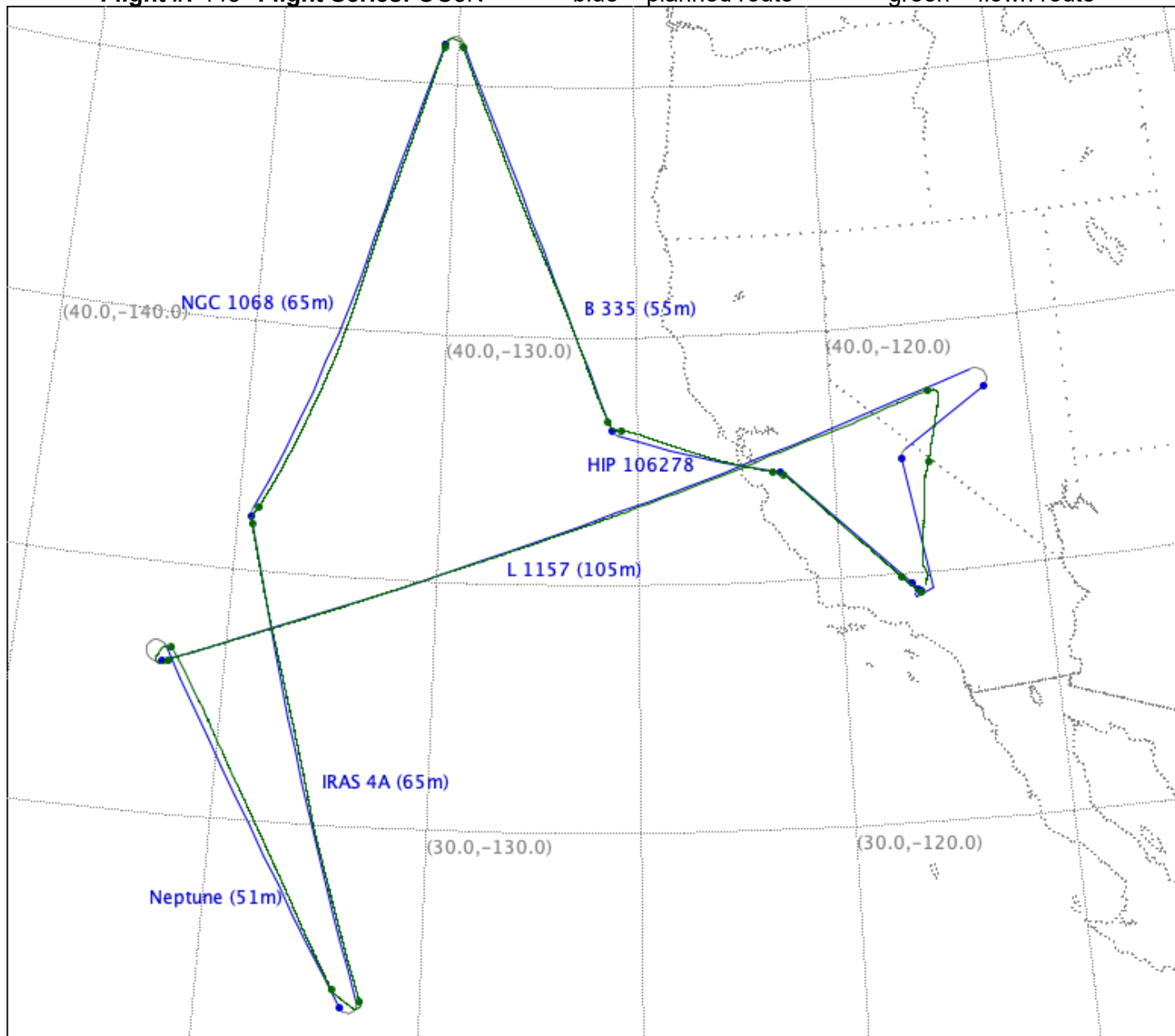
MISSION ID: 2017-10-20_HA_F443

Date: 2017-10-20 UT Instrument: HAWC+

Flight #: 443 Flight Series: OC5N

blue = planned route

green = flown route

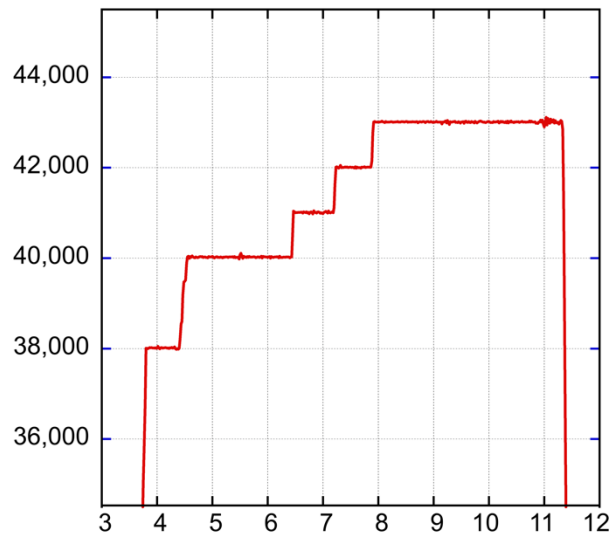


Flight notes: No irregularities.

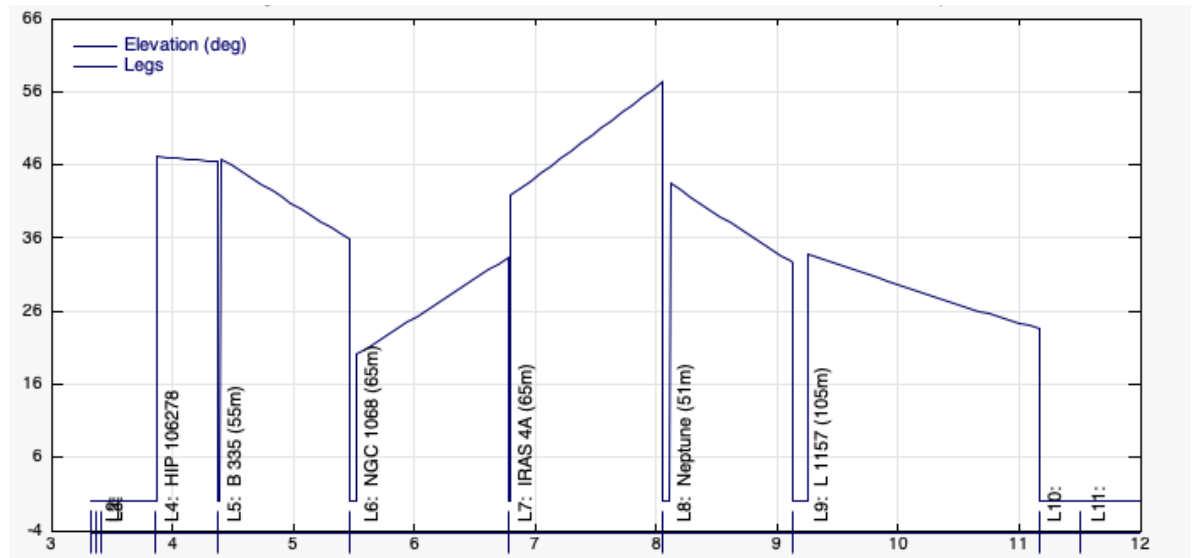
Flight 443 Mission ID 2017-10-20_HA_F443
 Palmdale to Palmdale Take off date UTC: 20-OCT-2017
 Departure UTC: 03:21 Arrival UTC: 11:44

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 106278	21h31m33.53s	-05d34m16.2s	3:52	30	
5	05_0189	Brauer	[HSW99] B 335 SMM 1	19h37m00.70s	07d34m08.0s	4:23	64	Turbulence.
6	70_0509	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	5:31	75	
7	05_0035	Cox	IRAS4A	03h29m10.50s	31d13m31.3s	6:47	75	Turbulence.
8	90_0083	Calibration	Neptune	22h53m14.30s	-08d06m38.4s	8:06	61	Turbulence at end of leg
9	70_0509	GTO	L1157	20h39m06.41s	68d02m12.8s	9:15	115	Last 17min of leg lost to turbulence.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



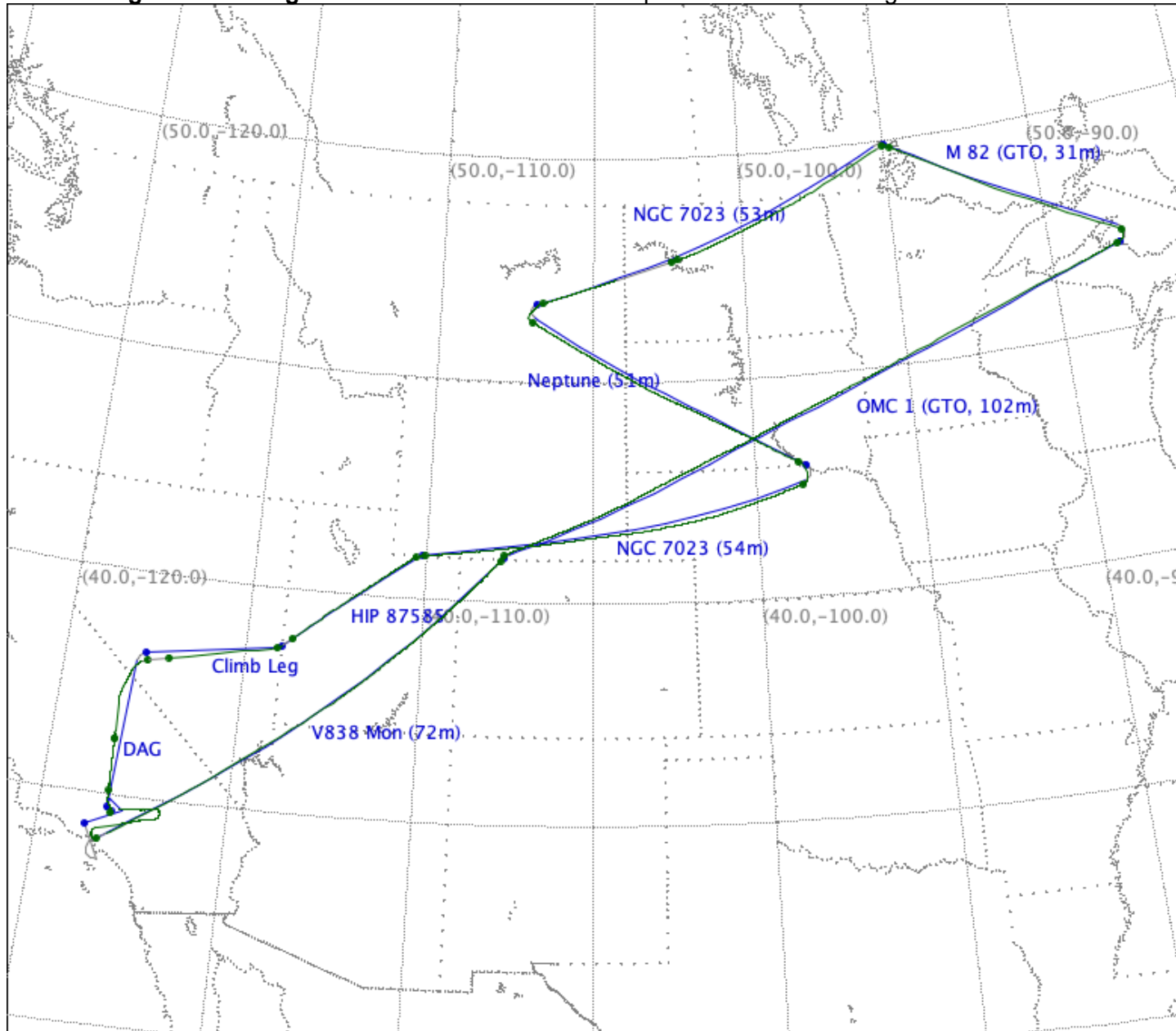
MISSION ID: 2017-10-24_HA_F444

Date: 2017-10-24 UT Instrument: HAWC+

Flight #: 444 Flight Series: OC5N

blue = planned route

green = flown route

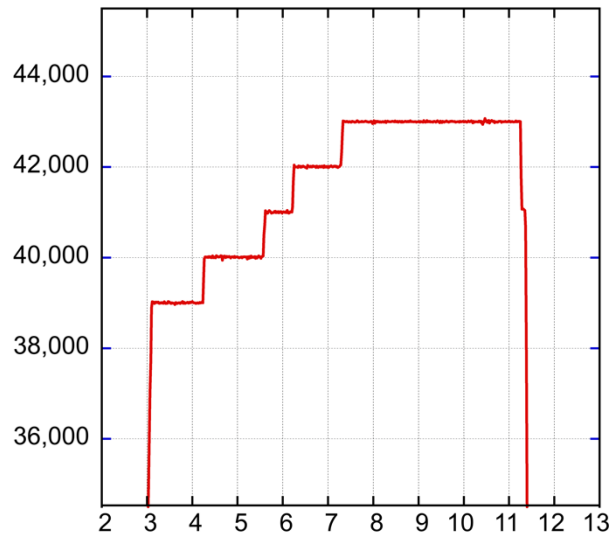


Flight notes: No irregularities.

