

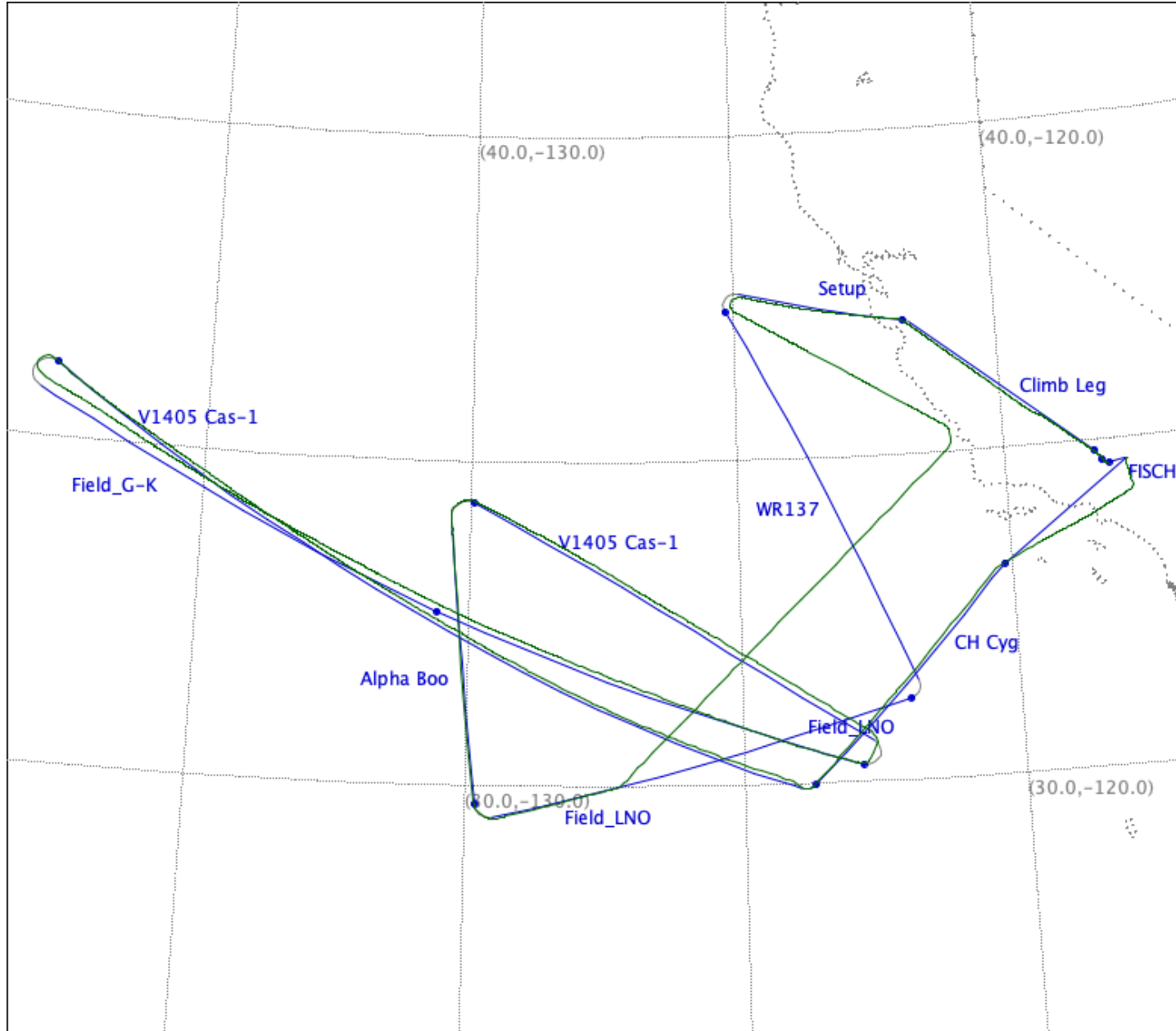
MISSION ID: 2021-07-07_FO_F755

Date: 2021-07-07 UT Instrument: FORCAST

Flight #: 755 Flight Series: OC9A

blue = planned route

green = flown route



Flight notes:

Some losses due to unscheduled air traffic control (ATC) rerouting.

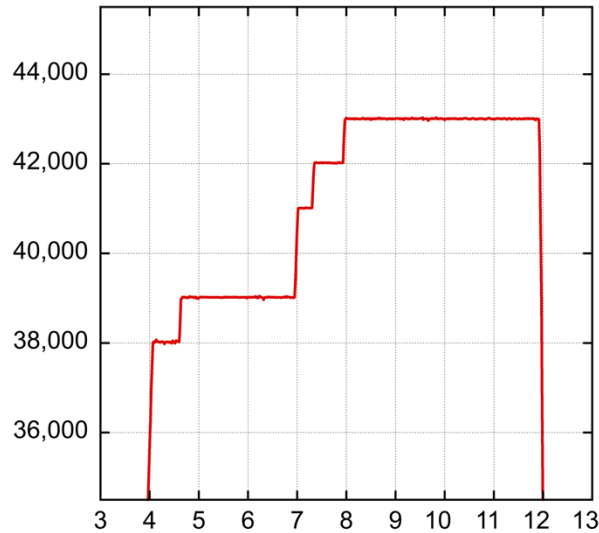
Flight 755
Palmdale to
Palmdale

Mission ID 2021-07-07_FO_F755
Take off date UTC:
07-JUL-2021

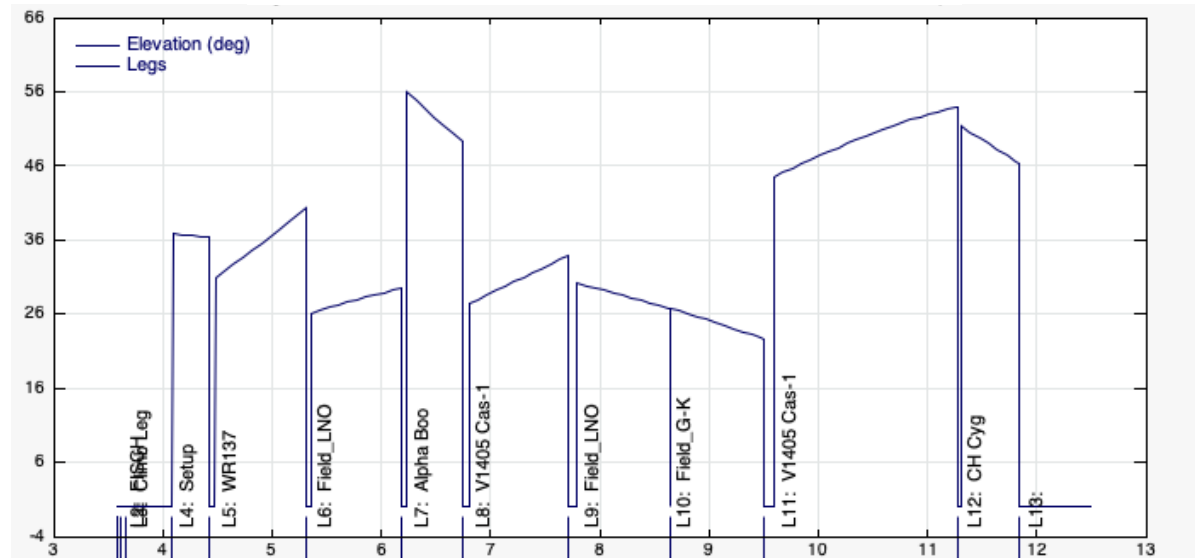
Departure UTC: 03:34
Arrival UTC: 12:23

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	14h50m52.71s	-16d02m30.4s	4:05	20	
5	09_0163	Richardson	WR137	20h14m31.77s	36d39m39.6s	4:29	50	Air Traffic Control reroute, no target acquired.
6	09_0216	Hankins	Galactic Center	17h44m24.93s	-29d25m54.5s	5:21	50	Air Traffic Control reroute, on target briefly at end of scheduled leg.
7	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	6:14	30.2	
8	08_0006	Gehrz	V1405 Cas	23h24m47.60s	61d11m14.8s	6:48	55	
9	09_0216	Hankins	Galactic Center	17h44m24.93s	-29d25m54.5s	7:47	51	
10	09_0216	Hankins	Galactic Center	17h44m58.70s	-29d14m36.4s	8:38	52	
11	08_0006	Gehrz	V1405 Cas	23h24m47.60s	61d11m14.8s	9:36	101	
12	08_0192	Sankrit	CH Cyg	19h24m33.07s	50d14m29.1s	11:18	32	

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



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



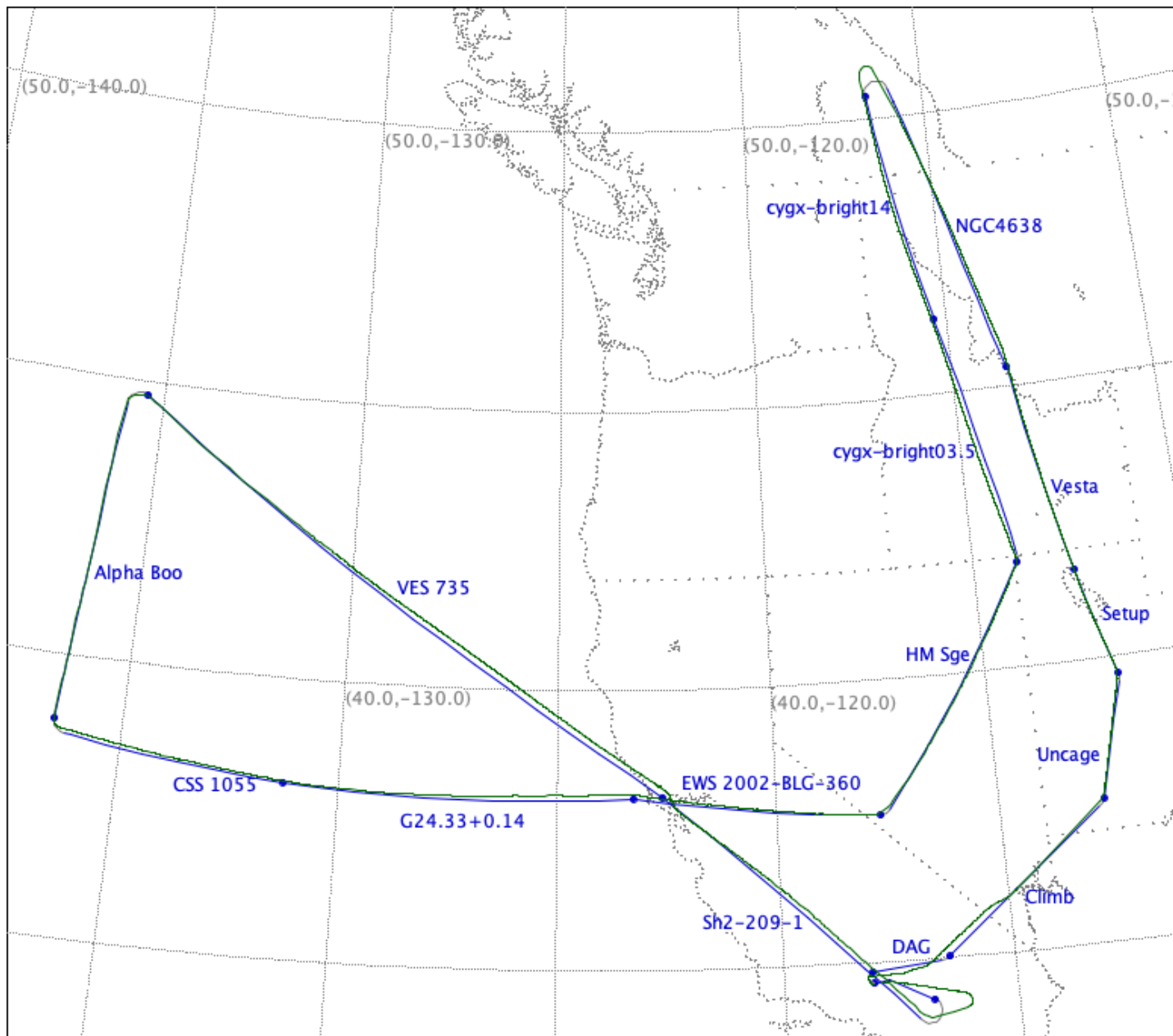
MISSION ID: 2021-07-08_FO_F756

Date: 2021-07-08 UT **Instrument:** FORCAST

Flight #: 756 **Flight Series:** OC9A

blue = planned route

green = flown route



Flight notes: No irregularities.

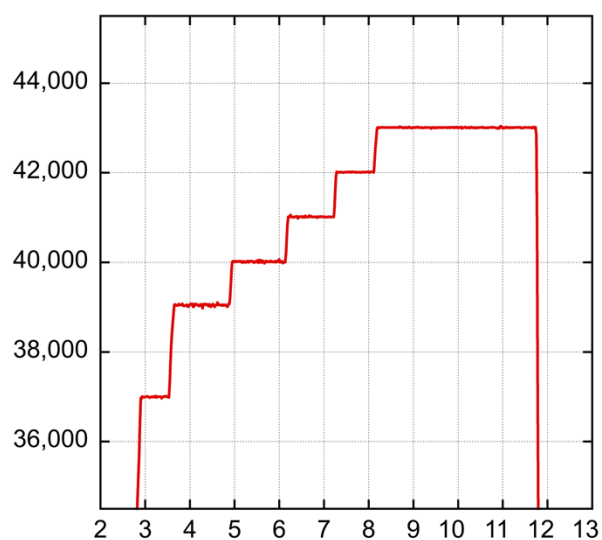
Flight 756
Palmdale to
Palmdale

Mission ID 2021-07-08_FO_F756
Take off date UTC:
08-JUL-2021

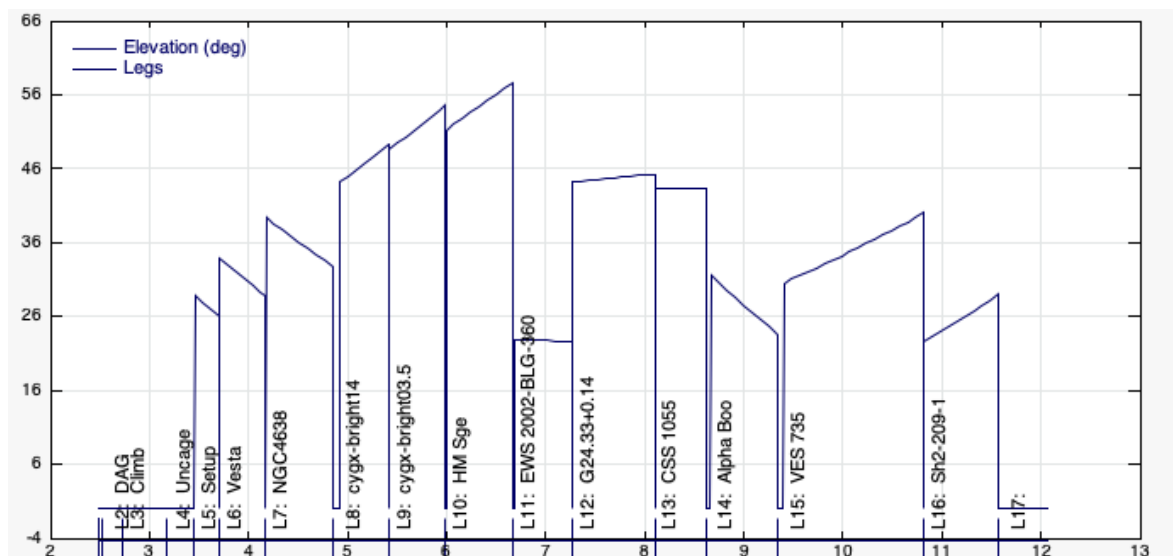
Departure UTC: 02:23
Arrival UTC: 12:05

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	11h27m56.24s	02d51m22.6s	3:27	15	
6	90_0050	Calibration	4 Vesta	11h52m49.21s	08d02m02.6s	3:42	28	
7	08_0014	Lopez-Rodriguez	NGC4638	12h42m47.42s	11d26m33.0s	4:10	40	Bright skies and dim guide stars led to poor pointing stability.
8	08_0181	Gutermuth	Cygnus X	20h23m23.00s	37d35m25.0s	4:55	30.3	
9	08_0181	Gutermuth	Cygnus X	20h27m20.00s	37d22m54.0s	5:25	33	
10	75_0057	Discretionary	HM Sge	19h41m57.08s	16d44m39.9s	5:59	40	
11	09_0088	Menten	EWS 2002-BLG-360	17h57m38.99s	-29d46m05.2s	6:41	35	
12	08_0163	Stecklum	G24.33+0.14	18h35m08.14s	-07d35m04.1s	7:16	50	
13	09_0046	Kraemer	CSS 1055	18h32m44.34s	-09d29m10.4s	8:06	31	
14	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	8:39	41	
15	08_0245	Marshall	VES 735	02h20m07.17s	61d07m05.5s	9:24	85	Intermittent light turbulence.
16	08_0119	Lau	Sh2-209	04h11m09.00s	51d09m54.9s	10:49	45	

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



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



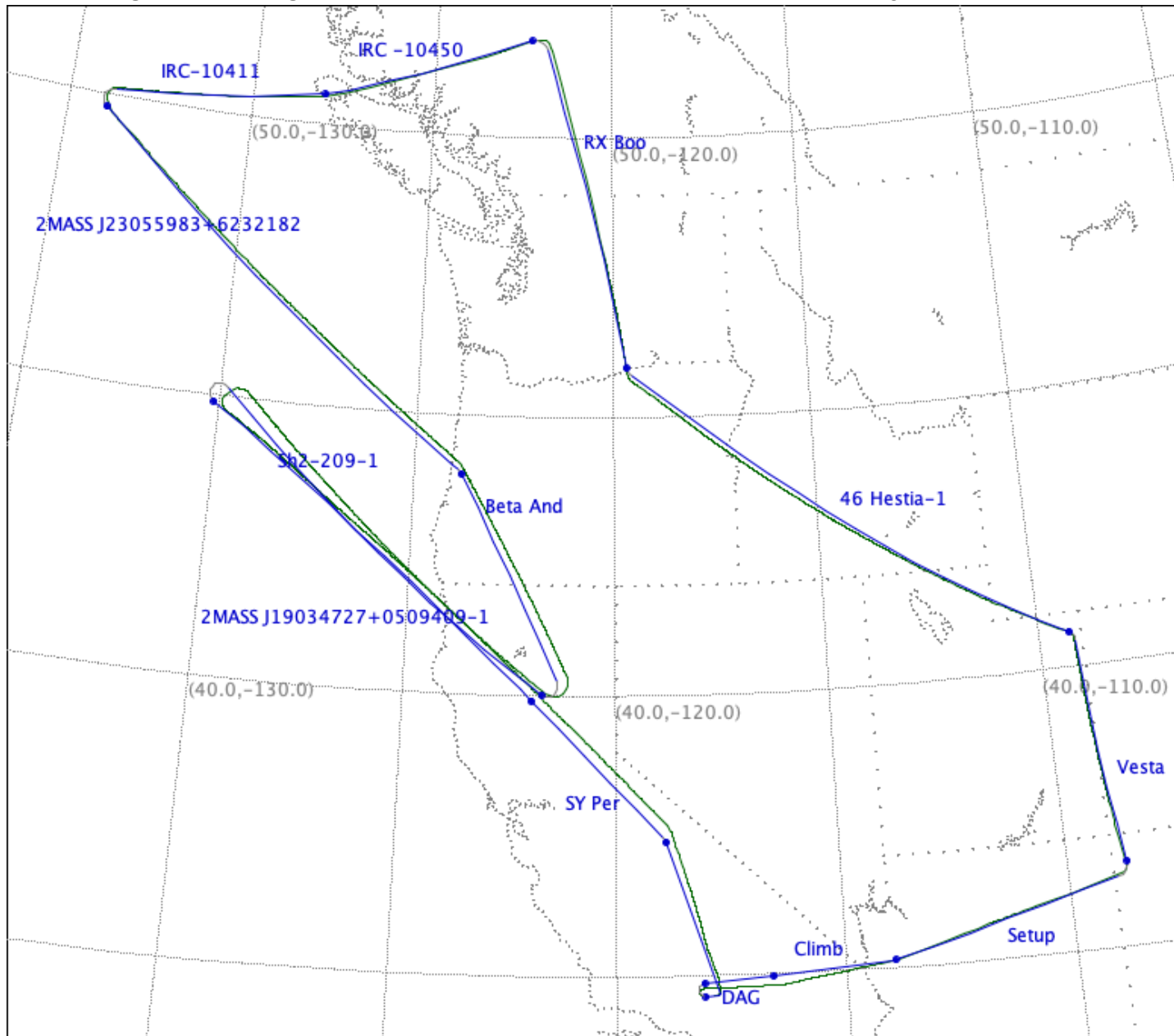
MISSION ID: 2021-07-09_FO_F757

Date: 2021-07-09 UT Instrument: FORCAST

Flight #: 757 Flight Series: OC9A

blue = planned route

green = flown route



Flight notes: No irregularities.

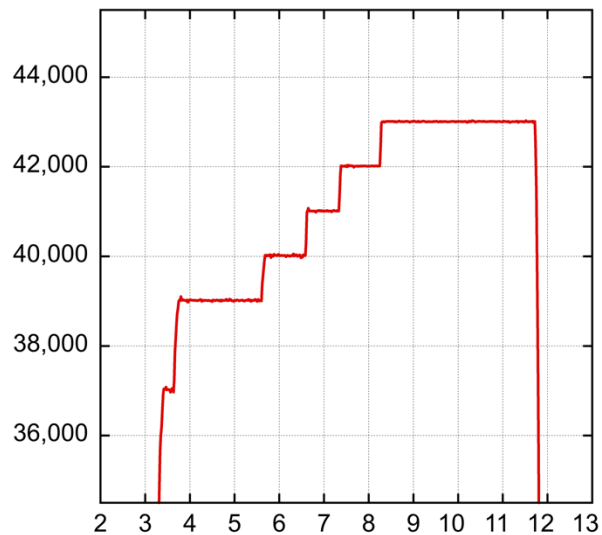
Flight 757
Palmdale to
Palmdale

Mission ID 2021-07-09_FO_F757
Take off date UTC:
09-JUL-2021

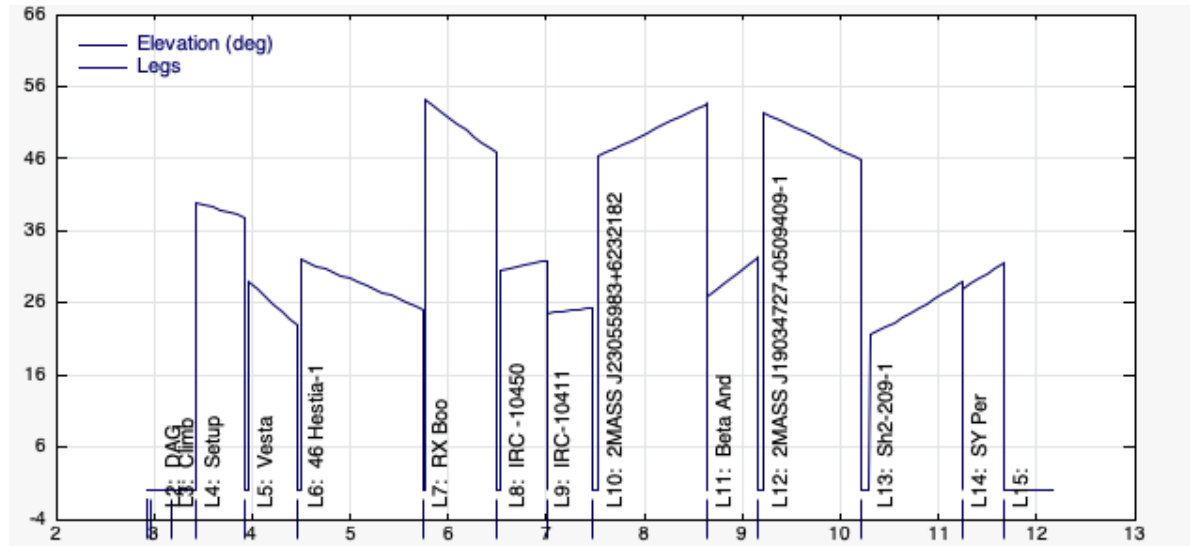
Departure UTC: 02:54
Arrival UTC: 12:14

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	10h35m05.48s	75d42m46.6s	3:26	30	Clouds.
5	90_0050	Calibration	4 Vesta	11h54m13.82s	07d50m38.1s	3:58	30	
6	08_0105	Humes	46 Hestia	15h01m41.06s	-14d10m38.2s	4:30	75	
7	08_0192	Sankrit	RX Boo	14h24m11.62s	25d42m13.4s	5:46	43.6	
8	09_0046	Kraemer	IRC -10450	18h40m13.50s	-05d42m11.3s	6:32	28	
9	09_0046	Kraemer	IRC-10411	18h20m23.81s	-14d06m46.9s	7:00	28	
10	09_0006	Karnath	2MASS J23055983+6232182	23h05m59.84s	62d32m18.2s	7:32	66	
11	90_0064	Calibration	Beta And	01h09m43.92s	35d37m14.0s	8:38	30.5	
12	08_0245	Marshall	2MASS J19034727+0509409	19h03m47.27s	05d09m41.0s	9:13	60	
13	08_0119	Lau	Sh2-209	04h11m09.00s	51d09m54.9s	10:18	57	
14	09_0145	Sloan	SY Per	04h16m33.19s	50d37m34.6s	11:15	25	

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



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



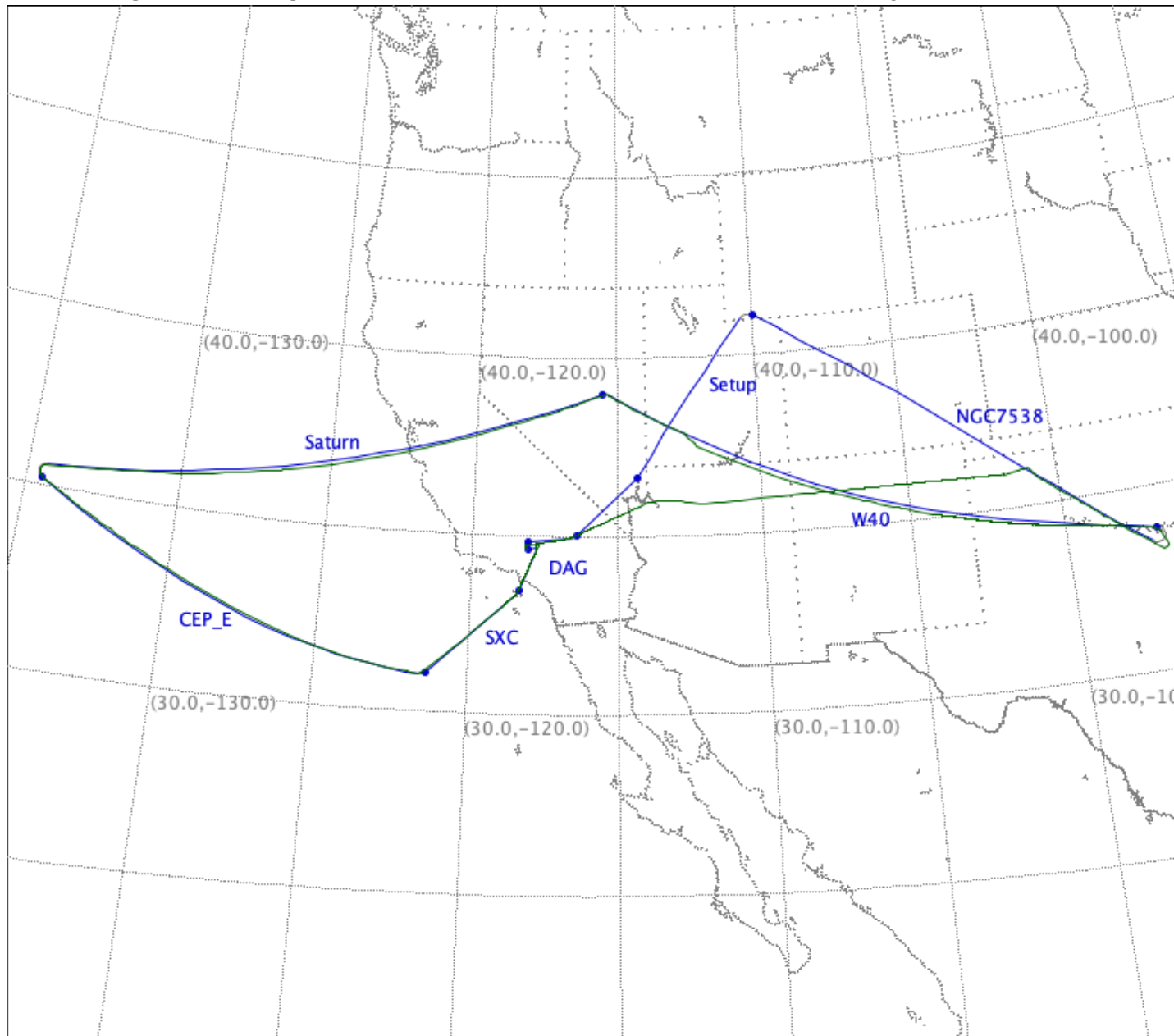
MISSION ID: 2021-07-14_GR_F758

Date: 2021-07-14 UT Instrument: GREAT

Flight #: 758 Flight Series: OC9B

blue = planned route

green = flown route



Flight notes:

Late departure, storms enroute

Flight 758
Palmdale to
Palmdale

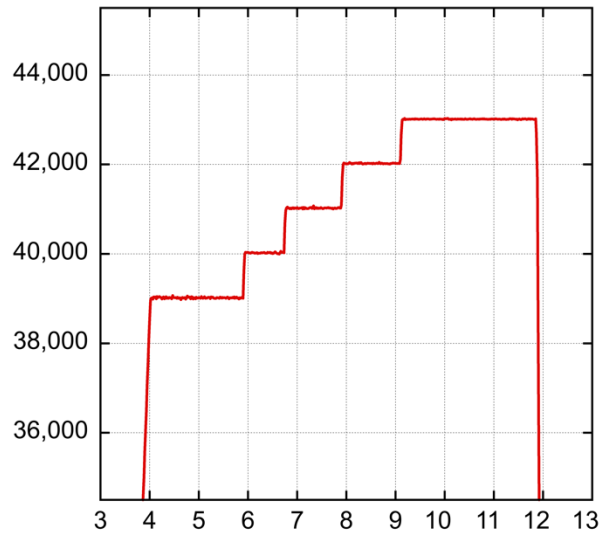
Mission ID 2021-07-14_GR_F758
Take off date UTC:
14-JUL-2021

Departure UTC: 03:28
Arrival UTC: 12:22

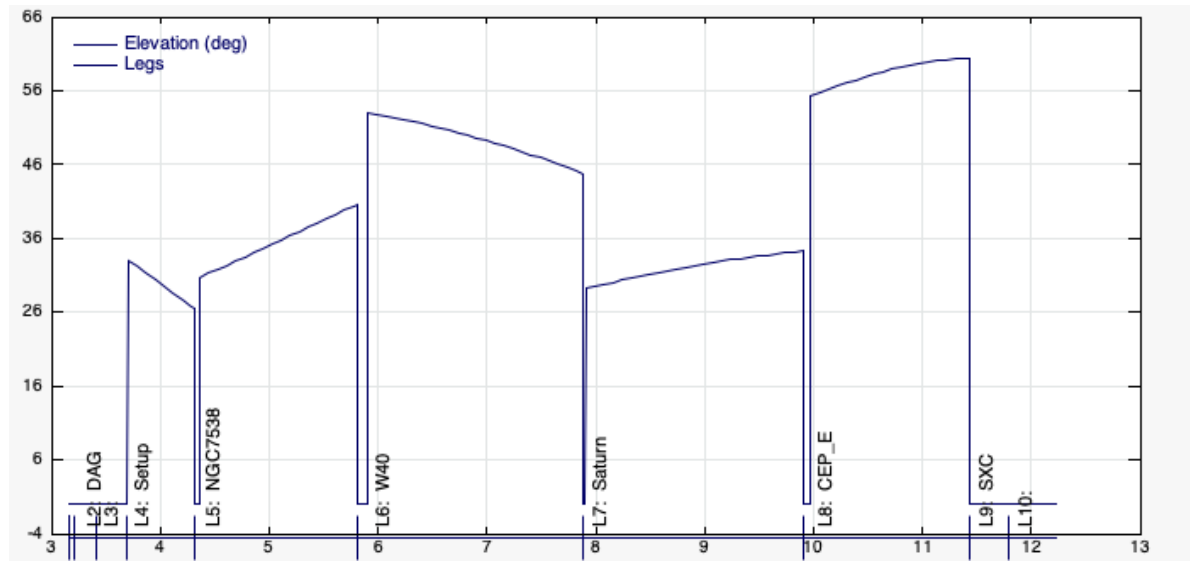
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	10h33m13.89s	40d25m32.0s	3:41	37	
5	09_0096	Guevara	NGC7538	23h13m09.60s	61d28m06.5s	4:21	87	Leg partially flown due to late takeoff
6	09_0096	Guevara	W40	18h31m25.23s	-02d04m21.6s	5:54	119	
7	90_0008	Calibration	Saturn	20h55m40.81s	-18d07m09.1s	7:54	120	
8	09_0135	Gusdorf	CEP E	23h03m12.78s	61d42m25.8s	9:58	88	

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



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

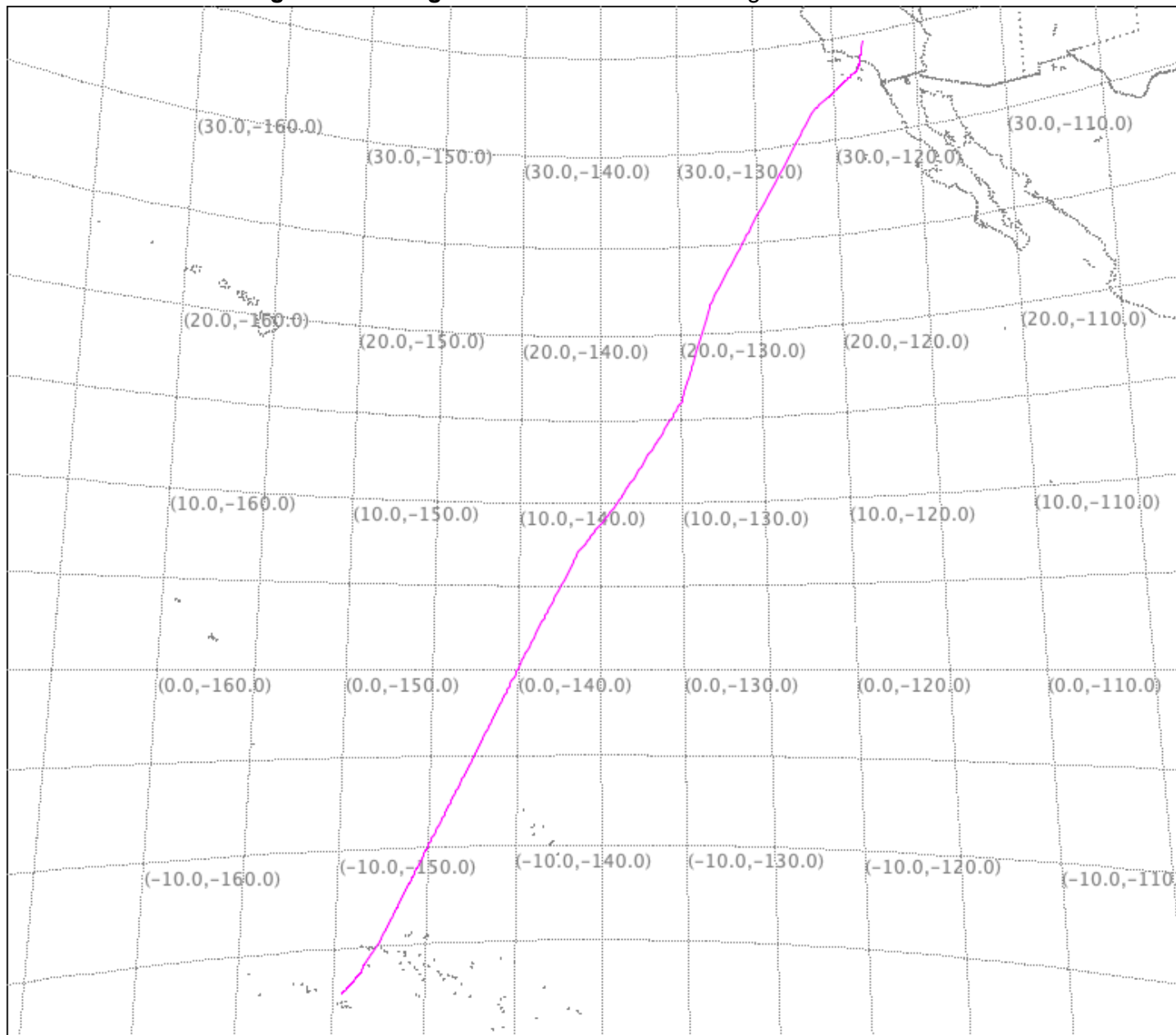


MISSION ID: 2021-07-19_GR_F759

Date: 2021-07-19 UT Instrument: GREAT

Flight #: 759 Flight Series: n/a

magenta = flown route



Flight notes:

Ferry Flight from Palmdale, CA to Papeete, Tahiti (no science planned)

Flight 759
Palmdale to
Papeete

Mission ID 2021-07-19_GR_F759
Take off date UTC:
19-JUL-2021

Departure UTC: 15:57
Arrival UTC: 23:42

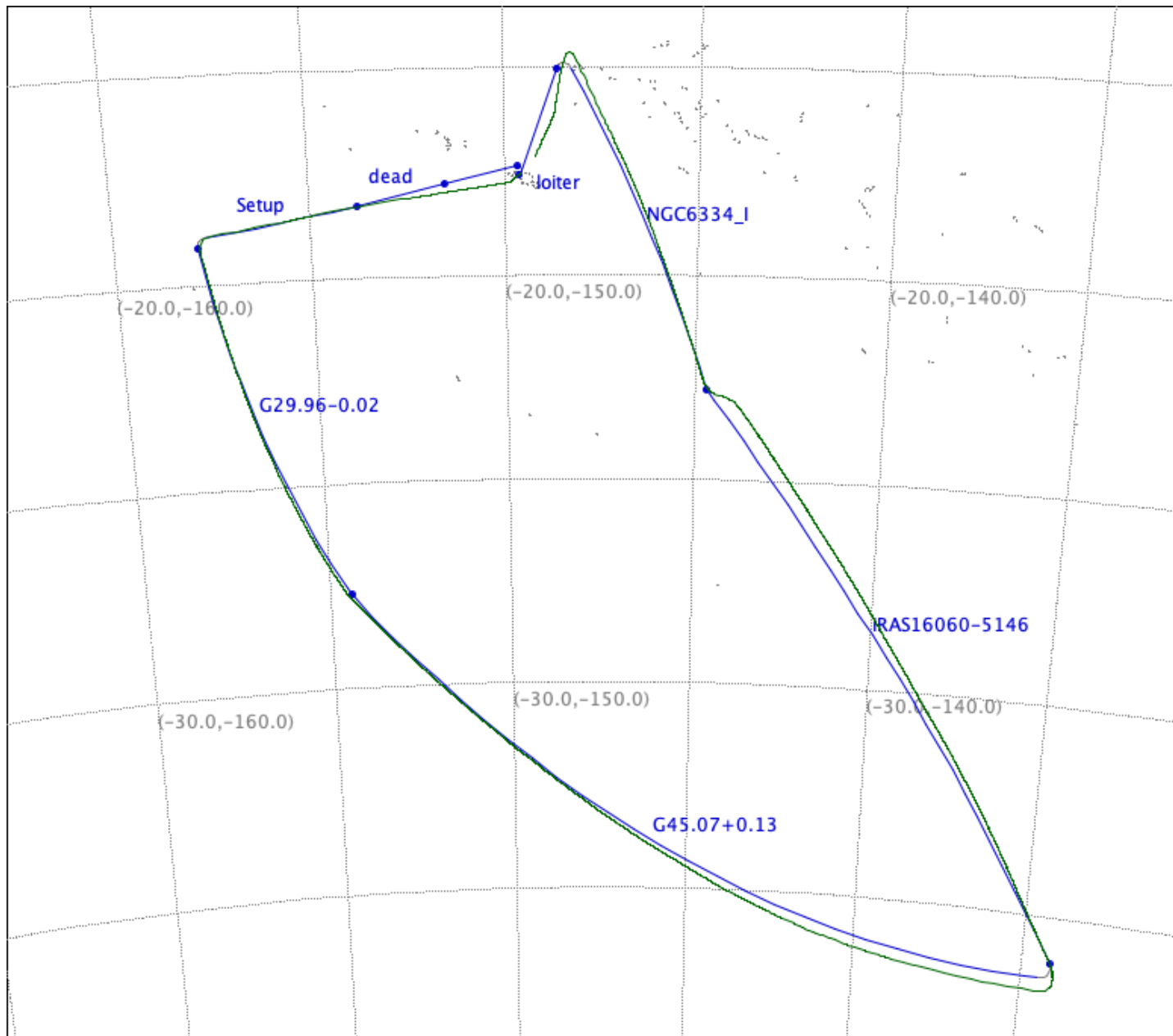
MISSION ID: 2021-07-19_GR_F760

Date: 2021-07-19 UT Instrument: GREAT

Flight #: 760 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: HFA local oscillator stopped working during flight

Flight 760
Papeete to
Papeete

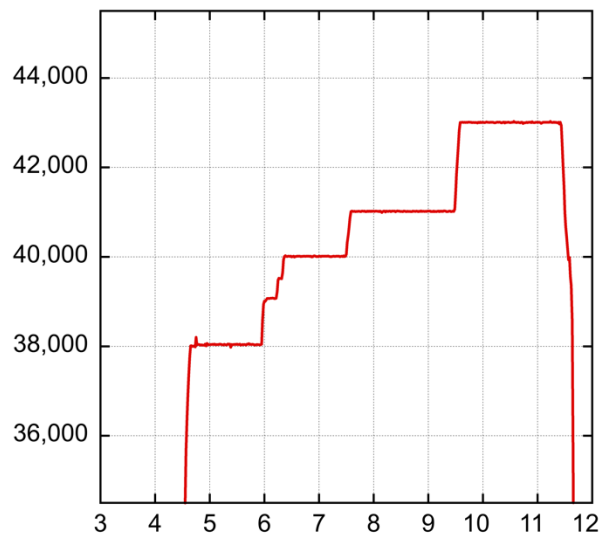
Mission ID 2021-07-24_IN_F760
Take off date UTC:
24-JUL-2021

Departure UTC: 03:49
Arrival UTC: 12:01

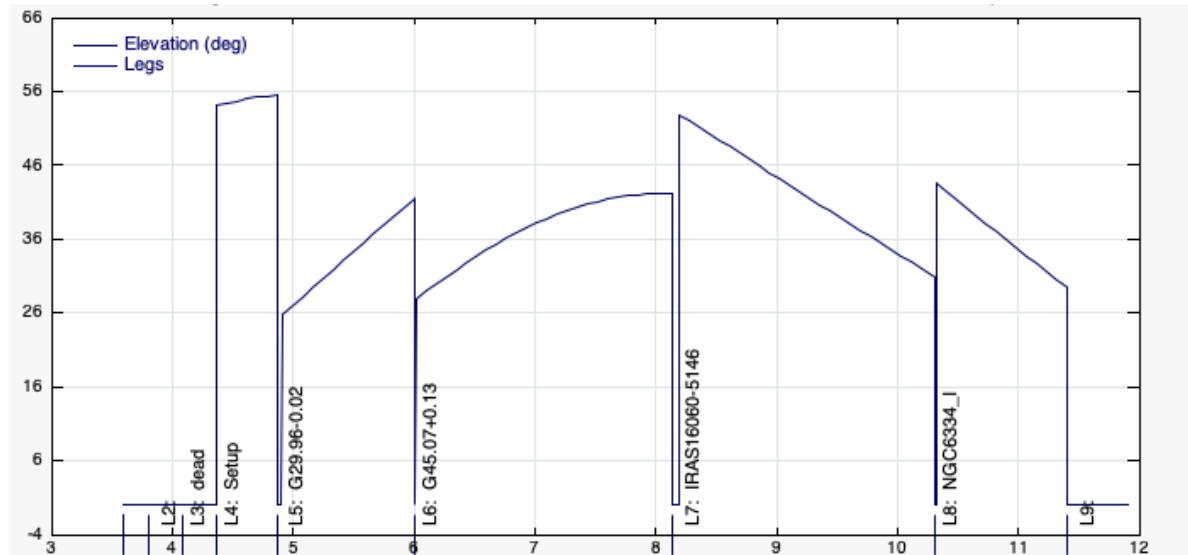
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h12m17.09s	-52d05m57.3s	4:22	30	
5	08_0038	Neufeld	G29.96-0.02	18h46m03.72s	-02d39m21.2s	4:55	66	HFA stopped working, lost 3/4 of leg
6	08_0038	Neufeld	G45.07+0.13	19h13m22.00s	10d50m54.0s	6:01	127	No HFA
7	08_0038	Neufeld	IRAS16060-5146	16h09m52.41s	-51d54m58.5s	8:12	127	No HFA
8	08_0038	Neufeld	NGC6334_I	17h20m53.35s	-35d47m01.5s	10:19	65	No HFA

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



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



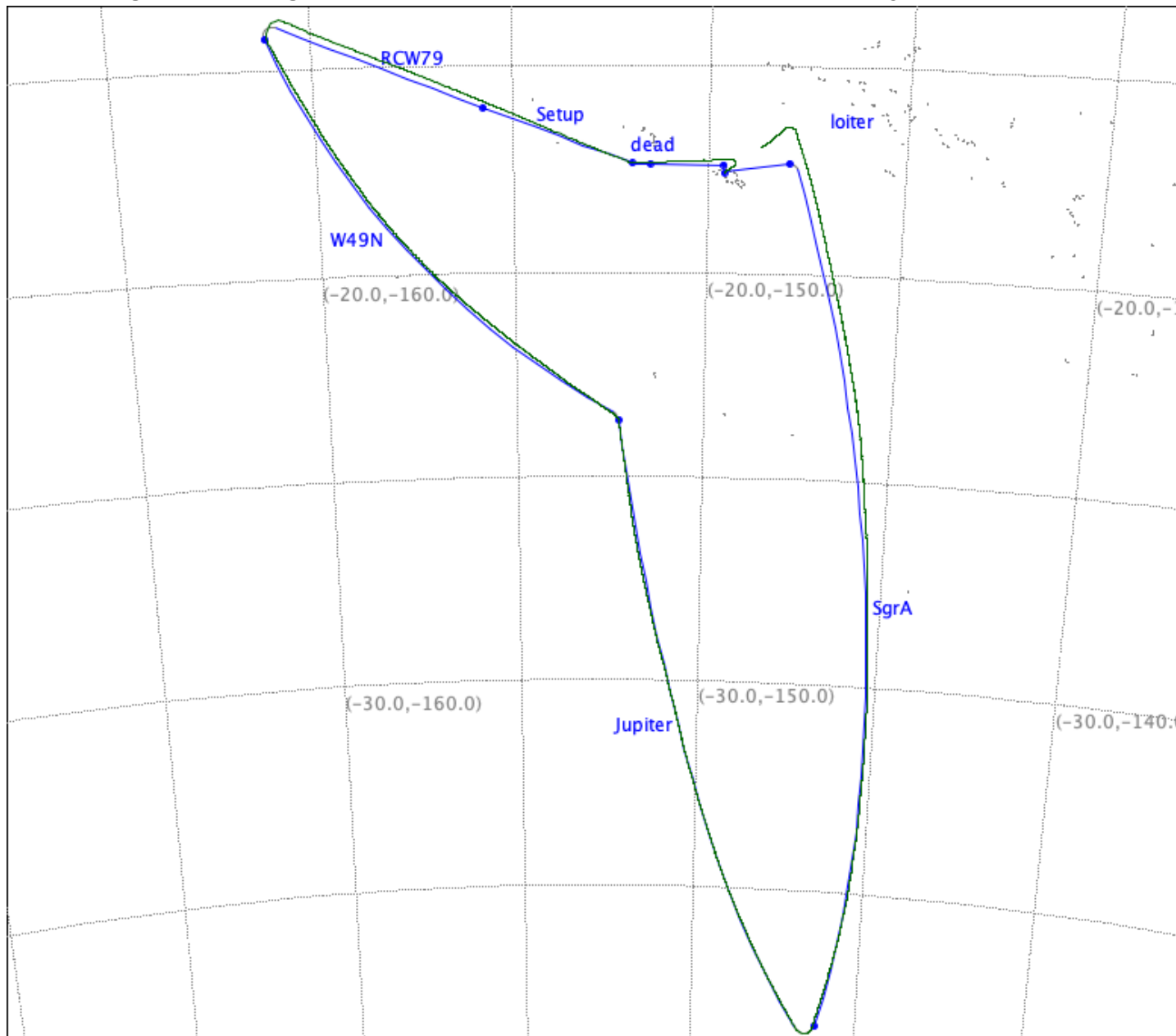
MISSION ID: 2021-07-26_GR_F761

Date: 2021-07-26 UT Instrument: GREAT

Flight #: 761 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 761
Papeete to
Papeete

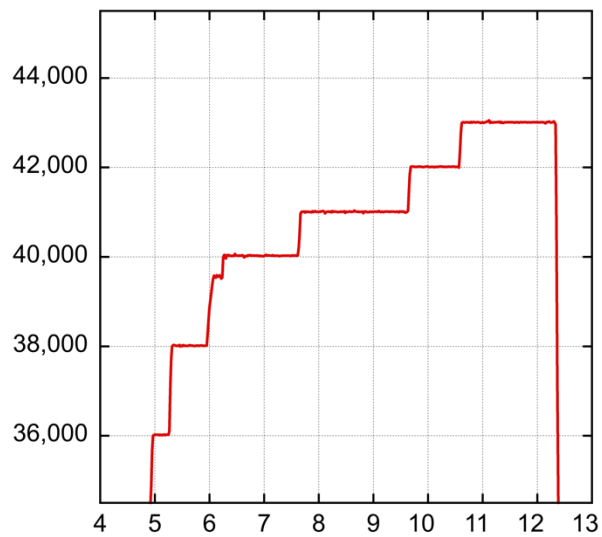
Mission ID 2021-07-26_GR_F761
Take off date UTC:
26-JUL-2021

Departure UTC: 04:30
Arrival UTC: 12:49

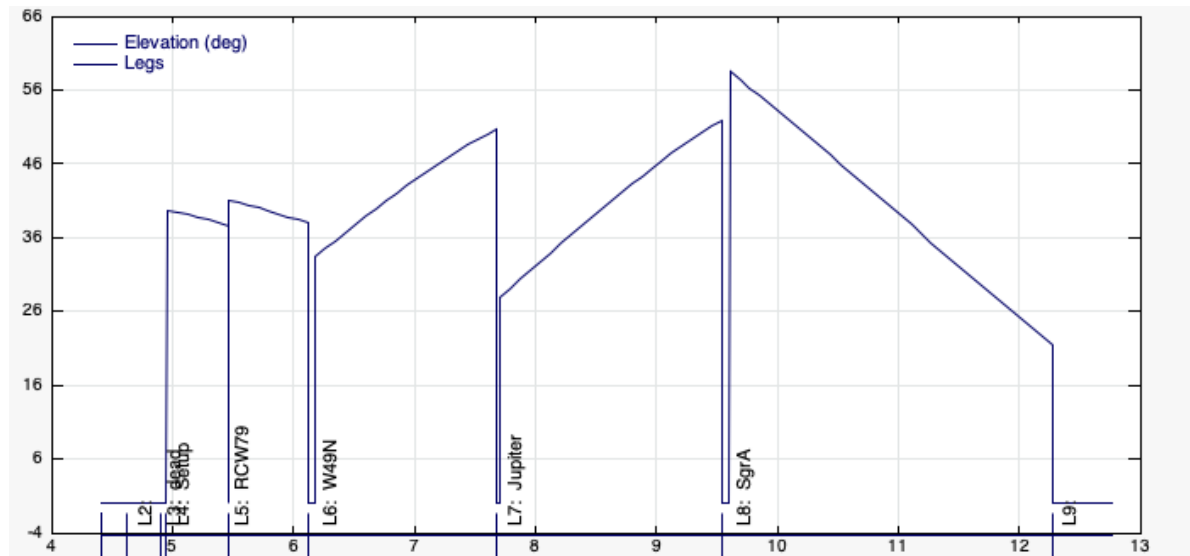
Consortium flight
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	13h24m00.48s	-64d32m08.4s	4:57	30	
5	83_0905	GREAT Consortium	RCW79	13h40m26.42s	-61d38m01.1s	5:27	40	
6	83_0902	GREAT Consortium	W49N	19h10m13.20s	09d06m12.0s	6:11	90	
7	83_0903	GREAT Consortium	Jupiter	22h09m41.54s	-12d32m27.3s	7:43	110	~5 degrees from full moon
8	83_0907	GREAT Consortium	SgrA	17h45m40.04s	-29d00m28.1s	9:36	160	

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



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



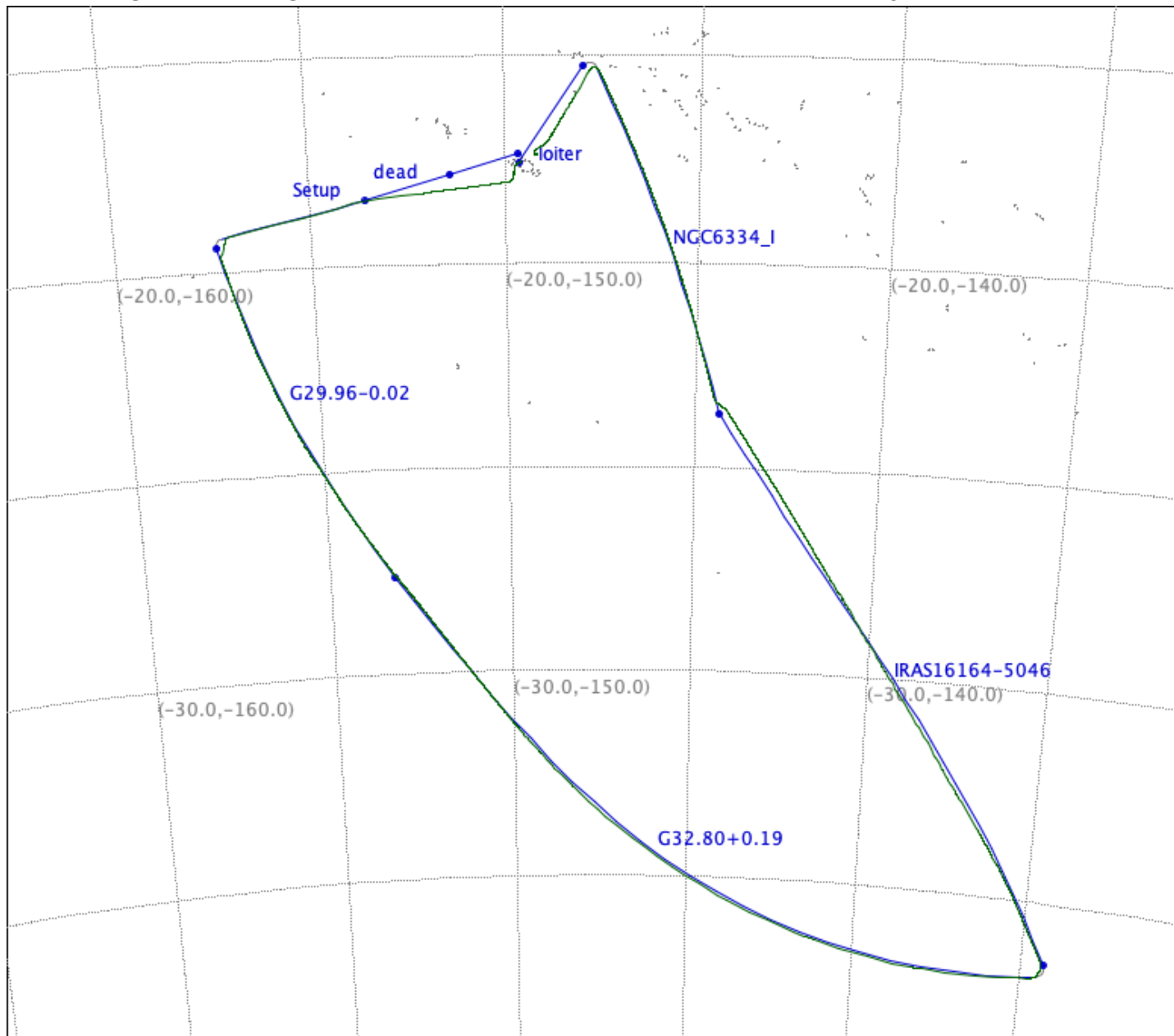
MISSION ID: 2021-07-27_GR_F762

Date: 2021-07-27 UT Instrument: GREAT

Flight #: 762 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 762
Papeete to
Papeete

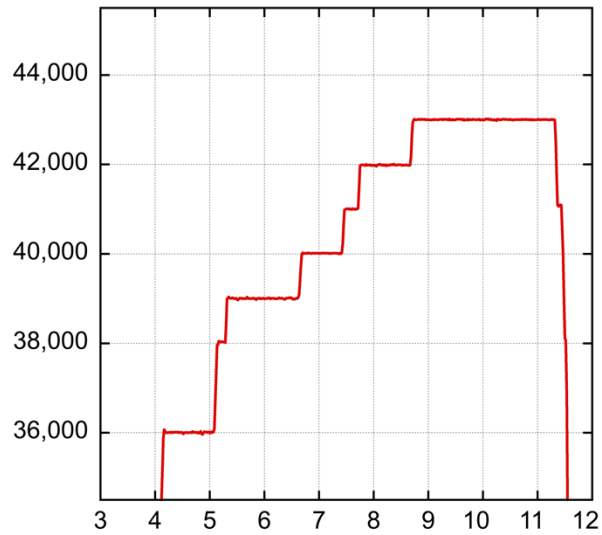
Mission ID 2021-07-27_GR_F762
Take off date UTC:
27-JUL-2021

Departure UTC: 03:42
Arrival UTC: 11:53

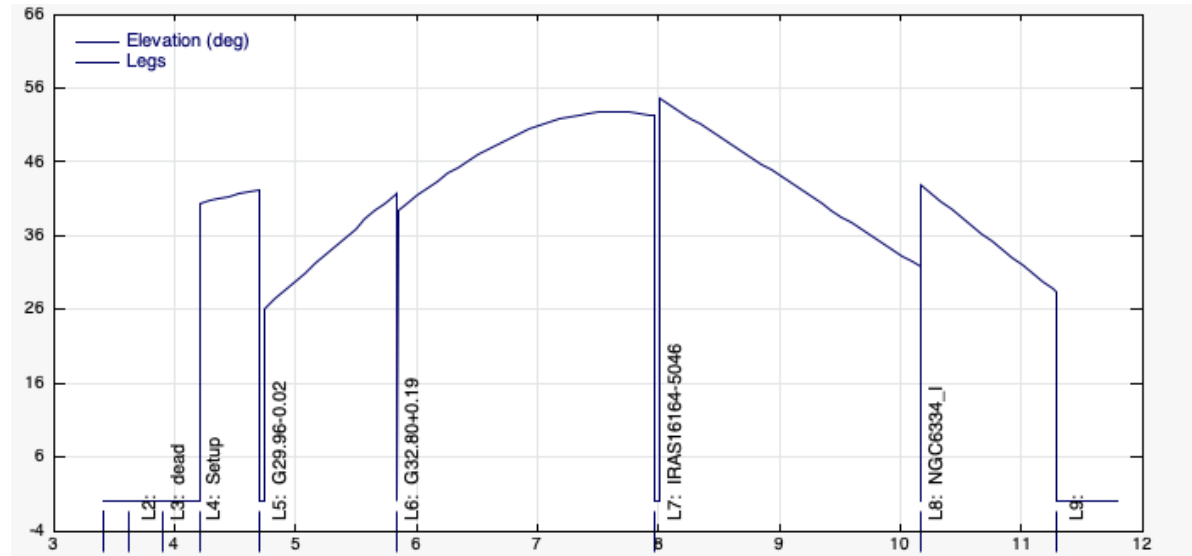
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h15m26.27s	-63d41m08.5s	4:12	30	
5	08_0038	Neufeld	G29.96-0.02	18h46m03.72s	-02d39m21.2s	4:45	66	10 minutes lost due to the telescope door being closed when plane flew through cirrus clouds.
6	08_0038	Neufeld	G32.80+0.19	18h50m30.63s	-00d02m00.0s	5:51	127	
7	08_0038	Neufeld	IRAS16164-5046	16h20m11.90s	-50d53m17.0s	8:01	129	
8	08_0038	Neufeld	NGC6334_I	17h20m53.35s	-35d47m01.5s	10:10	67	

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



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



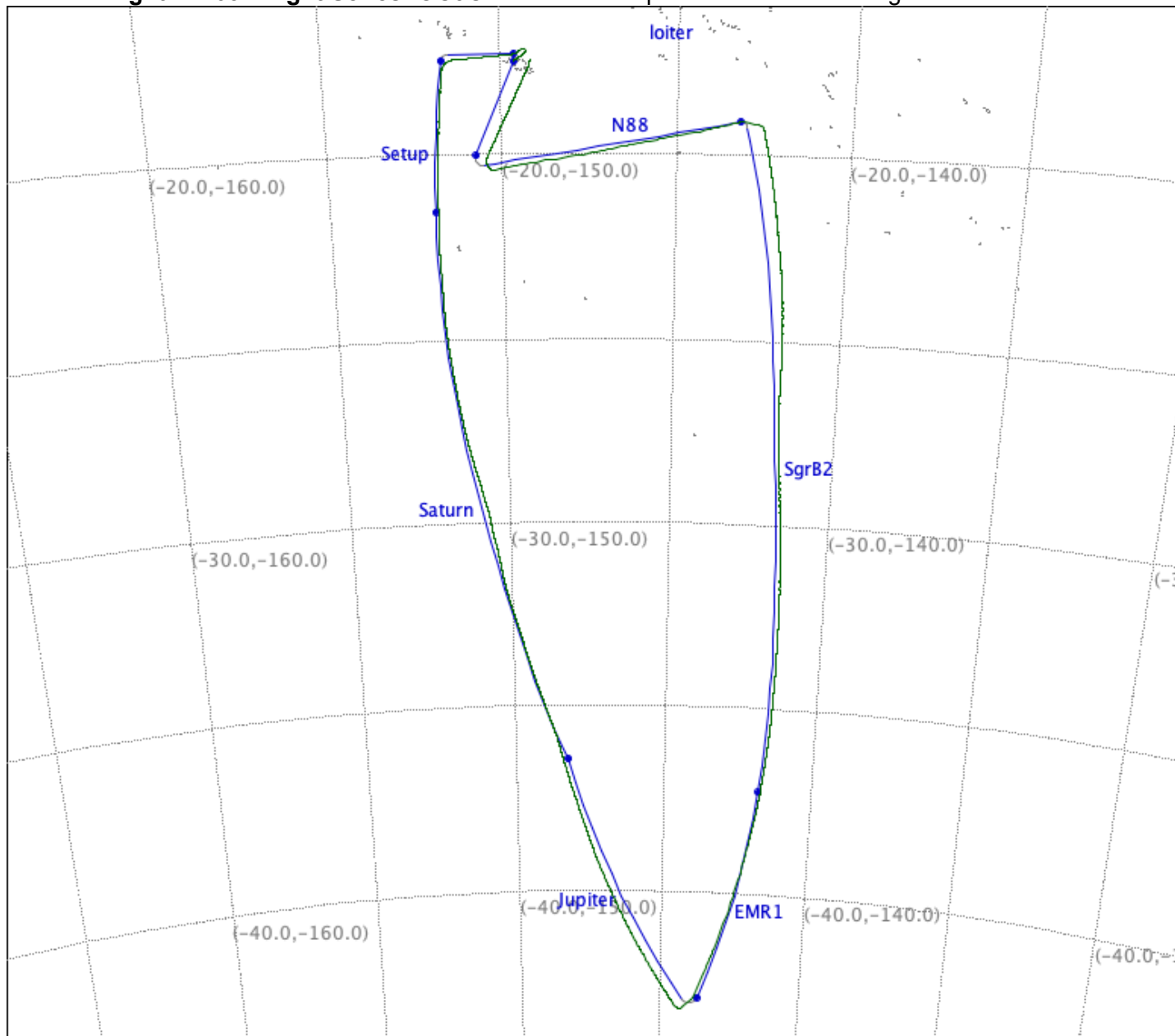
MISSION ID: 2021-07-31_GR_F763

Date: 2021-07-31 UT Instrument: GREAT

Flight #: 763 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 763
Papeete to
Papeete

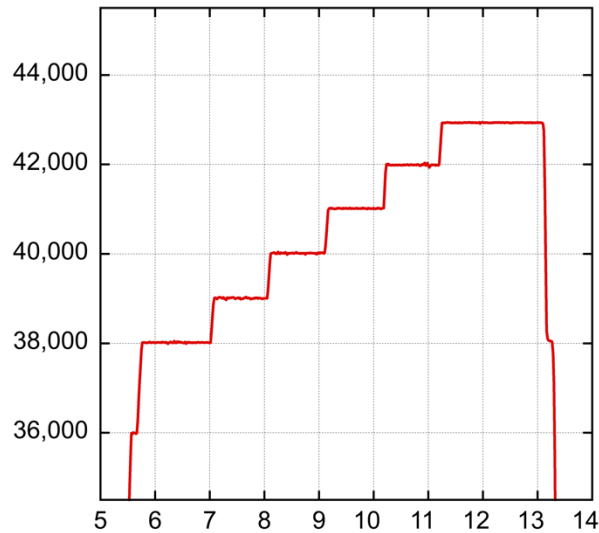
Mission ID 2021-07-31_GR_F763
Take off date UTC:
31-JUL-2021

Departure UTC: 05:08
Arrival UTC: 13:45

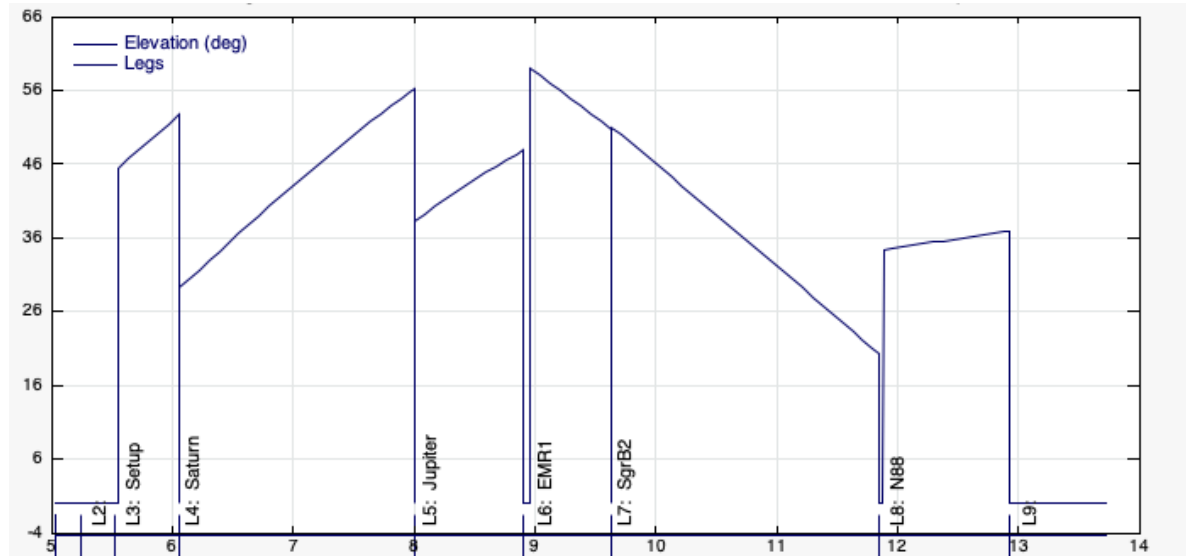
Consortium flight
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	19h09m45.83s	-21d01m25.0s	5:33	30	
4	90_0008	Calibration	Saturn	20h50m46.20s	-18d28m45.4s	6:03	117	
5	90_0008	Calibration	Jupiter	22h07m37.39s	-12d44m57.5s	8:00	54	
6	83_0911	GREAT Consortium	EMR1	17h46m55.57s	-27d52m21.2s	8:58	40	
7	83_0901	GREAT Consortium	SgrB2	17h47m20.49s	-28d23m06.0s	9:38	133	Turbulence at 10:55UT caused telescope to go into standby; 10 min loss
8	83_0713	GREAT Consortium	N88	01h24m08.10s	-73d09m04.5s	11:53	63	

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



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



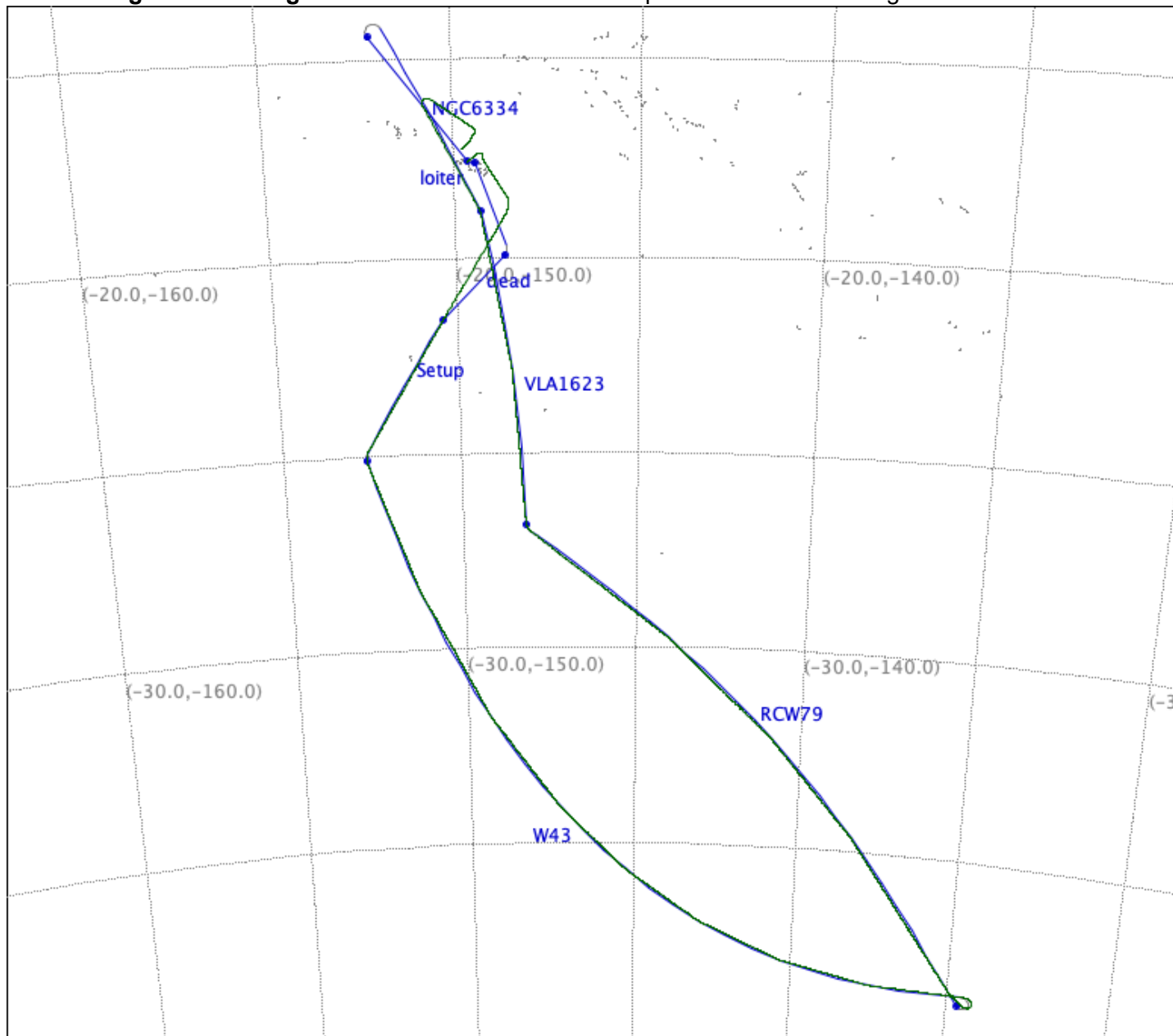
MISSION ID: 2021-08-01_GR_F764

Date: 2021-08-01 UT Instrument: GREAT

Flight #: 764 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 764
Papeete to
Papeete

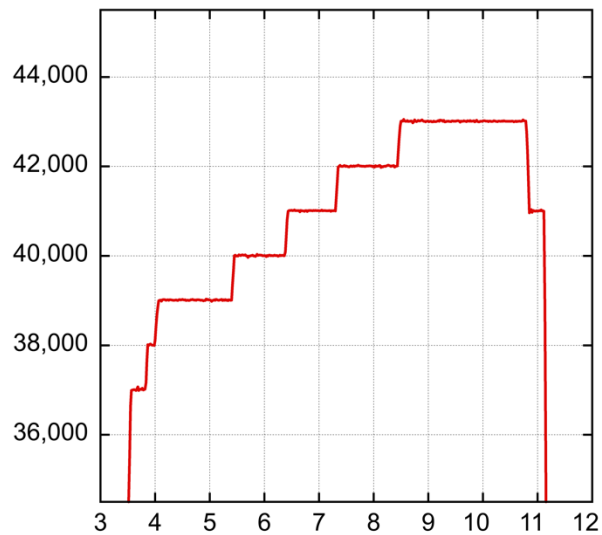
Mission ID 2021-08-01_GR_F764
Take off date UTC:
01-AUG-2021

Departure UTC: 03:03
Arrival UTC: 11:32

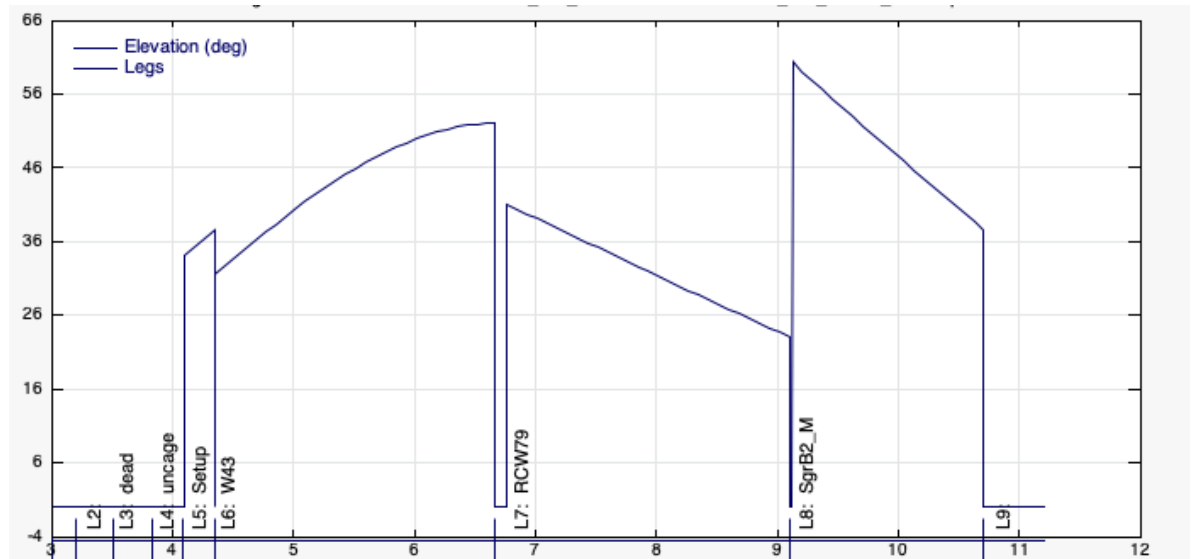
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	18h21m18.60s	-02d53m55.8s	4:06	15	
6	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:21	139	A few minutes were lost to turbulence which caused the telescope to lose tracking.
7	07_0077	Tielens	RCW79	13h40m08.57s	-61d42m00.6s	6:46	140	
8	09_0189	Giesen	SgrB2_M	17h47m20.50s	-28d23m06.0s	9:07	95	

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



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



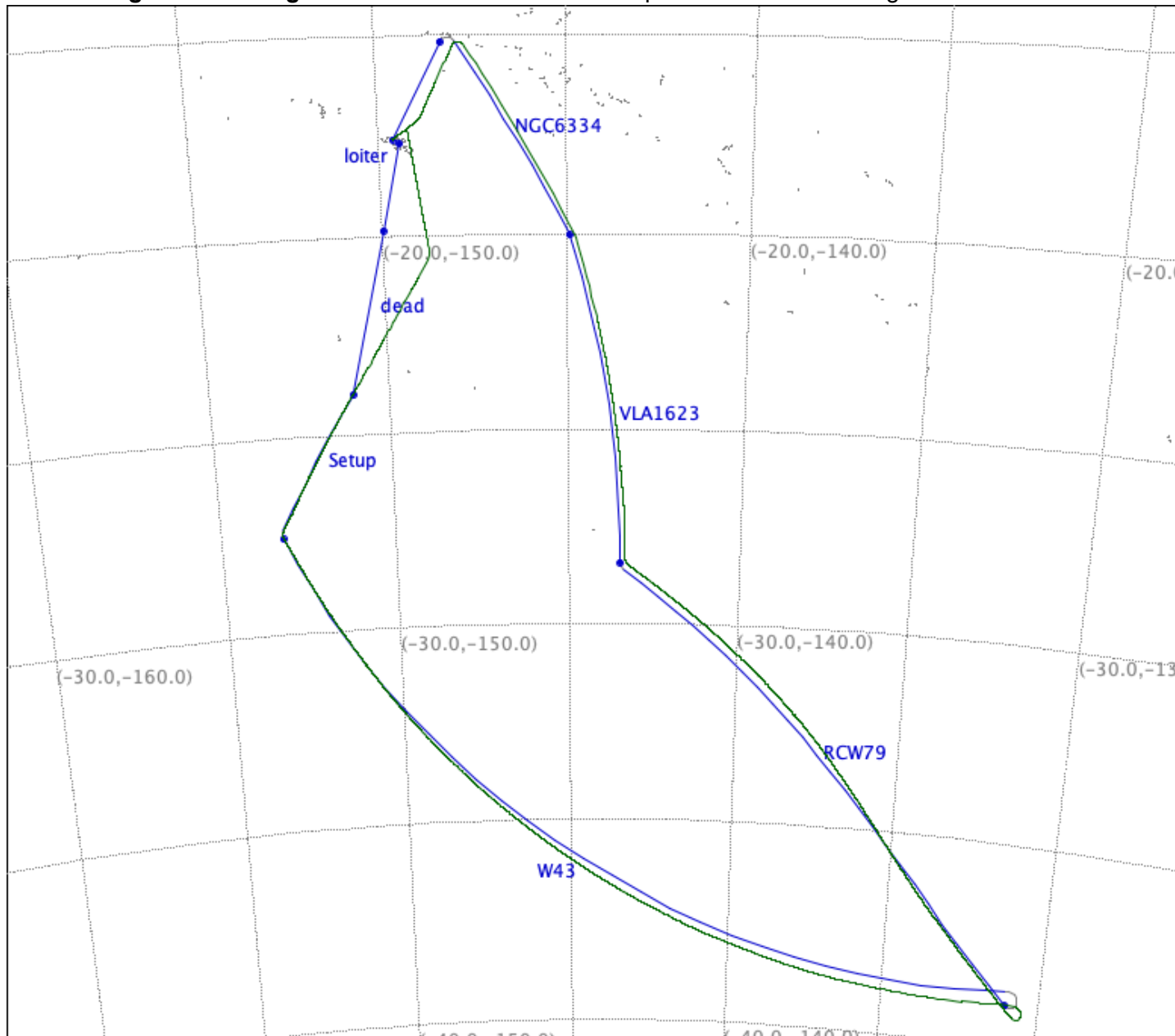
MISSION ID: 2021-08-02_GR_F765

Date: 2021-08-02 UT Instrument: GREAT

Flight #: 765 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes:
High altitude cloud cover prevented data collection on all legs.

Flight 765
 Papeete to
 Papeete

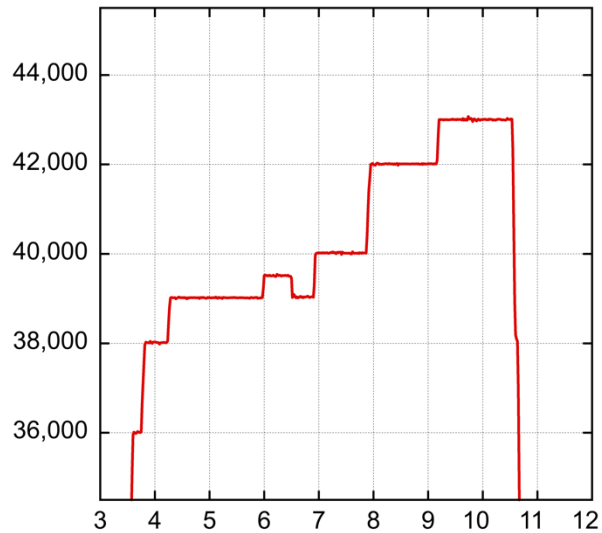
Mission ID 2021-08-02_GR_F765
 Take off date UTC:
 02-AUG-2021

Departure UTC: 03:09
 Arrival UTC: 11:12

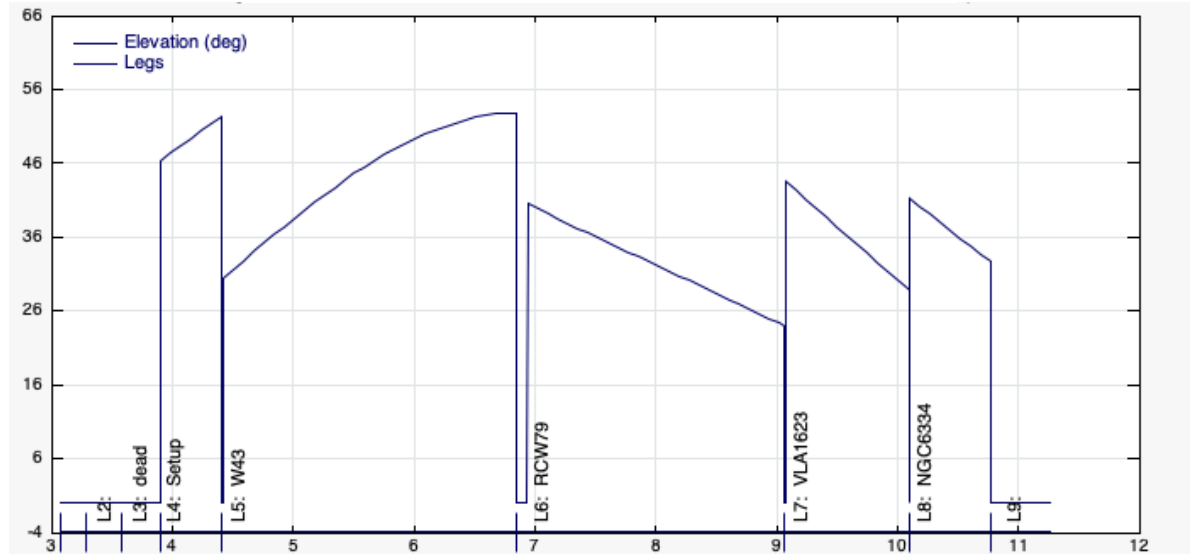
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h42m29.27s	-39d01m47.9s	3:54	30	No data due to clouds
5	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:25	145	No data due to clouds
6	07_0077	Tielens	RCW79	13h40m08.57s	-61d42m00.6s	6:56	127	No data due to clouds
7	06_0109	Yildiz	VLA1623	16h26m25.79s	-24d24m28.8s	9:05	61	No data due to clouds
8	07_0077	Tielens	NGC6334	17h20m13.62s	-35d55m04.6s	10:06	40	No data due to clouds

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



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



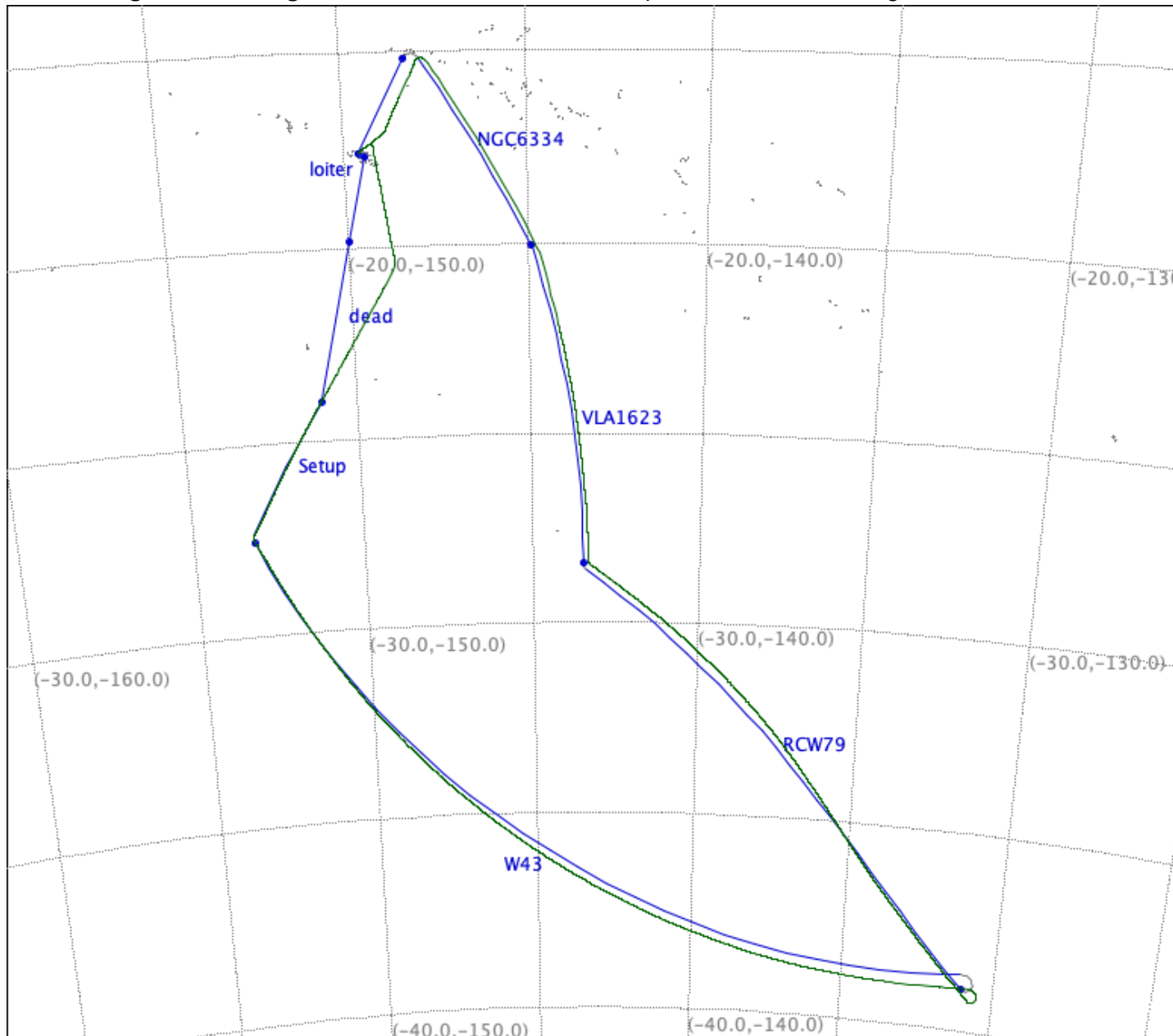
MISSION ID: 2021-08-07_GR_F766

Date: 2021-08-07 UT Instrument: GREAT

Flight #: 766 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 766
Papeete to
Papeete

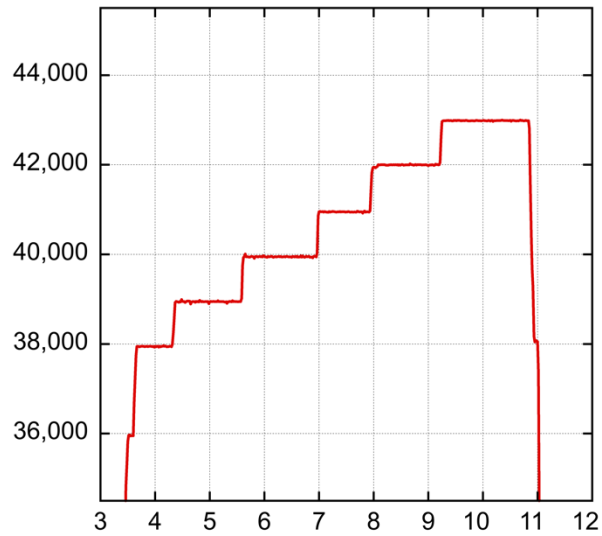
Mission ID 2021-08-07_GR_F766
Take off date UTC:
07-AUG-2021

Departure UTC: 03:00
Arrival UTC: 11:22

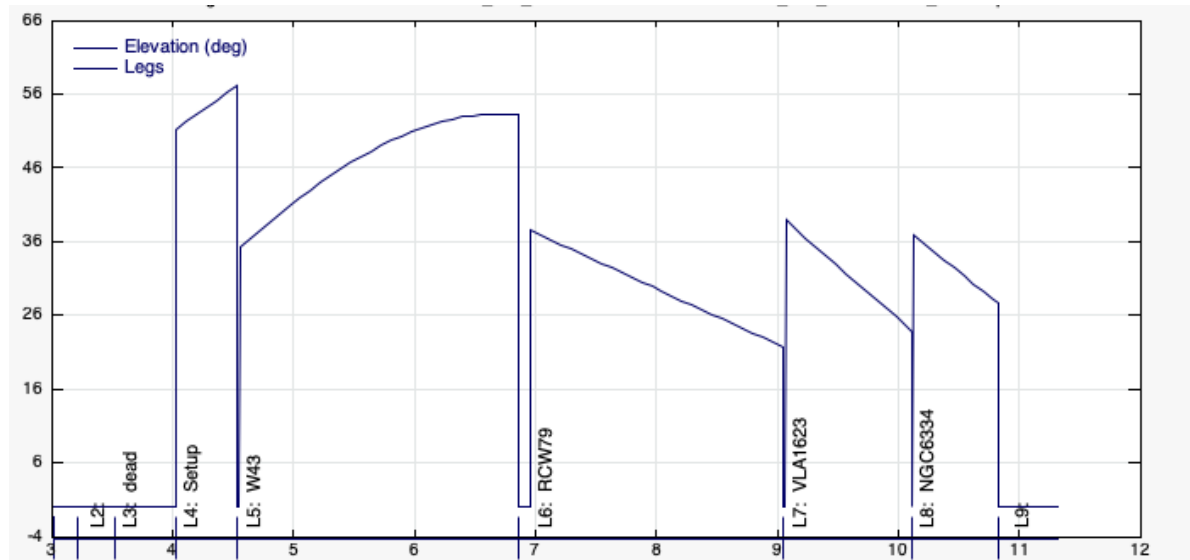
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h47m35.08s	-40d07m37.2s	4:02	30	
5	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:34	138	
6	07_0077	Tielens	RCW79	13h40m08.57s	-61d42m00.6s	6:58	125	
7	06_0109	Yildiz	VLA1623	16h26m25.79s	-24d24m28.8s	9:04	63	
8	07_0077	Tielens	NGC6334	17h20m13.62s	-35d55m04.6s	10:08	42	

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



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



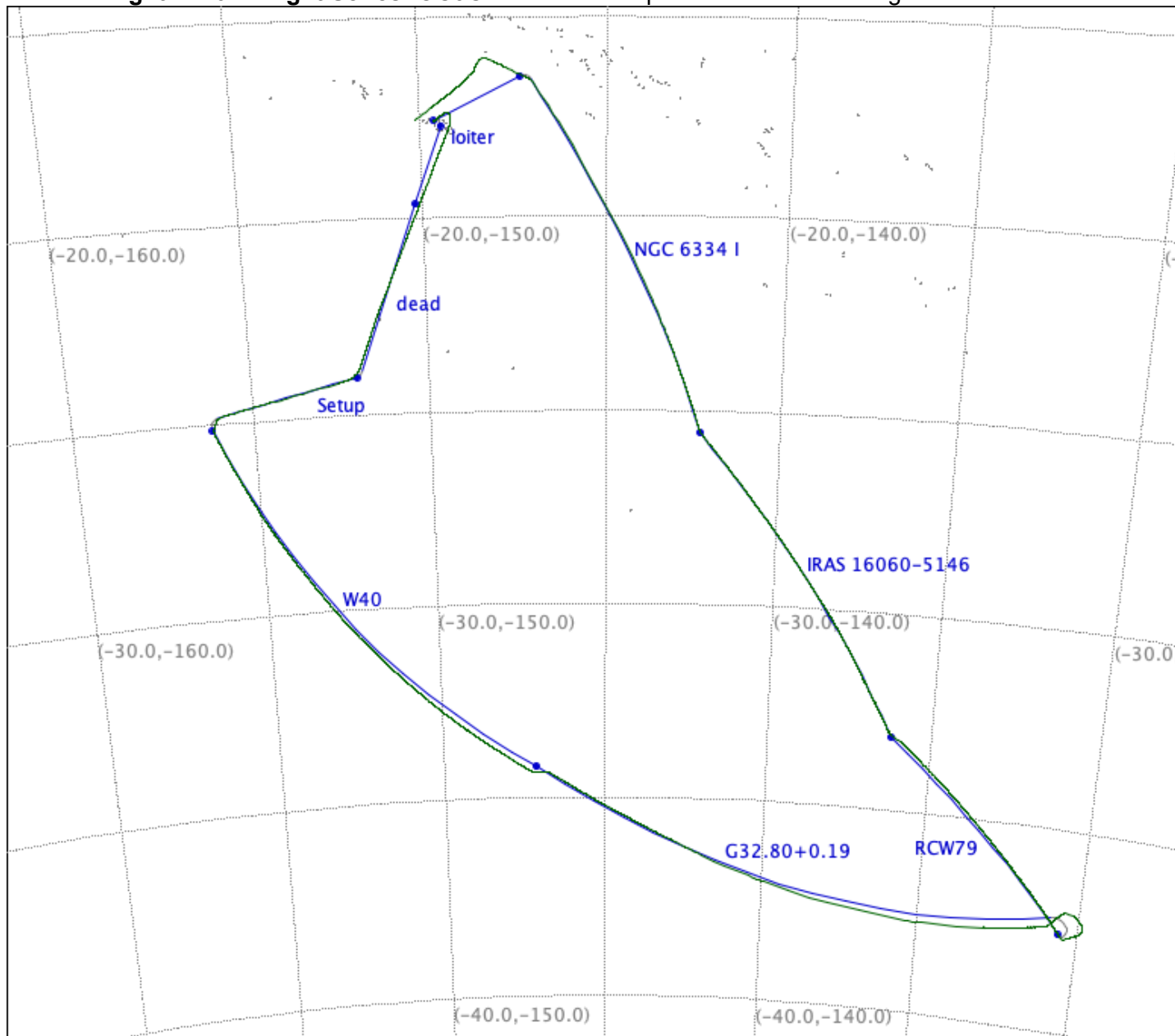
MISSION ID: 2021-08-08_GR_F767

Date: 2021-08-08 UT Instrument: GREAT

Flight #: 767 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 767
Papeete to
Papeete

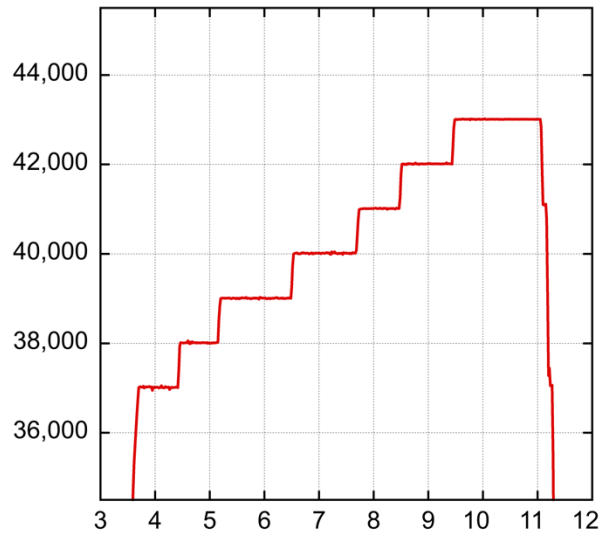
Mission ID 2021-08-08_GR_F767
Take off date UTC:
08-AUG-2021

Departure UTC: 03:08
Arrival UTC: 11:49

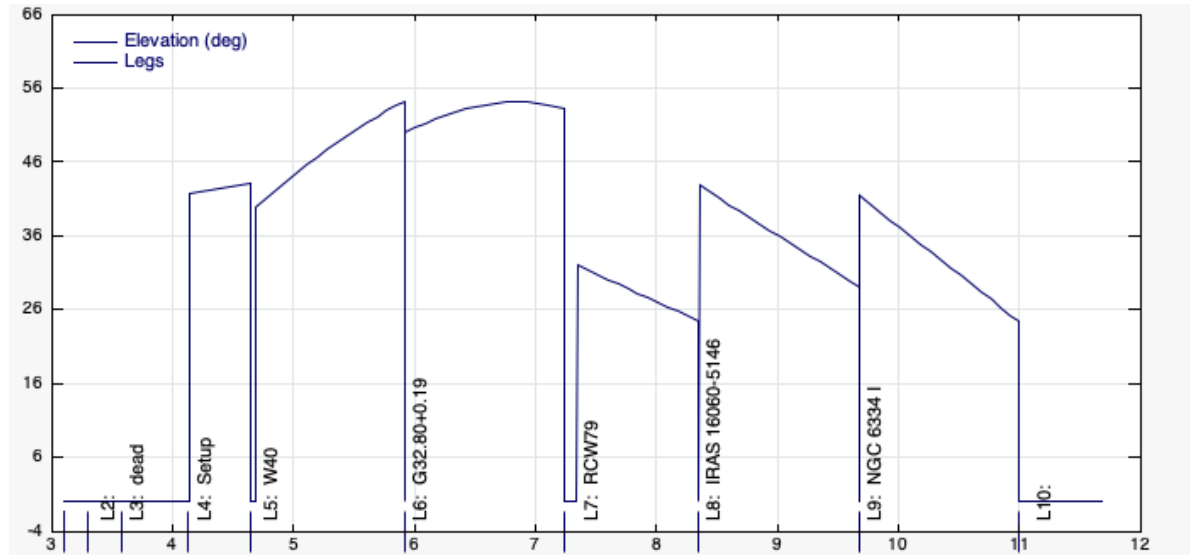
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h48m39.89s	-69d01m39.8s	4:09	30	
5	07_0077	Tielens	W40	18h31m24.45s	-02d04m13.8s	4:41	74	Problems tracking first 10 min of leg
6	08_0038	Neufeld	G32.80+0.19	18h50m30.63s	-00d02m00.0s	5:55	79	
7	07_0077	Tielens	RCW79	13h40m08.57s	-61d42m00.6s	7:21	60	
8	08_0038	Neufeld	IRAS 16060-5146	16h09m52.41s	-51d54m58.5s	8:21	79	
9	08_0038	Neufeld	NGC 6334 I	17h20m53.35s	-35d47m01.5s	9:41	79	

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



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



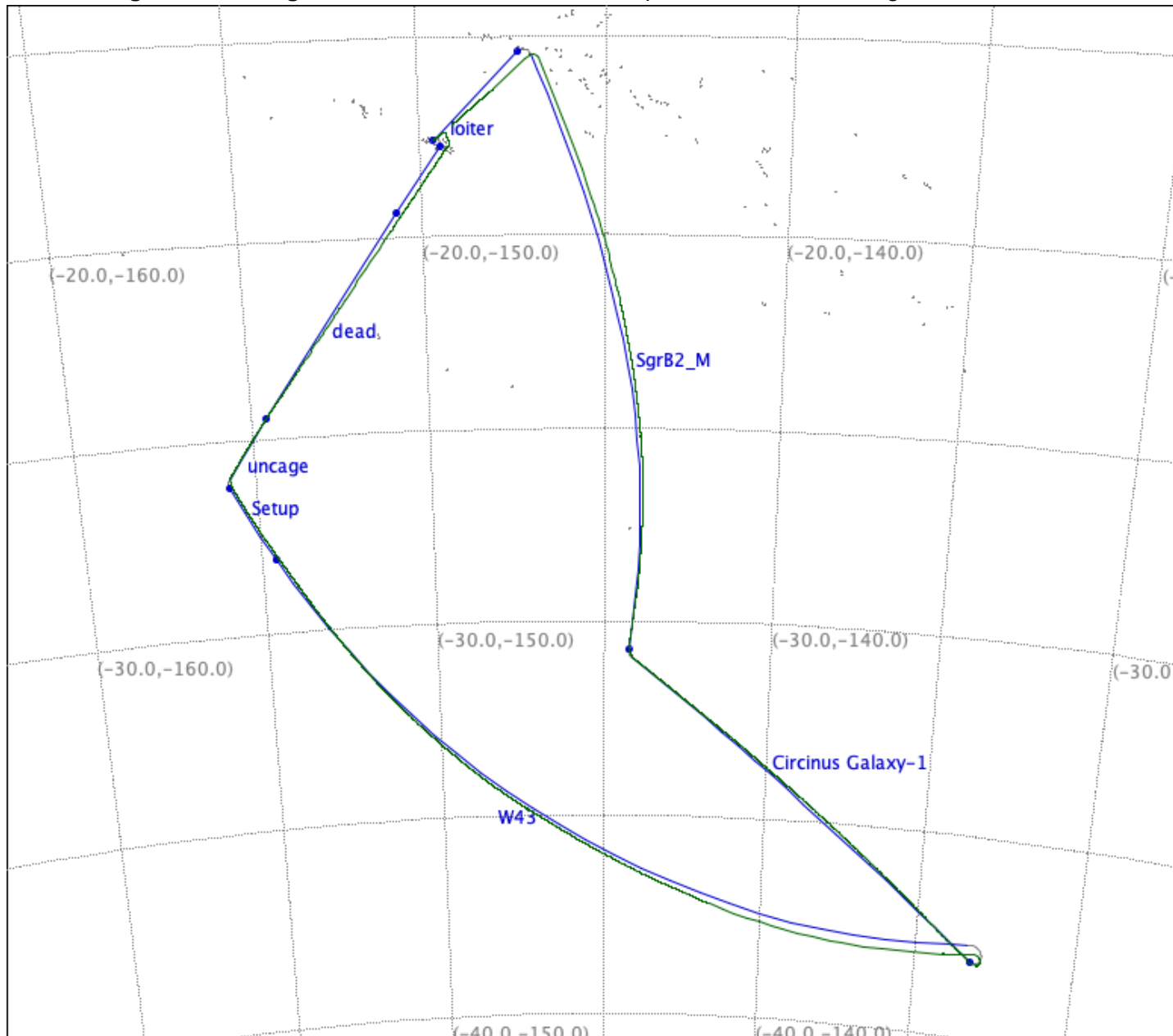
MISSION ID: 2021-08-09_GR_F768

Date: 2021-08-09 UT Instrument: GREAT

Flight #: 768 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 768
Papeete to
Papeete

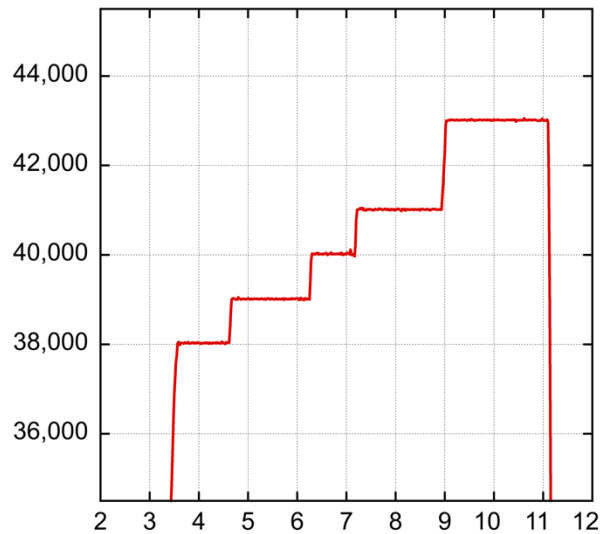
Mission ID 2021-08-09_GR_F768
Take off date UTC:
09-AUG-2021

Departure UTC: 03:01
Arrival UTC: 11:27

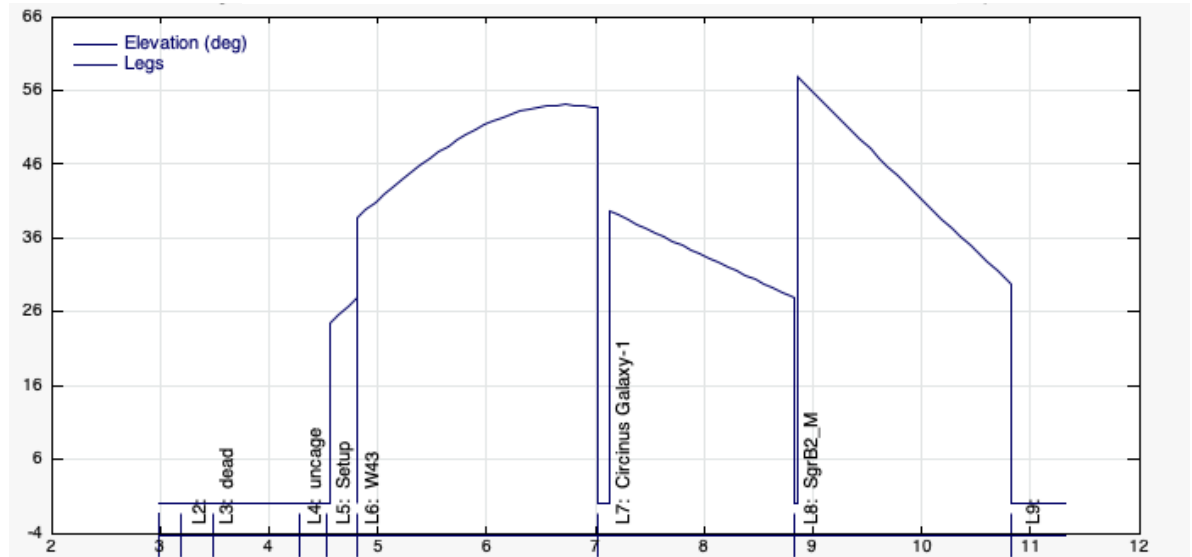
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	19h25m29.90s	03d06m53.2s	4:34	15	
6	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:49	133	
7	09_0030	Clark	Circinus Galaxy	14h13m09.91s	-65d20m20.5s	7:08	102	
8	09_0189	Giesen	SgrB2_M	17h47m20.50s	-28d23m06.0s	8:52	118	

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



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



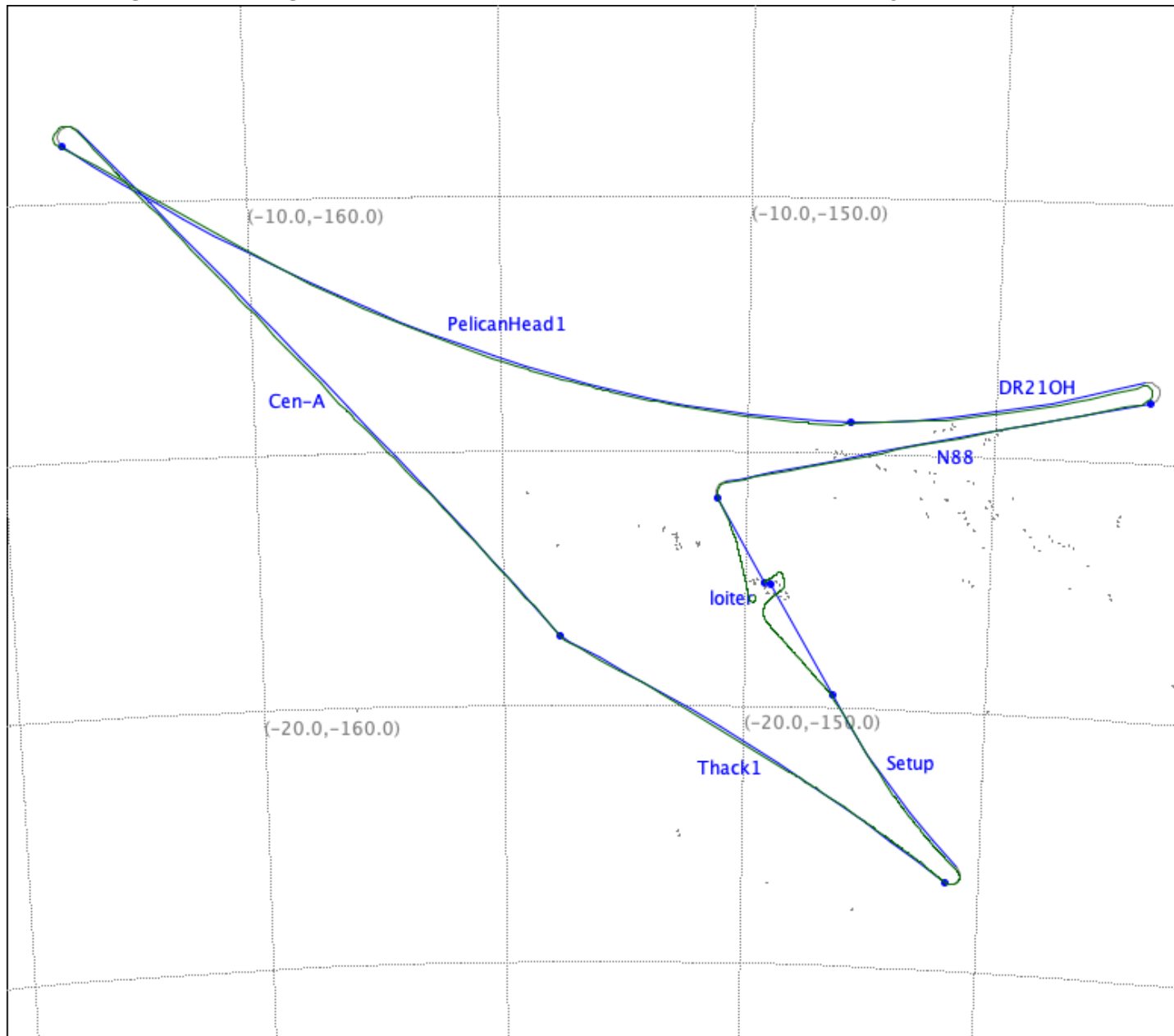
MISSION ID: 2021-08-10_GR_F769

Date: 2021-08-10 UT Instrument: GREAT

Flight #: 769 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes:

High-altitude cloud cover led to partial loss of data collection on legs 5 and 6

Flight 769
Papeete to
Papeete

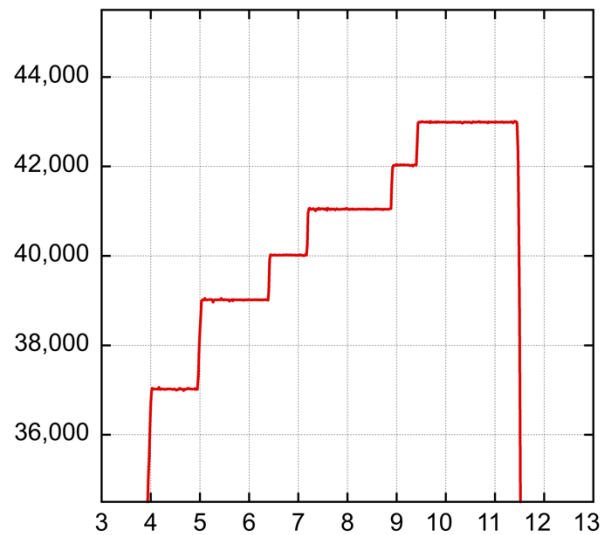
Mission ID 2021-08-10_GR_F769
Take off date UTC:
10-AUG-2021

