

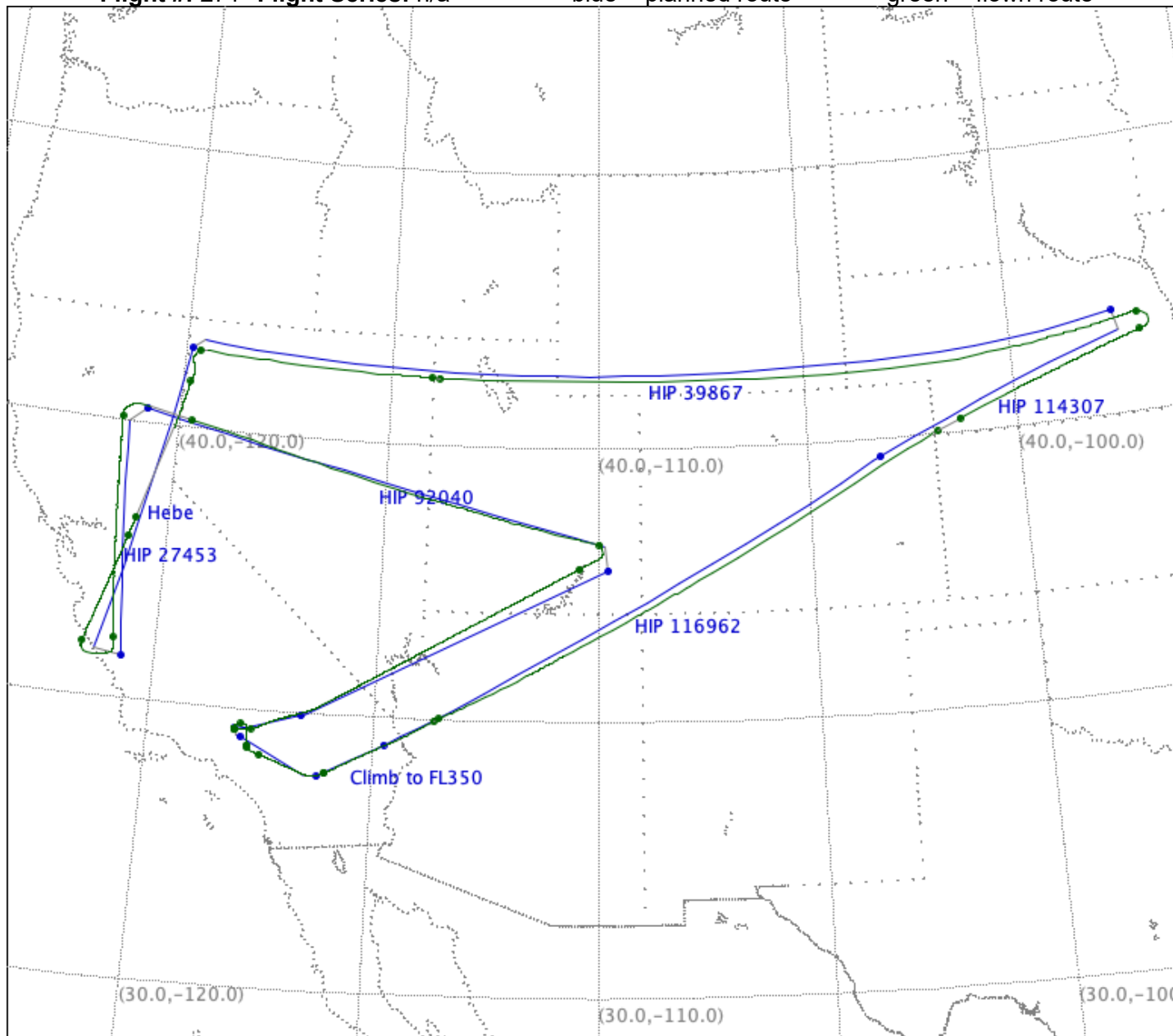
MISSION ID: 2016-01-29_NO_F271

Date: 2016-01-29 UT Instrument: n/a

Flight #: 271 Flight Series: n/a

blue = planned route

green = flown route



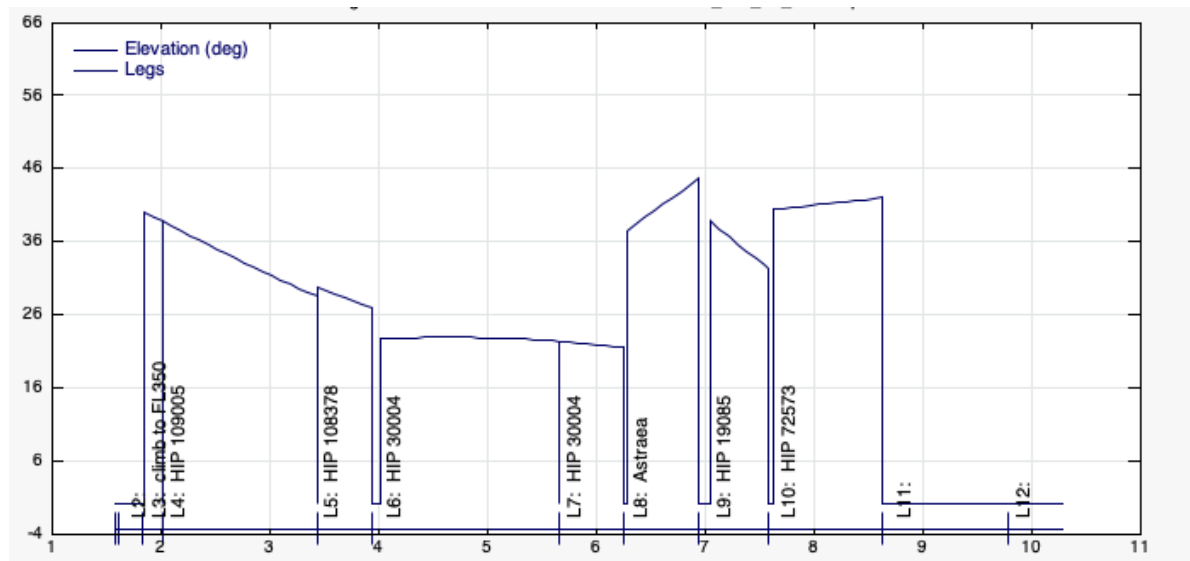
Flight notes:
Engineering flight. No science data collected.

Flight # Mission ID 2016-01-29_NO_F271
 Palmdale to Palmdale Take off date UTC: 29-JAN-2016
 Departure UTC: ~01:25 Arrival UTC: ~09:36

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			climb to FL350	22h05m00.49s	62d47m08.4s	1:54	10	
4			HIP 109005	22h05m00.49s	62d47m08.4s	2:04	85	
5			HIP 108378	21h57m24.20s	66d08m20.7s	3:29	30	
6			HIP 30004	06h18m55.59s	-25d00m45.9s	4:03	99	
7			HIP 30004	06h16m55.58s	-25d00m45.9s	5:42	35	
8			Astraea	10h07m21.49s	11d10m52.3s	6:20	40	
9			HIP 19085	04h05m31.10s	14d17m10.7s	7:06	32	
10			HIP 72573	14h50m20.42s	82d30m43.0s	7:41	60	

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

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



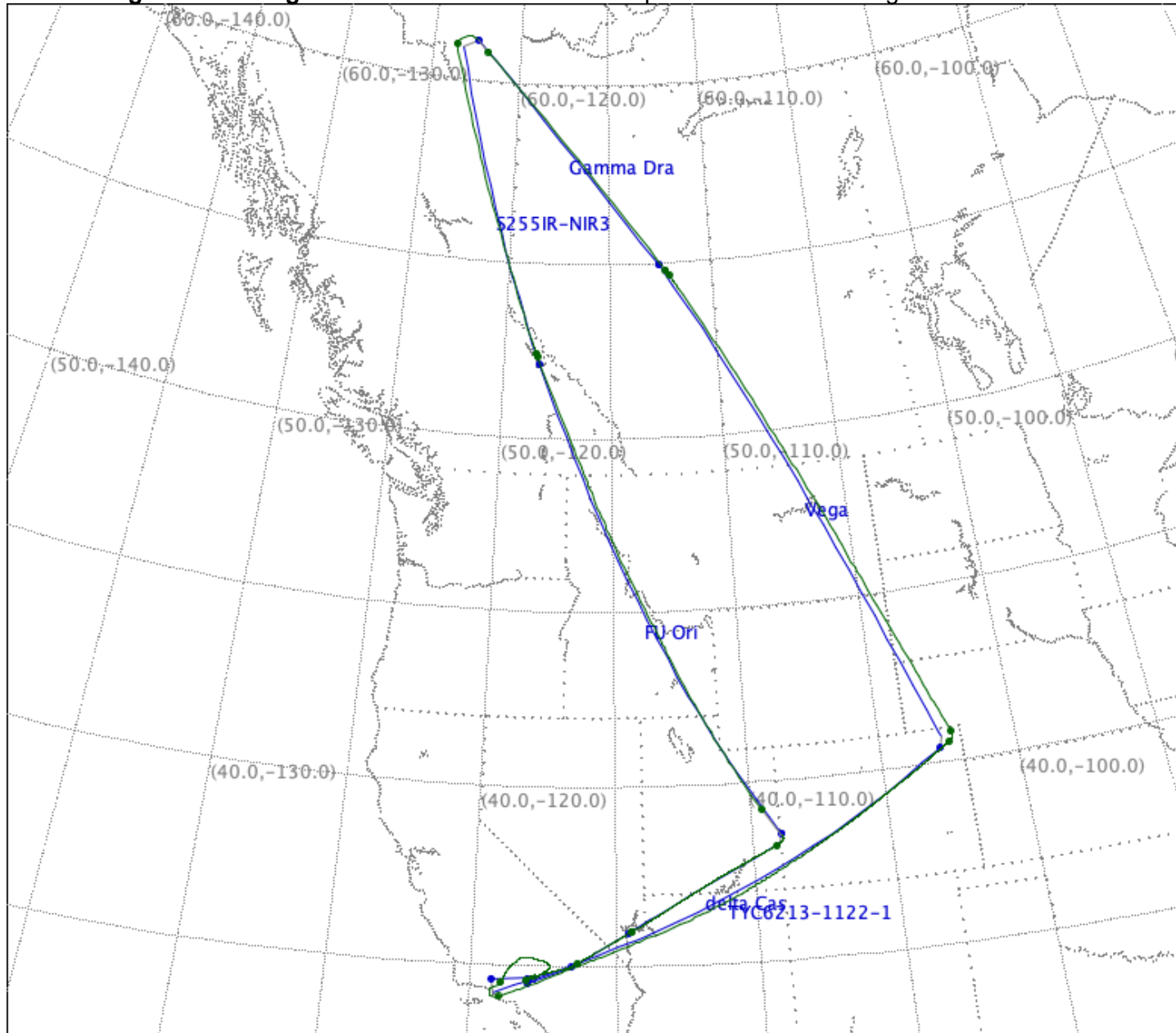
MISSION ID: 2016-02-04_FO_F272

Date: 2016-02-04 UT Instrument: FORCAST

Flight #: 272 Flight Series: OC4A

blue = planned route

green = flown route

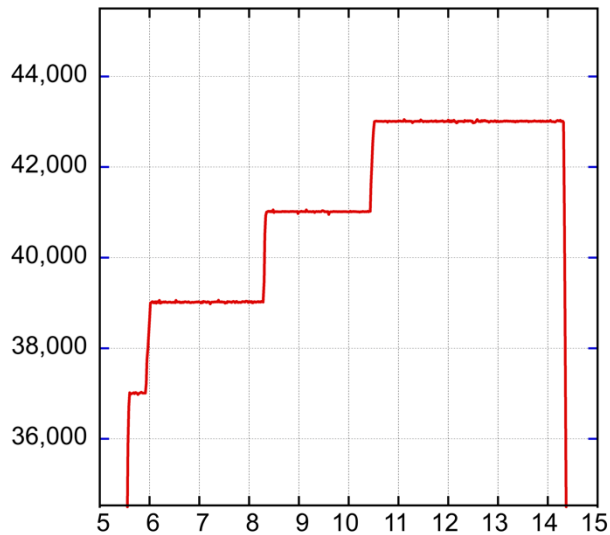


**Flight notes:
No irregularities.**

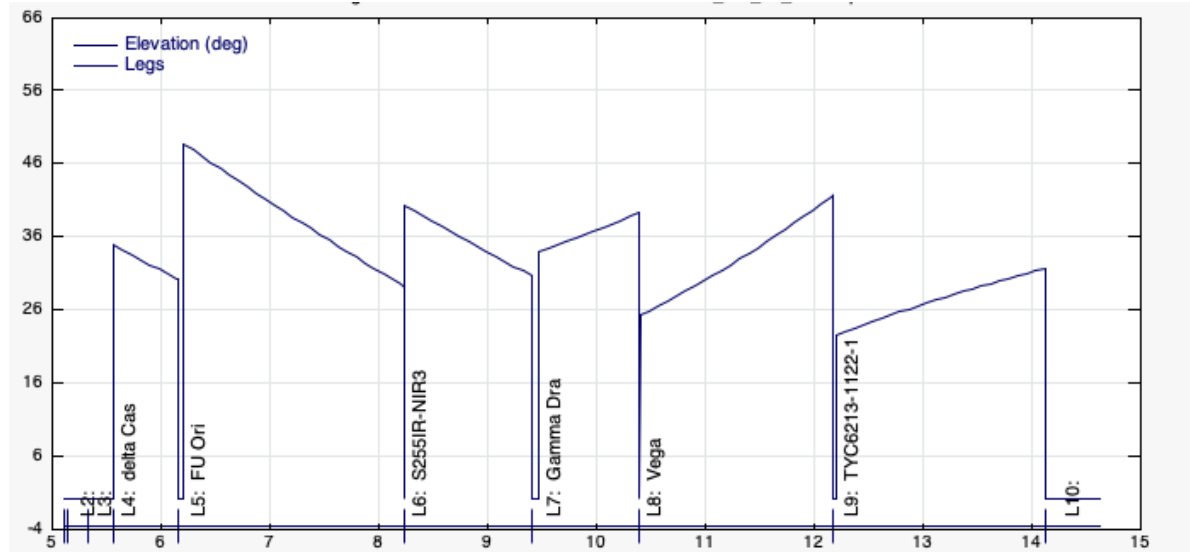
Flight 272 Mission ID 2016-02-04_FO_F272
 Palmdale to Palmdale Take off date UTC: 04-FEB-2016
 Departure UTC: 05:09 Arrival UTC: 14:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			delta Cas	01h25m48.95s	60d14m07.0s	5:36	36	
5	04_0146	Green	FU Ori	05h45m22.36s	09d04m12.4s	6:15	122	
6	04_0047	Eisloeffel	S255IR-NIR3	06h12m54.01s	17d59m23.1s	8:17	70	
7	90_0071	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	9:31	55.3	
8	04_0065	Su	Vega	18h36m56.34s	38d47m01.3s	10:26	106	
9	04_0126	Song	TYC6213-1122	16h10m12.64s	-21d04m44.7s	12:14	115	

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



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



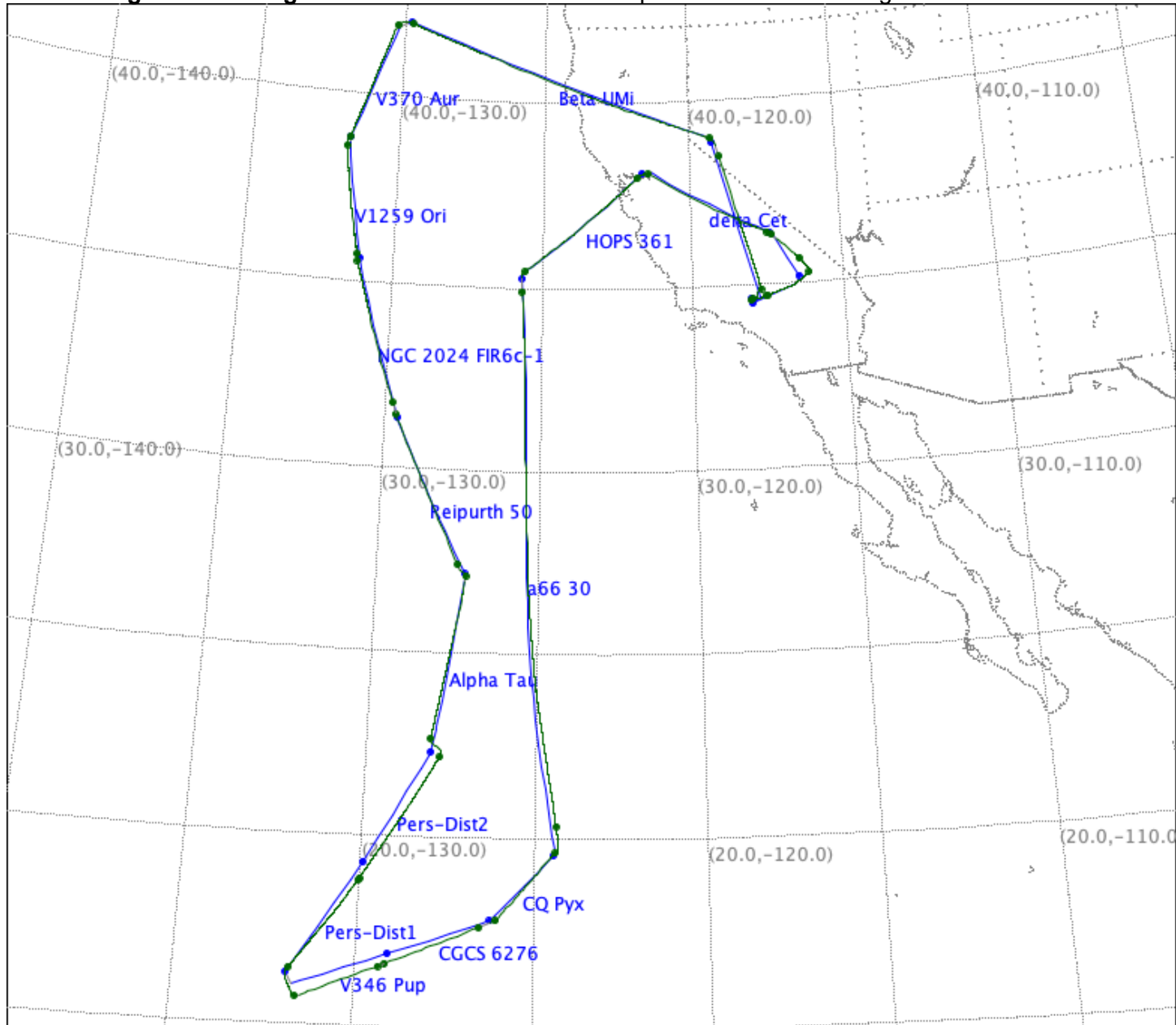
MISSION ID: 2016-02-05_FO_F273

Date: 2016-02-05 UT Instrument: FORCAST

Flight #: 273 Flight Series: OC4A

blue = planned route

green = flown route

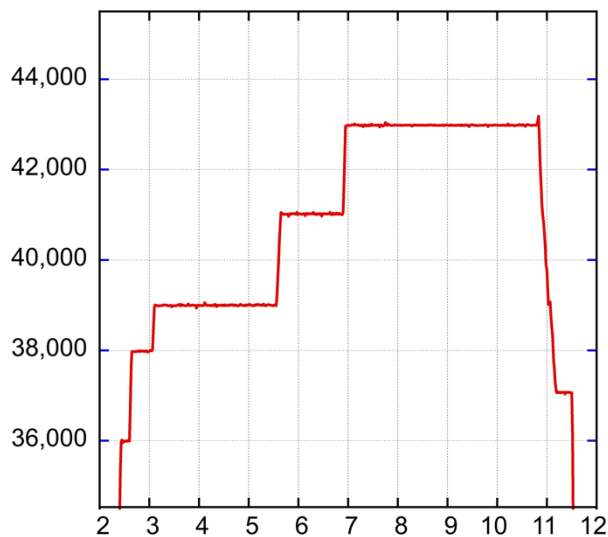


Flight notes: No irregularities.

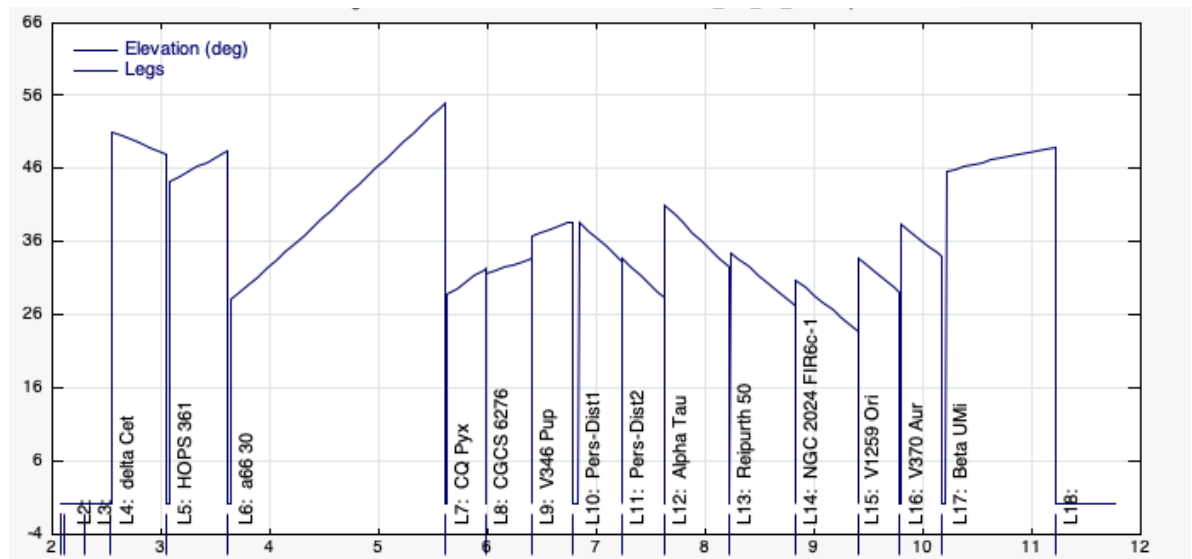
Flight 273 Mission ID 2016-02-05_FO_F273
 Palmdale to Palmdale Take off date UTC: Departure UTC: Arrival UTC:
 05-FEB-2016 02:02 12:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			delta Cet	02h39m28.96s	00d19m42.6s	2:35	30	
5	04_0090	Megeath	HOPS 361	05h47m04.78s	00d21m42.8s	3:07	32	
6	04_0003	Evans	a66 30	08h46m53.49s	17d52m46.8s	3:41	118	
7	04_0129	Sloan	CQ Pyx	09h13m54.09s	-24d51m21.1s	5:40	21	
8	04_0129	Sloan	CGCS 6276	08h09m20.26s	-36d24m26.8s	6:02	25	
9	04_0129	Sloan	V346 Pup	08h10m48.90s	-32d52m05.5s	6:27	22	
10	04_0173	Huard	Pers-Dist1	03h25m37.90s	30d44m24.0s	6:52	24	
11	04_0173	Huard	Pers-Dist2	03h27m43.63s	30d12m48.9s	7:16	23	Some guiding stability issues.
12	90_0071	Calibration	Alpha Tau	04h35m55.24s	16d30m33.5s	7:40	35.3	
13	04_0090	Megeath	Reipurth 50	05h40m27.45s	-07d27m30.1s	8:16	36	
14	70_0400	GTO	NGC 2024 FIR6c	05h41m45.14s	-01d56m04.4s	8:52	34	
15	04_0129	Sloan	V1259 Ori	06h03m59.84s	07d25m54.4s	9:27	23	
16	04_0129	Sloan	V370 Aur	05h43m49.68s	32d42m06.2s	9:50	22	
17	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	10:15	60	

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



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



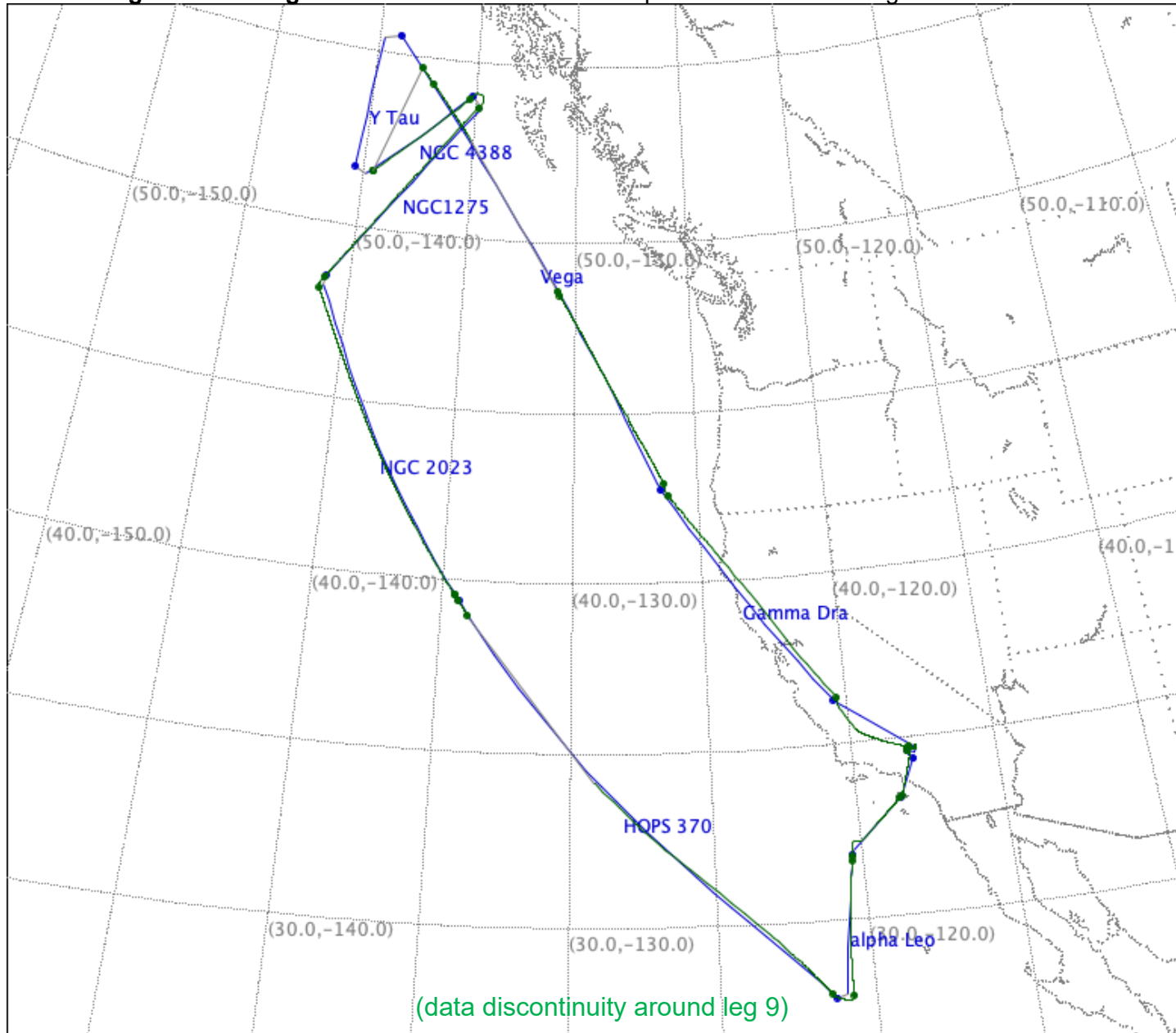
MISSION ID: 2016-02-06_FO_F274

Date: 2016-02-06 UT Instrument: FORCAST

Flight #: 274 Flight Series: OC4A

blue = planned route

green = flown route

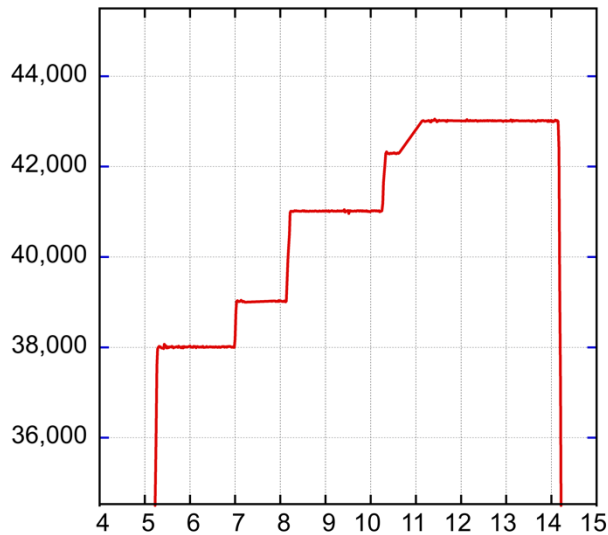


Flight notes: No irregularities.

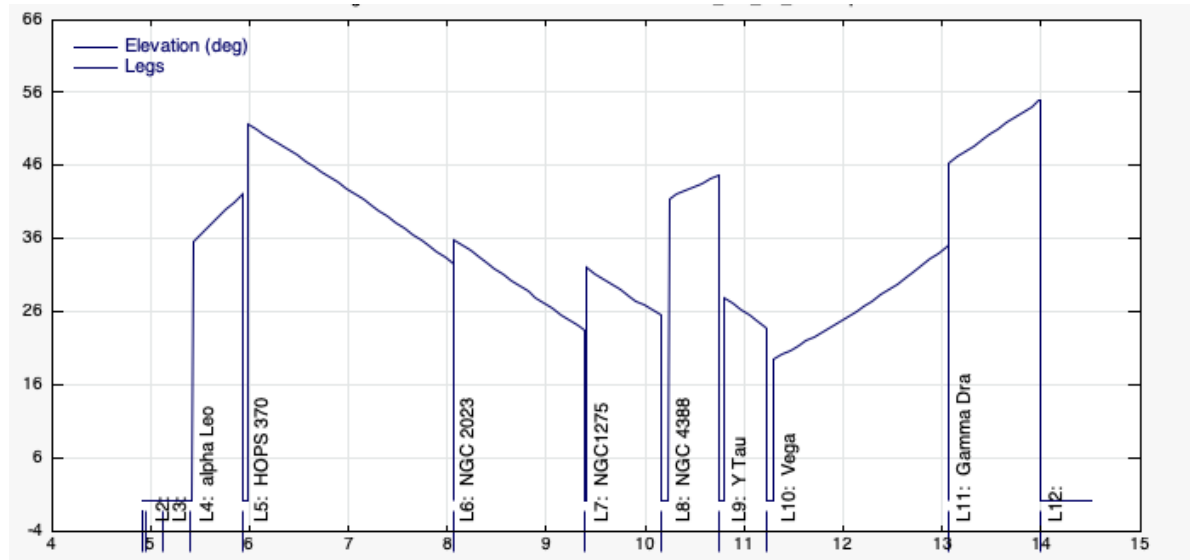
Flight 274 Mission ID 2016-02-06_FO_F274
 Palmdale to Palmdale Take off date UTC: 06-FEB-2016
 Departure UTC: 04:52 Arrival UTC: 14:34

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			alpha Leo	10h08m22.30s	11d58m02.0s	5:29	30	
5	04_0090	Megeath	HOPS 370	05h35m27.60s	-05d09m33.5s	6:02	125	Observatory control software crash; 47min lost.
6	04_0058	Tielens	NGC 2023	05h41m37.89s	-02d15m52.2s	8:07	79	
7	04_0048	Lopez-Rodriguez	NGC1275	03h19m48.16s	41d30m42.1s	9:28	45	
8	04_0048	Lopez-Rodriguez	NGC 4388	12h25m46.75s	12d39m43.5s	10:17	30	Observatory control software crash; 42min lost.
9	04_0129	Sloan	Y Tau	05h45m39.41s	20d41m42.1s	10:51	26	Observatory control software crash; entire leg lost.
10	04_0065	Su	Vega	18h36m56.34s	38d47m01.3s	11:21	106	Observatory control software crash; 30min lost.
11	90_0071	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	13:07	55.3	

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



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



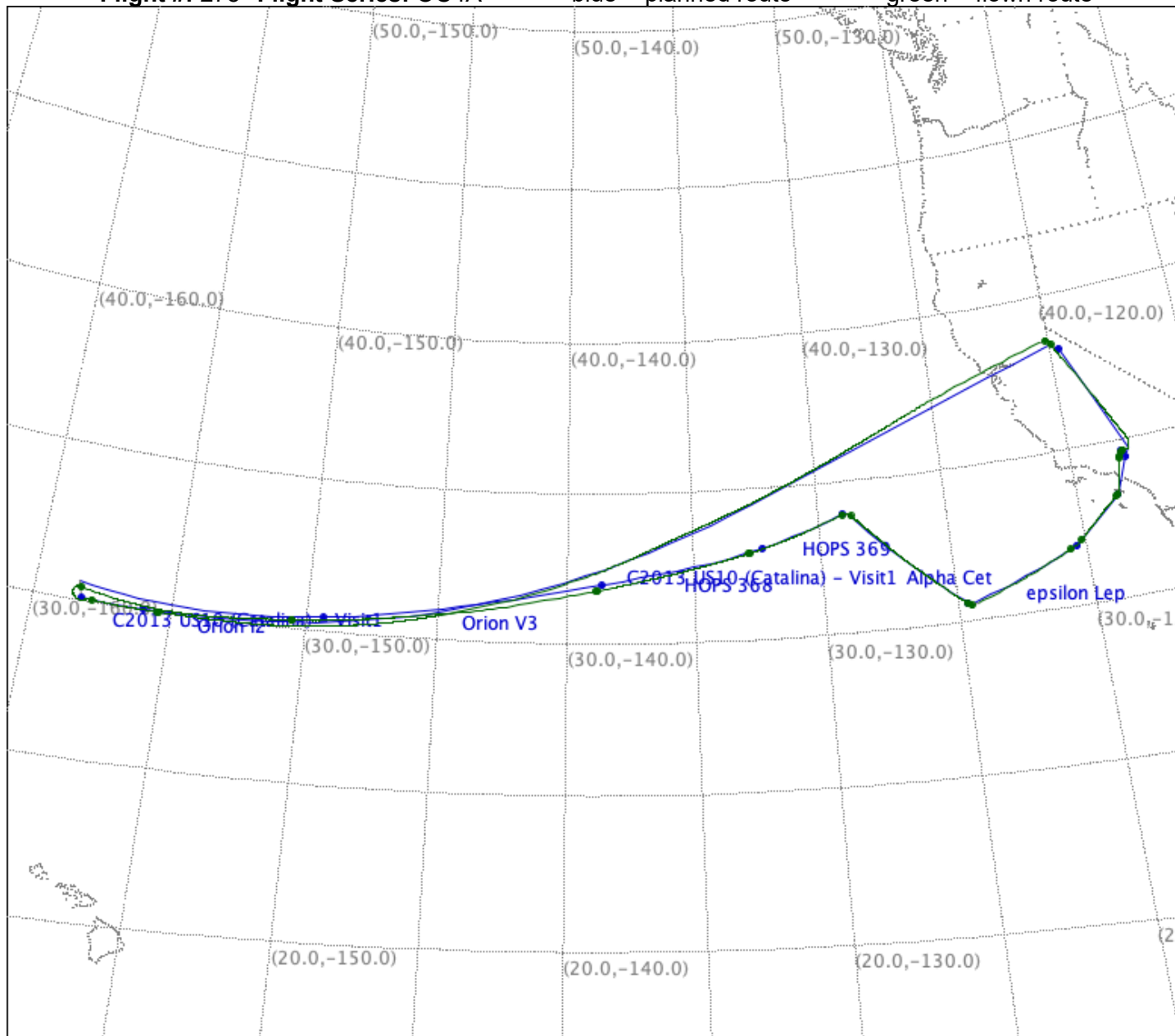
MISSION ID: 2016-02-09_FO_F275

Date: 2016-02-09 UT Instrument: FORCAST

Flight #: 275 Flight Series: OC4A

blue = planned route

green = flown route



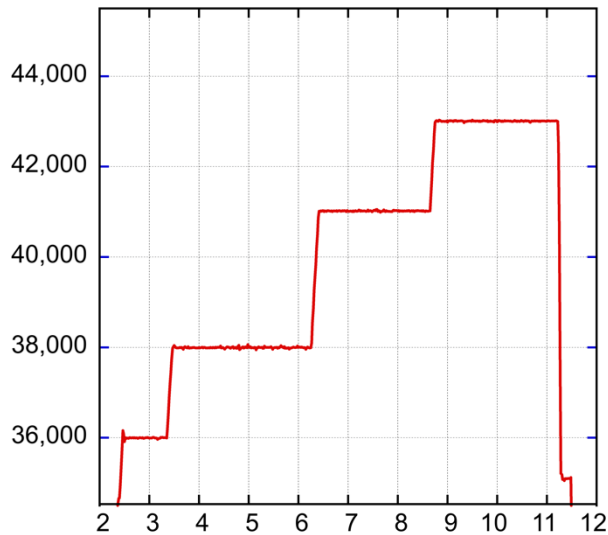
Flight notes:

Some FPI science data taken of C2013 US10 (Catalina) on leg 10.

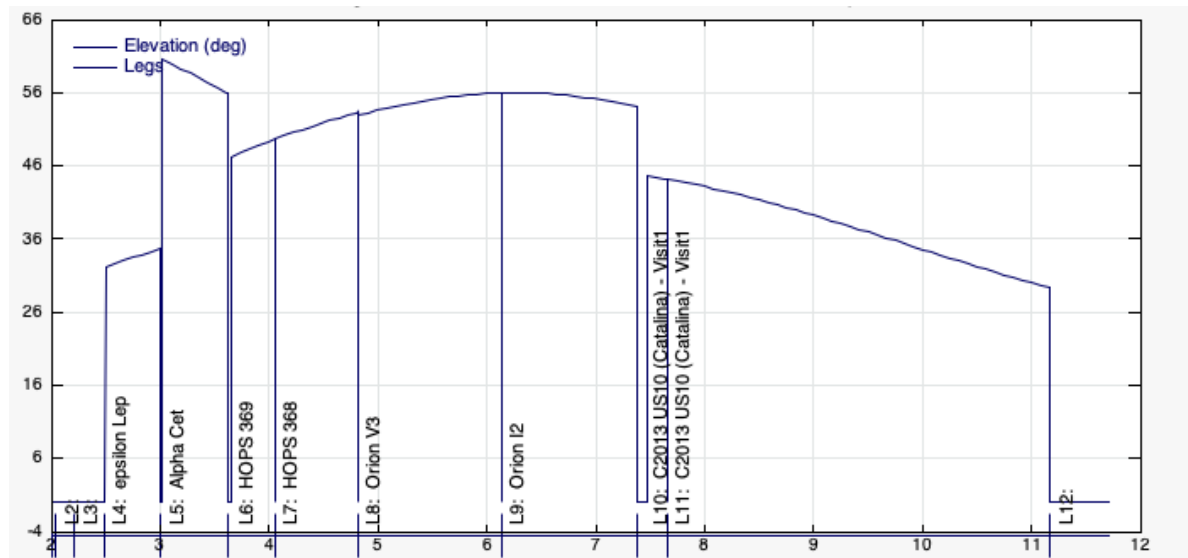
Flight 275 Mission ID 2016-02-09_FO_F275
 Palmdale to Palmdale Take off date UTC: 09-FEB-2016 Departure UTC: 01:57 Arrival UTC: 11:55

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			epsilon Lep	05h05m27.67s	-22d22m15.7s	2:32	30	
5	90_0071	Calibration	Alpha Cet	03h02m16.77s	04d05m23.1s	3:04	36.3	Possible vignetting by upper telescope door at beginning of leg
6	04_0090	Megeath	HOPS 369	05h35m27.00s	-05d10m17.0s	3:42	24	
7	04_0090	Megeath	HOPS 368	05h35m24.70s	-05d10m30.0s	4:06	46	
8	04_0058	Tielens	Orion V3	05h35m48.00s	-05d32m30.0s	4:52	79	
9	04_0058	Tielens	Orion I2	05h35m26.00s	-05d26m12.0s	6:11	74	
10	04_0010	Woodward	C2013 US10 (Catalina) - Visit1	04h54m39.39s	73d35m29.9s	7:31	12	
11	04_0010	Woodward	C2013 US10 (Catalina) - Visit1	04h54m39.39s	73d35m29.9s	7:43	210	Observatory control software crash; then trouble maintaining pointing on target; 30min lost.

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



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



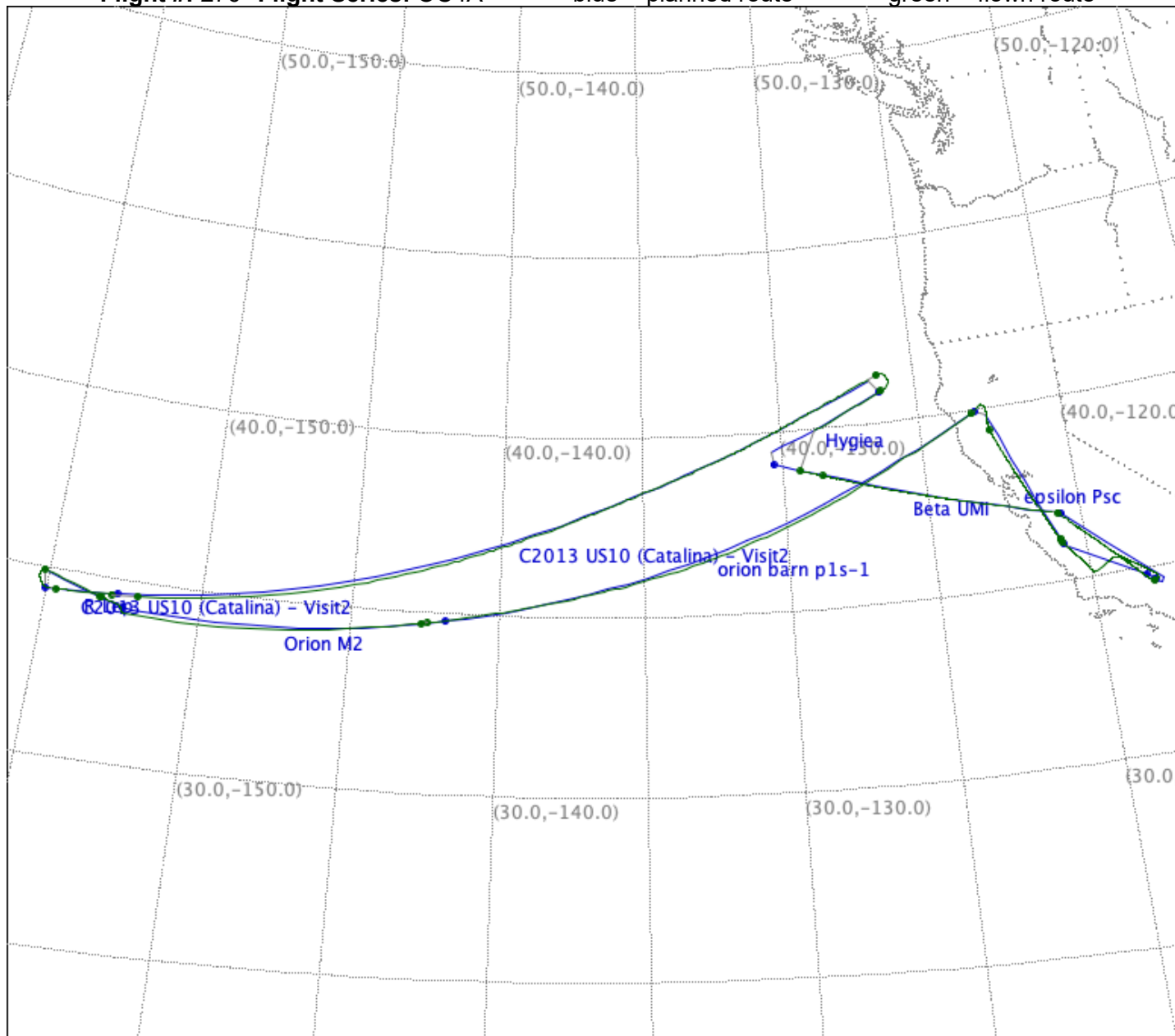
MISSION ID: 2016-02-10_FO_F276

Date: 2016-02-10 UT Instrument: FORCAST

Flight #: 276 Flight Series: OC4A

blue = planned route

green = flown route



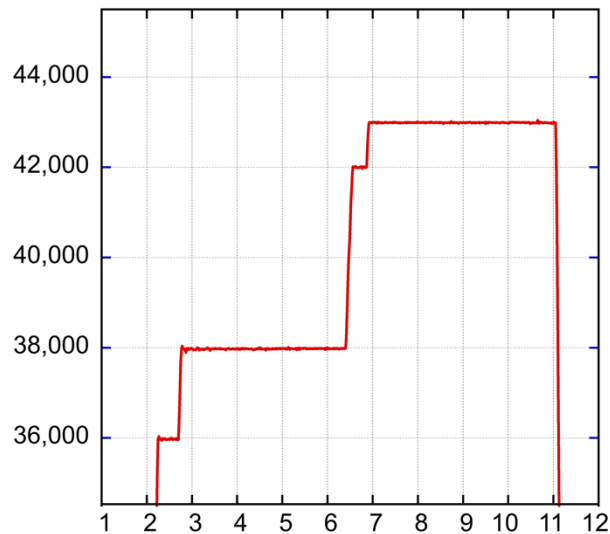
Flight notes:

Some FPI science data taken of C2013 US10 (Catalina) on leg 8.

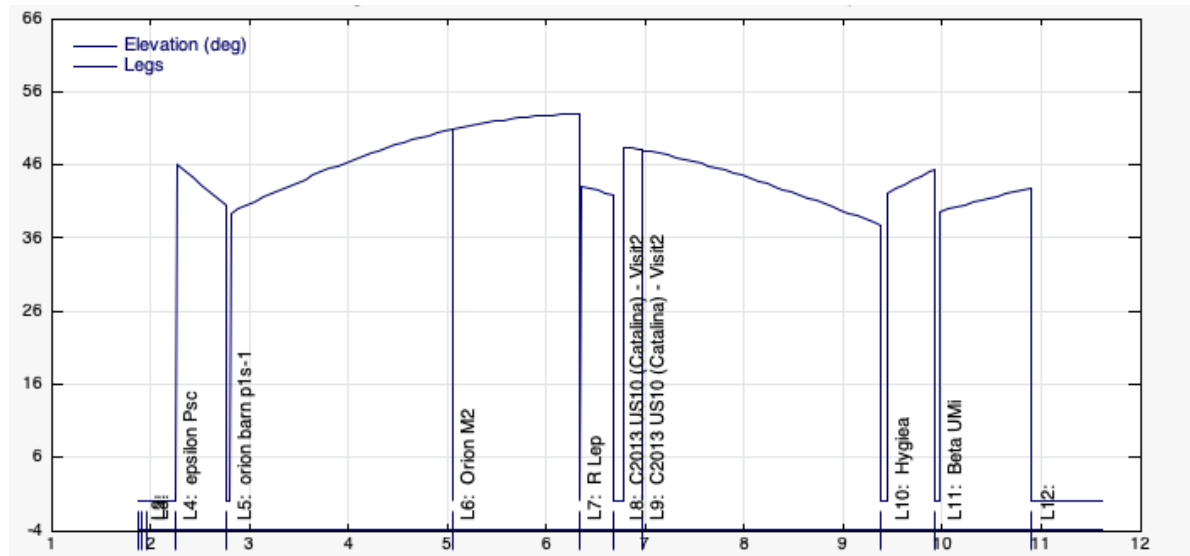
Flight 276 Mission ID 2016-02-10_FO_F276
 Palmdale to Palmdale Take off date UTC: 10-FEB-2016
 Departure UTC: 01:50 Arrival UTC: 11:31

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			epsilon Psc	01h02m56.61s	07d53m24.5s	2:20	30	Turbulence.
5	70_0400	GTO	orion barn p1s	05h35m24.74s	-05d25m00.4s	2:53	135	
6	04_0058	Tielens	Orion M2	05h35m37.00s	-05d29m21.0s	5:08	77	
7	04_0129	Sloan	R Lep	04h59m36.35s	-14d48m22.5s	6:25	20	
8	04_0010	Woodward	C2013 US10 (Catalina) - Visit2	04h47m26.36s	72d34m39.7s	6:51	12	
9	04_0010	Woodward	C2013 US10 (Catalina) - Visit2	04h47m09.26s	72d32m03.3s	7:03	144	
10	90_0072	Calibration	Hygiea	11h56m26.06s	-04d51m55.2s	9:32	28	Observatory control software crash; entire leg lost.
11	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	10:03	55.3	

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



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



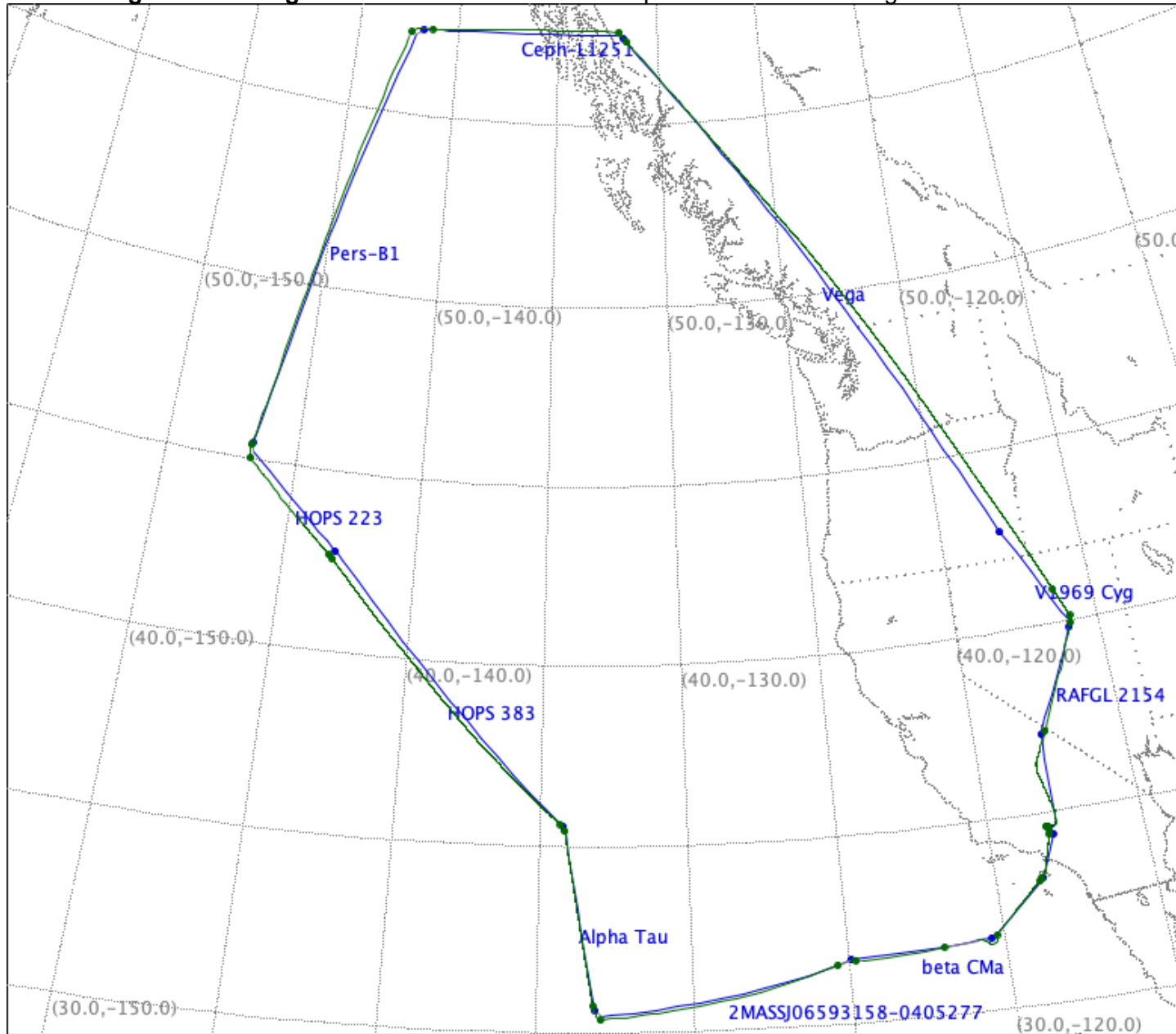
MISSION ID: 2016-02-11_FO_F277

Date: 2016-02-11 UT Instrument: FORCAST

Flight #: 277 Flight Series: OC4A

blue = planned route

green = flown route

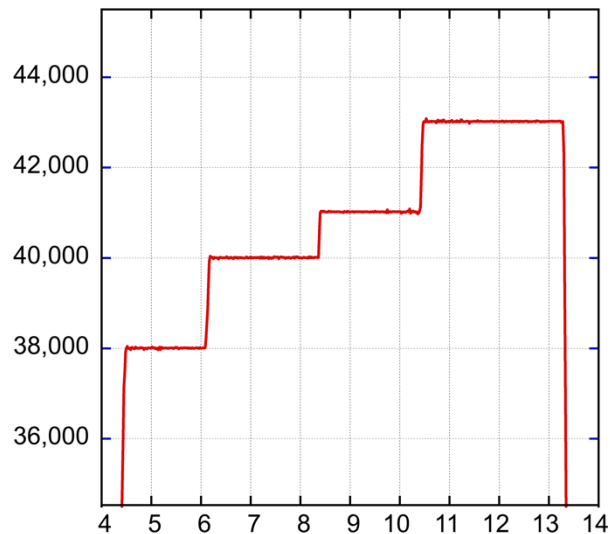


Flight notes: Telescope pointing problem encountered mid-flight.

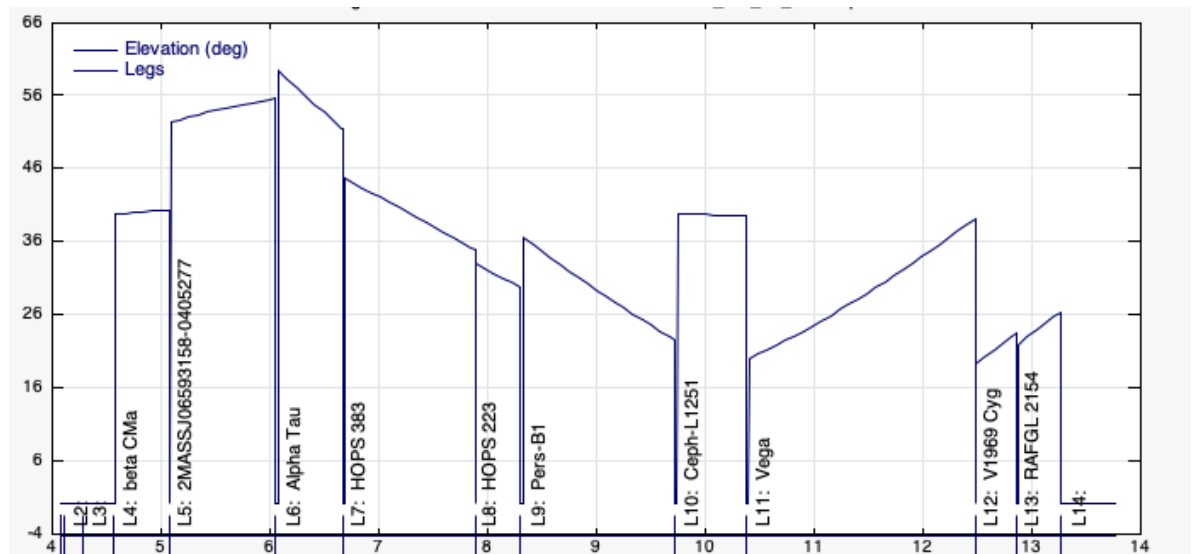
Flight 277 Mission ID 2016-02-11_FO_F277
 Palmdale to Palmdale Take off date UTC: 11-FEB-2016
 Departure UTC: 04:03 Arrival UTC: 13:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			beta CMa	06h22m41.99s	-17d57m21.3s	4:38	30	
5	04_0029	Eisloeffel	2MASSJ06593158-0405277	06h59m31.58s	-04d05m27.7s	5:09	57	
6	90_0071	Calibration	Alpha Tau	04h35m55.24s	16d30m33.5s	6:08	35.3	
7	04_0134	Fischer	HOPS 383	05h35m29.84s	-04d59m51.0s	6:44	72	
8	04_0134	Fischer	HOPS 223	05h42m48.49s	-08d16m34.7s	7:57	25	
9	04_0173	Huard	Pers-B1	03h33m17.90s	31d08m10.0s	8:23	83	Telescope spontaneously went into standby; after recovery, the telescope pointing appears to be almost an arcminute off
10	04_0173	Huard	Ceph-L1251	22h38m58.53s	75d11m36.1s	9:48	38	Telescope pointing continues to appear to be almost an arcminute off
11	04_0065	Su	Vega	18h36m56.34s	38d47m01.3s	10:27	125	Most of leg spent diagnosing and solving telescope pointing problem
12	04_0129	Sloan	V1969 Cyg	20h09m14.25s	31d25m44.9s	12:33	22	Leg not flown; Sacrificed to extend prior leg.
13	04_0129	Sloan	RAFGL 2154	18h26m39.68s	-06d54m04.5s	12:56	23	

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



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



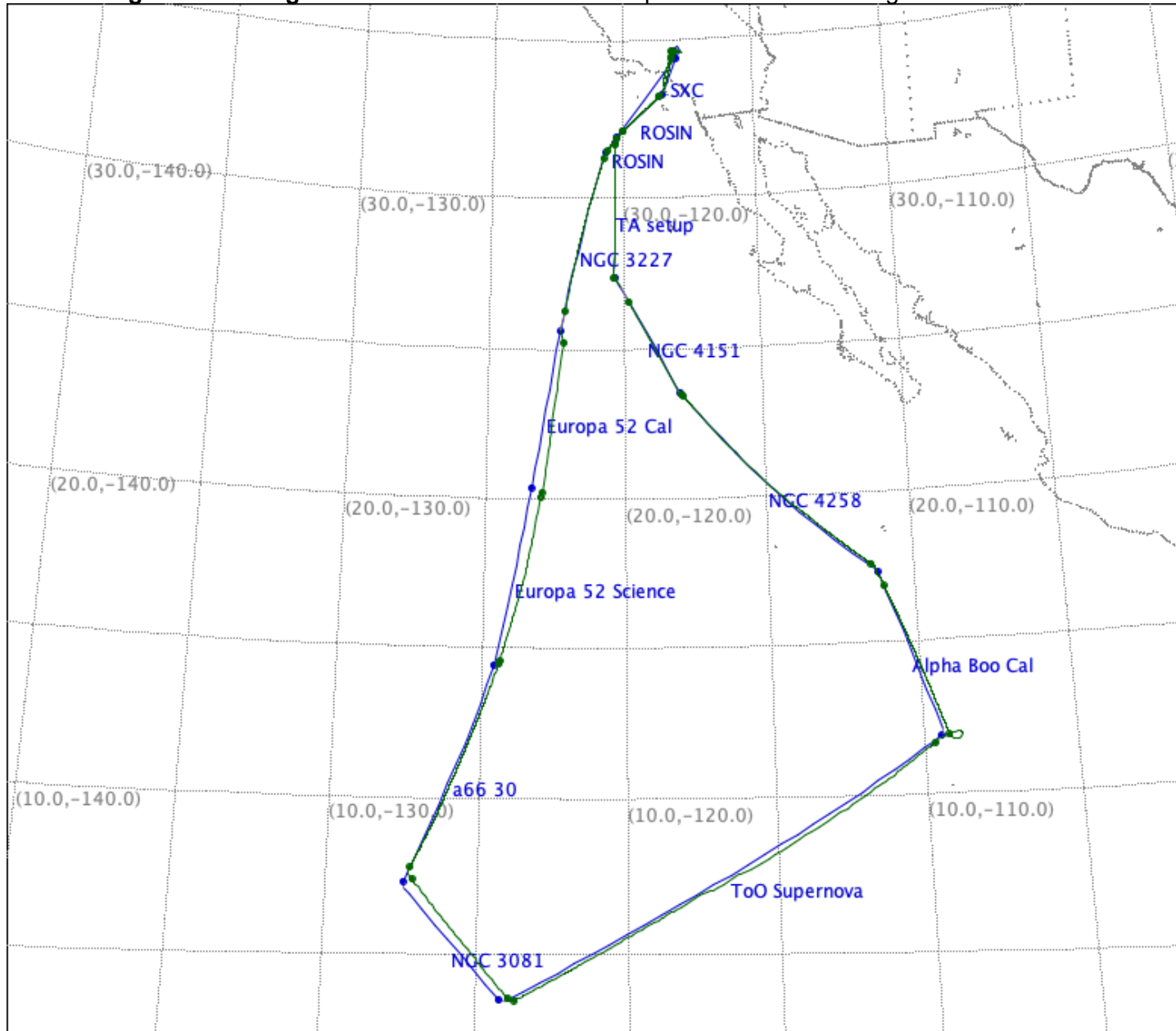
MISSION ID: 2016-02-17_FO_F278

Date: 2016-02-17 UT Instrument: FORCAST

Flight #: 278 Flight Series: OC4A

blue = planned route

green = flown route

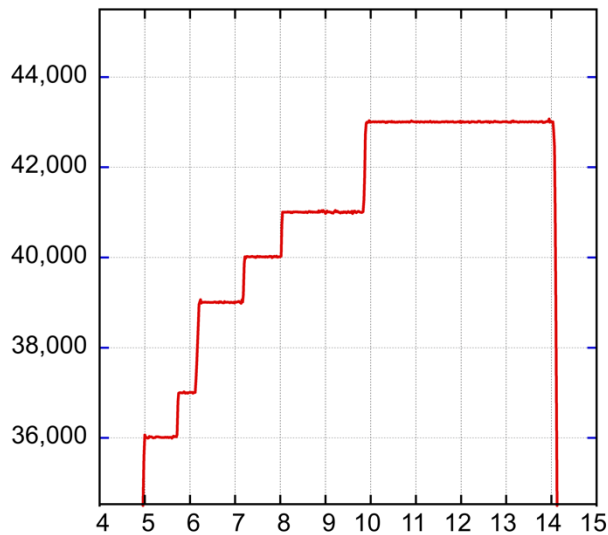


Flight notes: No irregularities.

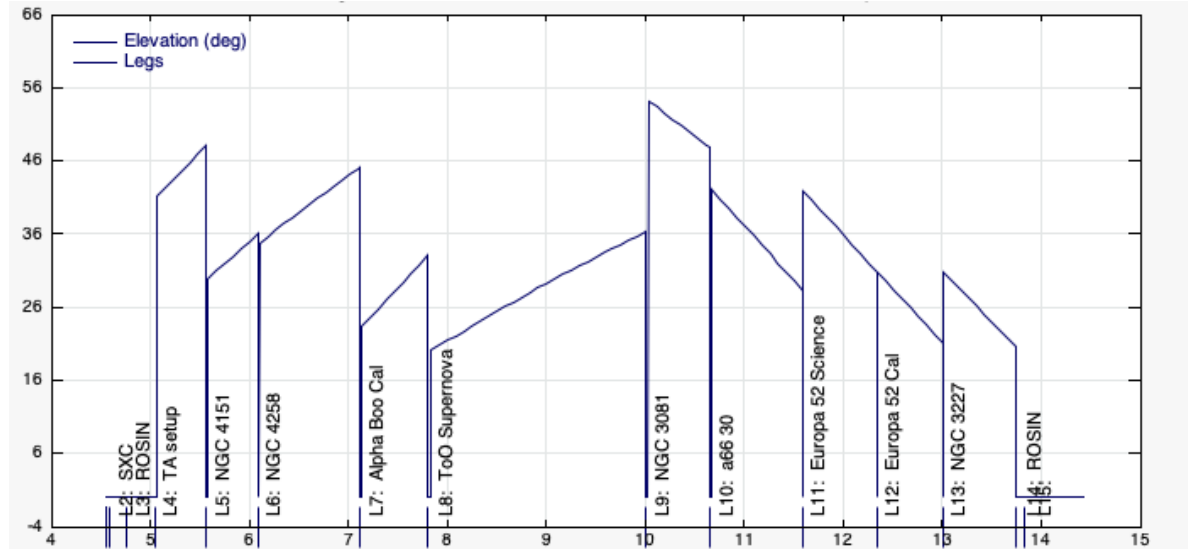
Flight 278 Mission ID 2016-02-17_FO_F278
 Palmdale to Palmdale Take off date UTC: 17-FEB-2016
 Departure UTC: 04:32 Arrival UTC: 14:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			gamma 1 Leo	10h19m58.35s	19d50m29.3s	5:07	30	
5	04_0048	Lopez-Rodriguez	NGC 4151	12h10m32.58s	39d24m20.6s	5:38	31	
6	04_0048	Lopez-Rodriguez	NGC 4258	12h18m57.50s	47d18m14.3s	6:09	61	
7	90_0071	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	7:11	40	FORCAST array syncing and framerate issues at beginning of leg.
8	04_0007	Gehrz	AT2016adj	13h25m24.11s	-43d00m57.5s	7:53	130	Cloud cover producing wild background structures; half of leg lost to clouds
9	04_0048	Lopez-Rodriguez	NGC 3081	09h59m29.54s	-22d49m34.6s	10:05	37	
10	04_0003	Evans	a66 30	08h46m53.49s	17d52m46.8s	10:44	55	
11	04_0054	McAdam	Europa 52	09h44m45.75s	16d55m42.5s	11:39	45	
12	90_0072	Calibration	Europa	09h44m43.81s	16d55m58.7s	12:24	40	
13	04_0048	Lopez-Rodriguez	NGC 3227	10h23m30.58s	19d51m54.2s	13:04	44	

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



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



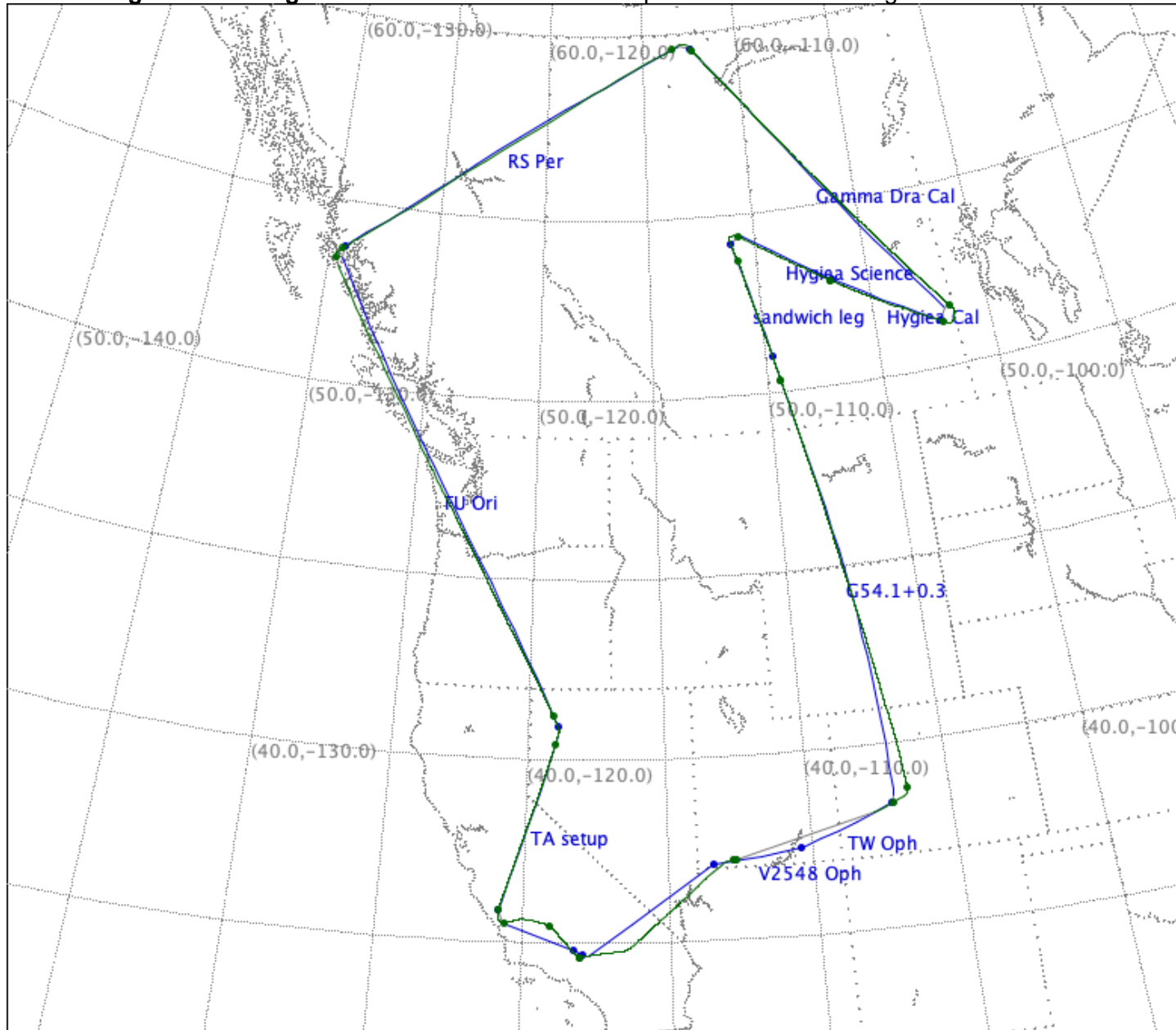
MISSION ID: 2016-02-18_FO_F279

Date: 2016-02-18 UT Instrument: FORCAST

Flight #: 279 Flight Series: OC4A

blue = planned route

green = flown route

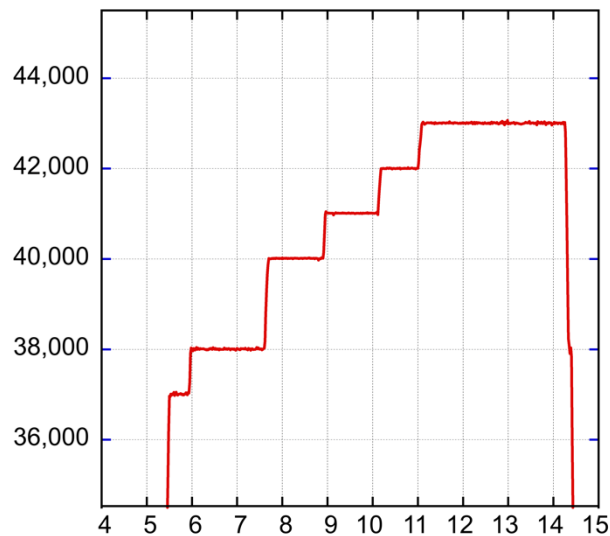


Flight notes: No irregularities.

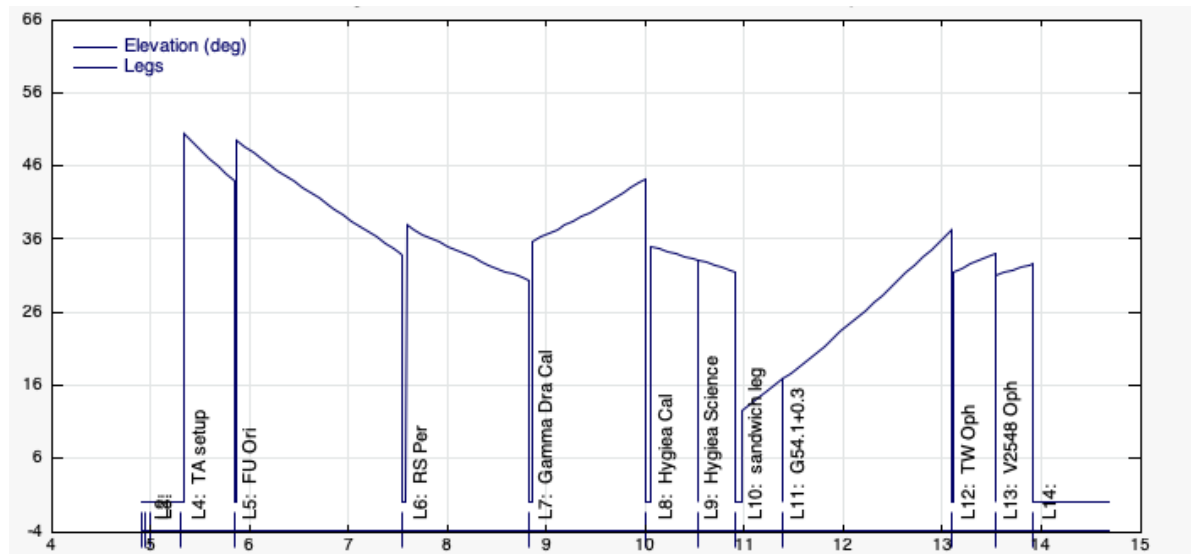
Flight 279 Mission ID 2016-02-18_FO_F279
 Palmdale to Palmdale Take off date UTC: 18-FEB-2016
 Departure UTC: 04:56 Arrival UTC: 14:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			zeta Per	03h54m07.92s	31d53m01.1s	5:26	30	
5	04_0146	Green	FU Ori	05h45m22.36s	09d04m12.4s	5:57	101	
6	04_0013	Humphreys	RS Per	02h22m24.30s	57d06m34.4s	7:40	74	
7	90_0071	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	8:56	68.3	
8	90_0072	Calibration	Hygiea	11h53m02.07s	-04d44m19.5s	10:09	28	
9	04_0054	McAdam	Hygiea 10	11h53m02.07s	-04d44m19.5s	10:37	23	
10	04_0167	Borkowski	G54.1+0.3	19h30m29.00s	18d52m00.0s	11:03	25	Beginning of leg had possible vignetting due to telescope lower door; turbulence not helping
11	04_0167	Borkowski	G54.1+0.3	19h30m29.00s	18d52m00.0s	11:28	102	Turbulence.
12	04_0129	Sloan	TW Oph	17h29m43.67s	-19d28m22.9s	13:12	25.3	
13	04_0129	Sloan	V2548 Oph	17h07m58.11s	-24d44m31.2s	13:37	22	Bright skies caused pointing and guiding stability issues near end of leg.

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



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



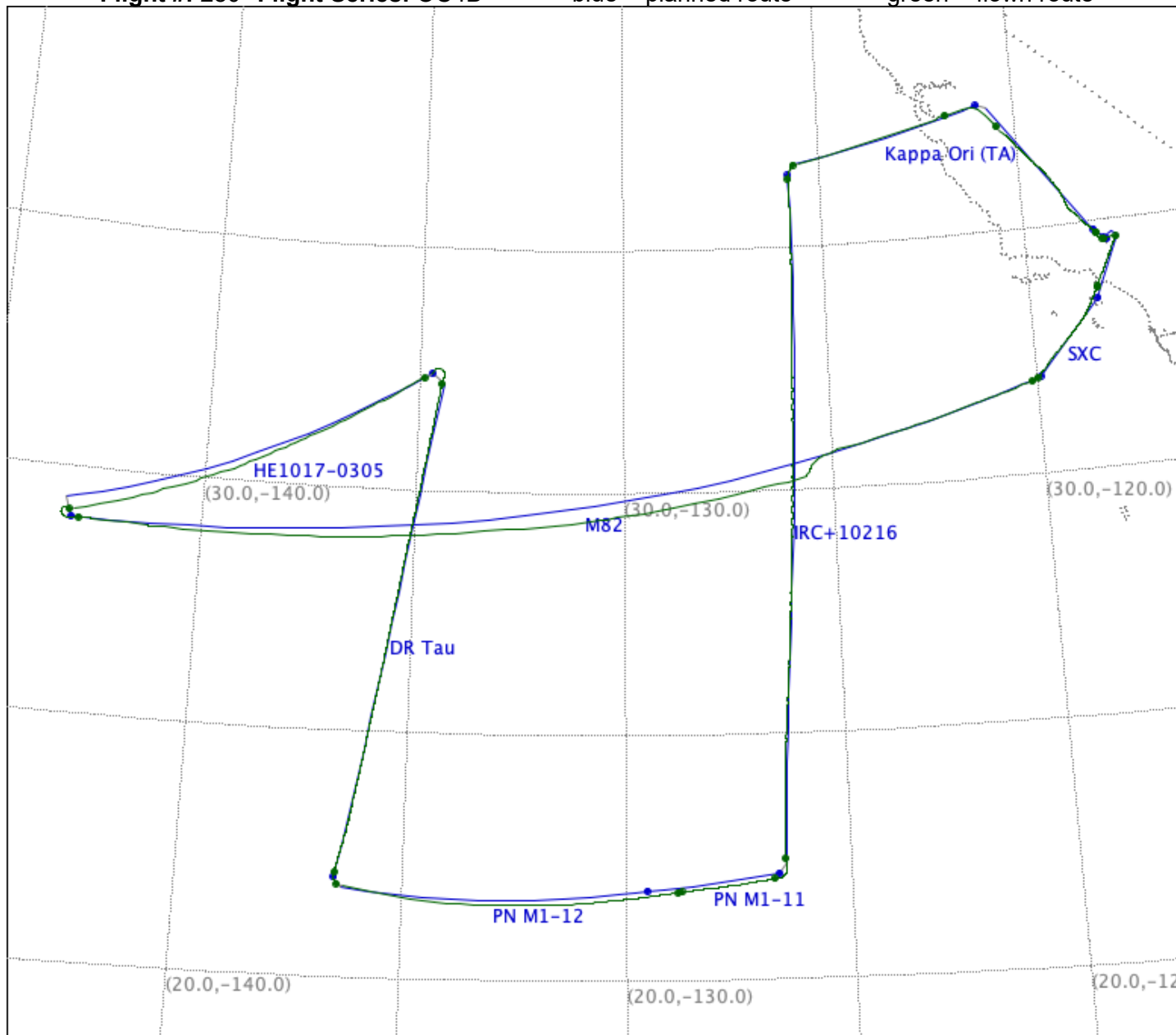
MISSION ID: 2016-02-25_FI_F280

Date: 2016-02-25 UT Instrument: FIFI-LS

Flight #: 280 Flight Series: OC4B

blue = planned route

green = flown route

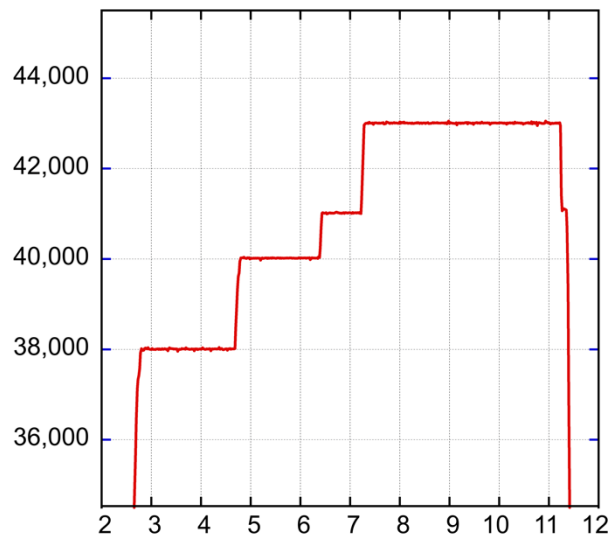


Flight notes: No irregularities.

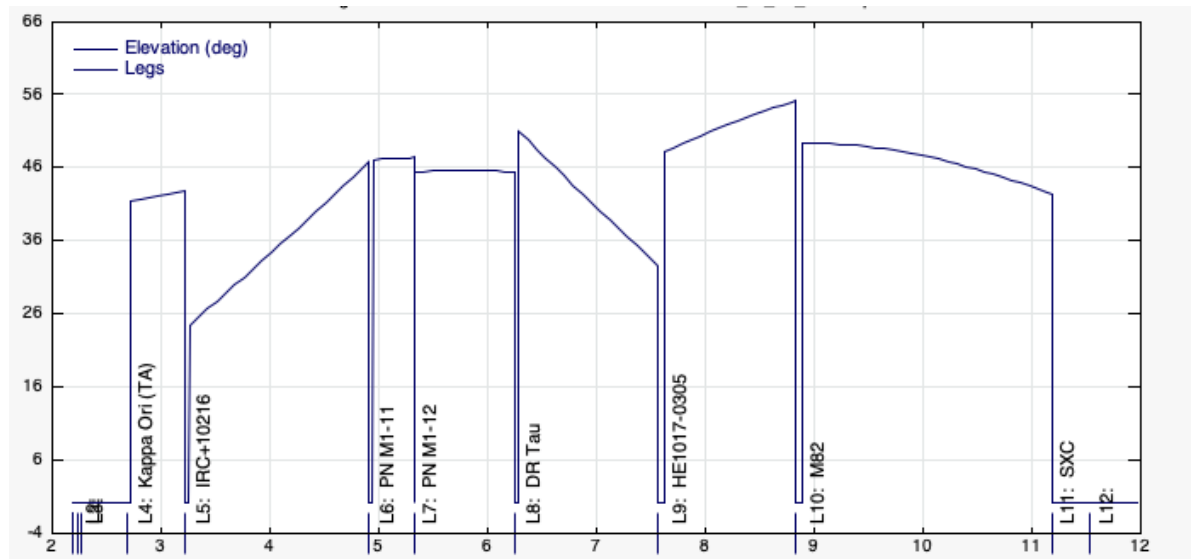
Flight 280 Mission ID 2016-02-25_FI_F280
 Palmdale to Palmdale Take off date UTC: 25-FEB-2016
 Departure UTC: 02:13 Arrival UTC: 11:51

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Kappa Ori	05h47m45.40s	-09d40m11.0s	2:49	30	
5	90_0030	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	3:21	99	
6	04_0162	Cami	PN M1-11	07h11m16.69s	-19d51m02.5s	5:03	23	
7	04_0162	Cami	PN M1-12	07h19m21.47s	-21d43m55.4s	5:26	55	
8	04_0178	Carr	DR Tau	04h47m06.21s	16d58m42.8s	6:23	77	
9	04_0056	Husemann	HE1017-0305	10h19m32.93s	-03d20m14.1s	7:43	72	
10	70_0408	GTO	M82	09h55m52.20s	69d40m46.6s	9:00	137	20min lost due to Air Traffic Control demand for course correction.

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



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



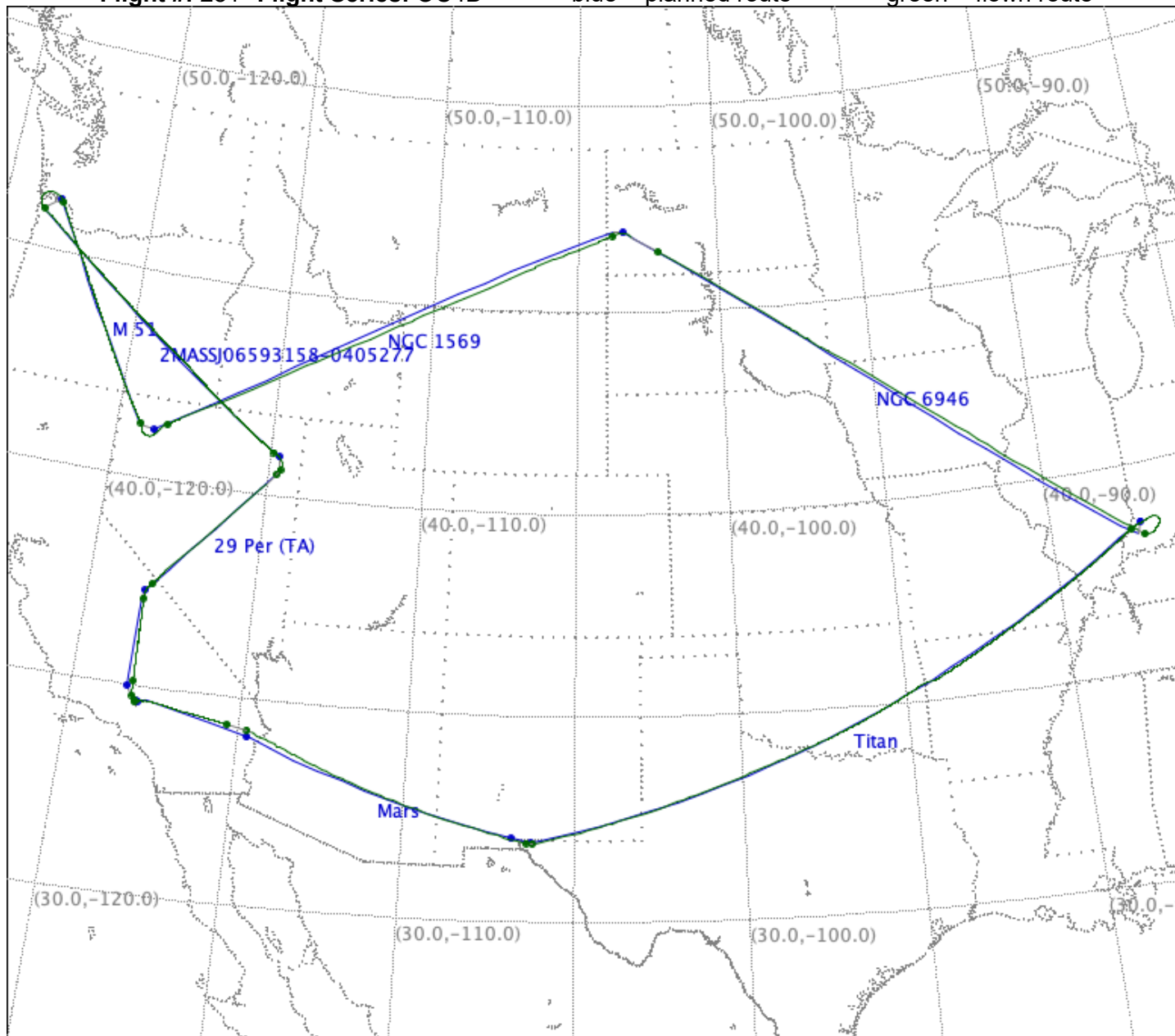
MISSION ID: 2016-02-27_FI_F281

Date: 2016-02-27 UT Instrument: FIFI-LS

Flight #: 281 Flight Series: OC4B

blue = planned route

green = flown route

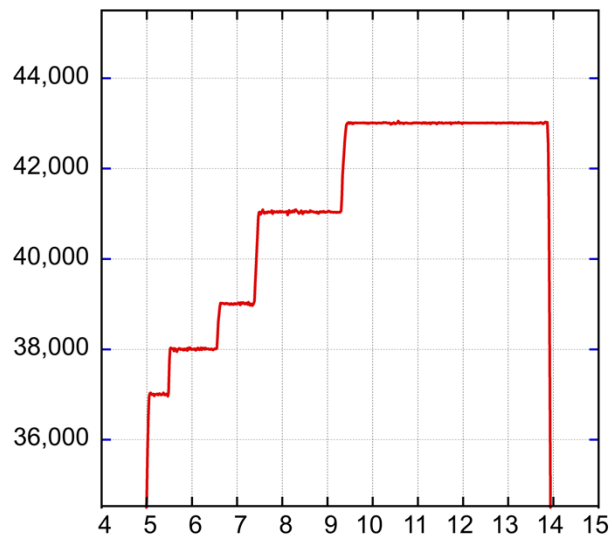


Flight notes: No irregularities.

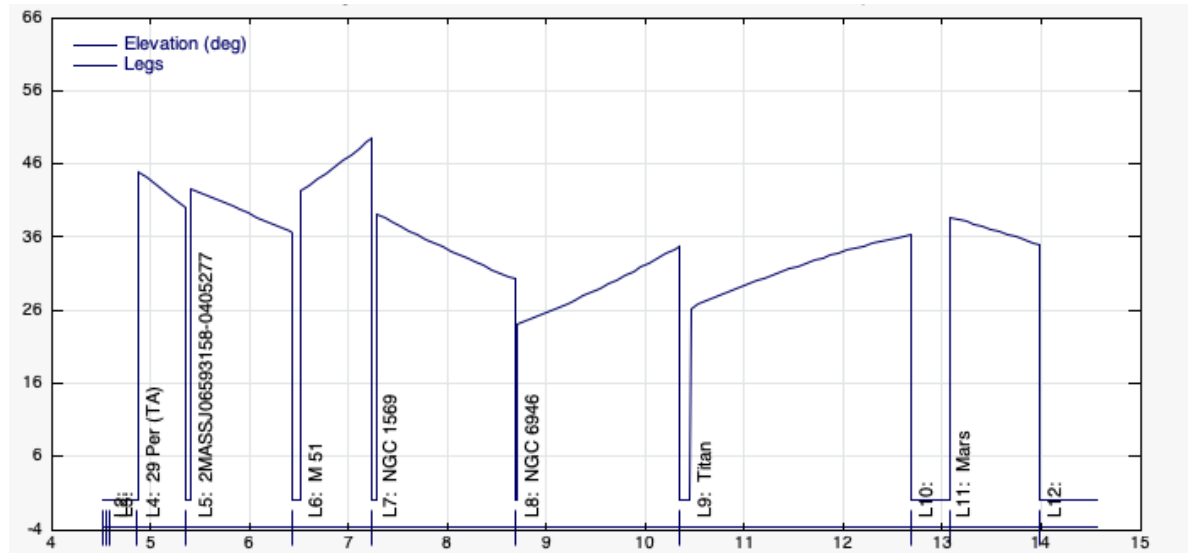
Flight 281 Mission ID 2016-02-27_FI_F281
 Palmdale to Palmdale Take off date UTC: 27-FEB-2016
 Departure UTC: 04:35 Arrival UTC: 14:19

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			29 Per (HIP 15404)	03h18m37.74s	50d13m19.8s	4:58	29	
5	04_0029	Eisloeffel	2MASSJ06593158-0405277	06h59m31.58s	-04d05m27.7s	5:30	61	
6	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:37	43	
7	70_0408	GTO	NGC 1569	04h30m51.00s	64d50m50.0s	7:23	84	
8	04_0139	Bigiel	NGC 6946	20h34m52.33s	60d09m13.2s	8:48	98	
9	04_0093	Rengel	TITAN	16h57m56.76s	-20d57m46.9s	10:33	134	Telescope control failure; 47min lost.
11	90_0033	Calibration	Mars	15h39m27.76s	-18d08m48.5s	12:51	55	

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



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



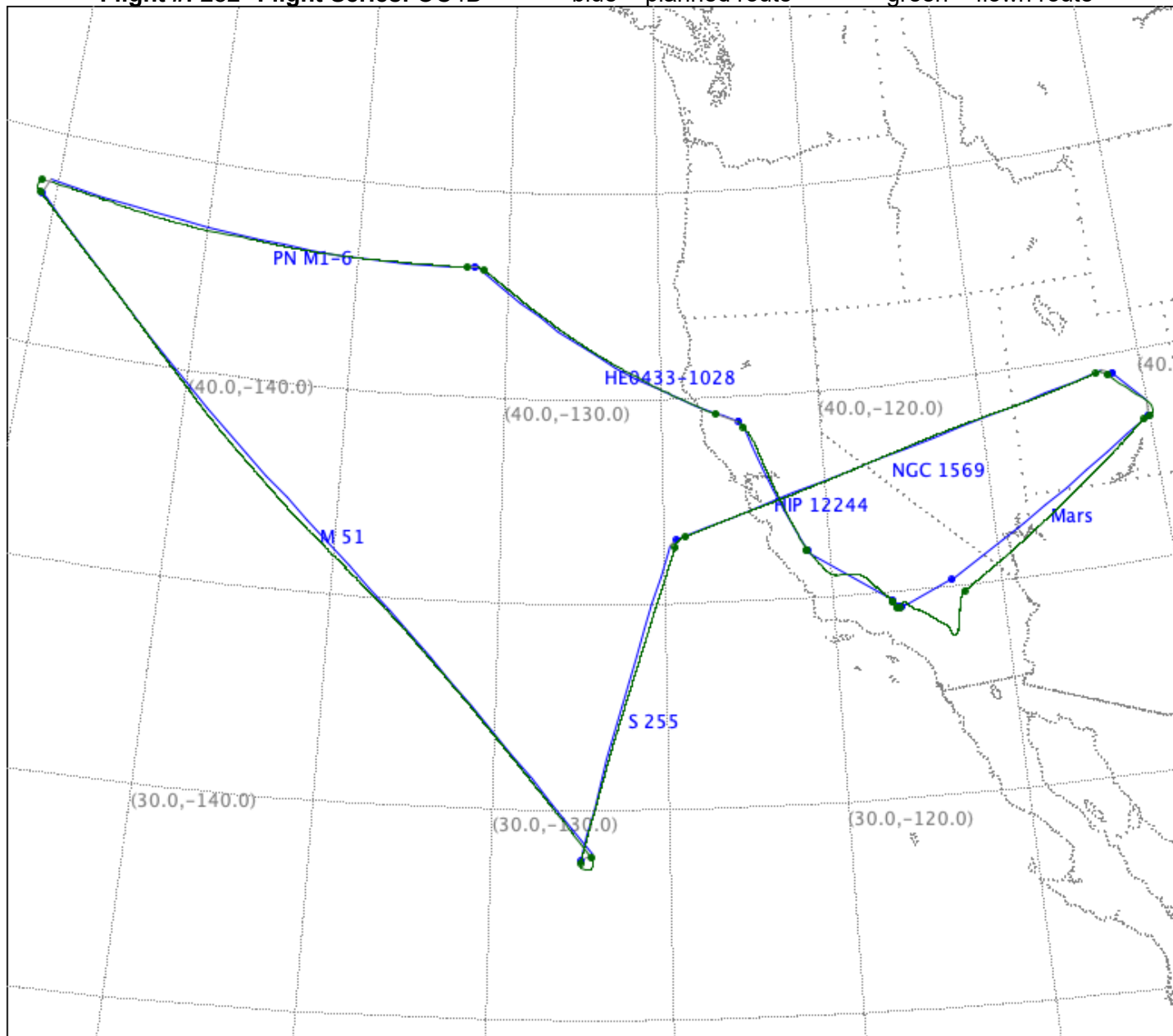
MISSION ID: 2016-03-01_FI_F282

Date: 2016-03-01 UT Instrument: FIFI-LS

Flight #: 282 Flight Series: OC4B

blue = planned route

green = flown route

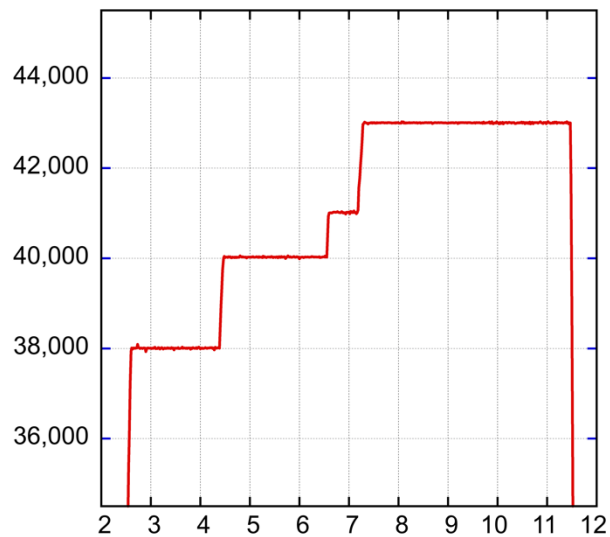


Flight notes: No irregularities.