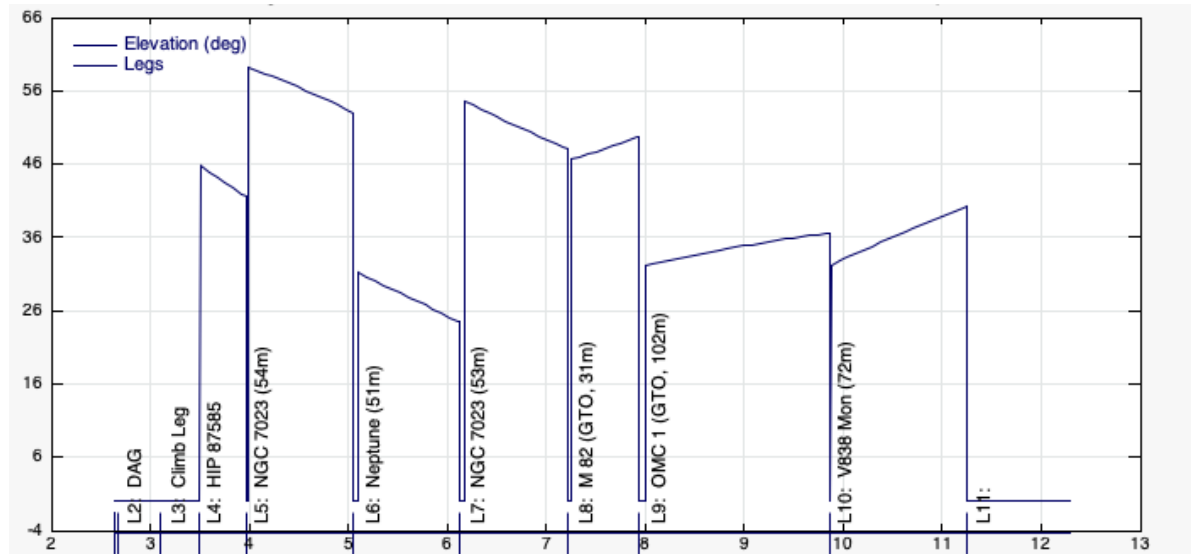
Flight 444 Mission ID 2017-10-24_HA_F444
 Palmdale to Palmdale Take off date UTC: 24-OCT-2017
 Departure UTC: 02:35 Arrival UTC: 11:43

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 87585	17h53m31.73s	56d52m21.5s	3:29	28	
5	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	3:58	64	Climbed to avoid clouds
6	90_0083	Calibration	Neptune	22h53m00.00s	-08d08m02.2s	5:06	61	Turbulence.
7	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	6:10	63	40% of leg lost due to observatory control software crash
8	70_0509	GTO	M82	09h55m52.43s	69d40m46.9s	7:14	41	
9	70_0509	GTO	OMC1	05h35m15.12s	-05d22m22.8s	7:59	112	
10	05_0047	Melis	V838 Mon	07h04m04.85s	-03d50m51.1s	9:52	82	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



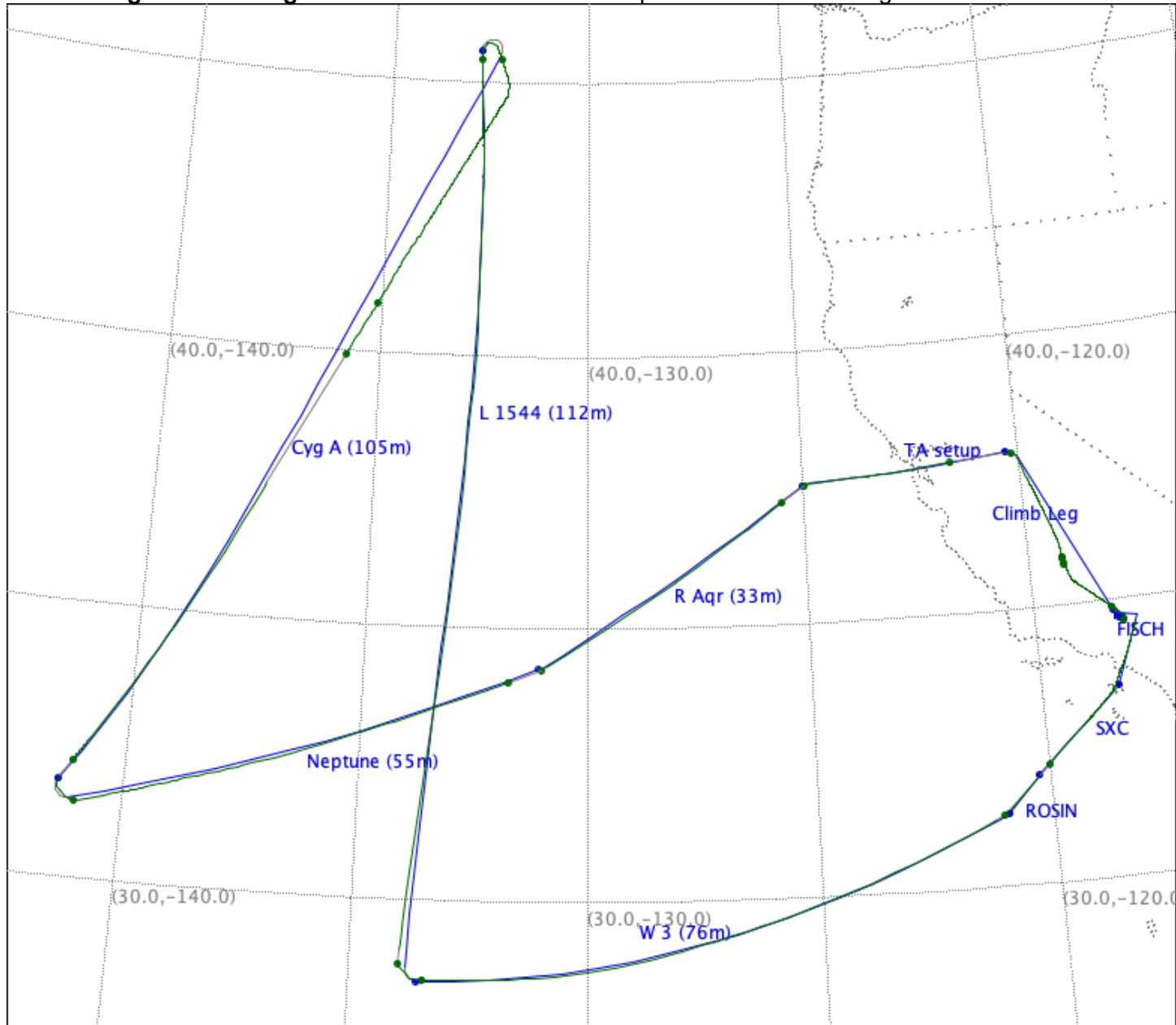
MISSION ID: 2017-10-25_HA_F445

Date: 2017-10-25 UT Instrument: HAWC+

Flight #: 445 Flight Series: OC5N

blue = planned route

green = flown route

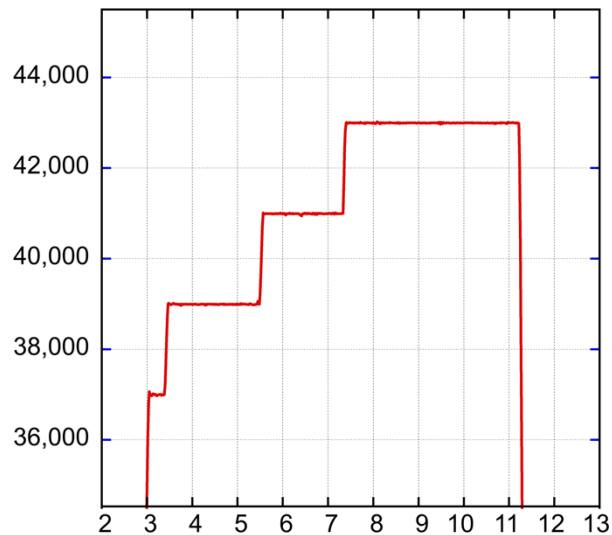


Flight notes: No irregularities.

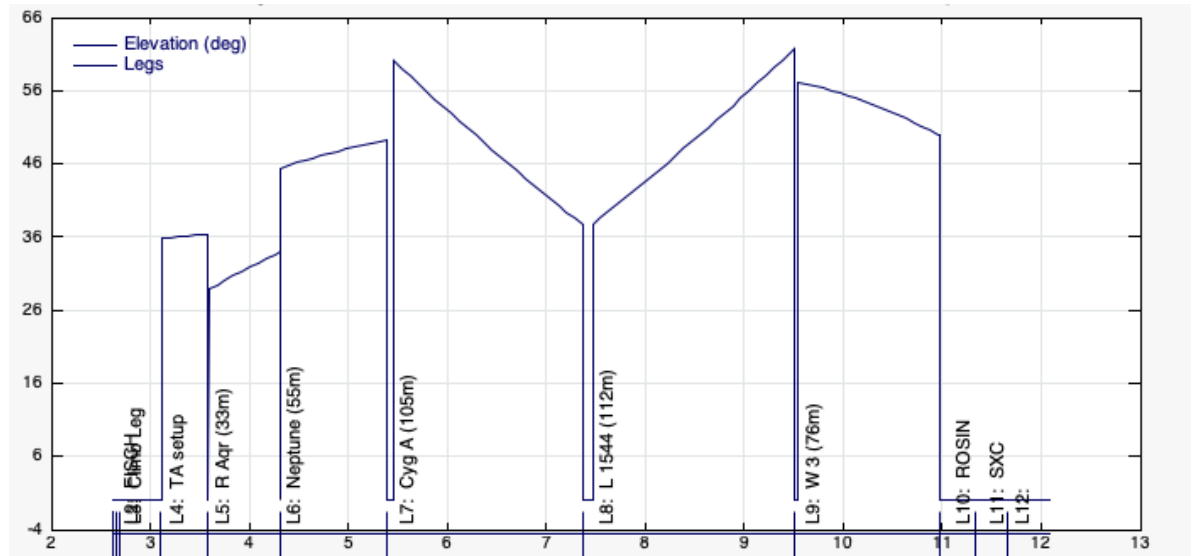
Flight 445 Mission ID 2017-10-25_HA_F445
 Palmdale to Palmdale Take off date UTC: 25-OCT-2017
 Departure UTC: 02:34 Arrival UTC: 11:43

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HI 107556	21h47m02.00s	-16d07m38.0s	3:07	27	
5	05_0094	Omelian	R Aqr	23h43m49.40s	-15d17m04.0s	3:35	43	
6	90_0083	Calibration	Neptune	22h52m56.69s	-08d08m21.4s	4:18	65	
7	05_0071	Lopez Rodriguez	Cygnus A	19h59m28.30s	40d44m02.0s	5:27	115	17min lost due to observatory control software crash
8	05_0036	Clemens	L1544 Core	05h04m15.50s	25d11m13.6s	7:28	122	
9	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	9:32	86	Guiding instabilities for first 5-10min of leg.