Departure UTC: 03:30
Arrival UTC: 11:49

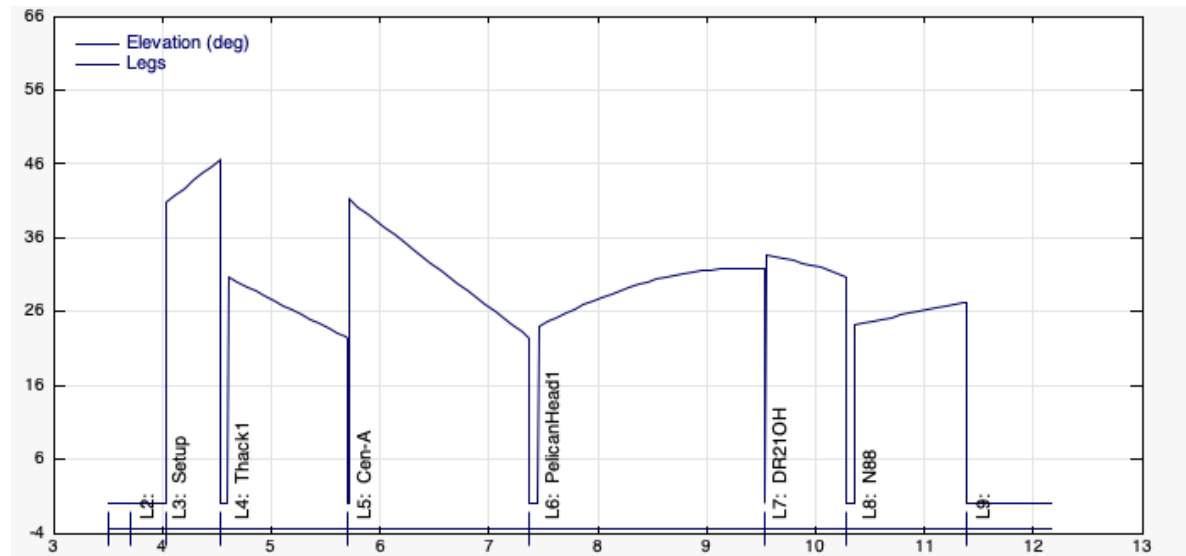
Consortium flight
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	18h07m18.36s	08d44m01.9s	4:02	30	
4	83_0904	GREAT Consortium	Thack1	11h38m22.29s	-63d20m46.4s	4:36	66	
5	83_0906	GREAT Consortium	Cen-A	13h25m27.61s	-43d01m08.8s	5:43	99	Door closed at 07:11 due to clouds
6	83_0910	GREAT Consortium	PelicanHead1	20h50m46.00s	44d30m30.0s	7:27	125	Door remained closed until 07:56
7	83_0802	GREAT Consortium	DR21M	20h39m01.60s	42d21m12.0s	9:32	44	
8	83_0713	GREAT Consortium	N88	01h24m08.10s	-73d09m04.5s	10:21	62	

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



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



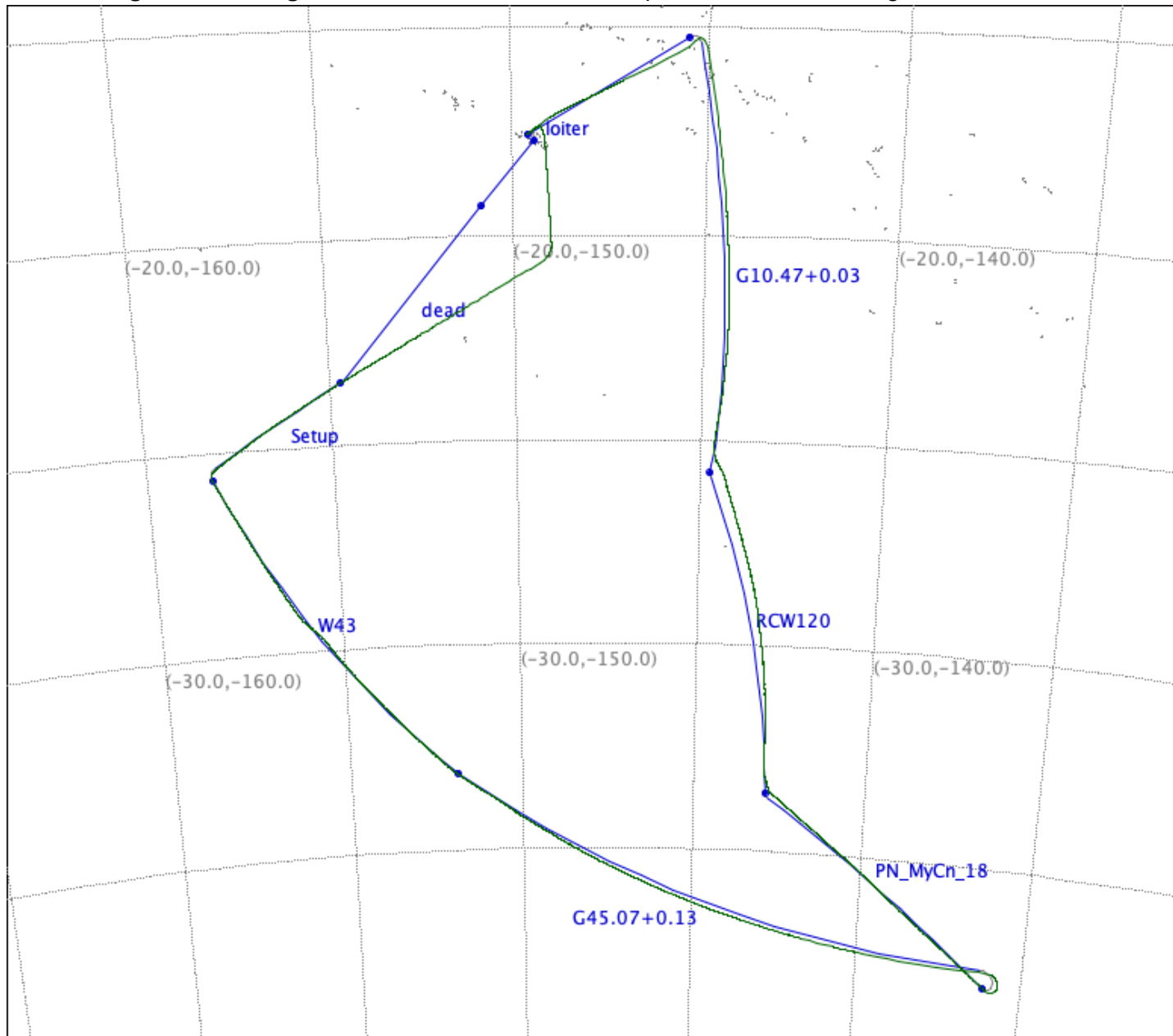
MISSION ID: 2021-08-12_GR_F770

Date: 2021-08-12 UT Instrument: GREAT

Flight #: 770 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 770
Papeete to
Papeete

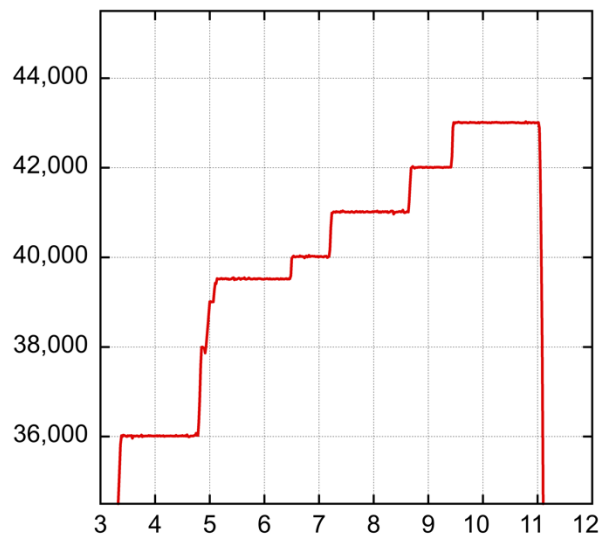
Mission ID 2021-08-12_GR_F770
Take off date UTC:
12-AUG-2021

Departure UTC: 02:54
Arrival UTC: 11:44

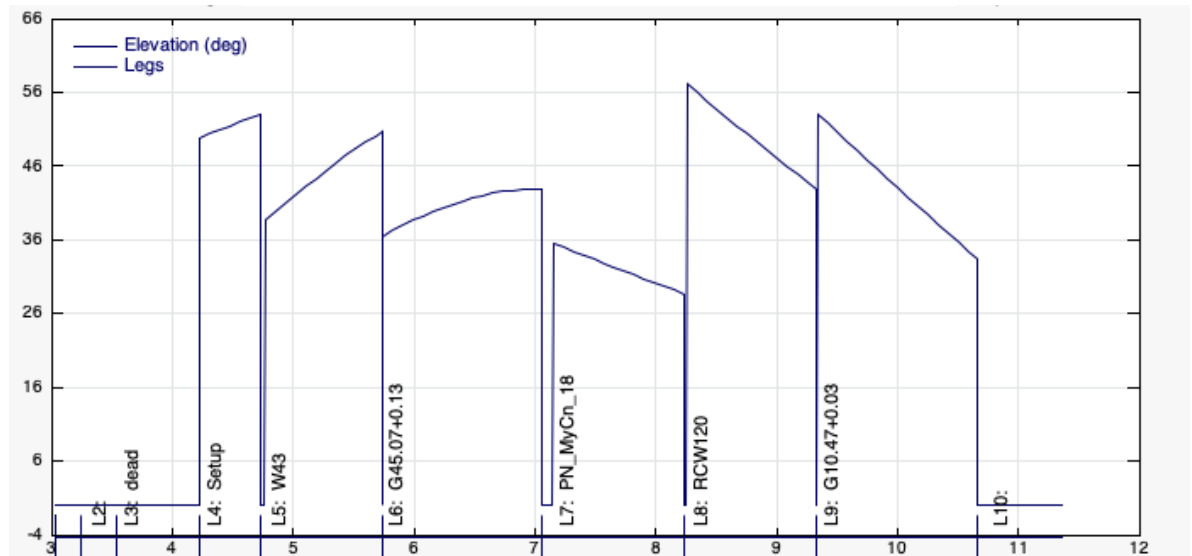
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h25m17.99s	-55d31m47.6s	4:14	30	
5	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:46	58	Most of leg lost due to cloud cover and turbulence
6	08_0038	Neufeld	G45.07+0.13	19h13m22.00s	10d50m54.0s	5:44	79	Turbulence caused slight delay getting on target
7	09_0044	Santander-García	PN MyCn 18	13h39m35.06s	-67d22m51.8s	7:09	65	
8	07_0077	Tielens	RCW120	17h11m59.16s	-38d27m57.1s	8:15	64	
9	08_0038	Neufeld	G10.47+0.03	18h08m38.40s	-19d51m52.0s	9:20	79	

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



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



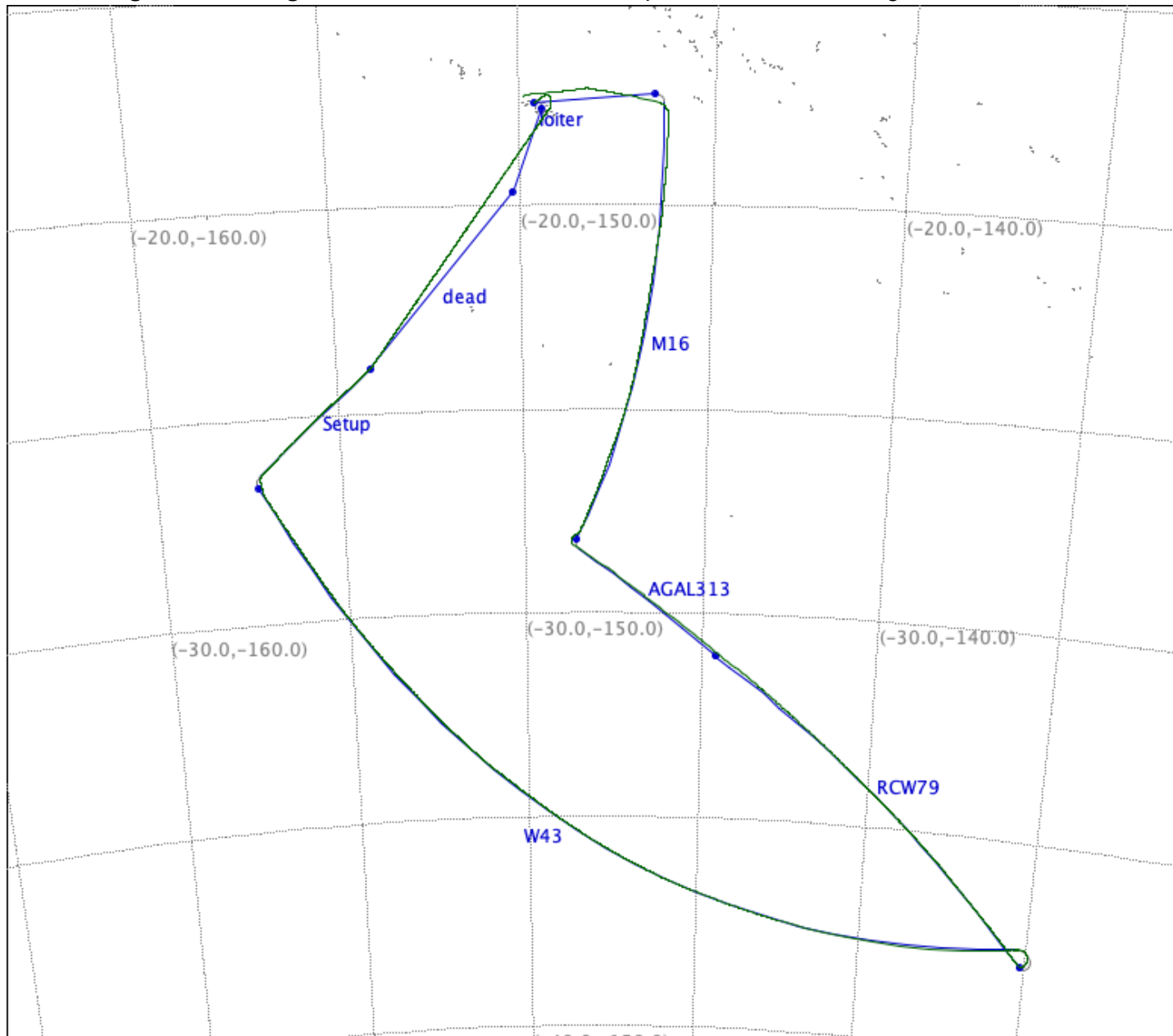
MISSION ID: 2021-08-13_GR_F771

Date: 2021-08-13 UT Instrument: GREAT

Flight #: 771 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 771
Papeete to
Papeete

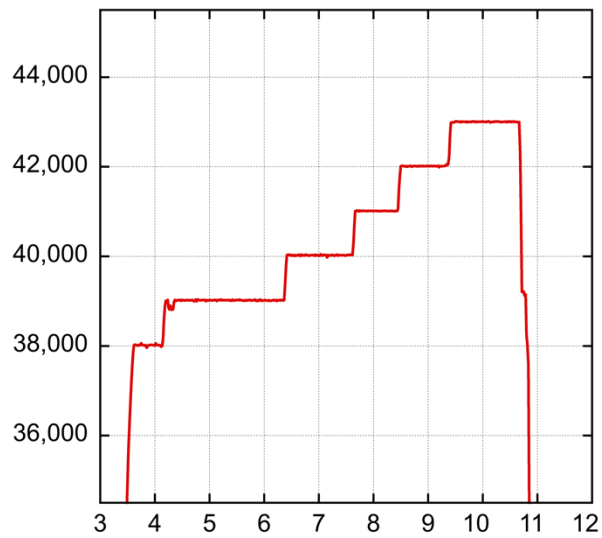
Mission ID 2021-08-13_GR_F771
Take off date UTC:
13-AUG-2021

Departure UTC: 03:04
Arrival UTC: 11:31

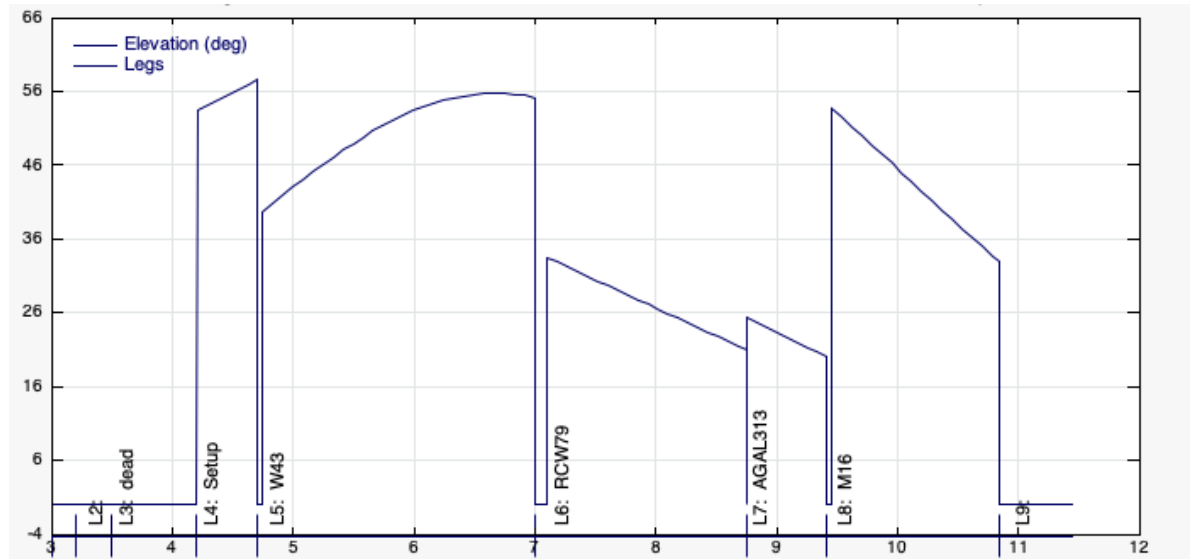
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h31m50.49s	-49d52m34.1s	4:12	30	
5	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	4:45	135	
6	07_0077	Tielens	RCW79	13h40m08.57s	-61d42m00.6s	7:06	99	
7	08_0127	Jackson	AGAL313	14h20m08.35s	-60d42m05.6s	8:45	40	
8	07_0077	Tielens	M16	18h18m23.99s	-13d41m26.4s	9:27	83	

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



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



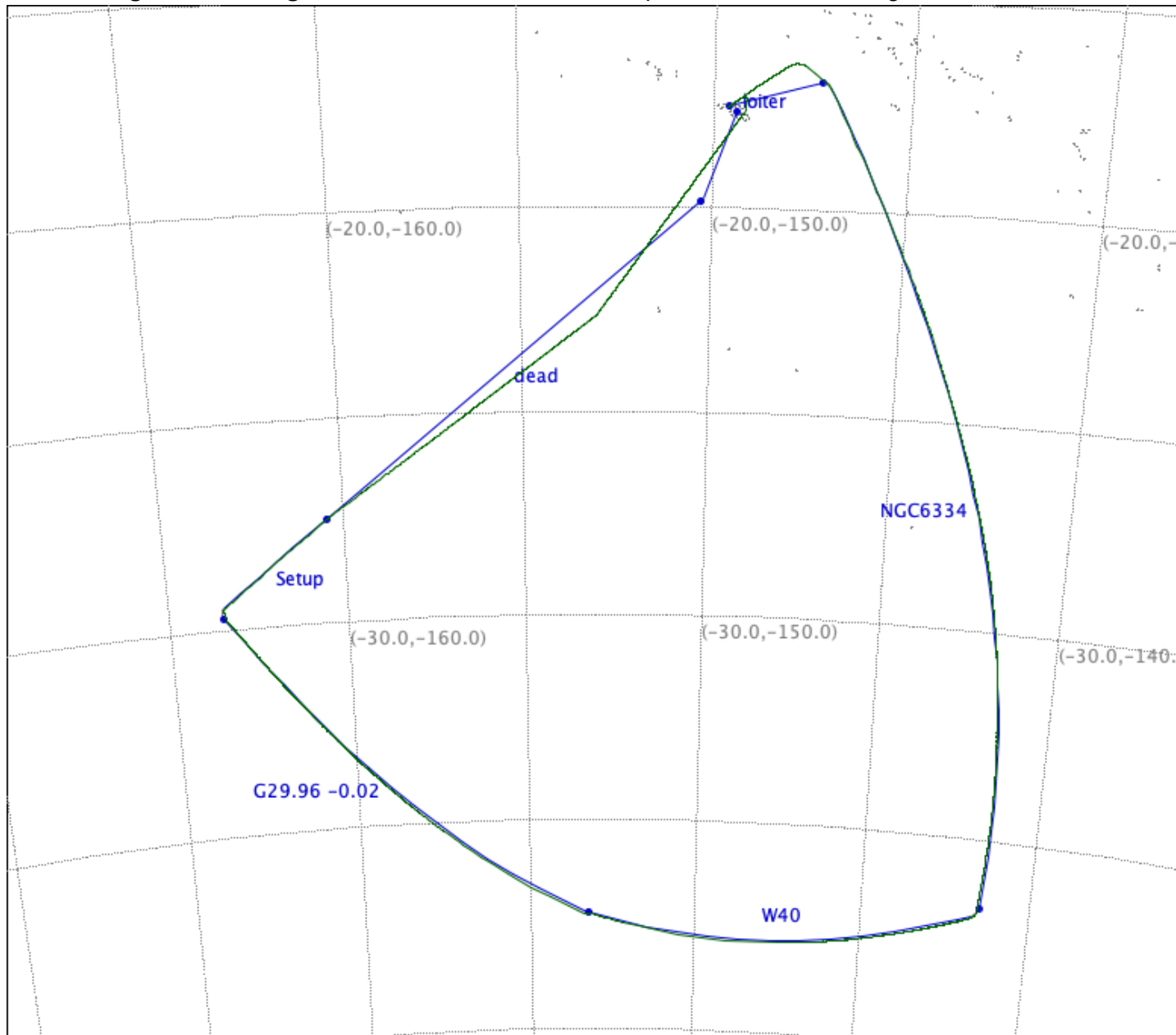
MISSION ID: 2021-08-14_GR_F772

Date: 2021-08-14 UT Instrument: GREAT

Flight #: 772 Flight Series: OC9C

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 772
Papeete to
Papeete

Mission ID 2021-08-14_GR_F772
Take off date UTC:
14-AUG-2021

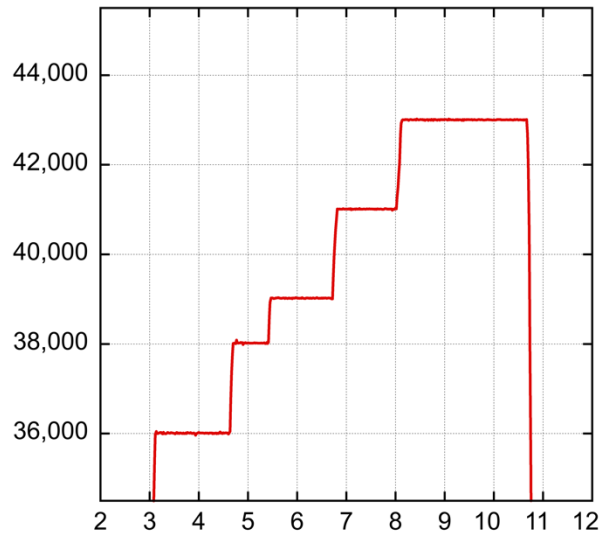
Departure UTC:
02:42

Arrival UTC:
11:13

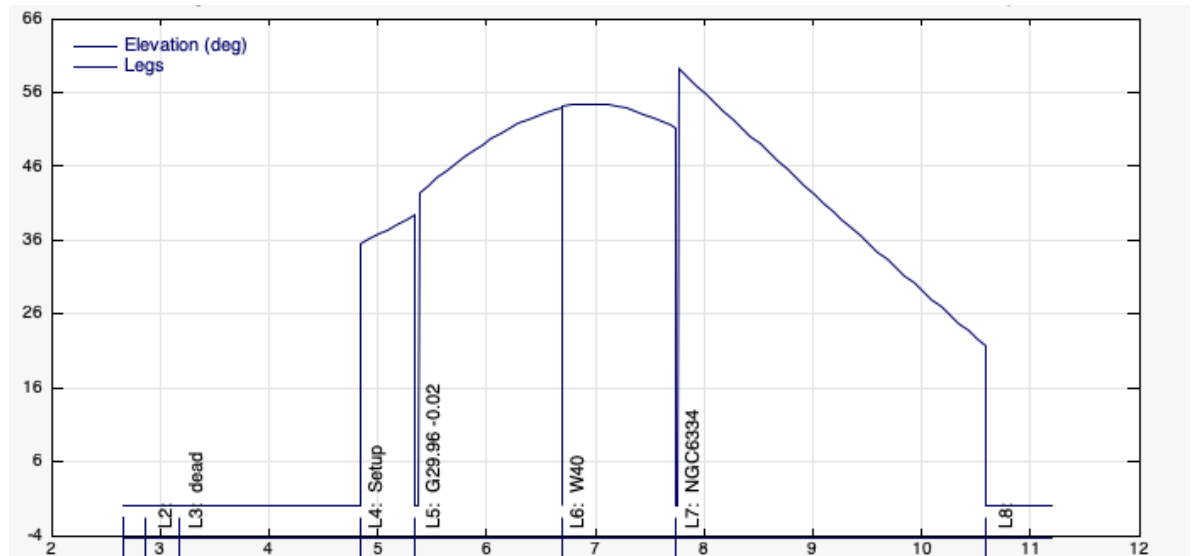
HFA & LFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h01m44.74s	-59d22m33.2s	4:50	30	
5	08_0038	Neufeld	G29.96 -0.02	18h46m03.72s	-02d39m21.2s	5:23	79	
6	07_0077	Tielens	W40	18h31m24.45s	-02d04m13.8s	6:42	62	
7	07_0077	Tielens	NGC6334	17h20m13.62s	-35d55m04.6s	7:46	170	

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



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

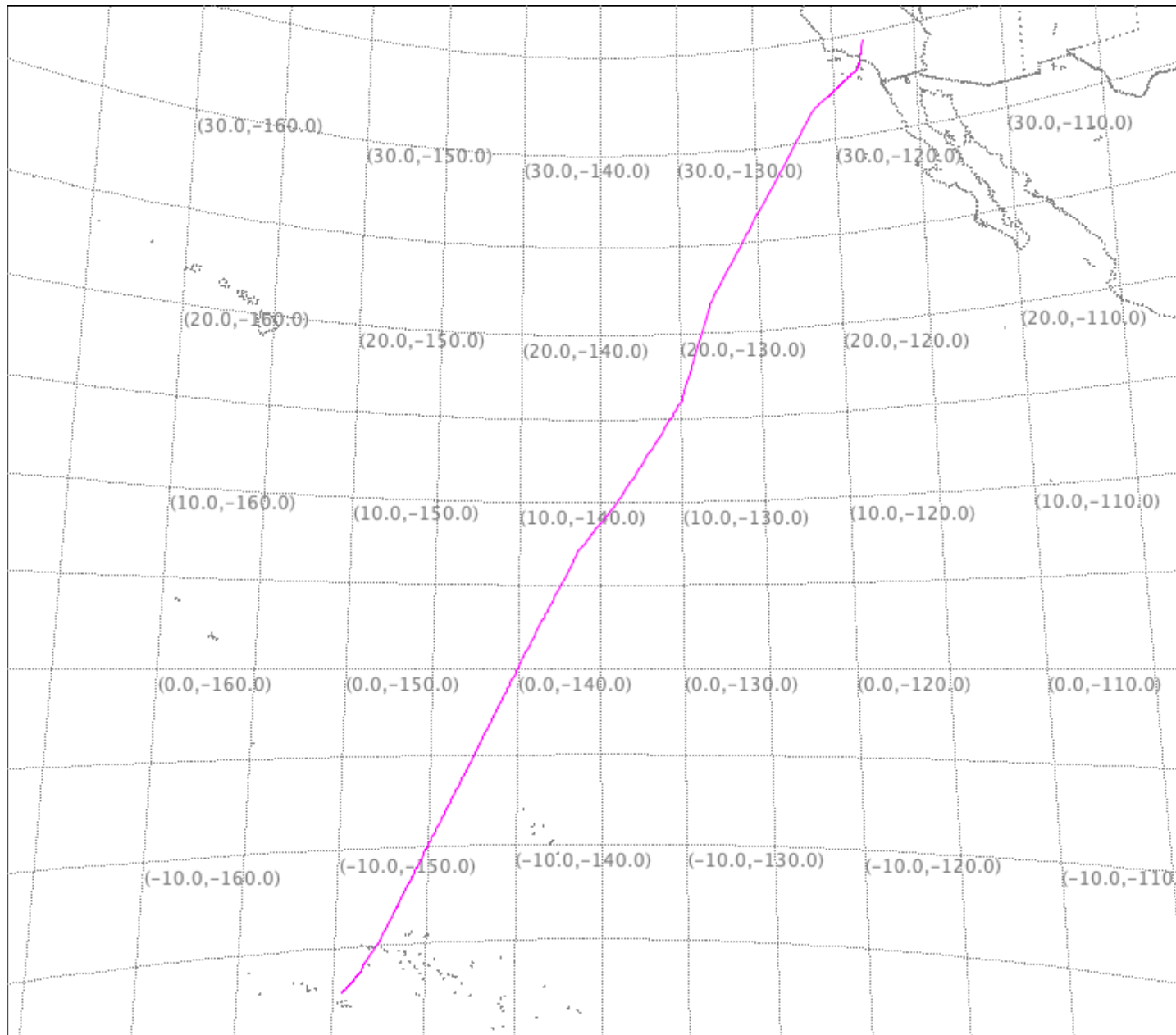


MISSION ID: 2021-08-19_NO_F773

Date: 2021-08-19 UT **Instrument:** none

Flight #: 773 **Flight Series:** n/a

magenta = flown route



Flight notes:

Ferry Flight from Papeete, Tahiti to Palmdale, CA (no science planned)

Flight 773
Papeete to
Palmdale

Mission ID 2021-08-19_NO_F773
Take off date UTC:
19-AUG-2021

Departure UTC: 20:00
Arrival UTC: 03:38

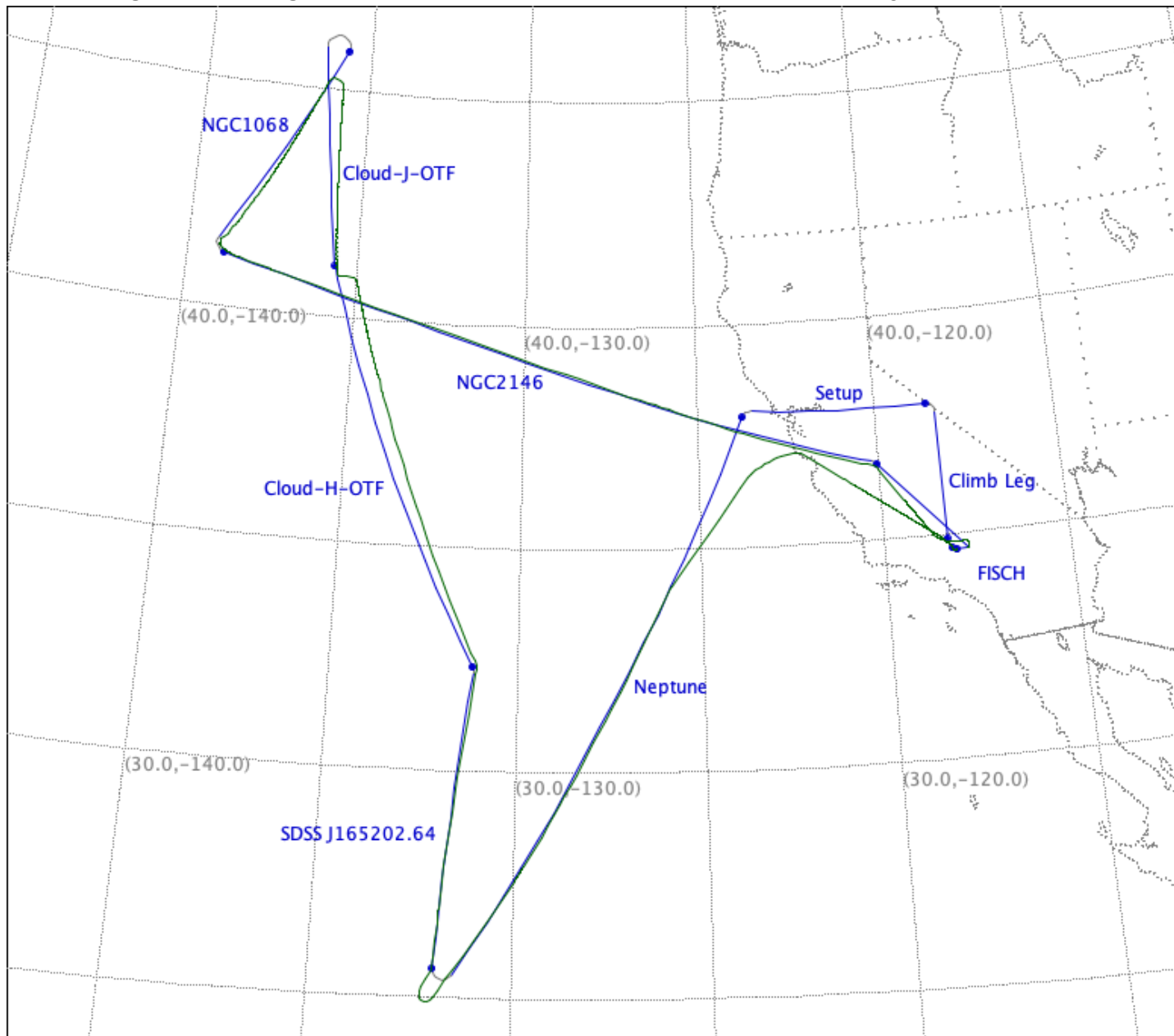
MISSION ID: 2021-08-28_HA_F774

Date: 2021-08-28 UT Instrument: HAWC+

Flight #: 774 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: Late departure, but all observations completed as planned

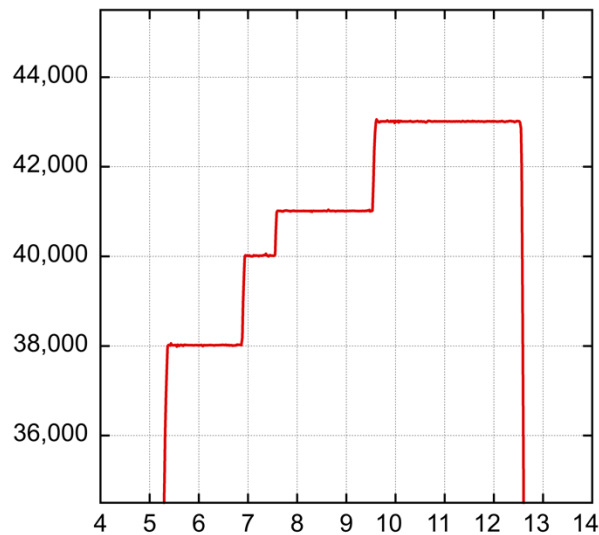
Flight 774
Palmdale to
Palmdale

Mission ID 2021-08-28_HA_F774
Take off date UTC:
28-AUG-2021

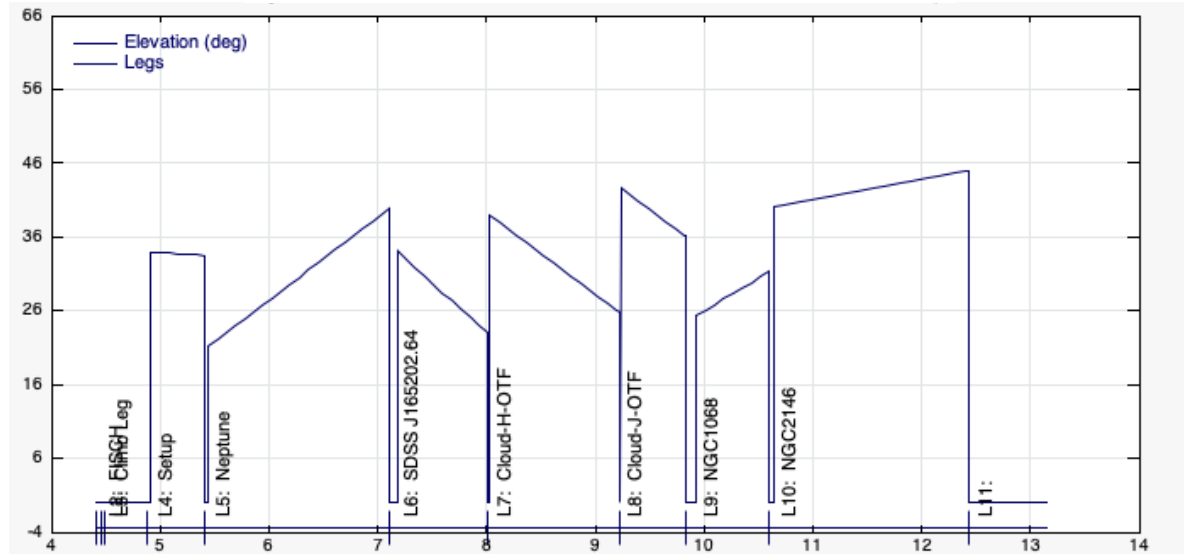
Departure UTC: 04:57
Arrival UTC: 12:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h21m40.36s	-17d50m49.9s	4:54	30	
5	90_0086	Calibration	Neptune	23h32m15.36s	-04d15m59.5s	5:26	100	
6	09_0070	Veilleux	SDSS J165202.64+172852.4	16h52m02.65s	17d28m52.4s	7:11	50	
7	09_0104	Tan	Cloud-H-OTF	18h57m05.08s	02d07m02.8s	8:01	72	
8	09_0104	Tan	Cloud-J-OTF	19h29m18.41s	17d56m18.2s	9:14	35.8	
9	08_0012	Lopez-Rodriguez	NGC1068	02h42m40.77s	-00d00m47.8s	9:56	40	
10	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	10:39	107	

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



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



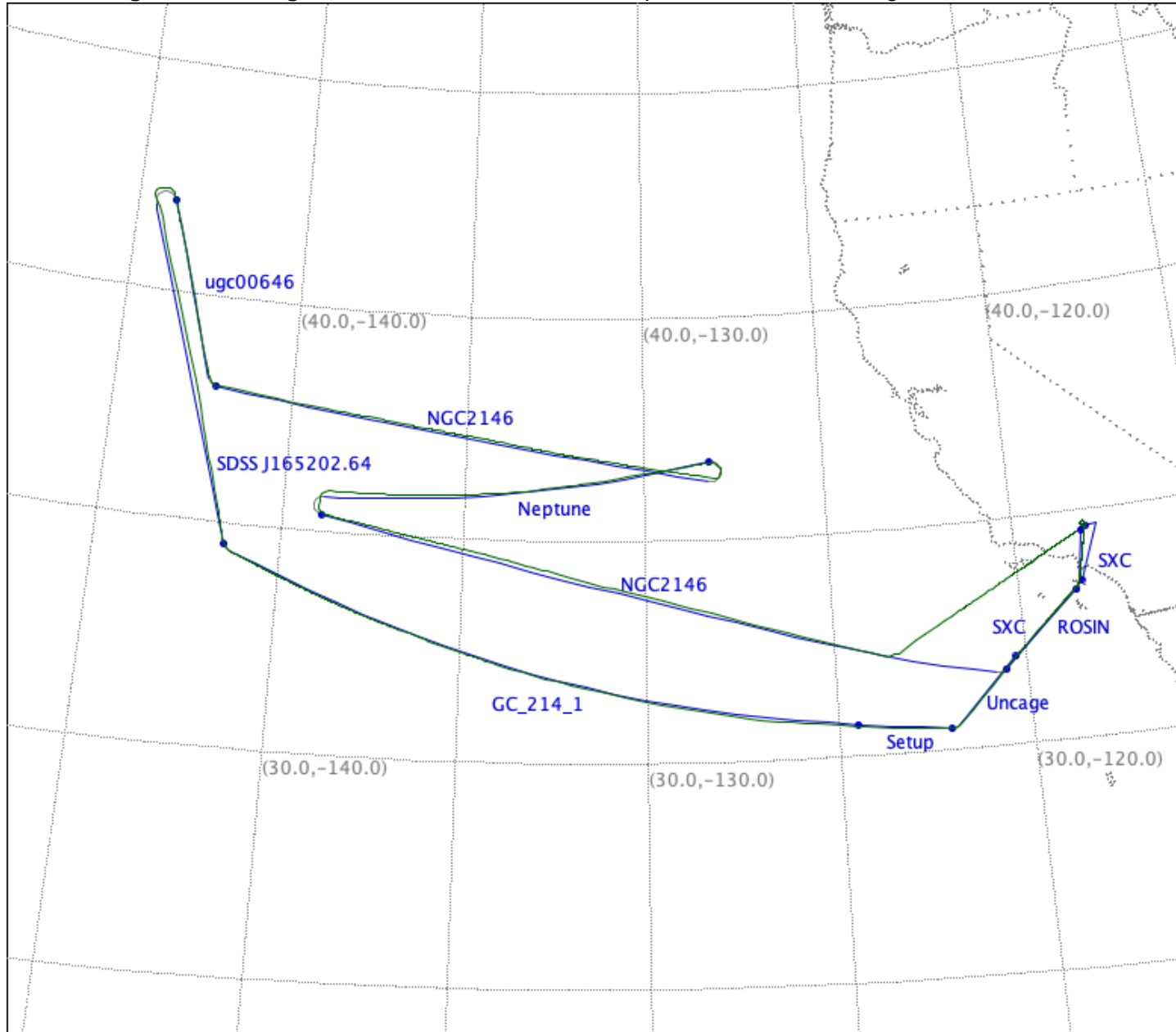
MISSION ID: 2021-08-31_HA_F775

Date: 2021-08-31 UT Instrument: HAWC+

Flight #: 775 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes:

Air Traffic Control (ATC) required low altitudes through leg 6, resulting in reduced instrument performance on leg 11.

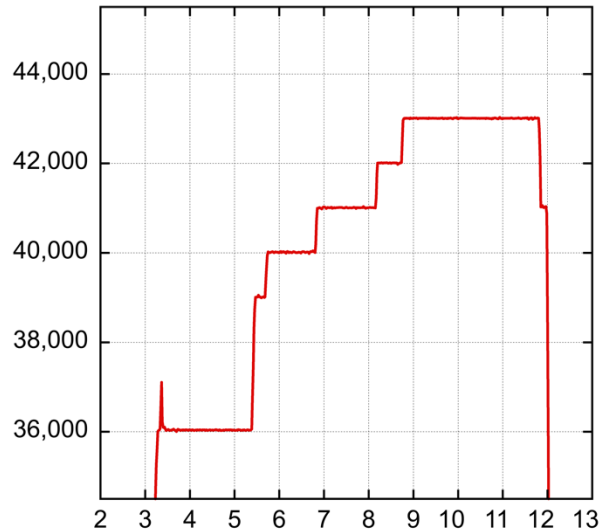
Flight 775
Palmdale to
Palmdale

Mission ID 2021-08-31_HA_F775
Take off date UTC:
31-AUG-2021

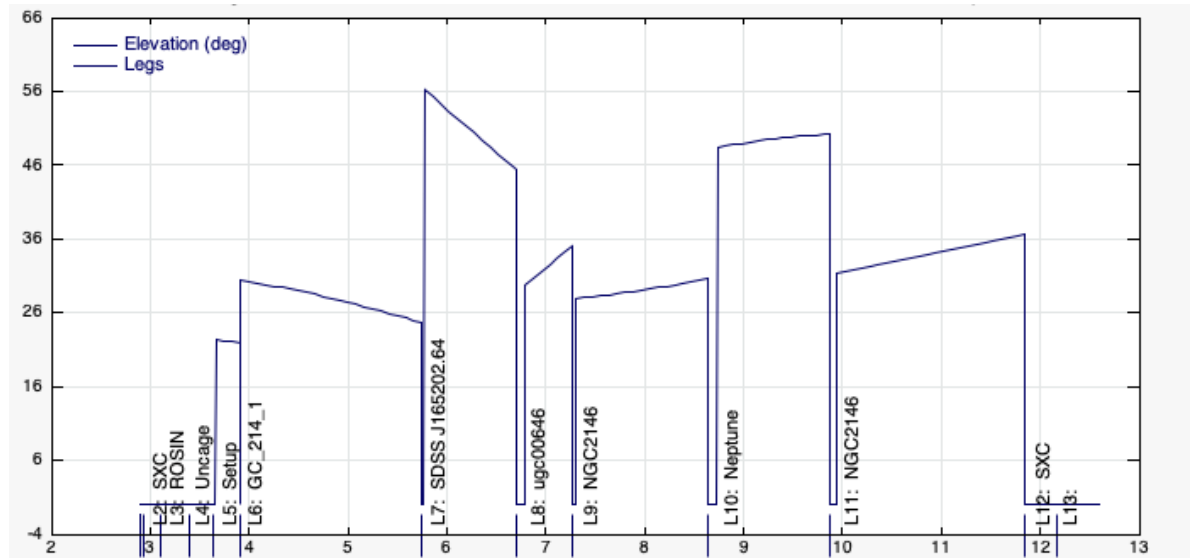
Departure UTC: 02:50
Arrival UTC: 12:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	17h49m51.48s	-37d02m35.9s	3:39	15	
6	09_0054	Chuss	Galactic Center	17h47m03.70s	-28d30m45.9s	3:54	110	ATC kept plane at 36k ft
7	09_0070	Veilleux	SDSS J165202.64+172852.4	16h52m02.65s	17d28m52.4s	5:45	56	
8	09_0180	Casey	ugc00646	01h03m26.39s	32d14m14.5s	6:46	29.2	
9	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	7:18	80	
10	90_0083	Calibration	Neptune	23h31m57.26s	-04d17m59.8s	8:43	68	
11	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	9:56	114	Detector temperature was increased for part of leg

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



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



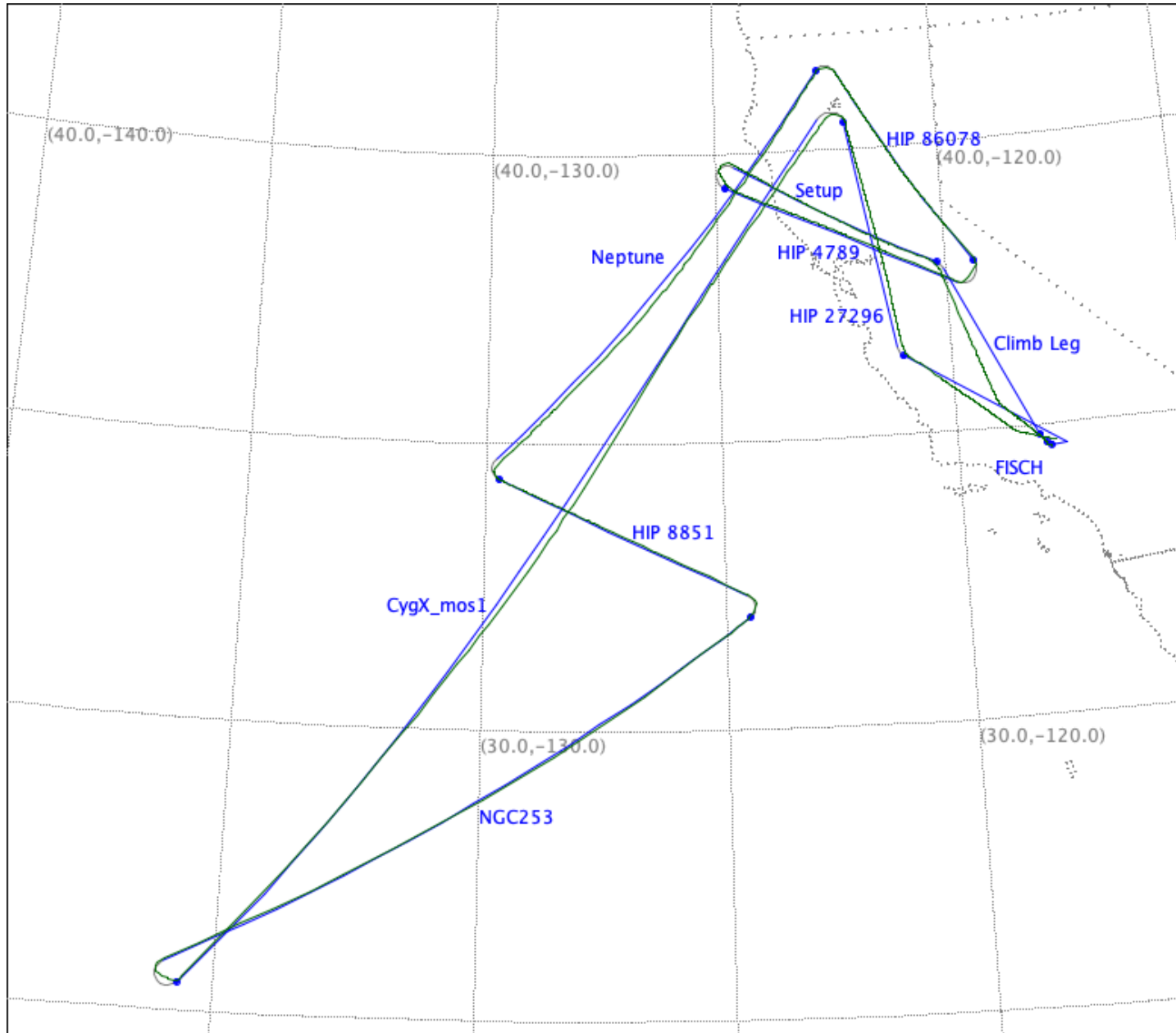
MISSION ID: 2021-09-01_HA_F776

Date: 2021-09-01 UT Instrument: HAWC+

Flight #: 776 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: No irregularities

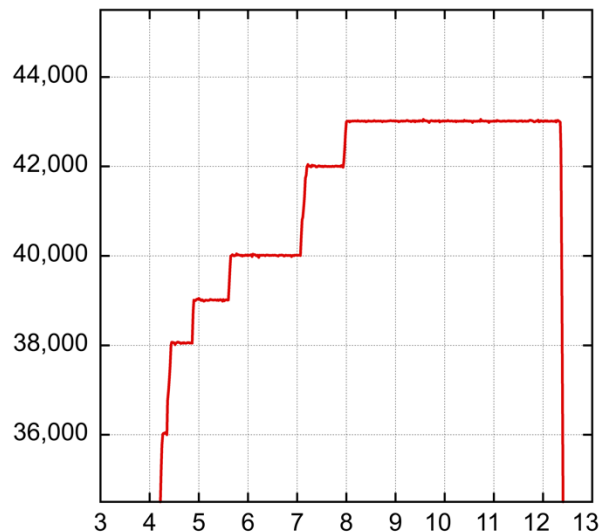
Flight 776
Palmdale to
Palmdale

Mission ID 2021-09-01_HA_F776
Take off date UTC:
01-SEP-2021

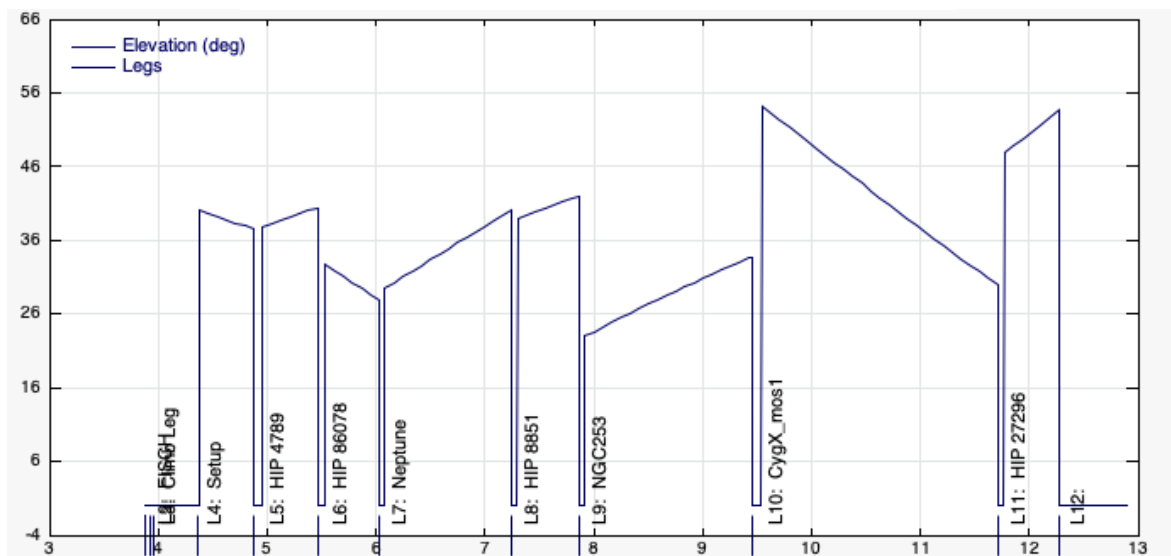
Departure UTC: 03:51
Arrival UTC: 12:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h59m01.59s	-09d46m25.1s	4:22	30	
5	09_0182	Ballering	HIP 4789	01h01m30.15s	69d21m30.7s	4:57	30	
6	09_0182	Ballering	HIP 86078	17h35m30.07s	-05d55m53.6s	5:32	30	
7	90_0083	Calibration	Neptune	23h31m51.88s	-04d18m35.5s	6:05	70	
8	09_0182	Ballering	HIP 8851	01h53m51.04s	67d44m49.6s	7:18	34	
9	08_0012	Lopez-Rodriguez	NGC253	00h47m33.13s	-25d17m19.7s	7:55	92	
10	09_0215	Pillai	Cyg X	20h38m50.70s	42d26m52.3s	9:33	130	
11	09_0182	Ballering	HIP 27296	05h47m00.54s	34d18m42.6s	11:46	30	

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



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



Flight notes:

HAWC+ lost the ability to stay cold between legs 10 and 11. Early return to base.

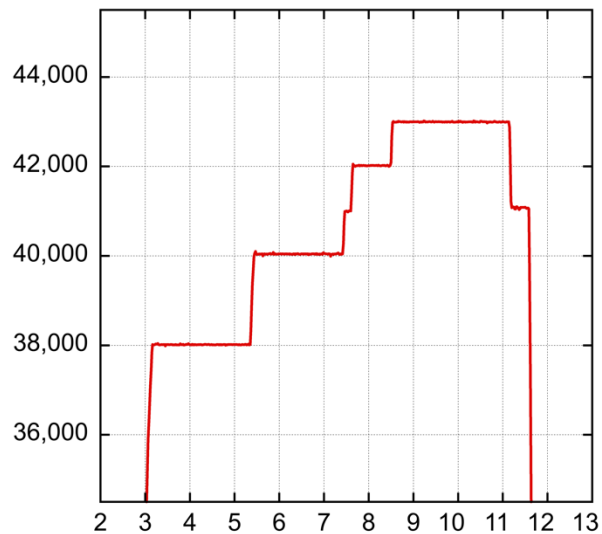
Flight 777
Palmdale to
Palmdale

Mission ID 2021-09-02_HA_F777
Take off date UTC:
02-SEP-2021

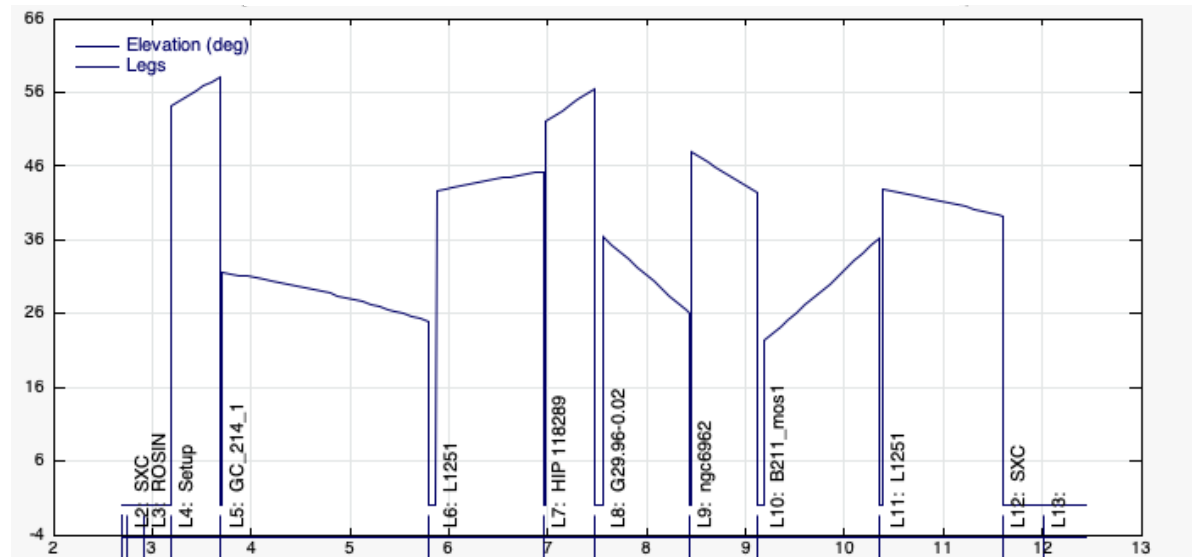
Departure UTC: 02:38
Arrival UTC: 12:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h25m29.90s	03d06m53.2s	3:11	30	
5	09_0054	Chuss	Galactic Center	17h47m03.70s	-28d30m45.9s	3:42	125	
6	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	5:52	65	
7	09_0182	Ballering	HIP 118289	23h59m32.89s	50d49m57.3s	6:58	30	
8	09_0016	Stephens	G29.96-0.02	18h45m54.92s	-02d40m55.0s	7:34	52.1	
9	09_0180	Casey	ngc6962	20h47m19.06s	00d19m14.9s	8:27	40	
10	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	9:11	70	
11	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	10:23	73	HAWC+ cooler failed at beginning of leg; no data collected

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



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



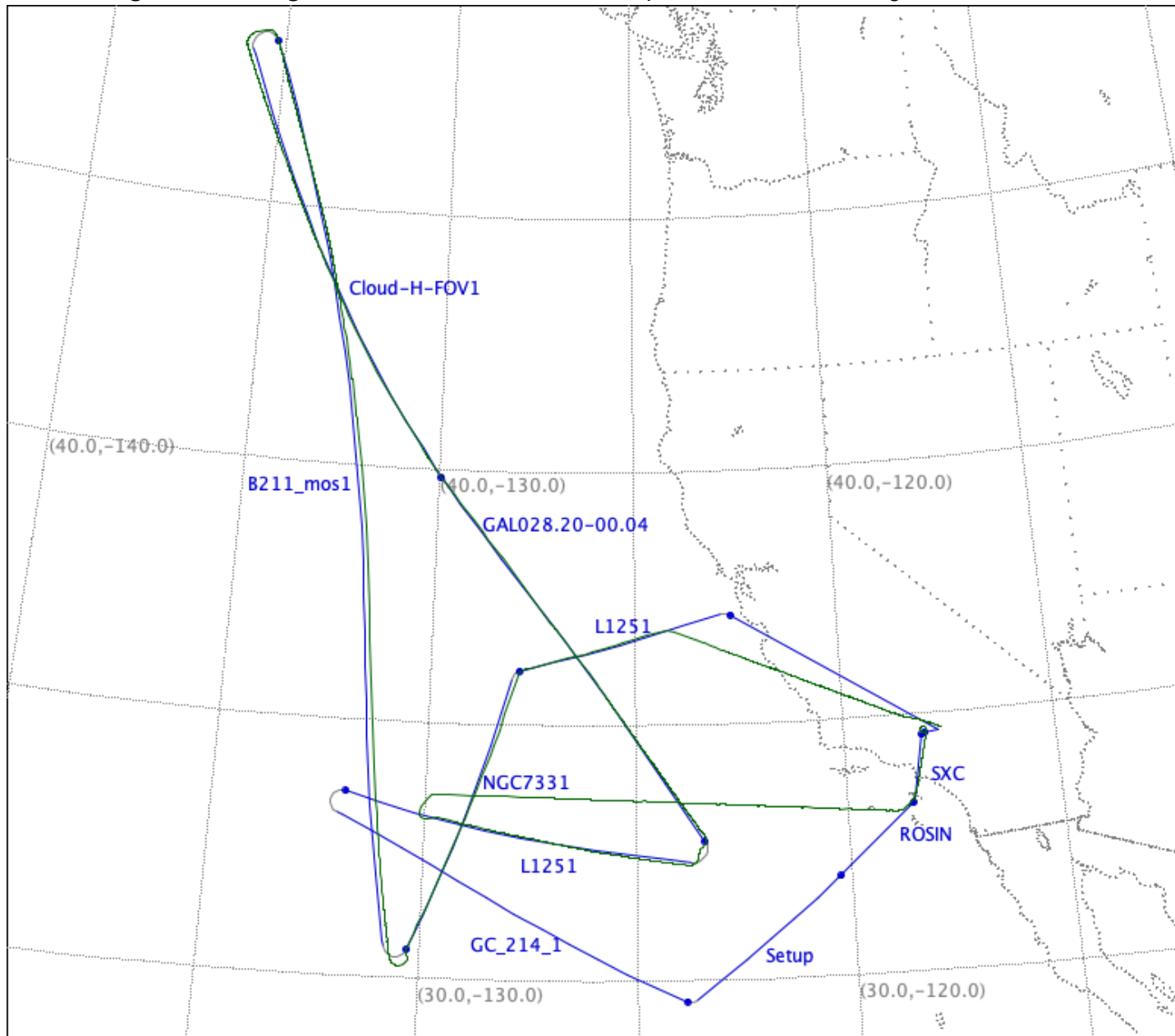
MISSION ID: 2021-09-03_HA_F778

Date: 2021-09-03 UT Instrument: HAWC+

Flight #: 778 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes:

Late departure led to loss of leg 5. Unusually large phase offsets were then measured in the detectors while in flight.

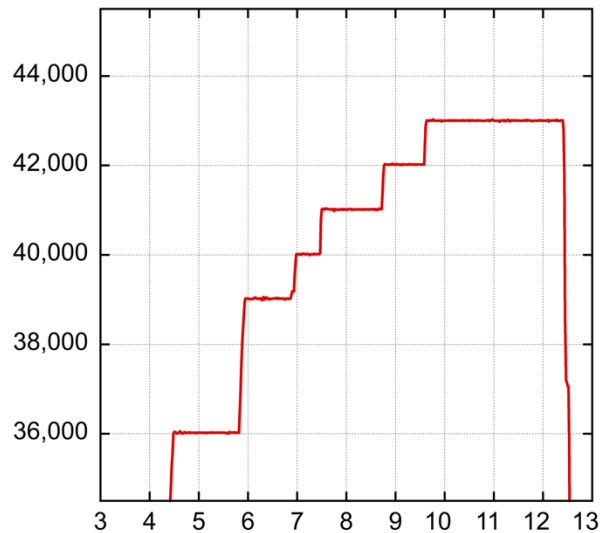
Flight 778
Palmdale to
Palmdale

Mission ID 2021-09-03_HA_F778
Take off date UTC:
03-SEP-2021

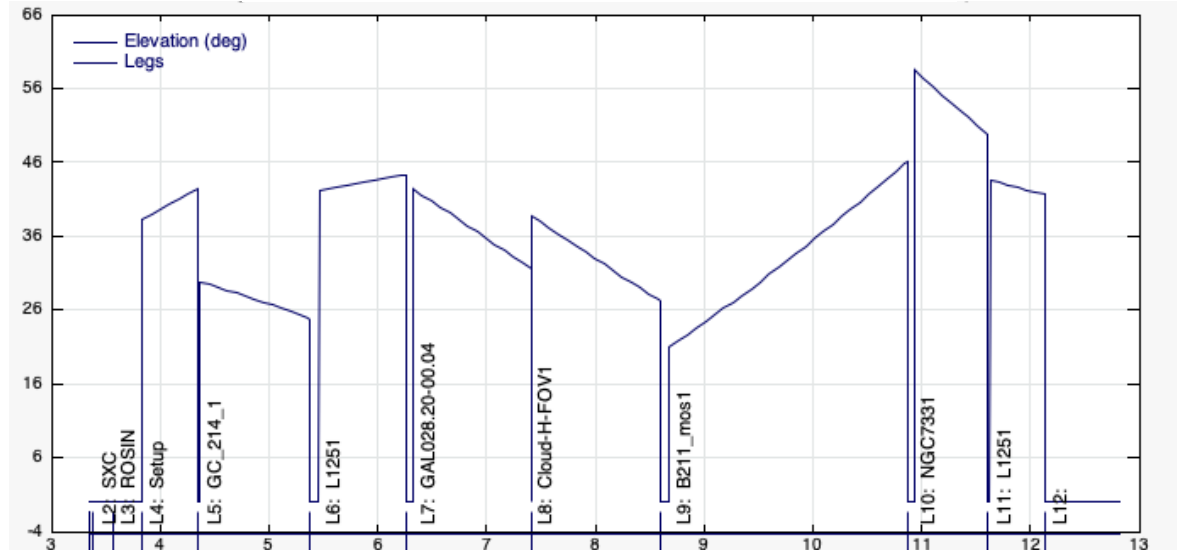
Departure UTC: 04:04
Arrival UTC: 12:52

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h47m40.55s	-09d29m44.8s	3:51	30	
5	09_0054	Chuss	Galactic Center	17h47m03.70s	-28d30m45.9s	4:23	61	No data collected because of late takeoff
6	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	5:28	48	
7	09_0164	LAW	GAL028.20-00.04	18h42m59.59s	-04d14m15.6s	6:20	65	
8	09_0104	Tan	Cloud-H-OTF	18h57m05.08s	02d07m02.8s	7:25	71	
9	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	8:42	131	
10	08_0012	Lopez-Rodriguez	NGC7331	22h37m04.10s	34d24m57.3s	10:57	40	
11	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	11:39	30	HAWC+ cooler failed at beginning of leg; no data collected

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



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



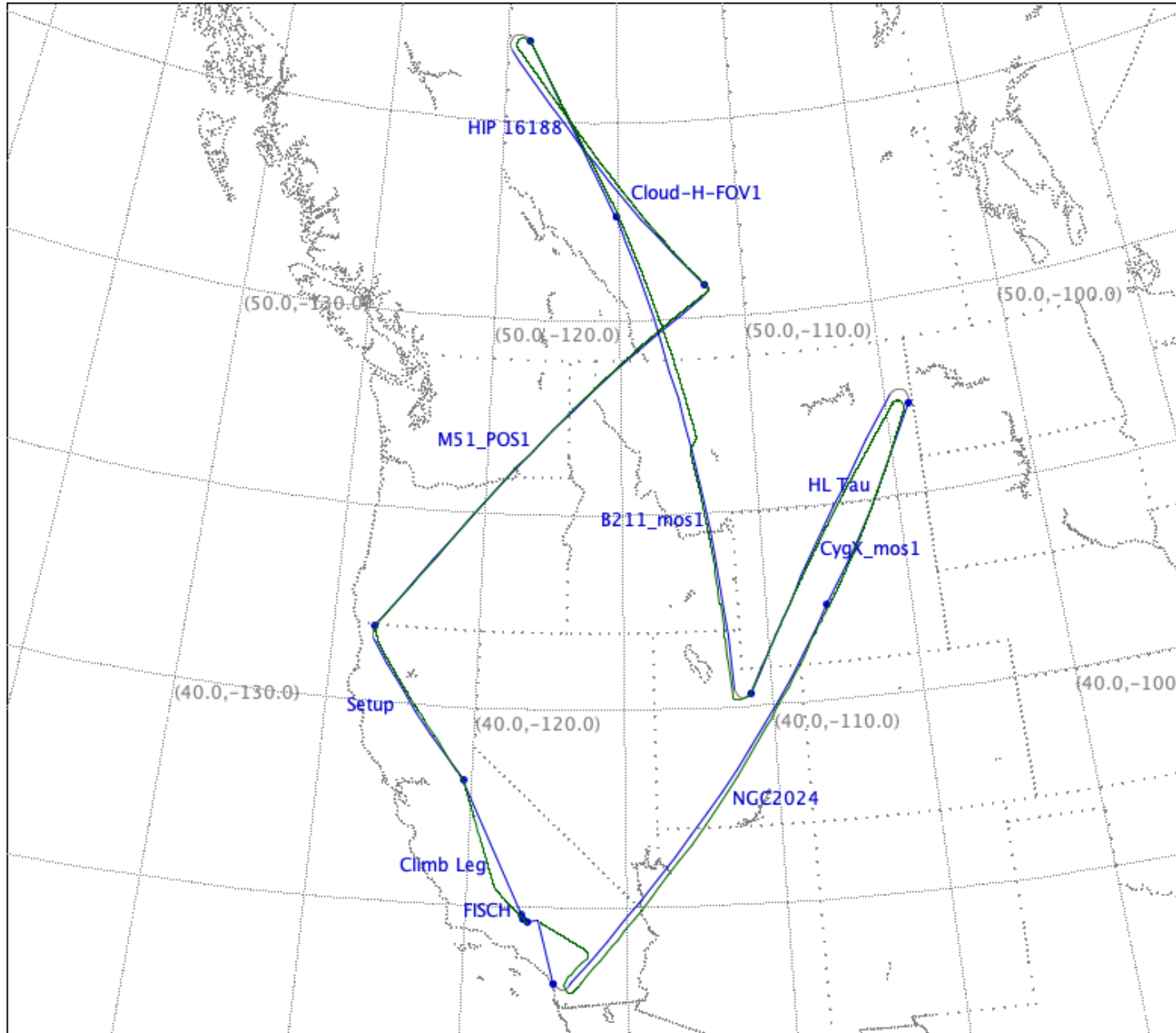
MISSION ID: 2021-09-08_HA_F779

Date: 2021-09-08 UT Instrument: HAWC+

Flight #: 779 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: No irregularities

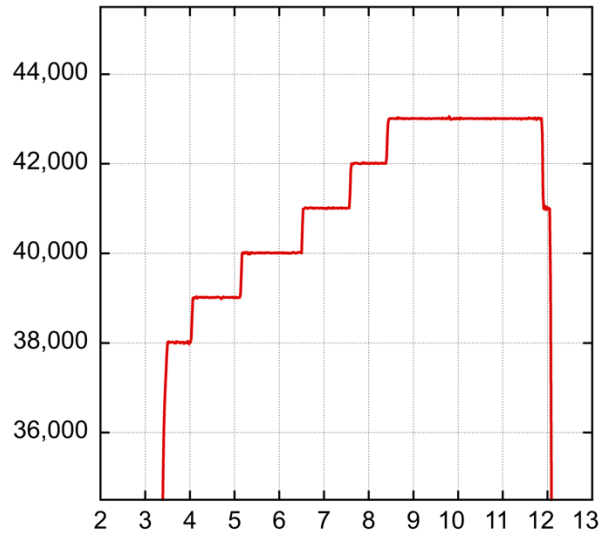
Flight 779
Palmdale to
Palmdale

Mission ID 2021-09-08_HA_F779
Take off date UTC:
08-SEP-2021

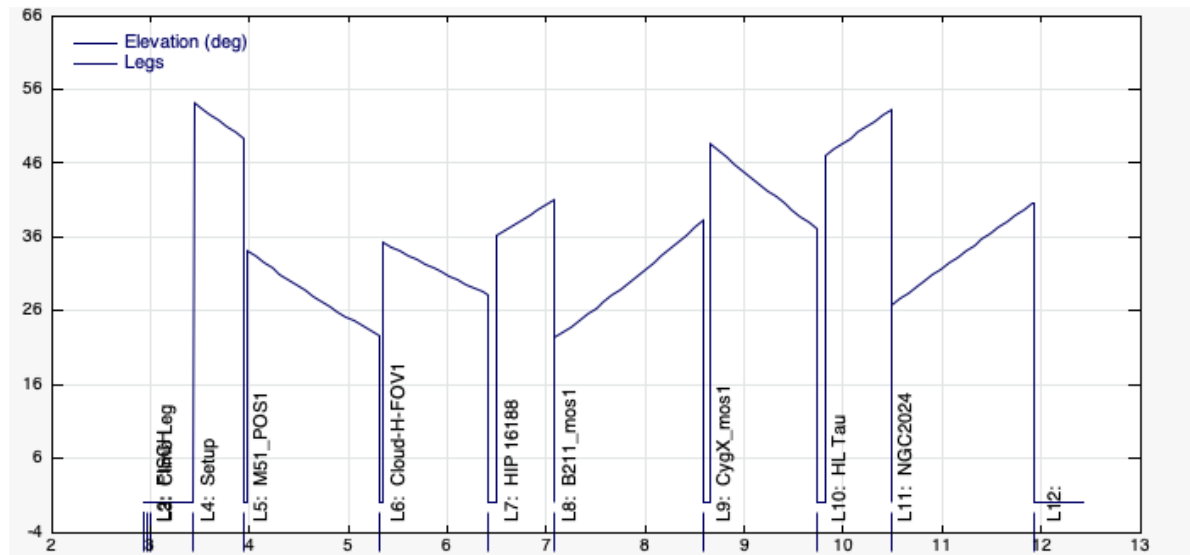
Departure UTC: 02:55
Arrival UTC: 12:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h54m00.47s	10d09m55.3s	3:26	30	
5	09_0201	Dowell	M51	13h29m54.39s	47d12m27.2s	3:58	80	
6	09_0104	Tan	Cloud-H-OTF	18h57m05.08s	02d07m02.8s	5:21	63	
7	09_0182	Ballerig	HIP 16188	03h28m33.11s	43d45m12.9s	6:29	35	
8	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	7:04	90	
9	09_0215	Pillai	Cyg X	20h38m50.70s	42d26m52.3s	8:39	65	
10	09_0084	Brunngraeber	HL Tau	04h31m38.47s	18d13m58.1s	9:49	40	
11	09_0015	Lis	NGC2024	05h41m40.99s	-01d54m02.3s	10:29	86	

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



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



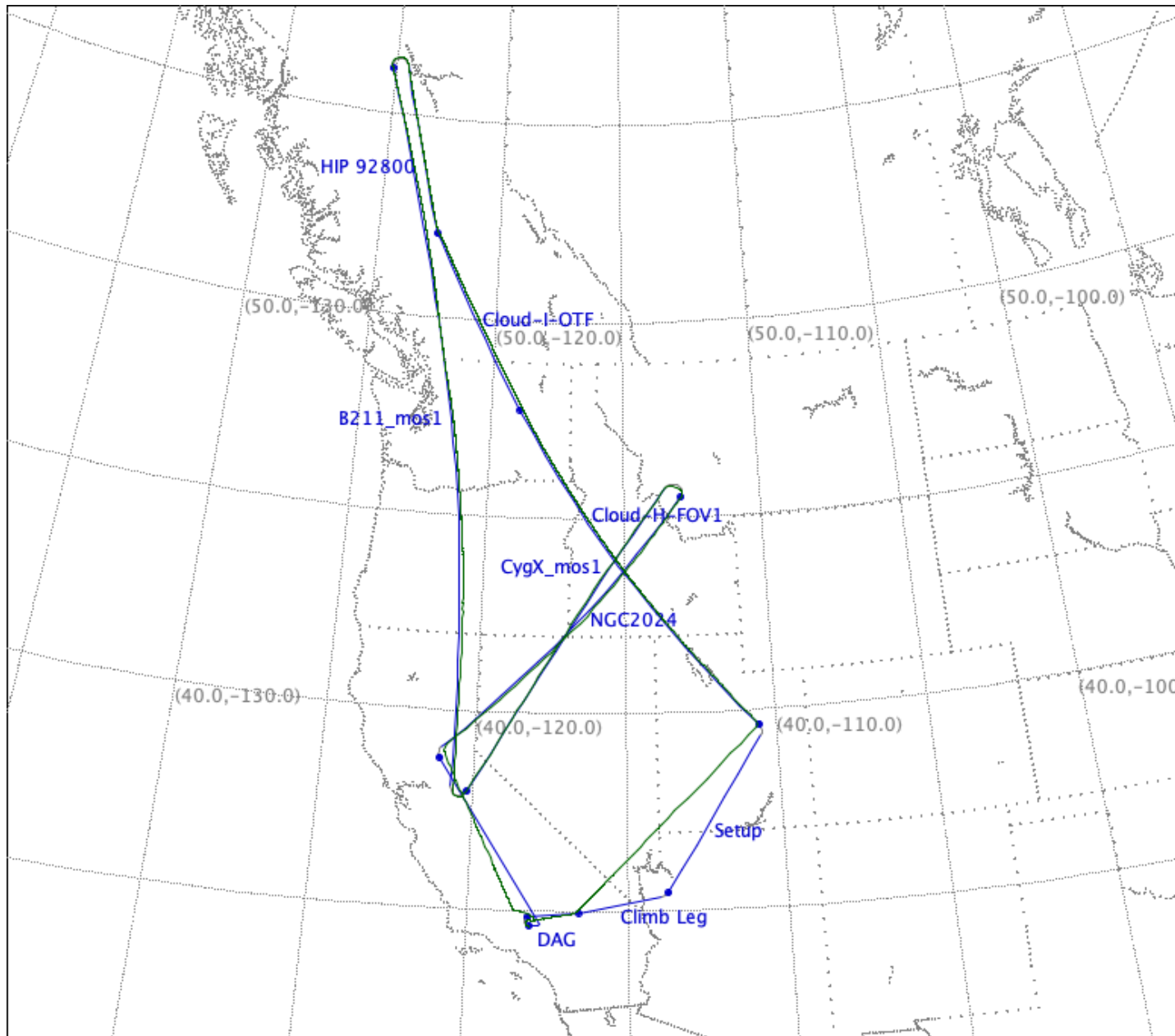
MISSION ID: 2021-09-09_HA_F780

Date: 2021-09-09 UT Instrument: HAWC+

Flight #: 780 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes:
Late departure, but no science time lost.

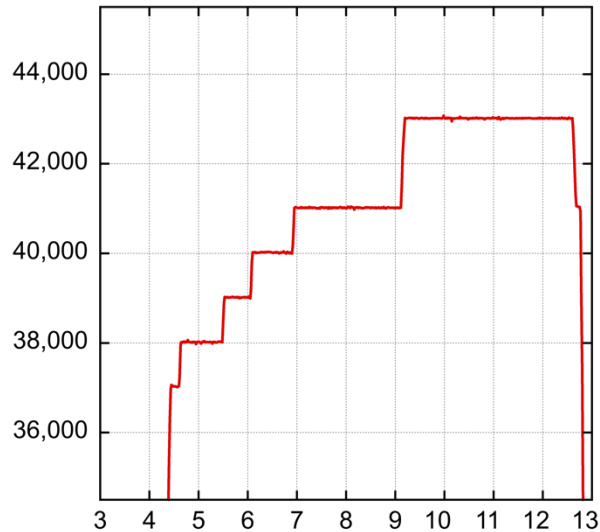
Flight 780
 Palmdale to
 Palmdale

Mission ID 2021-09-09_HA_F780
 Take off date UTC:
 09-SEP-2021

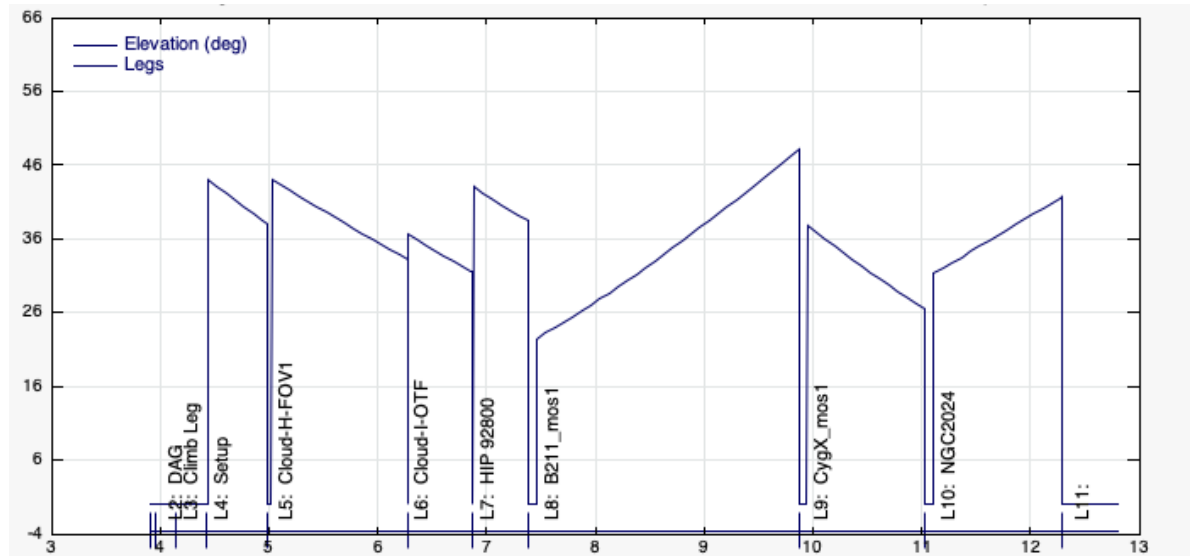
Departure UTC: 04:01
 Arrival UTC: 13:13

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h02m47.90s	46d02m12.1s	4:27	33	
5	09_0104	Tan	Cloud-H-OTF	18h57m05.08s	02d07m02.8s	5:02	75	
6	09_0104	Tan	Cloud-I-OTF	19h04m10.00s	05d06m20.0s	6:17	35.8	
7	09_0182	Ballering	HIP 92800	18h54m32.85s	20d36m55.1s	6:54	30	
8	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	7:28	145	Had a single anomalous internal calibration, however follow-ups were nominal
9	09_0215	Pillai	Cyg X	20h38m50.70s	42d26m52.3s	9:58	65	
10	09_0015	Lis	NGC2024	05h41m40.99s	-01d54m02.3s	11:08	71	

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



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



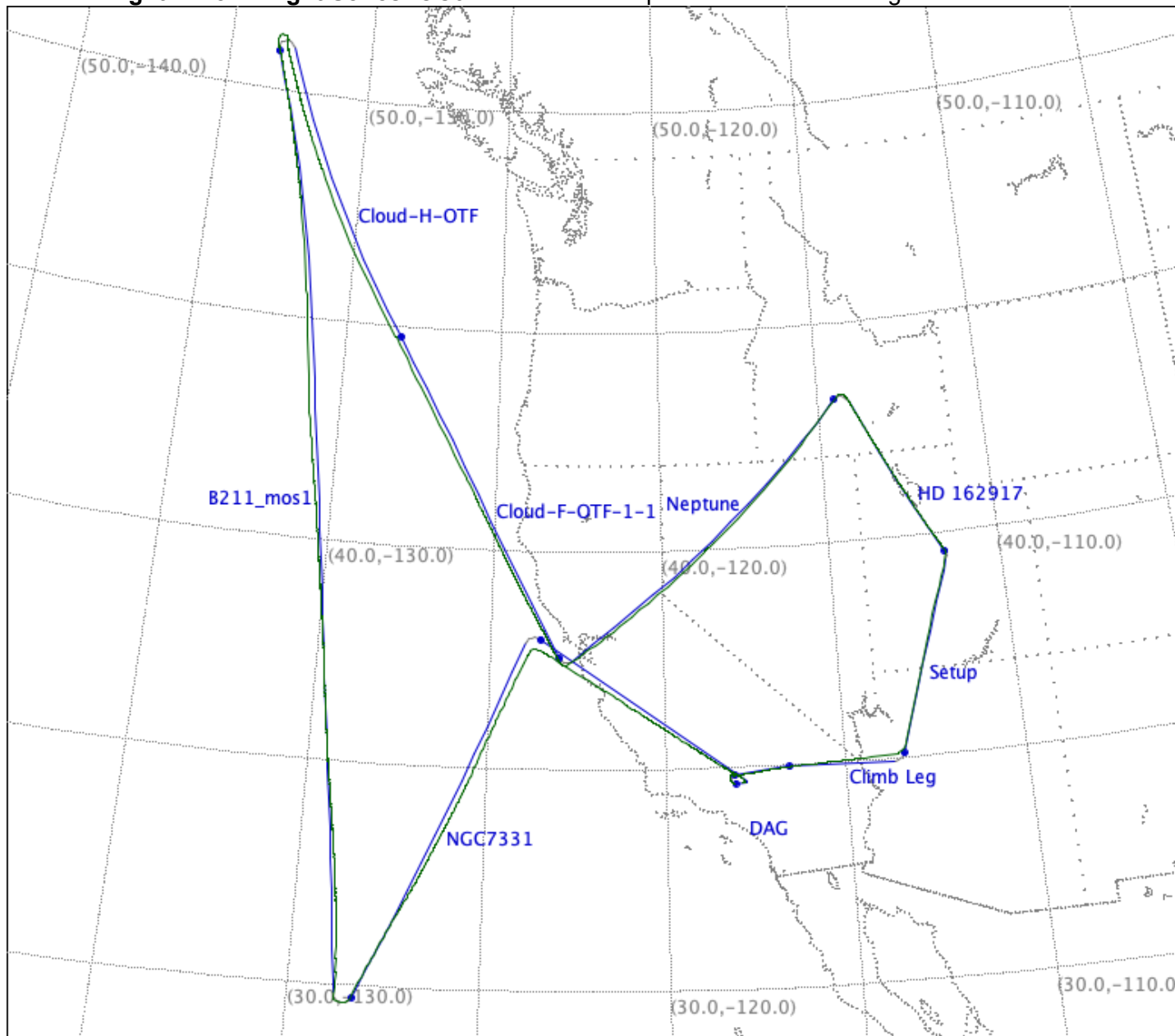
MISSION ID: 2021-09-10_HA_F781

Date: 2021-09-10 UT Instrument: HAWC+

Flight #: 781 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: No irregularities

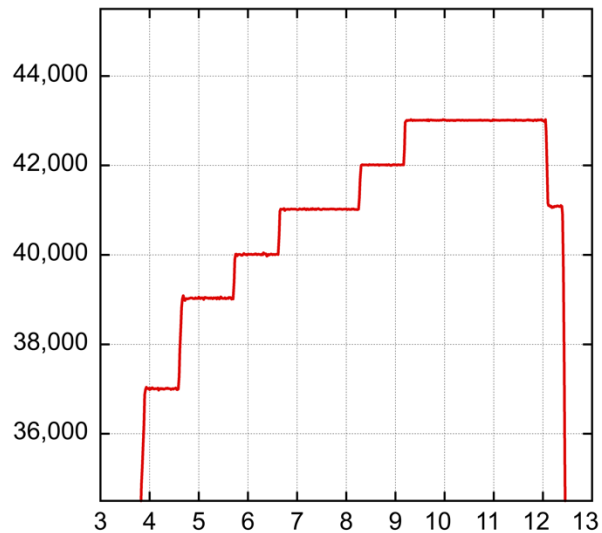
Flight 781
Palmdale to
Palmdale

Mission ID 2021-09-10_HA_F781
Take off date UTC:
10-SEP-2021

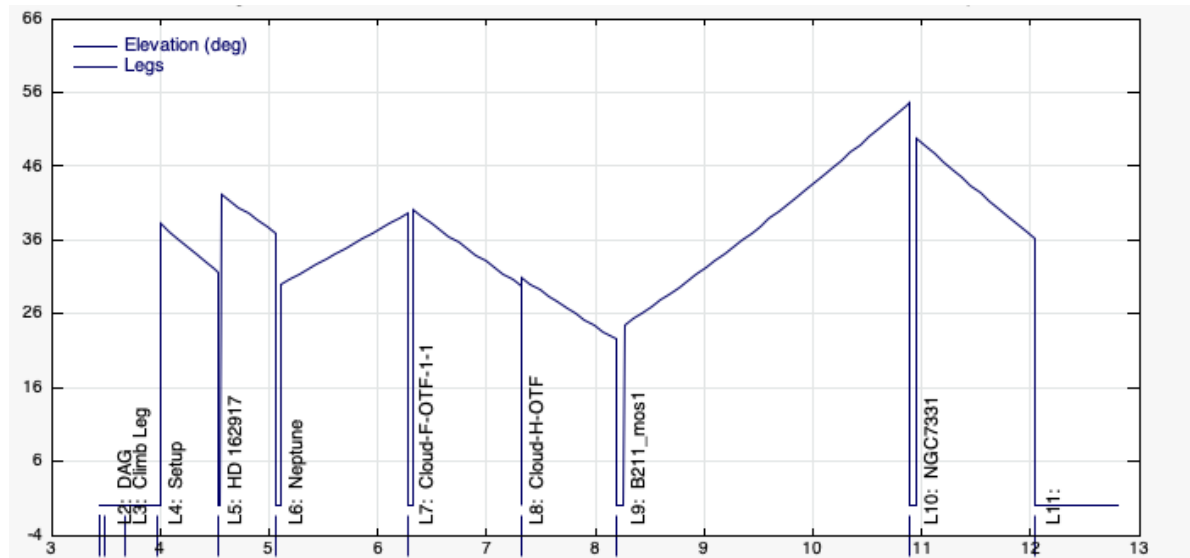
Departure UTC: 03:25
Arrival UTC: 12:56

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h32m55.78s	31d21m32.9s	4:00	32	
5	09_0182	Ballering	HD 162917	17h53m14.19s	06d06m05.1s	4:34	30	
6	90_0083	Calibration	Neptune	23h30m58.20s	-04d24m28.9s	5:07	70	
7	09_0104	Tan	Cloud-F-OTF	18h53m15.00s	01d26m20.0s	6:19	60	
8	09_0104	Tan	Cloud-H-OTF	18h57m05.08s	02d07m02.8s	7:19	52	
9	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	8:16	157	
10	08_0012	Lopez-Rodriguez	NGC7331	22h37m04.10s	34d24m57.3s	10:57	65	

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



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



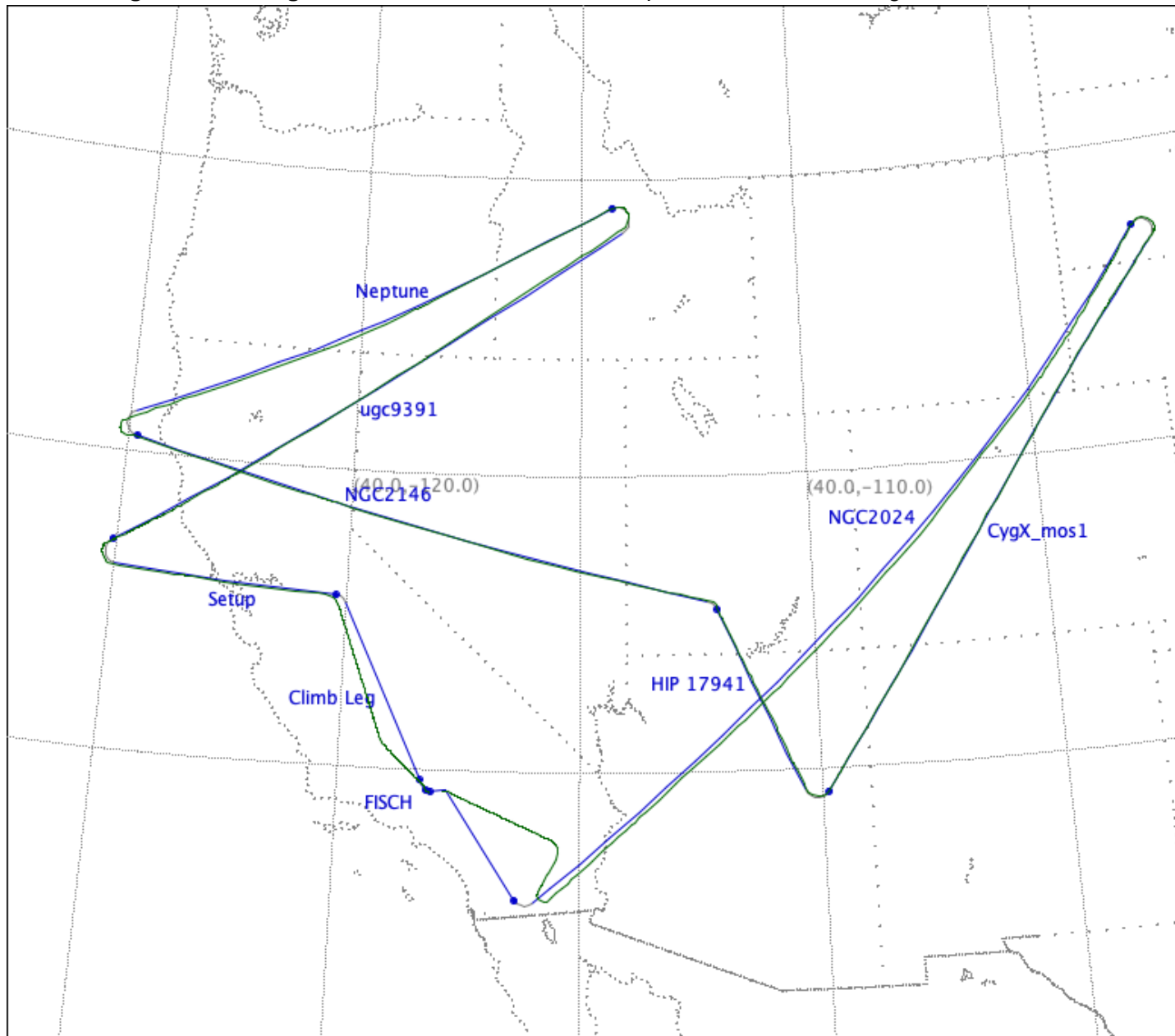
MISSION ID: 2021-09-11_HA_F782

Date: 2021-09-11 UT Instrument: HAWC+

Flight #: 782 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: No irregularities

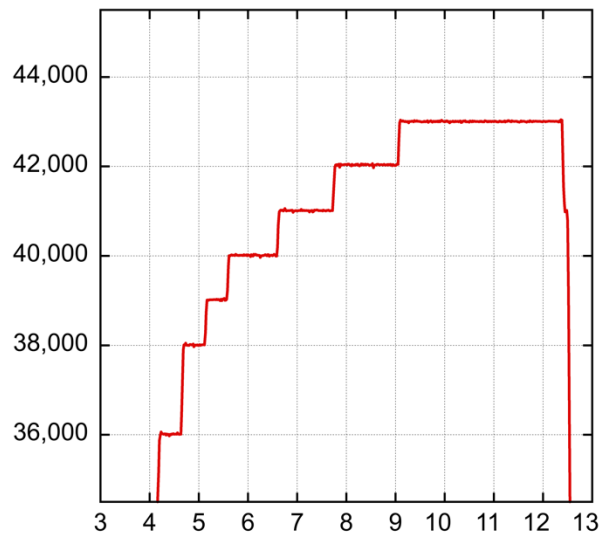
Flight 782
Palmdale to
Palmdale

Mission ID 2021-09-11_HA_F782
Take off date UTC:
11-SEP-2021

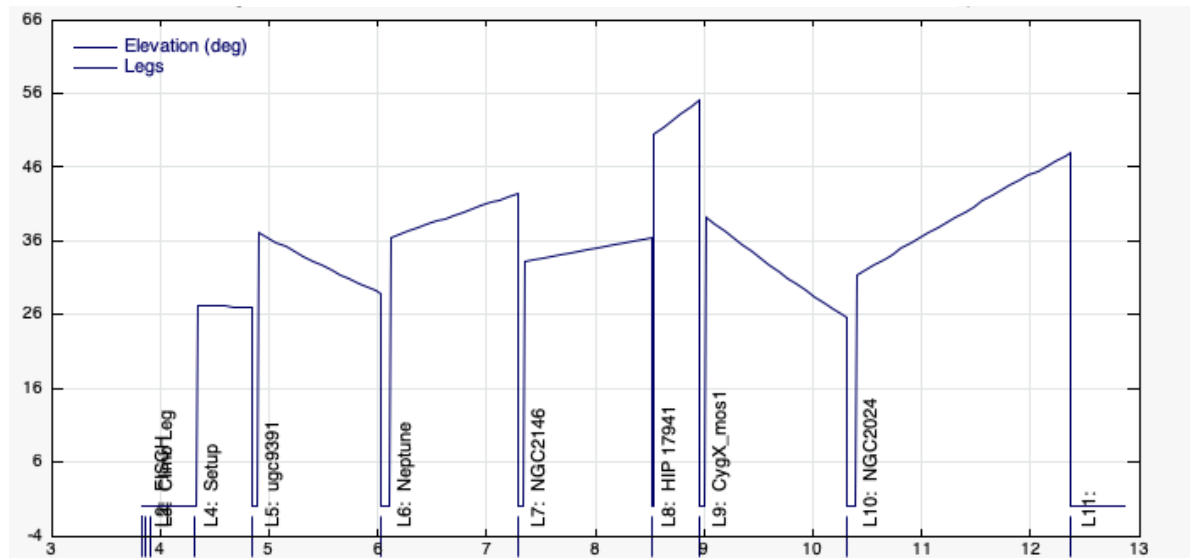
Departure UTC: 03:49
Arrival UTC: 13:02

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h36m42.43s	-24d53m01.0s	4:20	30	
5	09_0180	Casey	ugc9391	14h34m37.01s	59d20m16.2s	4:54	68	
6	90_0083	Calibration	Neptune	23h30m51.87s	-04d25m10.3s	6:07	70	
7	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	7:21	70	
8	09_0182	Ballering	HIP 17941	03h50m11.93s	42d21m03.2s	8:32	25	
9	09_0215	Pillai	Cyg X	20h38m50.70s	42d26m52.3s	9:01	78	Lost ~5 minutes correcting a ~1 arcmin pointing offset that appeared suddenly
10	09_0015	Lis	NGC2024	05h41m40.99s	-01d54m02.3s	10:24	118	

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



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



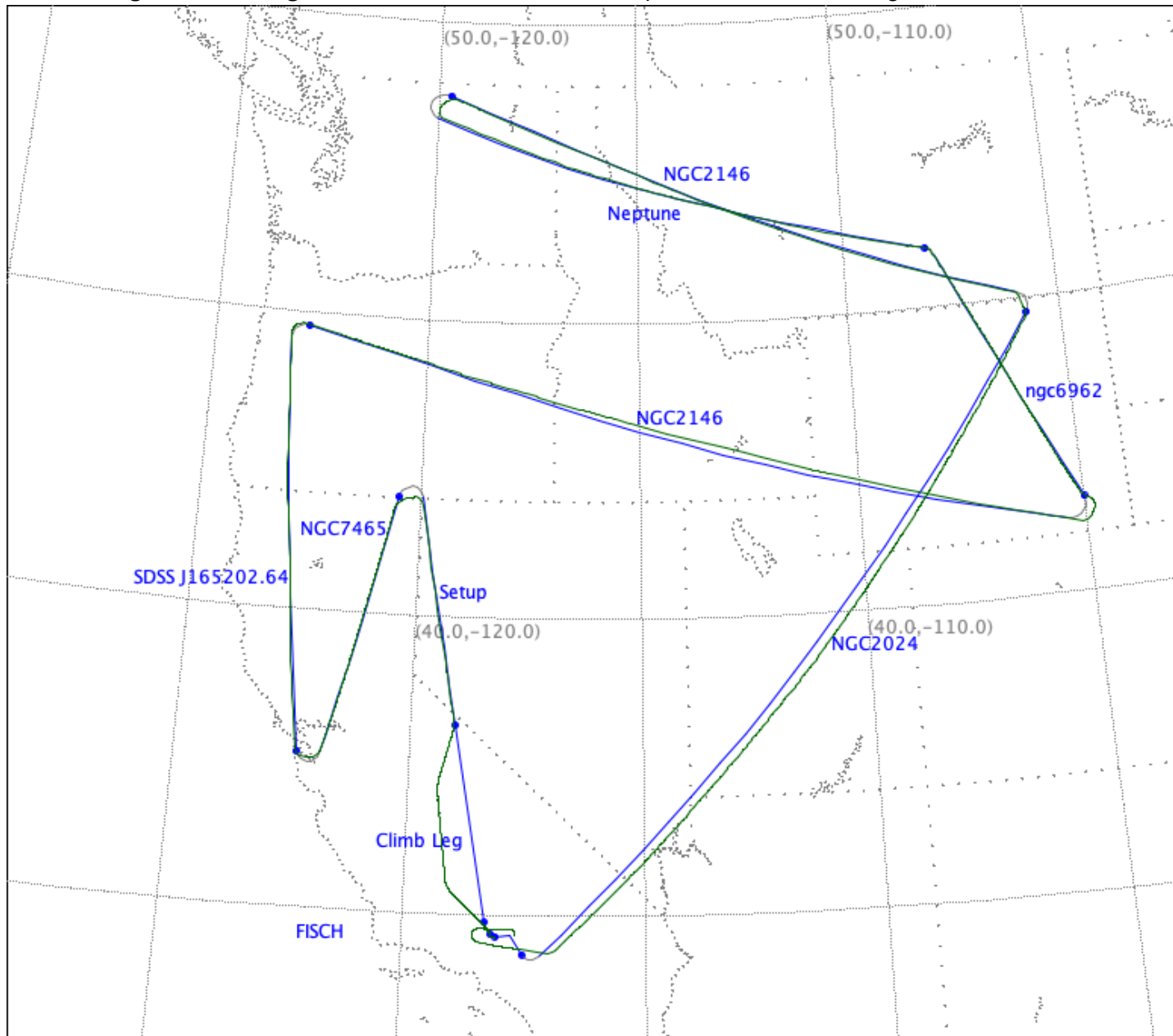
MISSION ID: 2021-09-14_HA_F783

Date: 2021-09-14 UT Instrument: HAWC+

Flight #: 783 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes:

The phase offsets of the HAWC+ detectors were unusually large during the entire flight, but the data do not appear to have been negatively impacted.

Flight 783
Palmdale to
Palmdale

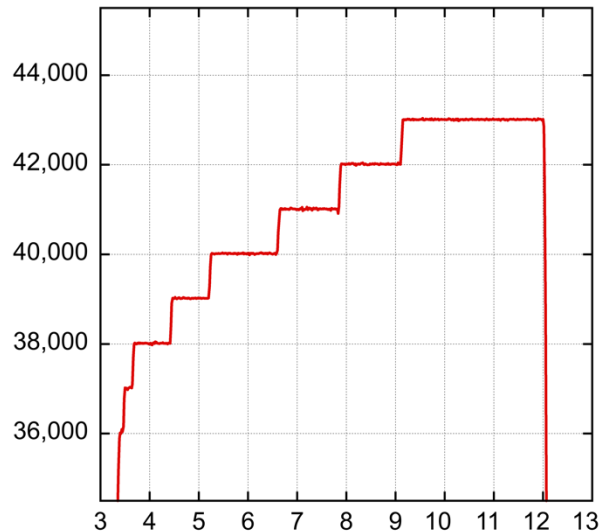
Mission ID 2021-09-14_HA_F783
Take off date UTC:
14-SEP-2021

Departure UTC:
02:59

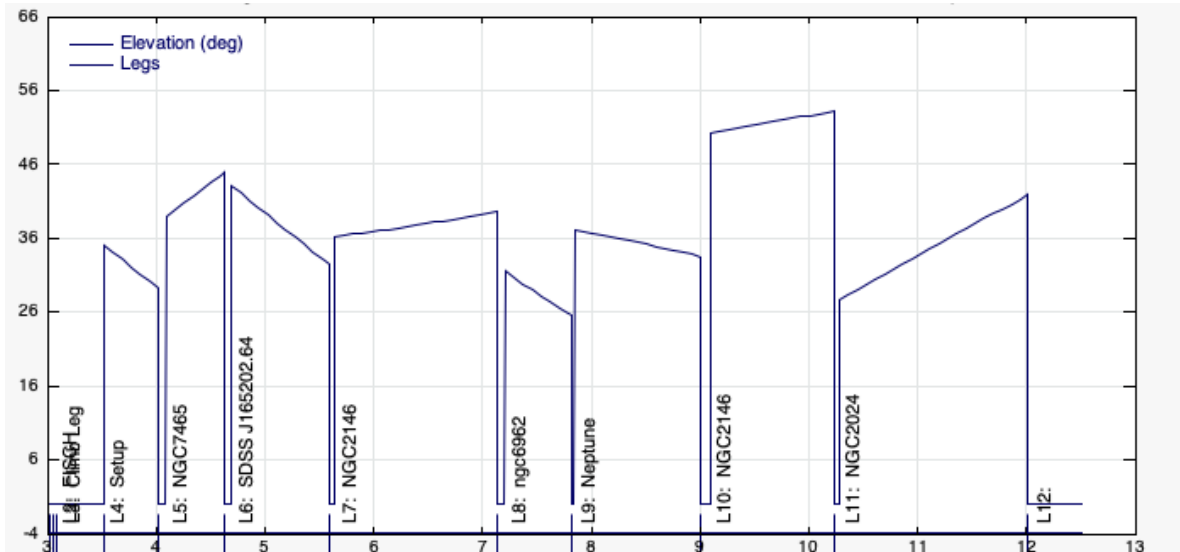
Arrival UTC:
12:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h34m48.15s	10d32m19.9s	3:31	30	
5	08_0014	Lopez-Rodriguez	NGC7465	23h02m00.95s	15d57m53.5s	4:05	32	
6	09_0070	Veilleux	SDSS J165202.64+172852.4	16h52m02.65s	17d28m52.4s	4:41	54	
7	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	5:38	90	
8	09_0180	Casey	ngc6962	20h47m19.06s	00d19m14.9s	7:12	37	
9	90_0083	Calibration	Neptune	23h30m33.35s	-04d27m11.1s	7:50	70	
10	08_0012	Lopez-Rodriguez	NGC2146	06h18m37.71s	78d21m25.3s	9:05	68	
11	09_0015	Lis	NGC2024	05h41m40.99s	-01d54m02.3s	10:16	104	

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



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



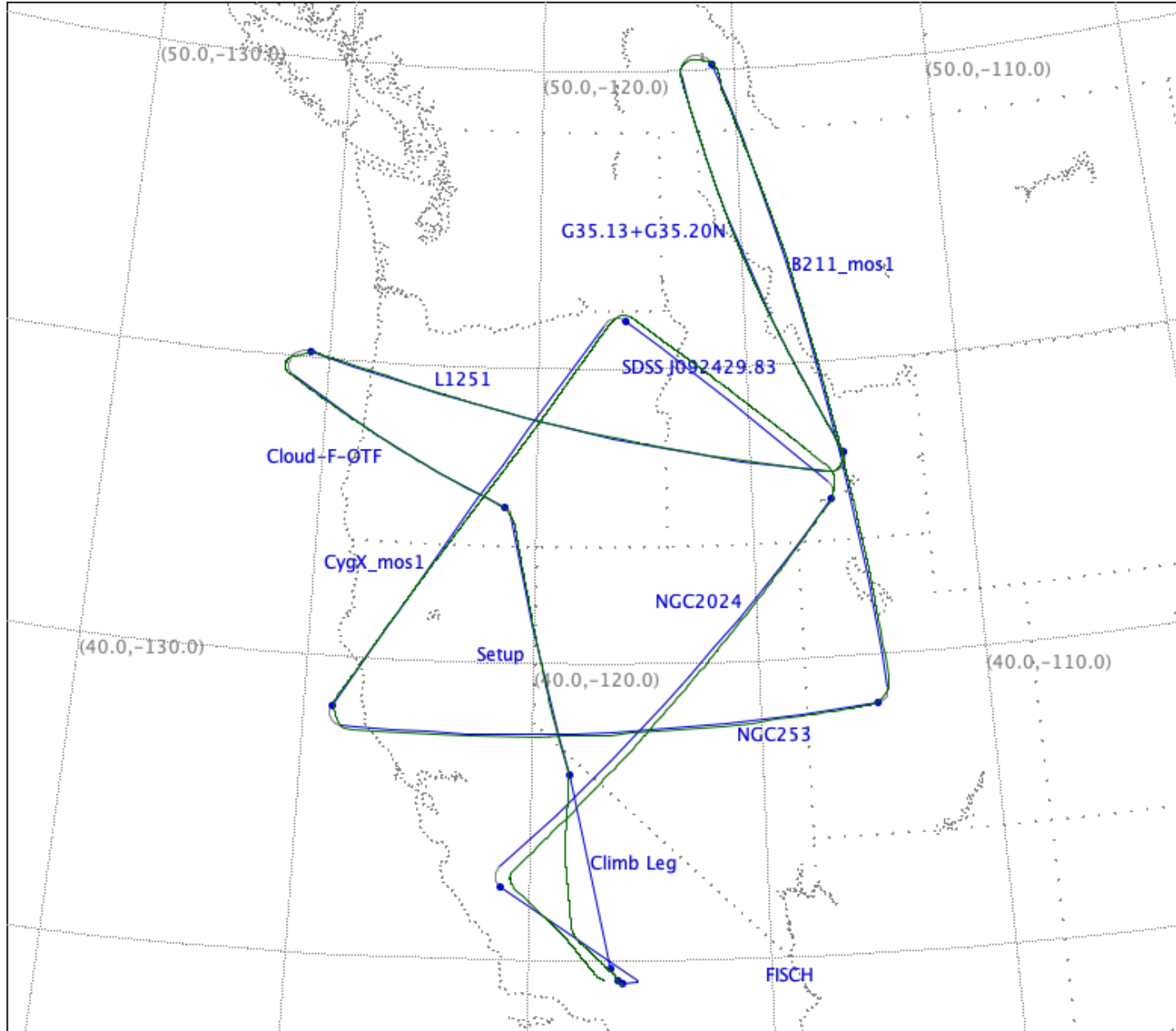
MISSION ID: 2021-09-15_HA_F784

Date: 2021-09-15 UT Instrument: HAWC+

Flight #: 784 Flight Series: OC9D

blue = planned route

green = flown route



Flight notes: No irregularities

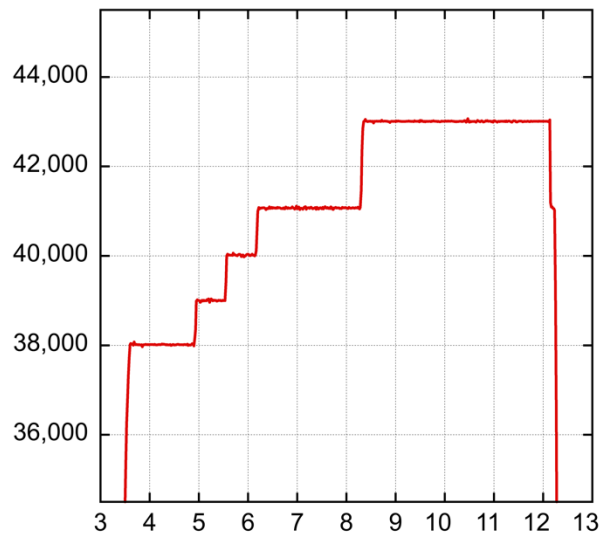
Flight 784
Palmdale to
Palmdale

Mission ID 2021-09-15_HA_F784
Take off date UTC:
15-SEP-2021

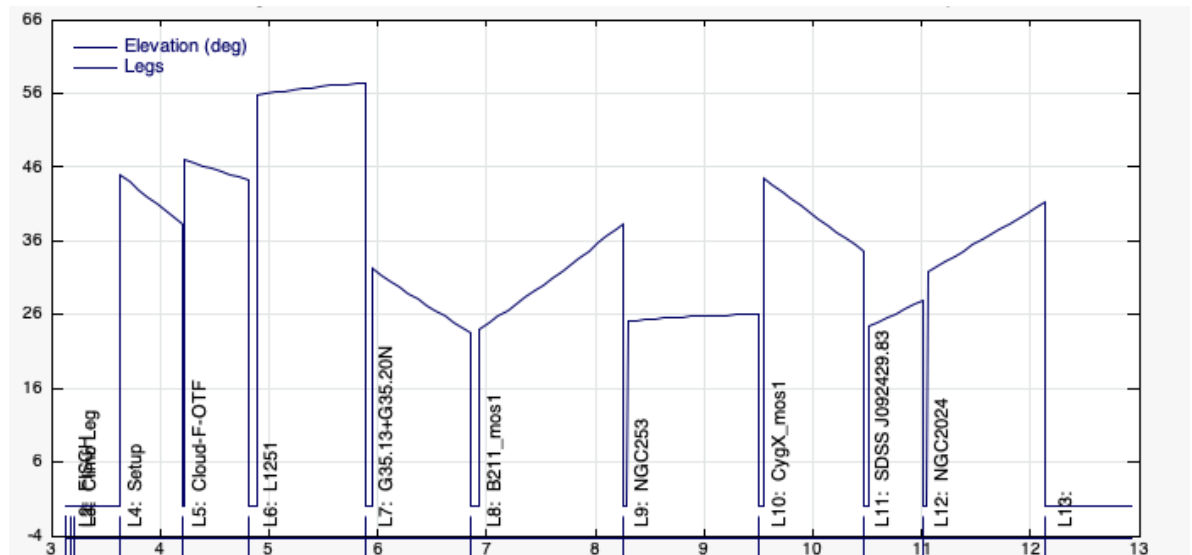
Departure UTC: 03:07
Arrival UTC: 12:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h25m24.95s	14d01m59.8s	3:38	34	
5	09_0104	Tan	Cloud-F-OTF	18h53m15.00s	01d26m20.0s	4:13	35	
6	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	4:53	60	
7	09_0016	Stephens	G35.13+G35.20N	18h58m08.78s	01d38m40.8s	5:57	54	
8	09_0215	Pillai	B211	04h19m52.30s	27d15m12.2s	6:56	79	
9	08_0012	Lopez-Rodriguez	NGC253	00h47m33.13s	-25d17m19.7s	8:17	72	
10	09_0215	Pillai	Cyg X	20h38m50.70s	42d26m52.3s	9:33	55	
11	08_0254	Eufrasio	SDSS J092429.83+514301.1	09h24m29.84s	51d43m01.2s	10:30	30	
12	09_0015	Lis	NGC2024	05h41m40.99s	-01d54m02.3s	11:03	65	

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



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



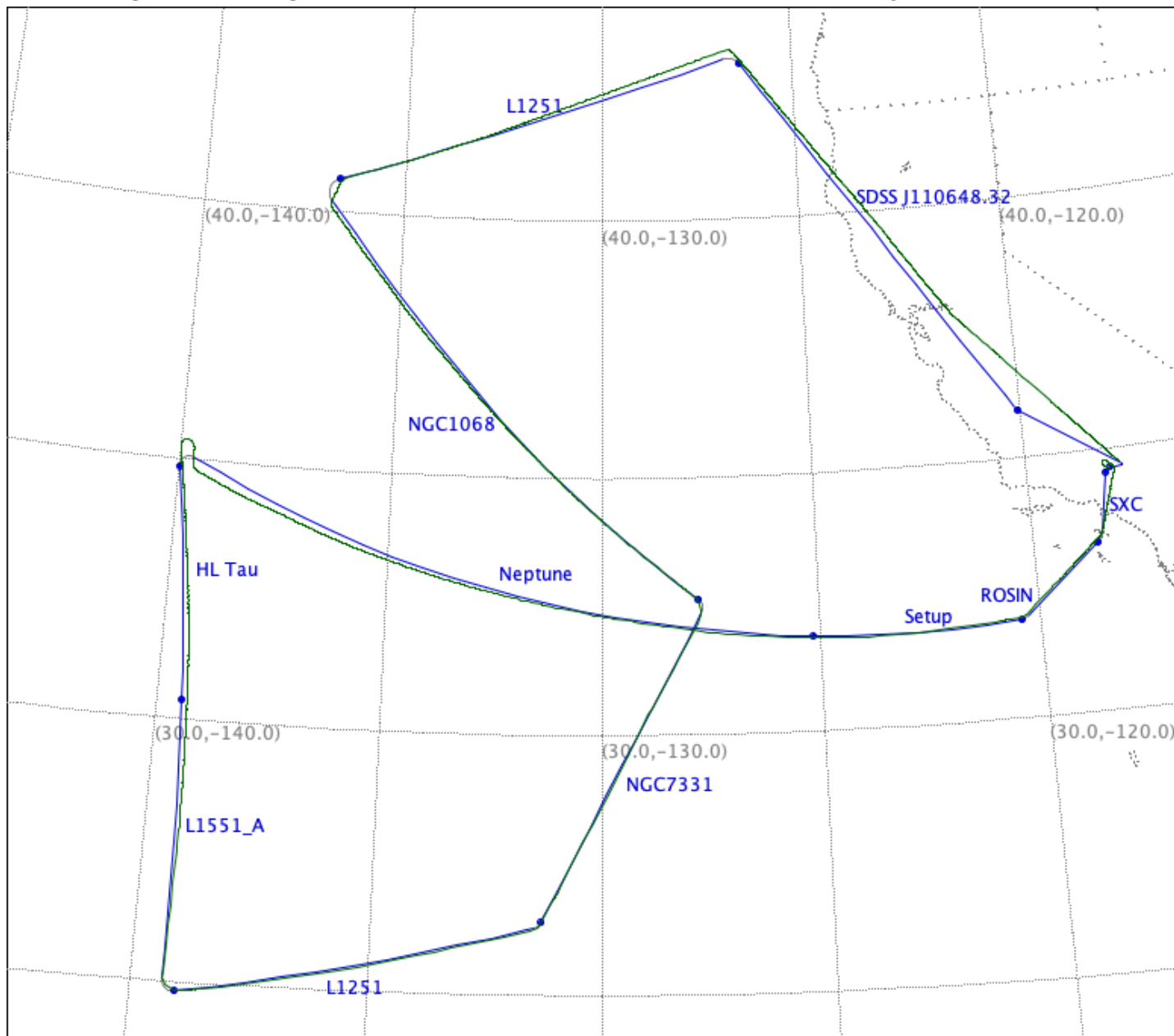
MISSION ID: 2021-11-03_HA_F786

Date: 2021-11-03 UT Instrument: HAWC+

Flight #: 786 Flight Series: OC9E

blue = planned route

green = flown route



Flight notes:

Air Traffic Control (ATC) required low altitudes through end of leg 5, HAWC+ lost the ability to stay cold during leg 12

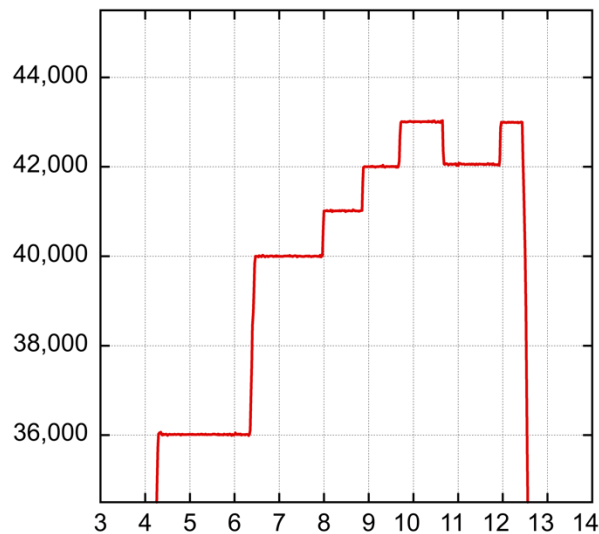
Flight 786
Palmdale to
Palmdale

Mission ID 2021-11-03_HA_F786
Take off date UTC:
03-NOV-2021

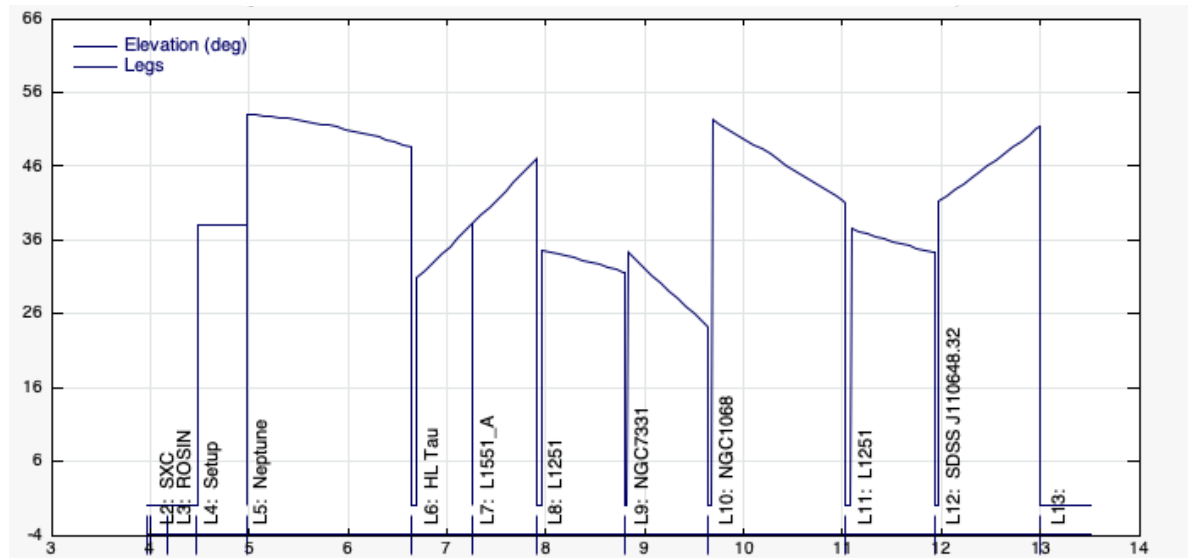
Departure UTC: 03:52
Arrival UTC: 13:21

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	23h22m58.23s	-20d06m02.1s	4:25	30	
5	90_0086	Calibration	Neptune	23h26m15.32s	-04d54m16.5s	4:55	100	ATC required leg to be at 36k ft.
6	09_0084	Brunngraeber	HL Tau	04h31m38.47s	18d13m58.1s	6:38	34	
7	09_0231	Lazarian	L1551_A	04h31m32.50s	18d11m00.0s	7:12	39	
8	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	7:54	51	
9	08_0012	Lopez-Rodriguez	NGC7331	22h37m04.10s	34d24m57.3s	8:47	49	
10	08_0012	Lopez-Rodriguez	NGC1068	02h42m40.77s	-00d00m47.8s	9:38	81	High altitude turbulence pushed the telescope in standby; had to descend to 42k feet to resume observing.
11	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	11:02	51	
12	09_0070	Veilleux	SDSS J110648.32+480712.3	11h06m48.33s	48d07m12.2s	11:55	62	HAWC+ cooler failed during leg and remaining observations were aborted.