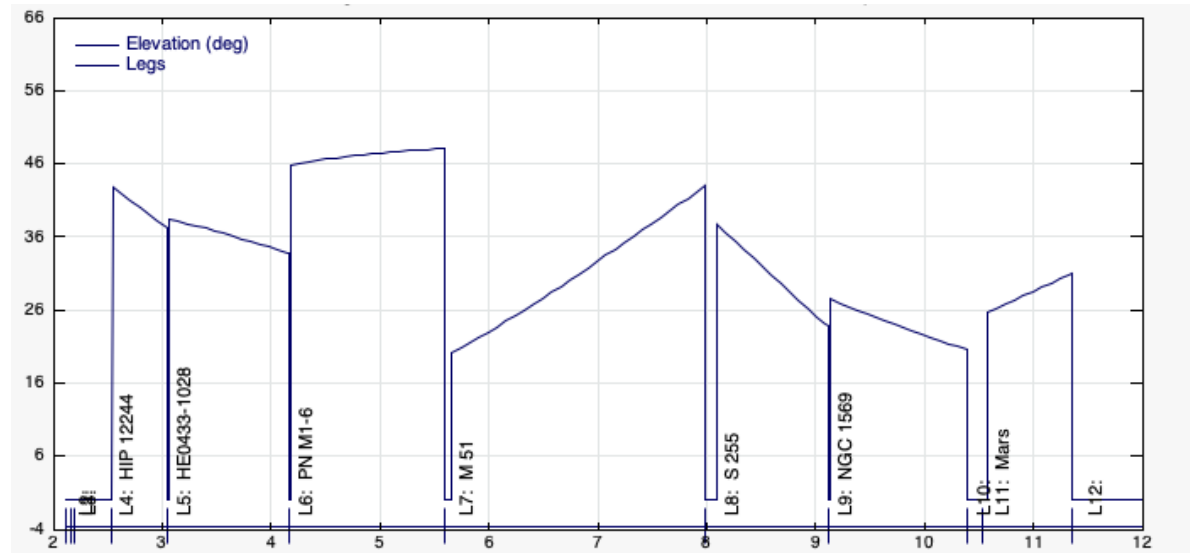
Flight 282 Mission ID 2016-03-01_FI_F282
 Palmdale to Palmdale Take off date UTC: 01-MAR-2016
 Departure UTC: 02:12 Arrival UTC: 11:51

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 12244	02h37m40.15s	03d28m57.5s	2:37	30	
5	04_0056	Husemann	HE0433-1028	04h36m22.24s	-10d22m33.8s	3:08	66	
6	04_0162	Cami	PN M1-6	06h35m45.13s	-00d05m37.4s	4:15	85	
7	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	5:44	140	
8	04_0047	Eisloeffel	S255IR-NIR3	06h12m54.01s	17d59m23.1s	8:10	61	
9	70_0408	GTO	NGC 1569	04h30m51.00s	64d50m50.0s	9:13	75	
11	90_0033	Calibration	Mars	15h44m13.38s	-18d25m57.6s	10:39	47	Bright Moon nearby.

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



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



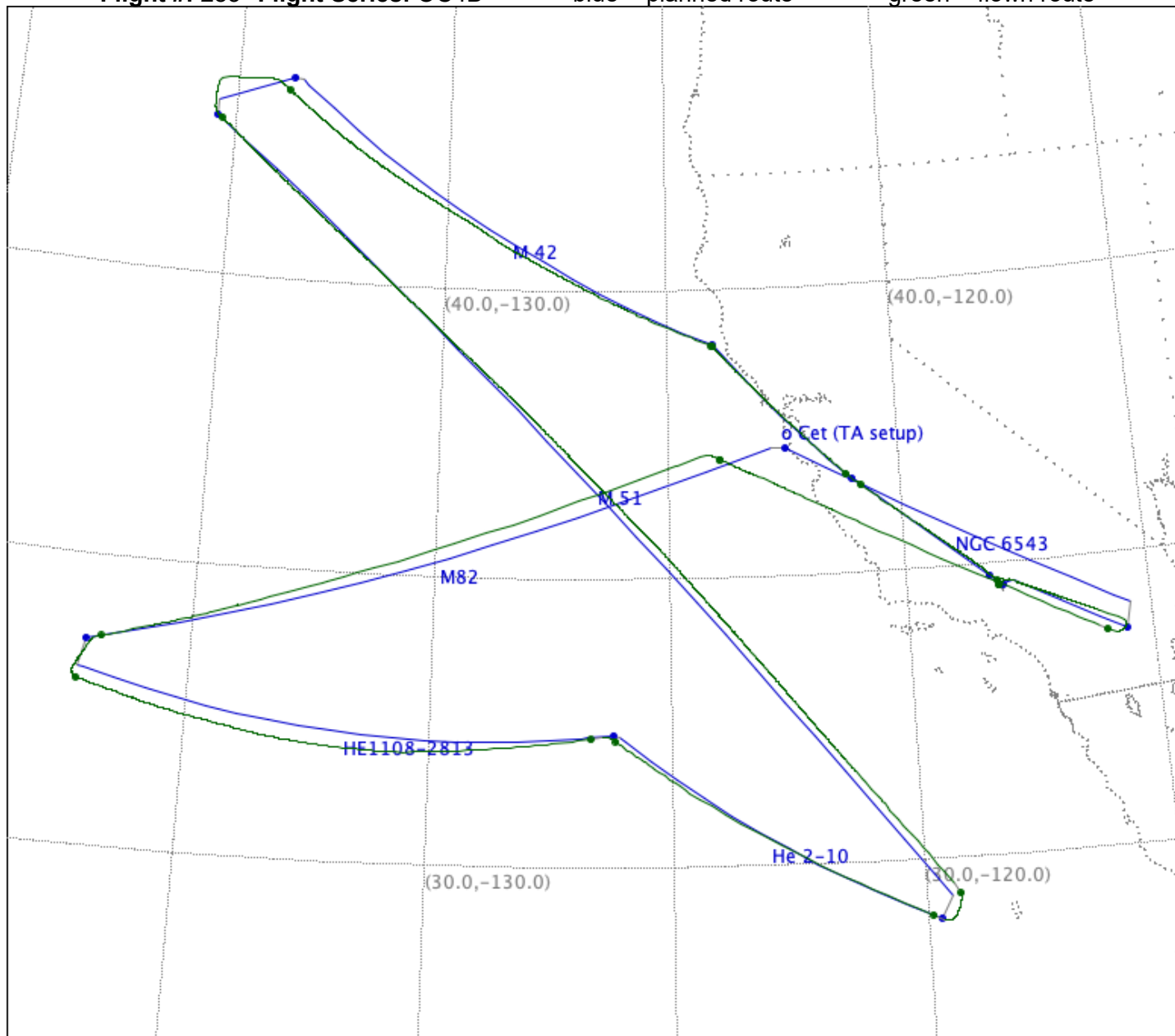
MISSION ID: 2016-03-02_FI_F283

Date: 2016-03-02 UT Instrument: FIFI-LS

Flight #: 283 Flight Series: OC4B

blue = planned route

green = flown route

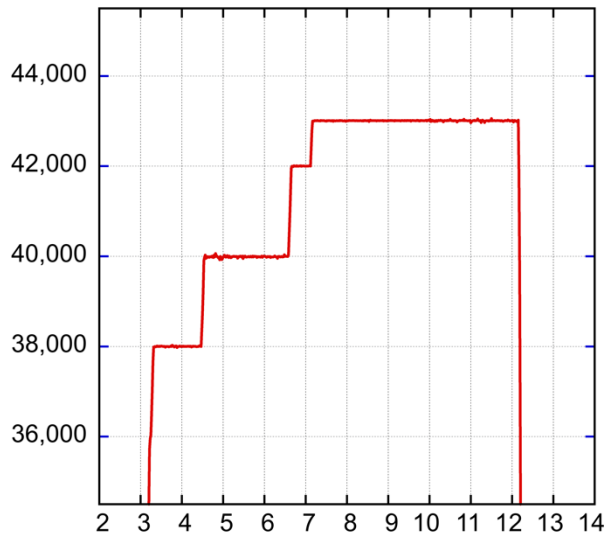


Flight notes: No irregularities.

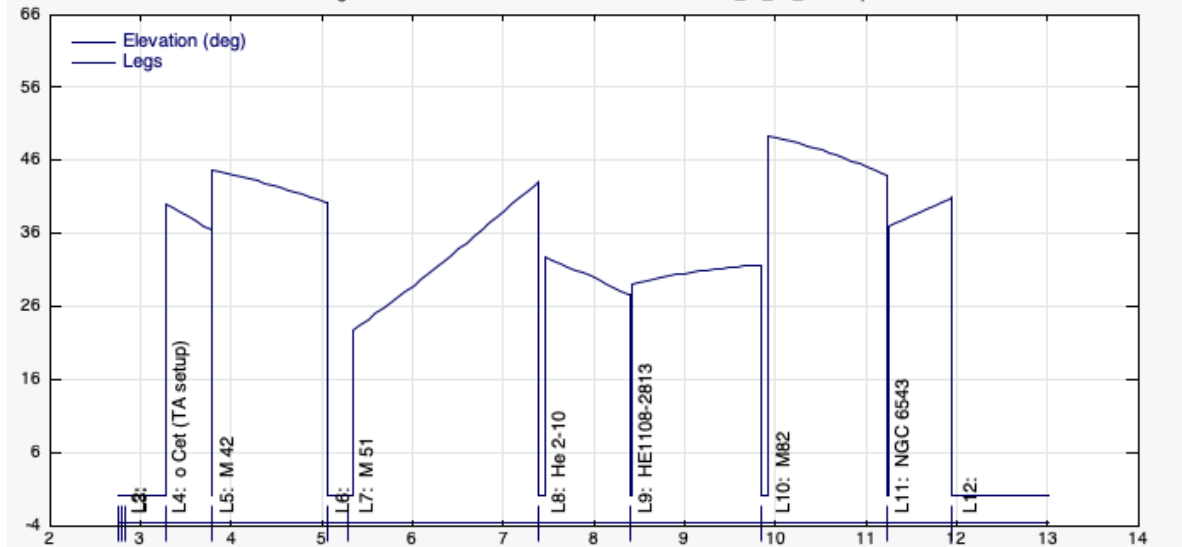
Flight 283 Mission ID 2016-03-02_FI_F283
 Palmdale to Palmdale Take off date UTC: 02-MAR-2016
 Departure UTC: 02:52 Arrival UTC: 12:34

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Omicron Cet	04h15m14.00s	-07d40m06.0s	3:22	30	
5	70_0408	GTO	M42	05h35m15.32s	-05d22m47.7s	3:52	76	Strong turbulence started half-way though leg and repeated threw telescope into standby; 10% loss on leg
7	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	5:26	123	
8	70_0408	GTO	He 2-10	08h36m15.13s	-26d24m33.8s	7:33	56	
9	04_0056	Husemann	HE1108-2813	11h10m48.00s	-28d30m03.8s	8:30	86	
10	70_0408	GTO	M82	09h55m52.20s	69d40m46.6s	10:00	78	
11	90_0030	Calibration	NGC 6543	17h58m33.42s	66d37m59.5s	11:20	42	

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



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



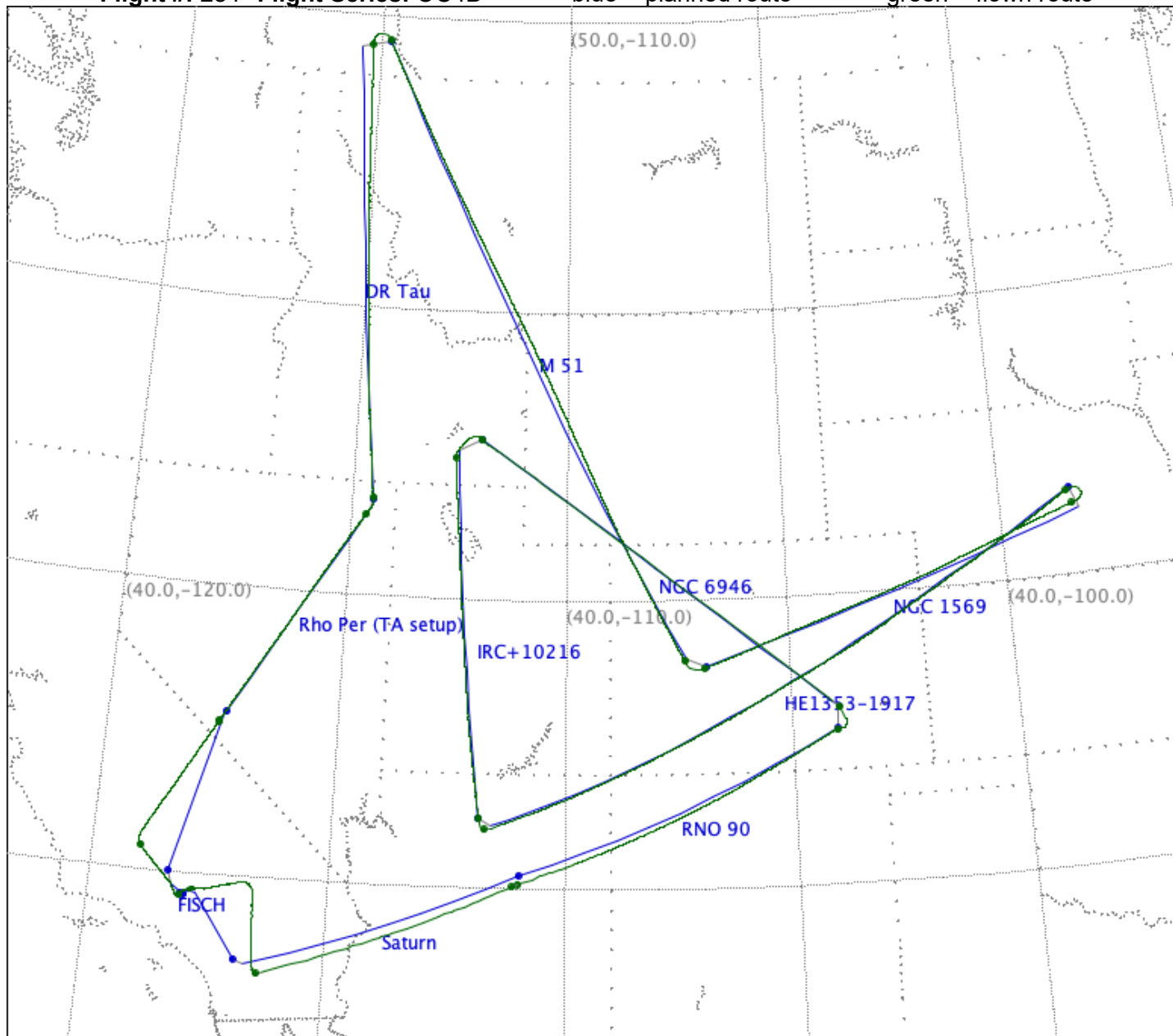
MISSION ID: 2016-03-03_FI_F284

Date: 2016-03-03 UT Instrument: FIFI-LS

Flight #: 284 Flight Series: OC4B

blue = planned route

green = flown route

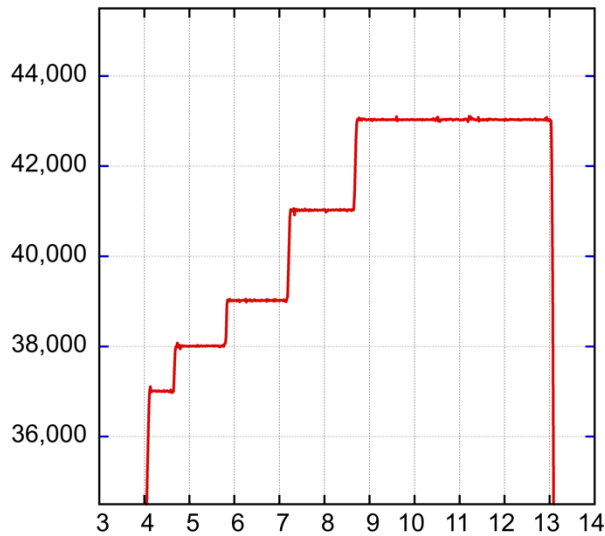


Flight notes: No irregularities.

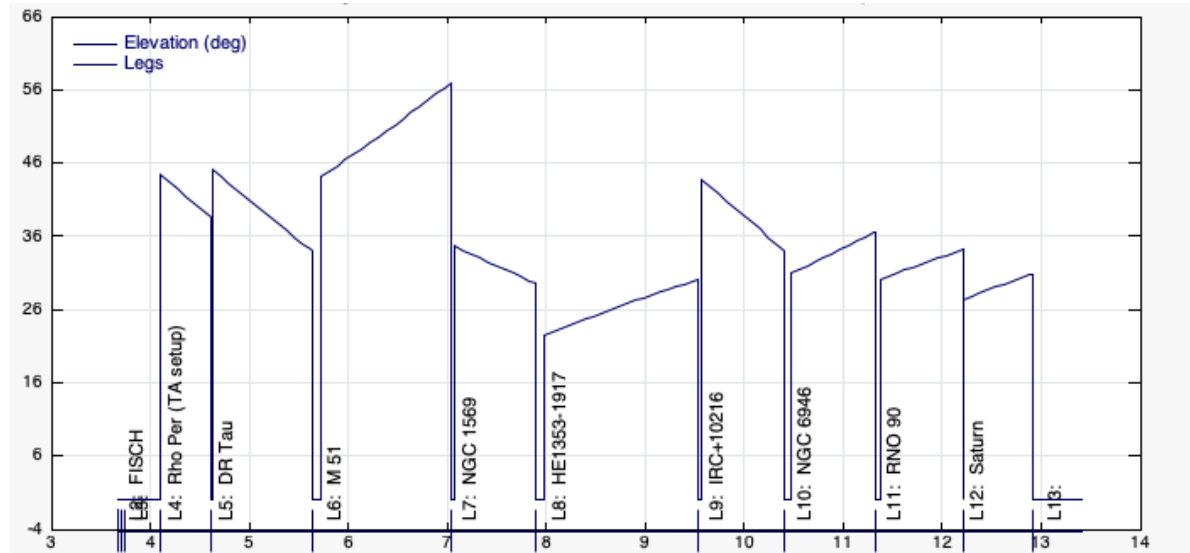
Flight 284 Mission ID 2016-03-03_FI_F284
 Palmdale to Palmdale Take off date UTC: 03-MAR-2016
 Departure UTC: 03:41 Arrival UTC: 13:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Rho Per	03h05m10.80s	38d50m23.0s	4:12	30	
5	04_0178	Carr	DR Tau	04h47m06.21s	16d58m42.8s	4:43	61	
6	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	5:49	79	Vignetting by upper telescope door causing increased noise in data towards end of leg; turbulence.
7	70_0408	GTO	NGC 1569	04h30m51.00s	64d50m50.0s	7:10	49	Turbulence.
8	04_0056	Husemann	HE1353-1917	13h56m36.70s	-19d31m45.1s	8:04	93	
9	90_0030	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	9:40	50	
10	04_0139	Bigiel	NGC 6946	20h34m52.33s	60d09m13.2s	10:34	51	
11	04_0178	Carr	RNO 90	16h34m09.17s	-15d48m16.8s	11:28	50	
12	90_0032	Calibration	Saturn	16h59m01.37s	-20d58m37.9s	12:18	42	

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



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



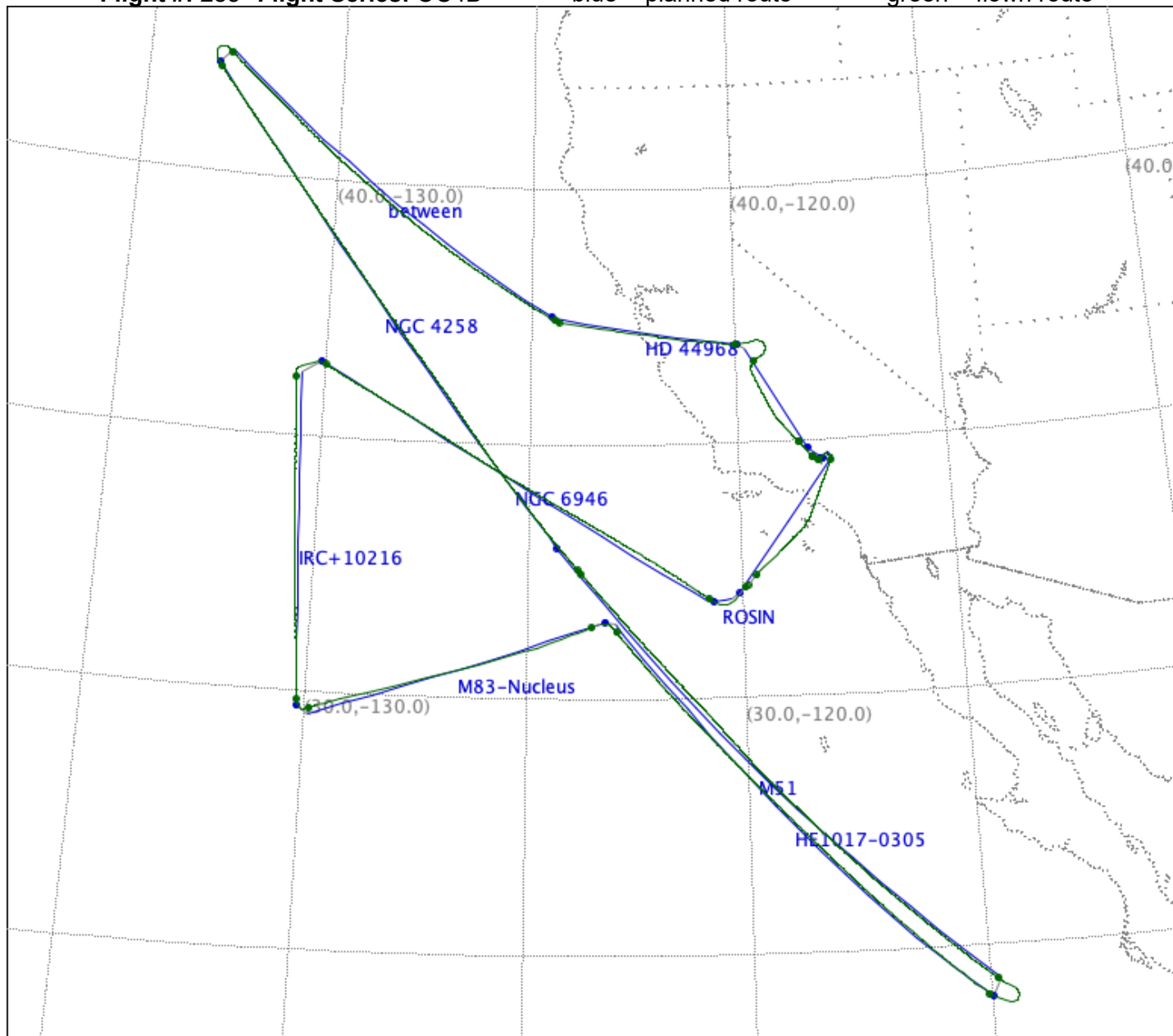
MISSION ID: 2016-03-04_FI_F285

Date: 2016-03-04 UT Instrument: FIFI-LS

Flight #: 285 Flight Series: OC4B

blue = planned route

green = flown route



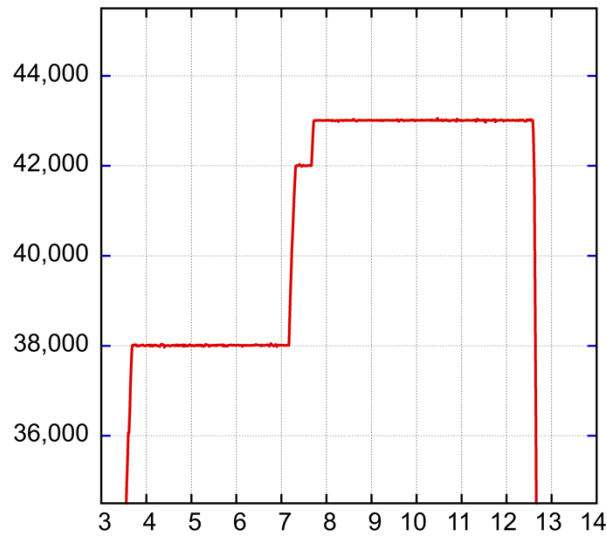
Flight notes:

Air traffic control held aircraft to low altitudes for first three science legs.

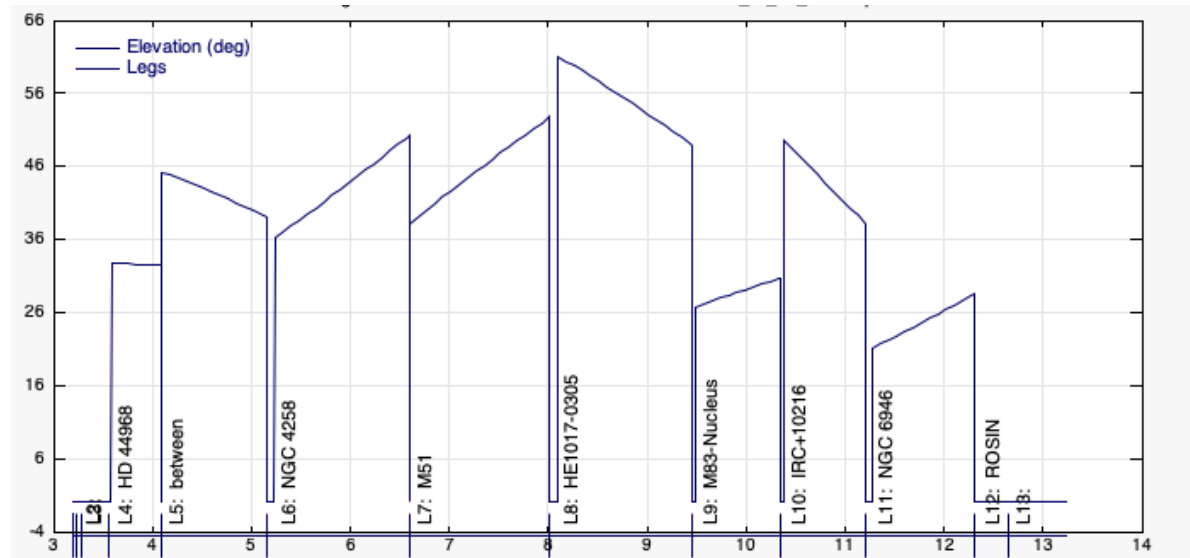
Flight 285 Mission ID 2016-03-04_FI_F285
 Palmdale to Palmdale Take off date UTC: 04-MAR-2016
 Departure UTC: 03:12 Arrival UTC: 13:03

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HD 44968	06h23m53.98s	-20d28m28.7s	3:41	30	
5	70_0408	GTO	M42	05h35m15.32s	-05d22m47.7s	4:11	64	Air traffic control not allowing us to climb in elevation; stuck at 38k ft.
6	04_0017	Appleton	NGC 4258	12h18m57.50s	47d18m14.3s	5:19	82	Air traffic control not allowing us to climb in elevation; stuck at 38k ft.
7	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:42	85	Air traffic control not allowing us to climb above 38k ft until middle of leg.
8	04_0056	Husemann	HE1017-0305	10h19m32.93s	-03d20m14.1s	8:11	82	
9	04_0179	Stacey	M83-Nucleus	13h37m00.60s	-29d51m56.0s	9:35	51	
10	90_0030	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	10:29	49.7	
11	04_0139	Bigiel	NGC 6946	20h34m52.33s	60d09m13.2s	11:22	62	

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



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



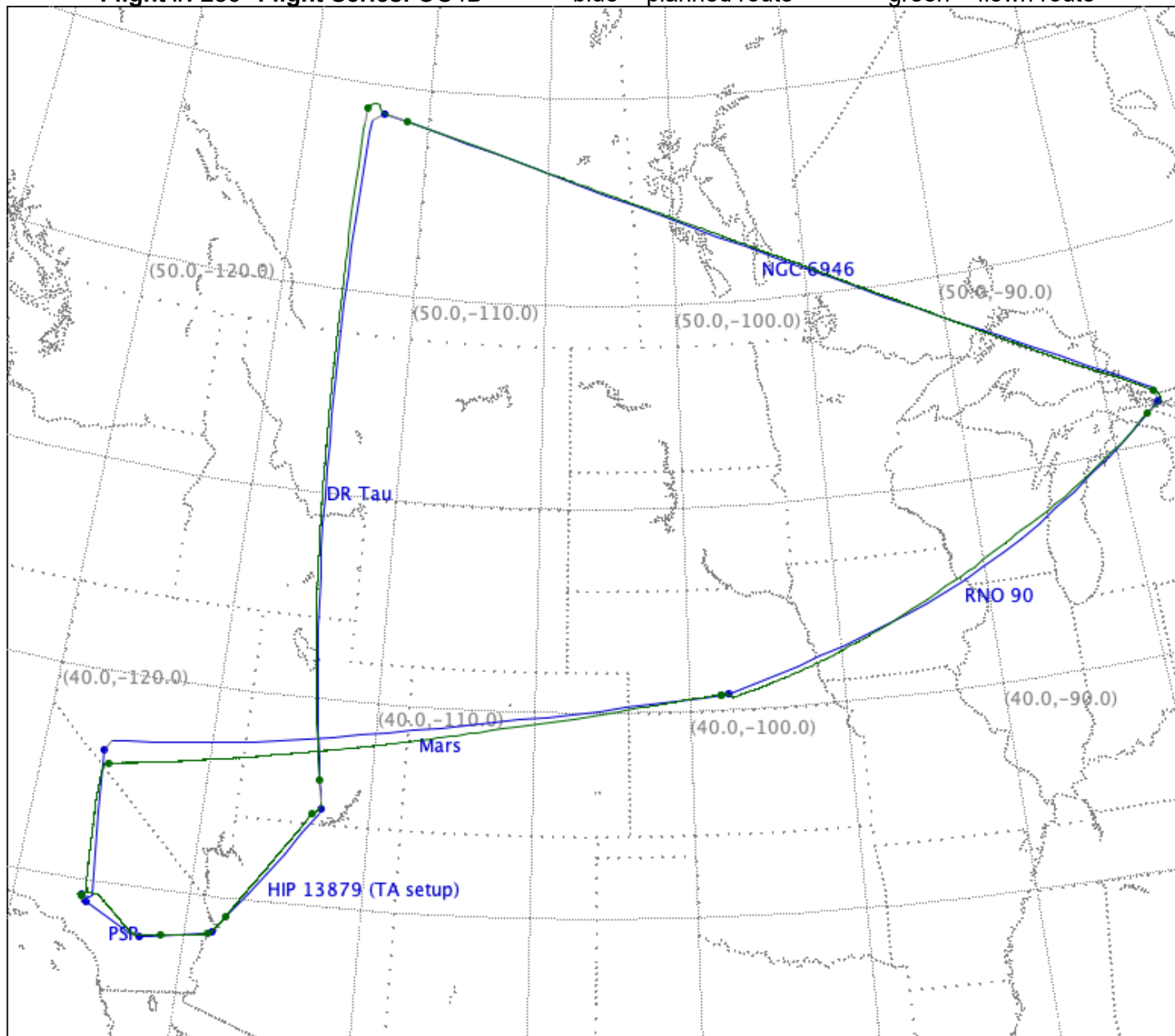
MISSION ID: 2016-03-09_FI_F286

Date: 2016-03-09 UT Instrument: FIFI-LS

Flight #: 286 Flight Series: OC4B

blue = planned route

green = flown route

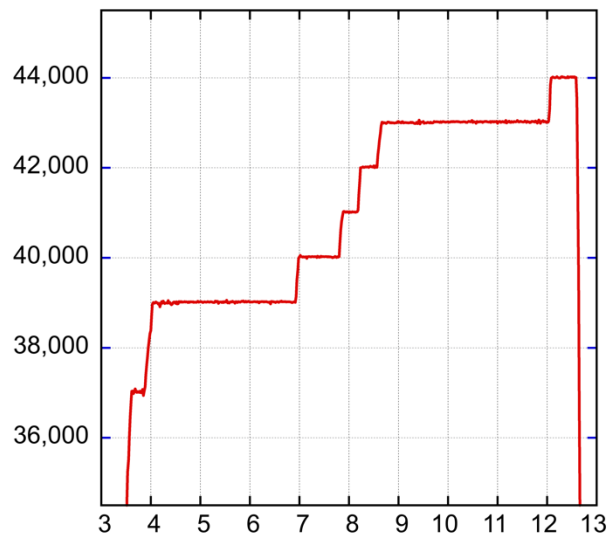


Flight notes: Frequent turbulence.

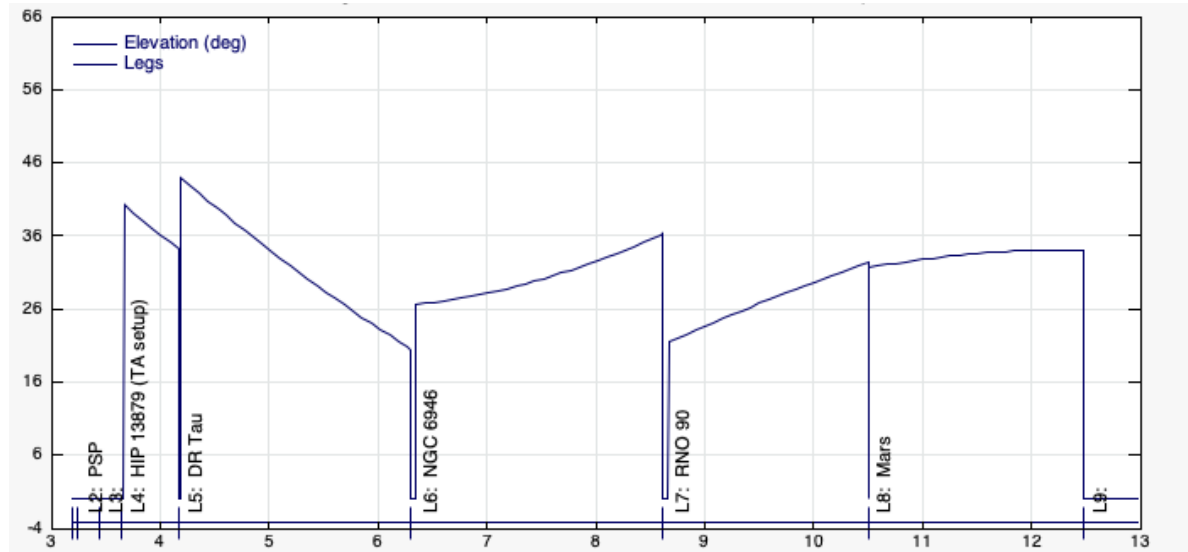
Flight 286 Mission ID 2016-03-09_FI_F286
 Palmdale to Palmdale Take off date UTC: 09-MAR-2016
 Departure UTC: 03:09 Arrival UTC: 12:57

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 13879 (TA setup)	02h58m45.67s	39d39m45.8s	3:42	30	Turbulence.
5	04_0178	Carr	DR Tau	04h47m06.21s	16d58m42.8s	4:13	127	
6	04_0139	Bigiel	NGC 6946	20h34m52.33s	60d09m13.2s	6:23	136	Turbulence.
7	04_0178	Carr	RNO 90	16h34m09.17s	-15d48m16.8s	8:42	110	Turbulence.
8	04_0118	McGuire	MARS	15h56m26.21s	-19d08m36.2s	10:32	118	

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



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



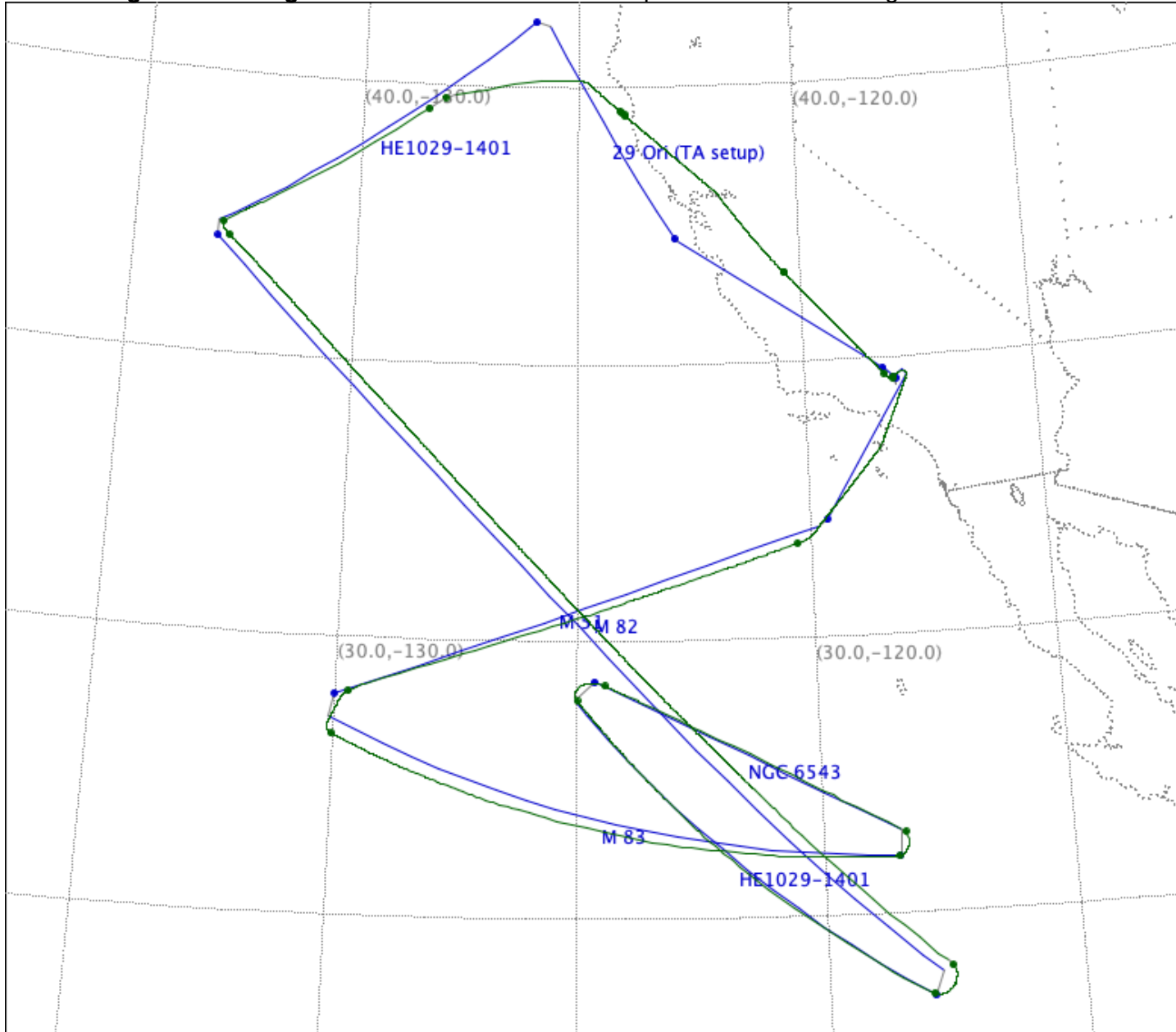
MISSION ID: 2016-03-10_FI_F287

Date: 2016-03-10 UT Instrument: FIFI-LS

Flight #: 287 Flight Series: OC4B

blue = planned route

green = flown route



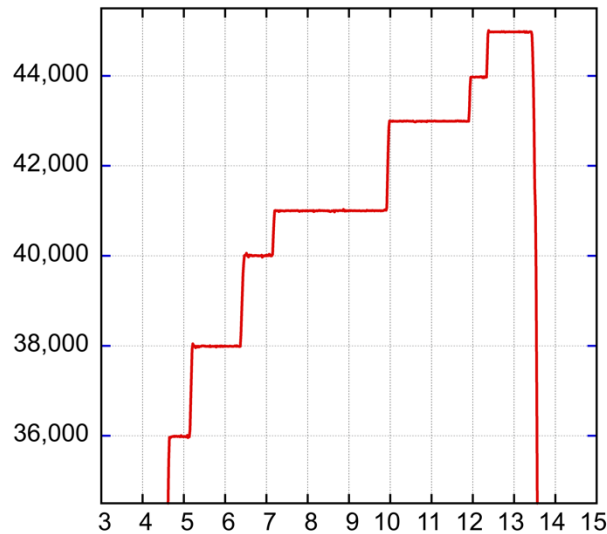
Flight notes:

Late departure; high water vapor in lower latitudes.

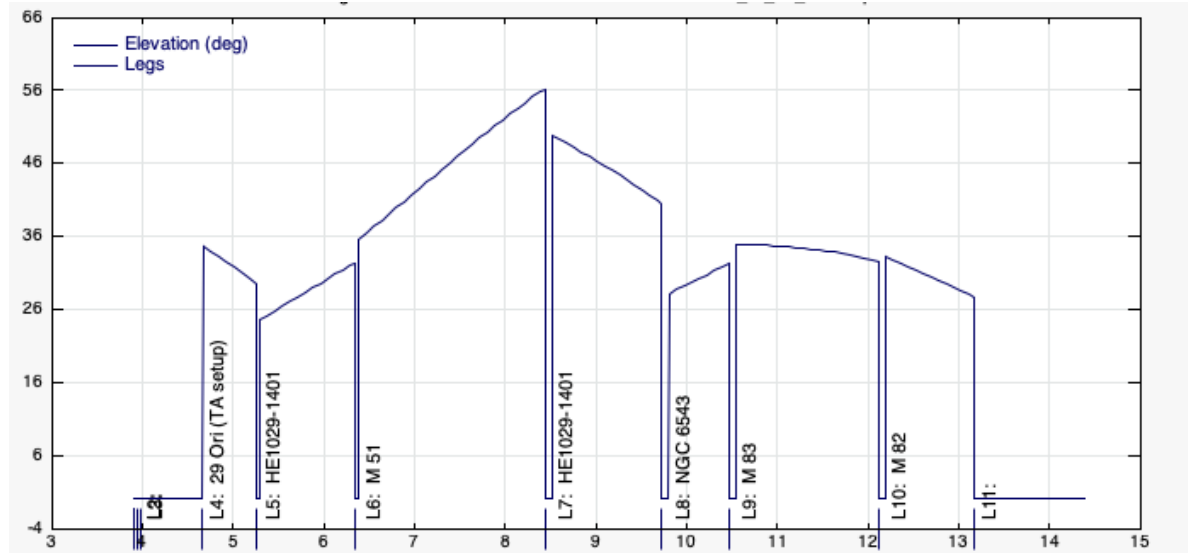
Flight 287 Mission ID 2016-03-10_FI_F287
 Palmdale to Palmdale Take off date UTC: 10-MAR-2016
 Departure UTC: 04:14 Arrival UTC: 13:49

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			e Ori (HIP 25247)	05h23m56.83s	-07d48m29.0s	4:45	35	
5	04_0056	Husemann	HE1029-1401	10h31m54.30s	-14d16m51.0s	5:23	63	Late departure and stuck dichroic in FIFI-LS at beginning of leg led to 50% loss of leg.
6	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:28	123	Vignetting possible at end of leg.
7	04_0056	Husemann	HE1029-1401	10h31m54.30s	-14d16m51.0s	8:36	73	3x higher water vapor than leg 5.
8	90_0030	Calibration	NGC 6543	17h58m33.42s	66d37m59.5s	9:54	40	
9	04_0179	Stacey	M83-Nucleus	13h37m00.60s	-29d51m56.0s	10:38	95	
10	70_0408	GTO	M82	09h55m52.20s	69d40m46.6s	12:17	59	

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



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



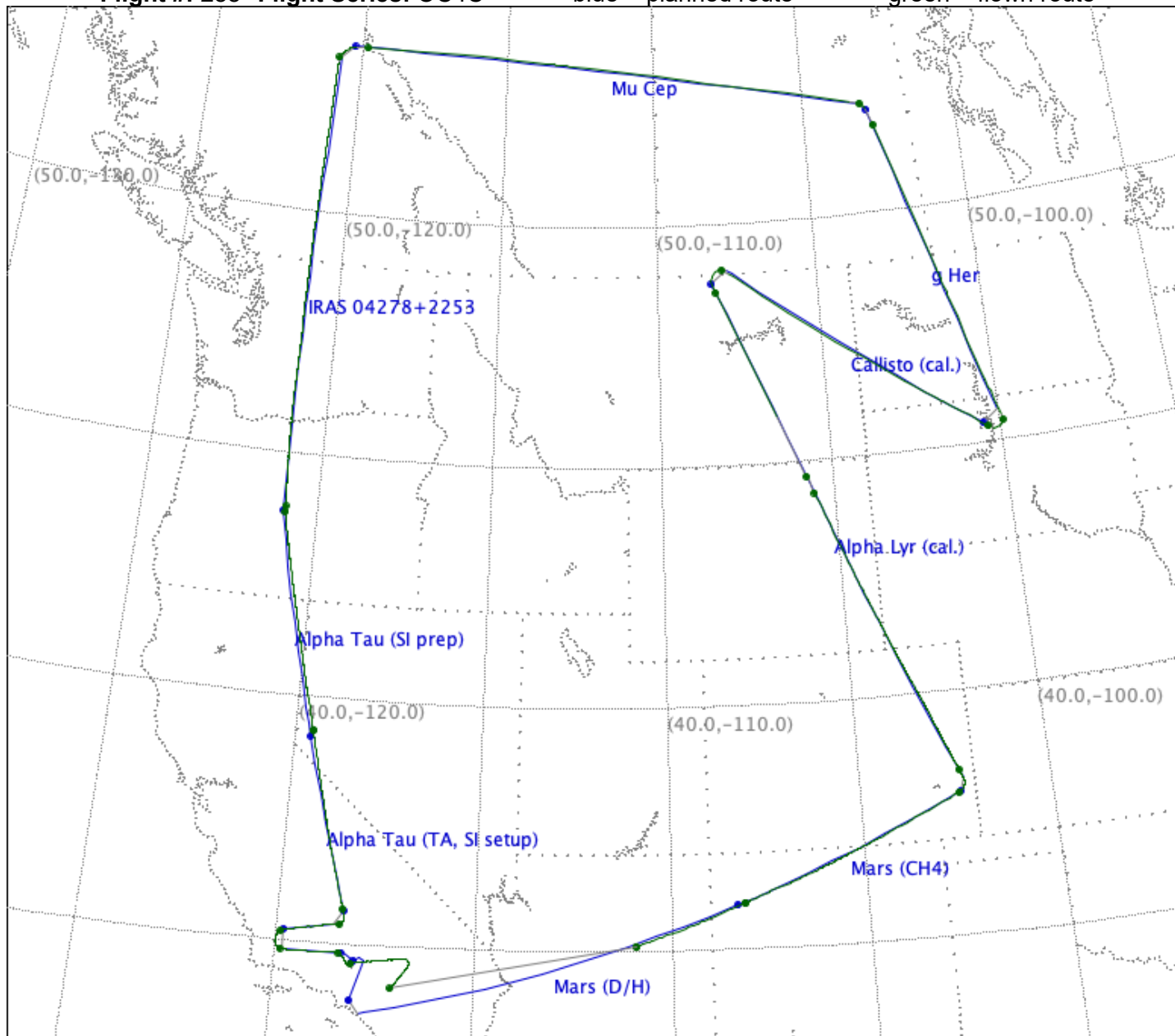
MISSION ID: 2016-03-16_EX_F288

Date: 2016-03-16 UT Instrument: EXES

Flight #: 288 Flight Series: OC4C

blue = planned route

green = flown route

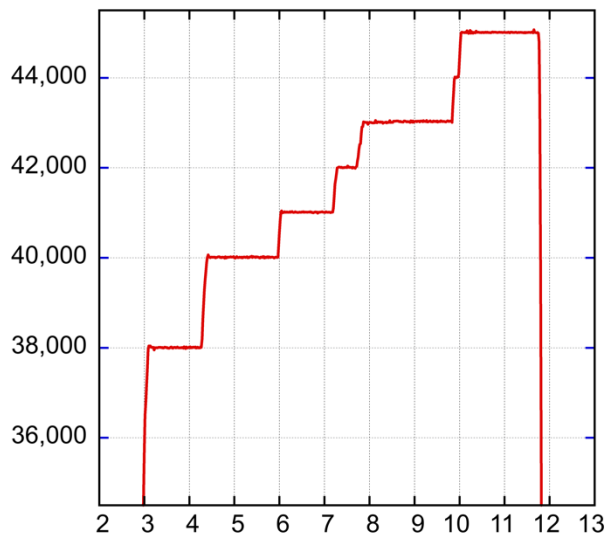


Flight notes: No irregularities.

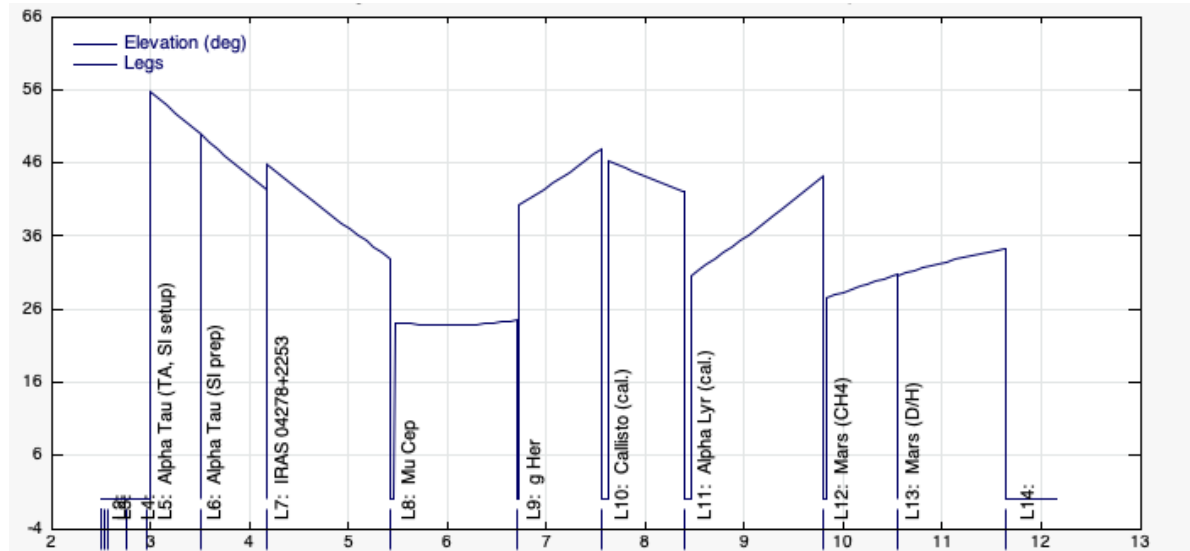
Flight 288 Mission ID 2016-03-16_EX_F288
 Palmdale to Palmdale Take off date UTC: 16-MAR-2016
 Departure UTC: 02:34 Arrival UTC: 12:06

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Alpha Tau (TA; SI setup)	04h35m55.00s	16d30m30.0s	3:05	30	
6			Alpha Tau (SI prep)	04h35m55.00s	16d30m30.0s	3:35	40	
7	04_0180	Sargent	IRAS 04278+2253	04h30m50.28s	23d00m08.9s	4:15	75	
8	04_0136	Harper	mu Cep	21h43m30.46s	58d46m48.2s	5:32	74	
9	04_0136	Harper	g Her	16h28m38.55s	41d52m54.0s	6:48	50	EXES computer network issues; 15min lost
10	04_0136	Harper	Callisto	11h15m00.23s	06d26m28.5s	7:42	46	
11	04_0087	AOKI	vega	18h36m56.34s	38d47m01.3s	8:32	80	Observatory control software crash; 24min lost.
12	04_0087	AOKI	Mars	16h05m51.99s	-19d40m41.2s	9:54	43	
13	04_0018	Encrenaz	MARS	16h05m55.15s	-19d40m51.9s	10:37	66	Observatory control software crash; entire leg lost.

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



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



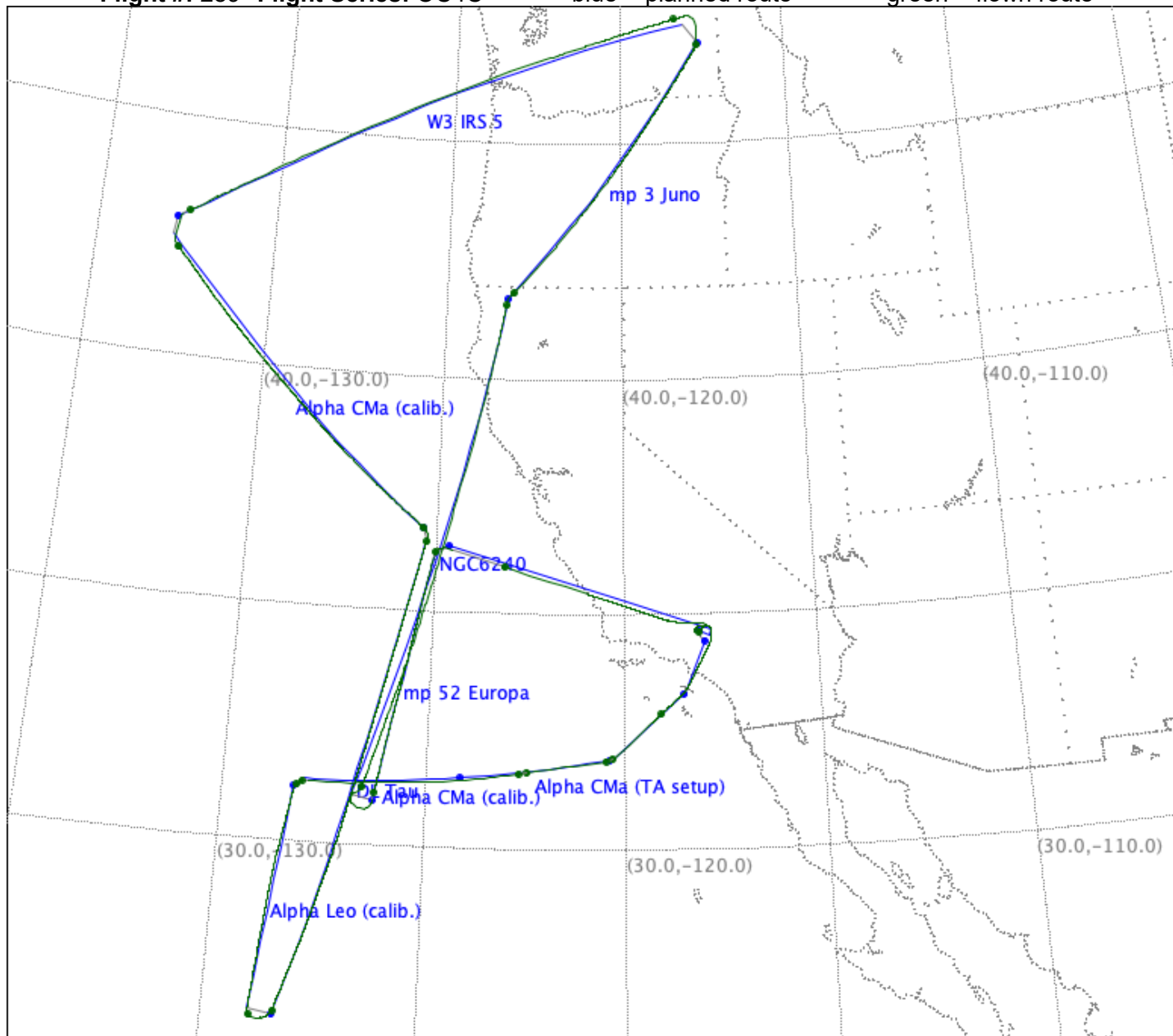
MISSION ID: 2016-03-18_EX_F289

Date: 2016-03-18 UT Instrument: EXES

Flight #: 289 Flight Series: OC4C

blue = planned route

green = flown route

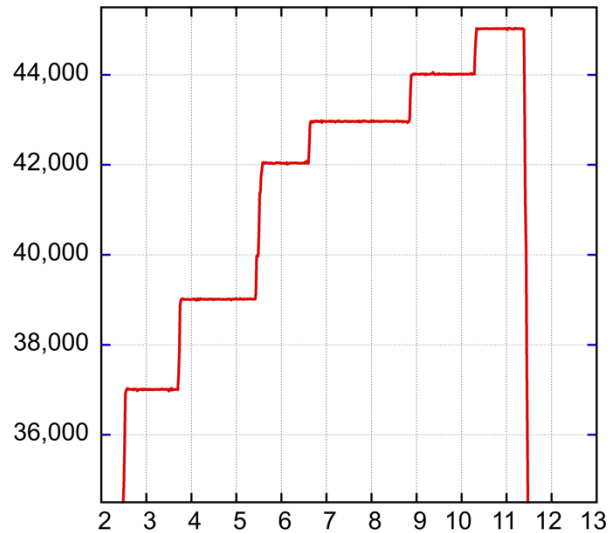


Flight notes: No irregularities.

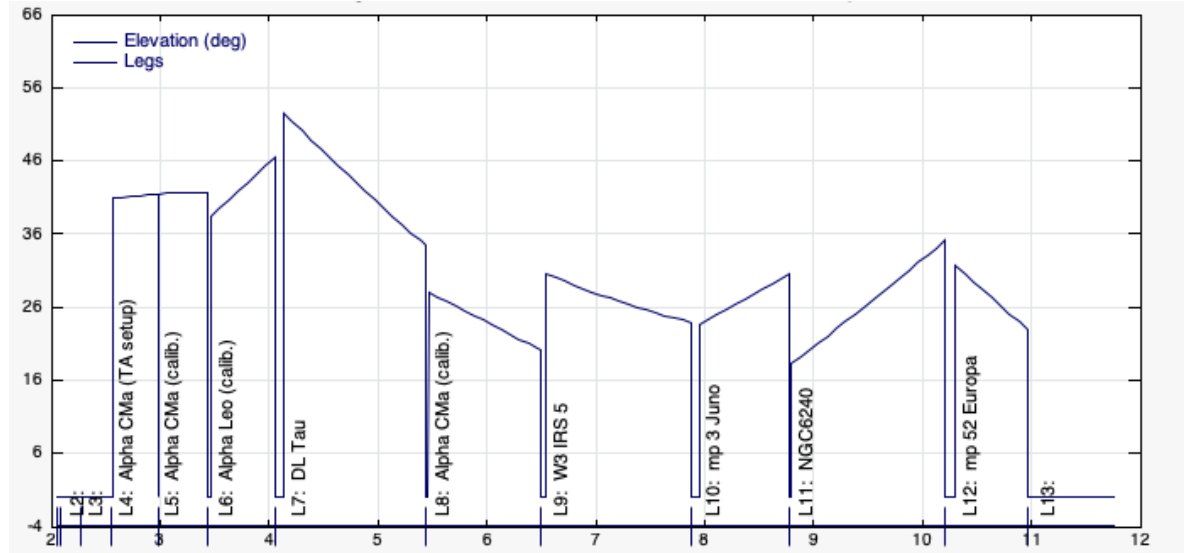
Flight 289 Mission ID 2016-03-18_EX_F289
 Palmdale to Palmdale Take off date UTC: 18-MAR-2016
 Departure UTC: 02:06 Arrival UTC: 11:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha CMa (TA setup)	06h45m08.92s	-16d42m58.0s	2:36	25	
5	04_0120	Indriolo	Sirius	06h45m08.92s	-16d42m58.0s	3:01	27	
6	04_0188	Sargent	alpha Leo	10h08m22.31s	11d58m02.0s	3:30	35	
7	04_0188	Sargent	DL Tau	04h33m39.06s	25d20m38.2s	4:10	78	
8	04_0120	Indriolo	Sirius	06h45m08.92s	-16d42m58.0s	5:30	62	
9	04_0120	Indriolo	W3 IRS 5	02h25m40.54s	62d05m51.4s	6:35	80	
10	03_0065	Rangwala	3 Juno	15h00m26.85s	-05d14m39.8s	7:59	50	Observatory control software crash; 10min lost.
11	03_0065	Rangwala	NGC6240	16h52m58.87s	02d24m03.3s	8:50	85	
12	03_0065	Rangwala	52 Europa	09h26m51.13s	19d19m03.4s	10:20	40	Observatory control software crash; 10min lost.

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



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



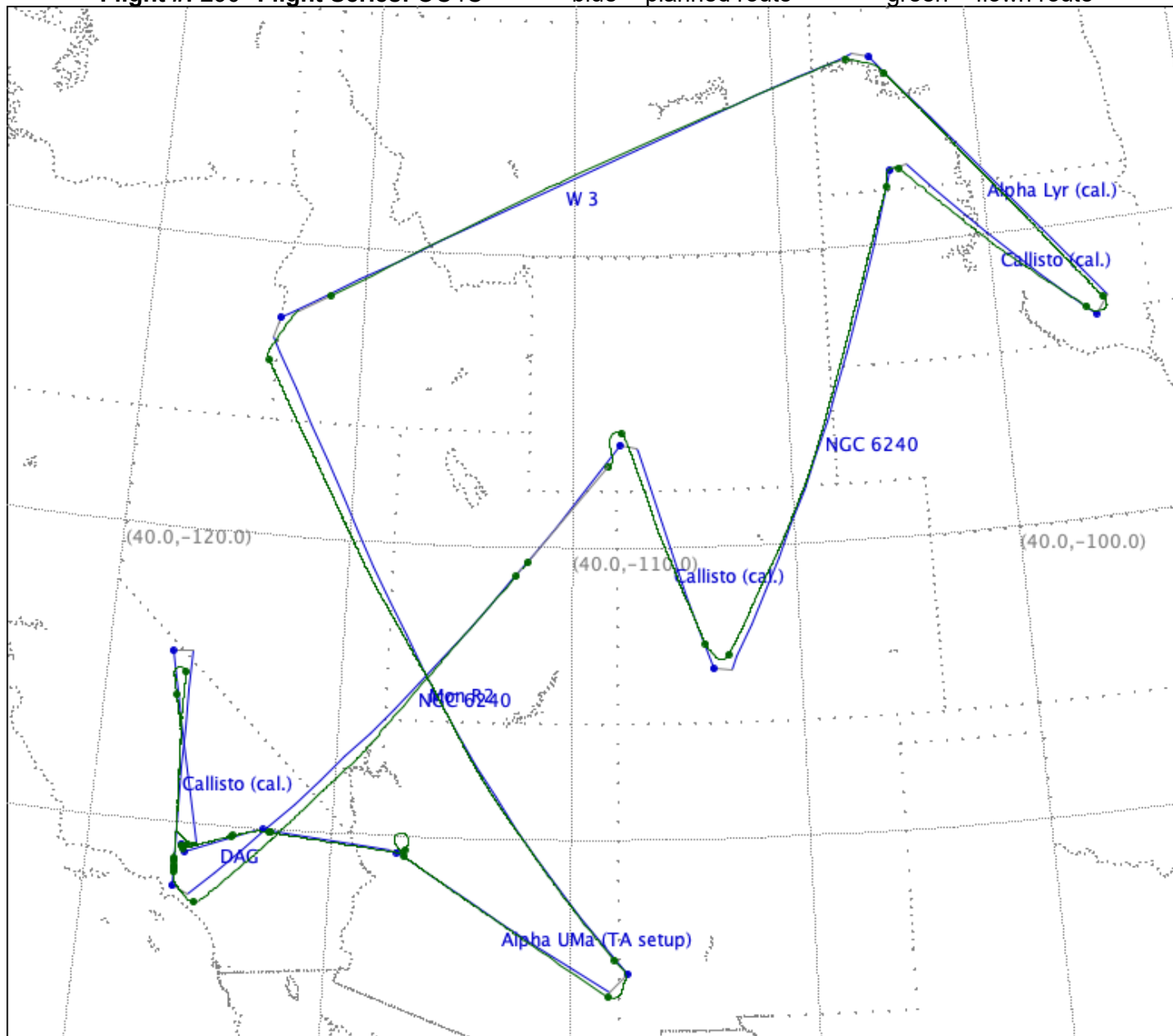
MISSION ID: 2016-03-22_EX_F290

Date: 2016-03-22 UT Instrument: EXES

Flight #: 290 Flight Series: OC4C

blue = planned route

green = flown route

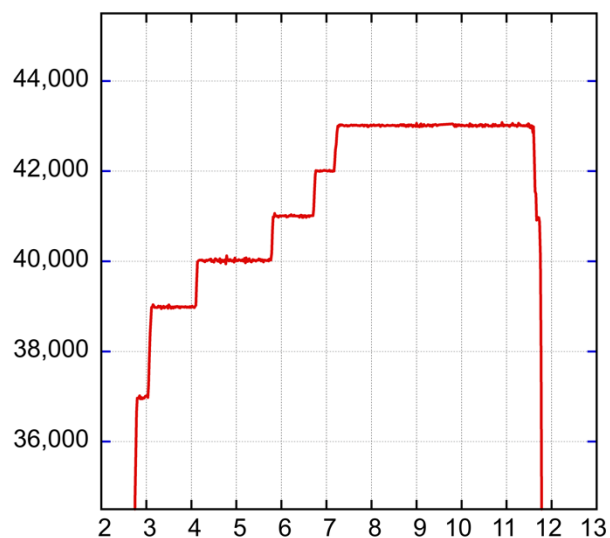


Flight notes: No irregularities.

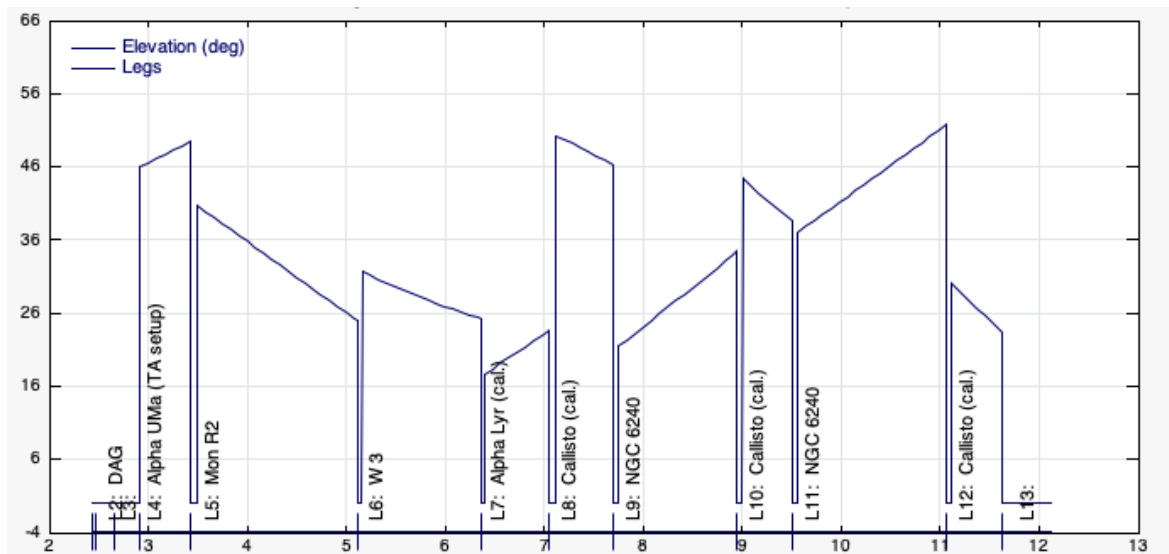
Flight 290 Mission ID 2016-03-22_EX_F290
 Palmdale to Palmdale Take off date UTC: 22-MAR-2016
 Departure UTC: 02:21 Arrival UTC: 12:13

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha UMa (TA setup)	11h03m43.00s	61d45m03.0s	2:57	30	
5	04_0120	Indriolo	Mon R2 IRS 3	06h07m47.81s	-06d22m54.8s	3:32	97	Haze/cirrus causing high backgrounds in EXES data
6	04_0153	Boogert	W3 IRS5	02h25m40.54s	62d05m51.4s	5:11	72	
7	86_0001	Commissioning	alpha lyr	18h36m56.34s	38d47m01.3s	6:25	39	
8	03_0065	Rangwala	Callisto	11h11m18.36s	06d49m54.4s	7:08	35	Very close to Moon; acquisition took long
9	03_0065	Rangwala	NGC6240	16h52m58.87s	02d24m03.3s	7:46	72	
10	03_0065	Rangwala	Callisto	11h11m16.26s	06d50m06.7s	9:02	30.3	
11	03_0065	Rangwala	NGC6240	16h52m58.87s	02d24m03.3s	9:35	90	Observatory control software crash and trouble reacquiring target led to 50min loss
12	03_0065	Rangwala	Callisto	11h11m14.19s	06d50m18.7s	11:08	30	

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



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



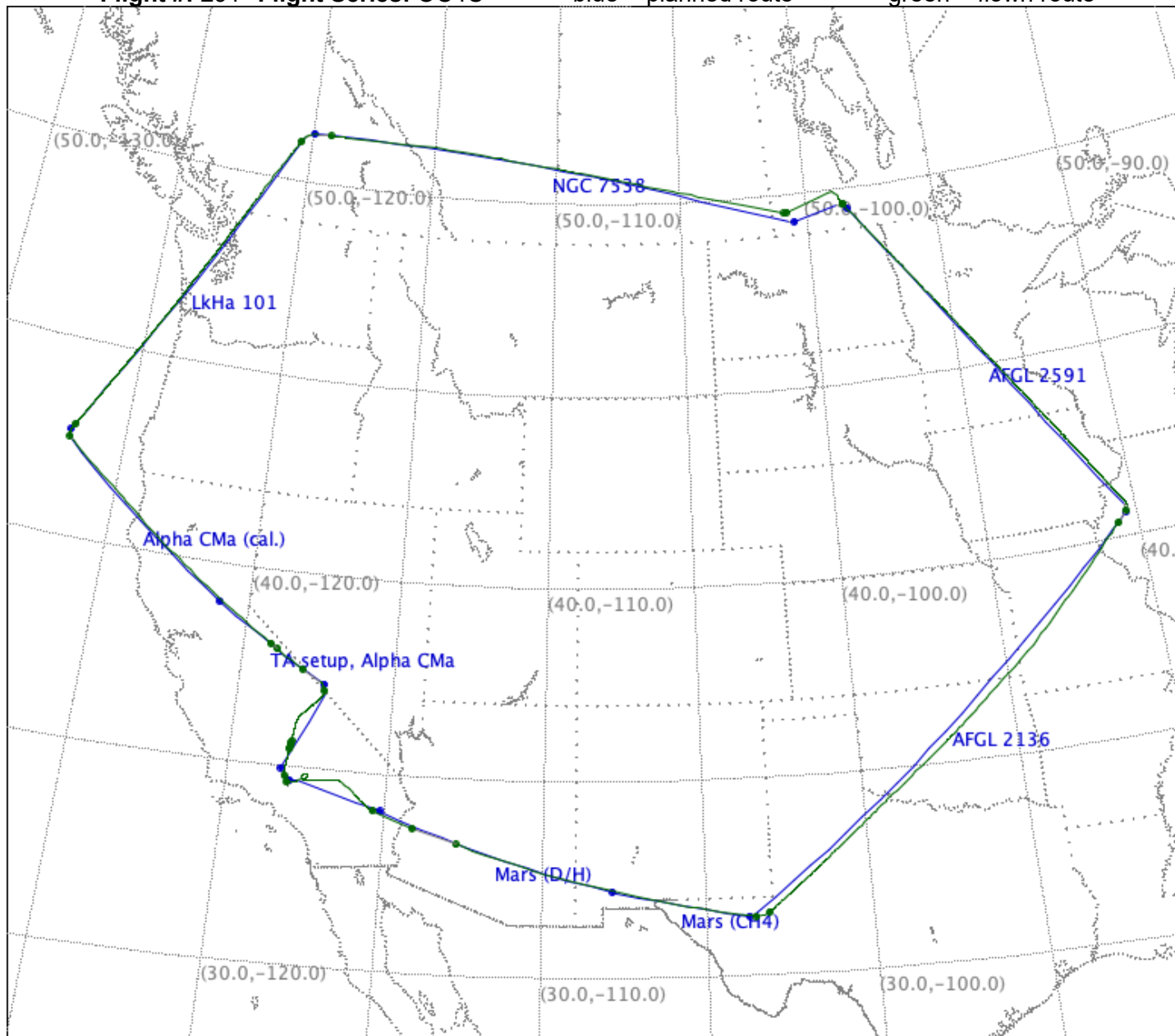
MISSION ID: 2016-03-24_EX_F291

Date: 2016-03-24 UT Instrument: EXES

Flight #: 291 Flight Series: OC4C

blue = planned route

green = flown route

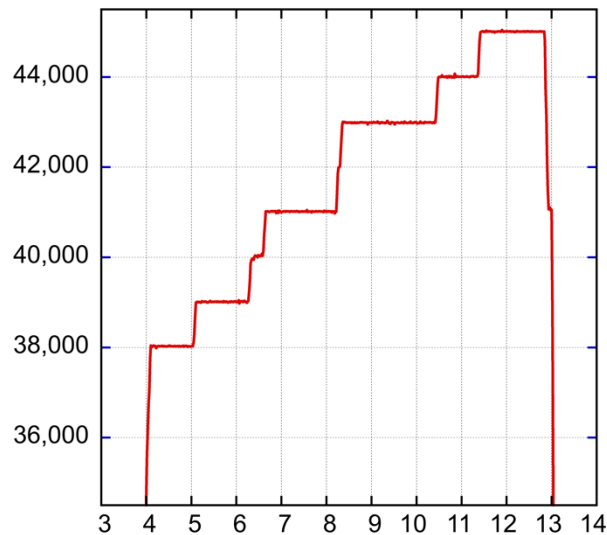


Flight notes:
No irregularities.

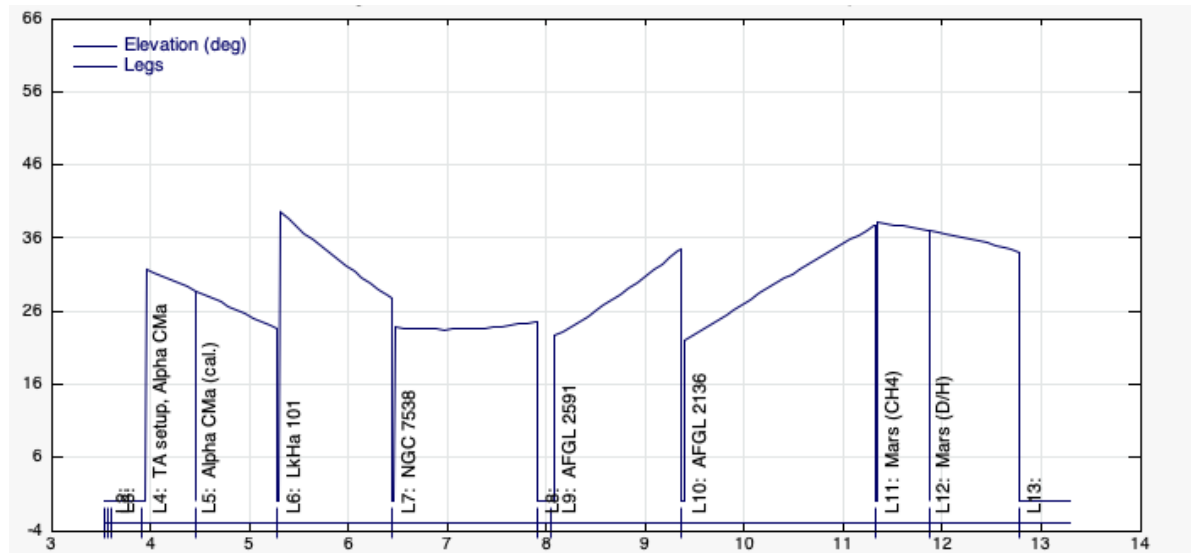
Flight 291 Mission ID 2016-03-24_EX_F291
 Palmdale to Palmdale Take off date UTC: Departure UTC: Arrival UTC:
 Palmdale 24-MAR-2016 03:37 13:26

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha CMa (TA setup)	06h45m08.92s	-16d42m58.0s	4:03	30	
5	04_0120	Indriolo	Sirius	06h45m08.92s	-16d42m58.0s	4:33	49	
6	04_0030	Sandell	LkHa 101	04h30m14.44s	35d16m24.0s	5:24	68	
7	04_0120	Indriolo	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	6:33	86	
9	04_0120	Indriolo	AFGL 2591	20h29m24.87s	40d11m19.4s	8:10	77	
10	04_0120	Indriolo	AFGL 2136	18h22m26.59s	-13d30m15.7s	9:29	116	
11	04_0087	AOKI	Mars	16h15m08.65s	-20d12m39.2s	11:26	31	
12	04_0018	Encrenaz	MARS	16h15m08.65s	-20d12m39.2s	11:57	55	Some pointing stability issues

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



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



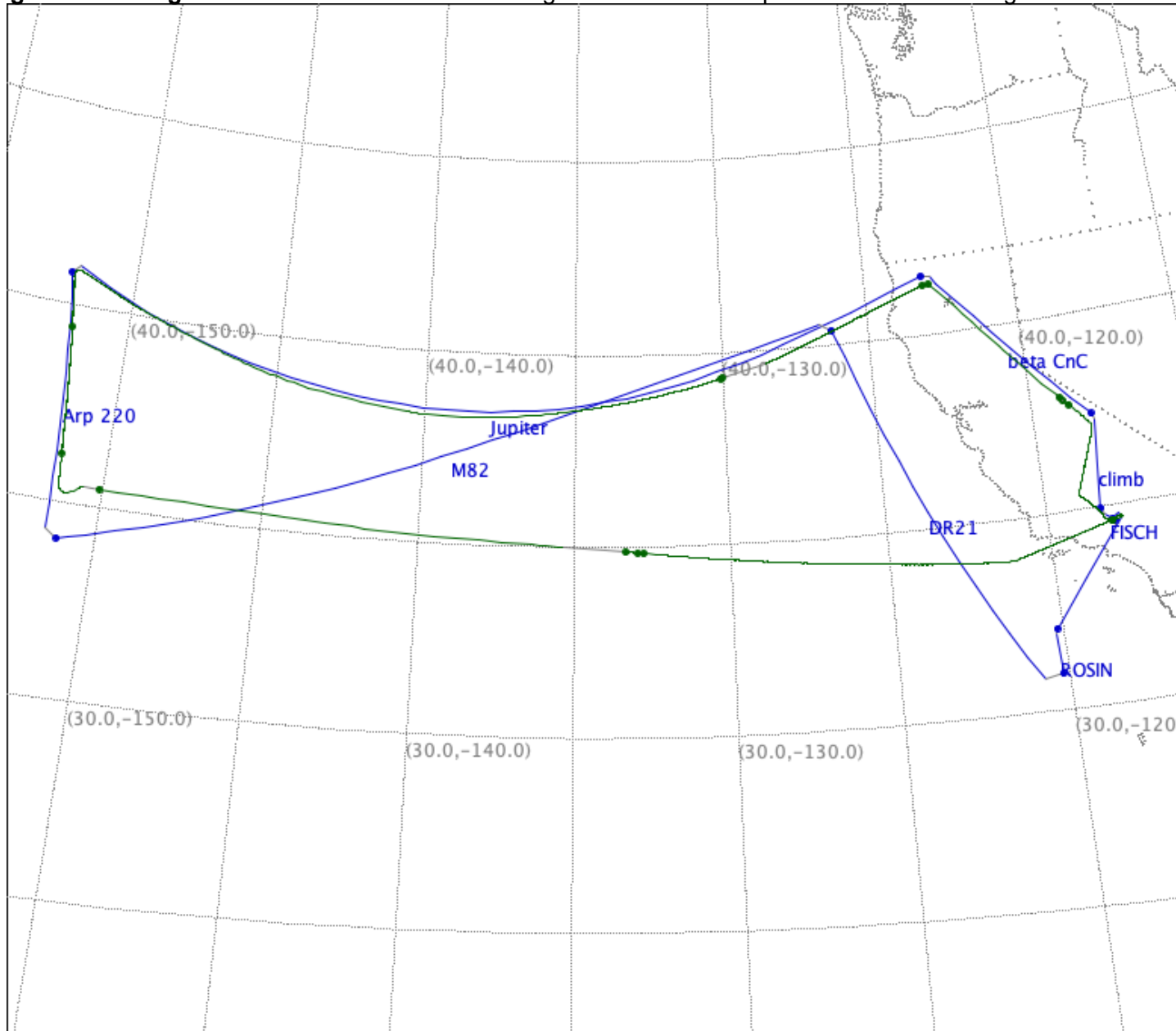
MISSION ID: 2016-04-28_HA_F293

Date: 2016-04-28 UT Instrument: HAWC+

Flight #: 293 Flight Series: HAWC+ Commissioning #1

blue = planned route

green = flown route



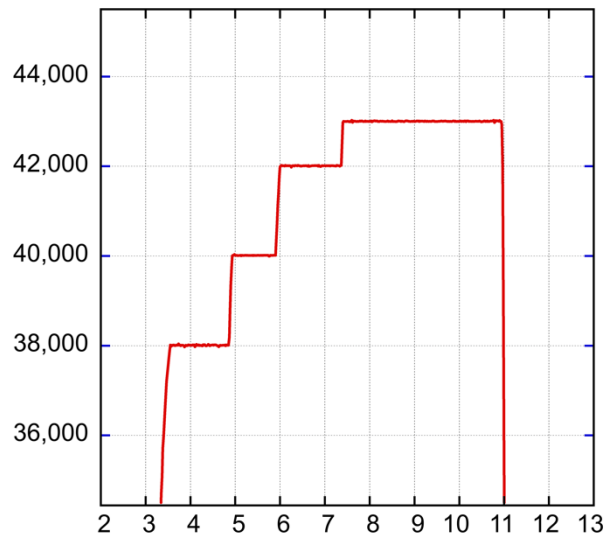
Flight notes:

HAWC+ commissioning flight, mostly engineering data collected. HAWC+ temperature control failed mid-flight; major replan mid-flight to execute instrument engineering tests to diagnose.

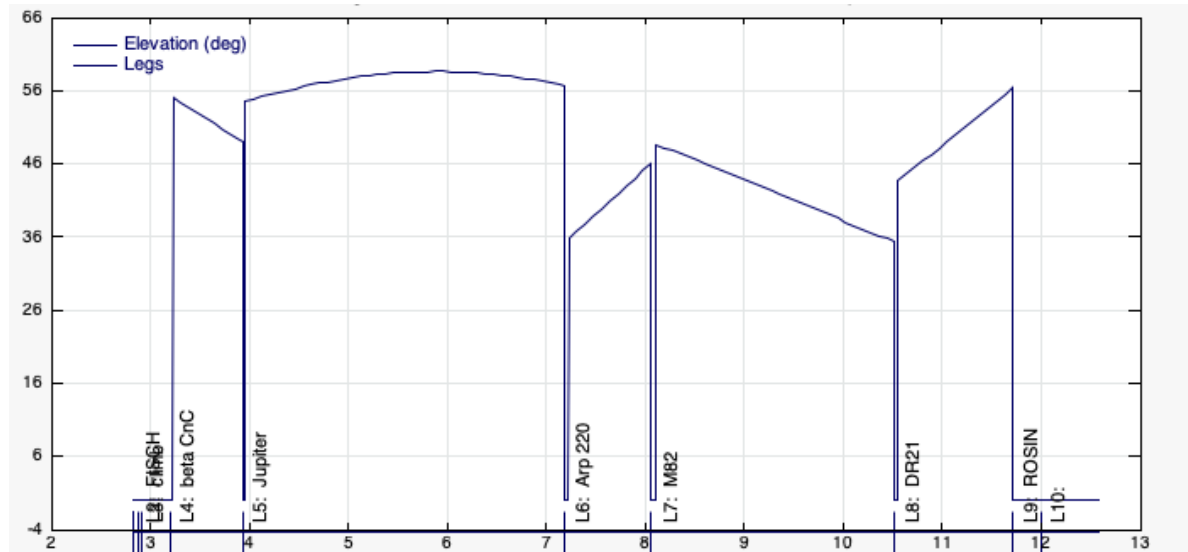
Flight 293 Mission ID 2016-04-28_HA_F293
 Palmdale to Palmdale Take off date UTC: 28-APR-2016
 Departure UTC: 02:57 Arrival UTC: 11:30

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 40526	08h16m30.92s	09d11m08.0s	3:20	42	
5	88_0002	Dowell	Jupiter Barycenter	11h00m19.03s	07d53m14.2s	4:03	193	Observatory control software crash; some time lost.
6	88_0001	Dowell	Arp 220	15h34m57.22s	23d30m11.6s	7:19	50	Issues with HAWC+ temperature and temperature control led to diagnosing the problems all leg; no science data collected
7	88_0001	Dowell	M82	09h55m52.73s	69d40m45.8s	8:12	144	Replaced with observations of Polaris to continue tests
8	88_0001	Dowell	DR21	20h39m01.60s	42d19m37.9s	10:39	70	Leg not flown due to in-flight replan.

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



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



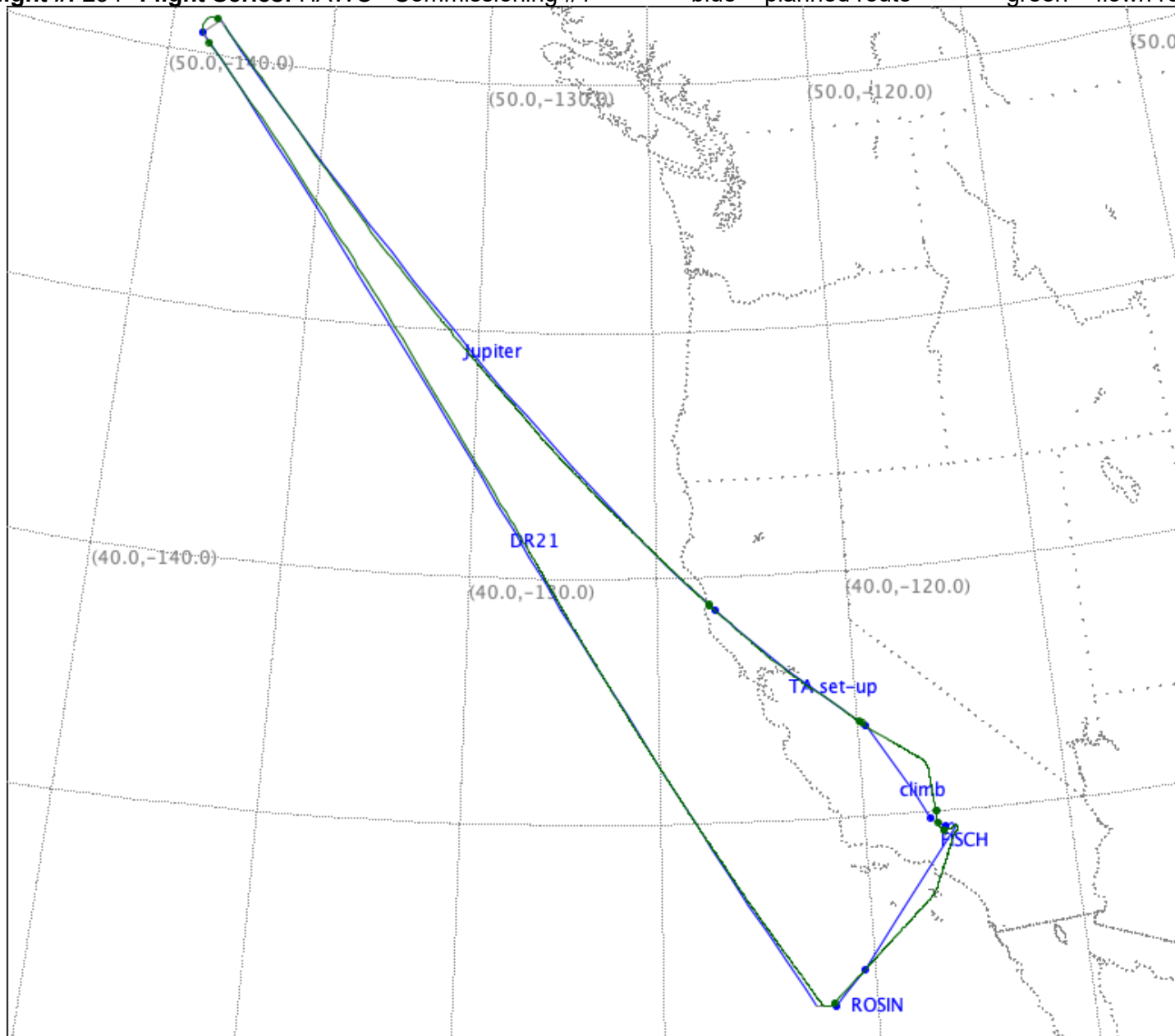
MISSION ID: 2016-05-03_HA_F294

Date: 2016-05-03 UT Instrument: HAWC+

Flight #: 294 Flight Series: HAWC+ Commissioning #1

blue = planned route

green = flown route



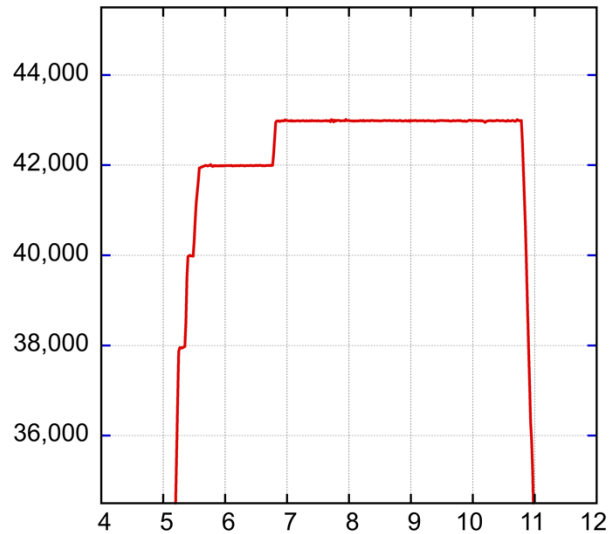
Flight notes:

HAWC+ commissioning flight, mostly engineering data collected.

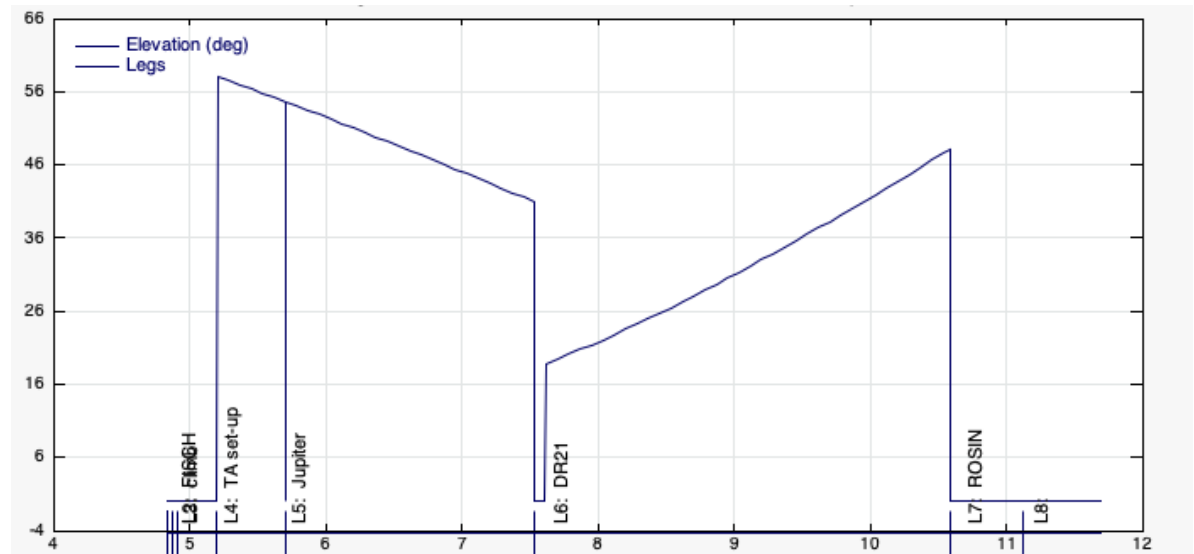
Flight 294 Mission ID 2016-05-03_HA_F294
 Palmdale to Palmdale Take off date UTC: 03-MAY-2016
 Departure UTC: 04:54 Arrival UTC: 11:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	88_0002	Dowell	Jupiter Barycenter	10h59m47.19s	07d55m28.6s	5:18	30	
5	88_0002	Dowell	Jupiter Barycenter	10h59m47.19s	07d55m28.6s	5:48	110	
6	88_0001	Dowell	DR21	20h39m01.60s	42d19m37.9s	7:43	178	HAWC+ cooling failed mid-leg.