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



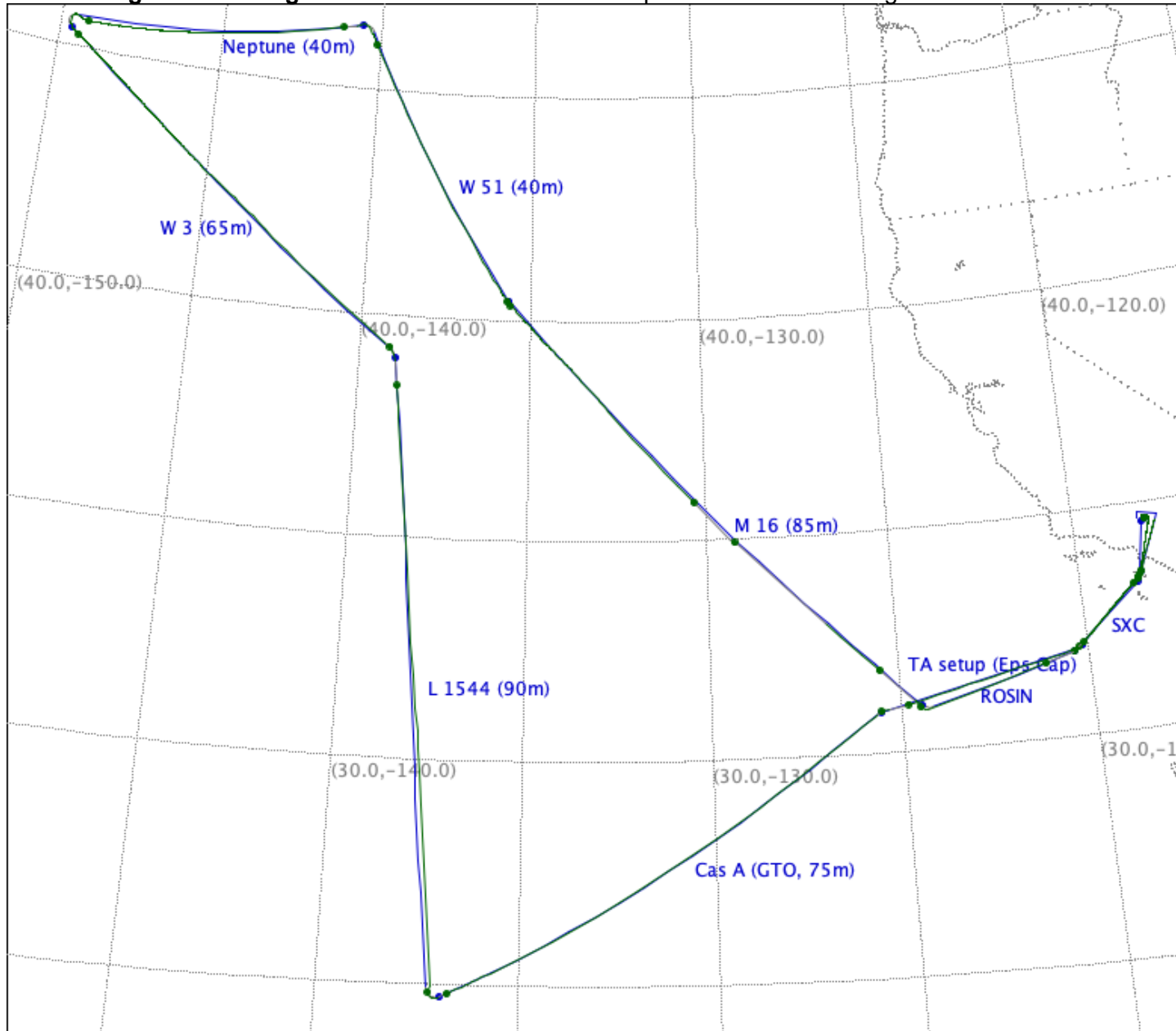
MISSION ID: 2017-10-26_HA_F446

Date: 2017-10-26 UT Instrument: HAWC+

Flight #: 446 Flight Series: OC5N

blue = planned route

green = flown route

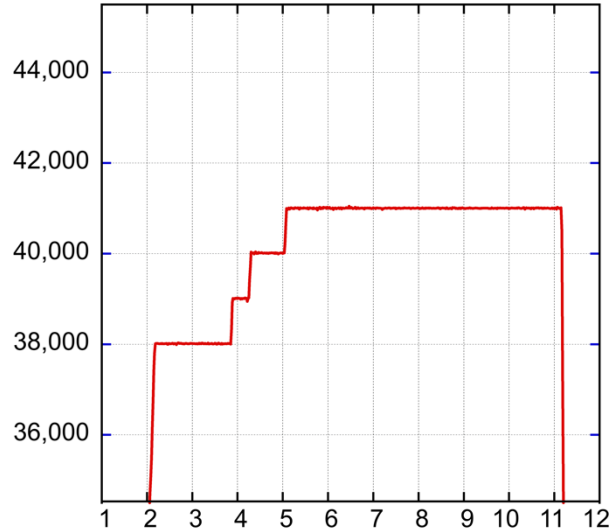


Flight notes: No irregularities.

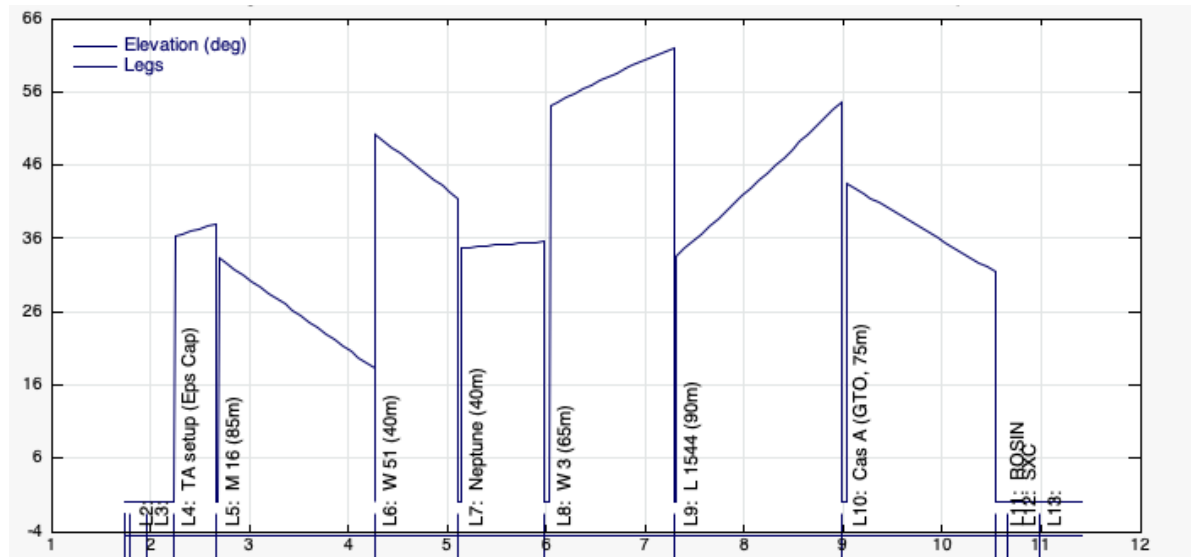
Flight 446 Mission ID 2017-10-26_HA_F446
 Palmdale to Palmdale Take off date UTC: 26-OCT-2017
 Departure UTC: 01:40 Arrival UTC: 11:40

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Epsilon Cap	21h37m05.00s	-19d27m58.0s	2:13	25	
5	05_0112	Pound	M16	18h18m53.64s	-13d50m18.0s	2:40	95	17min lost due to observatory control software crash
6	05_0038	Vaillancourt	W51b	19h23m42.00s	14d30m34.0s	4:15	50	
7	90_0083	Calibration	Neptune	22h52m53.21s	-08d08m41.6s	5:07	50	
8	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	6:01	75	
9	05_0036	Clemens	L1544 Core	05h04m15.50s	25d11m13.6s	7:17	100	
10	70_0509	GTO	Cas A	23h23m26.20s	58d50m10.0s	9:00	90	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