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



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



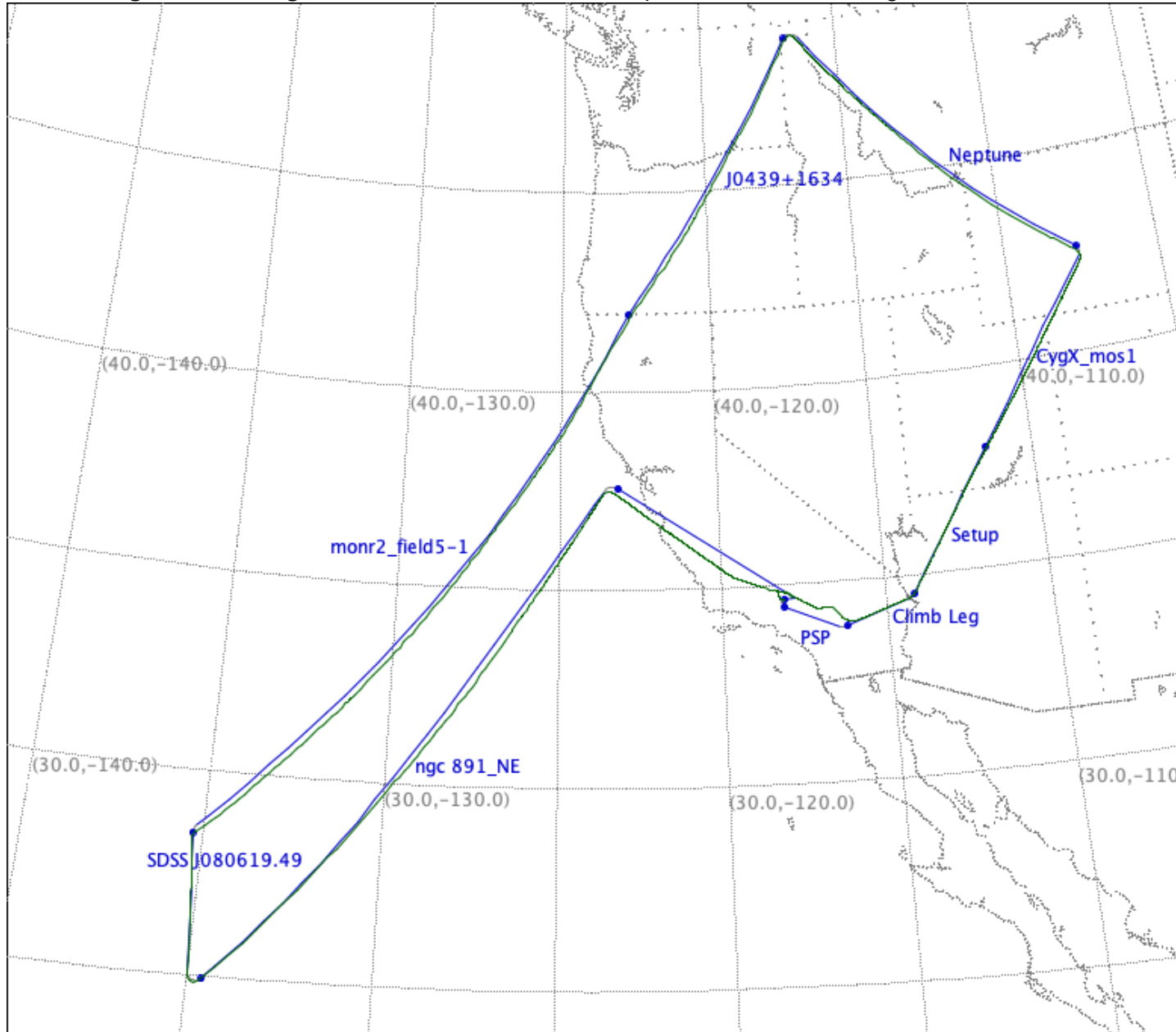
MISSION ID: 2021-11-04_HA_F787

Date: 2021-11-04 UT Instrument: HAWC+

Flight #: 787 Flight Series: OC9E

blue = planned route

green = flown route



Flight notes: No irregularities

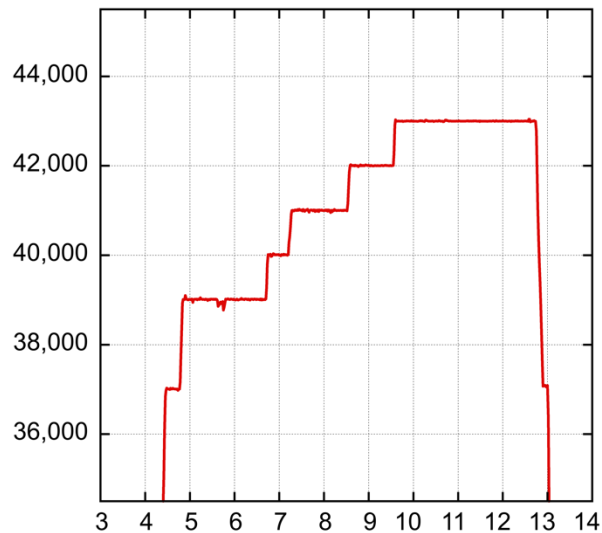
Flight 787
Palmdale to
Palmdale

Mission ID 2021-11-04_HA_F787
Take off date UTC:
04-NOV-2021

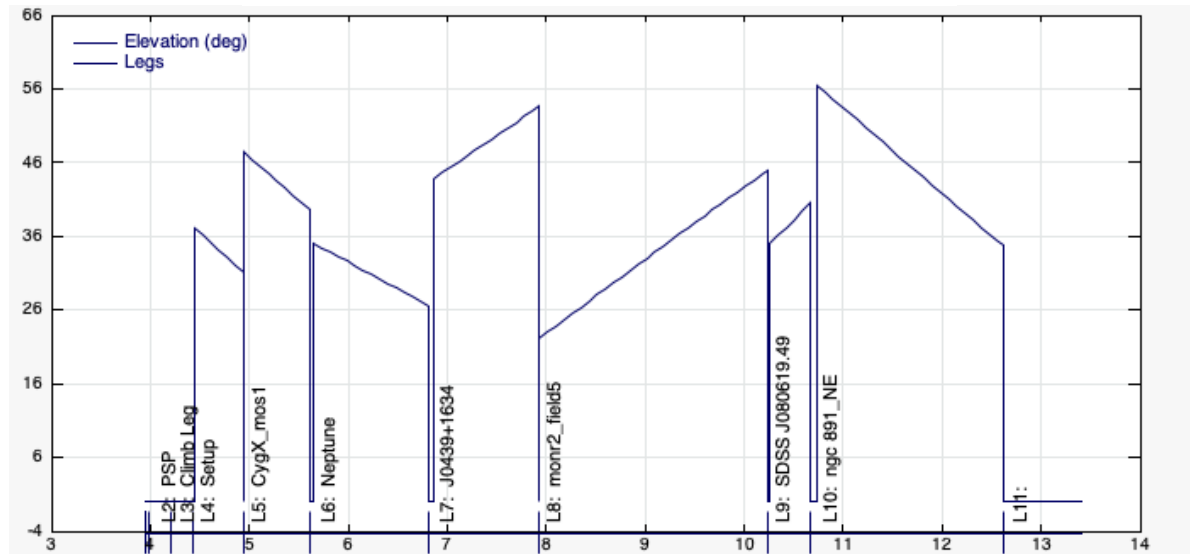
Departure UTC: 03:55
Arrival UTC: 13:23

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h16m22.09s	38d08m01.4s	4:26	30	
5	09_0215	Pillai	Cyg X	20h38m51.89s	42d26m16.3s	4:56	40	
6	90_0083	Calibration	Neptune	23h26m11.90s	-04d54m36.9s	5:38	70	
7	08_0179	Yang	J0439+1634	04h39m47.10s	16d34m15.8s	6:51	64	
8	09_0203	Pokhrel	Mon R2	06h07m50.62s	-06d20m11.6s	7:55	138	
9	08_0254	Eufrasio	SDSS J080619.49+194927.2	08h06m19.50s	19d49m27.3s	10:15	25	
10	09_0067	Jones	ngc 891_NE	02h22m35.50s	42d21m56.0s	10:44	113	

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



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



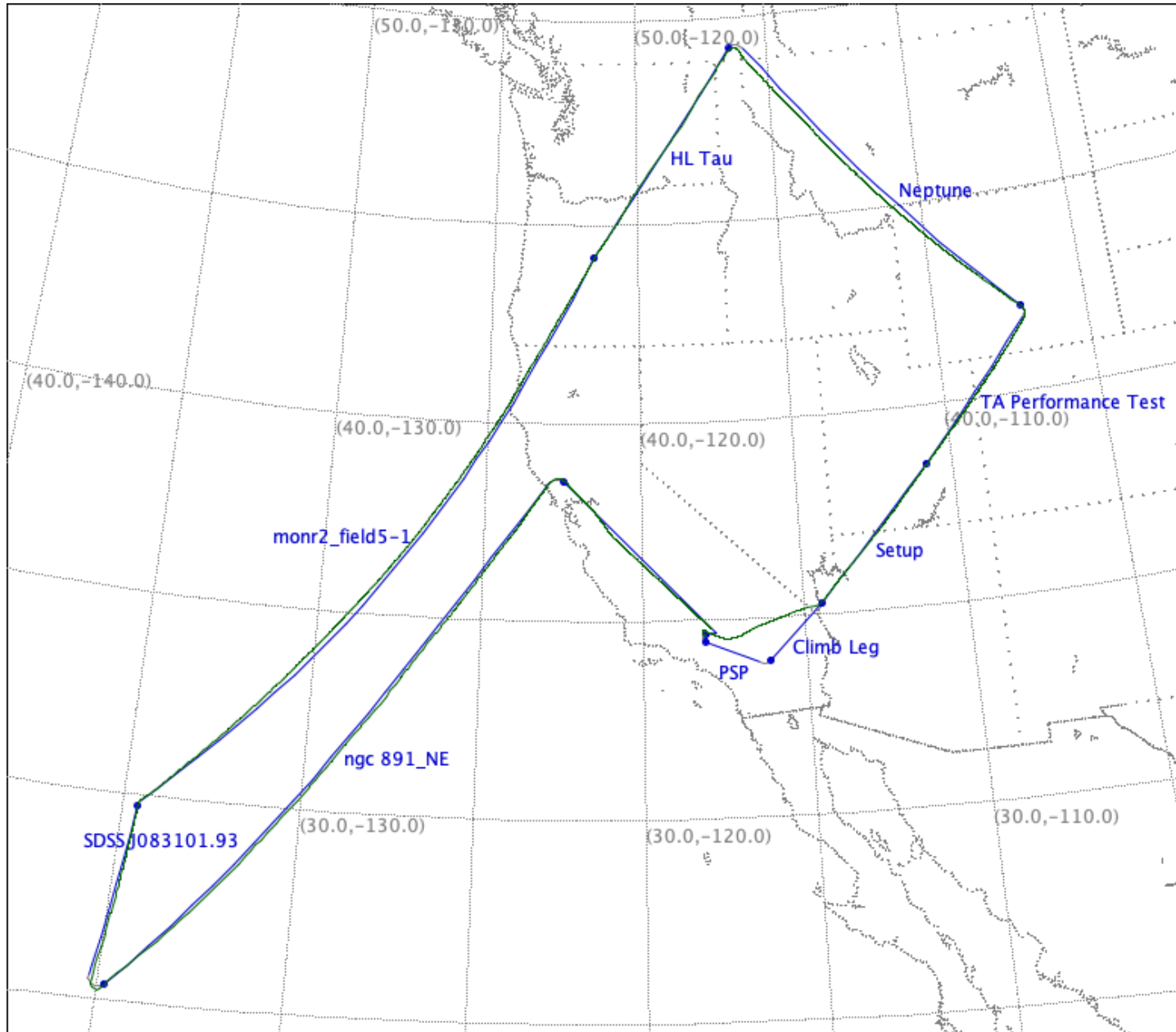
MISSION ID: 2021-11-05_HA_F788

Date: 2021-11-05 UT Instrument: HAWC+

Flight #: 788 Flight Series: OC9E

blue = planned route

green = flown route



Flight notes: No irregularities

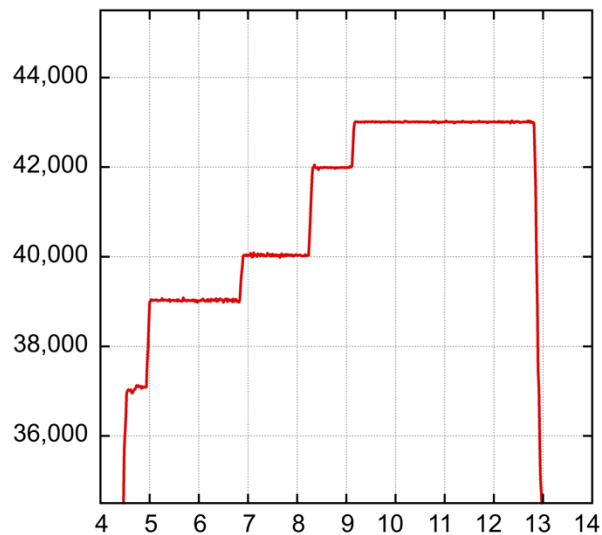
Flight 788
Palmdale to
Palmdale

Mission ID 2021-11-05_HA_F788
Take off date UTC:
05-NOV-2021

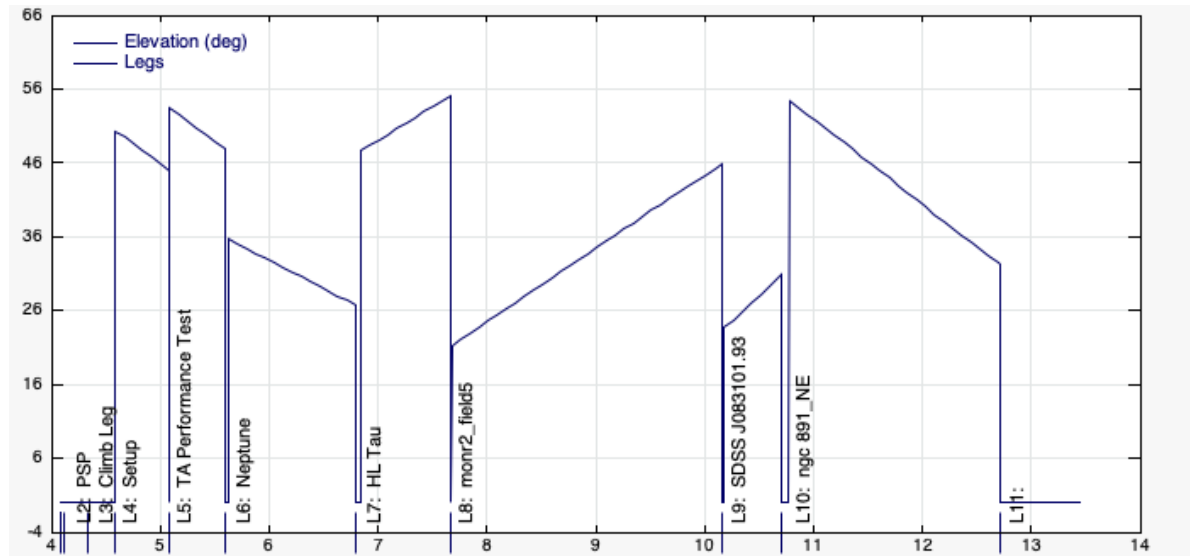
Departure UTC: 04:06
Arrival UTC: 13:32

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h30m03.57s	48d57m05.8s	4:35	30	
5			HIP 105497	21h22m00.52s	49d23m21.2s	5:05	30	
6	90_0083	Calibration	Neptune	23h26m08.68s	-04d54m55.9s	5:37	70	
7	09_0084	Brunngraeber	HL Tau	04h31m38.47s	18d13m58.1s	6:50	50	
8	09_0203	Pokhrel	Monr2_field5	06h07m50.62s	-06d20m11.6s	7:41	149	
9	09_0158	Lenkic	SDSS J083101.93+040318.9	08h31m01.93s	04d03m18.9s	10:11	32	
10	09_0067	Jones	ngc 891_NE	02h22m35.50s	42d21m56.0s	10:47	116	

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



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



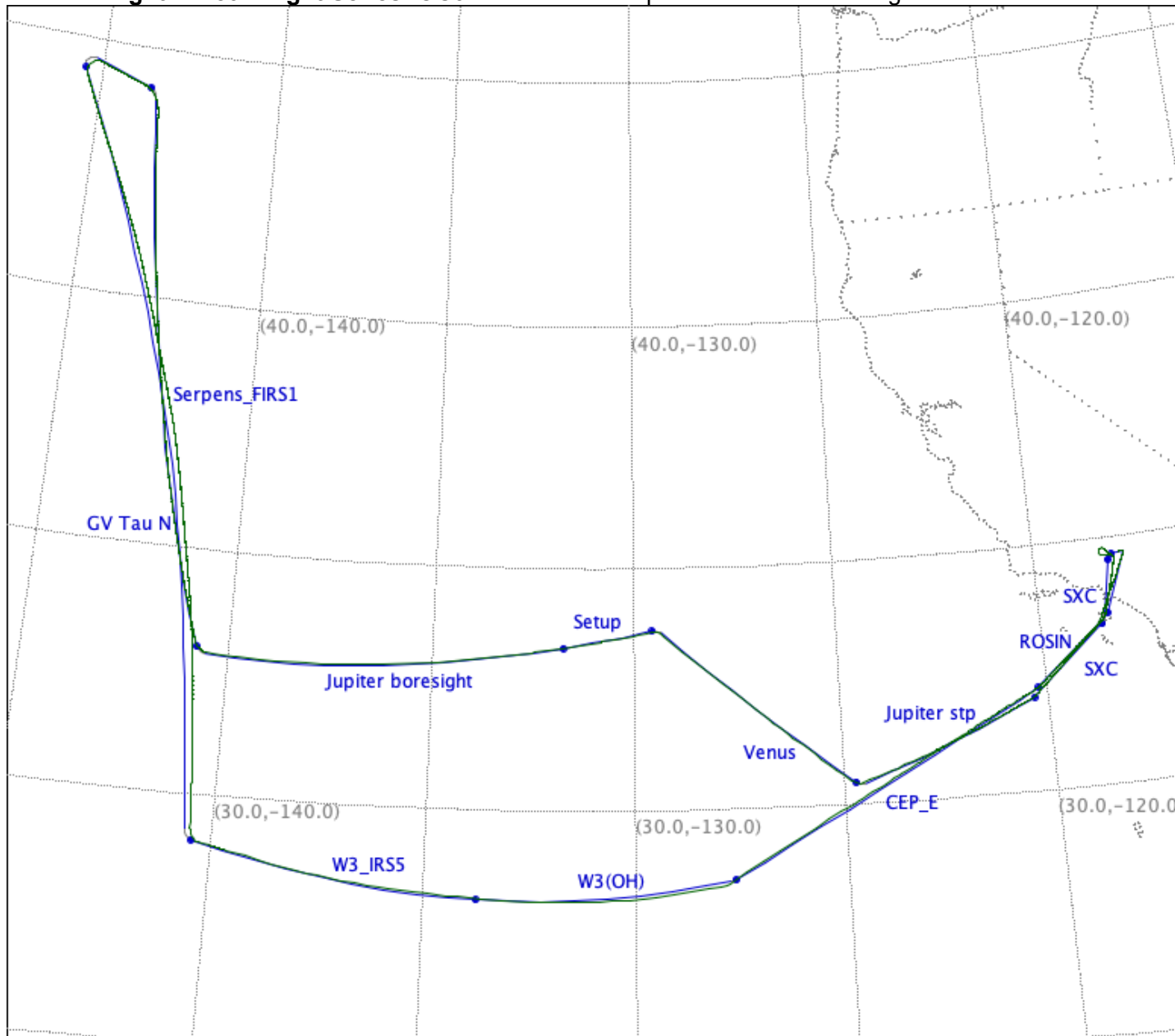
MISSION ID: 2021-11-10_GR_F789

Date: 2021-11-10 UT Instrument: GREAT

Flight #: 789 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 789
Palmdale to
Palmdale

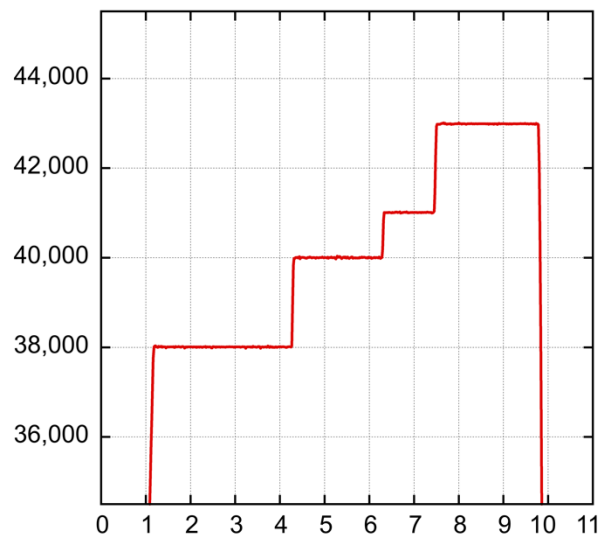
Mission ID 2021-11-10_GR_F789
Take off date UTC:
10-NOV-2021

Departure UTC: 00:39
Arrival UTC: 10:17

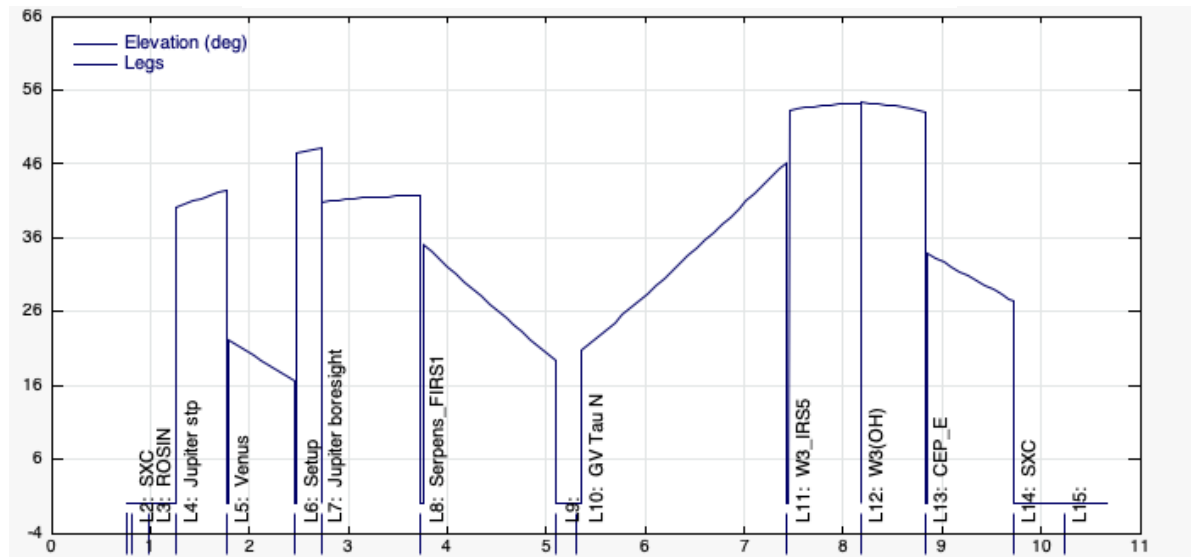
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0008	Calibration	Jupiter	21h42m24.76s	-14d55m06.6s	1:14	30	
5	75_0059	Discretionary	Venus	18h18m00.66s	-27d11m41.6s	1:45	40	Pointing was off-center
6			Setup	21h37m45.11s	-07d51m15.1s	2:27	15	
7	90_0008	Calibration	Jupiter	21h42m25.81s	-14d55m00.7s	2:42	60	
8	08_0166	Caselli	Serpens_FIRS1	18h29m49.80s	01d15m20.5s	3:43	80	
10	07_0070	Goldsmith	GV Tau N	04h29m23.70s	24d32m57.6s	3:43	124	
11	08_0038	Neufeld	W3_IRS5	02h25m40.54s	62d05m51.4s	5:19	44	
12	08_0038	Neufeld	W3(OH)	02h27m04.10s	61d52m22.1s	7:25	39	
13	09_0135	Gusdorf	CEP_E	23h03m12.78s	61d42m25.8s	8:09	53	

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



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



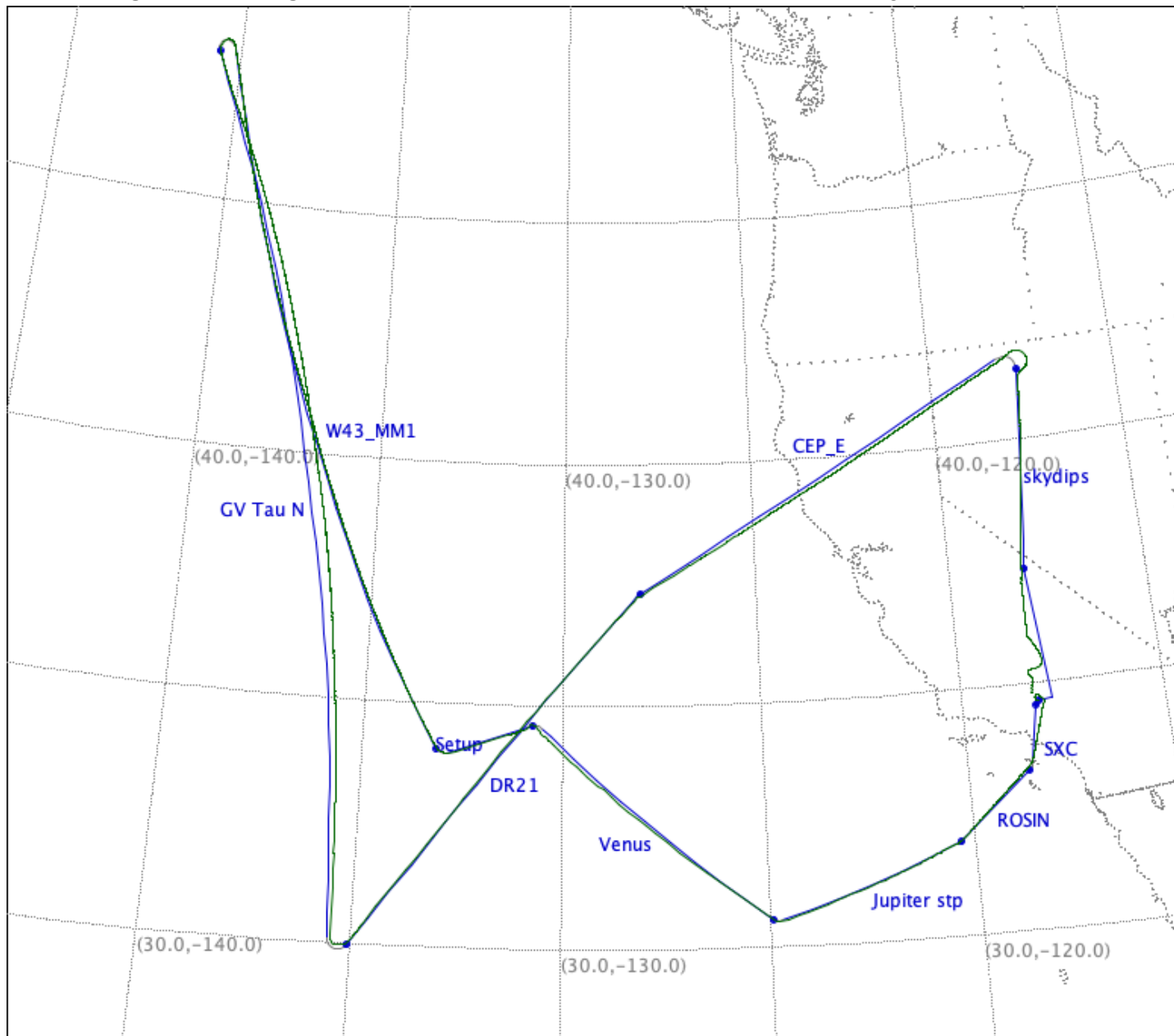
MISSION ID: 2021-11-11_GR_F790

Date: 2021-11-11 UT Instrument: GREAT

Flight #: 790 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 790
Palmdale to
Palmdale

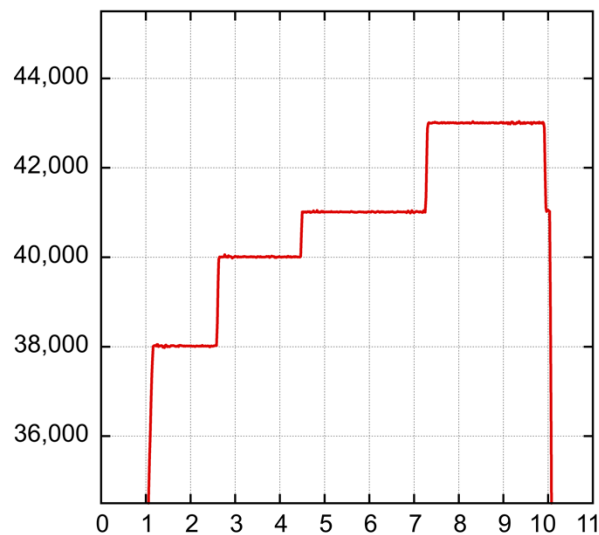
Mission ID 2021-11-11_GR_F790
Take off date UTC:
11-NOV-2021

Departure UTC: 00:40
Arrival UTC: 10:26

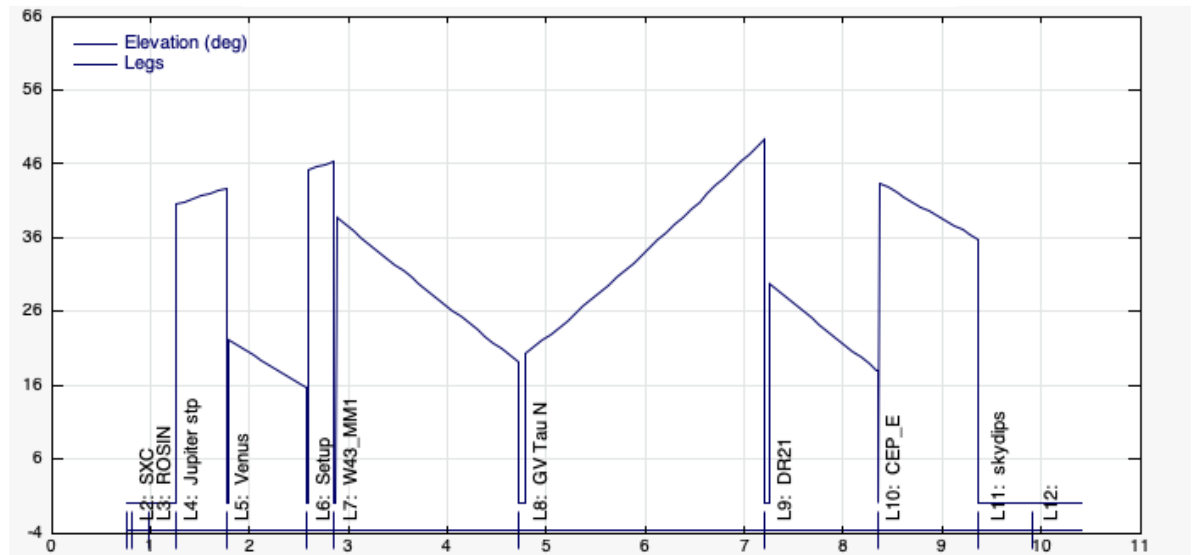
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0008	Calibration	Jupiter	21h42m42.41s	-14d53m28.7s	1:13	30	
5	75_0059	Discretionary	Venus	18h22m04.20s	-27d09m36.8s	1:45	47	Difficulties in setting up pointing led to large loss of time to collect data
6			Setup	22h16m50.04s	-07d46m59.8s	2:34	15	
7	08_0038	Neufeld	W43_MM1	18h47m47.00s	-01d54m28.0s	2:51	110	
8	07_0070	Goldsmith	GV Tau N	04h29m23.70s	24d32m57.6s	4:45	144	
9	08_0038	Neufeld	DR21	20h39m01.61s	42d19m37.9s	7:13	66	
10	09_0135	Gusdorf	CEP_E	23h03m12.78s	61d42m25.8s	8:20	60	

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



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



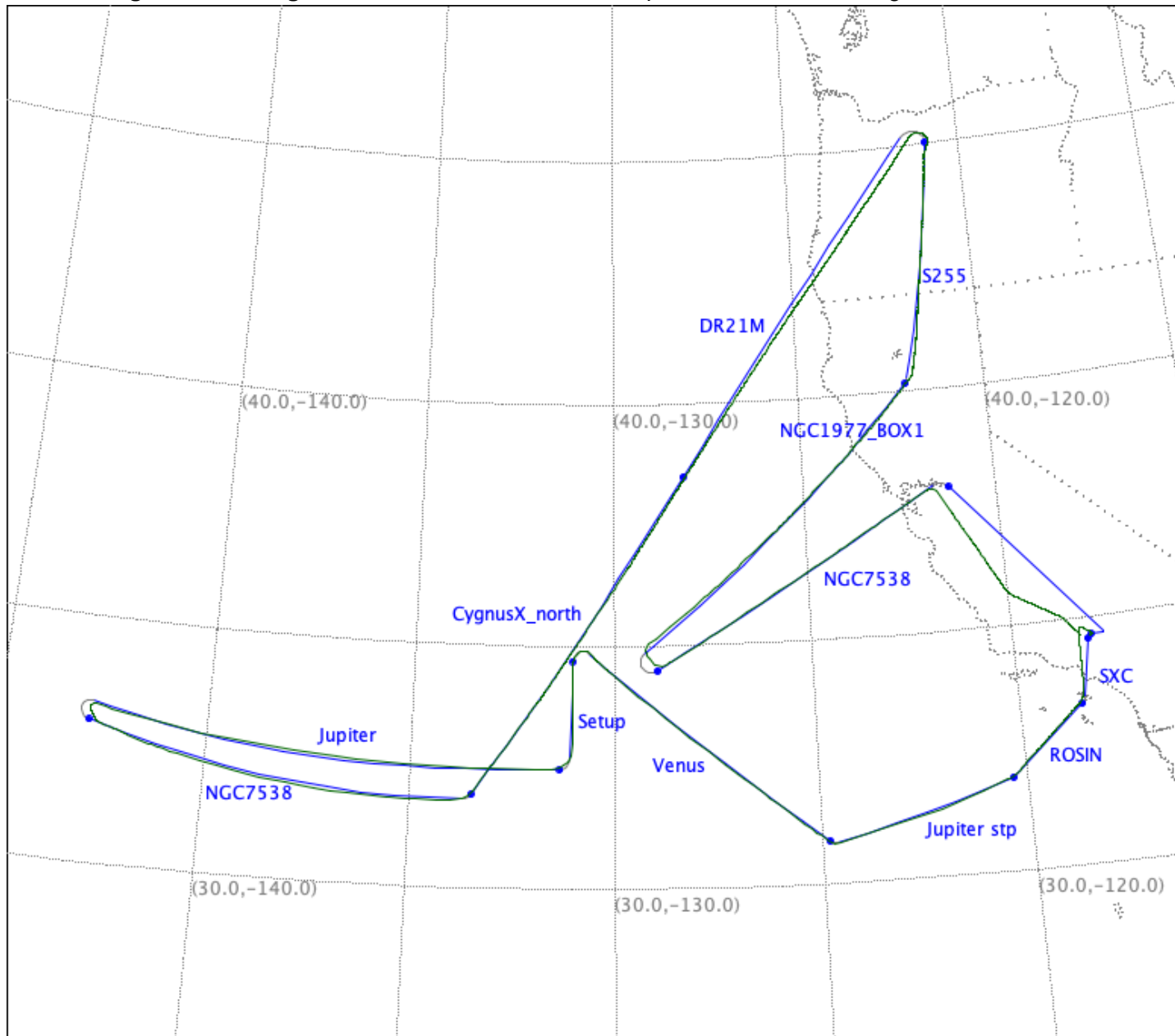
MISSION ID: 2021-11-13_GR_F791

Date: 2021-11-13 UT Instrument: GREAT

Flight #: 791 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 791
Palmdale to
Palmdale

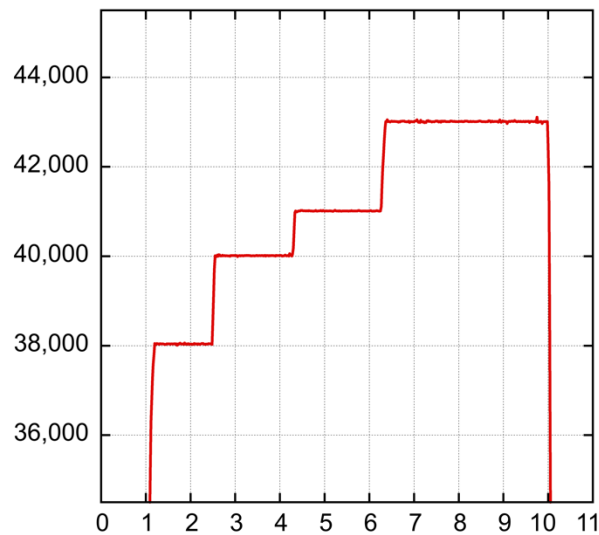
Mission ID 2021-11-13_GR_F791
Take off date UTC:
13-NOV-2021

Departure UTC: 00:40
Arrival UTC: 10:26

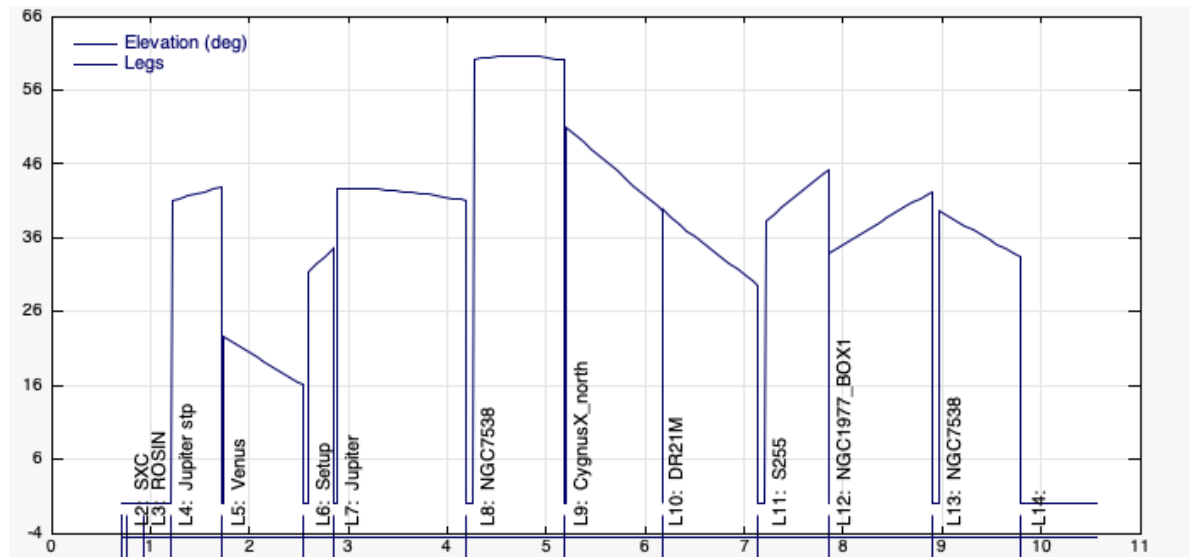
Consortium flight
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0008	Calibration	Jupiter	21h43m19.82s	-14d50m02.3s	1:12	30	
5	75_0059	Discretionary	Venus	18h30m02.18s	-27d03m50.0s	1:43	48	Difficulties in setting up pointing led to large loss of time to collect data. Data that was taken had a position offset.
6			Setup	01h31m29.01s	15d20m45.0s	2:35	15	
7	83_0903	GREAT Consortium	Jupiter	21h43m21.17s	-14d49m54.9s	2:52	78	
8	83_0719	GREAT Consortium	NGC7538	23h13m13.82s	61d28m05.2s	4:15	55	
9	83_0913	GREAT Consortium	Cygnus X	20h38m39.30s	42d20m39.3s	5:11	58	
10	83_0802	GREAT Consortium	DR21M	20h39m01.60s	42d20m59.1s	6:09	58	
11	83_0808	GREAT Consortium	S255	06h12m53.89s	17d59m22.6s	7:12	38	
12	83_0915	GREAT Consortium	NGC1977	05h35m13.90s	-05d01m15.1s	7:50	62	
13	83_0719	GREAT Consortium	NGC7538	23h13m13.82s	61d28m05.2s	8:57	49	

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



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



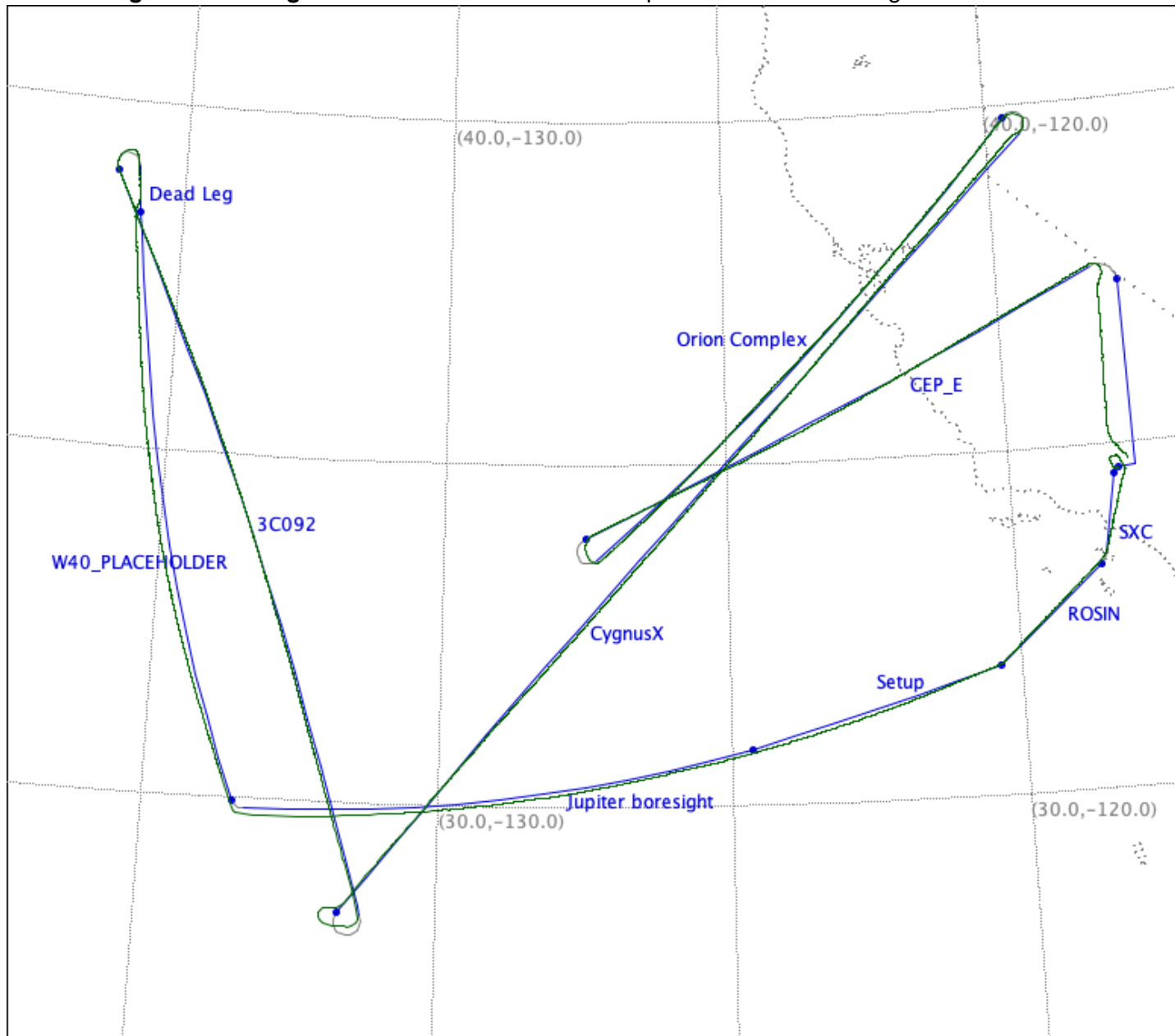
MISSION ID: 2021-11-17_GR_F792

Date: 2021-11-17 UT Instrument: GREAT

Flight #: 792 Flight Series: OC9F

blue = planned route

green = flown route

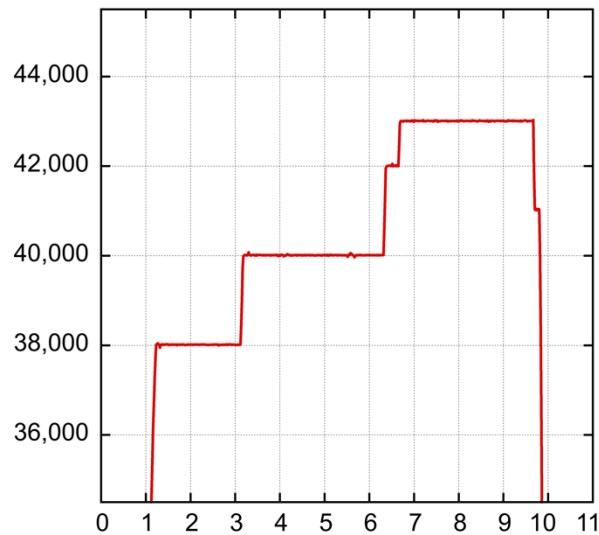


Flight notes:

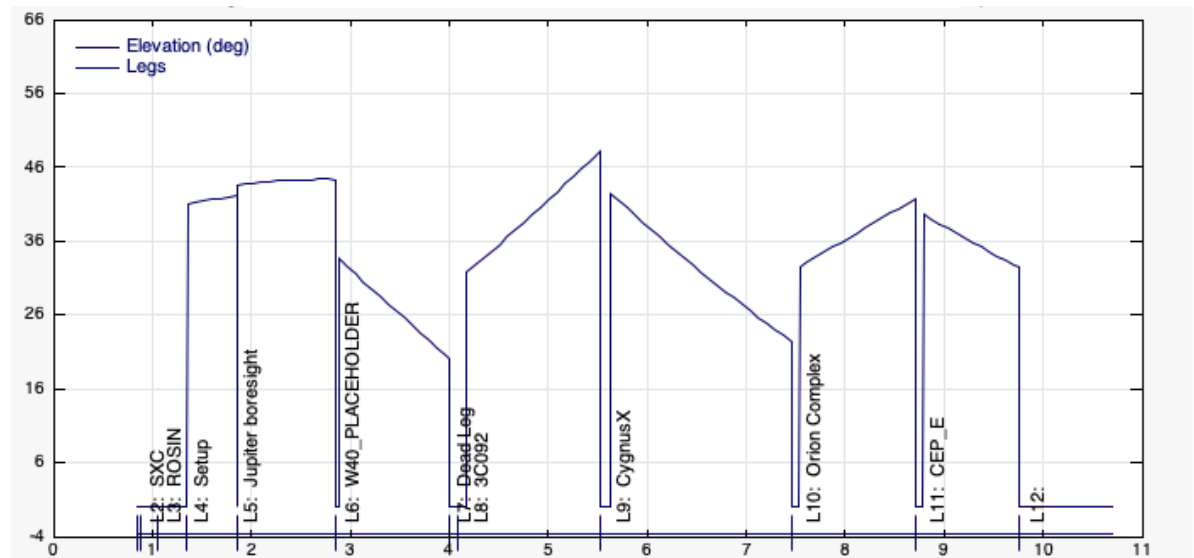
Pixel 2 in both GREAT LFA polarizations had high receiver temperatures so were unable to be used.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	21h47m02.45s	-16d07m38.2s	1:19	30	
5	90_0008	Calibration	Jupiter	21h44m43.55s	-14d42m22.9s	1:49	60	
6	07_0077	Tielens	W40	18h31m23.74s	-02d04m06.8s	2:51	67	
8	09_0195	Stanimirovic	3C092	03h40m08.55s	32d09m02.3s	2:51	81	
9	07_0077	Tielens	Cygnus X	20h38m39.46s	42d20m44.5s	4:08	110	
10	08_0042	Kabanovic	M43	05h35m23.36s	-05d10m46.5s	5:35	70	
11	09_0135	Gusdorf	CEP_E	23h03m12.78s	61d42m25.8s	7:30	58	

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



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



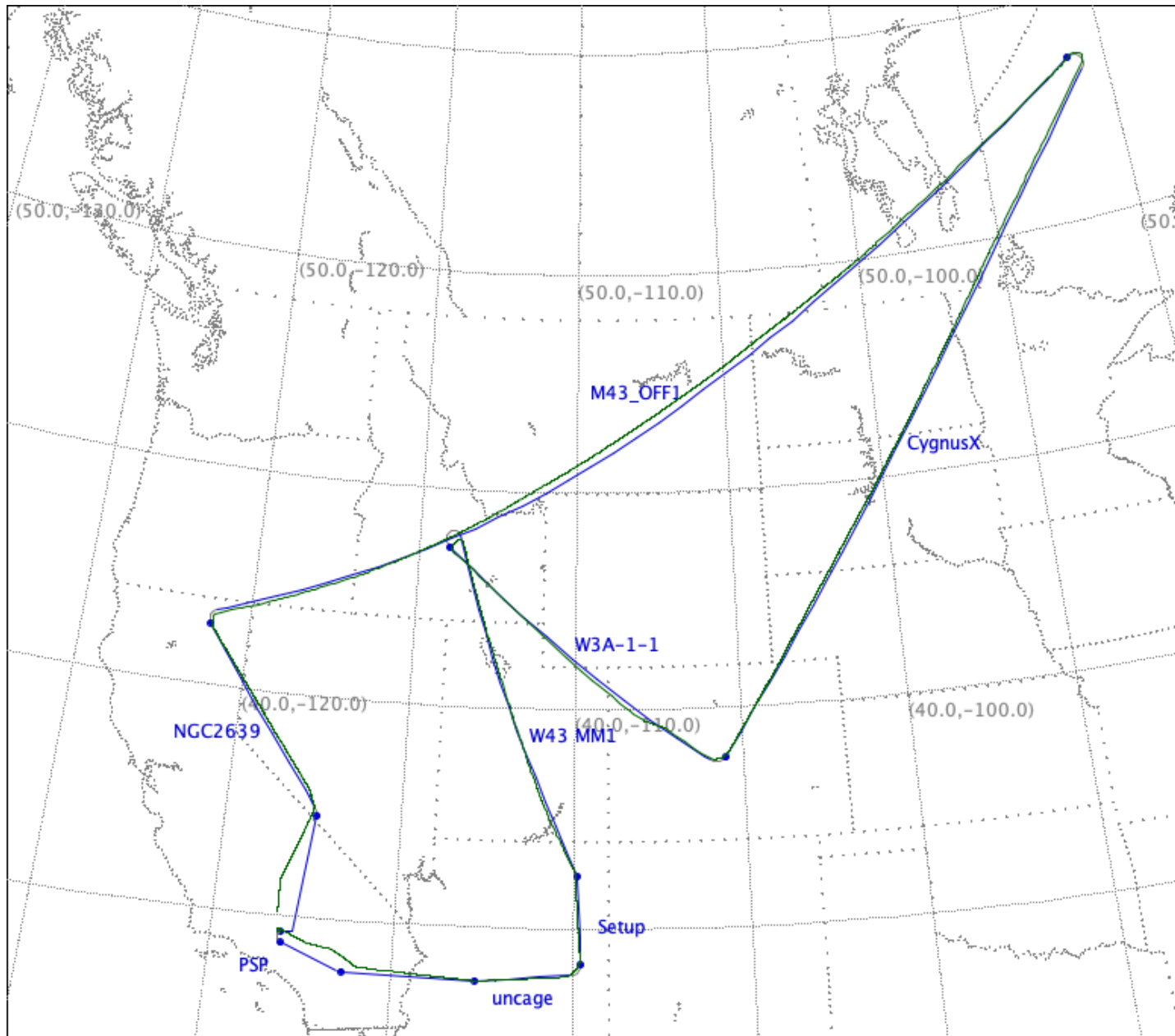
MISSION ID: 2021-11-18_GR_F793

Date: 2021-11-18 UT Instrument: GREAT

Flight #: 793 Flight Series: OC9F

blue = planned route

green = flown route

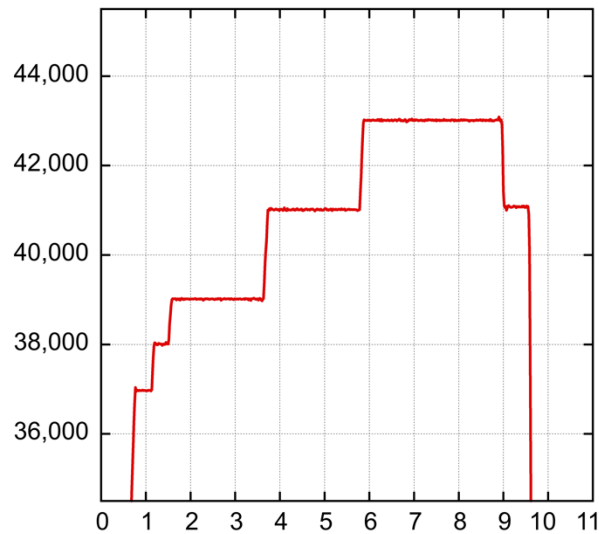


Flight notes:

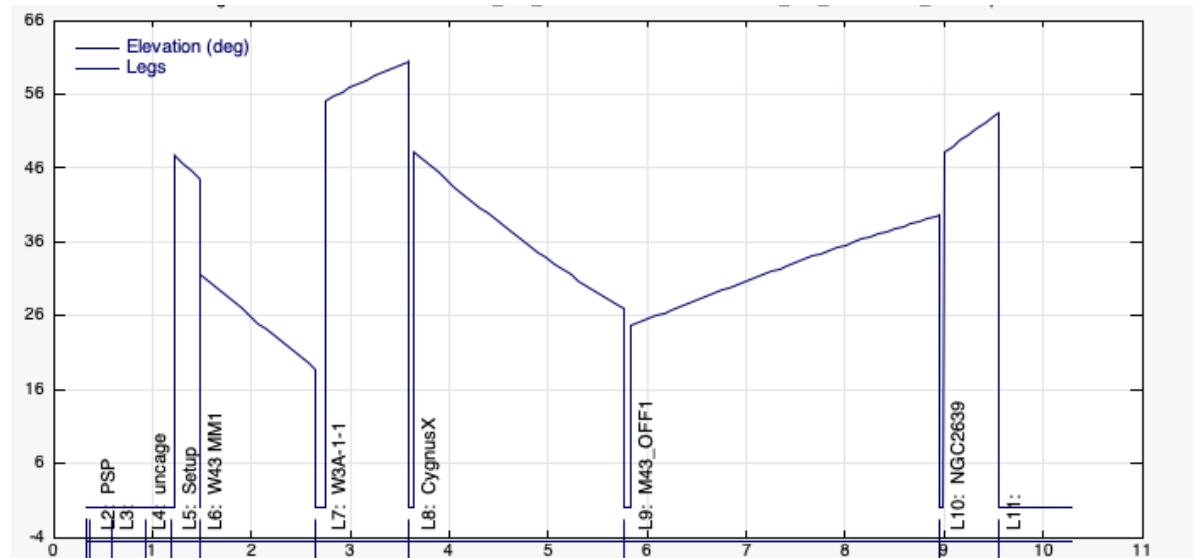
Pixel 2 in both GREAT LFA polarizations still having high receiver temperatures.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	18h47m01.27s	18d10m53.5s	1:12	15	
6	08_0038	Neufeld	W43 MM1	18h47m47.00s	-01d54m28.0s	1:28	70	
7	09_0191	Jacob	W3A	02h25m45.65s	62d05m52.0s	2:43	51	Telescope error led to loss of 70% of leg
8	07_0077	Tielens	CygnusX	20h38m39.46s	42d20m44.5s	3:37	127	Telescope error led to loss of 25% of leg
9	09_0043	Guevara	M43	05h35m32.82s	-05d16m04.8s	5:49	187	
10	08_0066	Bolatto	NGC2639	08h43m37.92s	50d12m19.8s	8:59	33	

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



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



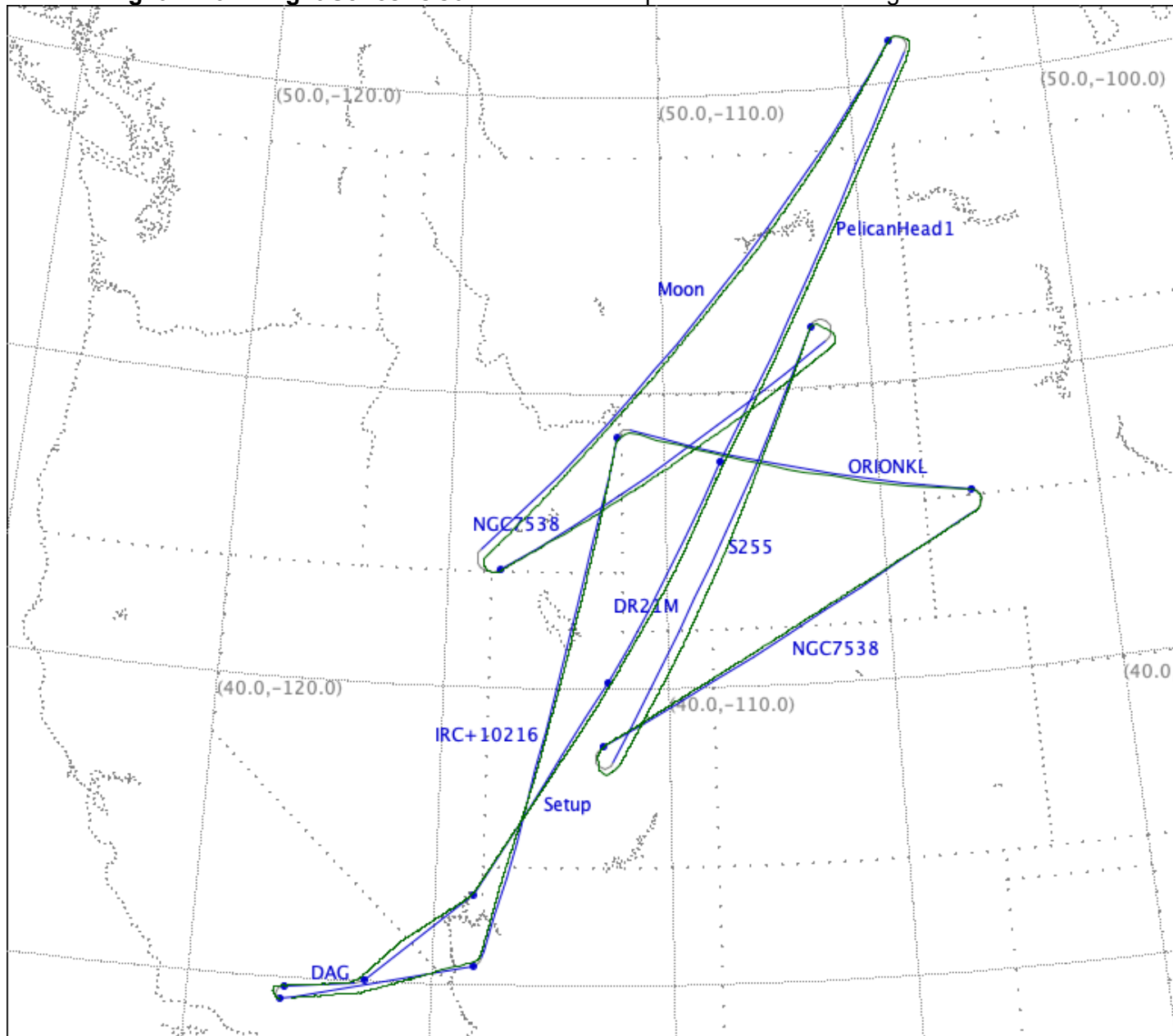
MISSION ID: 2021-11-19_GR_F794

Date: 2021-11-19 UT Instrument: GREAT

Flight #: 794 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 794
Palmdale to
Palmdale

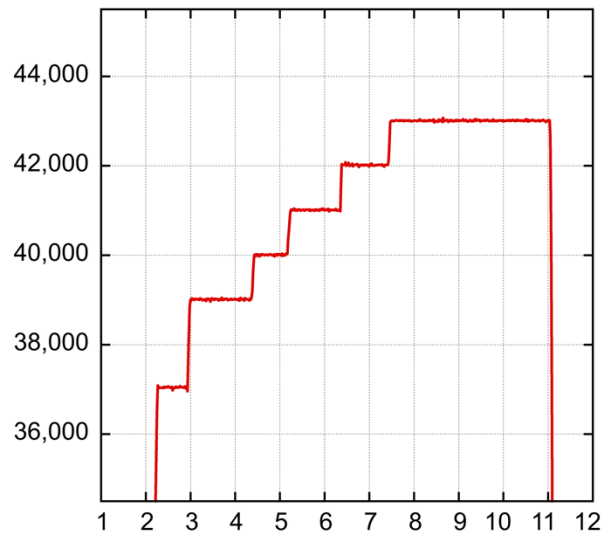
Mission ID 2021-11-19_GR_F794
Take off date UTC:
19-NOV-2021

Departure UTC: 01:50
Arrival UTC: 11:35

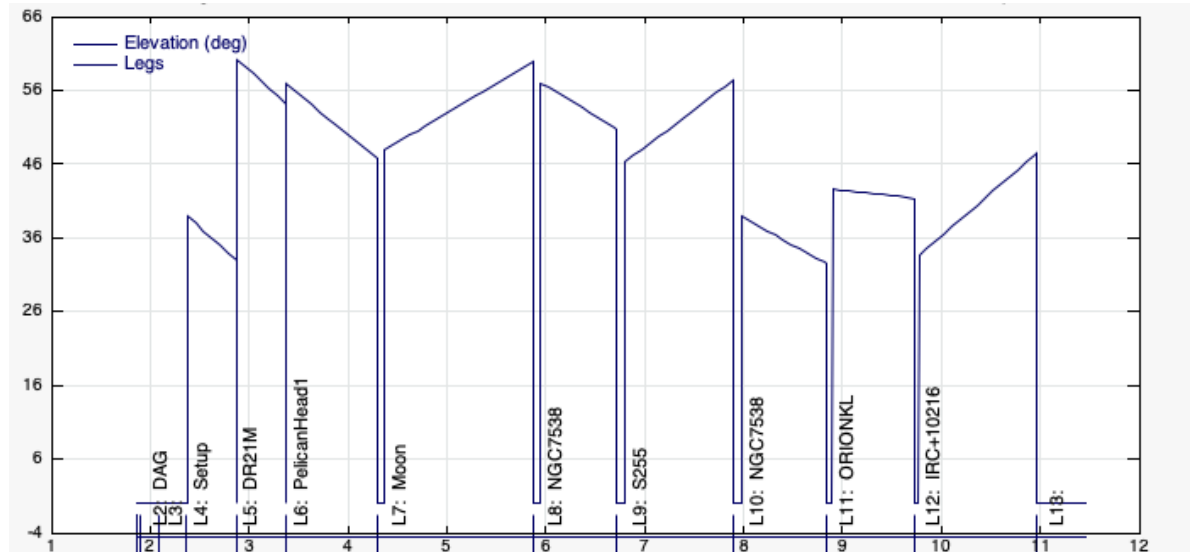
Consortium flight
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	18h19m51.71s	36d03m52.4s	2:22	30	
5	83_0802	GREAT Consortium	DR21M	20h39m01.60s	42d20m59.1s	2:52	30	
6	83_0910	GREAT Consortium	PelicanHead1	20h50m46.00s	44d30m30.0s	3:22	55	
7	83_0804	GREAT Consortium	Moon	03h29m50.99s	18d19m42.4s	4:21	90	
8	83_0912	GREAT Consortium	NGC7538	23h13m16.37s	61d28m04.4s	5:56	46	
9	83_0808	GREAT Consortium	S255	06h12m53.89s	17d59m22.6s	6:47	65	
10	83_0912	GREAT Consortium	NGC7538	23h13m16.37s	61d28m04.4s	7:58	51	
11	83_0630	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	8:53	50	
12	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.5s	9:45	71	

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



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



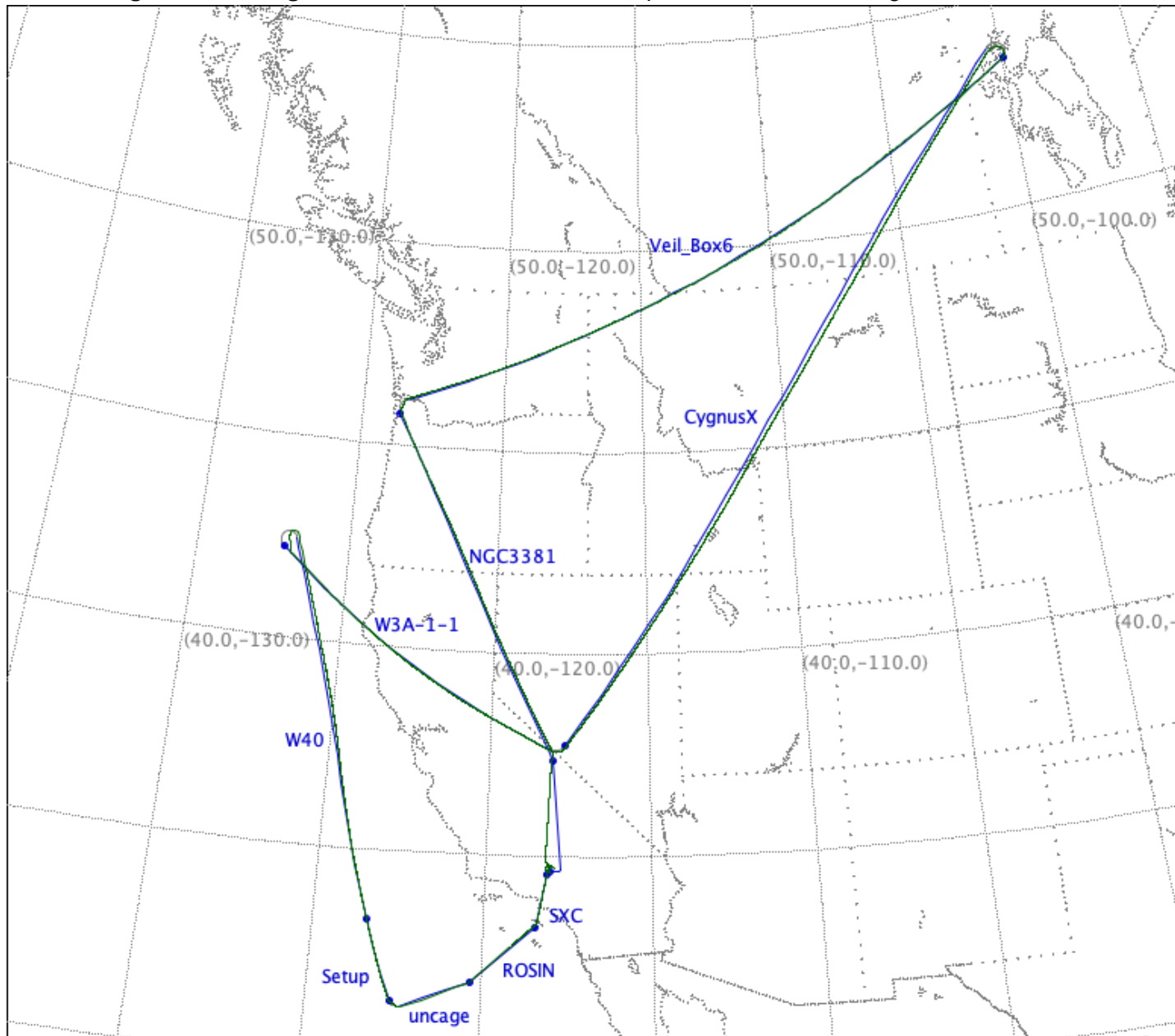
MISSION ID: 2021-11-20_GR_F795

Date: 2021-11-20 UT Instrument: GREAT

Flight #: 795 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes: No irregularities

Flight 795
Palmdale to
Palmdale

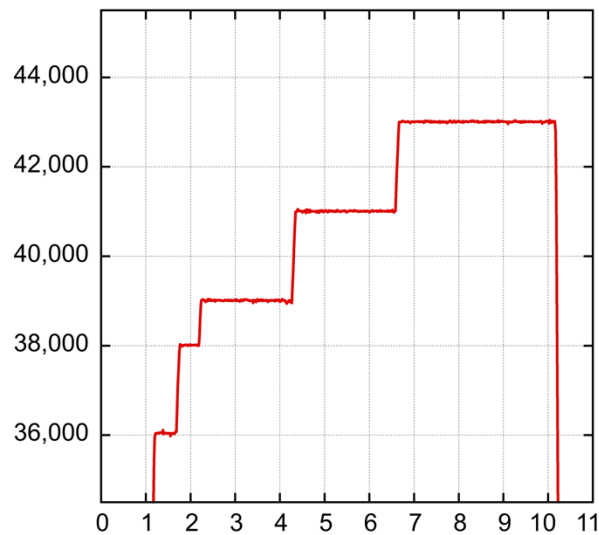
Mission ID 2021-11-20_GR_F795
Take off date UTC:
20-NOV-2021

Departure UTC: 00:48
Arrival UTC: 10:36

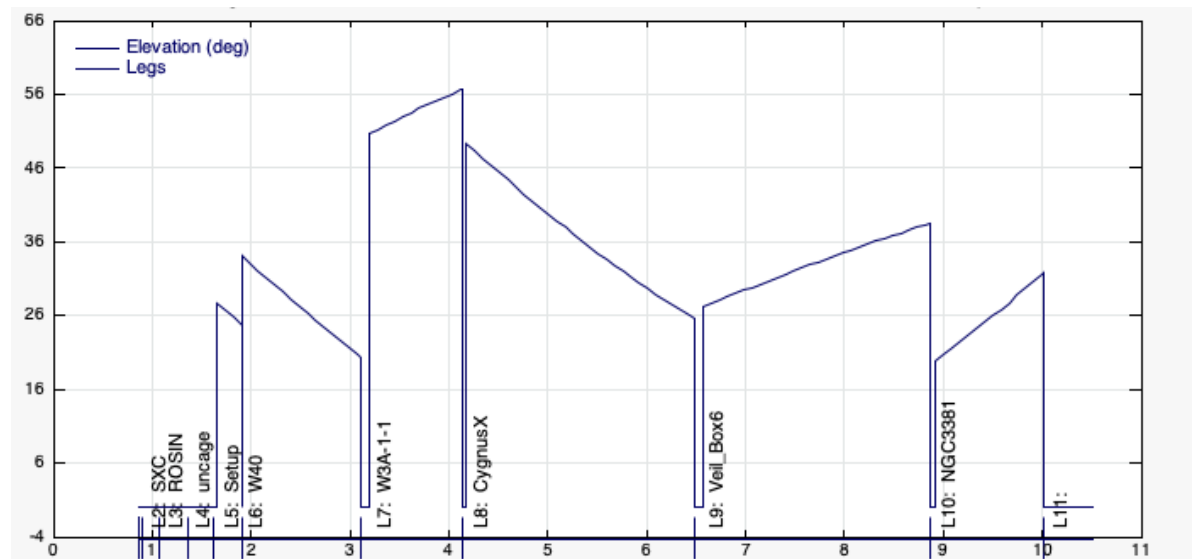
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	18h03m04.92s	-08d10m49.3s	1:40	15	
6	07_0077	Tielens	W40	18h31m24.45s	-02d04m13.8s	1:55	72	
7	09_0191	Jacob	W3A	02h25m45.65s	62d05m52.0s	3:13	56	
8	07_0077	Tielens	CygnusX	20h38m39.46s	42d20m44.5s	4:12	138	
9	83_0915	GREAT Consortium	M43	05h35m42.09s	-05d31m07.2s	6:35	138	
10	08_0066	Bolatto	NGC3381	10h48m24.84s	34d42m41.0s	8:56	66	

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



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



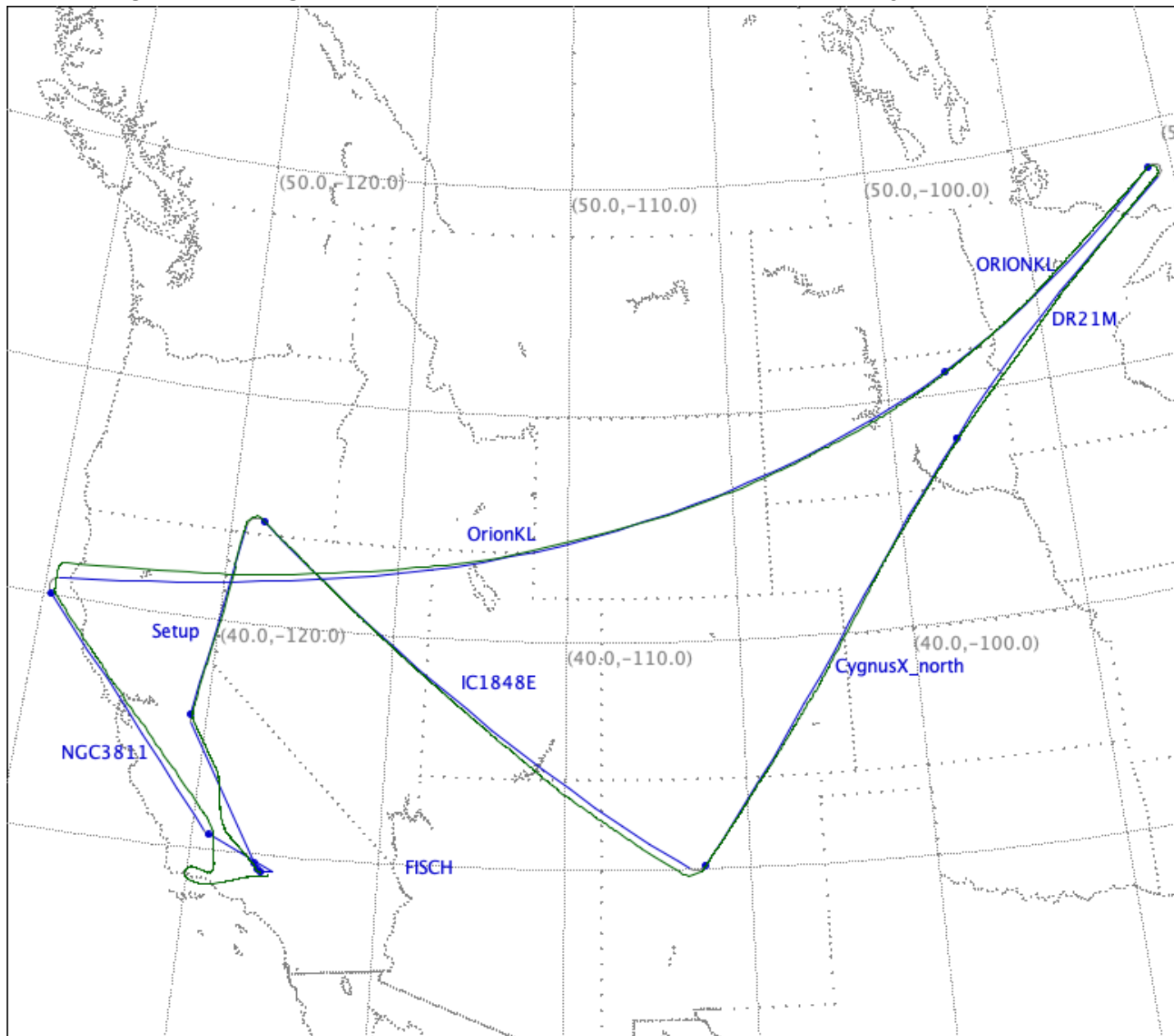
MISSION ID: 2021-11-23_GR_F796

Date: 2021-11-23 UT Instrument: GREAT

Flight #: 796 Flight Series: OC9F

blue = planned route

green = flown route



Flight notes:

Some high-altitude cloud cover on legs 6 and 7.

Flight 796
Palmdale to
Palmdale

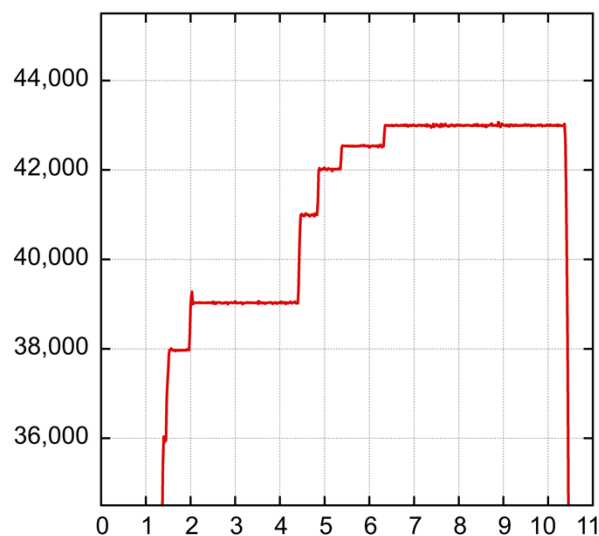
Mission ID 2021-11-23_GR_F796
Take off date UTC:
23-NOV-2021

Departure UTC: 00:59
Arrival UTC: 10:54

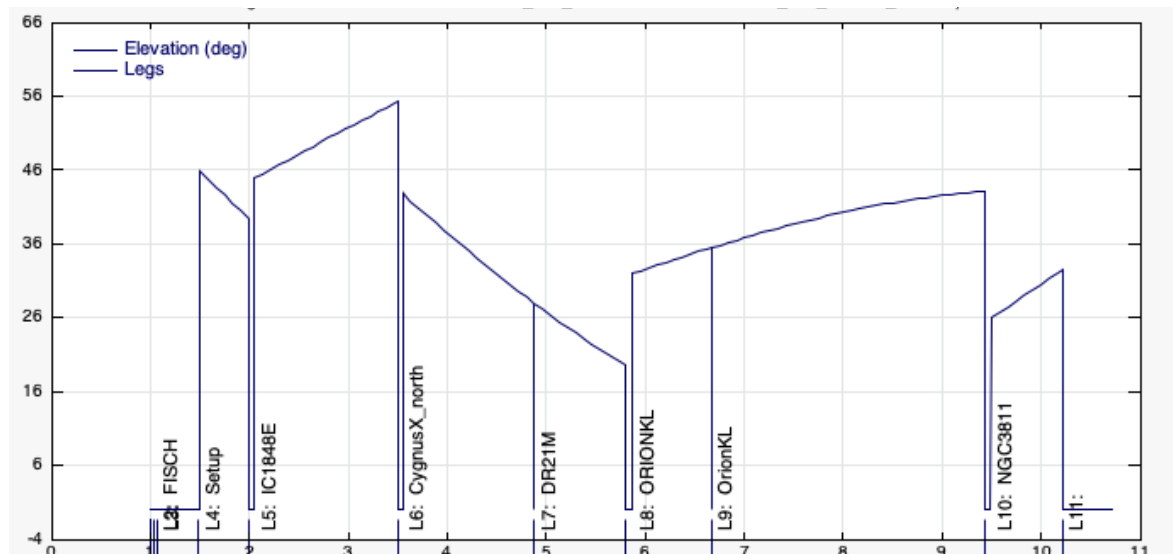
Consortium flight
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	18h07m32.55s	28d45m45.0s	1:29	30	
5	83_0720	GREAT Consortium	IC1848E	02h55m45.40s	60d19m48.0s	2:03	87	
6	83_0914	GREAT Consortium	CygnusX	20h38m39.30s	42d20m39.3s	3:32	80	Some clouds. Climbing to try to get above.
7	83_0802	GREAT Consortium	DR21M	20h39m01.60s	42d20m59.1s	4:52	55	More clouds. Continue climbing to try to get above.
8	83_0630	GREAT Consortium	ORIONKL	05h35m14.30s	-05d22m33.7s	5:52	48	
9	83_0806	GREAT Consortium	OrionKL	05h35m14.30s	-05d22m33.7s	6:40	166	
10	08_0066	Bolatto	NGC3811	11h41m16.80s	47d41m26.9s	9:29	43	

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



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



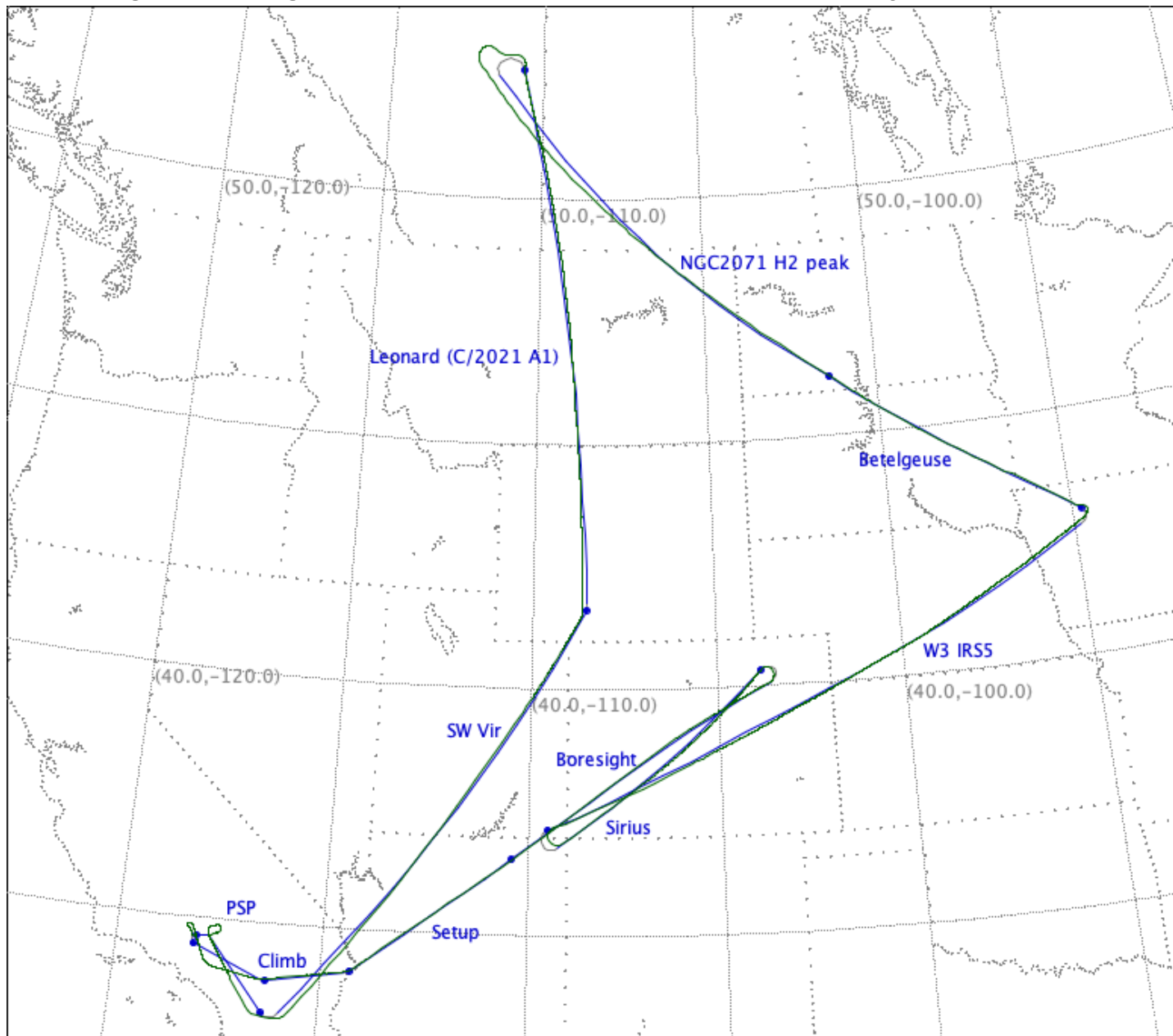
MISSION ID: 2021-12-01_EX_F797

Date: 2021-12-01 UT Instrument: EXES

Flight #: 797 Flight Series: OC9G

blue = planned route

green = flown route



Flight notes: No irregularities

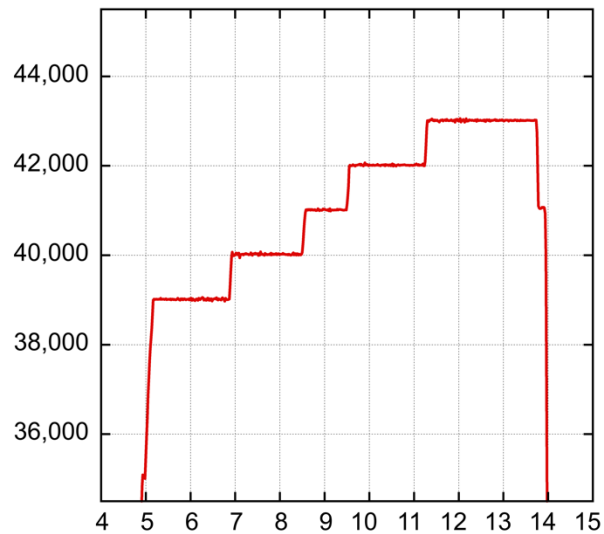
Flight 797
Palmdale to
Palmdale

Mission ID 2021-12-01_EX_F797
Take off date UTC:
01-DEC-2021

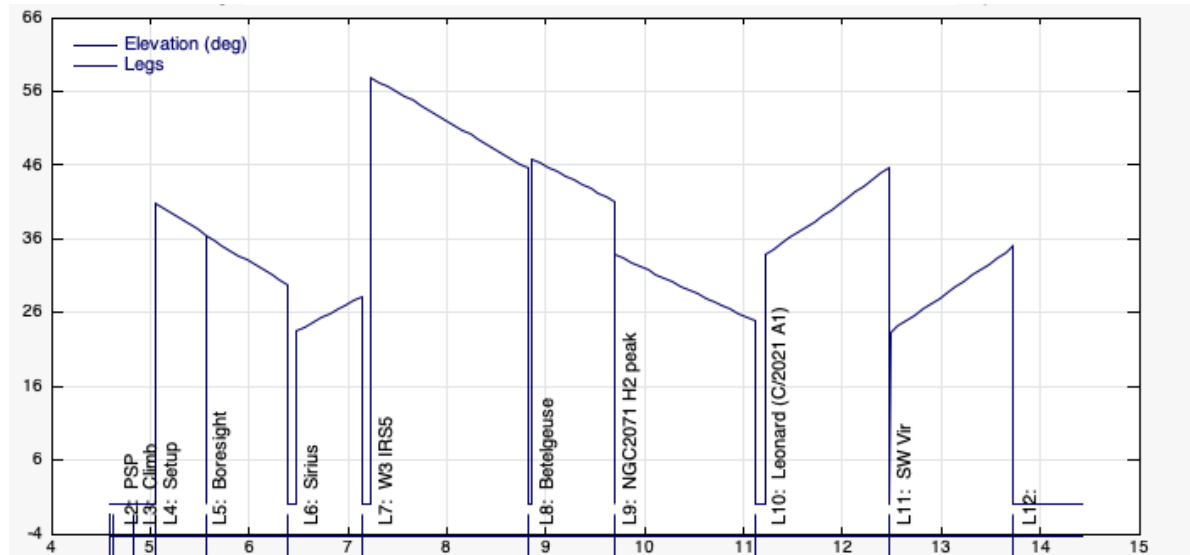
Departure UTC: 04:31
Arrival UTC: 14:18

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4	90_0089	Calibration	mu Ceph	21h43m30.46s	58d46m48.2s	5:04	30	
5	90_0089	Calibration	mu Ceph	21h43m30.46s	58d46m48.2s	5:34	50	
6	07_0086	Fonfria	Sirius	06h45m08.92s	-16d42m58.0s	6:29	40	High clouds, turbulence, and lots of variation in the 7um sky as seen by EXES
7	09_0072	Tielens	W3 IRS5	02h25m40.54s	62d05m51.4s	7:15	95	
8	09_0233	Townsend	Betelgeuse	05h55m10.31s	07d24m25.4s	8:53	50	
9	09_0021	Neufeld	NGC2071 H2 peak	05h47m08.21s	00d22m52.7s	9:43	85	
10	75_0069	Discretionary	Leonard (C/2021 A1)	13h25m15.19s	29d39m35.7s	11:14	75	
11	09_0227	Fonfria	SW Vir	13h14m04.39s	-02d48m25.2s	12:29	75	

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



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



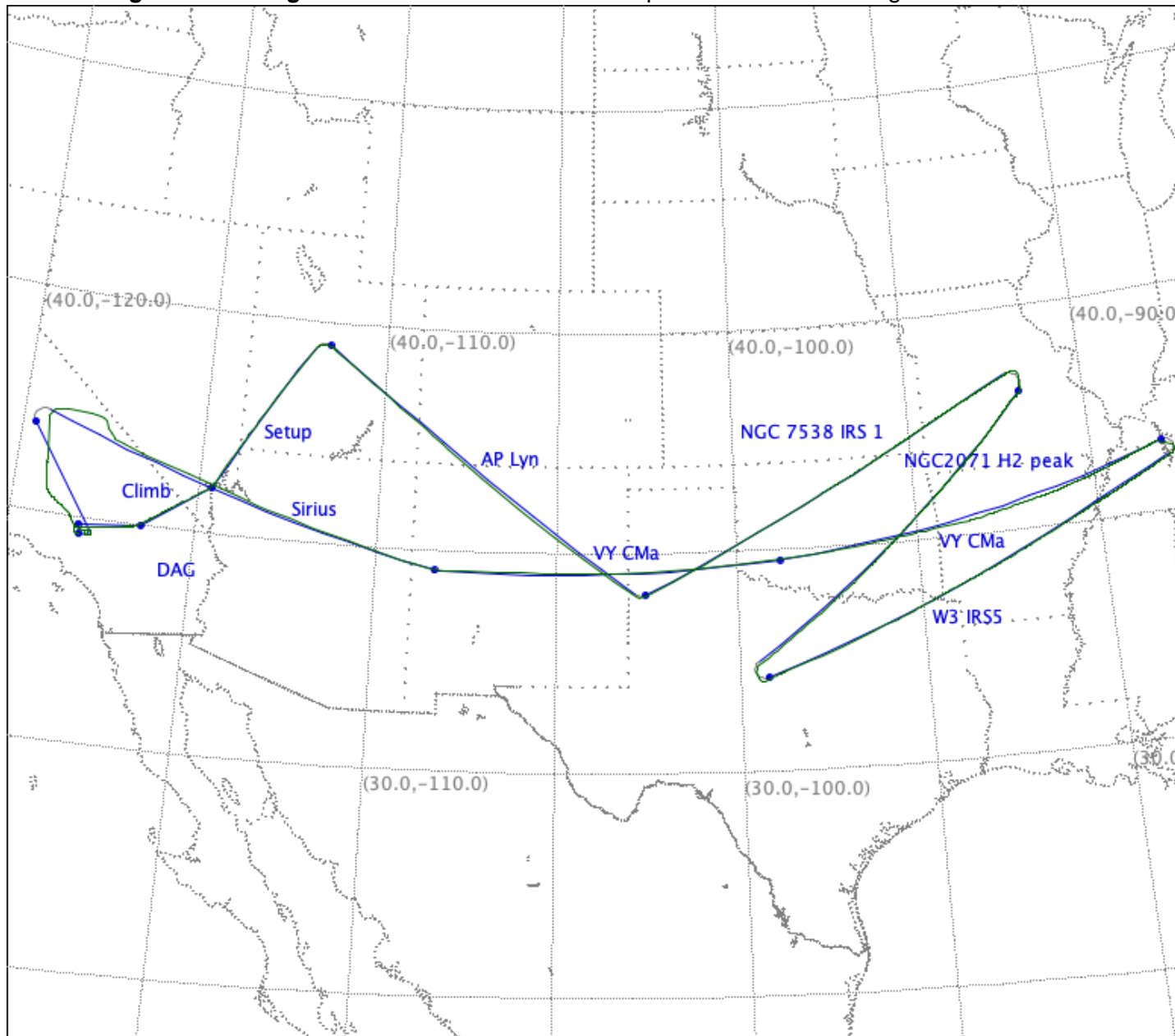
MISSION ID: 2021-12-02_EX_F798

Date: 2021-12-02 UT Instrument: EXES

Flight #: 798 Flight Series: OC9G

blue = planned route

green = flown route



Flight notes:

Air Traffic Control (ATC) reroute terminated flight slightly early.

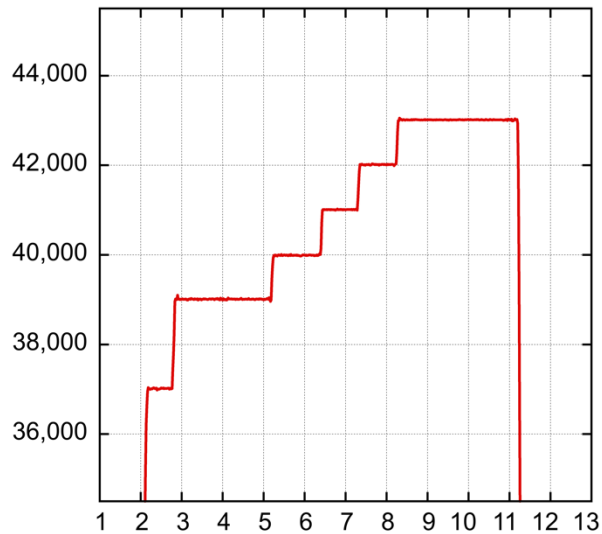
Flight 798
Palmdale to
Palmdale

Mission ID 2021-12-02_EX_F798
Take off date UTC:
02-DEC-2021

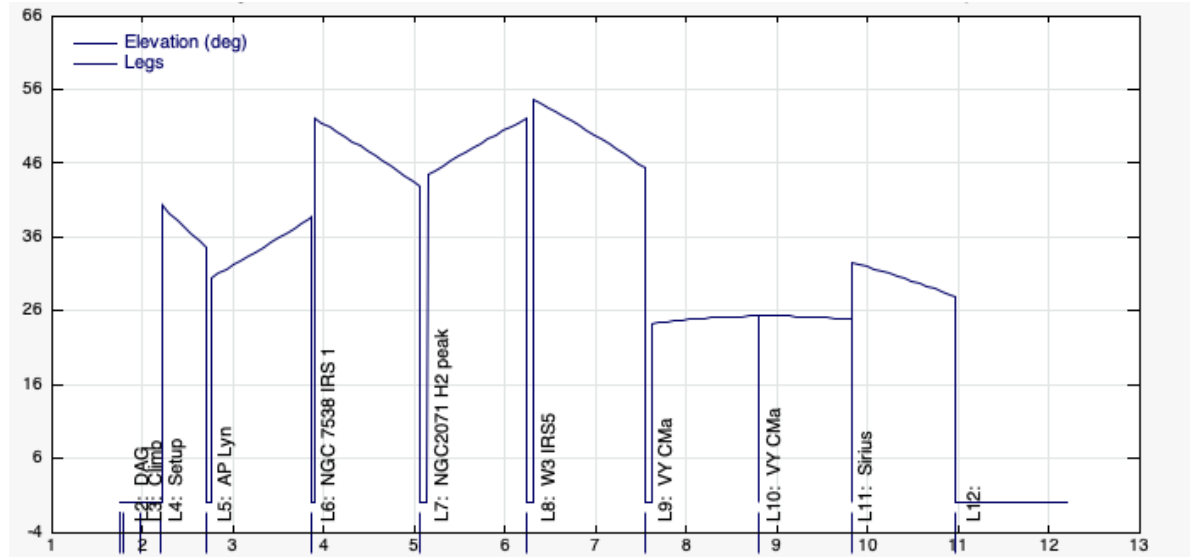
Departure UTC: 01:44
Arrival UTC: 11:49

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	18h55m20.10s	43d56m46.0s	2:15	30	
5	09_0227	Fonfria	AP Lyn	06h34m33.40s	60d56m27.8s	2:47	67	
6	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	3:56	70	
7	09_0021	Neufeld	NGC2071 H2 peak	05h47m08.21s	00d22m52.7s	5:11	65	
8	09_0072	Tielens	W3 IRS5	02h25m40.54s	62d05m51.4s	6:20	74	
9	09_0148	Fuchs	VY CMa	07h22m58.33s	-25d46m03.2s	7:38	71	
10	08_0176	Fuchs	VY CMa	07h22m58.33s	-25d46m03.2s	8:49	61	
11	08_0176	Fuchs	Sirius	06h45m08.92s	-16d42m58.0s	9:51	69	Forced to end early due to notice from ATC to reroute (lost last 15min of leg).