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



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



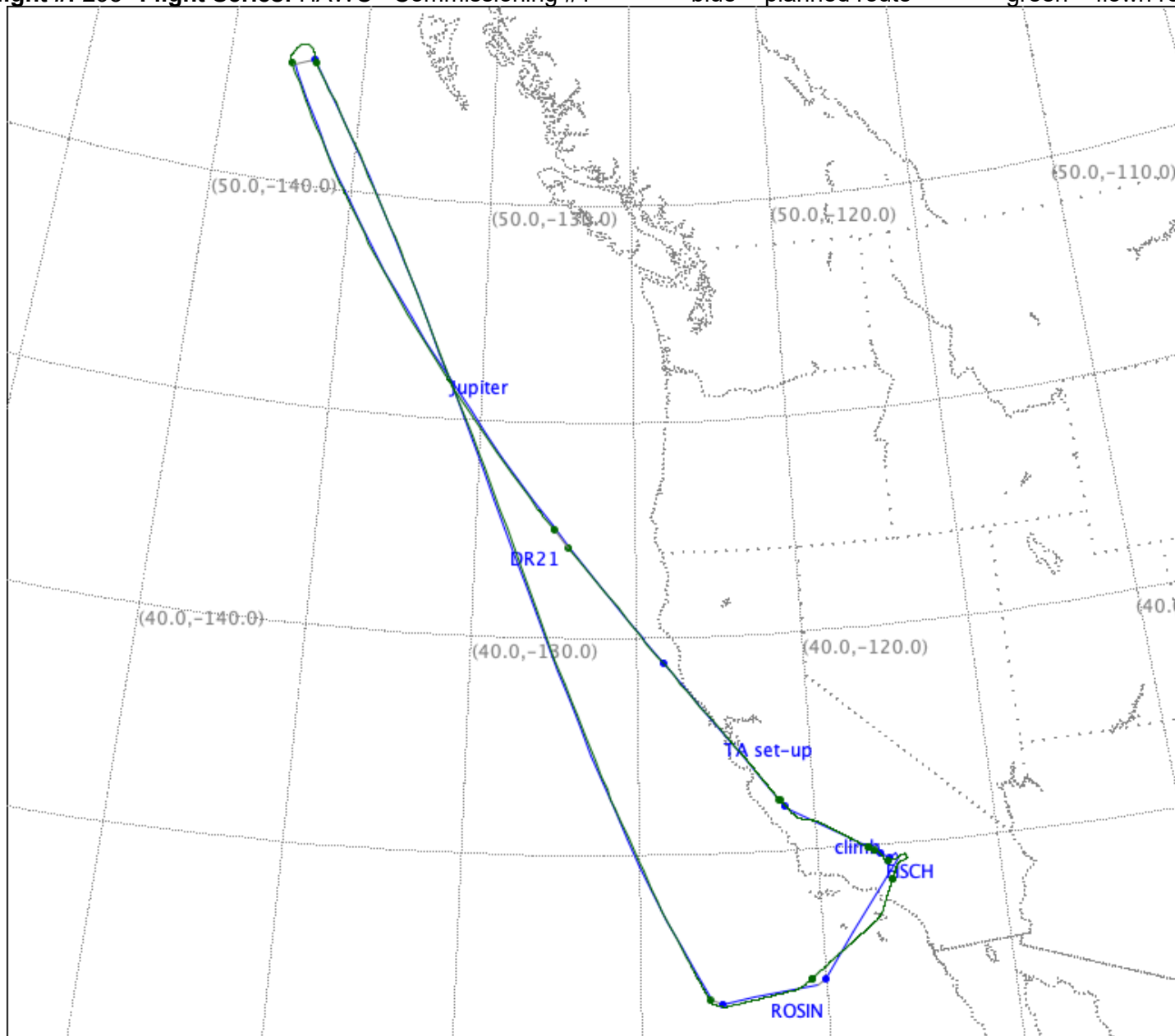
MISSION ID: 2016-05-05_HA_F295

Date: 2016-05-05 UT Instrument: HAWC+

Flight #: 295 Flight Series: HAWC+ Commissioning #1

blue = planned route

green = flown route



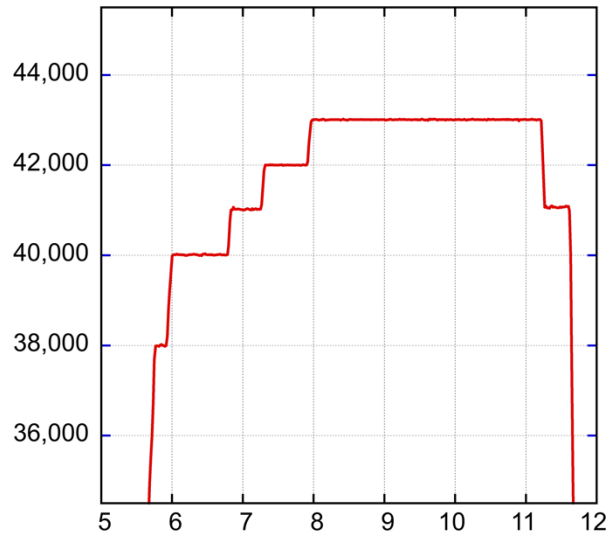
Flight notes:

HAWC+ commissioning flight, mostly engineering data collected.

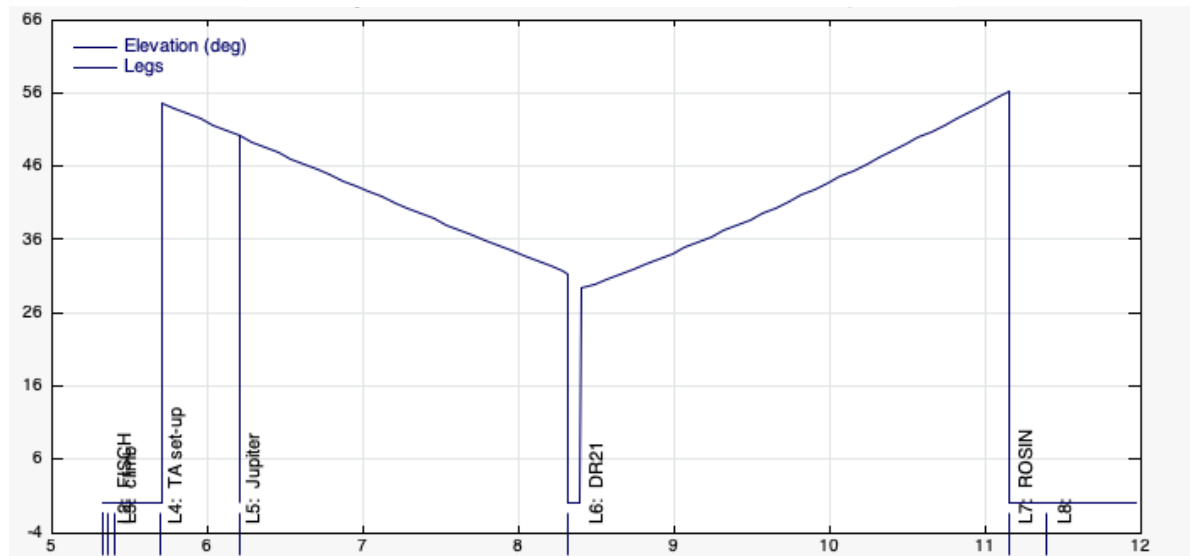
Flight 295 Mission ID 2016-05-05_HA_F295
 Palmdale to Palmdale Take off date UTC: 05-MAY-2016
 Departure UTC: 05:22 Arrival UTC: 12:05

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	88_0002	Dowell	Jupiter Barycenter	10h59m39.35s	07d55m51.5s	5:46	30	
5	88_0002	Dowell	Jupiter Barycenter	10h59m39.21s	07d55m51.8s	6:16	127	
6	88_0001	Dowell	DR21	20h39m01.60s	42d19m37.9s	8:28	165	

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



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



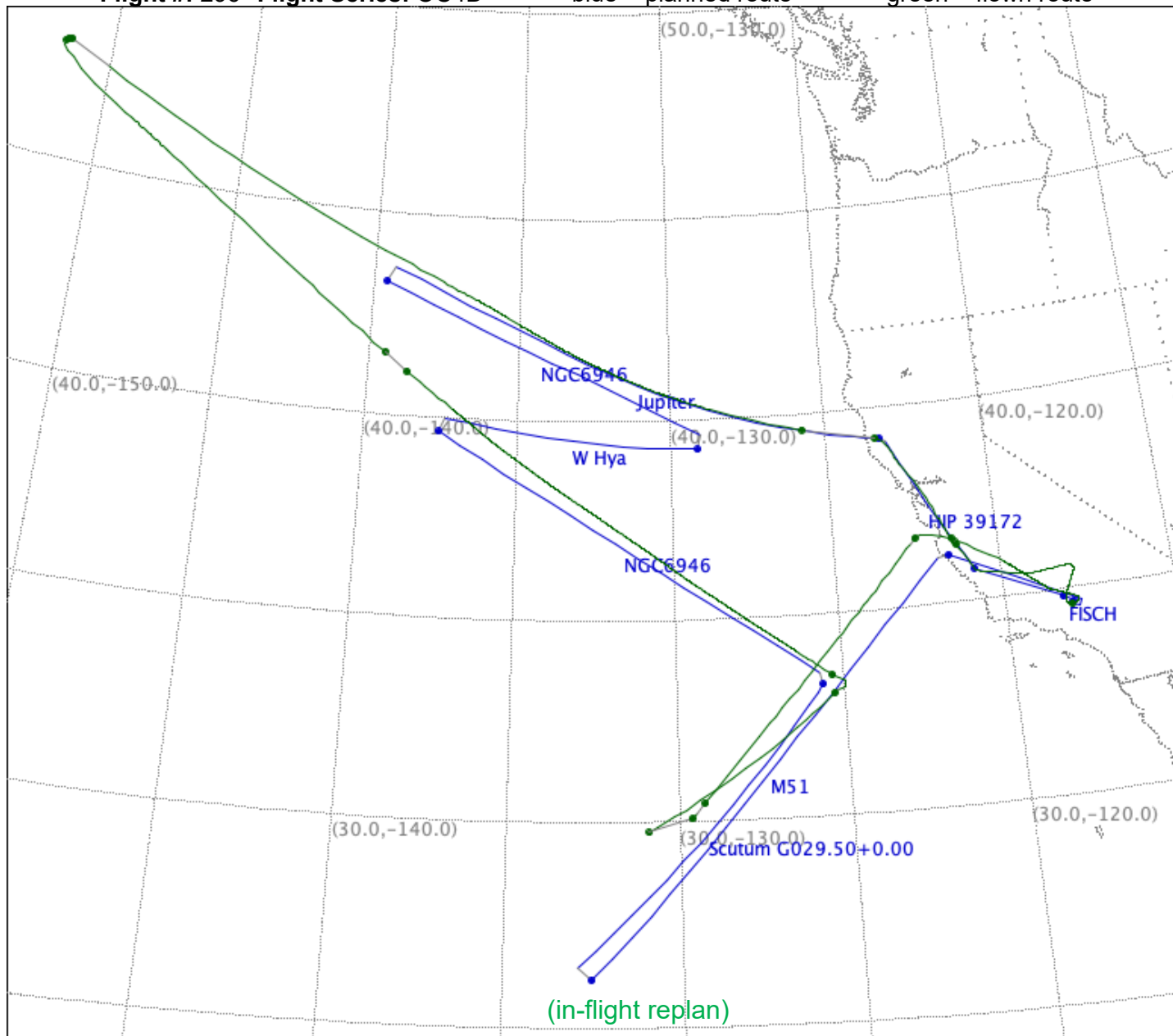
MISSION ID: 2016-05-12_GR_F296

Date: 2016-05-12 UT Instrument: GREAT

Flight #: 296 Flight Series: OC4D

blue = planned route

green = flown route

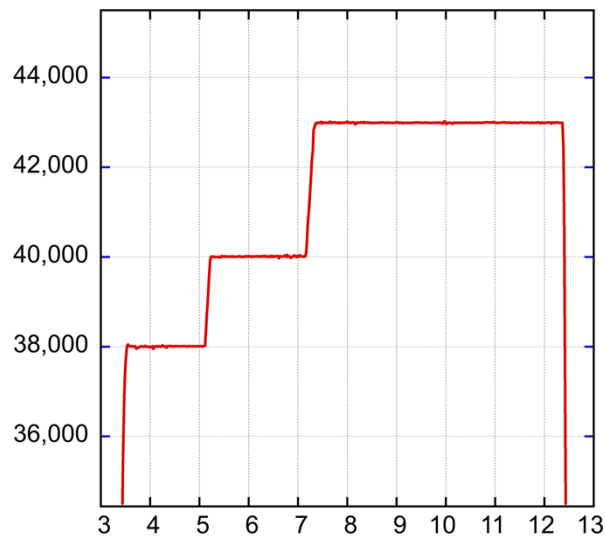


Flight notes:

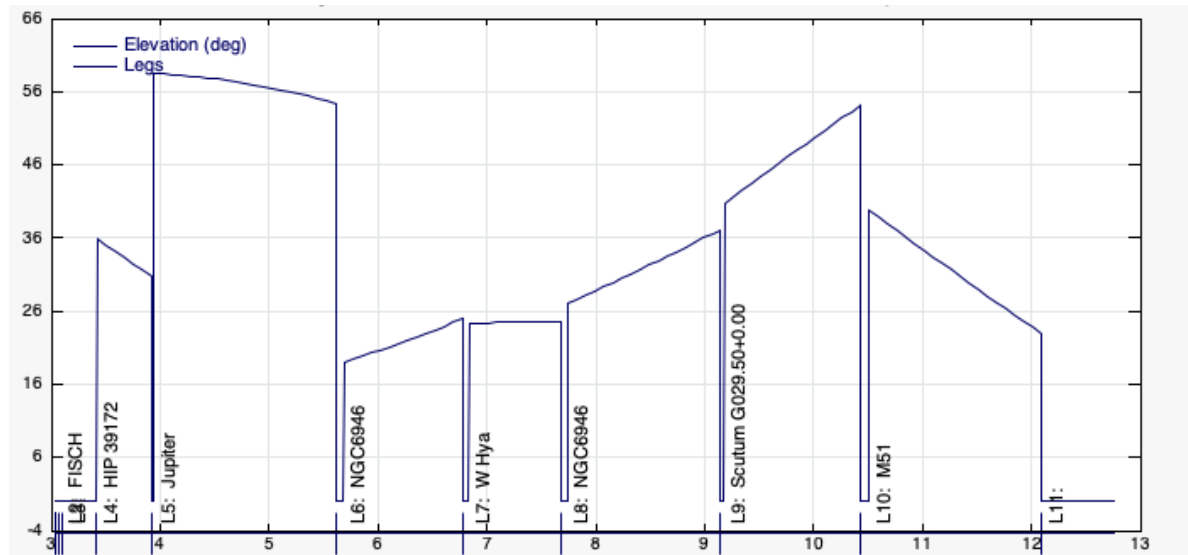
Mission replanned in-flight to complete necessary instrument alignment.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 39172	08h00m44.13s	-02d52m54.9s	3:29	30	Telescope inoperable; leg lost
5	90_0008	Calibration	Jupiter	10h59m33.46s	07d54m57.1s	4:01	100	Recovery for telescope issues led to 40min loss on leg; replanned flight path in-flight to extend this necessary boresight calibrator.
6	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	5:46	65	
7	04_0023	Neufeld	W Hya	13h49m02.00s	-28d22m03.5s	6:55	50	Sacrificed to in-flight replan
8	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	7:49	84	
9	04_0033	Langer	Scutum G029.50+0.00	18h45m10.38s	-03d03m14.4s	9:15	75	
10	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	10:35	95	Observatory control software crash led to 5min loss

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



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



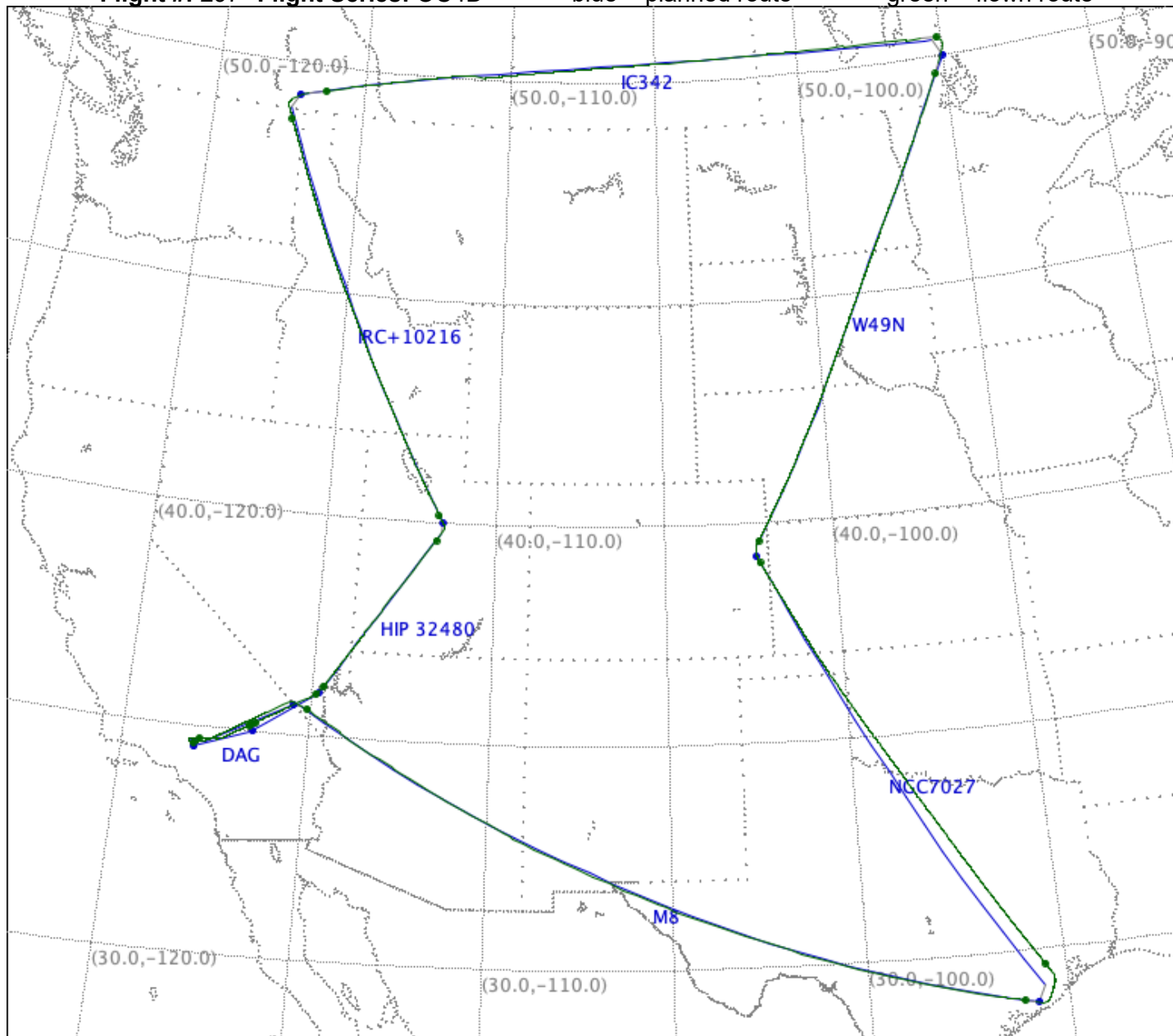
MISSION ID: 2016-05-14_GR_F297

Date: 2016-05-14 UT Instrument: GREAT

Flight #: 297 Flight Series: OC4D

blue = planned route

green = flown route

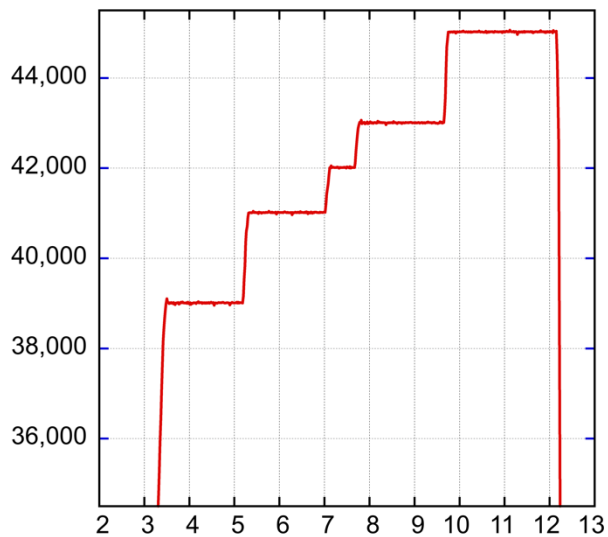


Flight notes:
No irregularities.

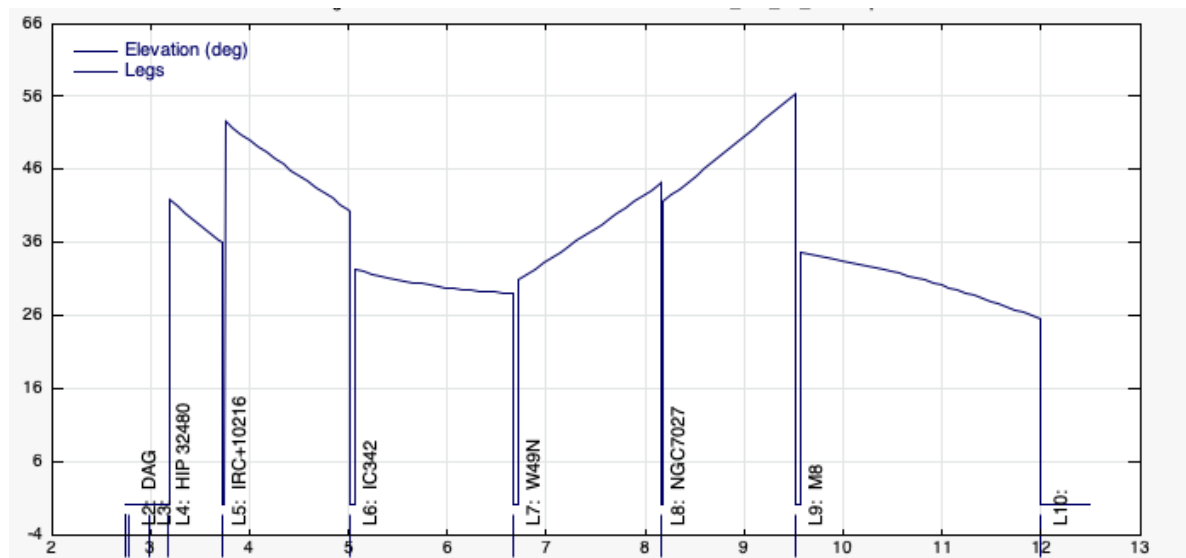
Flight 297 Mission ID 2016-05-14_GR_F297
 Palmdale to Palmdale Take off date UTC: 14-MAY-2016
 Departure UTC: 02:45 Arrival UTC: 12:28 Consortium flight L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 32480	06h46m44.34s	43d34m38.7s	3:13	32	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	3:46	76	GREAT observing script error; 20min lost.
6	83_0403	GREAT Consortium	IC342	03h46m48.50s	68d05m47.0s	5:05	96	
7	83_0404	GREAT Consortium	W49N	19h10m13.20s	09d06m12.0s	6:45	86	Telescope fault; 20min lost
8	83_0405	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	8:12	80	
9	83_0406	GREAT Consortium	M8	18h03m40.33s	-24d22m42.7s	9:36	145	

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



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



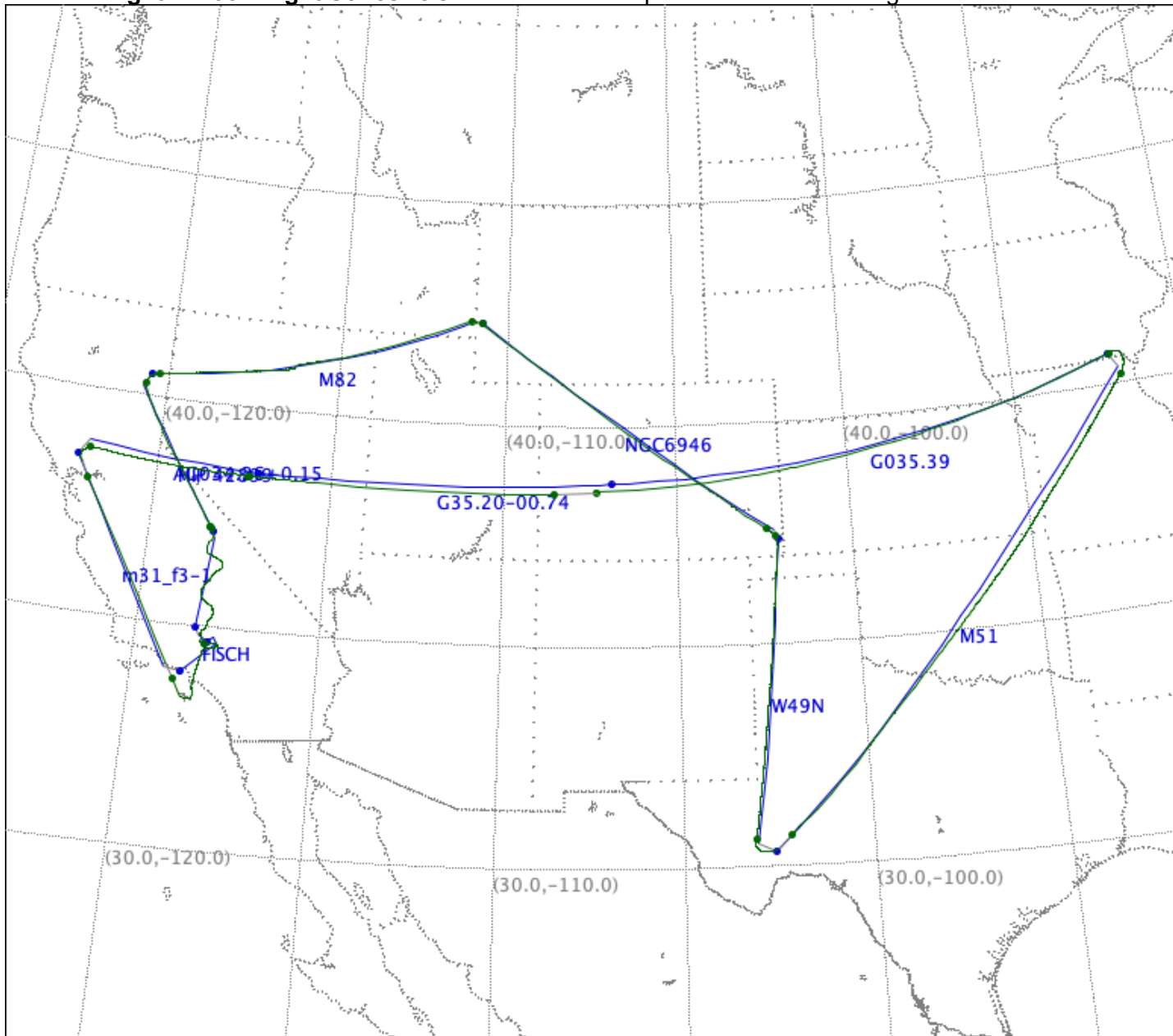
MISSION ID: 2016-05-18_GR_F298

Date: 2016-05-18 UT Instrument: GREAT

Flight #: 298 Flight Series: OC4D

blue = planned route

green = flown route

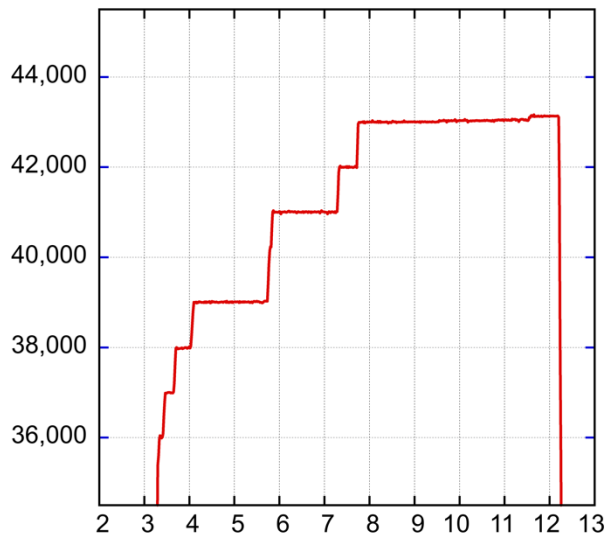


Flight notes: No irregularities.

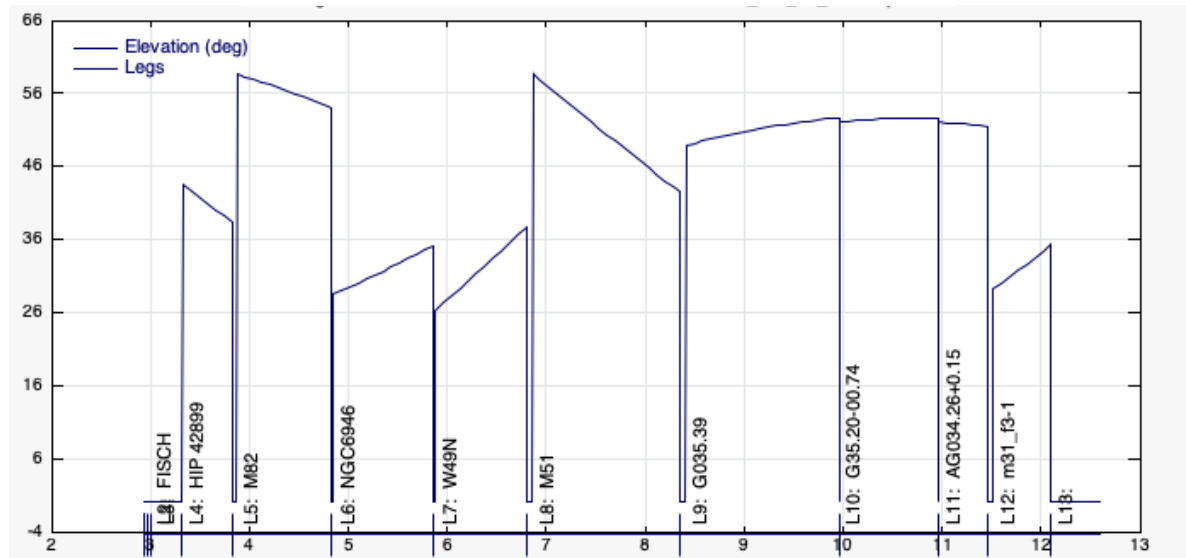
Flight 298 Mission ID 2016-05-18_GR_F298
 Palmdale to Palmdale Take off date UTC: 18-MAY-2016
 Departure UTC: 02:57 Arrival UTC: 12:37
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 42899	08h44m31.17s	05d17m09.1s	3:25	30	
5		GREAT Consortium	M82	09h55m52.20s	69d40m49.6s	3:58	57	Telescope inoperable at being of leg; 40min lost
6	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	4:57	60	
7	04_0020	Neufeld	W49N	19h10m13.20s	09d06m11.9s	5:58	55	
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	6:57	89	
9	04_0169	Tan	G035.39	18h57m07.91s	02d09m46.9s	8:30	93	
10	04_0133	Tan	G35.20-00.74	18h58m13.03s	01d40m36.1s	10:03	60	
11	03_0103	Wyrowski	AG034.26+0.15	18h53m18.51s	01d14m57.6s	11:03	29.7	
12	04_0128	Kapala	m31_f3	00h44m32.17s	41d52m20.3s	11:37	35	

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



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



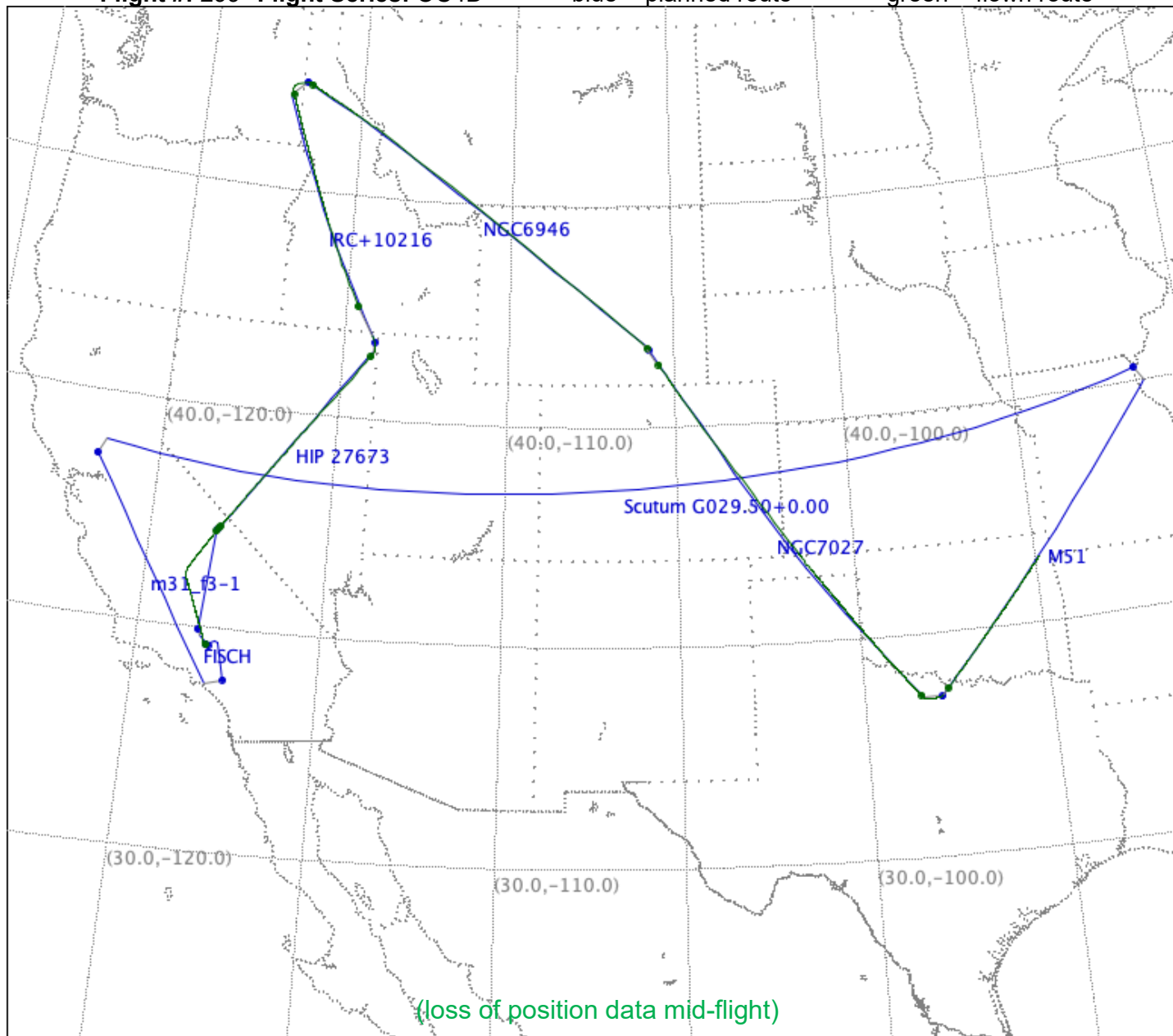
MISSION ID: 2016-05-19_GR_F299

Date: 2016-05-19 UT Instrument: GREAT

Flight #: 299 Flight Series: OC4D

blue = planned route

green = flown route



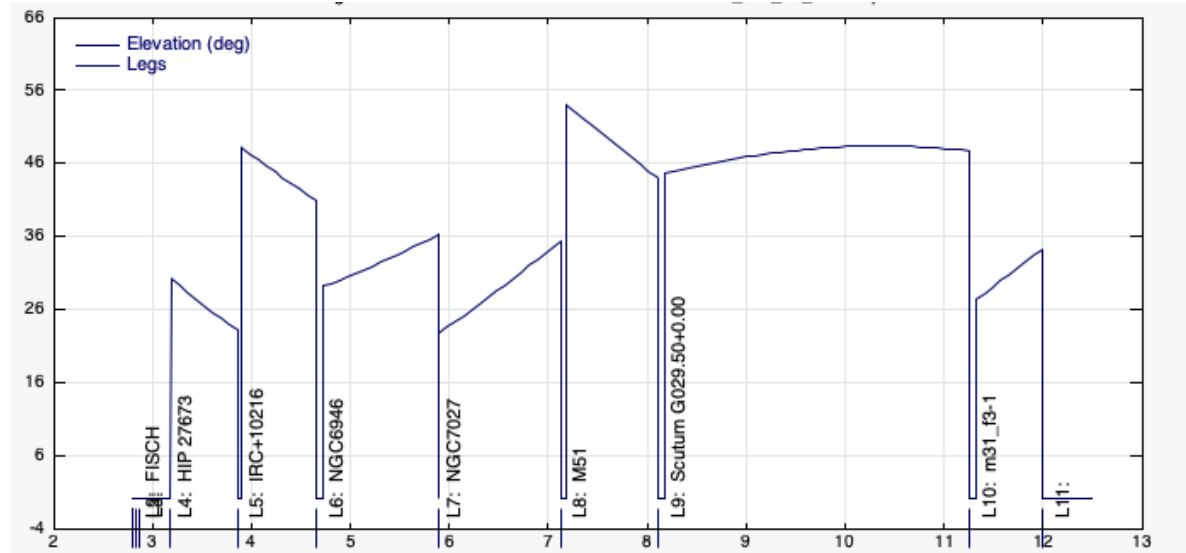
Flight notes:

Return to Palmdale base early after major technical problem with observatory.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 27673	05h51m29.40s	39d08m54.5s	3:17	41	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	3:59	45	
6	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	4:48	70	
7	83_0405	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	5:59	74	
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	7:16	56	All network connections on board went down 25min into leg; irrecoverable so returned to base early
9	04_0033	Langer	Scutum G029.50+0.00	18h45m10.38s	-03d03m14.4s	8:16	185	Leg not flown; returned to base early
10	04_0128	Kapala	m31_f3	00h44m32.17s	41d52m20.3s	11:24	40	Leg not flown; returned to base early

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

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



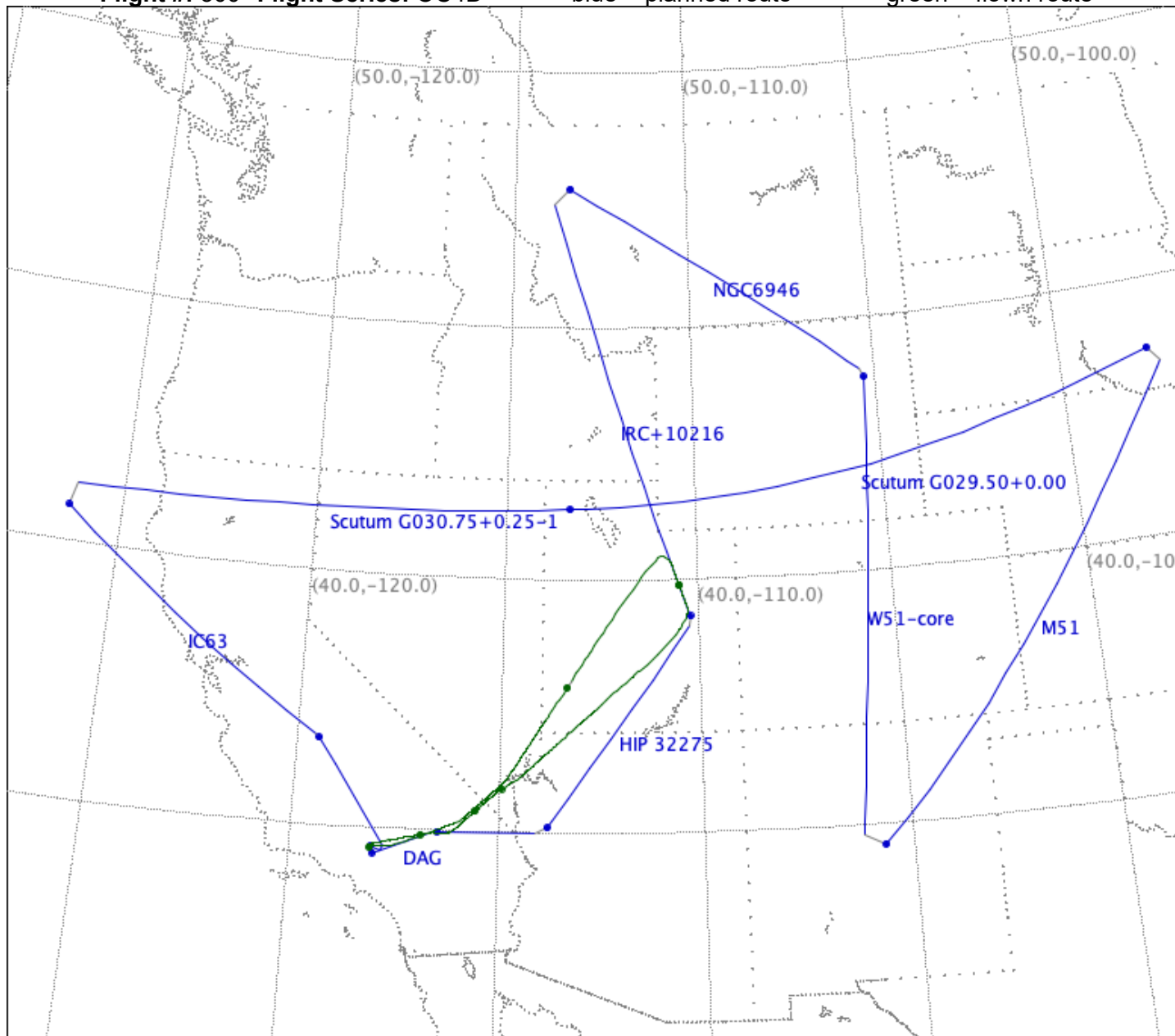
MISSION ID: 2016-05-20_GR_F300

Date: 2016-05-20 UT Instrument: GREAT

Flight #: 300 Flight Series: OC4D

blue = planned route

green = flown route

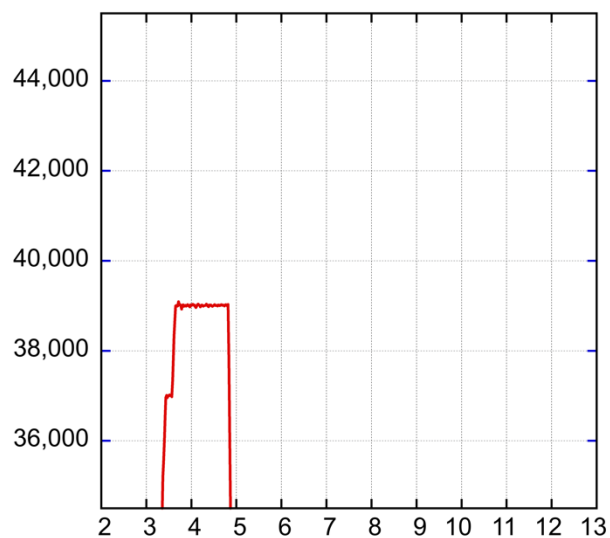


Flight notes:

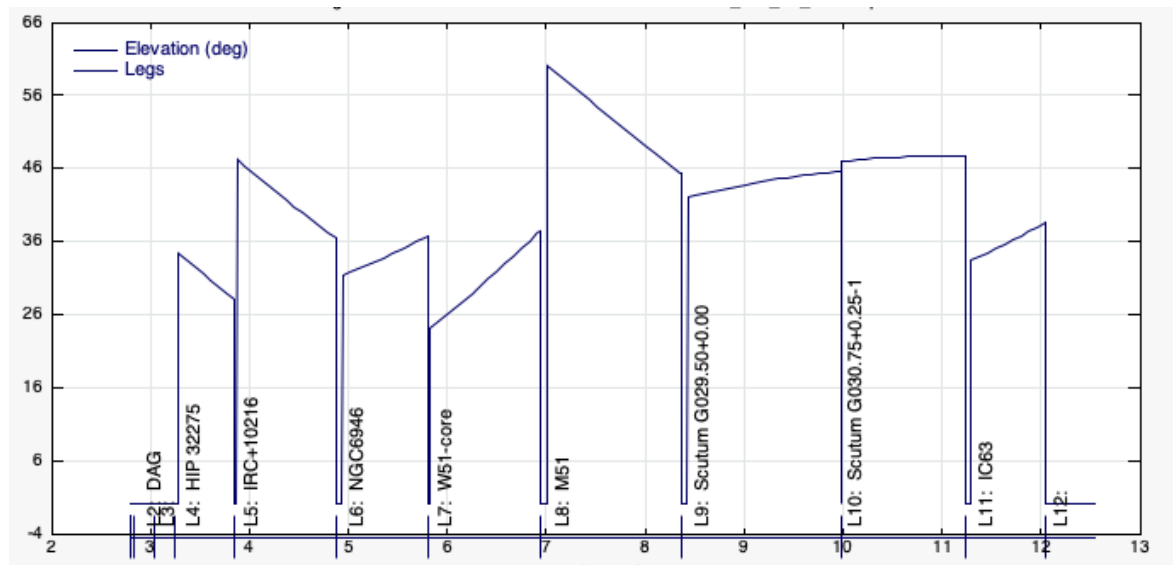
Return to Palmdale base shortly after take-off due to main deck power failure.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 32275	06h44m17.38s	40d37m22.6s	3:19	34	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	3:54	60	Main deck circuit breaker tripped; power out across many subsystems; no data collected; return to base
6	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	4:58	52	Leg not flown; returned to base early
7	04_0009	VASTEL	W51-core	19h23m43.90s	14d30m30.5s	5:52	67	Leg not flown; returned to base early
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	7:03	81	Leg not flown; returned to base early
9	04_0033	Langer	Scutum G029.50+0.00	18h45m10.38s	-03d03m14.4s	8:27	93	Leg not flown; returned to base early
10	04_0033	Langer	Scutum G030.75+0.25	18h46m34.01s	-01d49m39.7s	10:00	75	Leg not flown; returned to base early
11	83_0401	GREAT Consortium	IC63	00h59m10.37s	60d53m45.0s	11:20	45	Leg not flown; returned to base early

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



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



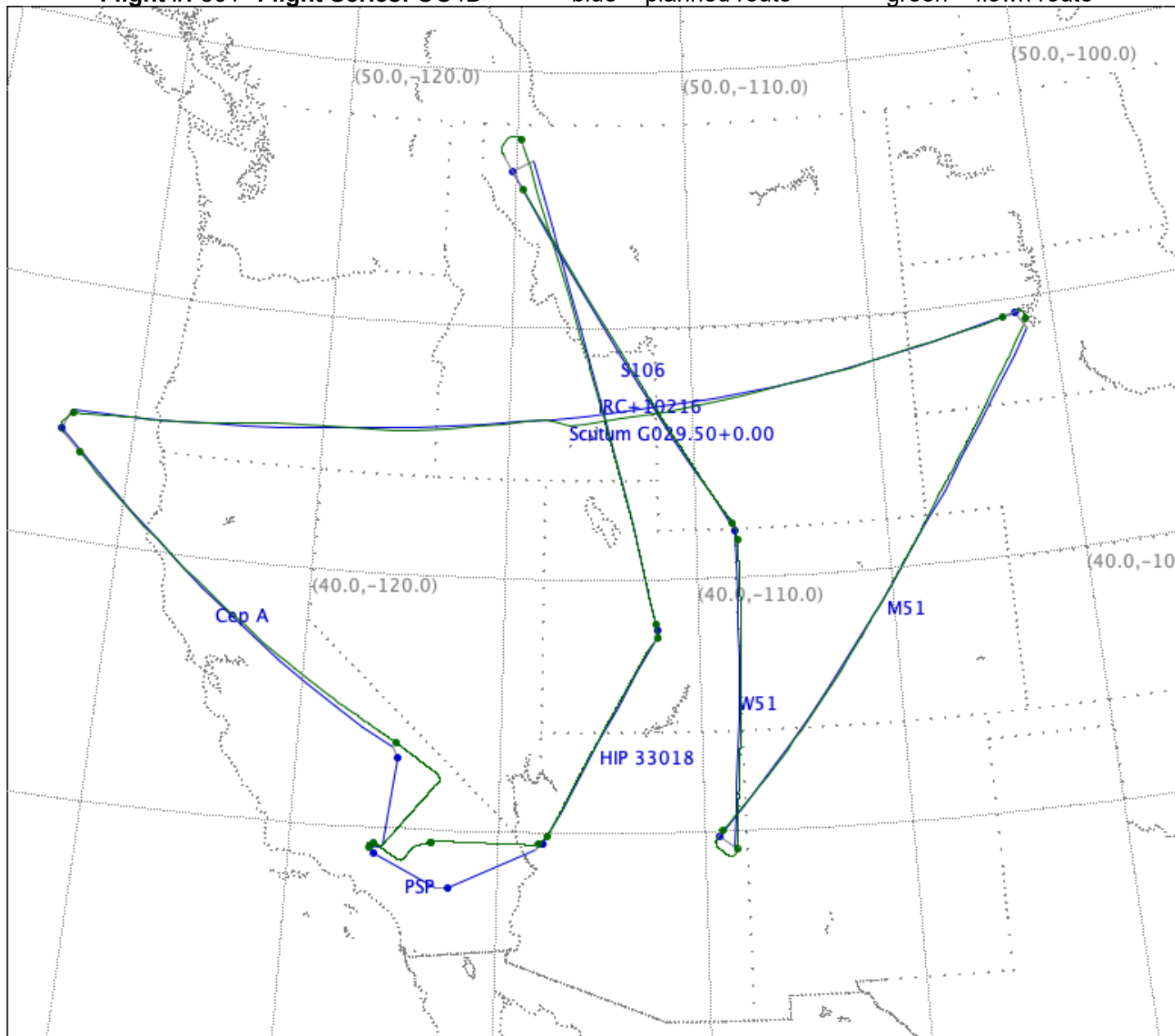
MISSION ID: 2016-05-24_GR_F301

Date: 2016-05-24 UT Instrument: GREAT

Flight #: 301 Flight Series: OC4D

blue = planned route

green = flown route

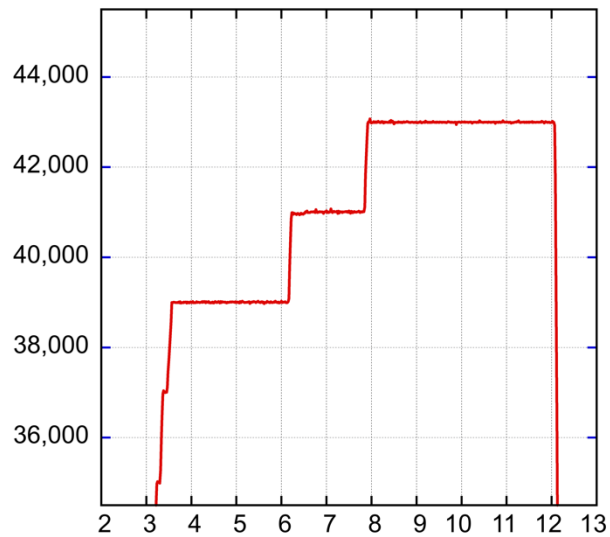


Flight notes: No irregularities.

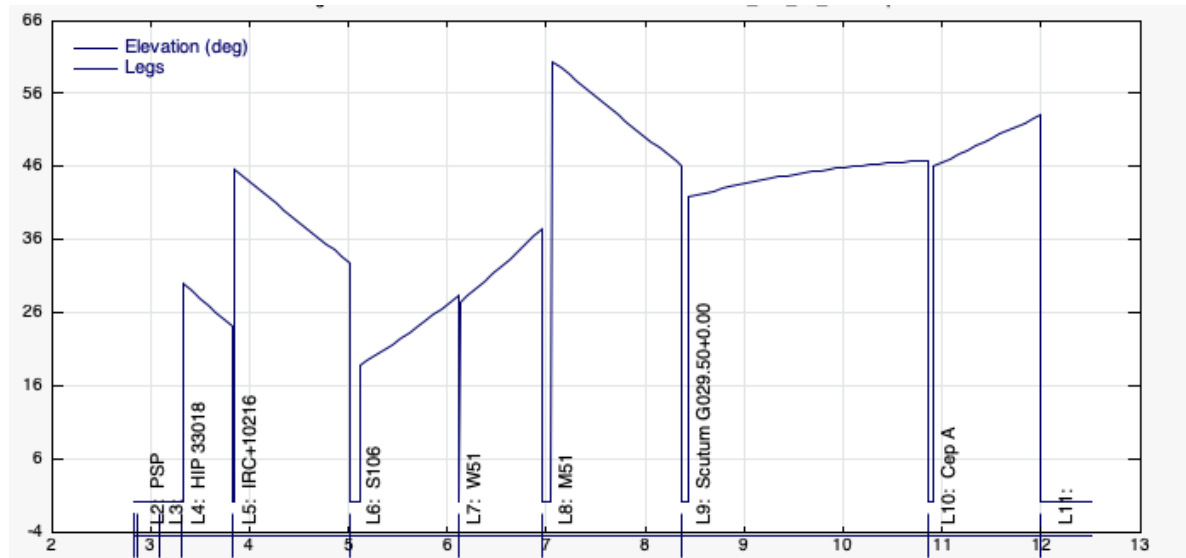
Flight 301 Mission ID 2016-05-24_GR_F301
 Palmdale to Palmdale Take off date UTC: 24-MAY-2016
 Departure UTC: 02:48 Arrival UTC: 12:36
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 33018	06h52m47.34s	33d57m40.5s	3:22	30	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	3:53	70	
6	04_0057	Guevara	S106	20h27m26.74s	37d22m47.9s	5:09	60	
7	04_0020	Neufeld	W51	19h23m43.90s	14d30m30.5s	6:09	50	
8	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	7:05	79	
9	04_0033	Langer	Scutum G029.50+0.00	18h45m10.38s	-03d03m14.4s	8:28	145	Telescope control software errors led to 72min loss on leg
10	04_0133	Tan	Cep A	22h56m18.00s	62d01m49.5s	10:57	65	

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



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



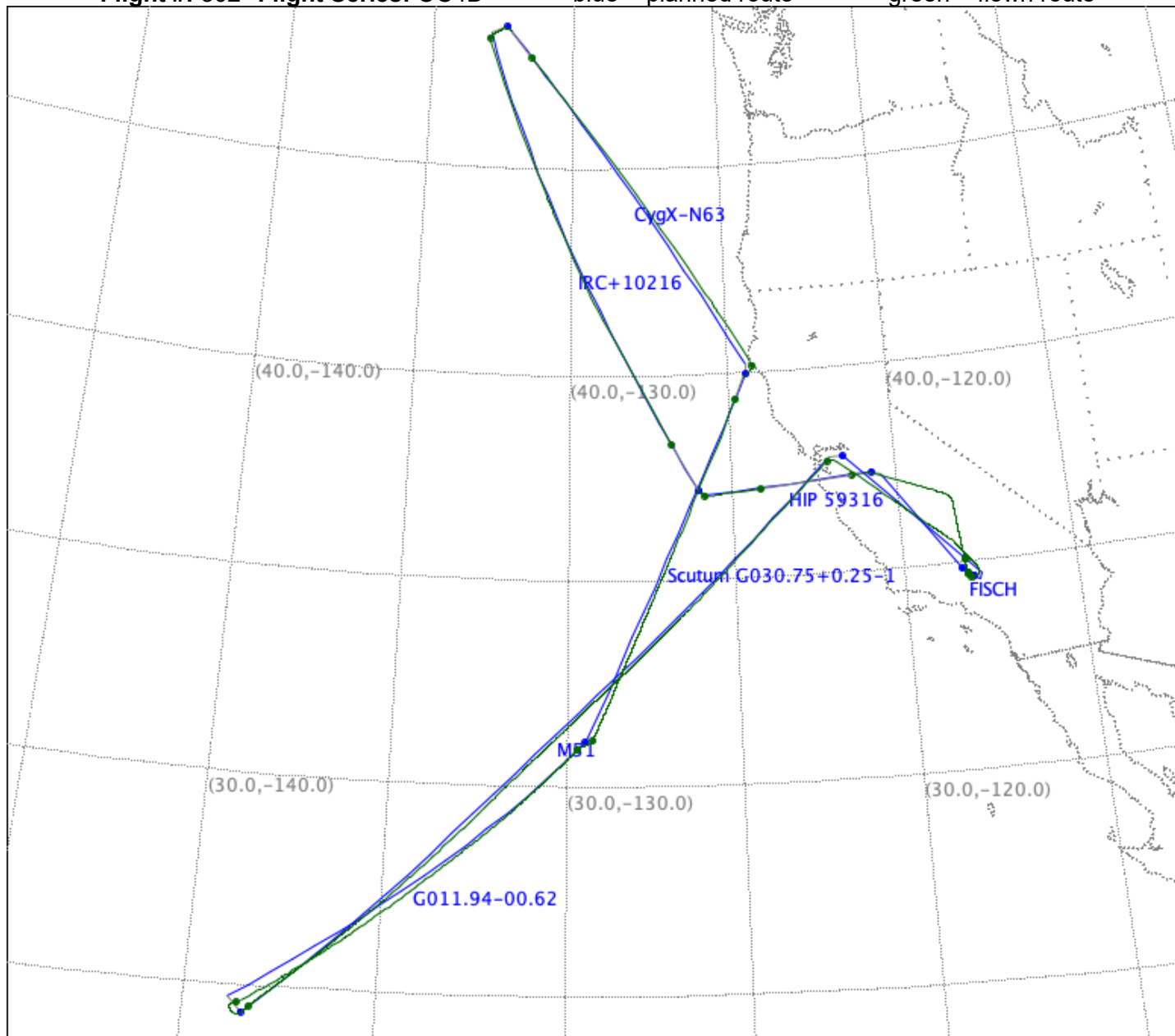
MISSION ID: 2016-05-25_GR_F302

Date: 2016-05-25 UT Instrument: GREAT

Flight #: 302 Flight Series: OC4D

blue = planned route

green = flown route

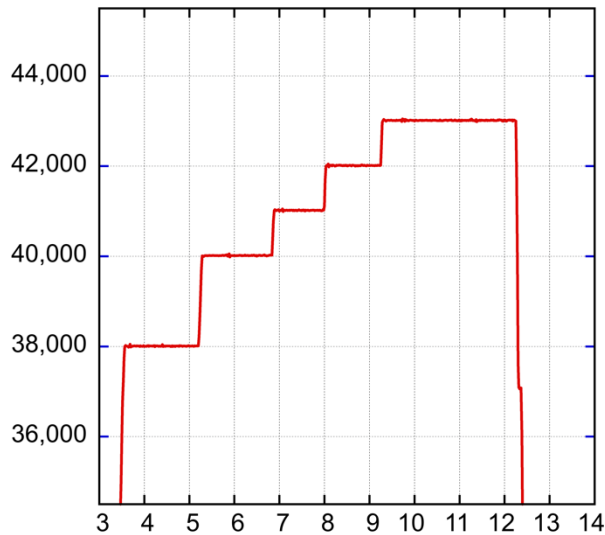


Flight notes:
No irregularities.

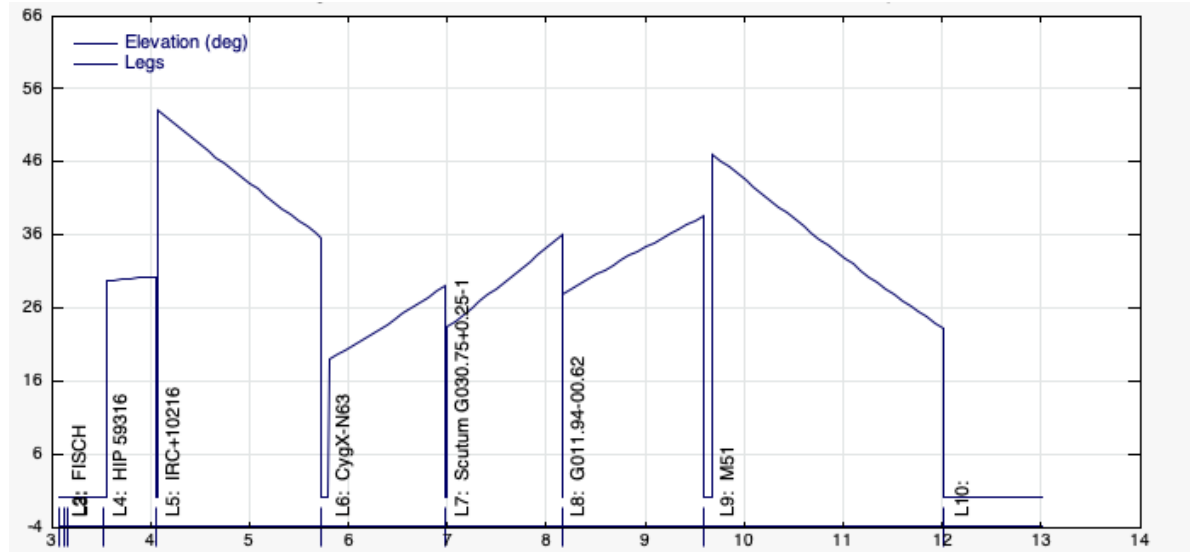
Flight 302 Mission ID 2016-05-25_GR_F302
 Palmdale to Palmdale Take off date UTC: 25-MAY-2016
 Departure UTC: 03:05 Arrival UTC: 12:44
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 59316	12h10m07.48s	-22d37m11.2s	3:38	30	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	4:10	99	
6	04_0127	Bontemps	CygX-N63	20h40m05.20s	41d32m12.0s	5:54	70	
7	04_0033	Langer	Scutum G030.75+0.25-1	18h46m34.01s	-01d49m39.7s	7:05	70	
8	04_0133	Tan	G011.94-00.62	18h14m01.10s	-18d53m23.5s	8:16	85	
9	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	9:46	140	Guiding stability was poor

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



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



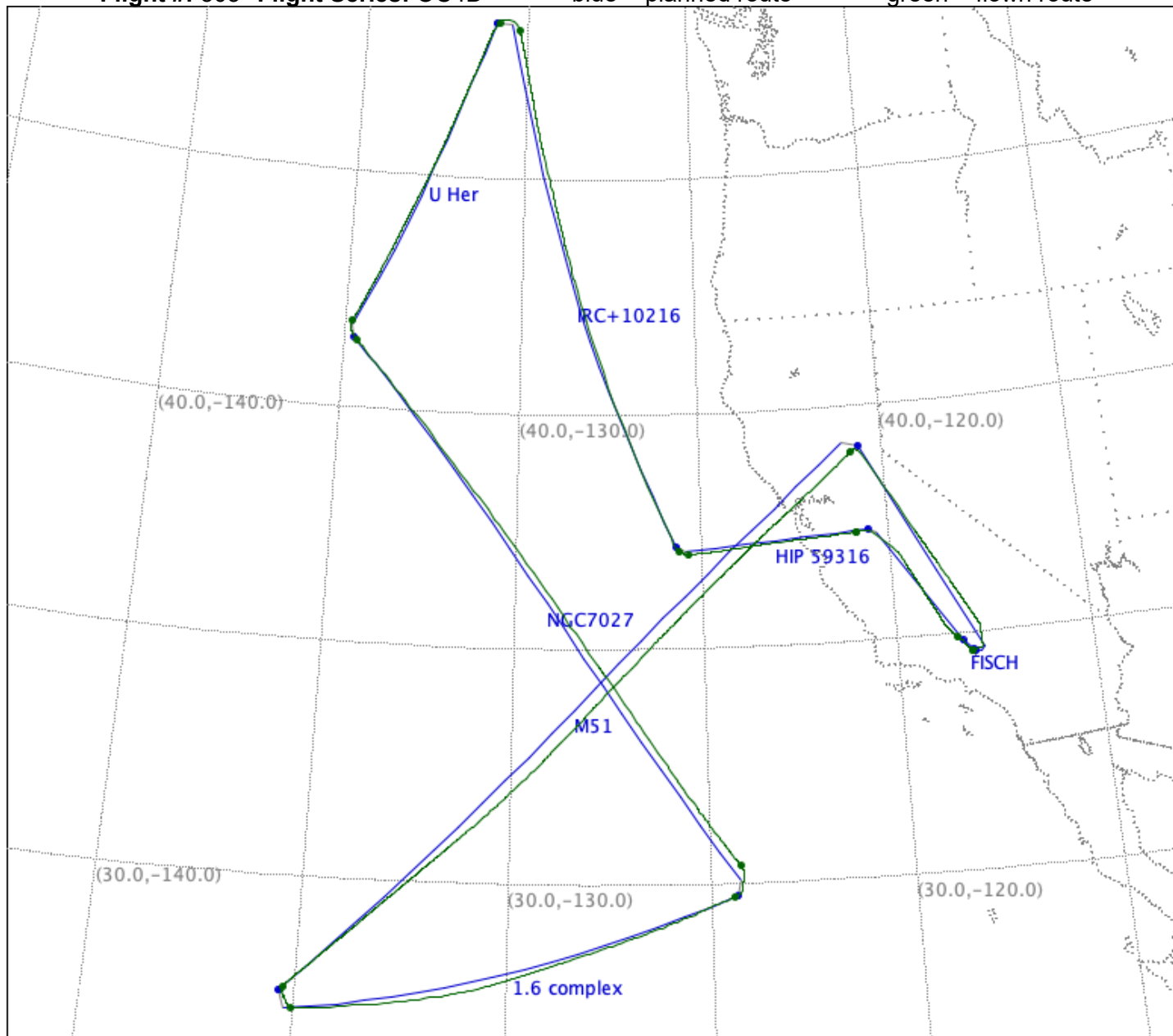
MISSION ID: 2016-05-26_GR_F303

Date: 2016-05-26 UT Instrument: GREAT

Flight #: 303 Flight Series: OC4D

blue = planned route

green = flown route

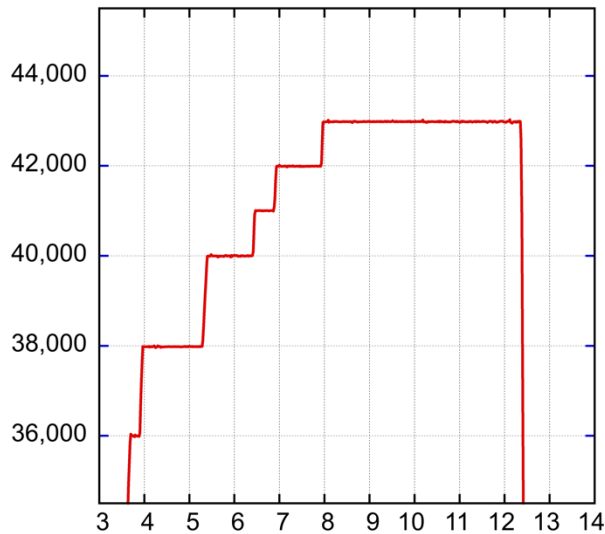


Flight notes:
No irregularities.

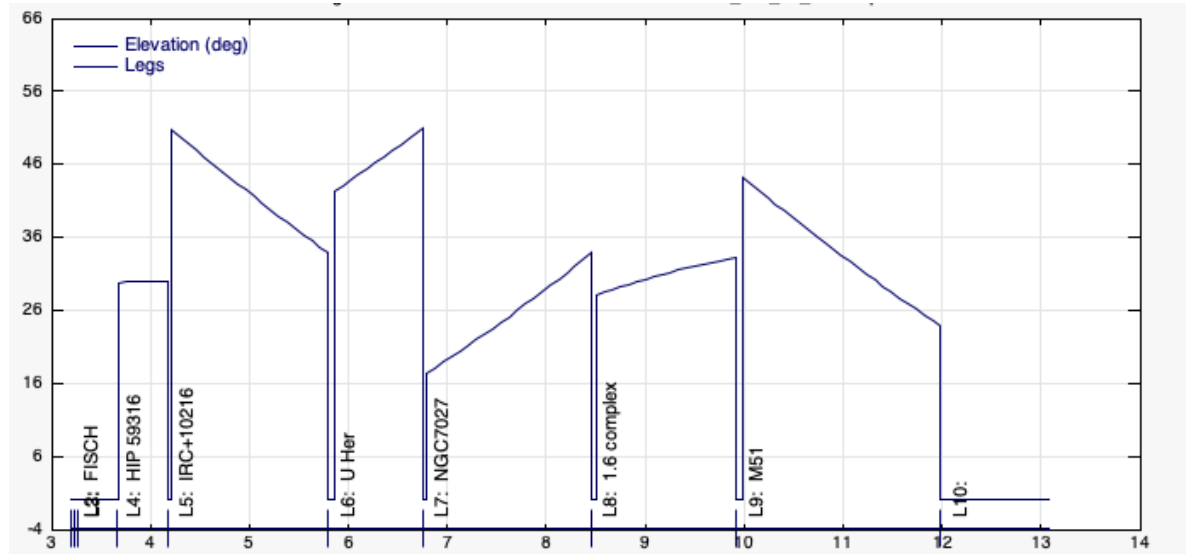
Flight 303 Mission ID 2016-05-26_GR_F303
 Palmdale to Palmdale Take off date UTC: 26-MAY-2016
 Departure UTC: 03:17 Arrival UTC: 12:55
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 59316	12h10m07.48s	-22d37m11.2s	3:46	30	
5	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	4:18	95	
6	04_0023	Neufeld	U Her	16h25m47.47s	18d53m32.9s	5:57	54	
7	83_0405	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	6:53	100	
8	04_0096	Riquelme	1.6 complex	17h49m18.60s	-27d33m54.0s	8:36	85	
9	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	10:05	120	Lost guiding last 5min of leg due to sky brightness.

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



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



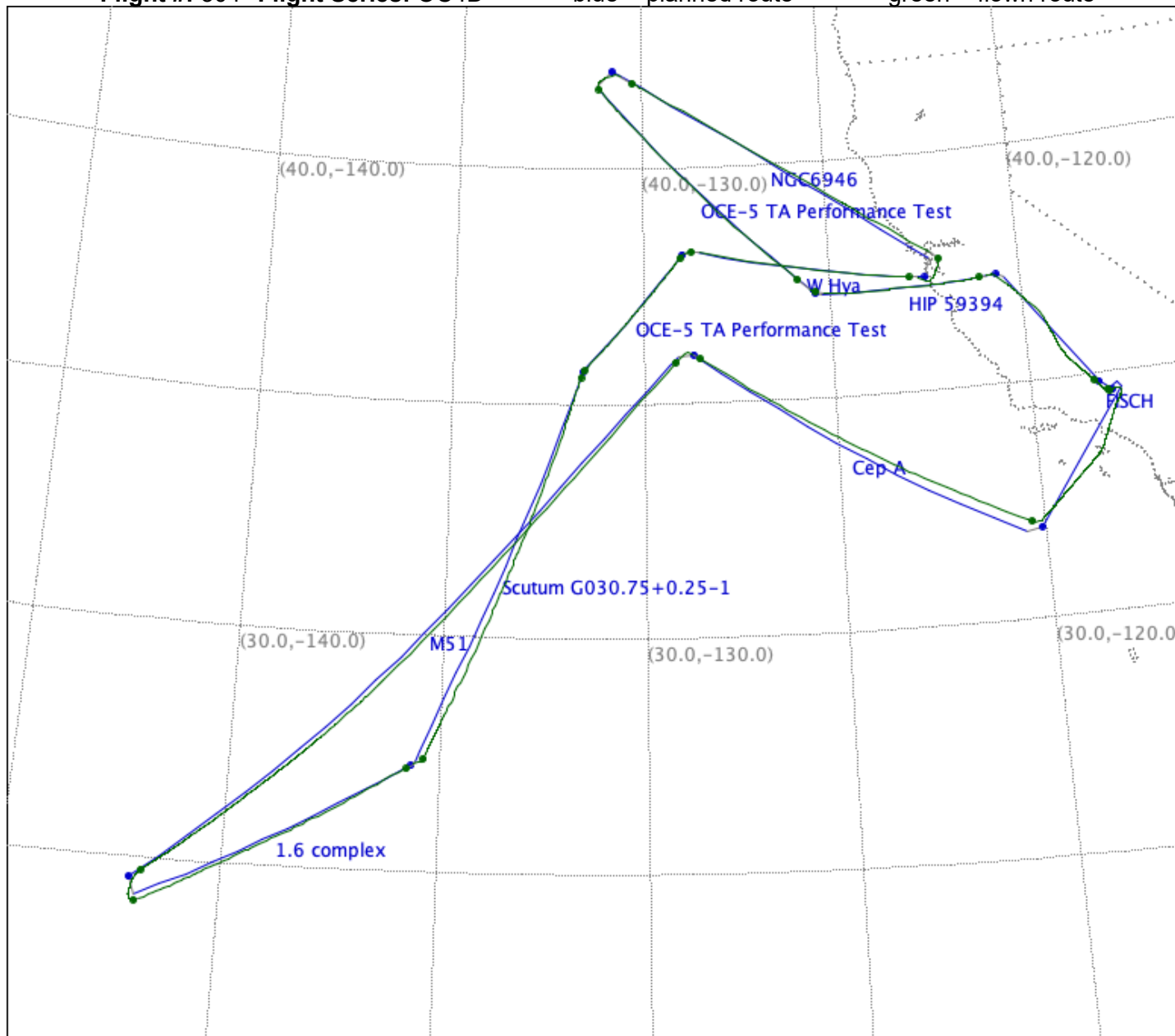
MISSION ID: 2016-05-27_GR_F304

Date: 2016-05-27 UT Instrument: GREAT

Flight #: 304 Flight Series: OC4D

blue = planned route

green = flown route



Flight notes: No irregularities.

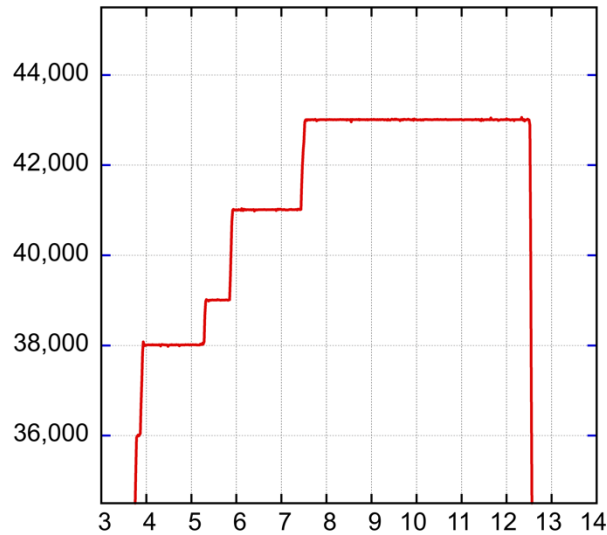
Flight 304 Mission ID 2016-05-27_GR_F304
 Palmdale to Palmdale Take off date UTC: 27-MAY-2016

Departure UTC: 03:18 Arrival UTC: 12:54

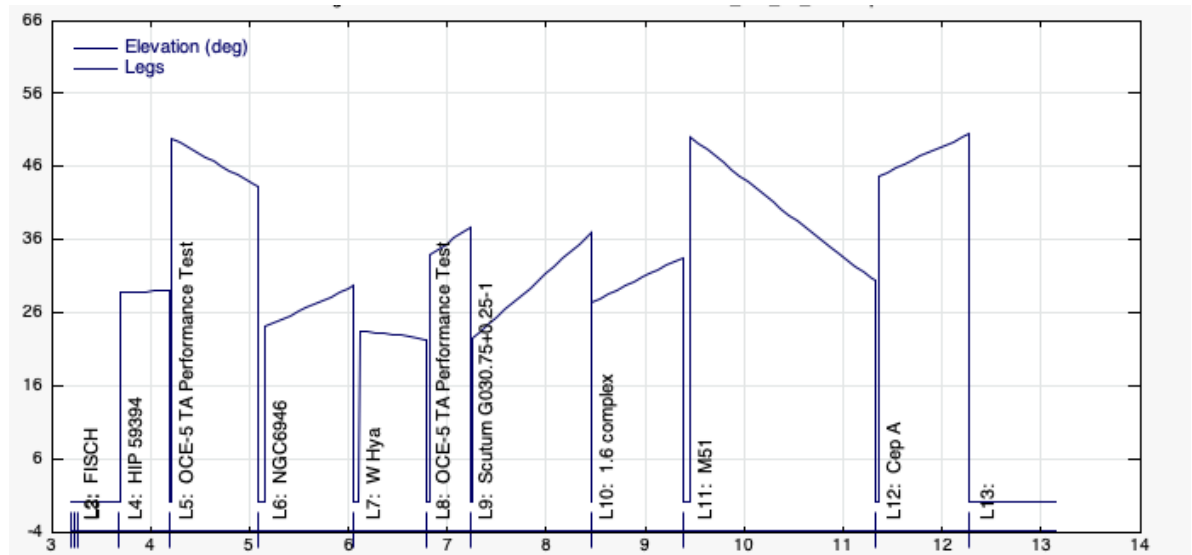
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 59394	12h11m03.84s	-23d36m08.7s	3:47	30	
5		engineering	HIP 52584	10h45m09.46s	02d29m16.7s	4:18	52	
6	04_0151	Bolatto	NGC6946_N1	20h35m16.80s	60d10m57.0s	5:15	53	
7	04_0023	Neufeld	W Hya	13h49m02.00s	-28d22m03.5s	6:12	41	
8		engineering	HIP 83906	17h08m54.52s	-03d52m58.8s	6:54	25	
9	04_0033	Langer	Scutum G030.75+0.25	18h46m34.01s	-01d49m39.7s	7:20	72	
10	04_0096	Riquelme	1.6 complex	17h49m18.60s	-27d33m54.0s	8:33	55	
11	04_0116	Pineda	M51	13h29m52.70s	47d11m42.9s	9:32	112	
12	04_0133	Tan	Cep A	22h56m18.00s	62d01m49.5s	11:27	55	The GREAT LFA LO failed about 2/3 of the way through the leg; the rest of leg lost

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



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



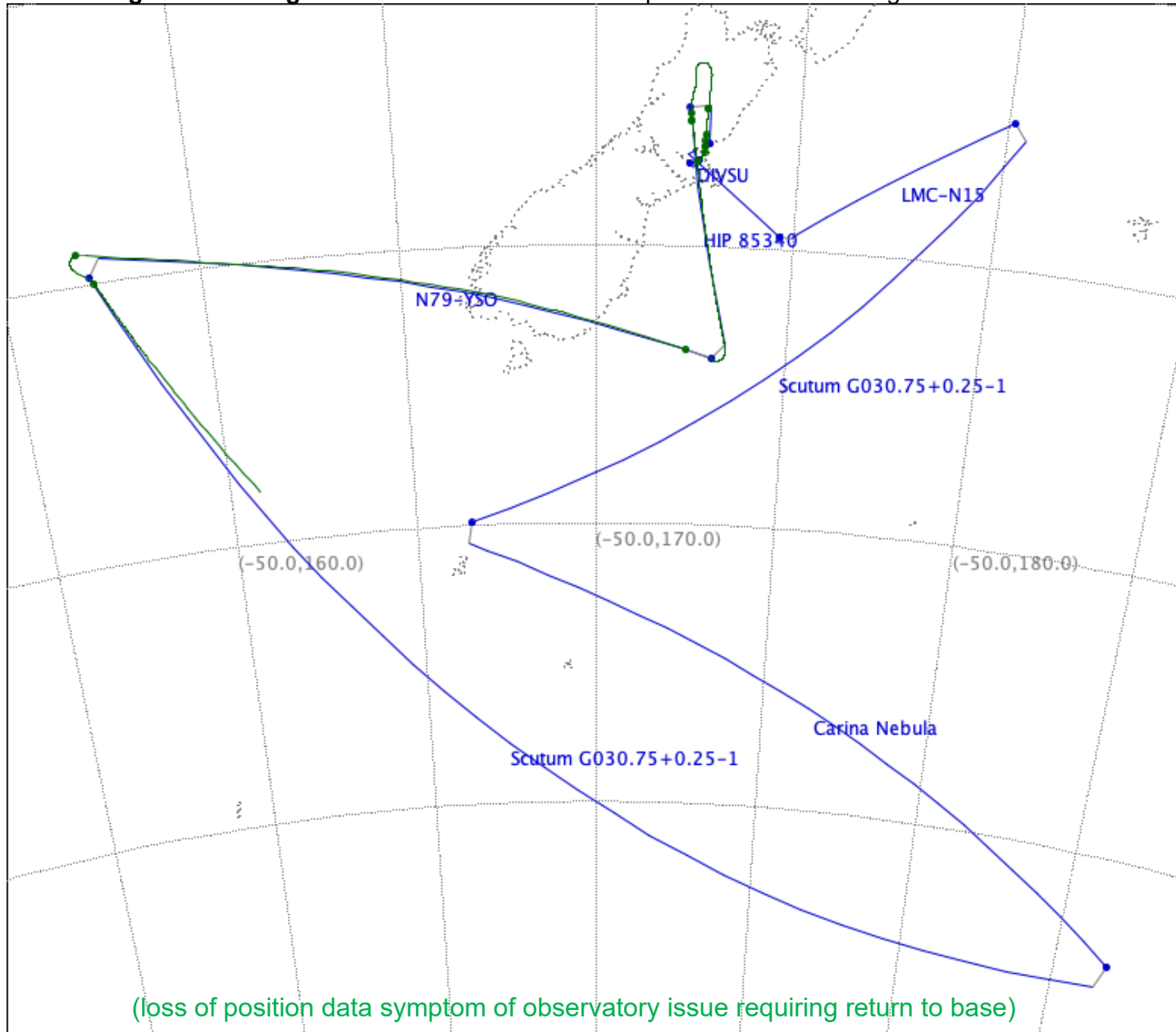
MISSION ID: 2016-06-09_GR_F307

Date: 2016-06-09 UT **Instrument:** GREAT

Flight #: 307 **Flight Series:** OC4E

blue = planned route

green = flown route

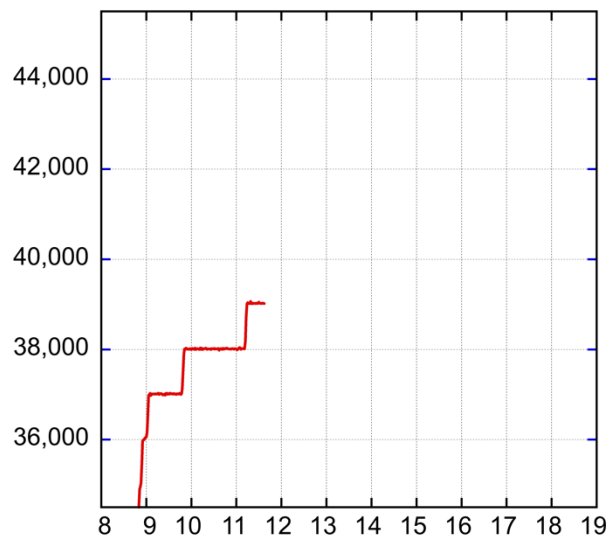


Flight notes:

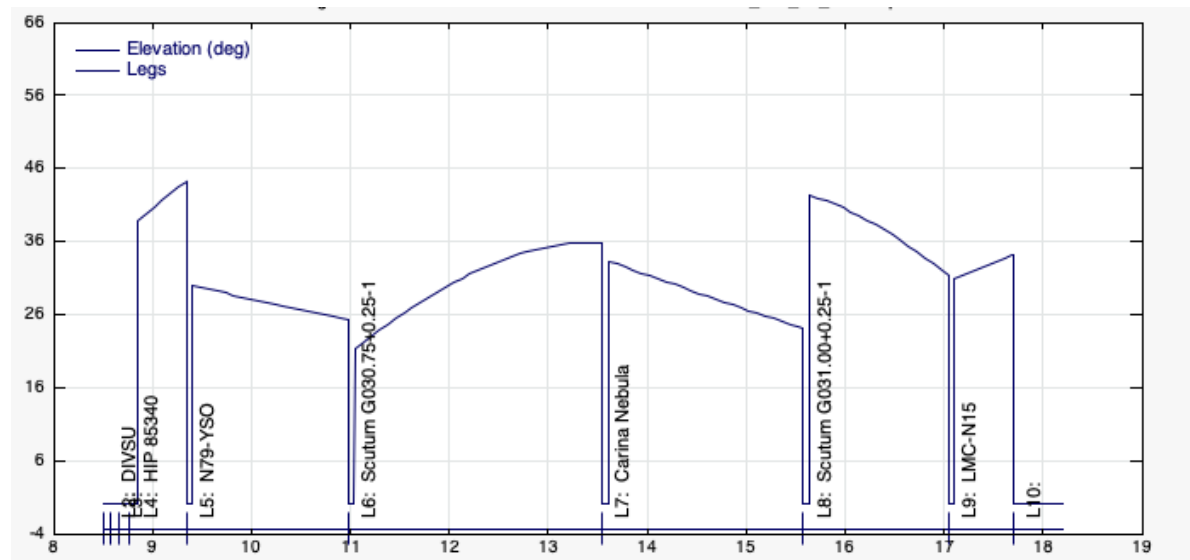
Early return to Palmdale base due to main deck power failure.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
Flight 307 Mission ID 2016-06-09_GR_F307 Christchurch-Christchurch Take off date UTC: 09-JUN-2016 Departure UTC: 08:25 Arrival UTC: HH:MM L1-LFA								
4			HIP 85340	17h26m22.22s	-24d10m31.1s	8:51	30	
5	04_0101	Meixner	N79-YSO	04h51m53.00s	-69d23m28.0s	9:25	95	
6	04_0033	Langer	Scutum G030.75+0.25	18h46m34.01s	-01d49m39.7s	11:03	150	Main deck circuit breaker tripped; power out across many subsystems; only 30min of data collected; return to base
7	04_0041	Preibisch	Pillar Position 1	10h45m56.57s	-59d48m10.0s	13:37	118	Leg not flown; returned to base early
8	04_0033	Langer	Scutum G030.75+0.25	18h46m34.01s	-01d49m39.7s	15:39	84	Leg not flown; returned to base early
9	04_0082	Israel	LMC-N15	05h00m50.10s	-66d23m24.0s	17:07	36	Leg not flown; returned to base early

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



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



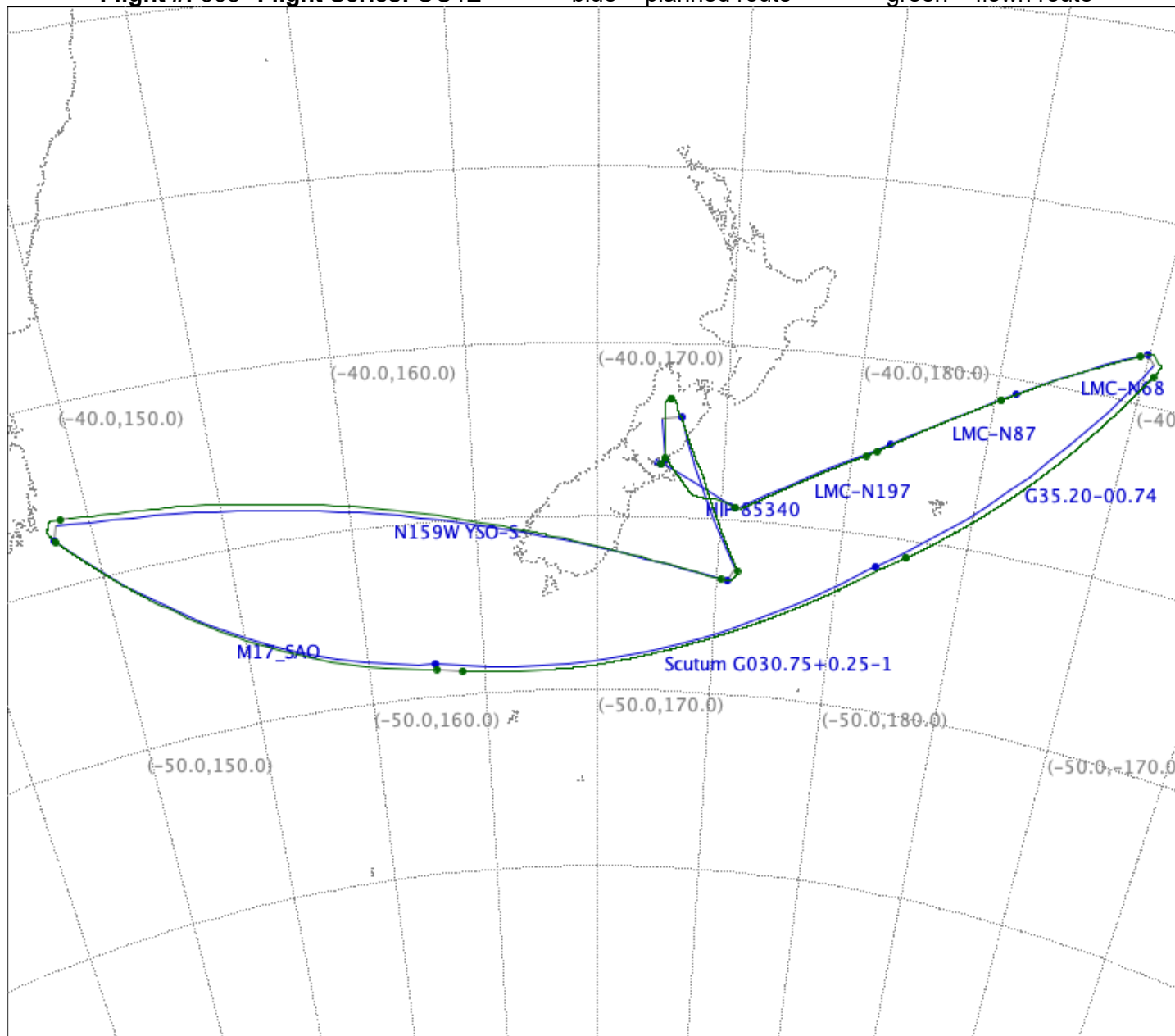
MISSION ID: 2016-06-10_GR_F308

Date: 2016-06-10 UT Instrument: GREAT

Flight #: 308 Flight Series: OC4E

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 308 Mission ID
Christchurch-Christchurch

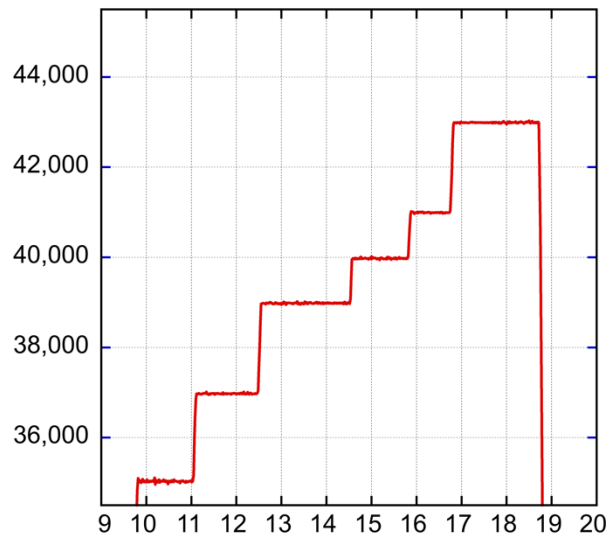
2016-06-10_GR_F308
Take off date UTC:
10-JUN-2016

Departure UTC: 09:20
Arrival UTC: 19:05

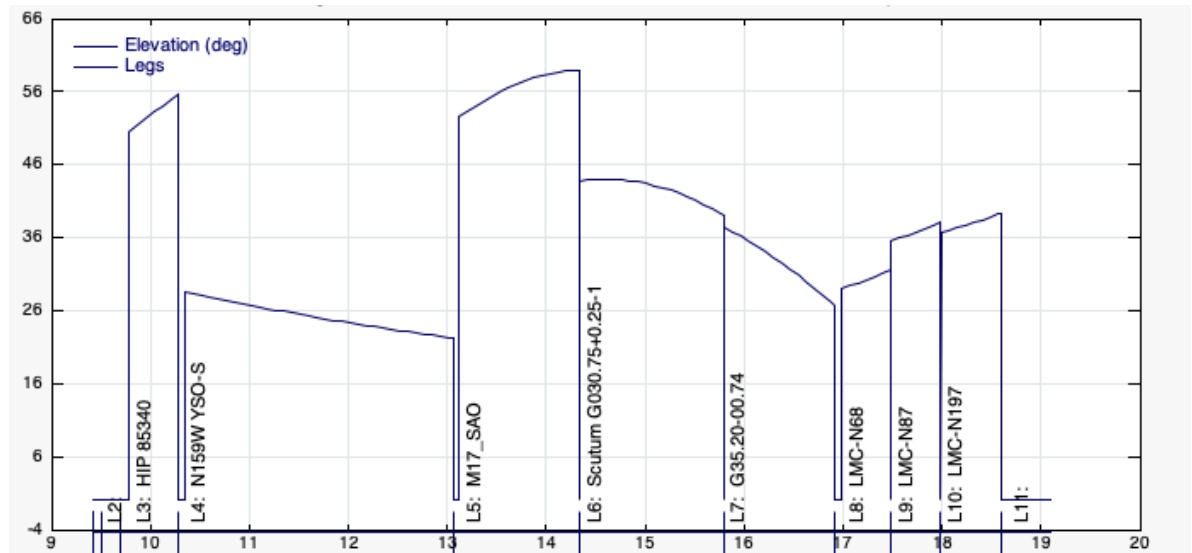
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 85340	17h26m22.22s	-24d10m31.1s	9:47	30	
4	04_0101	Meixner	N159W YSO-S	05h39m41.89s	-69d46m11.9s	10:21	163	
5	04_0057	Guevara	M17_SAO	18h20m27.64s	-16d12m00.9s	13:08	73	
6	04_0033	Langer	Scutum G030.75+0.25	18h46m34.01s	-01d49m39.7s	14:21	87	
7	04_0133	Tan	G35.20-00.74	18h58m13.03s	01d40m36.1s	15:48	67.7	
8	04_0082	Israel	LMC-N68	05h37m02.60s	-68d14m21.3s	16:59	30	
9	04_0082	Israel	LMC-N87	04h54m22.70s	-69d29m42.6s	17:29	30	
10	04_0082	Israel	LMC-N197	05h20m55.20s	-71d43m11.6s	18:00	37	