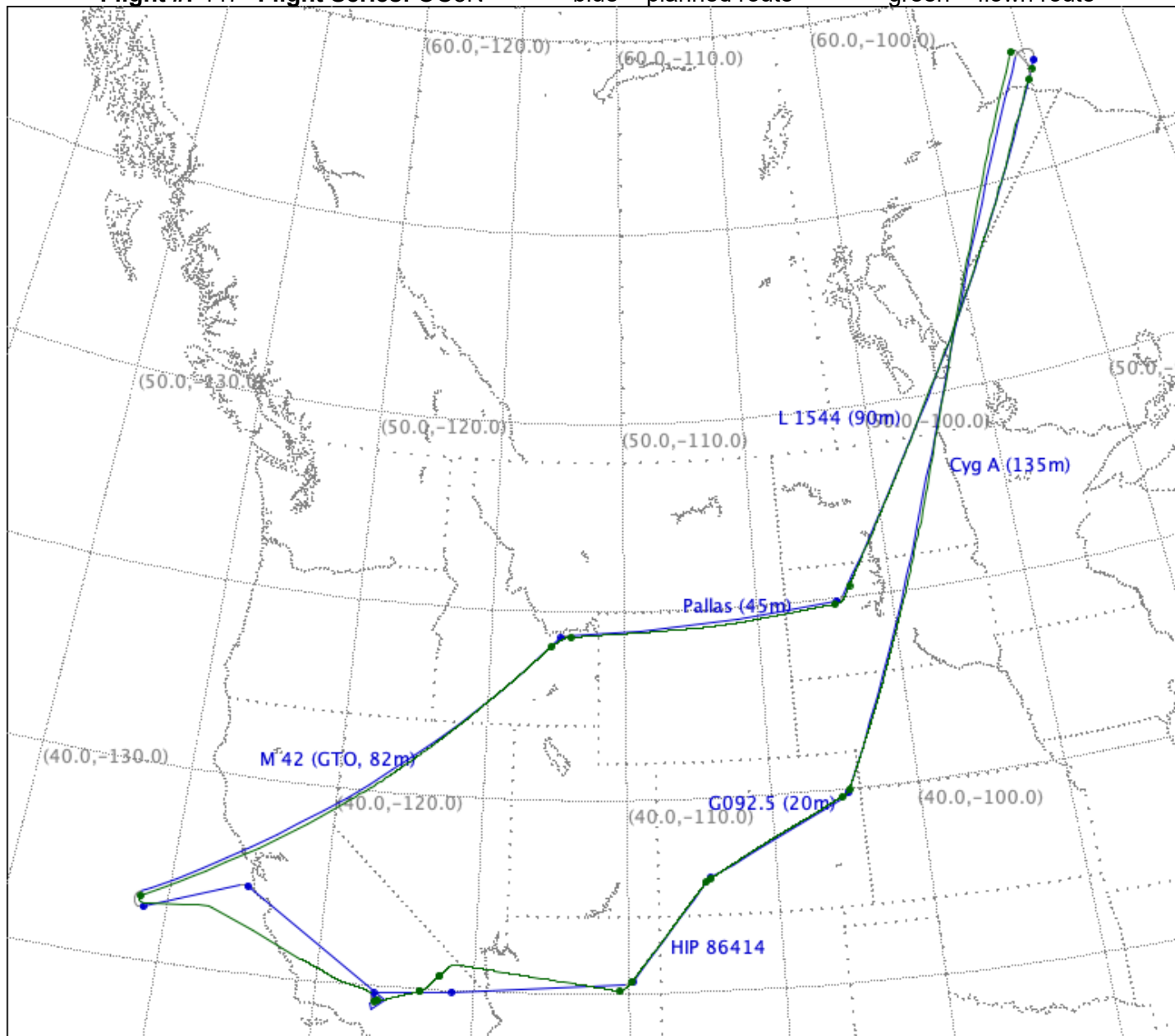
MISSION ID: 2017-10-27_HA_F447

Date: 2017-10-27 UT Instrument: HAWC+

Flight #: 447 Flight Series: OC5N

blue = planned route

green = flown route

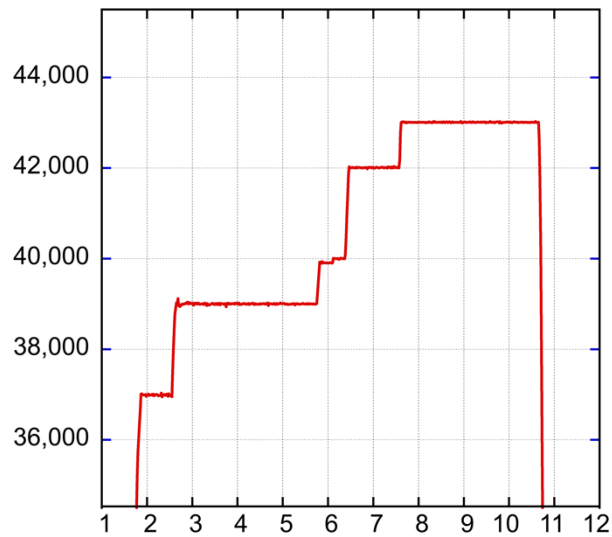


Flight notes: No irregularities.

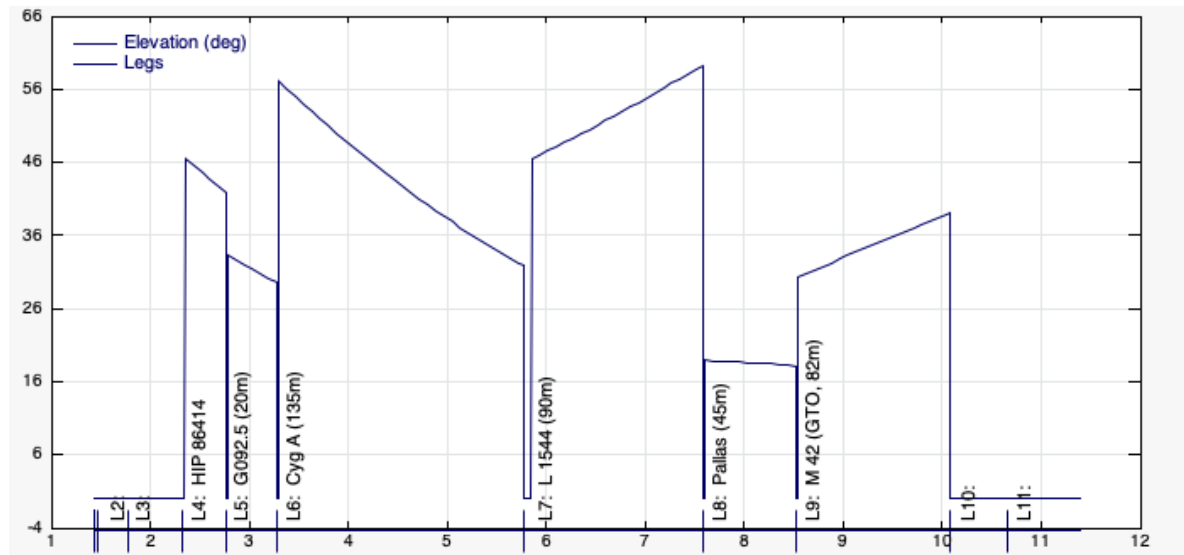
Flight 447 Mission ID 2017-10-27_HA_F447
 Palmdale to Palmdale Take off date UTC: 27-OCT-2017
 Departure UTC: 01:22 Arrival UTC: 11:08

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 86414	17h39m27.89s	46d00m22.8s	2:21	25	
5	05_0146	Chary	G092.5+42.9	16h09m17.76s	60d45m21.0s	2:46	30	Light turbulence.
6	05_0071	Lopez Rodriguez	Cygnus A	19h59m28.30s	40d44m02.0s	3:17	148	Poor guiding stability at beginning of leg
7	05_0036	Clemens	L1544 Core	05h04m15.50s	25d11m13.6s	5:50	104	
8	90_0083	Calibration	2 Pallas	03h07m38.17s	-23d32m45.6s	7:36	55	
9	70_0509	GTO	OMC1	05h35m15.12s	-05d23m46.8s	8:32	92	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

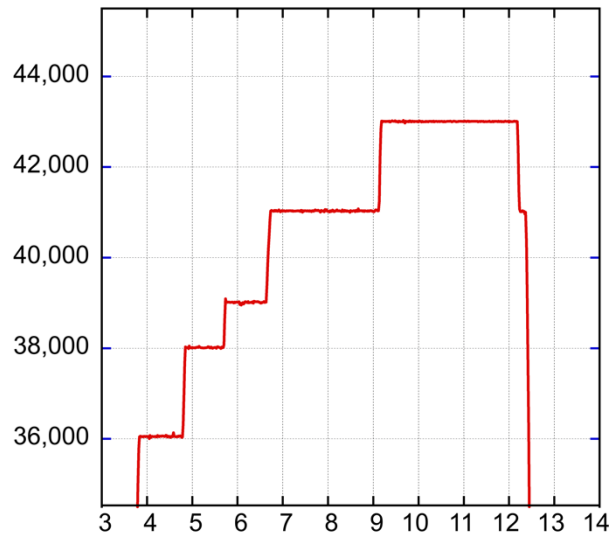


Flight notes: No irregularities.

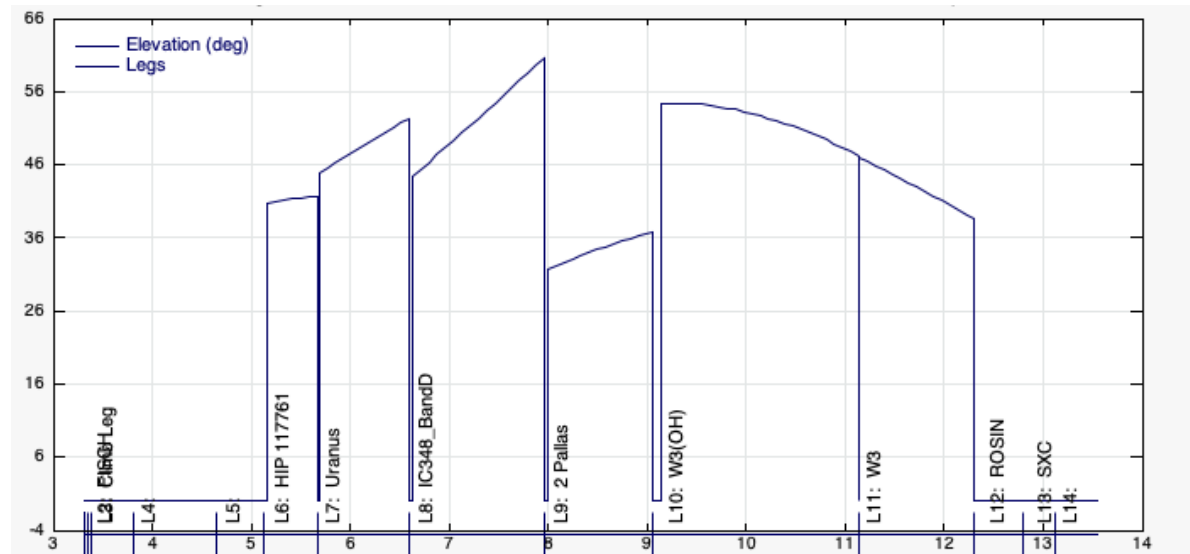
Flight 448 Mission ID 2017-10-31_HA_F448
 Palmdale to Palmdale Take off date UTC: 31-OCT-2017
 Departure UTC: 03:23 Arrival UTC: 12:56

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			HIP 117761	23h52m55.56s	-03d09m19.7s	5:10	30	Turbulence.
7	90_0083	Calibration	Uranus	01h36m34.78s	09d24m48.7s	5:41	55	
8	05_0081	Santos	IC348	03h44m01.20s	32d03m39.2s	6:38	80	
9	90_0083	Calibration	2 Pallas	03h04m32.34s	-24d31m10.1s	8:00	63.3	Potential clouds
10	70_0509	GTO	W3(OH)	02h27m04.10s	61d52m22.1s	9:09	120	
11	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	11:09	70	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