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



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



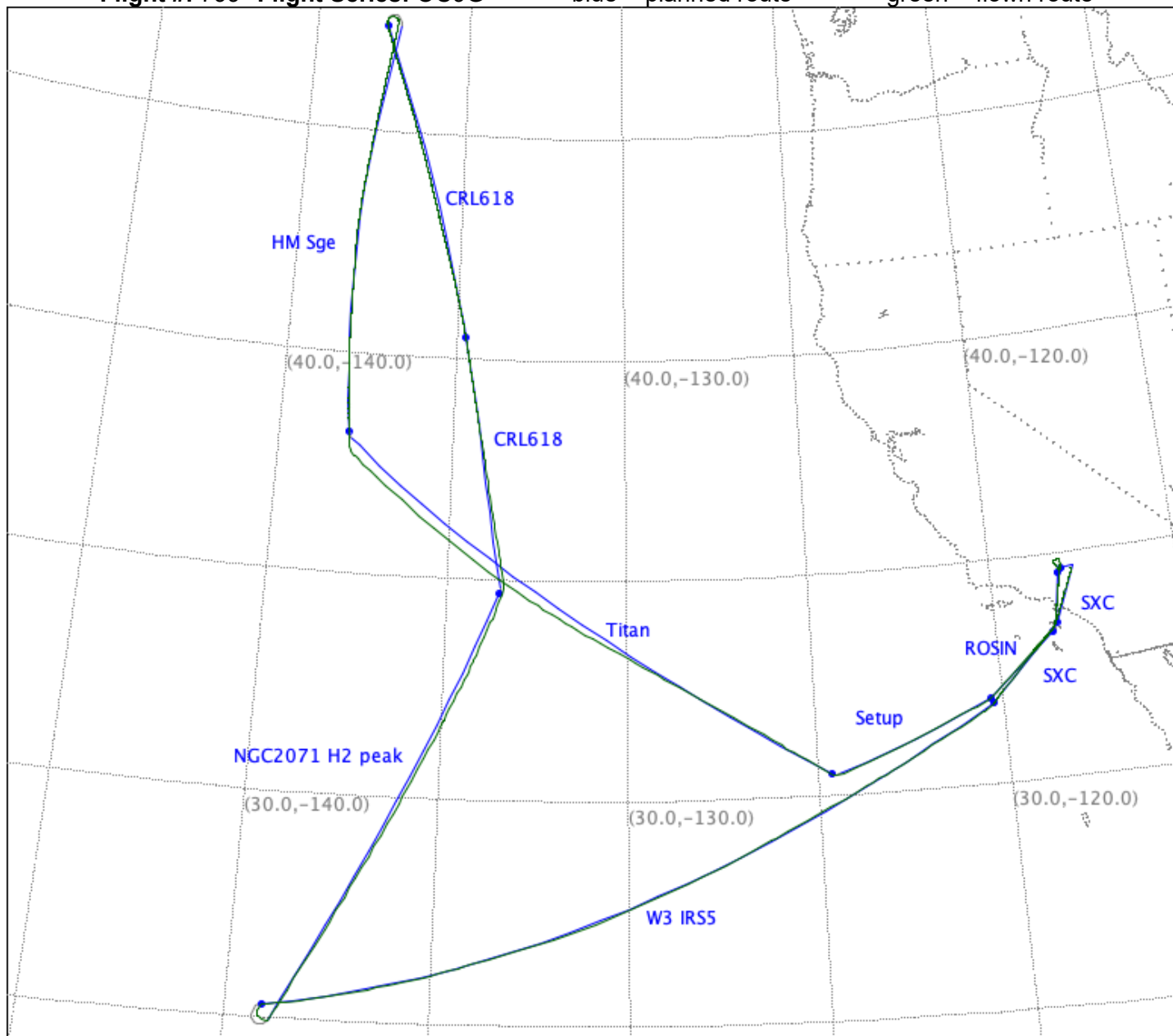
MISSION ID: 2021-12-04_EX_F799

Date: 2021-12-04 UT Instrument: EXES

Flight #: 799 Flight Series: OC9G

blue = planned route

green = flown route



Flight notes: No irregularities

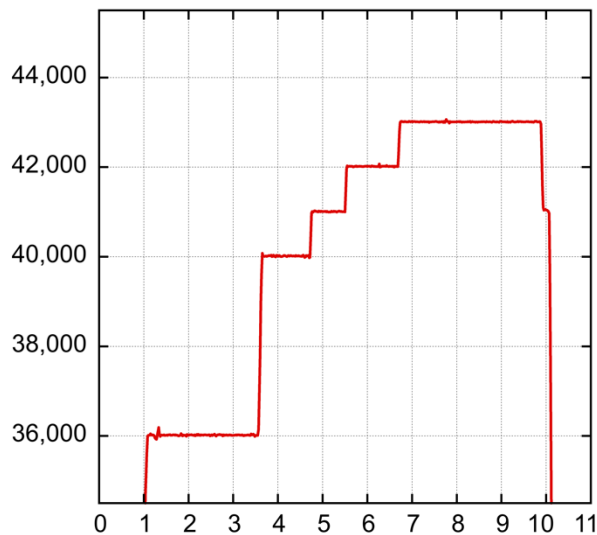
Flight 799
Palmdale to
Palmdale

Mission ID 2021-12-04_EX_F799
Take off date UTC:
04-DEC-2021

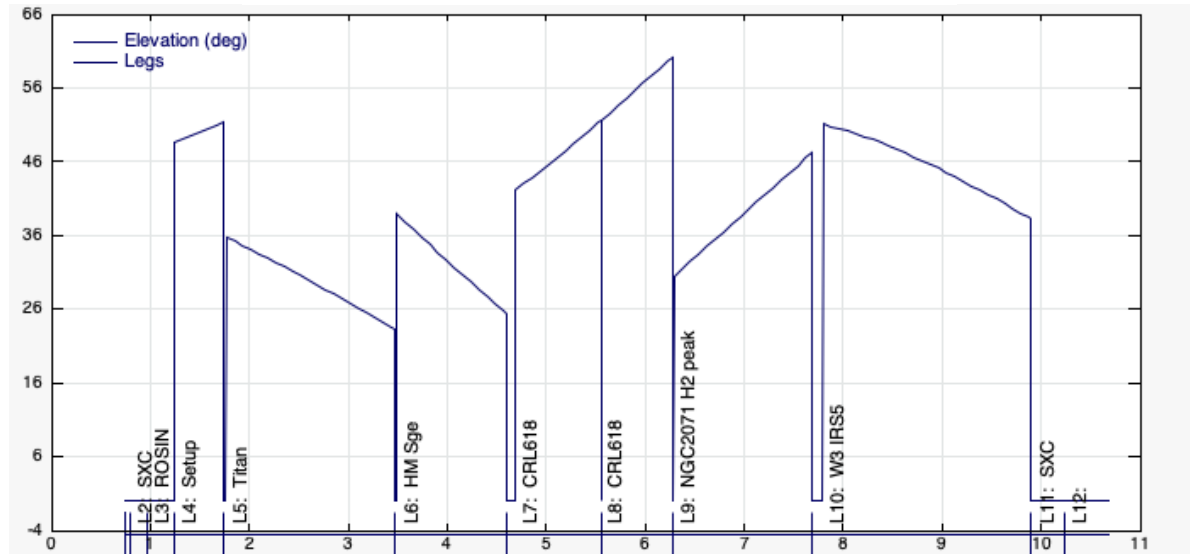
Departure UTC: 00:41
Arrival UTC: 10:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	23h14m19.36s	-06d02m56.4s	1:14	30	
5	09_0081	Nixon	Titan	20h46m06.62s	-18d48m51.6s	1:45	102	Air traffic control kept flight at 36k ft.
6	75_0057	Discretionary	HM Sge	19h41m57.08s	16d44m39.9s	3:28	67	
7	07_0086	Fonfria	CRL618	04h42m53.62s	36d06m53.4s	4:41	52	
8	07_0086	Fonfria	CRL618	04h42m53.62s	36d06m53.4s	5:33	43	
9	09_0021	Neufeld	NGC2071 H2 peak	05h47m08.21s	00d22m52.7s	6:17	84	
10	09_0072	Tielens	W3 IRS5	02h25m40.54s	62d05m51.4s	7:47	126	

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



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



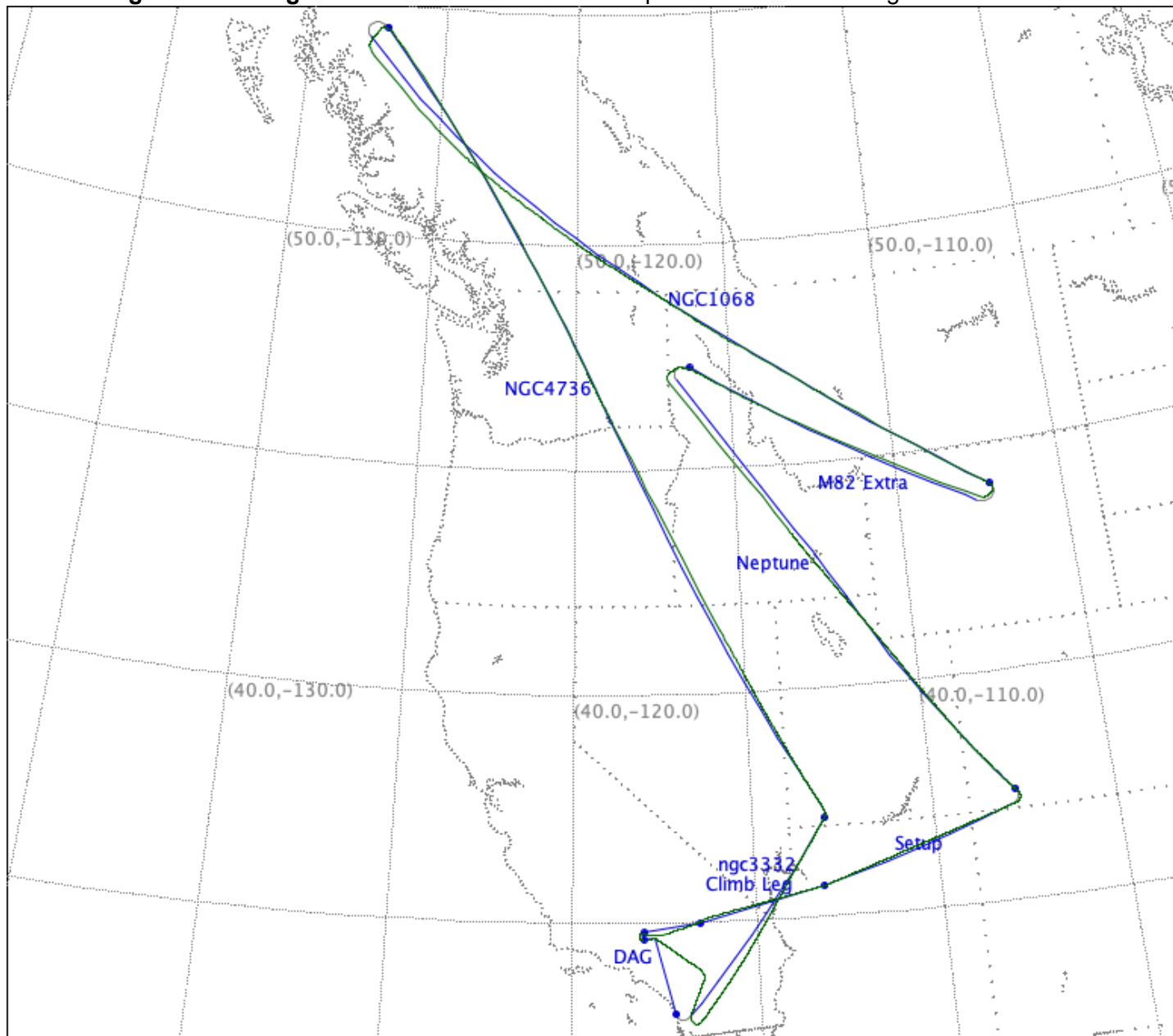
MISSION ID: 2021-12-07_HA_F800

Date: 2021-12-07 UT Instrument: HAWC+

Flight #: 800 Flight Series: OC9H

blue = planned route

green = flown route



Flight notes: Clouds at low altitudes.

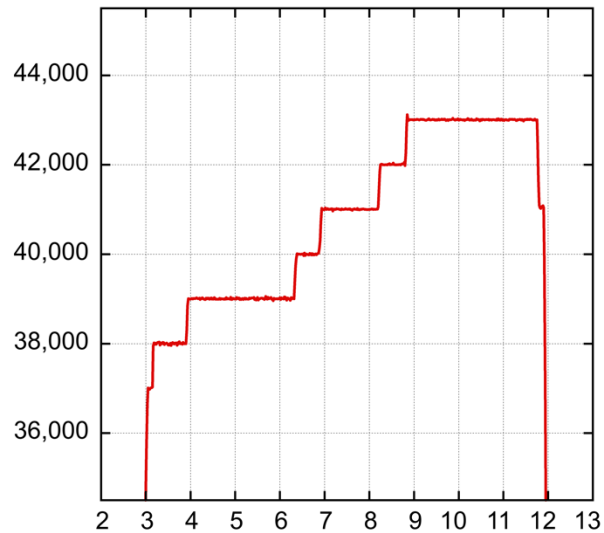
Flight 800
Palmdale to
Palmdale

Mission ID 2021-12-07_HA_F800
Take off date UTC:
07-DEC-2021

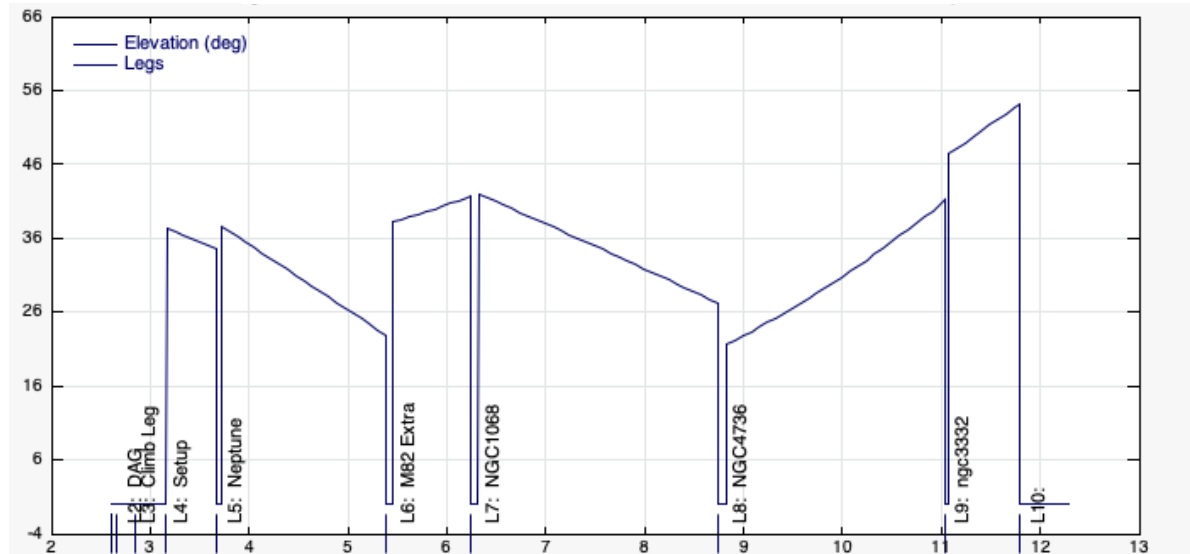
Departure UTC: 02:36
Arrival UTC: 12:14

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h32m21.59s	69d39m40.2s	3:09	30	
5	90_0086	Calibration	Neptune	23h25m27.19s	-04d58m21.2s	3:42	100	Clouds caused most of leg to be unusable.
6	08_0012	Lopez-Rodriguez	M82 Extra	09h55m52.43s	69d40m46.9s	5:27	47	Telescope issue led to loss of all planned observations om leg.
7	08_0012	Lopez-Rodriguez	NGC1068	02h42m40.77s	-00d00m47.8s	6:19	145	
8	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	8:49	133	
9	09_0180	Casey	ngc3332	10h40m28.37s	09d10m57.2s	11:03	43	

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



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



Flight notes:

Turbulence throughout much of flight resulted in small losses.

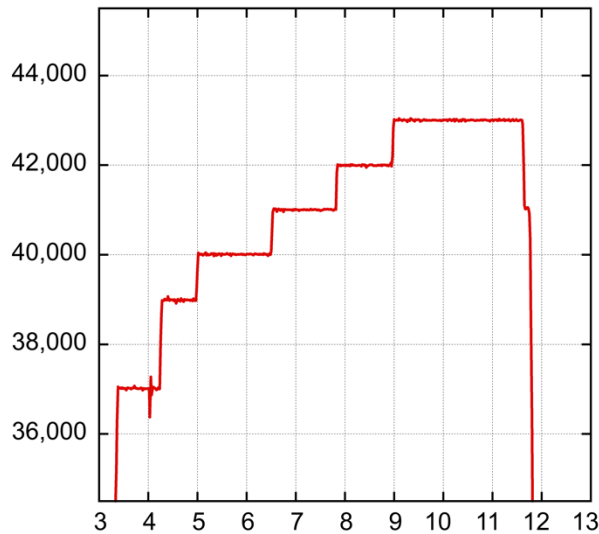
Flight 801
Palmdale to
Palmdale

Mission ID 2021-12-08_HA_F801
Take off date UTC:
08-DEC-2021

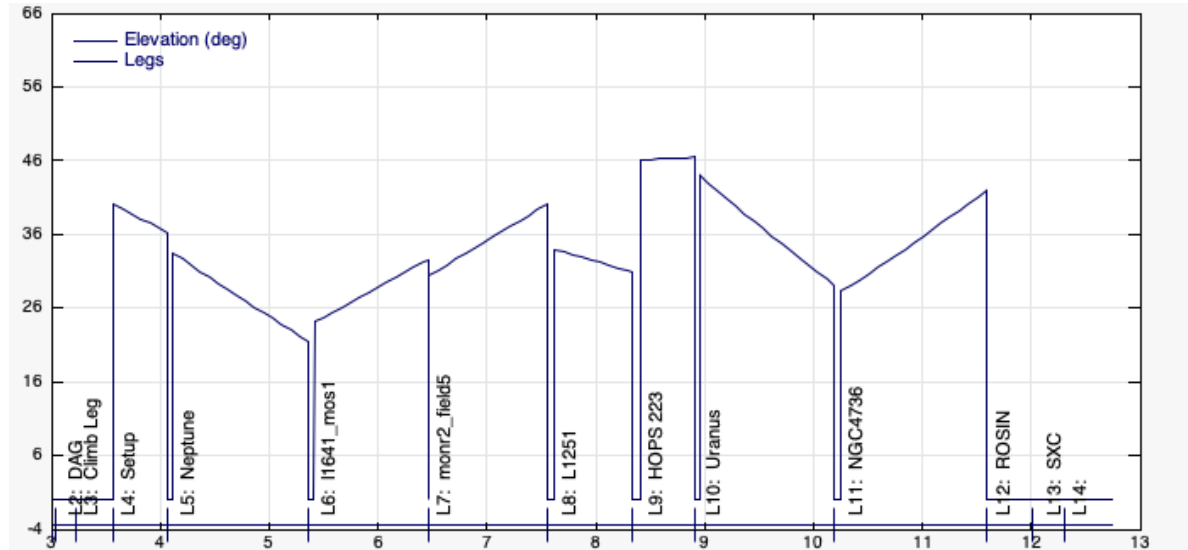
Departure UTC: 02:56
Arrival UTC: 12:27

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h29m34.89s	62d59m38.8s	3:34	30	
5	90_0083	Calibration	Neptune	23h25m27.95s	-04d58m14.3s	4:07	75	
6	09_0215	Pillai	L1641	05h41m22.26s	-07d55m20.8s	5:25	63	
7	09_0203	Pokhrel	Mon R2	06h07m50.62s	-06d20m11.6s	6:28	65	
8	09_0194	Guerra	L1251	22h35m39.00s	75d16m59.0s	7:37	43	Some time lost due to turbulence
9	08_0232	Fischer	HOPS 223	05h42m48.49s	-08d16m34.7s	8:25	30	
10	90_0083	Calibration	Uranus	02h35m39.06s	14d47m44.7s	8:57	74	Turbulence put telescope in standby, time lost in reacquiring target
11	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	10:15	80	Turbulence put telescope in standby, time lost in reacquiring target

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



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



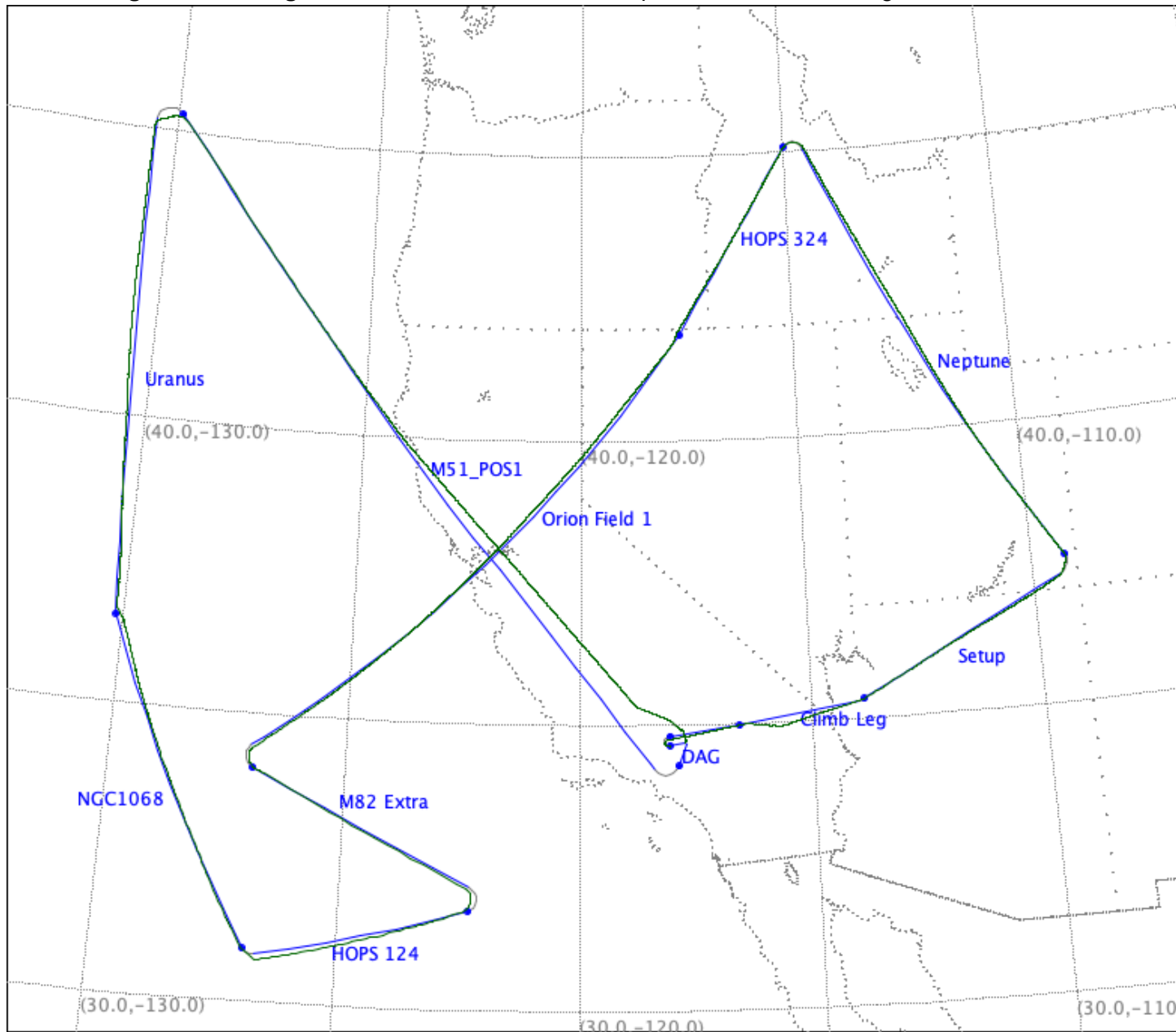
MISSION ID: 2021-12-09_HA_F802

Date: 2021-12-09 UT Instrument: HAWC+

Flight #: 802 Flight Series: OC9H

blue = planned route

green = flown route



Flight notes: No irregularities

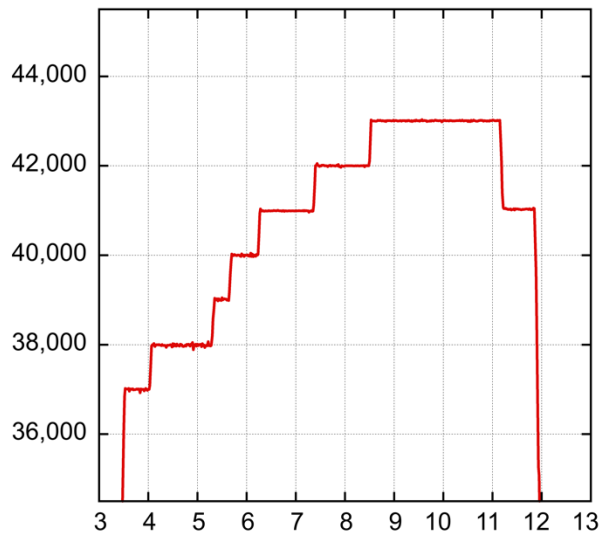
Flight 802
Palmdale to
Palmdale

Mission ID 2021-12-09_HA_F802
Take off date UTC:
09-DEC-2021

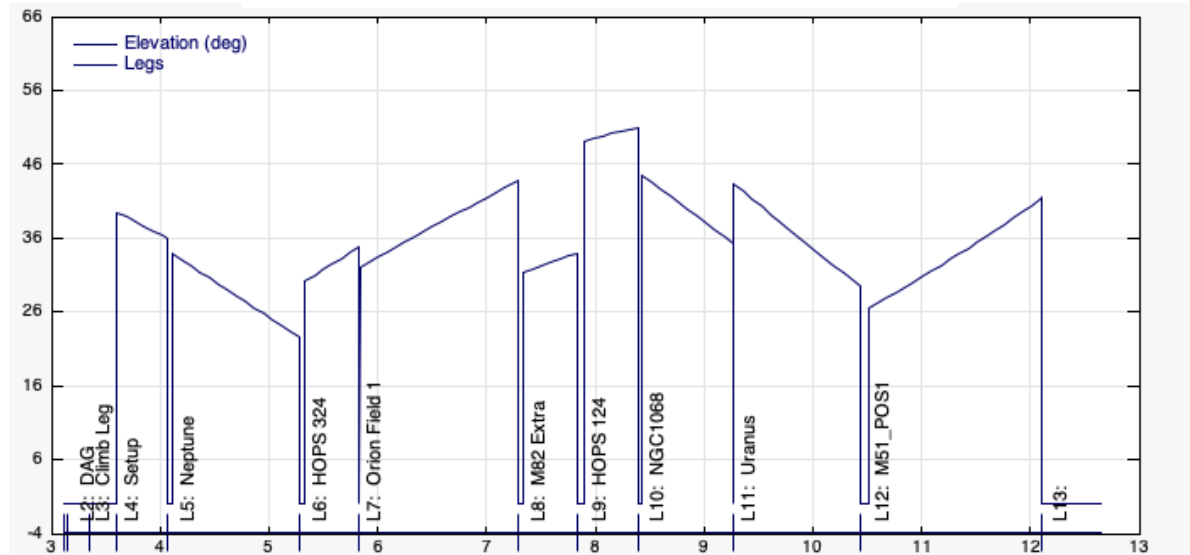
Departure UTC: 03:06
Arrival UTC: 12:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h29m34.89s	62d59m38.8s	3:36	28	
5	90_0083	Calibration	Neptune	23h25m28.84s	-04d58m06.6s	4:07	70	
6	08_0232	Fischer	HOPS 324	05h46m37.55s	00d00m33.8s	5:20	30	
7	09_0107	Tielens	Orion Field 1	05h35m21.60s	-05d21m00.0s	5:50	87	
8	08_0012	Lopez-Rodriguez	M82	09h55m52.43s	69d40m46.9s	7:21	30	
9	08_0232	Fischer	HOPS 124	05h39m19.98s	-07d26m11.2s	7:55	30	
10	08_0012	Lopez-Rodriguez	NGC1068	02h42m40.77s	-00d00m47.8s	8:26	50	
11	90_0083	Calibration	Uranus	02h35m31.55s	14d47m10.5s	9:17	70	
12	09_0201	Dowell	M51	13h29m54.39s	47d12m27.2s	10:31	96	HAWC+ cooler failed during leg and remaining observations were aborted.

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



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



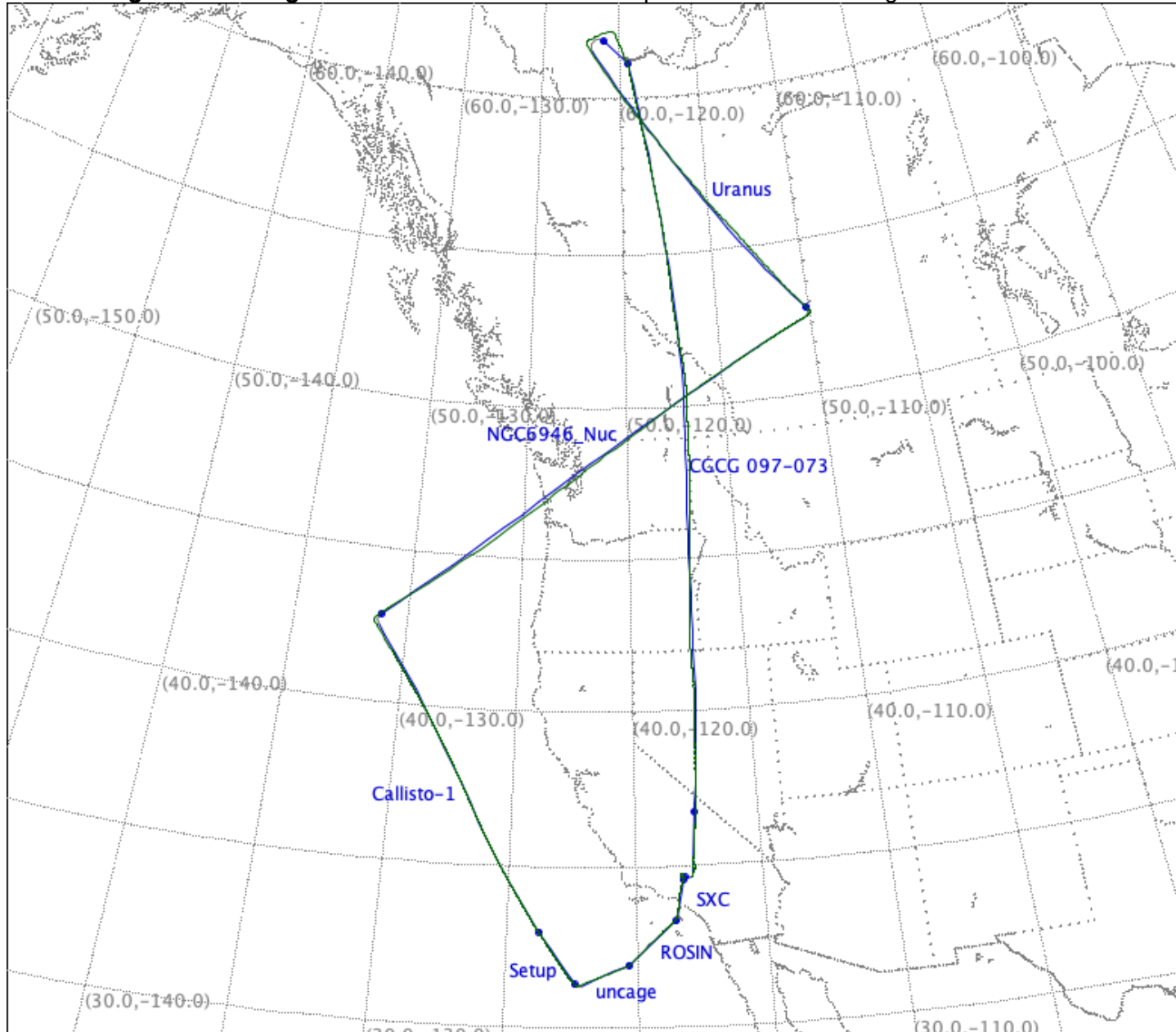
MISSION ID: 2021-12-22_FI_F803

Date: 2021-12-22 UT Instrument: FIFI-LS

Flight #: 803 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

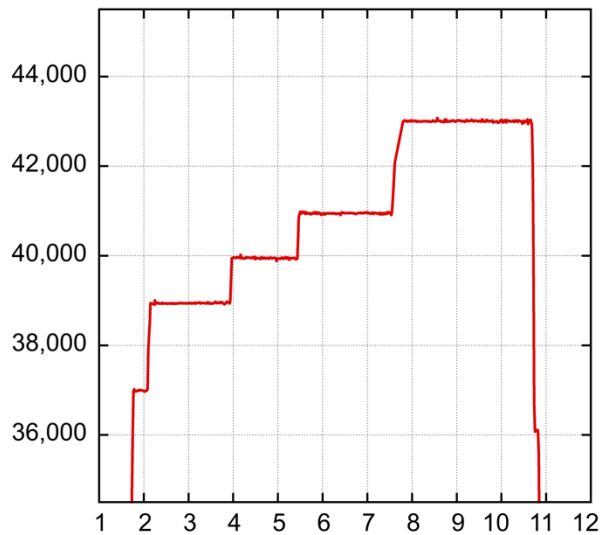
Flight 803
Palmdale to
Palmdale

Mission ID 2021-12-22_FI_F803
Take off date UTC:
22-DEC-2021

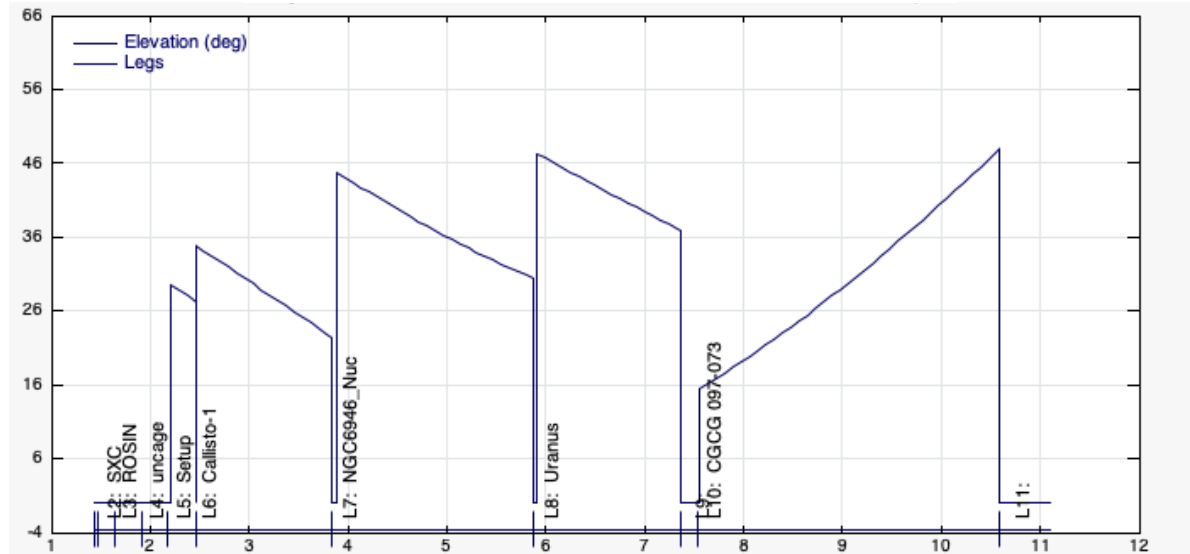
Departure UTC: 01:22
Arrival UTC: 11:12

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	21h42m39.51s	-18d51m58.8s	2:15	15	
6	90_0032	Calibration	Callisto	22h04m07.00s	-12d55m50.4s	2:30	83	
7	09_0198	Lamarche	NGC6946	20h34m59.13s	60d10m22.6s	3:56	119	
8	90_0033	Calibration	Uranus	02h34m09.53s	14d41m01.0s	5:58	87	
10	09_0221	Sun	CGCG 097-073	11h43m05.54s	19d59m17.2s	7:36	182	Half of the leg was lost due to telescope issues and clouds.

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



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



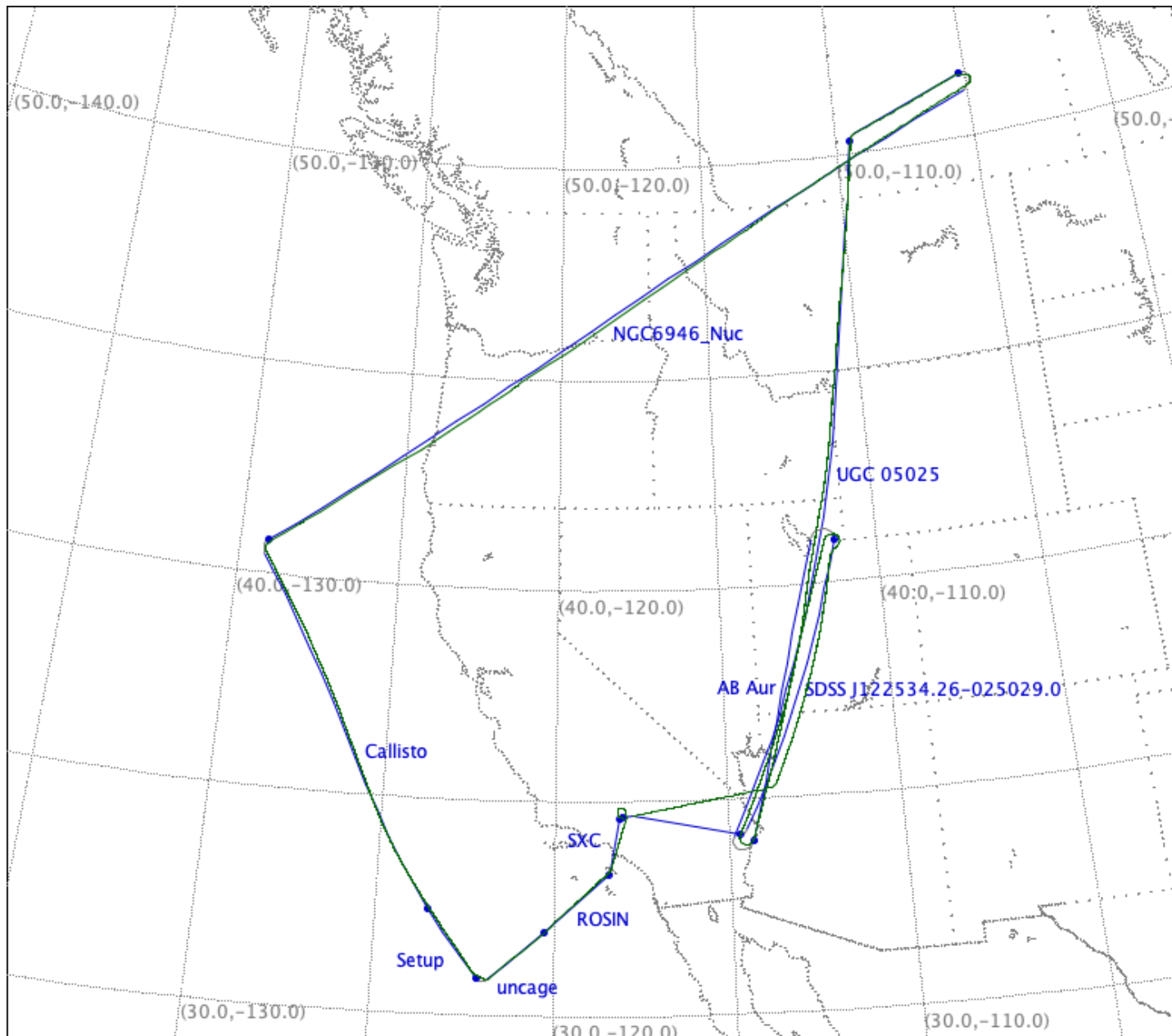
MISSION ID: 2021-12-23_FI_F804

Date: 2021-12-23 UT Instrument: FIFI-LS

Flight #: 804 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

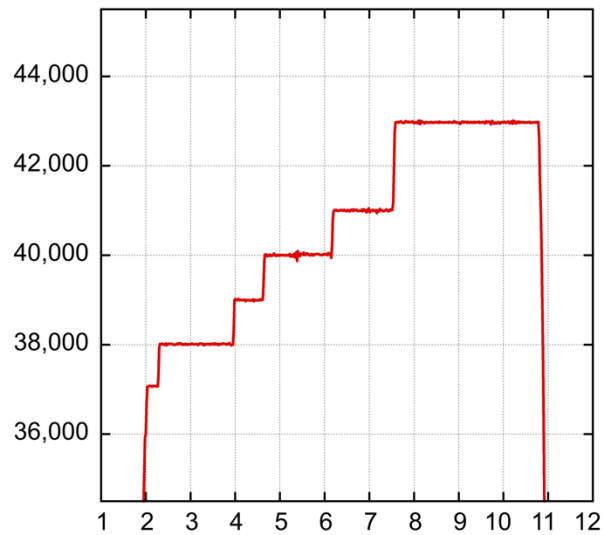
Flight 804
Palmdale to
Palmdale

Mission ID 2021-12-23_FI_F804
Take off date UTC:
23-DEC-2021

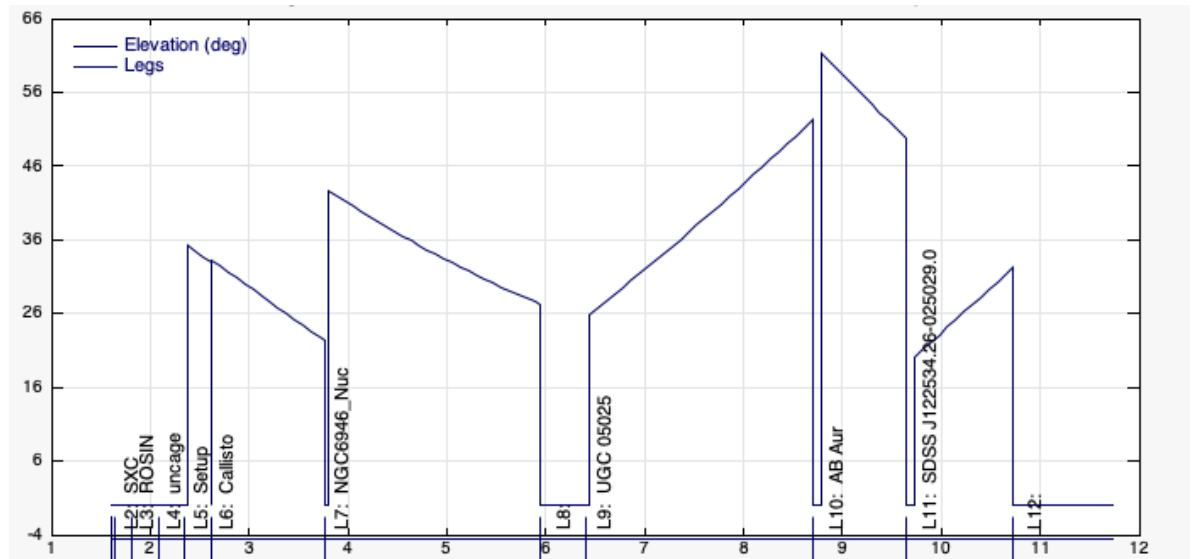
Departure UTC: 01:32
Arrival UTC: 11:23

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	22h06m26.23s	-13d52m10.8s	2:25	15	
6	90_0033	Calibration	Callisto	22h04m50.13s	-12d51m51.8s	2:40	68	Clouds prevented data collection for first 15min of leg.
7	09_0198	Lamarche	NGC6946	20h34m59.13s	60d10m22.6s	3:51	129	
9	08_0226	Petric	UGC 05025	09h26m03.29s	12d44m03.6s	3:51	136	
10	09_0131	Bouwman	AB Aur	04h55m45.85s	30d33m04.3s	6:29	51	
11	08_0238	Bolatto	SDSS J122534.26-025029.0	12h25m34.26s	-02d50m29.1s	8:51	60	

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



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



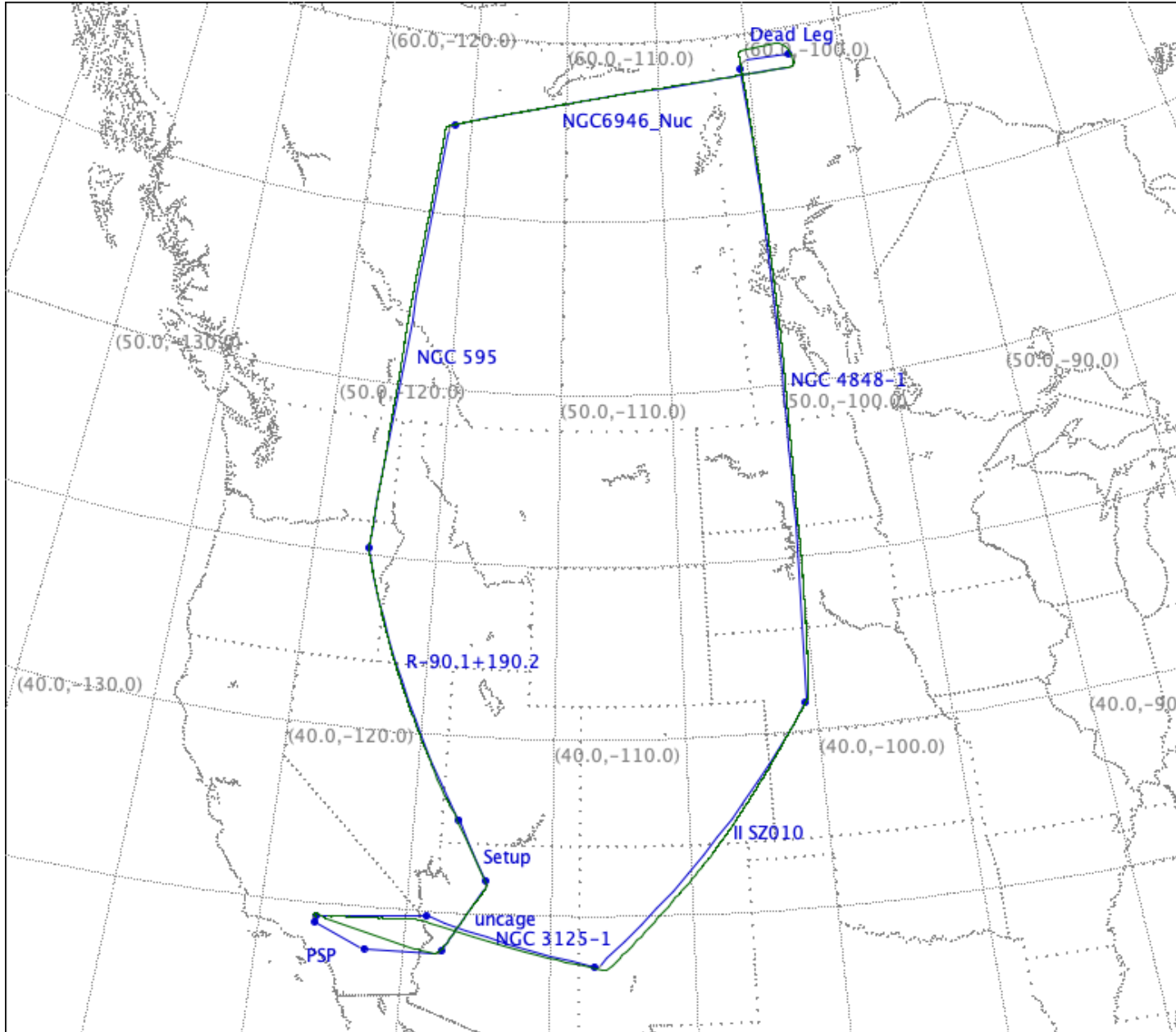
MISSION ID: 2022-01-07_FI_F805

Date: 2022-01-07 UT Instrument: FIFI-LS

Flight #: 805 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

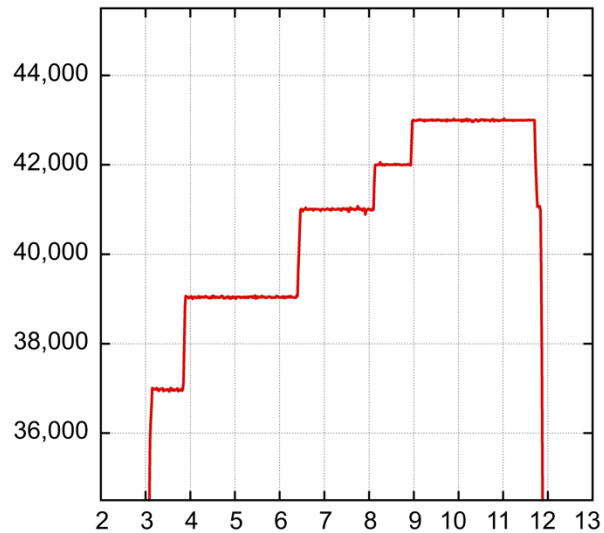
Flight 805
Palmdale to
Palmdale

Mission ID 2022-01-07_FI_F805
Take off date UTC:
07-JAN-2022

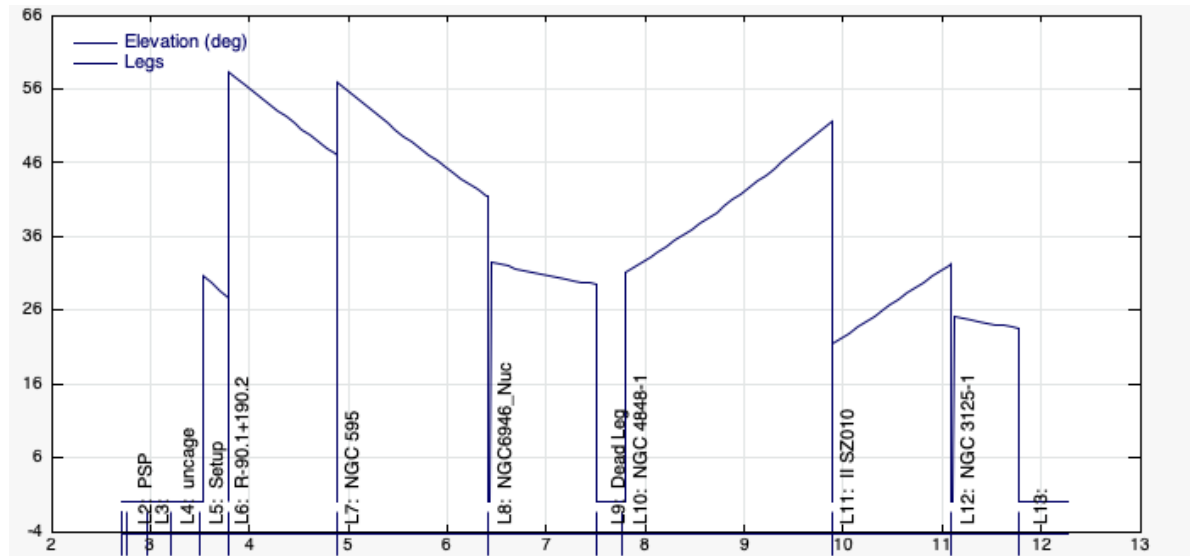
Departure UTC: 02:43
Arrival UTC: 12:15

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	23h58m40.38s	-03d33m21.5s	3:32	15	
6	08_0183	Smith	R-90.1+190.2	01h36m43.35s	15d47m46.6s	3:47	66	
7	09_0023	Jones	NGC 595	01h33m47.76s	30d48m23.3s	4:53	91	
8	09_0198	Lamarche	NGC 6946	20h34m59.13s	60d10m22.6s	6:26	64	
10	09_0221	Sun	NGC 4848	12h58m27.12s	28d03m57.0s	6:26	125	
11	08_0226	Petric	II SZ010	13h13m05.79s	-11d07m42.4s	7:48	72	
12	09_0023	Jones	NGC 3125	10h06m33.60s	-29d56m07.3s	9:54	39	

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



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



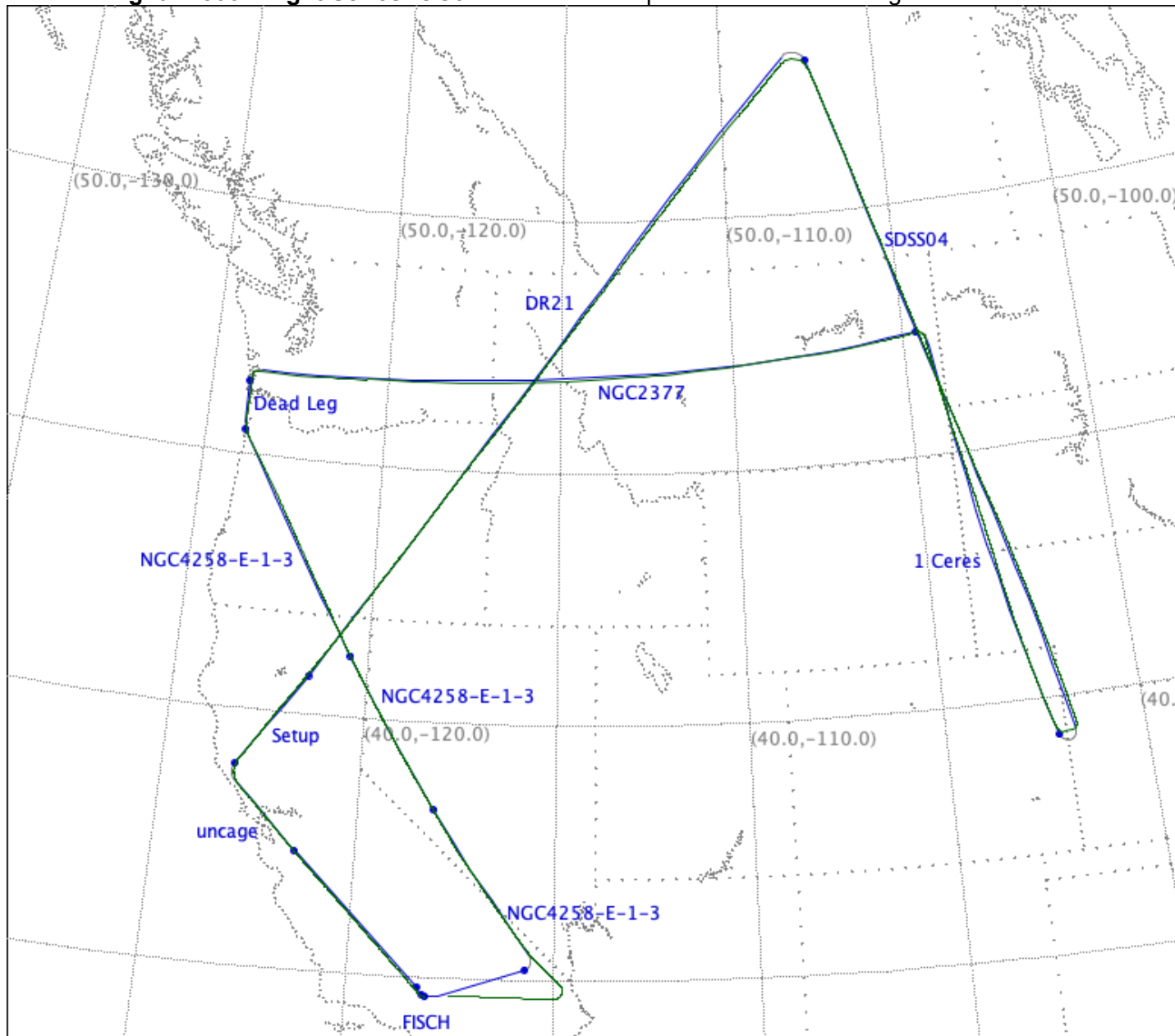
MISSION ID: 2022-01-08_FI_F806

Date: 2022-01-08 UT Instrument: FIFI-LS

Flight #: 806 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

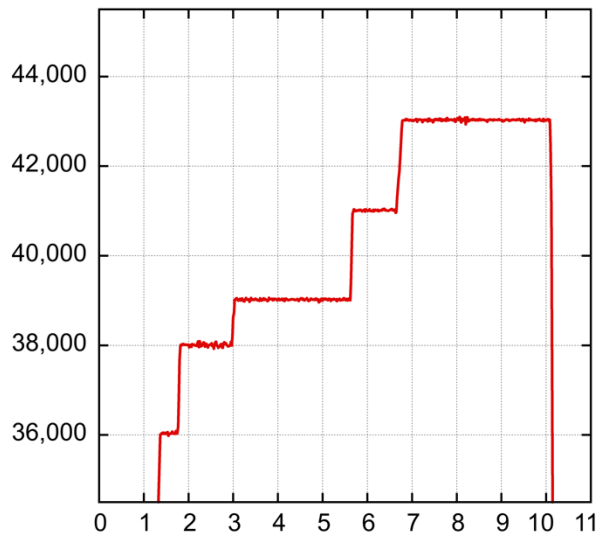
Flight 806
Palmdale to
Palmdale

Mission ID 2022-01-08_FI_F806
Take off date UTC:
08-JAN-2022

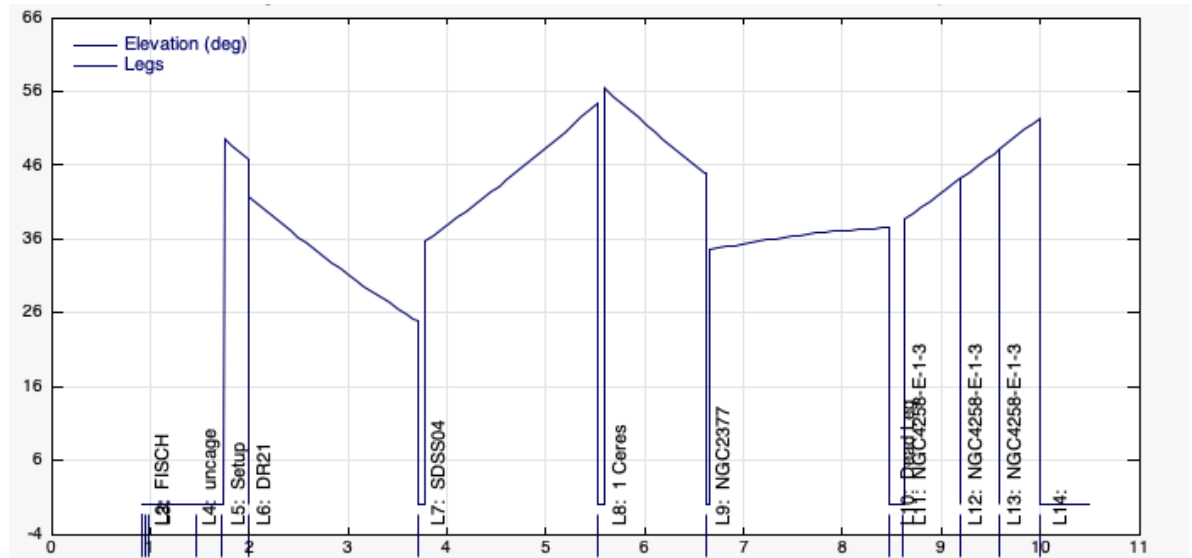
Departure UTC: 00:54
Arrival UTC: 10:39

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	21h04m55.86s	43d55m40.3s	1:44	15	
6	09_0079	Fischer	DR21	20h39m00.90s	42d22m35.7s	1:59	103	
7	08_0226	Petric	SDSS04	08h43m44.88s	35d49m40.8s	3:46	105	After first 20 mins, discovered the source was not well centered and the grating was not optimally centered.
8	90_0033	Calibration	1 Ceres	03h43m44.05s	18d04m39.9s	5:36	61	
9	08_0069	Smith	NGC2377	07h24m56.82s	-09d39m33.5s	6:39	109	
11	07_0154	Appleton	NGC 4258	12h18m54.71s	47d20m50.7s	6:39	34	
12	07_0154	Appleton	NGC 4258	12h19m00.99s	47d15m44.0s	8:37	24	
13	07_0154	Appleton	NGC 4258	12h18m57.00s	47d16m45.0s	9:11	24	

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



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



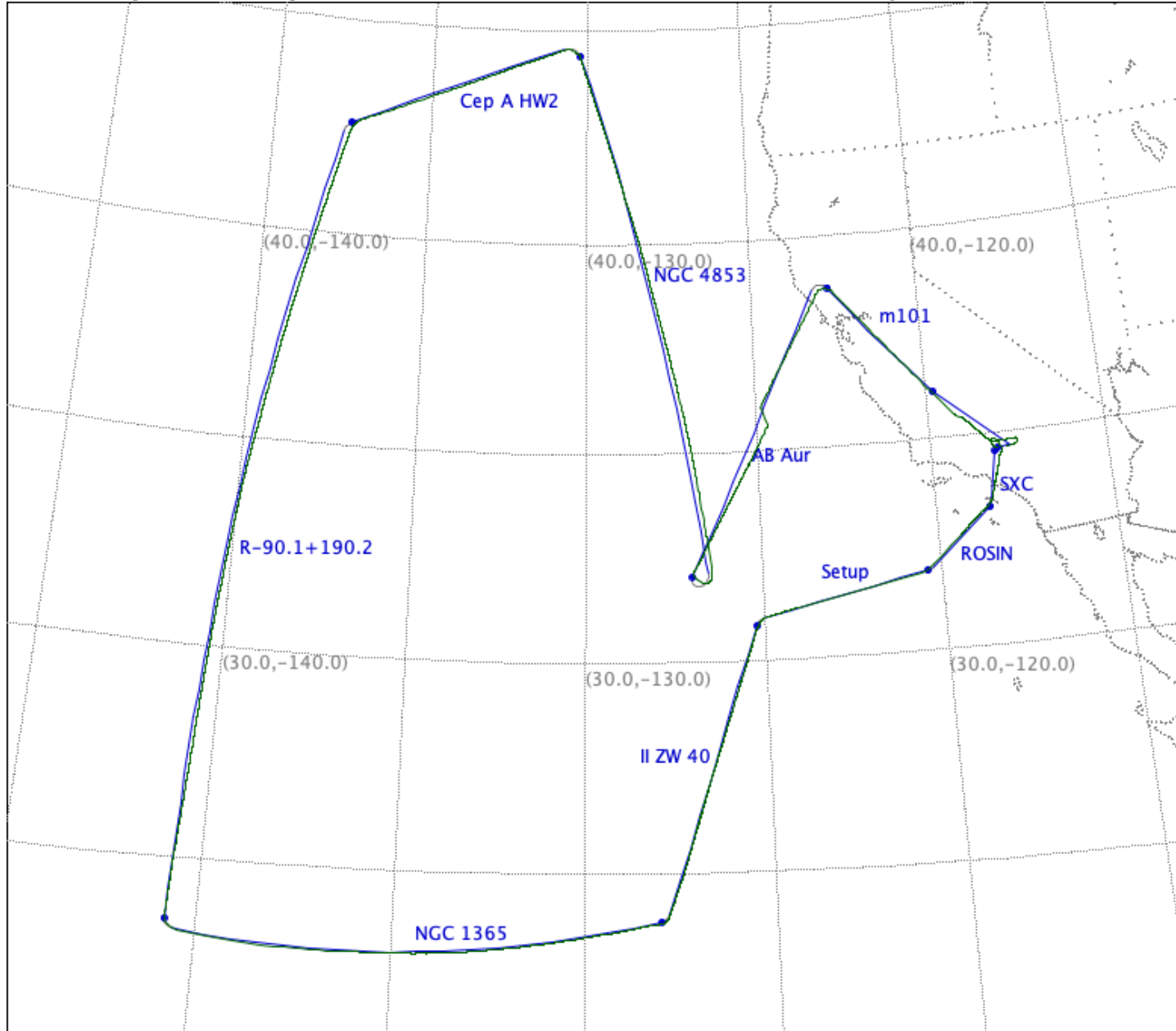
MISSION ID: 2022-01-11_FI_F807

Date: 2022-01-11 UT Instrument: FIFI-LS

Flight #: 807 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

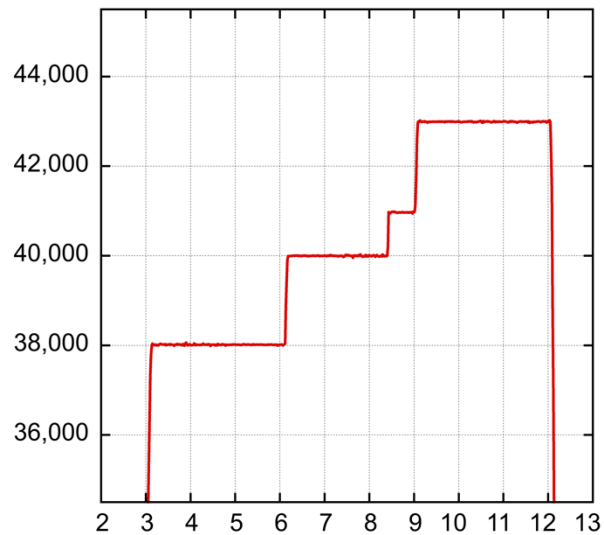
Flight 807
Palmdale to
Palmdale

Mission ID 2022-01-11_FI_F807
Take off date UTC:
11-JAN-2022

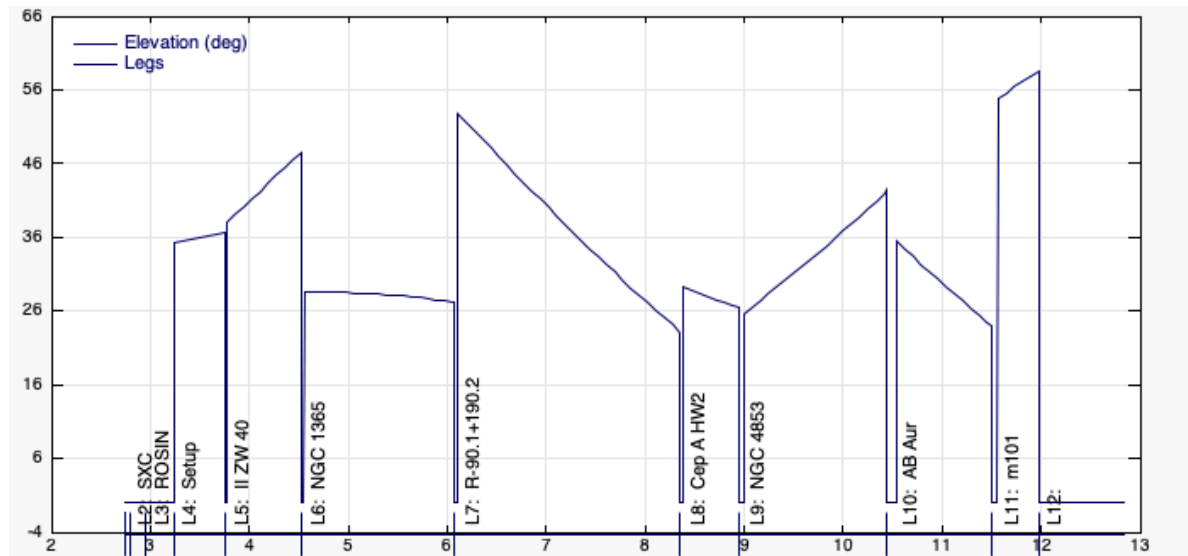
Departure UTC: 02:40
Arrival UTC: 12:27

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	03h19m31.00s	-21d45m28.3s	3:14	30	
5	08_0165	Stacey	II ZW 40	05h55m42.60s	03d23m32.0s	3:46	45	
6	09_0185	Stacey	NGC 1365	03h33m36.37s	-36d08m25.4s	4:32	91	
7	08_0183	Smith	R-90.1+190.2	01h36m43.35s	15d47m46.6s	6:06	135	
8	09_0169	Yang	Cep A HW2	22h56m17.90s	62d01m49.1s	8:22	34	
9	09_0221	Sun	NGC 4853	12h58m35.19s	27d35m46.8s	8:59	87	
10	09_0131	Bouwman	AB Aur	04h55m45.85s	30d33m04.3s	10:32	58	
11	75_0085	Discretionary	m101	14h03m12.00s	54d20m41.0s	11:33	25	

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



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



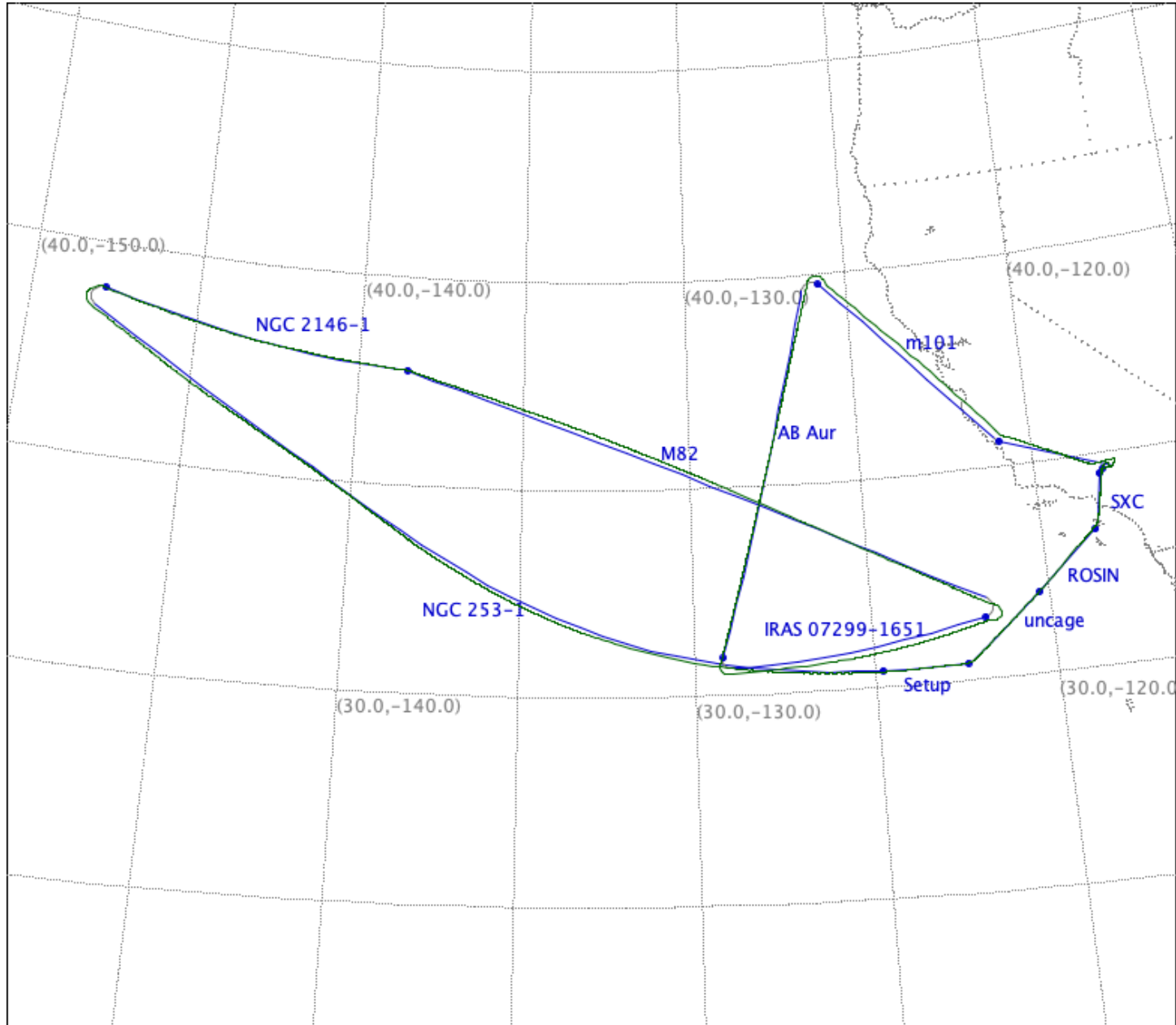
MISSION ID: 2022-01-12_FI_F808

Date: 2022-01-12 UT Instrument: FIFI-LS

Flight #: 808 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

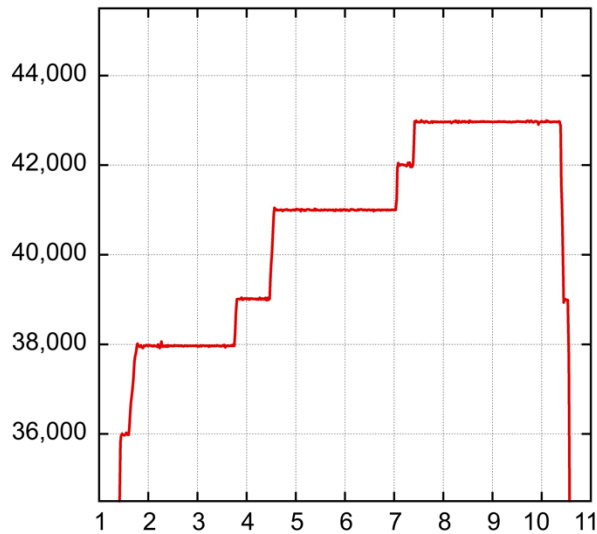
Flight 808
Palmdale to
Palmdale

Mission ID 2022-01-12_FI_F808
Take off date UTC:
12-JAN-2022

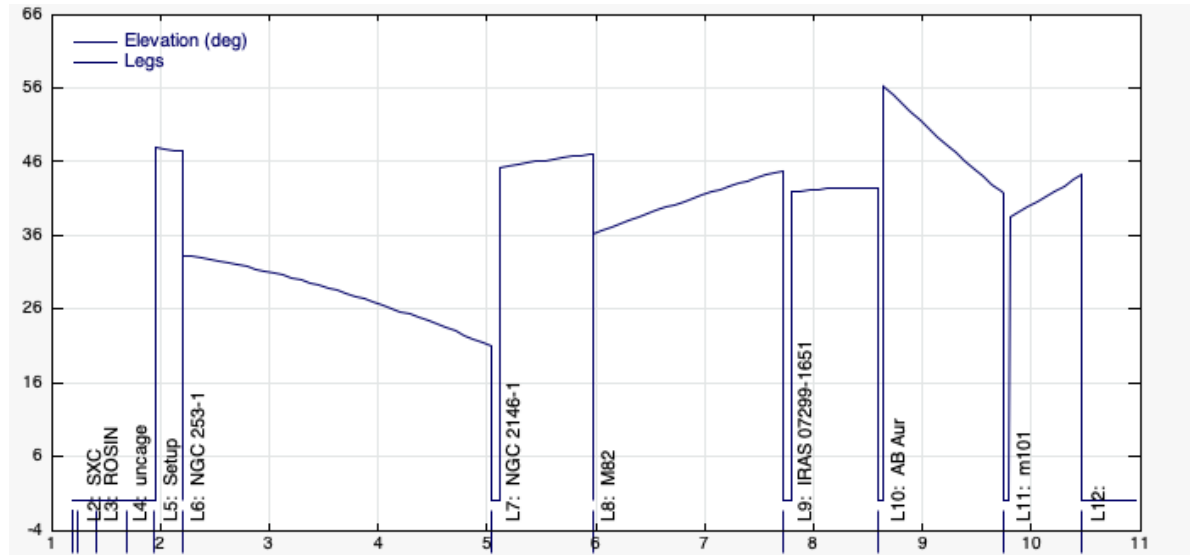
Departure UTC: 01:05
Arrival UTC: 10:53

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	00h58m43.87s	-11d22m47.9s	1:55	15	
6	09_0066	Beck	NGC 253	00h47m33.13s	-25d17m19.7s	2:10	170	Sky too bright at beginning of the leg to guide (~10min lost)
7	09_0185	Stacey	NGC 2146	06h18m37.71s	78d21m25.3s	5:04	51	
8	09_0149	Latzko	M82	09h55m52.43s	69d40m46.9s	5:56	105	
9	09_0169	Yang	IRAS 07299-1651	07h32m09.91s	-16d58m14.2s	7:45	48	
10	09_0131	Bouwman	AB Aur	04h55m45.85s	30d33m04.3s	8:36	66	
11	75_0085	Discretionary	m101	14h03m12.00s	54d20m41.0s	9:45	40	

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



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



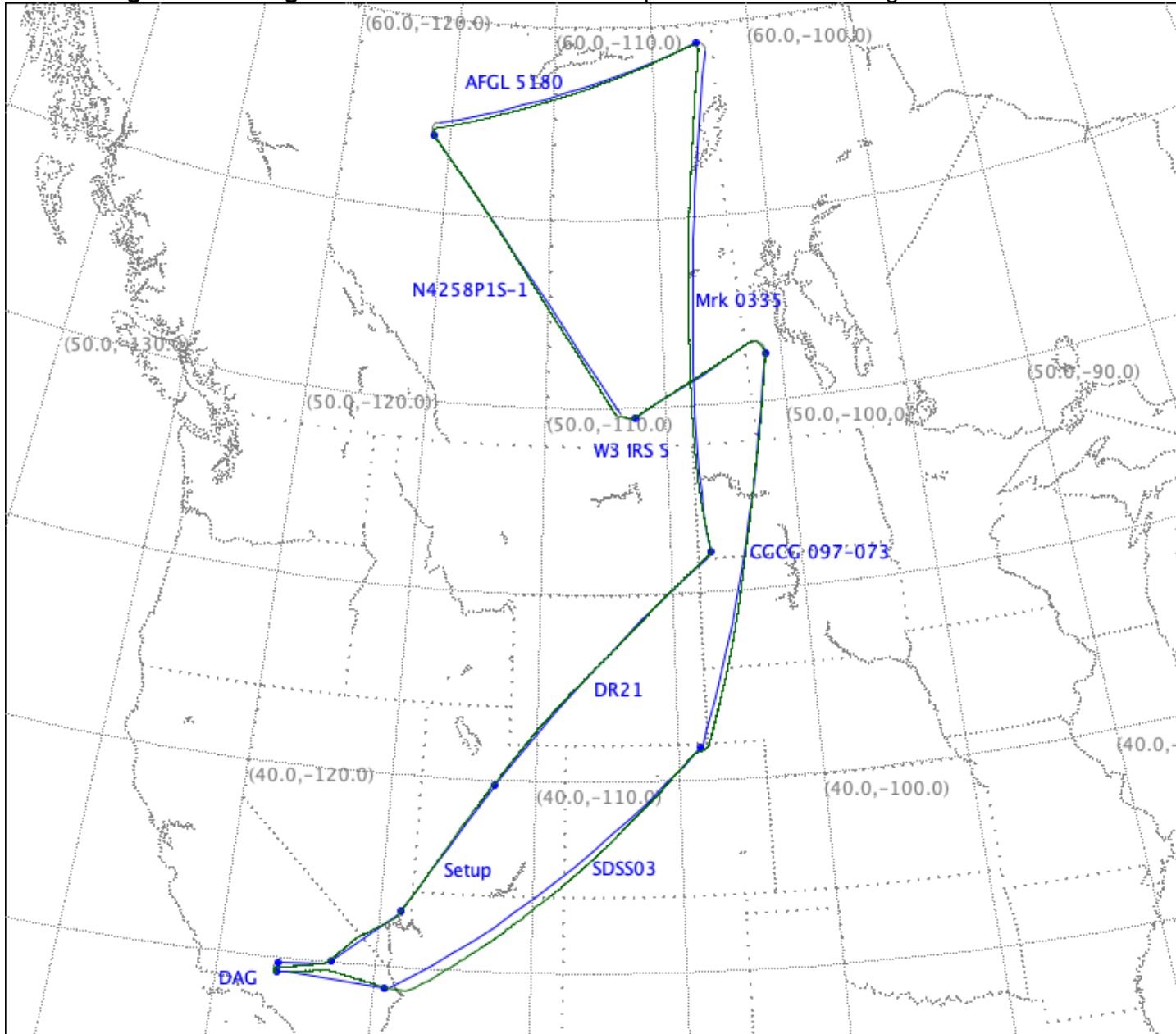
MISSION ID: 2022-01-13_FI_F809

Date: 2022-01-13 UT Instrument: FIFI-LS

Flight #: 809 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

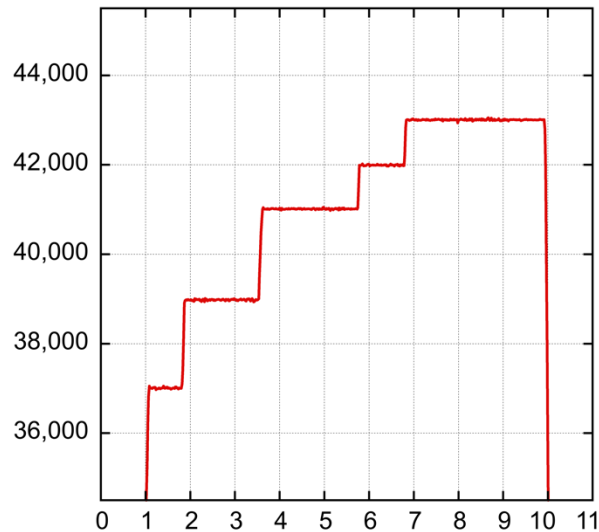
Flight 809
Palmdale to
Palmdale

Mission ID 2022-01-13_FI_F809
Take off date UTC:
13-JAN-2022

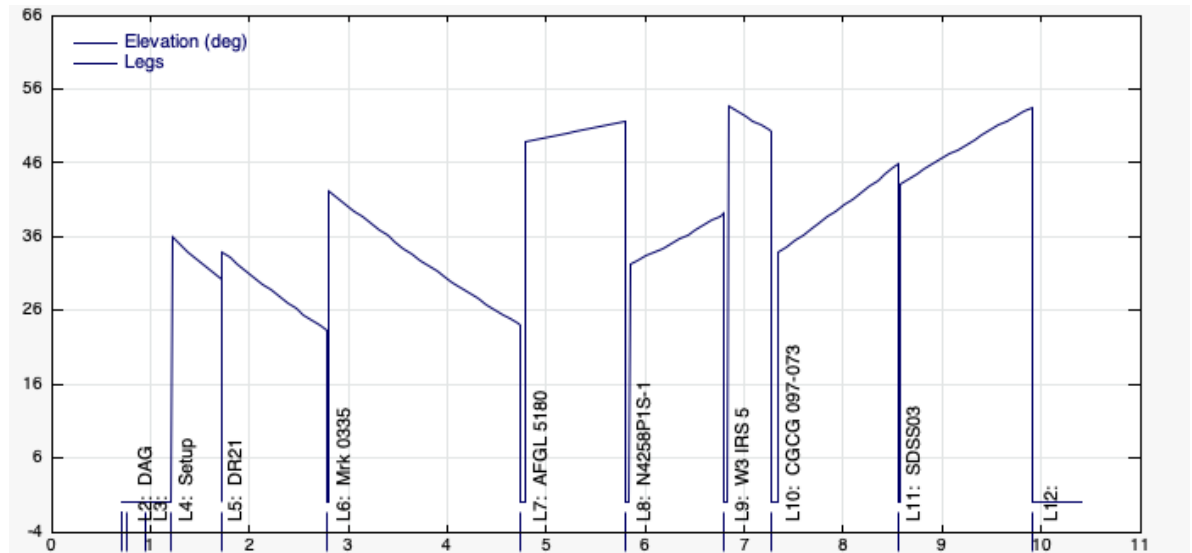
Departure UTC: 00:39
Arrival UTC: 10:25

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h22m13.70s	40d15m24.0s	1:13	30	
5	09_0079	Fischer	DR21	20h39m00.90s	42d22m35.7s	1:43	64	Stared at 37k ft. About 30min lost before climbing to 39K ft and better atmospheric conditions.
6	08_0226	Petric	Mrk 0335	00h06m19.52s	20d12m10.5s	2:49	116	
7	09_0169	Yang	AFGL 5180	06h08m54.14s	21d38m24.7s	4:48	60	
8	07_0154	Appleton	N4258P1S	12h18m59.49s	47d18m12.9s	5:51	57	
9	09_0169	Yang	W3 IRS 5	02h25m40.54s	62d05m51.4s	6:51	26	Array was not optimally centered on source
10	09_0221	Sun	CGCG 097-073	11h43m05.54s	19d59m17.2s	7:21	73	
11	08_0226	Petric	SDSS03	10h52m08.16s	06d09m14.4s	8:35	80	

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



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



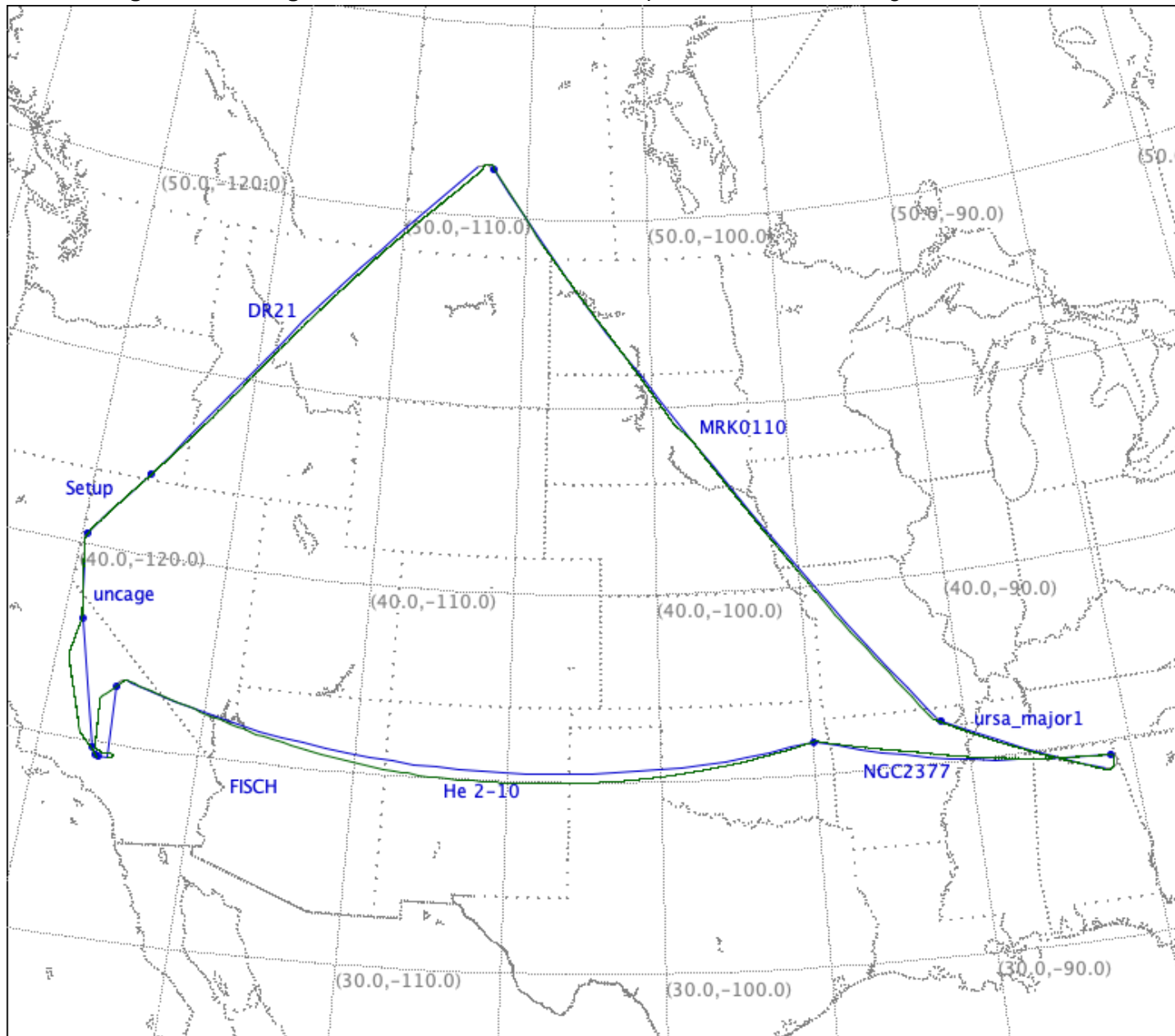
MISSION ID: 2022-01-14_FI_F810

Date: 2022-01-14 UT Instrument: FIFI-LS

Flight #: 810 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

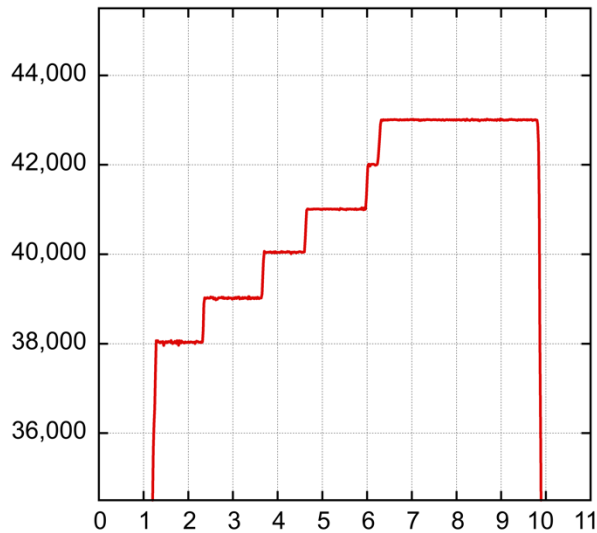
Flight 810
Palmdale to
Palmdale

Mission ID 2022-01-14_FI_F810
Take off date UTC:
14-JAN-2022

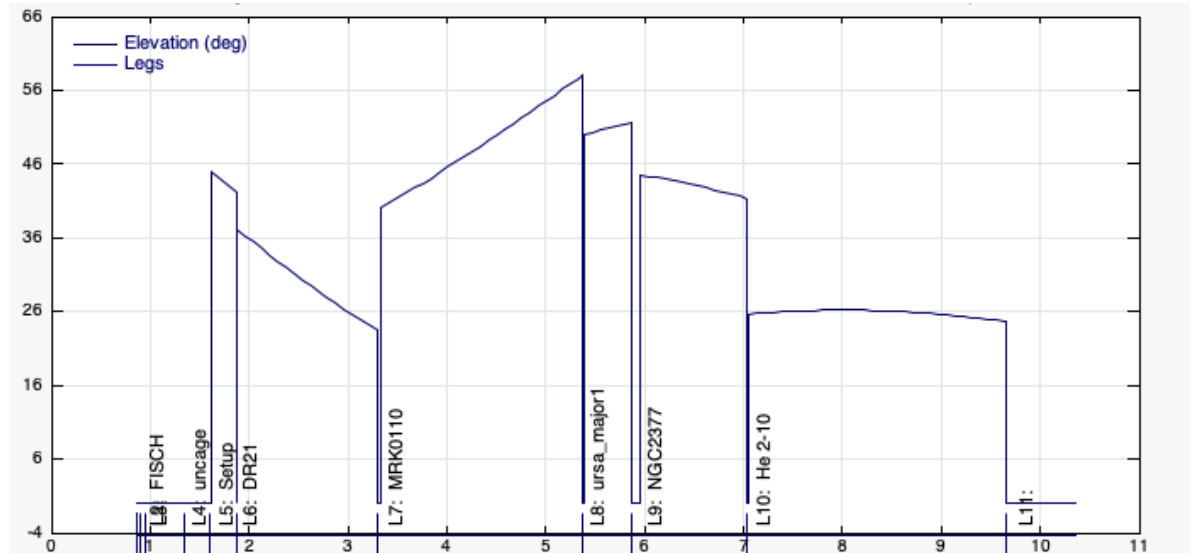
Departure UTC: 00:50
Arrival UTC: 10:16

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	21h04m55.86s	43d55m40.3s	1:37	15	
6	09_0079	Fischer	DR21	20h39m00.90s	42d22m35.7s	1:52	85	
7	08_0226	Petric	MRK0110	09h25m12.87s	52d17m10.5s	3:20	122	
8	08_0237	Panopoulou	ursa_major1	09h25m14.27s	70d33m40.3s	5:23	29	
9	08_0069	Smith	NGC2377	07h24m56.82s	-09d39m33.5s	5:57	65	
10	09_0005	Vacca	He 2-10	08h36m15.13s	-26d24m33.8s	7:03	156	

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



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



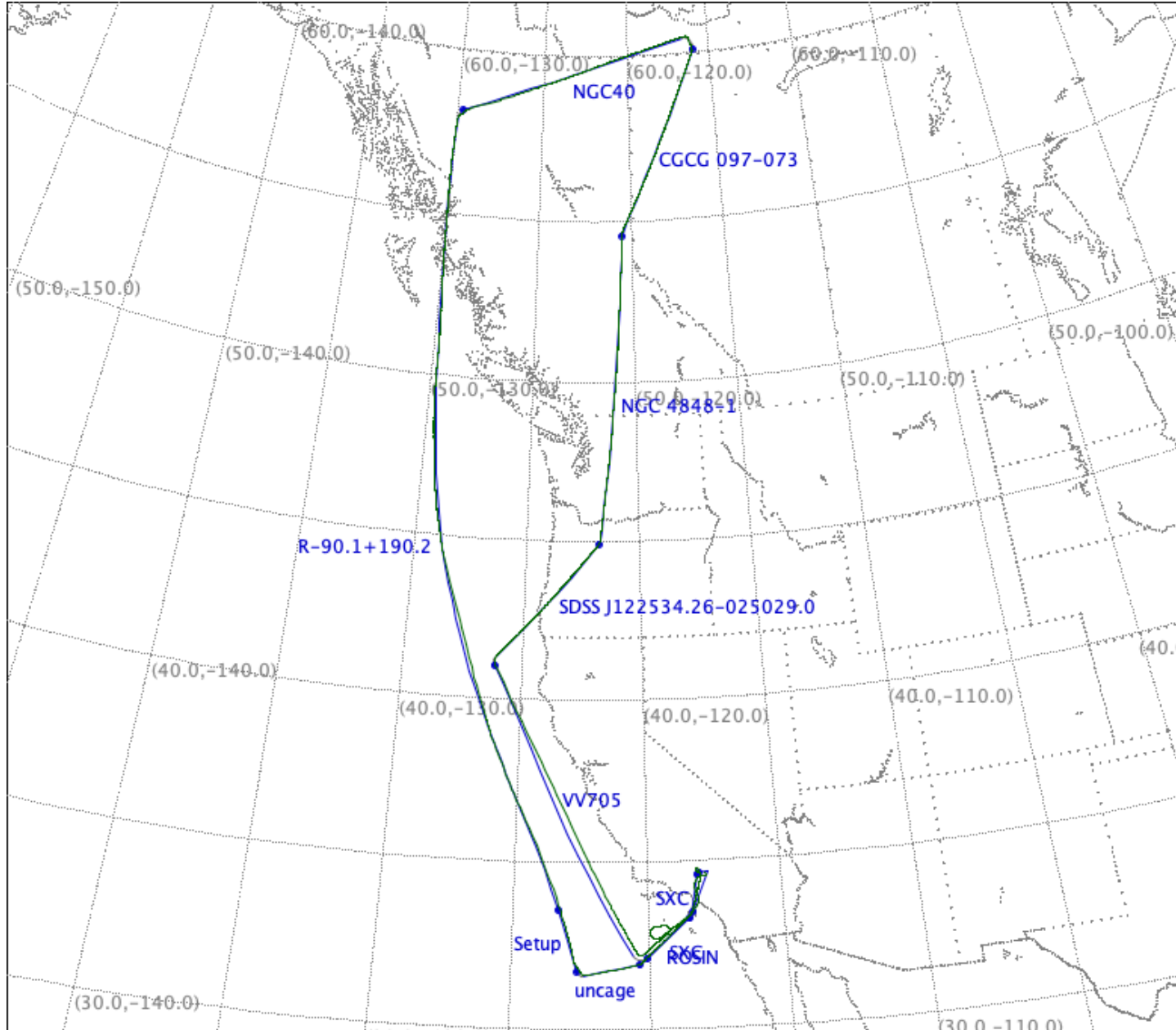
MISSION ID: 2022-01-19_FI_F811

Date: 2022-01-19 UT Instrument: FIFI-LS

Flight #: 811 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

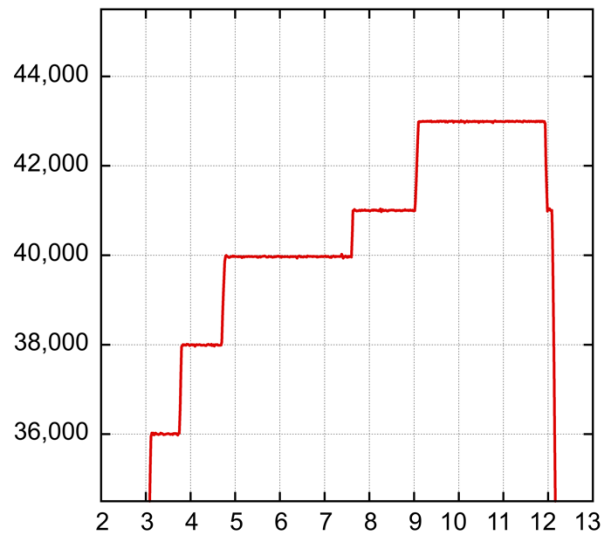
Flight 811
Palmdale to
Palmdale

Mission ID 2022-01-19_FI_F811
Take off date UTC:
19-JAN-2022

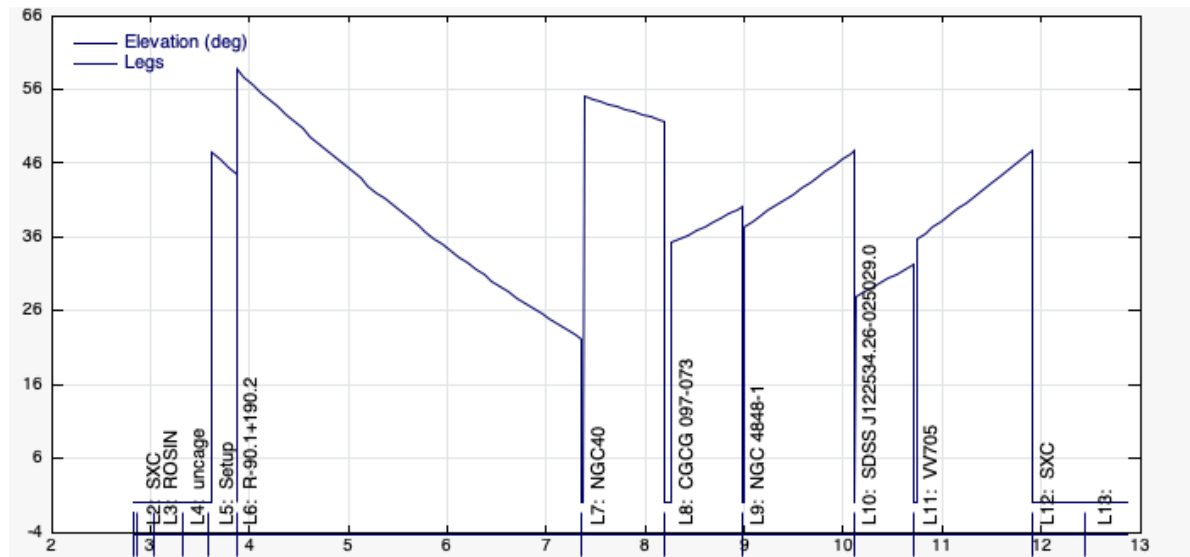
Departure UTC: 02:45
Arrival UTC: 12:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	00h48m40.94s	07d35m06.3s	3:37	15	
6	08_0183	Smith	R-90.1+190.2	01h36m43.35s	15d47m46.6s	3:52	209	
7	71_0024	Engineering	NGC40	00h13m01.02s	72d31m19.0s	7:23	49	
8	09_0221	Sun	CGCG 097-073	11h43m05.54s	19d59m17.2s	8:16	43	
9	09_0221	Sun	NGC 4848	12h58m27.12s	28d03m57.0s	8:59	67	
10	08_0238	Bolatto	SDSS J122534.26-025029.0	12h25m34.26s	-02d50m29.1s	10:07	35	
11	08_0069	Smith	VV705	15h18m06.35s	42d44m36.7s	10:44	70	

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



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



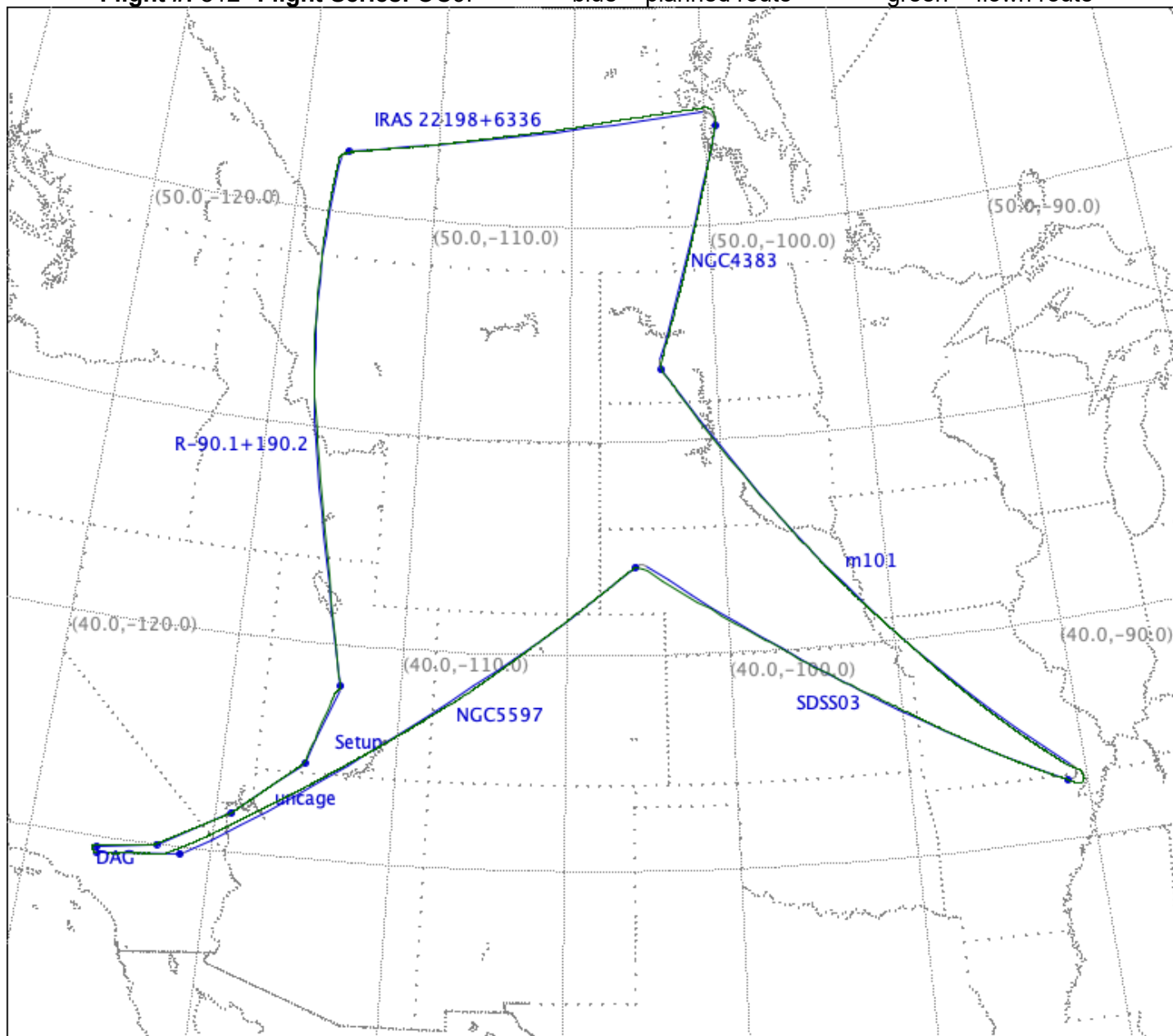
MISSION ID: 2022-01-20_FI_F812

Date: 2022-01-20 UT Instrument: FIFI-LS

Flight #: 812 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

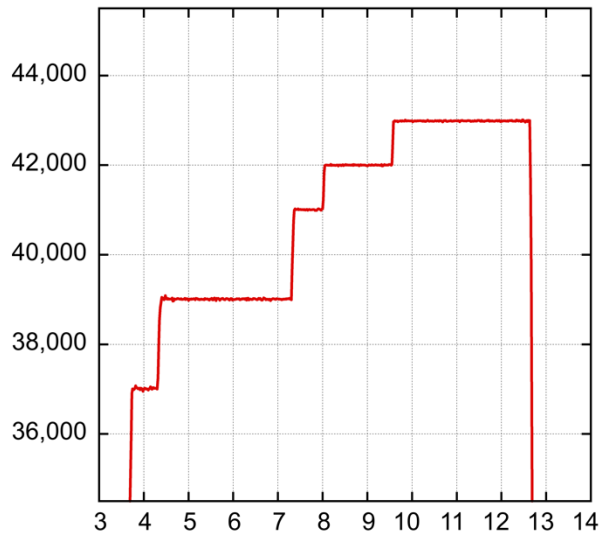
Flight 812
Palmdale to
Palmdale

Mission ID 2022-01-20_FI_F812
Take off date UTC:
20-JAN-2022

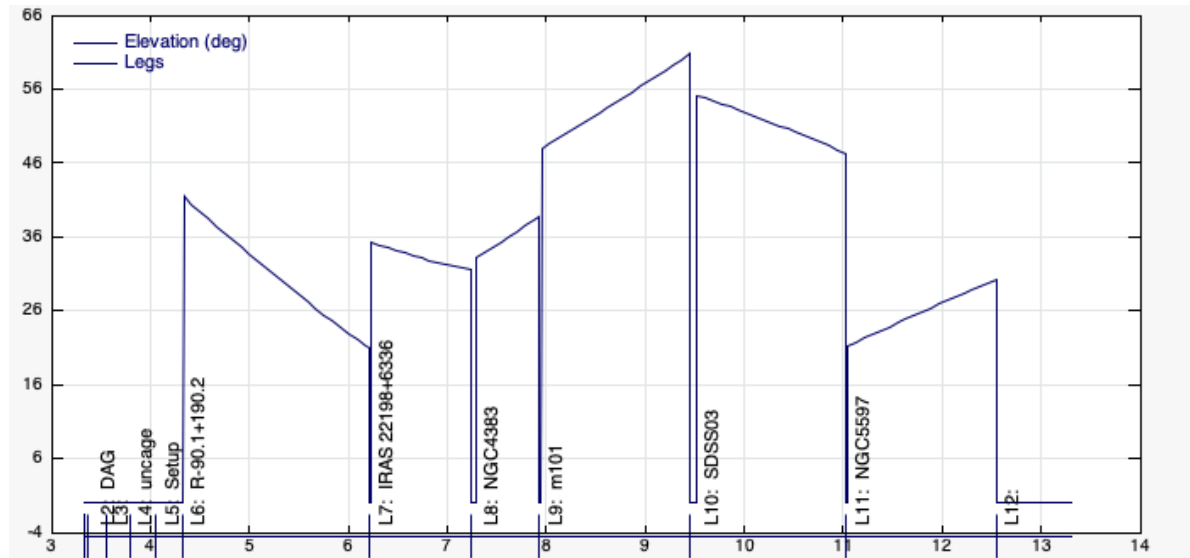
Departure UTC: 03:19
Arrival UTC: 12:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6	08_0183	Smith	R-90.1+190.2	01h36m43.35s	15d47m46.6s	4:21	112	
7	09_0169	Yang	IRAS 22198+6336	22h21m26.68s	63d51m38.2s	6:15	60	
8	08_0069	Smith	NGC4383	12h25m25.52s	16d28m12.5s	7:18	38	
9	75_0085	Discretionary	m101	14h03m12.00s	54d20m41.0s	7:58	90	
10	08_0226	Petric	SDSS03	10h52m08.16s	06d09m14.4s	9:32	90	
11	08_0069	Smith	NGC5597	14h24m27.44s	-16d45m45.9s	11:04	90	

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



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



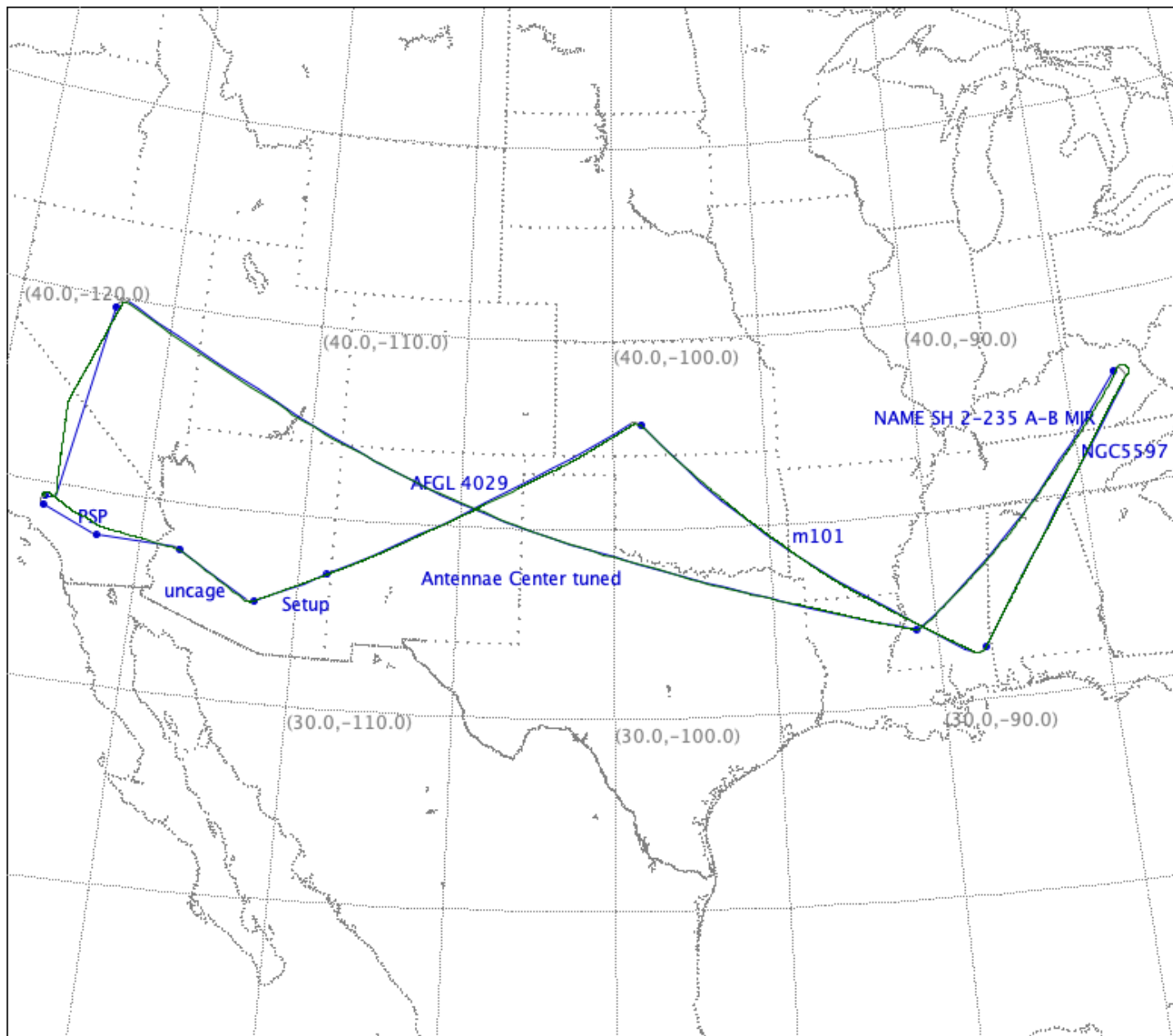
MISSION ID: 2022-01-21_FI_F813

Date: 2022-01-21 UT Instrument: FIFI-LS

Flight #: 813 Flight Series: OC9I

blue = planned route

green = flown route



Flight notes: No irregularities

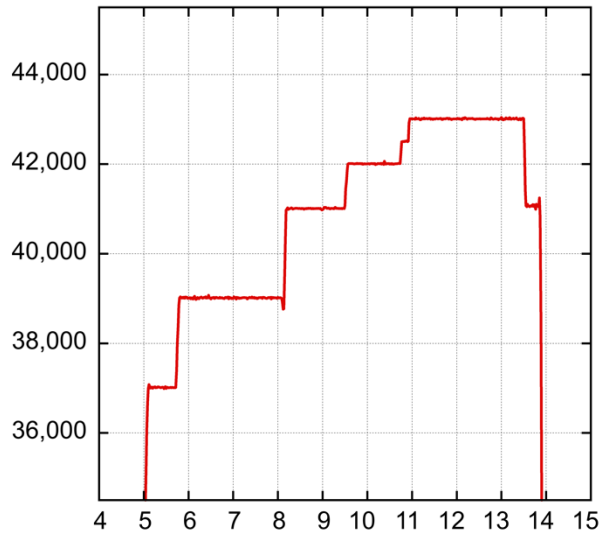
Flight 813
Palmdale to
Palmdale

Mission ID 2022-01-21_FI_F813
Take off date UTC:
21-JAN-2022

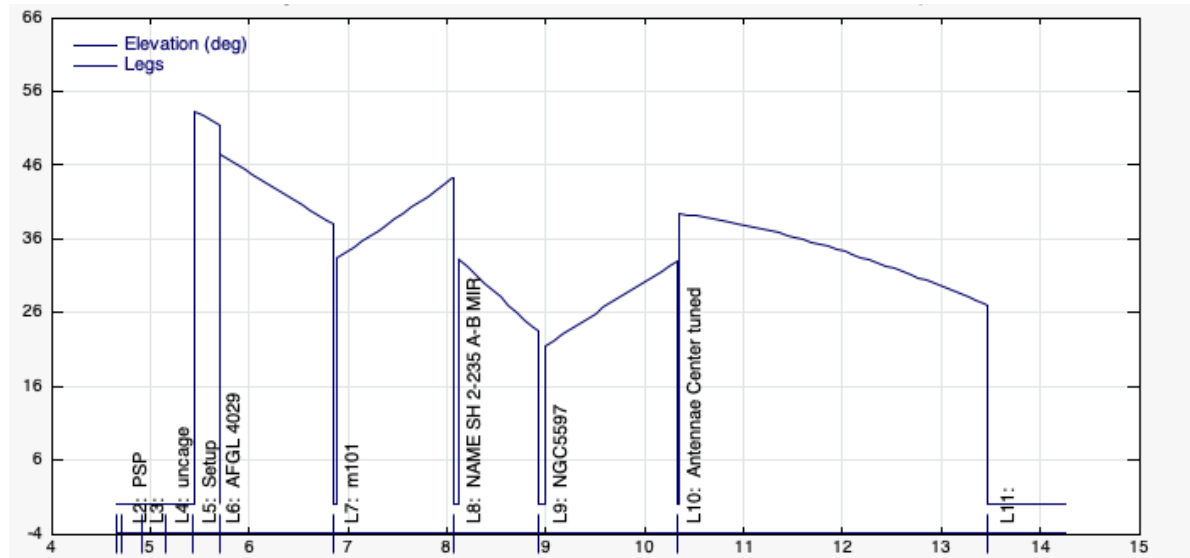
Departure UTC: 04:40
Arrival UTC: 14:18

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	03h29m54.74s	58d52m43.5s	5:27	15	
6	09_0169	Yang	AFGL 4029	03h01m31.28s	60d29m12.9s	5:42	69	
7	75_0085	Discretionary	m101	14h03m12.00s	54d20m41.0s	6:53	71	
8	09_0169	Yang	Sh2-235	05h40m52.40s	35d41m30.0s	8:07	48	
9	08_0069	Smith	NGC5597	14h24m27.44s	-16d45m45.9s	9:00	80	
10	08_0137	Weilbacher	Antennae	12h01m53.90s	-18d52m38.2s	10:21	187	

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



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



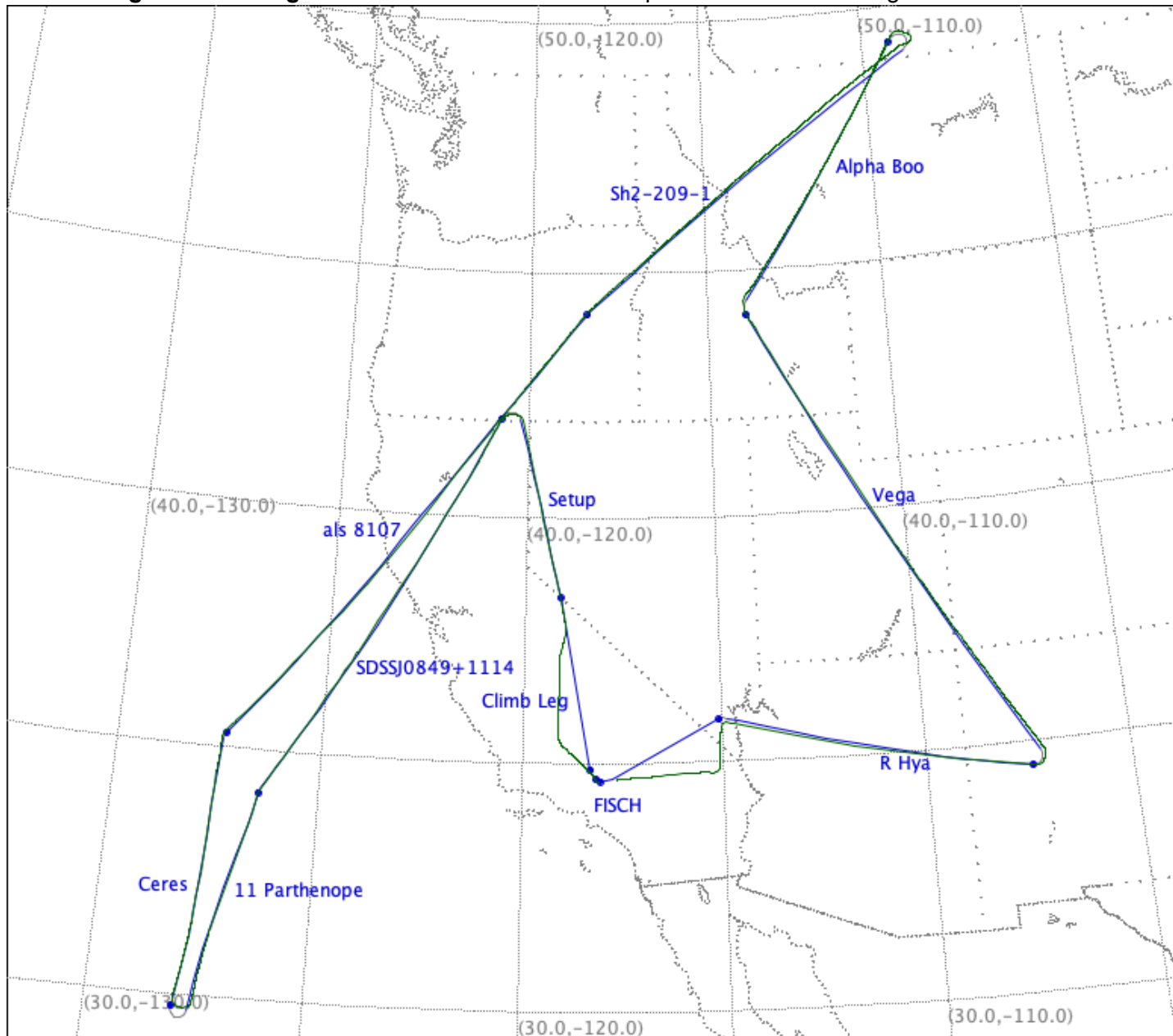
MISSION ID: 2022-01-25_FO_F814

Date: 2022-01-25 UT Instrument: FORCAST

Flight #: 814 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

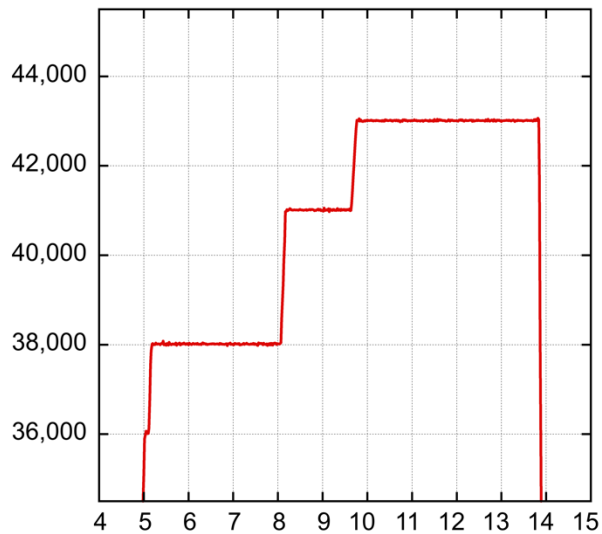
Flight 814
Palmdale to
Palmdale

Mission ID 2022-01-25_FO_F814
Take off date UTC:
25-JAN-2022

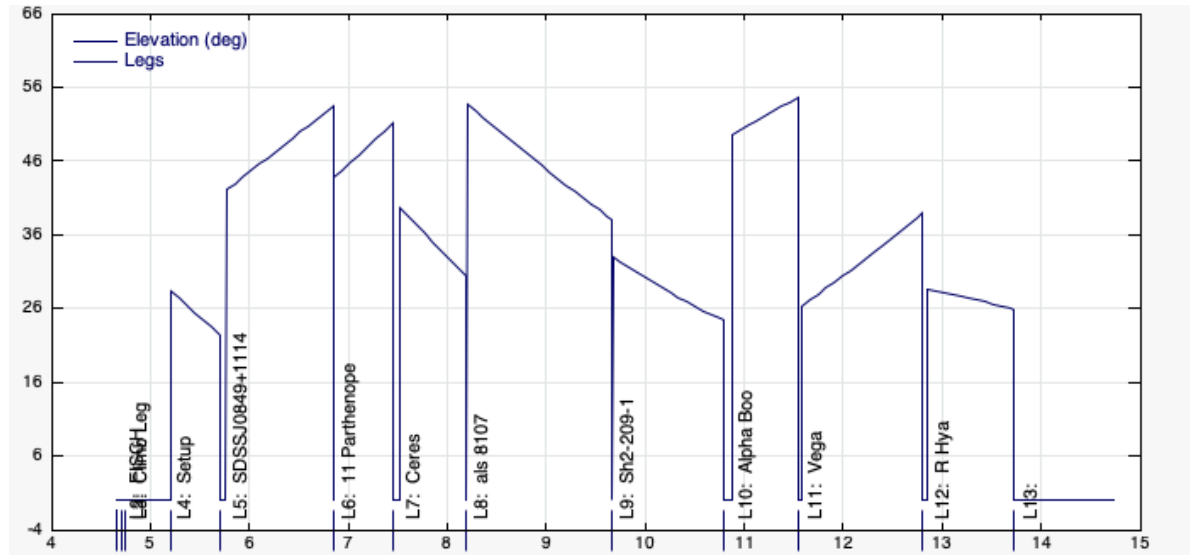
Departure UTC: 04:37
Arrival UTC: 14:17

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	01h41m25.89s	05d29m15.4s	5:12	30	
5	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	5:46	65	
6	09_0176	McAdam	11 Parthenope	09h53m42.25s	14d27m29.7s	6:51	35	
7	90_0048	Calibration	1 Ceres	03h43m38.23s	19d07m13.6s	7:31	40	
8	09_0052	Marshall	als 8107	04h58m45.34s	47d59m56.1s	8:12	88	
9	08_0119	Lau	Sh2-209	04h11m09.00s	51d09m54.9s	9:40	66.9	
10	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	10:52	40	
11	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	11:34	73	30 min in observing there was partial vignetting with upper door
12	09_0051	Sankrit	R Hya	13h29m42.77s	-23d16m52.7s	12:51	52	

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



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



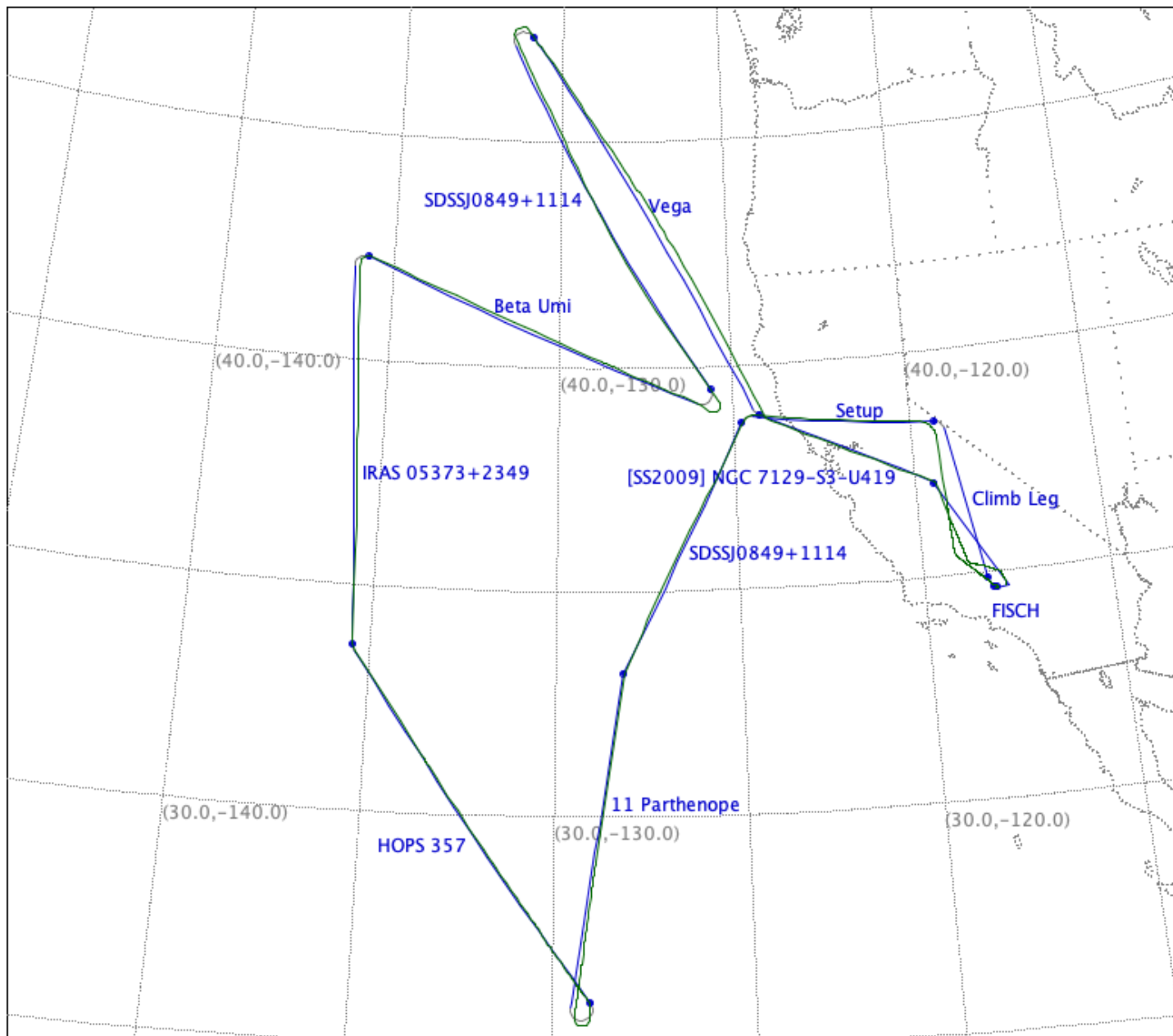
MISSION ID: 2022-01-26_FO_F815

Date: 2022-01-26 UT Instrument: FORCAST

Flight #: 815 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes:

Telescope issues prevented data collection on legs 5 & 6.