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



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



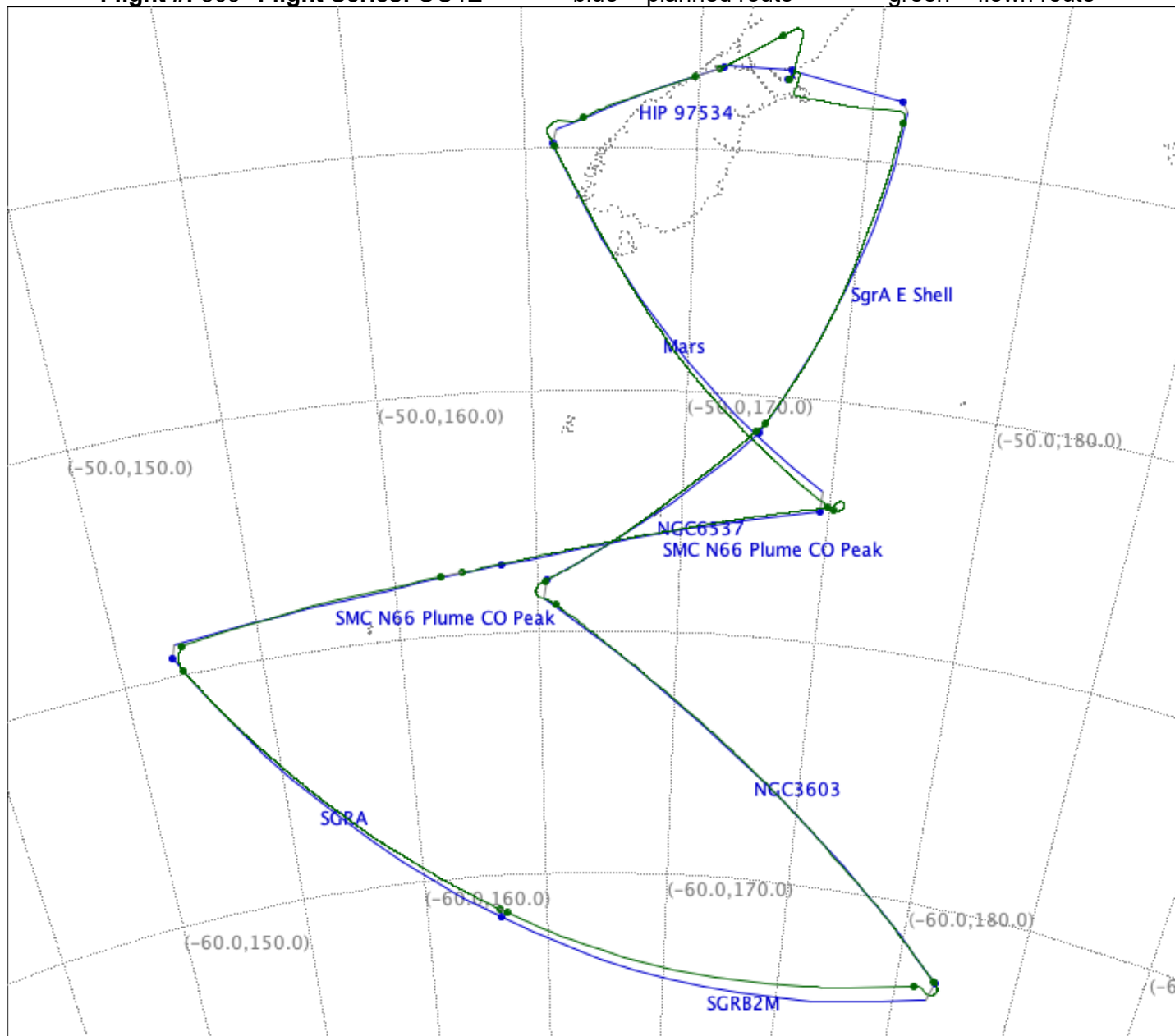
MISSION ID: 2016-06-14_GR_F309

Date: 2016-06-14 UT Instrument: GREAT

Flight #: 309 Flight Series: OC4E

blue = planned route

green = flown route

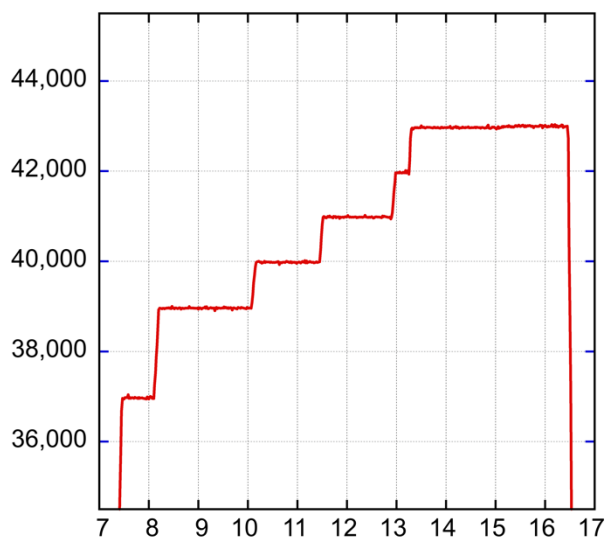


Flight notes:

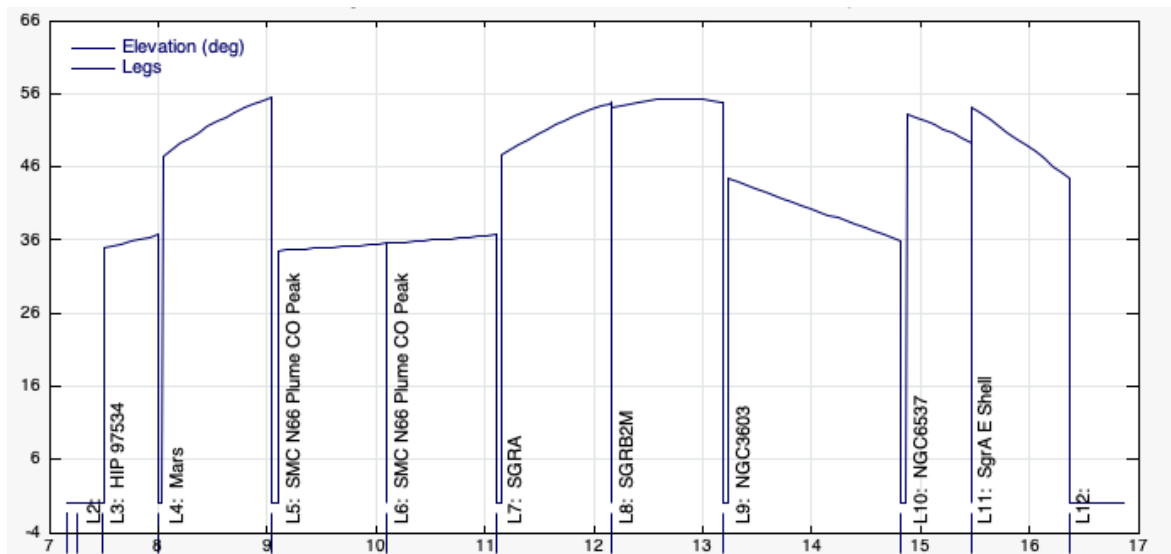
Instrument pointing alignment likely off slightly (~4") the entire flight.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 97534	19h49m25.31s	-72d30m12.2s	7:30	30	
4	90 0008	Calibration	Mars	15h26m13.83s	-21d00m37.3s	8:02	60	Instrument pointing alignment took the entire leg and may still be off slightly(~4")
5	83 0415	GREAT Consortium	SMC N66 Plume CO Peak	00h59m13.51s	-72d09m26.9s	9:06	60	
6	83 0415	GREAT Consortium	SMC N66 Plume CO Peak	00h59m13.51s	-72d09m26.9s	10:06	60	
7	83 0410	GREAT Consortium	SGRA	17h45m40.04s	-29d00m28.1s	11:09	61	
8	83 0410	GREAT Consortium	SGRB2M	17h47m20.16s	-28d23m04.5s	12:10	61	
9	83 0412	GREAT Consortium	NGC3603	11h15m15.10s	-61d17m35.0s	13:14	95	
10	83 0418	GREAT Consortium	NGC6537	18h05m13.10s	-19d50m34.9s	14:52	33	
11	83 0416	GREAT Consortium	SgrA E Shell	17h45m47.05s	-29d01m02.1s	15:28	54	

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



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



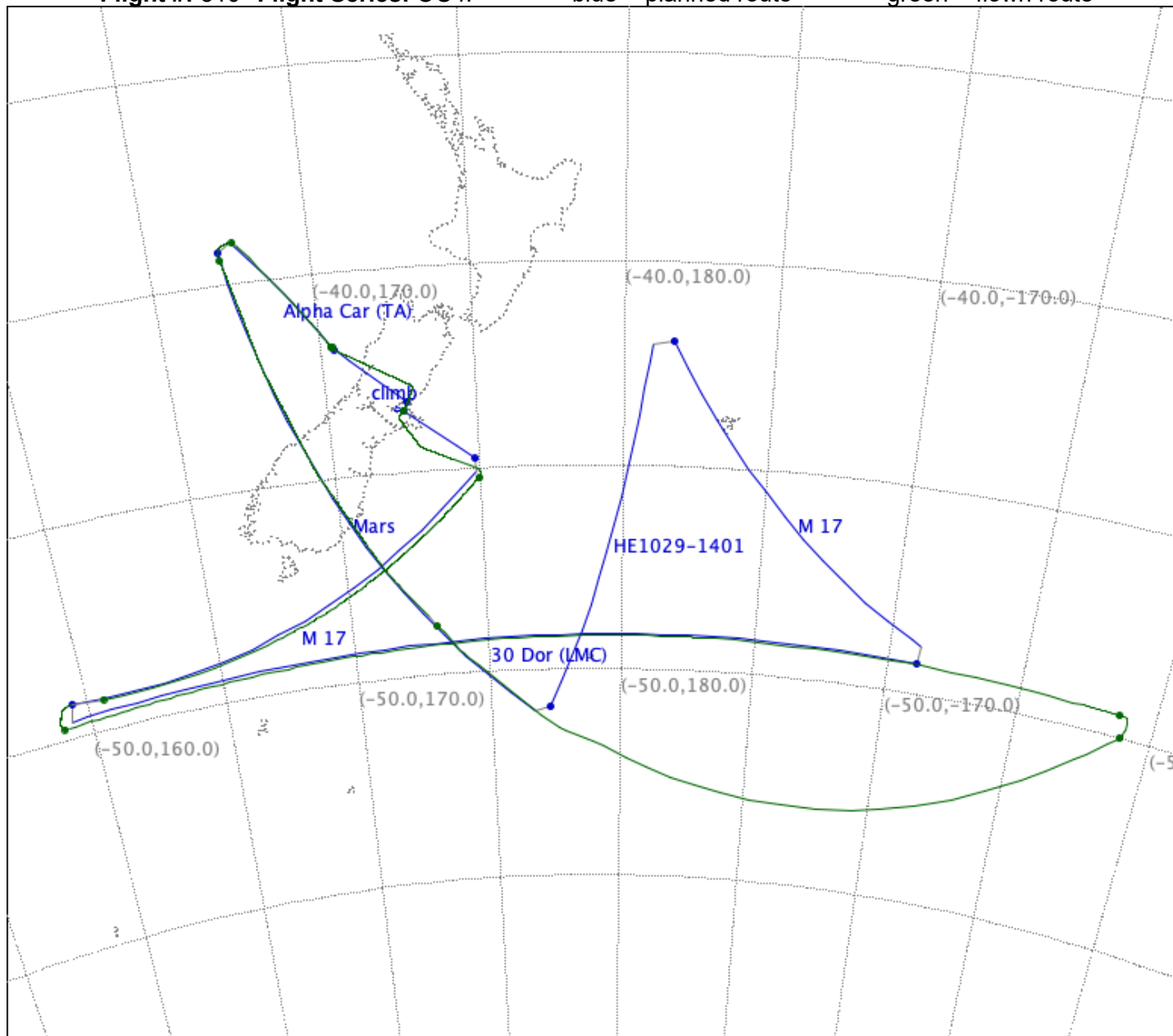
MISSION ID: 2016-06-28_FI_F310

Date: 2016-06-28 UT Instrument: FIFI-LS

Flight #: 310 Flight Series: OC4F

blue = planned route

green = flown route

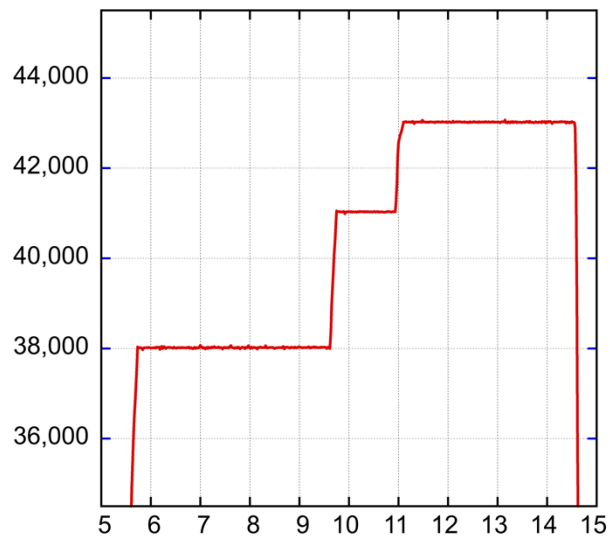


Flight notes:

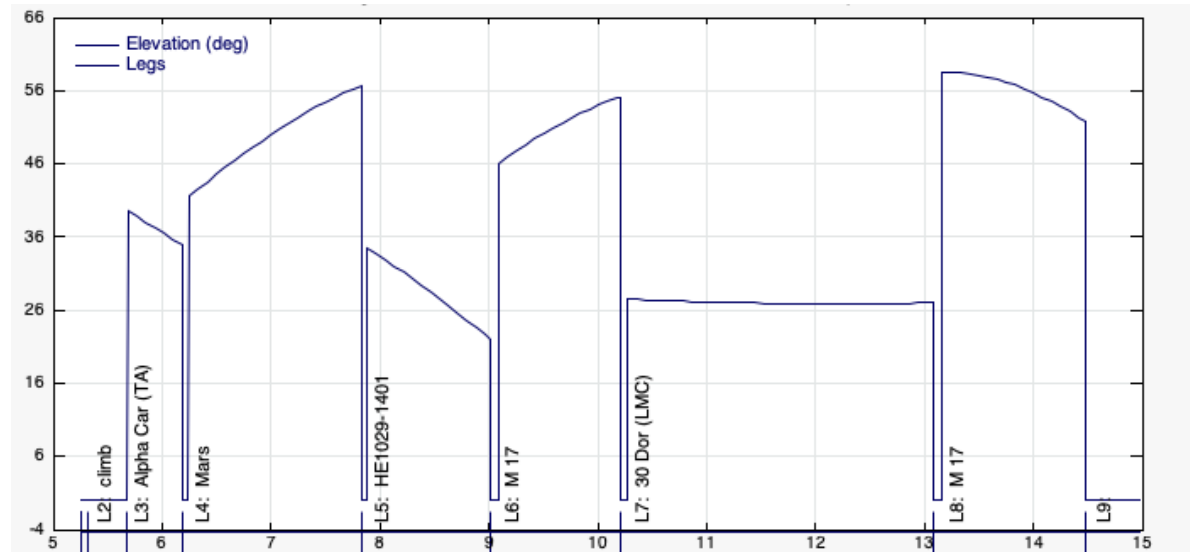
Mission replanned in-flight to complete necessary instrument pointing alignment.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Alpha Car	06h23m57.00s	-52d41m44.0s	5:41	30	
4	90_0033	Calibration	Mars	15h18m59.50s	-20d57m54.9s	6:15	95	Leg extended for instrument pointing alignment.
5	04_0056	Husemann	HE1029-1401	10h31m54.30s	-14d16m51.0s	7:52	68	Leg not flown; Sacrificed in replan.
6	04_0049	Klein	M17-SW	18h20m23.10s	-16d11m43.0s	9:05	67	Leg not flown; Sacrificed in replan.
7	75_0016	Discretionary	30dor_NE	05h38m27.23s	-69d01m49.9s	10:16	168	Extended time.
8	04_0049	Klein	M17-SW	18h20m23.10s	-16d11m43.0s	13:10	79	20min lost due to GREAT software errors

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



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



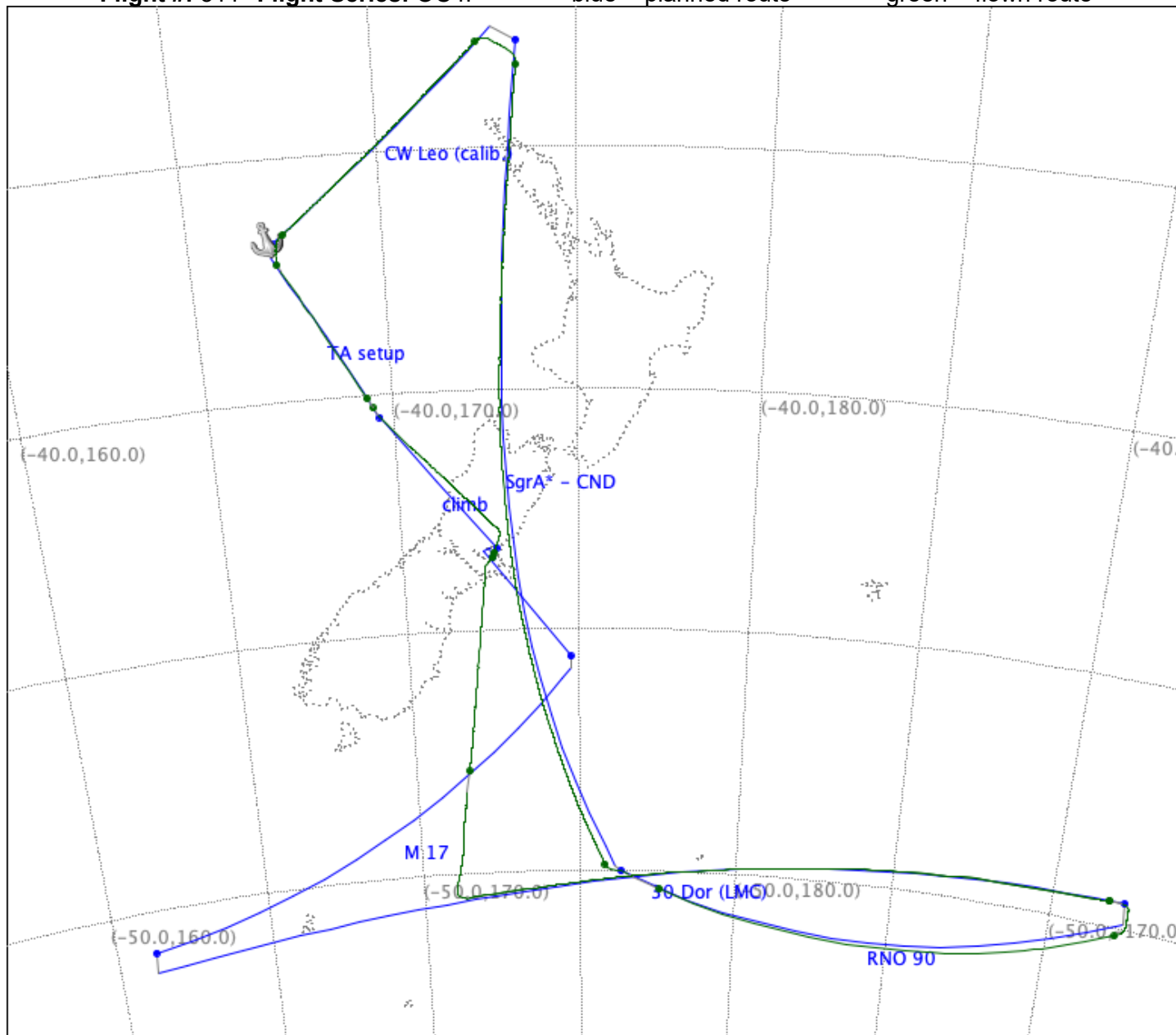
MISSION ID: 2016-06-29_FI_F311

Date: 2016-06-29 UT Instrument: FIFI-LS

Flight #: 311 Flight Series: OC4F

blue = planned route

green = flown route

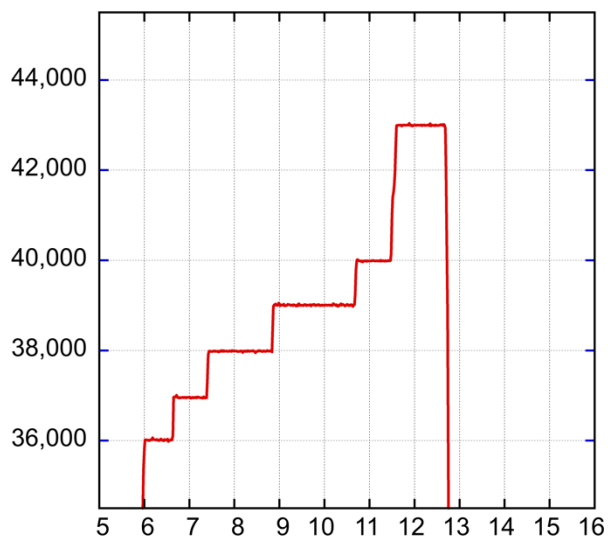


Flight notes:

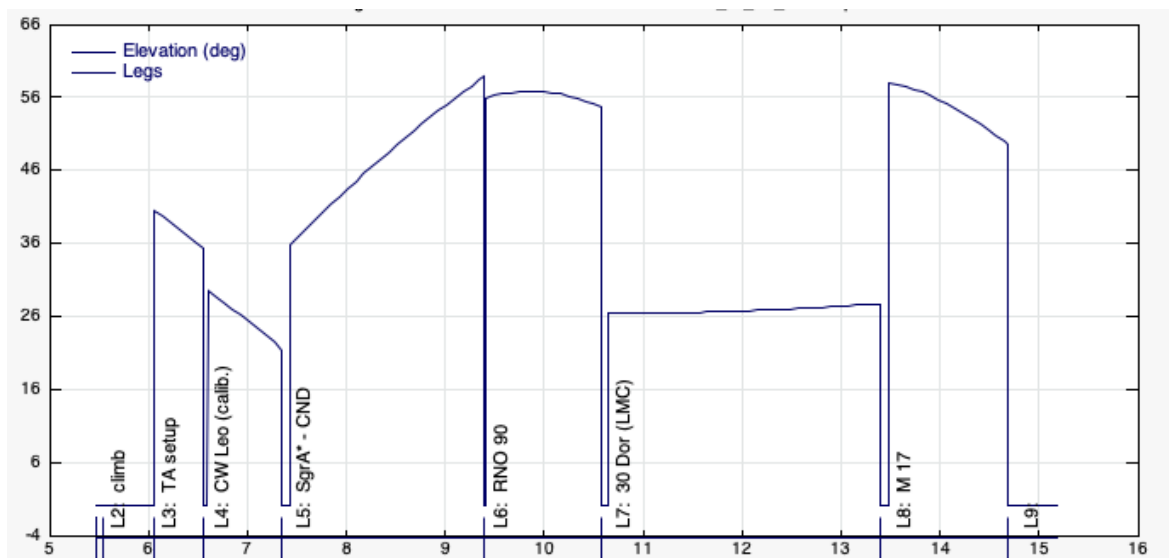
Early return to Christchurch base due to predicted fog at landing site.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HD 55892	07h12m33.00s	-46d45m32.0s	6:03	30	
4	90_0030	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	6:36	45	
5	70_0408	GTO	SgrA* - CND	17h45m40.04s	-29d00m28.2s	7:25	118	
6	04_0178	Carr	RNO 90	16h34m09.17s	-15d48m16.8s	9:24	70	
7	75_0016	Discretionary	30dor_NE	05h38m27.23s	-69d01m49.9s	10:39	165	Observations ended early to return to base before predicted fog.
8	04_0049	Klein	M17-SW	18h20m23.10s	-16d11m43.0s	13:29	72	Leg not flown; early return to base

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



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



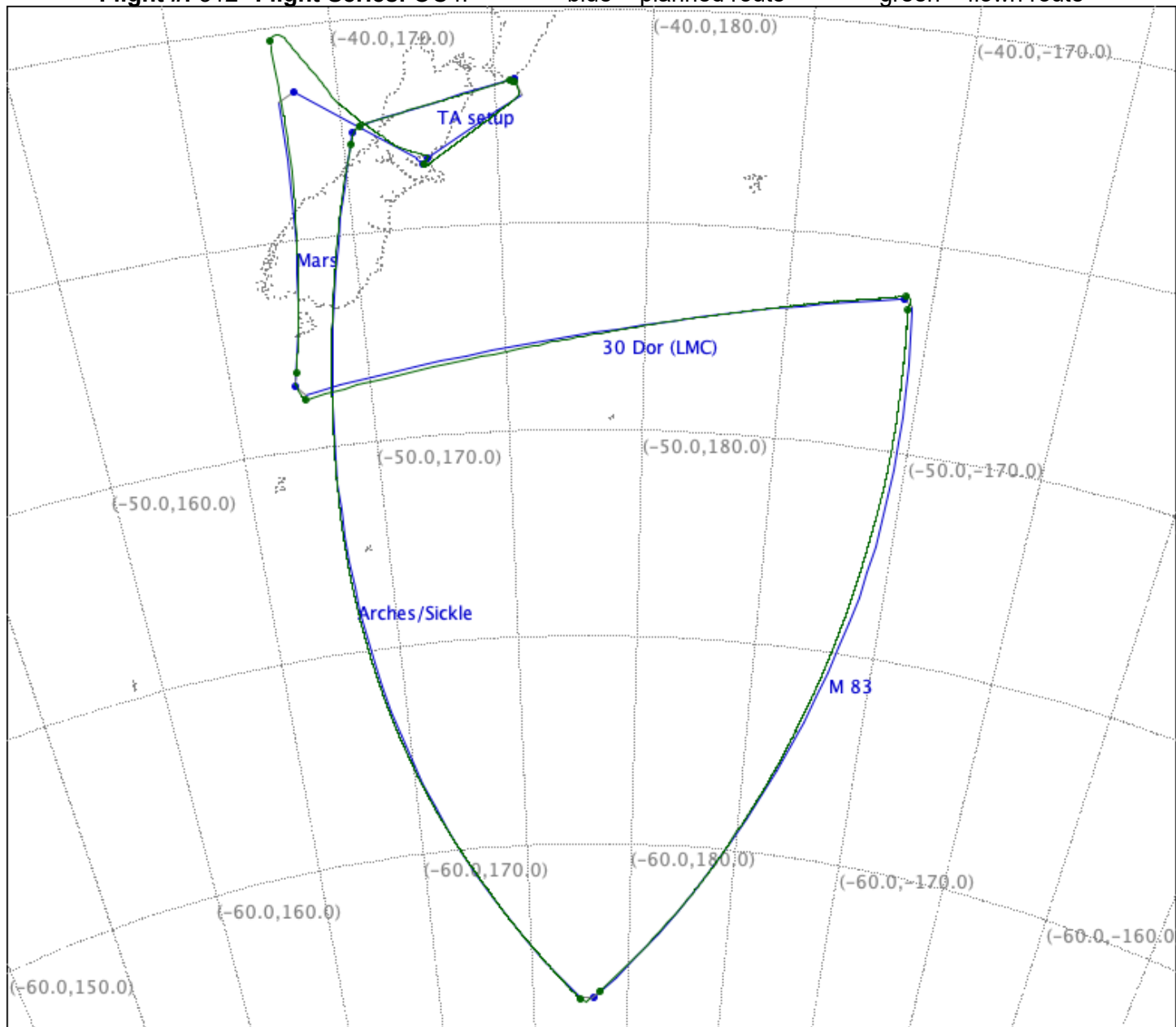
MISSION ID: 2016-06-30_FI_F312

Date: 2016-06-30 UT Instrument: FIFI-LS

Flight #: 312 Flight Series: OC4F

blue = planned route

green = flown route

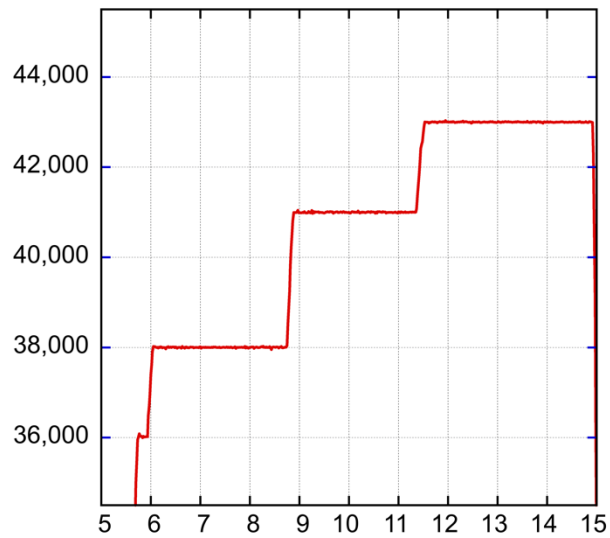


Flight notes:
No irregularities.

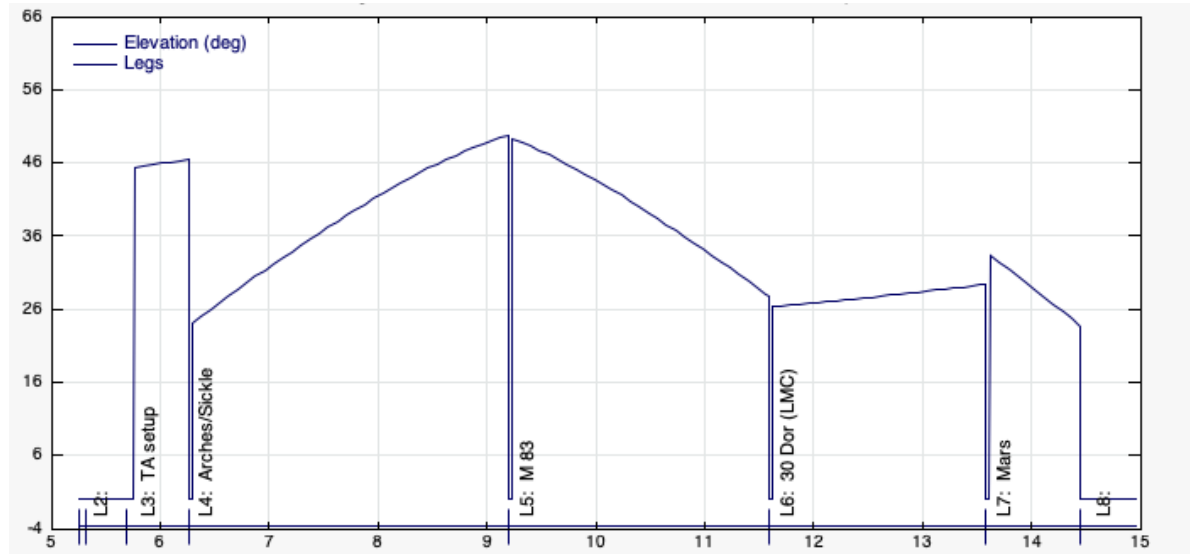
Flight 312 Mission ID 2016-06-30_FI_F312
 Christchurch-Christchurch Take off date UTC: 30-JUN-2016
 Departure UTC: 05:18 Arrival UTC: 15:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HD 145366	16h20m20.80s	-78d41m44.7s	5:45	30	
4	04_0032	Harris	GC Arches	17h45m48.00s	-28d48m00.0s	6:17	174	
5	04_0179	Stacey	M83-Nucleus	13h37m00.60s	-29d51m56.0s	9:13	141	
6	75_0016	Discretionary	30dor_NE	05h38m27.23s	-69d01m49.9s	11:37	117	
7	90_0033	Calibration	Mars	15h18m52.24s	-21d00m15.9s	13:37	50	Telescope failure led to 18min loss; Leg extended to finish calibration.

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



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



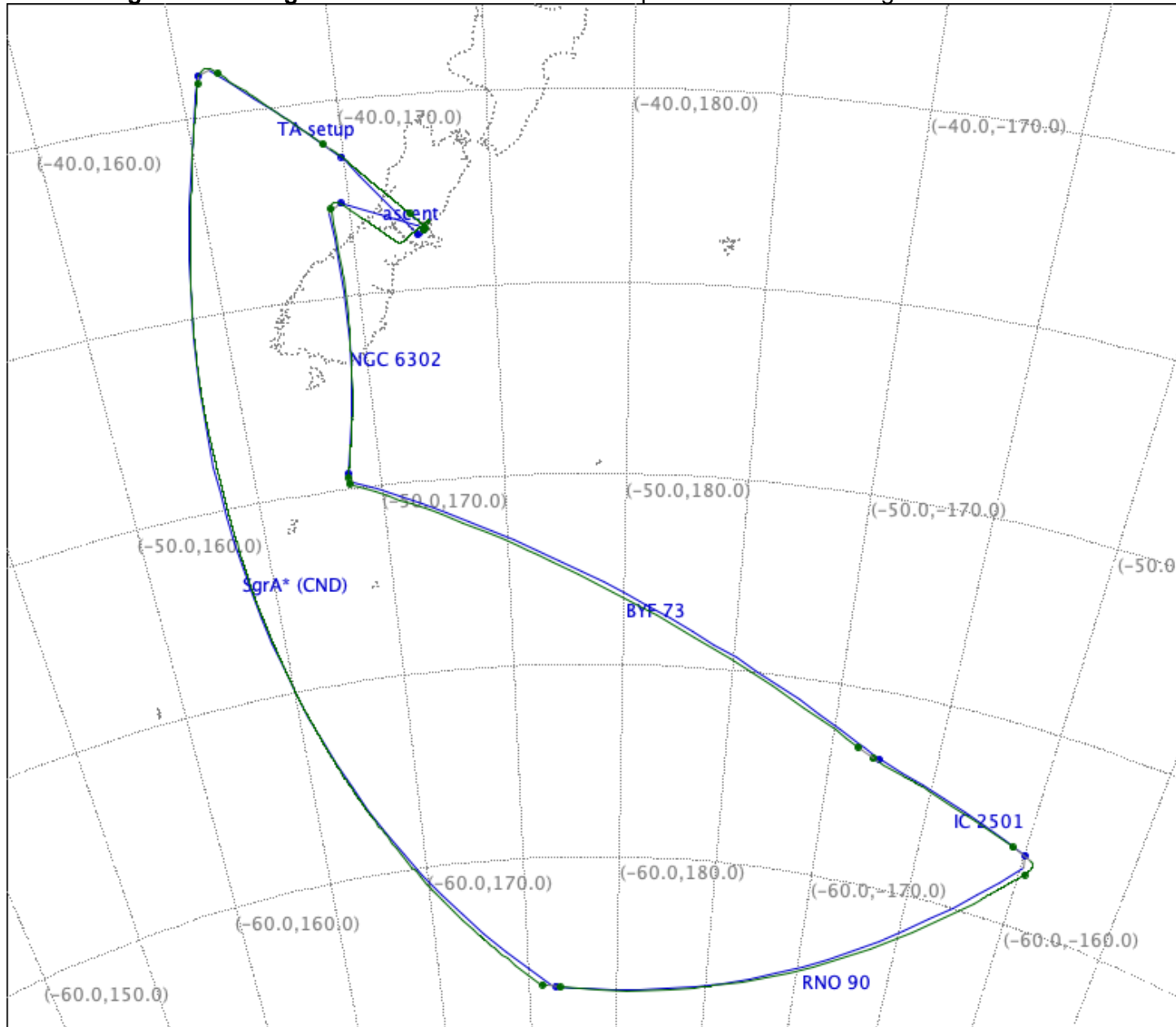
MISSION ID: 2016-07-01_FI_F313

Date: 2016-07-01 UT Instrument: FIFI-LS

Flight #: 313 Flight Series: OC4F

blue = planned route

green = flown route

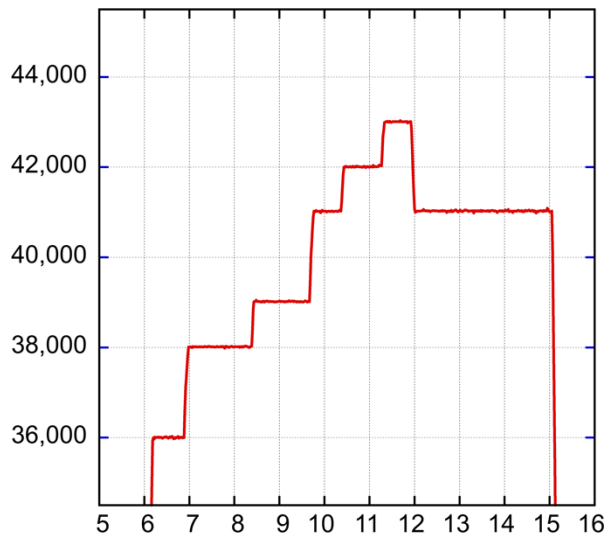


Flight notes: No irregularities.

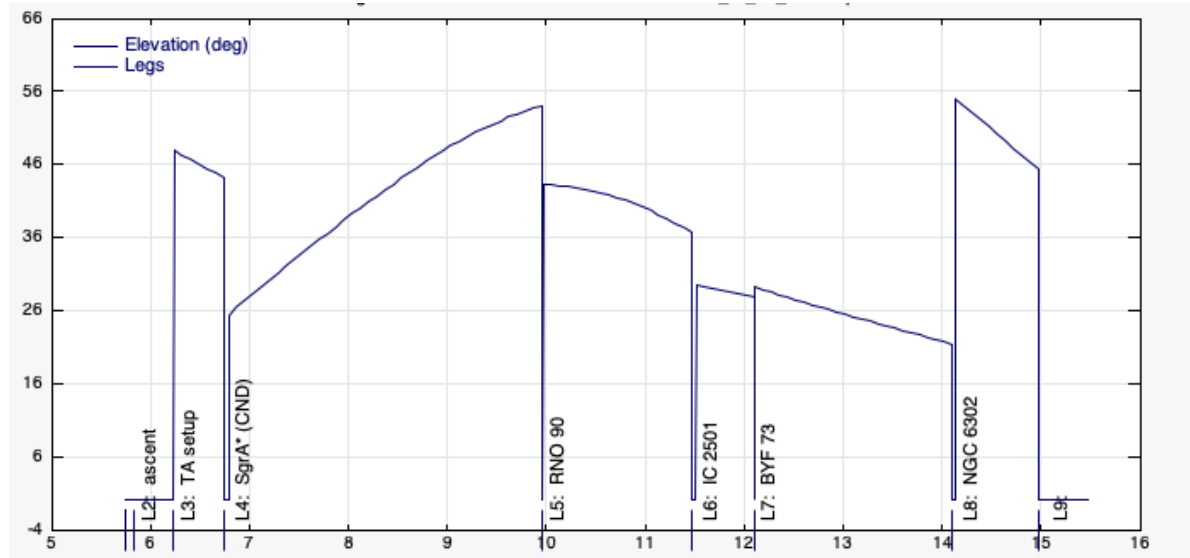
Flight 313 Mission ID 2016-07-01_FI_F313
 Christchurch-Christchurch Take off date UTC: 01-JUL-2016
 Departure UTC: 05:45 Arrival UTC: 15:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HD 66591	08h00m20.00s	-63d34m02.0s	6:14	30	
4	70_0408	GTO	SgrA* - CND	17h45m40.04s	-29d00m28.2s	6:47	190	10min lost due to scripting error
5	04_0178	Carr	RNO 90	16h34m09.17s	-15d48m16.8s	9:58	90	
6	04_0162	Cami	IC 2501	09h38m47.15s	-60d05m30.5s	11:30	35	
7	04_0061	Barnes	BYF 73	10h38m32.05s	-58d19m07.3s	12:06	120	
8	90_0030	Calibration	NGC 6302	17h13m44.21s	-37d06m15.9s	14:08	50	

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



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



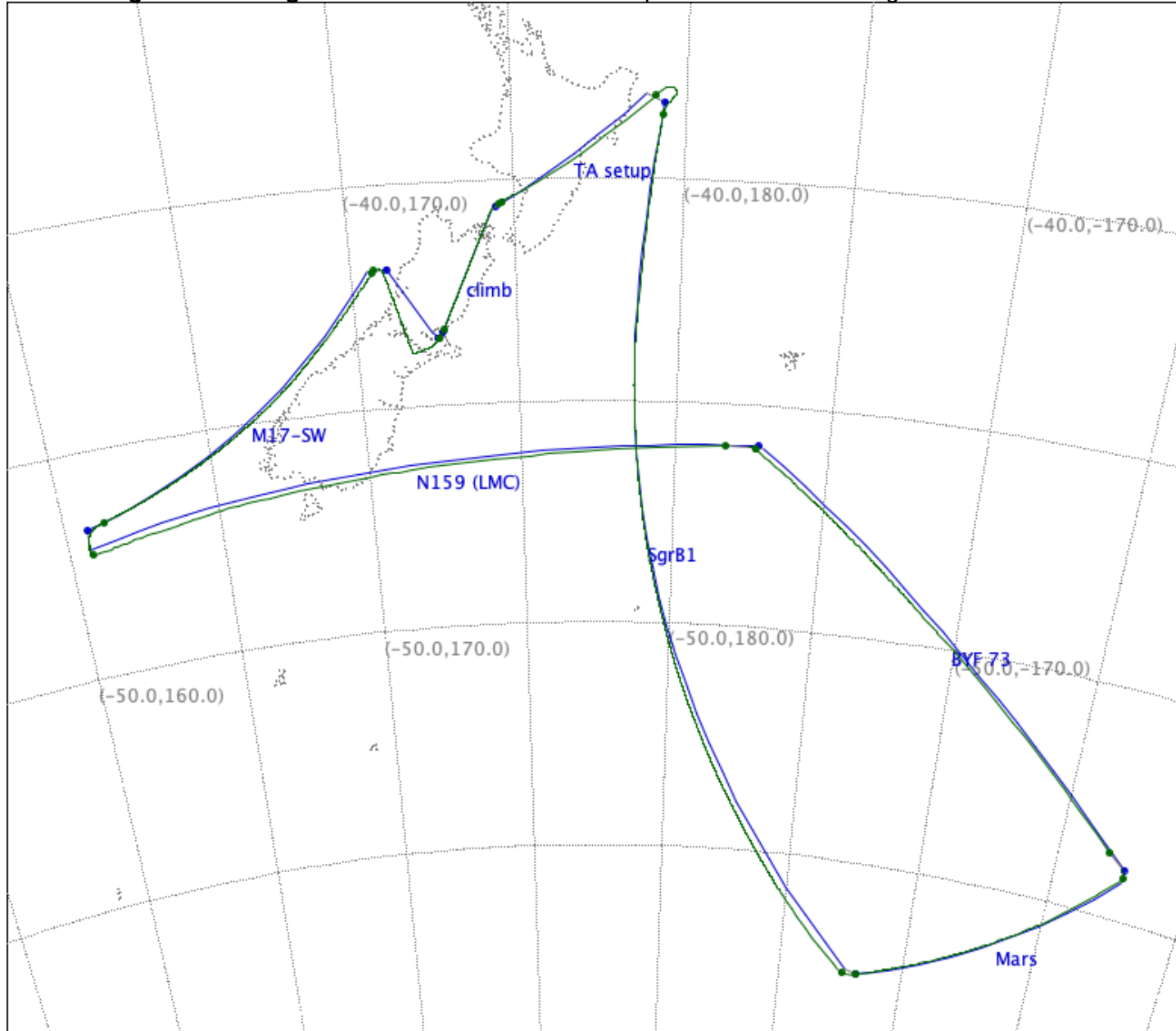
MISSION ID: 2016-07-03_FI_F314

Date: 2016-07-03 UT Instrument: FIFI-LS

Flight #: 314 Flight Series: OC4F

blue = planned route

green = flown route

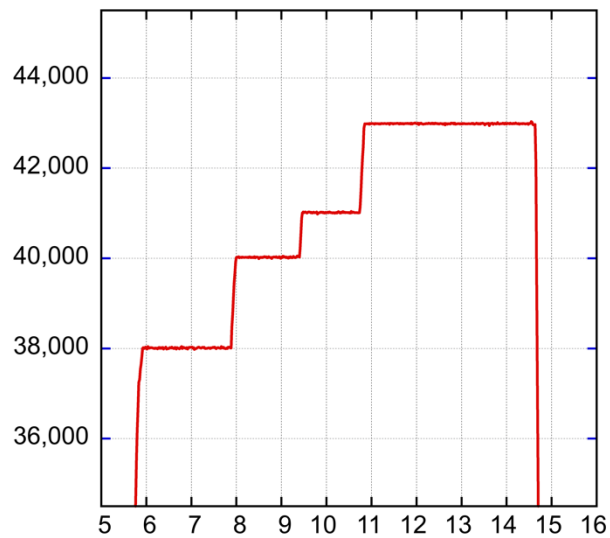


**Flight notes:
No irregularities.**

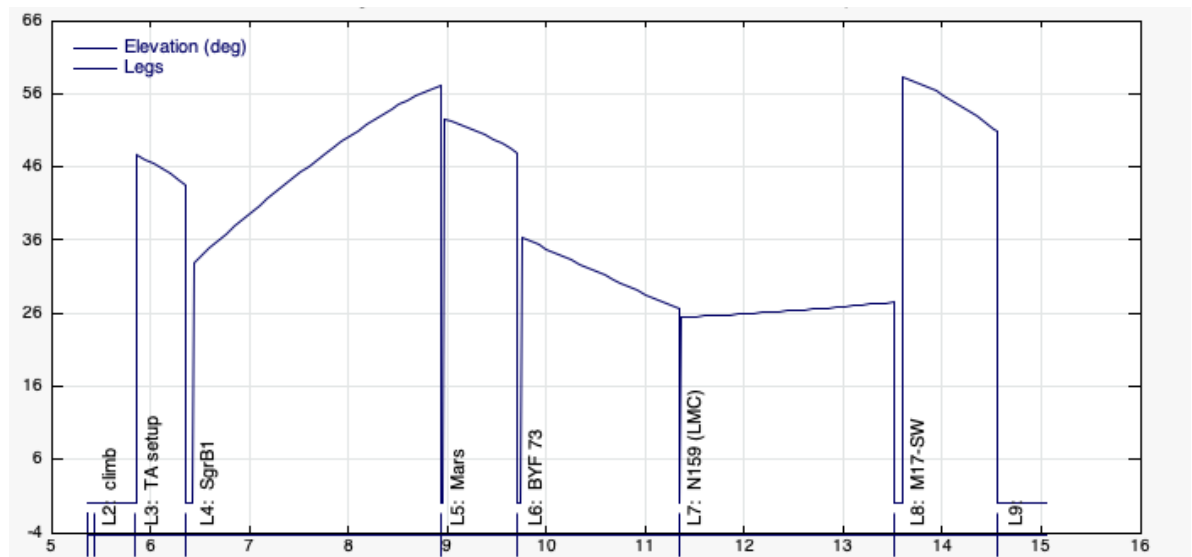
Flight 314 Mission ID 2016-07-03_FI_F314
 Christchurch-Christchurch Take off date UTC: 03-JUL-2016
 Departure UTC: 05:22 Arrival UTC: 15:03

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HR 4253	10h53m44.00s	-02d07m45.0s	5:51	30	
4	04_0113	Simpson	MYPG-D	17h46m56.80s	-28d33m45.0s	6:26	150	
5	90_0033	Calibration	Mars	15h19m08.00s	-21d04m16.1s	8:57	45	
6	04_0061	Barnes	BYF 73	10h38m32.05s	-58d19m07.3s	9:45	95	
7	04_0160	Lee	LMC N159W	05h39m37.10s	-69d45m44.1s	11:21	130	
8	04_0049	Klein	M17-SW	18h20m23.10s	-16d11m43.0s	13:36	57	

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



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



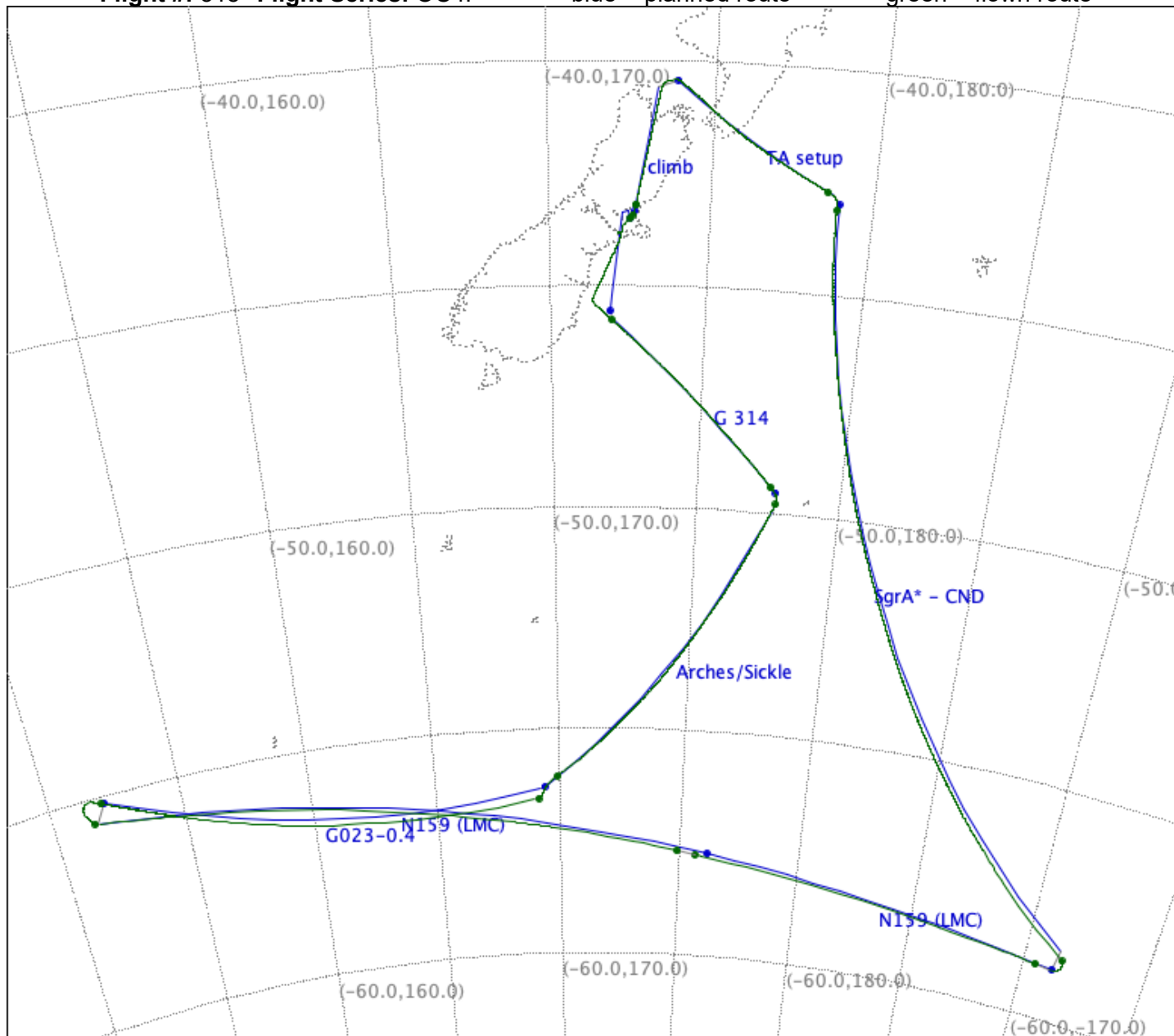
MISSION ID: 2016-07-04_FI_F315

Date: 2016-07-04 UT Instrument: FIFI-LS

Flight #: 315 Flight Series: OC4F

blue = planned route

green = flown route

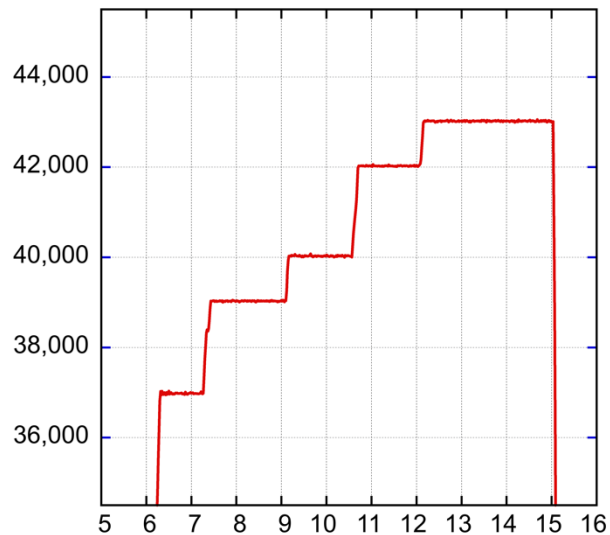


Flight notes: No irregularities.

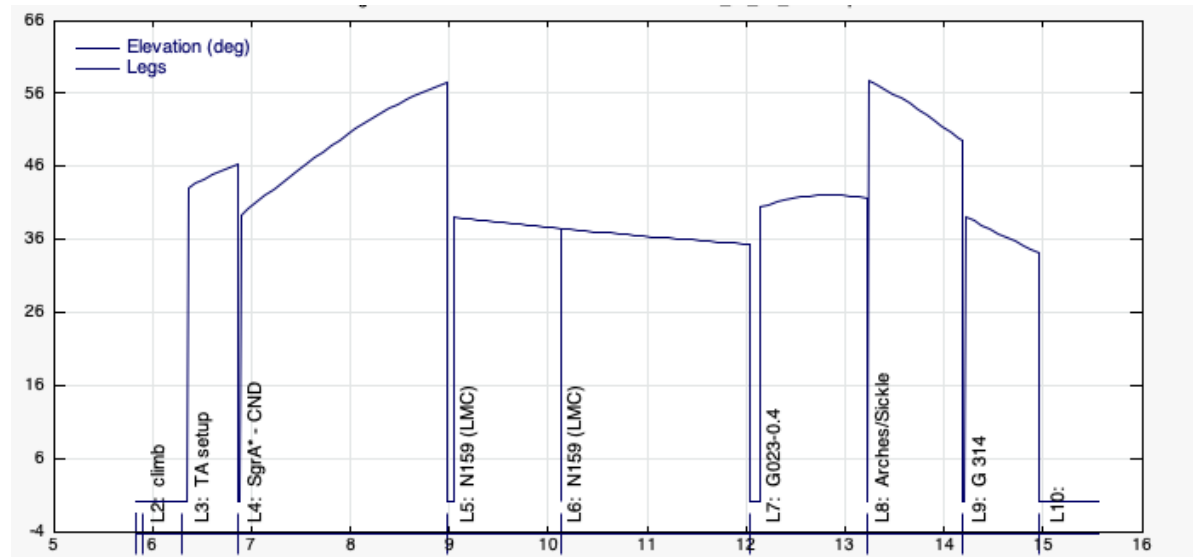
Flight 315 Mission ID 2016-07-04_FI_F315
 Christchurch-Christchurch Take off date UTC: 04-JUL-2016
 Departure UTC: 05:50 Arrival UTC: 15:27

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HR 5535	14h51m01.00s	-02d17m59.0s	6:21	30	
4	70_0408	GTO	SgrA* - CND	17h45m40.04s	-29d00m28.2s	6:53	125	
5	04_0160	Lee	LMC N159W	05h39m37.10s	-69d45m44.1s	9:02	65	
6	04_0160	Lee	LMC N159W	05h39m37.10s	-69d45m44.1s	10:07	115	
7	04_0106	Sanna	G023.01-00.41	18h34m40.29s	-09d00m38.3s	12:08	65	
8	04_0032	Harris	GC Arches	17h45m48.00s	-28d48m00.0s	13:14	57	
9	04_0152	Jackson	AGAL313.576+00.324	14h20m08.20s	-60d42m00.8s	14:13	45	

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



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



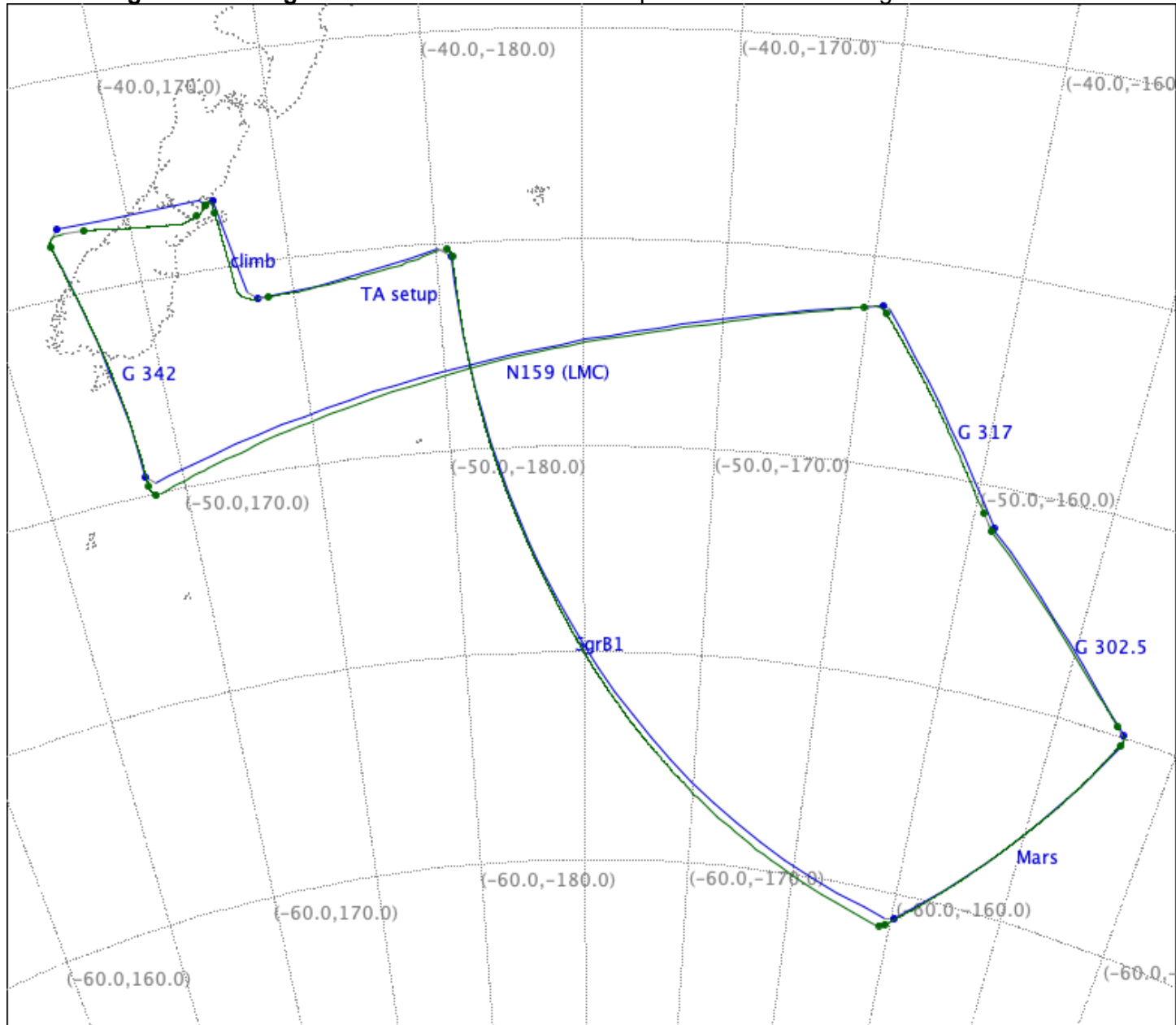
MISSION ID: 2016-07-05_FI_F316

Date: 2016-07-05 UT Instrument: FIFI-LS

Flight #: 316 Flight Series: OC4F

blue = planned route

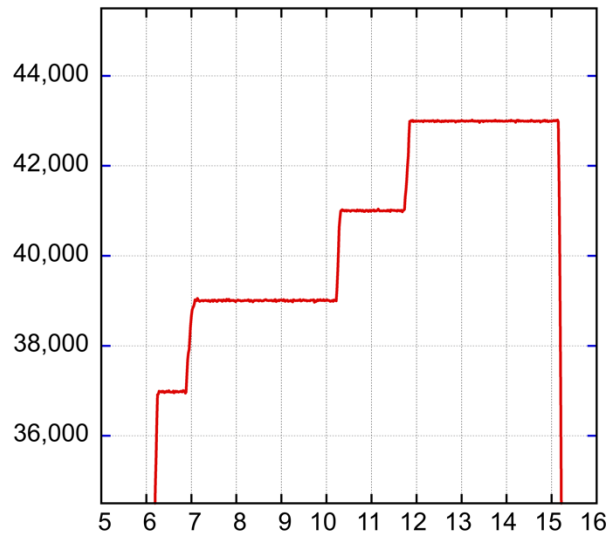
green = flown route



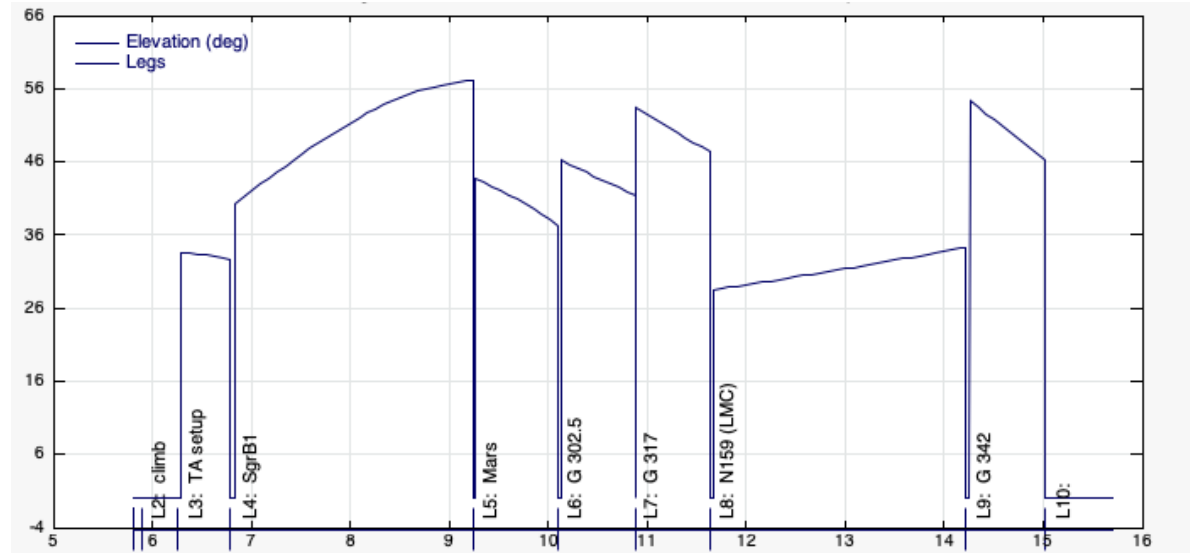
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Rho Vir	12h41m53.00s	10d14m07.0s	6:17	30	
4	04_0113	Simpson	MYPG-D	17h46m56.80s	-28d33m45.0s	6:50	144	Vignetting due to upper telescope door apparent at end of leg; last 15min of data may be affected.
5	90_0033	Calibration	Mars	15h19m36.45s	-21d07m59.1s	9:16	50	
6	04_0152	Jackson	AGAL302.486-00.031	12h47m31.11s	-62d53m58.9s	10:08	45	
7	04_0152	Jackson	AGAL317.429-00.561	14h51m37.68s	-60d00m19.0s	10:53	45	
8	04_0160	Lee	LMC N159W	05h39m37.10s	-69d45m44.1s	11:40	153	
9	04_0152	Jackson	AGAL341.702+00.051	16h52m52.22s	-43d54m21.9s	14:15	45	

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



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



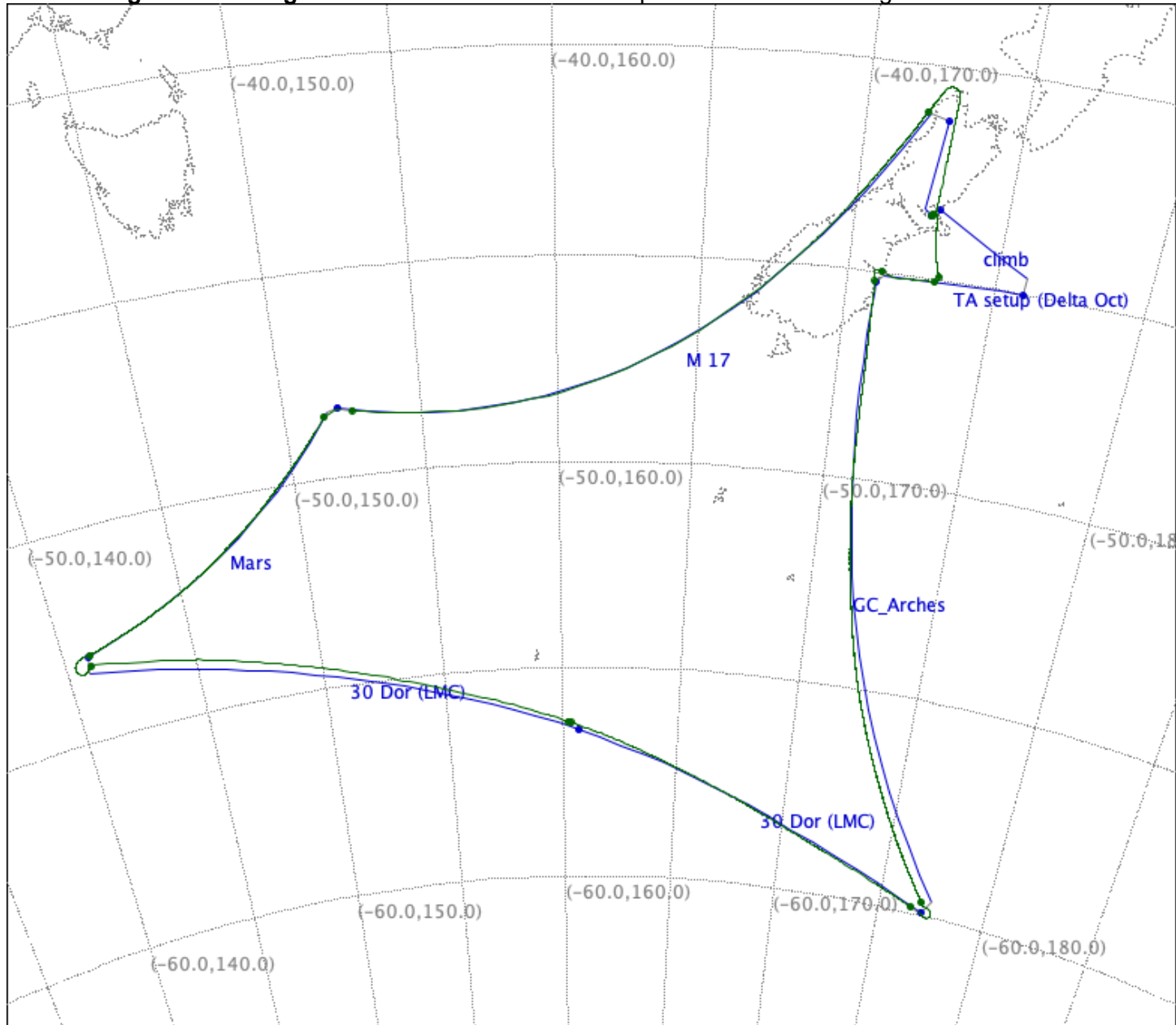
MISSION ID: 2016-07-06_FI_F317

Date: 2016-07-06 UT Instrument: FIFI-LS

Flight #: 317 Flight Series: OC4F

blue = planned route

green = flown route

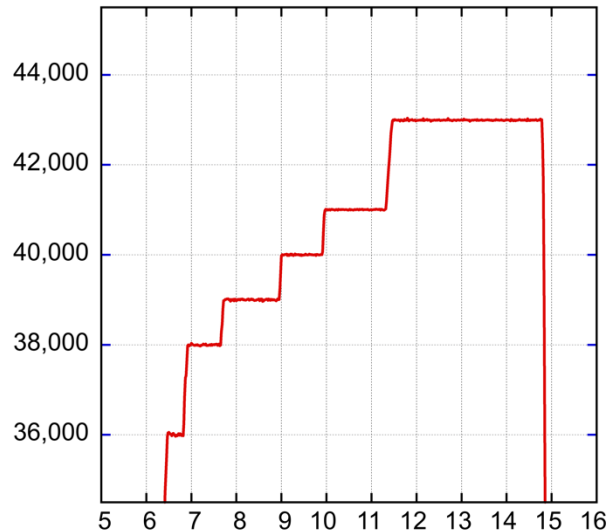


Flight notes: Late departure.

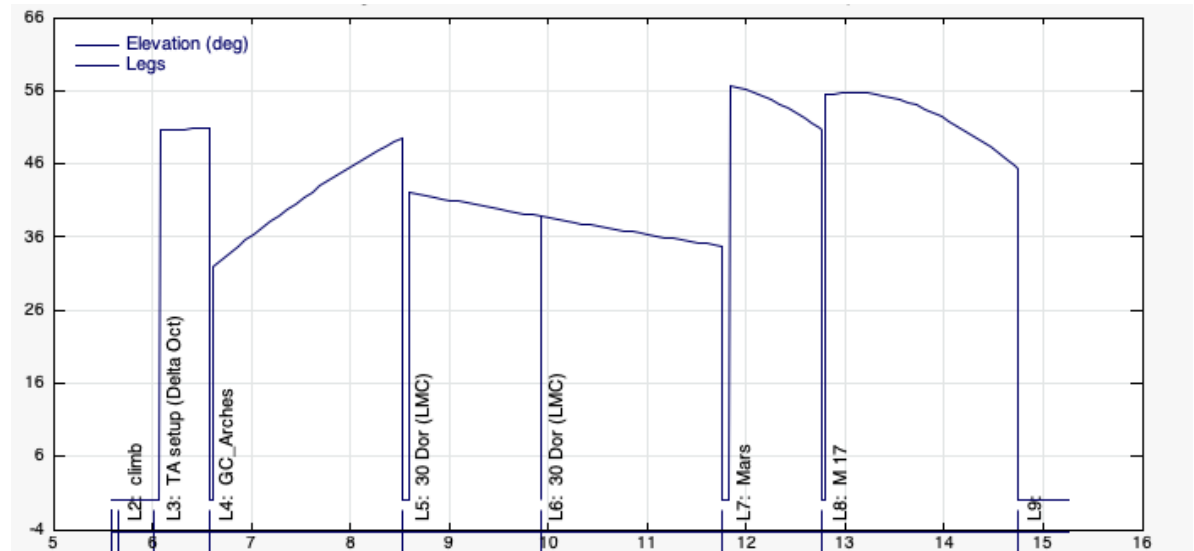
Flight 317 Mission ID 2016-07-06_FI_F317
 Christchurch-Christchurch Take off date UTC: 06-JUL-2016
 Departure UTC: 05:59 Arrival UTC: 15:27

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Delta Oct	14h26m47.00s	-83d40m05.0s	6:04	30	
4	04_0032	Harris	GC Arches	17h45m48.00s	-28d48m00.0s	6:36	115	
5	75_0016	Discretionary	30dor_NE	05h38m27.23s	-69d01m49.9s	8:35	80	Possible indication of emission in the off-chop beam, a few files show an high background for unknown reasons
6	75_0016	Discretionary	30dor_NE	05h38m27.23s	-69d01m49.9s	9:55	110	
7	90_0033	Calibration	Mars	15h19m57.27s	-21d10m13.6s	11:49	56	
8	04_0049	Klein	M17-SW	18h20m23.10s	-16d11m43.0s	12:47	117	Vignetting for first 20min of leg by upper telescope door.

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



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



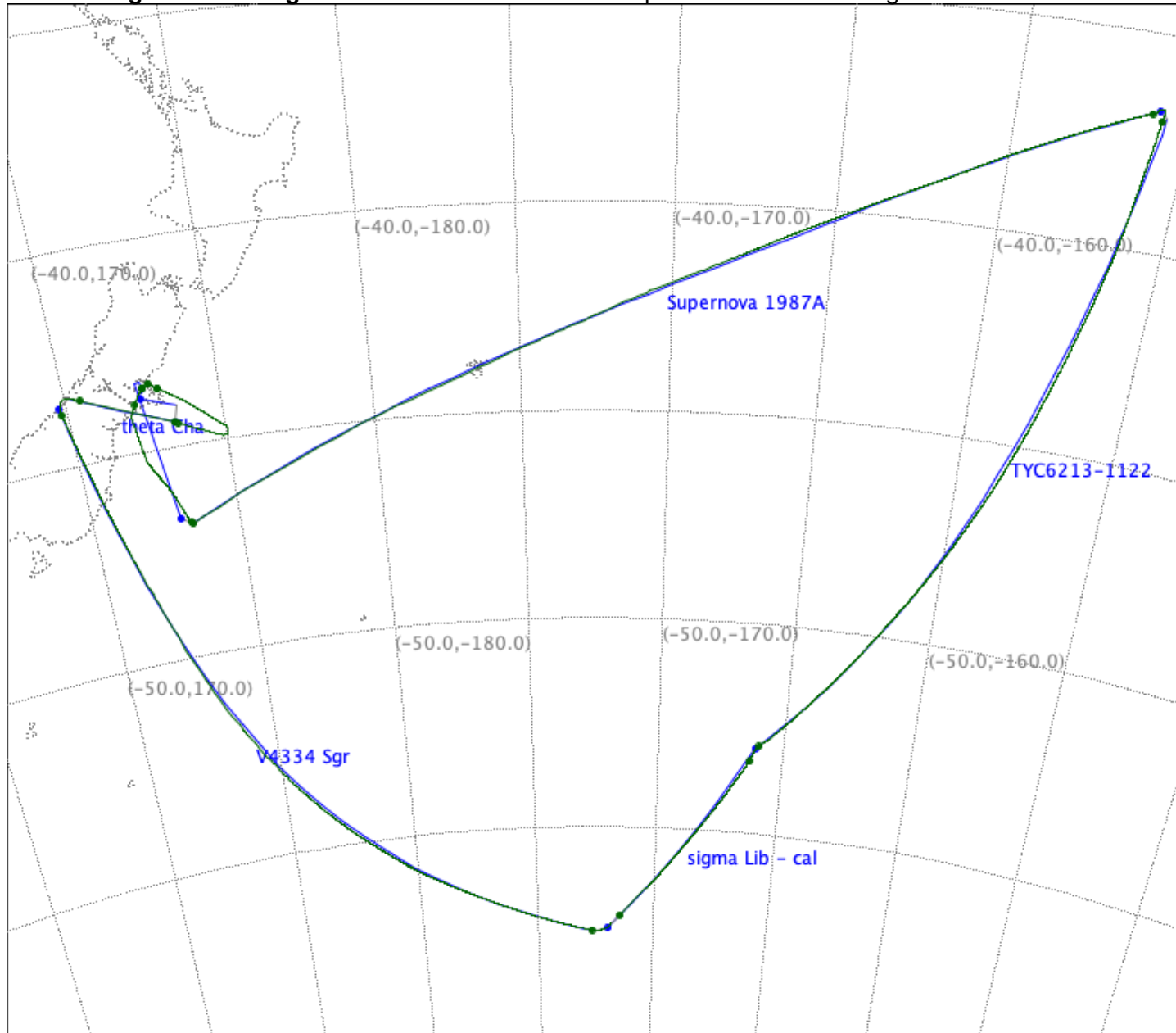
MISSION ID: 2016-07-11_FO_F318

Date: 2016-07-11 UT Instrument: FORCAST

Flight #: 318 Flight Series: OC4G

blue = planned route

green = flown route

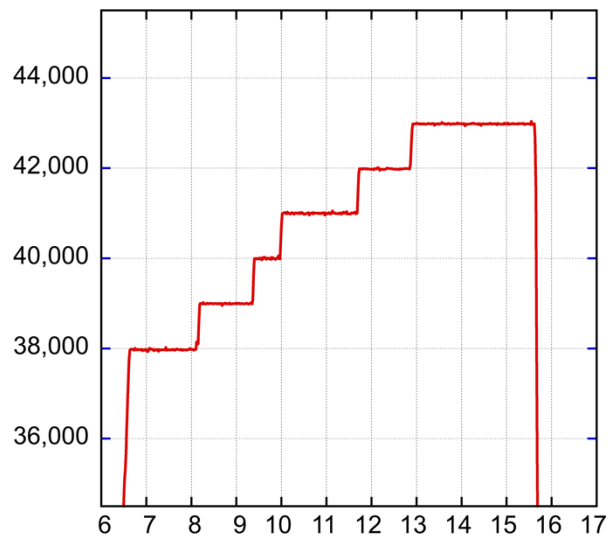


Flight notes: No irregularities.

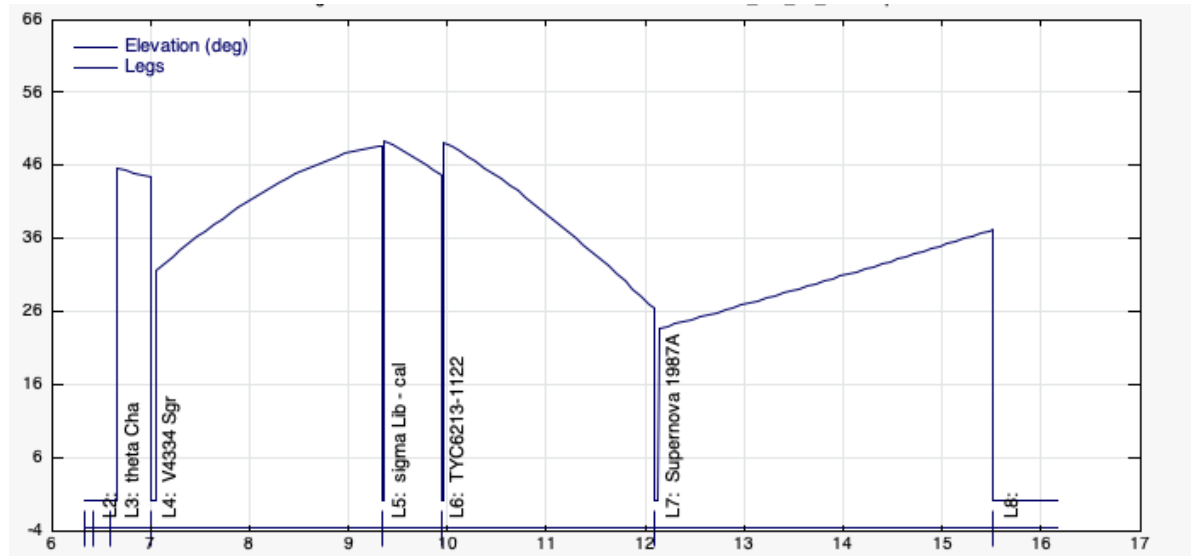
Flight 318 Mission ID 2016-07-11_FO_F318
 Christchurch-Christchurch Take off date UTC: 11-JUL-2016
 Departure UTC: 06:07 Arrival UTC: 16:17

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			theta Cha	08h20m38.54s	-77d29m04.1s	6:40	20	
4	04_0003	Evans	V4334 Sgr	17h52m32.69s	-17d41m08.0s	7:03	137	
5	90_0068	Calibration	Sigma Lib	15h04m04.22s	-25d16m55.1s	9:21	35	
6	04_0126	Song	TYC6213-1122	16h10m12.64s	-21d04m44.7s	9:57	128	Turbulence sent telescope into standby; 6min lost reacquiring
7	04_0016	Matsuura	Supernova 1987A	05h35m28.02s	-69d16m11.1s	12:08	202	

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



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



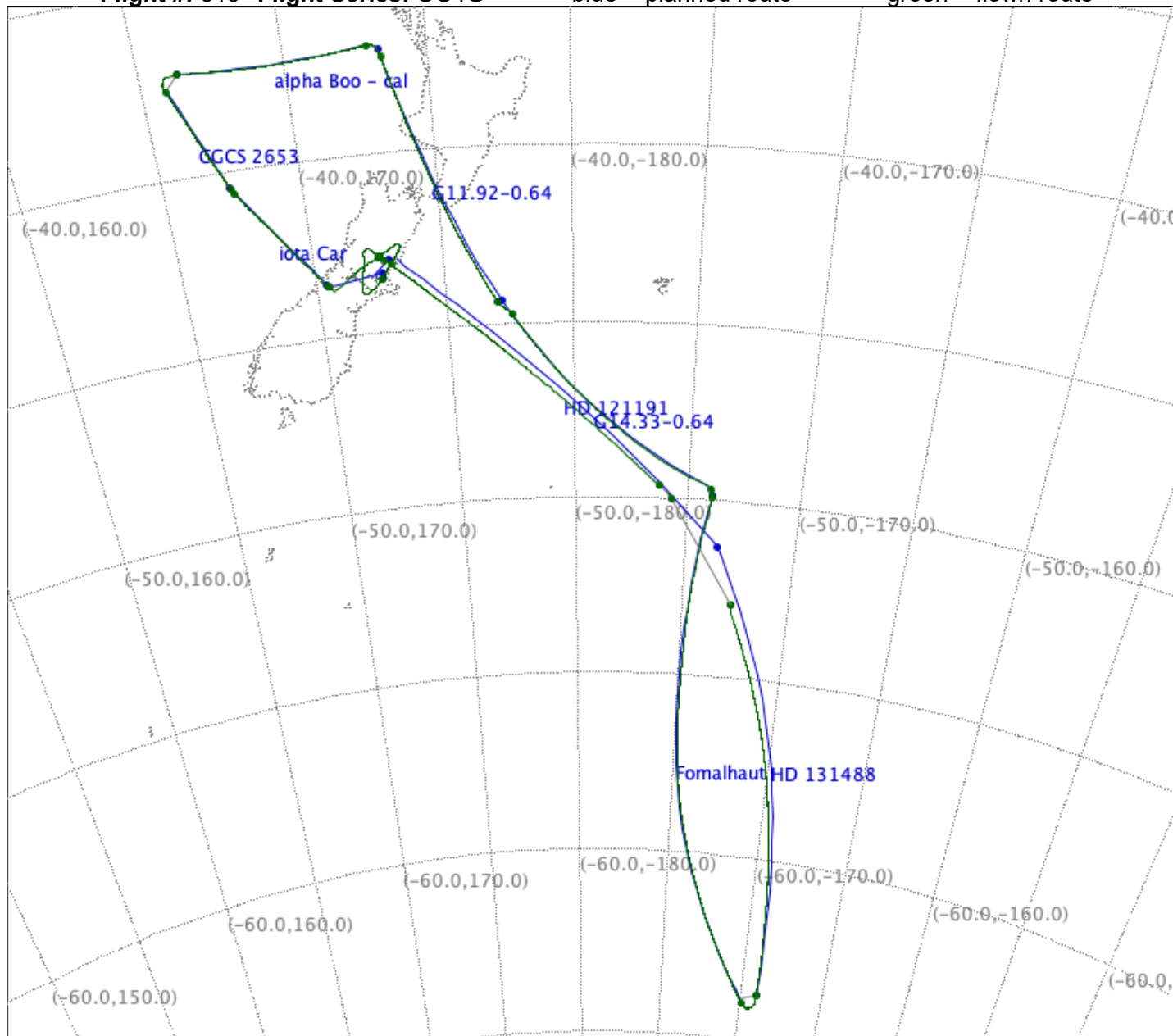
MISSION ID: 2016-07-12_FO_F319

Date: 2016-07-12 UT Instrument: FORCAST

Flight #: 319 Flight Series: OC4G

blue = planned route

green = flown route



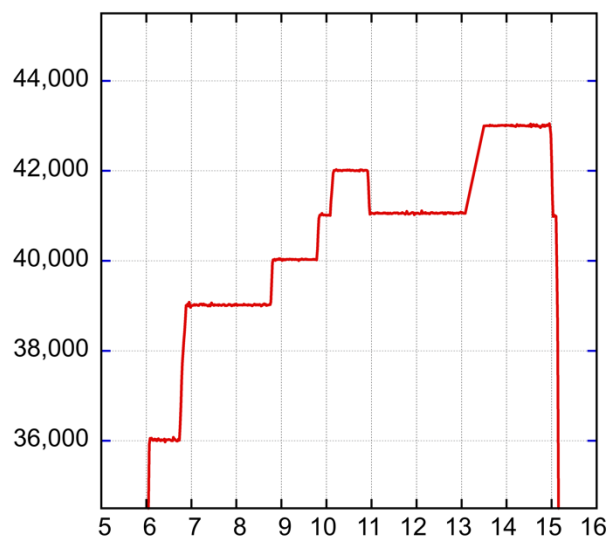
Flight notes:

Unusually low air temperatures led to having to descend mid-flight.

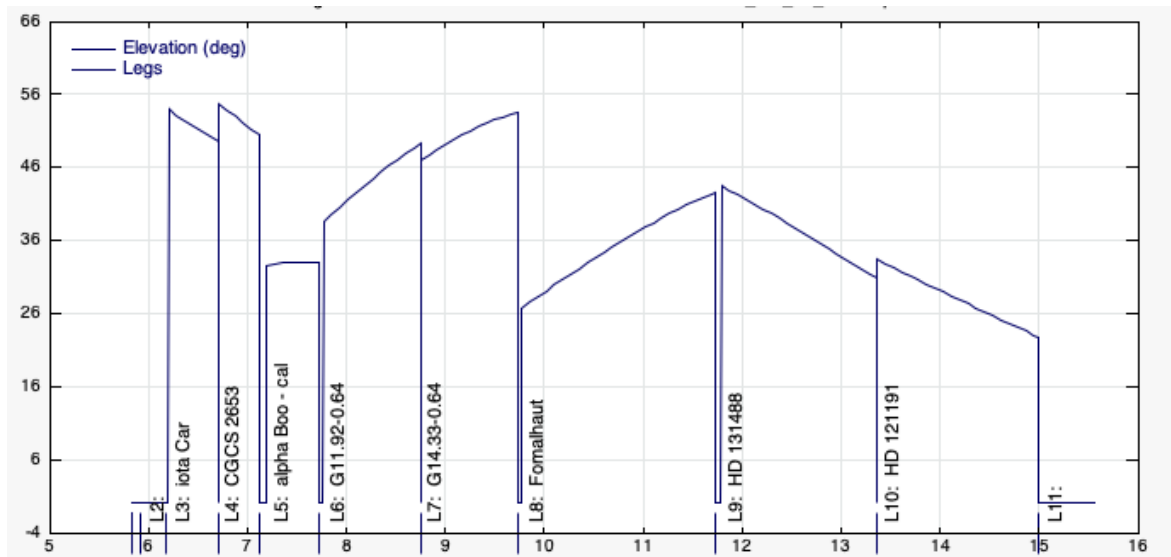
Flight 319 Mission ID 2016-07-12_FO_F319
 Christchurch-Christchurch Take off date UTC: 12-JUL-2016
 Departure UTC: 05:38 Arrival UTC: 15:31

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 45556	09h17m05.41s	-59d16m30.8s	6:12	30	
4	04_0129	Sloan	CGCS 2653	09h53m06.70s	-53d38m53.6s	6:42	25	
5	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	7:11	32	
6	04_0159	Brogan	G11.92-0.64	18h13m58.10s	-18d54m17.0s	7:46	59	
7	04_0159	Brogan	G14.33-0.64	18h18m54.40s	-16d47m46.0s	8:45	59	
8	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	9:46	117	Descent mid-leg due to low air temperatures
9	04_0060	Melis	HD 131488	14h55m08.03s	-41d07m13.4s	11:47	94	Observatory control software crash; last 17min of leg lost.
10	04_0060	Melis	HD 121191	13h55m18.86s	-53d31m43.0s	13:21	98	First 10min lost to recovering from observatory control software crash

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



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



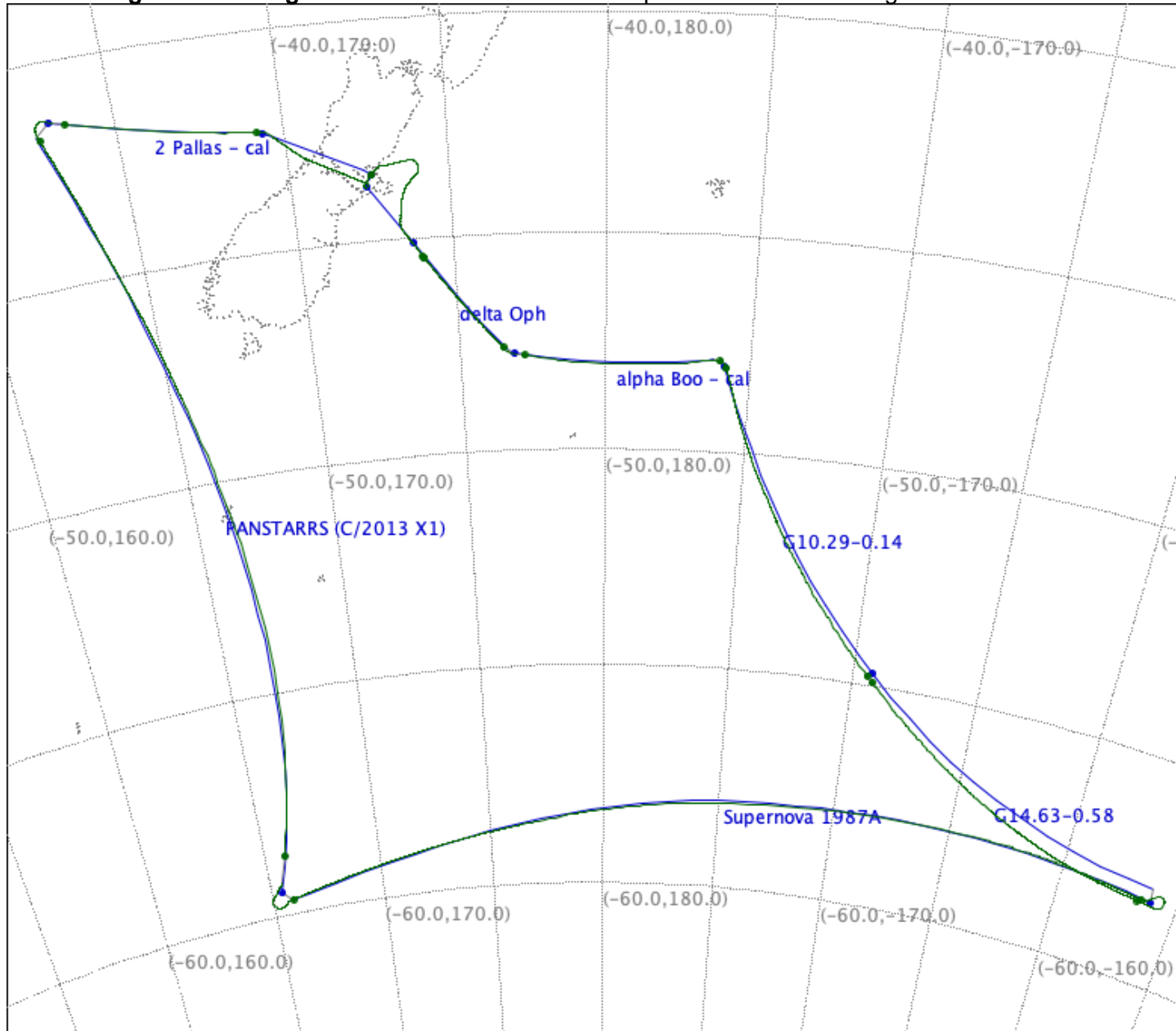
MISSION ID: 2016-07-13_FO_F320

Date: 2016-07-13 UT Instrument: FORCAST

Flight #: 320 Flight Series: OC4G

blue = planned route

green = flown route

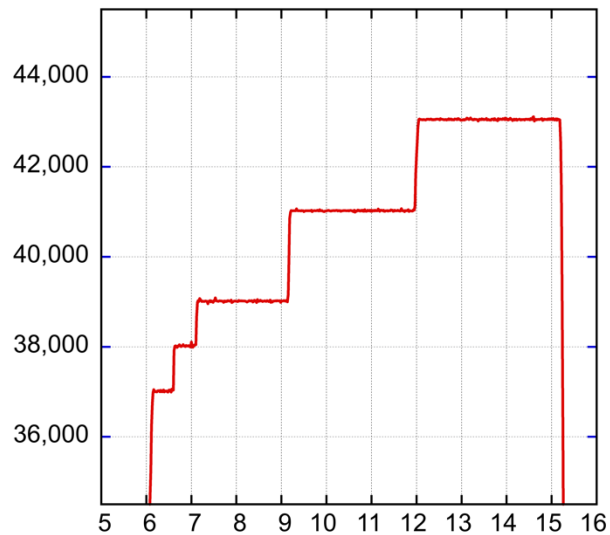


Flight notes: No irregularities.