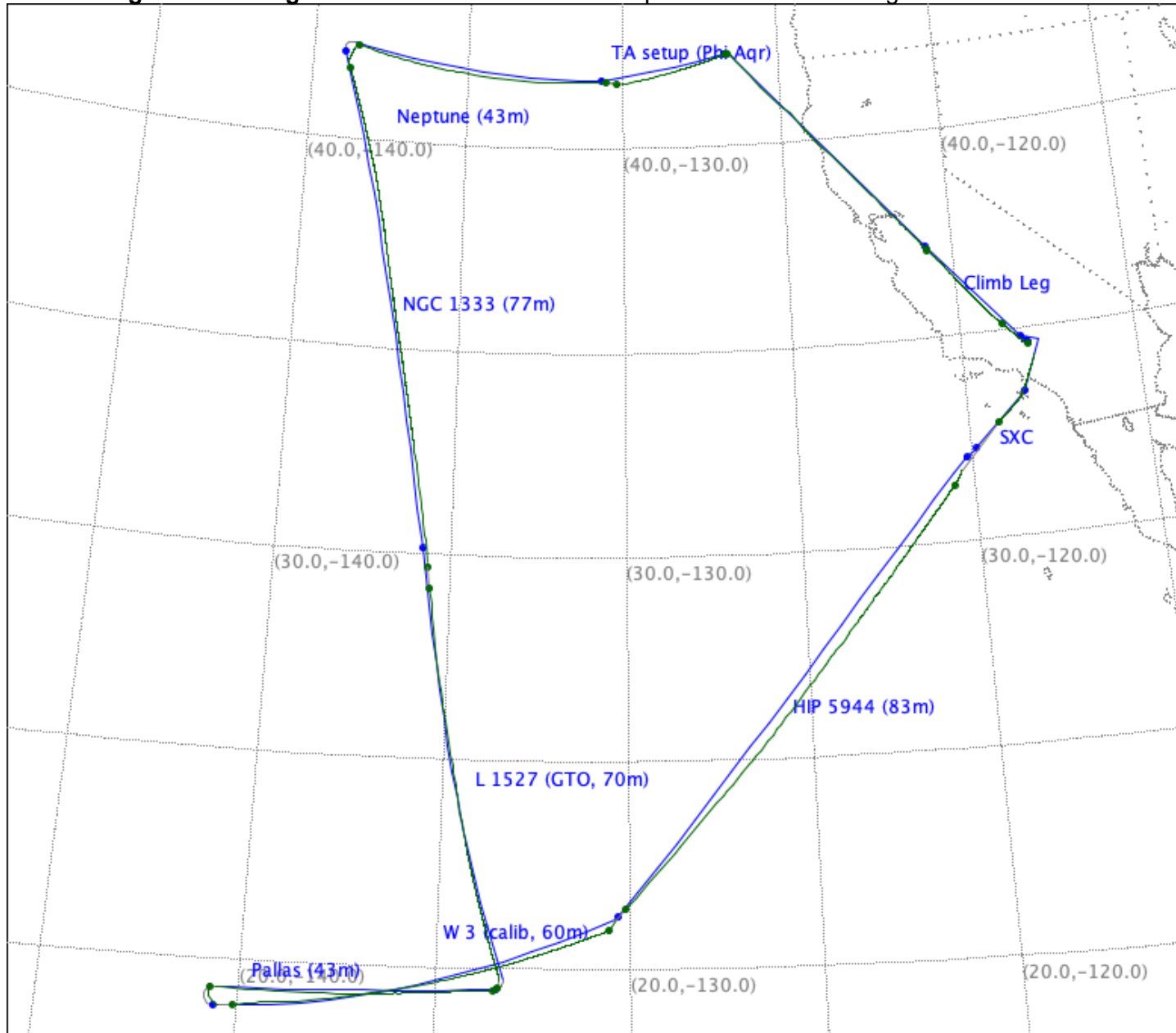
MISSION ID: 2017-11-07_HA_F449

Date: 2017-11-07 UT Instrument: HAWC+

Flight #: 449 Flight Series: OC5N

blue = planned route

green = flown route

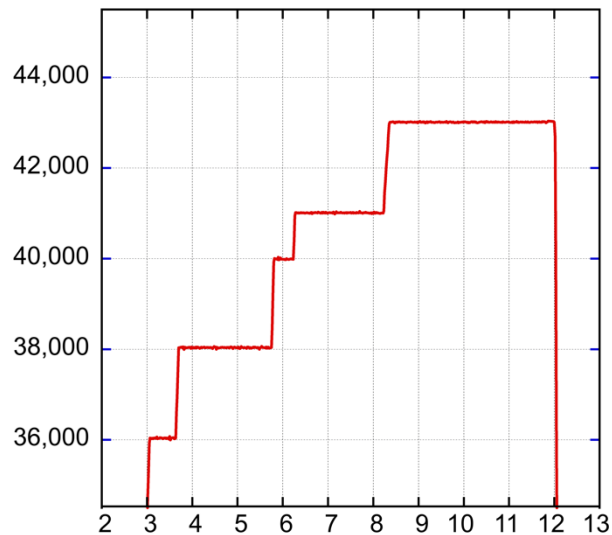


Flight notes: No irregularities.

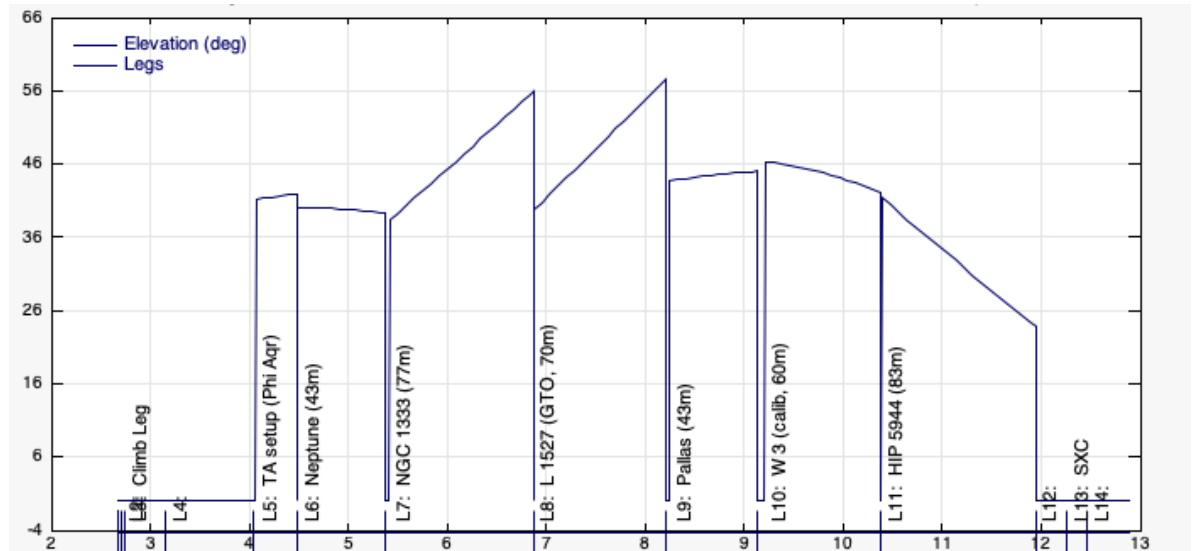
Flight 449 Mission ID 2017-11-07_HA_F449
 Palmdale to Palmdale Take off date UTC: 07-NOV-2017
 Departure UTC: 02:38 Arrival UTC: 12:26

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Phi Aqr (HIP 114724)	23h14m19.36s	-06d02m56.4s	4:04	25	
6	90_0083	Calibration	Neptune	22h52m21.77s	-08d11m39.8s	4:29	53	
7	05_0081	Santos	NGC1333	03h29m09.70s	31d22m10.0s	5:25	87	Low altitude (38k ft) and possible haze at beginning of leg. Some time lost to clouds.
8	70_0509	GTO	L1527	04h39m54.00s	26d03m10.0s	7:27	80	Turbulence.
9	90_0083	Calibration	2 Pallas	02h58m48.34s	-25d58m03.8s	8:14	53	
10	90_0084	Calibration	w3	02h27m04.10s	61d52m27.1s	9:12	70	
11	05_0098	Koerner	HIP 5944	01h16m29.20s	42d56m21.0s	10:23	93	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



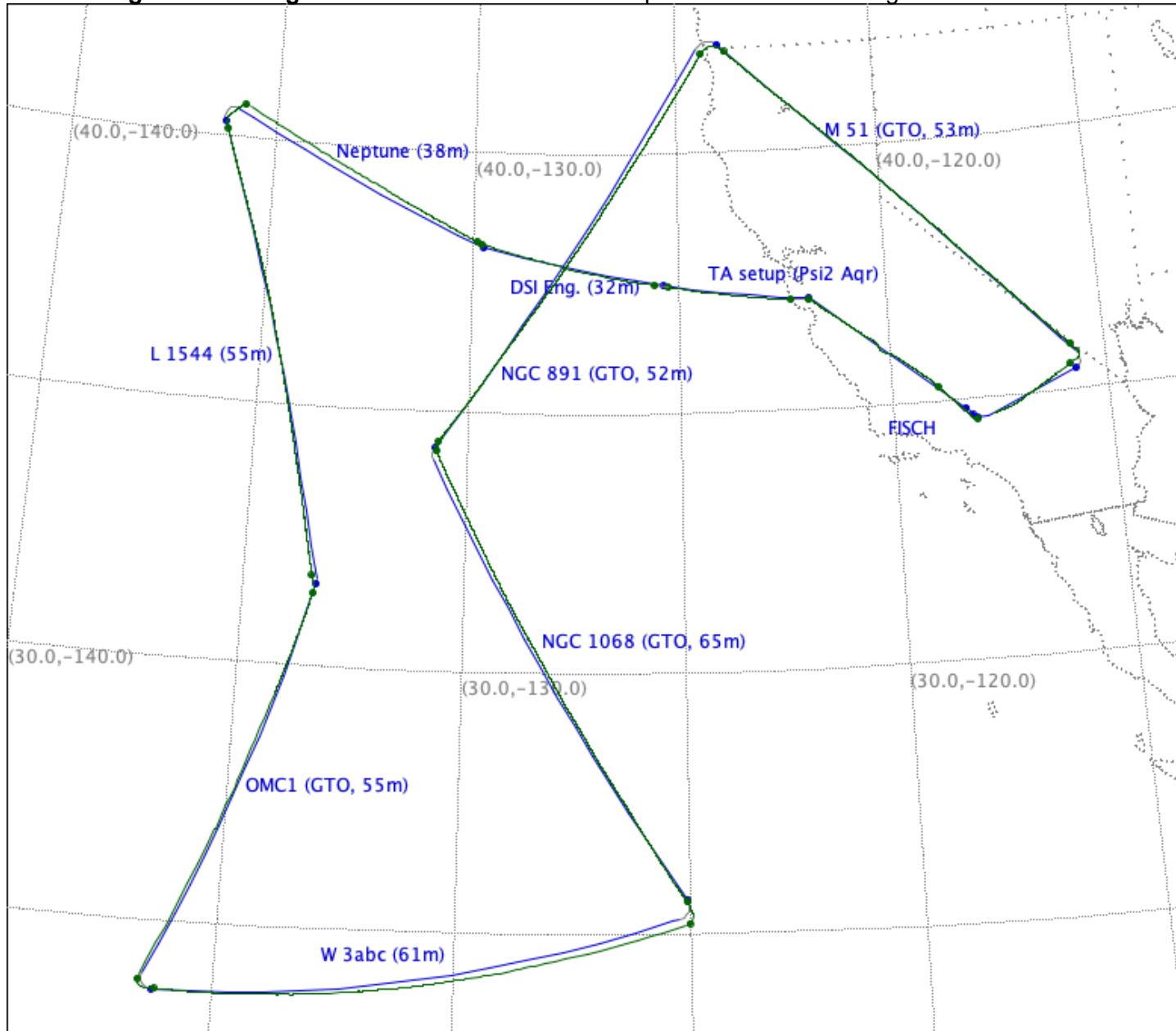
MISSION ID: 2017-11-09_HA_F450

Date: 2017-11-09 UT Instrument: HAWC+

Flight #: 450 Flight Series: OC5N

blue = planned route

green = flown route

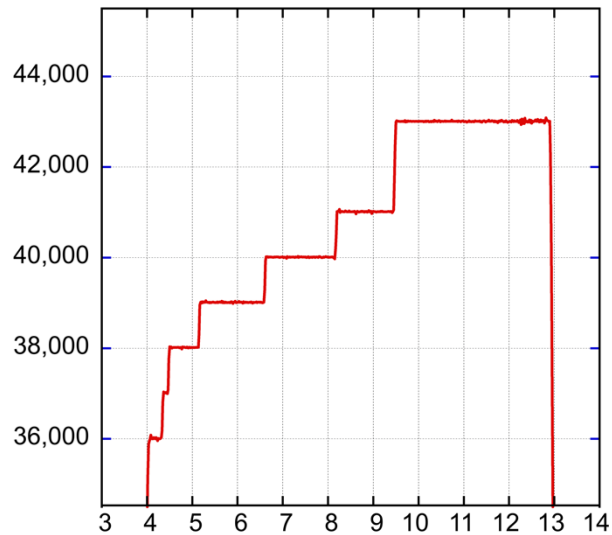


Flight notes: No irregularities.