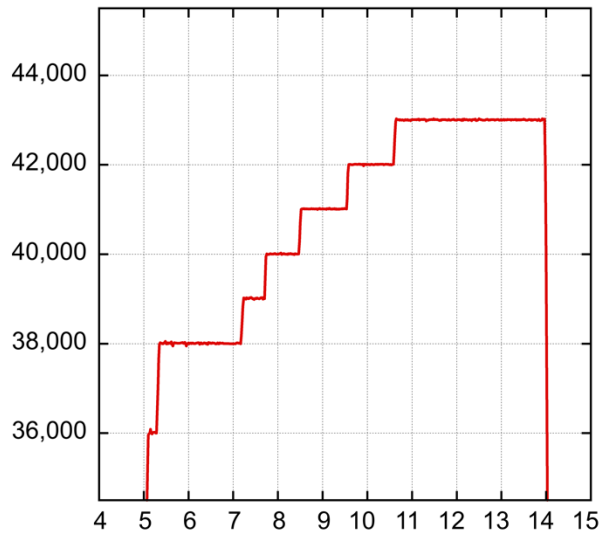
Flight 815
Palmdale to
Palmdale

Mission ID 2022-01-26_FO_F815
Take off date UTC:
26-JAN-2022

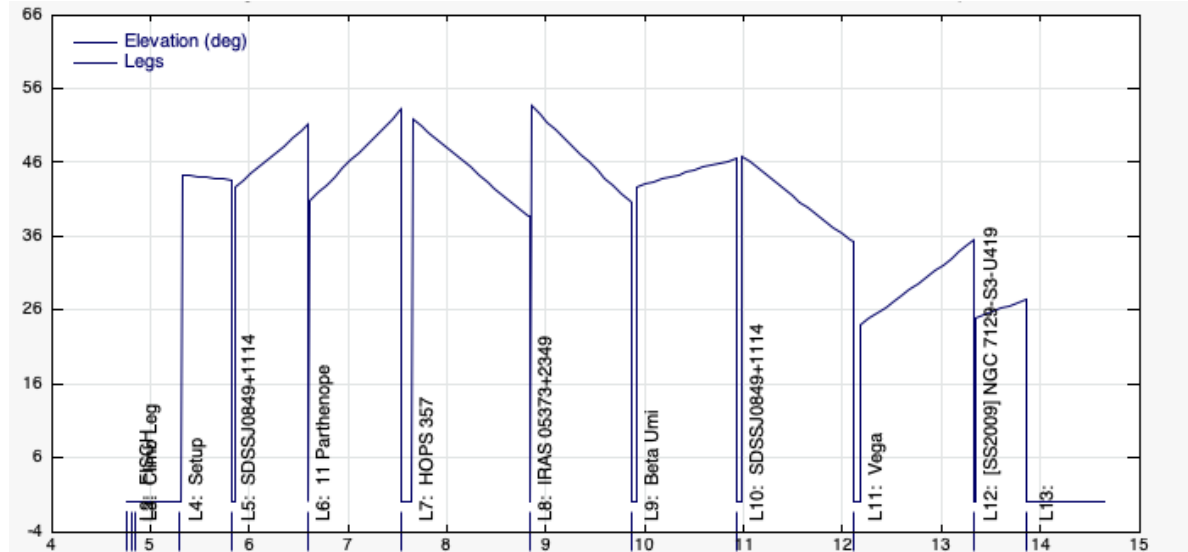
Departure UTC: 04:43
Arrival UTC: 14:23

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h31m55.86s	-07d18m05.5s	5:19	30	
5	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	5:51	45	Telescope error, no data
6	09_0176	McAdam	11 Parthenope	09h52m55.31s	14d33m28.5s	6:36	56	First 40min lost due to telescope error
7	09_0006	Karnath	HOPS 357	05h41m39.13s	-01d52m07.4s	7:39	71	
8	09_0006	Karnath	IRAS 05373+2349	05h40m24.40s	23d50m54.0s	8:51	61.1	
9	90_0065	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	9:55	60	
10	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	10:59	67	
11	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	12:11	69	
12	09_0006	Karnath	NGC 7129	21h43m01.78s	66d03m24.4s	13:21	30	

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



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



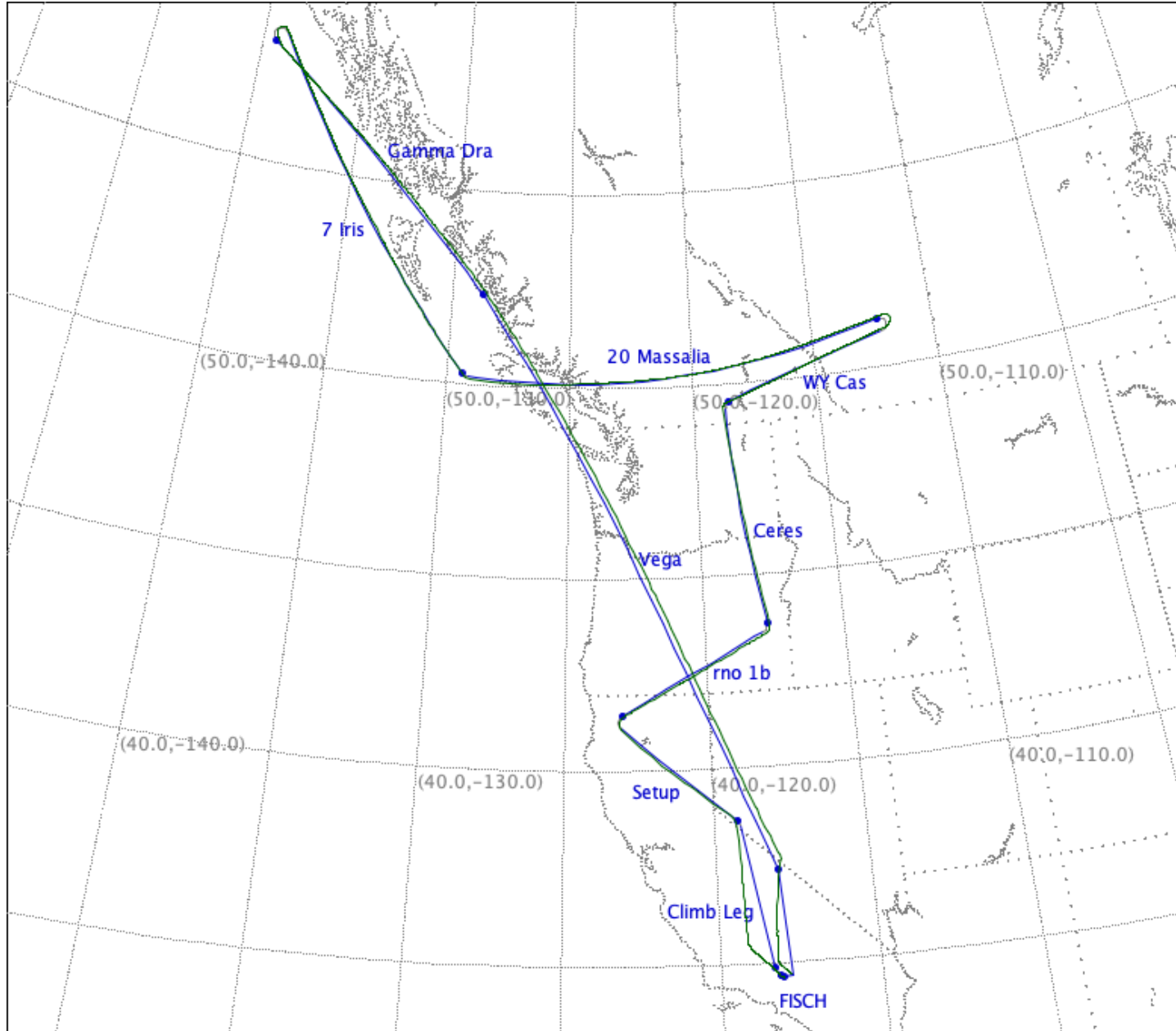
MISSION ID: 2022-01-27_FO_F816

Date: 2022-01-27 UT Instrument: FORCAST

Flight #: 816 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities.

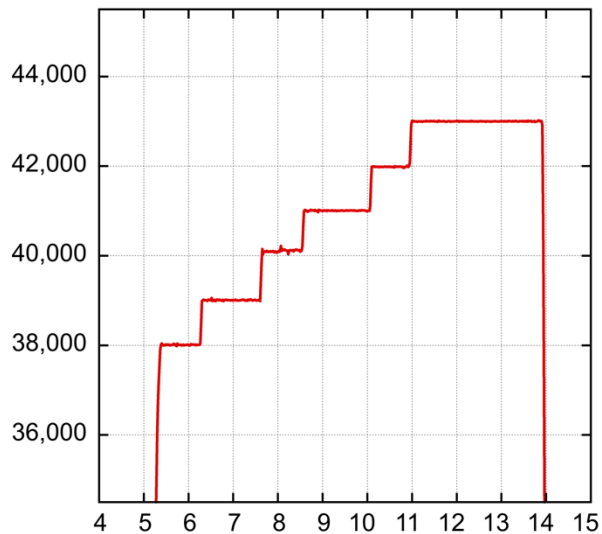
Flight 816
Palmdale to
Palmdale

Mission ID 2022-01-27_FO_F816
Take off date UTC:
27-JAN-2022

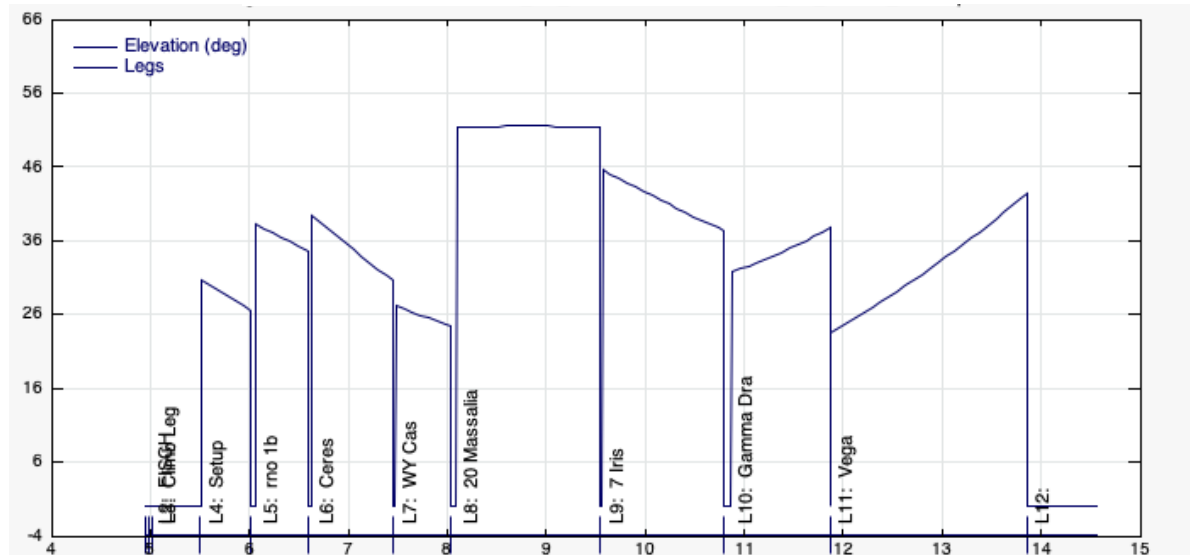
Departure UTC: 04:54
Arrival UTC: 14:16

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	03h46m08.54s	-12d06m05.7s	5:31	30	
5	75_0075	Discretionary	rno 1b	00h36m45.99s	63d28m53.0s	6:04	32	
6	90_0048	Calibration	1 Ceres	03h44m08.59s	19d15m26.6s	6:38	49	
7	09_0046	Kraemer	WY Cas	23h58m01.31s	56d29m13.5s	7:28	33	Bad readout of the short wavelength camera (SWC) while in dual imaging mode. Power cycling the array fixed the issue.
8	09_0176	McAdam	20 Massalia	09h21m44.48s	14d06m39.3s	8:06	87	
9	09_0176	McAdam	7 Iris	07h22m40.51s	15d45m13.8s	9:34	73	
10	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	10:52	60	
11	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	11:52	119	

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



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



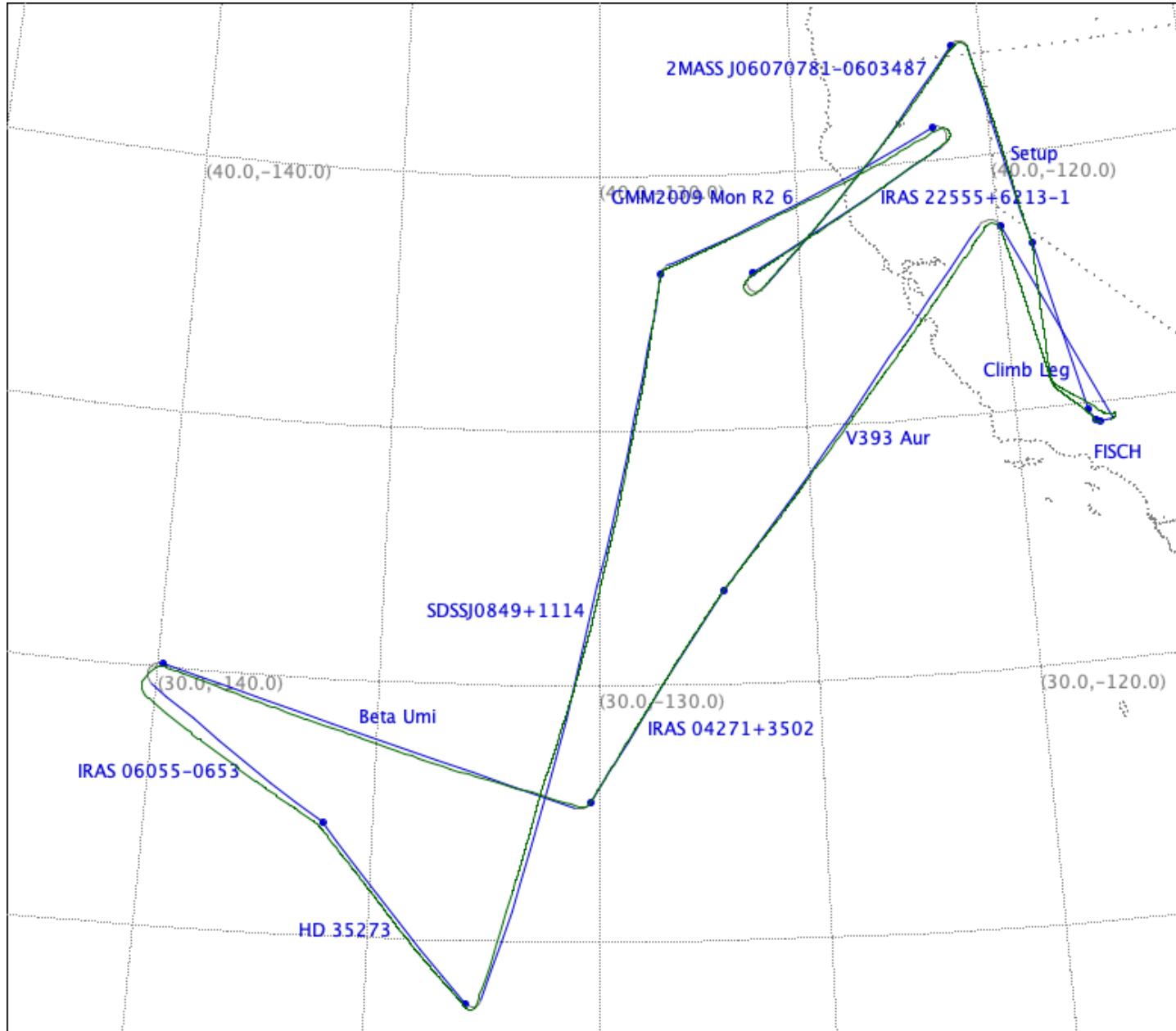
MISSION ID: 2022-02-01_FO_F817

Date: 2022-02-01 UT Instrument: FORCAST

Flight #: 817 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

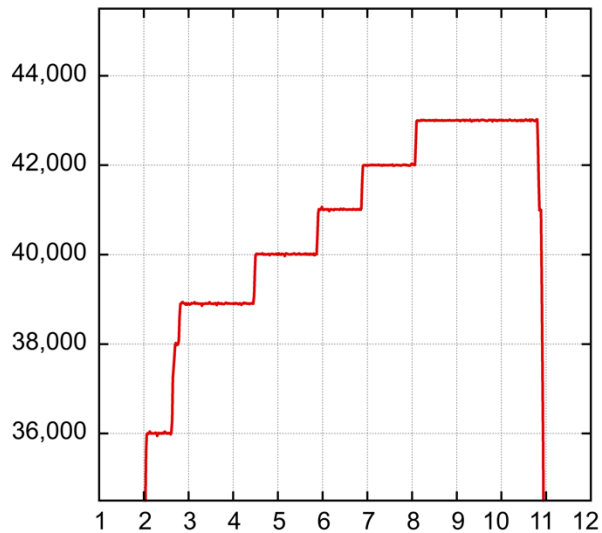
Flight 817
Palmdale to
Palmdale

Mission ID 2022-02-01_FO_F817
Take off date UTC:
01-FEB-2022

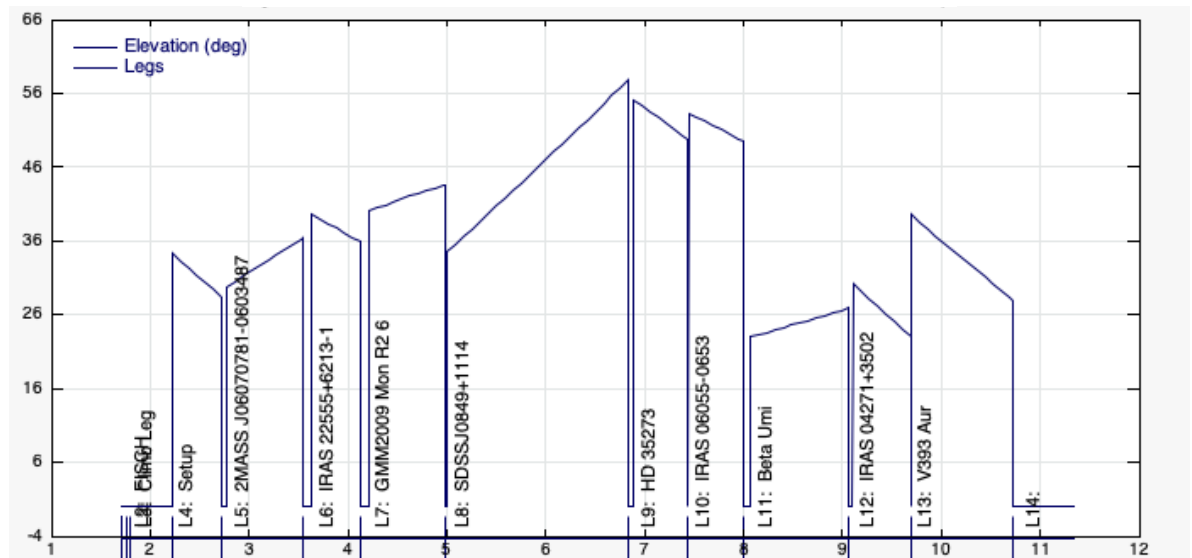
Departure UTC: 01:41
Arrival UTC: 11:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	23h39m57.04s	05d37m34.6s	2:13	30	
5	09_0006	Karnath	2MASS J06070781-0603487	06h07m07.82s	-06d03m48.7s	2:46	46	
6	09_0006	Karnath	IRAS 22555+6213	22h57m30.67s	62d30m04.0s	3:37	30	
7	09_0006	Karnath	Mon R2 6	06h07m46.65s	-06d20m11.2s	4:12	46	
8	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	5:00	110	
9	09_0046	Kraemer	HD 35273	05h23m20.68s	-04d34m14.4s	6:53	33	Array readout sync issue occurred while taking G063 data. Quick array power cycling resolved the issue.
10	09_0006	Karnath	IRAS 06055-0653	06h07m58.18s	-06d53m44.5s	7:26	33	
11	90_0065	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	8:04	60	
12	09_0006	Karnath	IRAS 04271+3502	04h30m27.40s	35d09m17.8s	9:06	35	
13	09_0145	Sloan	V393 Aur	05h47m39.10s	43d12m51.5s	9:41	62	

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



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



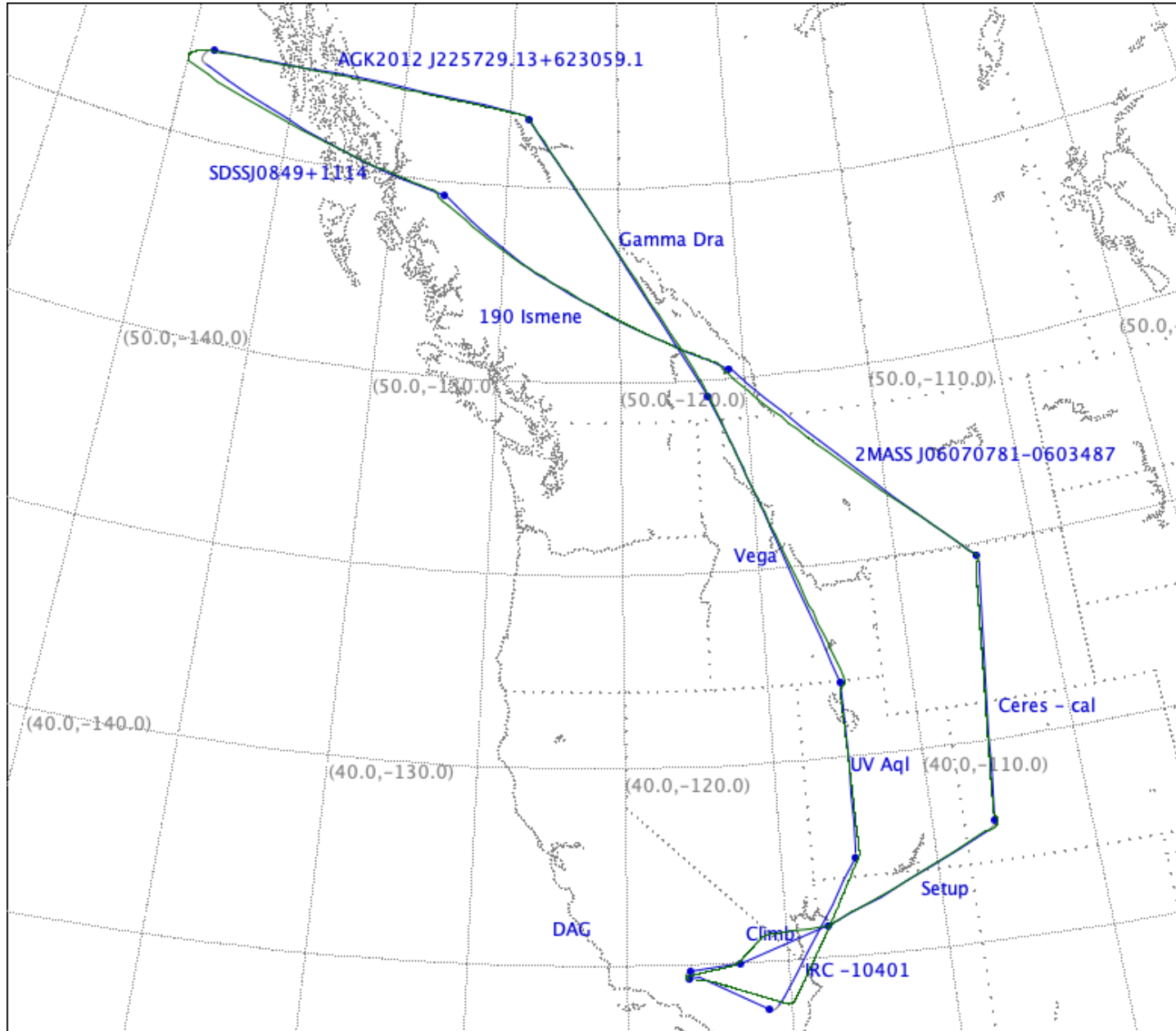
MISSION ID: 2022-02-02_FO_F818

Date: 2022-02-02 UT Instrument: FORCAST

Flight #: 818 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

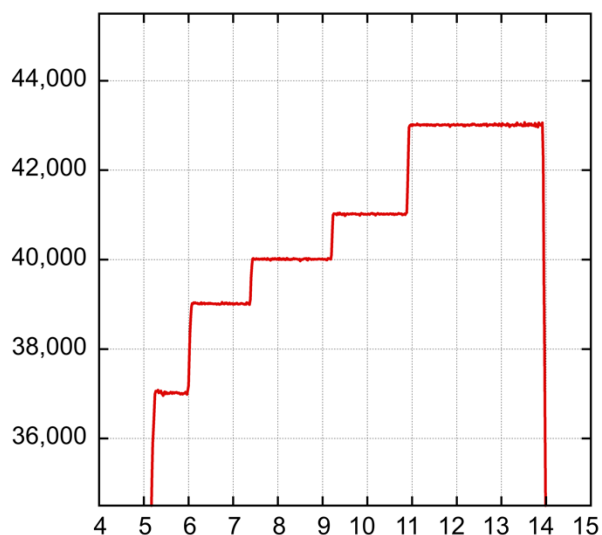
Flight 818
Palmdale to
Palmdale

Mission ID 2022-02-02_FO_F818
Take off date UTC:
02-FEB-2022

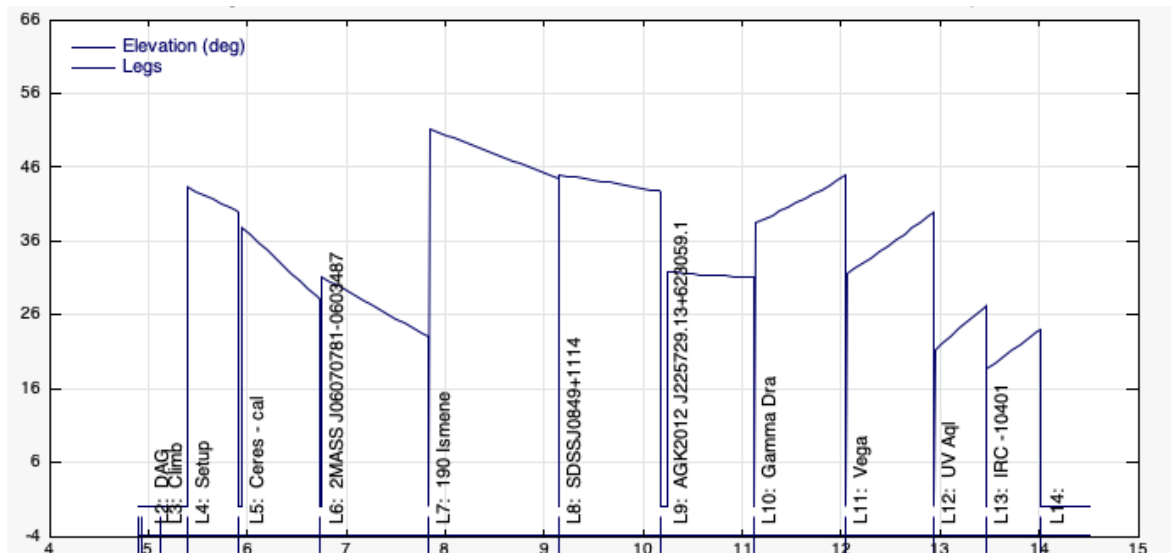
Departure UTC: 04:48
Arrival UTC: 14:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	02h29m03.95s	67d24m08.9s	5:24	31	
5	90_0048	Calibration	1 Ceres	03h46m18.24s	19d41m32.9s	5:57	47	
6	09_0006	Karnath	2MASS J06070781-0603487	06h07m07.82s	-06d03m48.7s	6:45	65	
7	08_0105	Humes	190 Ismene	07h47m56.32s	14d02m09.6s	7:51	78	
8	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	9:09	61	
9	09_0006	Karnath	AGK2012 J225729.13+623059.1	22h57m29.13s	62d30m59.1s	10:14	52	
10	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	11:08	55	
11	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	12:03	53	
12	09_0145	Sloan	UV Aql	18h58m32.43s	14d21m49.6s	12:57	31	
13	09_0046	Kraemer	IRC -10401	18h10m24.82s	-10d34m15.8s	13:28	32	Lost guiding due to bright sky which resulted early termination of the leg

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



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



Flight notes: No irregularities

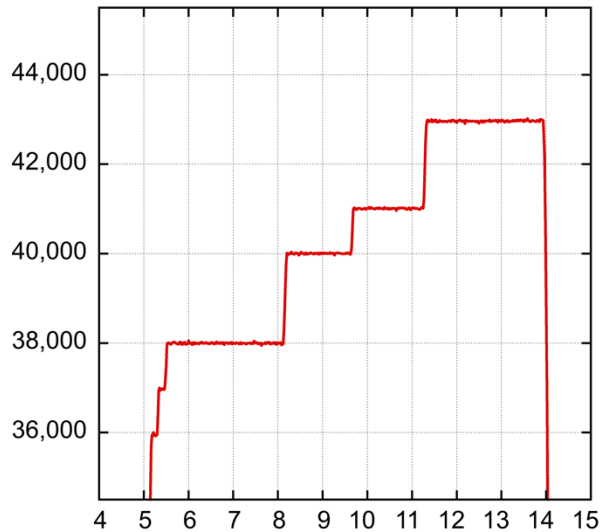
Flight 819
Palmdale to
Palmdale

Mission ID 2022-02-03_FO_F819
Take off date UTC:
03-FEB-2022

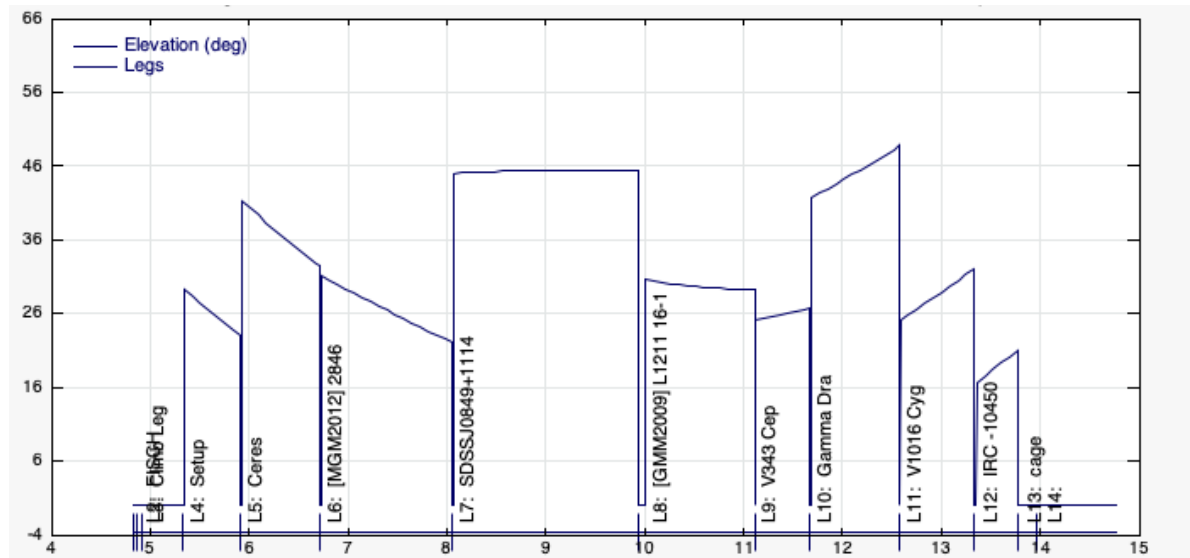
Departure UTC: 04:49
Arrival UTC: 14:36

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	01h09m43.92s	35d37m14.0s	5:20	34	
5	90_0048	Calibration	1 Ceres	03h46m45.26s	19d46m03.9s	5:55	47	
6	09_0006	Karnath	[MGM2012] 2846	05h41m37.17s	-02d17m17.0s	6:43	79	
7	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	8:03	112	
8	09_0006	Karnath	L1211	22h47m12.21s	62d01m43.5s	10:00	66	
9	09_0145	Sloan	V343 Cep	21h17m35.16s	55d59m35.1s	11:06	33	Array readout sync issue occurred; array power cycling resolved the issue but half the leg was lost
10	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	11:40	54	
11	09_0051	Sankrit	V1016 Cyg	19h57m05.02s	39d49m36.1s	12:34	45	
12	09_0046	Kraemer	IRC -10450	18h40m13.50s	-05d42m11.3s	13:21	25	

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



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



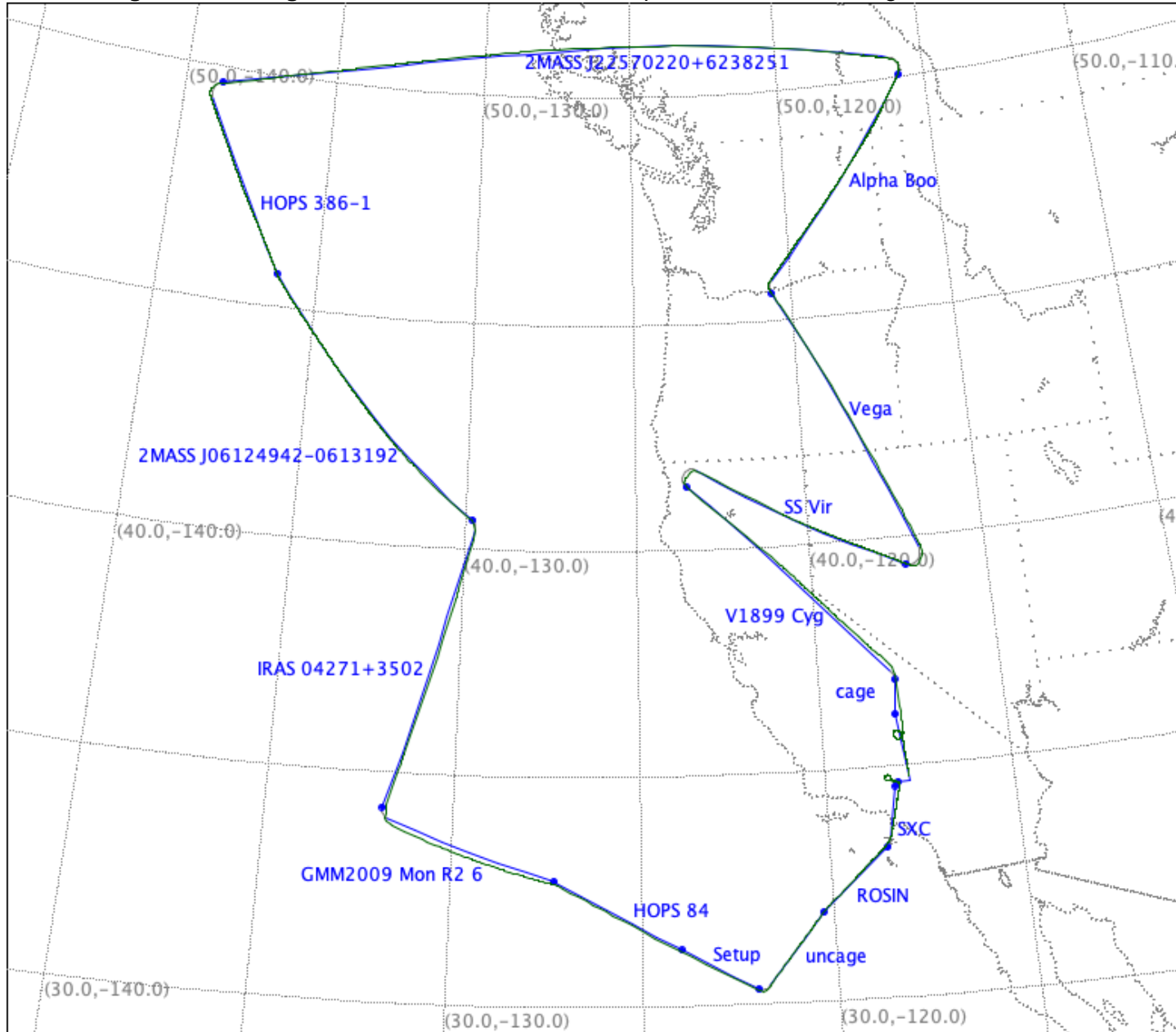
MISSION ID: 2022-02-04_FO_F820

Date: 2022-02-04 UT Instrument: FORCAST

Flight #: 820 Flight Series: OC9J

blue = planned route

green = flown route

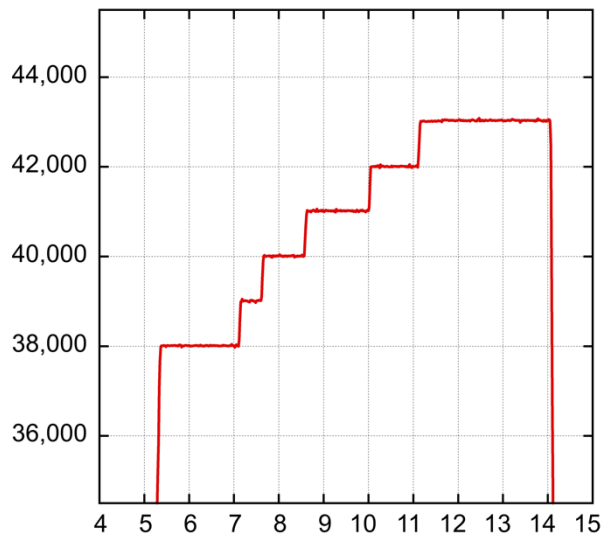


Flight notes: No irregularities

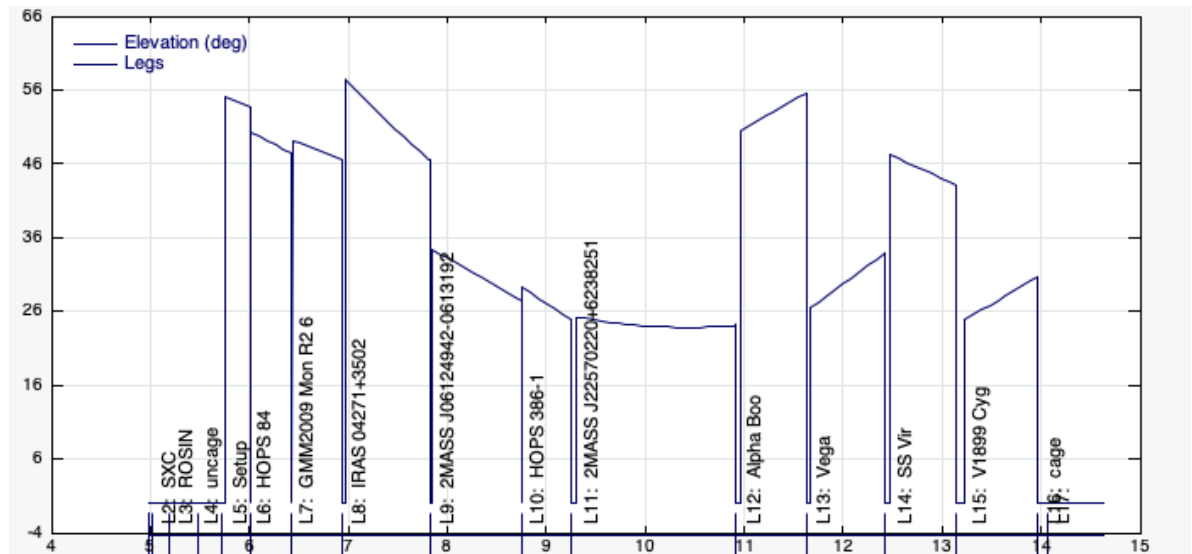
Flight 820 Mission ID 2022-02-04_FO_F820
 Palmdale to Palmdale Take off date UTC: 04-FEB-2022
 Departure UTC: 04:54 Arrival UTC: 14:29

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	05h40m45.53s	-01d56m33.3s	5:44	15	
6	09_0006	Karnath	HOPS 84	05h35m26.75s	-05d03m55.1s	5:59	25	
7	09_0006	Karnath	2MASS J06070781-0603487	06h07m07.82s	-06d03m48.7s	6:25	30	
8	09_0006	Karnath	IRAS 04271+3502	04h30m27.40s	35d09m17.8s	6:57	51	
9	09_0006	Karnath	2MASS J06124942-0613192	06h12m49.43s	-06d13m19.2s	7:50	54	
10	09_0006	Karnath	HOPS 386	05h46m08.46s	-00d10m03.0s	8:44	30	
11	09_0006	Karnath	2MASS J22570220+6238251	22h57m02.20s	62d38m25.2s	9:17	96	
12	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	10:56	40	
13	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	11:38	45	
14	09_0145	Sloan	SS Vir	12h25m14.40s	00d46m10.9s	12:27	40	
15	09_0145	Sloan	V1899 Cyg	21h04m14.53s	53d21m04.8s	13:12	44	Turbulence threw telescope into standby ending the leg 5 minutes early

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



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



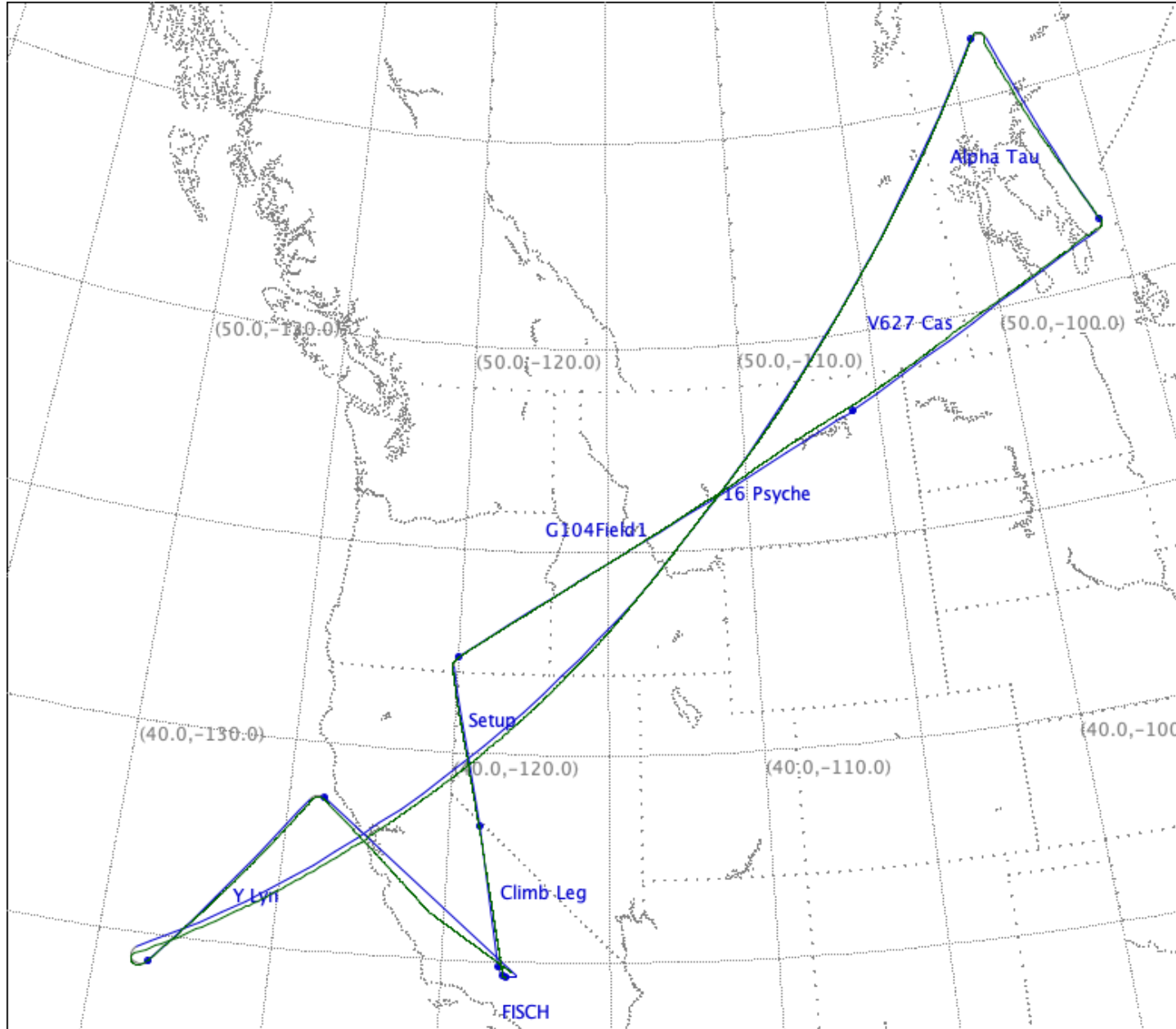
MISSION ID: 2022-02-08_FO_F821

Date: 2022-02-08 UT Instrument: FORCAST

Flight #: 821 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

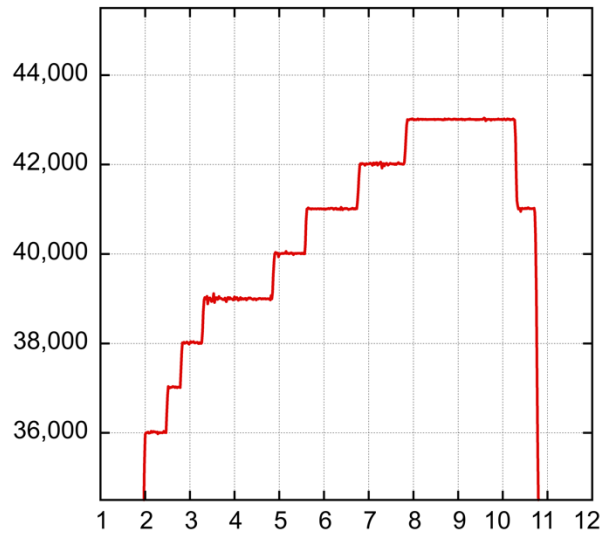
Flight 821
Palmdale to
Palmdale

Mission ID 2022-02-08_FO_F821
Take off date UTC:
08-FEB-2022

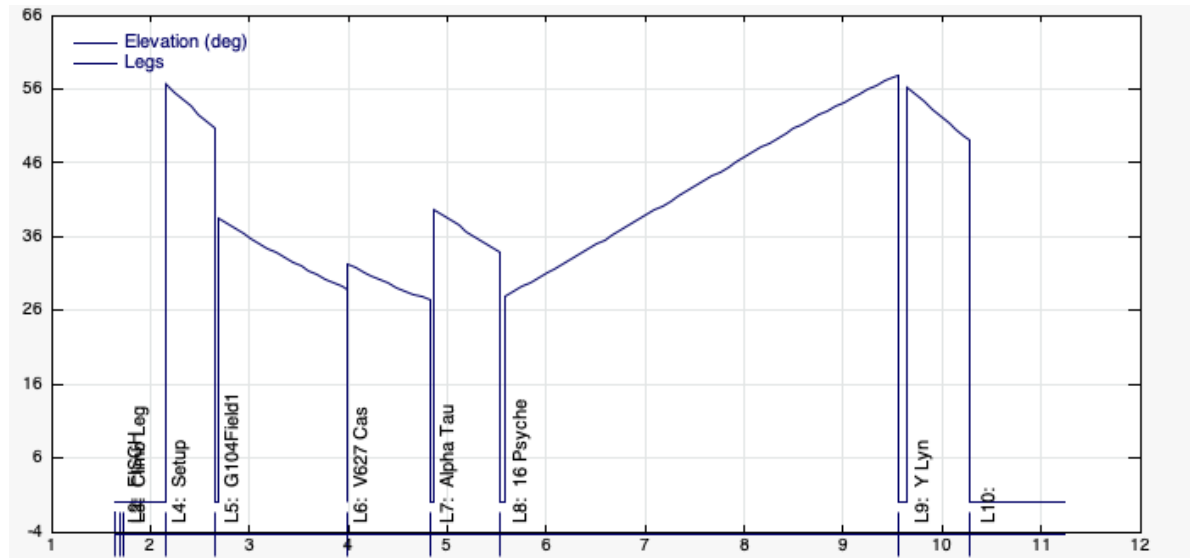
Departure UTC: 01:37
Arrival UTC: 11:14

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	01h11m27.22s	21d02m04.7s	2:09	30	
5	09_0031	Hora	G104Field1	22h22m01.08s	58d43m24.8s	2:41	78	Turbulence threw telescope into standby multiple times during leg.
6	09_0051	Sankrit	V627 Cas	22h57m40.97s	58d49m12.6s	3:59	50	
7	90_0063	Calibration	Alpha Tau	04h35m55.24s	16d30m33.5s	4:51	40	
8	09_0057	McAdam	16 Psyche	11h13m18.27s	05d43m27.0s	5:35	238	
9	09_0046	Kraemer	Y Lyn	07h28m11.61s	45d59m26.2s	9:38	38	

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



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



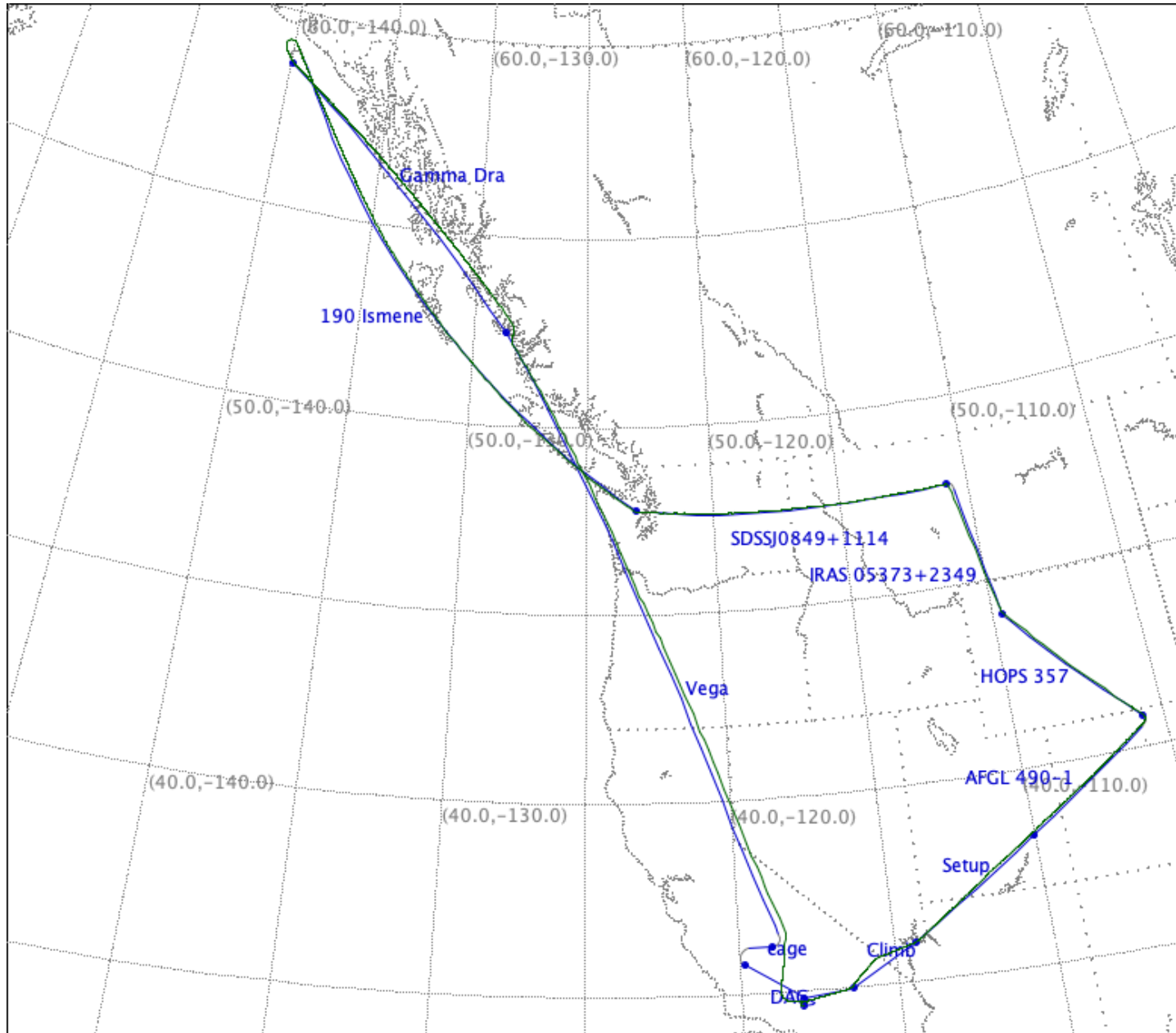
MISSION ID: 2022-02-09_FO_F822

Date: 2022-02-09 UT Instrument: FORCAST

Flight #: 822 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

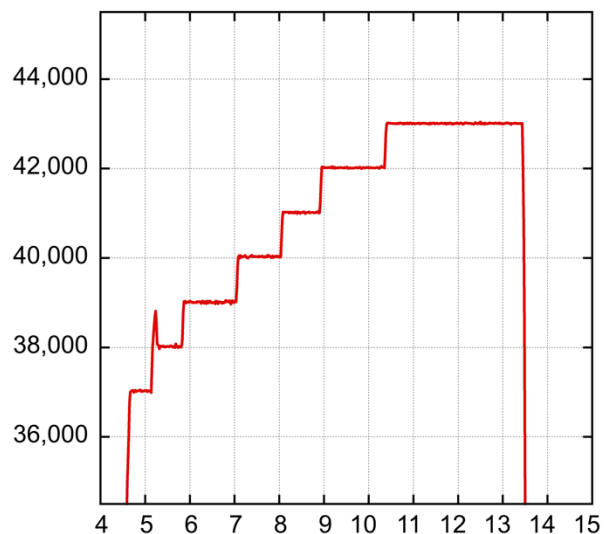
Flight 822
Palmdale to
Palmdale

Mission ID 2022-02-09_FO_F822
Take off date UTC:
09-FEB-2022

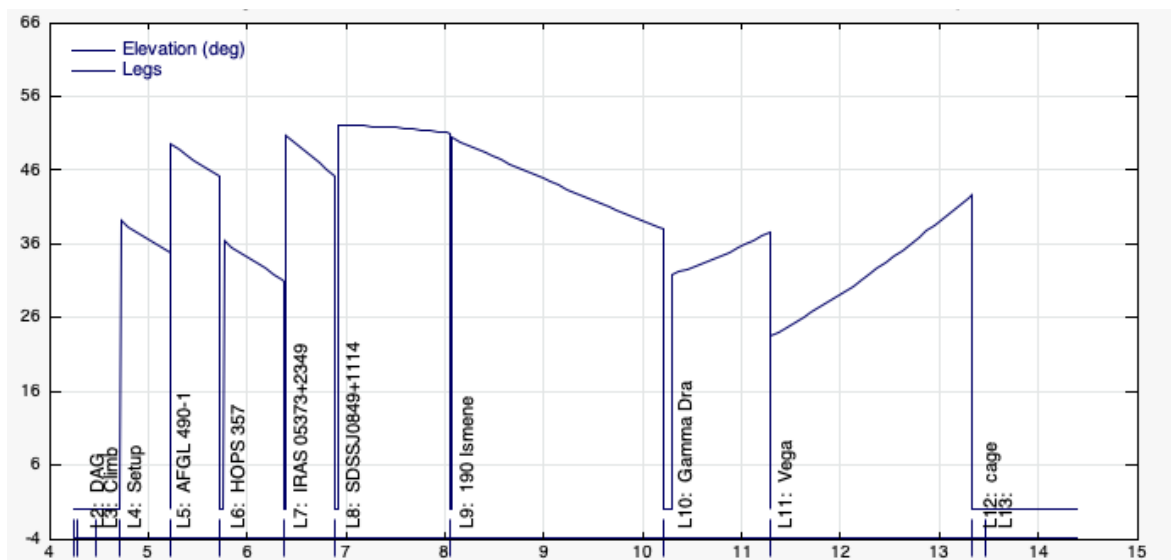
Departure UTC: 04:12
Arrival UTC: 13:34

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	01h33m25.73s	58d19m38.3s	4:43	30	
5	09_0006	Karnath	AFGL 490	03h27m38.40s	58d47m08.0s	5:13	30	Tried to climb to 39k ft at beginning of leg but descended back to 38k ft as we couldn't maintain airspeed.
6	09_0006	Karnath	HOPS 357	05h41m39.13s	-01d52m07.4s	5:46	37	
7	09_0006	Karnath	IRAS 05373+2349	05h40m24.40s	23d50m54.0s	6:23	30	
8	08_0259	Liu	SDSSJ0849+1114	08h49m05.51s	11d14m47.2s	6:55	68	
9	08_0105	Humes	190 Ismene	07h43m52.92s	14d25m20.7s	8:04	128	
10	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	10:17	60	
11	09_0121	Su	Vega	18h36m56.34s	38d47m01.3s	11:17	122	

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



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



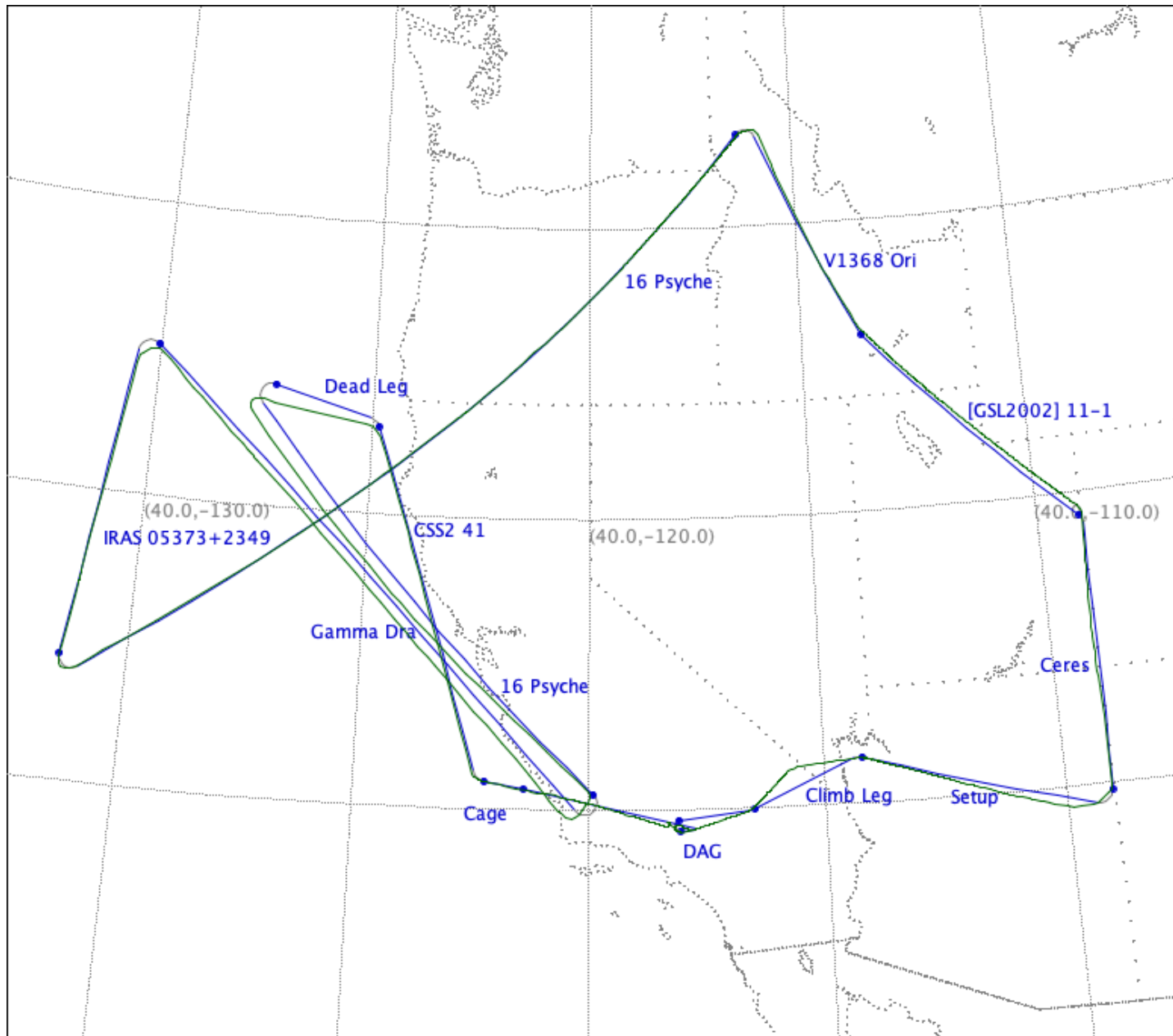
MISSION ID: 2022-02-10_FO_F823

Date: 2022-02-10 UT Instrument: FORCAST

Flight #: 823 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: Significant early turbulence, light turbulence until leg 8.

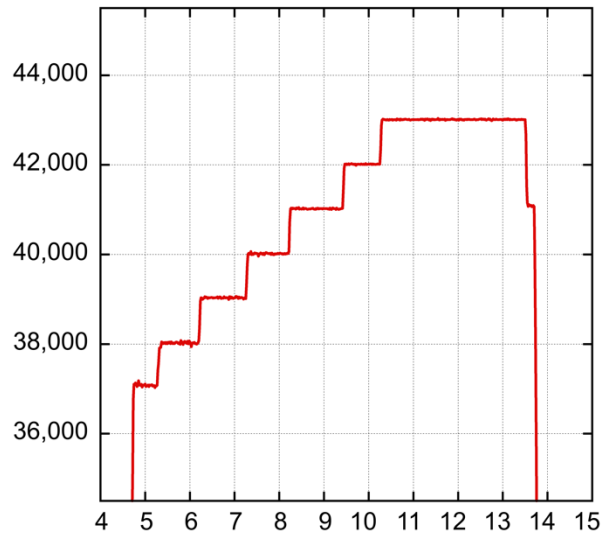
Flight 823
Palmdale to
Palmdale

Mission ID 2022-02-10_FO_F823
Take off date UTC:
10-FEB-2022

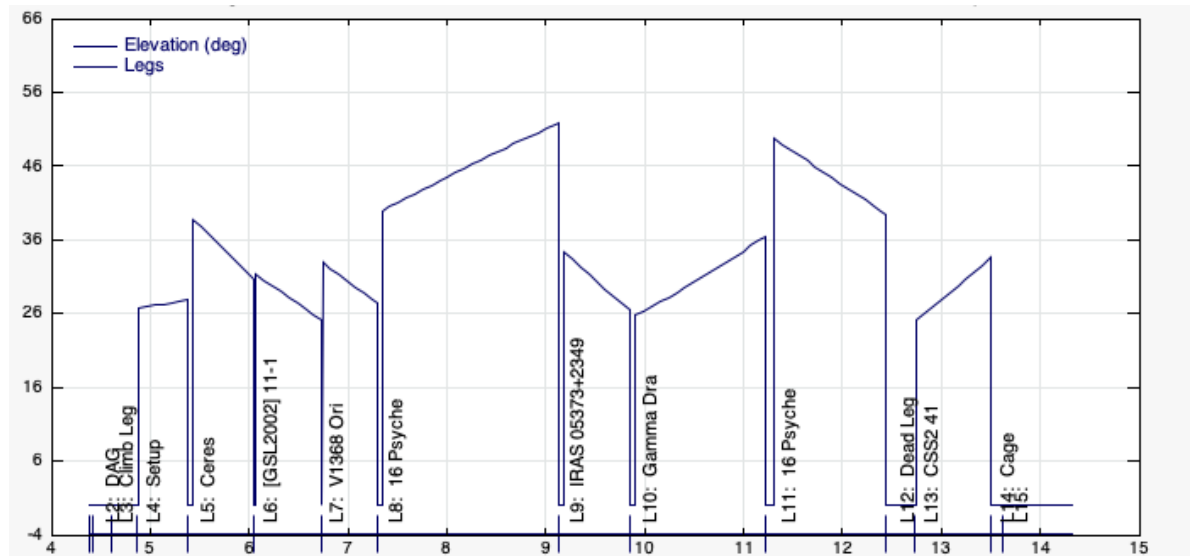
Departure UTC: 04:20
Arrival UTC: 14:09

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h31m24.93s	77d20m57.7s	4:54	30	
5	90_0048	Calibration	1 Ceres	03h50m34.79s	20d18m38.9s	5:27	37	Turbulence threw telescope into standby multiple times during leg leading to loss of observing time.
6	90_0094	Calibration	[GSL2002] 11	05h35m13.70s	-05d22m08.0s	6:05	40	
7	09_0145	Sloan	V1368 Ori	05h21m13.37s	07d21m19.4s	6:46	33	
8	09_0057	McAdam	16 Psyche	11h12m04.69s	05d53m05.4s	7:22	107	
9	09_0006	Karnath	IRAS 05373+2349	05h40m24.40s	23d50m54.0s	9:12	40.1	
10	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	9:56	79	
11	09_0057	McAdam	16 Psyche	11h11m58.65s	05d53m52.5s	11:20	68	
13	09_0046	Kraemer	CSS2 41	19h39m07.77s	29d02m38.8s	11:20	45	

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



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



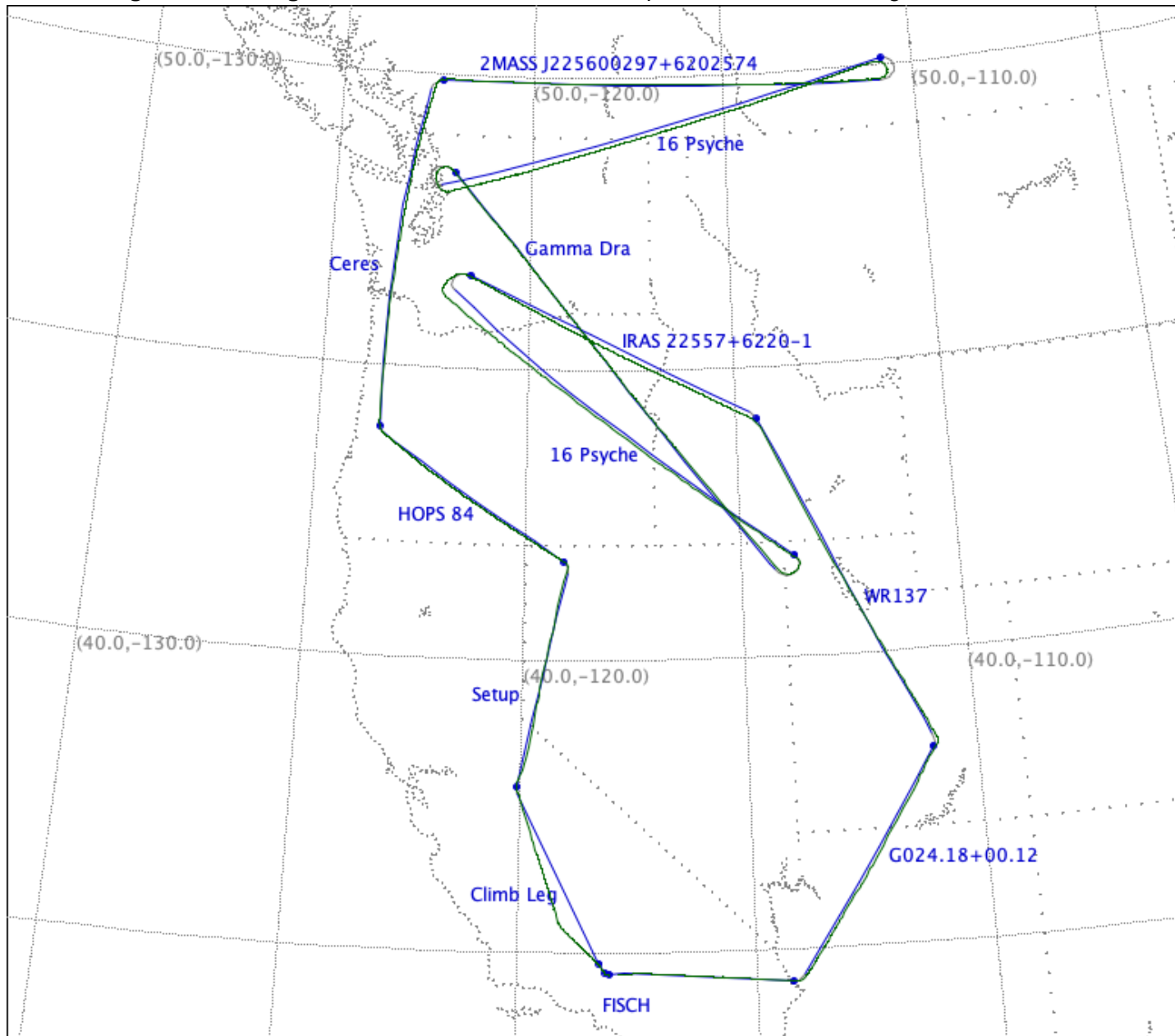
MISSION ID: 2022-02-16_FO_F825

Date: 2022-02-16 UT Instrument: FORCAST

Flight #: 825 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

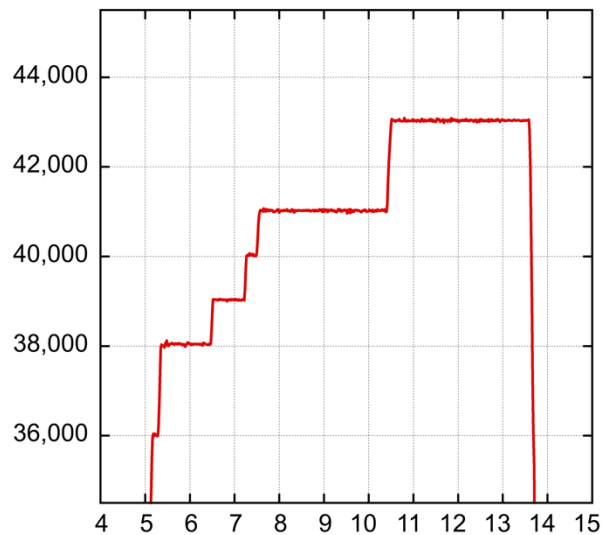
Flight 825
Palmdale to
Palmdale

Mission ID 2022-02-16_FO_F825
Take off date UTC:
16-FEB-2022

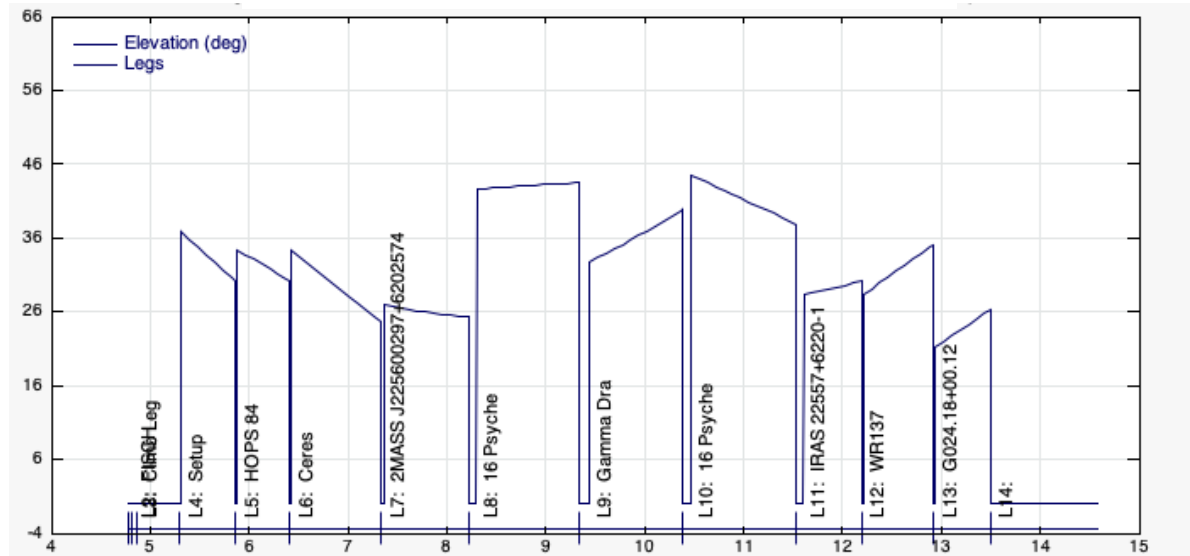
Departure UTC: 04:45
Arrival UTC: 14:06

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	02h49m59.03s	27d15m37.8s	5:18	32	
5	09_0006	Karnath	HOPS 59	05h35m20.15s	-05d13m15.7s	5:52	32	Some turbulence.
6	90_0048	Calibration	1 Ceres	03h54m47.43s	20d47m58.8s	6:25	54	Experienced some cloud haze at 7:13UT, climbed to 40k to get above
7	09_0006	Karnath	2MASS J225600297+6202574	22h56m02.95s	62d02m57.6s	7:21	51	
8	09_0057	McAdam	16 Psyche	11h08m09.63s	06d23m12.7s	8:17	62	
9	90_0067	Calibration	Gamma Dra	17h56m36.37s	51d29m20.0s	9:26	56	
10	09_0057	McAdam	16 Psyche	11h08m05.91s	06d23m40.9s	10:27	64	
11	09_0006	Karnath	IRAS 22557+6220	22h57m38.08s	62d35m40.4s	11:35	35	
12	09_0163	Richardson	WR137	20h14m31.77s	36d39m39.6s	12:11	42	
13	09_0085	Tan	G024.18+00.12	18h34m25.20s	-07d54m45.8s	12:55	34	

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



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



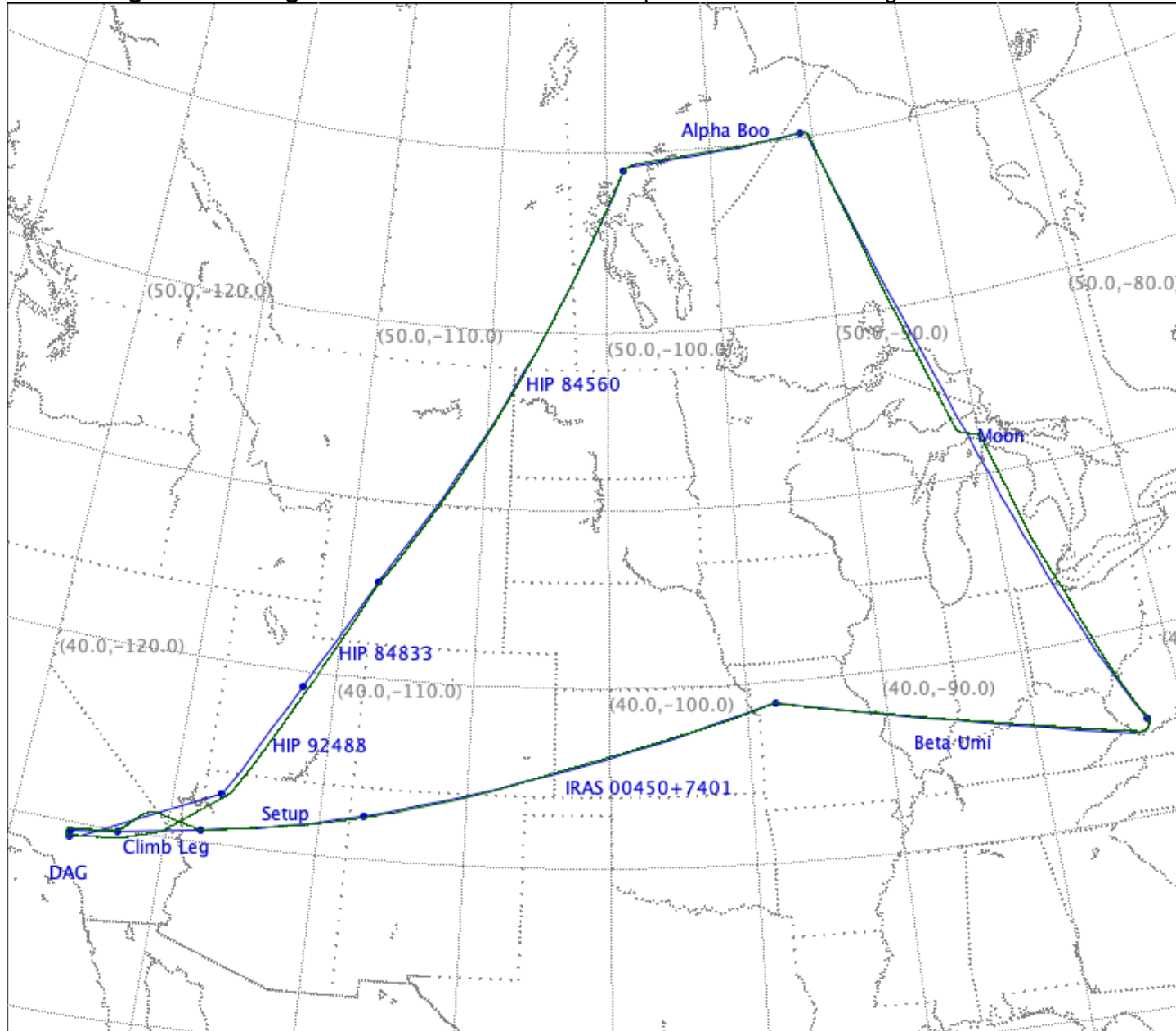
MISSION ID: 2022-02-17_FO_F826

Date: 2022-02-17 UT Instrument: FORCAST

Flight #: 826 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

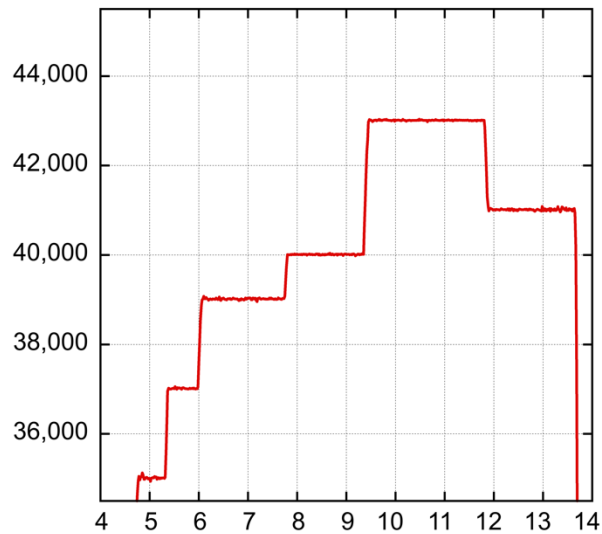
Flight 826
Palmdale to
Palmdale

Mission ID 2022-02-17_FO_F826
Take off date UTC:
17-FEB-2022

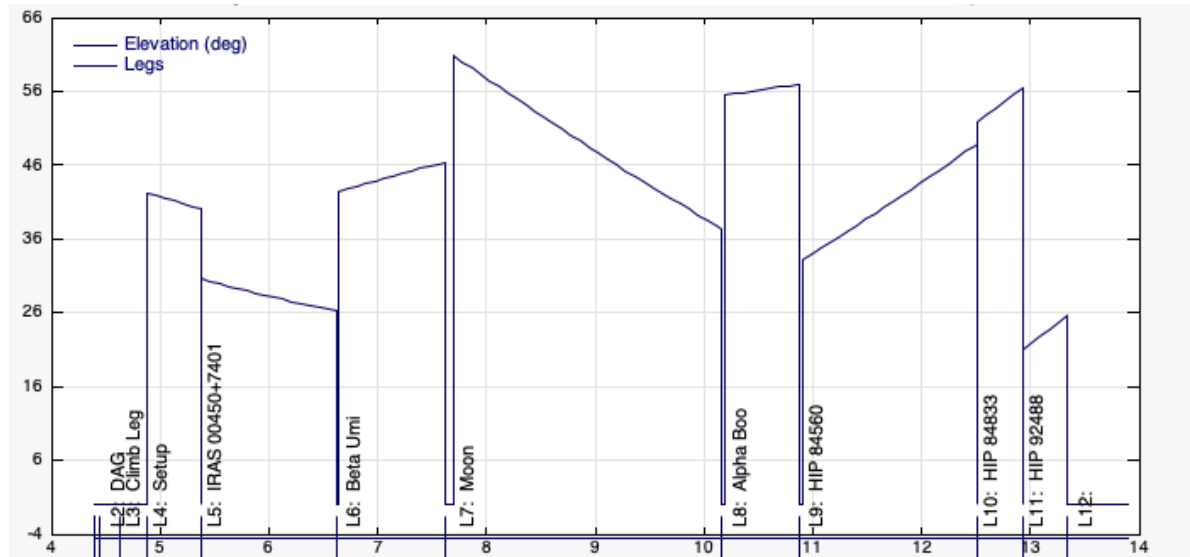
Departure UTC: ~04:24
Arrival UTC: 14:09

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	03h11m56.27s	74d23m37.2s	4:53	30	
5	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	5:23	75	Low altitude (35k ft) for part of leg.
6	90_0065	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	6:39	59	
7	09_0171	Lucey	Moon	10h37m00.78s	14d02m46.1s	7:42	148	
8	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	10:12	41	
9		engineering	HIP 84560	17h17m10.16s	13d08m01.5s	10:54	96	
10	71_0025	Engineering	HIP 84833	17h20m18.87s	18d03m25.5s	12:30	25	
11		engineering	HIP 92488	18h50m58.52s	-09d46m26.7s	12:55	25	

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



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



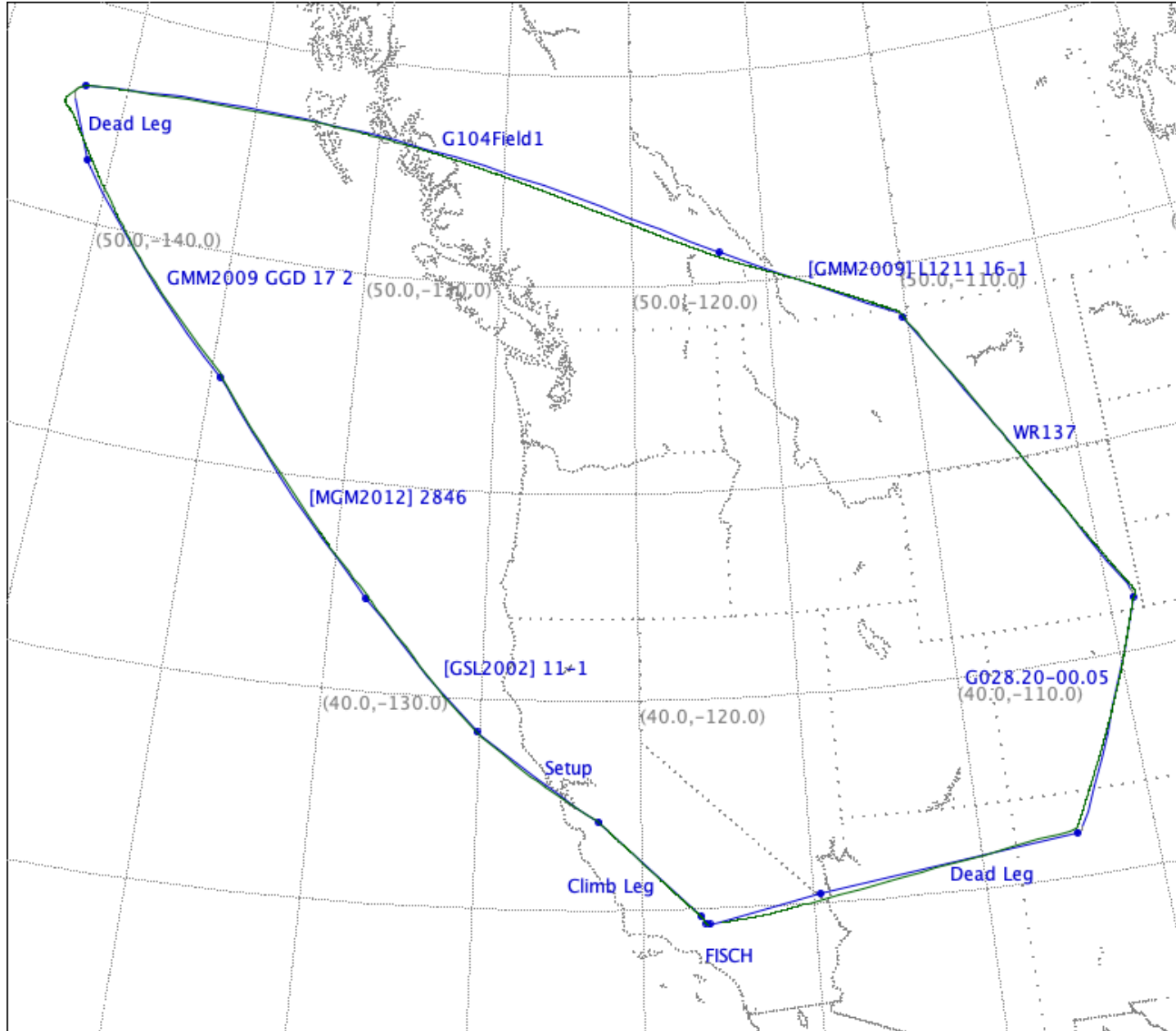
MISSION ID: 2022-02-17_FO_F827

Date: 2022-02-17 UT Instrument: FORCAST

Flight #: 827 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

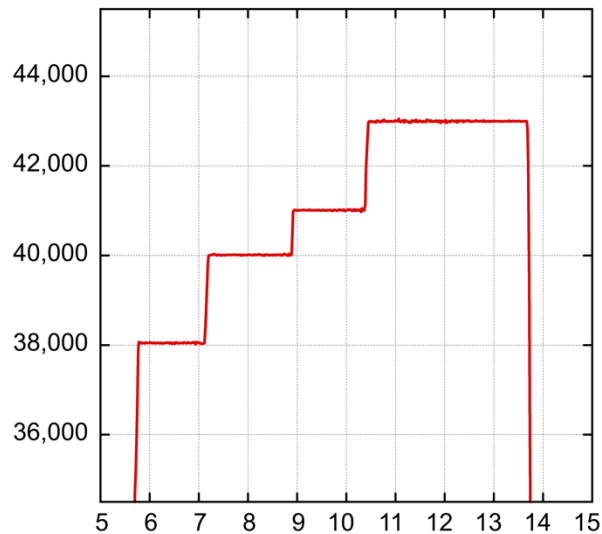
Flight 827
Palmdale to
Palmdale

Mission ID 2022-02-17_FO_F827
Take off date UTC:
17-FEB-2022

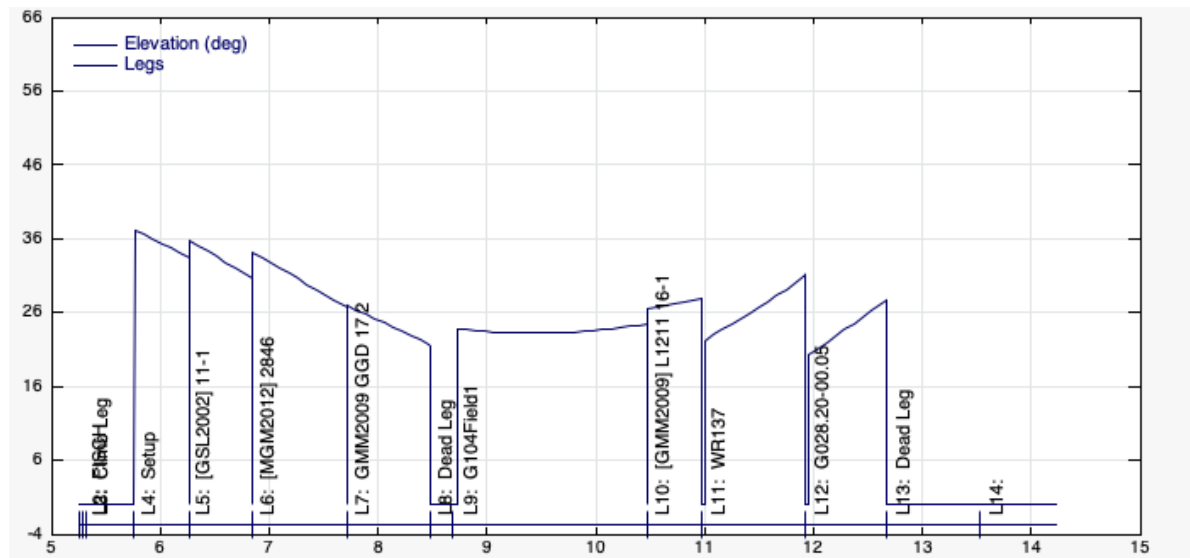
Departure UTC: 05:16
Arrival UTC: 14:08

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h47m45.39s	-09d40m10.6s	5:46	30	
5	90_0094	Calibration	[GSL2002] 11	05h35m14.56s	-05d23m13.7s	6:16	35	
6	09_0006	Karnath	[MGM2012] 2846	05h41m37.17s	-02d17m17.0s	6:51	51.9	
7	09_0006	Karnath	GMM2009 GGD 17 2	06h12m43.82s	-06d13m05.9s	7:43	46	
9	09_0031	Hora	G104	22h22m01.08s	58d43m24.8s	7:43	105	
10	09_0006	Karnath	[GMM2009] L1211 16	22h47m12.21s	62d01m43.5s	8:43	30	
11	09_0163	Richardson	WR137	20h14m31.77s	36d39m39.6s	10:28	56	
12	09_0085	Tan	G028.20-00.05	18h42m58.14s	-04d14m04.9s	10:59	43	

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



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



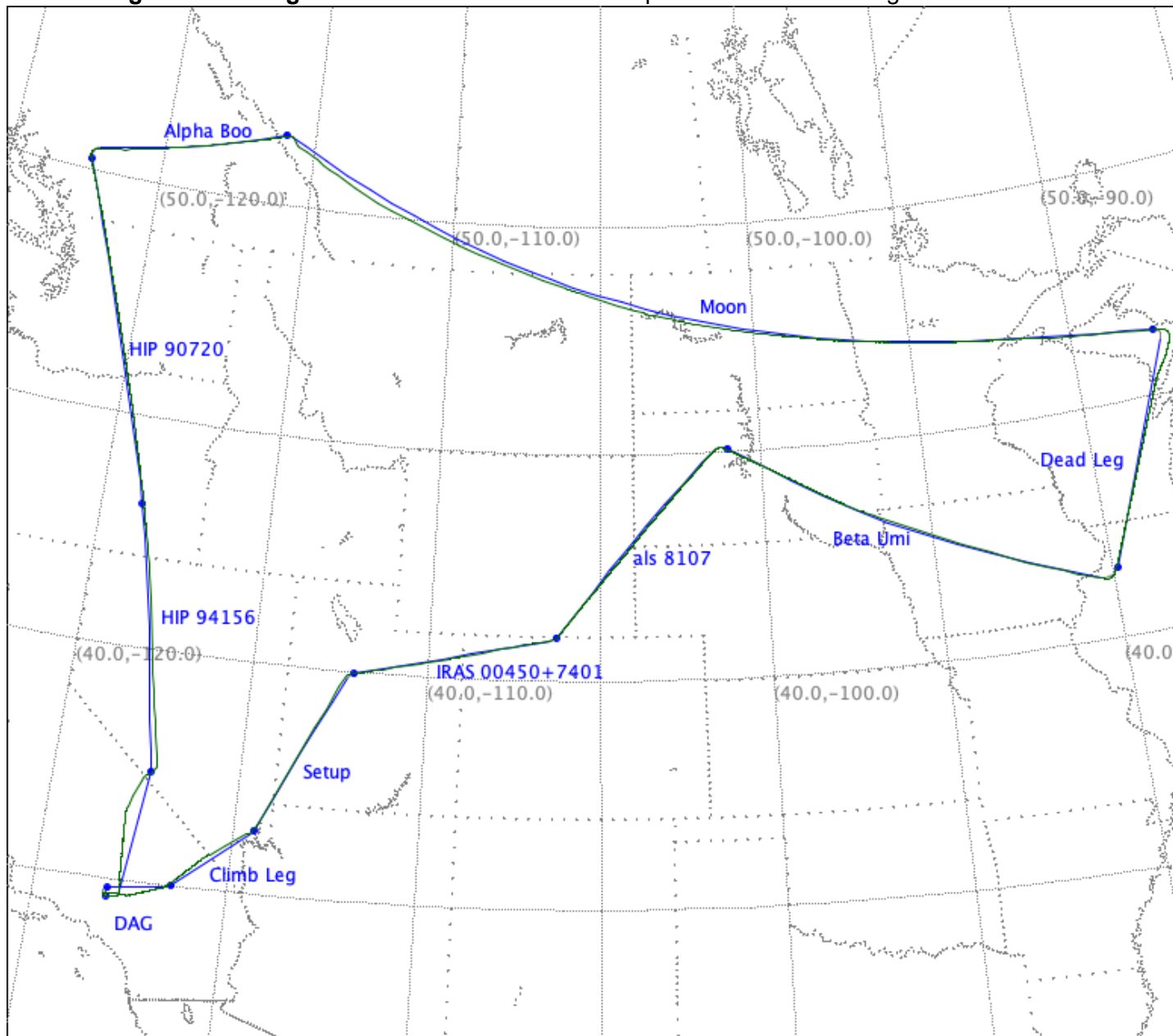
MISSION ID: 2022-02-19_FO_F828

Date: 2022-02-19 UT Instrument: FORCAST

Flight #: 828 Flight Series: OC9J

blue = planned route

green = flown route



Flight notes: No irregularities

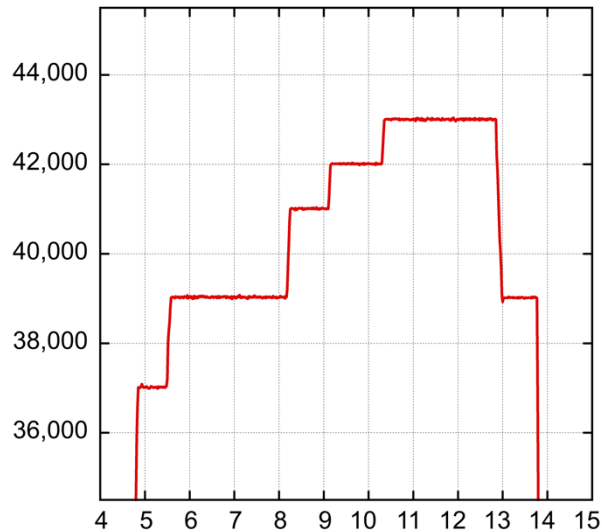
Flight 828
Palmdale to
Palmdale

Mission ID 2022-02-19_FO_F828
Take off date UTC:
19-FEB-2022

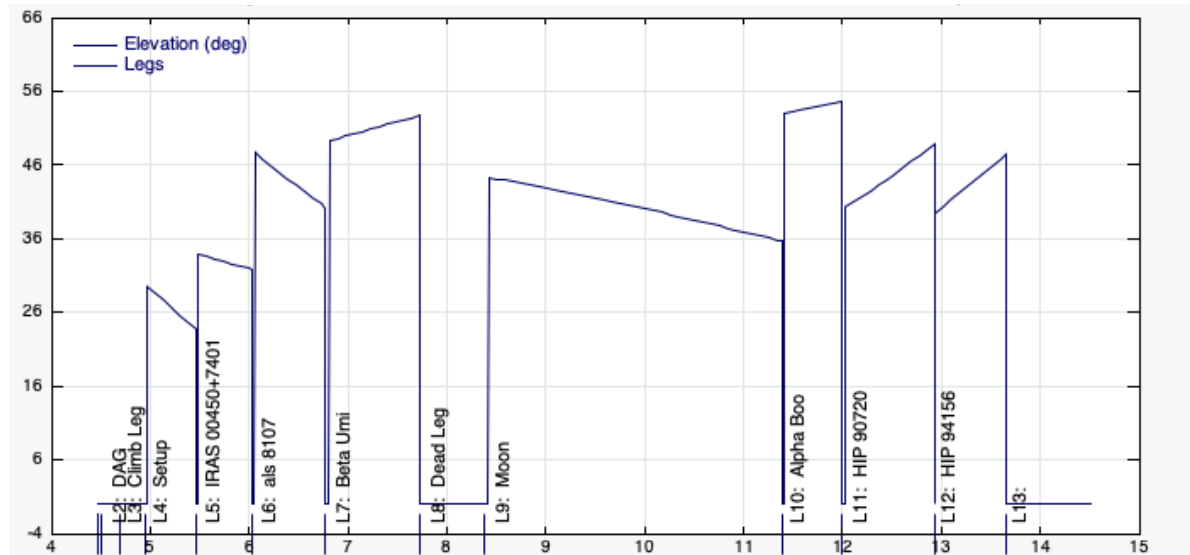
Departure UTC: 04:27
Arrival UTC: 14:12

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	02h09m32.63s	34d59m14.3s	4:58	30	
5	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	5:30	33	
6	09_0052	Marshall	als 8107	04h58m45.34s	47d59m56.1s	6:04	43	
7	90_0065	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	6:49	55	
9	09_0171	Lucey	Moon	12h14m37.58s	02d49m50.4s	6:49	178	
10	90_0060	Calibration	Alpha Boo	14h15m39.67s	19d10m56.7s	8:25	35	
11		engineering	HIP 90720	18h30m32.85s	40d58m32.4s	11:25	54	
12		engineering	HIP 94156	19h09m56.35s	35d39m39.5s	12:02	43	

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



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



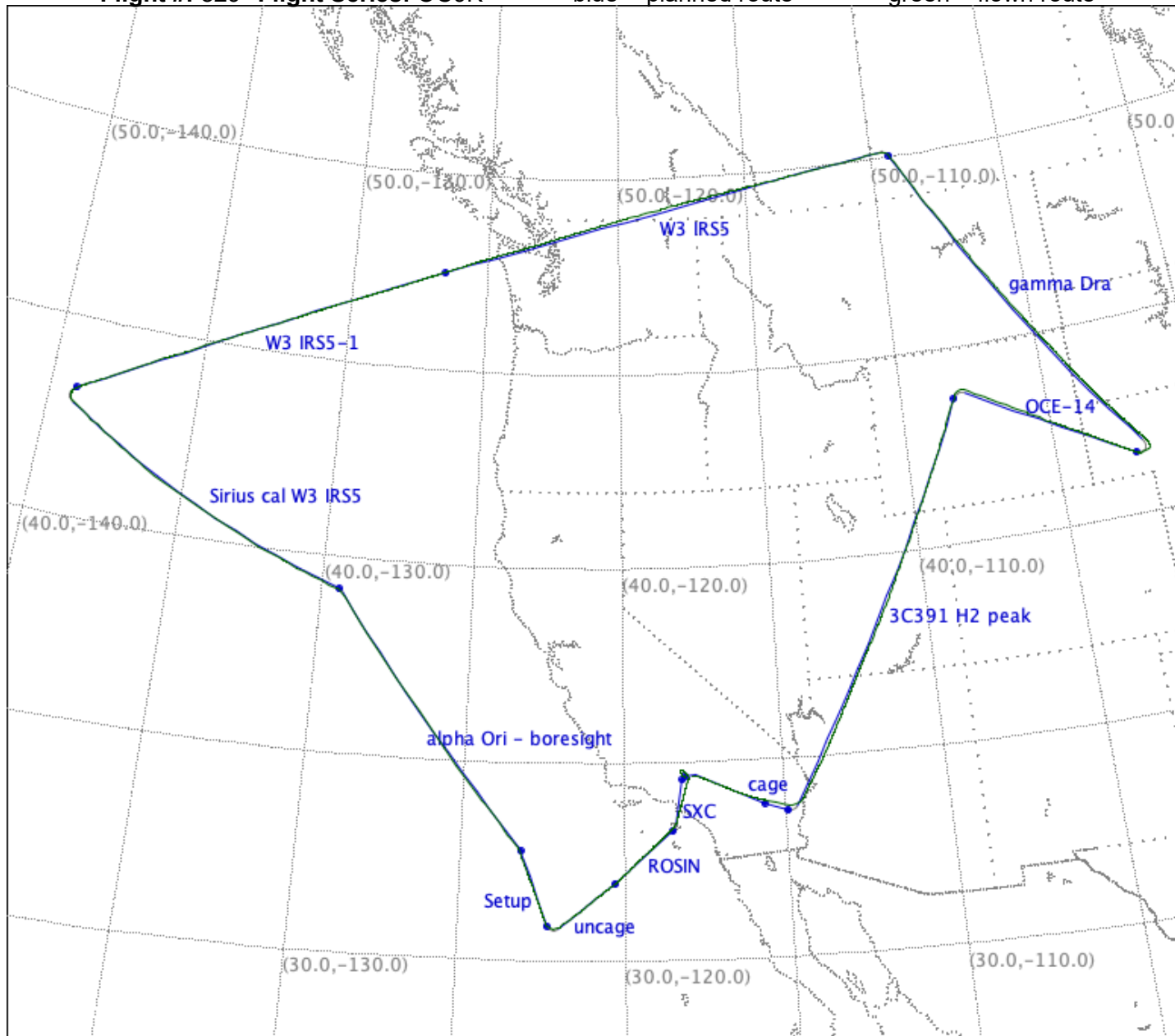
MISSION ID: 2022-02-24_EX_F829

Date: 2022-02-24 UT Instrument: EXES

Flight #: 829 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities

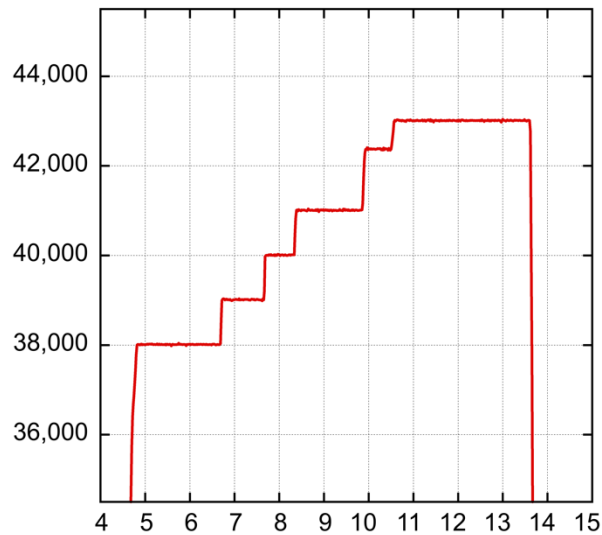
Flight 829
Palmdale to
Palmdale

Mission ID 2022-02-24_EX_F829
Take off date UTC:
24-FEB-2022

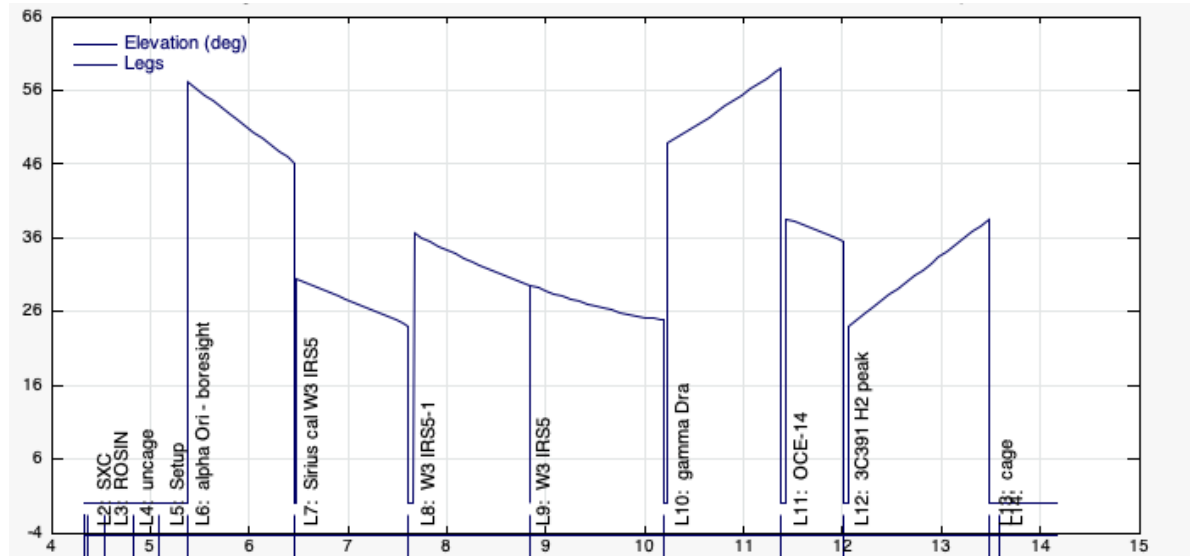
Departure UTC: 04:15
Arrival UTC: 14:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6	90_0089	Calibration	alpha Ori	05h55m10.31s	07d24m25.4s	5:22	65	
7	09_0072	Tielens	Sirius	06h45m08.92s	-16d42m58.0s	6:28	68	
8	09_0072	Tielens	W3 IRS5	02h25m40.54s	62d05m51.4s	7:39	70	
9	09_0072	Tielens	W3 IRS5	02h25m40.54s	62d05m51.4s	8:49	82	
10	75_0090	Discretionary	gamma Dra	17h56m36.37s	51d29m20.0s	10:13	68	
11		engineering	HIP 67004	13h43m54.17s	-05d29m56.5s	11:25	35	
12	09_0021	Neufeld	3C391 H2 peak	18h49m22.56s	-00d57m17.2s	12:03	85	