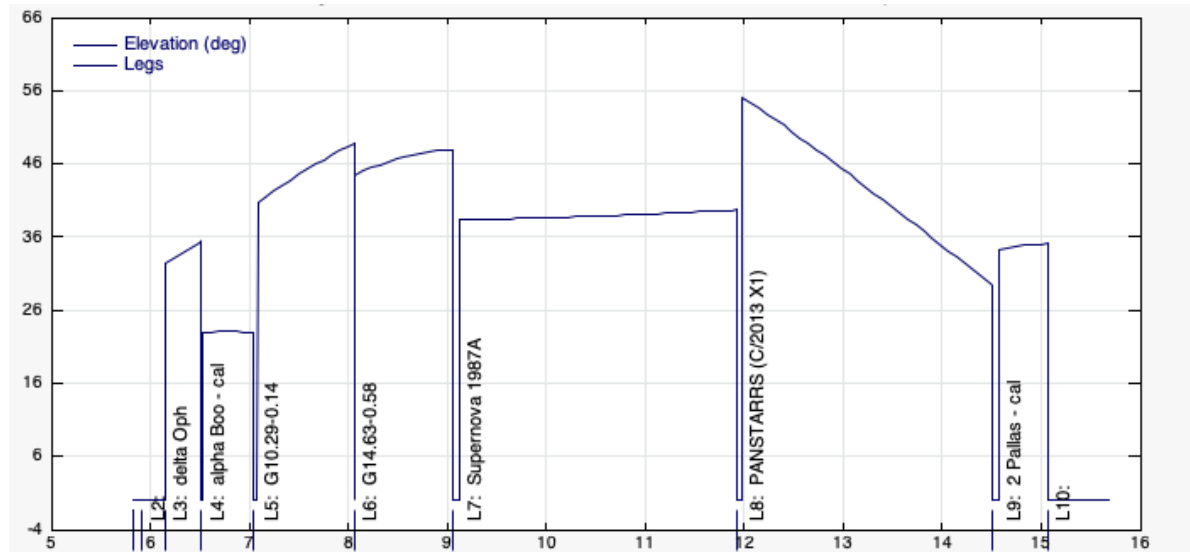
Flight 320 Mission ID 2016-07-13_FO_F320
 Christchurch-Christchurch Take off date UTC: 13-JUL-2016
 Departure UTC: 05:39 Arrival UTC: 15:32

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 79593	16h14m20.74s	-03d41m39.6s	6:09	21	
4	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	6:32	31	Turbulence caused telescope to go into standby multiple times, 7min lost
5	04_0159	Brogan	G10.29-0.14	18h08m49.30s	-20d05m57.0s	7:05	59	
6	04_0159	Brogan	G14.63-0.58	18h19m15.40s	-16d29m55.0s	8:04	59	
7	04_0016	Matsuura	Supernova 1987A	05h35m28.02s	-69d16m11.1s	9:07	168	
8	04_0010	Woodward	PANSTARRS (C/2013 X1)	15h16m42.69s	-40d38m59.1s	11:58	152	Some tracking problems due to the comet passing in front of a background star.
9	90_0049	Calibration	2 Pallas	21h52m51.35s	13d59m39.2s	14:34	29	

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



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



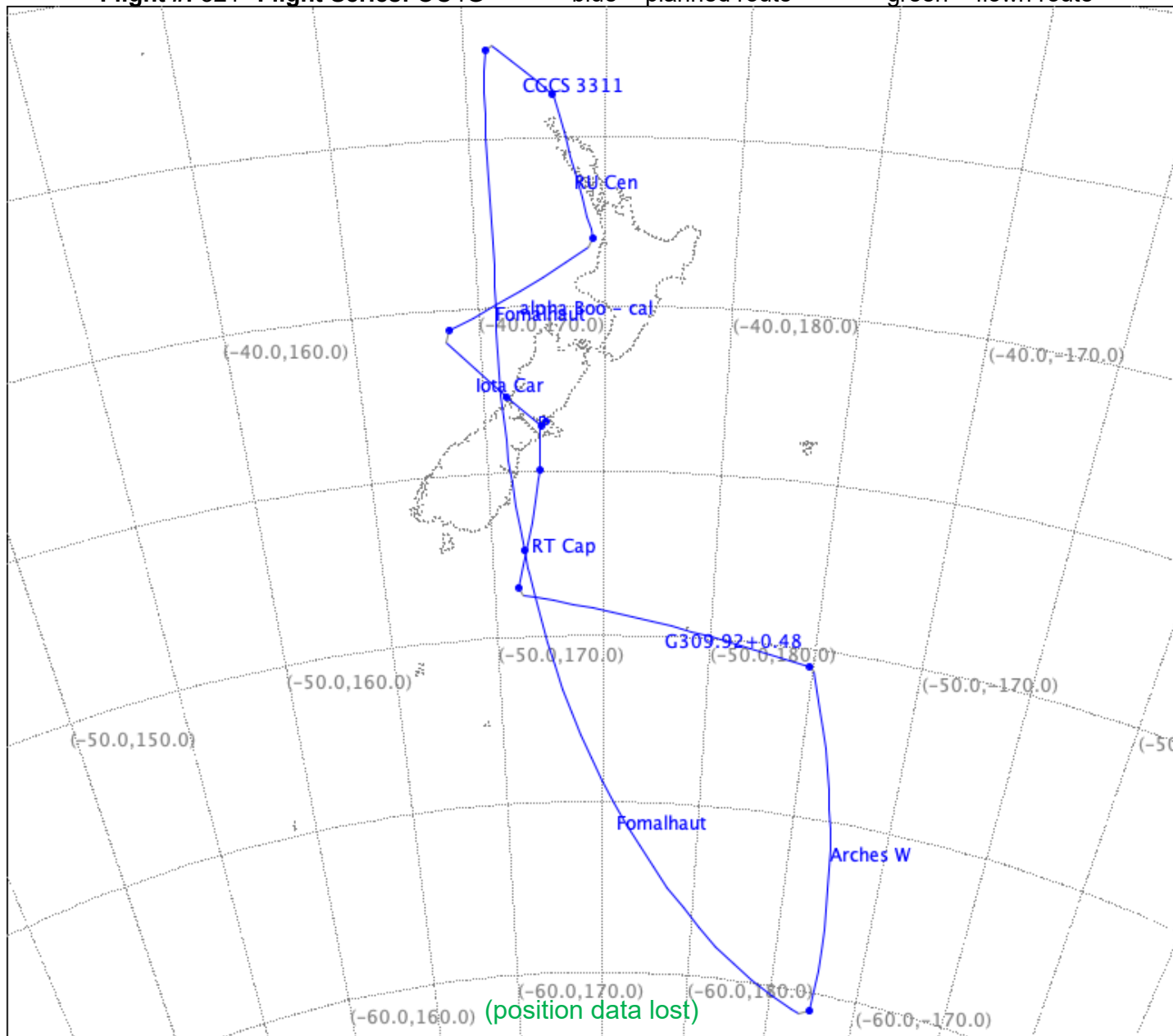
MISSION ID: 2016-07-14_FO_F321

Date: 2016-07-14 UT Instrument: FORCAST

Flight #: 321 Flight Series: OC4G

blue = planned route

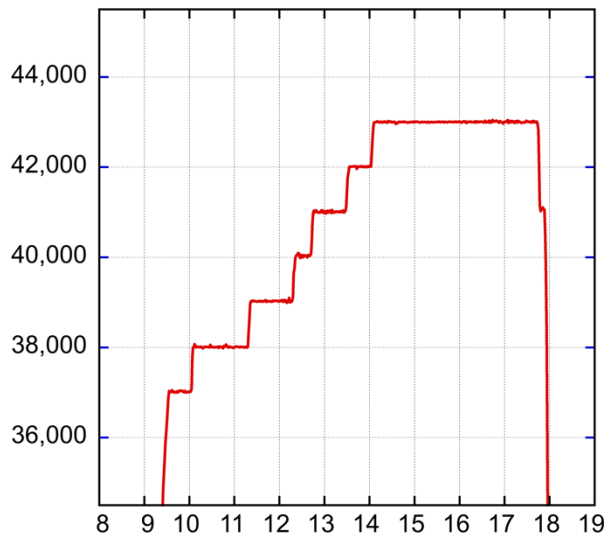
green = flown route



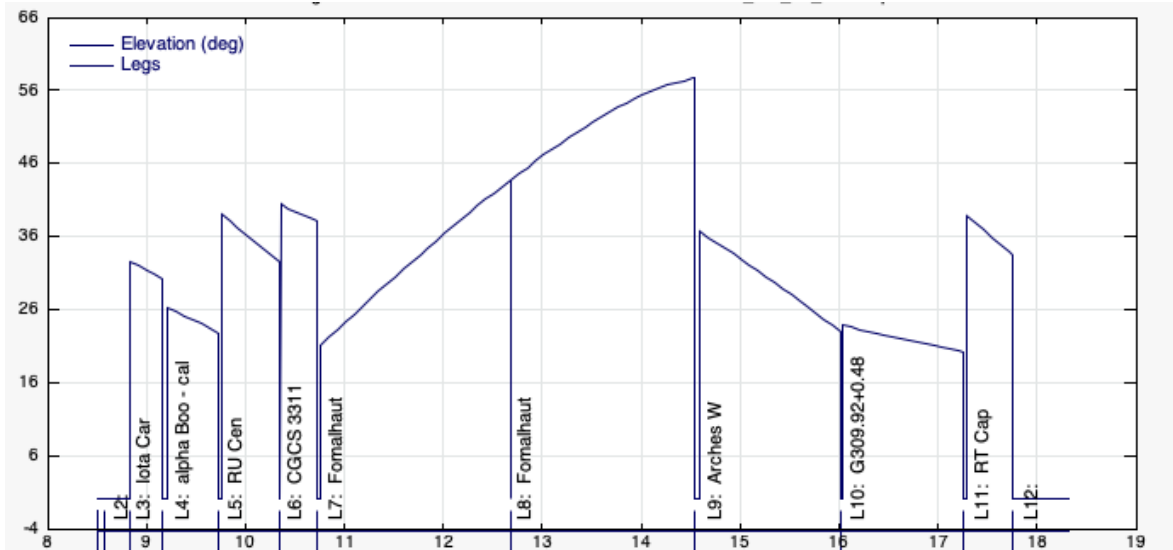
Flight notes: Late departure led to loss of first science leg.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 45556	09h17m05.41s	-59d16m30.8s	8:50	20	
4	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	9:13	30	Late departure – no data.
5	03_0022	Gehrz	RU Cen	12h09m23.81s	-45d25m34.8s	9:45	35	
6	04_0129	Sloan	CGCS 3311	12h57m15.78s	-69d01m51.4s	10:21	22	
7	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	10:46	115	Near the beginning of the leg, high crosswinds blew aircraft off track necessitating a pause to get back on ground track..
8	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	12:41	112	Last 40min of leg scrubbed due to vignetting from the upper telescope door.
9	70_0400	GTO	Arches W	17h45m33.51s	-28d49m34.0s	14:35	85	
10	04_0077	Tan	G309.92+0.48	13h50m41.76s	-61d35m10.1s	16:02	73	
11	04_0129	Sloan	RT Cap	20h17m06.53s	-21d19m04.5s	17:17	27	

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



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



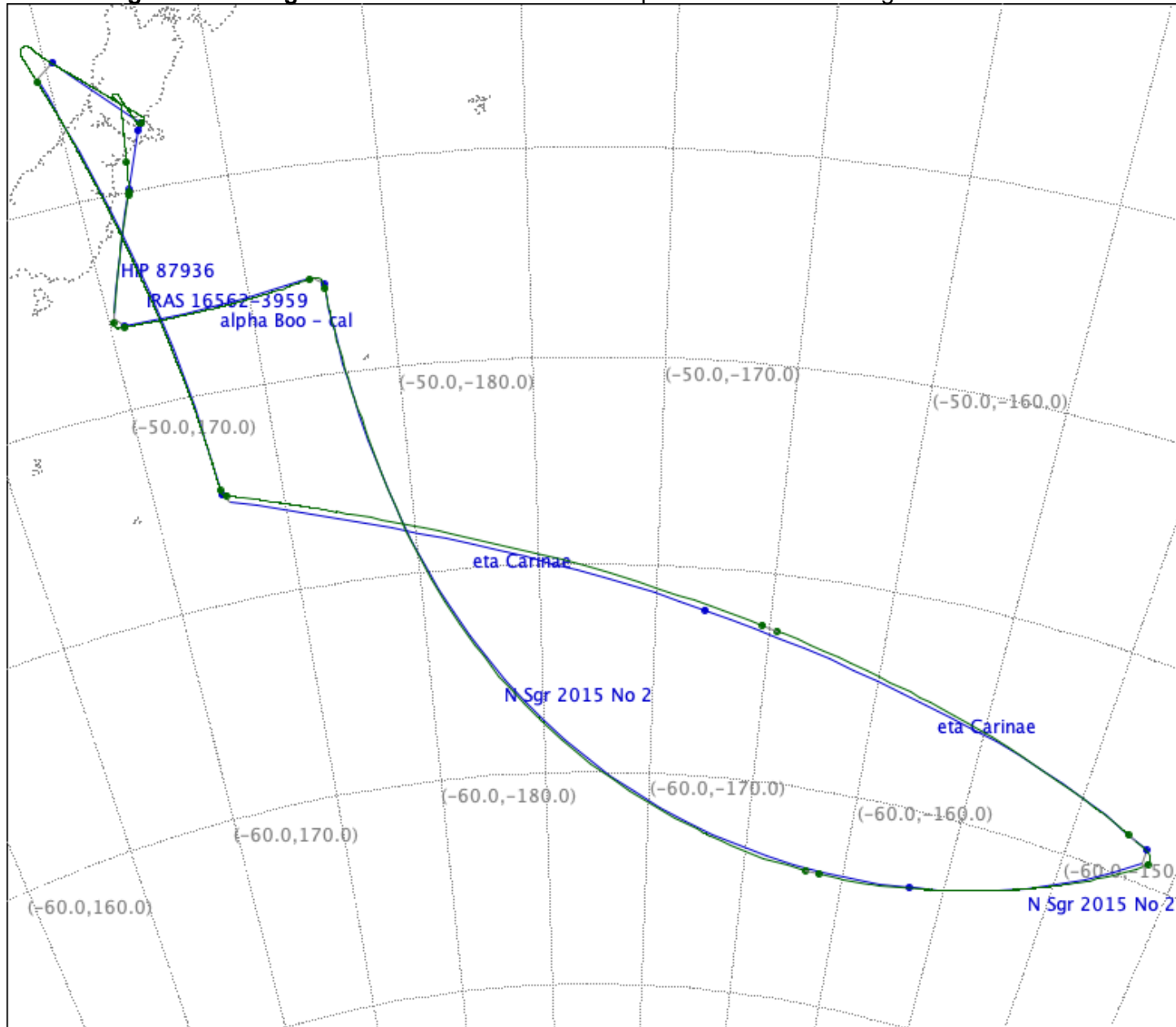
MISSION ID: 2016-07-17_FO_F322

Date: 2016-07-17 UT Instrument: FORCAST

Flight #: 322 Flight Series: OC4G

blue = planned route

green = flown route

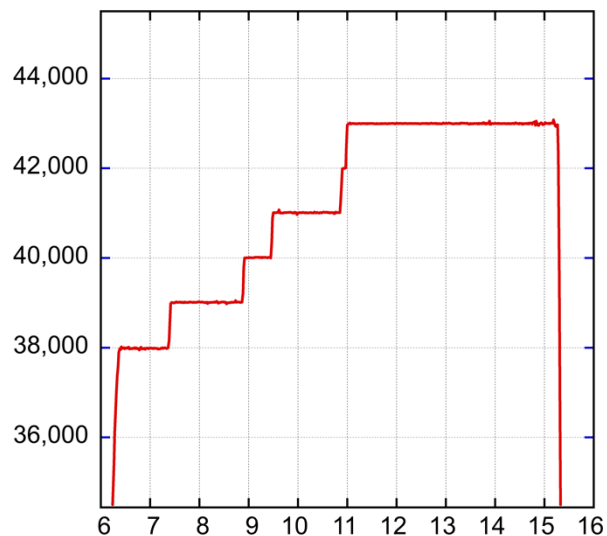


Flight notes: No irregularities.

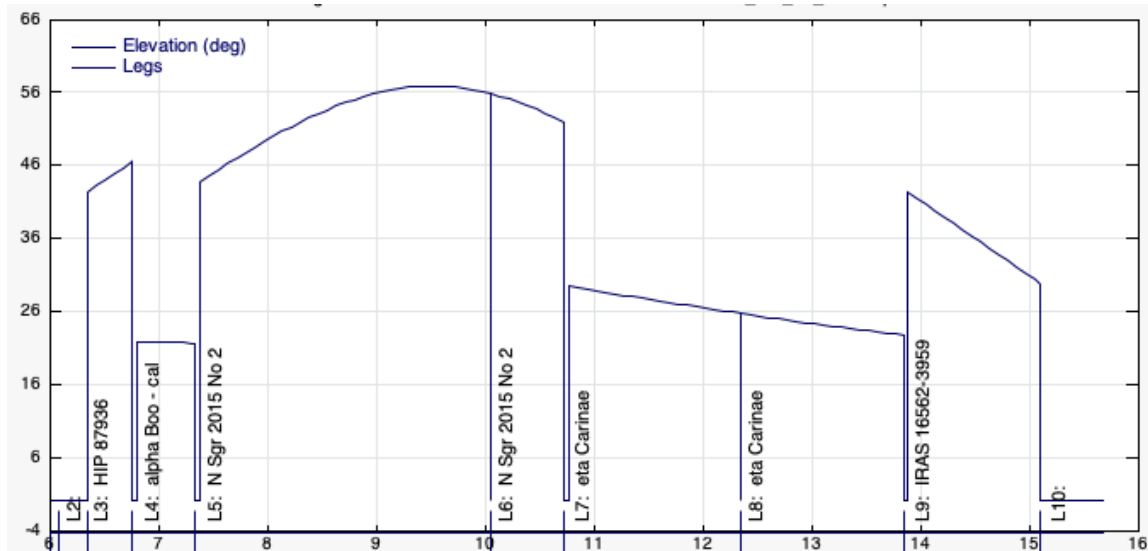
Flight 322 Mission ID 2016-07-17_FO_F322
 Christchurch-Christchurch Take off date UTC: 17-JUL-2016
 Departure UTC: 05:48 Arrival UTC: 15:50

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 87936	17h57m47.80s	-41d42m58.7s	6:20	25	
4	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	6:48	32	
5	04_0181	Helton	N Sgr 2015 No 2 - Visit 1	18h36m56.87s	-28d55m39.3s	7:23	160	
6	04_0181	Helton	N Sgr 2015 No 2 - Visit 1	18h36m56.87s	-28d55m39.3s	10:03	40	
7	03_0098	Morris	eta Carinae	10h45m08.15s	-59d39m14.6s	10:46	95	
8	03_0098	Morris	eta Carinae	10h45m08.15s	-59d39m14.6s	12:21	90	FORCAST software encountered connection errors to observatory control software; FORCAST LWC array electronics power cycled. 25% of leg lost
9	04_0077	Tan	IRAS 16562-3959	16h59m41.60s	-40d03m44.0s	13:53	73	

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



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



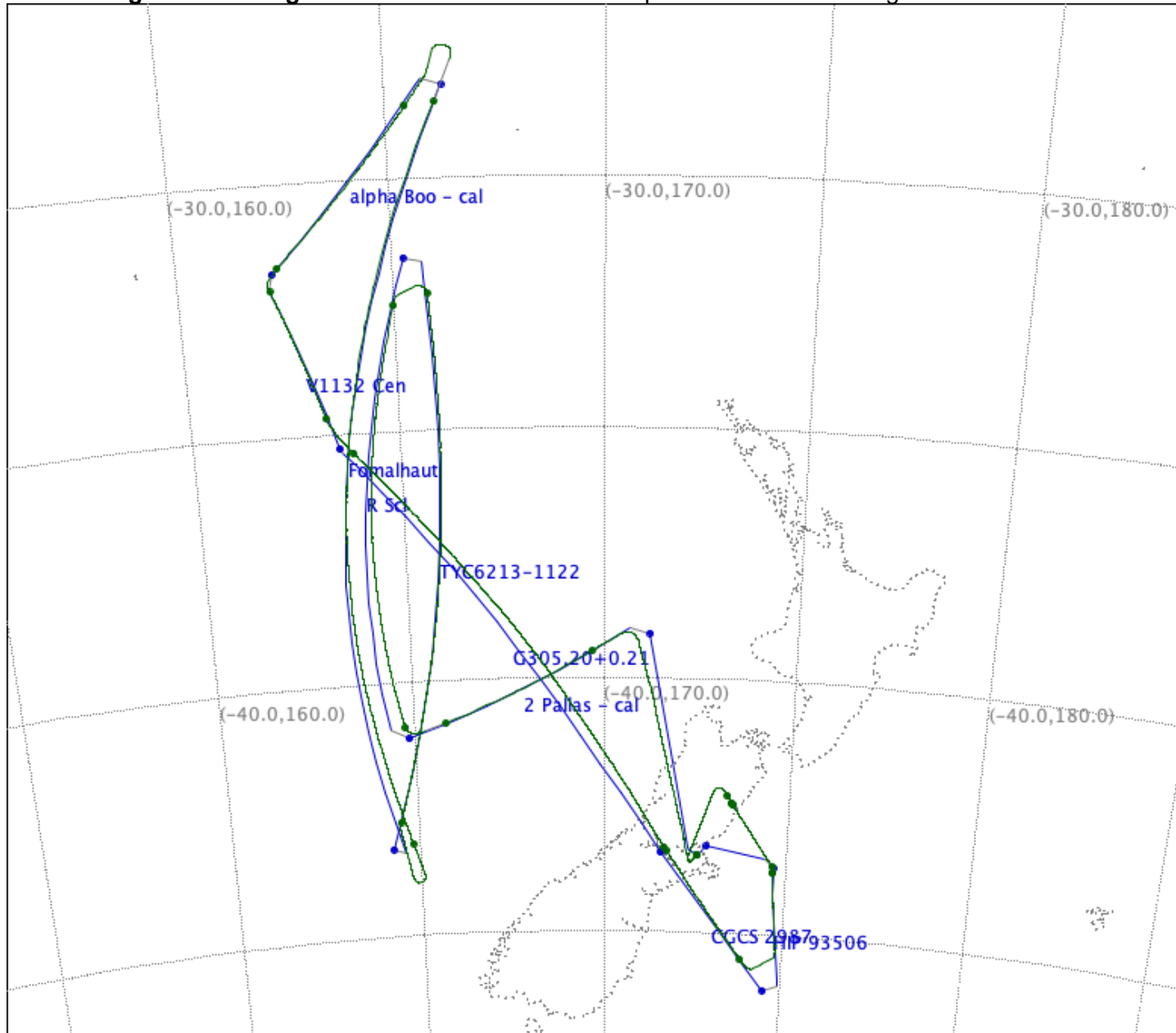
MISSION ID: 2016-07-18_FO_F323

Date: 2016-07-18 UT Instrument: FORCAST

Flight #: 323 Flight Series: OC4G

blue = planned route

green = flown route

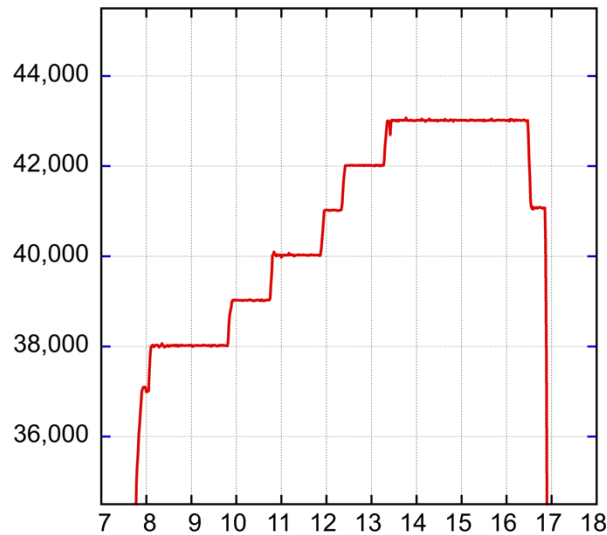


Flight notes: No irregularities.

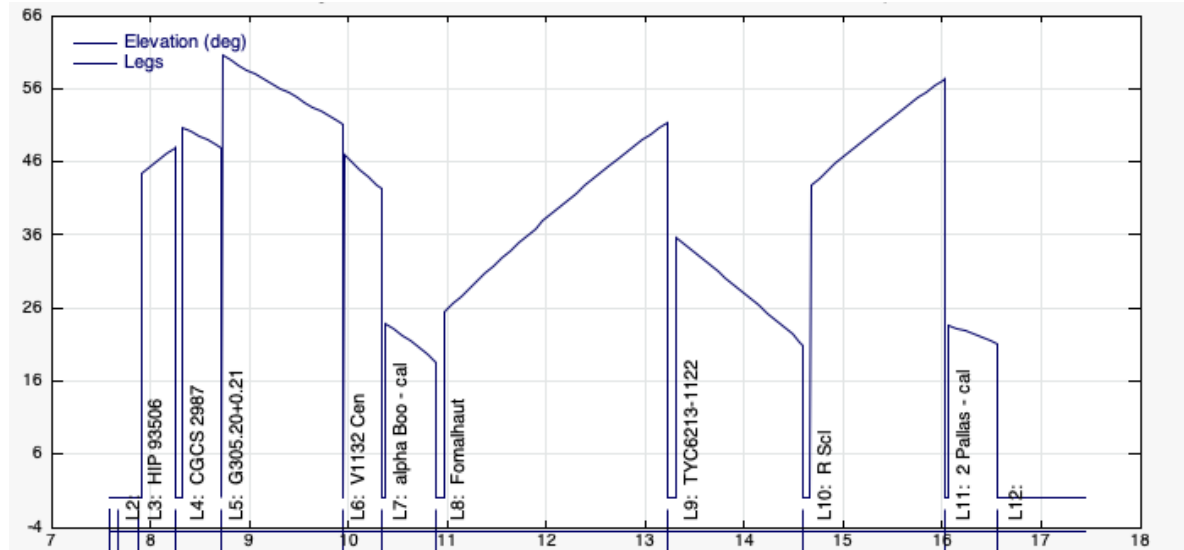
Flight 323 Mission ID 2016-07-18_FO_F323
 Christchurch-Christchurch Take off date UTC: 18-JUL-2016
 Departure UTC: 07:20 Arrival UTC: 17:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 93506	19h02m36.73s	-29d52m48.2s	7:54	21	
4	04_0129	Sloan	CGCS 2987	11h16m38.91s	-65d50m56.1s	8:19	24	
5	04_0077	Tan	G305.20+0.21	13h11m10.47s	-62d34m39.0s	8:43	73	Possible vignetting at beginning of leg by telescope upper door.
6	04_0129	Sloan	V1132 Cen	12h42m09.86s	-43d55m06.4s	9:56	23	
7	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	10:22	31	
8	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	10:57	135	
9	04_0126	Song	TYC6213-1122	16h10m12.64s	-21d04m44.7s	13:18	77	Possible vignetting at end of leg by telescope lower door.
10	70_0400	GTO	R Scl	01h26m58.09s	-32d32m35.4s	14:39	81	Vignetting at end of leg by telescope upper door.
11	90_0049	Calibration	2 Pallas	21h50m19.98s	13d45m44.9s	16:03	30	

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



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



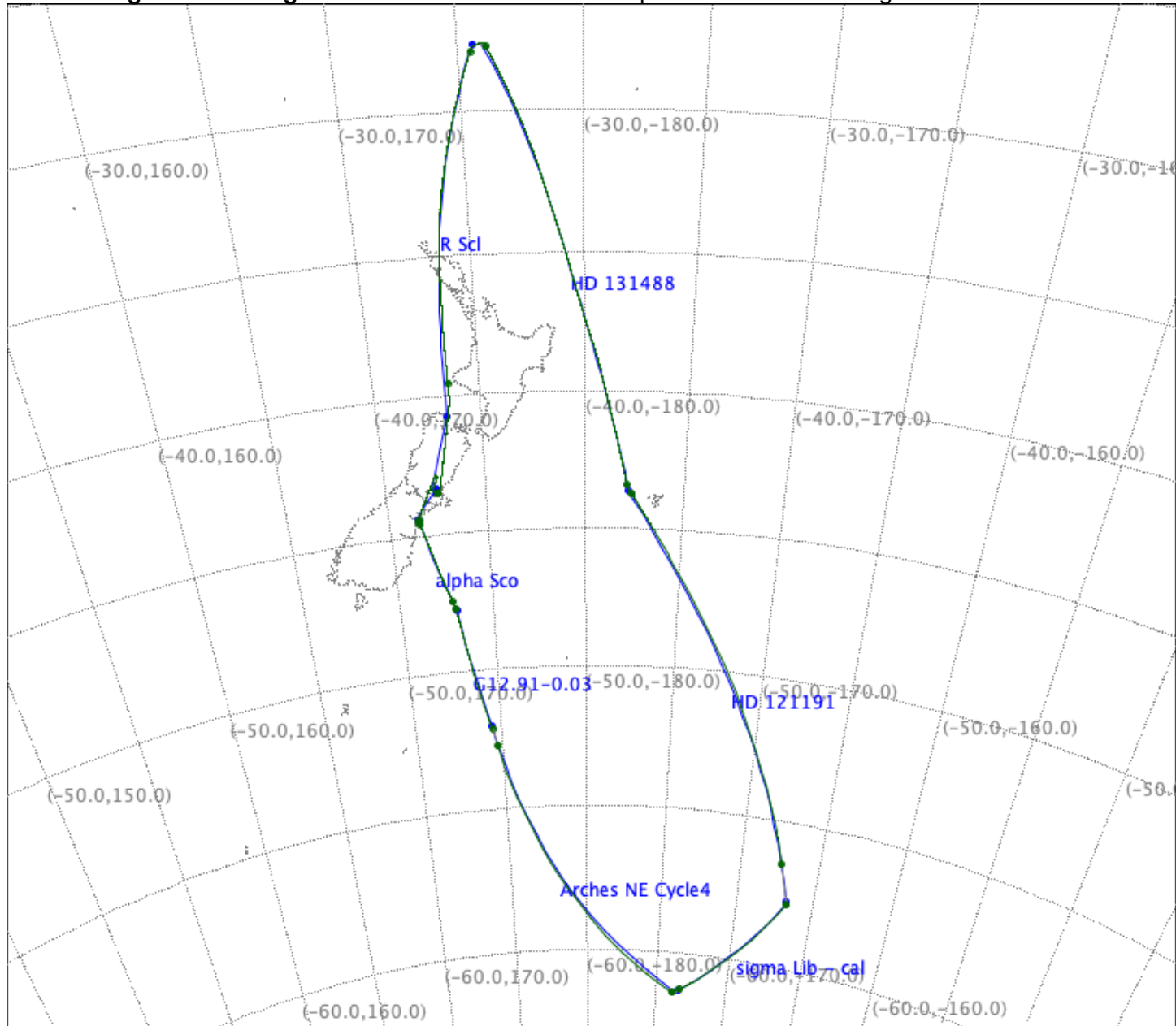
MISSION ID: 2016-07-19_FO_F324

Date: 2016-07-19 UT Instrument: FORCAST

Flight #: 324 Flight Series: OC4G

blue = planned route

green = flown route

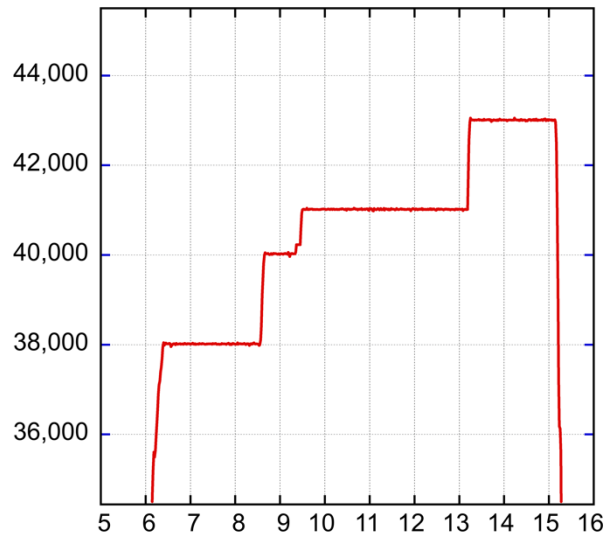


Flight notes: No irregularities.

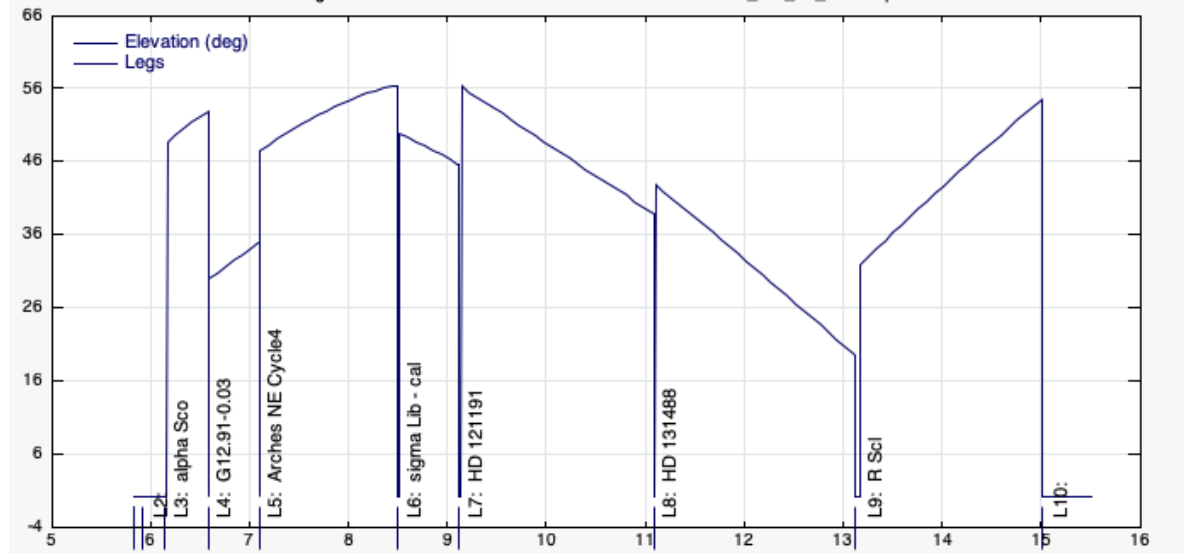
Flight 324 Mission ID 2016-07-19_FO_F324
 Christchurch-Christchurch Take off date UTC: 19-JUL-2016
 Departure UTC: 05:43 Arrival UTC: 15:41

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 80763	16h29m24.46s	-26d25m55.2s	6:10	25	
4	04_0159	Brogan	G12.91-0.03	18h13m48.20s	-17d45m39.0s	6:35	31	
5	70_0400	GTO	Arches NE Cycle4	17h45m49.43s	-28d45m34.5s	7:06	83	Possible vignetting at end of leg by telescope upper door.
6	90_0068	Calibration	Sigma Lib	15h04m04.22s	-25d16m55.1s	8:31	36	
7	04_0060	Melis	HD 121191	13h55m18.86s	-53d31m43.0s	9:08	117	Possible vignetting at beginning of leg by telescope upper door.
8	04_0060	Melis	HD 131488	14h55m08.03s	-41d07m13.4s	11:06	121	Possible vignetting at end of leg by telescope lower door.
9	70_0400	GTO	R Scl	01h26m58.09s	-32d32m35.4s	13:10	110	

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



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



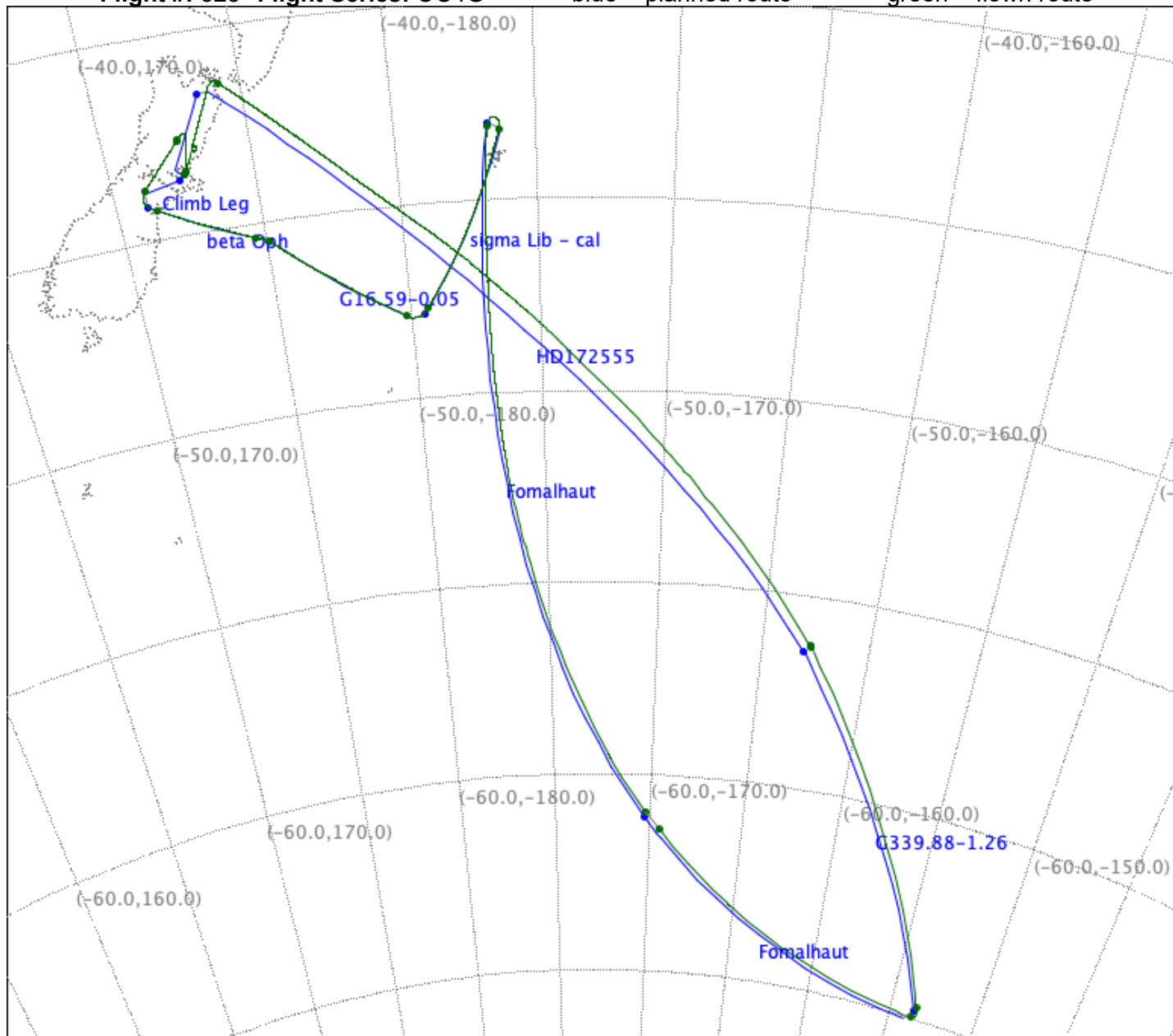
MISSION ID: 2016-07-20_FO_F325

Date: 2016-07-20 UT Instrument: FORCAST

Flight #: 325 Flight Series: OC4G

blue = planned route

green = flown route

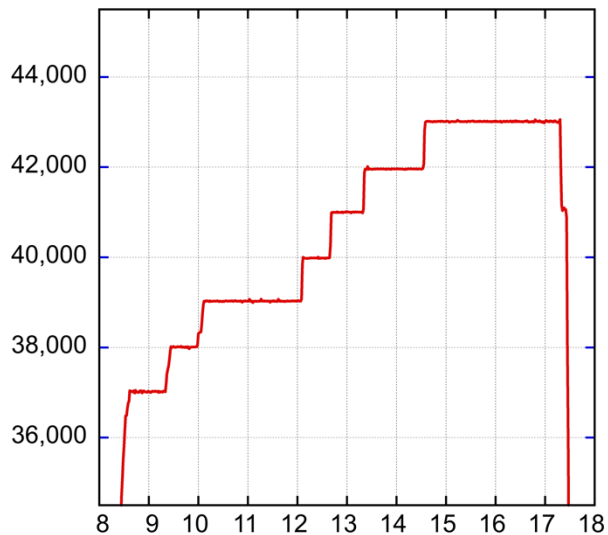


Flight notes:
No irregularities.

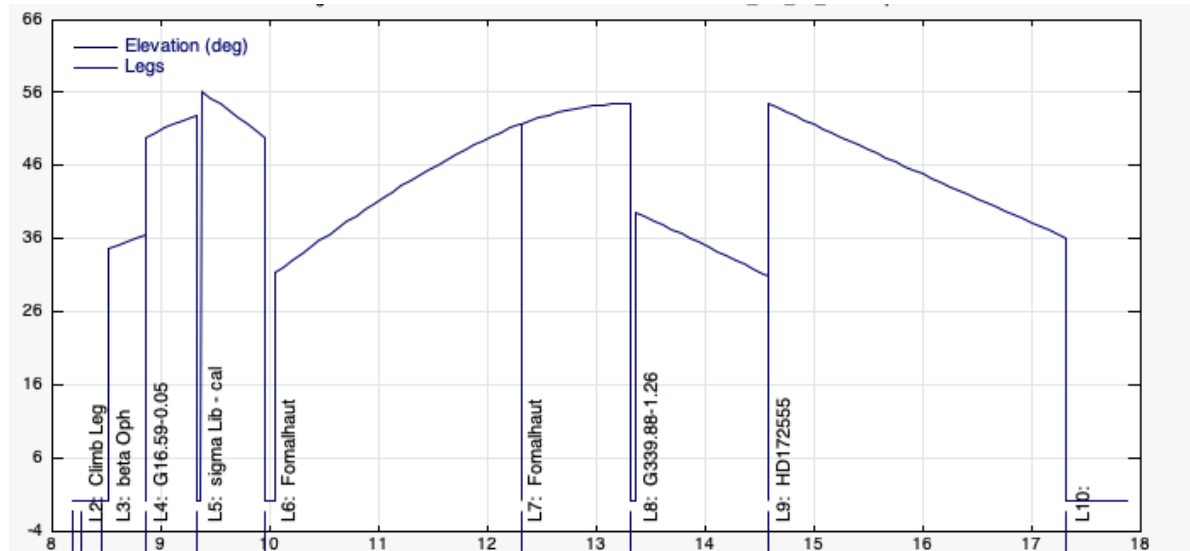
Flight 325 Mission ID 2016-07-20_FO_F325
 Christchurch-Christchurch Take off date UTC: 20-JUL-2016
 Departure UTC: 07:59 Arrival UTC: 17:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 86742	17h43m28.35s	04d34m02.3s	8:31	20	
4	04_0159	Brogan	G16.59-0.05	18h21m09.10s	-14d31m48.0s	8:52	28	
5	90_0068	Calibration	Sigma Lib	15h04m04.22s	-25d16m55.1s	9:23	35	
6	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	10:03	136	
7	04_0064	Adams	Fomalhaut	22h57m39.05s	-29d37m20.1s	12:19	60	
8	04_0077	Tan	G339.88-1.26	16h52m04.66s	-46d08m34.2s	13:22	73	
9	04_0015	Su	HD172555	18h45m26.90s	-64d52m16.5s	14:35	164	

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



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



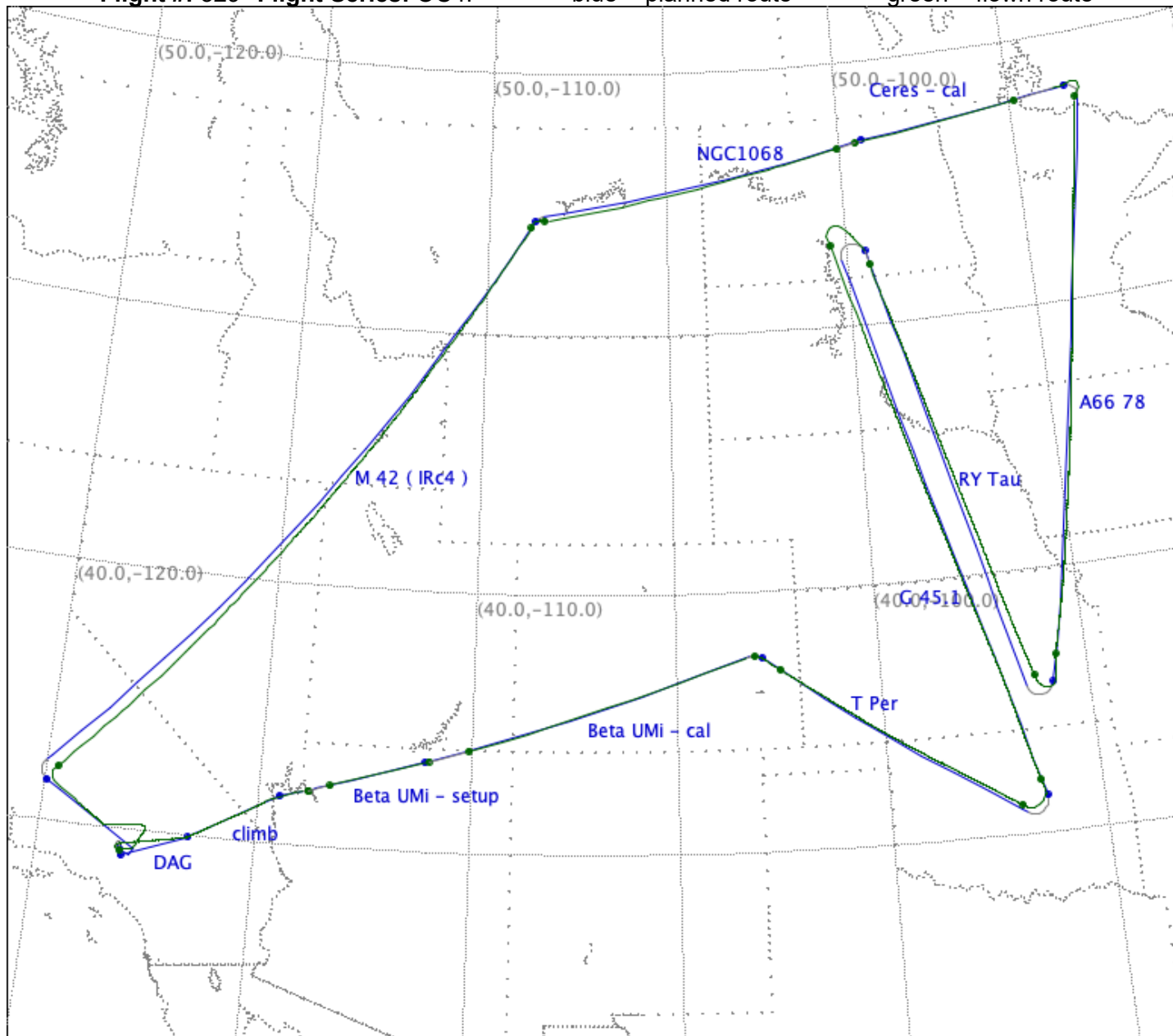
MISSION ID: 2016-09-17_FO_F329

Date: 2016-09-17 UT Instrument: FORCAST

Flight #: 329 Flight Series: OC4I

blue = planned route

green = flown route

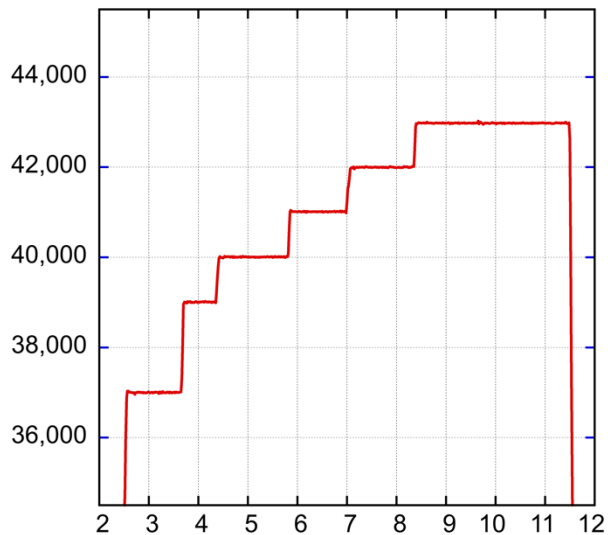


Flight notes: No irregularities.

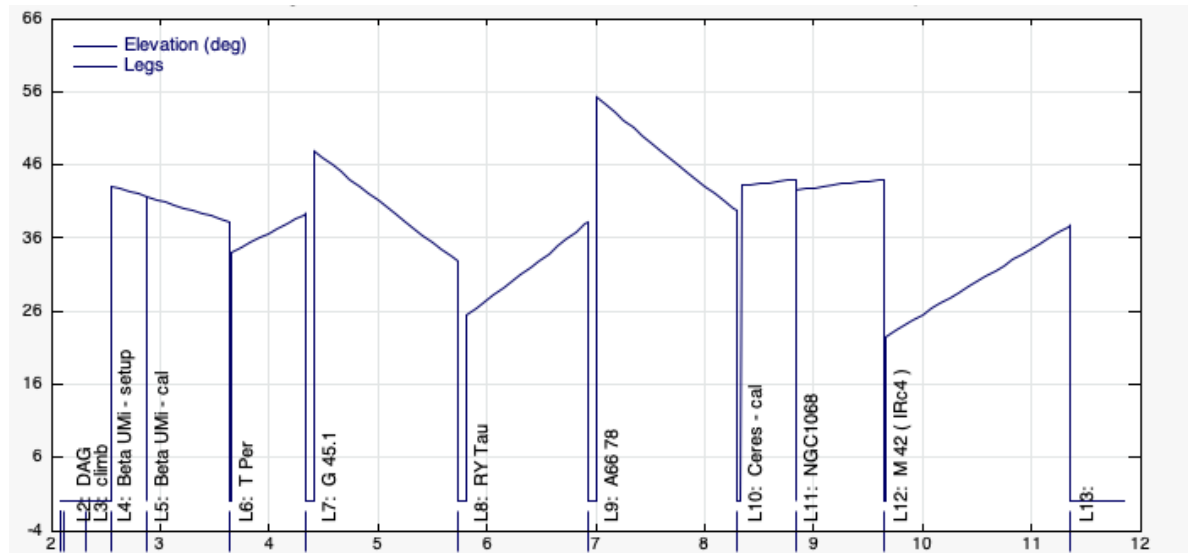
Flight 329 Mission ID 2016-09-17_FO_F329
 Palmdale to Palmdale Take off date UTC: 17-SEP-2016
 Departure UTC: ~02:05 Arrival UTC: ~11:56

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	2:35	20	
5	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	2:55	45	
6	04_0013	Humphreys	T Per	02h19m21.88s	58d57m40.3s	3:41	41	
7	04_0077	Tan	G045.12+00.13	19h13m27.96s	10d53m35.7s	4:27	79	
8	70_0401	GTO	RY Tau	04h21m57.41s	28d26m35.6s	5:51	67	
9	04_0003	Evans	a66 78	21h35m29.38s	31d41m45.3s	7:02	77	Scripting errors and acquisition issues led to 15min loss.
10	90_0072	Calibration	Ceres	02h25m10.29s	00d50m40.5s	8:22	30	
11	70_0400	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	8:53	48	
12	70_0401	GTO	IRc4	05h35m14.10s	-05d22m34.7s	9:42	101	Guide star had faulty coordinates; 30% of leg lost setting up proper guiding and telescope seemed to move off target multiple times.

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



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



MISSION ID: 2016-09-20_FO_F330

Date: 2016-09-20 UT Instrument: FORCAST

Flight #: 330 Flight Series: OC4I

blue = planned route

green = flown route



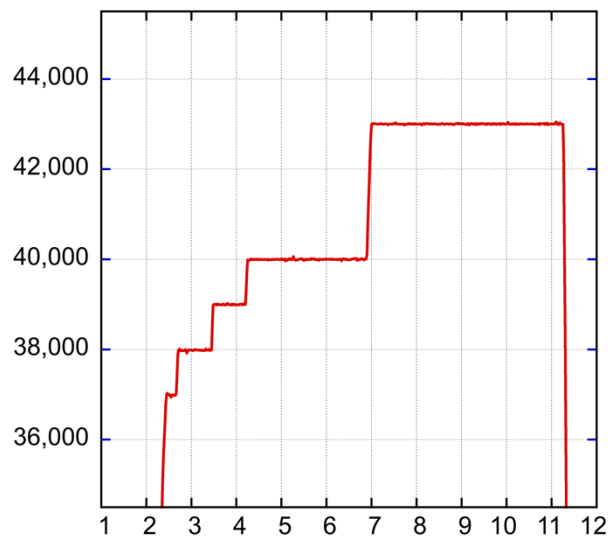
Flight notes:

Similar headings on first four observing legs allowed for time exchanges to overcome losses from early clouds.

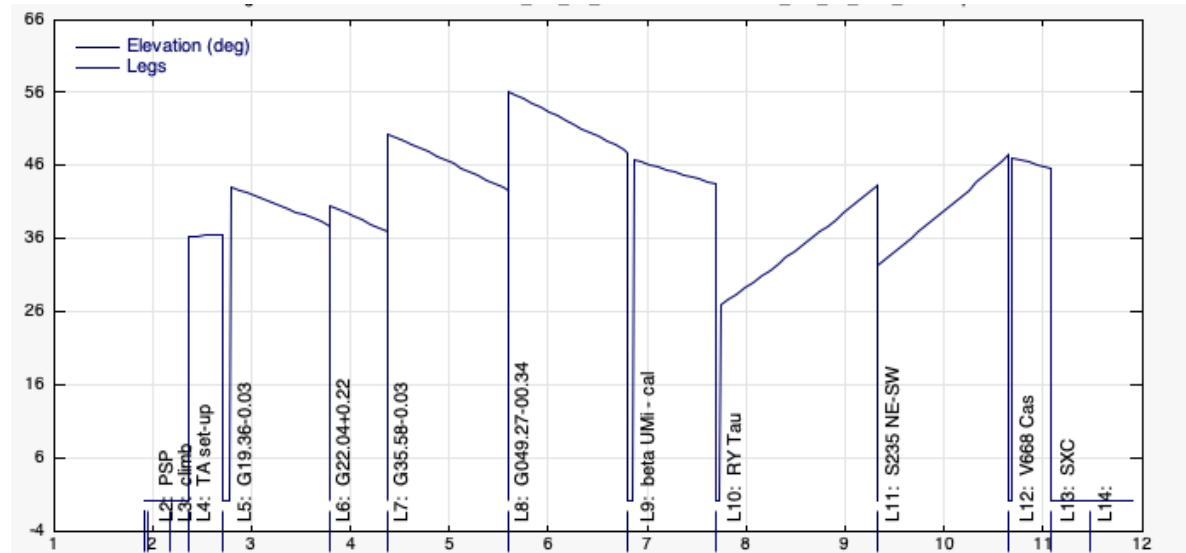
Flight 330 Mission ID 2016-09-20_FO_F330
 Palmdale to Palmdale Take off date UTC: 20-SEP-2016
 Departure UTC: 01:55 Arrival UTC: 11:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 113116	22h54m24.97s	84d20m46.2s	2:25	20	
5	04_0159	Brogan	G19.36-0.03	18h26m25.79s	-12d03m54.0s	2:50	60	Clouds delayed start of observations by 40min.
6	04_0159	Brogan	G22.04+0.22	18h30m34.70s	-09d34m47.0s	3:50	35	
7	04_0077	Tan	G35.58-0.03	18h56m22.50s	02d20m27.0s	4:25	73	
8	04_0077	Tan	G049.27-00.34	19h23m07.00s	14d20m15.8s	5:38	73	
9	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	6:54	50	
10	70_0401	GTO	RY Tau	04h21m57.41s	28d26m35.6s	7:47	95	
11	04_0077	Tan	S235 NE-SW	05h40m53.40s	35d41m49.0s	9:22	79	
12	04_0129	Sloan	V668 Cas	00h27m41.10s	69d38m51.5s	10:44	24	

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



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



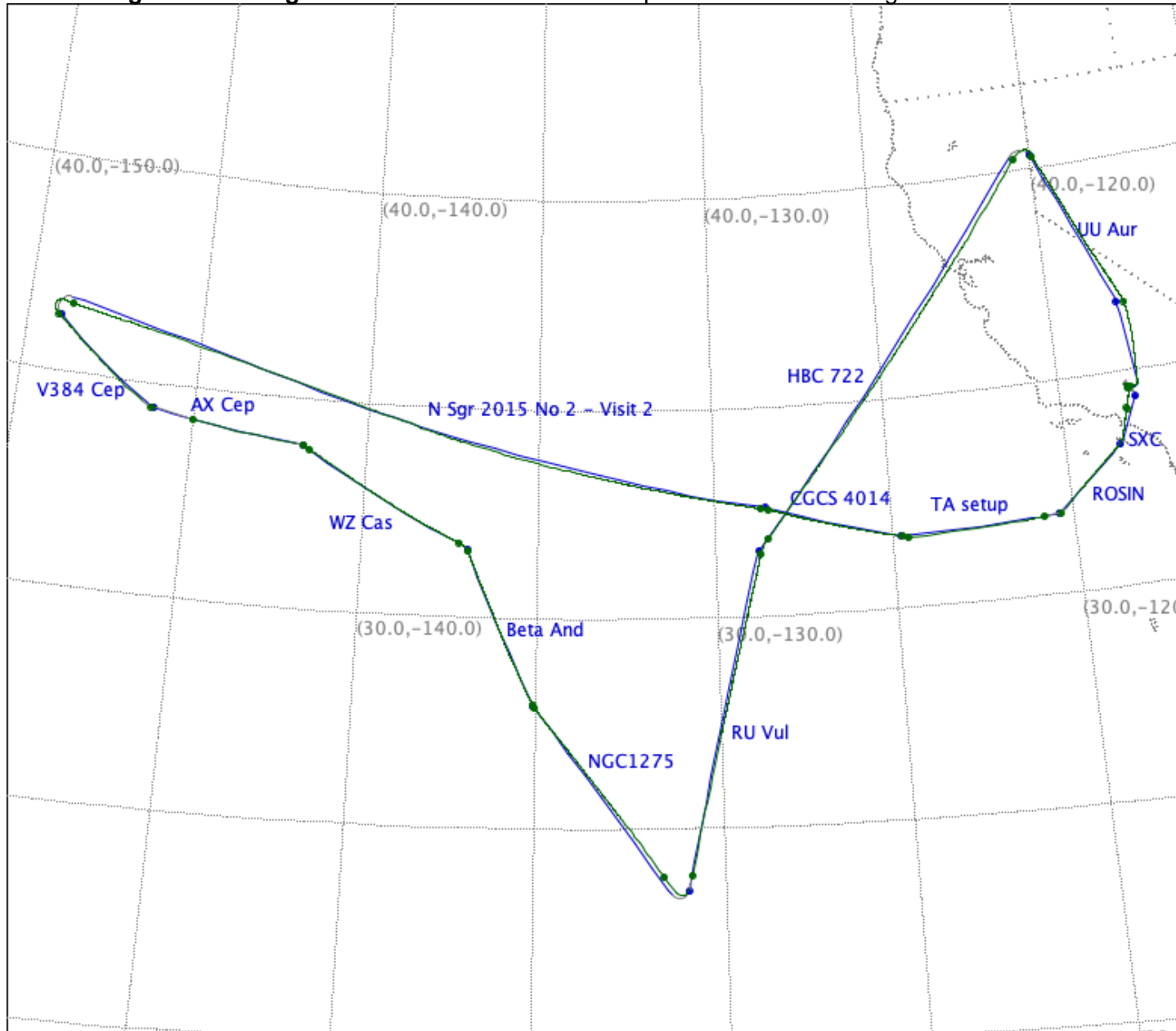
MISSION ID: 2016-09-21_FO_F331

Date: 2016-09-21 UT Instrument: FORCAST

Flight #: 331 Flight Series: OC4I

blue = planned route

green = flown route

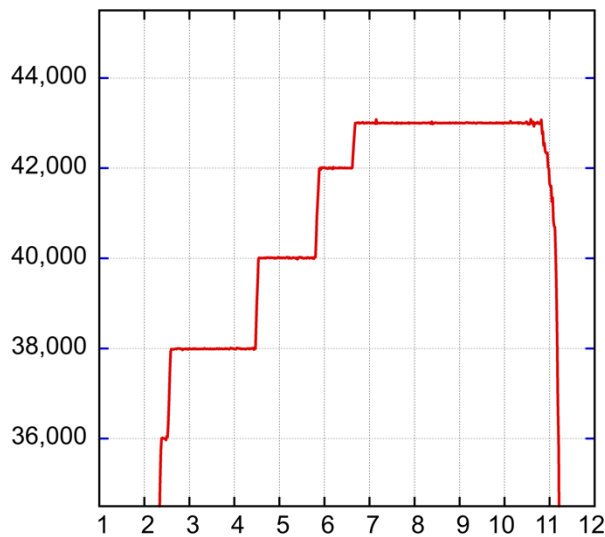


Flight notes: No irregularities.

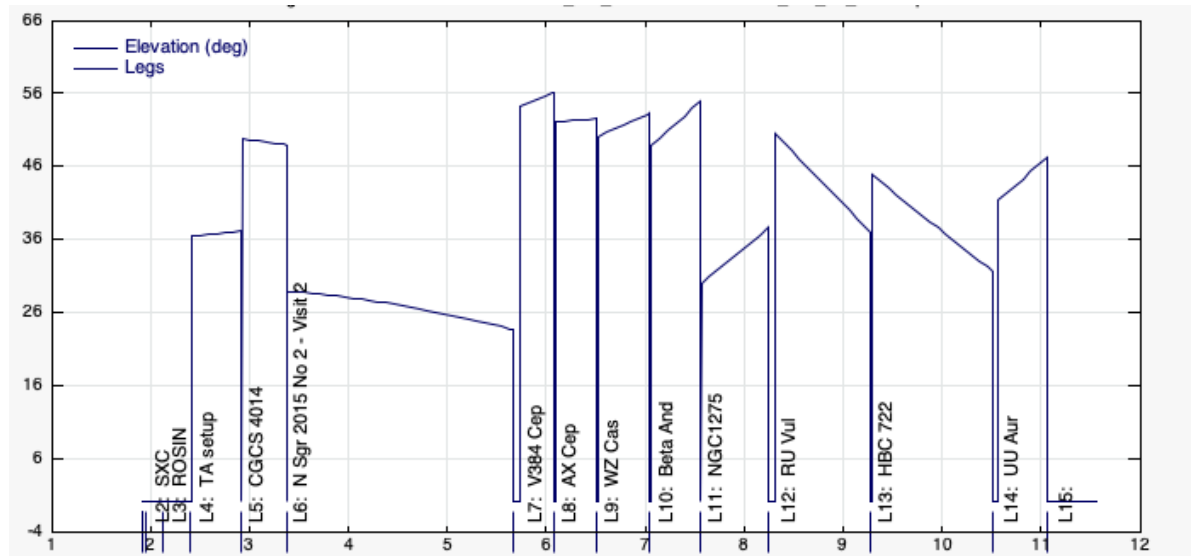
Flight 331 Mission ID 2016-09-21_FO_F331
 Palmdale to Palmdale Take off date UTC: 21-SEP-2016
 Departure UTC: 01:54 Arrival UTC: 11:30

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			ksi02 Sgr	18h57m43.80s	-21d06m24.0s	2:29	30	
5	04_0129	Sloan	CGCS 4014	18h27m34.23s	-08d37m23.4s	3:00	27	
6	04_0181	Helton	N Sgr 2015 No 2 - Visit 2	18h36m56.87s	-28d55m39.3s	3:27	137	
7	04_0129	Sloan	V384 Cep	22h25m54.81s	60d20m42.4s	5:48	21	
8	04_0129	Sloan	AX Cep	21h26m54.04s	70d13m15.2s	6:10	25	
9	04_0129	Sloan	WZ Cas	00h01m15.86s	60d21m19.0s	6:36	31	
10	90_0071	Calibration	Beta And	01h09m43.92s	35d37m14.0s	7:08	30	
11	04_0048	Lopez-Rodriguez	NGC1275	03h19m48.16s	41d30m42.1s	7:38	41	
12	70_0401	GTO	RU Vul	20h38m52.69s	23d15m31.2s	8:23	58	FORCAST had trouble moving to correct grism; 15min lost
13	04_0134	Fischer	HBC 722	20h58m17.03s	43d53m43.4s	9:22	73	
14	71_0009	Engineering	UU Aur	06h36m32.84s	38d26m43.8s	10:38	30	

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



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



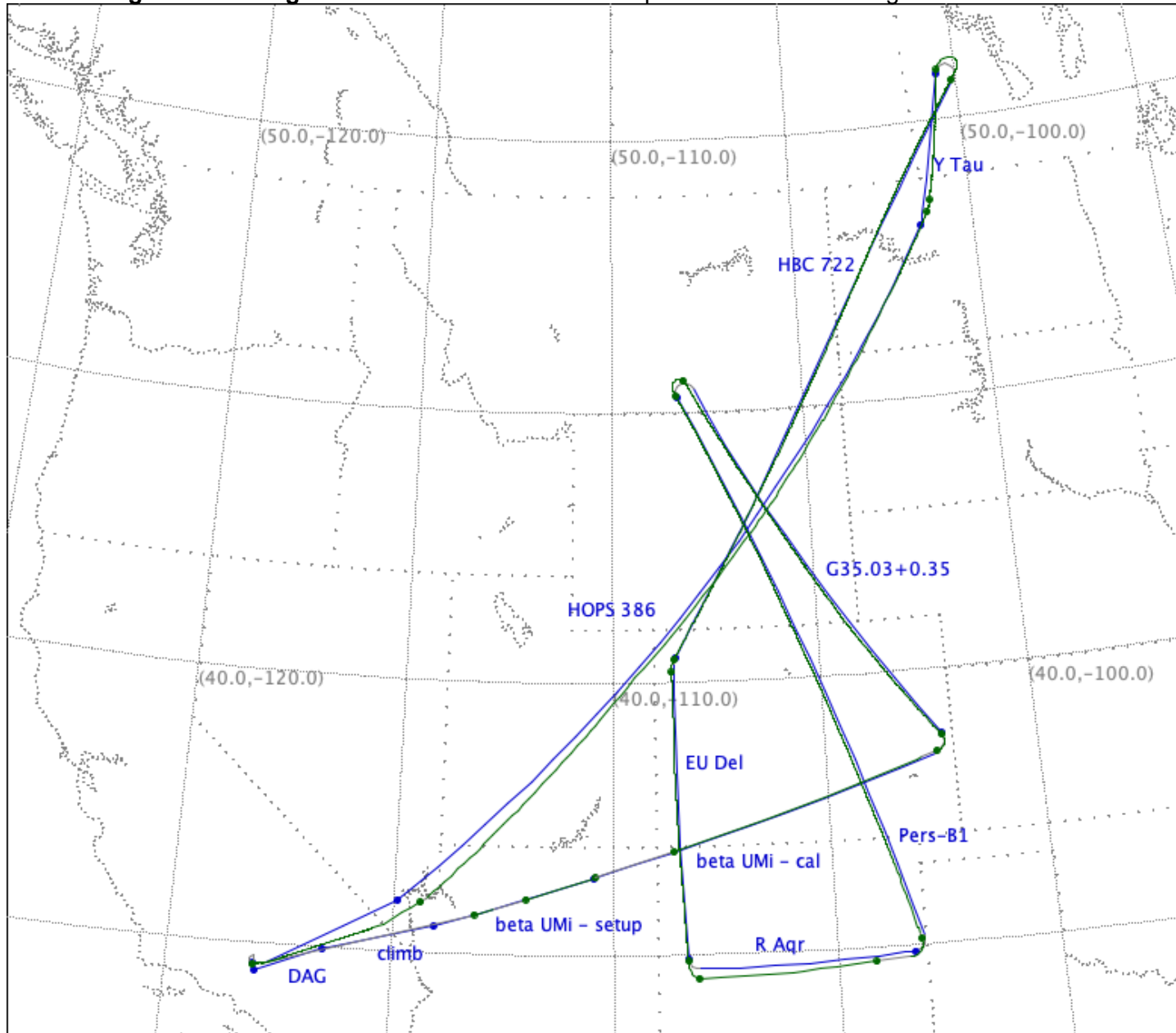
MISSION ID: 2016-09-22_FO_F332

Date: 2016-09-22 UT Instrument: FORCAST

Flight #: 332 Flight Series: OC4I

blue = planned route

green = flown route

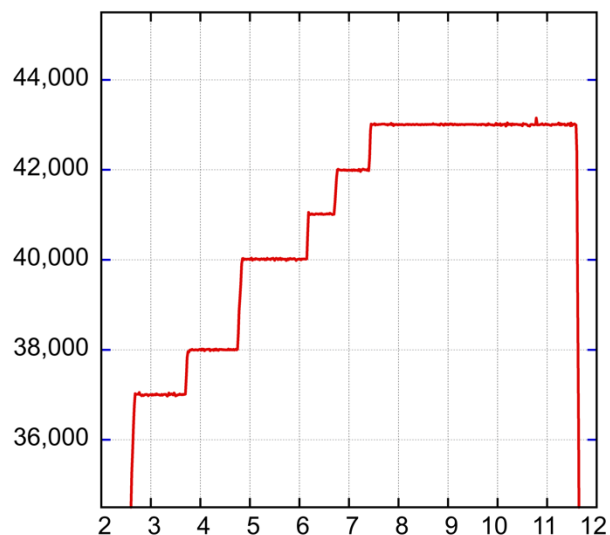


Flight notes: No irregularities.

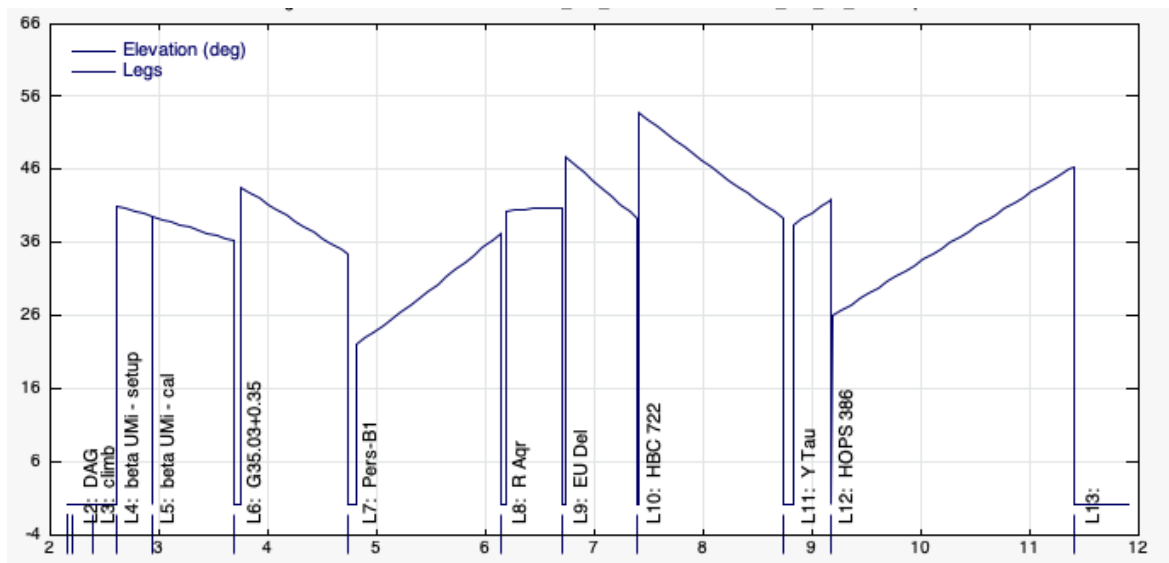
Flight 332 Mission ID 2016-09-22_FO_F332
 Palmdale to Palmdale Take off date UTC: 22-SEP-2016
 Departure UTC: 02:10 Arrival UTC: 12:06

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	2:38	20	
5	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	2:58	45	Clouds delayed data collection; 10min lost
6	04_0159	Brogan	G35.03+0.35	18h54m00.50s	02d01m18.0s	3:47	59	Trouble acquiring target led to 13min loss
7	04_0173	Huard	Pers-B1	03h33m17.90s	31d08m10.0s	4:50	80	Higher water vapor at end of leg.
8	04_0059	Omelian	V* R Aqr	23h43m49.46s	-15d17m04.1s	6:13	31	
9	70_0401	GTO	EU Del	20h37m54.73s	18d16m06.9s	6:46	39	
10	04_0134	Fischer	HBC 722	20h58m17.03s	43d53m43.4s	7:26	80	
11	04_0129	Sloan	Y Tau	05h45m39.41s	20d41m42.1s	8:51	21	
12	04_0090	Megeath	HOPS 386	05h46m08.50s	-00d10m02.6s	9:13	133	Severe turbulence dropped telescope into standby; 3min lost

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



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



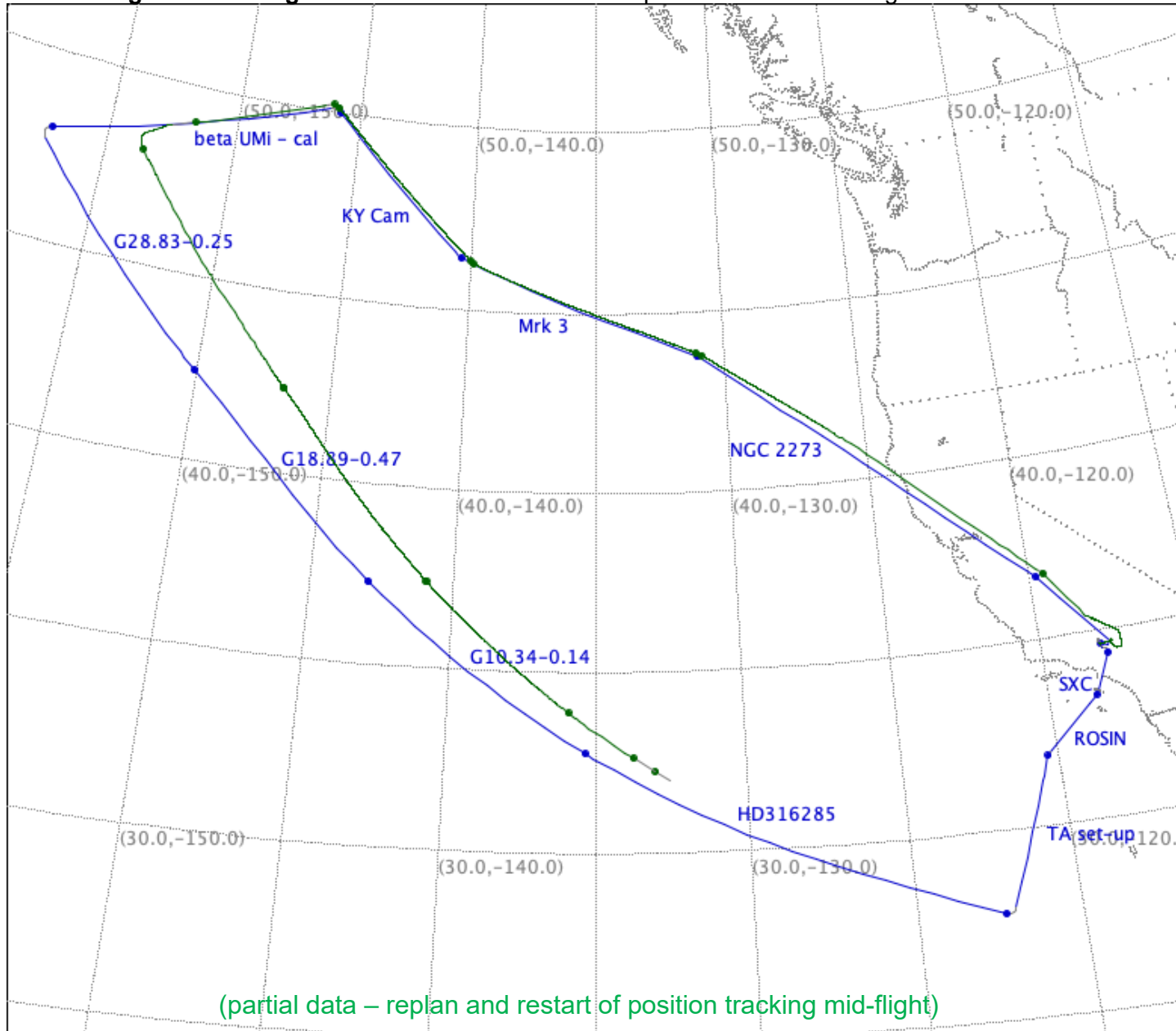
MISSION ID: 2016-09-27_FO_F333

Date: 2016-09-27 UT Instrument: FORCAST

Flight #: 333 Flight Series: OC4I

blue = planned route

green = flown route



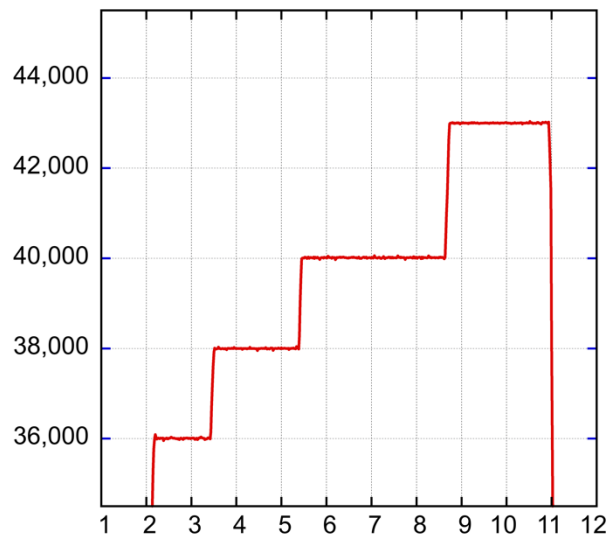
Flight notes:

Mid-flight replan due to Air Traffic Control reroute on first science leg.

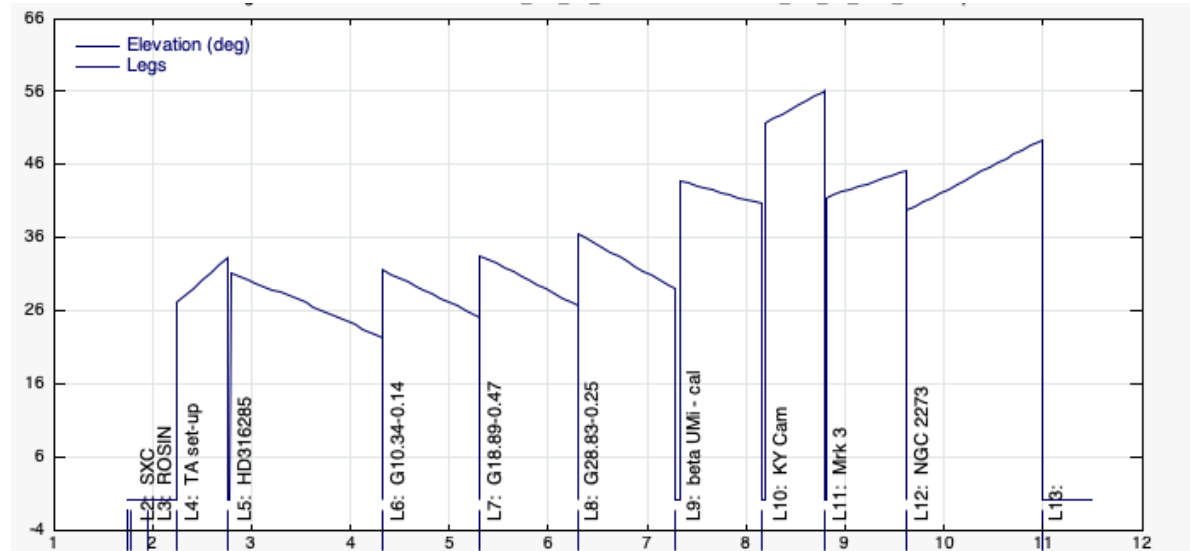
Flight 333 Mission ID 2016-09-27_FO_F333
 Palmdale to Palmdale Take off date UTC: 27-SEP-2016
 Departure UTC: 01:44 Arrival UTC: 11:20

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			zeta Aqr	22h28m50.04s	-00d01m12.0s	2:17	30	
5	70_0400	GTO	HD316285	17h48m13.86s	-28d01m02.6s	2:49	92	Air Traffic Control forced us to reroute during this leg; 27 min of observing lost trying to replan flight to get back on route
6	04_0159	Brogan	G10.34-0.14	18h09m00.00s	-20d03m35.0s	4:21	59	
7	04_0159	Brogan	G18.89-0.47	18h27m07.85s	-12d41m36.0s	5:20	59	
8	04_0159	Brogan	G28.83-0.25	18h44m51.30s	-03d45m48.0s	6:19	59	Problems setting up chopping.
9	90_0071	Calibration	Beta UMi	14h50m42.33s	74d09m19.8s	7:22	50	Reduced in replan. 50% of planned data collected.
10	04_0129	Sloan	KY Cam	03h27m59.02s	60d44m55.3s	8:13	36	
11	04_0048	Lopez-Rodriguez	Mrk 3	06h15m36.36s	71d02m15.1s	8:50	49	
12	04_0048	Lopez-Rodriguez	NGC 2273	06h50m08.66s	60d50m44.9s	9:39	82	

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



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



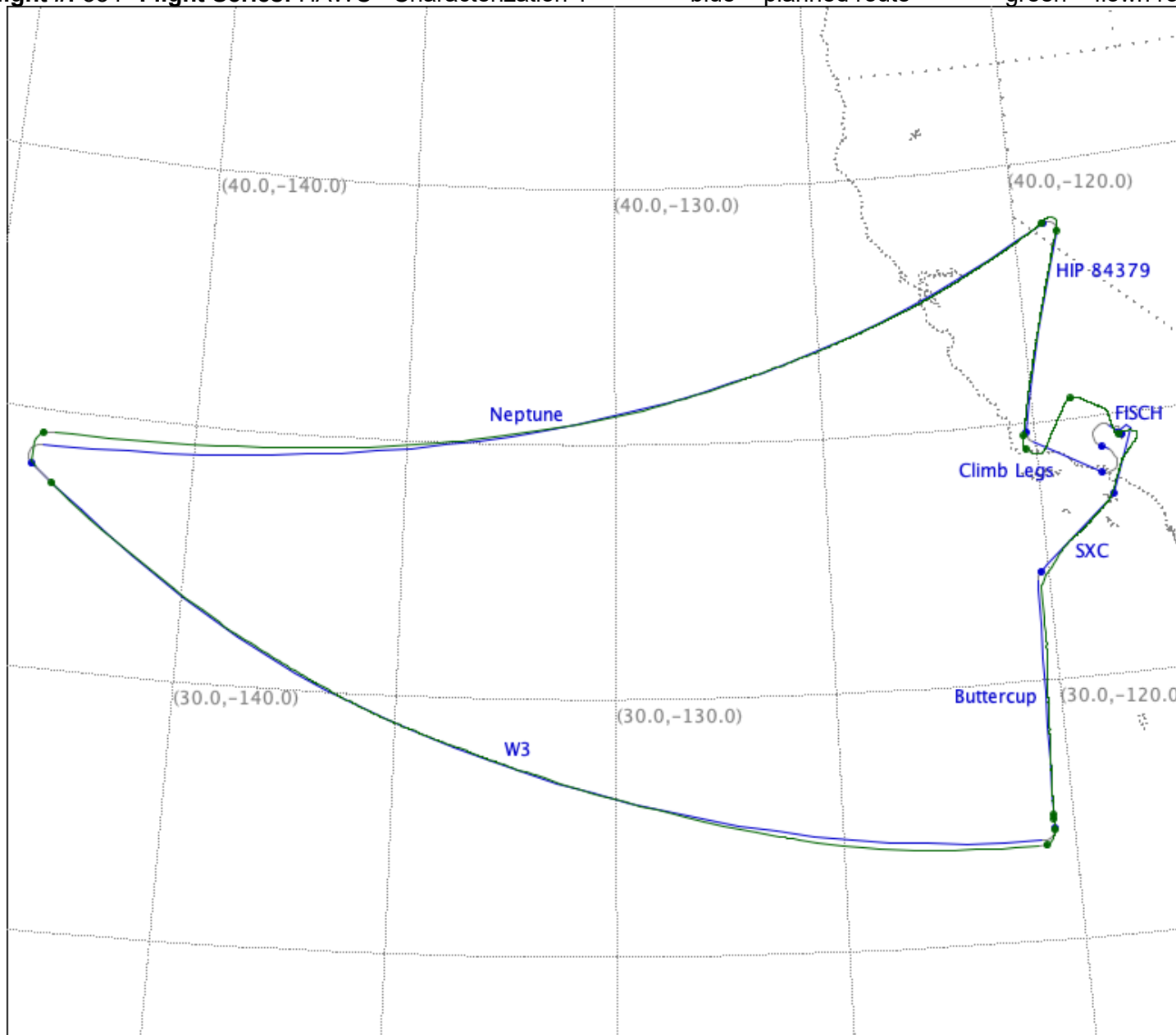
MISSION ID: 2016-10-04_HA_F334

Date: 2016-10-04 UT Instrument: HAWC+

Flight #: 334 Flight Series: HAWC+ Characterization 1

blue = planned route

green = flown route



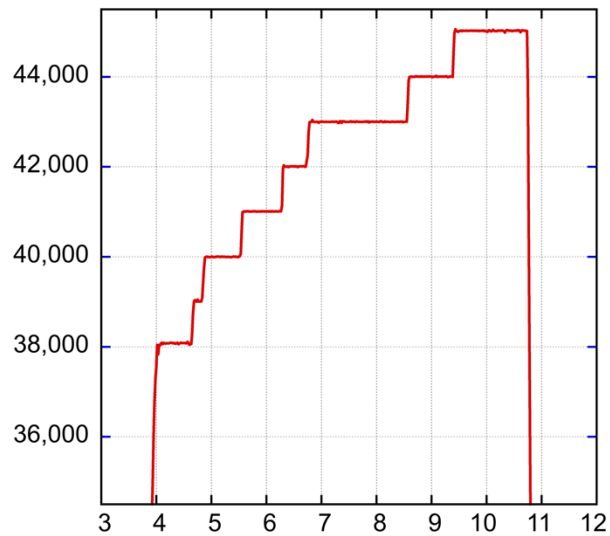
Flight notes:

HAWC+ commissioning flight. Mostly engineering data.

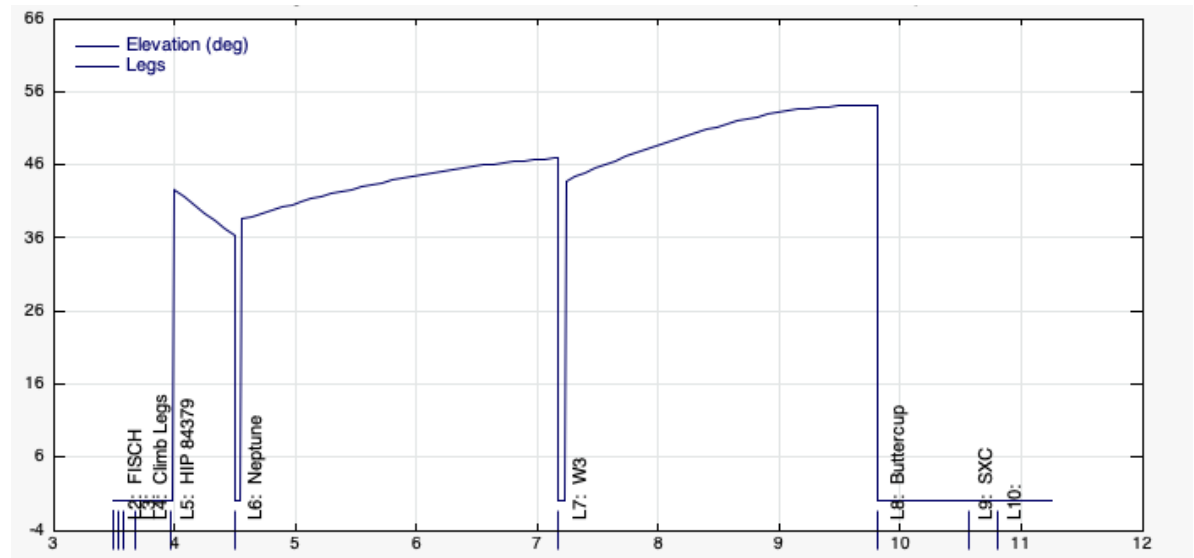
Flight 334 Mission ID 2016-10-04_HA_F334
 Palmdale to Palmdale Take off date UTC: 04-OCT-2016
 Departure UTC: 03:35 Arrival UTC: 11:18

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 84379	17h15m01.91s	24d50m21.1s	4:05	30	
6	88_0004	Dowell	Neptune Barycenter	22h45m53.49s	-08d47m30.8s	4:38	157	
7	88_0003	Dowell	W3	02h25m40.00s	62d05m51.0s	7:19	155	Turbulence.
8		Engineering				9:57	36.4	

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



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



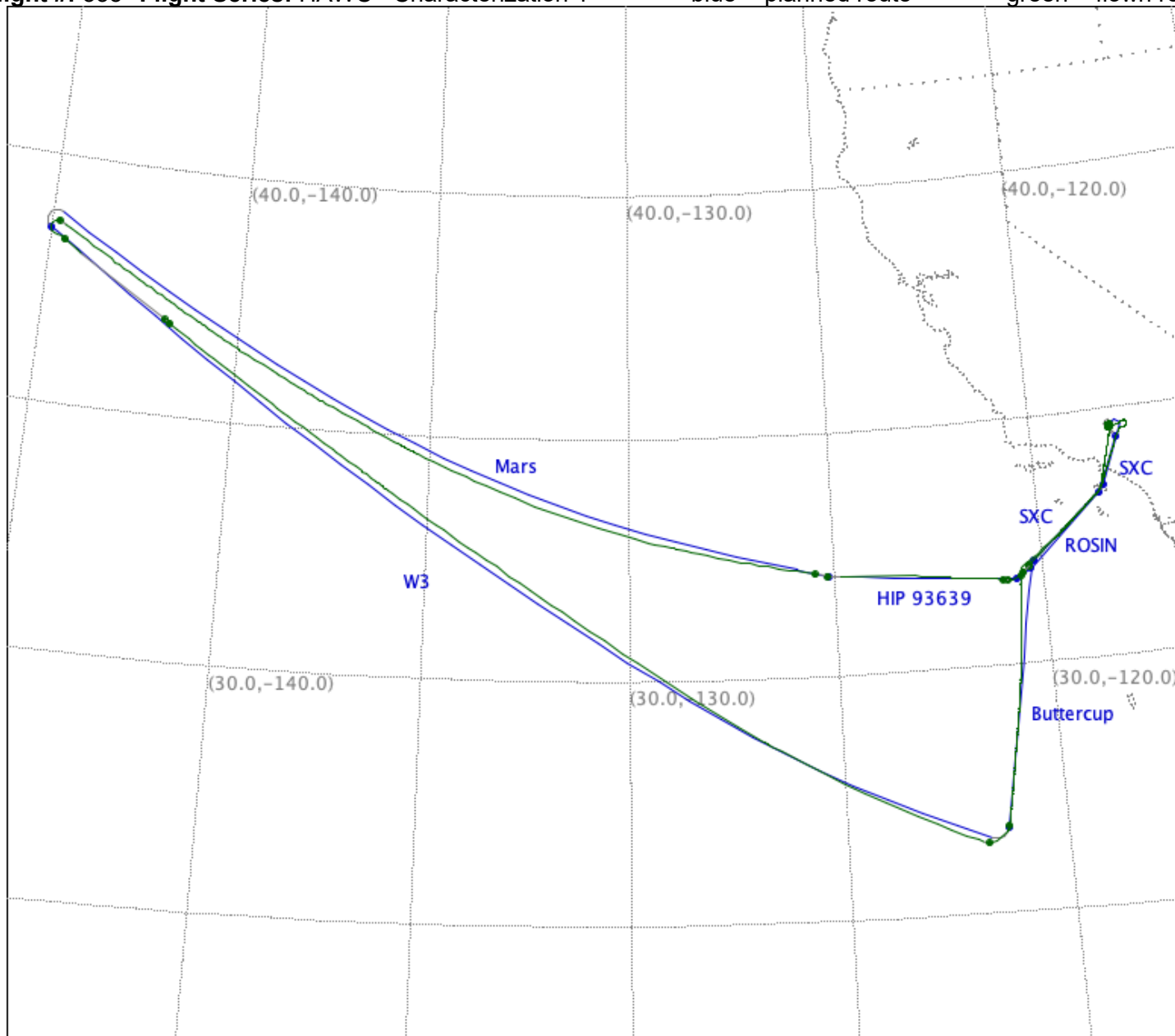
MISSION ID: 2016-10-06_HA_F335

Date: 2016-10-06 UT Instrument: HAWC+

Flight #: 335 Flight Series: HAWC+ Characterization 1

blue = planned route

green = flown route

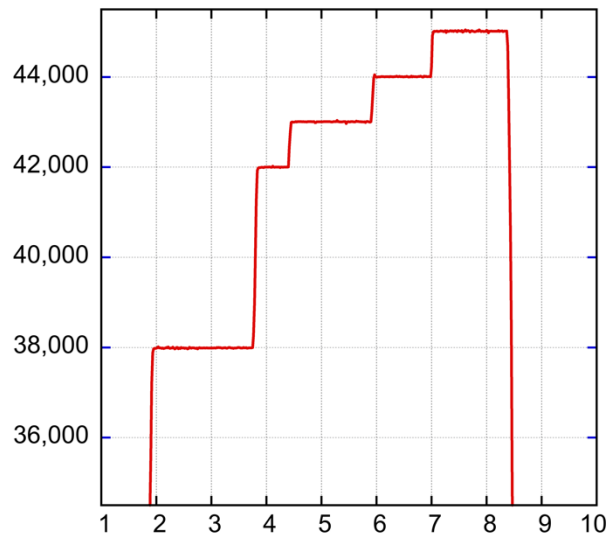


Flight notes:
HAWC+ commissioning flight. Mostly engineering data.