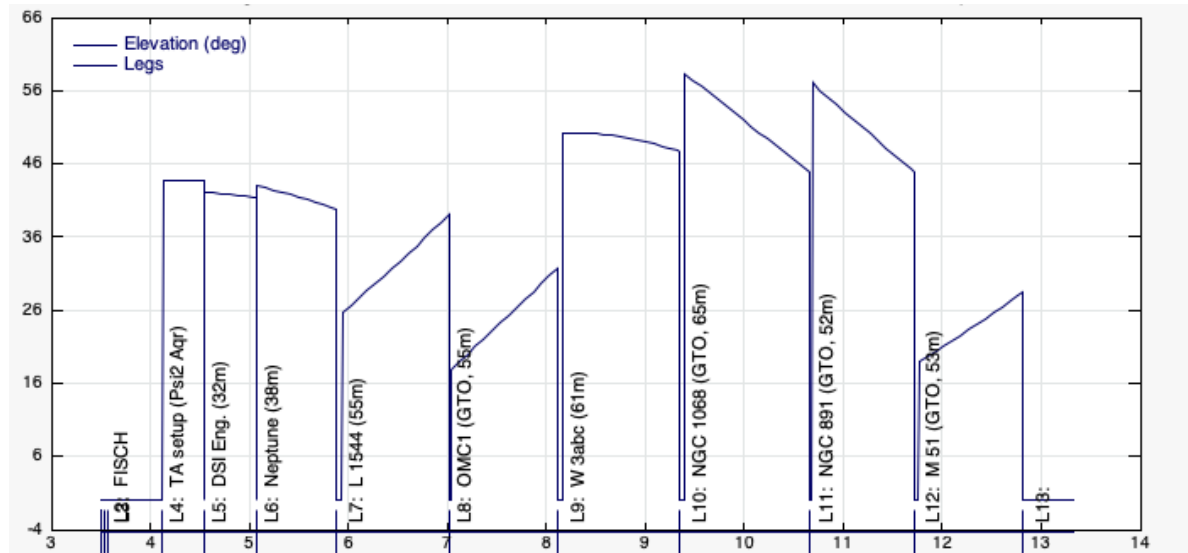
Flight 450 Mission ID 2017-11-09_HA_F450
 Palmdale to Palmdale Take off date UTC: 09-NOV-2017
 Departure UTC: 03:32 Arrival UTC: 13:18

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Psi2 Agr (HIP 115033)	23h17m54.00s	-09d10m57.0s	4:07	25	
5		engineering	HIP 114750	23h14m40.00s	-10d41m20.0s	5:04	32	
6	90_0083	Calibration	Neptune	22h52m18.05s	-08d11m59.9s	5:04	48	
7	05_0036	Clemens	L1544 Core	05h04m15.50s	25d11m13.6s	5:56	65	Poor guiding stability at beginning of leg.
8	70_0509	GTO	OMC1	05h35m15.12s	-05d22m22.8s	7:02	65	
9	05_0038	Vaillancourt	W3a	02h25m44.30s	62d06m05.0s	8:10	71	
10	70_0509	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	9:24	75	
11	70_0509	GTO	NGC891	02h22m32.91s	42d20m53.9s	10:41	62	Some acquisition and guiding issues led to 20% loss of leg.
12	70_0509	GTO	M51	13h29m52.70s	47d11m42.9s	11:46	63	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



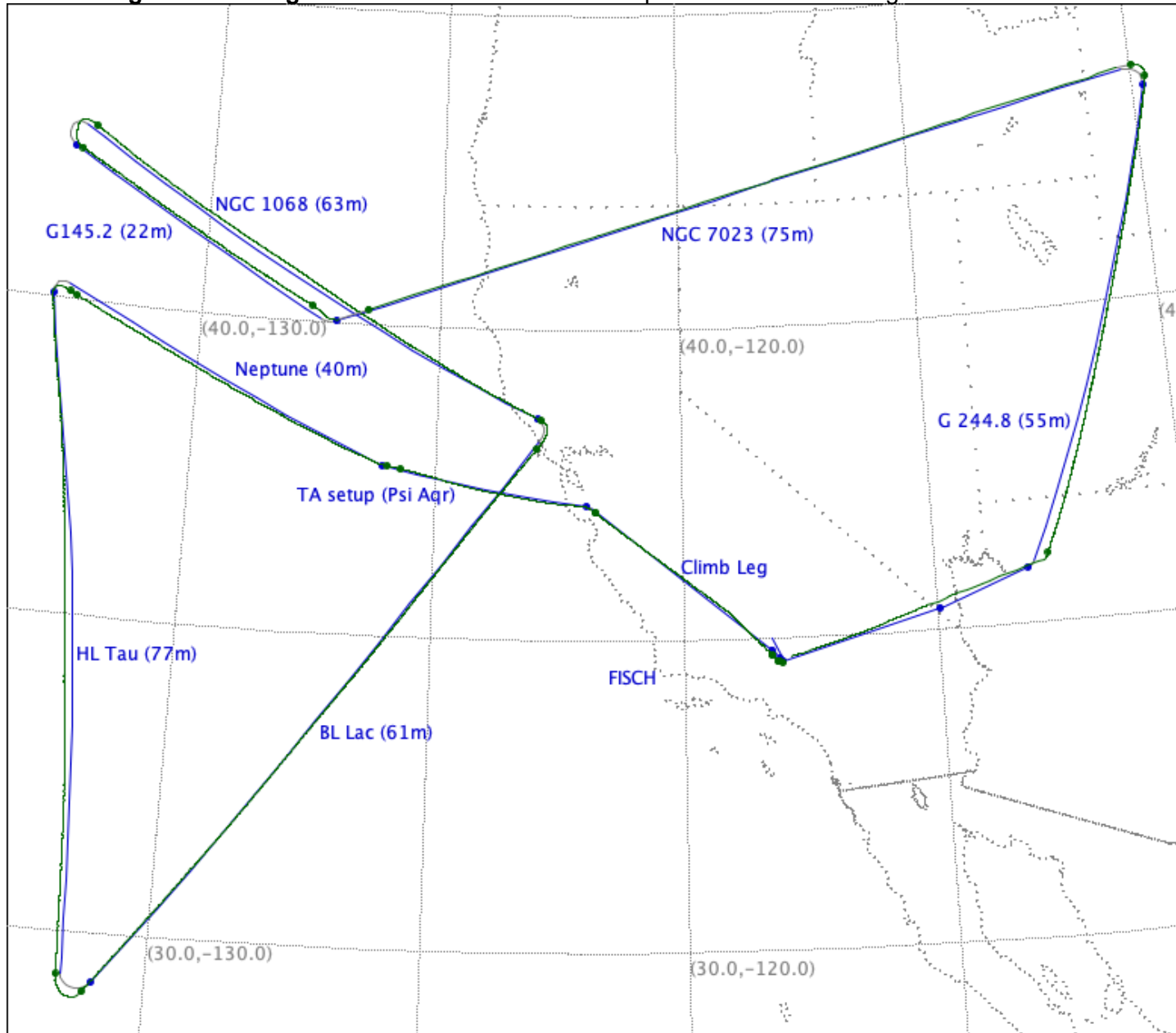
MISSION ID: 2017-11-14_HA_F451

Date: 2017-11-14 UT Instrument: HAWC+

Flight #: 451 Flight Series: OC5N

blue = planned route

green = flown route

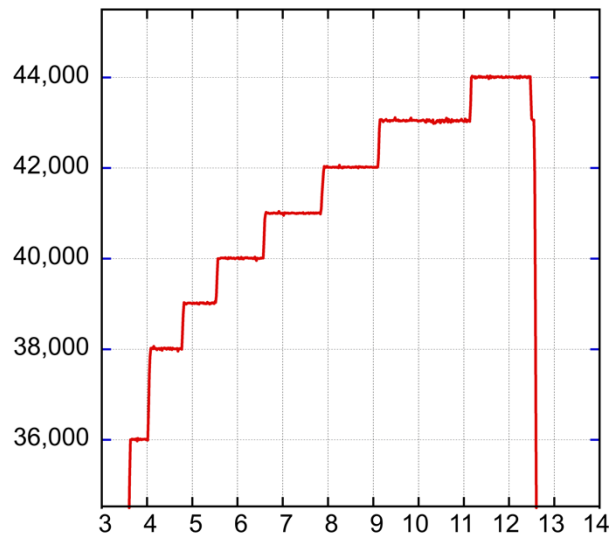


Flight notes: No irregularities.

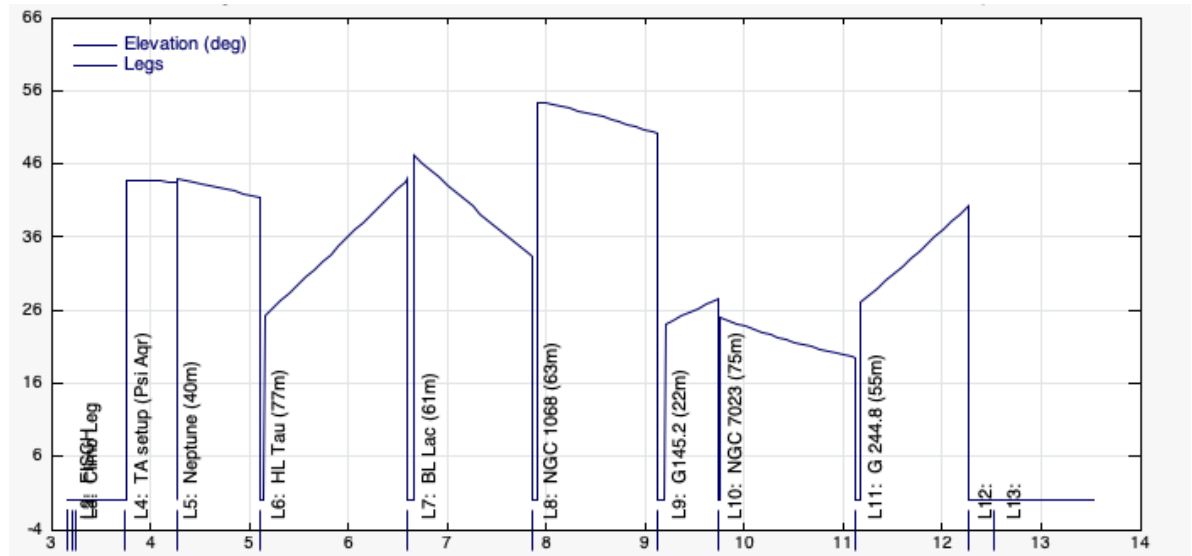
Flight 451 Mission ID 2017-11-14_HA_F451
 Palmdale to Palmdale Take off date UTC: 14-NOV-2017
 Departure UTC: 03:10 Arrival UTC: 13:06

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Psi2 Aqr (HIP 115033)	23h17m54.00s	-09d10m57.0s	3:45	30	
5	90_0083	Calibration	Neptune	22h52m11.11s	-08d12m35.6s	4:15	50	
6	05_0029	Looney	HL Tauri	04h31m38.44s	18d13m57.7s	5:08	87	
7	70_0509	GTO	BL Lac	22h02m43.29s	42d16m40.0s	6:40	71	Multiple issues creating poor backgrounds with false structure; 60% of leg lost diagnosing; most data on leg may be compromised
8	70_0509	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	7:54	73	
9	05_0146	Chary	G145.2+50.9	10h53m22.56s	60d51m49.0s	9:11	32	
10	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	9:45	82	
11	05_0146	Chary	G244.8+54.9	10h53m53.04s	05d56m21.0s	11:10	65	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