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



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



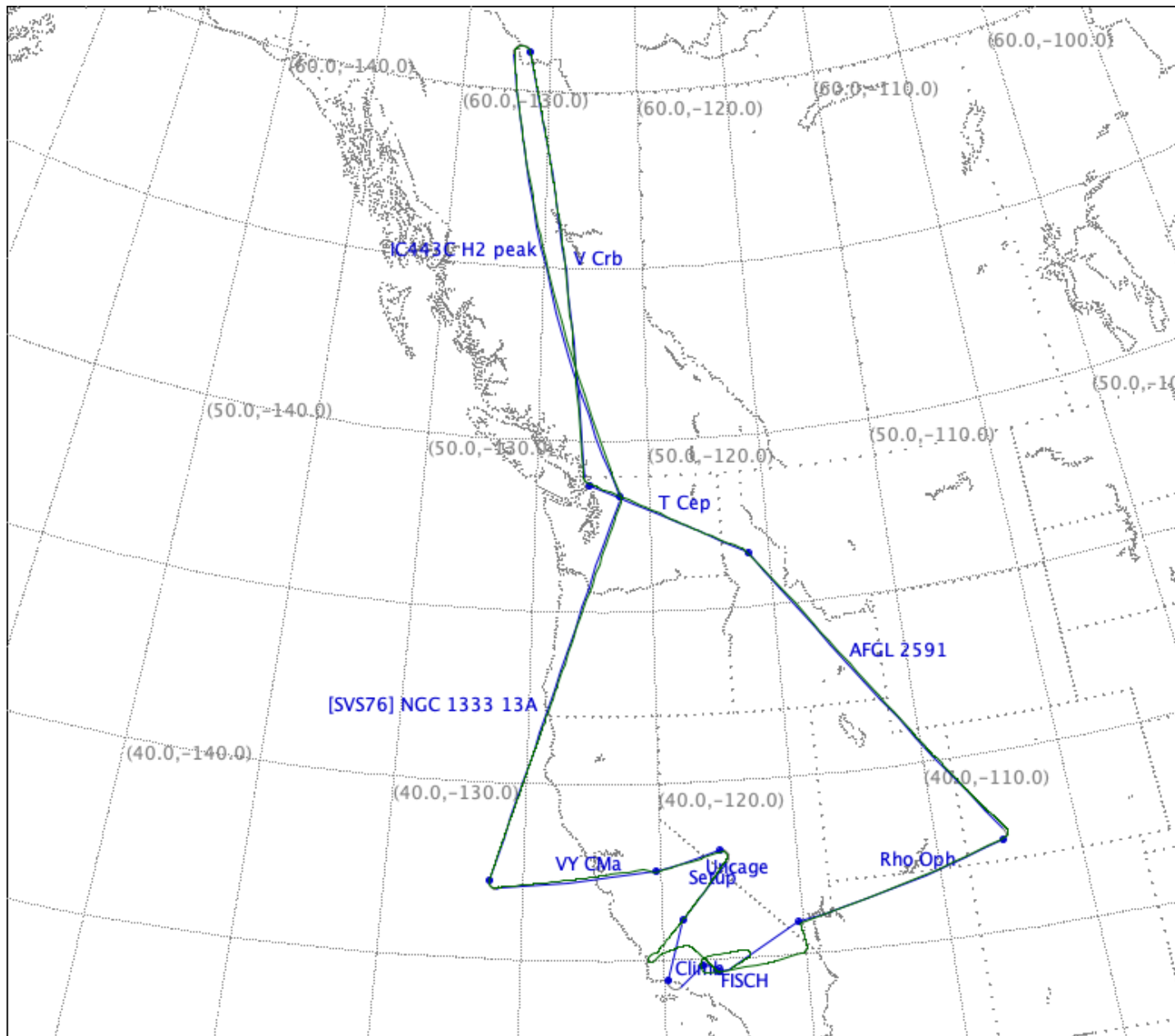
MISSION ID: 2022-02-25_EX_F830

Date: 2022-02-25 UT Instrument: EXES

Flight #: 830 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities

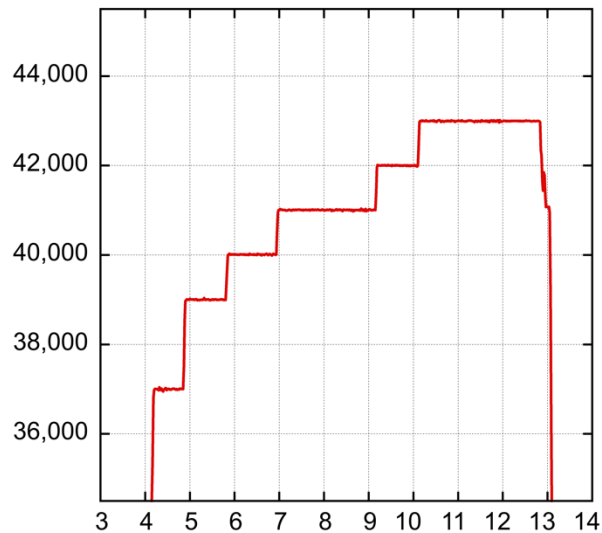
Flight 830
Palmdale to
Palmdale

Mission ID 2022-02-25_EX_F830
Take off date UTC:
25-FEB-2022

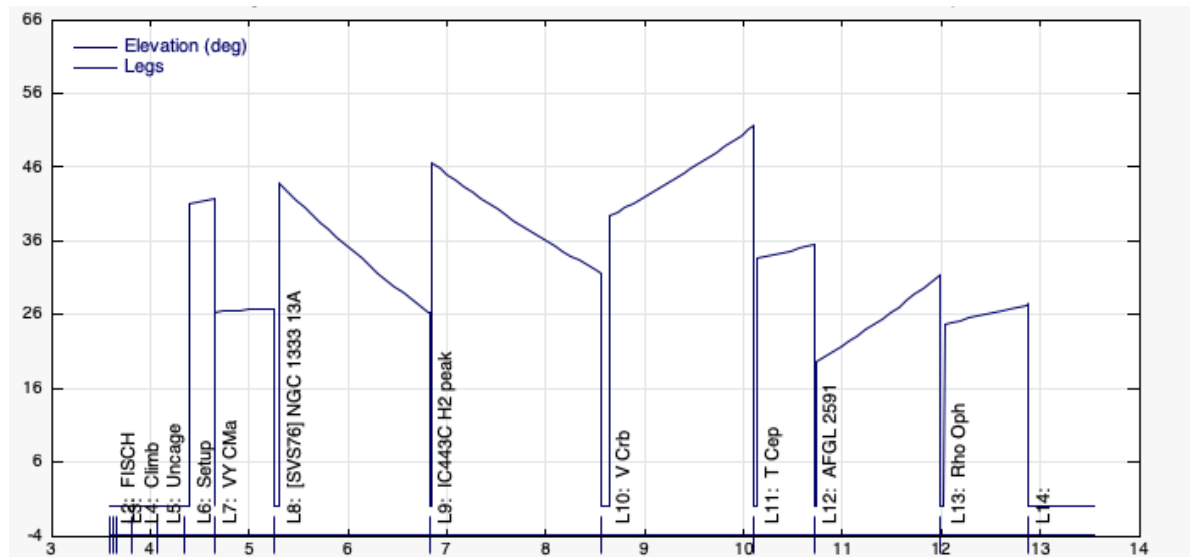
Departure UTC: 03:33
Arrival UTC: 13:50

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
6			Setup	07h41m14.83s	-09d33m04.1s	4:24	15	
7	09_0148	Fuchs	VY CMa	07h22m58.33s	-25d46m03.2s	4:39	36	
8	09_0162	De Simone	NGC 1333	03h29m03.73s	31d16m03.8s	5:18	91	
9	09_0021	Neufeld	IC443C	06h17m42.37s	22d21m16.9s	6:50	103	
10	08_0194	Creech-Eakman	V Crb	15h49m31.31s	39d34m17.9s	8:38	88	
11	09_0227	Fonfria	T Cep	21h09m31.78s	68d29m27.2s	10:08	35	
12	09_0129	Nickerson	AFGL 2591	20h29m25.04s	40d11m20.3s	10:44	75	
13	09_0211	Andersson	Rho Oph	16h25m53.11s	-24d19m14.1s	12:02	51	

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



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



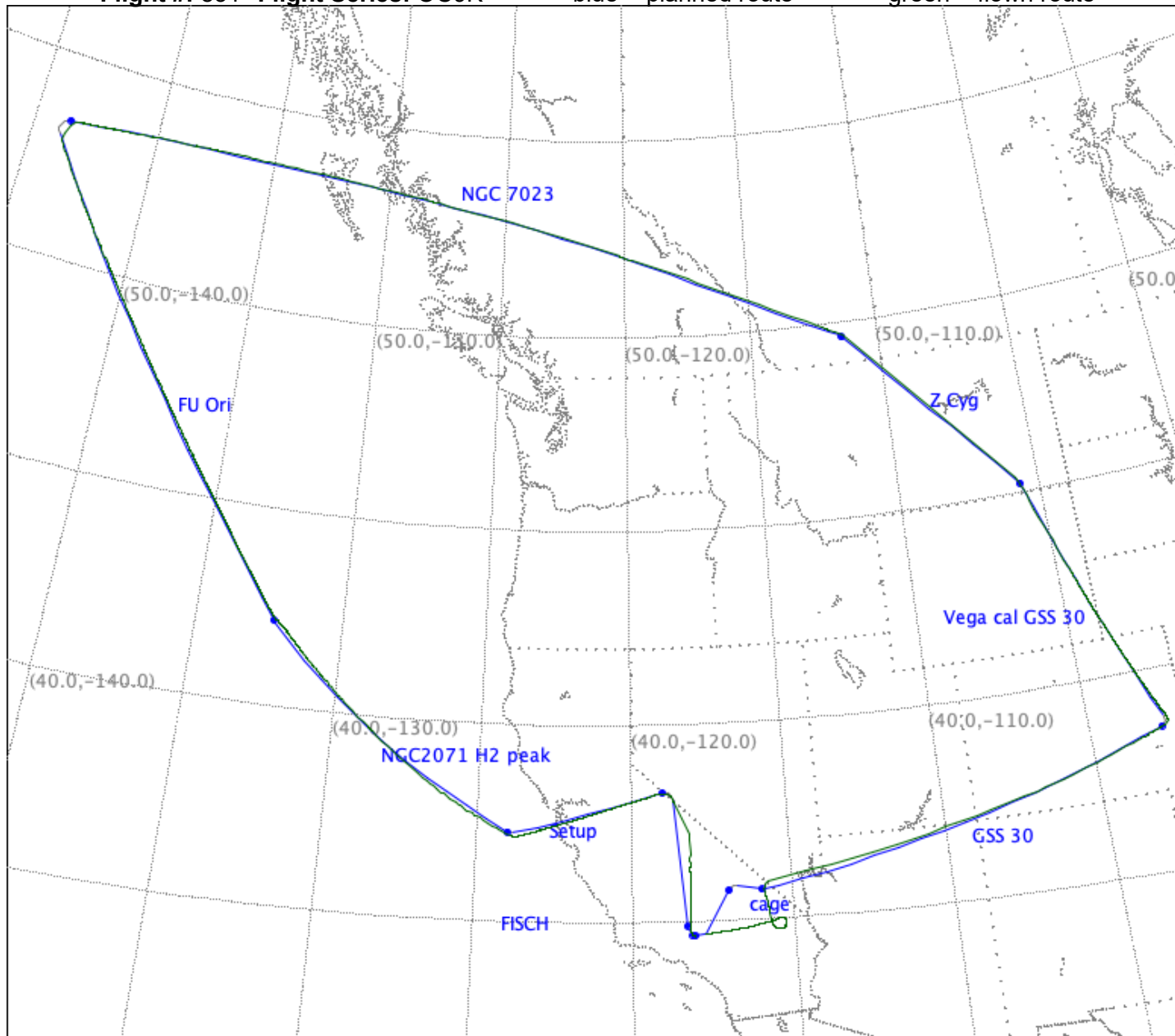
MISSION ID: 2022-02-22_EX_F831

Date: 2022-02-26 UT Instrument: EXES

Flight #: 831 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities

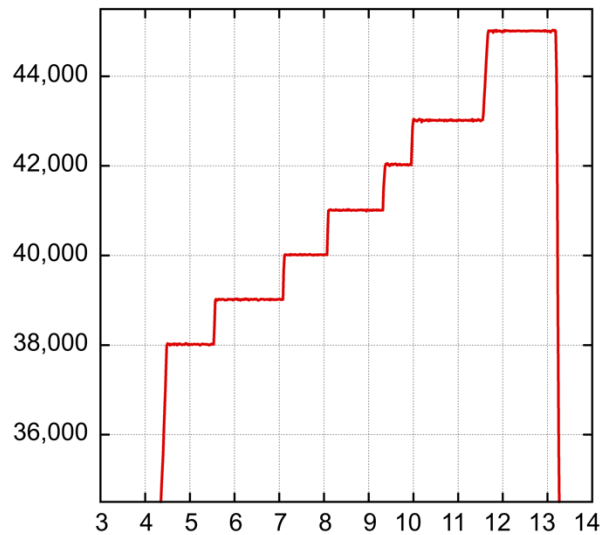
Flight 831
Palmdale to
Palmdale

Mission ID 2022-02-26_EX_F831
Take off date UTC:
26-FEB-2022

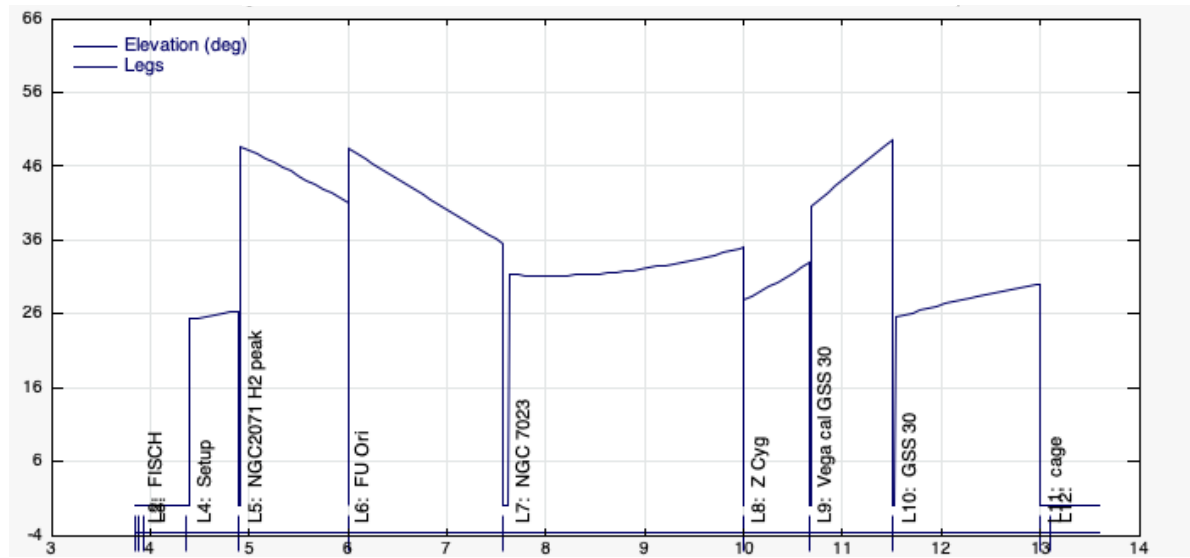
Departure UTC: 03:49
Arrival UTC: 13:43

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h38m18.05s	-25d21m53.3s	4:24	30	
5	09_0021	Neufeld	NGC2071	05h47m08.21s	00d22m52.7s	4:55	65	
6	09_0003	DeWitt	FU Ori	05h45m22.36s	09d04m12.4s	6:00	94	
7	09_0211	Andersson	NGC 7023	21h02m08.25s	68d09m04.2s	7:37	142	
8	08_0194	Creech-Eakman	Z Cyg	20h01m27.51s	50d02m32.6s	10:00	40	
9	09_0197	Carr	Vega	18h36m56.34s	38d47m01.3s	10:41	49	
10	09_0197	Carr	GSS 30	16h26m21.38s	-24d23m04.1s	11:32	88	

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



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



MISSION ID: 2022-03-01_EX_F832

Date: 2022-03-01 UT Instrument: EXES

Flight #: 832 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities

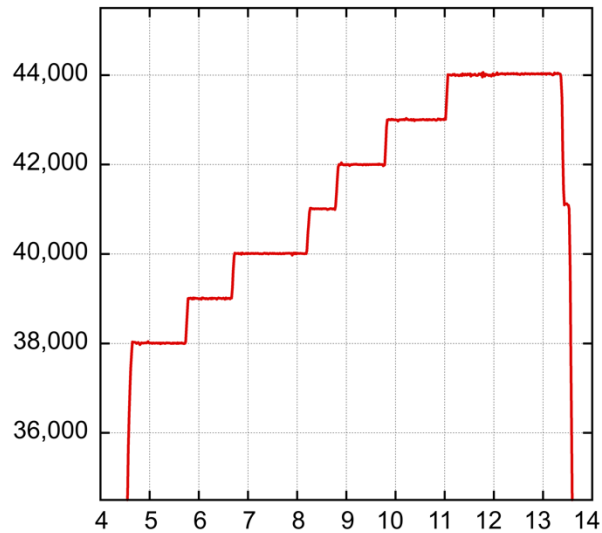
Flight 832
Palmdale to
Palmdale

Mission ID 2022-03-01_EX_F832
Take off date UTC:
01-MAR-2022

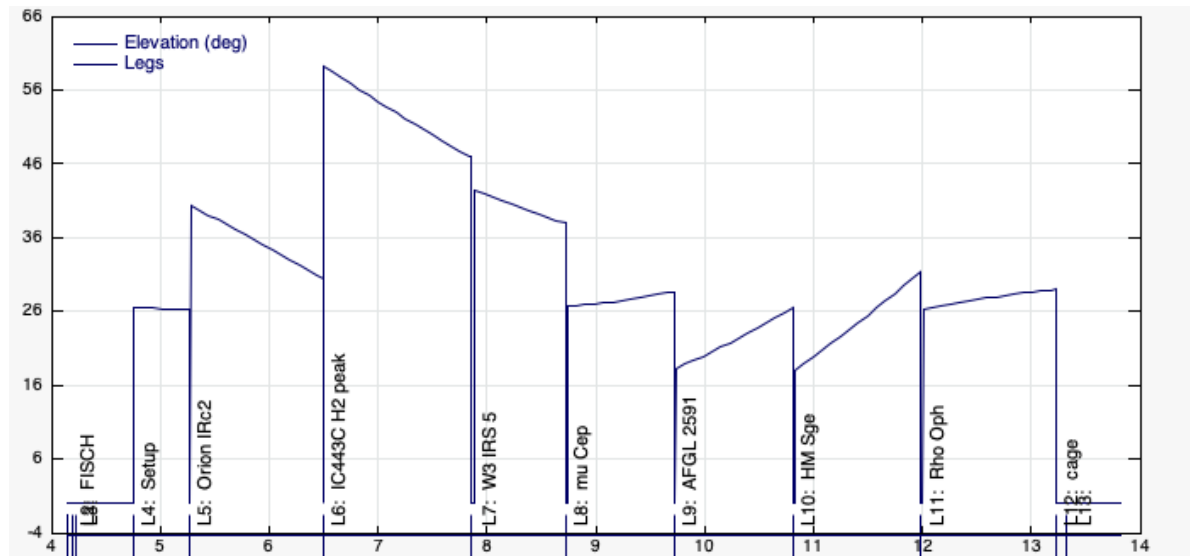
Departure UTC: 04:09
Arrival UTC: 14:03

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h08m23.48s	-26d23m35.5s	4:45	30	
5	07_0210	Richter	Orion IRc2	05h35m14.49s	-05d22m29.3s	5:16	73	
6	09_0021	Neufeld	IC443C H2 peak	06h17m42.37s	22d21m16.9s	6:30	81	
7	09_0129	Nickerson	W3 IRS 5	02h25m40.54s	62d05m51.4s	7:53	50	
8	09_0227	Fonfria	mu Cep	21h43m30.46s	58d46m48.2s	8:44	59	
9	09_0129	Nickerson	AFGL 2591	20h29m25.04s	40d11m20.3s	9:44	65	
10	75_0057	Discretionary	HM Sge	19h41m57.08s	16d44m39.9s	10:49	69	
11	09_0211	Andersson	Rho Oph	16h25m53.11s	-24d19m14.1s	12:00	73	

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



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



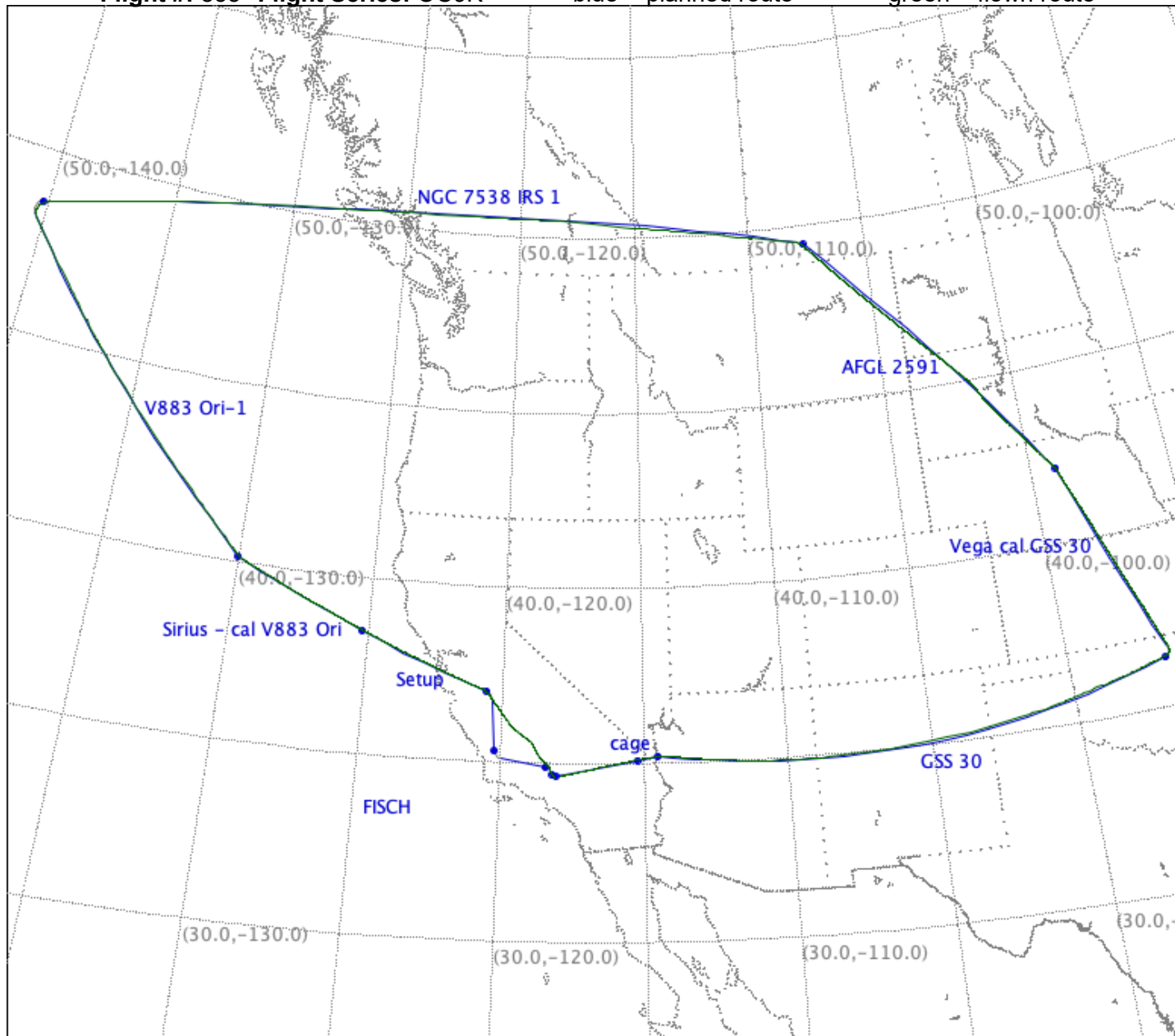
MISSION ID: 2022-03-03_EX_F833

Date: 2022-03-03 UT Instrument: EXES

Flight #: 833 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: Clouds on legs 8 & 9.

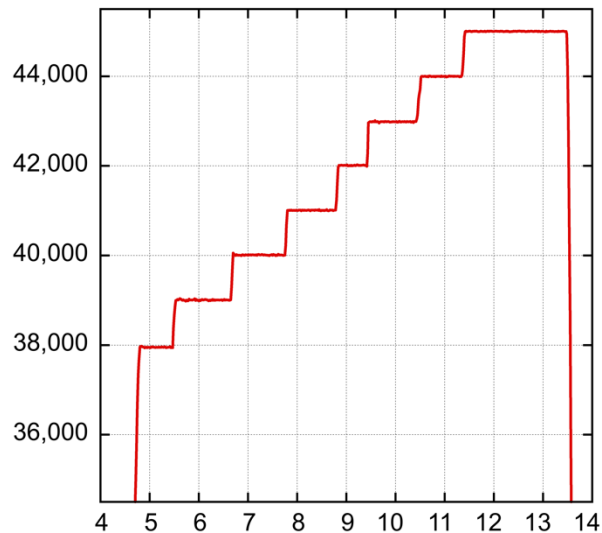
Flight 833
Palmdale to
Palmdale

Mission ID 2022-03-03_EX_F833
Take off date UTC:
03-MAR-2022

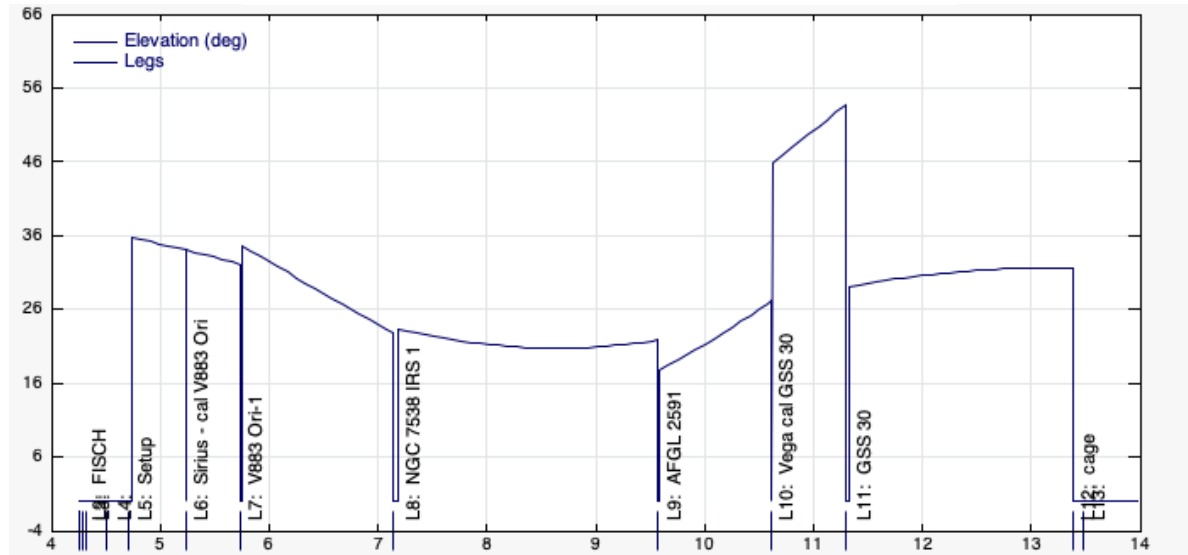
Departure UTC: 04:19
Arrival UTC: 13:57

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	06h45m08.92s	-16d42m58.0s	4:44	30	
6	09_0003	DeWitt	Sirius	06h45m08.92s	-16d42m58.0s	5:14	30	
7	09_0003	DeWitt	V883 Ori	05h38m18.10s	-07d02m26.0s	5:45	83	
8	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	7:11	143	Clouds caused premature end of data collection.
9	09_0129	Nickerson	AFGL 2591	20h29m25.04s	40d11m20.3s	9:35	62	Clouds prevented collection of any data
10	09_0197	Carr	Vega	18h36m56.34s	38d47m01.3s	10:37	40	
11	09_0197	Carr	GSS 30	16h26m21.38s	-24d23m04.1s	11:20	123	

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



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



Flight notes: No irregularities.

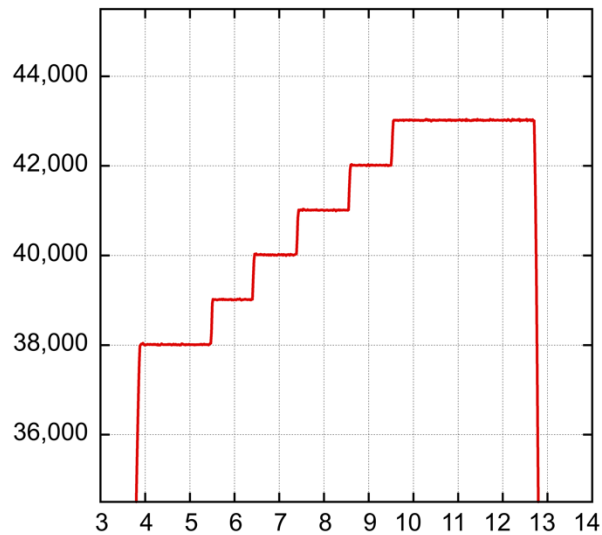
Flight 834
Palmdale to
Palmdale

Mission ID 2022-03-04_EX_F834
Take off date UTC:
04-MAR-2022

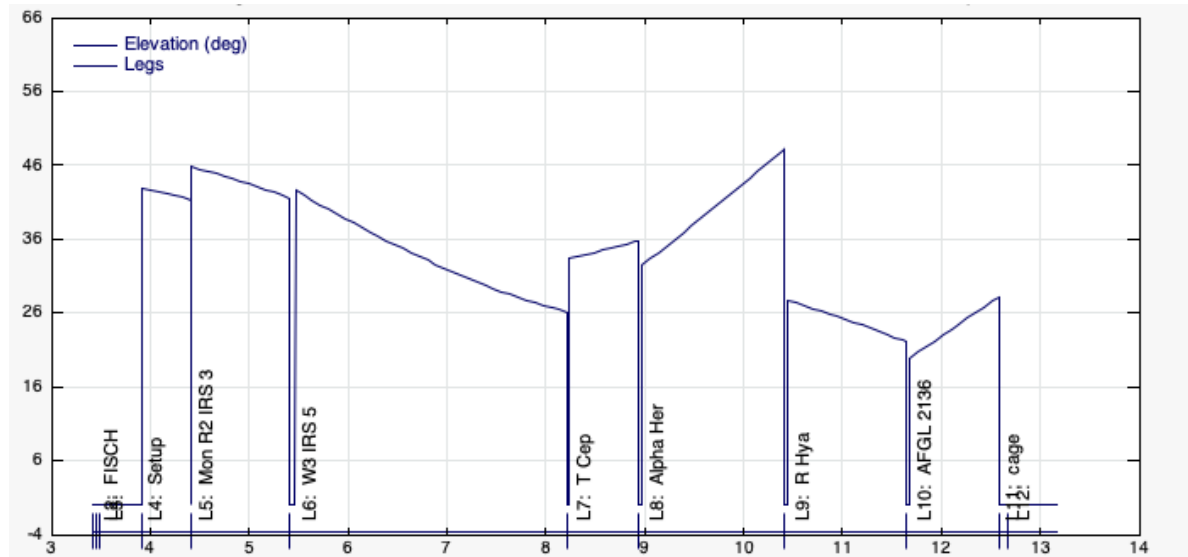
Departure UTC: 03:24
Arrival UTC: 13:11

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h01m50.42s	-10d35m52.5s	3:54	30	
5	09_0129	Nickerson	Mon R2 IRS 3	06h07m47.81s	-06d22m54.8s	4:24	60	
6	09_0129	Nickerson	W3 IRS 5	02h25m40.54s	62d05m51.4s	5:28	165	
7	09_0227	Fonfria	T Cep	21h09m31.78s	68d29m27.2s	8:14	42	
8	09_0233	Richter	Alpha Her	17h14m38.86s	14d23m25.2s	8:58	86	
9	09_0227	Fonfria	R Hya	13h29m42.78s	-23d16m52.8s	10:26	72	
10	09_0129	Nickerson	AFGL 2136	18h22m26.87s	-13d30m17.2s	11:40	54	

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



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



MISSION ID: 2022-03-05_EX_F835

Date: 2022-03-05 UT Instrument: EXES

Flight #: 835 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities.

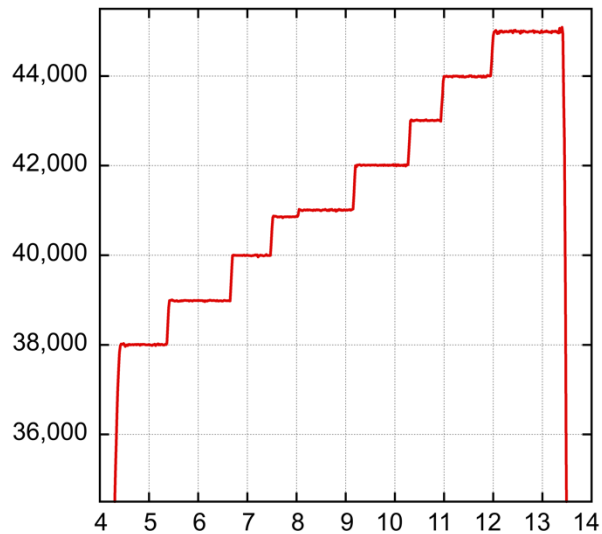
Flight 835
Palmdale to
Palmdale

Mission ID 2022-03-05_EX_F835
Take off date UTC:
05-MAR-2022

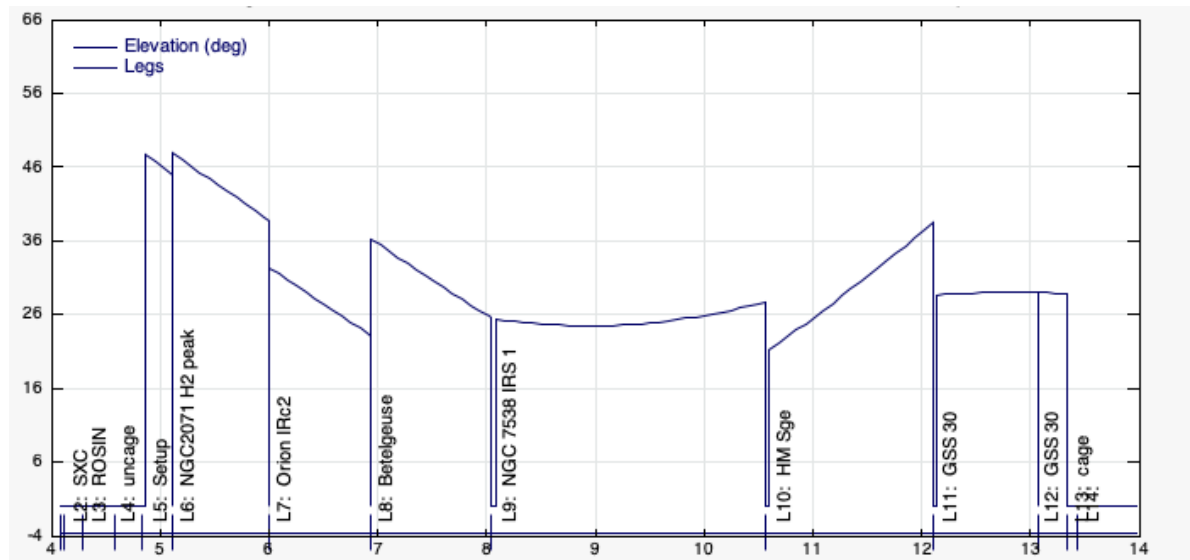
Departure UTC: 03:58
Arrival UTC: 13:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	09h08m02.88s	-25d51m30.7s	4:48	30	
5	09_0021	Neufeld	NGC2071 H2 peak	05h47m08.21s	00d22m52.7s	5:20	52	
6	07_0210	Richter	Orion IRc2	05h35m14.49s	-05d22m29.3s	6:12	50	
7	09_0227	Fonfria	Betelgeuse	05h55m10.31s	07d24m25.4s	7:02	66	
8	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	8:11	141	
9	75_0057	Discretionary	HM Sge	19h41m57.08s	16d44m39.9s	10:33	90	
10	09_0197	Carr	GSS 30	16h26m21.38s	-24d23m04.1s	12:06	56	
11	09_0197	Carr	GSS 30	16h26m21.38s	-24d23m04.1s	13:02	16	

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



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



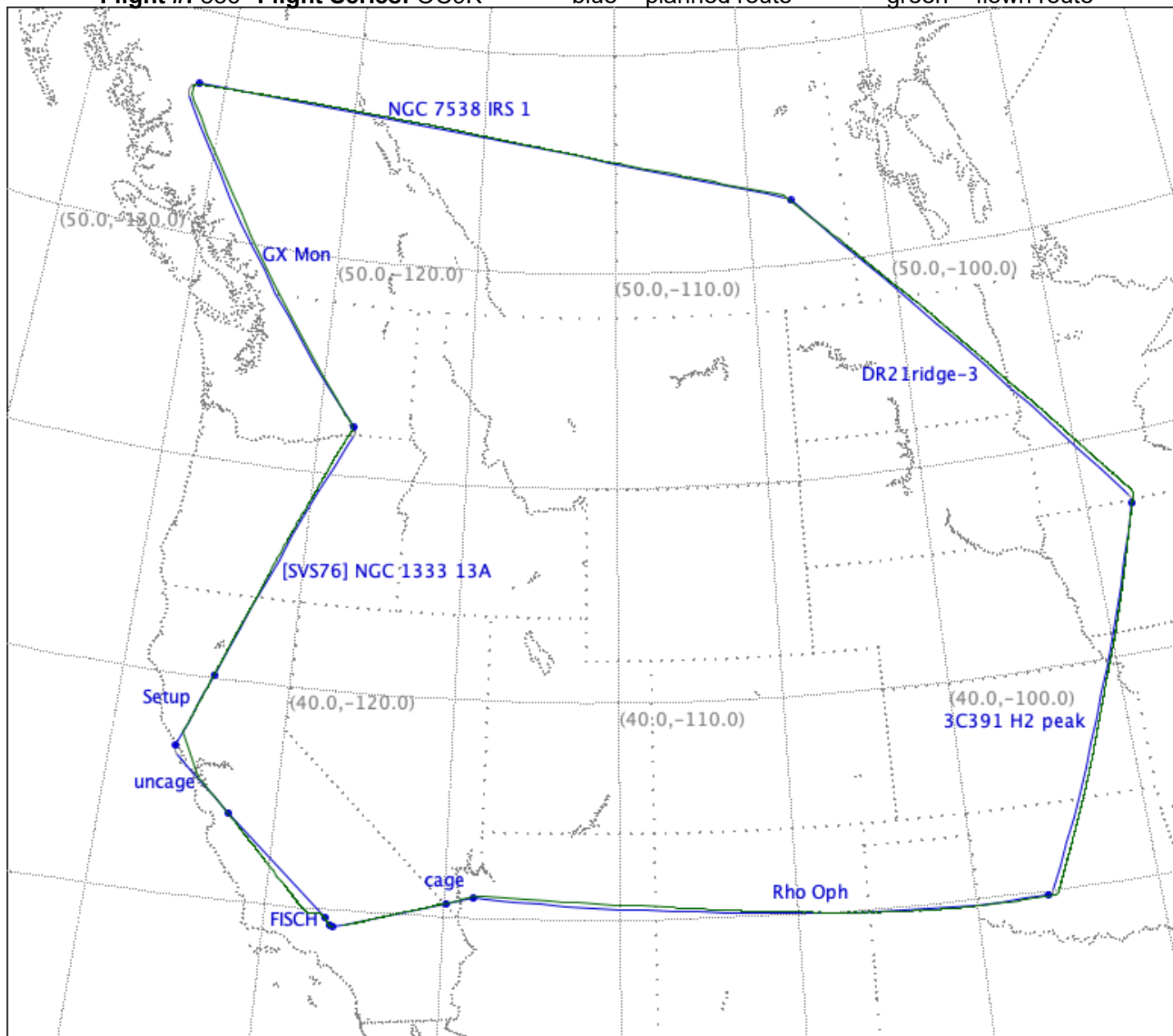
MISSION ID: 2022-03-08_EX_F836

Date: 2022-03-08 UT Instrument: EXES

Flight #: 836 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes: No irregularities.

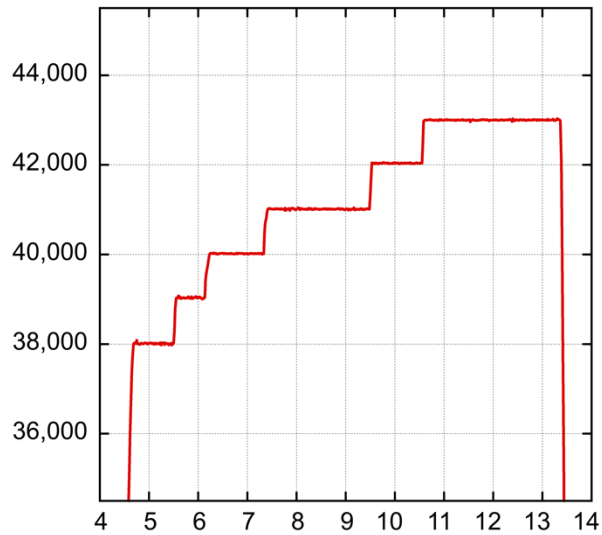
Flight 836
Palmdale to
Palmdale

Mission ID 2022-03-08_EX_F836
Take off date UTC:
08-MAR-2022

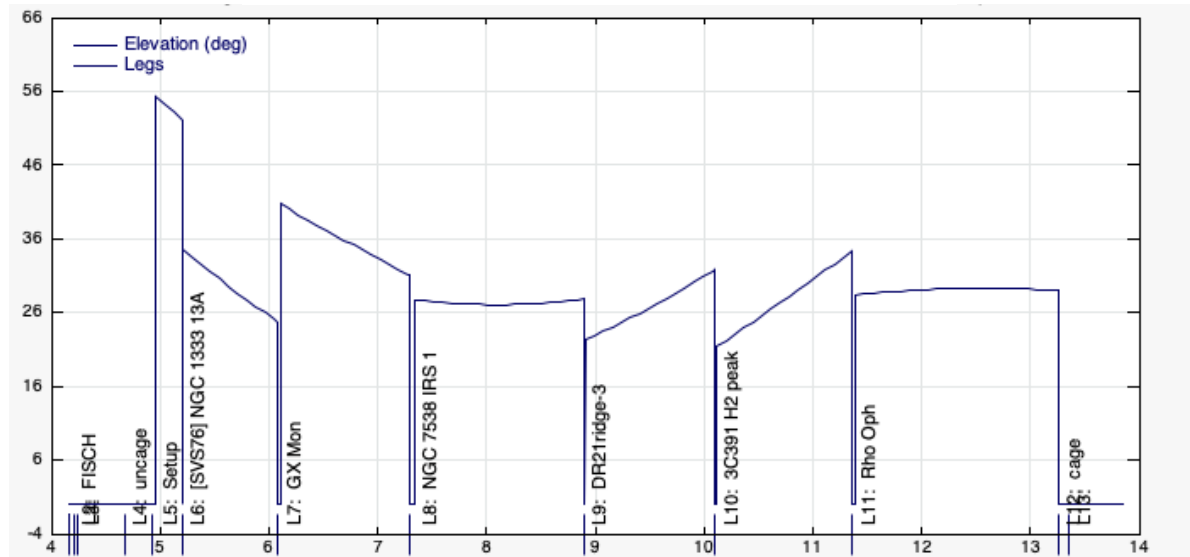
Departure UTC: 04:09
Arrival UTC: 13:52

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	04h49m54.64s	37d29m17.8s	4:57	15	
6	09_0162	De Simone	NGC 1333	03h29m03.73s	31d16m03.8s	5:12	52	
7	09_0227	Fonfria	GX Mon	06h52m47.04s	08d25m19.1s	6:06	71	
8	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	7:20	93	
9	09_0210	Bonne	DR 21	20h39m01.40s	42d23m53.0s	8:54	71	
10	09_0021	Neufeld	3C 391	18h49m22.56s	-00d57m17.2s	10:06	75	
11	09_0211	Andersson	Rho Oph	16h25m53.11s	-24d19m14.1s	11:23	112	

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



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



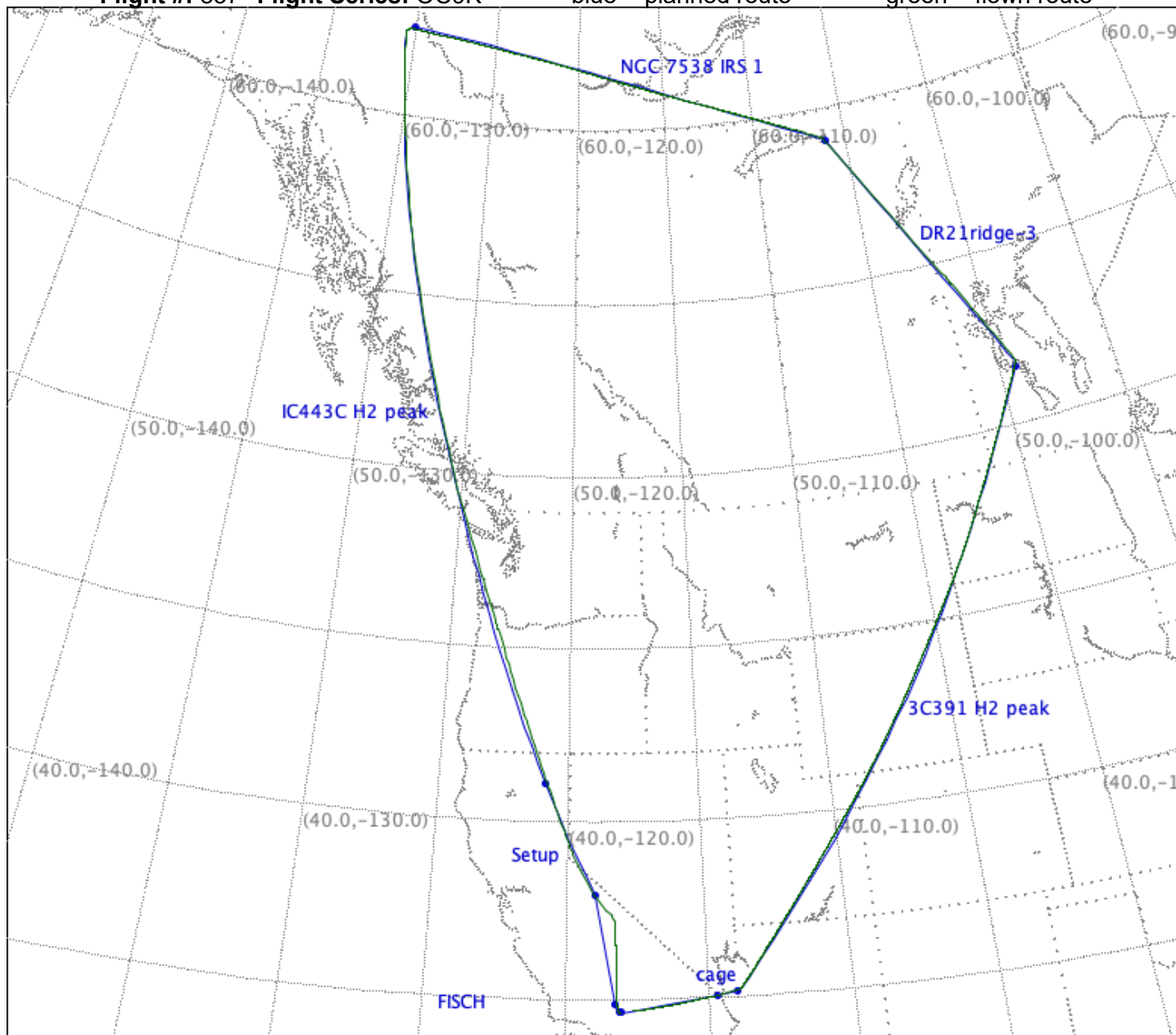
MISSION ID: 2022-03-09_EX_F837

Date: 2022-03-09 UT Instrument: EXES

Flight #: 837 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes:
No irregularities.

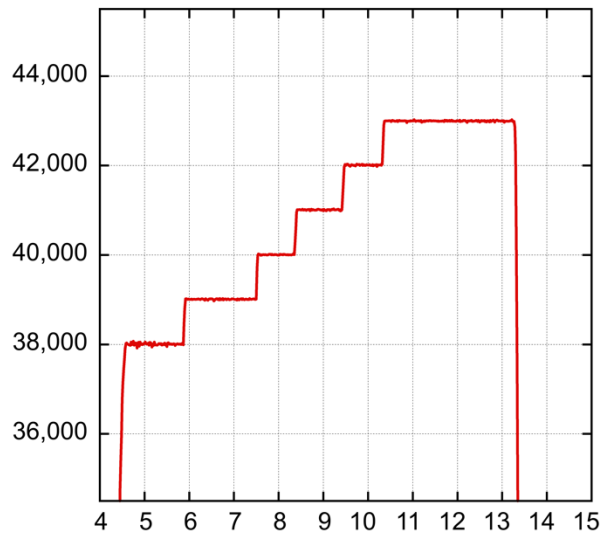
Flight 837
 Palmdale to
 Palmdale

Mission ID 2022-03-09_EX_F837
 Take off date UTC:
 09-MAR-2022

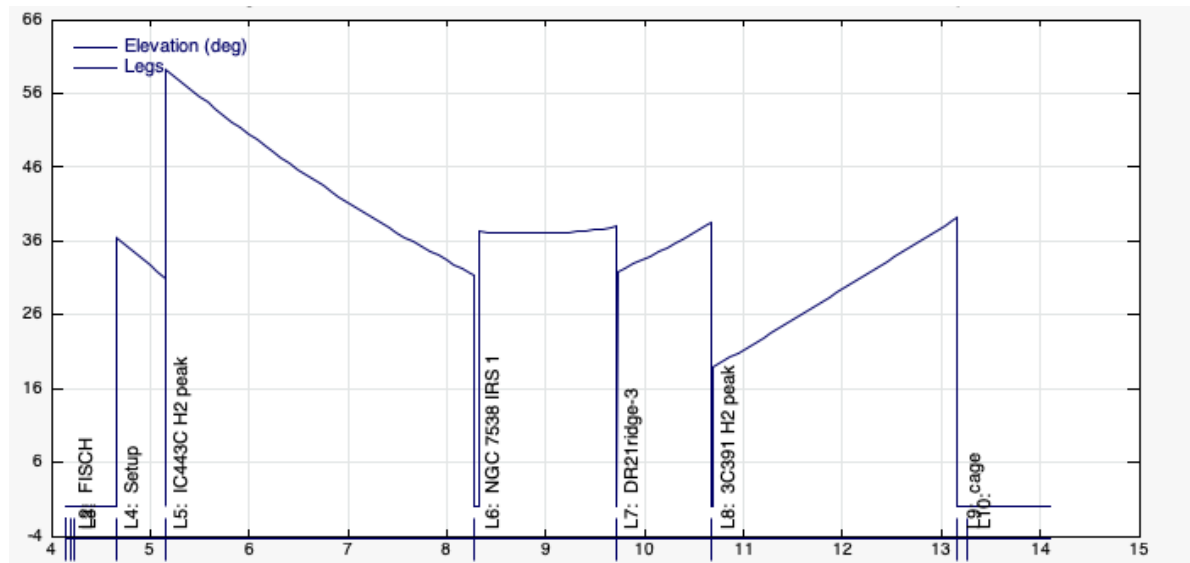
Departure UTC: 04:07
 Arrival UTC: 13:49

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	04h54m15.10s	02d26m26.4s	4:39	30	
5	09_0021	Neufeld	IC443C	06h17m42.37s	22d21m16.9s	5:09	187	
6	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	8:19	83	
7	09_0210	Bonne	DR 21	20h39m01.40s	42d23m53.0s	9:43	57	
8	09_0021	Neufeld	3C 391	18h49m22.56s	-00d57m17.2s	10:41	148	

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



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



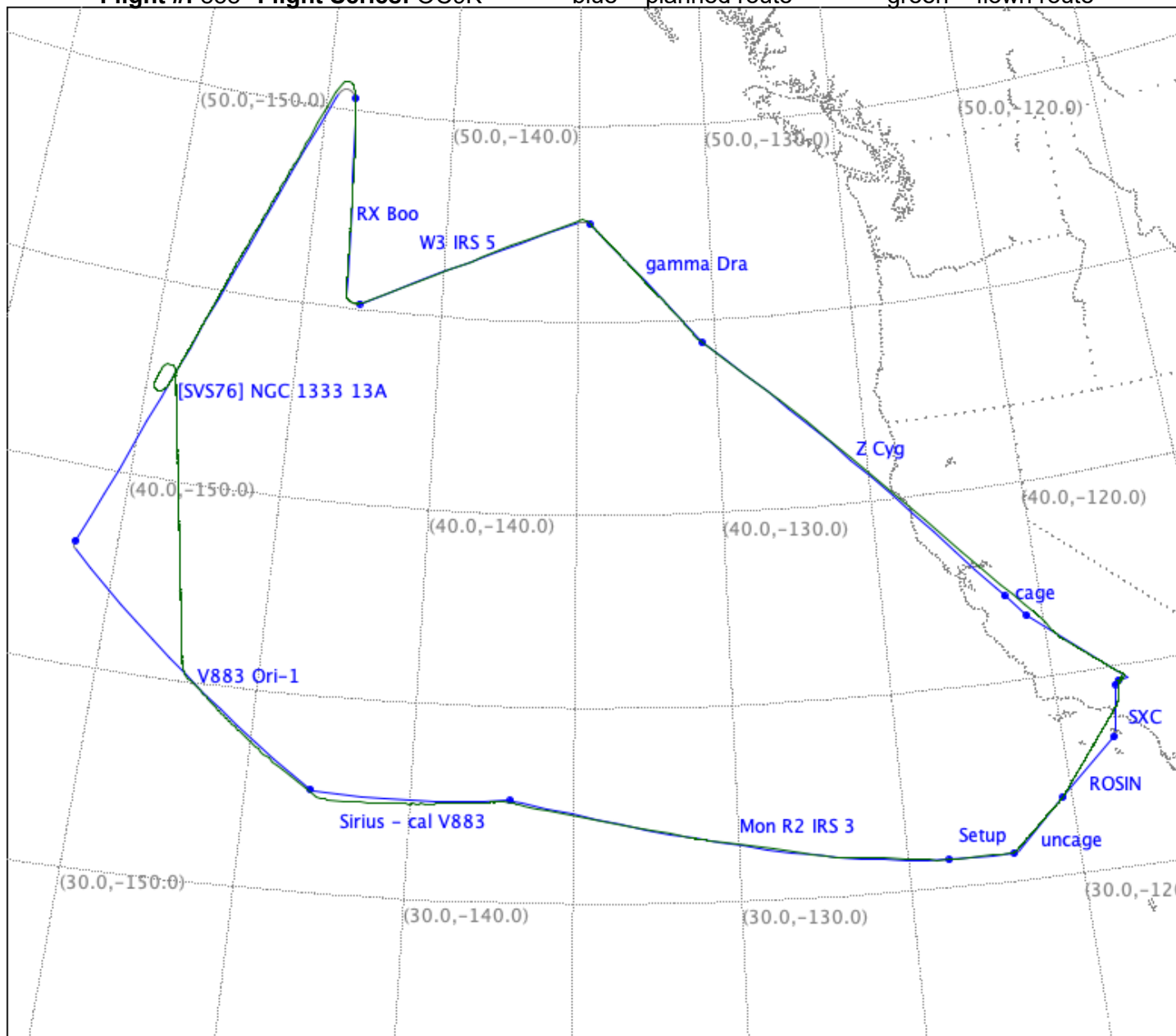
MISSION ID: 2022-03-11_EX_F838

Date: 2022-03-11UT Instrument: EXES

Flight #: 838 Flight Series: OC9K

blue = planned route

green = flown route



Flight notes:

Low altitude early; deviation for storms on legs 8 & 9.

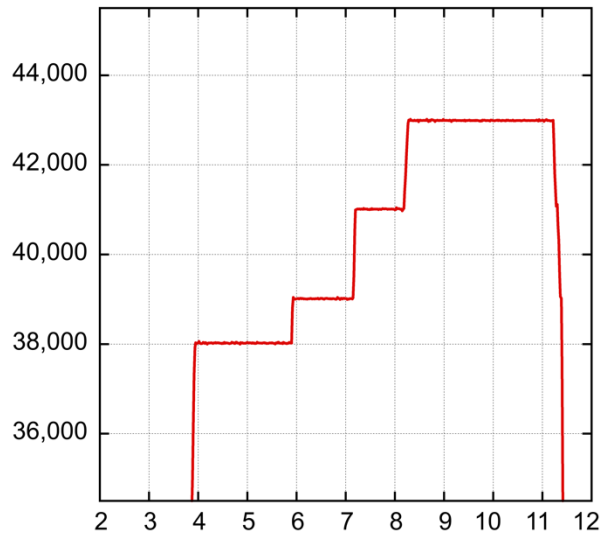
Flight 838
Palmdale to
Palmdale

Mission ID 2022-03-11_EX_F838
Take off date UTC:
11-MAR-2022

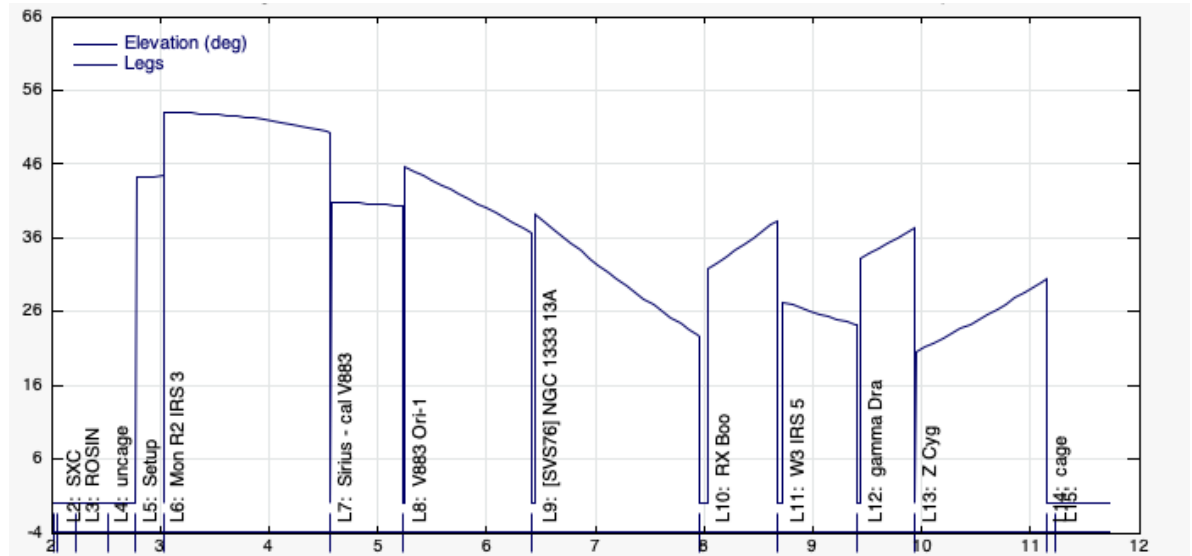
Departure UTC: 02:03
Arrival UTC: 11:47

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	06h06m09.32s	-14d56m06.9s	2:45	15	
6	09_0129	Nickerson	Mon R2 IRS 3	06h07m47.81s	-06d22m54.8s	3:00	92	ATC kept plane at an altitude too low for data collection (34k ft) for first hour of leg
7	09_0003	DeWitt	Sirius	06h45m08.92s	-16d42m58.0s	4:32	40	
8	09_0003	DeWitt	V883 Ori	05h38m18.10s	-07d02m26.0s	5:13	70	Data collection stopped halfway into leg to divert around weather.
9	09_0162	De Simone	NGC 1333	03h29m03.73s	31d16m03.8s	6:25	91	After divert, got on target with 57 minutes left on leg.
10	09_0227	Fonfria	RX Boo	14h24m11.62s	25d42m13.4s	8:00	38	
11	09_0129	Nickerson	W3 IRS 5	02h25m40.54s	62d05m51.4s	8:42	41	
12	75_0090	Discretionary	gamma Dra	17h56m36.37s	51d29m20.0s	9:25	30	
13	08_0194	Creech-Eakman	Z Cyg	20h01m27.51s	50d02m32.6s	9:55	72	

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



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



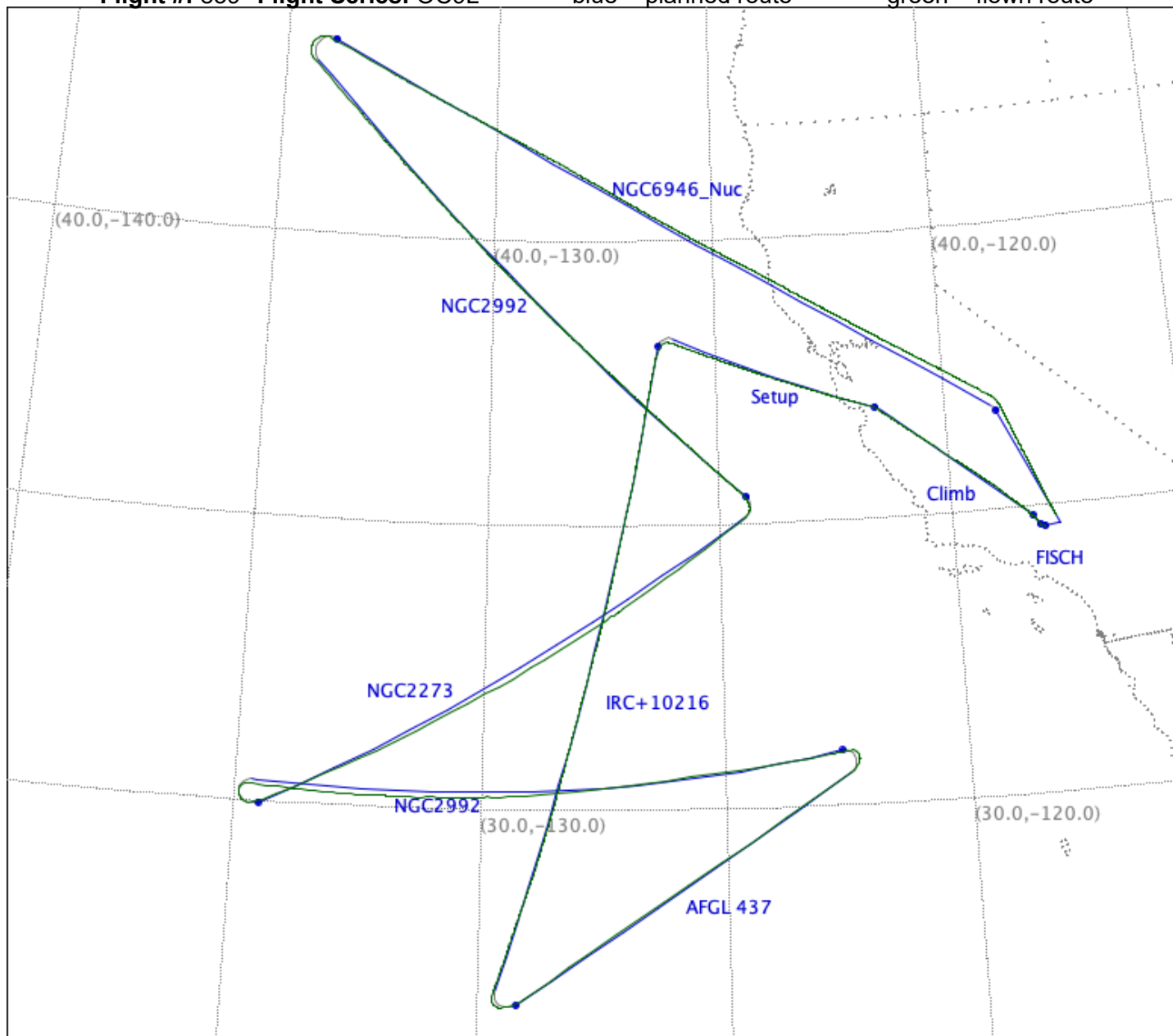
MISSION ID: 2022-03-15_FI_F839

Date: 2022-03-15UT Instrument: FIFI-LS

Flight #: 839 Flight Series: OC9L

blue = planned route

green = flown route



Flight notes: No irregularities.

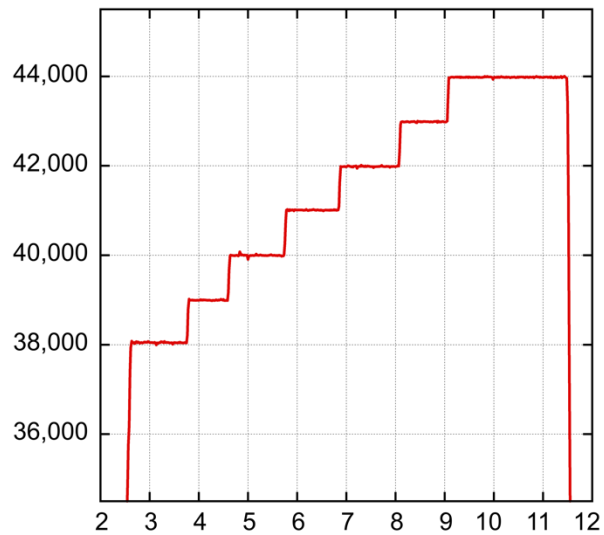
Flight 839
Palmdale to
Palmdale

Mission ID 2022-03-15_FI_F839
Take off date UTC:
15-MAR-2022

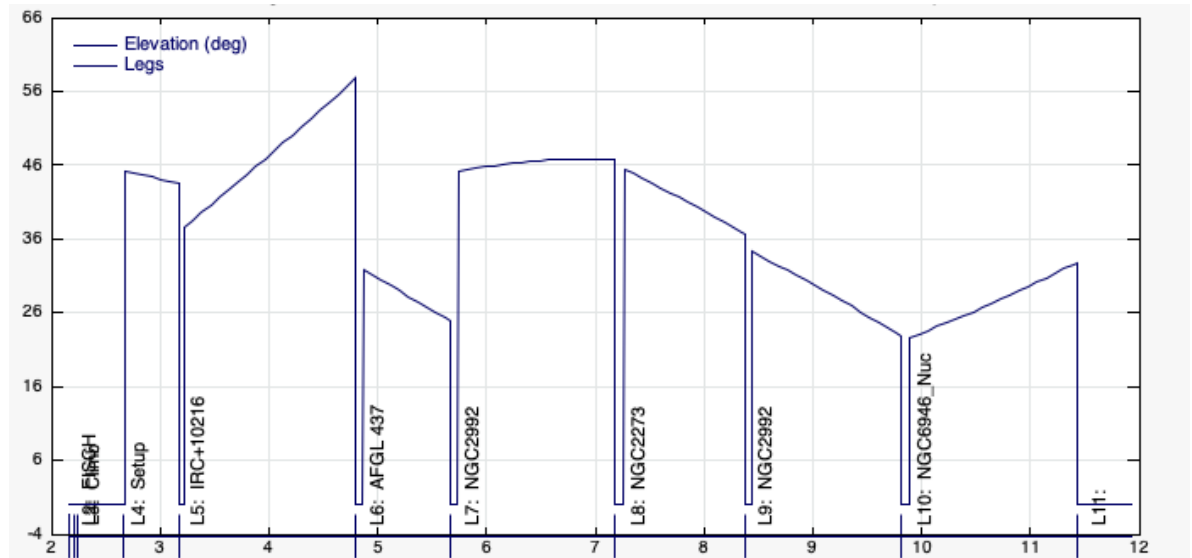
Departure UTC: 02:08
Arrival UTC: 11:50

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h31m55.86s	-07d18m05.5s	2:40	30	
5	90_0032	Calibration	IRC+10216	09h47m57.41s	13d16m43.6s	3:13	95	
6	09_0169	Yang	AFGL 437	03h07m24.19s	58d30m45.0s	4:52	48	
7	08_0069	Smith	NGC2992	09h45m42.05s	-14d19m35.0s	5:44	86	
8	08_0069	Smith	NGC2273	06h50m08.66s	60d50m44.9s	7:16	67	
9	08_0069	Smith	NGC2992	09h45m42.05s	-14d19m35.0s	8:26	83	
10	09_0198	Lamarche	NGC6946	20h34m59.13s	60d10m22.6s	9:53	92	

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



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



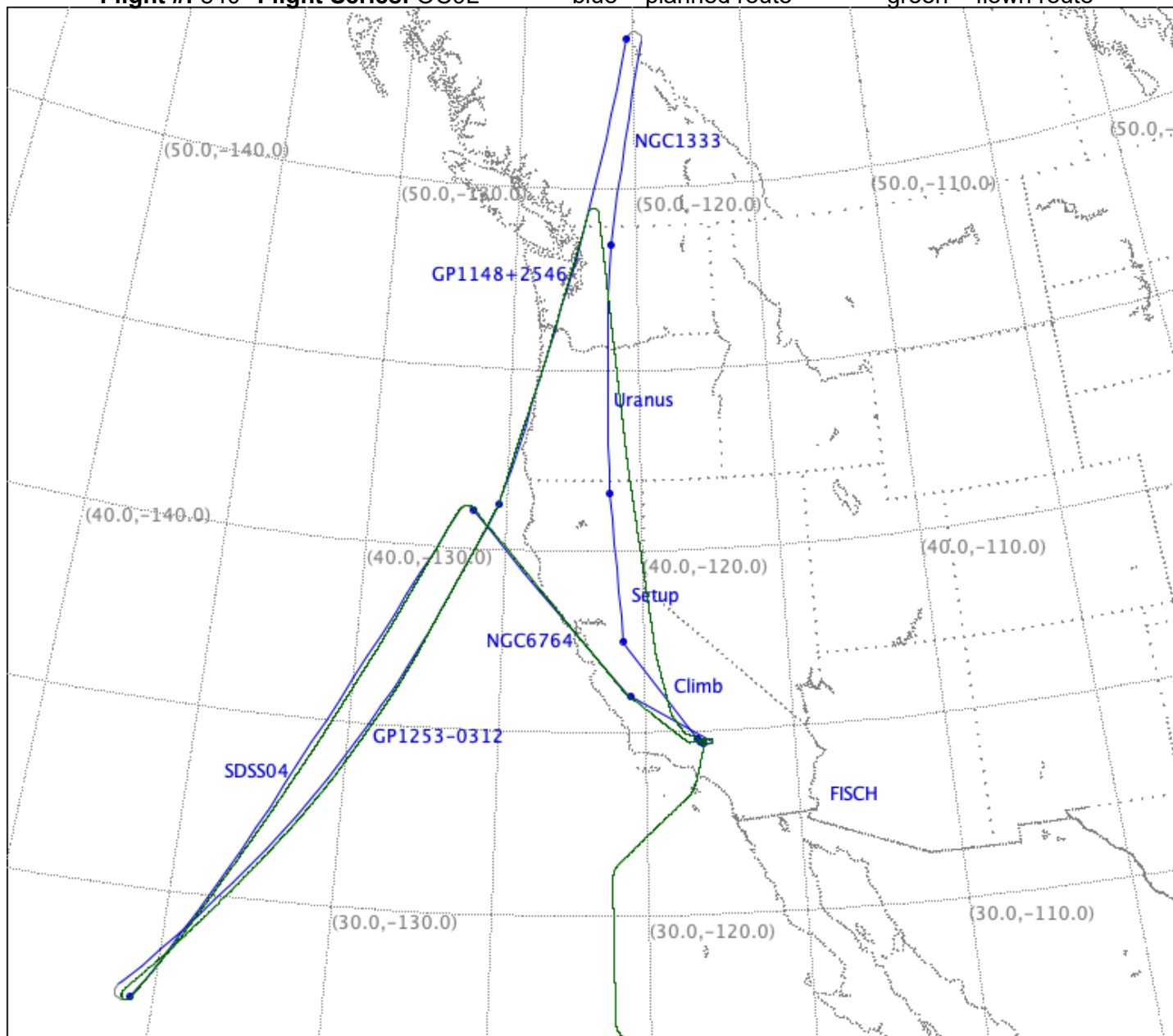
MISSION ID: 2022-03-16_FI_F840

Date: 2022-03-16UT Instrument: FIFI-LS

Flight #: 840 Flight Series: OC9L

blue = planned route

green = flown route



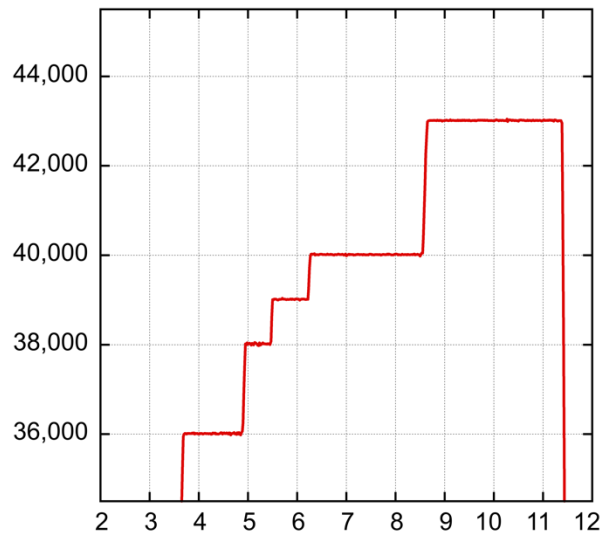
Flight notes:

Late departure led to total loss of legs 5 and 6, and partial loss of leg 7.

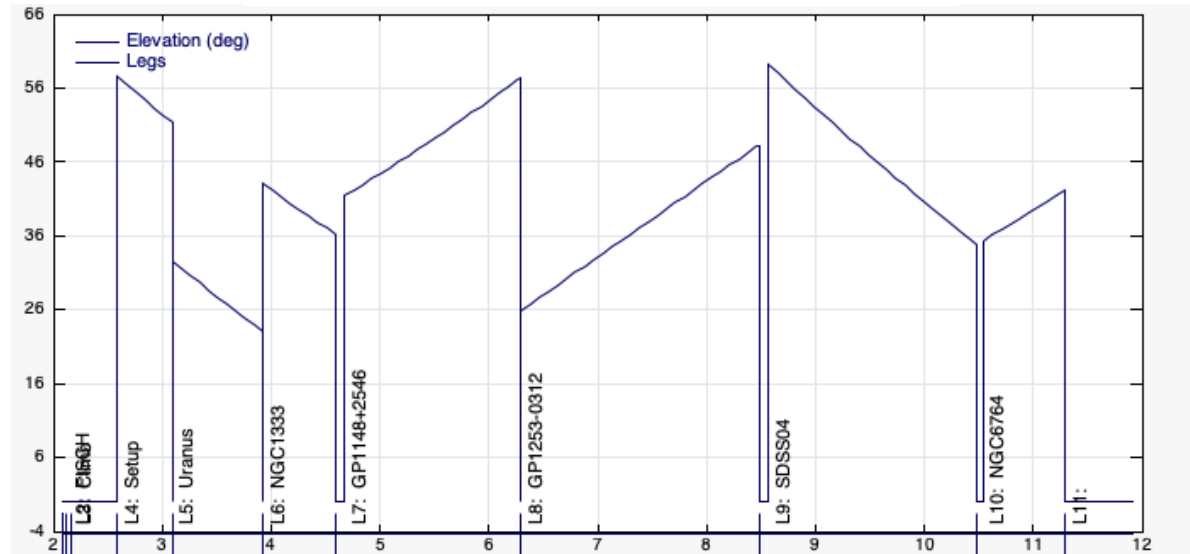
Flight 840 Mission ID 2022-03-16_FI_F840
 Palmdale to Palmdale Take off date UTC: 16-MAR-2022
 Departure UTC: 03:18 Arrival UTC: 11:45

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	03h47m29.08s	24d06m18.5s	2:35	30	
5	90_0033	Calibration	Uranus	02h38m03.40s	15d01m42.8s	3:05	50	Not observed.
6	05_0110	Peeters	NGC1333	03h29m09.30s	31d21m47.2s	3:55	40	Not observed.
7	75_0096	Discretionary	GP1148+2546	11h48m27.30s	25d46m11.7s	4:40	97	Partially lost leg, only about 70% of planned time available for science
8	75_0096	Discretionary	GP1253-0312	12h53m05.97s	-03d12m58.8s	6:17	131	
9	08_0226	Petric	SDSS04	08h43m44.88s	35d49m40.8s	8:34	115	
10	08_0069	Smith	NGC6764	19h08m16.37s	50d55m59.6s	10:32	45	

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



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

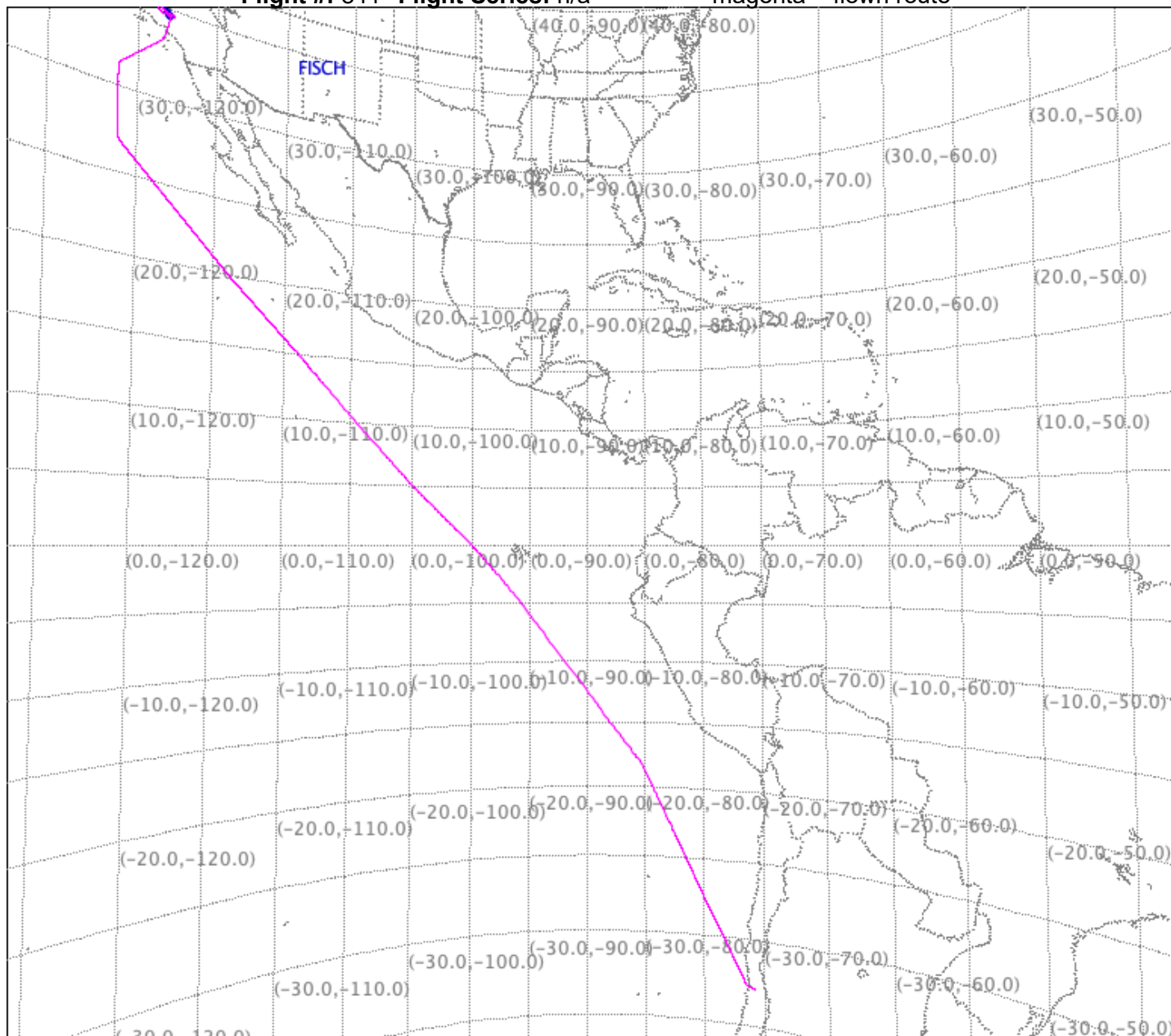


MISSION ID: 2022-03-18_NO_F841

Date: 2022-03-18UT Instrument: n/a

Flight #: 841 Flight Series: n/a

magenta = flown route



Flight notes:

Ferry Flight from Palmdale, CA to Santiago, Chile (no science planned)

Flight 841
Palmdale to
Santiago

Mission ID 2022-03-18_NO_F841
Take off date UTC:
18-MAR-2022

Departure UTC: 03:48
Arrival UTC: 14:08

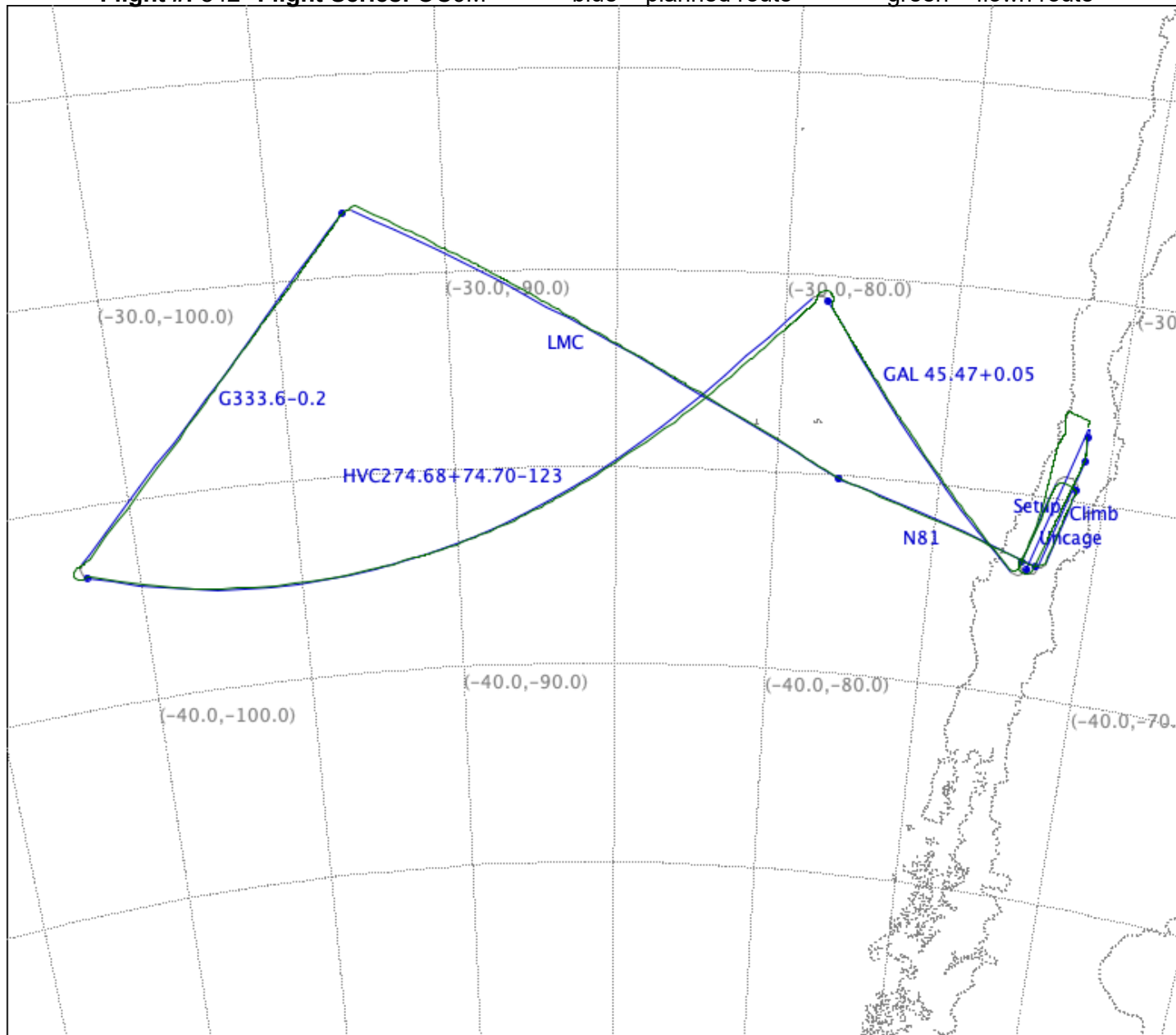
MISSION ID: 2022-03-22_FI_F842

Date: 2022-03-22UT Instrument: FIFI-LS

Flight #: 842 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes:
No irregularities.

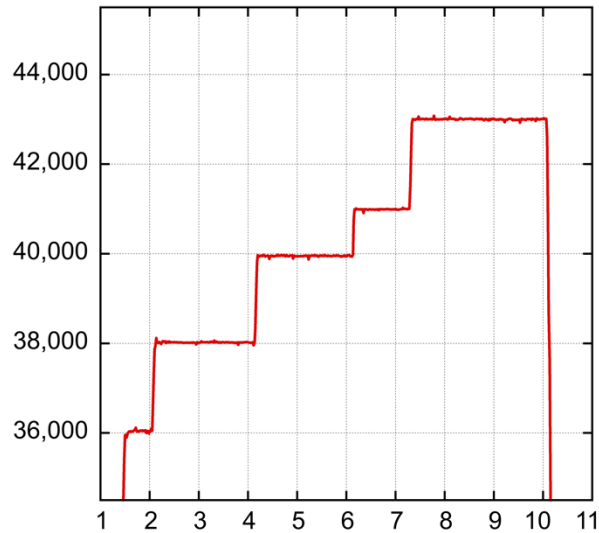
Flight 842
 Santiago to
 Santiago

Mission ID 2022-03-22_FI_F842
 Take off date UTC:
 22-MAR-2022

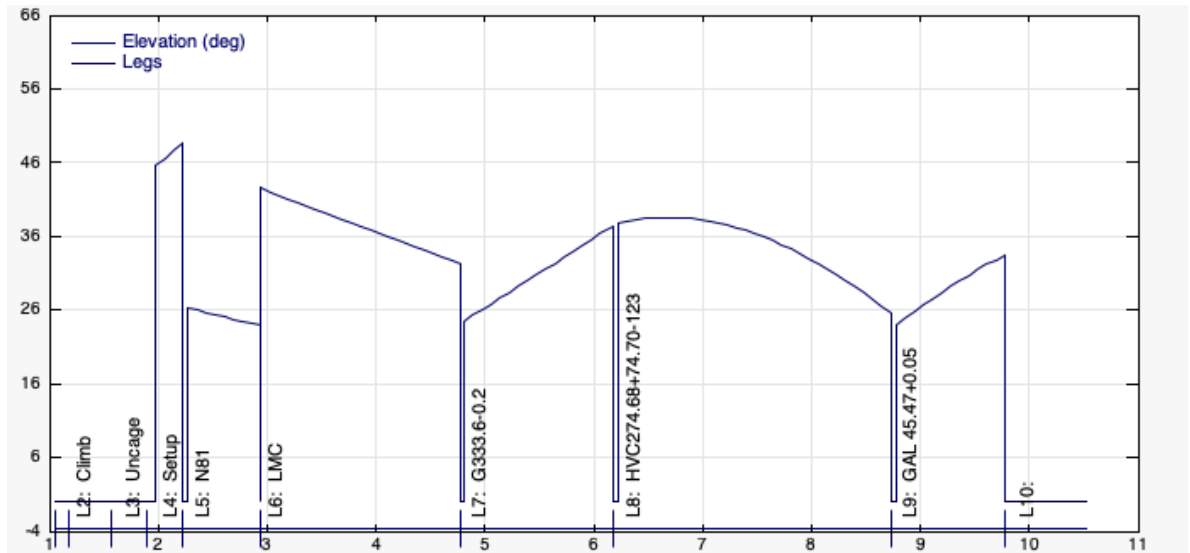
Departure UTC: 01:04
 Arrival UTC: 10:35

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	12h50m41.17s	-33d59m57.5s	1:58	15	
5	09_0023	Jones	N81	01h09m12.80s	-73d11m37.0s	2:16	40	
6	09_0036	Madden	LMC	05h38m06.15s	-69d46m54.2s	2:56	110	
7	09_0020	Pineda	G333.6-0.2	16h22m10.95s	-50d06m00.9s	4:48	82	
8	75_0089	Discretionary	HVC274.68+74.70-123	12h21m54.70s	13d21m25.9s	6:13	150	
9	09_0169	Yang	GAL 45.47+0.05	19h14m15.51s	11d06m39.0s	8:46	60	

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



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



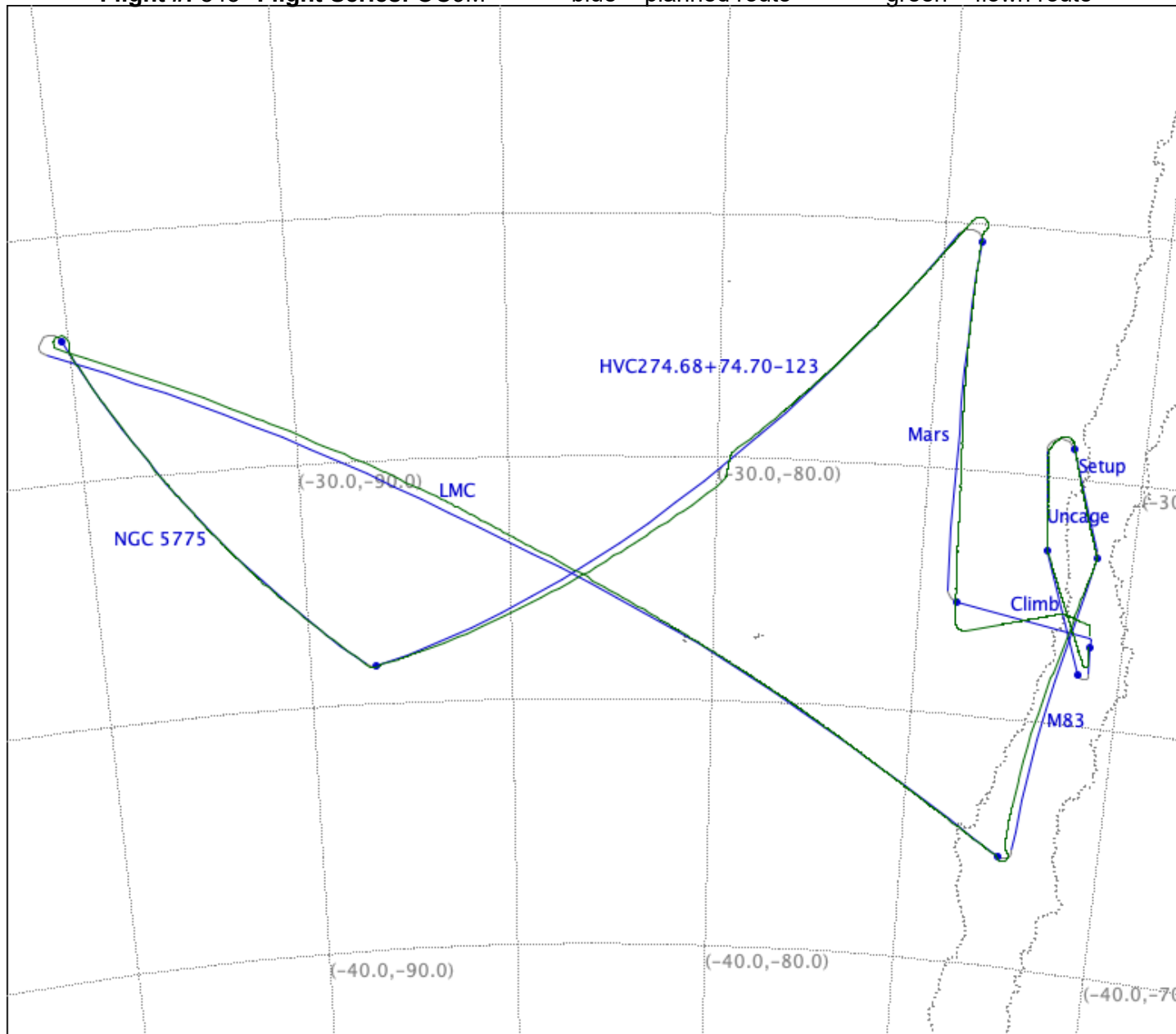
MISSION ID: 2022-03-23_FI_F843

Date: 2022-03-23UT Instrument: FIFI-LS

Flight #: 843 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes:

Data affected by relatively high water vapor due to low altitude early in flight.

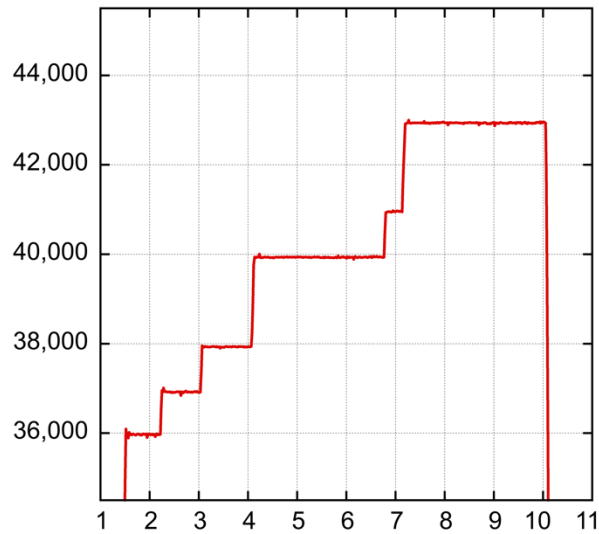
Flight 843
Santiago to
Santiago

Mission ID 2022-03-23_FI_F843
Take off date UTC:
23-MAR-2022

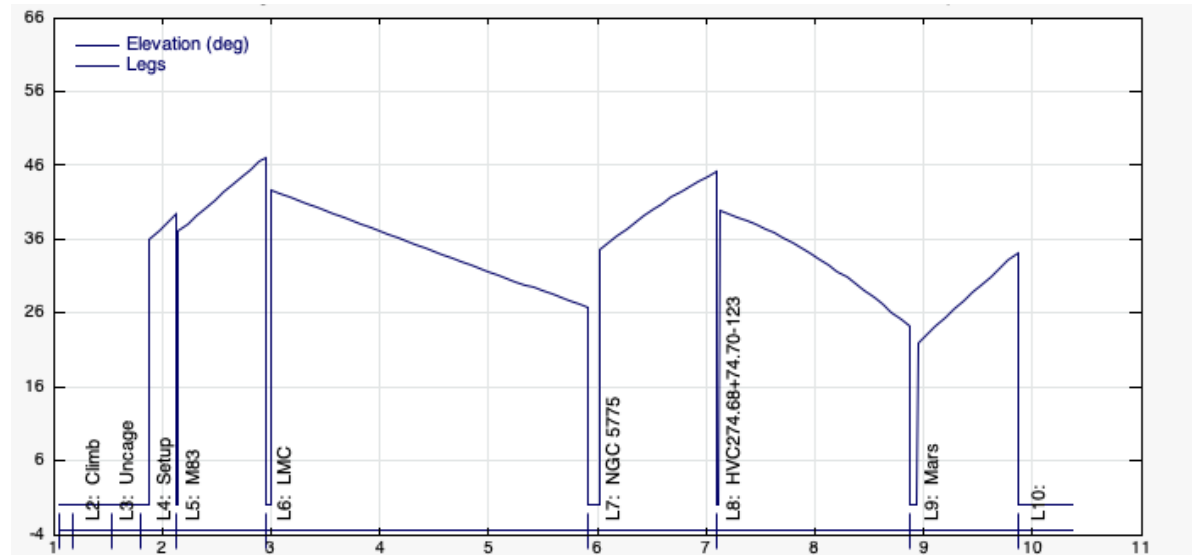
Departure UTC: 01:06
Arrival UTC: 10:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	12h39m14.77s	-07d59m44.0s	1:52	15	
5	70_0908	GTO	M83	13h37m00.92s	-29d51m56.7s	2:08	48	Low altitude (37k ft) produced low-quality data.
6	09_0036	Madden	LMC	05h40m07.82s	-70d25m30.0s	2:59	175	Low altitude at start (38k ft) negatively affecting data quality.
7	06_0010	Reach	NGC 5775	14h53m57.65s	03d32m40.1s	6:01	65	
8	75_0089	Discretionary	HVC274.68+74.70-123	12h21m54.70s	13d21m25.9s	7:07	105	
9	90_0033	Calibration	Mars	21h01m15.02s	-18d06m42.6s	8:57	55	

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



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



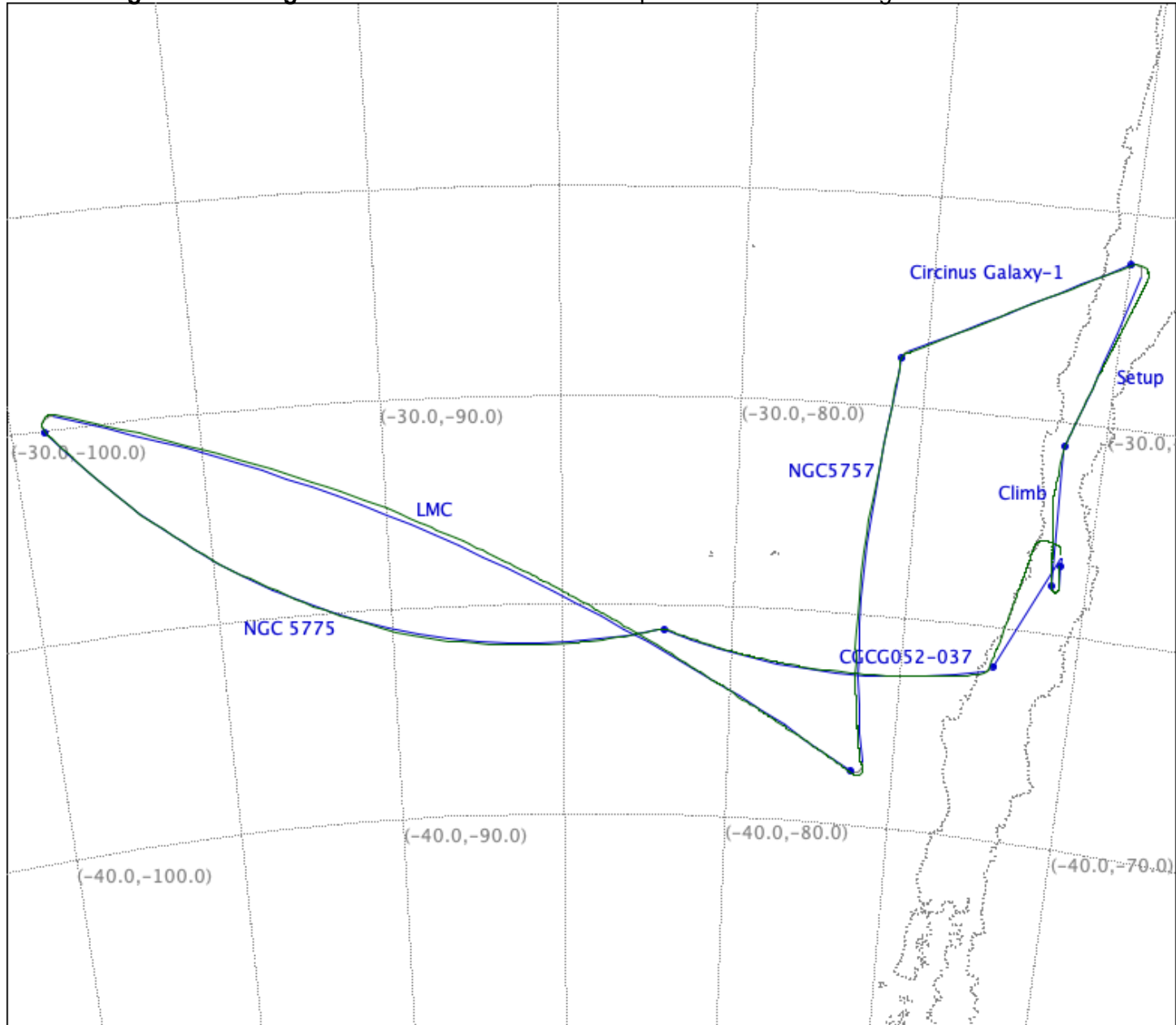
MISSION ID: 2022-03-24_FI_F844

Date: 2022-03-24UT Instrument: FIFI-LS

Flight #: 844 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes:
No irregularities.

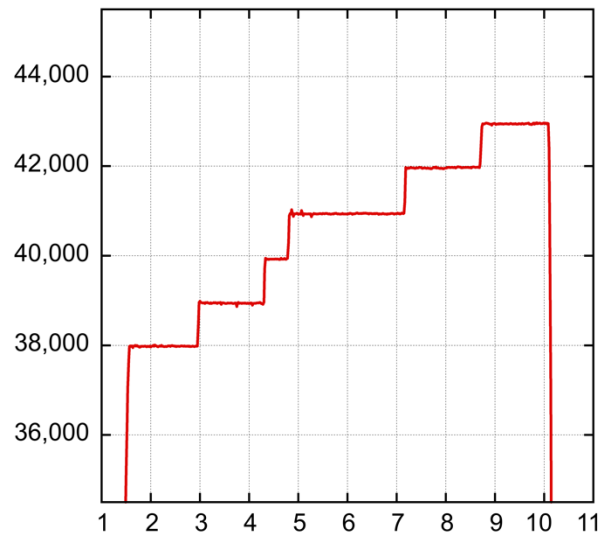
Flight 844
 Santiago to
 Santiago

Mission ID 2022-03-24_FI_F844
 Take off date UTC:
 24-MAR-2022

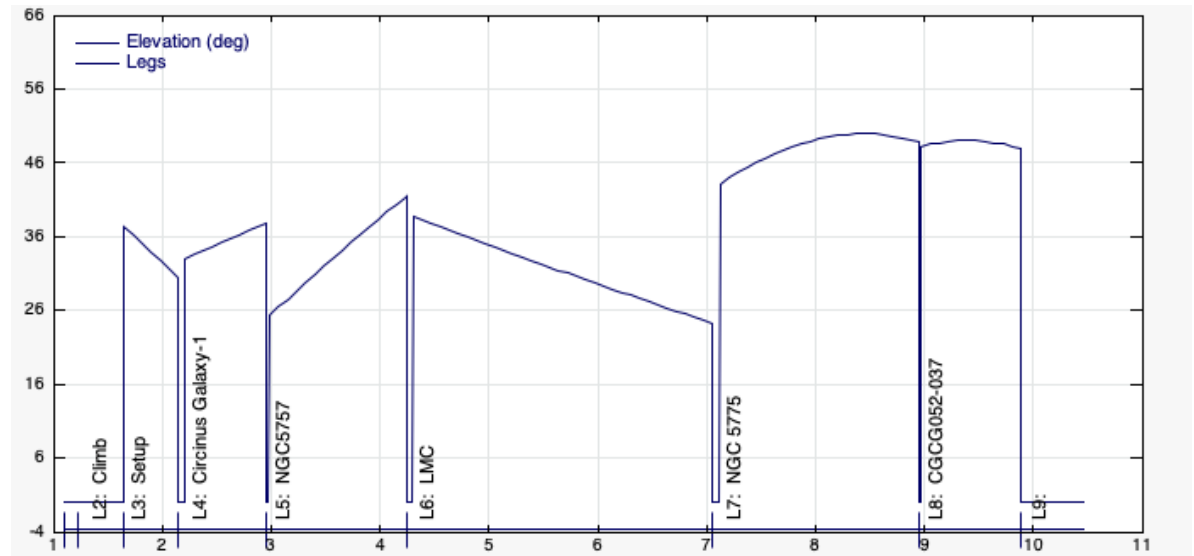
Departure UTC: 01:04
 Arrival UTC: 10:30

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	05h38m53.08s	-07d12m46.2s	1:39	30	
4	09_0185	Stacey	Circinus Galaxy	14h13m09.95s	-65d20m21.2s	2:12	45	
5	08_0069	Smith	NGC5757	14h47m46.38s	-19d04m42.8s	2:59	75.7	
6	09_0036	Madden	LMC	05h40m07.82s	-70d25m30.0s	4:18	165	
7	06_0010	Reach	NGC 5775	14h53m57.65s	03d32m40.1s	7:07	110	
8	08_0069	Smith	CGCG052-037	16h30m56.54s	04d04m58.4s	8:58	55	

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



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



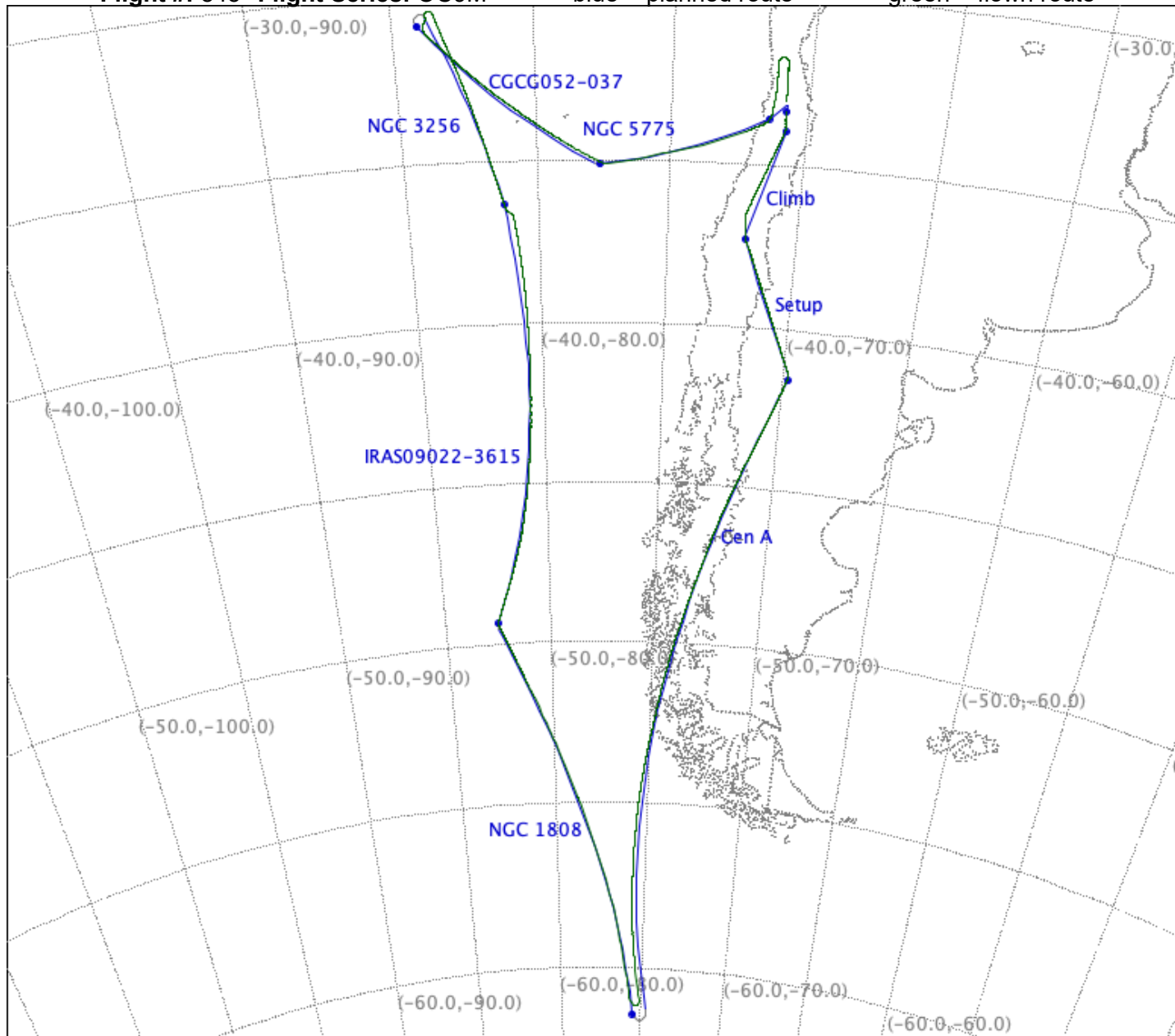
MISSION ID: 2022-03-26_FI_F845

Date: 2022-03-26UT Instrument: FIFI-LS

Flight #: 845 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes: No irregularities.