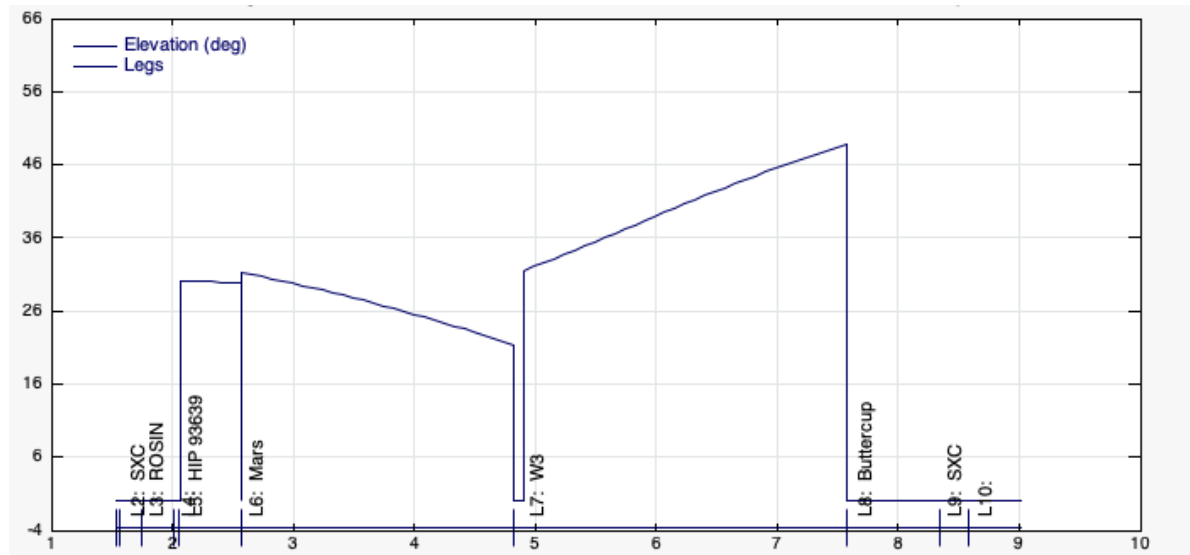
Flight 335 Mission ID 2016-10-06_HA_F335
 Palmdale to Palmdale Take off date UTC: 06-OCT-2016 Departure UTC: 01:31 Arrival UTC: 08:53

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 93639	19h04m06.65s	-28d12m11.1s	2:40	30	
6	88_0004	Dowell	Mars Barycenter	18h25m00.89s	-25d38m53.8s	3:10	135	
8	88_0003	Dowell	W3	02h25m40.00s	62d05m51.0s	4:46	160	
9		Engineering				8:15	38.5	

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



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



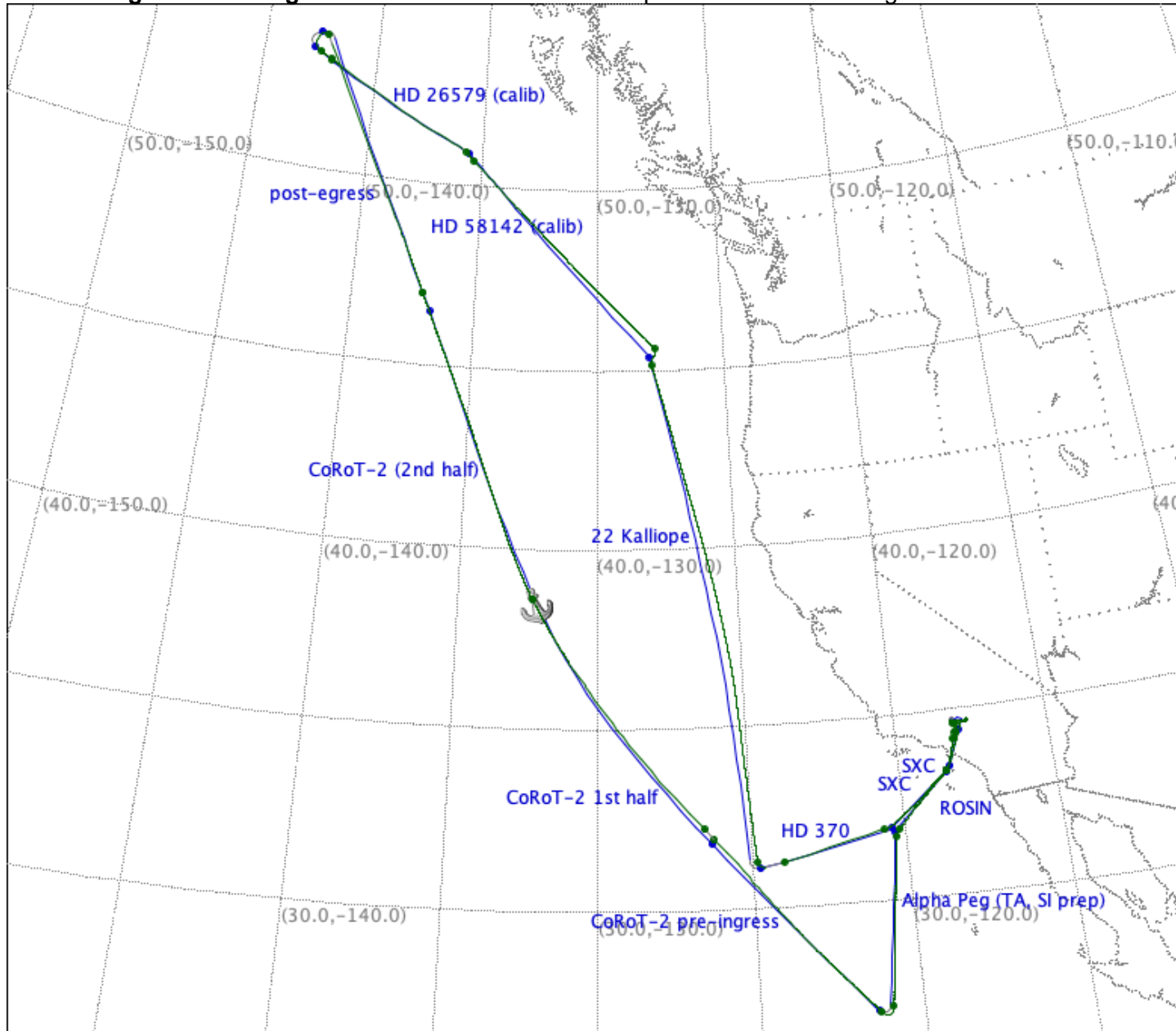
MISSION ID: 2016-10-13_FC_F336

Date: 2016-10-13 UT Instrument: FLITECAM

Flight #: 336 Flight Series: OC4J

blue = planned route

green = flown route



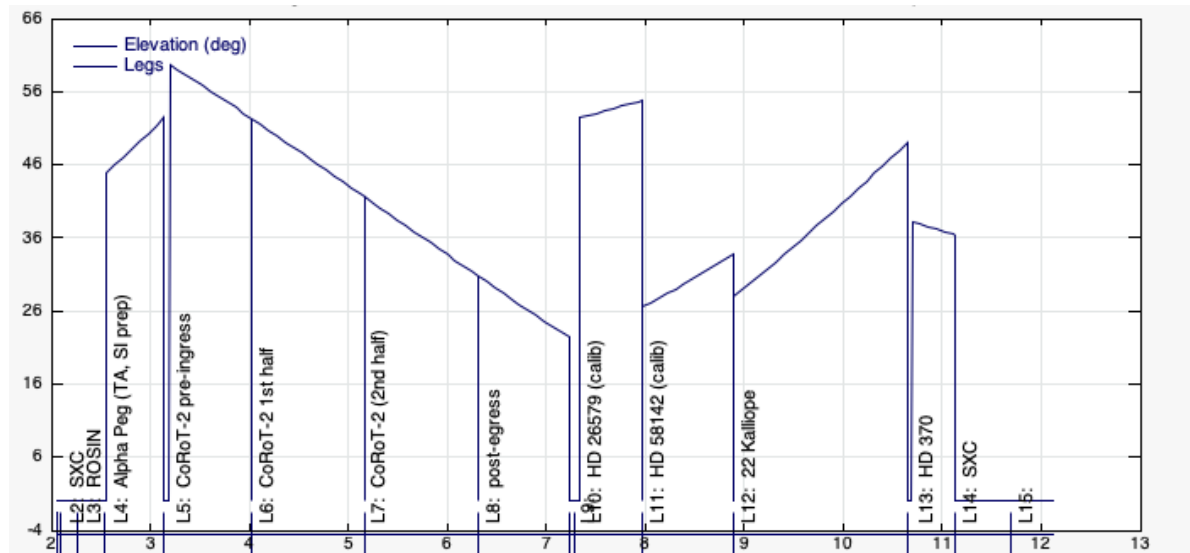
**Flight notes:
No irregularities.**

Flight 336 Mission ID 2016-10-13_FC_F336
 Palmdale to Palmdale Take off date UTC: 13-OCT-2016
 Departure UTC: 02:04 Arrival UTC: 11:48

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha Peg	23h04m46.00s	15d12m19.0s	2:37	35	
5	03_0042	Huber	CoRoT-2	19h27m06.51s	01d23m01.4s	3:16	50	Some light clouds and turbulence.
6	03_0042	Huber	CoRoT-2	19h27m06.51s	01d23m01.4s	4:06	68	Some light clouds and turbulence.
7	03_0042	Huber	CoRoT-2	19h27m06.51s	01d23m01.4s	5:14	69	Clouds and turbulence. Strong background features present.
8	03_0042	Huber	CoRoT-2	19h27m06.51s	01d23m01.4s	6:23	55	Clouds and turbulence. Strong background features present.
10	90_0076	Calibration	HD 26579	04h19m28.65s	74d38m09.6s	7:25	37	
11	90_0076	Calibration	HD 58142	07h26m42.85s	49d12m41.5s	8:02	55	
12	04_0050	Rivkin	Asteroid with naif_id =2000022 (22 Kalliope)	06h44m07.15s	26d24m42.1s	8:58	105	Strong background features present. At beginning of leg
13	90_0076	Calibration	HD 370	00h08m44.04s	74d12m53.2s	10:46	26	

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

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



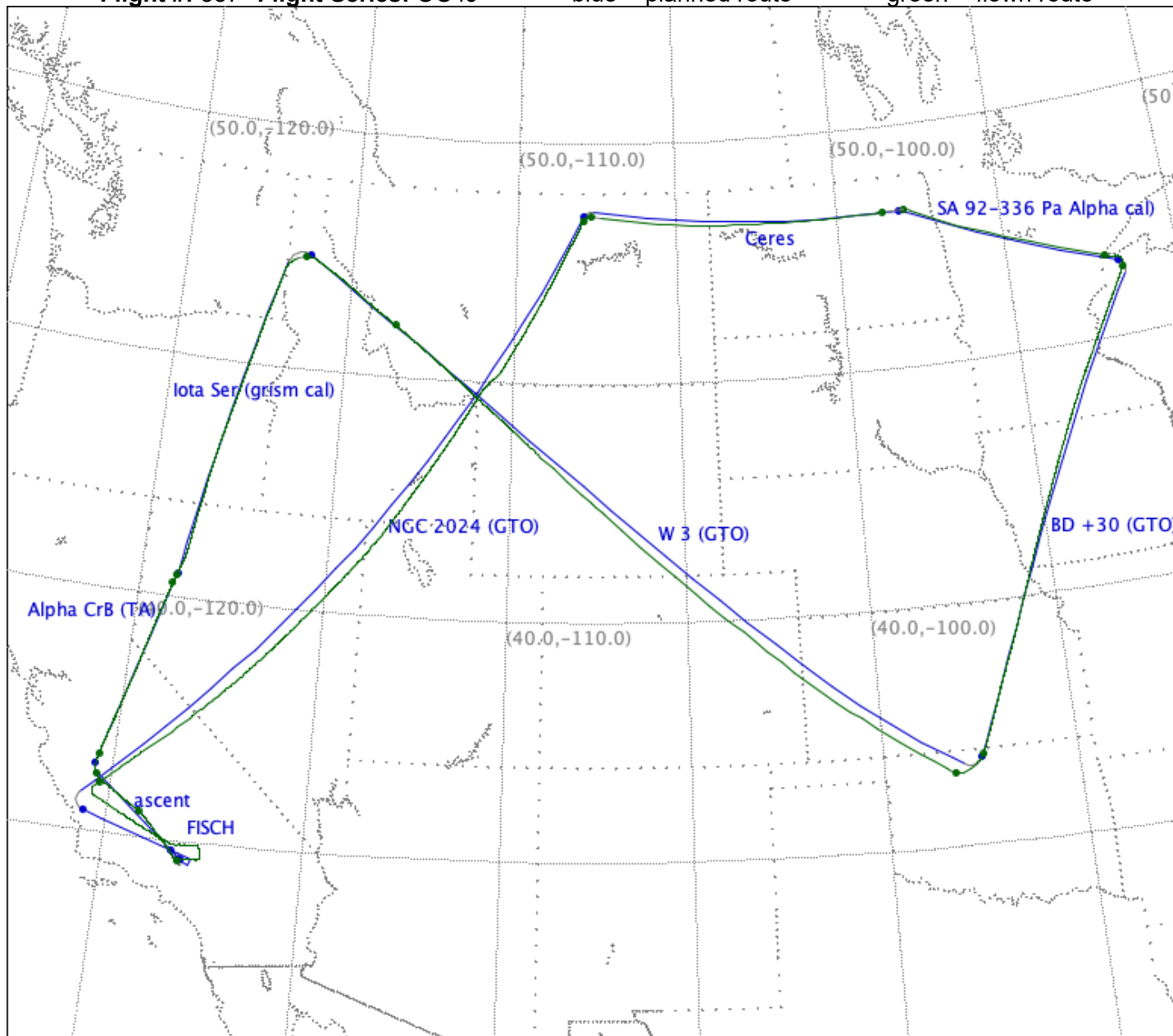
MISSION ID: 2016-10-14_FC_F337

Date: 2016-10-14 UT Instrument: FLITECAM

Flight #: 337 Flight Series: OC4J

blue = planned route

green = flown route

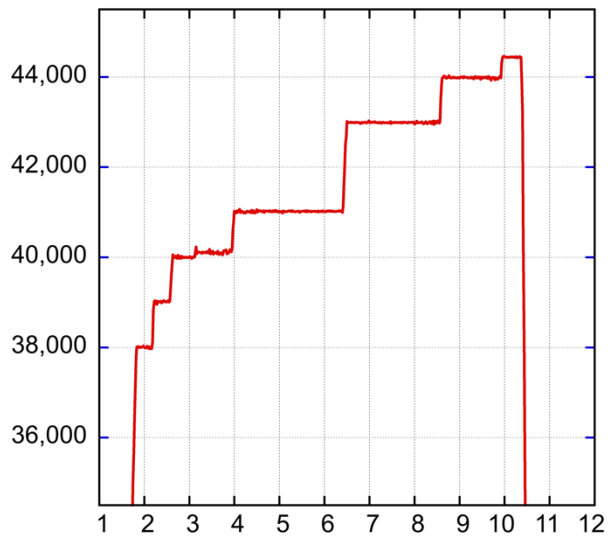


Flight notes: No irregularities.

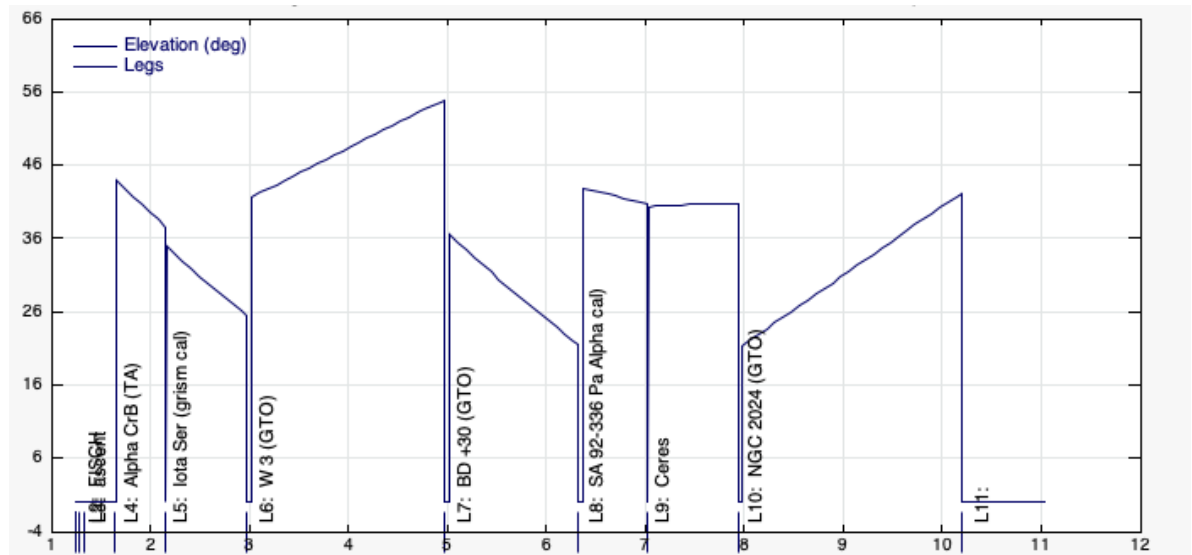
Flight 337 Mission ID 2016-10-14_FC_F337
 Palmdale to Palmdale Take off date UTC: 14-OCT-2016
 Departure UTC: 01:21 Arrival UTC: 10:51

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HR 5793	15h34m41.00s	26d42m51.0s	1:44	30	
5	90_0077	Calibration	HD 140159	15h41m33.05s	19d40m13.4s	2:15	48	Clouds prevented data collection; no data
6	70_0402	GTO	W3	02h25m36.50s	62d04m36.7s	3:06	117	First 10min lost to clouds
7	70_0402	GTO	BD +30 3639	19h34m45.23s	30d30m58.9s	5:06	78	
8	90_0004	Calibration	SA 92-336	00h55m01.40s	00d47m22.4s	6:27	39	
9	04_0050	Rivkin	Ceres	02h08m11.33s	-00d51m55.3s	7:06	55	
10	70_0402	GTO	NGC2024	05h41m40.15s	-01d54m23.5s	8:03	133	Clouds; 9min lost

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



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



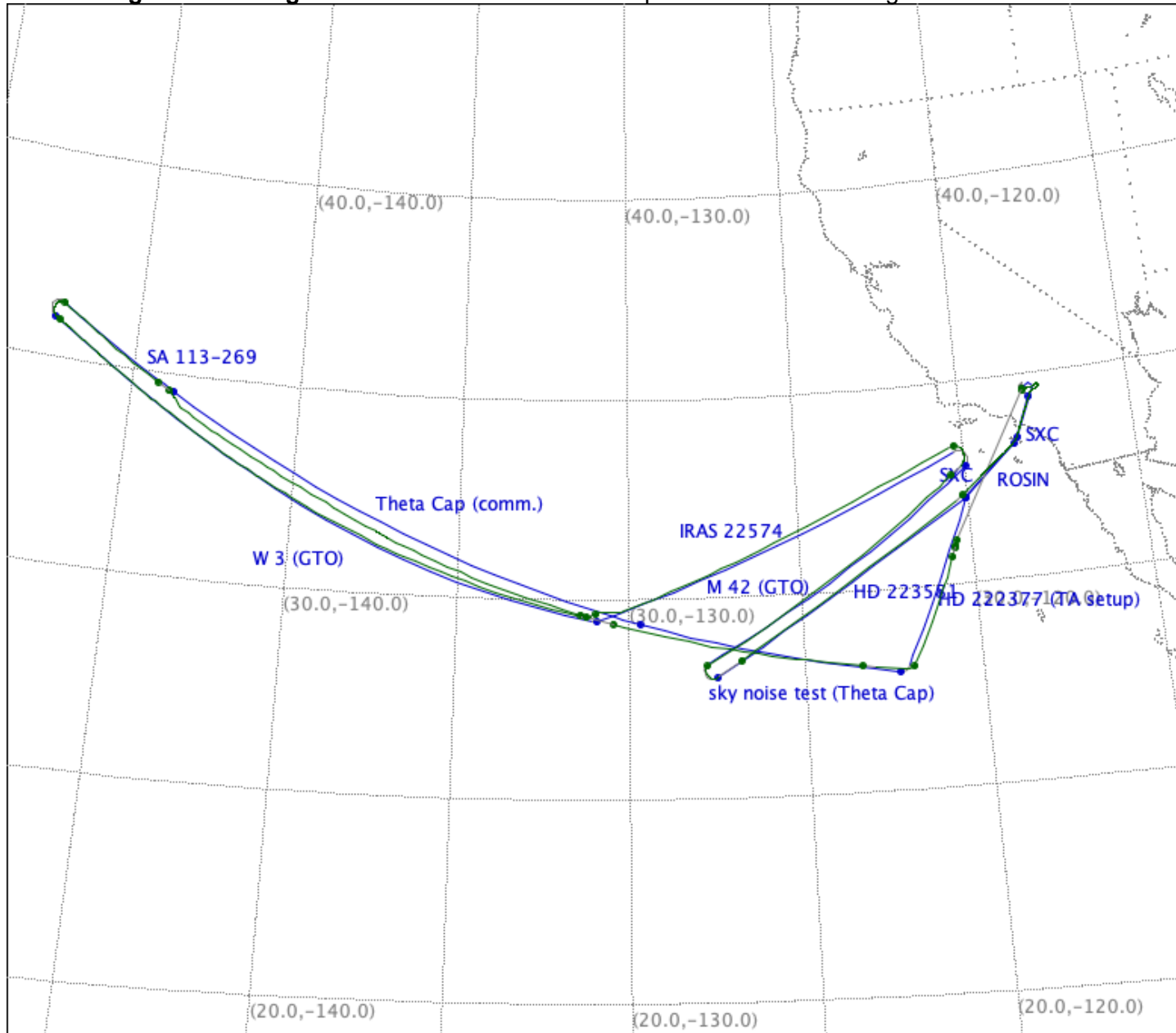
MISSION ID: 2016-10-15_FC_F338

Date: 2016-10-15 UT Instrument: FLITECAM

Flight #: 338 Flight Series: OC4J

blue = planned route

green = flown route

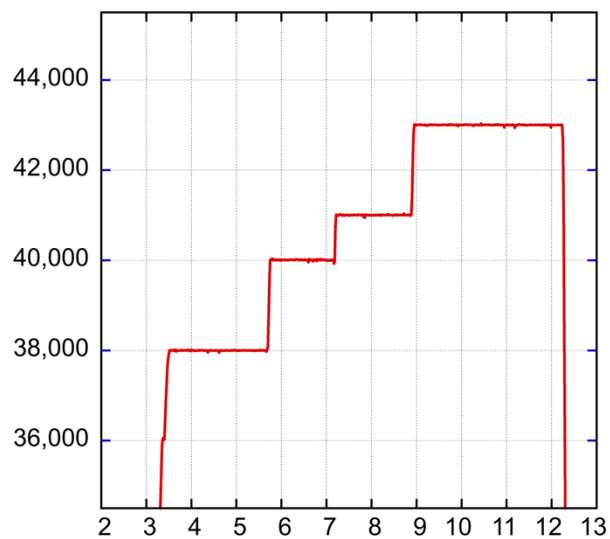


Flight notes: No irregularities.

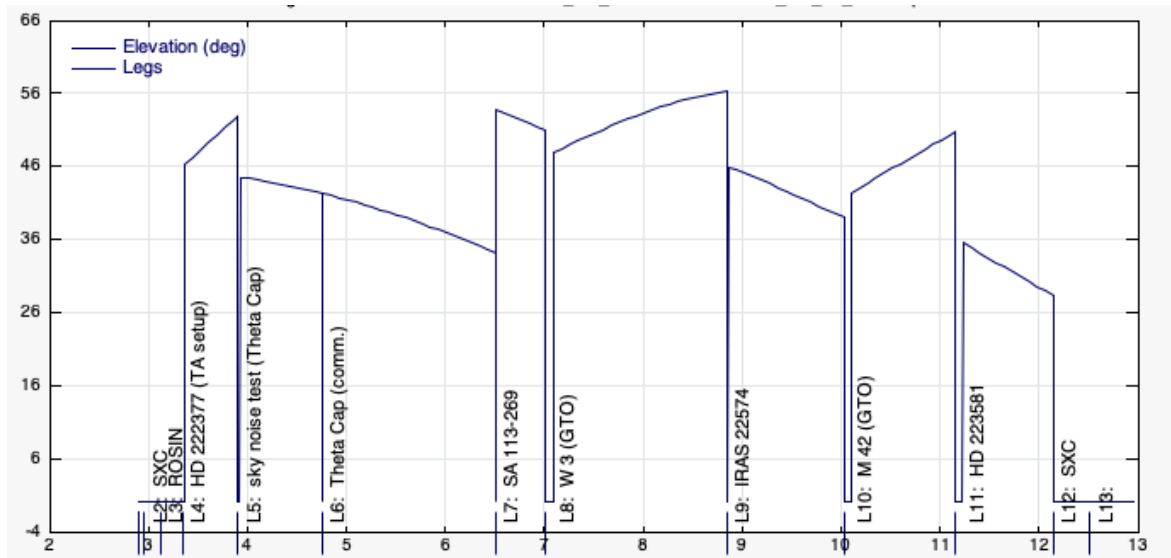
Flight 338 Mission ID 2016-10-15_FC_F338
 Palmdale to Palmdale Take off date UTC: 15-OCT-2016
 Departure UTC: 02:54 Arrival UTC: 12:51

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HD 222377	23h39m55.00s	09d40m38.0s	3:26	32	
5	85_0004	Commissioning	HD 200761	21h05m56.83s	-17d13m58.3s	4:00	50	
6	85_0004	Commissioning	HD 200761	21h05m56.83s	-17d13m58.3s	4:50	105	
7	90_0004	Calibration	SA 113-269	21h42m01.32s	00d17m45.2s	6:35	30	
8	70_0402	GTO	W3	02h25m36.50s	62d04m36.7s	7:10	105	
9	04_0112	Peeters	iras22574+6609	22h59m18.36s	66d25m48.2s	8:56	70	
10	70_0402	GTO	Orion Bar	05h35m20.27s	-05d25m00.7s	10:10	63	
11	85_0004	Commissioning	HD 223581	23h50m28.59s	59d36m36.7s	11:18	55	

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



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



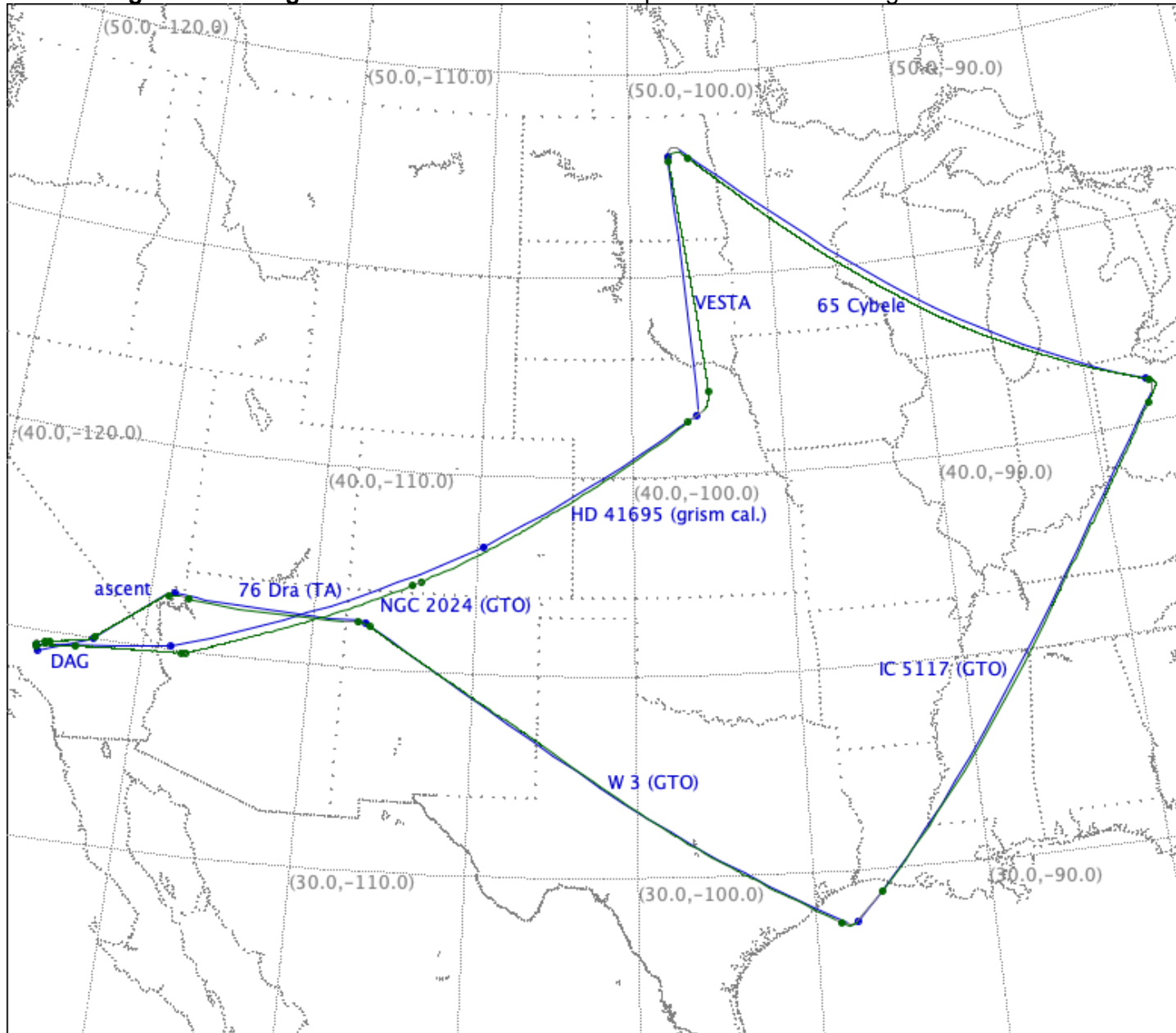
MISSION ID: 2016-10-19_FC_F339

Date: 2016-10-19 UT Instrument: FLITECAM

Flight #: 339 Flight Series: OC4J

blue = planned route

green = flown route

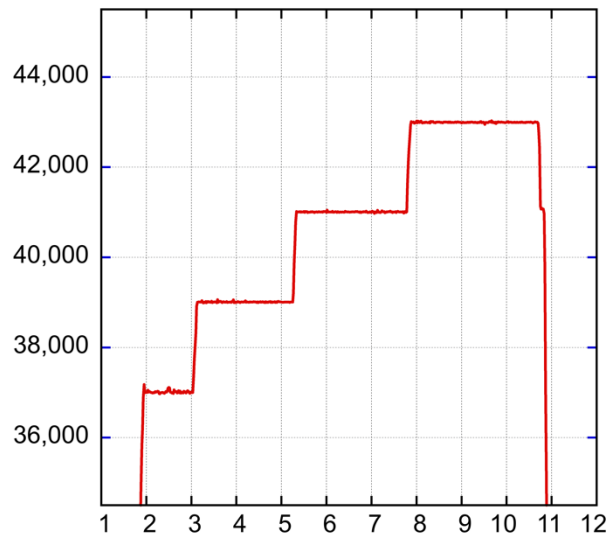


Flight notes: No irregularities.

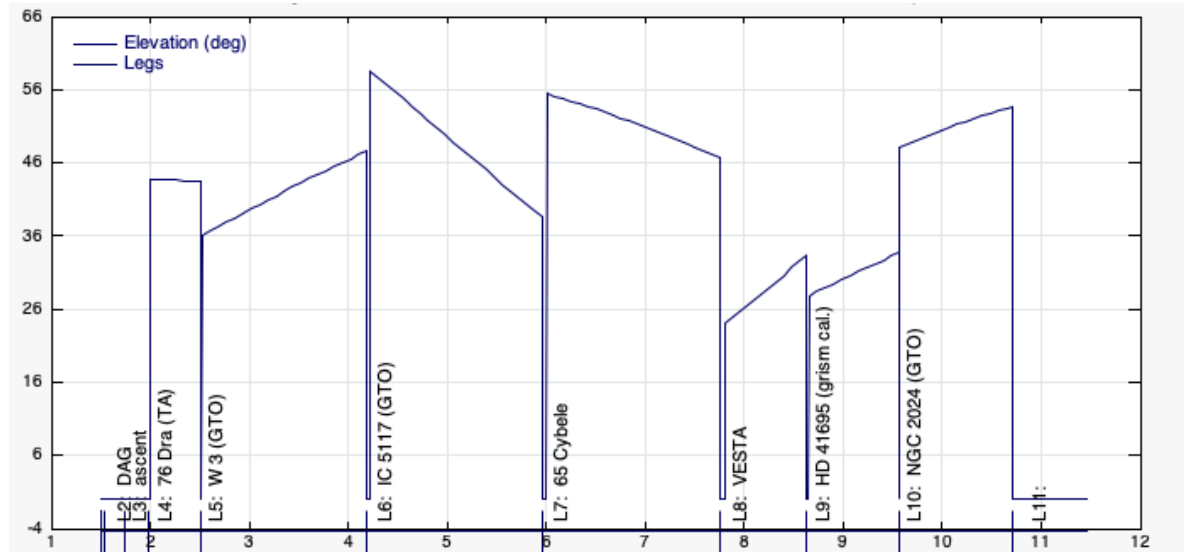
Flight 339 Mission ID 2016-10-19_FC_F339
 Palmdale to Palmdale Take off date UTC: 19-OCT-2016
 Departure UTC: 01:29 Arrival UTC: 11:19

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			76 Dra	20h42m37.00s	82d31m52.0s	2:01	30	Turbulence.
5	70_0402	GTO	W3	02h25m36.50s	62d04m36.7s	2:32	100	Turbulence.
6	70_0402	GTO	IC 5117	21h32m31.03s	44d35m48.5s	4:14	104	
7	04_0050	Rivkin	65 Cybele	01h46m11.53s	06d52m33.1s	6:01	105	
8	04_0050	Rivkin	VESTA	08h06m11.83s	19d18m37.8s	7:50	49	
9	90_0079	Calibration	HD 41695	06h06m09.32s	-14d56m06.9s	8:40	55	FLITECAM software issues led to extended observations into next leg.
10	70_0402	GTO	NGC2024	05h41m40.15s	-01d54m23.5s	9:35	68	Reduced for prior leg. Telescope operators performing dithers and nods manually due to FLITECAM software issues.

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



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



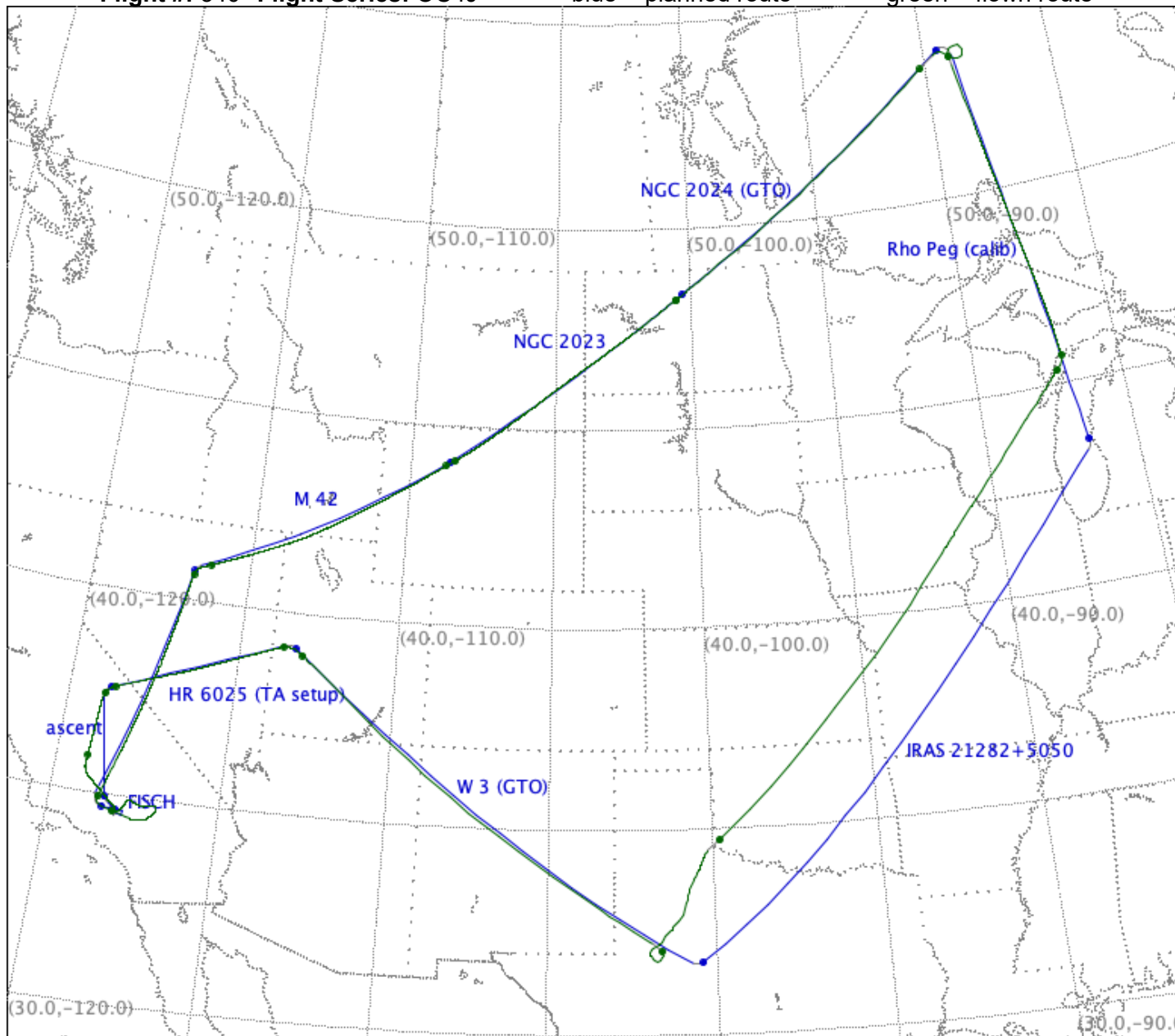
MISSION ID: 2016-10-20_FC_F340

Date: 2016-10-20 UT Instrument: FLITECAM

Flight #: 340 Flight Series: OC4J

blue = planned route

green = flown route

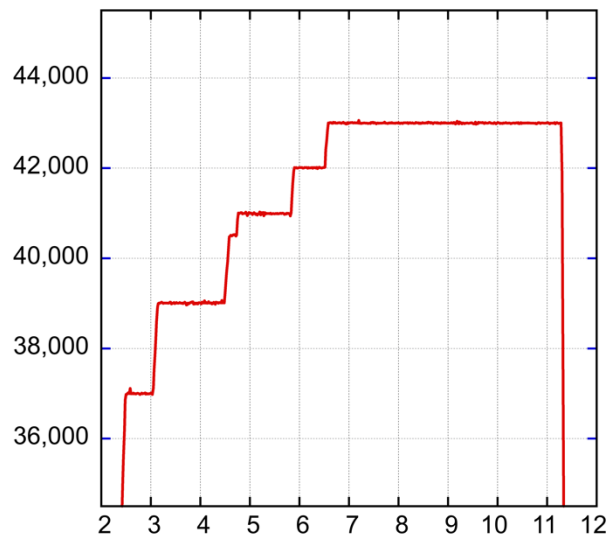


Flight notes: In-flight replan to avoid thunderstorms along leg 6 track.

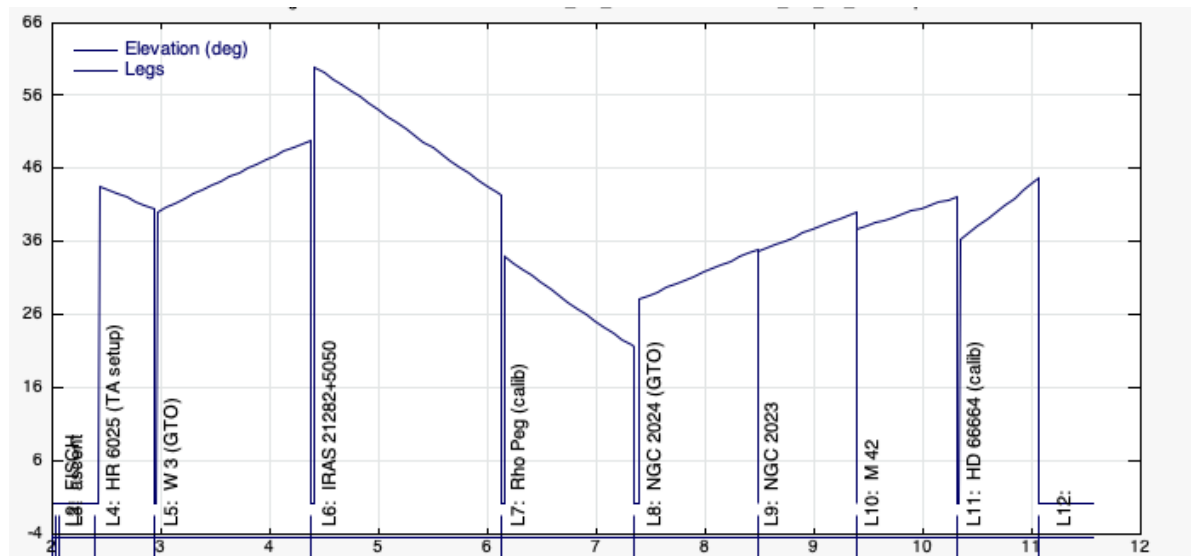
Flight 340 Mission ID 2016-10-20_FC_F340
 Palmdale to Palmdale Take off date UTC: 20-OCT-2016
 Departure UTC: 02:01 Arrival UTC: 11:40

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0017	Calibration	HD 145454	16h06m19.68s	67d48m36.5s	2:32	30	
5	70_0402	GTO	W3	02h25m36.50s	62d04m36.7s	3:04	85	Highly variable sky quality led to poor backgrounds in FLITECAM data; turbulence; end of leg cut short to divert around storms.
6	70_0402	GTO	IRAS 21282+5050	21h29m58.42s	51d03m59.8s	4:31	103	Beginning 15min lost to diverting around storms; Turbulence
7	90_0081	Calibration	HD 216735	22h55m13.67s	08d48m58.2s	6:15	71	
8	70_0402	GTO	NGC2024	05h41m40.15s	-01d54m23.5s	7:30	65	
9	04_0058	Tielens	NGC 2023	05h41m37.89s	-02d15m52.2s	8:35	55	
10	04_0058	Tielens	Orion I2	05h35m26.00s	-05d26m12.0s	9:30	55	
11	90_0081	Calibration	HD 66664	08h05m04.49s	13d07m05.6s	10:26	44	

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



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



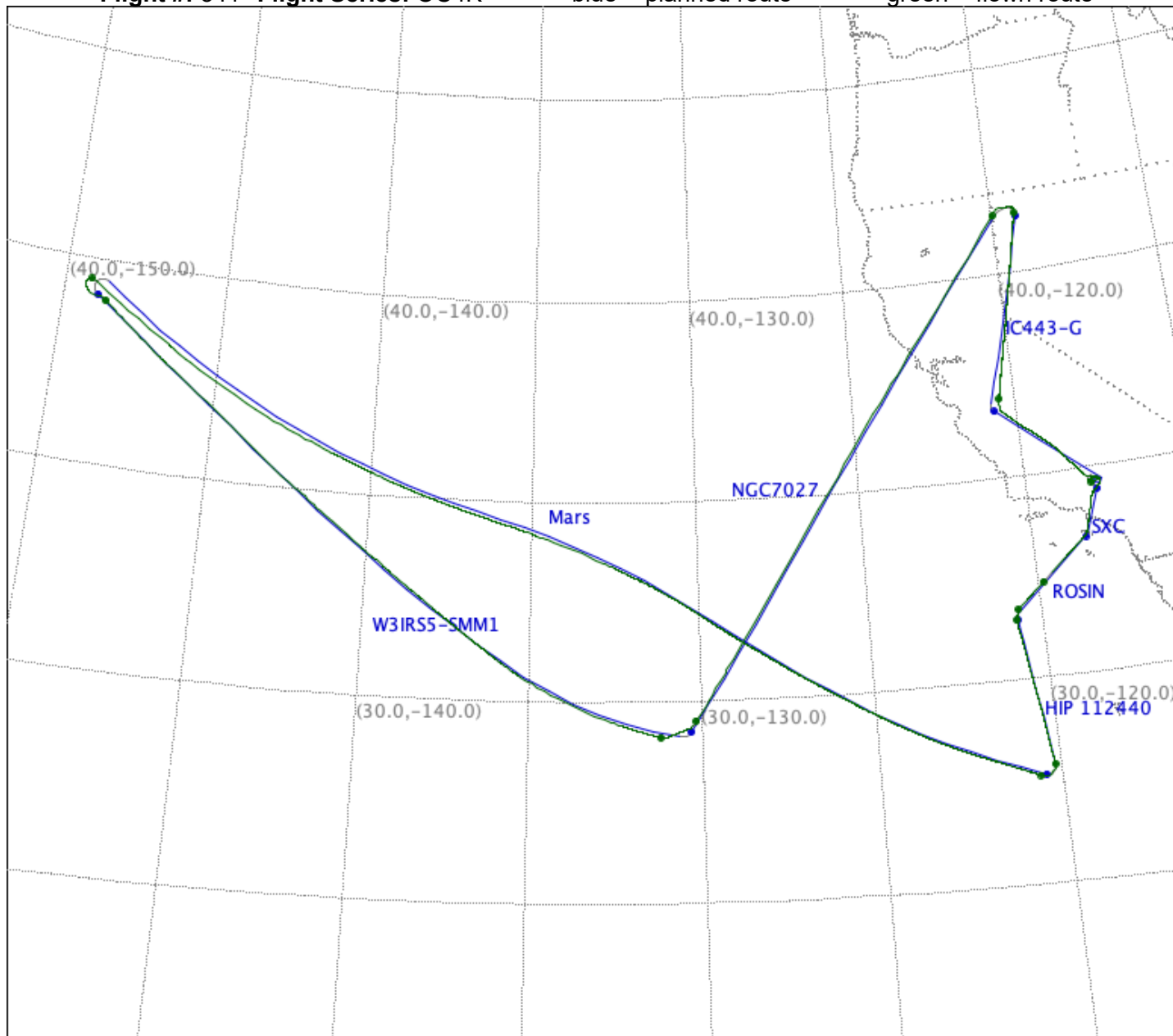
MISSION ID: 2016-10-27_GR_F341

Date: 2016-10-27 UT Instrument: GREAT

Flight #: 341 Flight Series: OC4K

blue = planned route

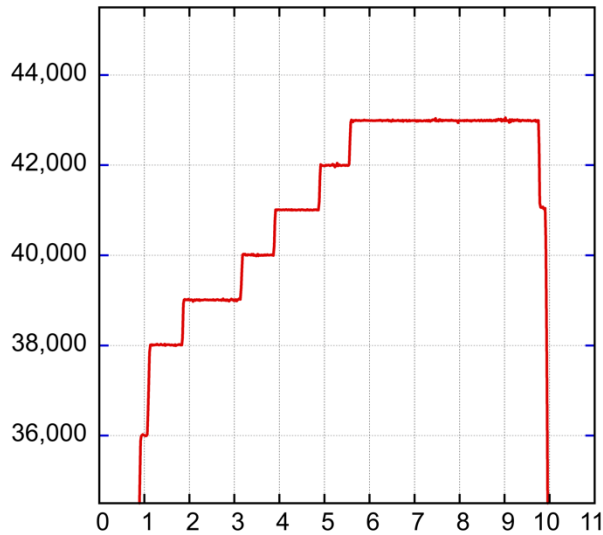
green = flown route



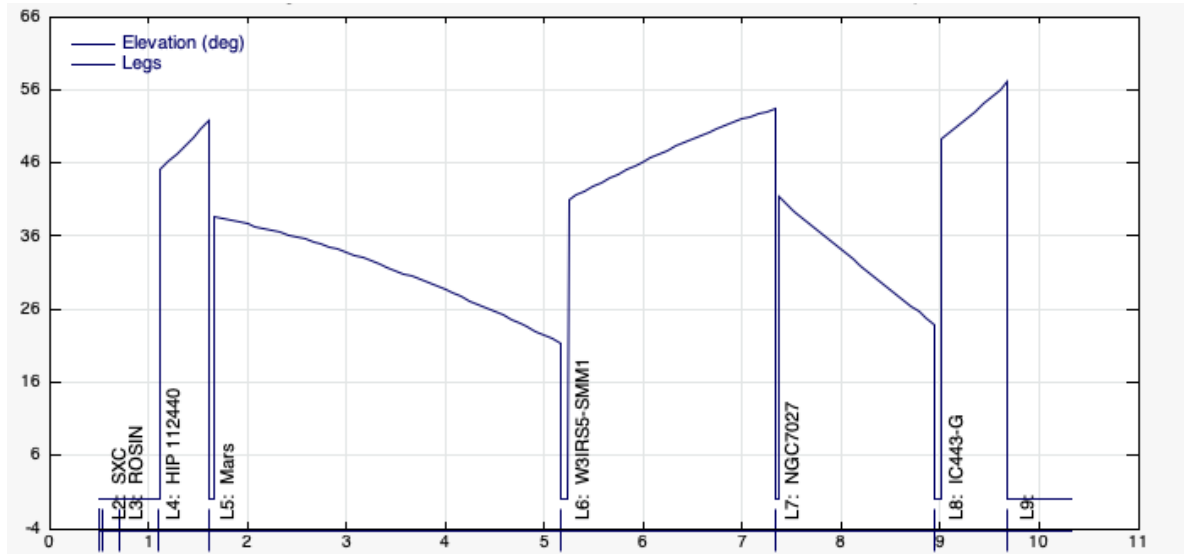
**Flight notes:
No irregularities.**

Flight 341 Palmdale to Palmdale		Mission ID 2016-10-27_GR_F341	Take off date UTC: 27-OCT-2016	Departure UTC: 00:29	Arrival UTC: 10:13	Consortium flight L2-HFA		
Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 112440	22h46m31.88s	23d33m56.4s	1:11	30	Bright sky and clouds.
5	83_0009	GREAT Consortium	Mars	19h28m49.76s	-23d54m37.2s	1:44	210	First 20min of leg lost to clouds and turbulence
6	83_0009	GREAT Consortium	W3IRS5-SMM1	02h25m40.78s	62d05m52.6s	5:19	125	
7	83_0009	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	7:26	95	Turbulence sent telescope into standby several times
8	83_0424	GREAT Consortium	IC443-G	06h16m41.80s	22d31m41.0s	9:05	40	

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



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



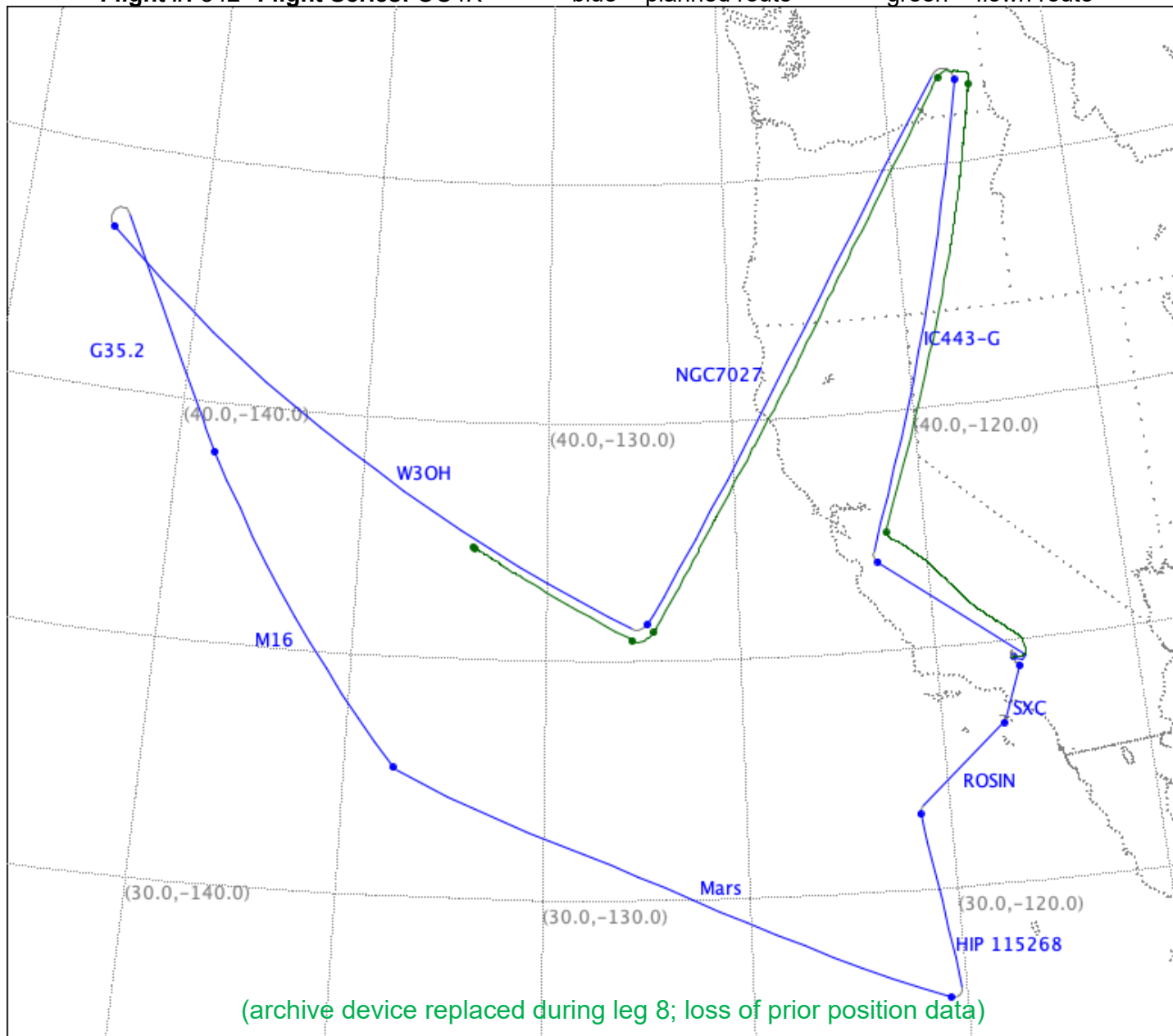
MISSION ID: 2016-10-28_GR_F342

Date: 2016-10-28 UT Instrument: GREAT

Flight #: 342 Flight Series: OC4K

blue = planned route

green = flown route

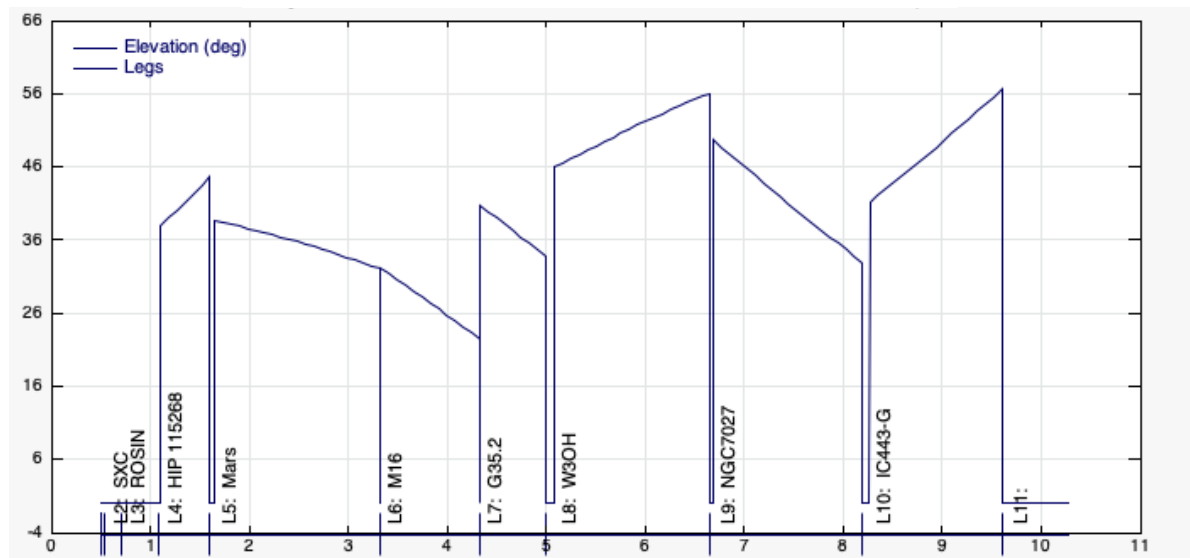


Flight notes:
Deviations for weather at beginning of flight.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 115268	23h20m48.88s	21d57m45.7s	1:10	30	
5	83_0009	GREAT Consortium	Mars	19h31m54.81s	-23d47m05.5s	1:43	100	Course deviation for storms, but still able to complete.
6	83_0425	GREAT Consortium	M16	18h18m52.70s	-13d49m52.7s	3:24	60	
7	83_0426	GREAT Consortium	G35.2	18h58m12.93s	01d40m40.6s	4:24	40	
8	83_0009	GREAT Consortium	W3OH	02h27m04.30s	61d52m25.0s	5:09	94	Telescope control software failure; 30min lost
9	83_0009	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	6:46	90	
10	83_0424	GREAT Consortium	IC443-G	06h16m41.80s	22d31m41.0s	8:20	80	

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

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



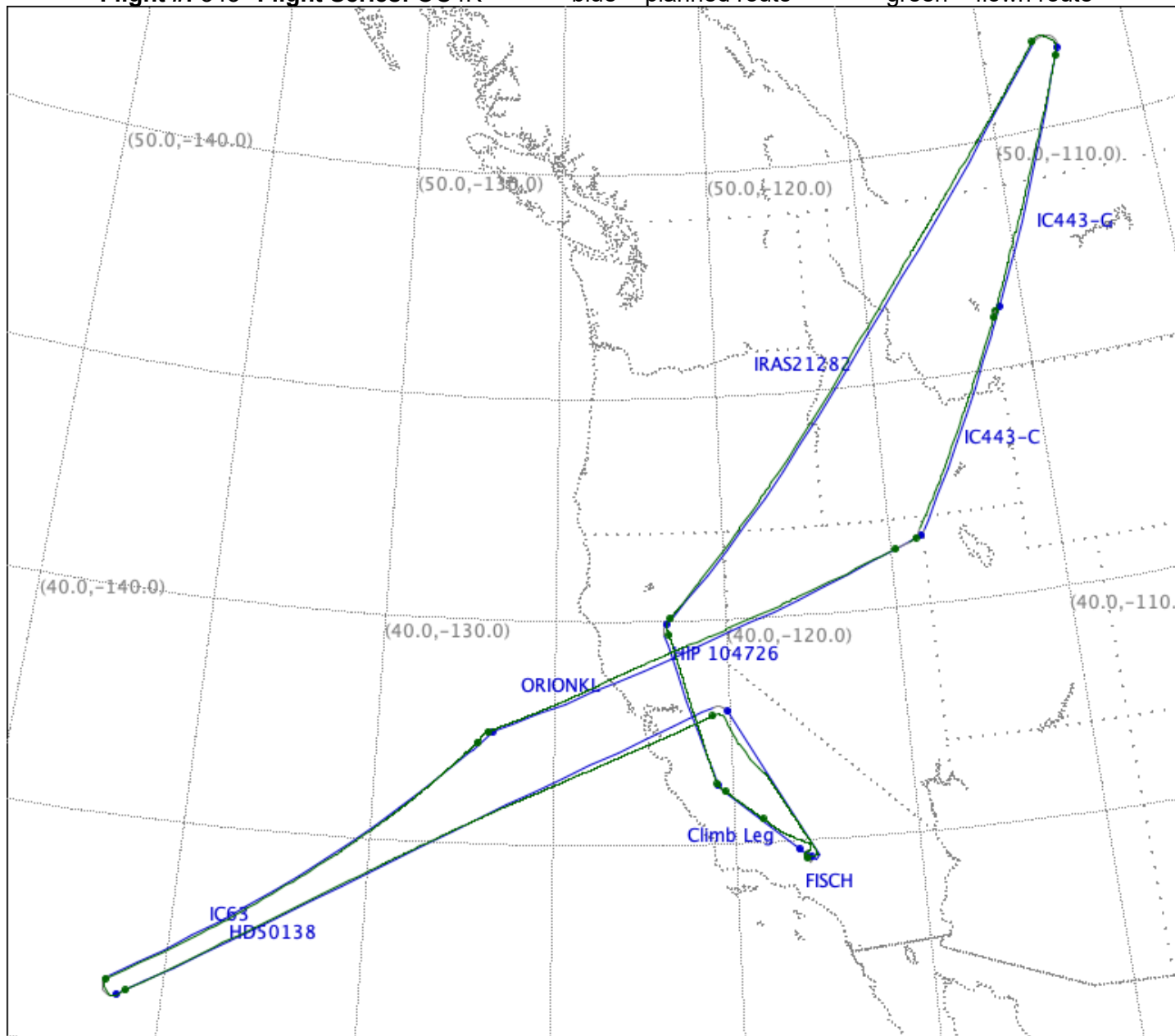
MISSION ID: 2016-11-01_GR_F343

Date: 2016-11-01 UT Instrument: GREAT

Flight #: 343 Flight Series: OC4K

blue = planned route

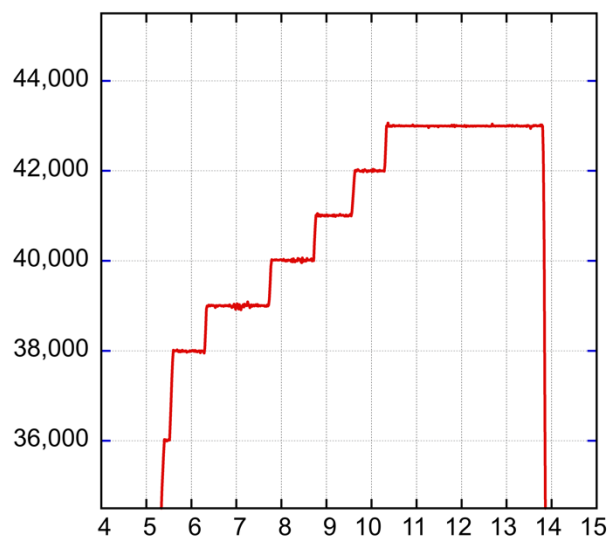
green = flown route



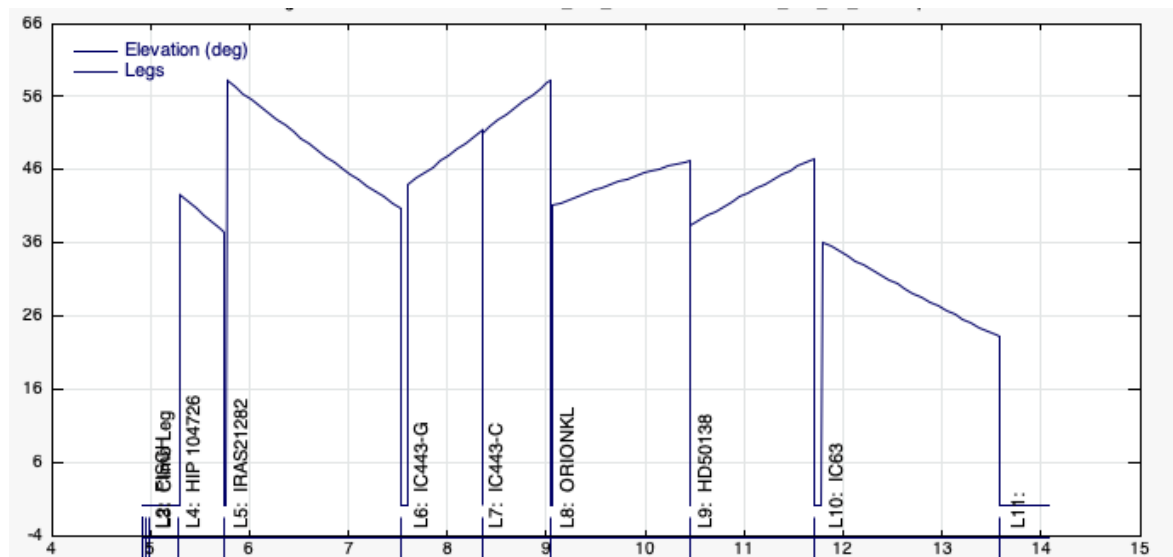
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 104726	21h12m53.20s	07d41m32.6s	5:23	27	
5	83_0430	GREAT Consortium	IRAS21282	21h29m58.47s	51d04m00.3s	5:51	105	Turbulence caused telescope to go into standby a few times.
6	83_0424	GREAT Consortium	IC443-G	06h16m41.80s	22d31m41.0s	7:41	45	
7	83_0424	GREAT Consortium	IC443-C	06h17m42.80s	22d21m29.0s	8:26	42	All time on this leg was used to extend observations of IC443-G from previous leg; IC443-C not observed
8	83_0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	9:09	83	
9	83_0431	GREAT Consortium	HD50138	06h51m33.40s	-06d57m59.5s	10:33	75	
10	83_0432	GREAT Consortium	IC63	00h59m00.00s	60d53m10.0s	11:53	107	

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



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



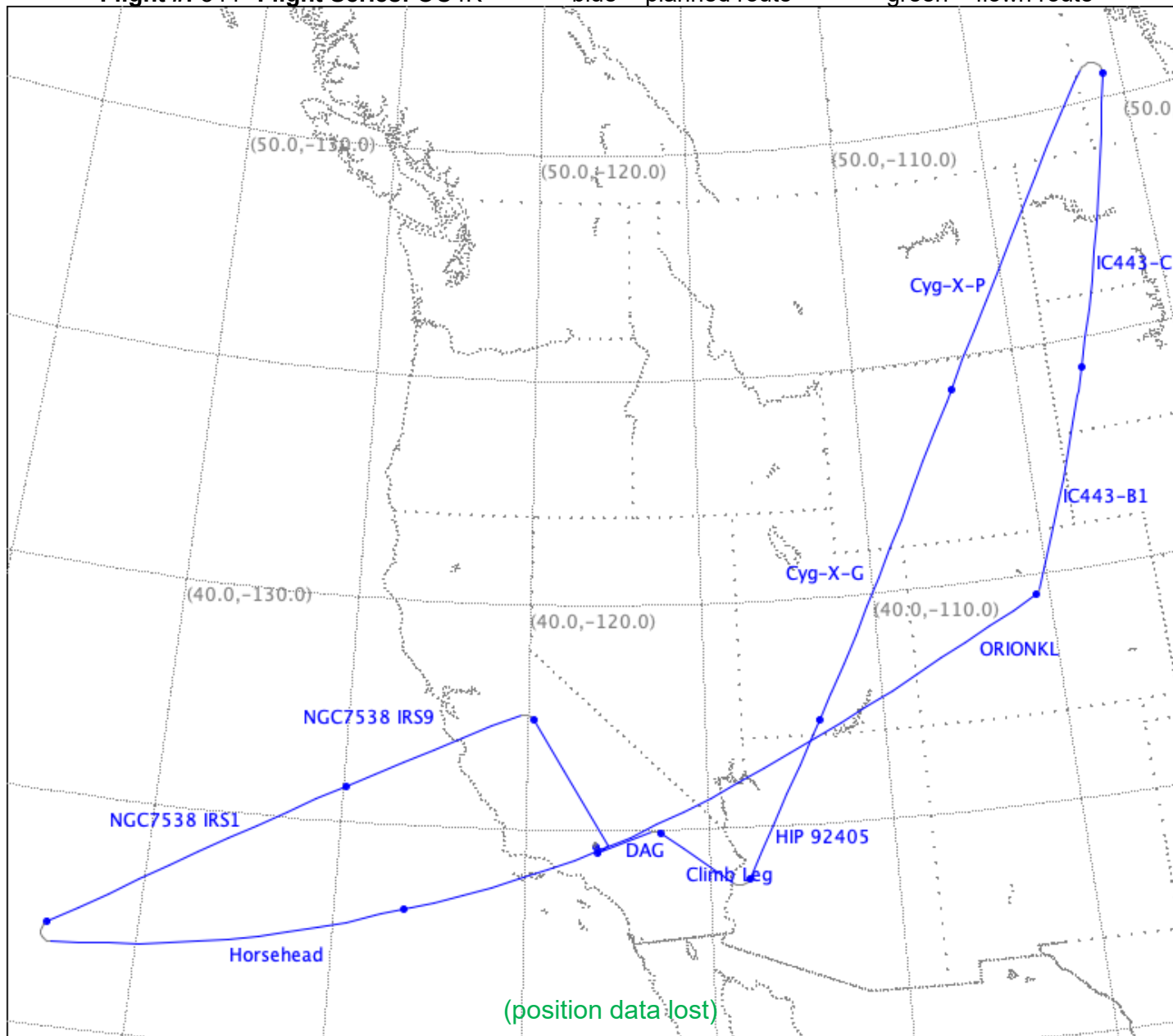
MISSION ID: 2016-11-02_GR_F344

Date: 2016-11-02 UT Instrument: GREAT

Flight #: 344 Flight Series: OC4K

blue = planned route

green = flown route

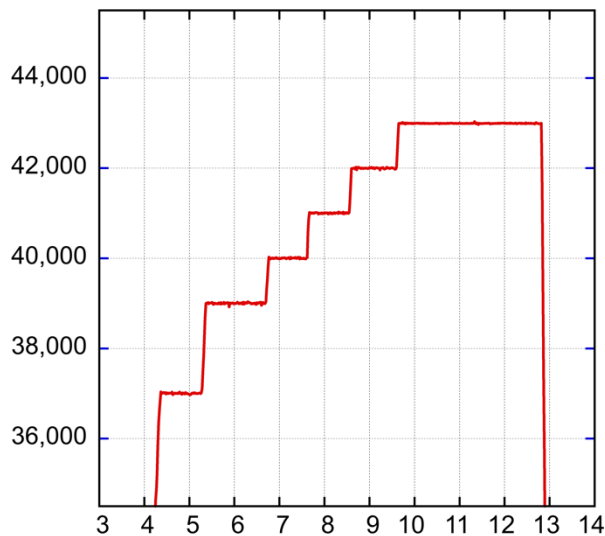


Flight notes: No irregularities.

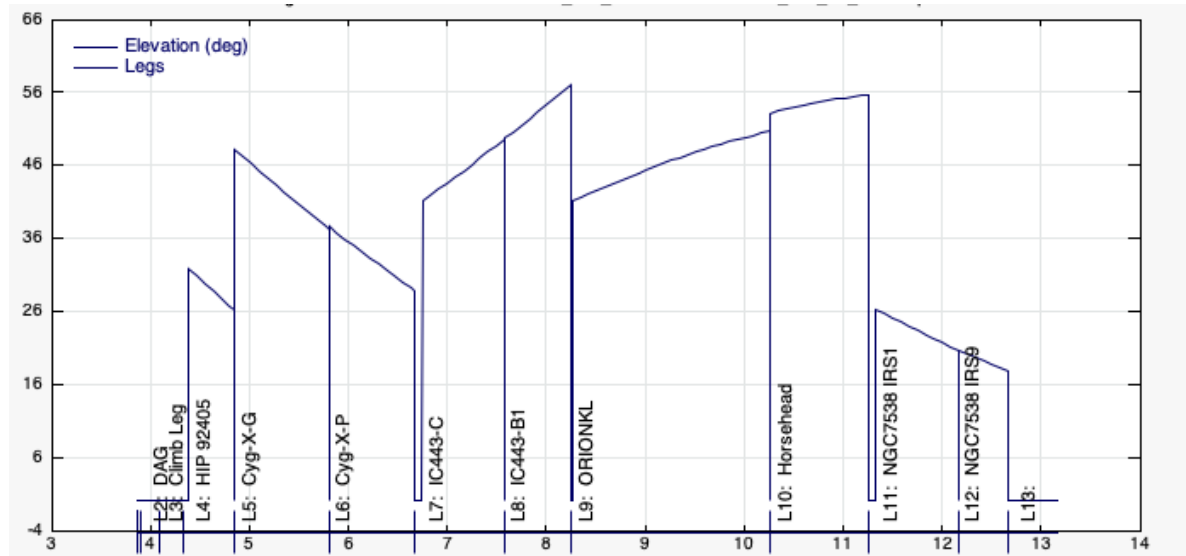
Flight 344 Mission ID 2016-11-02_GR_F344
 Palmdale to Palmdale Take off date UTC: 02-NOV-2016
 Departure UTC: 03:46 Arrival UTC: 13:15 Consortium flight L2-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 92405	18h49m52.92s	32d33m03.8s	4:26	28	
5	83_0433	GREAT Consortium	Cyg-X-G	20h33m53.00s	40d08m45.0s	4:54	52	
6	83_0433	GREAT Consortium	Cyg-X-P	20h37m44.00s	39d51m30.0s	5:51	52	First 15min were extended observations from previous leg of Cyg-X-G
7	83_0424	GREAT Consortium	IC443-C	06h17m42.80s	22d21m29.0s	6:48	50	
8	83_0424	GREAT Consortium	IC443-B1	06h17m17.00s	22d25m40.0s	7:38	40	All time on this leg was used to extend observations of IC443-C from previous leg; IC443-B1 not observed
9	83_0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	8:19	120	Turbulence sent telescope into standby.
10	83_0434	GREAT Consortium	Horsehead	05h40m54.27s	-02d28m00.0s	10:19	60	
11	83_0429	GREAT Consortium	NGC7538 IRS1	23h13m45.37s	61d28m10.4s	11:23	50	
12	83_0429	GREAT Consortium	NGC7538 IRS9	23h14m01.63s	61d27m20.2s	12:13	30	All time on this leg was used to extend observations of IRS1 from previous leg; IRS9 not observed

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



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



MISSION ID: 2016-11-04_GR_F345

Date: 2016-11-04 UT Instrument: GREAT

Flight #: 345 Flight Series: OC4K

blue = planned route

green = flown route

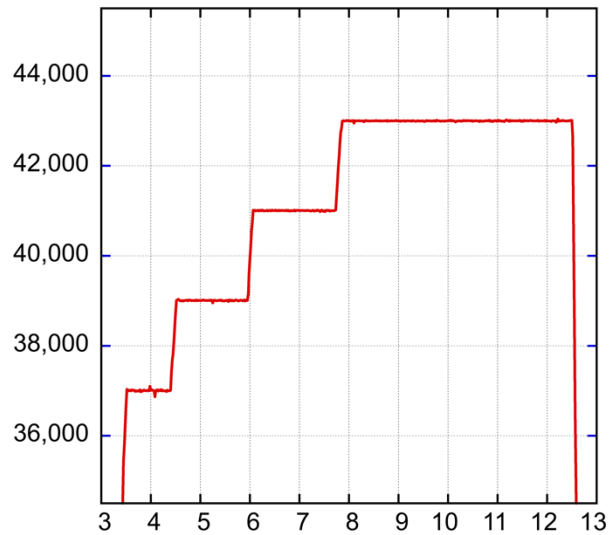


Flight notes:
No irregularities.

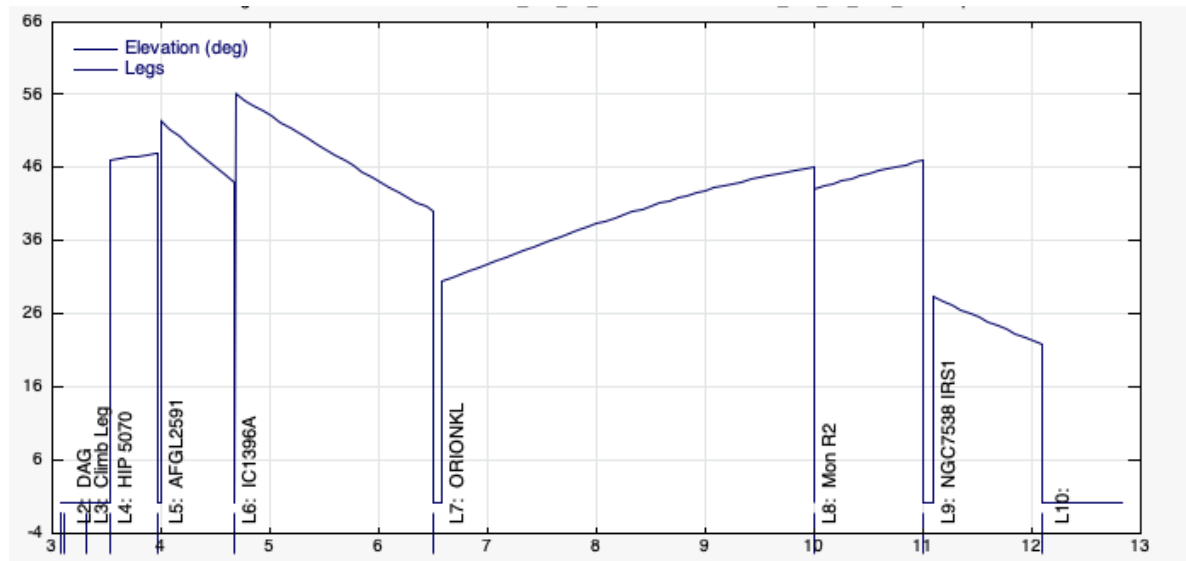
Flight 345 Mission ID 2016-11-04_GR_F345
 Palmdale to Palmdale Take off date UTC: 04-NOV-2016
 Departure UTC: 03:01 Arrival UTC: 12:55 Consortium flight L2-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 5070	01h04m49.92s	74d22m19.6s	3:35	26	
5	04_0141	Melnick	AFGL2591	20h29m24.60s	40d11m19.8s	4:04	40	
6	83_0427	GREAT Consortium	IC1396A	21h36m50.70s	57d31m10.0s	4:44	109	
7	83_0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	6:39	205	
8	04_0057	Guevara	Mon R2	06h07m46.20s	-06d23m08.0s	10:04	60	
9	83_0429	GREAT Consortium	NGC7538 IRS9	23h13m45.37s	61d28m10.4s	11:09	60	

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



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



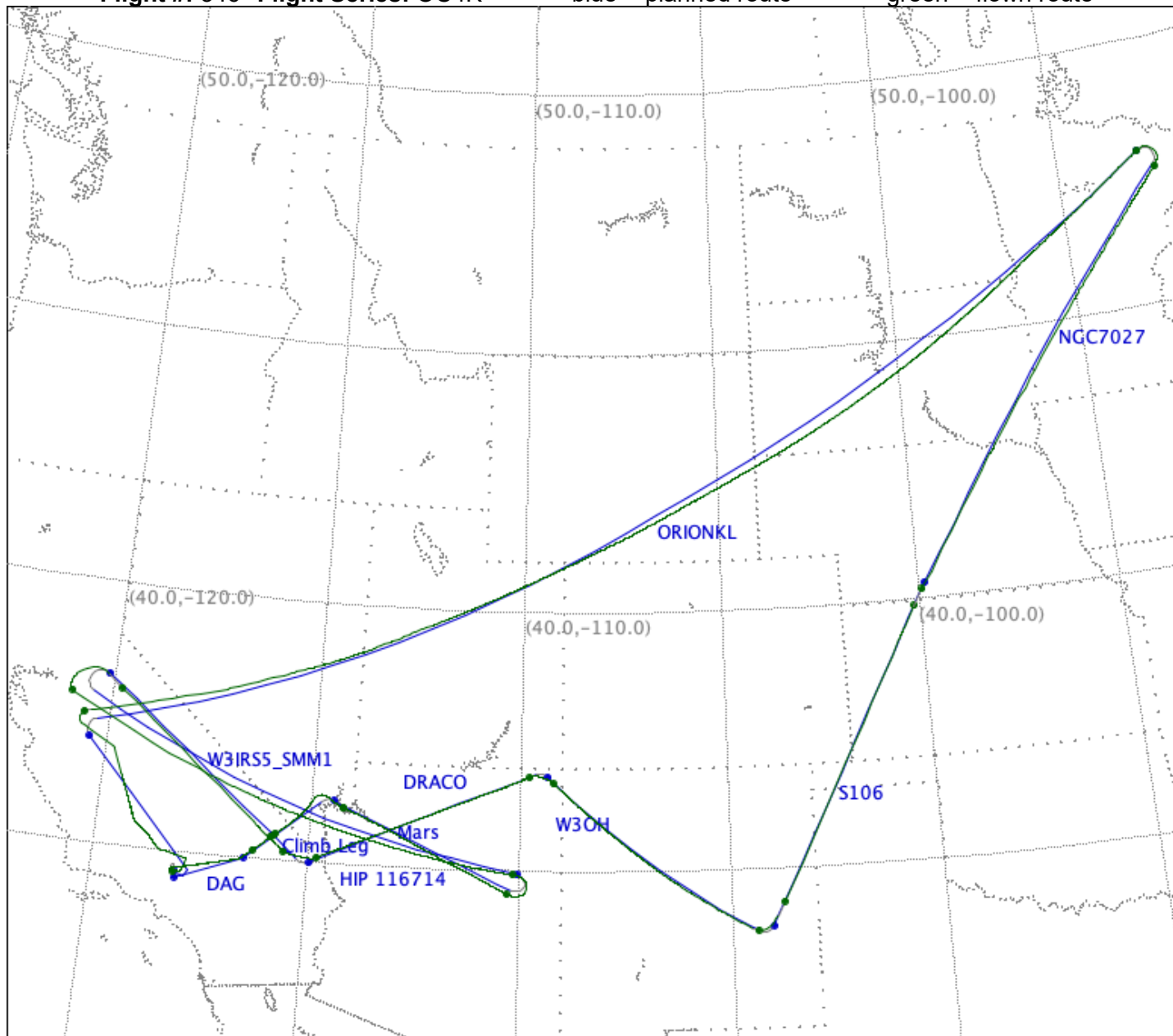
MISSION ID: 2016-11-08_GR_F346

Date: 2016-11-08 UT Instrument: GREAT

Flight #: 346 Flight Series: OC4K

blue = planned route

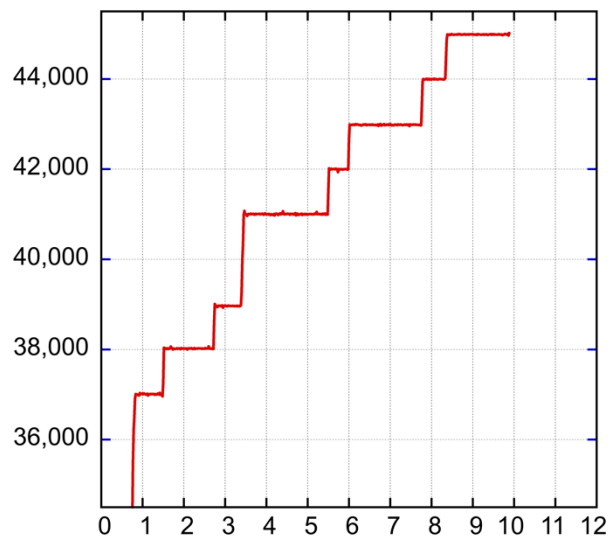
green = flown route



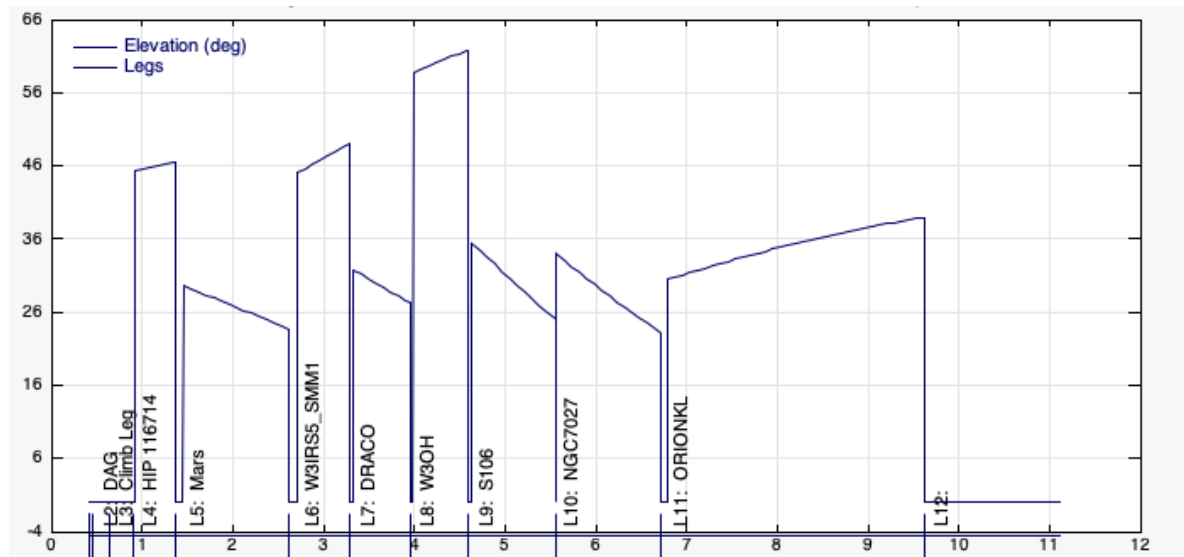
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 116714	23h39m10.17s	75d17m34.4s	0:57	27	
5	90 0008	Calibration	Mars	20h05m49.52s	-22d09m20.1s	1:29	70	
6	83 0435	GREAT Consortium	W3IRS5_SMM1	02h25m40.78s	62d05m52.6s	2:44	35	
7	83 0436	GREAT Consortium	DRACO	16h58m18.00s	61d30m10.0s	3:21	38	
8	83 0435	GREAT Consortium	W3OH	02h27m04.30s	61d52m25.0s	4:01	36	
9	83 0437	GREAT Consortium	S106	20h27m26.74s	37d22m47.9s	4:40	56	
10	83 0438	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	5:36	69	
11	83 0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	6:49	170	GREAT spent 1hr tuning to proper frequencies

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



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



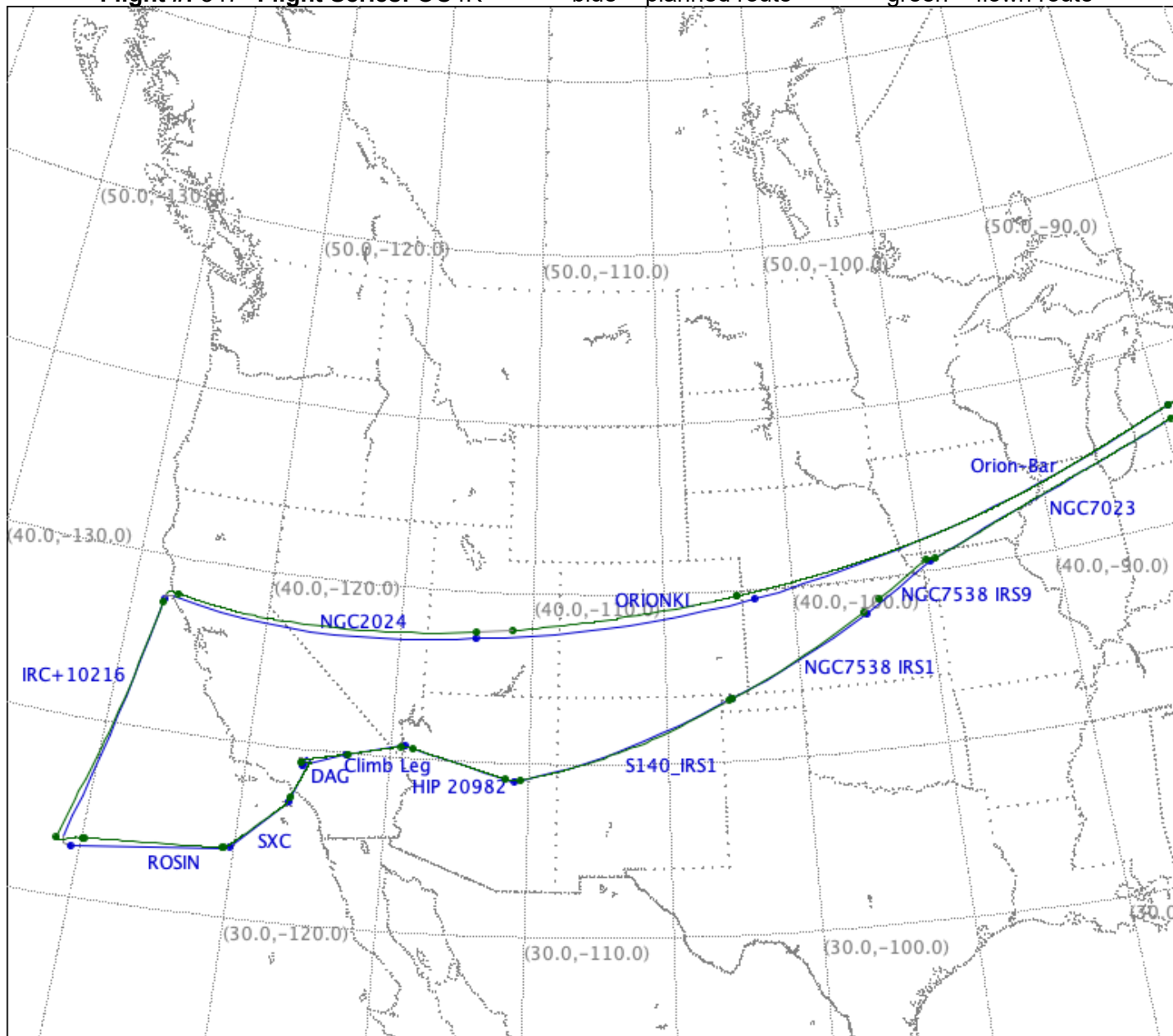
MISSION ID: 2016-11-09_GR_F347

Date: 2016-11-09 UT Instrument: GREAT

Flight #: 347 Flight Series: OC4K

blue = planned route

green = flown route

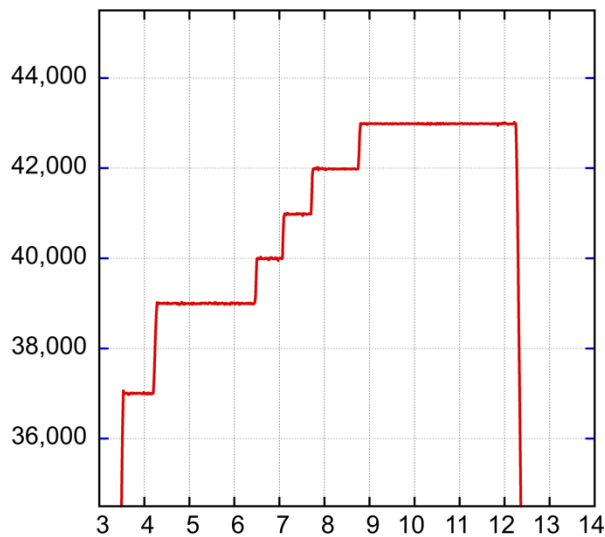


Flight notes: No irregularities.