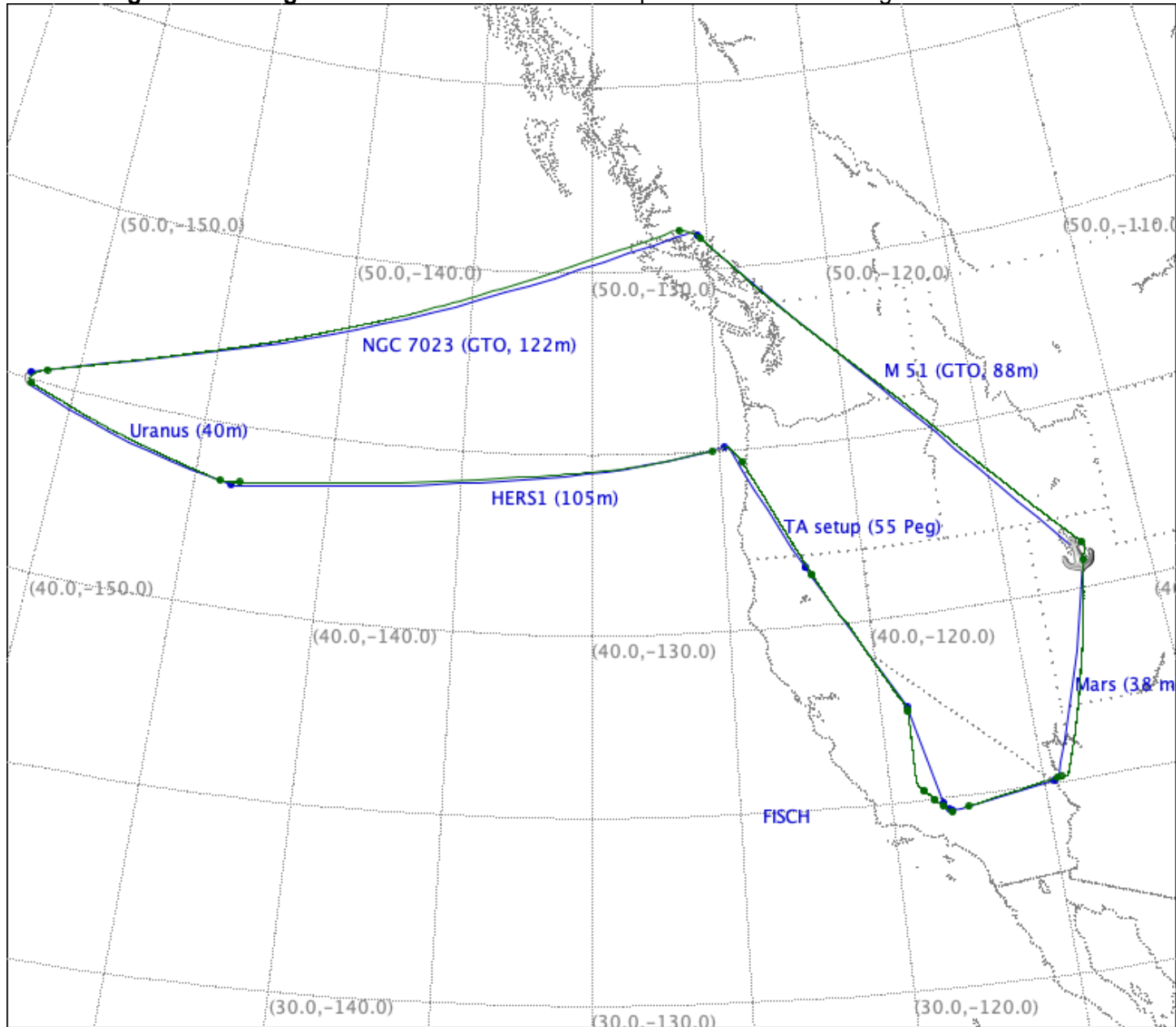
MISSION ID: 2017-11-15_HA_F452

Date: 2017-11-15 UT Instrument: HAWC+

Flight #: 452 Flight Series: OC5N

blue = planned route

green = flown route

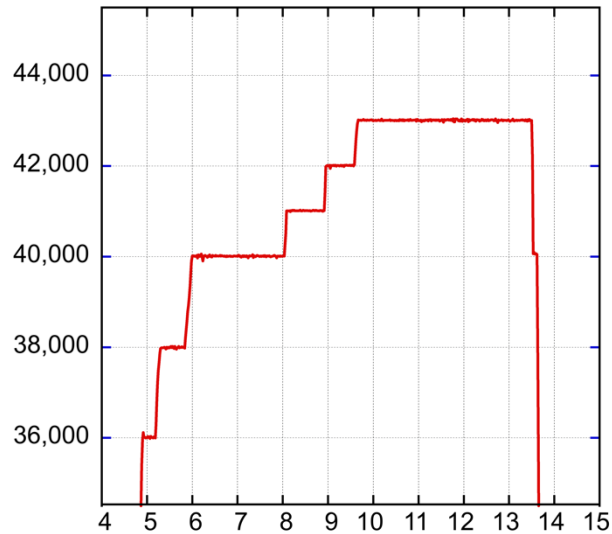


Flight notes: No irregularities.

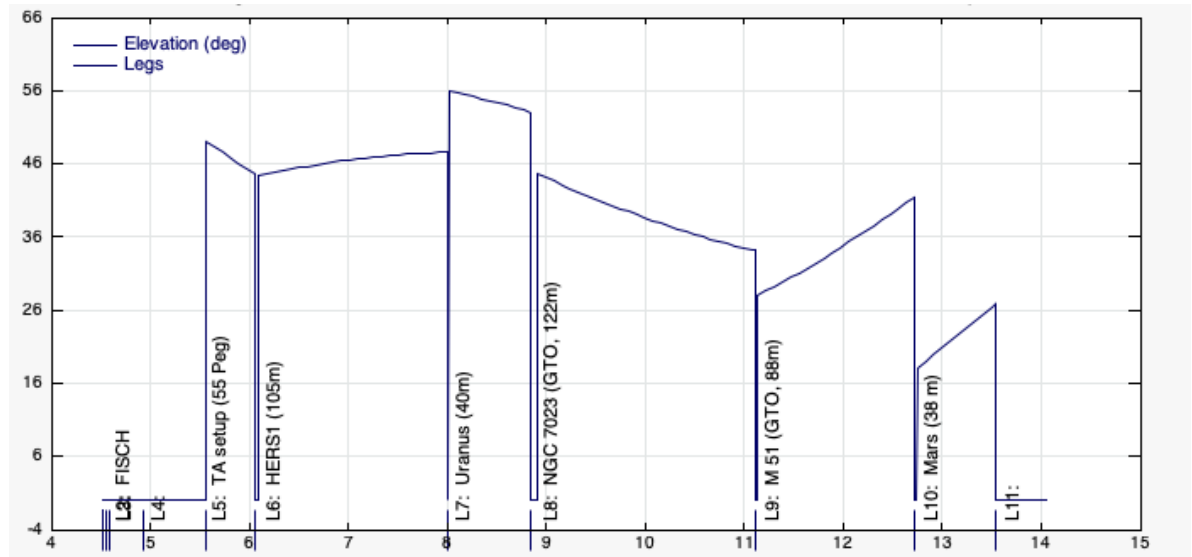
Flight 452 Mission ID 2017-11-15_HA_F452
 Palmdale to Palmdale Take off date UTC: 15-NOV-2017
 Departure UTC: 04:28 Arrival UTC: 14:11

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			55_Peg (HIP 114144)	23h07m00.00s	09d24m34.0s	5:33	30	
6	05_0087	Cooray	HERS1	02h09m41.32s	00d15m58.6s	6:05	115	
7	90_0083	Calibration	Uranus	01h34m25.86s	09d12m40.8s	8:01	50	
8	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	8:54	132	
9	70_0509	GTO	M51	13h29m52.70s	47d11m42.9s	11:08	95	
10	90_0086	Calibration	Mars Barycenter	12h56m04.17s	-04d47m52.0s	12:44	48	HAWC+ cooling software crash led to 25% loss on leg