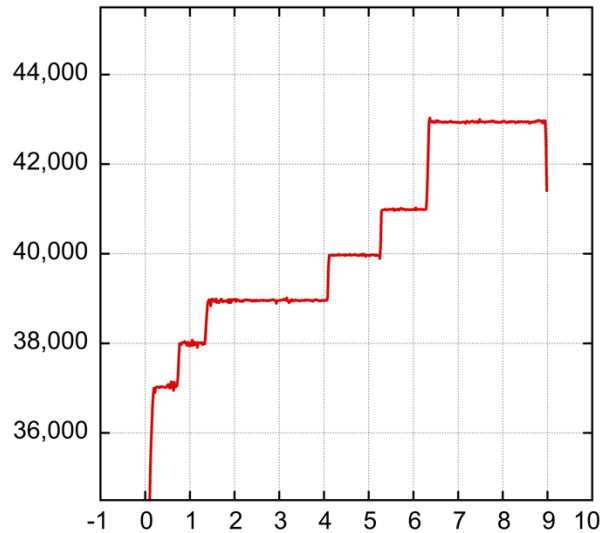
Flight 845
Santiago to
Santiago

Mission ID 2022-03-26_FI_F845
Take off date UTC:
26-MAR-2022

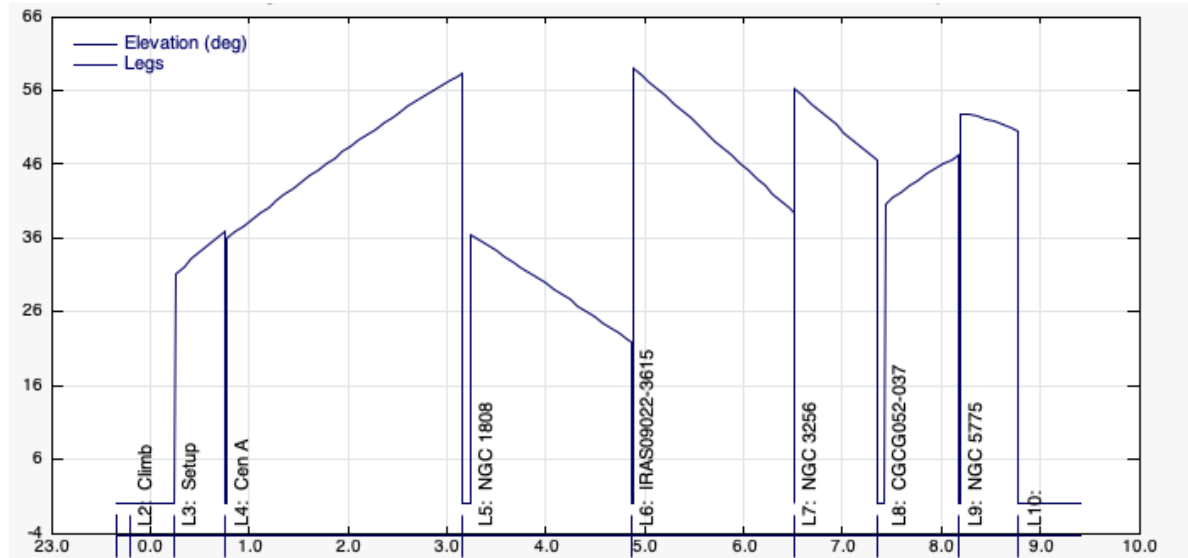
Departure UTC: 23:42
Arrival UTC:
09:18 +1 day

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	11h36m40.91s	-09d48m08.1s	0:15	30	
4	09_0185	Stacey	Cen A	13h25m27.61s	-43d01m08.8s	0:46	143	
5	09_0185	Stacey	NGC 1808	05h07m42.34s	-37d30m47.0s	3:14	97	
6	07_0080	Smith	IRAS09022-3615	09h04m12.71s	-36d27m01.0s	4:52	98	
7	09_0185	Stacey	NGC 3256	10h27m51.27s	-43d54m13.5s	6:30	50	
8	08_0069	Smith	CGCG052-037	16h30m56.54s	04d04m58.4s	7:26	45	
9	06_0010	Reach	NGC 5775	14h53m57.65s	03d32m40.1s	8:12	35	

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



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



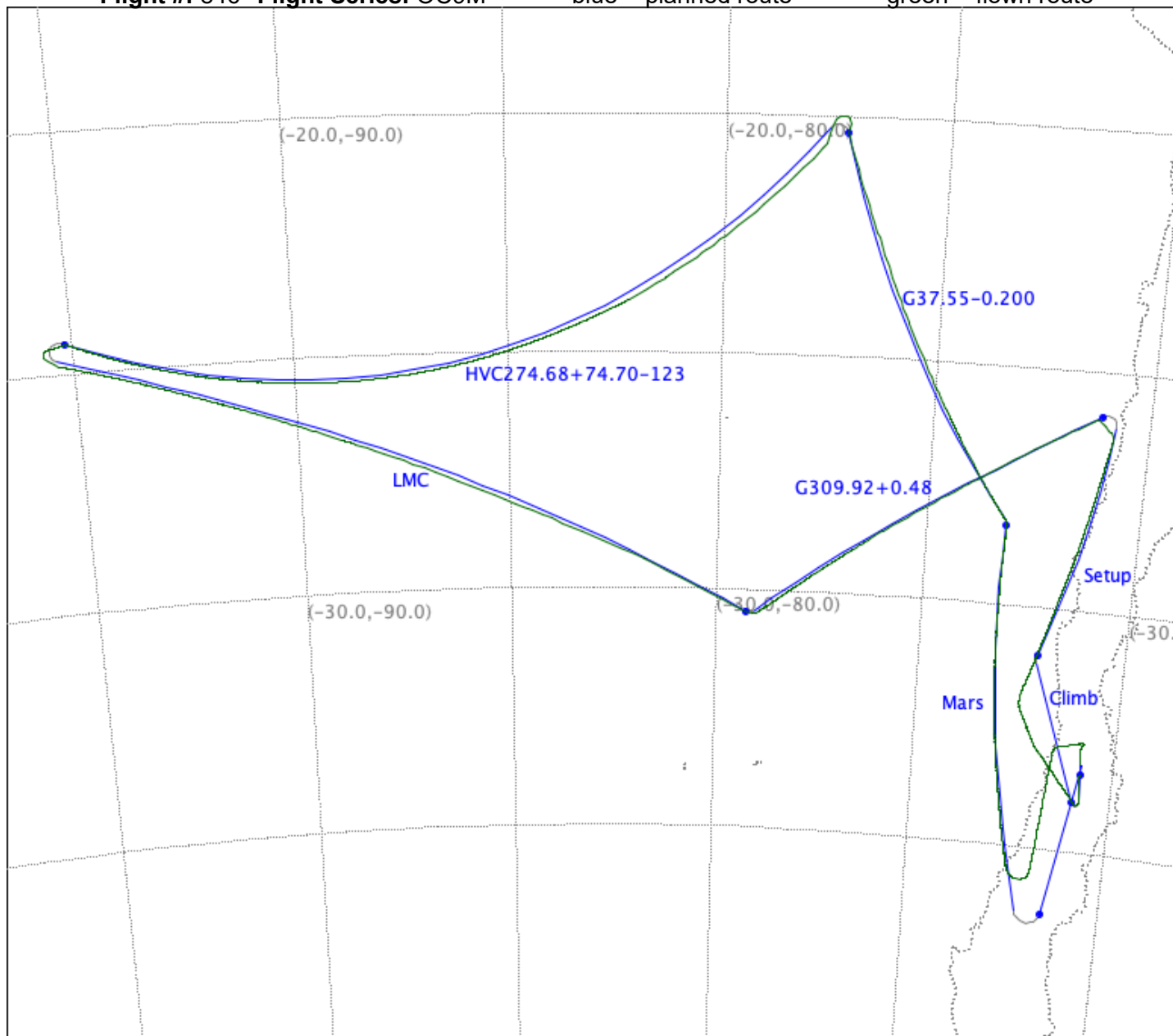
MISSION ID: 2022-03-28_FI_F846

Date: 2022-03-28UT Instrument: FIFI-LS

Flight #: 846 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes: No irregularities.

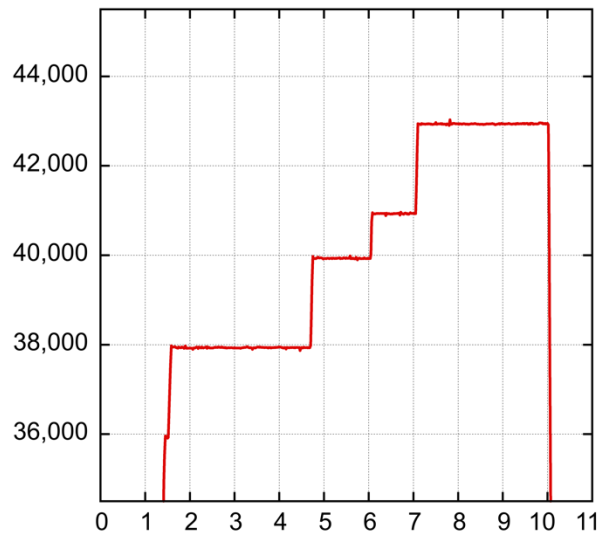
Flight 846
Santiago to
Santiago

Mission ID 2022-03-28_FI_F846
Take off date UTC:
28-MAR-2022

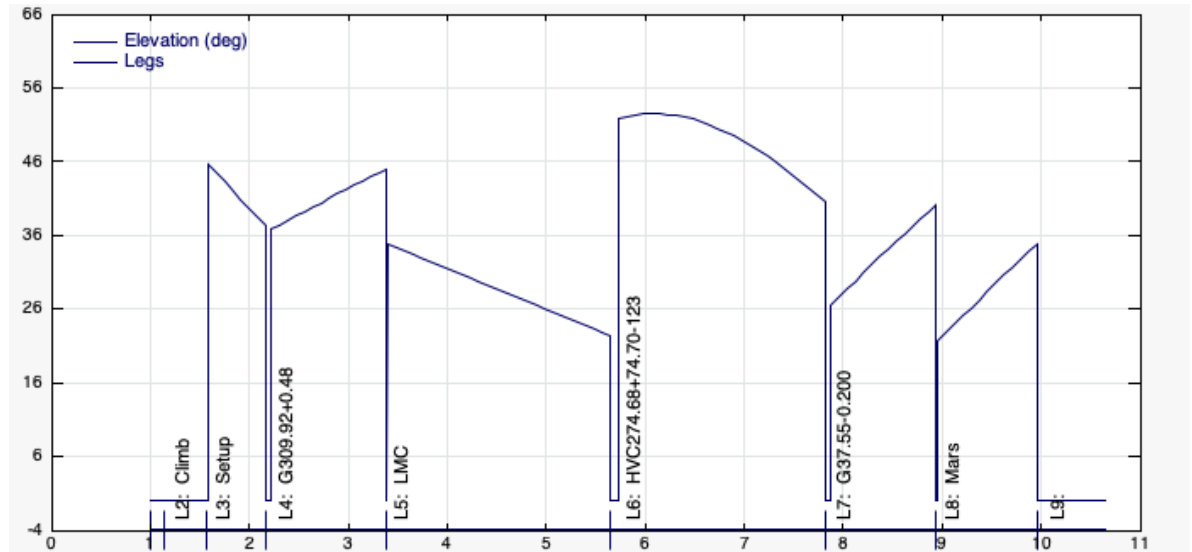
Departure UTC: 01:01
Arrival UTC: 10:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	06h06m09.32s	-14d56m06.9s	1:35	35	
4	09_0169	Yang	G309.92+0.48	13h50m42.00s	-61d35m08.9s	2:13	69	
5	09_0036	Madden	LMC	05h38m06.16s	-69d46m55.5s	3:24	135	
6	75_0089	Discretionary	HVC274.68+74.70-123	12h21m54.70s	13d21m25.9s	5:43	125	
7	09_0136	Eislöffel	G37.55-0.200	18h59m09.98s	04d12m15.6s	7:52	64	
8	90_0033	Calibration	Mars	21h16m26.31s	-17d04m11.0s	8:57	60	Leg shorter than planned because of high tailwinds and bright sky causing loss of guiding at end of leg.

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



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



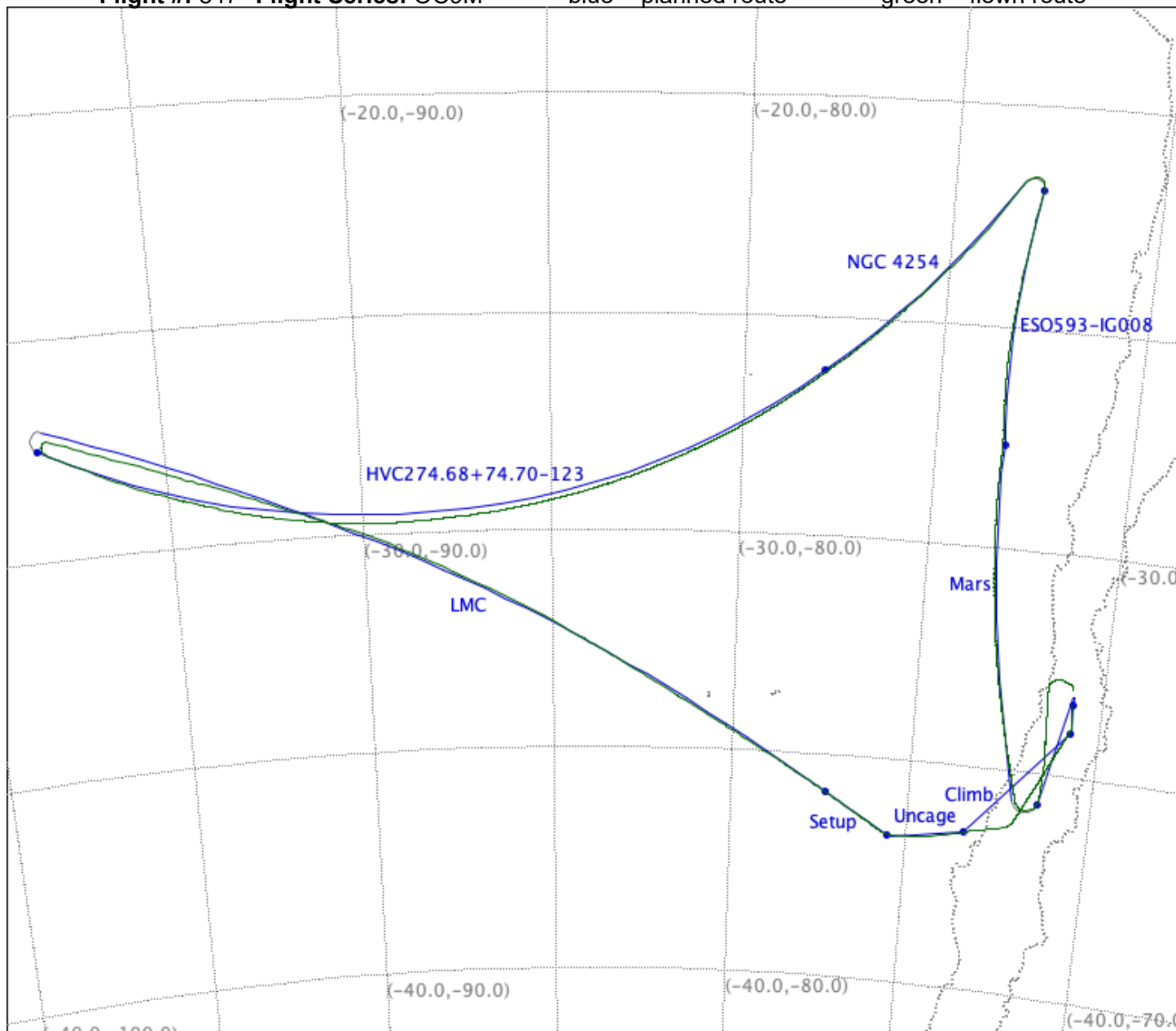
MISSION ID: 2022-03-29_FI_F847

Date: 2022-03-29UT Instrument: FIFI-LS

Flight #: 847 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes: No irregularities.

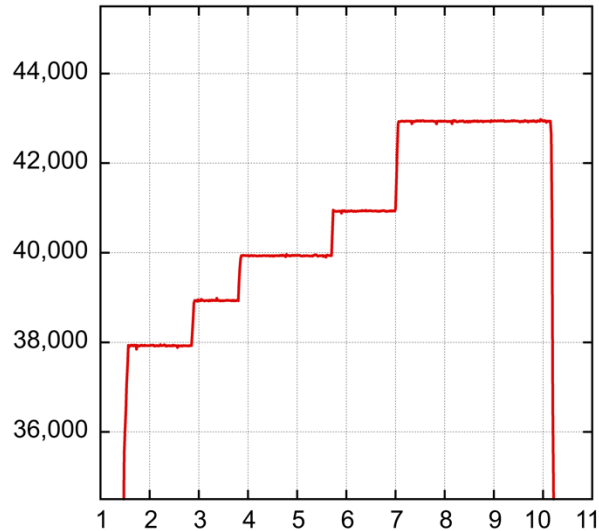
Flight 847
Santiago to
Santiago

Mission ID 2022-03-29_FI_F847
Take off date UTC:
29-MAR-2022

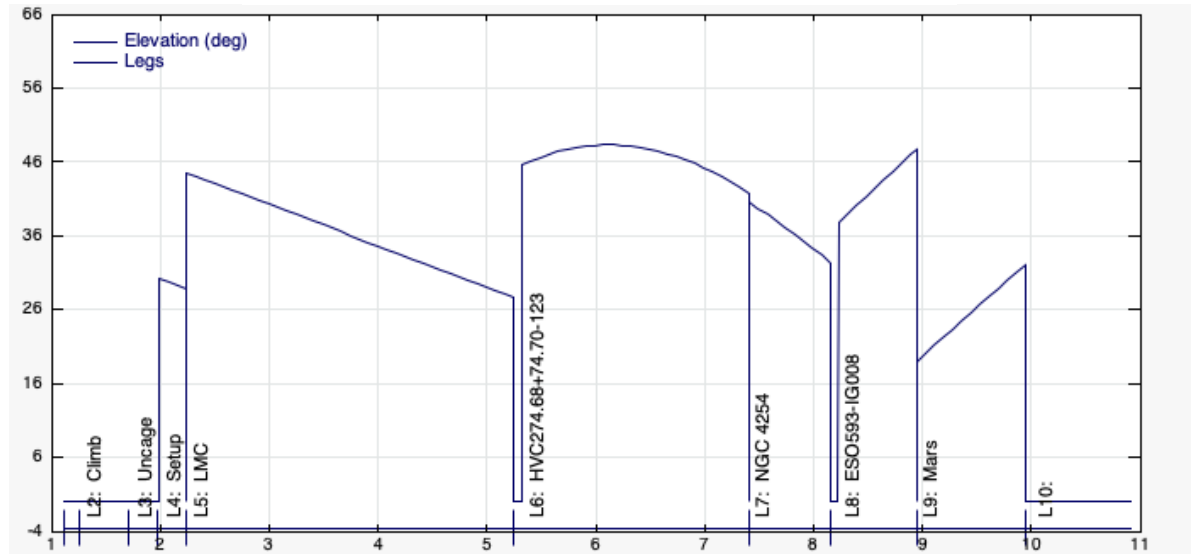
Departure UTC: 01:06
Arrival UTC: 10:37

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	02h39m35.36s	-68d16m01.0s	1:59	15	
5	09_0036	Madden	LMC	05h38m06.16s	-69d46m55.5s	2:14	180	
6	75_0089	Discretionary	HVC274.68+74.70-123	12h21m54.70s	13d21m25.9s	5:19	125	
7	75_0093	Discretionary	NGC 4254	12h18m49.62s	14d24m59.4s	7:24	45	
8	08_0069	Smith	ESO593-IG008	19h14m30.90s	-21d19m07.0s	8:13	43	
9	90_0033	Calibration	Mars	21h19m27.41s	-16d51m11.2s	8:56	60	

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



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



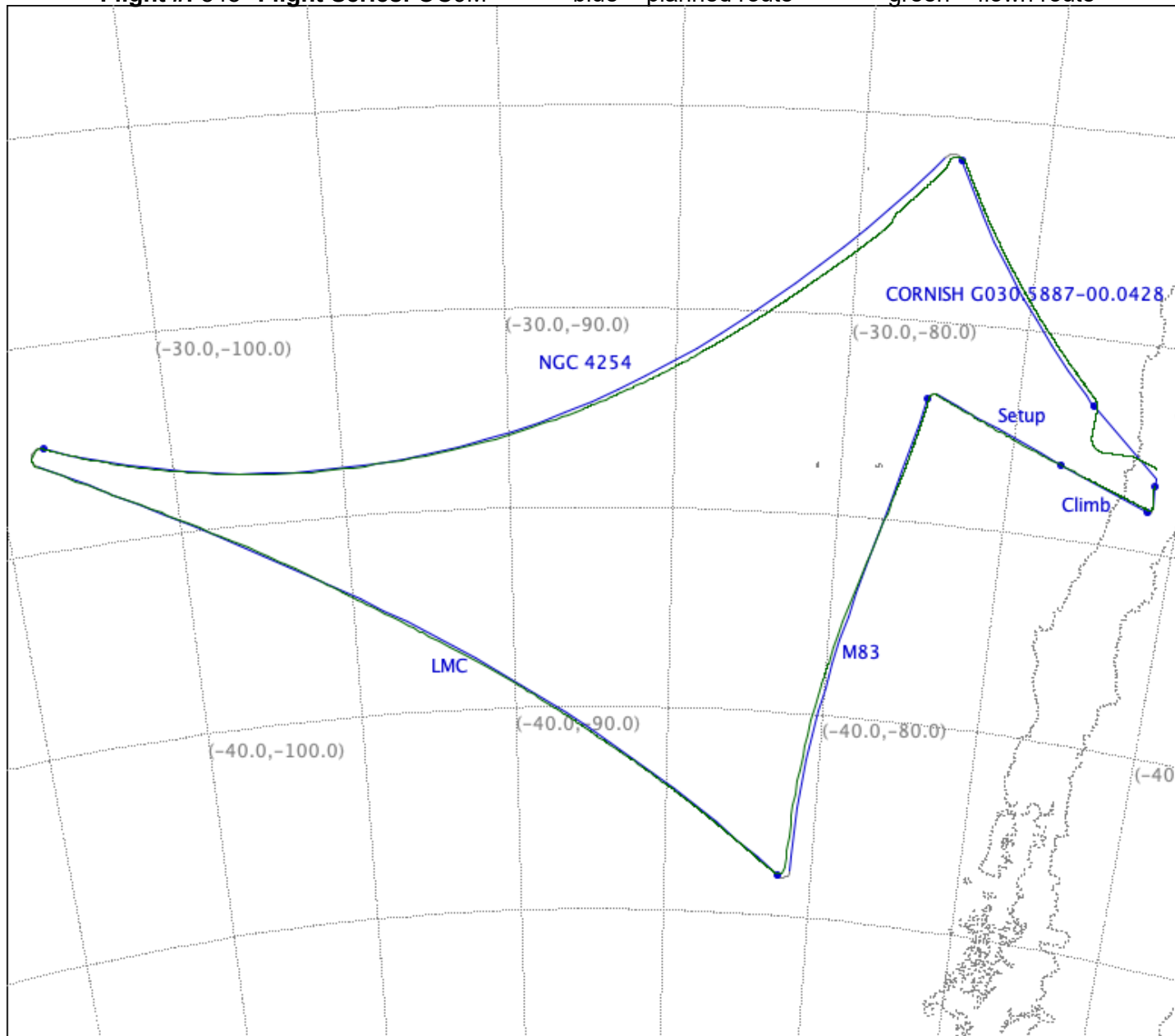
MISSION ID: 2022-03-30_FI_F848

Date: 2022-03-30UT Instrument: FIFI-LS

Flight #: 848 Flight Series: OC9M

blue = planned route

green = flown route



Flight notes: No irregularities.

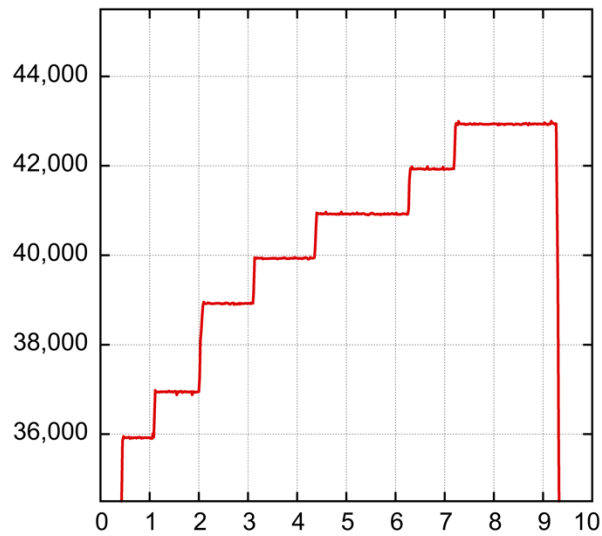
Flight 848
Santiago to
Santiago

Mission ID 2022-03-30_FI_F848
Take off date UTC:
30-MAR-2022

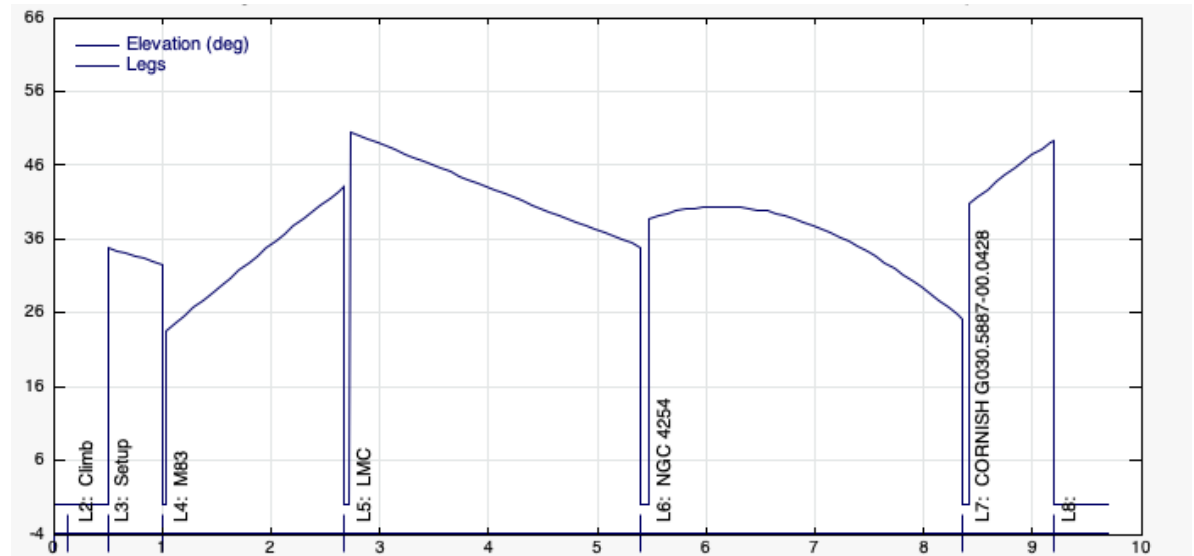
Departure UTC: 00:03
Arrival UTC: 09:40

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	02h50m28.46s	-75d04m01.0s	0:30	30	
4	70_0908	GTO	M83	13h37m00.92s	-29d51m56.7s	1:02	98	
5	09_0036	Madden	LMC	05h38m06.16s	-69d46m55.5s	2:43	160	
6	75_0093	Discretionary	NGC 4254	12h18m49.62s	14d24m59.4s	5:28	173	
7	09_0169	Yang	CORNISH G030.5887-00.0428	18h47m18.88s	-02d06m17.3s	8:25	47	

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



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

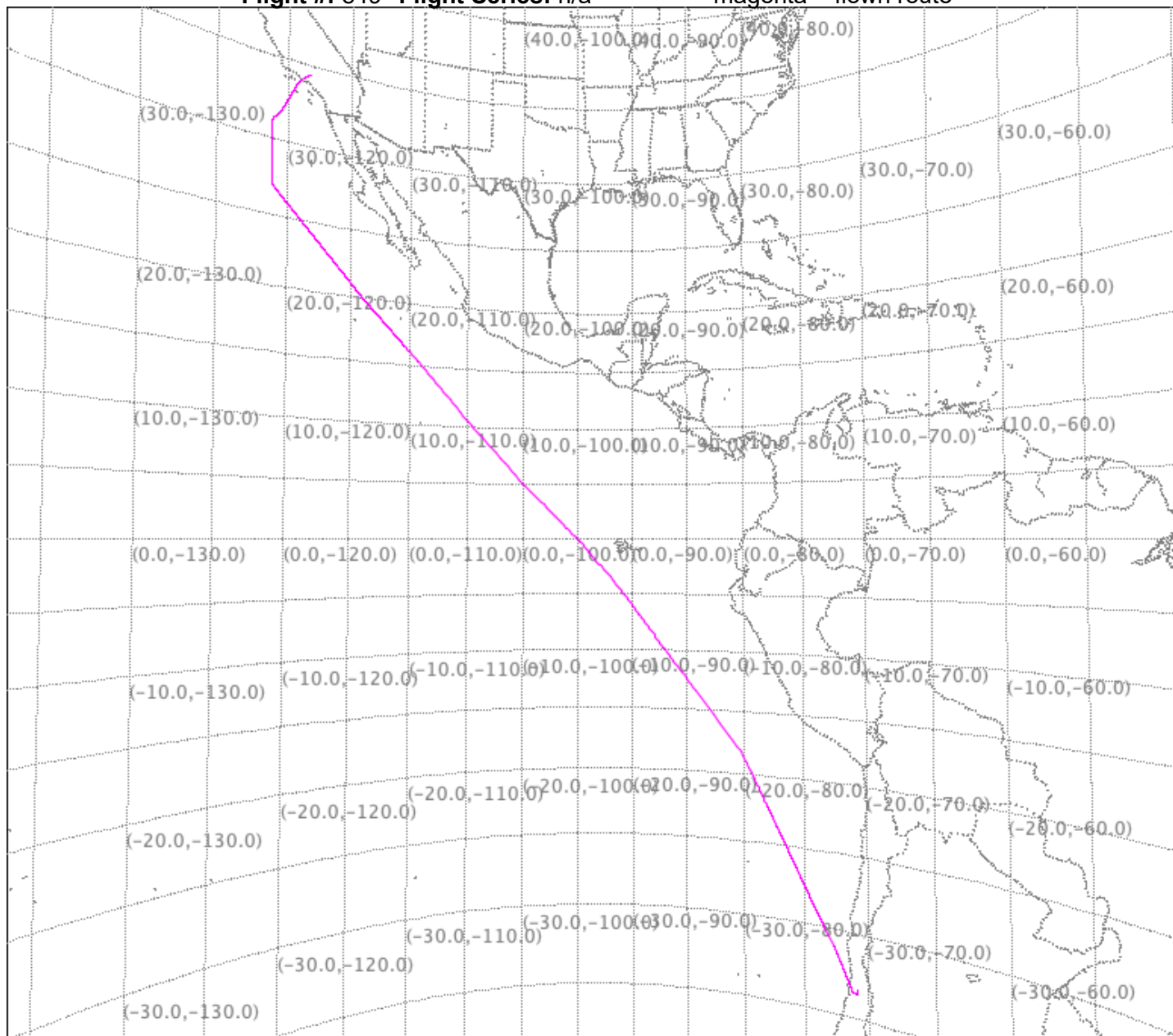


MISSION ID: 2022-04-01_NO_F849

Date: 2022-04-01UT Instrument: n/a

Flight #: 849 Flight Series: n/a

magenta = flown route



Flight notes:

Ferry Flight from Santiago, Chile to Palmdale, CA (no science planned)

Flight 849
Santiago to
Palmdale

Mission ID 2022-04-01_NO_F849
Take off date UTC:
01-APR-2022

Departure UTC: 03:48
Arrival UTC: 14:08

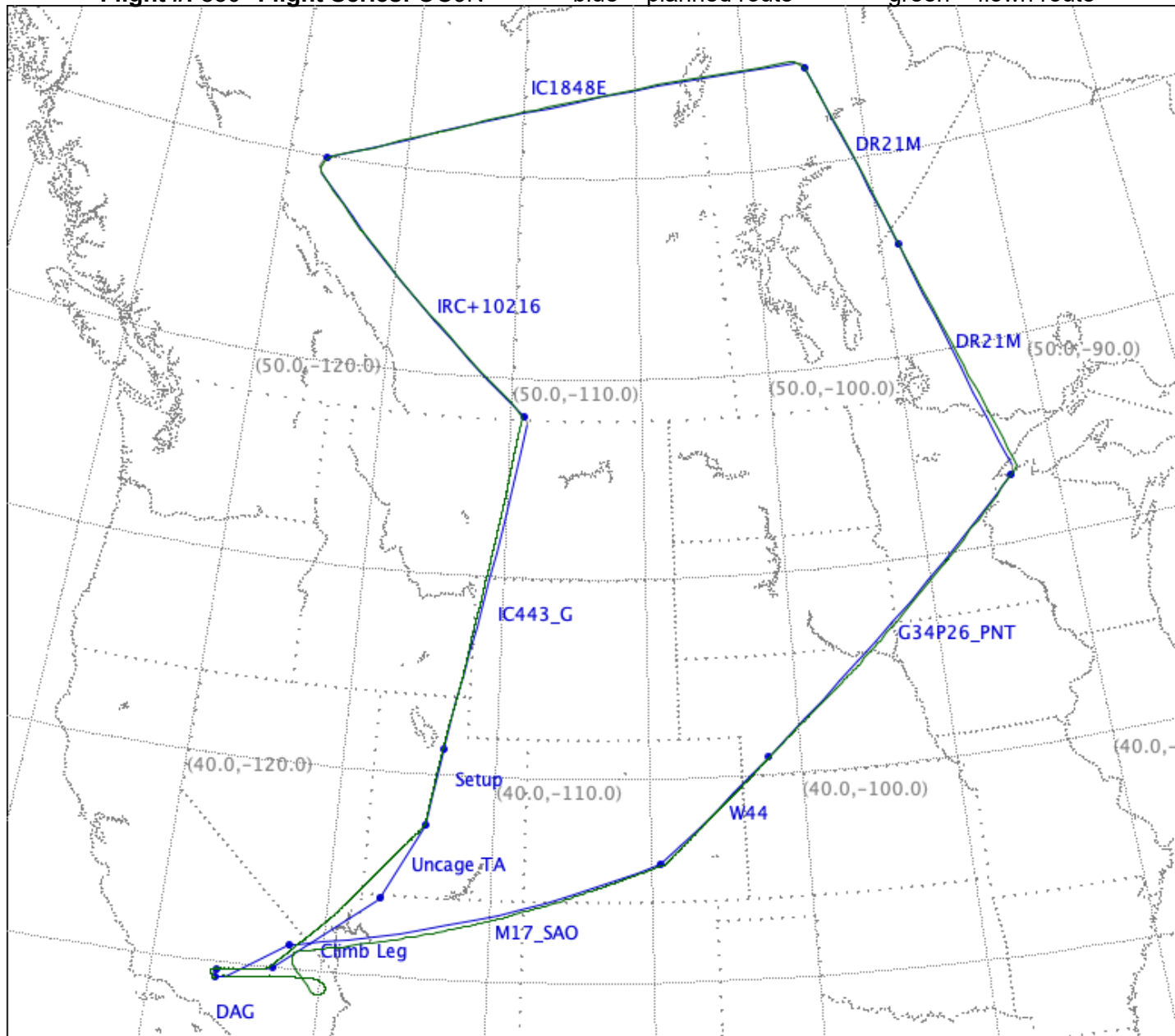
MISSION ID: 2022-04-06_GR_F850

Date: 2022-04-06UT Instrument: GREAT

Flight #: 850 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 850
Palmdale to
Palmdale

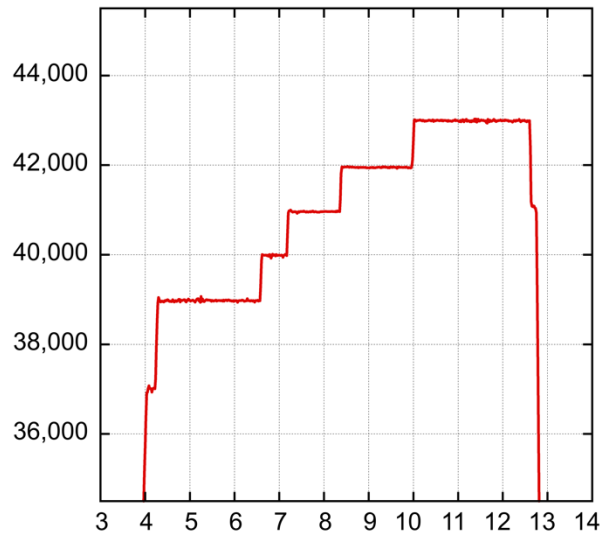
Mission ID 2022-04-06_GR_F850
Take off date UTC:
06-APR-2022

Departure UTC: 03:35
Arrival UTC: 13:17

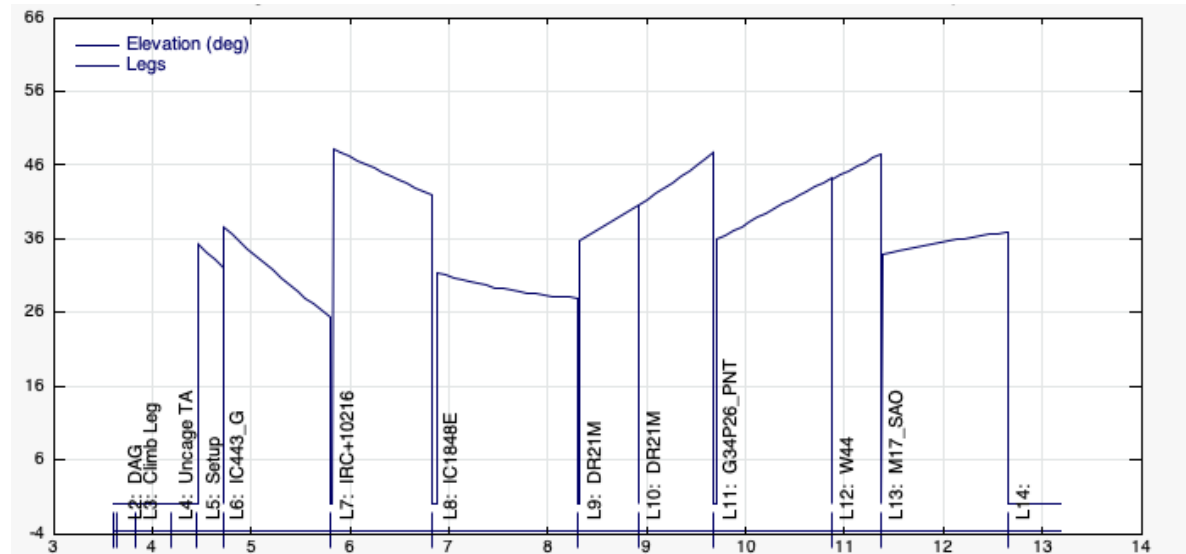
Consortium flight
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	05h54m22.98s	20d16m34.2s	4:28	15	
6	83_0917	GREAT Consortium	IC443_G	06h16m41.80s	22d31m41.0s	4:43	65	
7	83_0402	GREAT Consortium	IRC+10216	09h47m57.40s	13d16m43.5s	5:49	60	
8	83_0720	GREAT Consortium	IC1848E	02h55m00.96s	60d17m08.0s	6:53	85	
9	83_0920	GREAT Consortium	DR21M	20h39m01.61s	42d19m37.9s	8:19	36	
10	83_0802	GREAT Consortium	DR21M	20h39m01.60s	42d20m59.1s	8:55	45	
11	90_0011	Calibration	G34P26_PNT	18h53m18.70s	01d14m57.7s	9:42	70	
12	83_0918	GREAT Consortium	W44F1	18h56m32.67s	01d27m57.3s	10:52	30	
13	83_0919	GREAT Consortium	M17_SAO	18h20m27.60s	-16d12m00.9s	11:23	76	

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



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



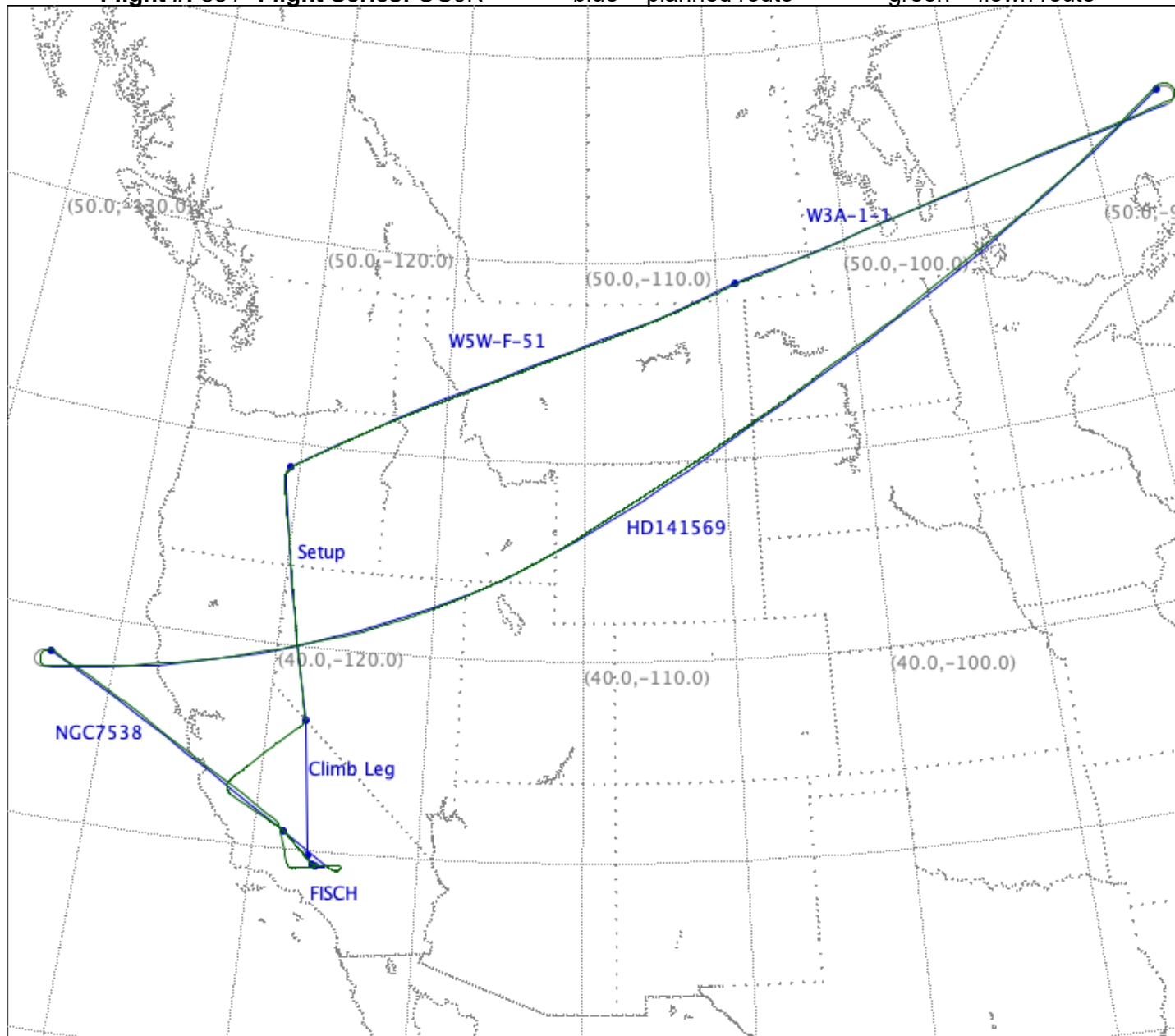
MISSION ID: 2022-04-07_GR_F851

Date: 2022-04-07UT Instrument: GREAT

Flight #: 851 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes:

Minor issue with the telescope position at the beginning of legs 7 and 8 (and possibly legs 5 and 6) where the position appeared to be ~3 arcsec off only at the very start of the leg, and then self-corrected.

Flight 851
Palmdale to
Palmdale

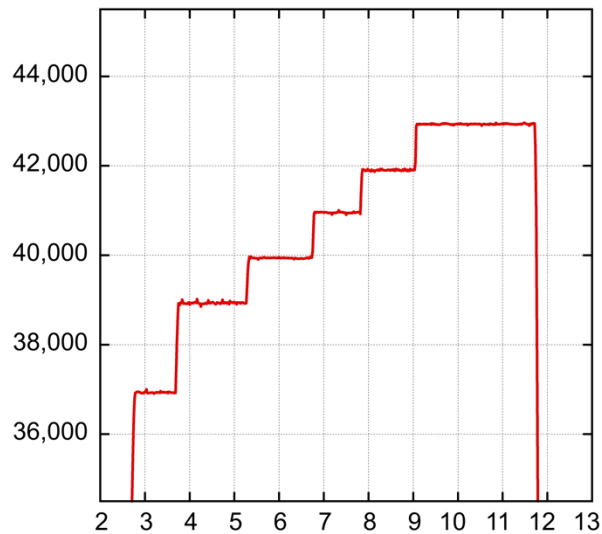
Mission ID 2022-04-07_GR_F851
Take off date UTC:
07-APR-2022

Departure UTC: 02:14
Arrival UTC: 12:07

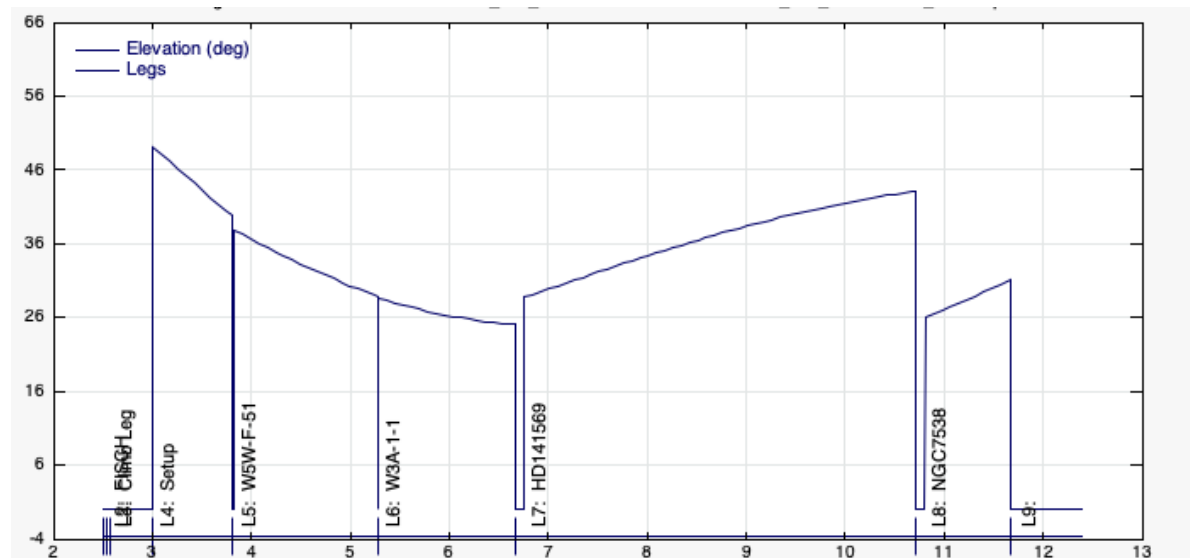
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h24m25.46s	17d23m00.7s	3:00	47.5	
5	09_0220	Sahai	W5W-F	02h52m00.90s	60d15m32.2s	3:49	87	
6	09_0191	Jacob	W3A	02h25m45.65s	62d05m52.0s	5:16	83	
7	09_0181	Ballering	HD141569	15h49m57.75s	-03d55m16.3s	6:45	237	Pointing off by ~3" at beginning of leg
8	07_0077	Tielens	NGC7538	23h13m08.68s	61d28m06.8s	10:48	52	Pointing off by ~3" at beginning of leg

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



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



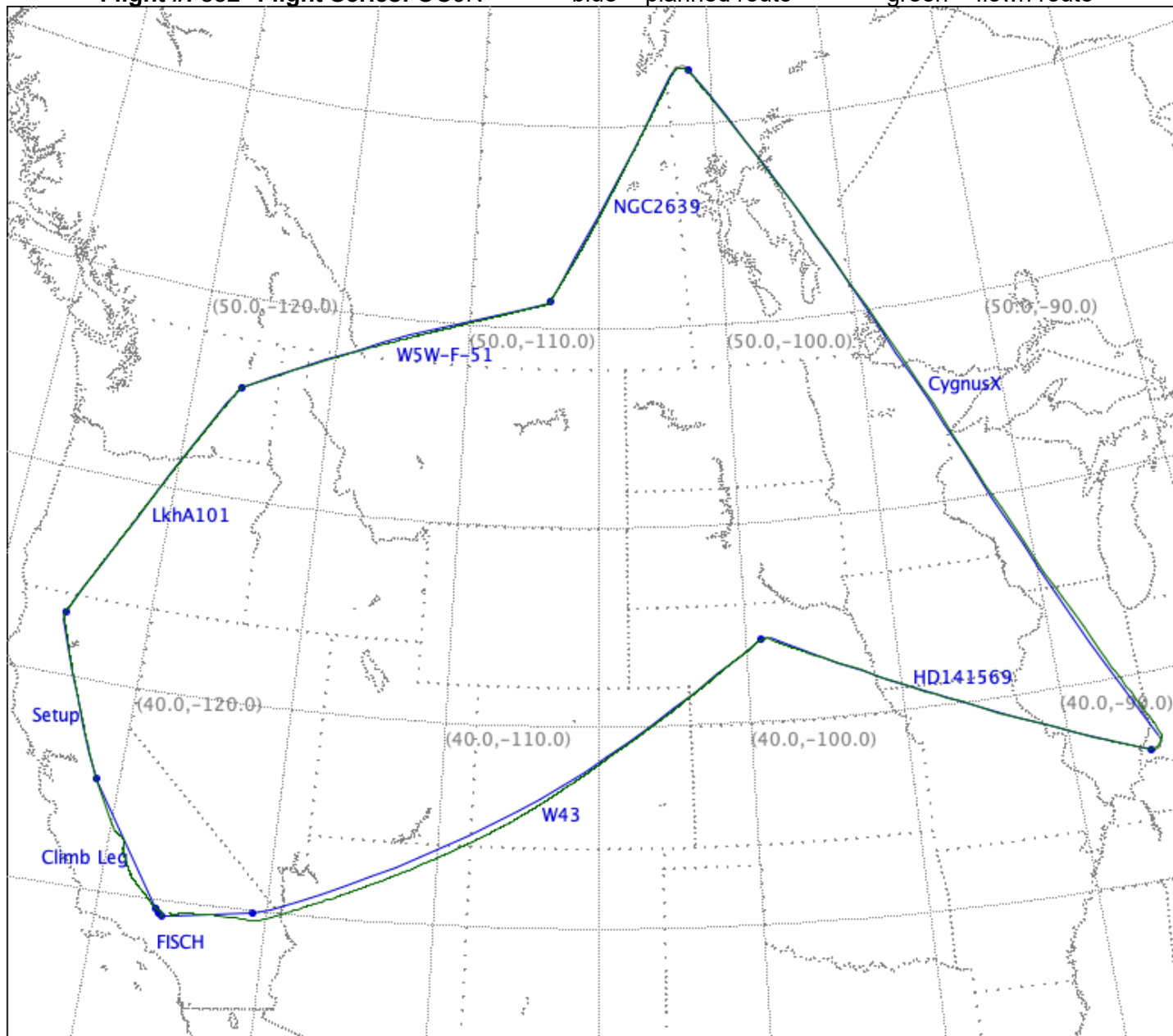
MISSION ID: 2022-04-08_GR_F852

Date: 2022-04-08UT Instrument: GREAT

Flight #: 852 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes:

Minor issue with the telescope position appearing to be ~3 arcsec off only at the very start of the each leg, and then self-corrected.

Flight 852
Palmdale to
Palmdale

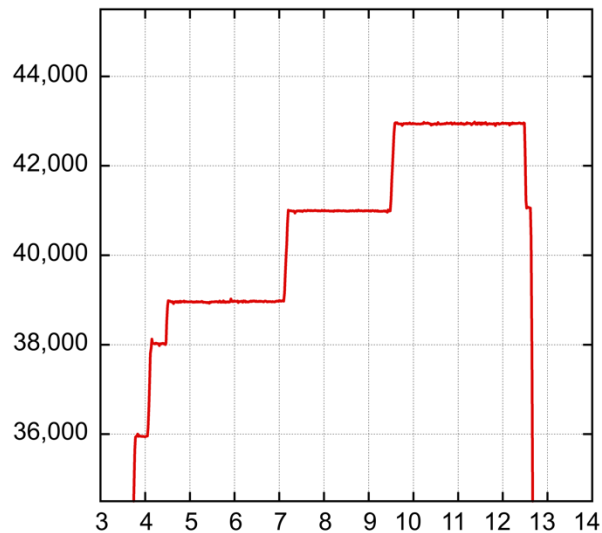
Mission ID 2022-04-08_GR_F852
Take off date UTC:
08-APR-2022

Departure UTC: 03:23
Arrival UTC: 12:55

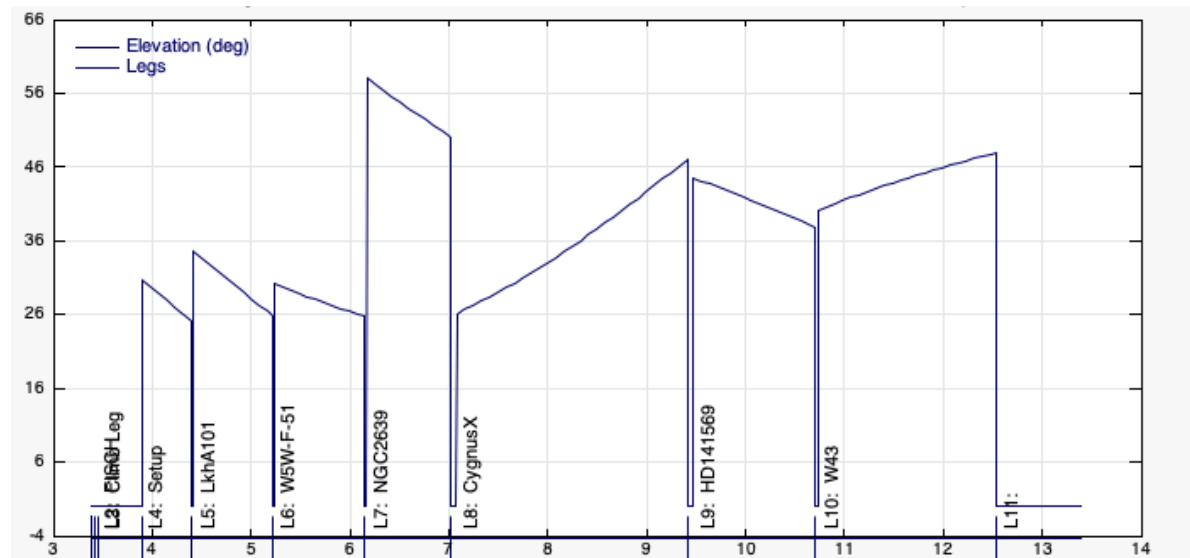
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h40m50.71s	-01d07m43.6s	3:53	30	
5	09_0035	Sandell	LkhA101	04h30m12.85s	35d16m07.9s	4:25	48	
6	09_0220	Sahai	W5W-F	02h52m00.90s	60d15m32.2s	5:13	55	
7	08_0066	Bolatto	NGC2639	08h43m37.92s	50d12m19.8s	6:10	51	
8	07_0077	Tielens	CygnusX	20h38m39.46s	42d20m44.5s	7:04	140	
9	09_0181	Ballering	HD141569	15h49m57.75s	-03d55m16.3s	9:28	74	
10	07_0077	Tielens	W43	18h47m29.75s	-01d59m17.2s	10:43	108	

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



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



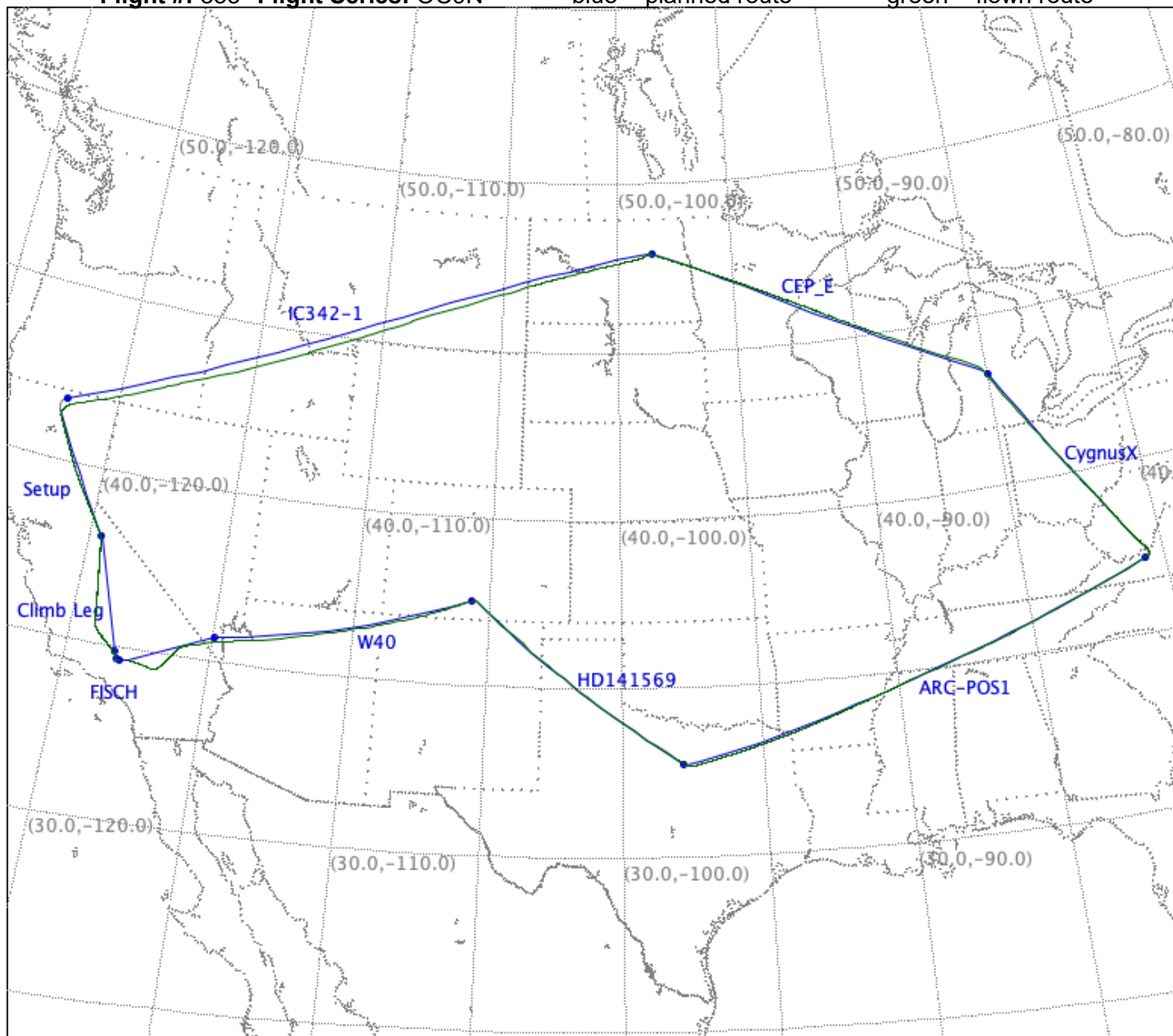
MISSION ID: 2022-04-09_GR_F853

Date: 2022-04-09UT Instrument: GREAT

Flight #: 853 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes:

Minor issue with the telescope position appearing to be ~3 arcsec off only at the very start of the each leg, and then self-corrected.

Flight 853
Palmdale to
Palmdale

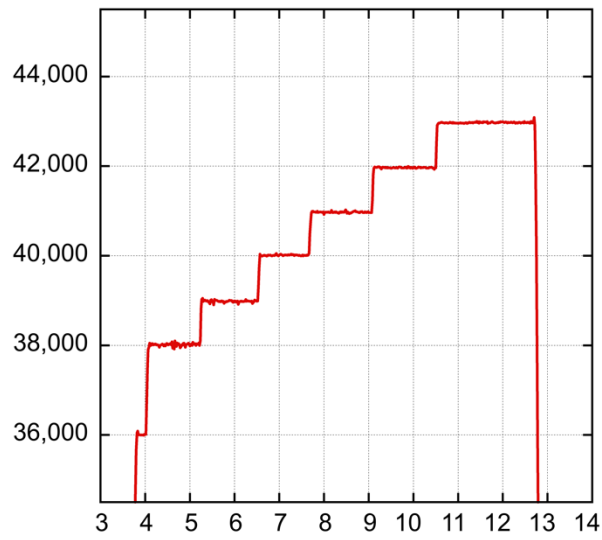
Mission ID 2022-04-09_GR_F853
Take off date UTC:
09-APR-2022

Departure UTC: 03:24
Arrival UTC: 13:15

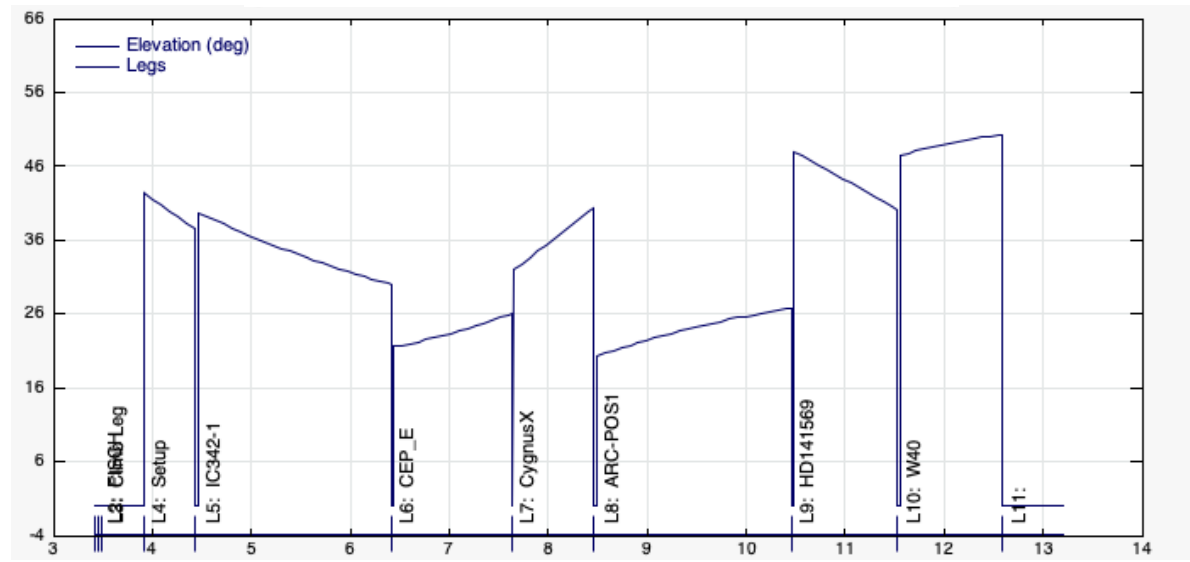
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h47m51.65s	02d24m43.8s	3:55	30	
5	09_0030	Clark	IC342	03h46m48.51s	68d05m46.0s	4:28	117	The LFAV data displayed significantly more noise (higher receiver temperature) and worse baselines relative to the LFAH data, at the beginning of the leg
6	09_0135	Gusdorf	CEP_E	23h03m12.78s	61d42m25.8s	6:26	72	
7	07_0077	Tielens	CygnusX	20h38m39.46s	42d20m44.5s	7:38	48	
8	09_0103	Simon	ARC	17h46m04.65s	-28d50m43.4s	8:29	118	
9	09_0181	Ballering	HD141569	15h49m57.75s	-03d55m16.3s	10:28	63	Network failure; 18min lost
10	07_0077	Tielens	W40	18h31m24.45s	-02d04m13.8s	11:33	62	

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



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



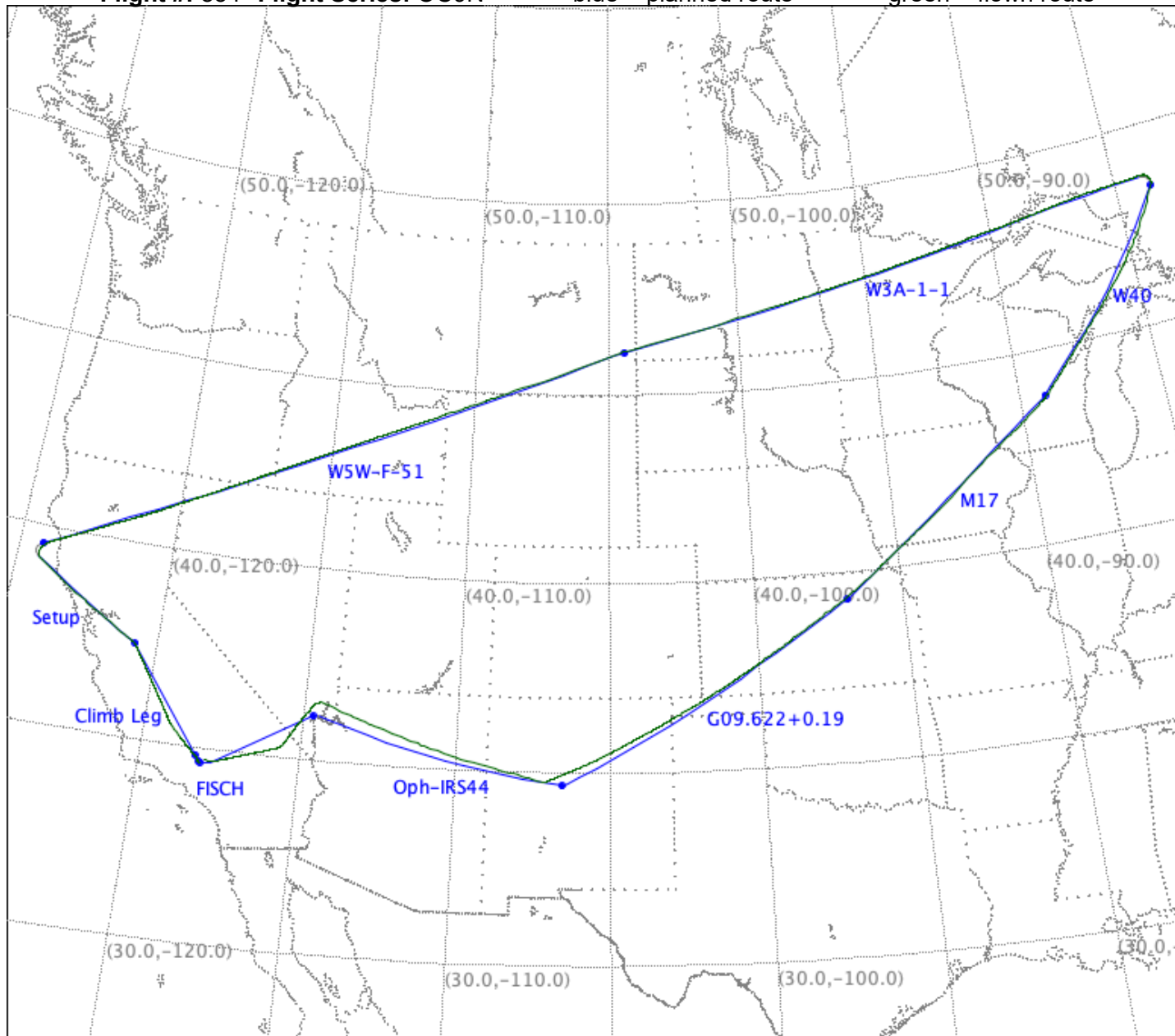
MISSION ID: 2022-04-14_GR_F854

Date: 2022-04-14UT Instrument: GREAT

Flight #: 854 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 854
Palmdale to
Palmdale

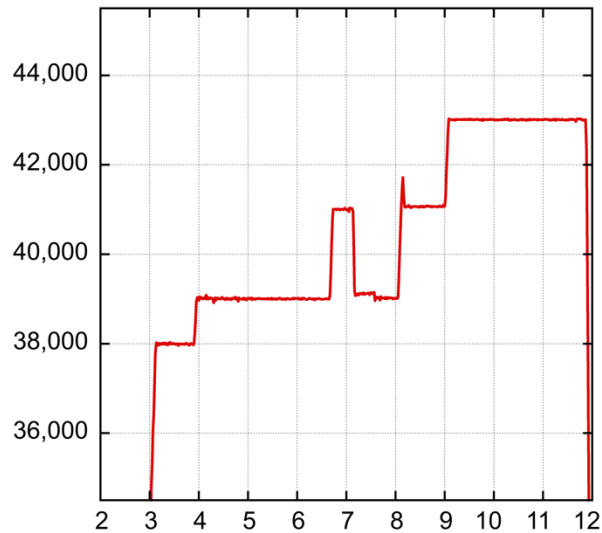
Mission ID 2022-04-14_GR_F854
Take off date UTC:
14-APR-2022

Departure UTC: 02:39
Arrival UTC: 12:21

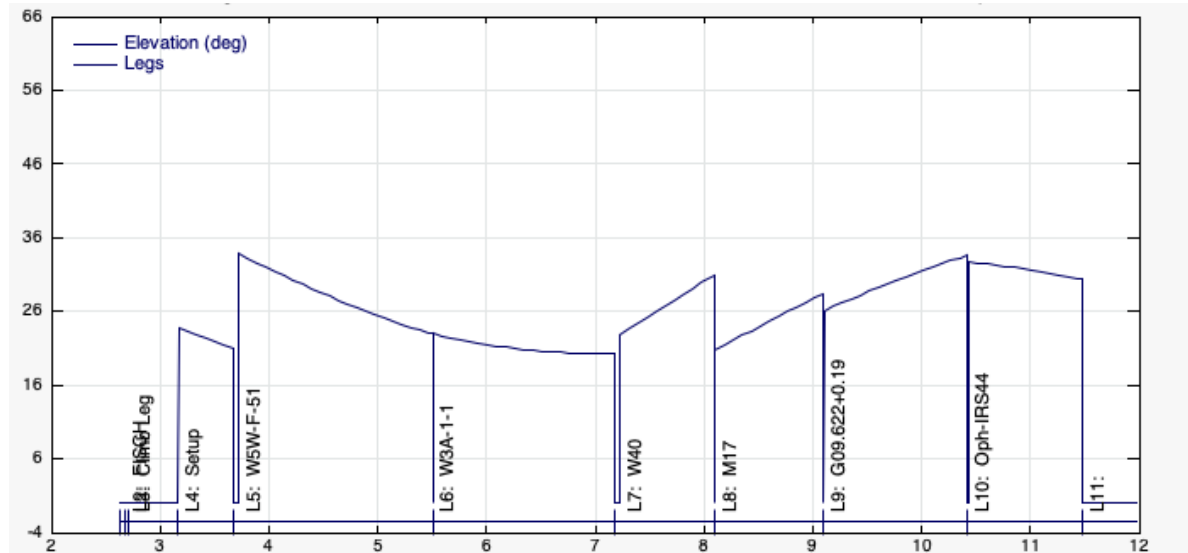
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h54m07.95s	-24d11m03.2s	3:10	30	
5	09_0220	Sahai	W5W-F	02h52m00.90s	60d15m32.2s	3:43	107	
6	09_0191	Jacob	W3A	02h25m45.65s	62d05m52.0s	5:30	100	Turbulence 12min before end of leg caused telescope to go into standby. HFA possibly not tuned well.
7	07_0077	Tielens	W40	18h31m24.45s	-02d04m13.8s	7:13	52	
8	07_0077	Tielens	M17	18h20m28.32s	-16d09m56.0s	8:06	60	
9	08_0038	Neufeld	G09.622+0.19	18h06m14.90s	-20d31m37.0s	9:06	79	
10	06_0109	Yildiz	Oph-IRS44	16h27m28.10s	-24d39m33.4s	10:25	63	

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



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



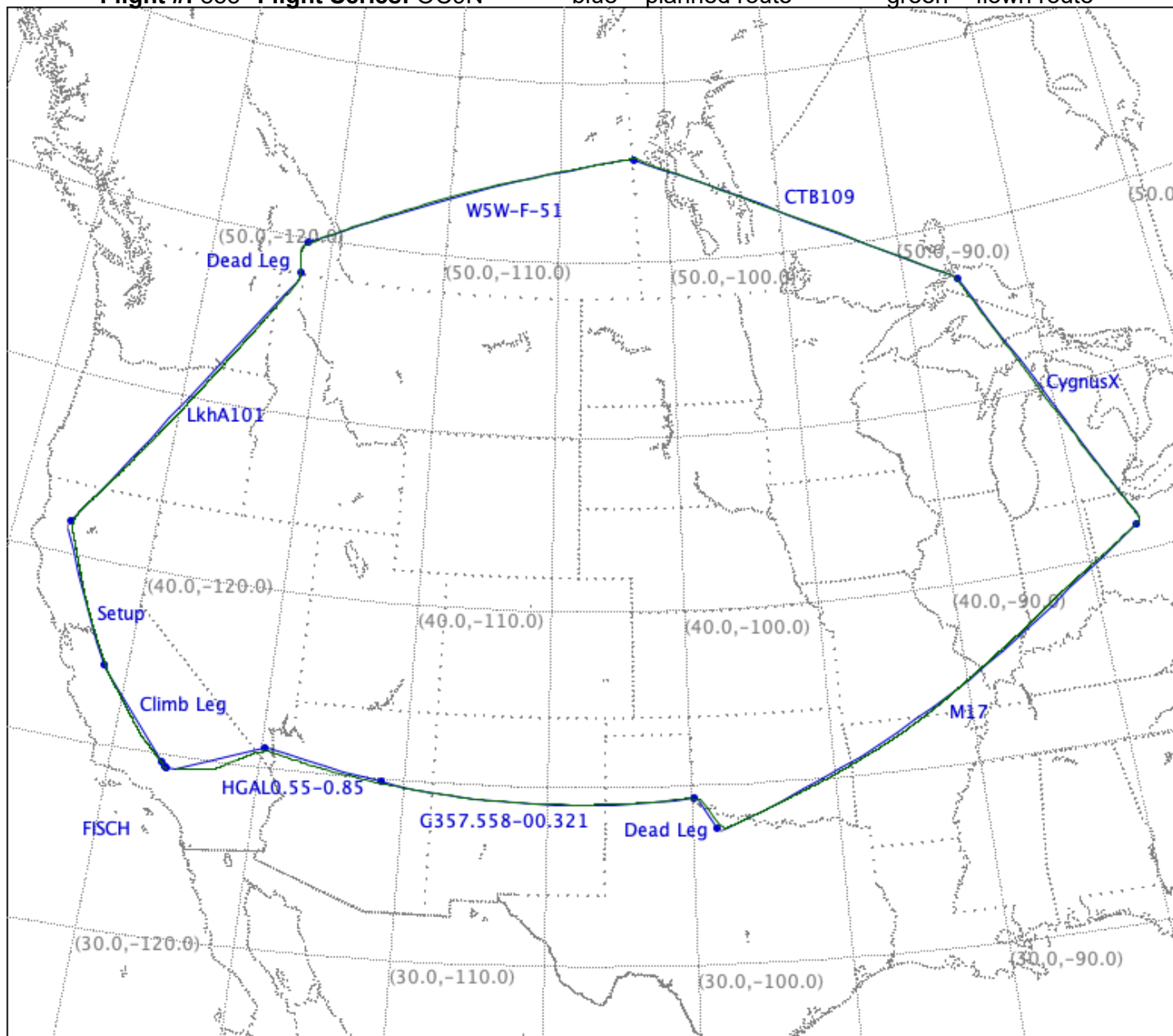
MISSION ID: 2022-04-19_GR_F855

Date: 2022-04-19UT Instrument: GREAT

Flight #: 855 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 855
Palmdale to
Palmdale

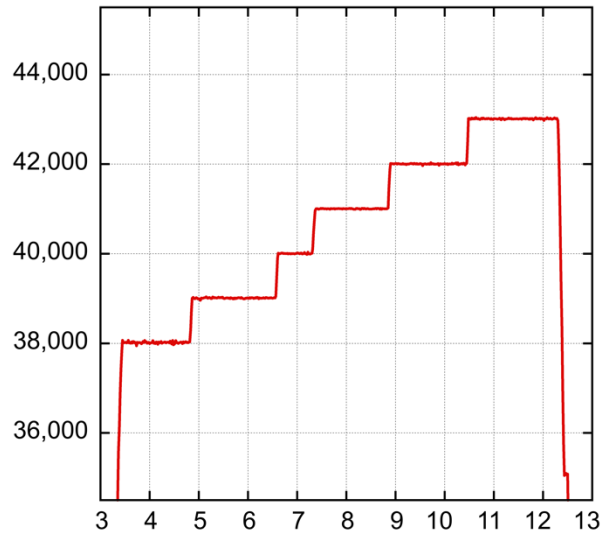
Mission ID 2022-04-19_GR_F855
Take off date UTC:
19-APR-2022

Departure UTC: 02:59
Arrival UTC: 12:54

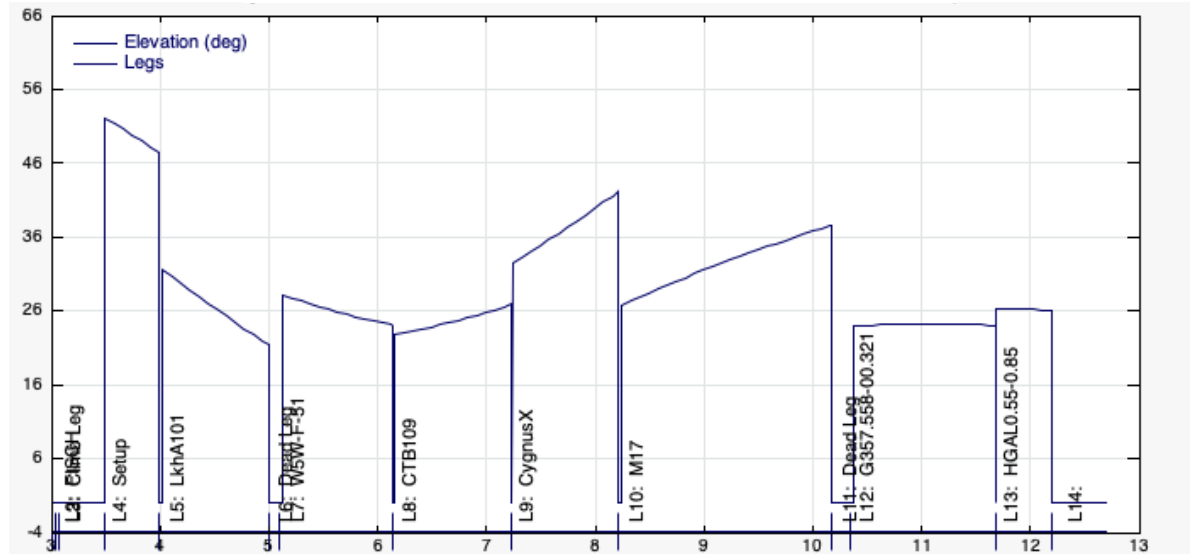
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h27m09.04s	08d17m21.5s	3:29	30	
5	09_0035	Sandell	LkhA101	04h30m12.85s	35d16m07.9s	4:01	59	
7	09_0220	Sahai	W5W-F	02h52m00.90s	60d15m32.2s	5:08	61	Telescope may have been pointed incorrectly during first ten minutes.
8	09_0097	Clarke	CTB109	23h02m18.31s	58d56m46.8s	6:10	64	
9	07_0077	Tielens	CygnusX	20h38m39.46s	42d20m44.5s	7:14	58	
10	07_0077	Tielens	M17	18h20m28.32s	-16d09m56.0s	8:15	116	
12	08_0038	Neufeld	G357.558-00.321	17h40m57.19s	-31d10m59.3s	10:22	79	
13	08_0038	Neufeld	HGAL0.55-0.85	17h50m14.52s	-28d54m30.7s	11:41	30	

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



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



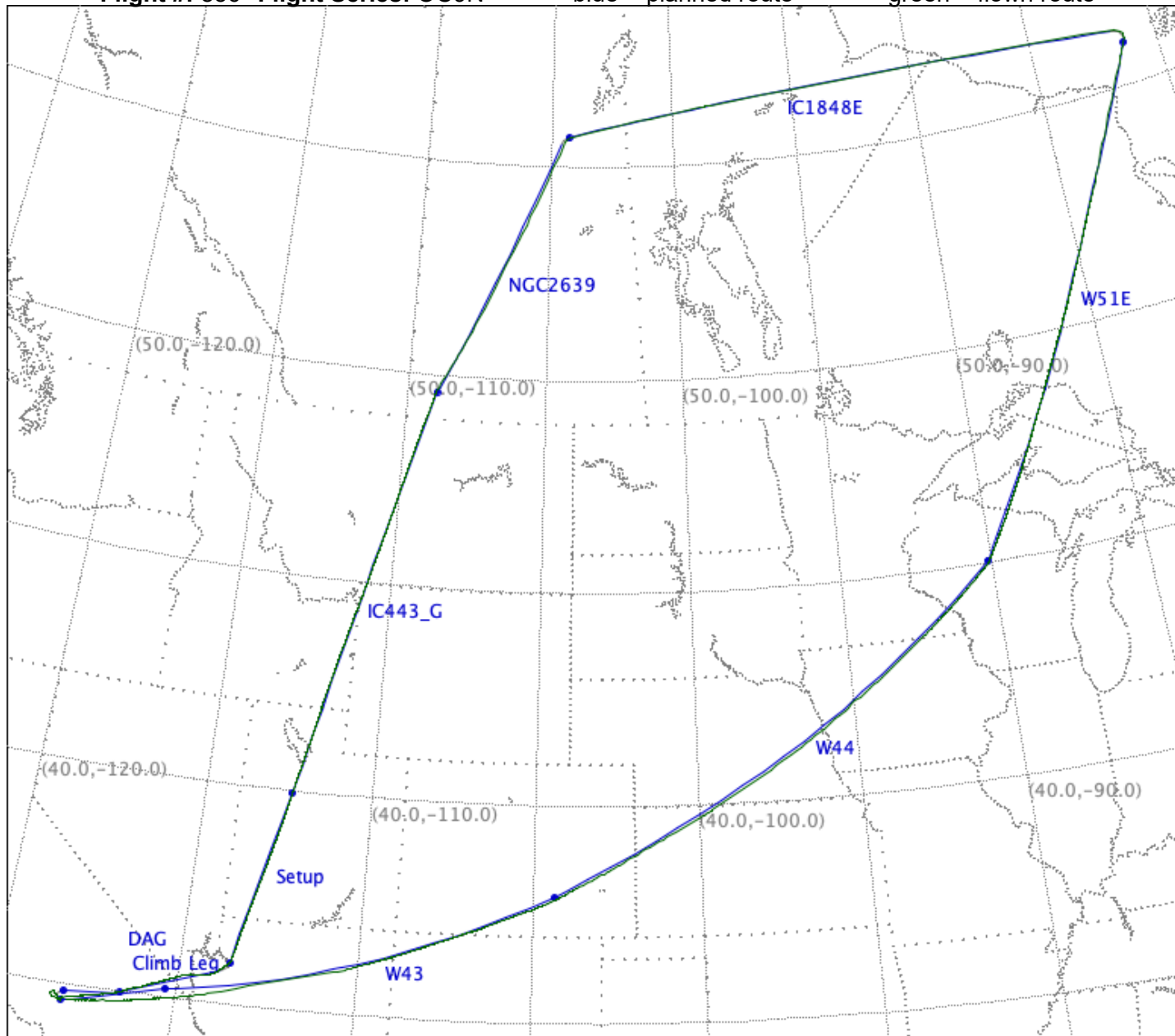
MISSION ID: 2022-04-20_GR_F856

Date: 2022-04-20UT Instrument: GREAT

Flight #: 856 Flight Series: OC9N

blue = planned route

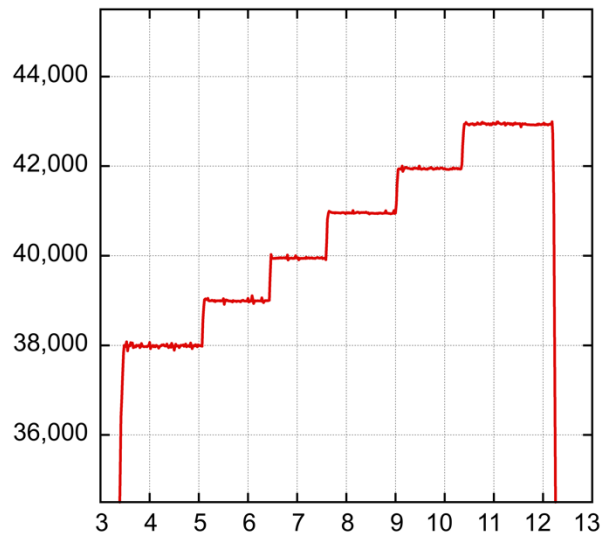
green = flown route



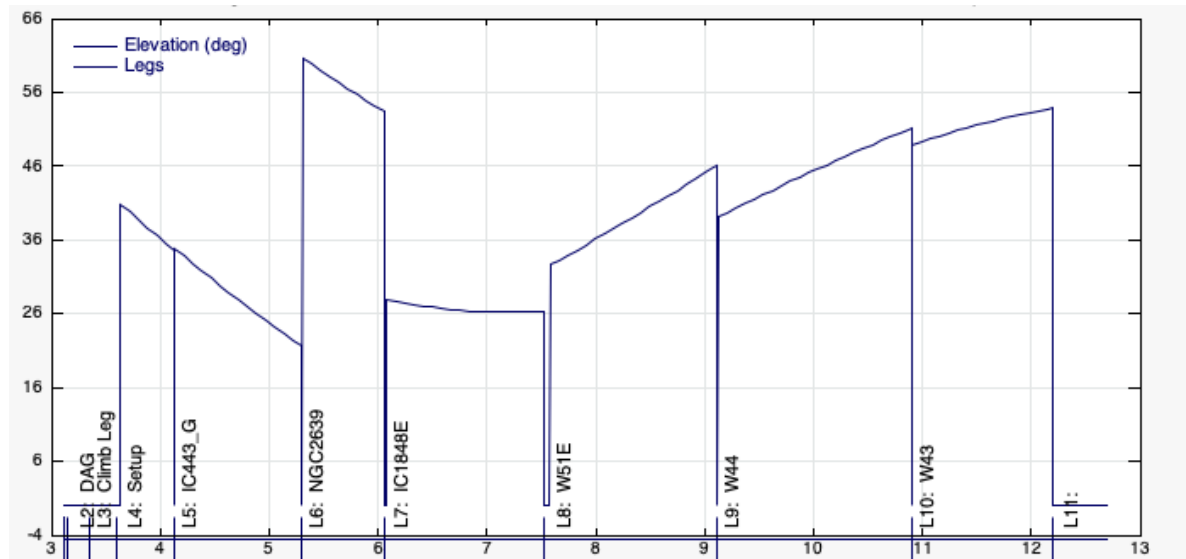
Flight notes: No irregularities.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 29655	06h14m52.65s	22d30m24.4s	3:37	30	
5	83_0917	GREAT Consortium	IC443_G	06h16m41.80s	22d31m41.0s	4:07	70	
6	08_0066	Bolatto	NGC2639	08h43m37.92s	50d12m19.8s	5:18	45	
7	83_0720	GREAT Consortium	IC1848E	02h55m00.96s	60d17m08.0s	6:04	87	
8	83_0901	GREAT Consortium	W51E	19h23m43.90s	14d30m30.5s	7:34	92	
9	83_0918	GREAT Consortium	W44F1	18h56m34.36s	01d27m18.3s	9:07	107	
10	83_0921	GREAT Consortium	W43	18h47m28.93s	-01d59m15.6s	10:54	77	Turbulence threw telescope into standby; could not reacquire target after this and no data were collected on leg.

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



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



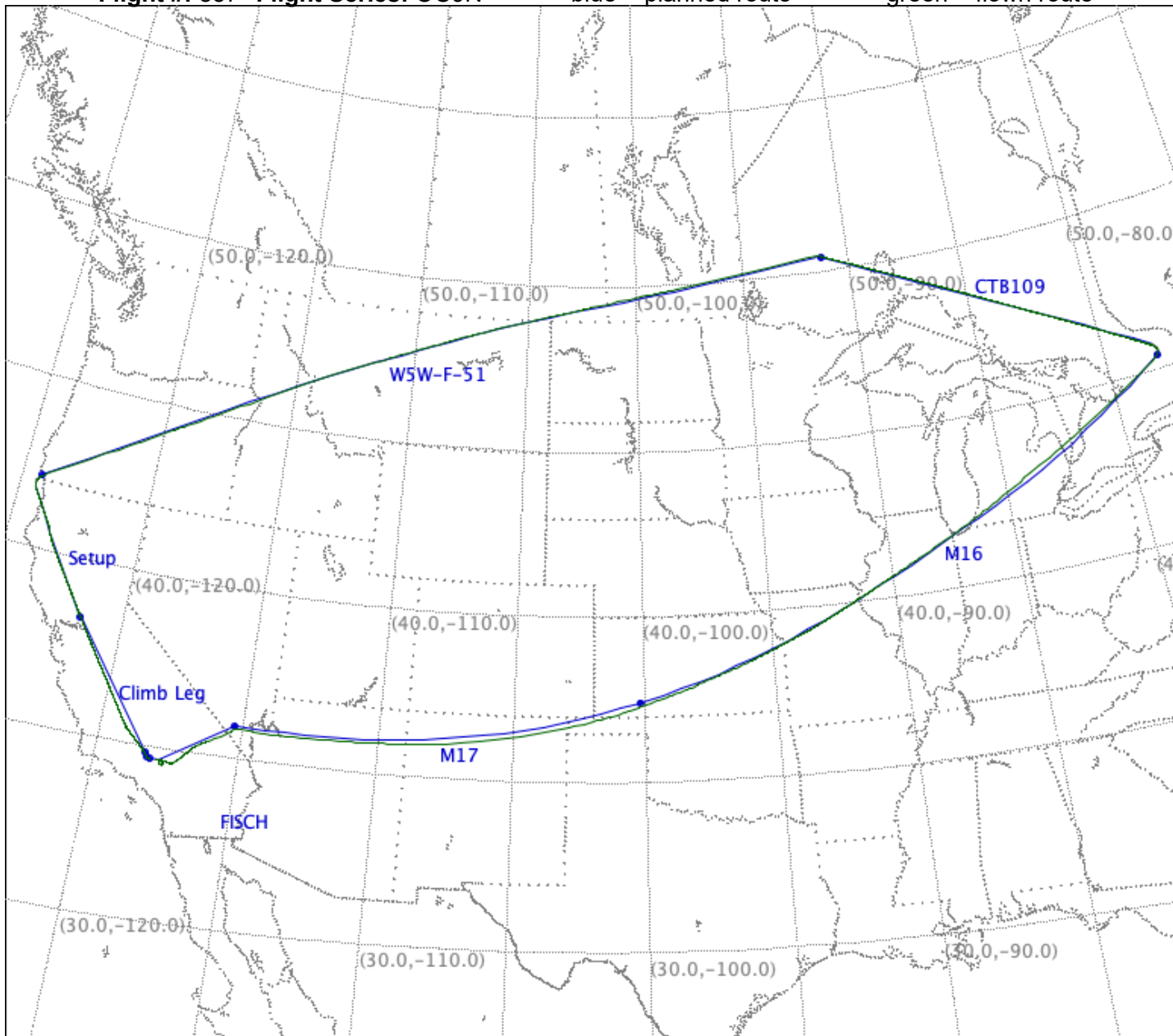
MISSION ID: 2022-04-21_GR_F857

Date: 2022-04-21UT Instrument: GREAT

Flight #: 857 Flight Series: OC9N

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

Flight 857
Palmdale to
Palmdale

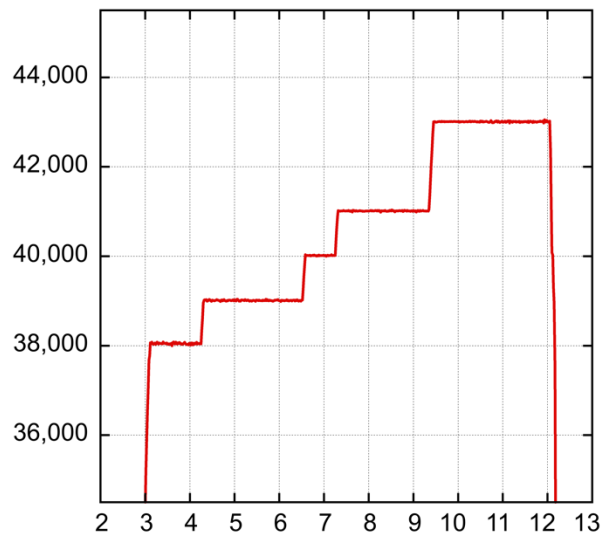
Mission ID 2022-04-21_GR_F857
Take off date UTC:
21-APR-2022

Departure UTC: 02:27
Arrival UTC: 12:40

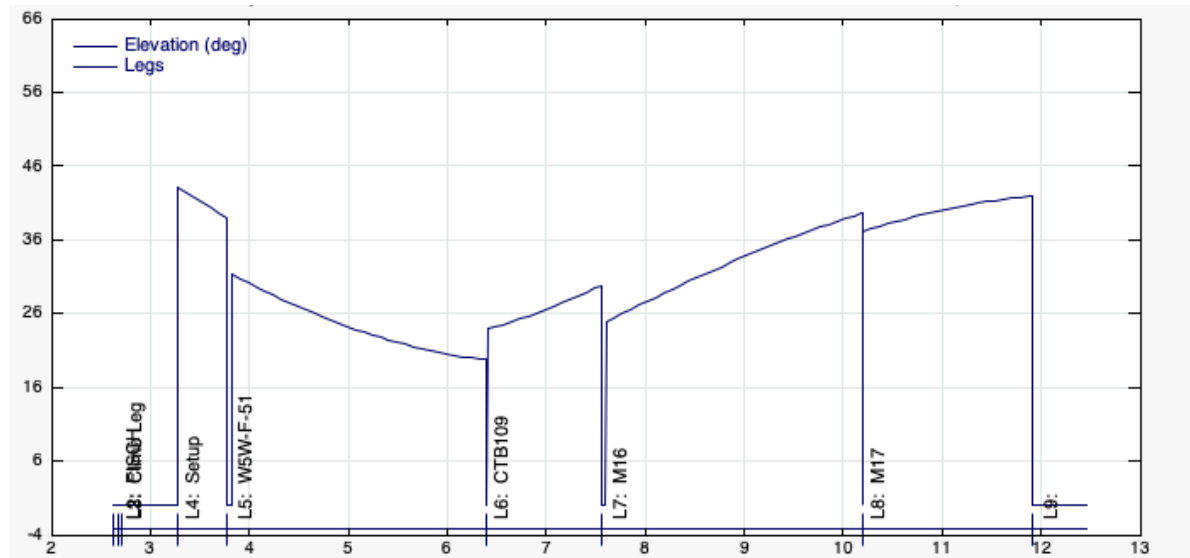
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h11m51.86s	-00d29m34.0s	3:16	30	
5	09_0220	Sahai	W5W-F	02h52m00.90s	60d15m32.2s	3:49	154	
6	09_0097	Clarke	CTB109	23h02m18.31s	58d56m46.8s	6:24	69	Cooling failed from 6:58-07:05, some observing time lost.
7	07_0077	Tielens	M16	18h18m23.99s	-13d41m26.4s	7:36	156	
8	07_0077	Tielens	M17	18h20m28.32s	-16d09m56.0s	10:12	102	Cooling failed for about 10 minutes of this leg leading to some loss of observing time

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



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



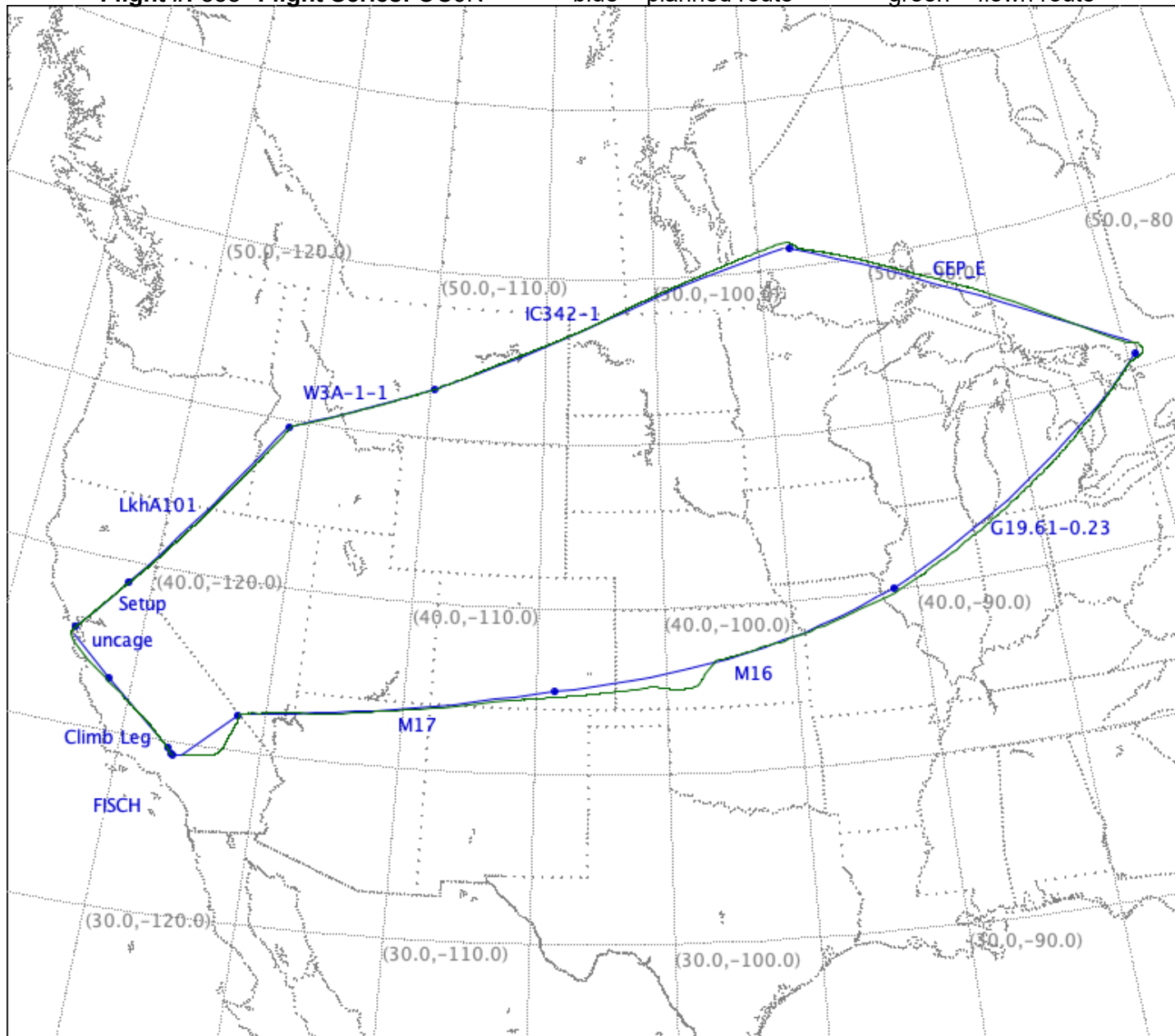
MISSION ID: 2022-04-23_GR_F858

Date: 2022-04-23UT Instrument: GREAT

Flight #: 858 Flight Series: OC9N

blue = planned route

green = flown route



Flight notes:

Significant interruptions in data collection throughout flight due to turbulence.

Flight 858
Palmdale to
Palmdale

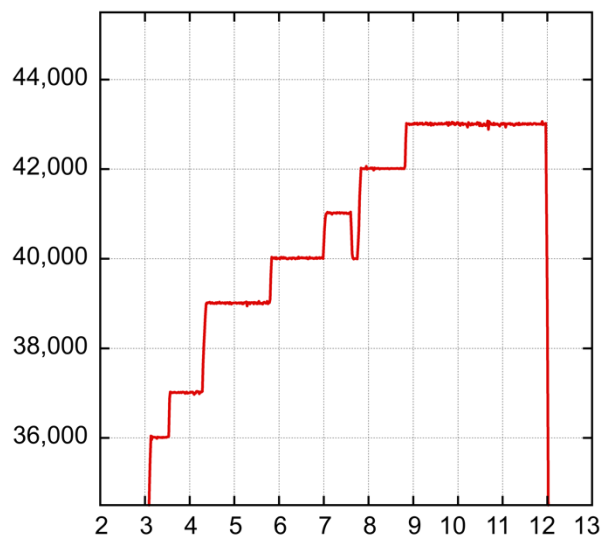
Mission ID 2022-04-23_GR_F858
Take off date UTC:
23-APR-2022

Departure UTC: 02:44
Arrival UTC: 12:19

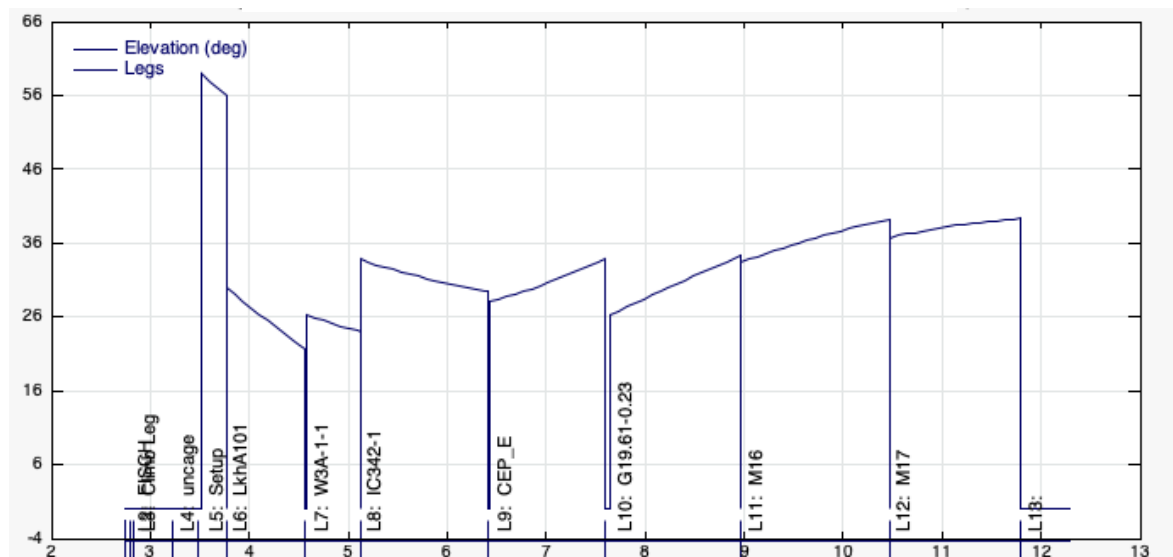
LFA-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	06h39m19.83s	42d29m20.0s	3:31	15	
6	09_0035	Sandell	LkhA101	04h30m12.85s	35d16m07.9s	3:46	48	Acquisition/guiding issues due to bright skies at beginning of leg; data collect on 50% of leg
7	09_0191	Jacob	W3A	02h25m45.65s	62d05m52.0s	4:35	32	
8	09_0030	Clark	IC342	03h46m48.51s	68d05m46.0s	5:07	78	Turbulence threw telescope into standby twice; 20min of leg lost.
9	09_0135	Gusdorf	CEP_E	23h03m12.78s	61d42m25.8s	6:26	70	
10	08_0038	Neufeld	G19.61-0.23	18h27m38.00s	-11d56m39.5s	7:39	79	
11	07_0077	Tielens	M16	18h18m23.99s	-13d41m26.4s	8:58	90	20min lost due to turbulence and storm deviation.
12	07_0077	Tielens	M17	18h20m28.32s	-16d09m56.0s	10:28	79	Strong turbulence

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



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



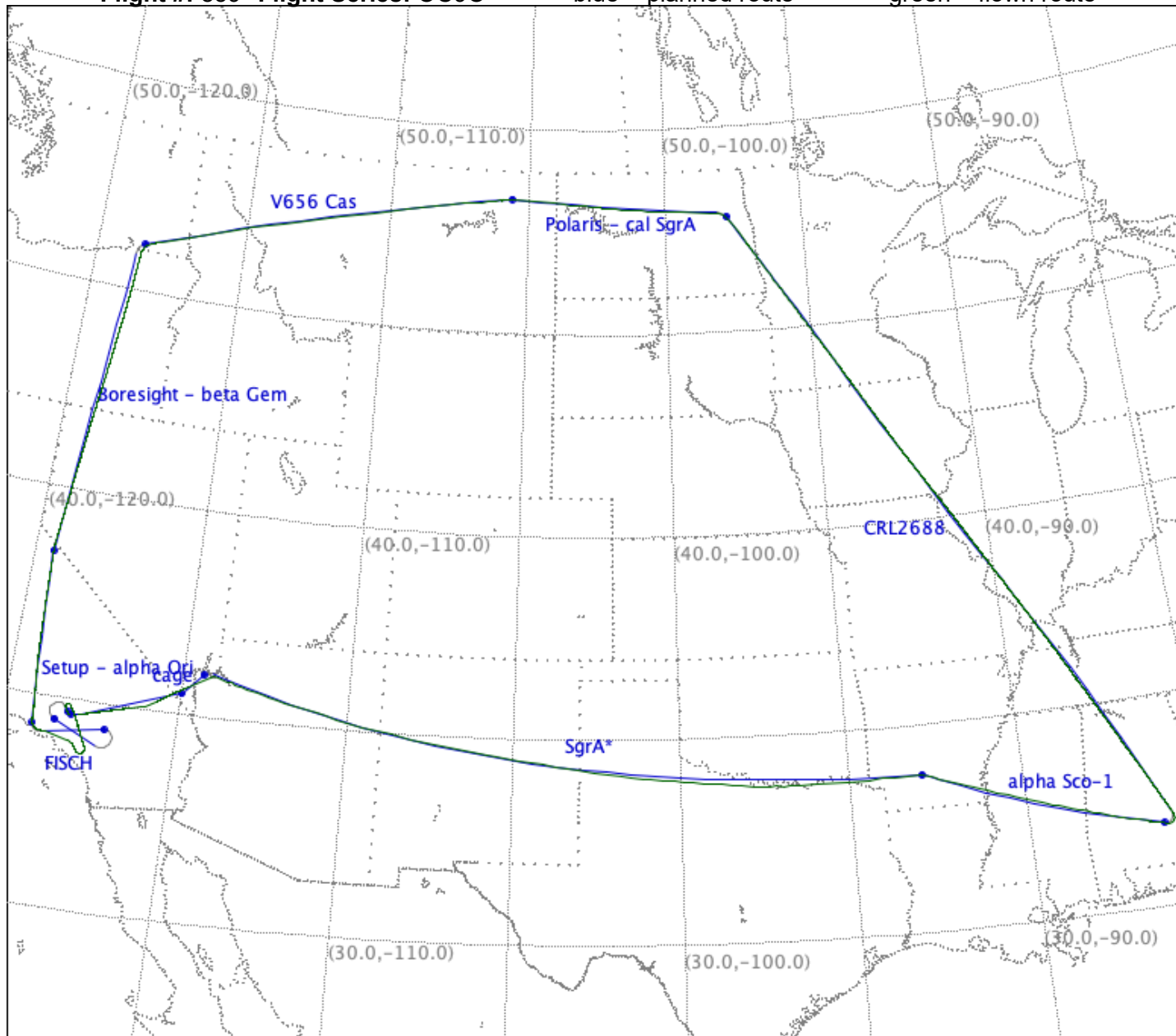
MISSION ID: 2022-04-26_EX_F859

Date: 2022-04-26UT Instrument: EXES

Flight #: 859 Flight Series: OC90

blue = planned route

green = flown route



Flight notes:

Boresight/focus establishment took additional time and led to some loss of science on leg 7.

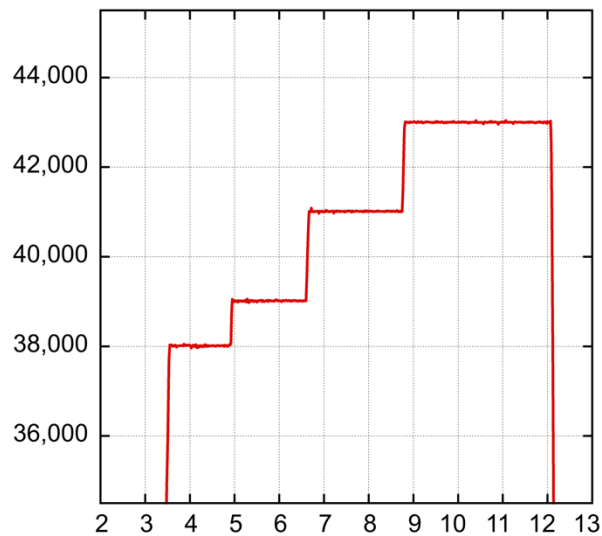
Flight 859
Palmdale to
Palmdale

Mission ID 2022-04-26_EX_F859
Take off date UTC:
26-APR-2022

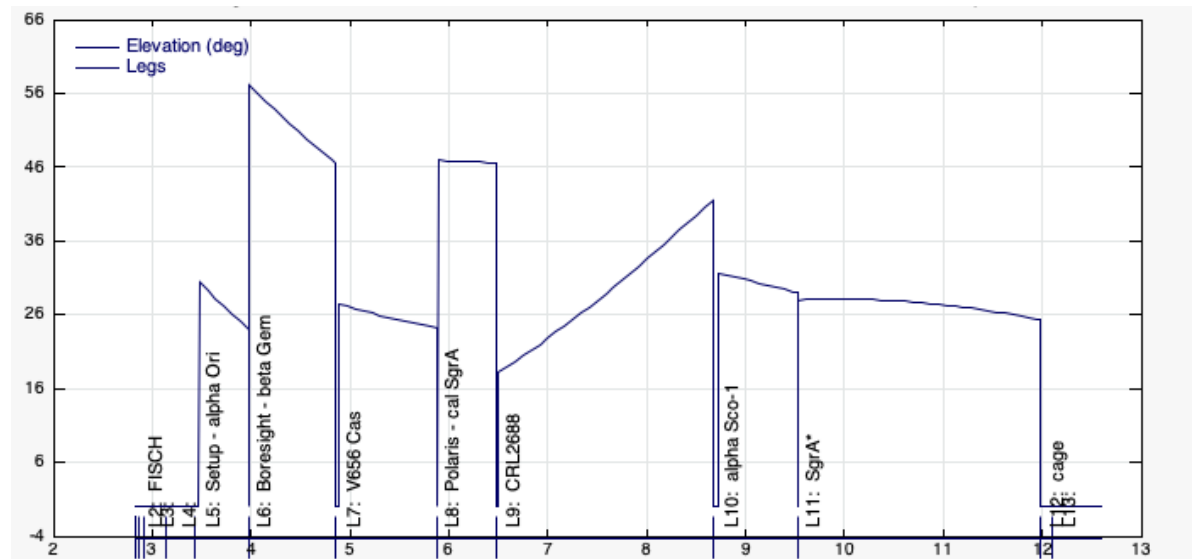
Departure UTC: 03:03
Arrival UTC: 12:39

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	05h55m10.31s	07d24m25.4s	3:28	30	
6	90_0089	Calibration	beta Gem	07h45m18.95s	28d01m34.3s	3:58	52.5	Multiple errors communicating with telescope led to loss of entire leg
7	09_0227	Fonfria	V656 Cas	02h35m44.67s	65d08m58.9s	4:53	60	Late start while boresight /focus established.
8	09_0205	Mills	Polaris	02h31m49.09s	89d15m50.8s	5:53	35	
9	08_0216	Montiel	CRL2688	21h02m18.27s	36d41m37.0s	6:30	130	Pointing challenges, some loss of observing time.
10	09_0233	Richter	alpha Sco	16h29m24.46s	-26d25m55.2s	8:43	48	
11	09_0205	Mills	SgrA*	17h45m40.04s	-29d00m28.2s	9:32	147	

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



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



Flight notes: No irregularities.