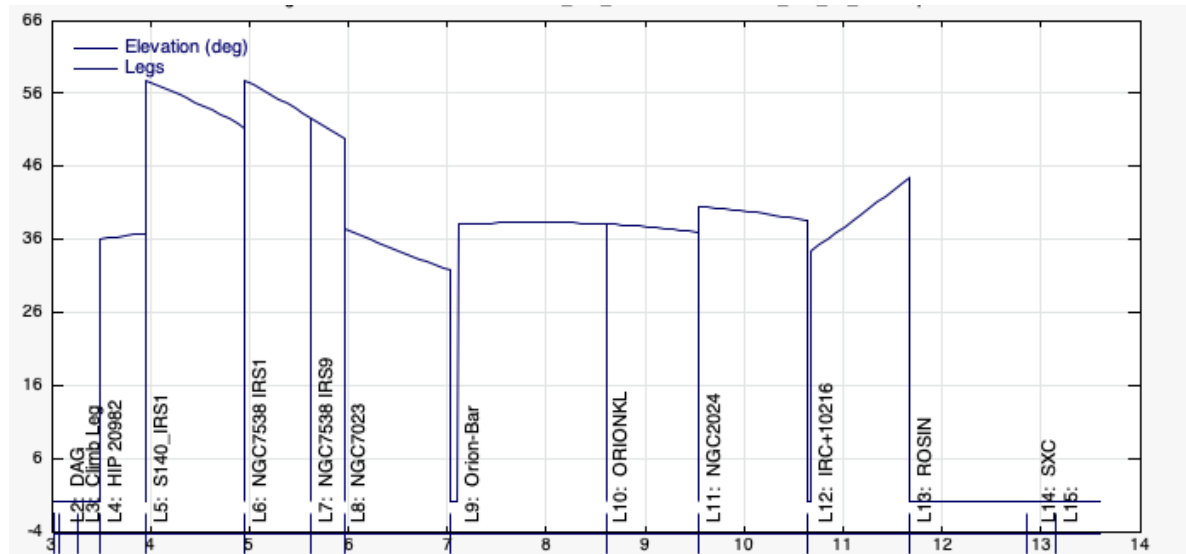
Flight 347 Mission ID 2016-11-09_GR_F347
 Palmdale to Palmdale Take off date UTC: 09-NOV-2016
 Departure UTC: 03:03 Arrival UTC: 13:00 Consortium flight L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 20982	04h30m00.36s	83d20m25.4s	3:32	27	
5	83_0439	GREAT Consortium	S140 IRS1	22h19m18.21s	63d18m46.9s	4:00	60	
6	83_0429	GREAT Consortium	NGC7538 IRS1	23h13m45.37s	61d28m10.4s	5:00	40	Turbulence last half of leg; extended observation across next leg.
7	83_0429	GREAT Consortium	NGC7538 IRS9	23h14m01.63s	61d27m20.2s	5:40	20	All time on this leg was used to extend observations of IRS1 from previous leg; IRS9 not observed
8	83_0440	GREAT Consortium	NGC7023	21h01m32.50s	68d10m22.8s	6:00	64	
9	83_0428	GREAT Consortium	ORION Bar	05h35m14.30s	-05d22m33.7s	7:09	90	
10	83_0428	GREAT Consortium	ORION KL	05h35m14.30s	-05d22m33.7s	8:39	56	Also observed Trapezium
11	83_0441	GREAT Consortium	NGC2024	05h41m45.20s	-01d55m45.0s	9:35	66	
12	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.6s	10:43	60	

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



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



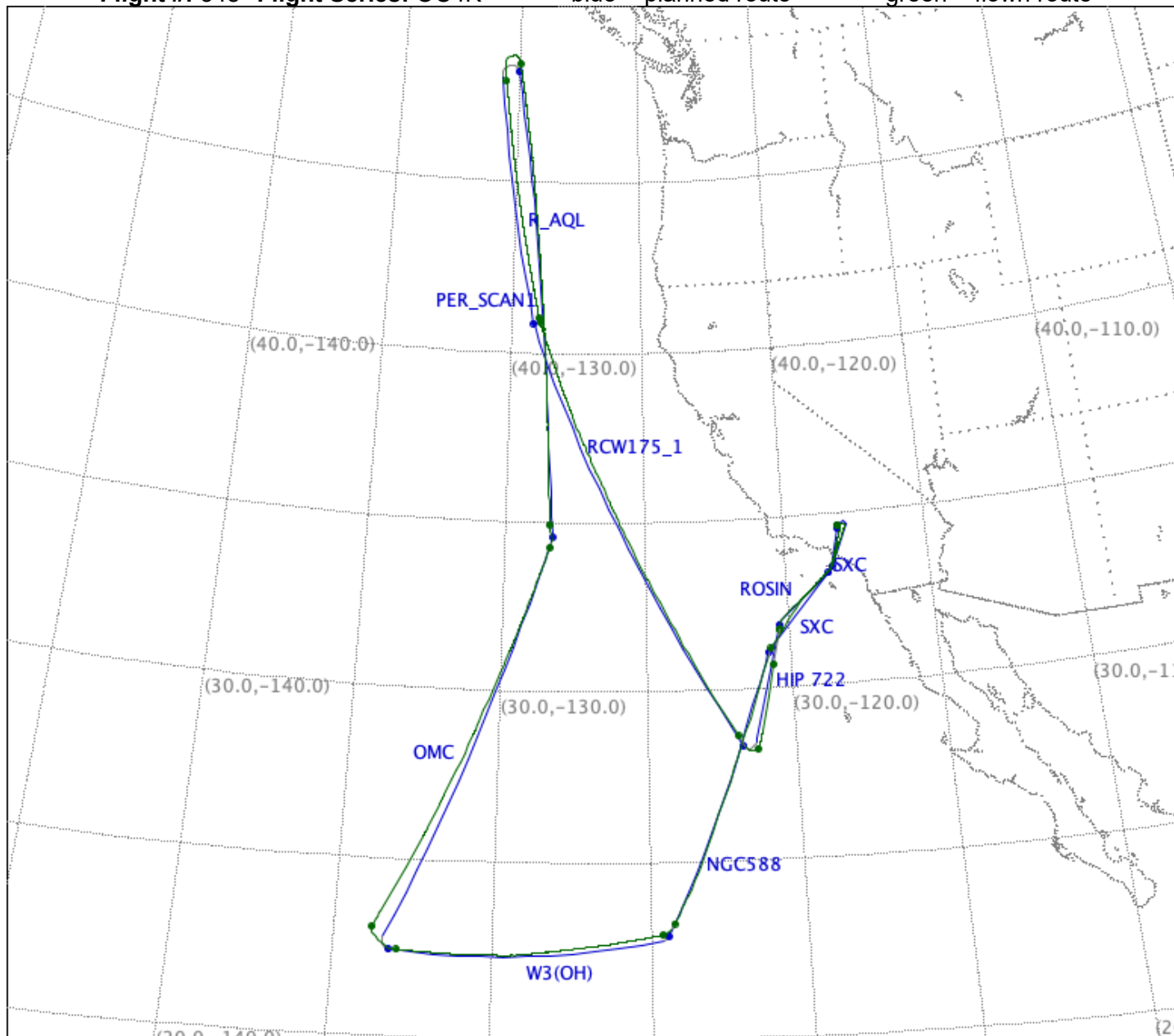
MISSION ID: 2016-11-09_GR_F348

Date: 2016-11-09 UT Instrument: GREAT

Flight #: 348 Flight Series: OC4K

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 348 Mission ID
Palmdale to Palmdale

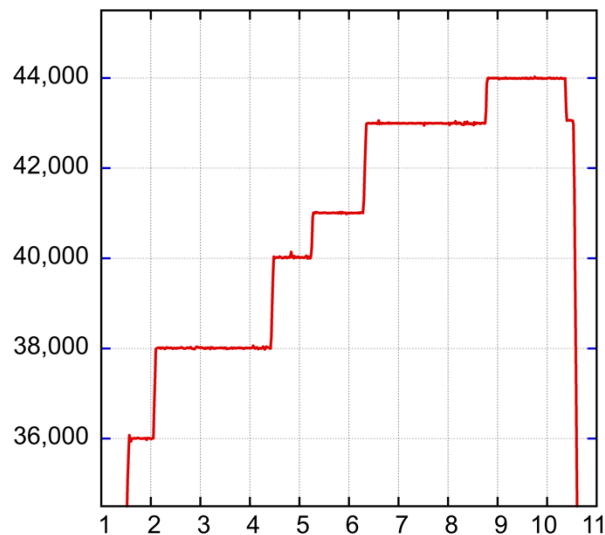
2016-11-09_GR_F348
Take off date UTC:
09-NOV-2016

Departure UTC: 01:07
Arrival UTC: 11:00

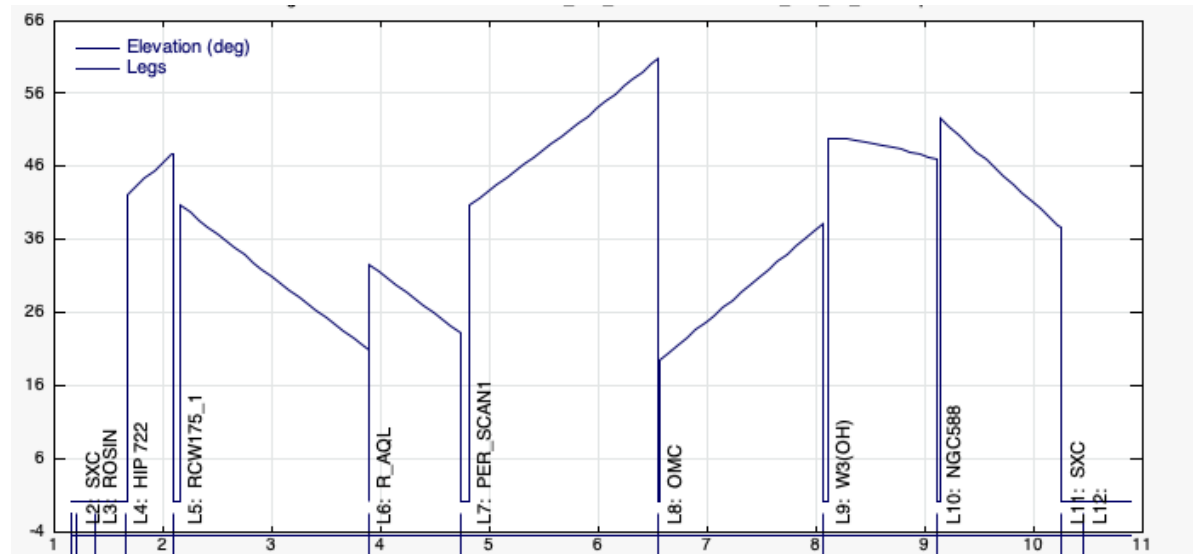
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 722	00h08m56.59s	12d48m15.8s	1:41	26	
5	04_0028	Tibbs	RCW175_1	18h46m50.02s	-03d44m39.3s	2:10	104	
6	04_0023	Neufeld	R_AQL	19h06m22.25s	08d13m46.9s	3:55	50	
7	04_0028	Tibbs	PER_SCAN1	03h43m19.65s	32d01m58.8s	4:50	104	
8	04_0066	Tielens	OMC	05h35m17.00s	-05d22m33.7s	6:34	90	
9	04_0020	Neufeld	W3OH	02h27m03.82s	61d52m24.6s	8:08	60	Turbulence and Telescope fault led to 25min loss on leg
10	04_0038	Kramer	NGC588	01h32m45.60s	30d38m53.8s	9:09	67	

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



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



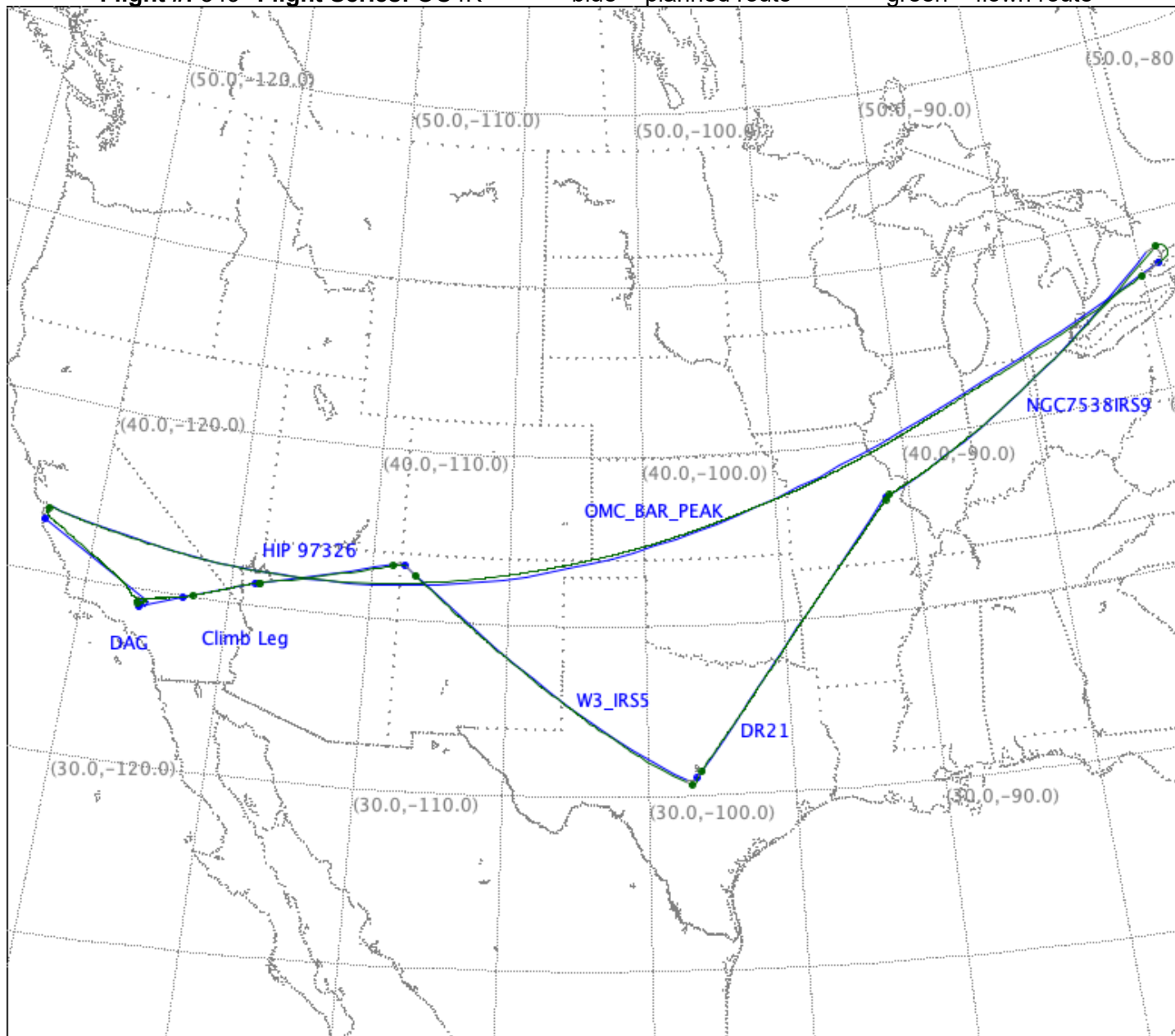
MISSION ID: 2016-11-15_GR_F349

Date: 2016-11-15 UT Instrument: GREAT

Flight #: 349 Flight Series: OC4K

blue = planned route

green = flown route



Flight notes:
No irregularities.

Flight 349 Mission ID
 Palmdale to Palmdale

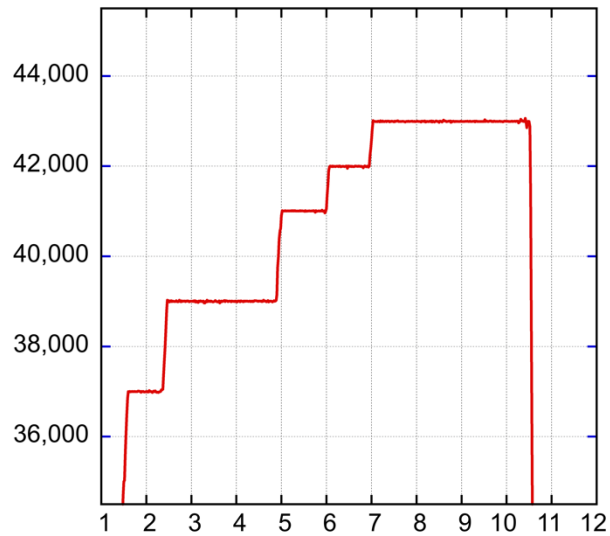
2016-11-15_GR_F349
 Take off date UTC:
 15-NOV-2016

Departure UTC: 01:04
 Arrival UTC: 10:59

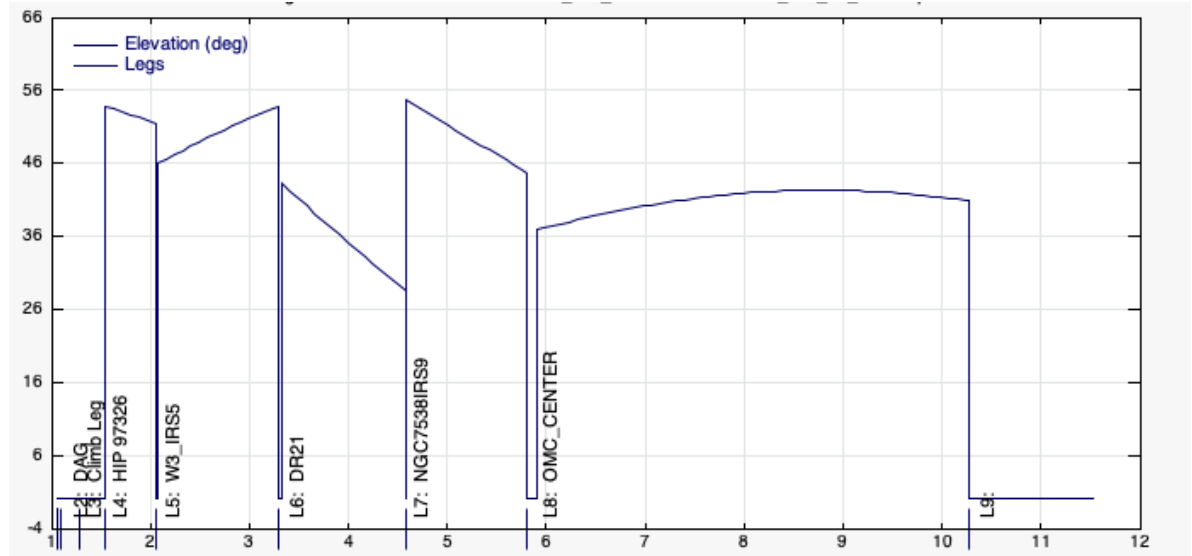
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 97326	19h46m44.67s	68d26m16.8s	1:35	30	
5	04_0133	Tan	W3_IRS5	02h25m41.40s	62d06m21.8s	2:06	73	
6	04_0057	Guevara	DR21	20h39m01.10s	42d19m43.3s	3:22	75	
7	04_0133	Tan	NGC7538IRS9	23h14m01.72s	61d27m19.5s	4:37	73	
8	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	5:56	262	

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



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



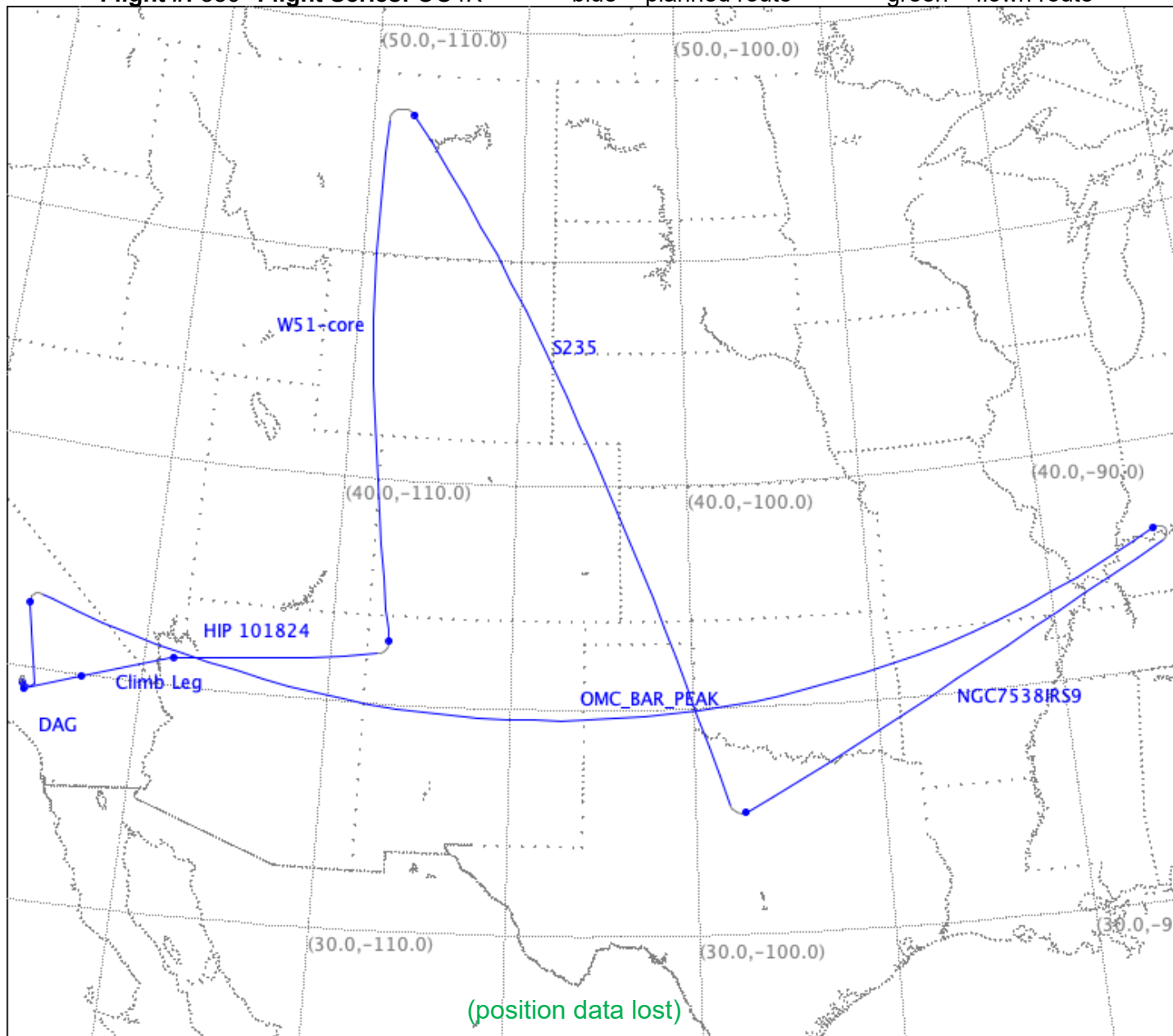
MISSION ID: 2016-11-16_GR_F350

Date: 2016-11-16 UT Instrument: GREAT

Flight #: 350 Flight Series: OC4K

blue = planned route

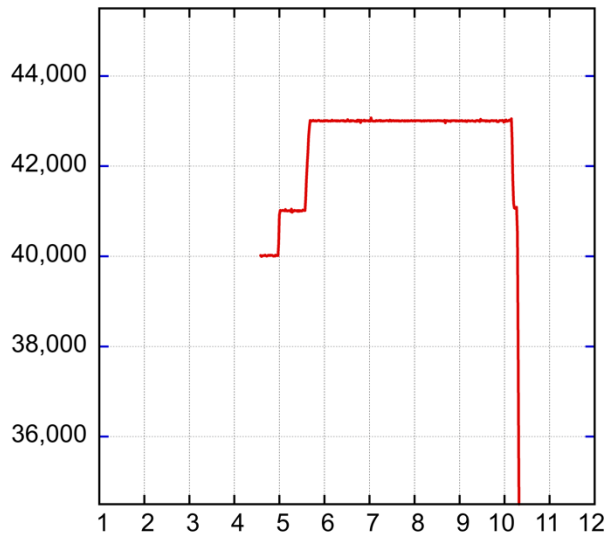
green = flown route



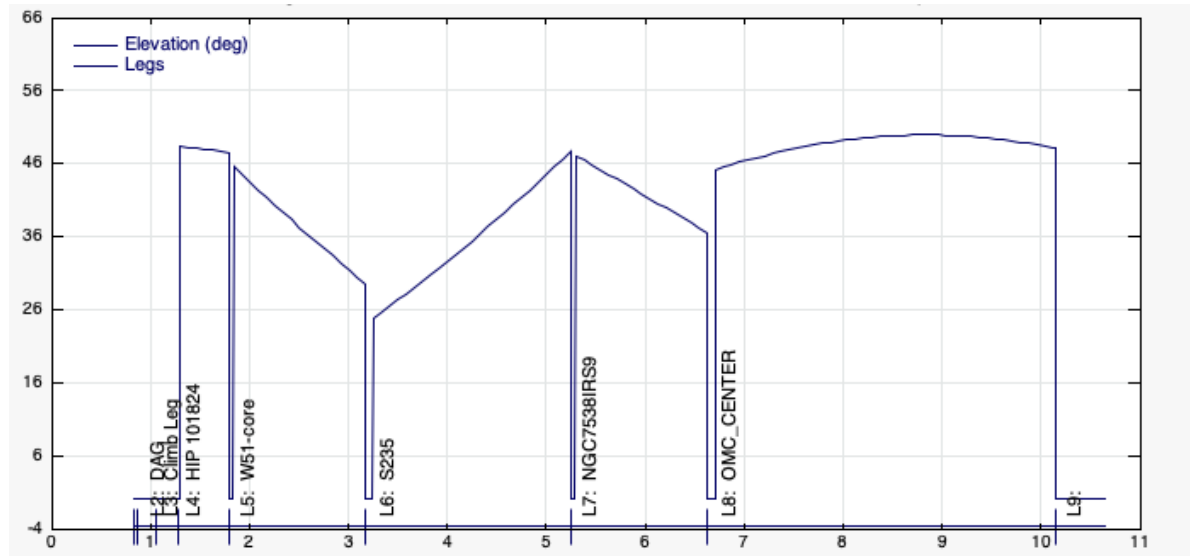
**Flight notes:
No irregularities.**

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
Flight 350 Mission ID 2016-11-16_GR_F350 Palmdale to Palmdale Take off date UTC: 16-NOV-2016 Departure UTC: 00:51 Arrival UTC: 10:40 L1-LFA								
4			HIP 101824	20h38m05.08s	76d49m59.4s	1:19	30	
5	04_0009	VASTEL	W51_CORE	19h23m43.90s	14d30m30.5s	1:51	80	
6	04_0132	Anderson	S235	05h41m02.50s	35d50m57.0s	3:16	120	Observatory control software crashed; 53min lost recovering
7	04_0133	Tan	NGC7538IRS9	23h14m01.72s	61d27m19.5s	5:19	80	Turbulence sent telescope into standby multiple times; minimal time lost
8	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	6:44	207	Turbulence sent telescope into standby multiple times; minimal time lost

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



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



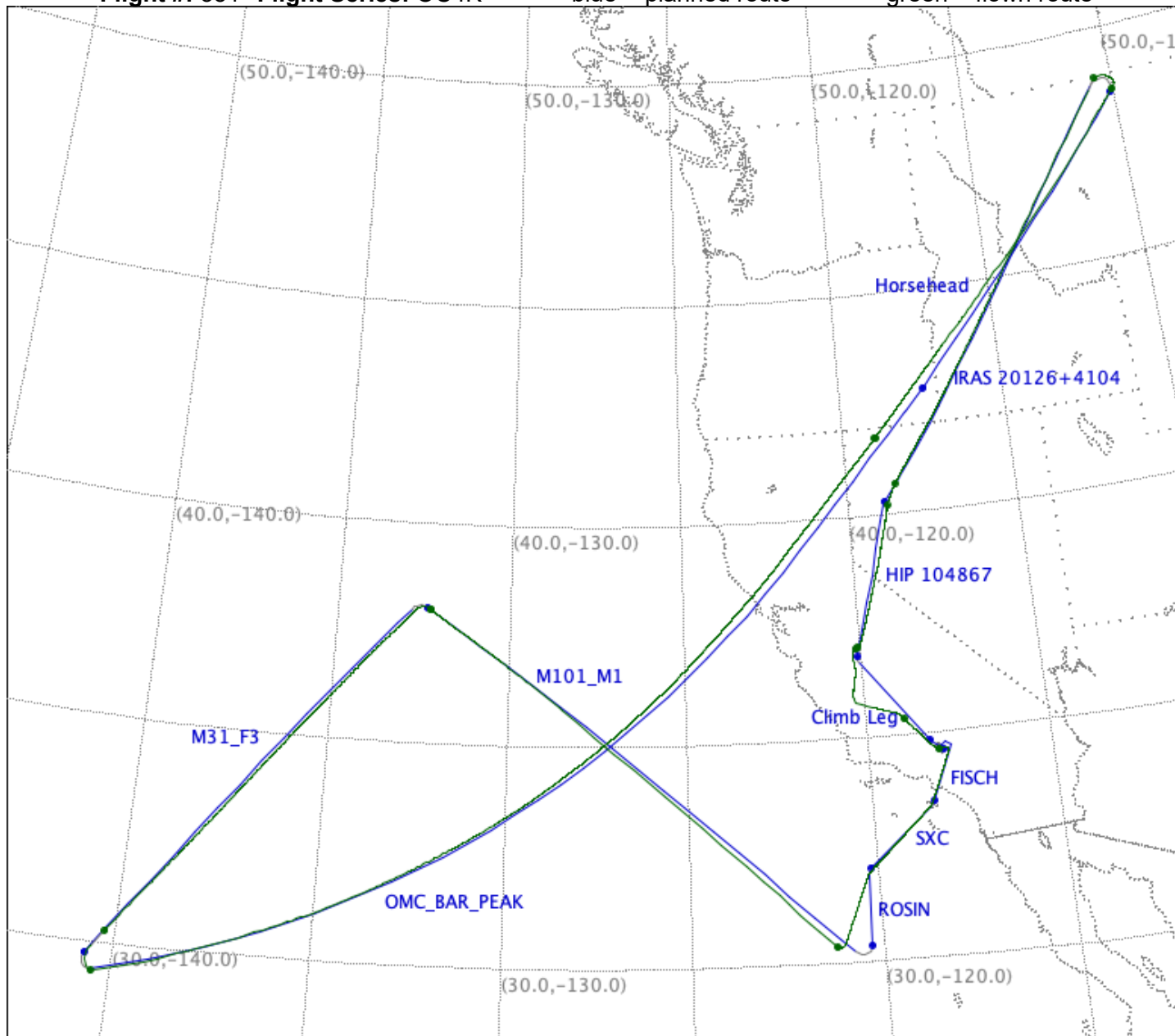
MISSION ID: 2016-11-17_GR_F351

Date: 2016-11-17 UT Instrument: GREAT

Flight #: 351 Flight Series: OC4K

blue = planned route

green = flown route

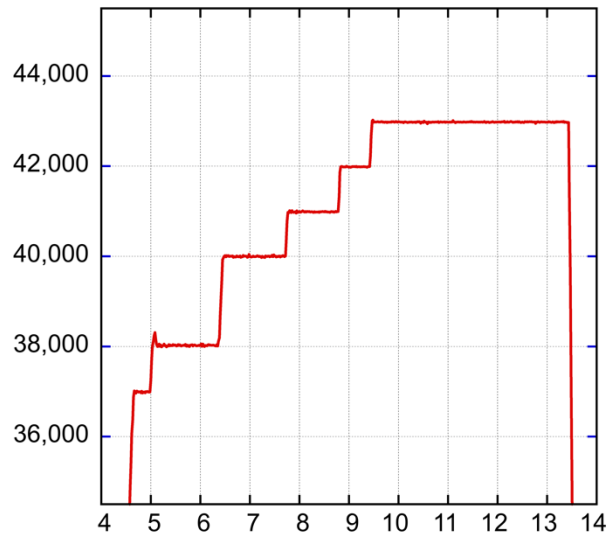


Flight notes:
No irregularities.

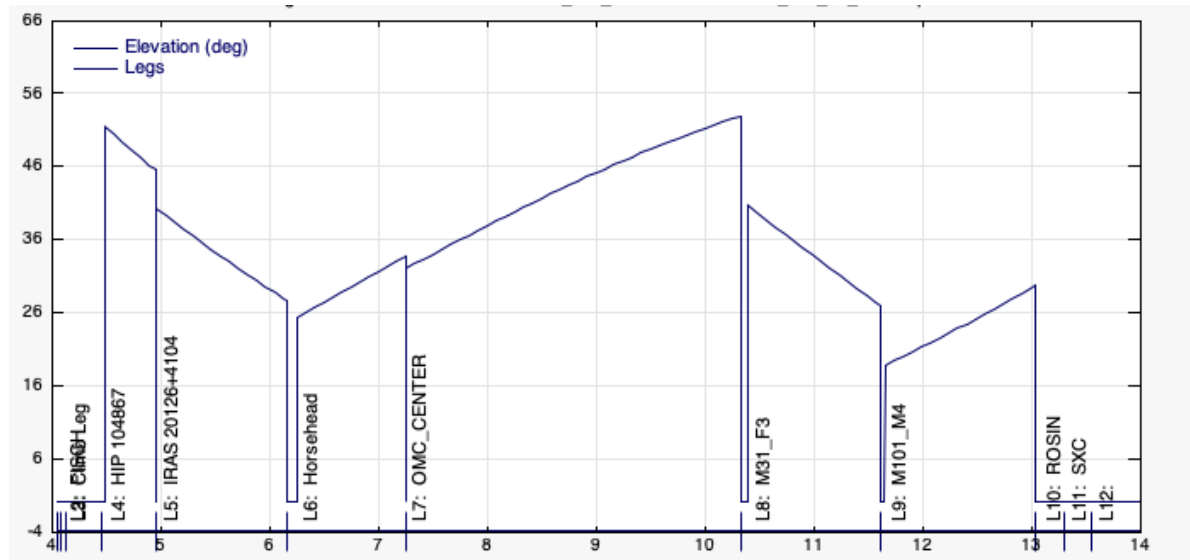
Flight 351 Mission ID 2016-11-17_GR_F351
 Palmdale to Palmdale Take off date UTC: 17-NOV-2016
 Departure UTC: 04:03 Arrival UTC: 13:59
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 104867	21h14m34.23s	28d09m17.1s	4:35	28	
5	04_0133	Tan	IRAS20126	20h14m26.03s	41d13m32.6s	5:04	72	
6	04_0057	Guevara	Horsehead	05h40m54.27s	-02d28m00.0s	6:21	60	
7	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	7:21	185	
8	04_0128	Kapala	M31_F3	00h44m32.17s	41d52m20.3s	10:30	73	
9	04_0151	Bolatto	M101_M1	14h04m29.00s	54d23m51.0s	11:46	83	

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



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



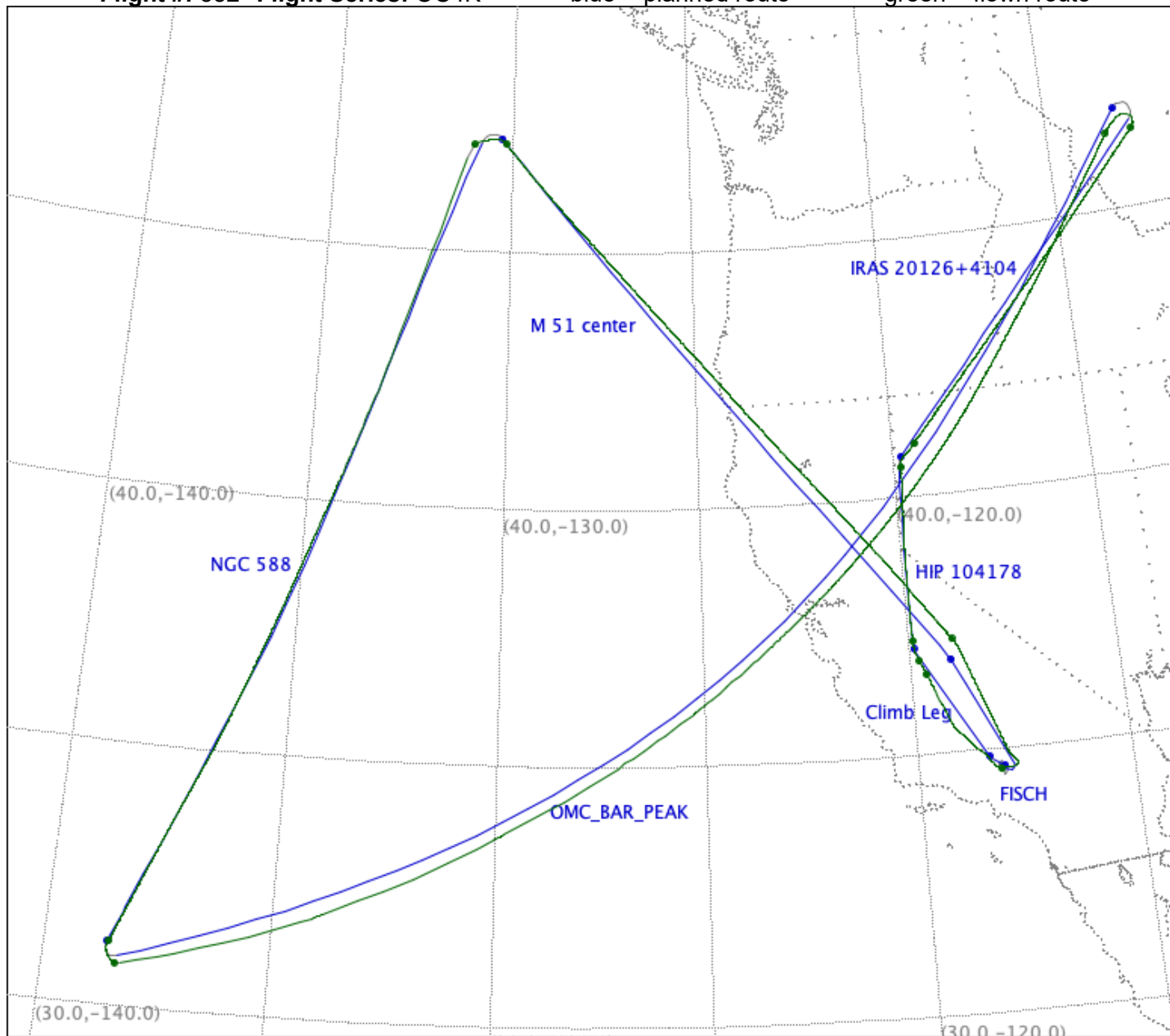
MISSION ID: 2016-11-18_GR_F352

Date: 2016-11-18 UT Instrument: GREAT

Flight #: 352 Flight Series: OC4K

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 352 Mission ID
Palmdale to
Palmdale

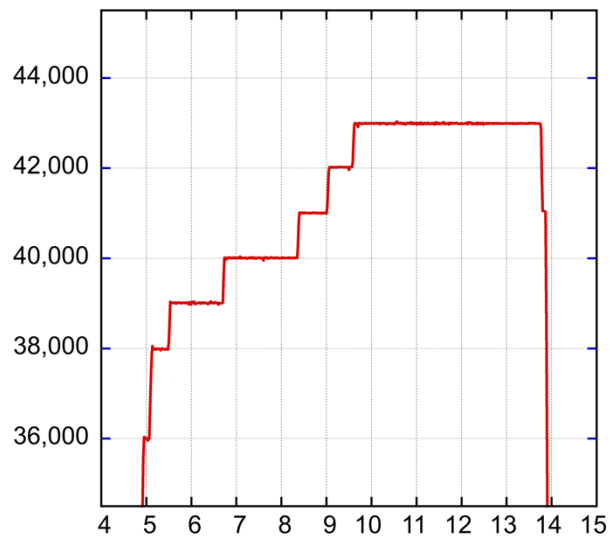
2016-11-18_GR_F352
Take off date UTC:
18-NOV-2016

Departure UTC: 04:31
Arrival UTC: 14:14

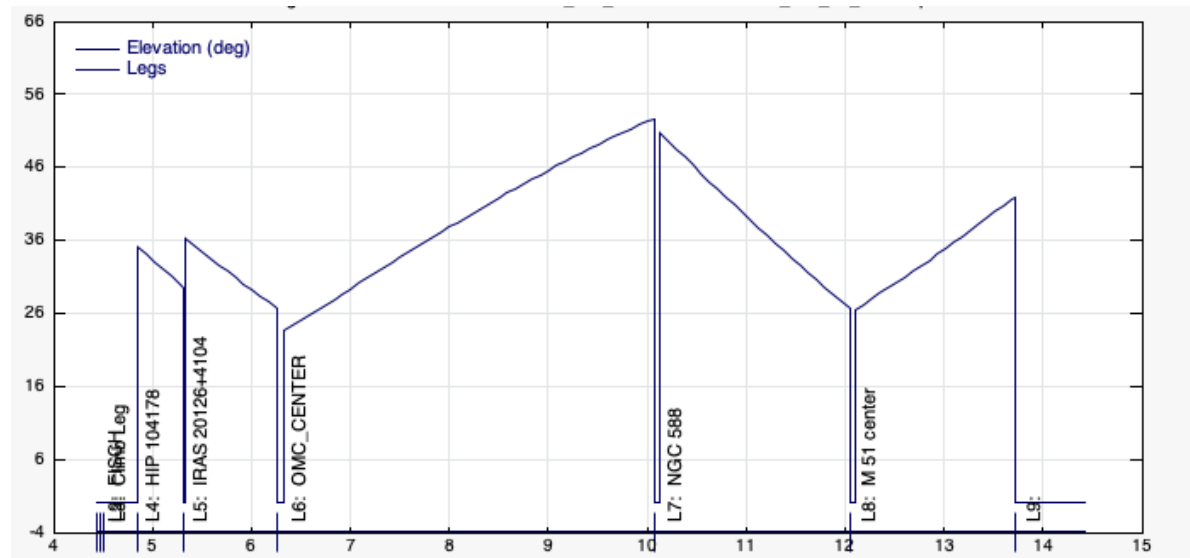
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 104178	21h06m25.66s	10d46m46.4s	4:57	28	
5	04_0133	Tan	IRAS20126	20h14m26.03s	41d13m32.6s	5:26	55	
6	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	6:26	224	
7	04_0038	Kramer	NGC588	01h32m45.60s	30d38m53.8s	10:13	115	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	12:12	97	

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



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



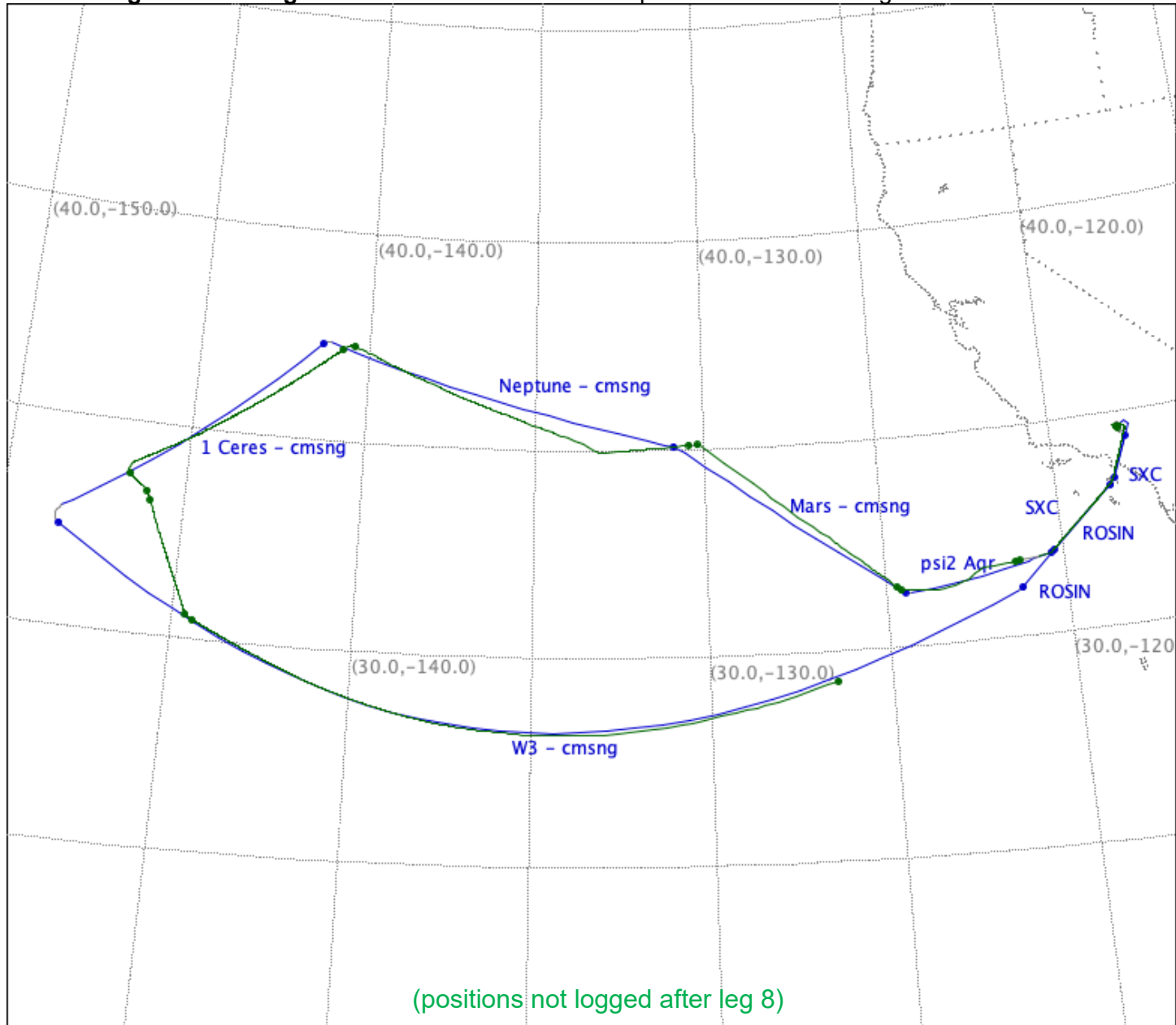
MISSION ID: 2016-12-01_HA_F353

Date: 2016-12-01 UT Instrument: HAWC+

Flight #: 353 Flight Series: OC4L

blue = planned route

green = flown route



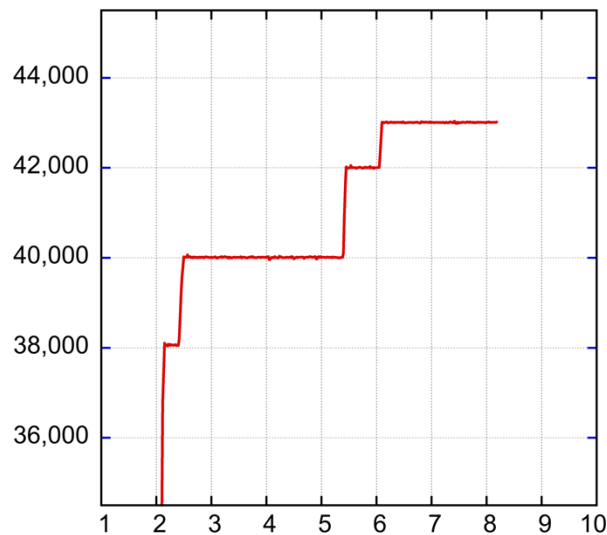
Flight notes:

HAWC+ commissioning flight. Mostly engineering data. Late departure: multiple route adjustments made during flight to correct ground track.

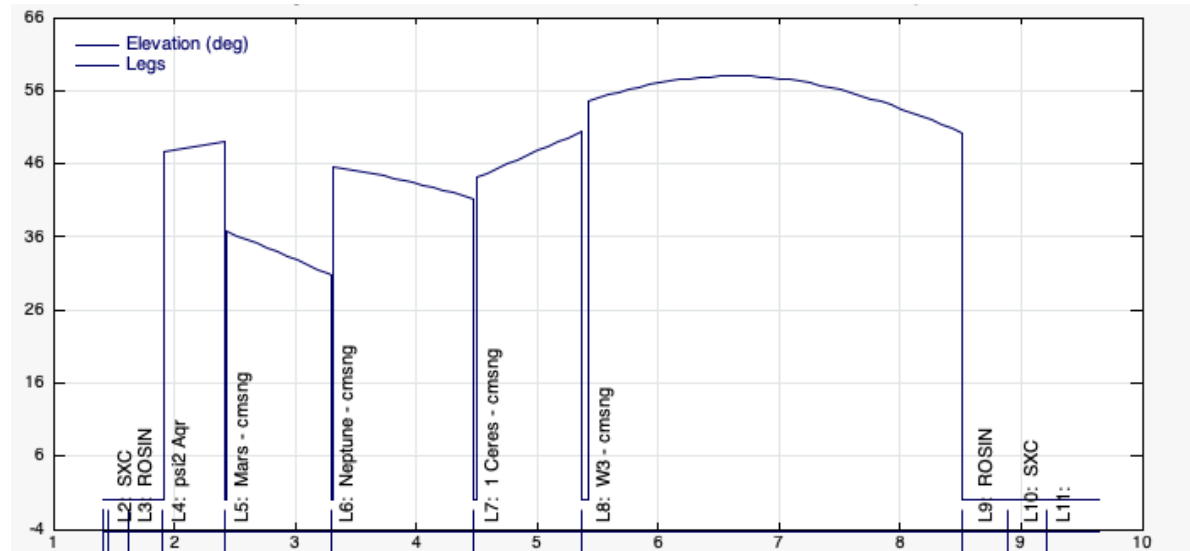
Flight 353 Mission ID 2016-12-01_HA_F353
 Palmdale to Palmdale Take off date UTC: 01-DEC-2016
 Departure UTC: 01:45 Arrival UTC: 09:37

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 115033	23h17m54.21s	-09d10m57.1s	1:58	30	
5	88_0006	Dowell	Mars Barycenter	21h15m38.99s	-17d23m26.8s	2:29	52	
6	88_0006	Dowell	Neptune Barycenter	22h43m51.59s	-08d58m45.8s	3:22	70	
7	88_0006	Dowell	1 Ceres	01h33m12.88s	-01d05m59.8s	4:33	52	
8	88_0005	Dowell	W3	02h25m40.00s	62d05m51.0s	5:29	185	HAWC+ began to warm prematurely during leg.

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



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



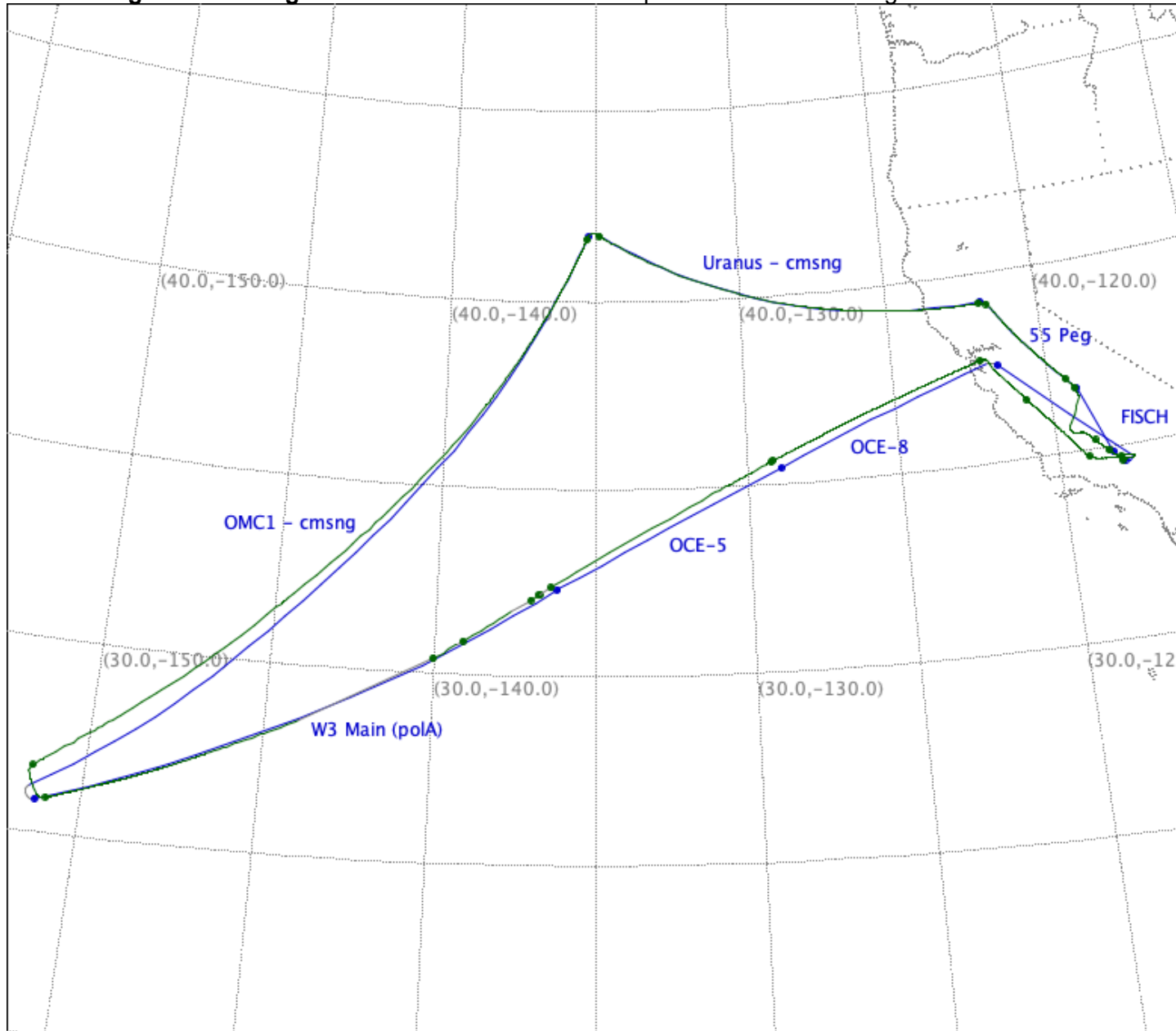
MISSION ID: 2016-12-03_HA_F354

Date: 2016-12-03 UT Instrument: HAWC+

Flight #: 354 Flight Series: OC4L

blue = planned route

green = flown route

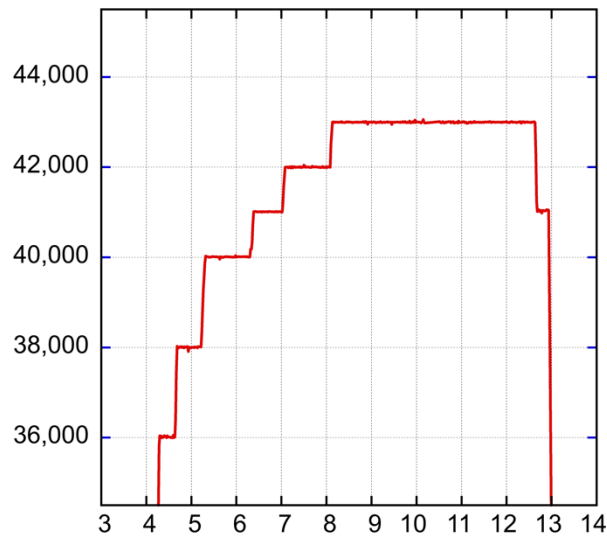


Flight notes: No irregularities.

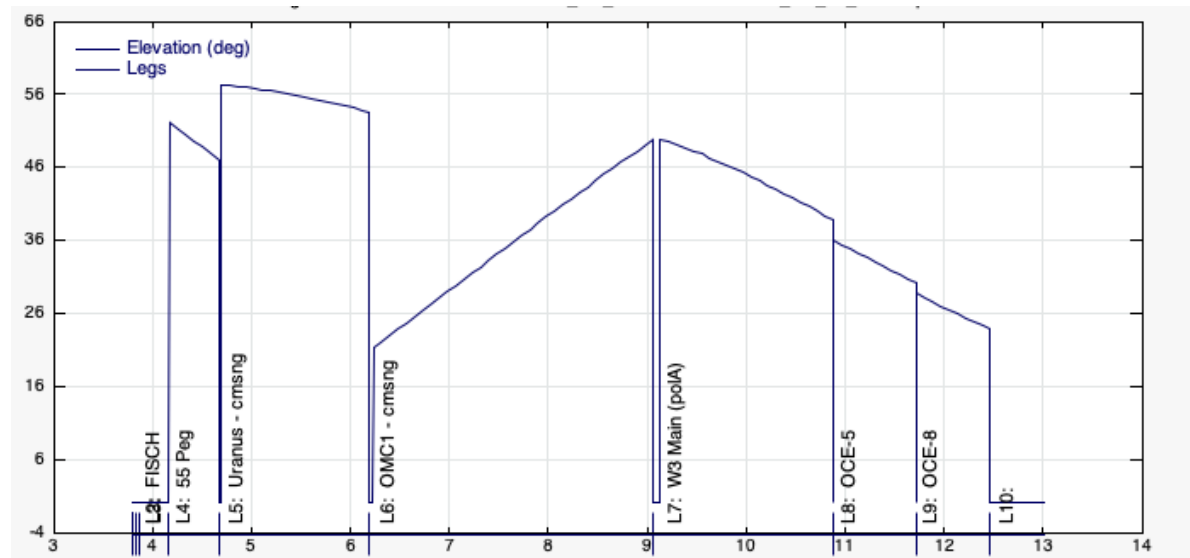
Flight 354 Mission ID 2016-12-03_HA_F354
 Palmdale to Palmdale Take off date UTC: 03-DEC-2016
 Departure UTC: ~03:48 Arrival UTC: 13:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 114144	23h07m00.26s	09d24m34.2s	4:16	30	
5	88_0006	Dowell	Uranus Barycenter	01h17m04.77s	07d28m20.3s	4:47	90	
6	88_0005	Dowell	OMC1-8	05h35m20.92s	-05d16m22.8s	6:20	170	Lost 25min to an observatory control software crash
7	04_0138	Vaillancourt	W3 Main	02h25m40.60s	62d05m51.6s	9:14	105	Lost pointing at beginning of leg, then an observatory control software crash led to a 30min loss of observing time.
8		engineering	53 Cas	02h03m00.19s	64d23m24.1s	10:59	50	
9		engineering	HIP 8716	01h52m10.06s	63d27m50.2s	11:49	45	

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



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



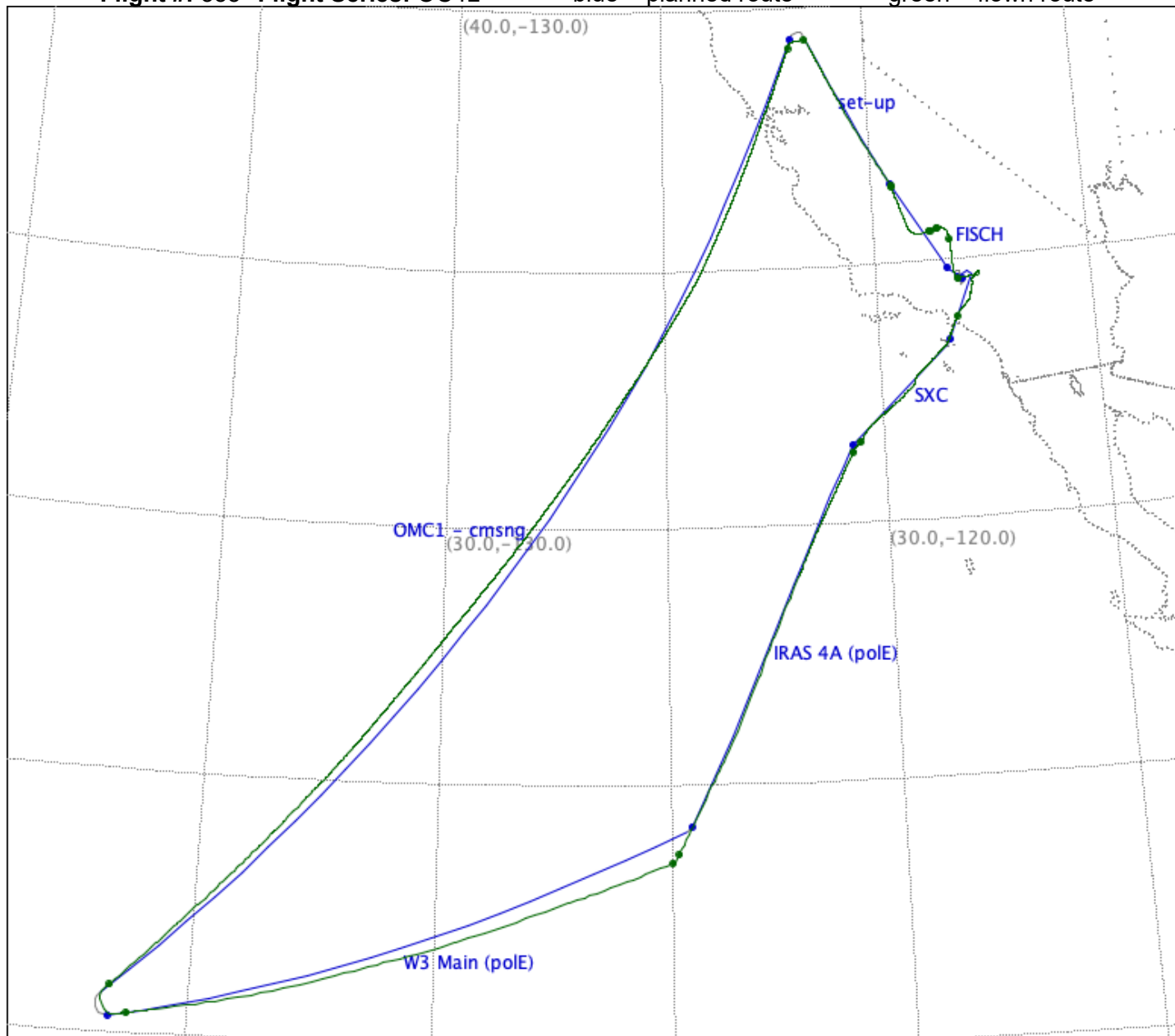
MISSION ID: 2016-12-06_HA_F355

Date: 2016-12-06 UT Instrument: HAWC+

Flight #: 355 Flight Series: OC4L

blue = planned route

green = flown route

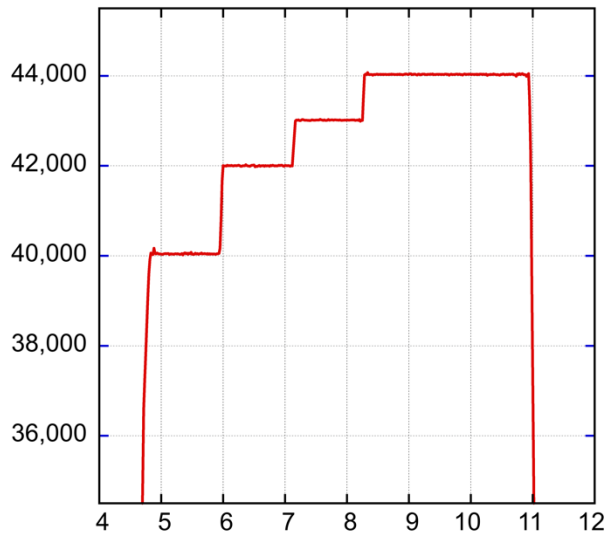


**Flight notes:
No irregularities.**

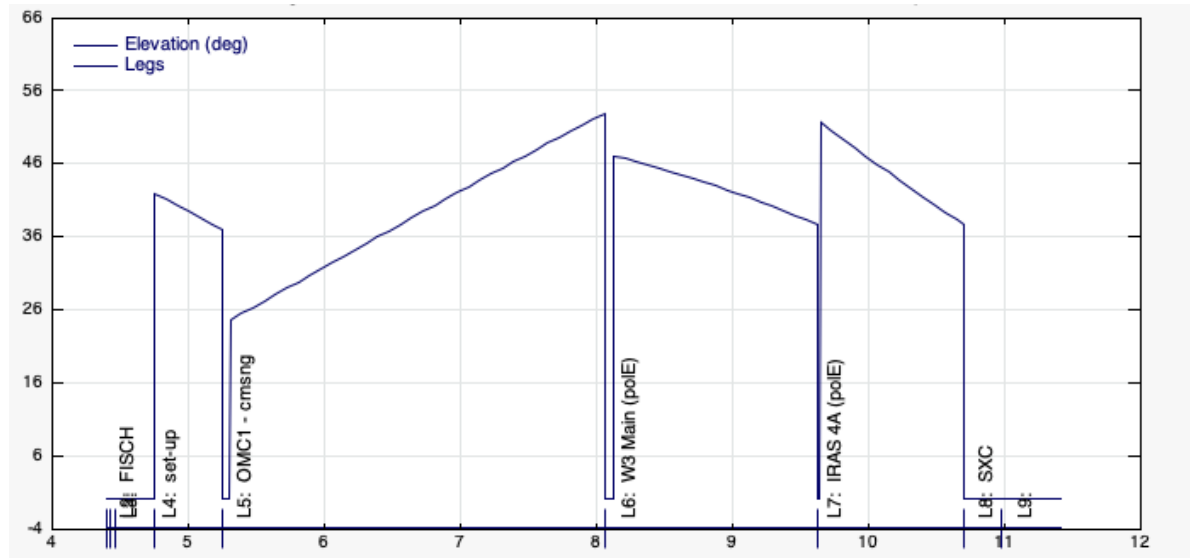
Flight 355 Mission ID 2016-12-06_HA_F355
 Palmdale to Palmdale Take off date UTC: 06-DEC-2016
 Departure UTC: 04:24 Arrival UTC: 11:34

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 115738	23h26m56.10s	01d15m18.6s	4:51	30	
5	88_0005	Dowell	OMC1-8	05h35m20.92s	-05d16m22.8s	5:24	165	Turbulence.
6	04_0138	Vaillancourt	W3 Main	02h25m40.60s	62d05m51.6s	8:14	90	Turbulence.
7	04_0170	Segura-Cox	IRAS 4A	03h29m10.50s	31d13m31.3s	9:45	63	HAWC+ lost cooling at 10:14, ending observations early

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



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



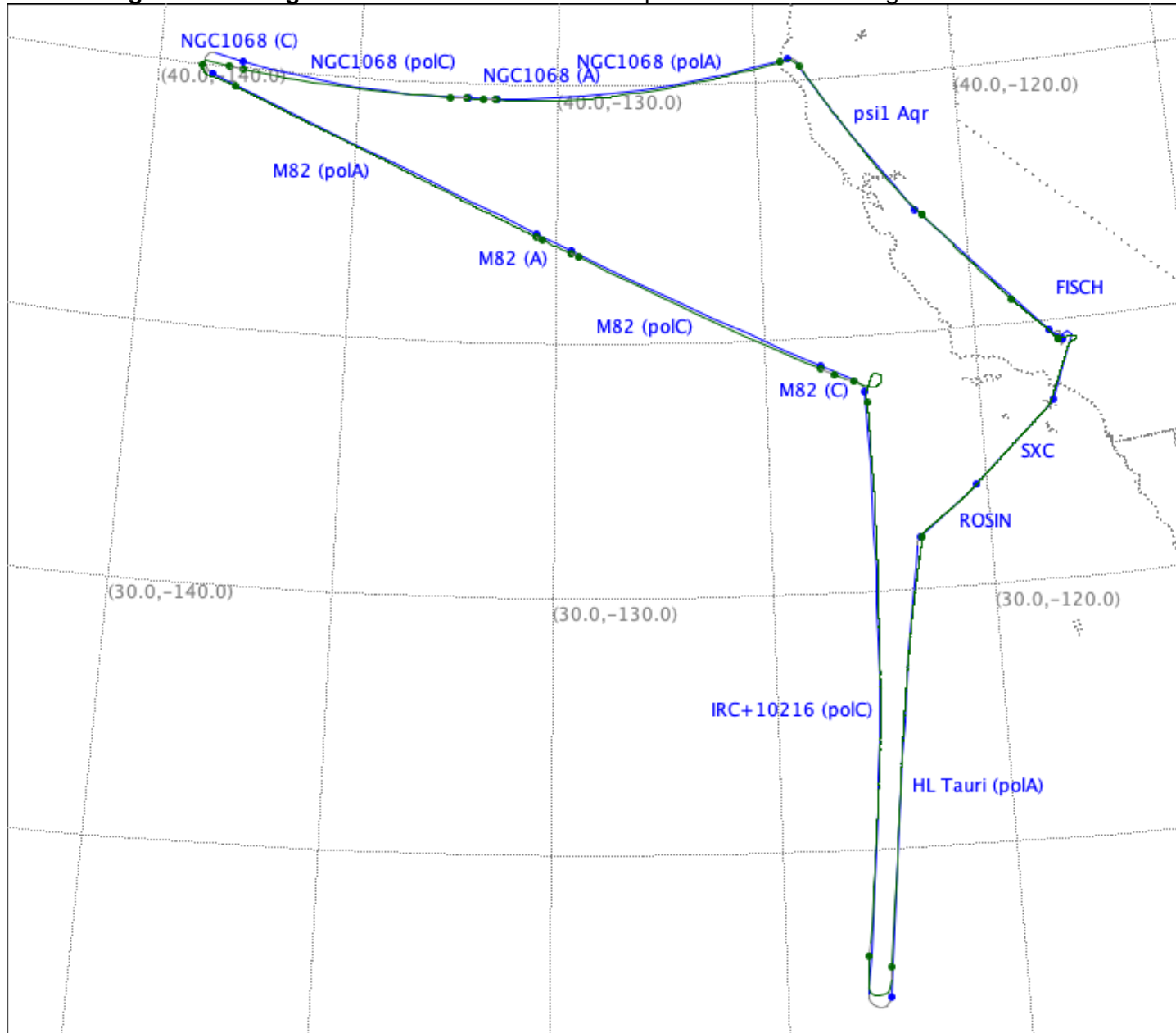
MISSION ID: 2016-12-08_HA_F356

Date: 2016-12-08 UT Instrument: HAWC+

Flight #: 356 Flight Series: OC4L

blue = planned route

green = flown route

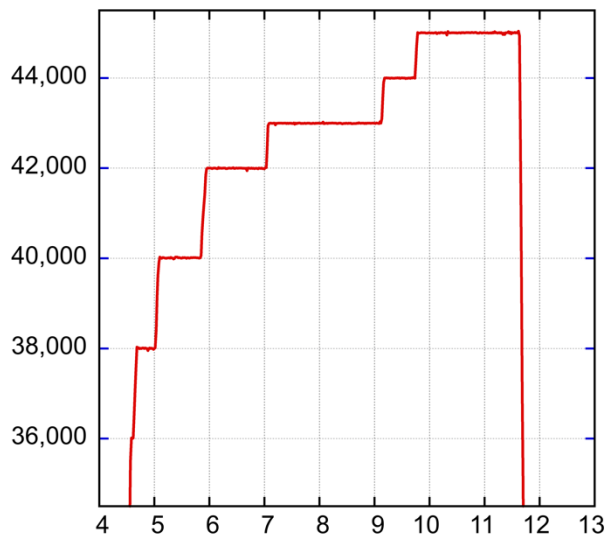


Flight notes: No irregularities.

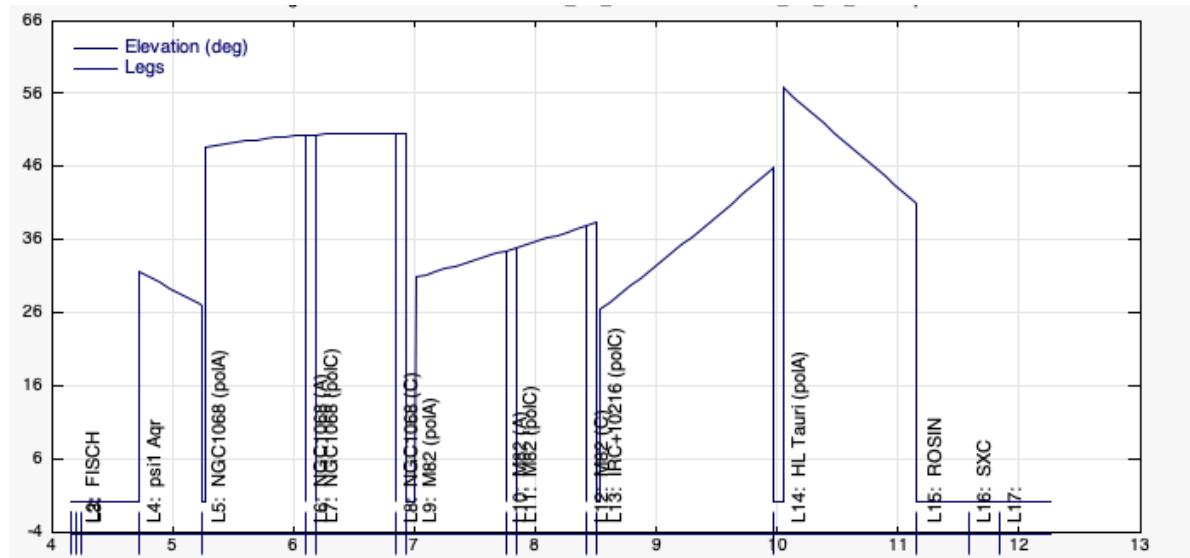
Flight 356 Mission ID 2016-12-08_HA_F356
 Palmdale to Palmdale Take off date UTC: 08-DEC-2016
 Departure UTC: 04:15 Arrival UTC: 12:06

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 114855	23h15m53.49s	-09d05m15.9s	4:49	31	
5	70_0409	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	5:22	50	
6	70_0409	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	6:12	5	
7	70_0409	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	6:17	40	
8	70_0409	GTO	NGC1068	02h42m40.77s	-00d00m47.8s	6:57	5	
9	70_0409	GTO	M82	09h55m52.43s	69d40m46.9s	7:06	45	
10	70_0409	GTO	M82	09h55m52.43s	69d40m46.9s	7:51	5	
11	70_0409	GTO	M82	09h55m52.43s	69d40m46.9s	7:56	35	
12	70_0409	GTO	M82	09h55m52.43s	69d40m46.9s	8:31	5	
13	04_0119	Andersson	IRC+10216	09h47m57.41s	13d16m43.6s	8:38	86	
14	04_0107	Looney	HL Tauri	04h31m38.44s	18d13m57.7s	10:09	66	HAWC+ lost cooling early in leg, ending observations early

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



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



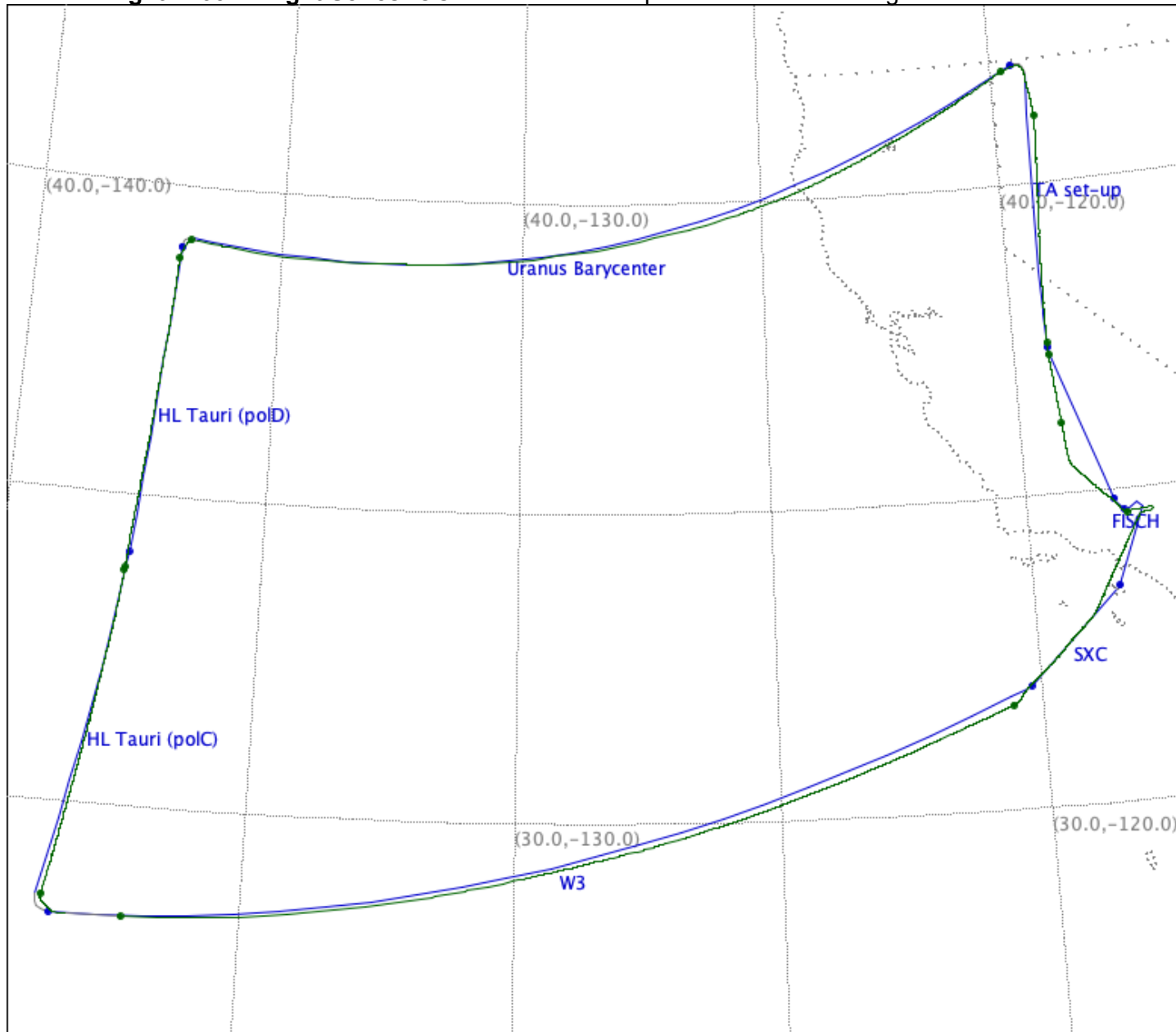
MISSION ID: 2016-12-09_HA_F357

Date: 2016-12-09 UT Instrument: HAWC+

Flight #: 357 Flight Series: OC4L

blue = planned route

green = flown route

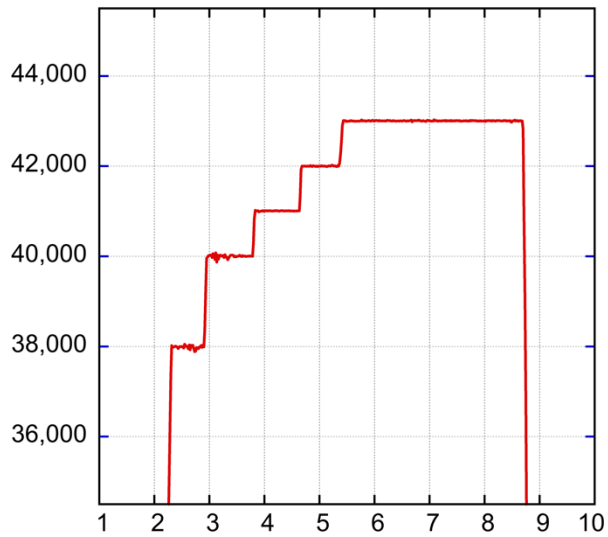


Flight notes:
No irregularities.

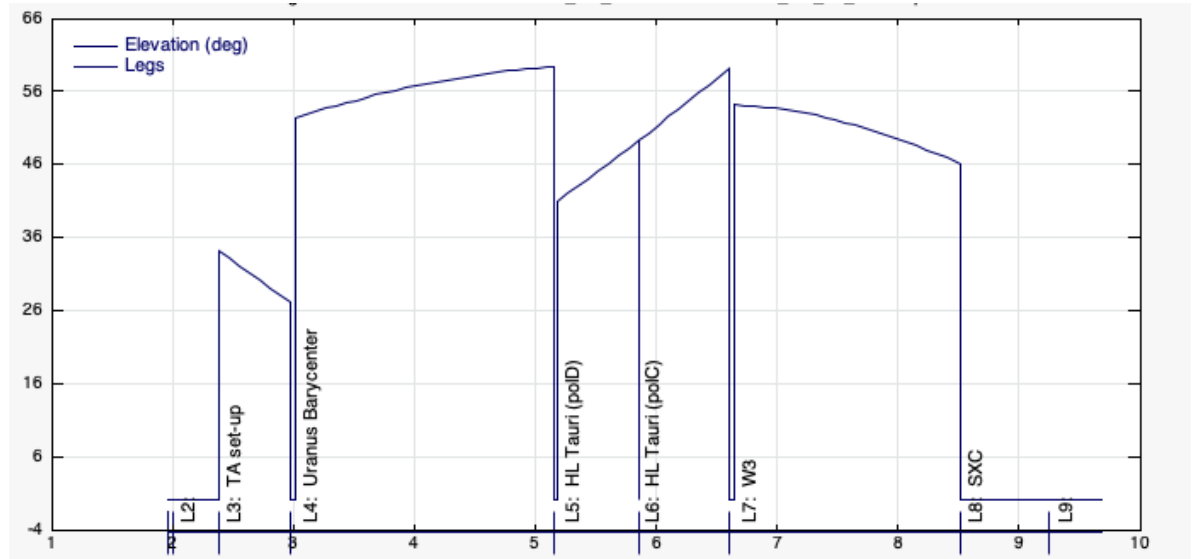
Flight 357 Mission ID 2016-12-09_HA_F357
 Palmdale to Palmdale Take off date UTC: 09-DEC-2016
 Departure UTC: 01:57 Arrival UTC: 09:11

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			HIP 98103	19h56m14.25s	11d25m25.4s	2:24	35	
4	88_0006	Dowell	Uranus Barycenter	01h16m38.93s	07d25m57.0s	3:01	128	
5	04_0107	Looney	HL Tauri	04h31m38.44s	18d13m57.7s	5:12	40	
6	04_0107	Looney	HL Tauri	04h31m38.44s	18d13m57.7s	5:52	45	
7	88_0005	Dowell	W3	02h25m40.00s	62d05m51.0s	6:40	112	

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



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



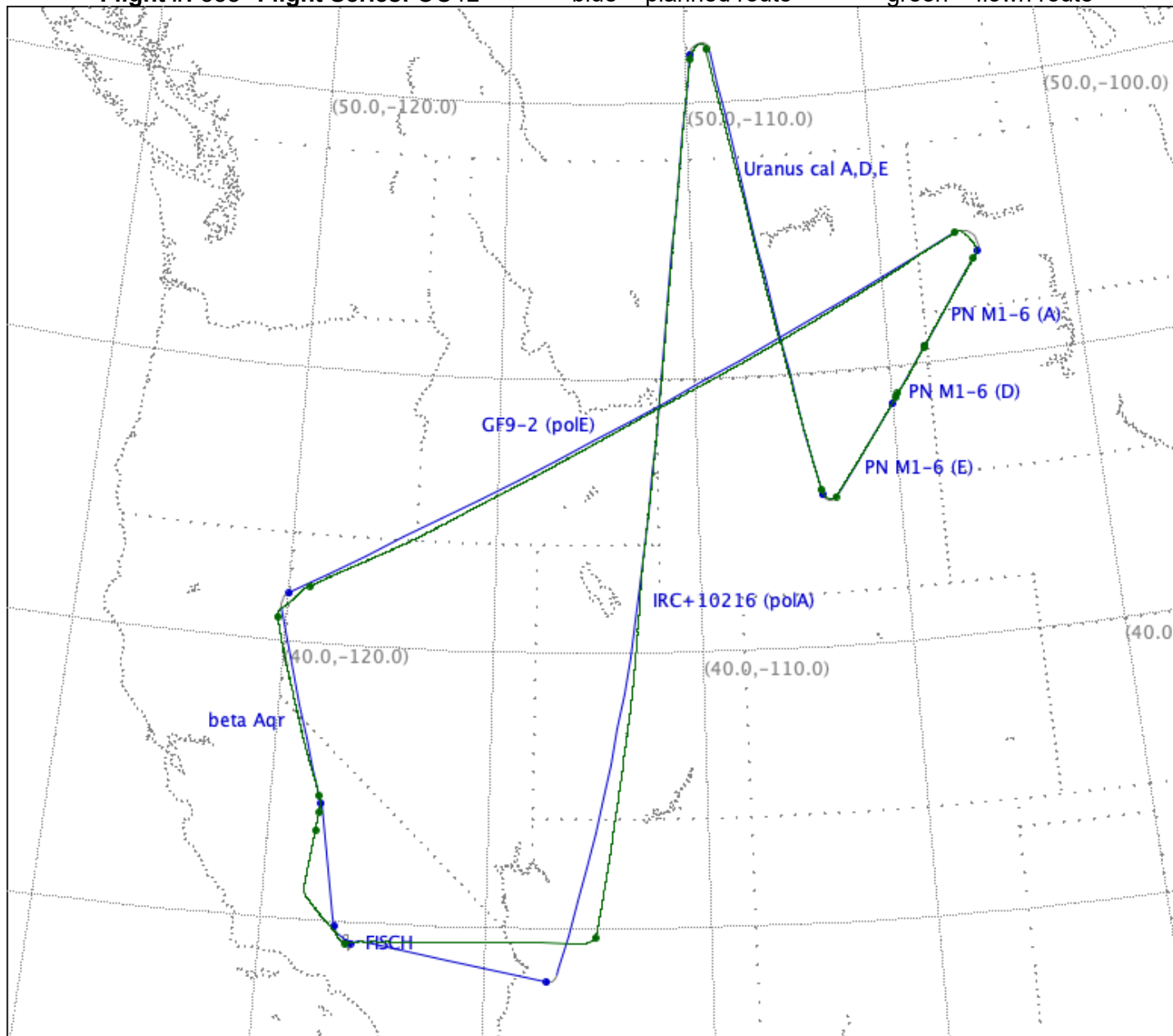
MISSION ID: 2016-12-14_HA_F358

Date: 2016-12-14 UT Instrument: HAWC+

Flight #: 358 Flight Series: OC4L

blue = planned route

green = flown route



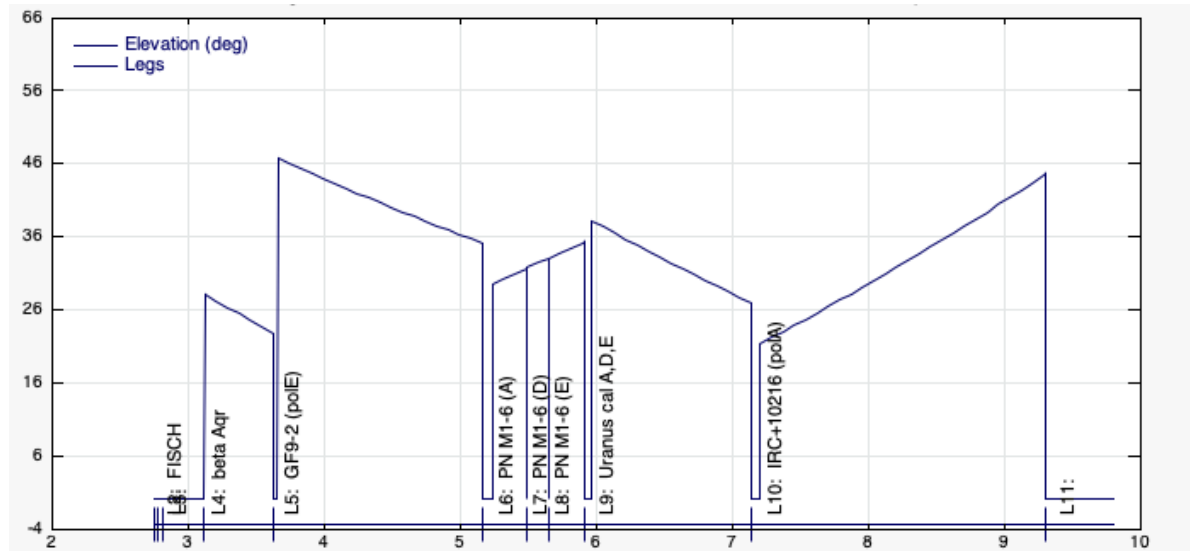
**Flight notes:
No irregularities.**

Flight 358 Mission ID 2016-12-14_HA_F358
 Palmdale to Palmdale Take off date UTC: 14-DEC-2016
 Departure UTC: 02:50 Arrival UTC: 10:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 106278	21h31m33.55s	-05d34m16.3s	3:13	30	
5	04_0026	Clemens	GF9-2	20h51m29.78s	60d18m38.4s	3:45	90	
6	04_0162	Cami	PN M1-6	06h35m45.13s	-00d05m37.4s	5:20	15.2	
7	04_0162	Cami	PN M1-6	06h35m45.13s	-00d05m37.4s	5:35	9.6	
8	04_0162	Cami	PN M1-6	06h35m45.13s	-00d05m37.4s	5:45	16.2	
9	90_0083	Calibration	Uranus	01h16m21.65s	07d24m24.1s	6:04	70	
10	04_0119	Andersson	IRC+10216	09h47m57.41s	13d16m43.6s	7:18	126	Turbulence on leg. Clouds near end of leg were affecting backgrounds in the data.

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

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



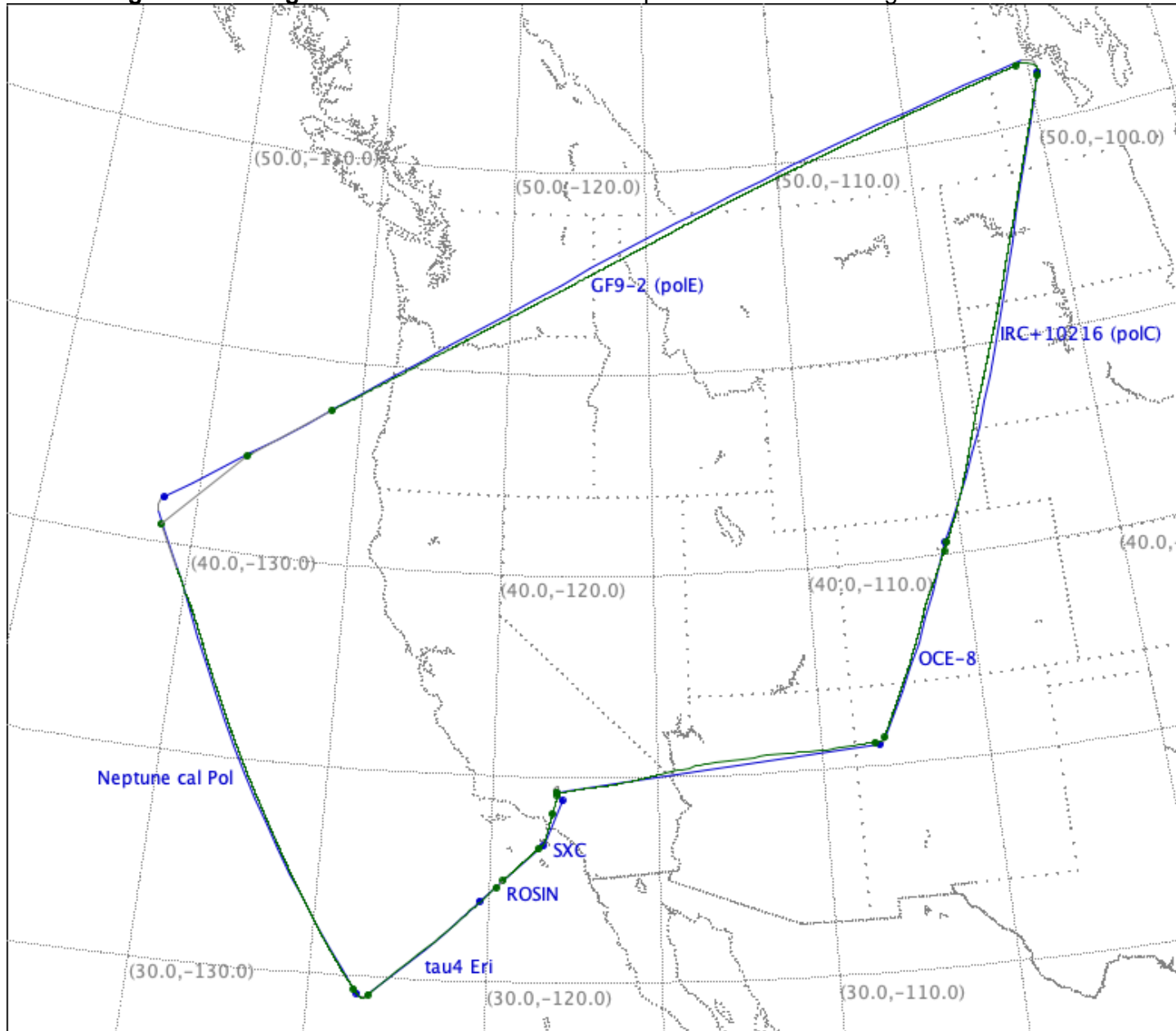
MISSION ID: 2016-12-15_HA_F359

Date: 2016-12-15 UT Instrument: HAWC+

Flight #: 359 Flight Series: OC4L

blue = planned route

green = flown route

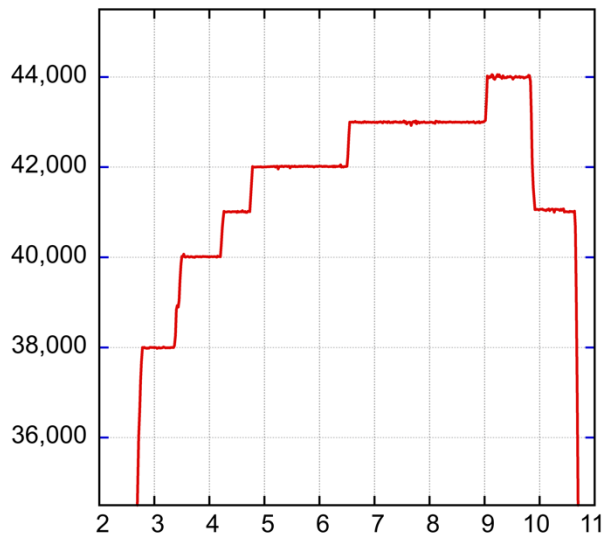


Flight notes: No irregularities.

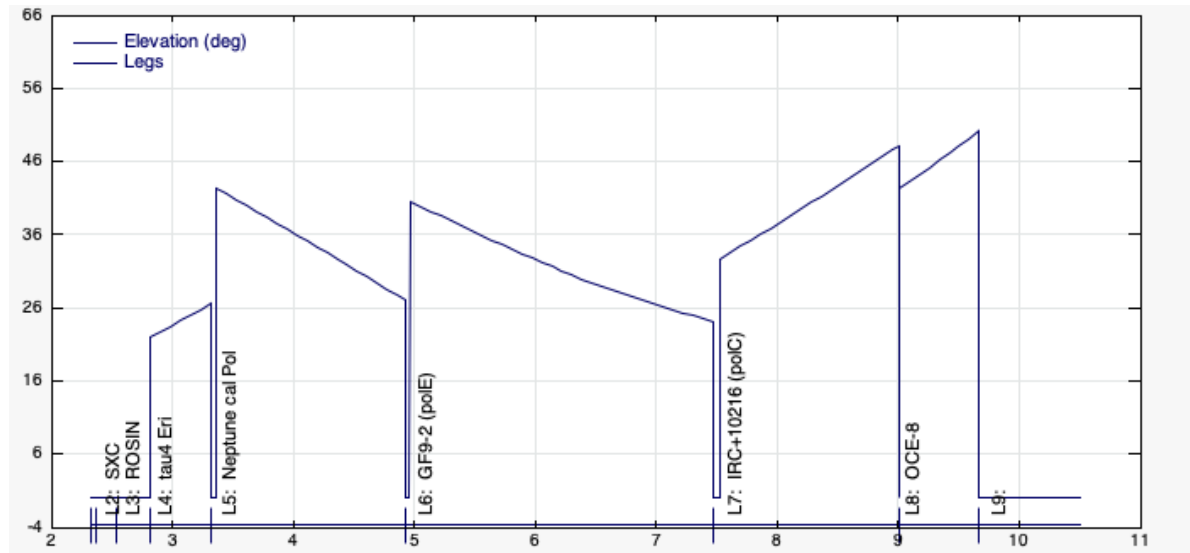
Flight 359 Mission ID 2016-12-15_HA_F359
 Palmdale to Palmdale Take off date UTC: 15-DEC-2016
 Departure UTC: ~02:20 Arrival UTC: 11:12

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 15474	03h19m31.00s	-21d45m28.3s	2:55	30	
5	88_0006	Dowell	Neptune Barycenter	22h44m23.86s	-08d55m13.7s	3:27	94	Light turbulence; Observatory control software crashes led to loss of significant observing time.
6	04_0026	Clemens	GF9-2	20h51m29.78s	60d18m38.4s	5:03	150	
7	04_0119	Andersson	IRC+10216	09h47m57.41s	13d16m43.6s	7:37	88.3	Moderate turbulence, clouds may have affect data at end of leg
8		engineering	BD+12 2168	10h13m25.98s	11d20m17.0s	9:06	40	Possible cirrus clouds

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



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



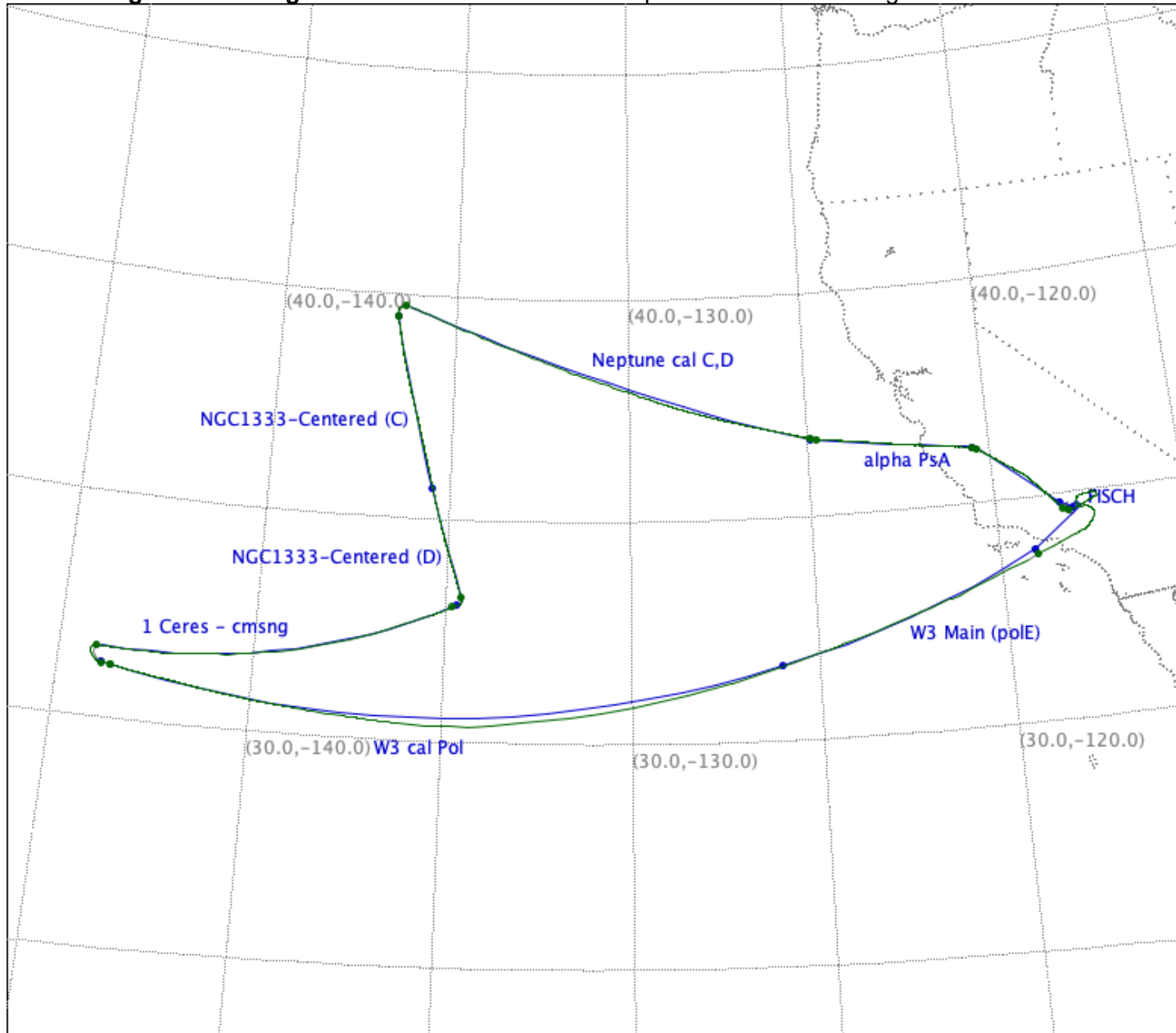
MISSION ID: 2016-12-16_HA_F360

Date: 2016-12-16 UT Instrument: HAWC+

Flight #: 360 Flight Series: OC4L

blue = planned route

green = flown route



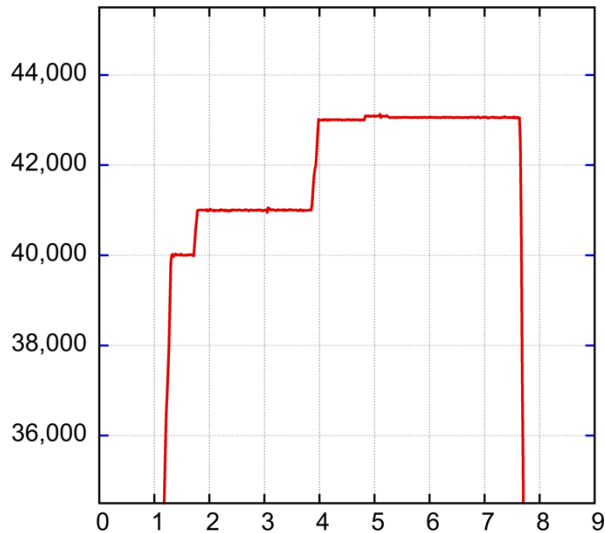
Flight notes:

HAWC+ commissioning flight. Some engineering legs and some science legs.