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



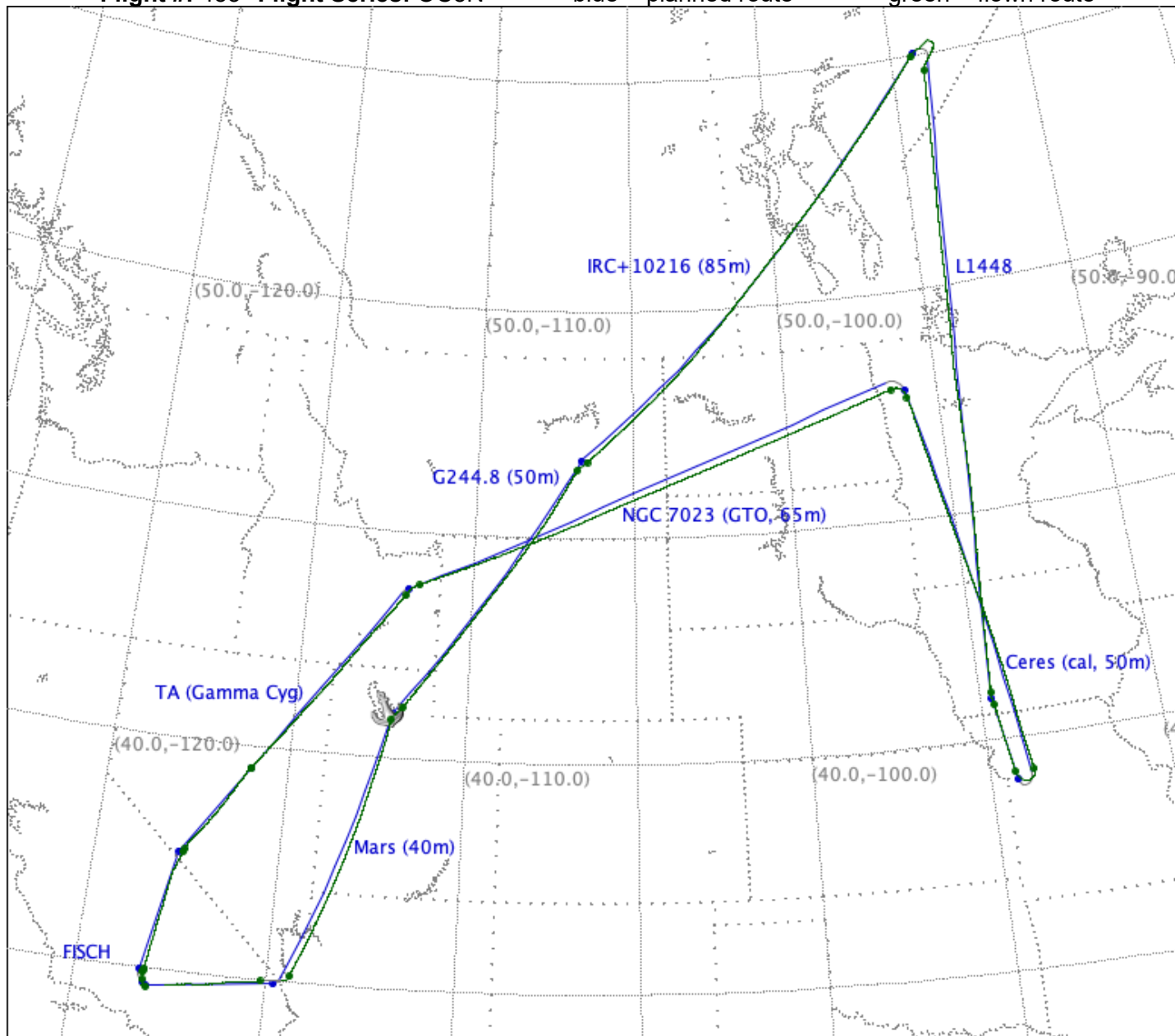
MISSION ID: 2017-11-16_HA_F453

Date: 2017-11-16 UT Instrument: HAWC+

Flight #: 453 Flight Series: OC5N

blue = planned route

green = flown route

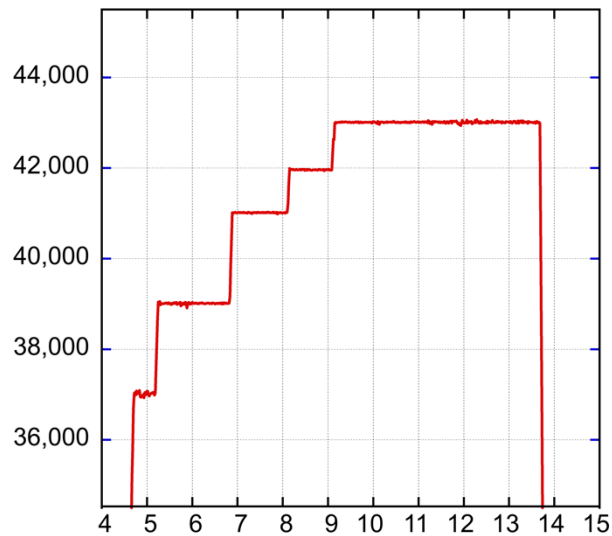


Flight notes: No irregularities.

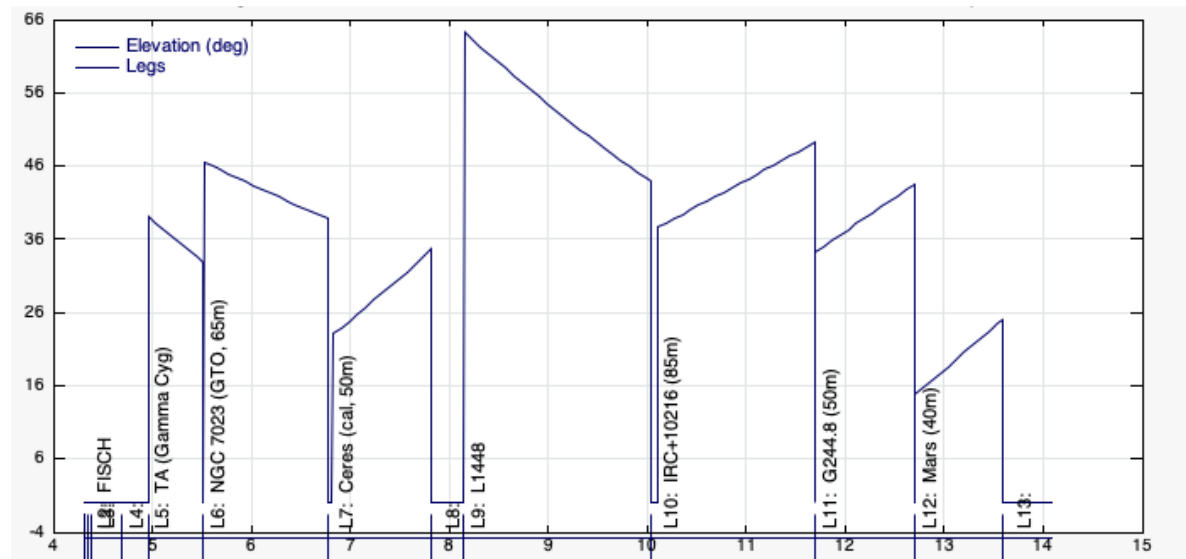
Flight 453 Mission ID 2017-11-16_HA_F453
 Palmdale to Palmdale Take off date UTC: 16-NOV-2017
 Departure UTC: 04:17 Arrival UTC: 14:13

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Gamma Cyg	20h22m14.00s	40d15m24.0s	4:57	33	
6	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	5:31	75	Guiding issues throughout leg; 70% loss of observing time on leg
7	90_0083	Calibration	1 Ceres	09h17m45.31s	22d40m09.3s	6:49	60	
9	05_0081	Santos	L1448	03h25m34.30s	30d45m01.3s	8:09	113.5	Guiding stars too faint; 30% of leg lost trying to improve guiding
10	05_0048	Andersson	IRC+10216	09h47m57.40s	13d16m43.0s	10:06	95	
11	05_0146	Chary	G244.8+54.9	10h53m53.04s	05d56m21.0s	11:41	60	
12	90_0083	Calibration	Mars	12h58m24.02s	-05d02m35.9s	12:42	53	

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)



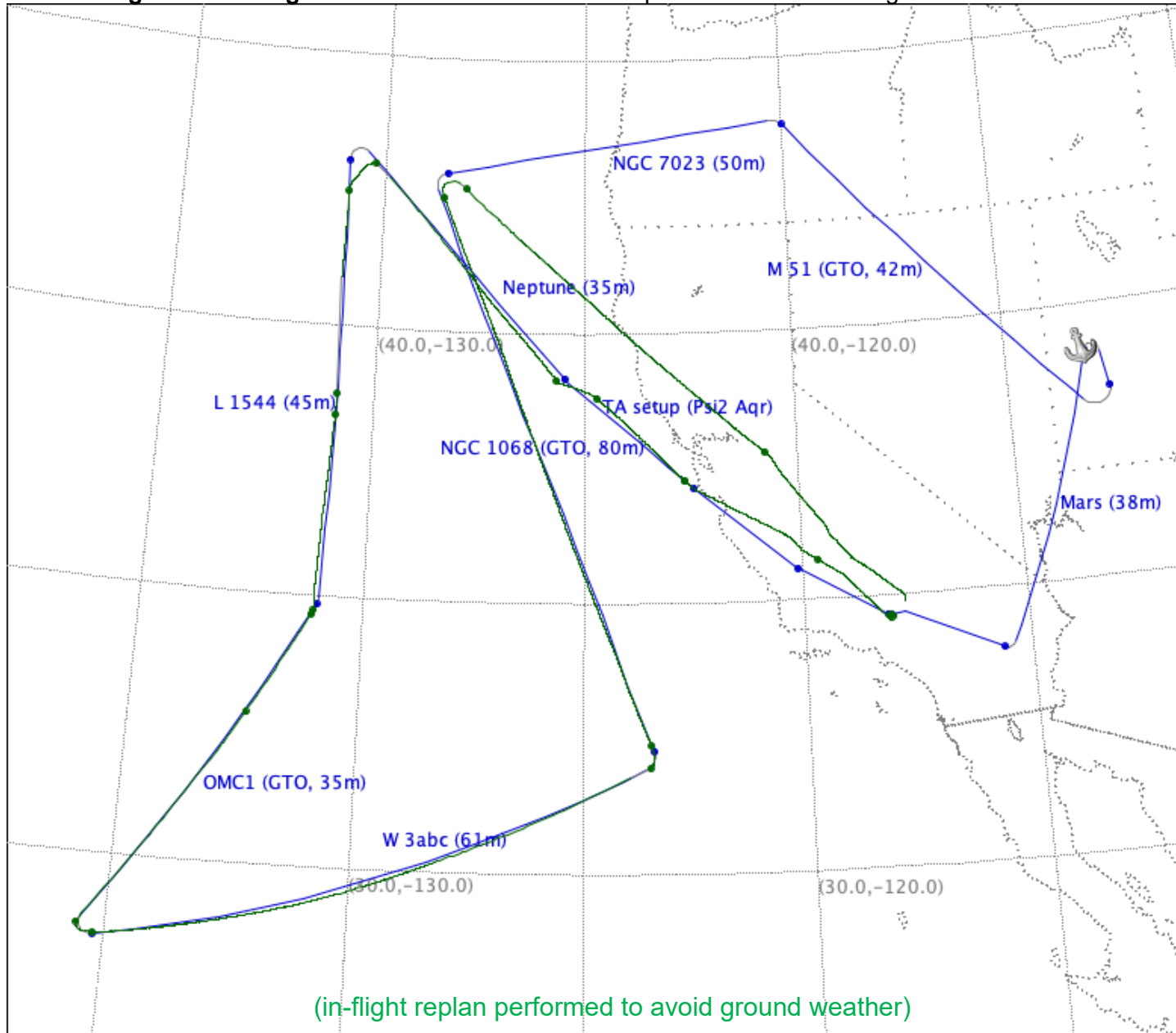
MISSION ID: 2017-11-17_HA_F454

Date: 2017-11-17 UT Instrument: HAWC+

Flight #: 454 Flight Series: OC5N

blue = planned route

green = flown route



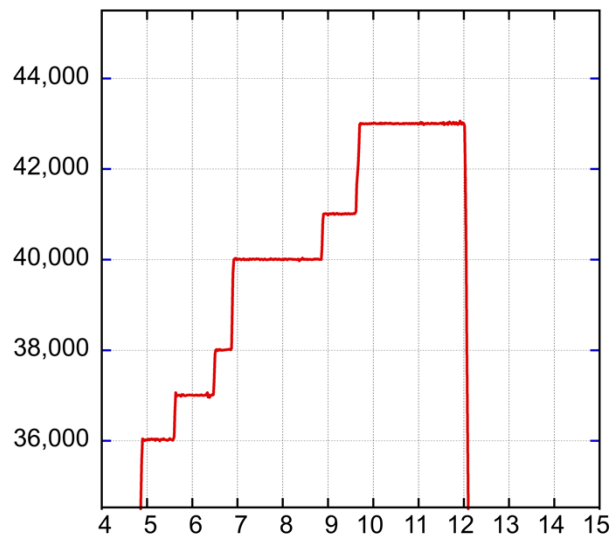
Flight notes:

In-flight replan of flight to avoid storms led to loss of legs 10 and 13.

Flight 454 Mission ID 2017-11-17_HA_F454
 Palmdale to Palmdale Take off date UTC: 17-NOV-2017
 Departure UTC: 04:23 Arrival UTC: 12:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Psi2 Aqr (HIP 115033)	23h17m54.00s	-09d10m57.0s	5:05	25	
5	90_0083	Calibration	Neptune	22h52m08.36s	-08d12m48.1s	5:30	45	HAWC+ lost connection to observatory control software; leg lost
6	05_0036	Clemens	L1544 Core	05h04m15.50s	25d11m13.6s	6:19	60	HAWC+ lost connection to observatory control software; leg lost
7	70_0509	GTO	OMC1	05h35m15.12s	-05d22m22.8s	7:19	60	
8	05_0038	Vaillancourt	W3a	02h25m44.30s	62d06m05.0s	8:23	68	
9	70_0509	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	9:34	85	
10	70_0509	GTO	NGC7023	21h01m33.78s	68d09m48.0s	11:02	40	In-flight replan to get around storms led to this leg not being flown; no data
11	70_0509	GTO	M51	13h29m52.70s	47d11m42.9s	11:43	52	
13	90_0083	Calibration	Mars	13h00m43.96s	-05d17m17.6s	12:49	48	In-flight replan to get around storms led to this leg not being flown; no data

Flown altitude (ft.) vs. time (UTC hrs.)



Planned target elevation (deg.) vs. time (UTC hrs.)