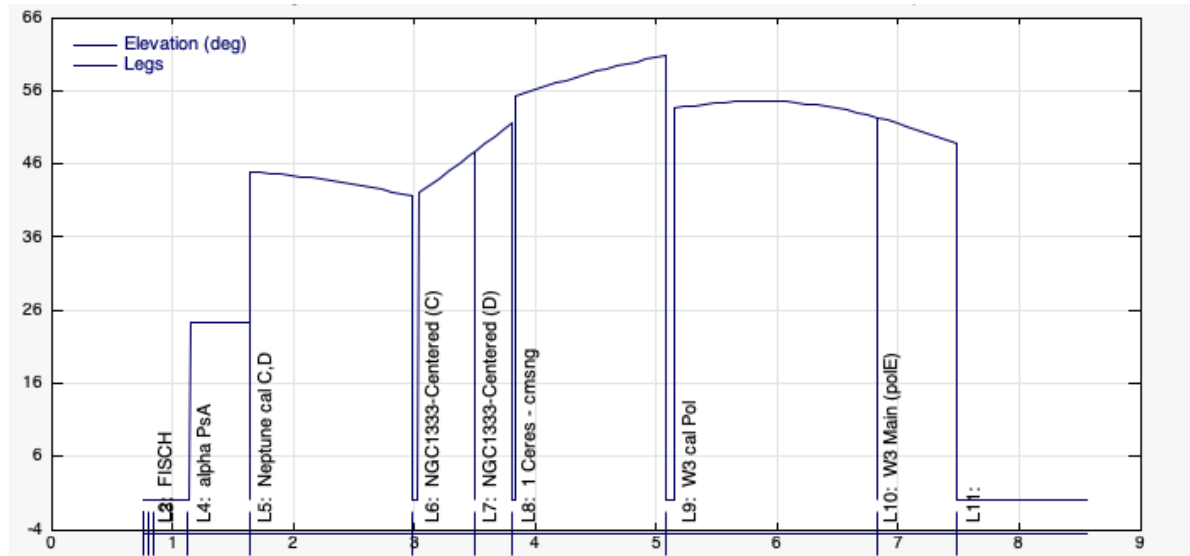
Flight 360 Mission ID 2016-12-16_HA_F360
 Palmdale to Palmdale Take off date UTC: 16-DEC-2016
 Departure UTC: 00:44 Arrival UTC: 08:07

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 113368	22h57m39.05s	-29d37m20.5s	1:14	30	
5	88_0006	Dowell	Neptune Barycenter	22h44m26.83s	-08d54m54.7s	1:44	80	
6	04_0011	Johnstone	NGC1333-Centered	03h29m00.35s	31d15m03.6s	3:07	28	
7	04_0011	Johnstone	NGC1333-Centered	03h29m00.35s	31d15m03.6s	3:35	18	
8	88_0004	Dowell	1 Ceres	01h30m50.47s	00d01m49.3s	3:55	75	
9	88_0005	Dowell	W3	02h25m40.00s	62d05m51.0s	5:14	100	
10	04_0138	Vaillancourt	W3 Main	02h25m40.60s	62d05m51.6s	6:54	40	

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



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



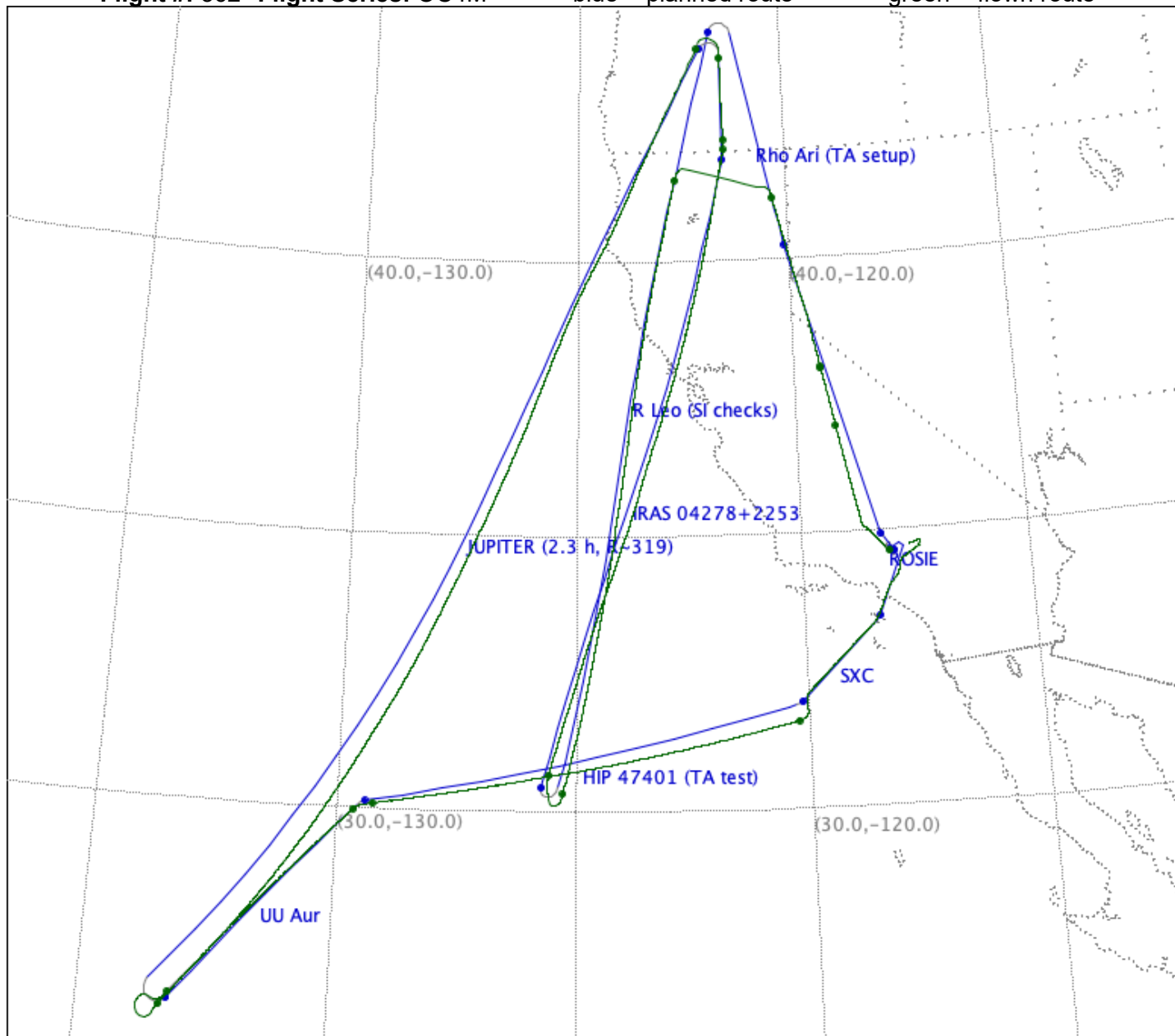
MISSION ID: 2017-01-20_EX_F362

Date: 2017-01-20 UT Instrument: EXES

Flight #: 362 Flight Series: OC4M

blue = planned route

green = flown route



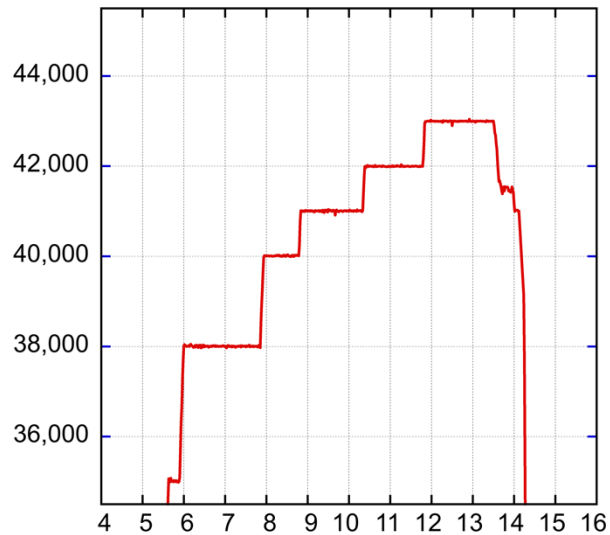
Flight notes:

Late departure led to small loss of time on first (engineering) leg.

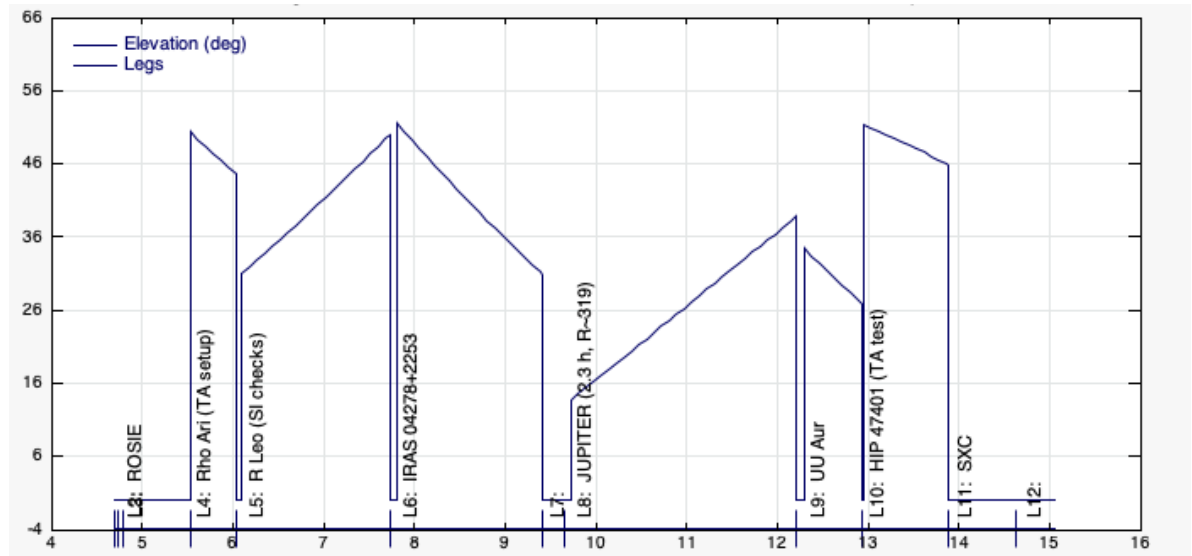
Flight 362 Mission ID 2017-01-20_EX_F362
 Palmdale to Palmdale Take off date UTC: 20-JAN-2017
 Departure UTC: 05:13 Arrival UTC: 14:45

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Rho Ari	02h55m48.00s	18d19m54.0s	5:38	30	
5		engineering	R Leo (SI checks)	09h47m34.00s	11d25m44.0s	6:12	98	
6	04_0180	Sargent	IRAS 04278+2253	04h30m50.28s	23d00m08.9s	7:54	97	
8	04_0005	Orton	JUPITER	13h25m06.68s	-07d28m41.2s	9:49	149	Telescope fault led to losing the first 25min of leg
9	86_0007	Commissioning	UU Aur	06h36m32.84s	38d26m43.8s	12:24	38	
10		engineering	HIP 47401	09h39m27.80s	67d16m19.0s	13:03	56	

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



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



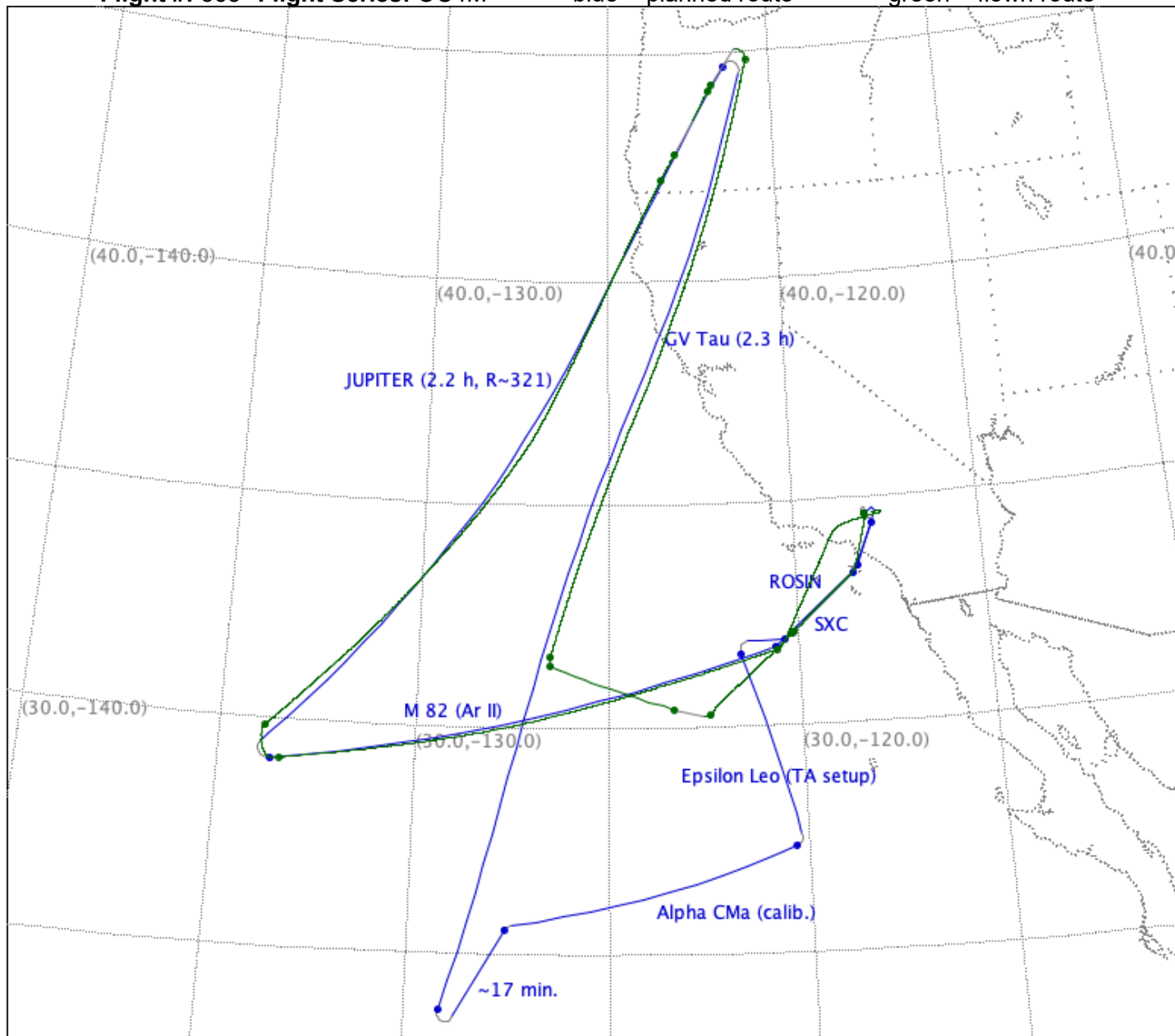
MISSION ID: 2017-01-21_EX_F363

Date: 2017-01-21 UT Instrument: EXES

Flight #: 363 Flight Series: OC4M

blue = planned route

green = flown route



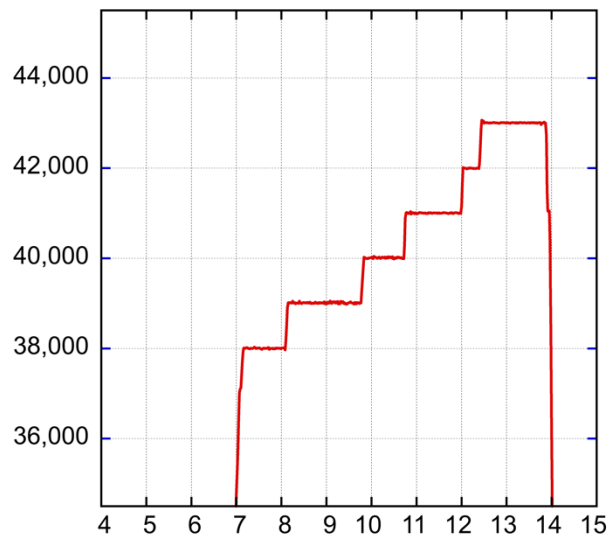
Flight notes:

Late departure – replanned to intercept midway into leg 8, with reduced version of leg 6.

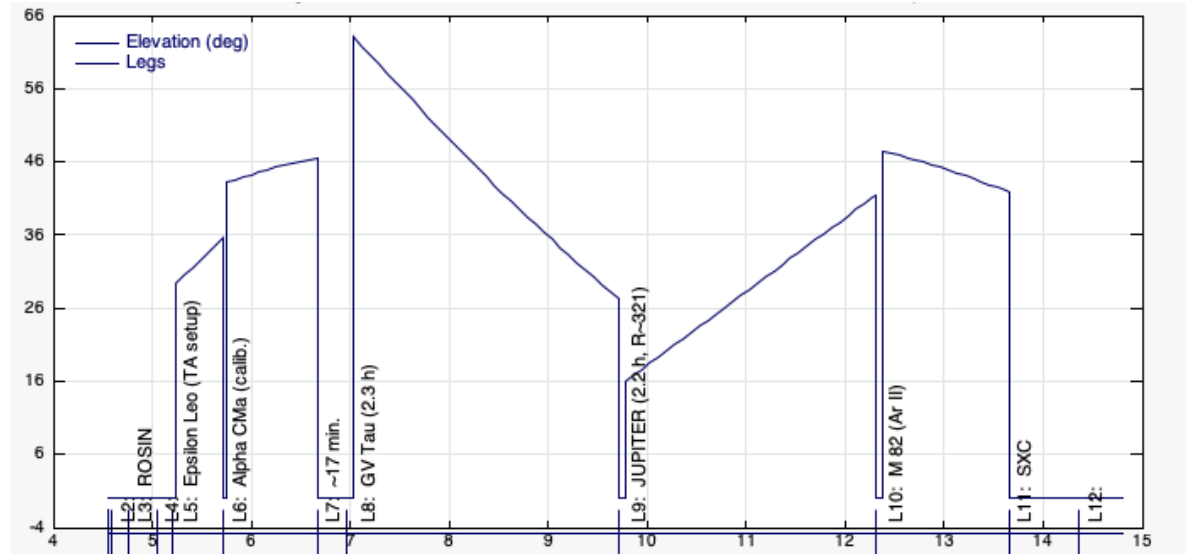
Flight 363 Mission ID 2017-01-21_EX_F363
 Palmdale to Palmdale Take off date UTC: 21-JAN-2017
 Departure UTC: 06:30 Arrival UTC: 14:32

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Epsilon Leo	09h45m51.00s	23d46m27.0s	5:20	28	
6	05_0097	Carr	Sirius	06h45m08.90s	-16d42m58.0s	5:51	55	Leg significantly shortened due to late take-off
8	05_0097	Carr	GV_Tau_HCOOH	04h29m23.70s	24d33m00.0s	7:08	160	Leg significantly shortened due to late take-off
9	04_0005	Orton	JUPITER	13h25m18.46s	-07d29m35.1s	9:53	152	Observatory control software crashes led to a 23min loss on leg
10	75_0017	Discretionary	M82	09h55m52.43s	69d40m46.9s	12:29	77	

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



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



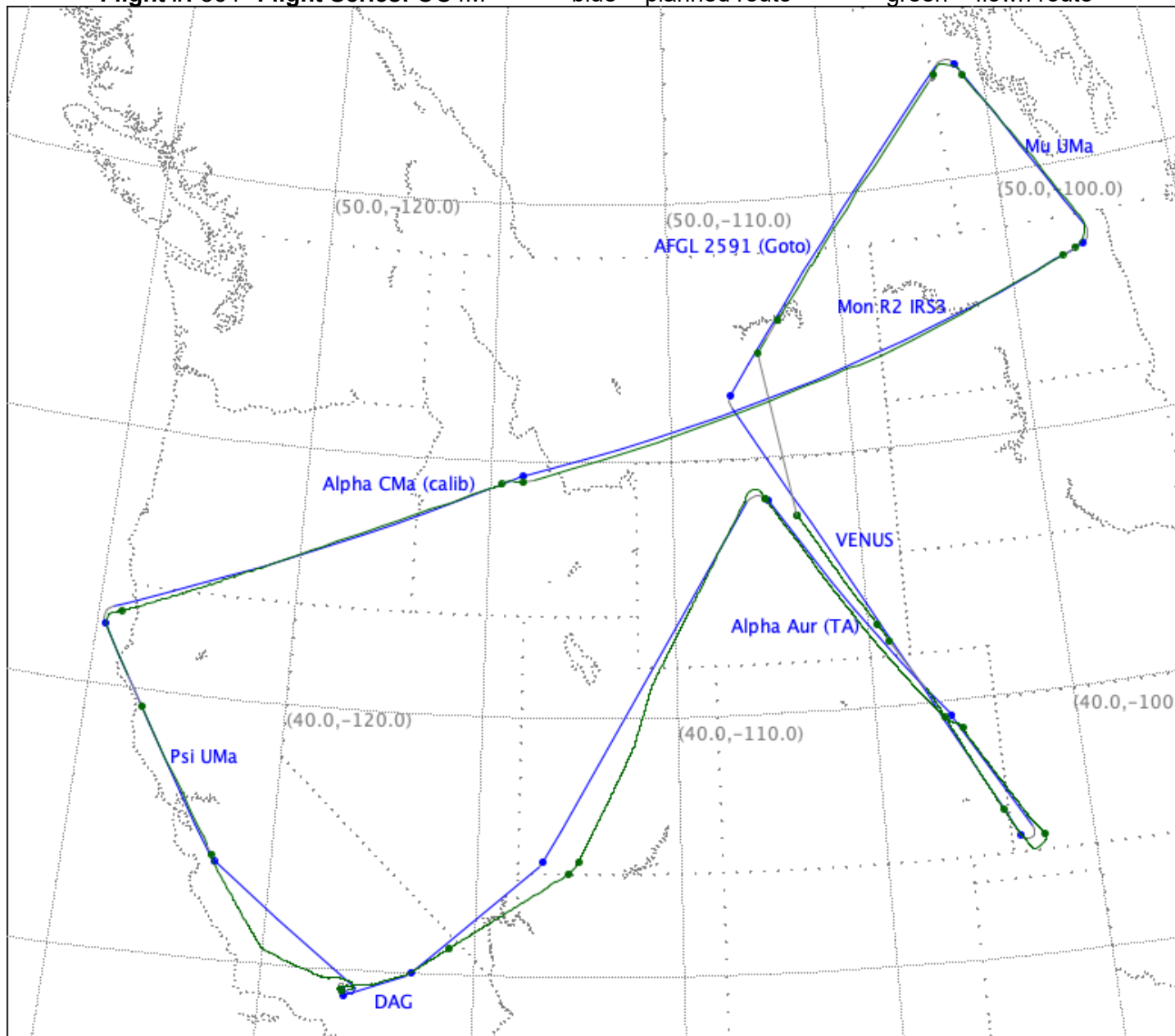
MISSION ID: 2017-01-23_EX_F364

Date: 2017-01-23 UT Instrument: EXES

Flight #: 364 Flight Series: OC4M

blue = planned route

green = flown route

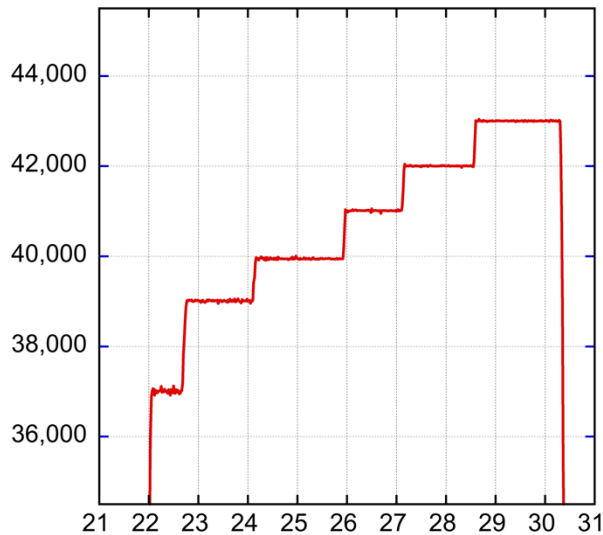


Flight notes: Daylight departure and cruise.

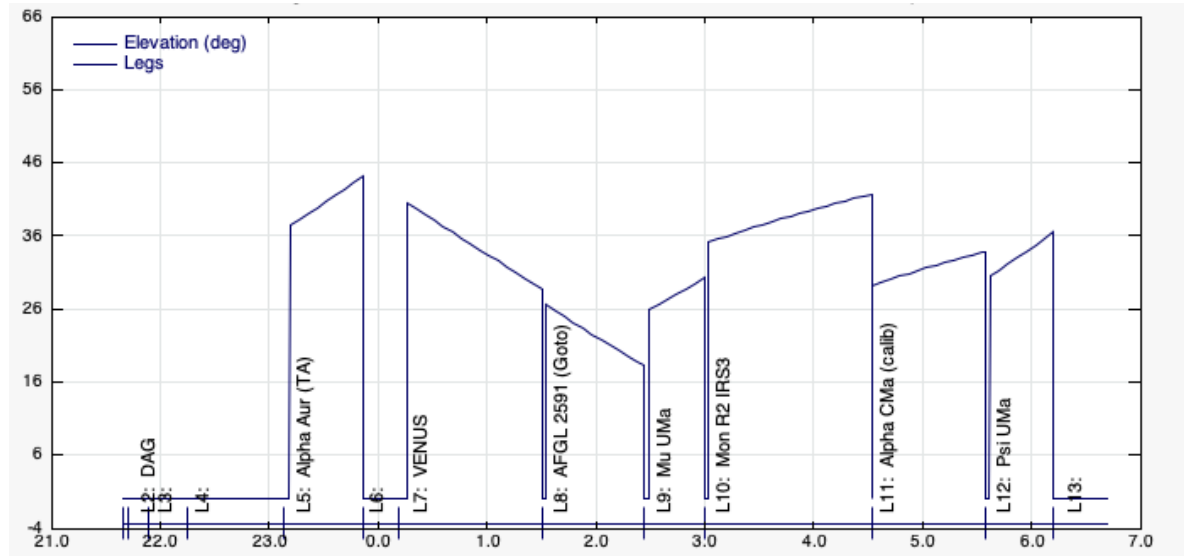
Flight 364 Mission ID 2017-01-23_EX_F364
 Palmdale to Palmdale Take off date UTC: 23-JAN-2017
 Departure UTC: 21:35 Arrival UTC: 06:48 +1 day

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Alpha Aur	05h16m41.00s	45d59m45.0s	23:13	40	Daylight observing.
7	04_0078	Tsang	VENUS	23h24m25.87s	-03d02m59.0s	0:17	75	Acquisition problems and observatory control software crash led to achieving 30% of planned observations.
8	04_0089	Goto	CRL 2591	20h29m24.87s	40d11m19.4s	1:34	54	
9	86_0007	Commissioning	mu Uma	10h22m19.74s	41d29m58.3s	2:31	30	
10	04_0153	Boogert	Mon R2 IRS3	06h07m47.80s	-06d22m55.0s	3:04	90	
11	04_0153	Boogert	Sirius	06h45m08.90s	-16d42m58.0s	4:34	62	
12	86_0007	Commissioning	psi Uma	11h09m39.81s	44d29m54.6s	5:39	35	

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



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



MISSION ID: 2017-01-24_EX_F365

Date: 2017-01-24 UT Instrument: EXES

Flight #: 365 Flight Series: OC4M

blue = planned route

green = flown route

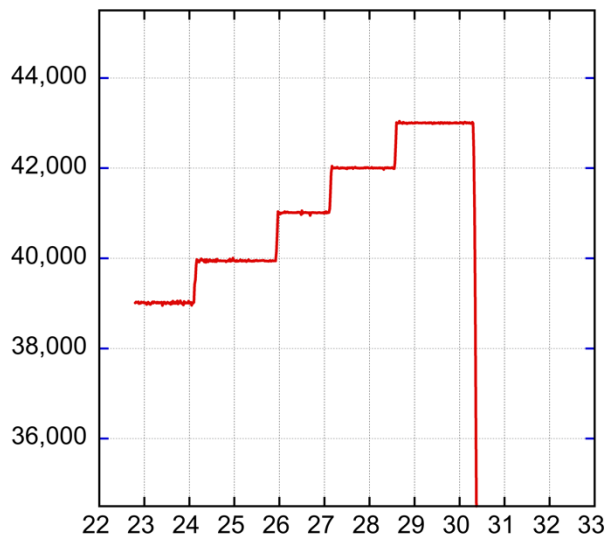


Flight notes: Daylight departure and cruise.

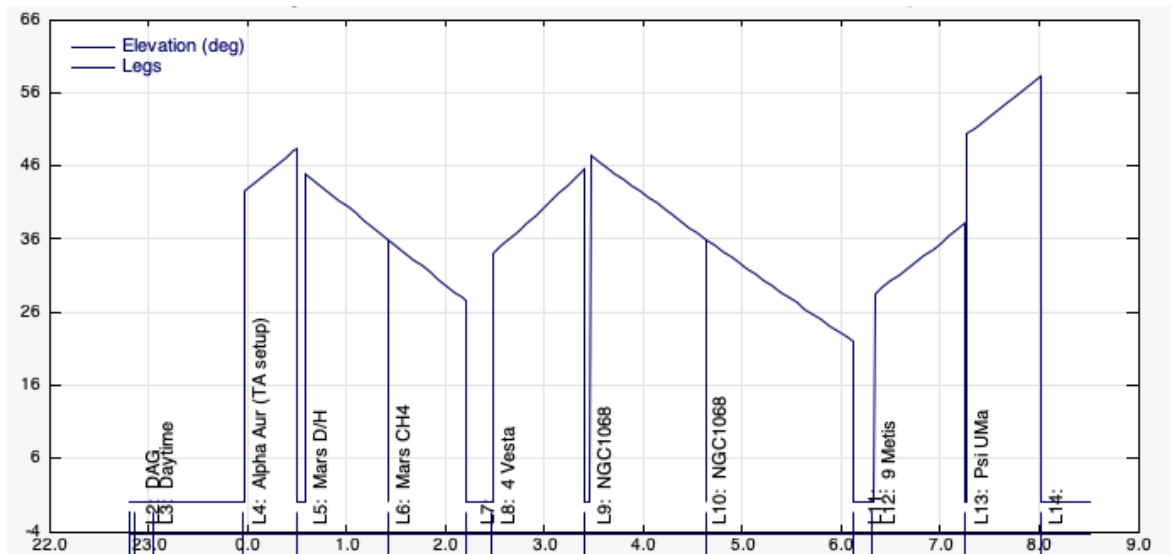
Flight 365 Mission ID 2017-01-24_EX_F365
 Palmdale to Palmdale Take off date UTC: 24-JAN-2017
 Departure UTC: 22:48 Arrival UTC: 08:52 +1 day

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha Aur	05h16m41.00s	45d59m45.0s	0:01	32	Daylight observing.
5	04_0018	Encrenaz	MARS	23h51m08.58s	-01d29m00.6s	0:38	50	
6	04_0087	AOKI	Mars	23h51m15.39s	-01d28m13.9s	1:28	47	
8	03_0065	Rangwala	4 Vesta	07h54m31.80s	24d05m00.7s	2:32	55	
9	03_0065	Rangwala	NGC1068	02h42m40.77s	-00d00m47.8s	3:31	70	
10	03_0065	Rangwala	NGC1068	02h42m40.77s	-00d00m47.8s	4:41	89	
12	03_0065	Rangwala	9 Metis	10h58m17.07s	16d11m53.9s	6:23	55	Crash of observatory control software led to 20% loss on leg
13	86_0007	Commissioning	psi Uma	11h09m39.81s	44d29m54.6s	7:19	45	

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



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



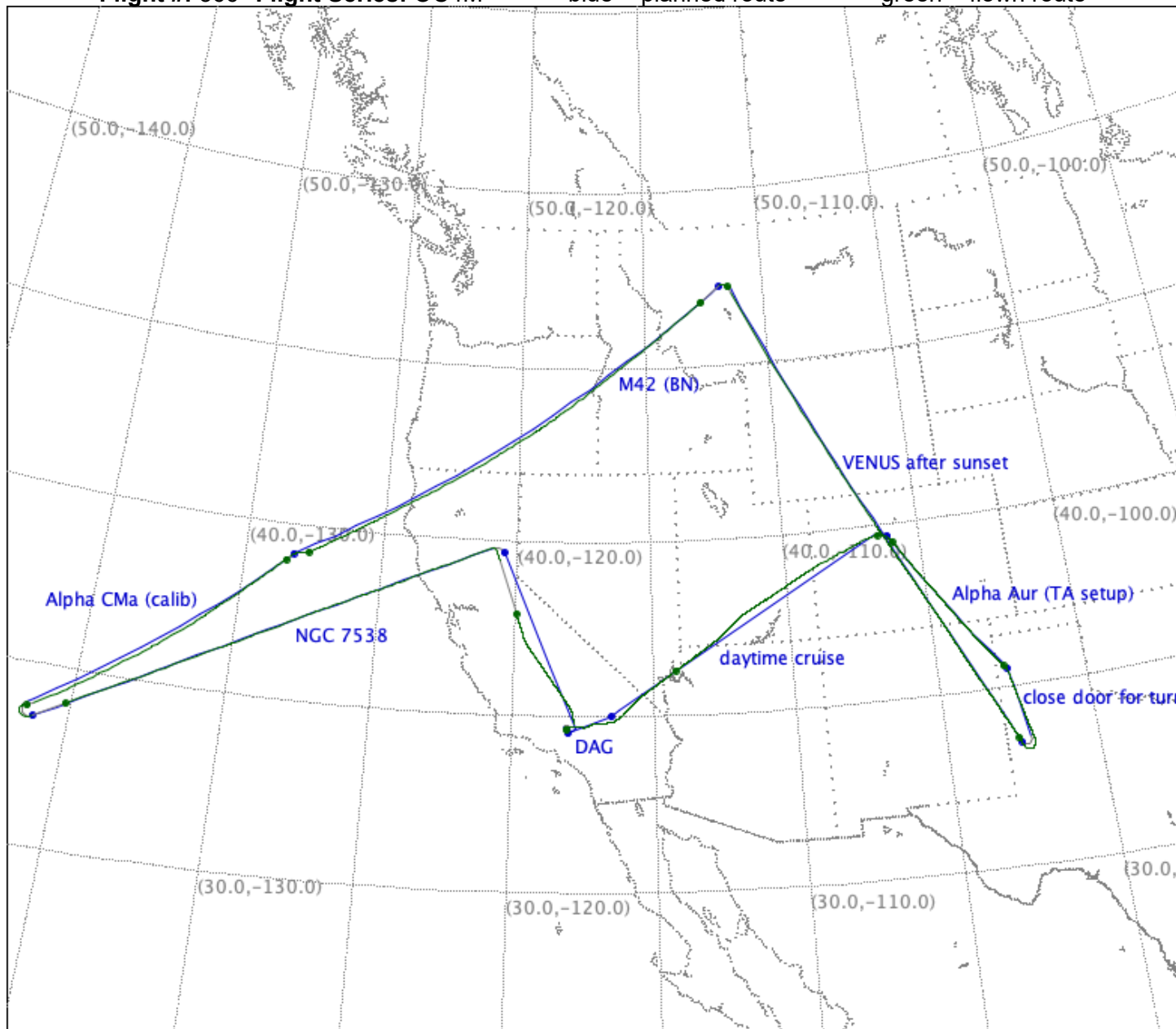
MISSION ID: 2017-01-25_EX_F366

Date: 2017-01-25 UT Instrument: EXES

Flight #: 366 Flight Series: OC4M

blue = planned route

green = flown route

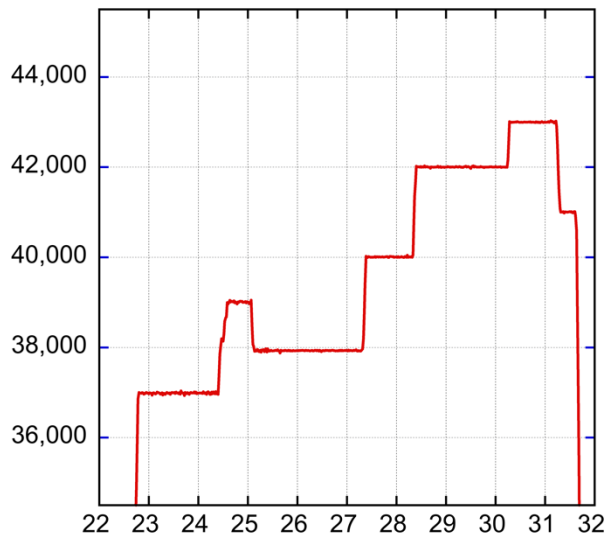


Flight notes: Daylight departure and cruise.

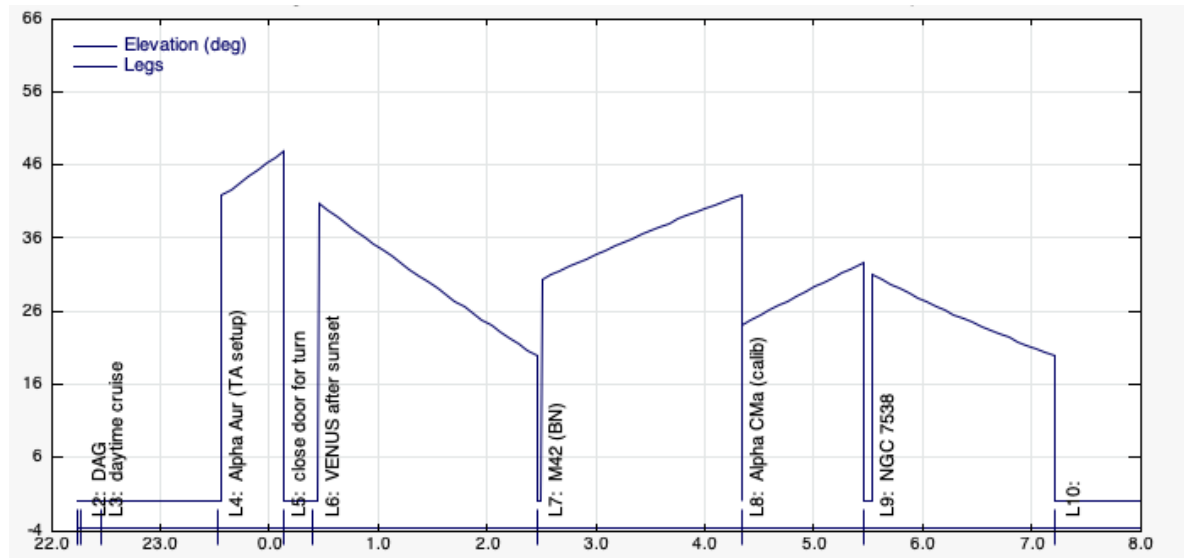
Flight 366 Mission ID 2017-01-25_EX_F366
 Palmdale to Palmdale Take off date UTC: 25-JAN-2017
 Departure UTC: 22:14 Arrival UTC: 08:04 +1 day

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Alpha Aur (TA setup)	05h16m40.00s	46d00m00.0s	23:35	34	Daylight observing.
6	04_0078	Tsang	VENUS	23h30m45.19s	-02d06m09.0s	0:29	120	
7	04_0120	Indriolo	Orion BN	05h35m14.16s	-05d22m21.5s	2:32	110	
8	04_0120	Indriolo	Sirius	06h45m08.92s	-16d42m58.0s	4:22	67	
9	86_0007	Commissioning	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	5:34	100	EXES computer lost connection to observatory control software; 35% of leg lost.

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



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



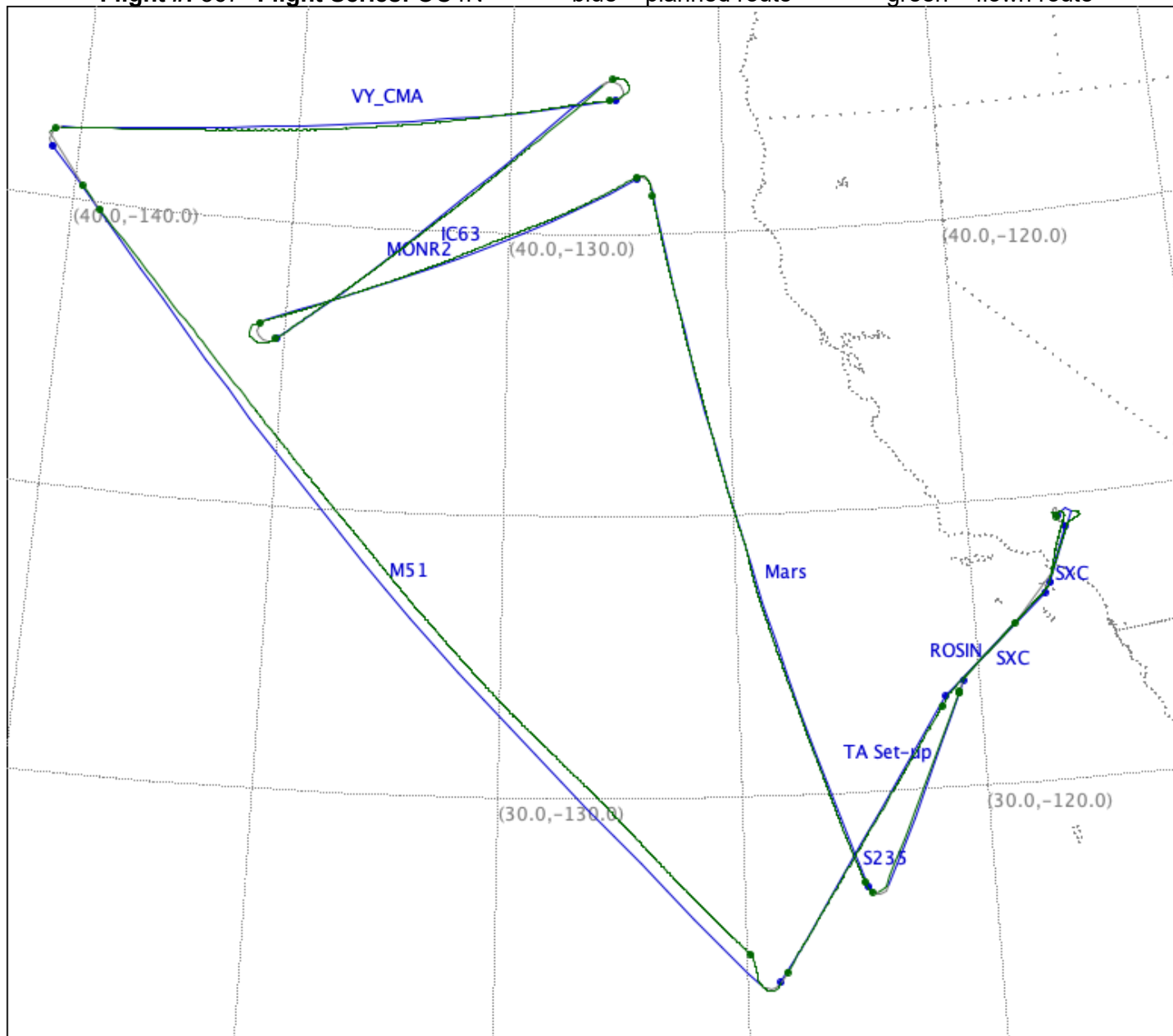
MISSION ID: 2017-02-01_GR_F367

Date: 2017-02-01 UT Instrument: GREAT

Flight #: 367 Flight Series: OC4N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 367 Mission ID
Palmdale to Palmdale

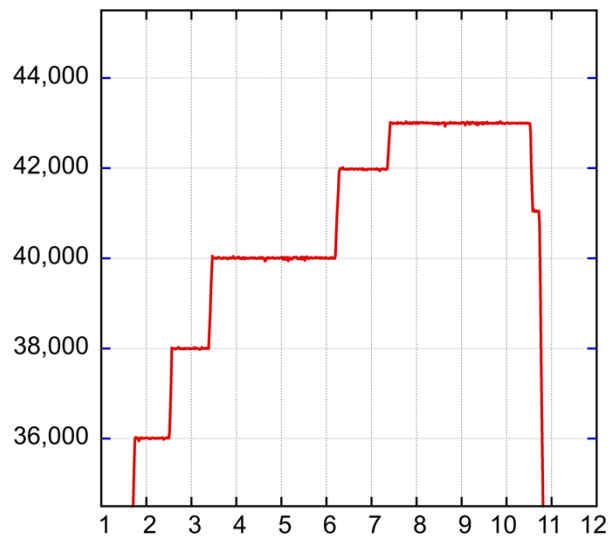
2017-02-01_GR_F367
Take off date UTC:
day-month-year

Departure UTC: 01:18
Arrival UTC: 11:16

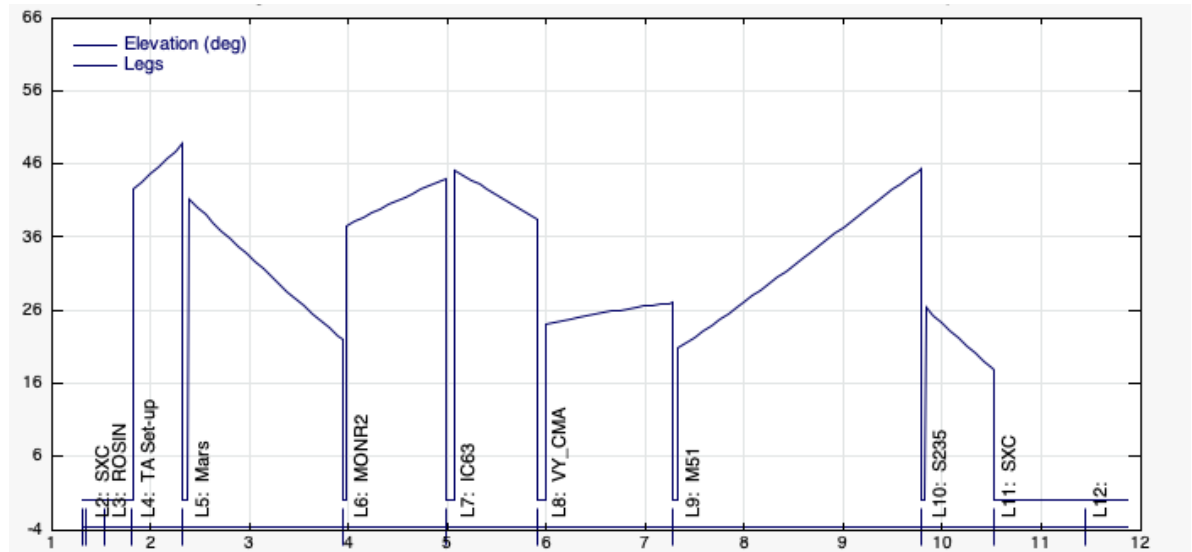
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 25453	05h26m38.80s	06d52m06.6s	1:53	30	
5	90_0008	Calibration	Mars	00h10m23.21s	00d43m14.9s	2:26	93	35% of leg lost due to clouds
6	04_0081	Schneider	MONR2	06h07m46.20s	-06d23m08.3s	4:02	60	
7	05_0052	Andersson	IC63	00h59m10.37s	60d53m45.0s	5:07	50	
8	04_0023	Neufeld	VY_CMA	07h22m58.33s	-25d46m03.2s	6:03	77	
9	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:23	147	
10	04_0132	Anderson	S235	05h41m02.50s	35d50m57.0s	9:53	41	

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



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



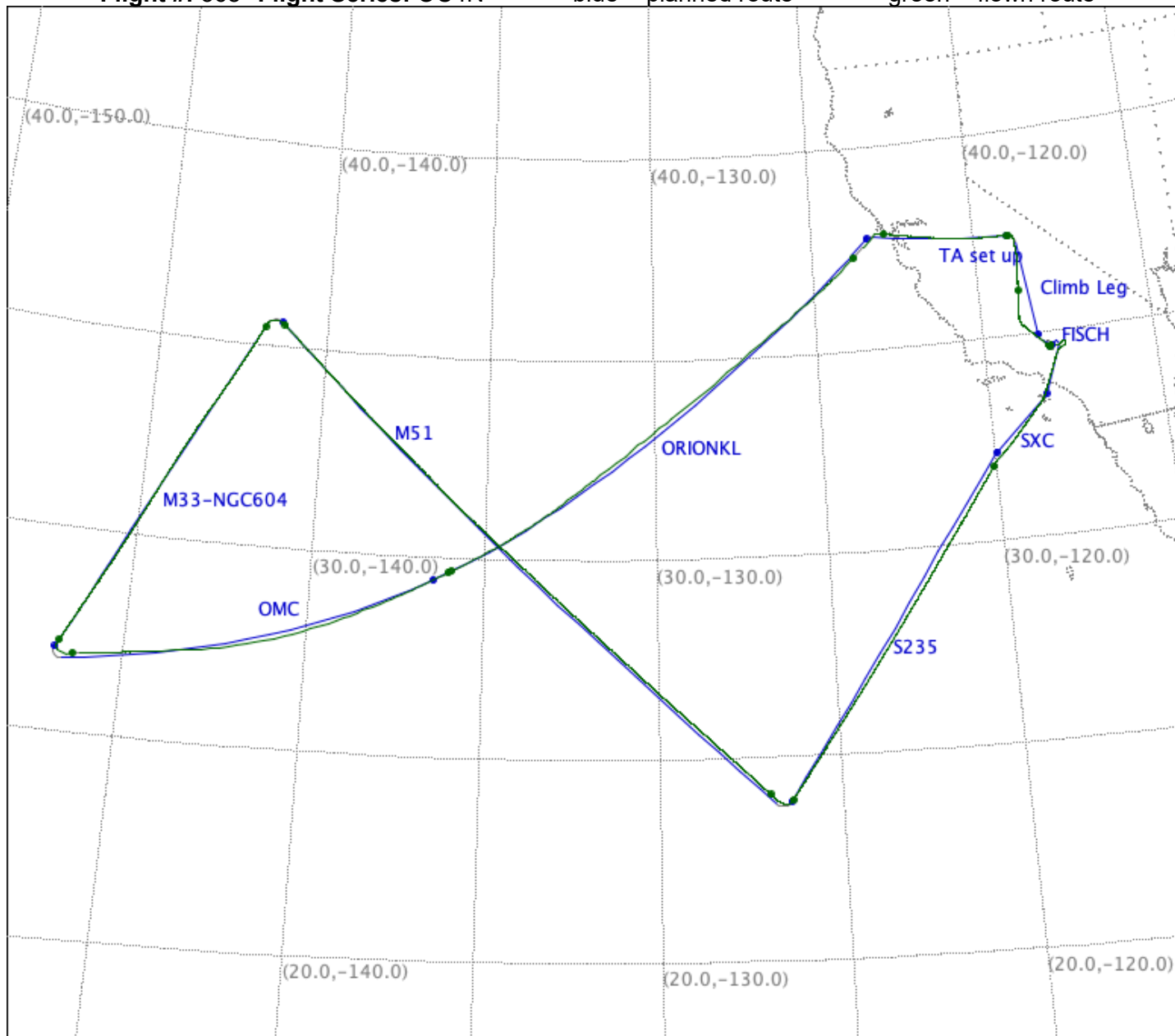
MISSION ID: 2017-02-02_GR_F368

Date: 2017-02-02 UT Instrument: GREAT

Flight #: 368 Flight Series: OC4N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 368 Mission ID
Palmdale to Palmdale

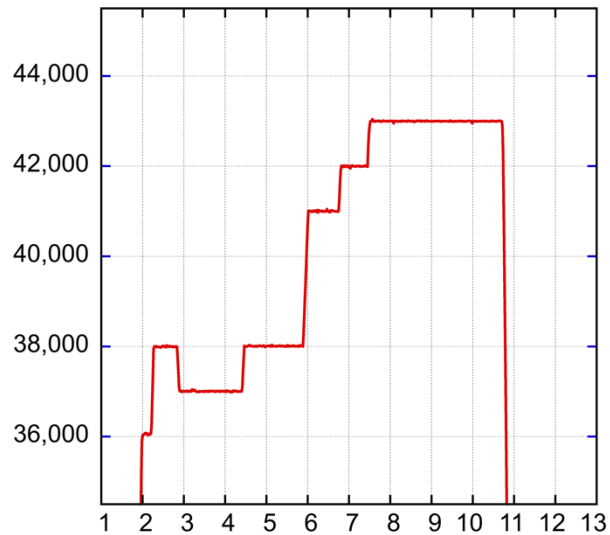
2017-02-02_GR_F368
Take off date UTC:
02-FEB-2017

Departure UTC: 01:35
Arrival UTC: 11:13

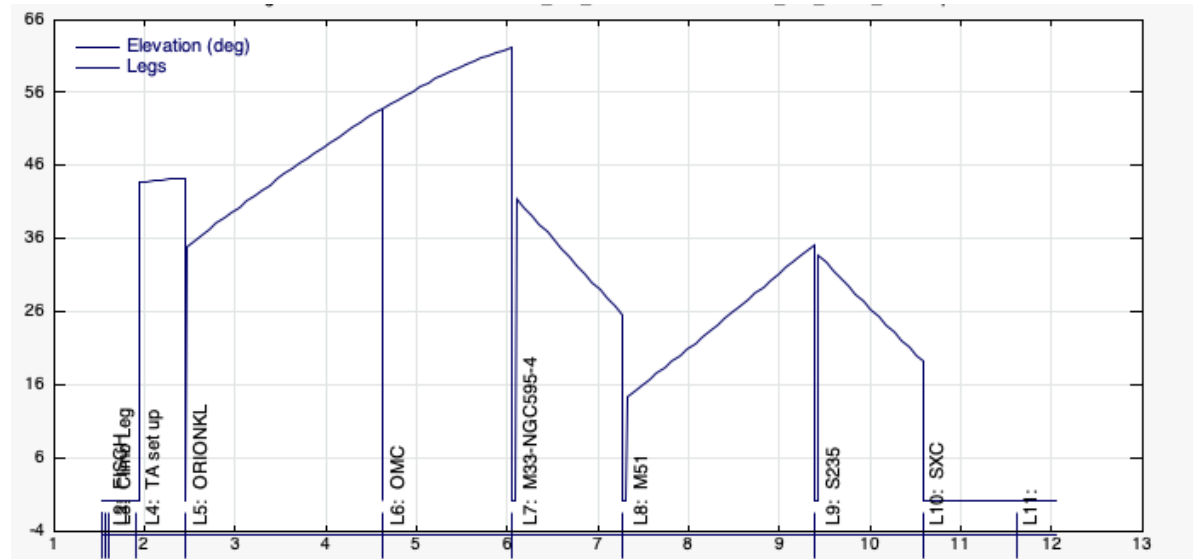
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 15197	03h15m50.00s	-08d49m10.2s	2:02	30	
5	05_0068	Remijan	ORIONKL	05h35m14.10s	-05d22m21.0s	2:33	130	Air traffic control is holding us at low altitude (38k ft), GREAT LO is 10deg warner than ideal.
6	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	4:43	85	
7	04_0038	Kramer	M33-NGC604	01h34m33.42s	30d46m54.0s	6:11	70	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:24	124	
9	04_0132	Anderson	S235	05h41m02.50s	35d50m57.0s	9:31	69	

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



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



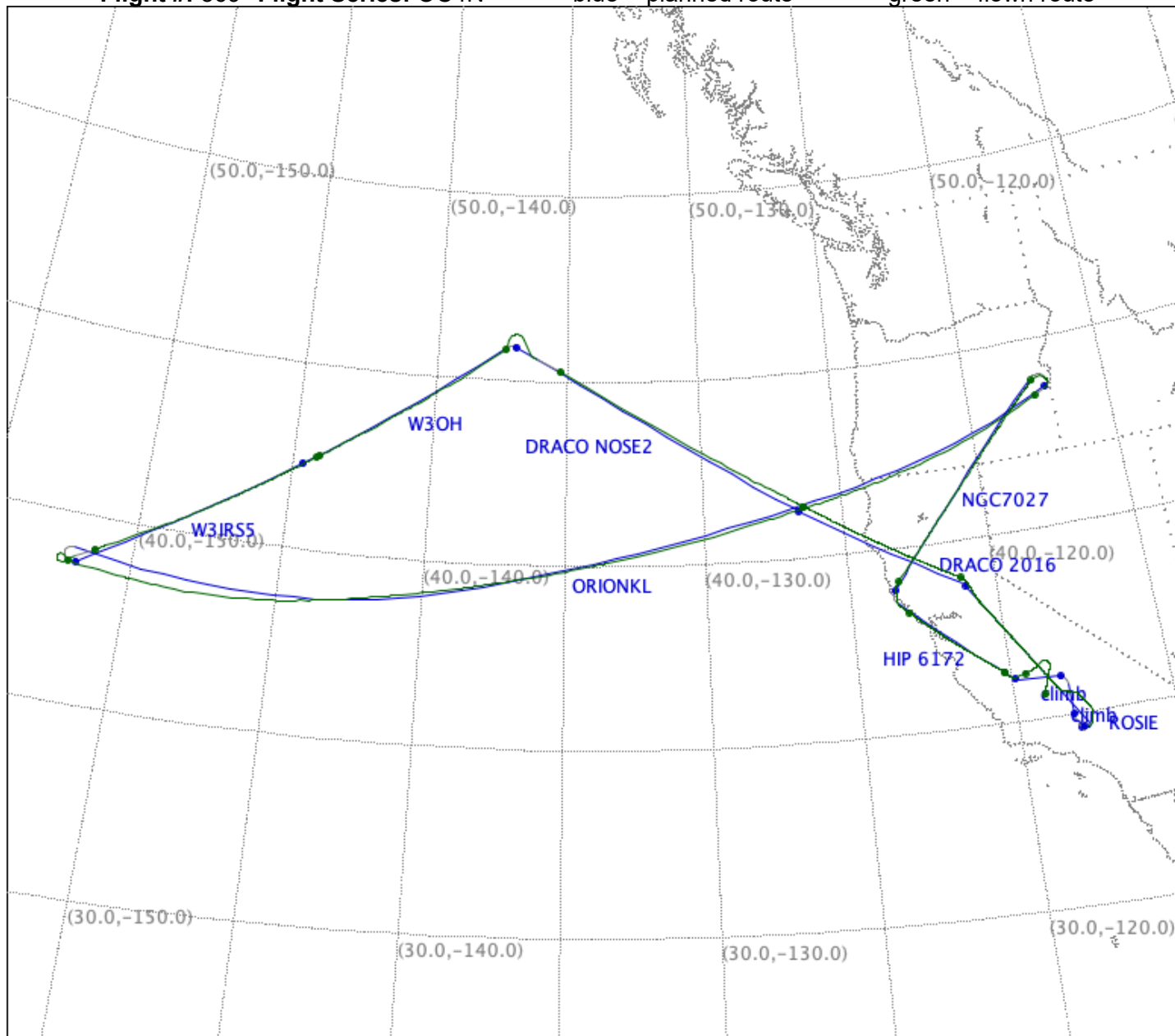
MISSION ID: 2017-02-03_GR_F369

Date: 2017-02-03 UT Instrument: GREAT

Flight #: 369 Flight Series: OC4N

blue = planned route

green = flown route

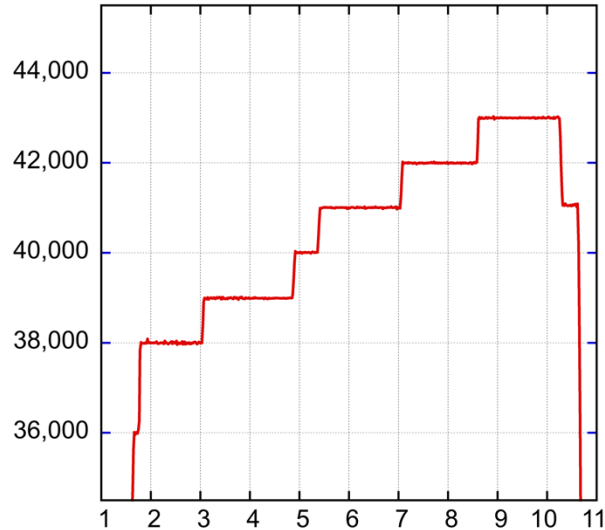


Flight notes: No irregularities.

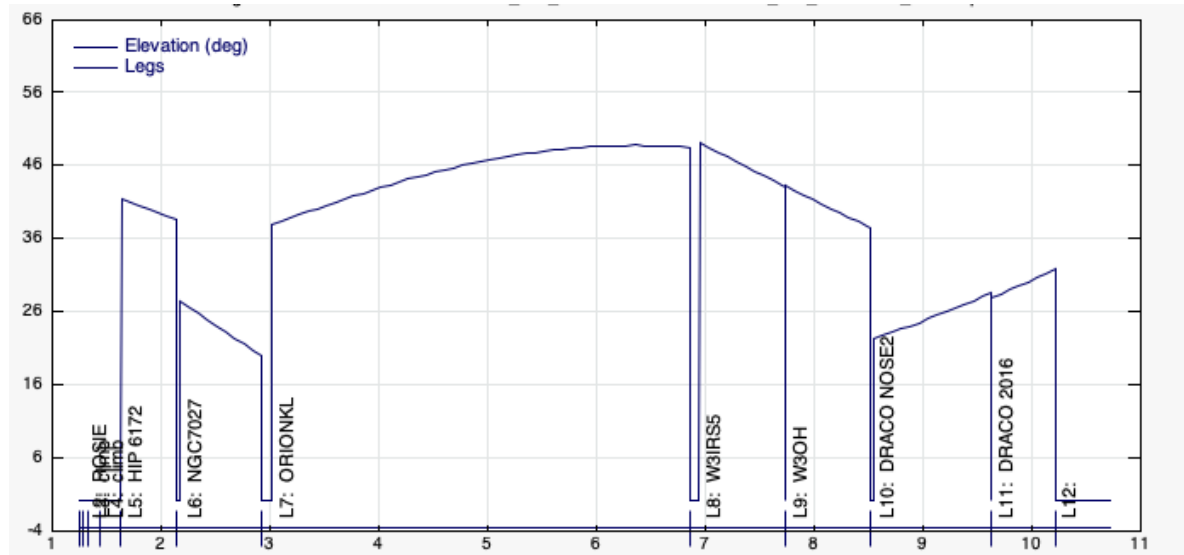
Flight 369 Mission ID 2017-02-03_GR_F369
 Palmdale to Palmdale Take off date UTC: 03-FEB-2017
 Departure UTC: 01:13 Arrival UTC: 11:11 Consortium flight L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			HIP 6172	01h19m09.25s	-09d22m44.3s	1:44	30	
6	83_0438	GREAT Consortium	NGC7027	21h07m01.59s	42d14m10.2s	2:17	45	
7	83_0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	3:07	230	
8	83_0435	GREAT Consortium	W3IRS5_SMM1	02h25m40.78s	62d05m52.6s	7:03	47	
9	83_0435	GREAT Consortium	W3OH	02h27m04.30s	61d52m25.0s	7:50	47	
10	83_0436	GREAT Consortium	DRACO_NOSE2	16h46m29.00s	60d19m31.0s	8:39	65	
11	83_0436	GREAT Consortium	DRACO	16h58m18.00s	61d30m10.0s	9:44	35	

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



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



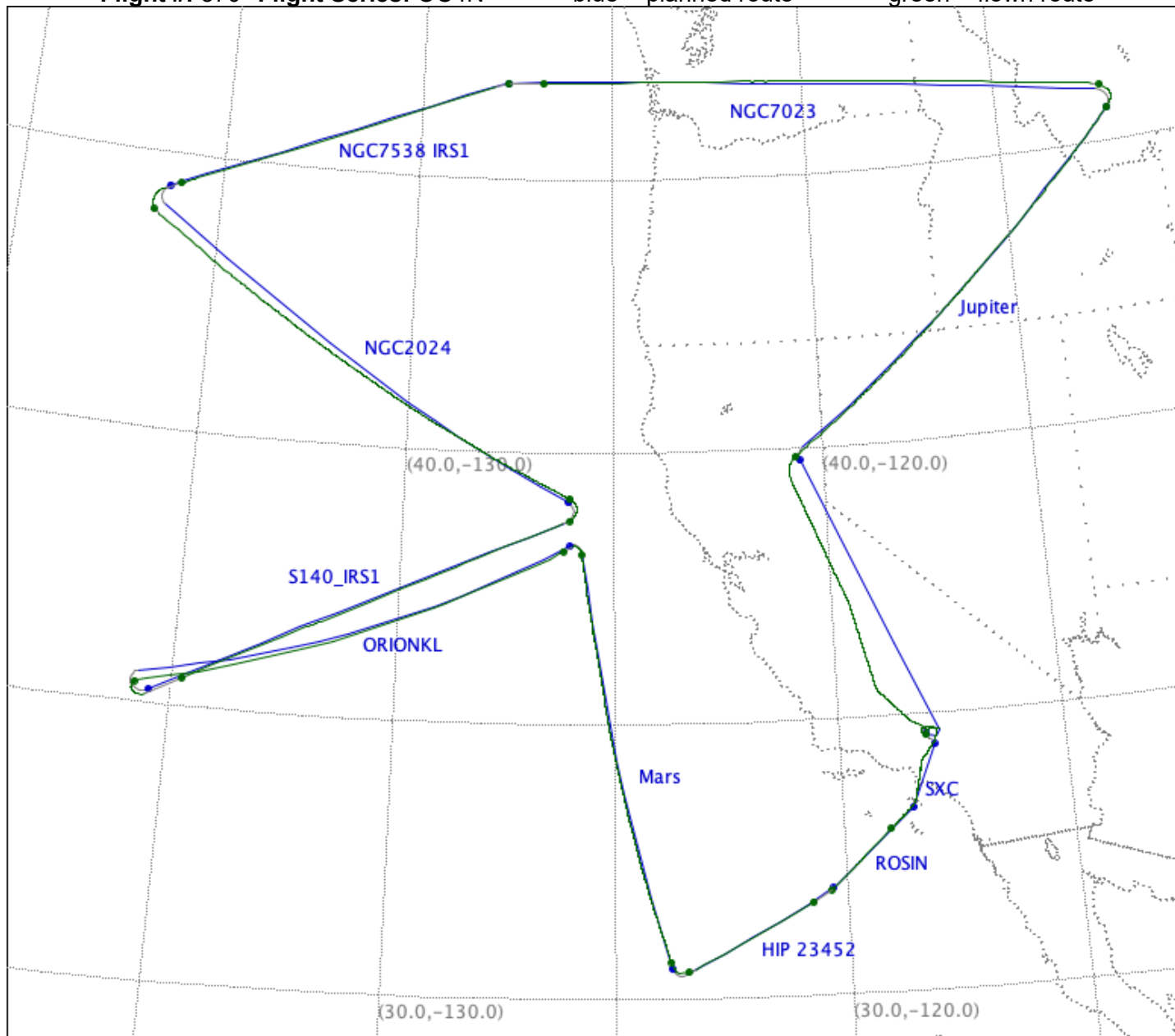
MISSION ID: 2017-02-04_GR_F370

Date: 2017-02-04 UT Instrument: GREAT

Flight #: 370 Flight Series: OC4N

blue = planned route

green = flown route



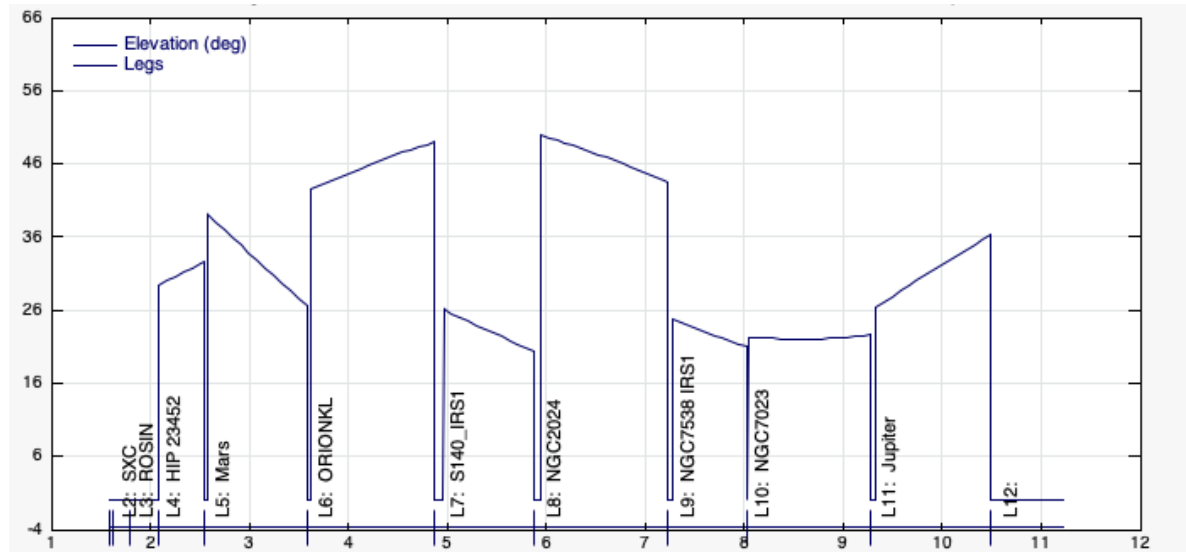
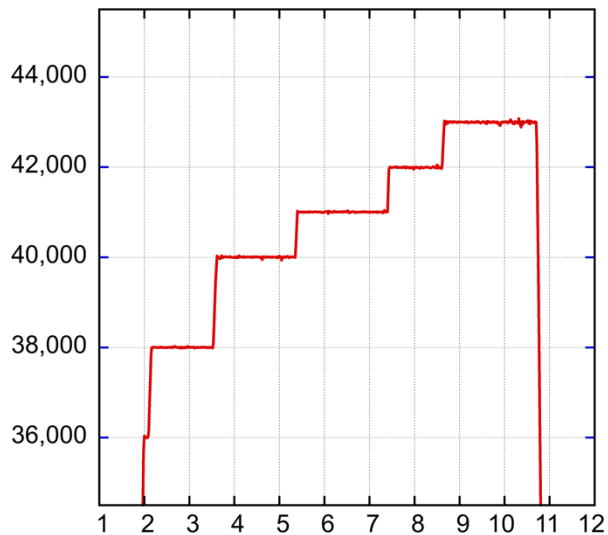
Flight notes: No irregularities.

Flight 370 Mission ID 2017-02-04_GR_F370
 Palmdale to Palmdale Take off date UTC: 04-FEB-2017
 Departure UTC: 01:36 Arrival UTC: 11:31 Consortium flight L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 23452	05h02m28.42s	-21d15m23.9s	2:11	27	
5	83_0409	GREAT Consortium	Mars	00h18m31.00s	01d38m56.4s	2:41	60	
6	83_0428	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	3:43	75	
7	83_0439	GREAT Consortium	S140_IRS1	22h19m18.21s	63d18m46.9s	5:03	55	Lost 8min to unknown interference source seen in data
8	83_0441	GREAT Consortium	NGC2024	05h41m45.20s	-01d55m45.0s	6:02	77	
9	83_0429	GREAT Consortium	NGC7538 IRS1	23h13m45.37s	61d28m10.4s	7:22	45	
10	83_0440	GREAT Consortium	NGC7023	21h01m32.50s	68d10m22.8s	8:08	74	
11	83_0409	GREAT Consortium	Jupiter	13h26m50.86s	-07d34m57.0s	9:25	70	GREAT pointing and alignment check

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

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



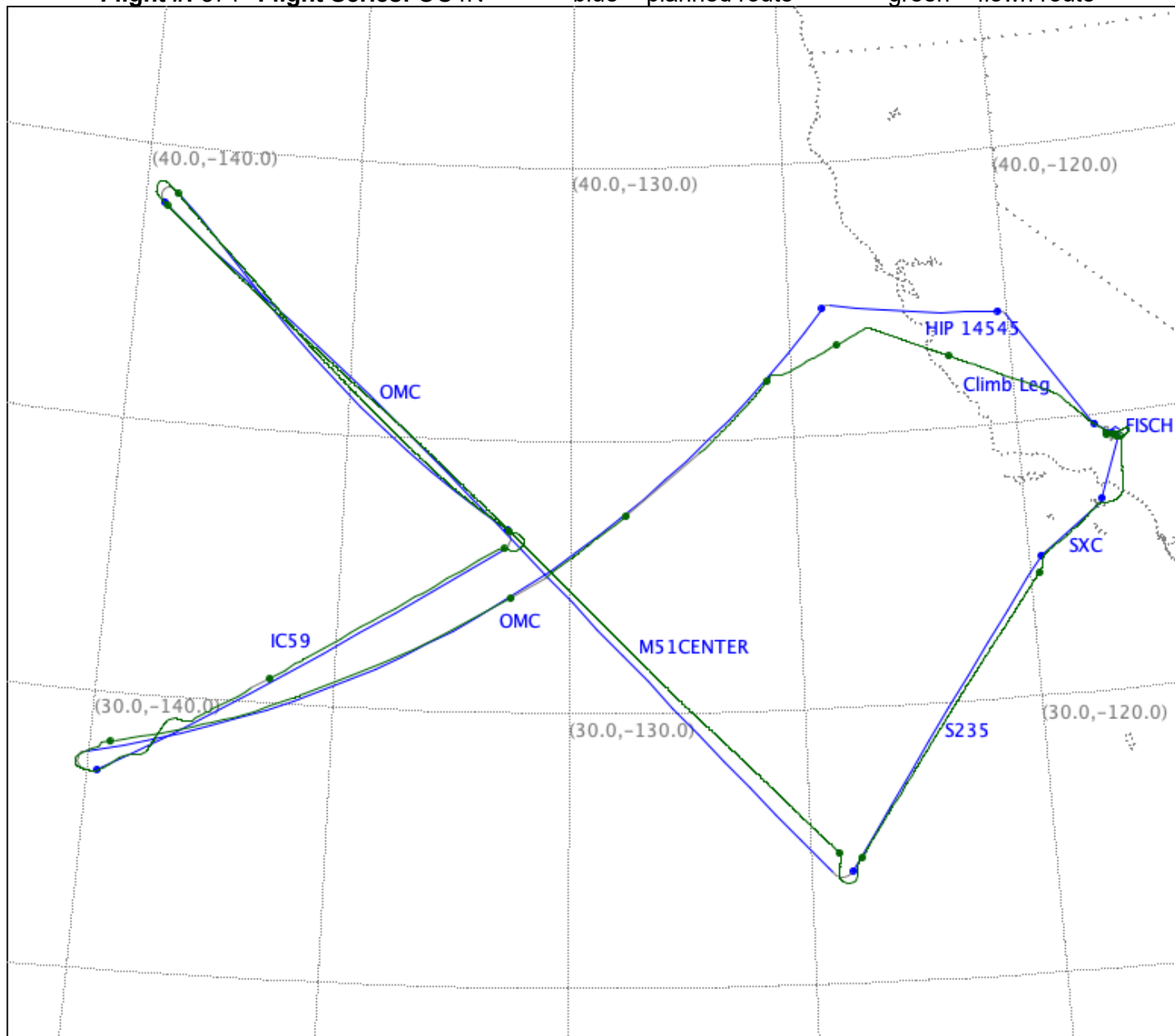
MISSION ID: 2017-02-08_GR_F371

Date: 2017-02-08 UT Instrument: GREAT

Flight #: 371 Flight Series: OC4N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 371 Mission ID
Palmdale to
Palmdale

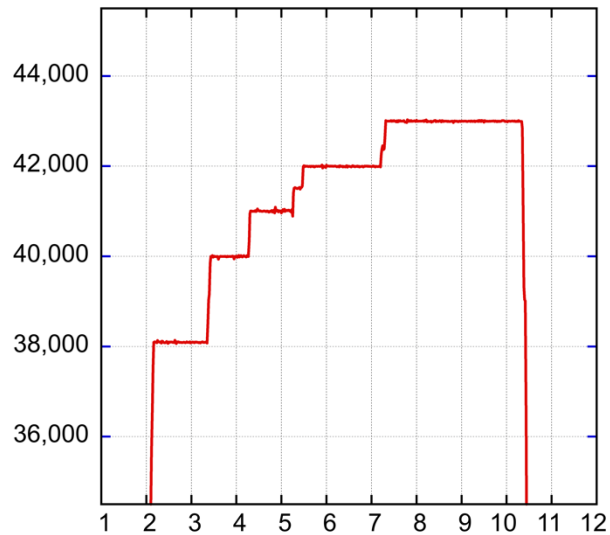
2017-02-08_GR_F371
Take off date UTC:
08-FEB-2017

Departure UTC: 01:26
Arrival UTC: 10:51

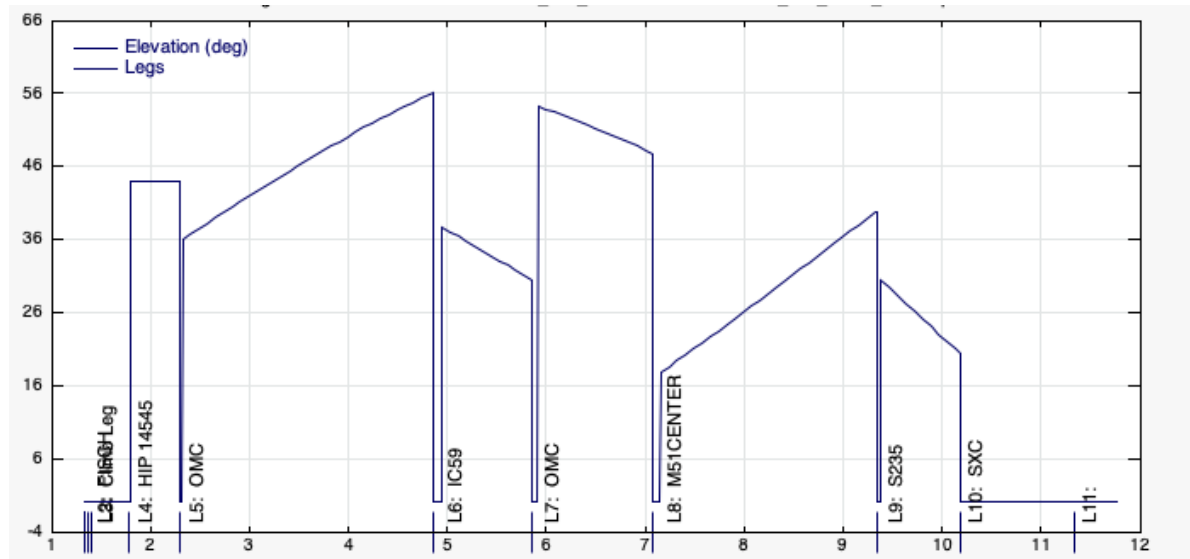
L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 14545	03h07m47.61s	-08d56m45.8s	1:54	30	Air Traffic Control lost flight plan; entire leg lost refiling in-flight
5	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	2:25	152	First 20min of leg lost to air traffic control issues; second 20min lost to clouds; last 7min of leg also lost to clouds
6	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	5:02	55	First 19min of leg lost to clouds
7	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	6:01	70	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:15	131	
9	04_0132	Anderson	S235	05h41m02.50s	35d50m57.0s	9:29	48	

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



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



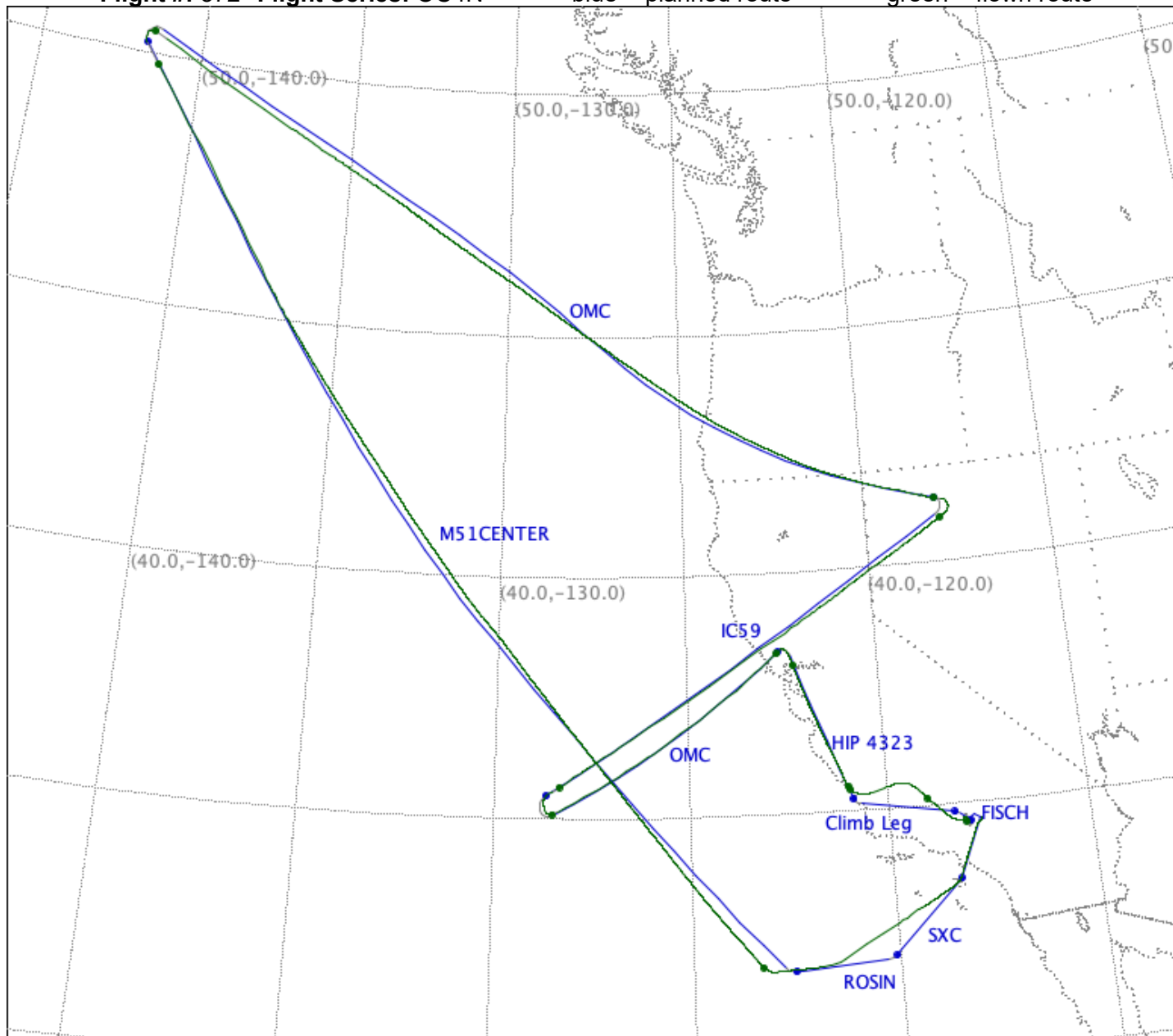
MISSION ID: 2017-02-09_GR_F372

Date: 2017-02-09 UT Instrument: GREAT

Flight #: 372 Flight Series: OC4N

blue = planned route

green = flown route

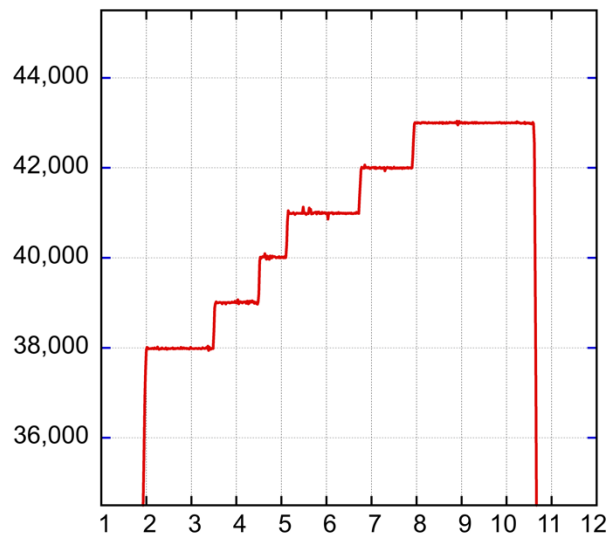


Flight notes:
No irregularities.

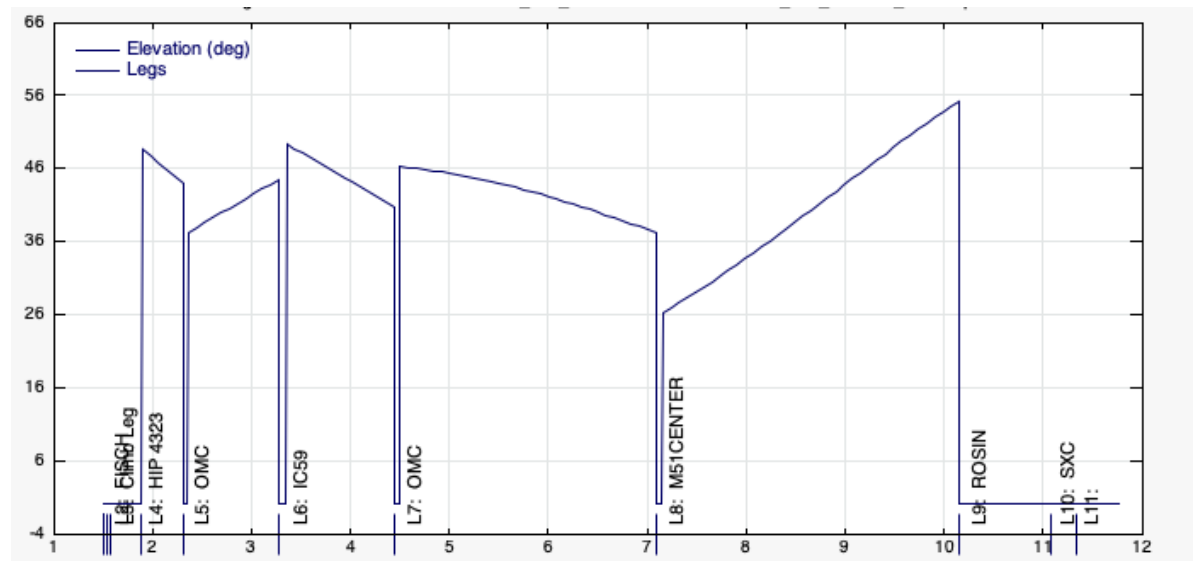
Flight 372 Mission ID 2017-02-09_GR_F372
 Palmdale to Palmdale Take off date UTC: 09-FEB-2017
 Departure UTC: 01:32 Arrival UTC: 11:04
 L1-LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 4323	00h55m19.55s	06d51m15.3s	1:59	25	
5	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	2:26	55	
6	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	3:26	65	First 10min of leg lost to clouds
7	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	4:35	155	Significant turbulence causing telescope to drop into standby often; 20min lost
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:14	180	

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



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



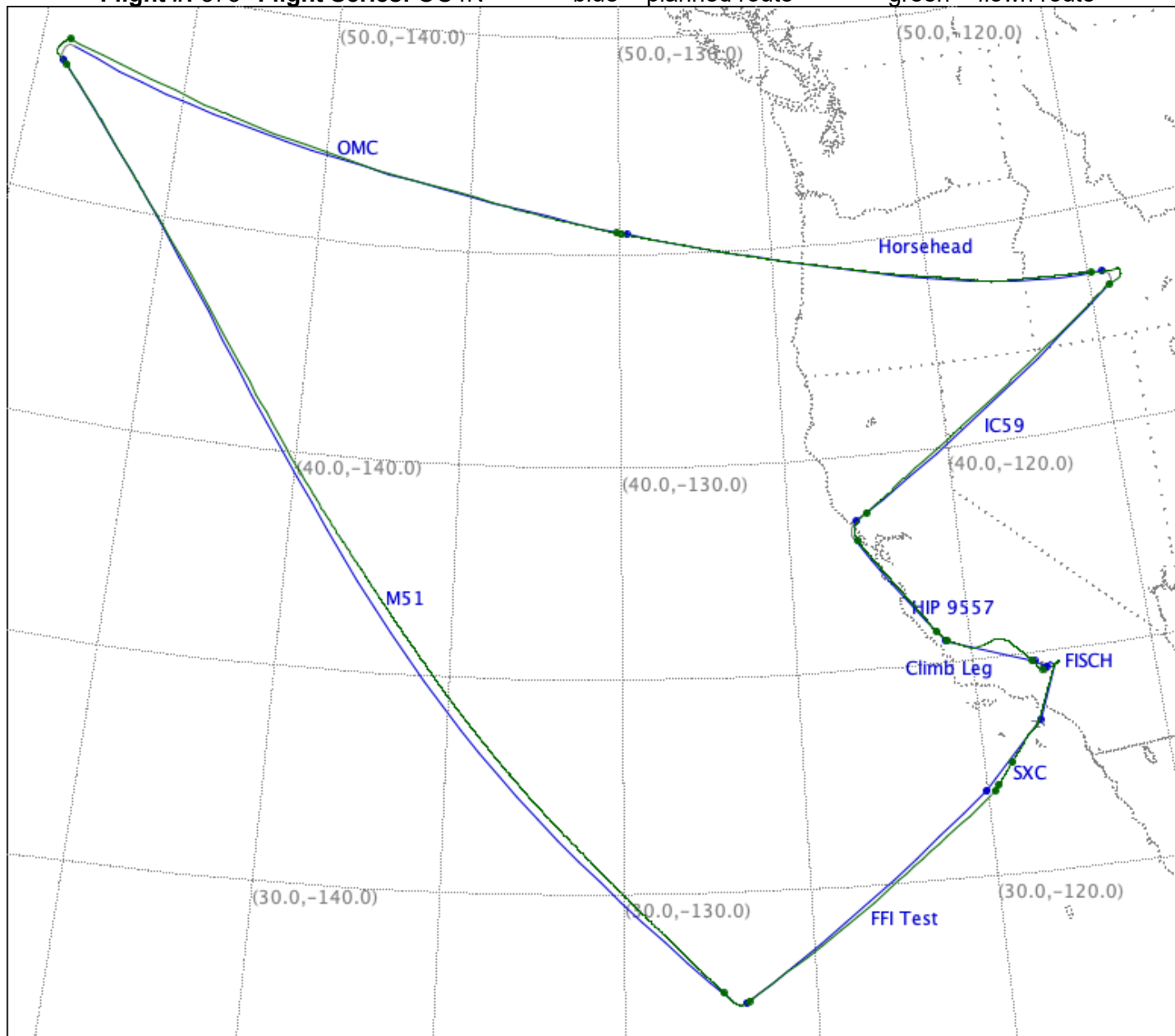
MISSION ID: 2017-02-10_GR_F373

Date: 2017-02-10 UT Instrument: GREAT

Flight #: 373 Flight Series: OC4N

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

Flight 373 Mission ID
Palmdale to
Palmdale

2017-02-10_GR_F373
Take off date UTC:
10-FEB-2017

Departure UTC: 01:48
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 9557	02h02m46.74s	01d56m17.8s	2:13	25	
5	05_0052	Andersson	IC59	00h57m22.31s	61d07m43.1s	2:40	49	Beginning and end of leg lost to clouds; only 10min of data taken
6	04_0057	Guevara	HORSEHEAD	05h40m54.27s	-02d28m00.0s	3:33	100	40min of leg lost to coulds
7	04_0066	Tielens	Orion Bar	05h35m20.90s	-05d25m04.8s	5:13	110	
8	04_0116	Pineda	M51CENTER	13h29m52.70s	47d11m42.9s	7:07	190	
9		engineering	TYC 3787-896	07h53m36.37s	54d58m17.9s	10:20	50	

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

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