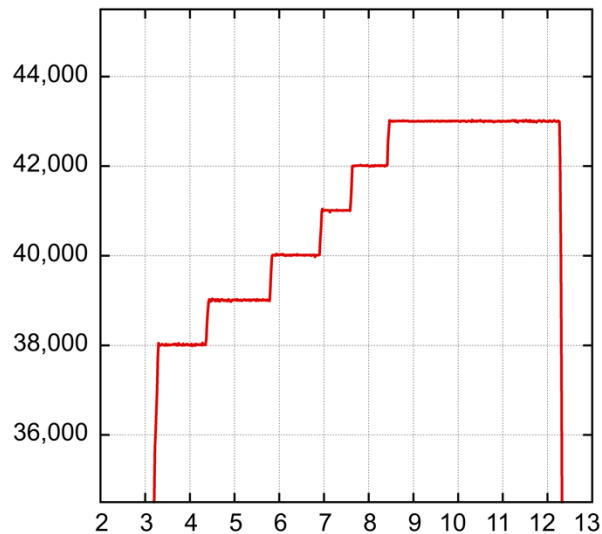
Flight 860
Palmdale to
Palmdale

Mission ID 2022-04-27_EX_F860
Take off date UTC:
27-APR-2022

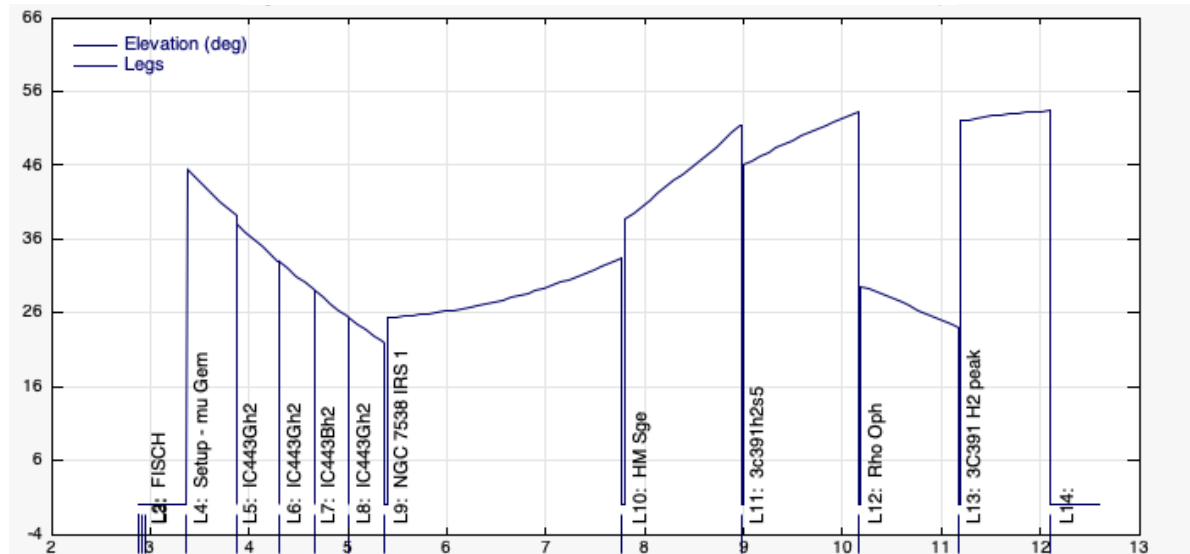
Departure UTC: 02:51
Arrival UTC: 12:45

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h22m57.63s	22d30m48.9s	3:22	30	
5	07_0007	Reach	IC443	06h17m13.97s	22d23m16.0s	3:52	26	
6	07_0007	Reach	IC443	06h16m43.60s	22d32m37.0s	4:18	21	
7	07_0007	Reach	IC443	06h17m16.07s	22d25m15.2s	4:39	21	
8	07_0007	Reach	IC443	06h17m42.44s	22d21m22.2s	5:00	21	
9	09_0072	Tielens	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	5:23	142	
10	75_0057	Discretionary	HM Sge	19h41m57.08s	16d44m39.9s	7:48	71	
11	07_0007	Reach	3c391h2s5	18h49m23.56s	-00d57m48.8s	8:59	70	
12	09_0211	Andersson	Rho Oph	16h25m53.11s	-24d19m14.1s	10:11	59	
13	09_0021	Neufeld	3C391 H2 peak	18h49m22.56s	-00d57m17.2s	11:11	55	

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



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



Flight notes: Weather and instrument difficulties on legs 13 & 14.

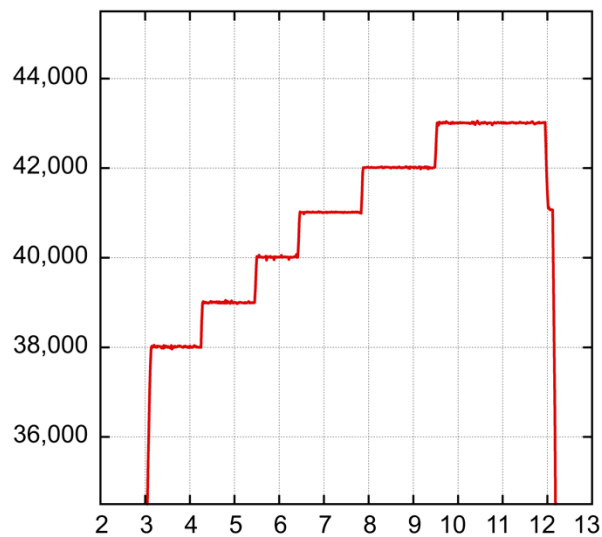
Flight 861
Palmdale to
Palmdale

Mission ID 2022-04-28_EX_F861
Take off date UTC:
28-APR-2022

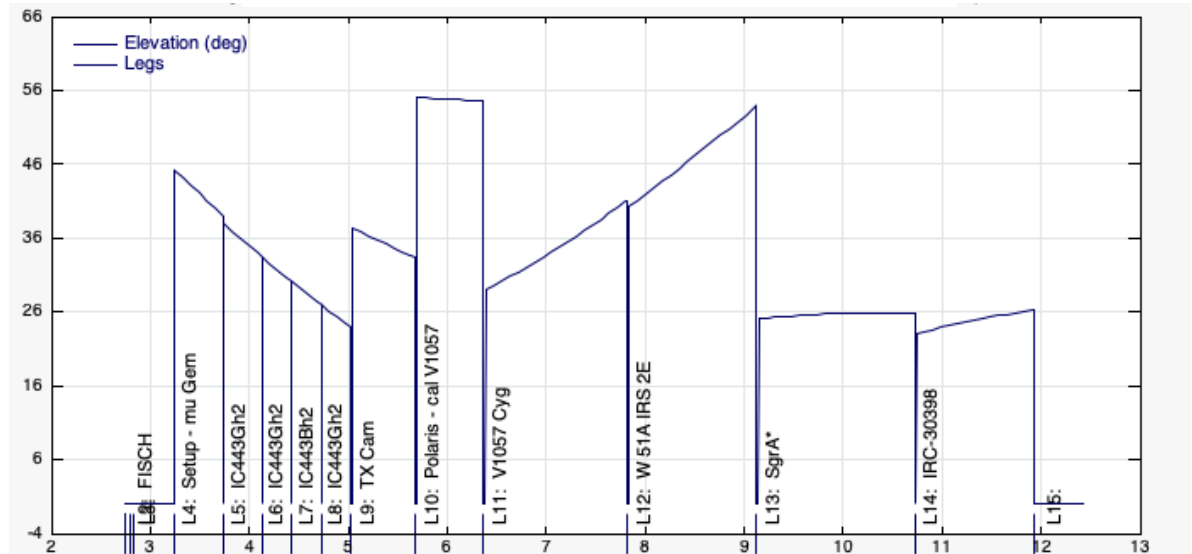
Departure UTC: 02:42
Arrival UTC: 12:37

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h22m57.63s	22d30m48.9s	3:14	30	
5	07_0007	Reach	IC443	06h16m43.60s	22d32m37.0s	3:44	23	
6	07_0007	Reach	IC443	06h17m13.97s	22d23m16.0s	4:07	18	
7	07_0007	Reach	IC443	06h17m16.07s	22d25m15.2s	4:25	18	
8	07_0007	Reach	IC443	06h17m42.44s	22d21m22.2s	4:43	18	
9	09_0227	Fonfria	TX Cam	05h00m51.16s	56d10m54.1s	5:02	38	
10	09_0003	DeWitt	Polaris	02h31m49.09s	89d15m50.8s	5:41	40	
11	09_0003	DeWitt	V1057 Cyg	20h58m53.72s	44d15m28.3s	6:23	86	
12	09_0125	Nickerson	W 51A IRS 2E	19h23m40.77s	14d30m56.8s	7:50	77	
13	09_0205	Mills	SgrA*	17h45m40.04s	-29d00m28.2s	9:09	95	Weather deviation and instrument detector issues led to no data collected on half the leg
14	09_0227	Fonfria	IRC-30398	18h59m13.87s	-29d50m20.2s	10:44	71	Most of leg lost due to instrument detector problems

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



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



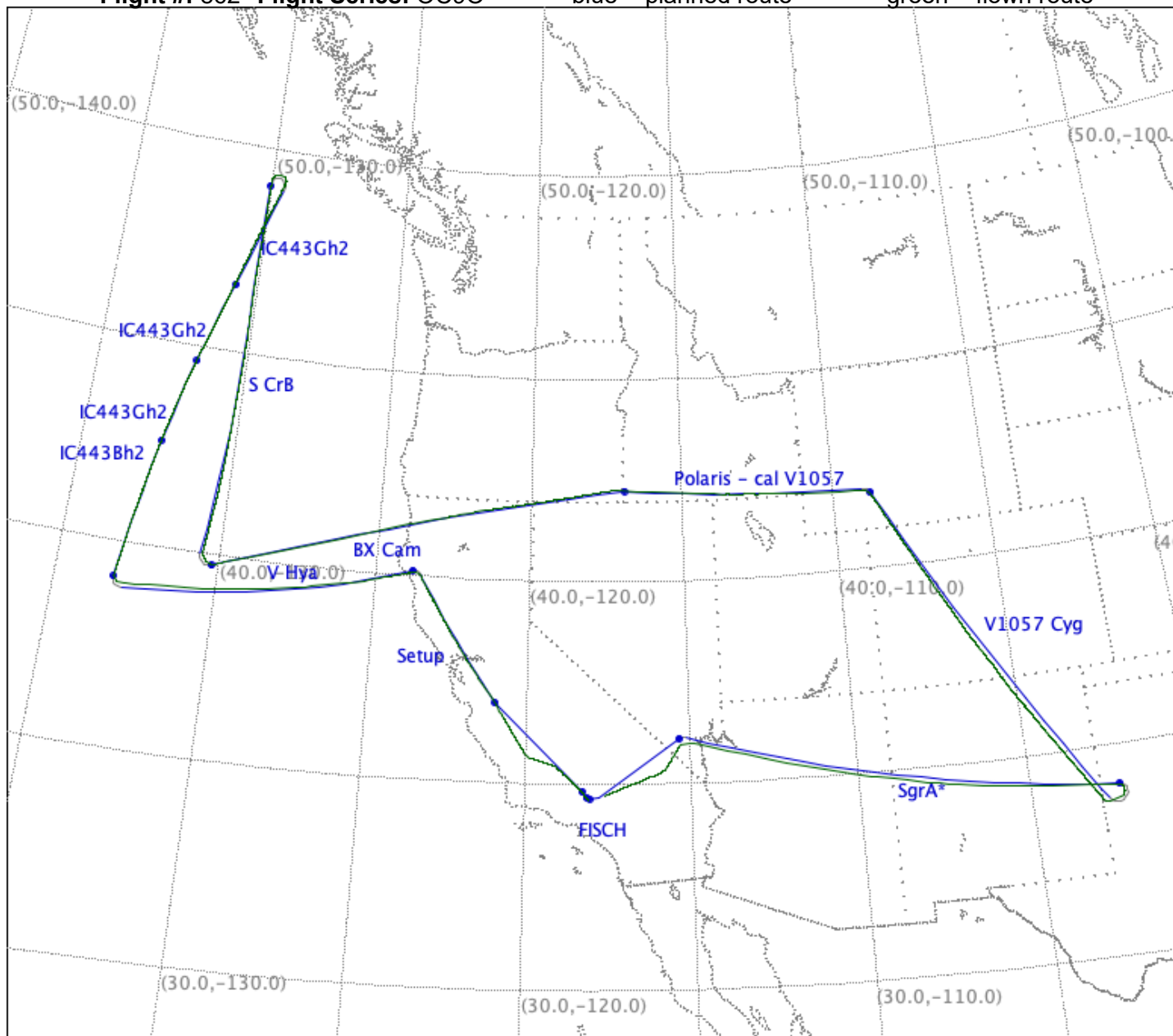
MISSION ID: 2022-04-29_EX_F862

Date: 2022-04-29UT Instrument: EXES

Flight #: 862 Flight Series: OC90

blue = planned route

green = flown route



Flight notes: Turbulence on several legs.

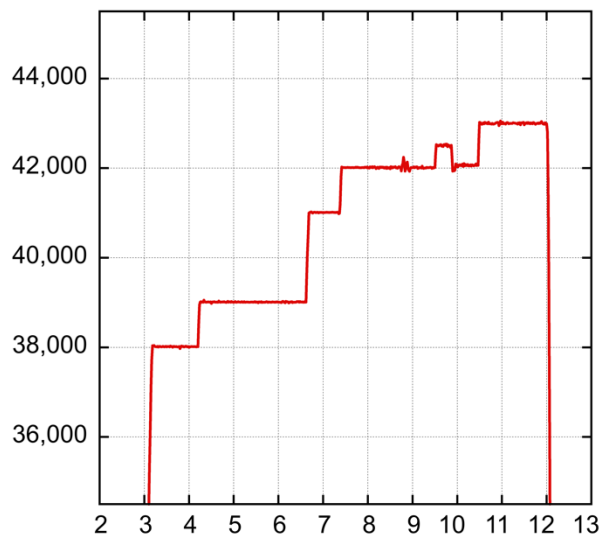
Flight 862
Palmdale to
Palmdale

Mission ID 2022-04-29_EX_F862
Take off date UTC:
29-APR-2022

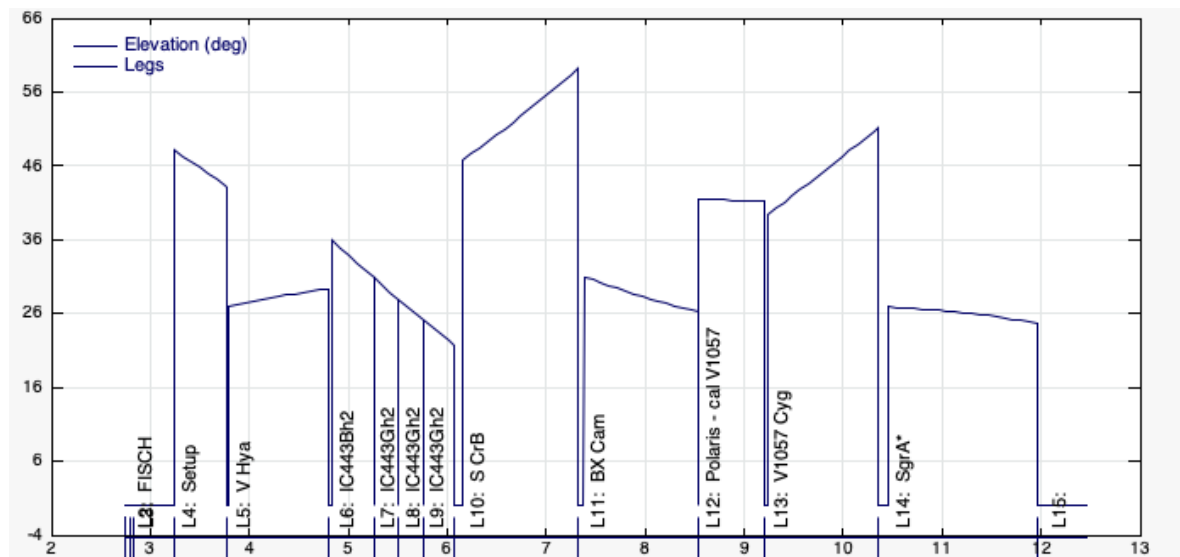
Departure UTC: 02:44
Arrival UTC: 12:25

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h39m18.12s	05d13m30.0s	3:15	31	
5	08_0218	Montiel	V Hya	10h51m37.26s	-21d15m00.3s	3:47	60	
6	07_0007	Reach	IC443	06h17m16.07s	22d25m15.2s	4:50	25	
7	07_0007	Reach	IC443	06h16m43.60s	22d32m37.0s	5:15	15	
8	07_0007	Reach	IC443	06h16m43.60s	22d32m37.0s	5:30	15	
9	07_0007	Reach	IC443	06h17m42.44s	22d21m22.2s	5:45	19	Some turbulence.
10	09_0227	Fonfria	S CrB	15h21m23.96s	31d22m02.6s	6:09	70	Some turbulence.
11	09_0227	Fonfria	BX Cam	05h46m44.33s	69d58m24.4s	7:23	69	
12	90_0092	Calibration	polaris	02h31m49.09s	89d15m50.8s	8:32	40	Significant turbulence caused some loss of time collecting data
13	09_0003	DeWitt	V1057 Cyg	20h58m53.72s	44d15m28.3s	9:14	67	Strong turbulence mid-leg led to a descent from 42.5k ft to 42k ft to find more stable air. Small amount of observing time lost.
14	09_0205	Mills	SgrA*	17h45m40.04s	-29d00m28.2s	10:27	90	

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



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



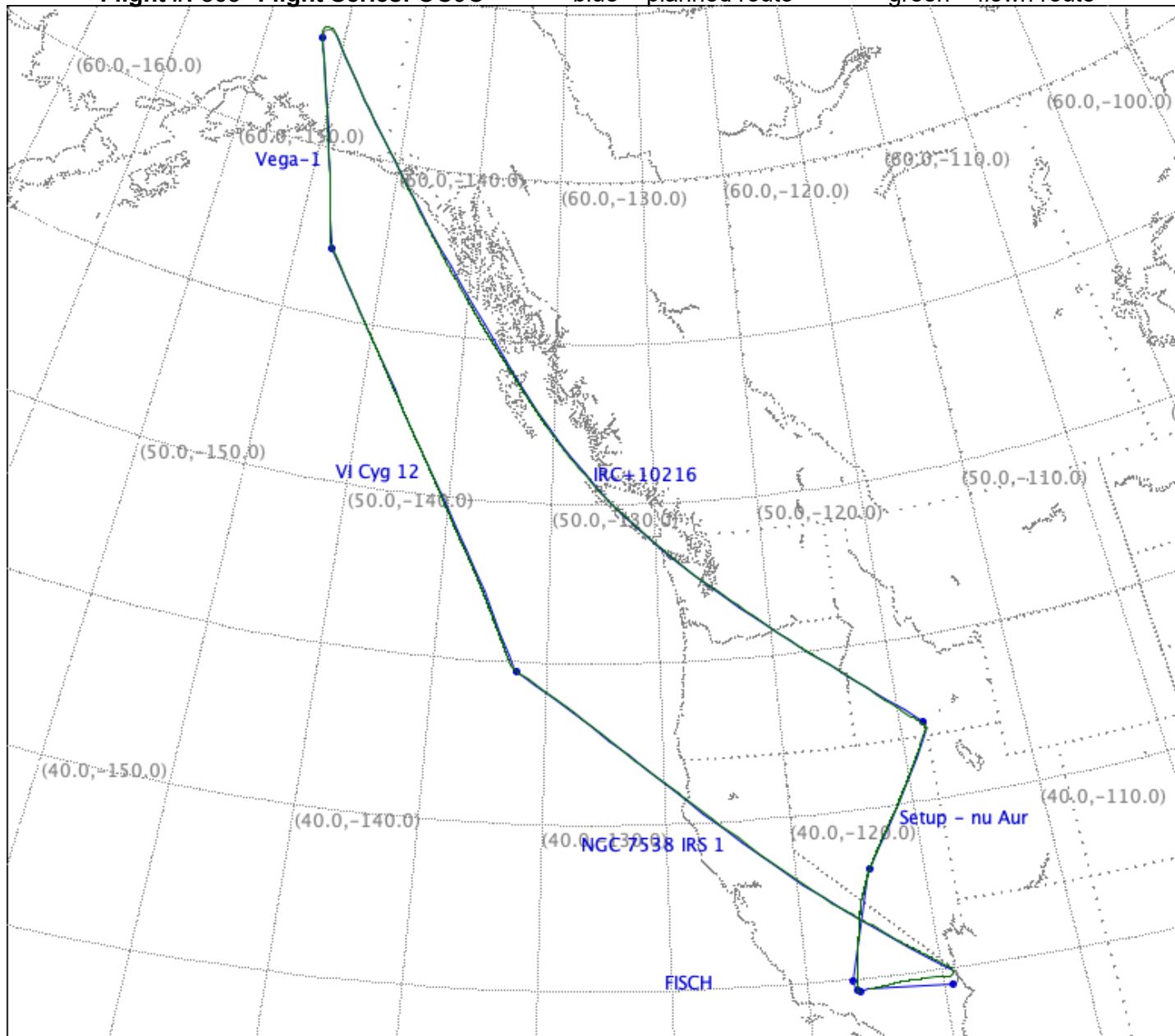
MISSION ID: 2022-05-03_EX_F863

Date: 2022-05-03UT Instrument: EXES

Flight #: 863 Flight Series: OC90

blue = planned route

green = flown route



Flight notes: No irregularities.

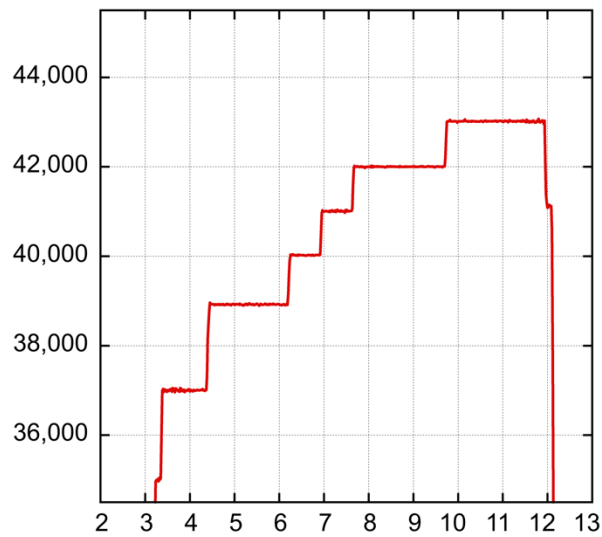
Flight 863
Palmdale to
Palmdale

Mission ID 2022-05-03_EX_F863
Take off date UTC:
03-MAY-2022

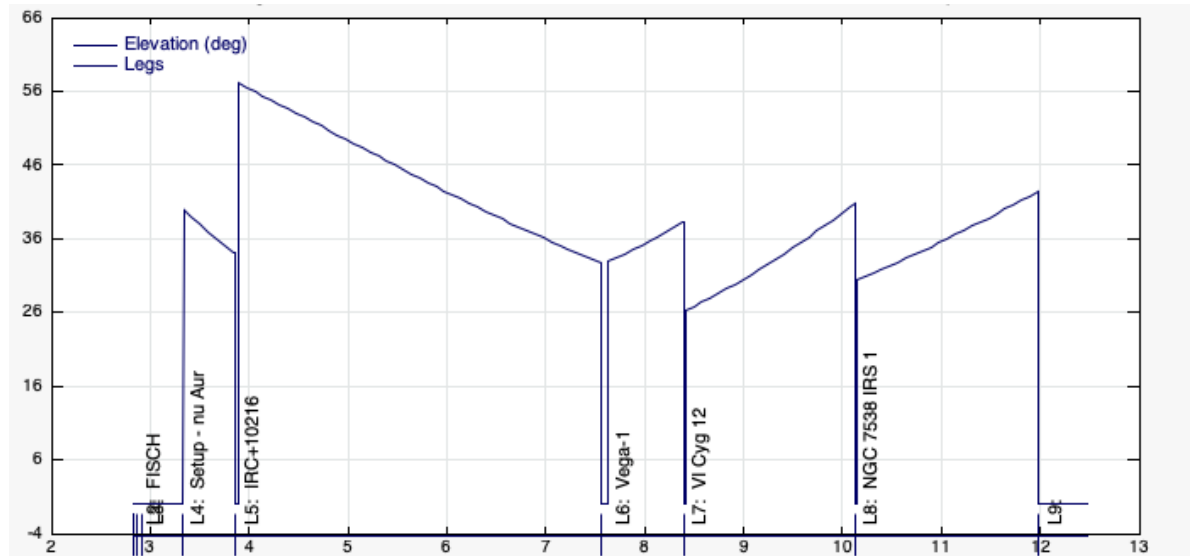
Departure UTC: 02:49
Arrival UTC: 12:33

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 27673	05h51m29.37s	39d08m54.7s	3:20	31	
5	75_0106	Discretionary	IRC+10216	09h47m57.41s	13d16m43.6s	3:53	220	
6	75_0107	Discretionary	Vega	18h36m56.34s	38d47m01.3s	7:38	46	
7	75_0107	Discretionary	VI Cyg 12	20h32m40.96s	41d14m29.3s	8:24	103	
8	75_0106	Discretionary	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	10:08	110	Turbulence caused some inefficiencies.

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



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



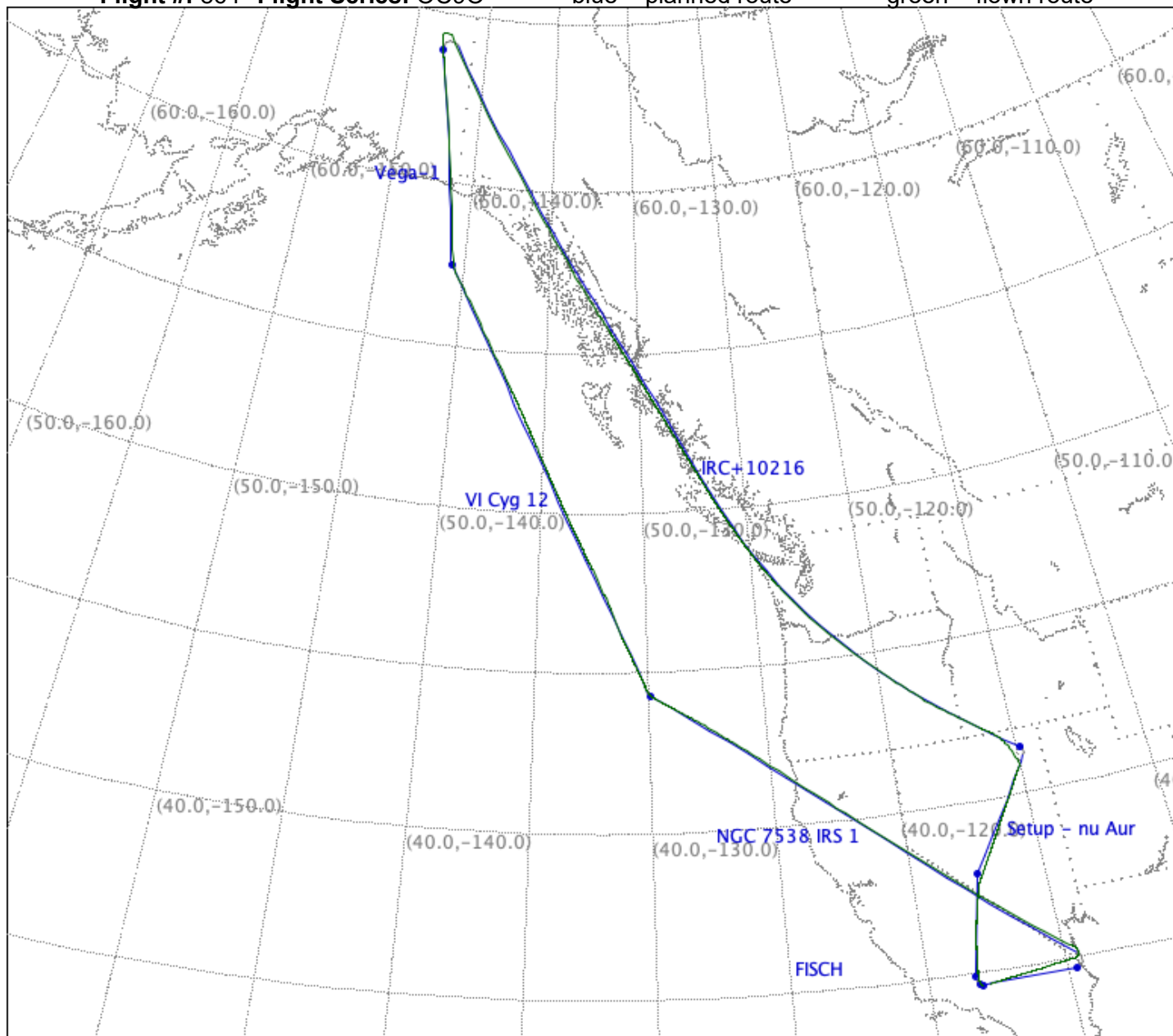
MISSION ID: 2022-05-04_EX_F864

Date: 2022-05-04UT Instrument: EXES

Flight #: 864 Flight Series: OC90

blue = planned route

green = flown route



Flight notes:

Some turbulence and instrument faults led to decreased efficiency.

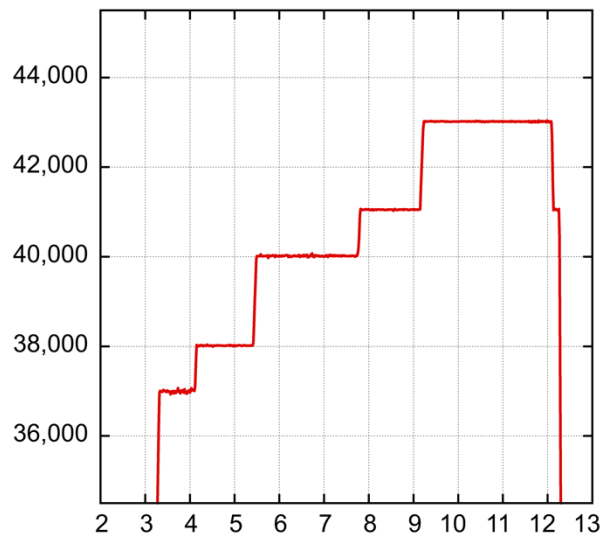
Flight 864
Palmdale to
Palmdale

Mission ID 2022-05-04_EX_F864
Take off date UTC:
04-MAY-2022

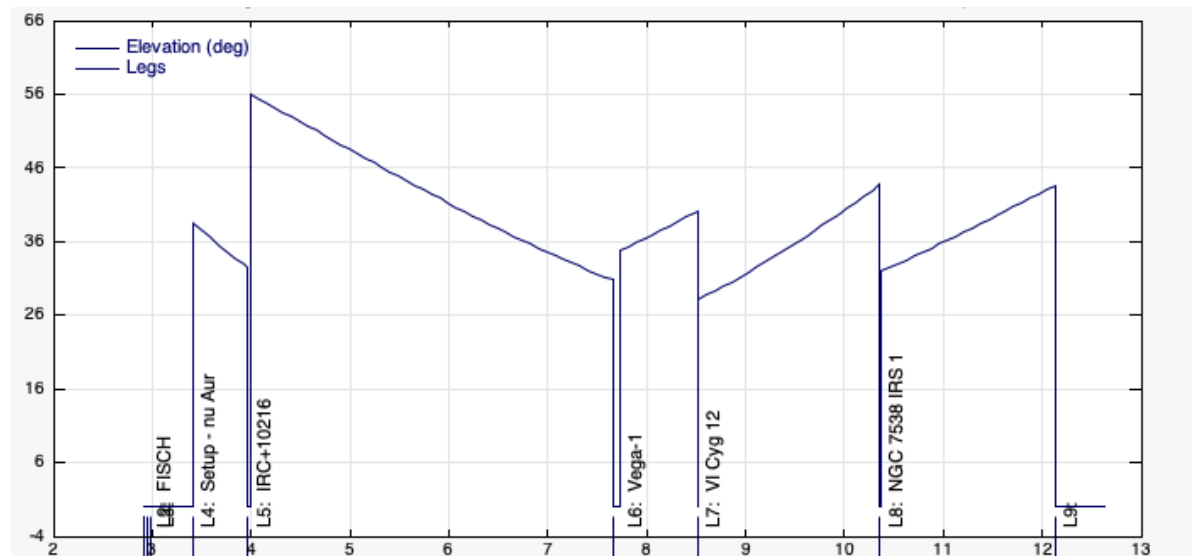
Departure UTC: 02:56
Arrival UTC: 12:41

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 27673	05h51m29.37s	39d08m54.7s	3:25	32	
5	75_0106	Discretionary	IRC+10216	09h47m57.41s	13d16m43.6s	3:59	220	Some time lost at beginning of leg due to turbulence.
6	75_0107	Discretionary	Vega	18h36m56.34s	38d47m01.3s	7:44	47	Some time lost at beginning of leg due to instrument issue.
7	75_0107	Discretionary	VI Cyg 12	20h32m40.96s	41d14m29.3s	8:31	110	Significant time lost during leg due to instrument issue.
8	75_0106	Discretionary	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	10:22	105	

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



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



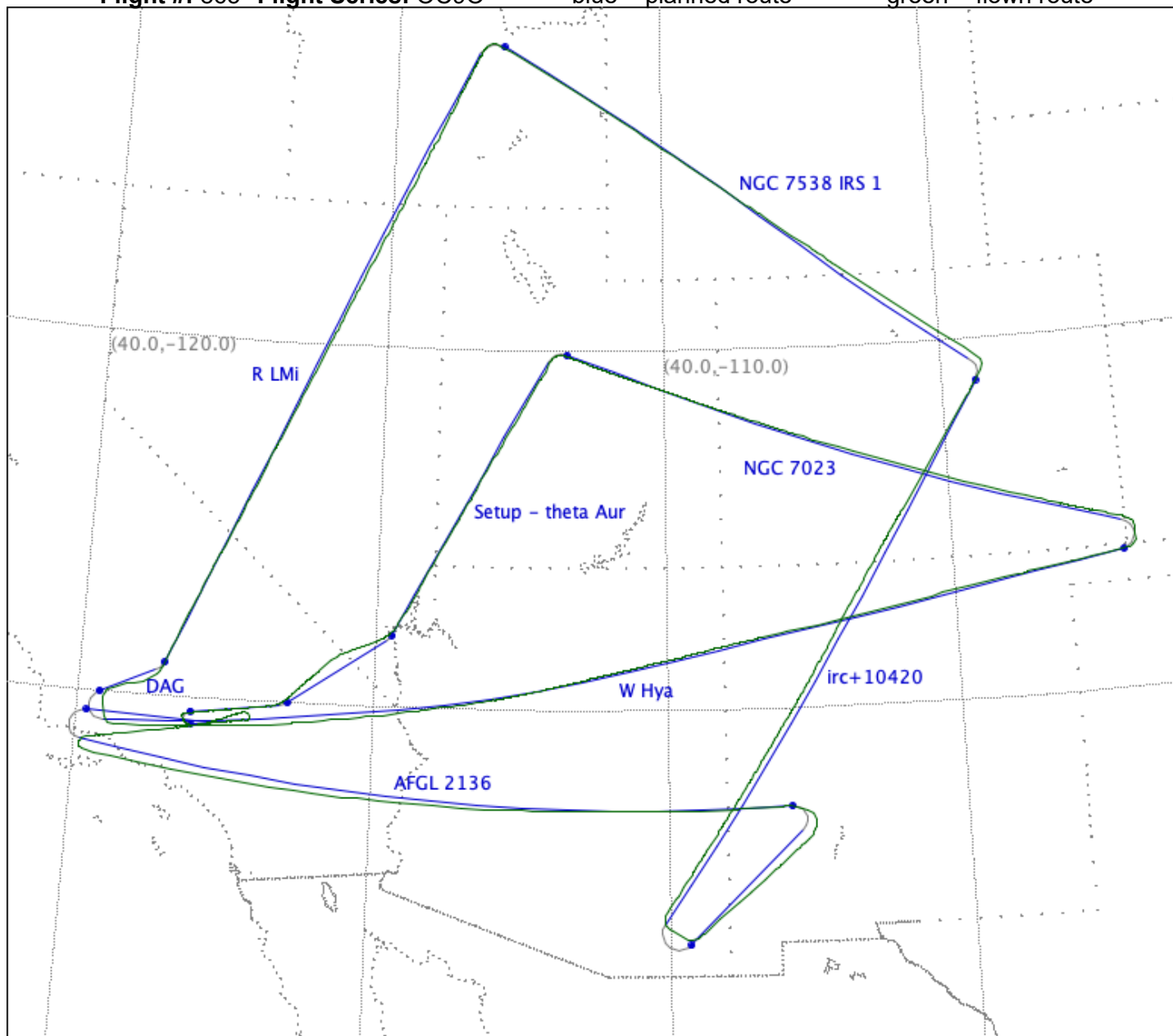
MISSION ID: 2022-05-05_EX_F865

Date: 2022-05-05UT Instrument: EXES

Flight #: 865 Flight Series: OC90

blue = planned route

green = flown route



Flight notes: No irregularities.

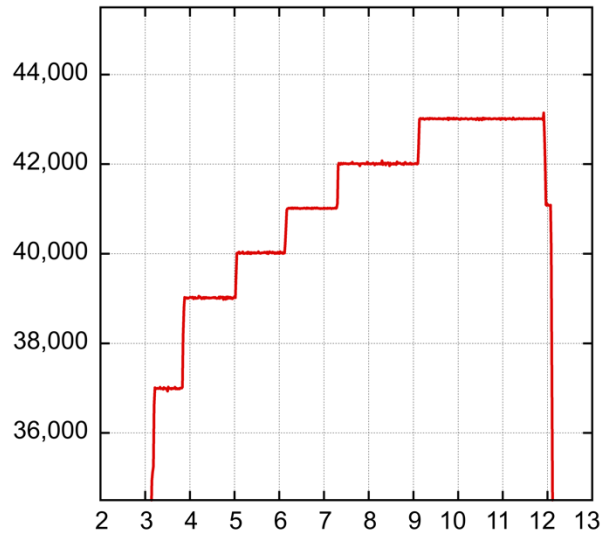
Flight 865
Palmdale to
Palmdale

Mission ID 2022-05-05_EX_F865
Take off date UTC:
05-MAY-2022

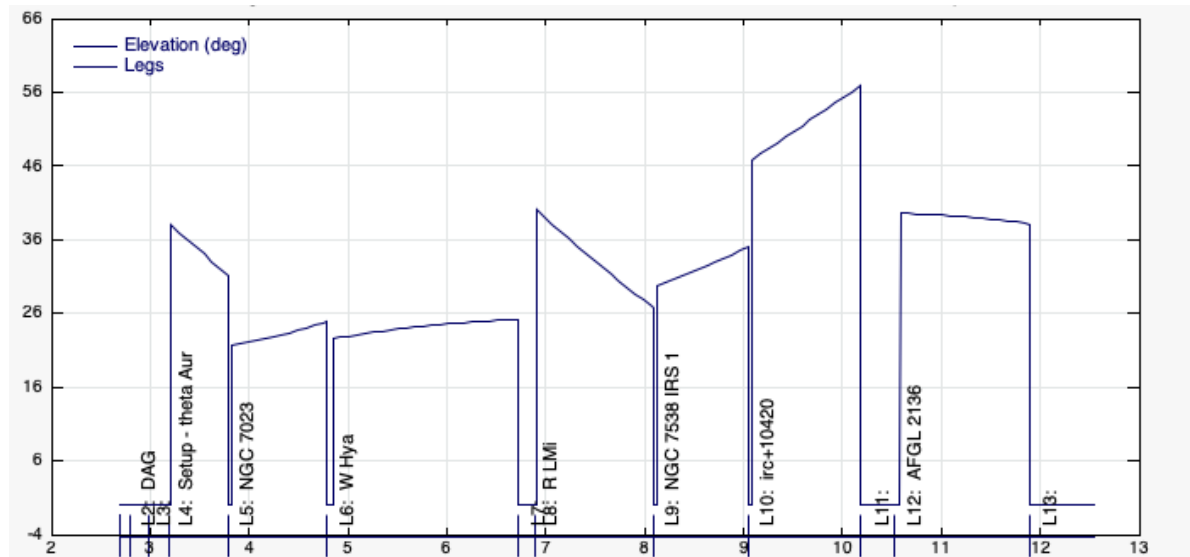
Departure UTC: 02:44
Arrival UTC: 12:29

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 28380	05h59m43.27s	37d12m45.3s	3:12	35	
5	09_0211	Andersson	NGC 7023	21h02m08.25s	68d09m04.2s	3:50	57	
6	75_0108	Discretionary	W Hya	13h49m02.00s	-28d22m03.5s	4:51	112	
8	09_0227	Fonfria	R LMi	09h45m34.28s	34d30m42.8s	6:54	71	
9	75_0106	Discretionary	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	8:08	55	
10	75_0108	Discretionary	irc+10420	19h26m48.10s	11d21m16.8s	9:05	65	
12	75_0106	Discretionary	AFGL 2136	18h22m26.53s	-13d30m14.0s	10:35	79	Telescope dropped into standby unexpectedly, causing loss of last 10% of leg

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



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



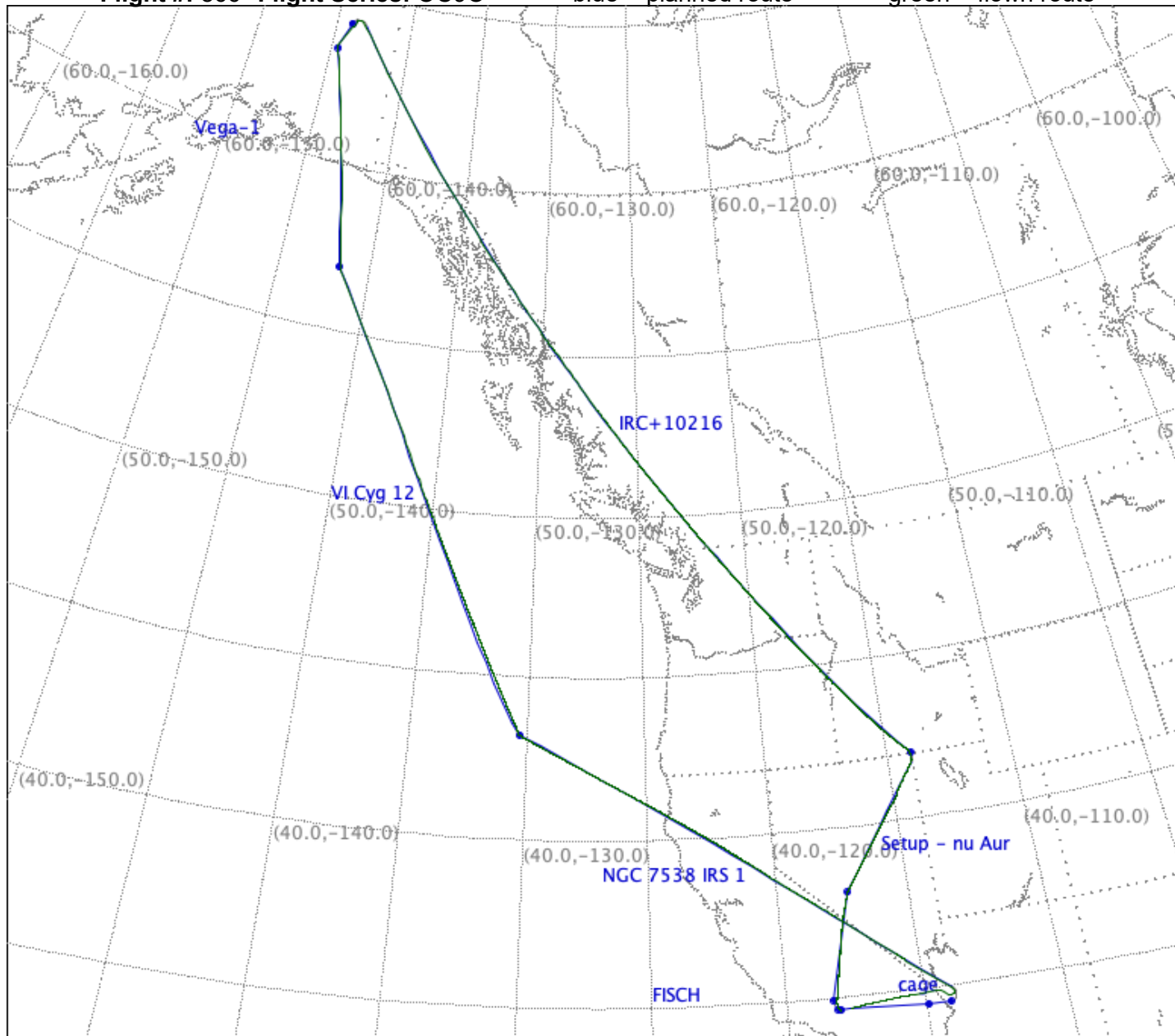
MISSION ID: 2022-05-06_EX_F866

Date: 2022-05-06UT Instrument: EXES

Flight #: 866 Flight Series: OC90

blue = planned route

green = flown route



Flight notes: No irregularities.

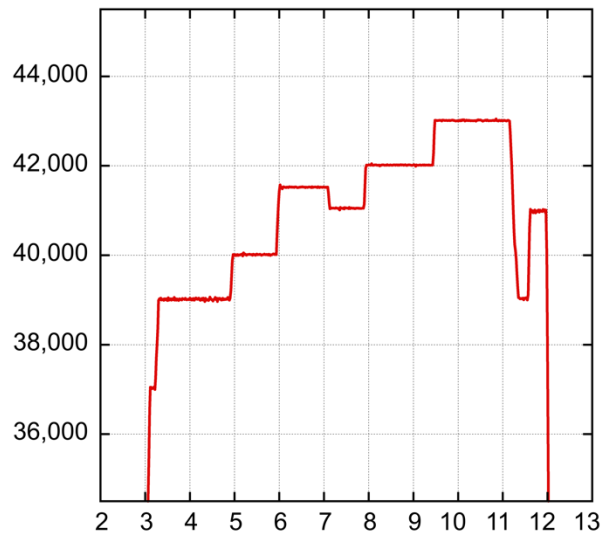
Flight 866
Palmdale to
Palmdale

Mission ID 2022-05-06_EX_F866
Take off date UTC:
06-MAY-2022

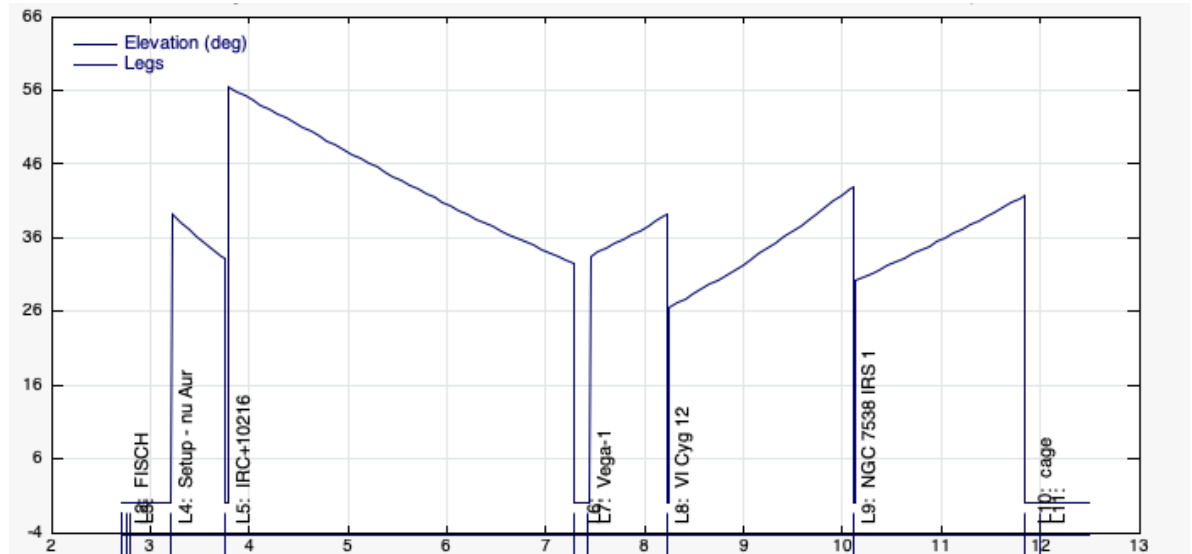
Departure UTC: 02:42
Arrival UTC: 12:31

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 27673	05h51m29.37s	39d08m54.7s	3:13	32	
5	75_0106	Discretionary	IRC+10216	09h47m57.41s	13d16m43.6s	3:47	210	
7	75_0107	Discretionary	Vega	18h36m56.34s	38d47m01.3s	3:47	47	
8	75_0107	Discretionary	VI Cyg 12	20h32m40.96s	41d14m29.3s	7:26	112	
9	75_0106	Discretionary	NGC 7538 IRS 1	23h13m45.32s	61d28m11.7s	8:14	103	Instrument issue and Air Traffic Control forced descent led to loss of half the leg

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



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



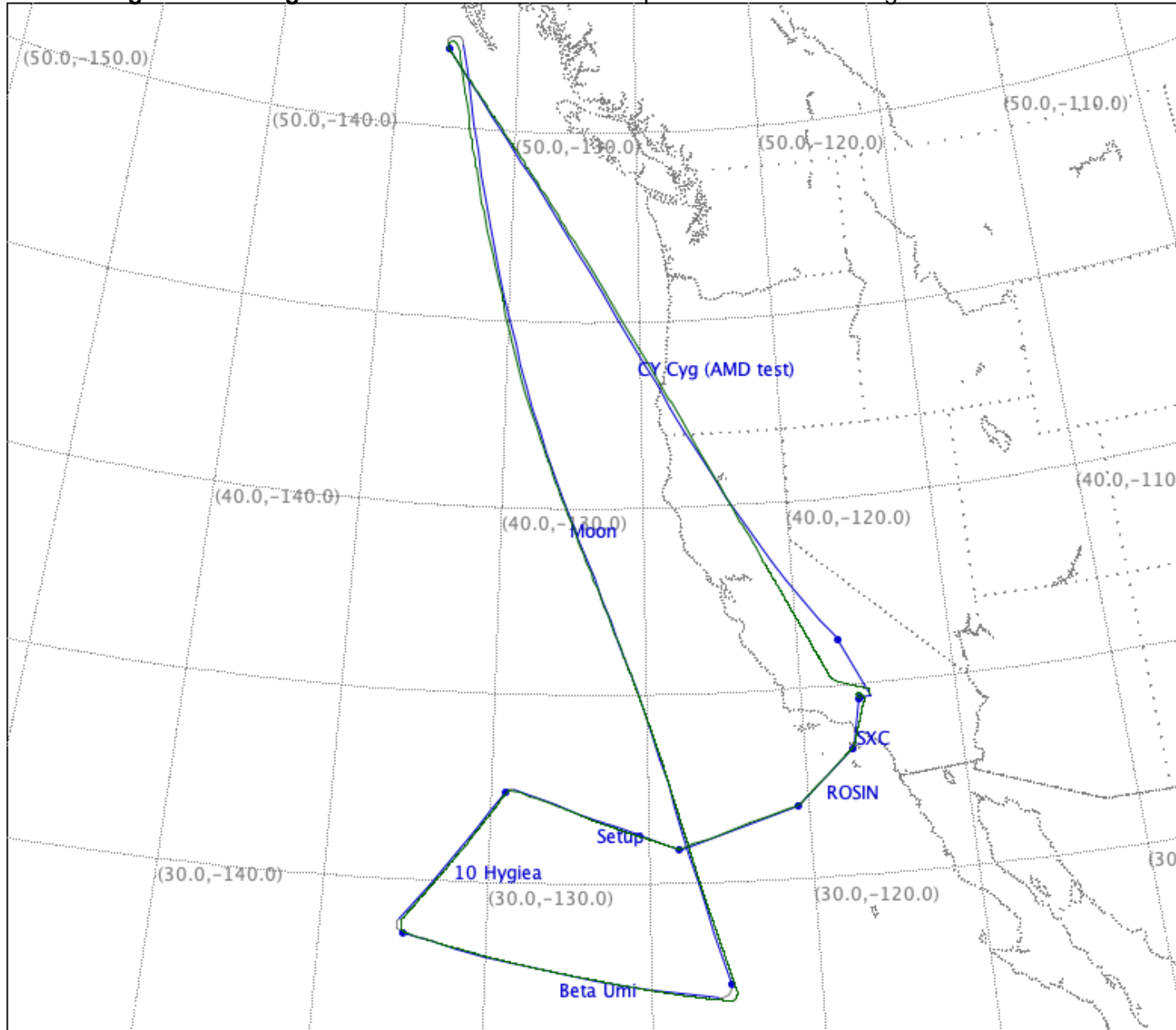
MISSION ID: 2022-05-11_FO_F867

Date: 2022-05-11UT Instrument: FORCAST

Flight #: 867 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Some losses due to pointing issues.

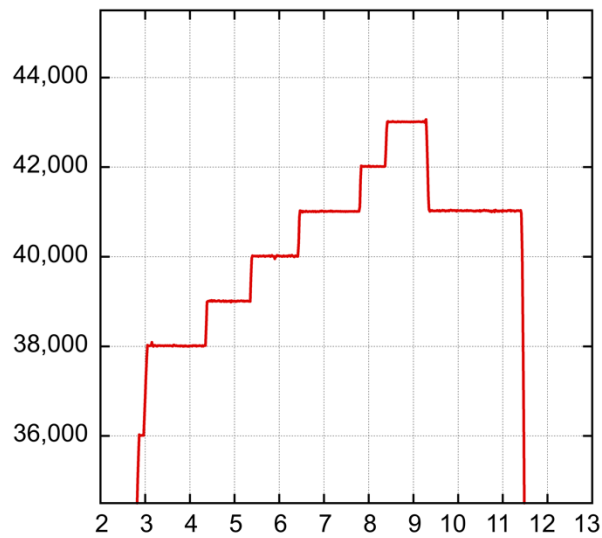
Flight 867
Palmdale to
Palmdale

Mission ID 2022-05-11_FO_F867
Take off date UTC:
11-MAY-2022

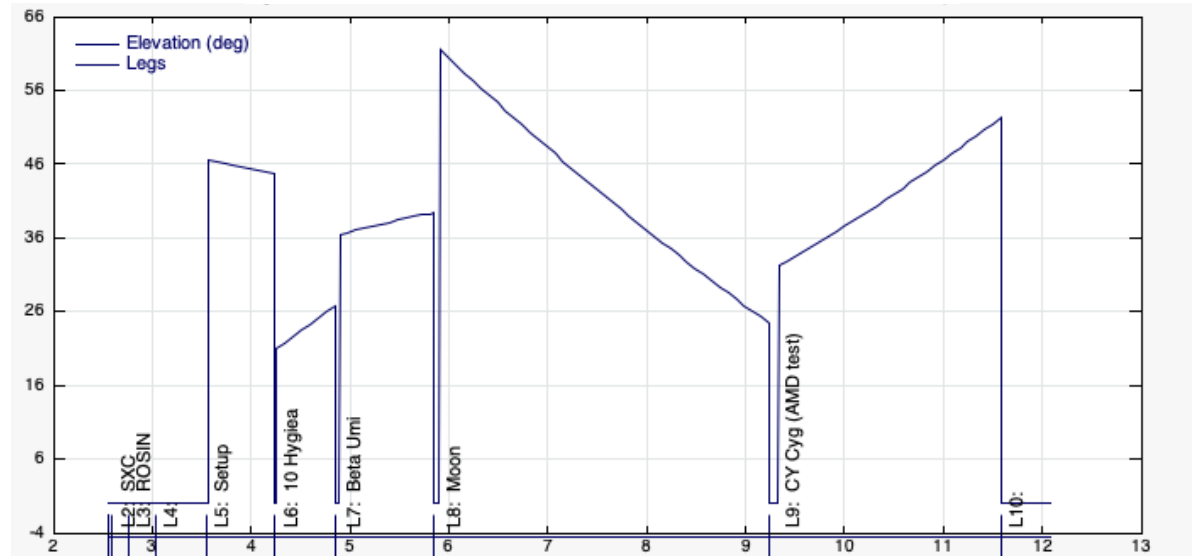
Departure UTC: 02:28
Arrival UTC: 11:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	10h10m35.28s	-12d21m14.7s	3:37	40	
6	90_0097	Calibration	10 Hygiea	14h07m53.58s	-18d29m29.3s	4:19	35	Trouble pointing telescope led to half of the leg being lost
7	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	4:58	57	Trouble pointing telescope led to 20% of the leg being lost; problem corrected
8	09_0171	Lucey	Moon	11h16m44.60s	09d54m12.6s	5:58	200	
9	71_0025	Engineering	GY Cyg	22h01m53.47s	48d43m37.4s	9:24	135	

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



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



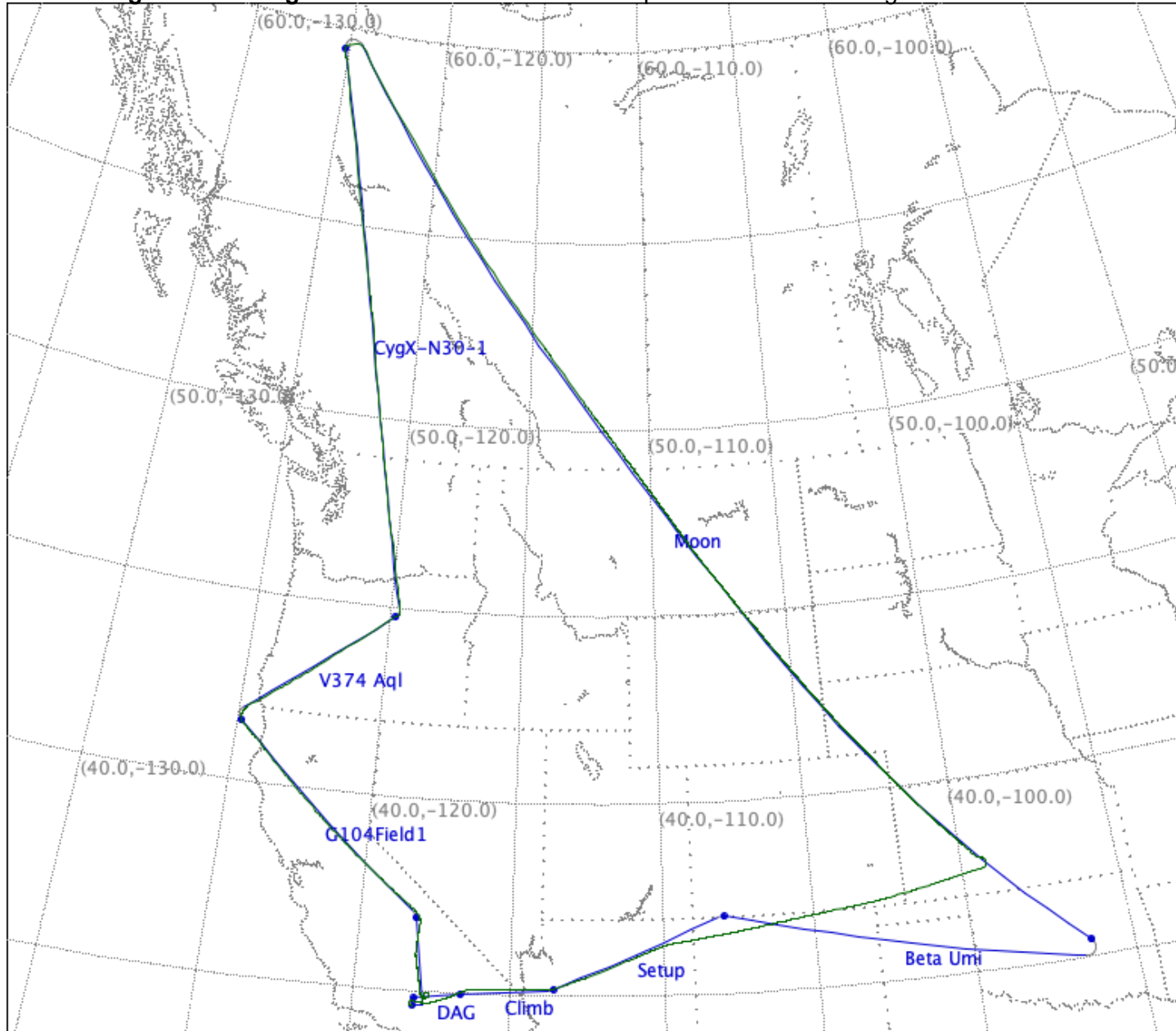
MISSION ID: 2022-05-12_FO_F868

Date: 2022-05-12UT Instrument: FORCAST

Flight #: 868 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Late departure.

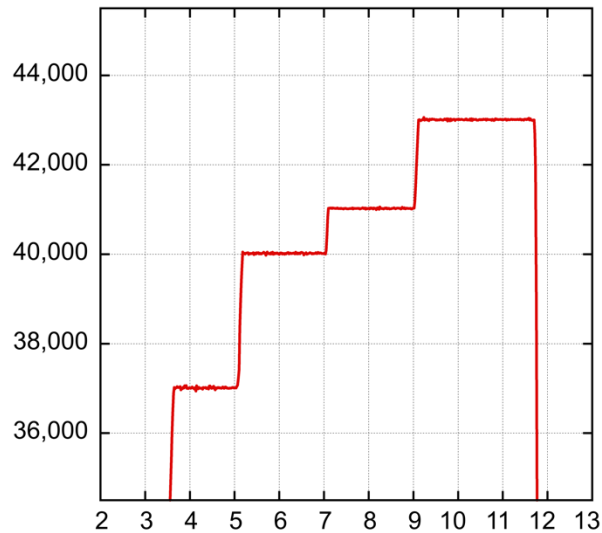
Flight 868
Palmdale to
Palmdale

Mission ID 2022-05-12_FO_F868
Take off date UTC:
12-MAY-2022

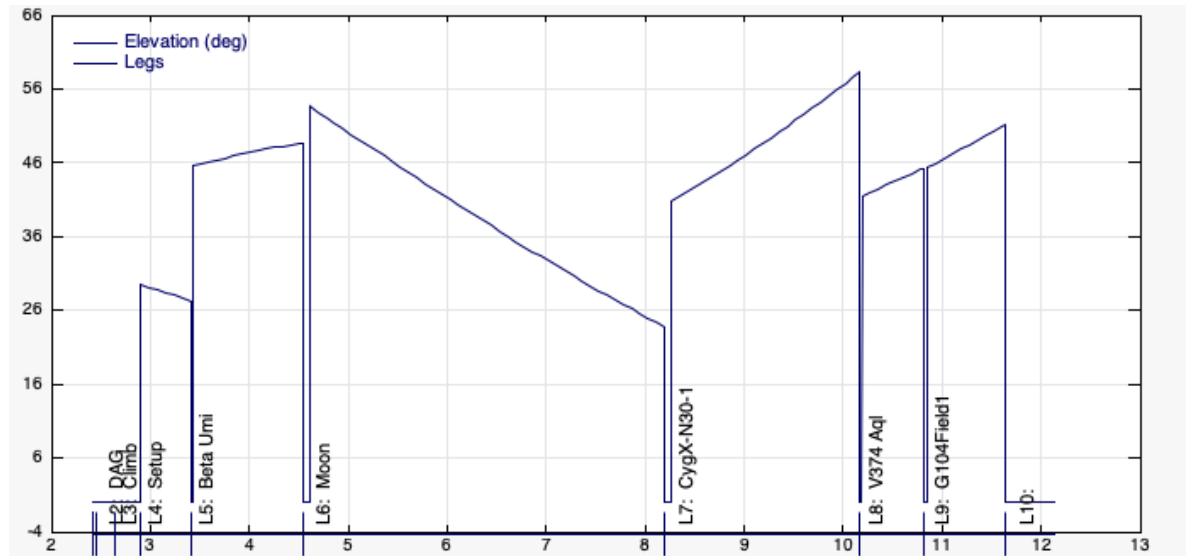
Departure UTC: 03:12
Arrival UTC: 12:07

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	03h50m21.51s	71d19m56.2s	2:53	30	
5	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	3:24	67	HIP 47193 substituted, only engineering data taken
6	09_0171	Lucey	Moon	12h01m36.95s	04d28m17.6s	4:35	215	
7	09_0092	Pitts	Cyg X	20h38m36.49s	42d37m33.3s	8:15	113.4	Pointing issues led to loss of 40% of leg.
8	09_0145	Sloan	V374 Aql	19h30m14.94s	-00d50m09.4s	10:10	37	
9	09_0031	Hora	G104	22h22m04.69s	58d43m16.5s	10:50	47	

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



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



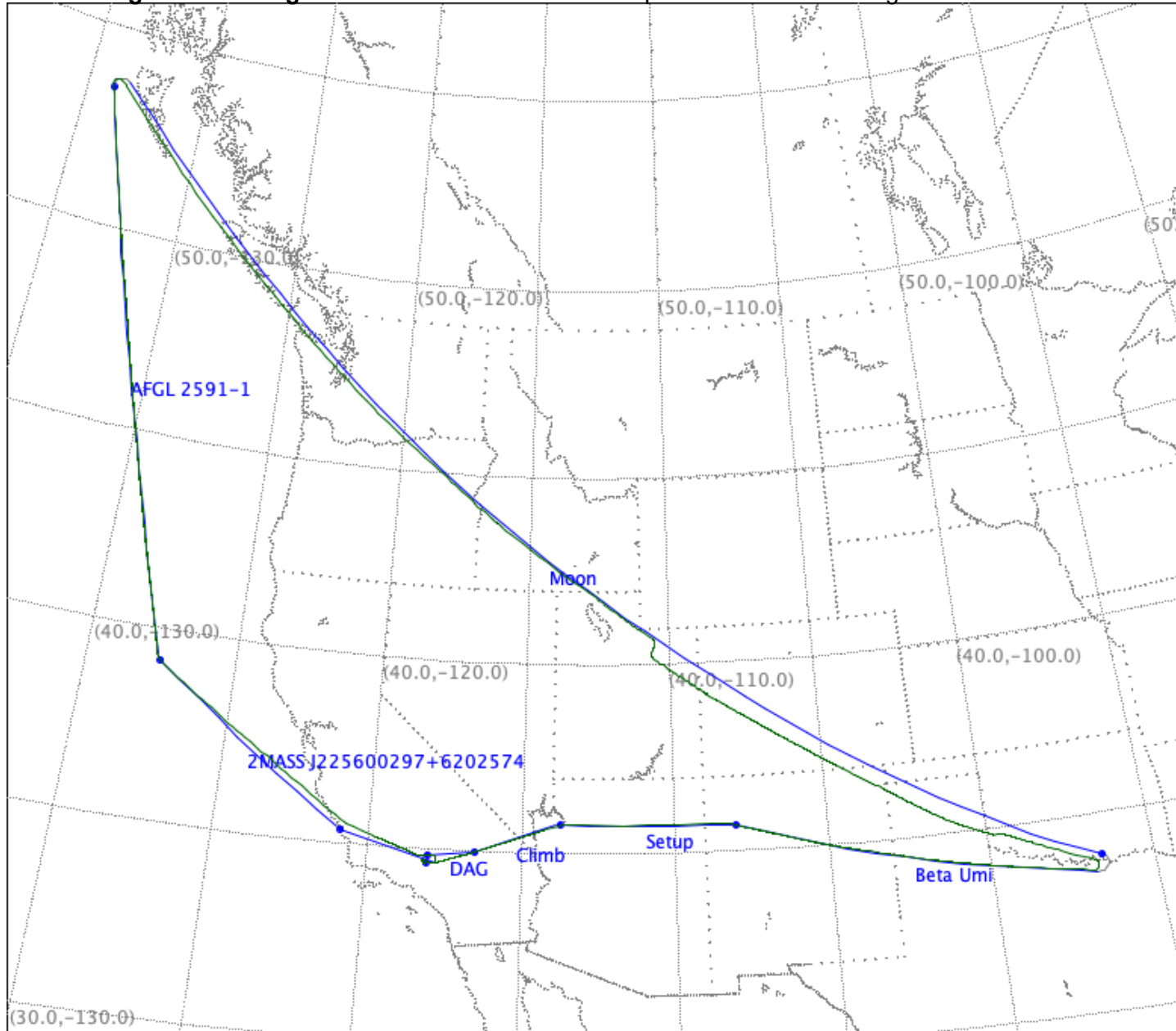
MISSION ID: 2022-05-13_FO_F869

Date: 2022-05-13UT Instrument: FORCAST

Flight #: 869 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: No irregularities.

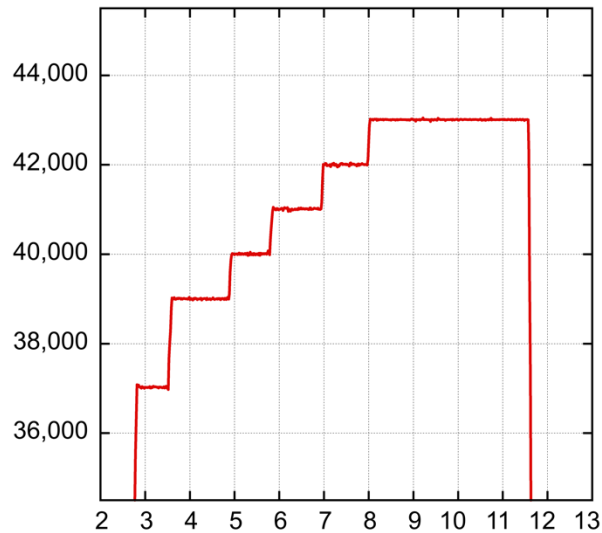
Flight 869
Palmdale to
Palmdale

Mission ID 2022-05-13_FO_F869
Take off date UTC:
13-MAY-2022

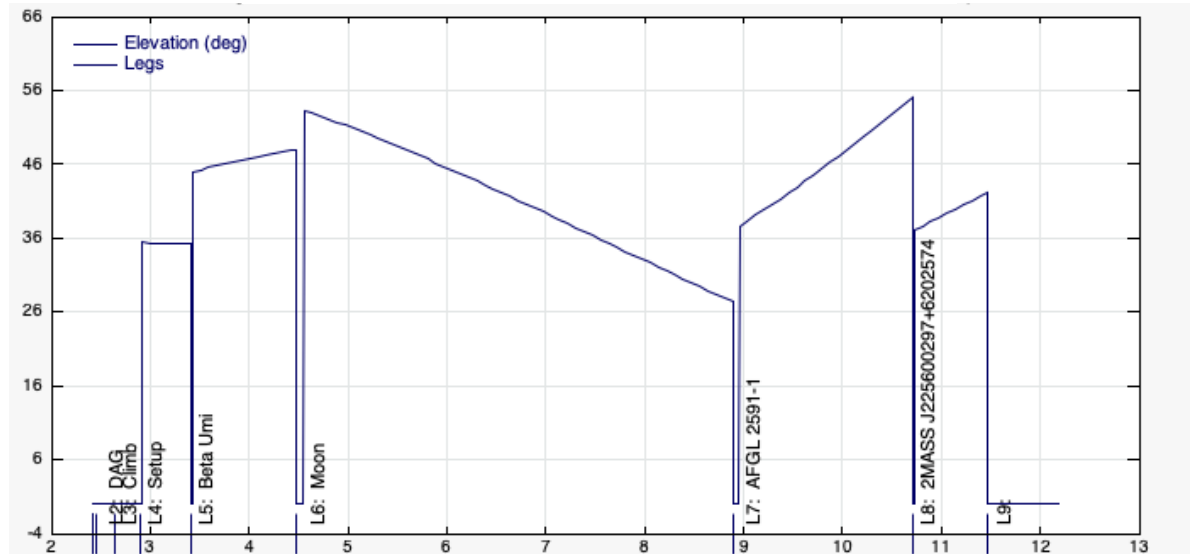
Departure UTC: 02:24
Arrival UTC: 11:58

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	02h31m49.08s	89d15m50.8s	2:54	30	
5	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	3:25	63	
6	09_0171	Lucey	Moon	12h49m56.72s	-01d39m08.0s	4:33	260	Multiple pointing issues through leg led to inefficient observing.
7	09_0092	Pitts	AFGL 2591	20h29m25.04s	40d11m20.3s	8:57	105	
8	09_0006	Karnath	2MASS J225600297+6202574	22h56m02.95s	62d02m57.6s	10:43	45	

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



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



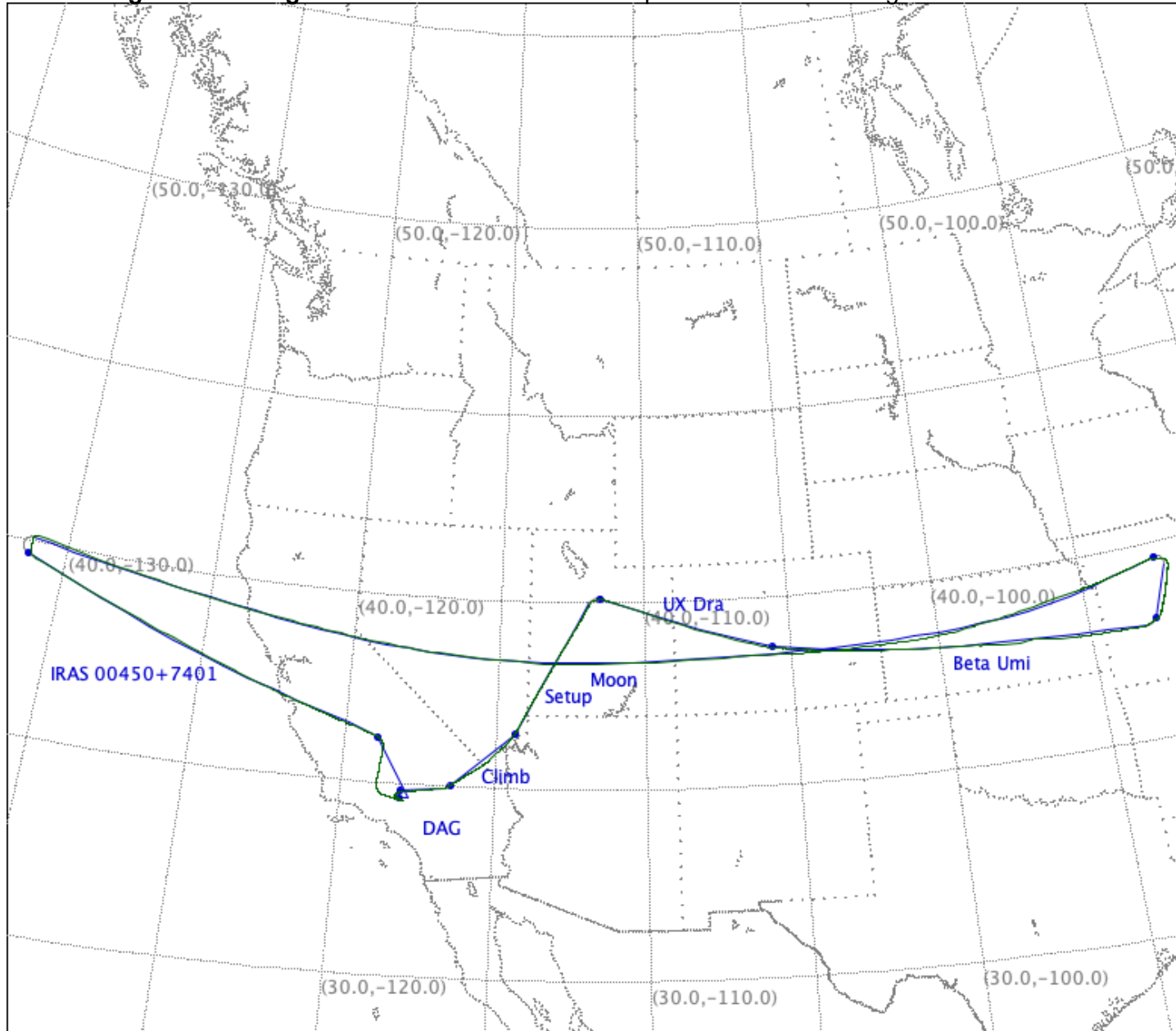
MISSION ID: 2022-05-17_FO_F870

Date: 2022-05-17UT Instrument: FORCAST

Flight #: 870 Flight Series: OC9P

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

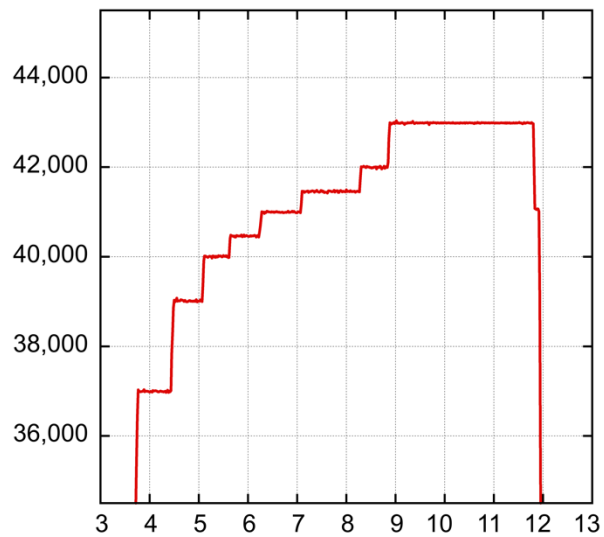
Flight 870
Palmdale to
Palmdale

Mission ID 2022-05-17_FO_F870
Take off date UTC:
17-MAY-2022

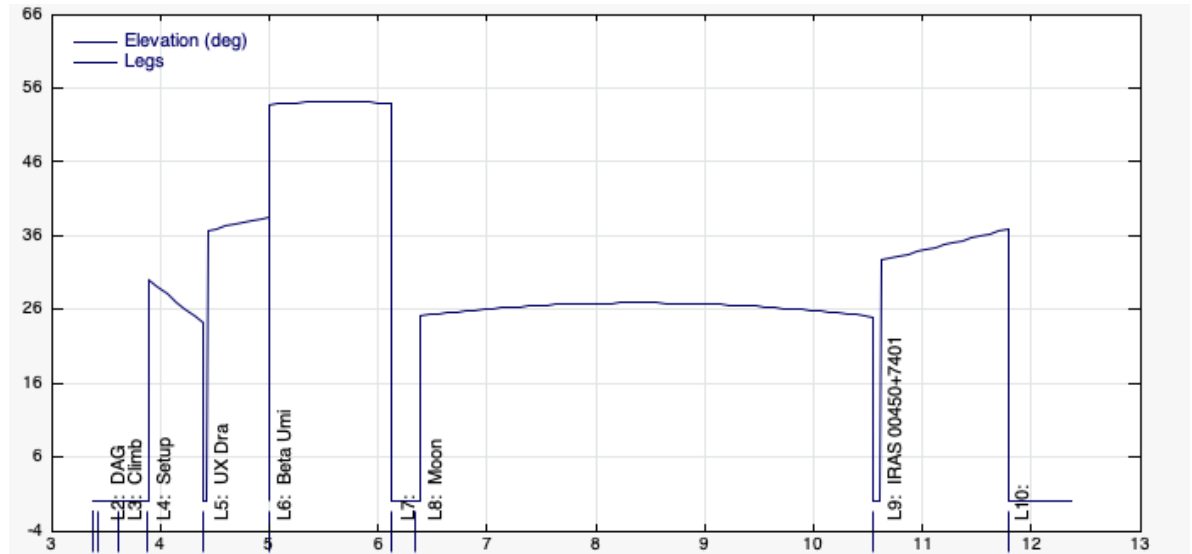
Departure UTC: 03:22
Arrival UTC: 12:13

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h52m47.34s	33d57m40.5s	3:53	30	
5	09_0145	Sloan	UX Dra	19h21m35.52s	76d33m34.6s	4:26	34	
6	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	5:00	67	Data collection halted for 40% of leg due to clouds.
8	09_0171	Lucey	Moon	16h37m35.82s	-23d49m44.6s	5:00	249	
9	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	6:23	70	

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



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



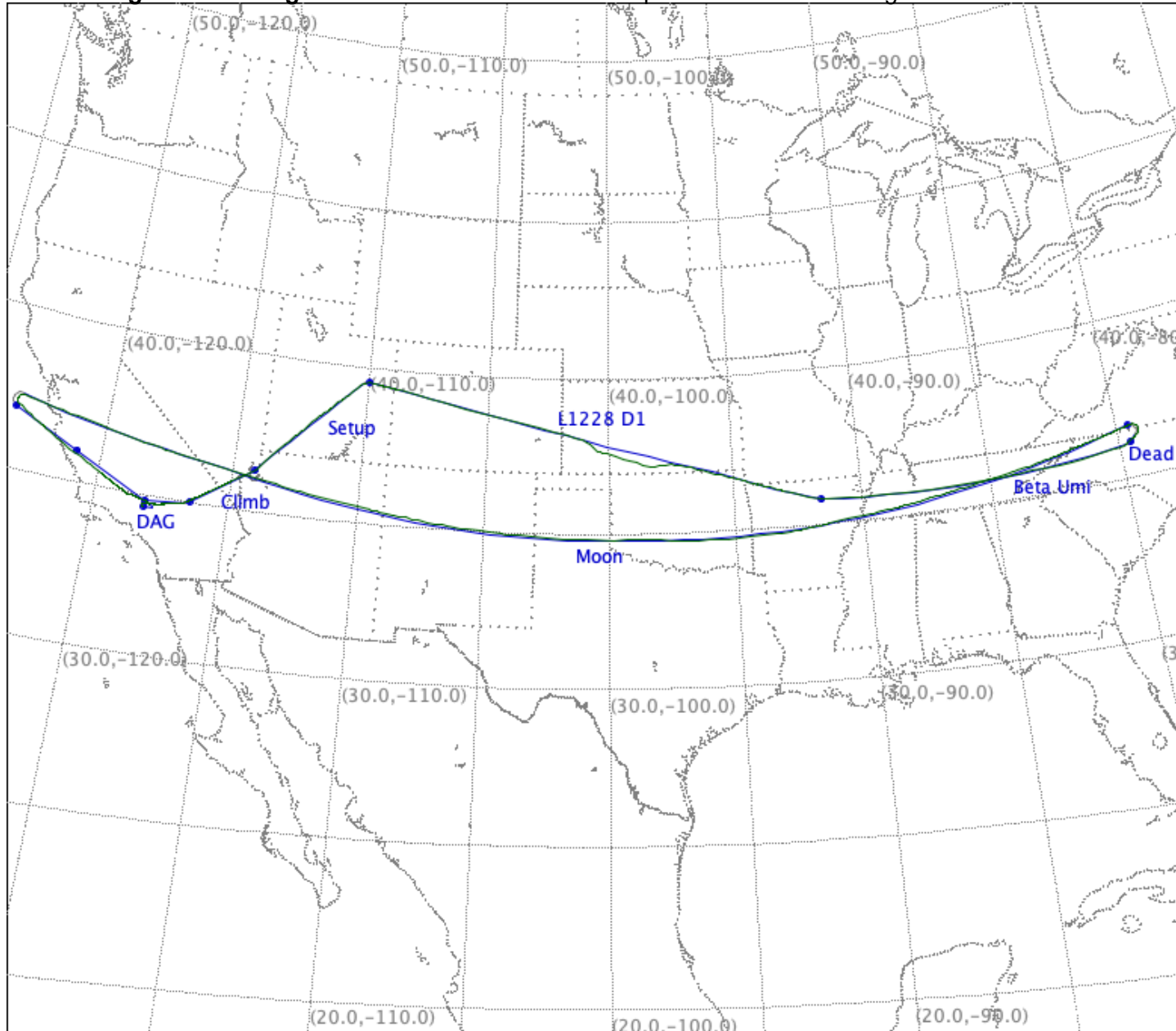
MISSION ID: 2022-05-18_FO_F871

Date: 2022-05-18UT Instrument: FORCAST

Flight #: 871 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: No irregularities.

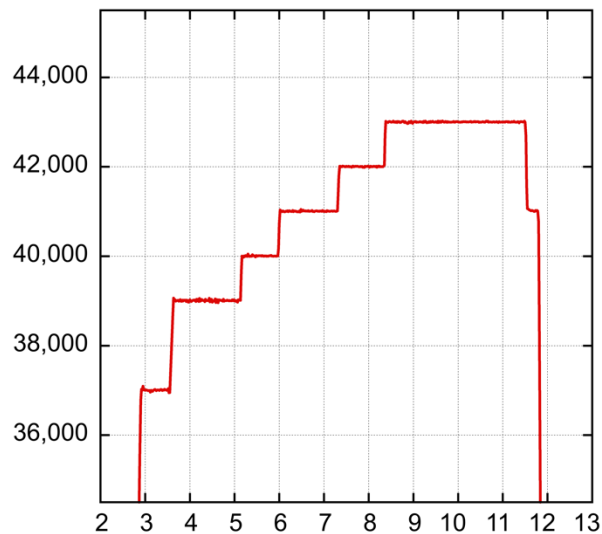
Flight 871
Palmdale to
Palmdale

Mission ID 2022-05-18_FO_F871
Take off date UTC:
18-MAY-2022

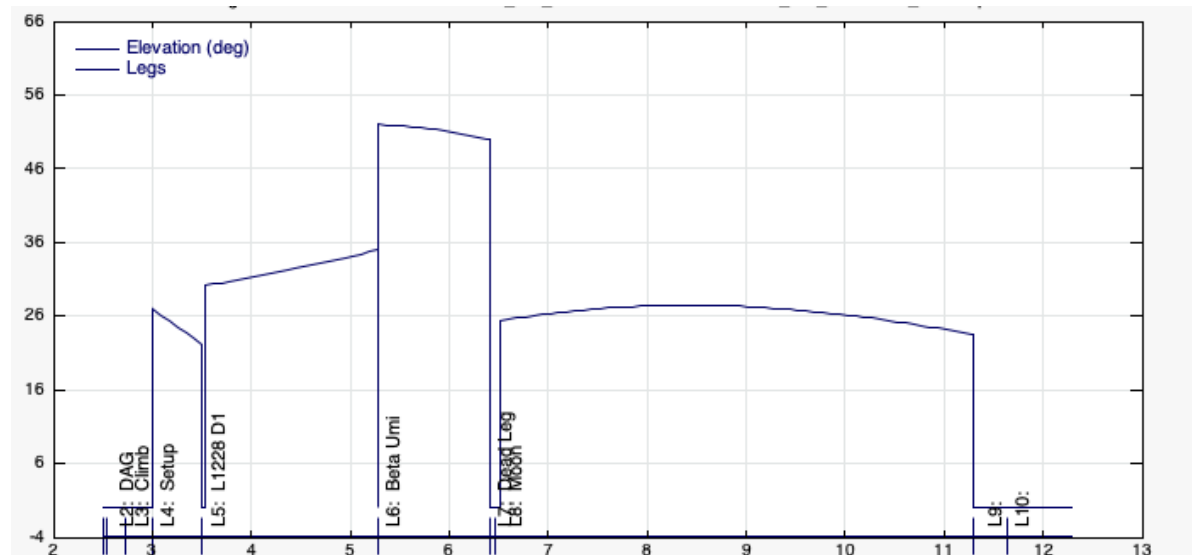
Departure UTC: 02:29
Arrival UTC: 12:10

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	05h16m41.36s	45d59m52.8s	3:00	30	
5	75_0065	Discretionary	L1228 D1	20h57m12.92s	77d36m15.0s	3:31	105	Clouds and turbulence halted data collection on 70% of leg.
6	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	5:17	67	
8	09_0171	Lucey	Moon	17h43m18.75s	-26d20m51.7s	6:31	286	

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



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



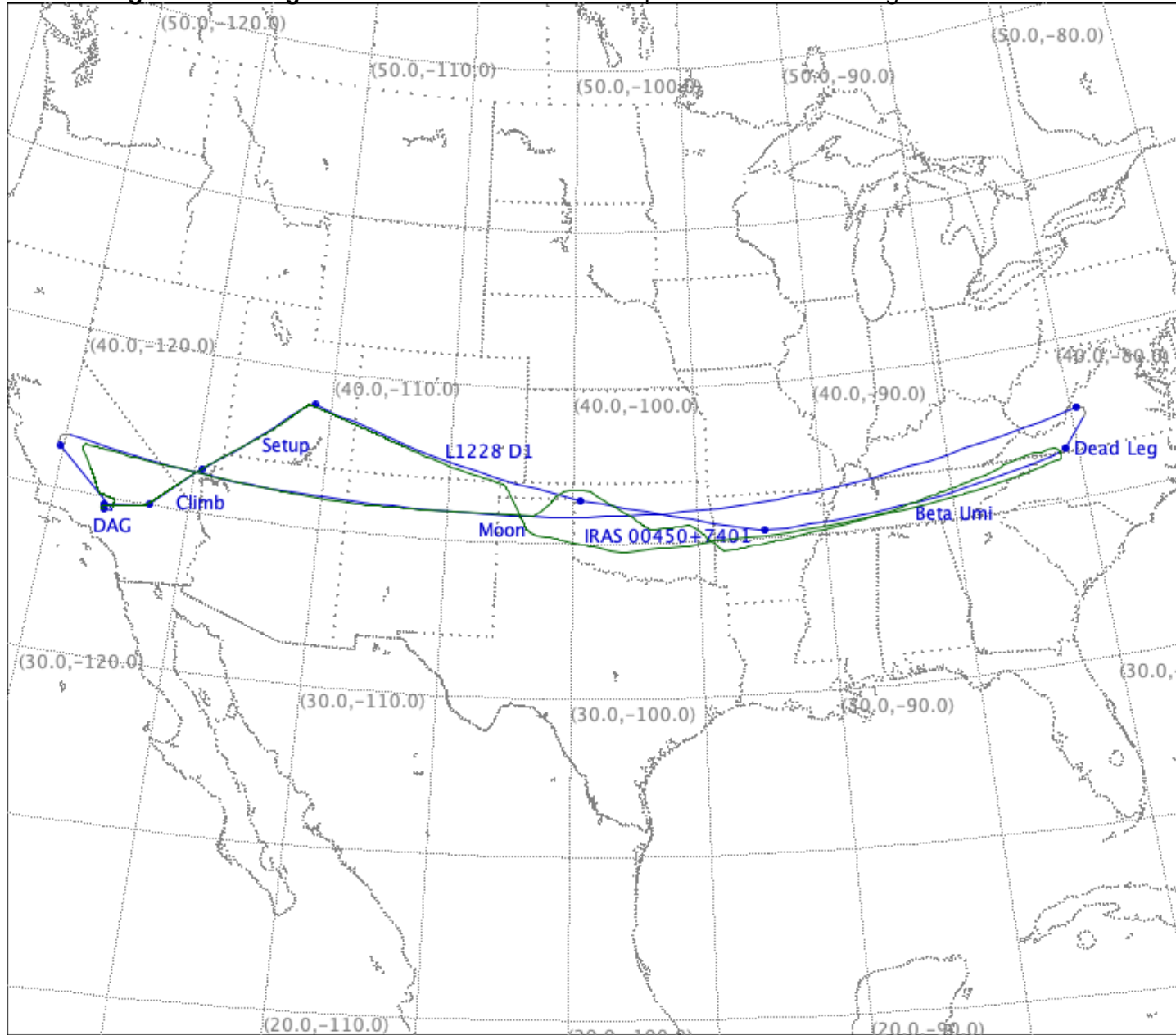
MISSION ID: 2022-05-19_FO_F872

Date: 2022-05-19UT Instrument: FORCAST

Flight #: 872 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes:

Significant clouds and deviations for storms caused loss of data collecting time on all but leg 7.

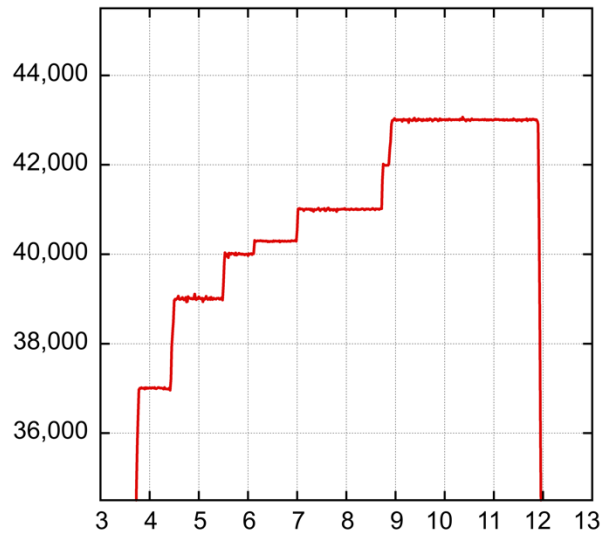
Flight 872
Palmdale to
Palmdale

Mission ID 2022-05-19_FO_F872
Take off date UTC:
19-MAY-2022

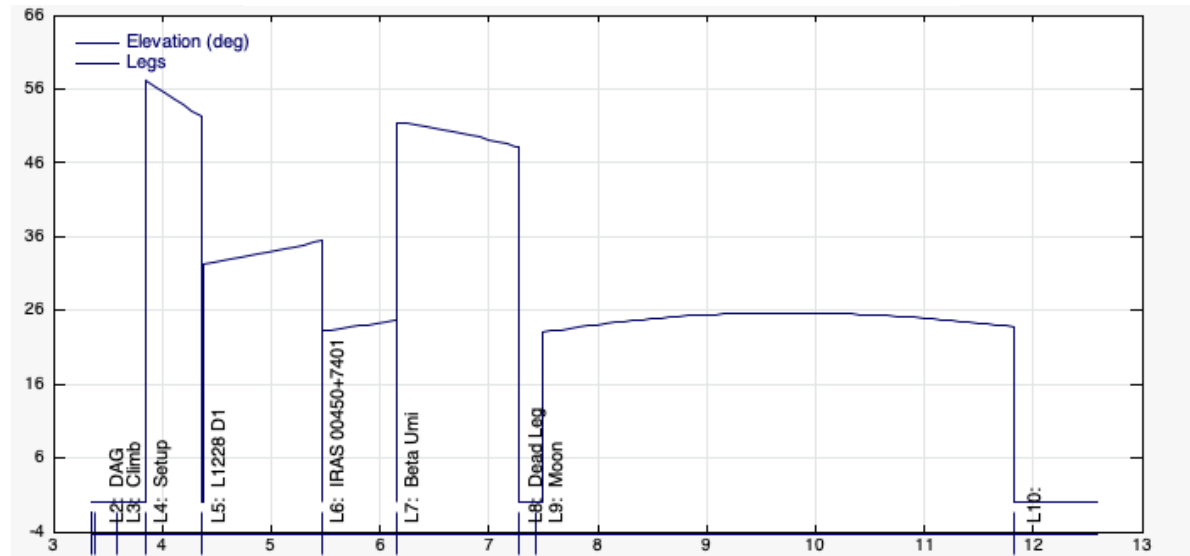
Departure UTC: 03:22
Arrival UTC: 12:14

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	09h16m11.33s	54d01m18.7s	3:51	30	
5	75_0065	Discretionary	L1228 D1	20h57m12.92s	77d36m15.0s	4:23	65	Deviation for weather led to loss of last 20min of leg.
6	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	5:28	41	Clouds all leg, no data collected
7	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	6:10	67	
9	09_0171	Lucey	Moon	18h52m40.68s	-26d55m39.5s	7:30	260	Middle 25% of leg lost due to clouds

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



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



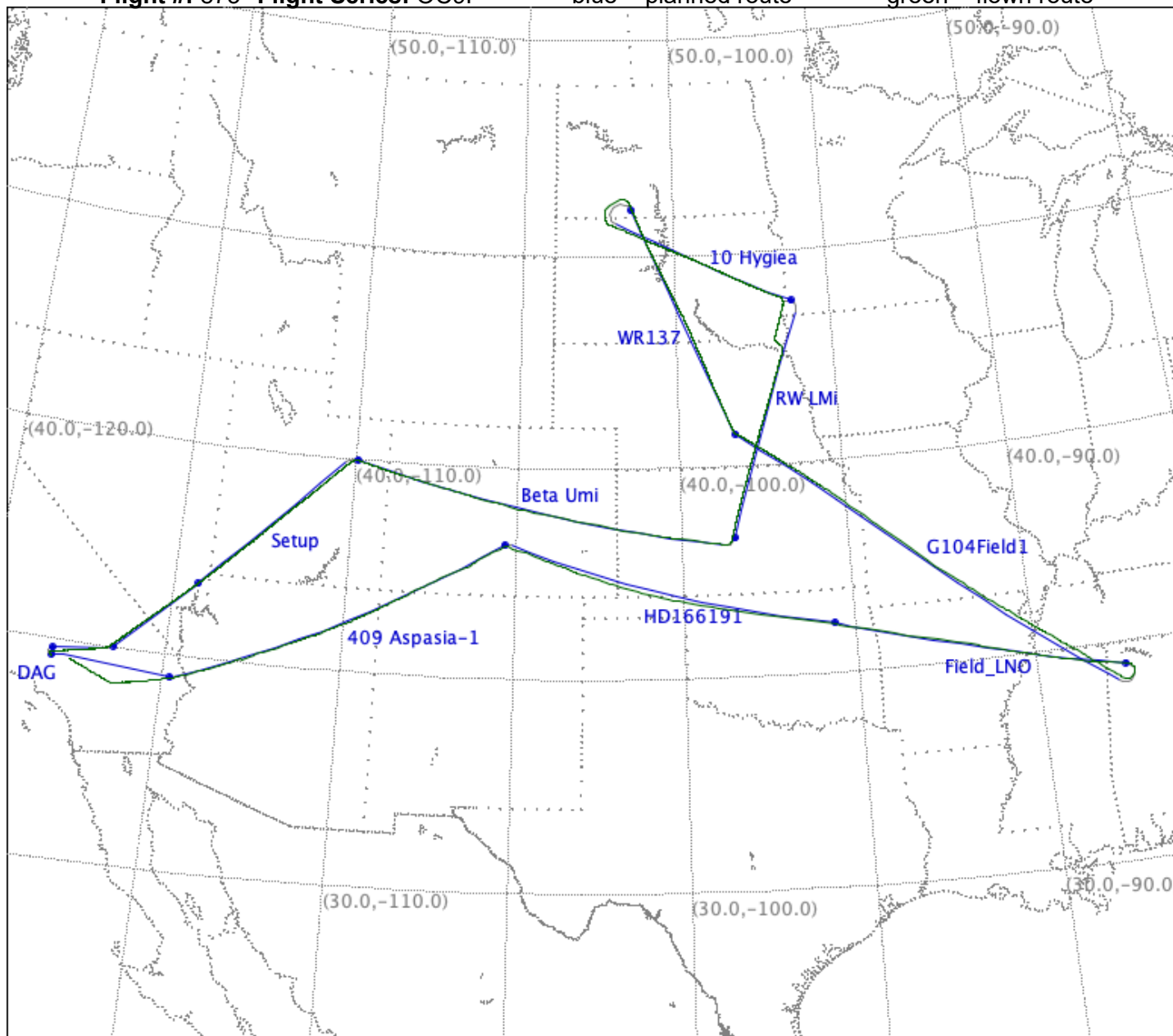
MISSION ID: 2022-05-20_FO_F873

Date: 2022-05-20UT Instrument: FORCAST

Flight #: 873 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Some clouds and deviations for storms.

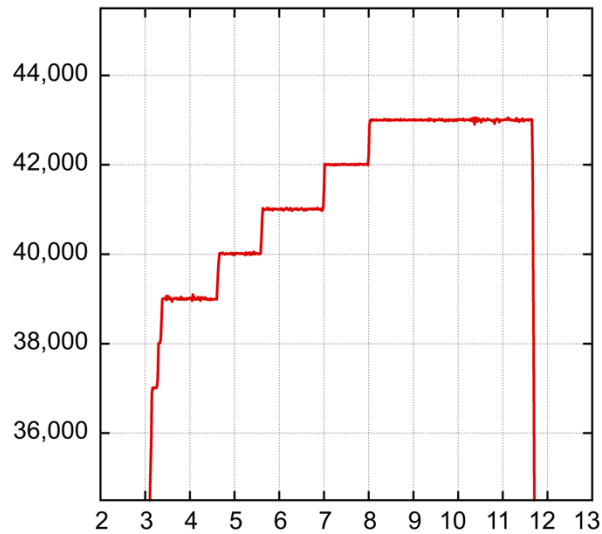
Flight 873
Palmdale to
Palmdale

Mission ID 2022-05-20_FO_F873
Take off date UTC:
20-MAY-2022

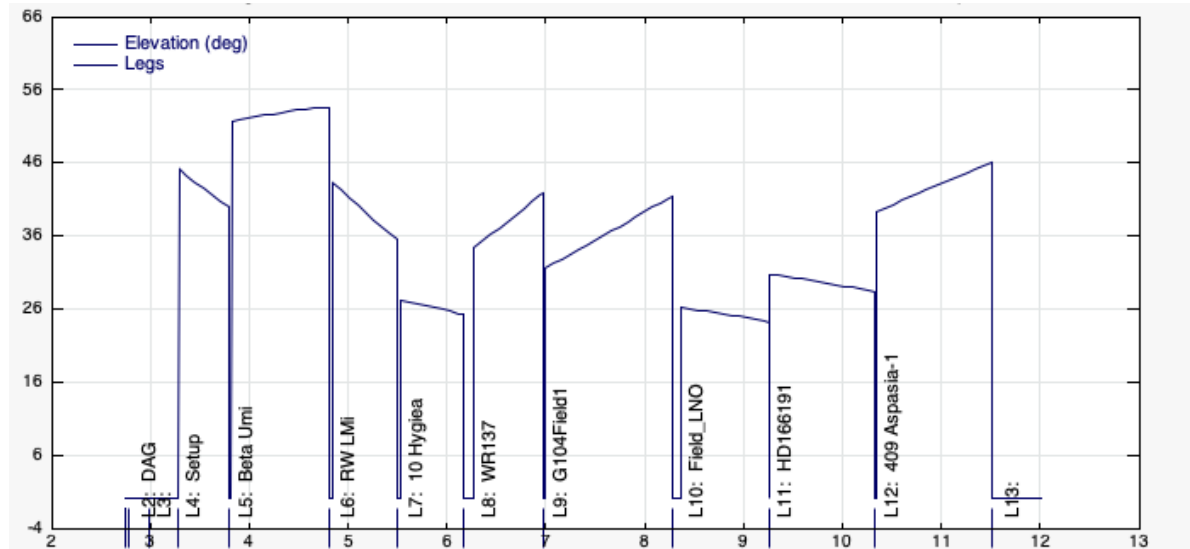
Departure UTC: 02:44
Arrival UTC: 12:10

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	07h26m42.85s	49d12m41.5s	3:17	30	
5	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	3:49	59	Some turbulence.
6	09_0145	Sloan	RW LMi	10h16m02.28s	30d34m19.0s	4:50	39	Lost last six minutes to deviate due to weather
7	90_0097	Calibration	10 Hygiea	14h02m07.42s	-17d46m47.9s	5:31	38	
8	09_0163	Richardson	WR137	20h14m31.77s	36d39m39.6s	6:16	42	
9	09_0031	Hora	G104	22h22m04.69s	58d43m16.5s	6:59	77	
10	09_0216	Hankins	Galactic Center	17h44m27.86s	-29d25m50.2s	8:22	53	
11	09_0027	Su	HD166191	18h10m30.34s	-23d34m00.3s	9:15	64	Clouds throughout leg, but continued collecting data
12	75_0104	Discretionary	409 Aspasia	20h40m53.55s	-07d46m32.4s	10:20	70	

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



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

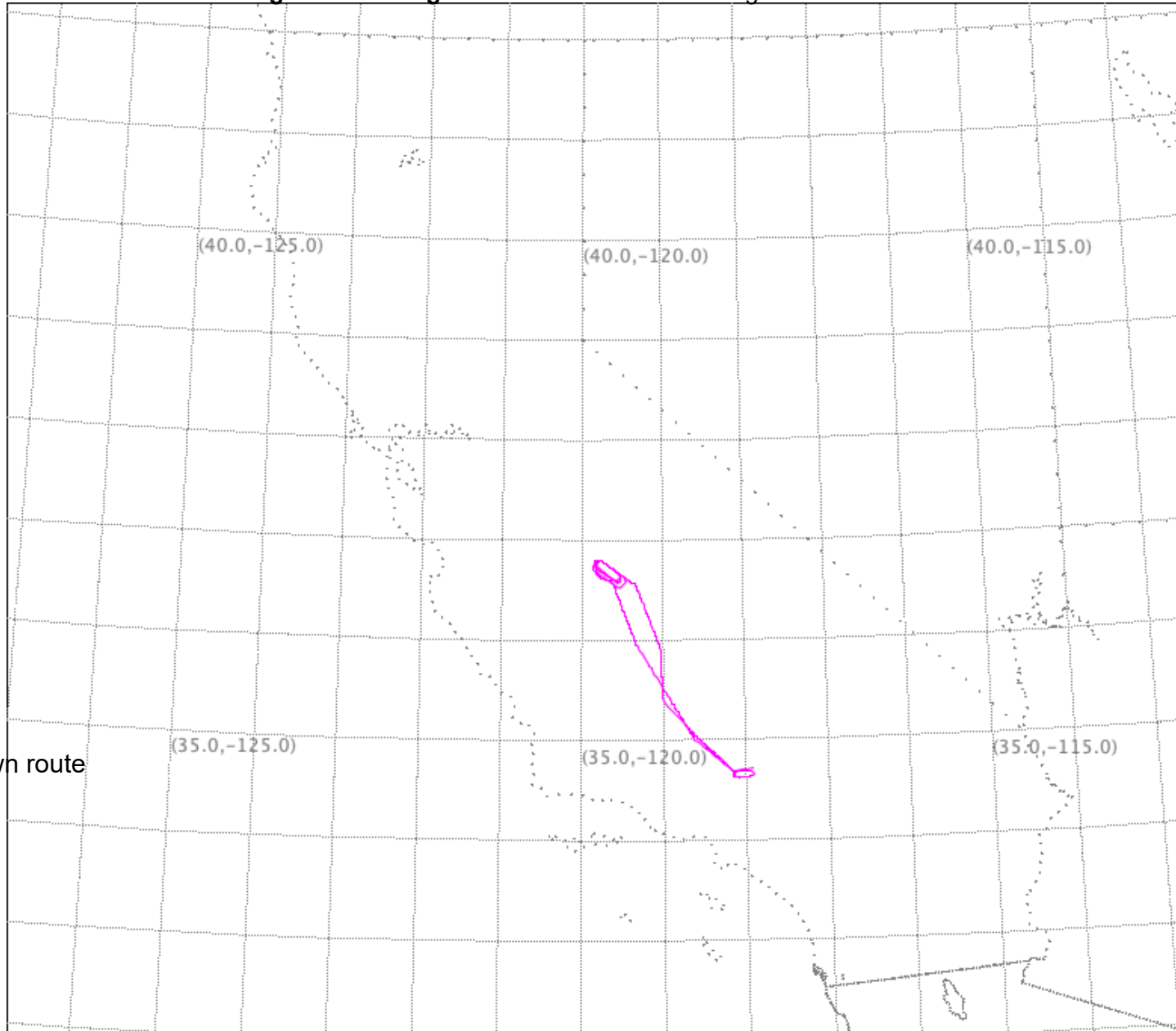


MISSION ID: n/a

Date: 2022-05-21UT Instrument: n/a

Flight #: 874 Flight Series: n/a

magenta = flown route



magenta = flown route

Flight notes:
Check flight – no science.

Flight 849
Palmdale to
Palmdale

Mission ID n/a
Take off date UTC:
21-MAY-2022

Departure UTC: 17:39
Arrival UTC: 19:52

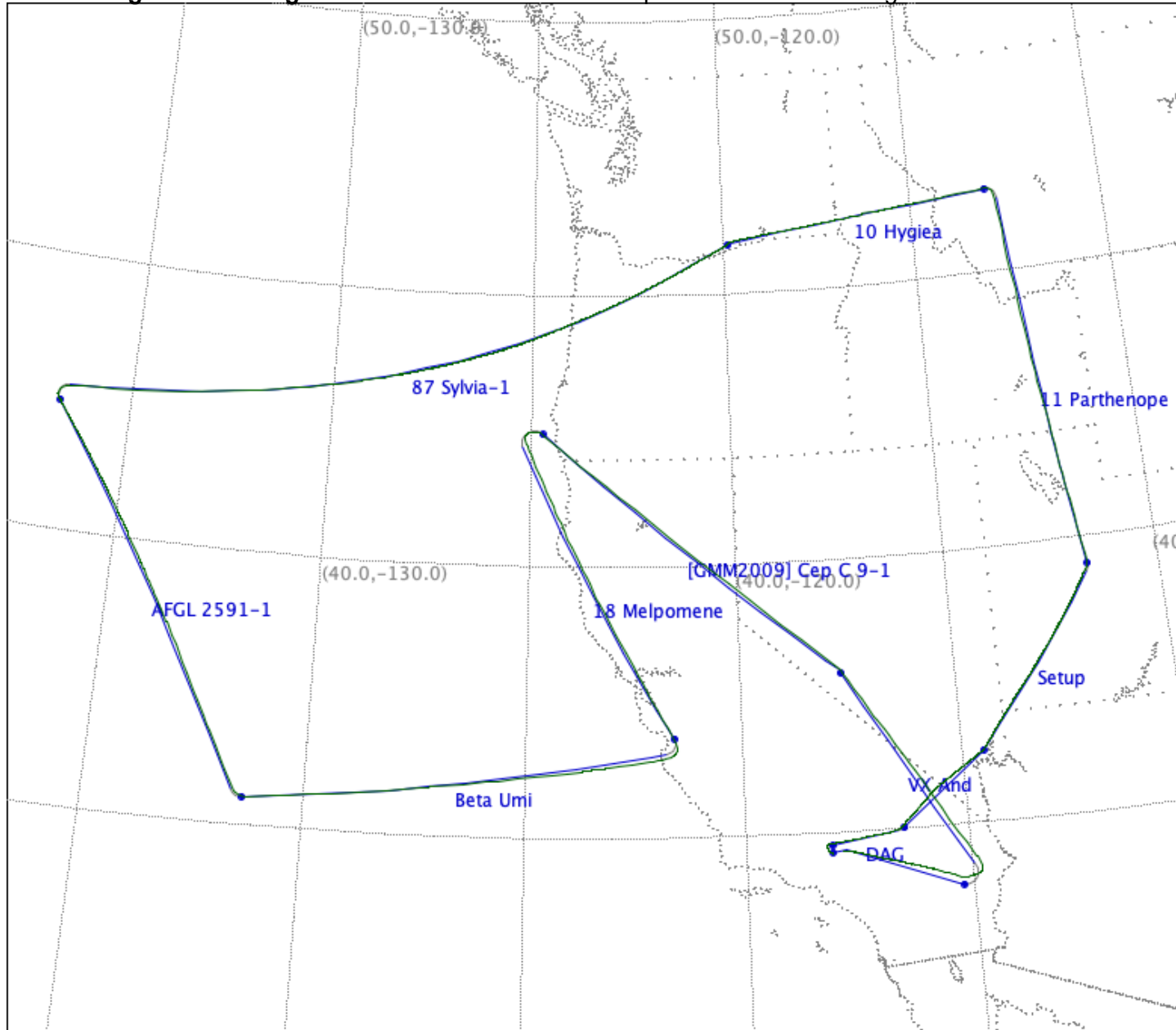
MISSION ID: 2022-05-24_FO_F875

Date: 2022-05-24UT Instrument: FORCAST

Flight #: 875 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: No irregularities.

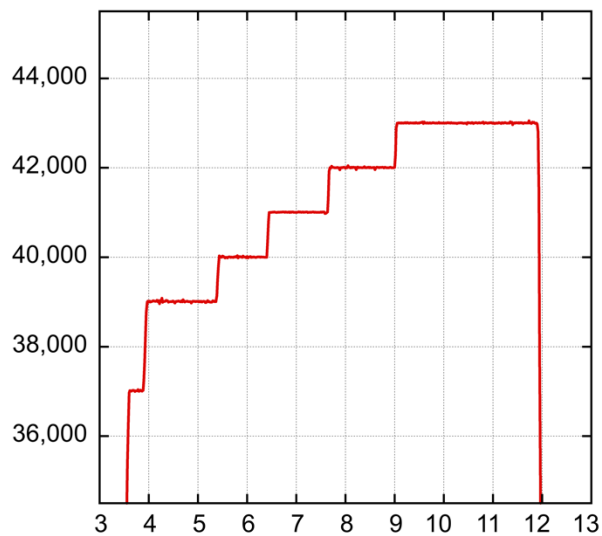
Flight 875
Palmdale to
Palmdale

Mission ID 2022-05-24_FO_F875
Take off date UTC:
24-MAY-2022

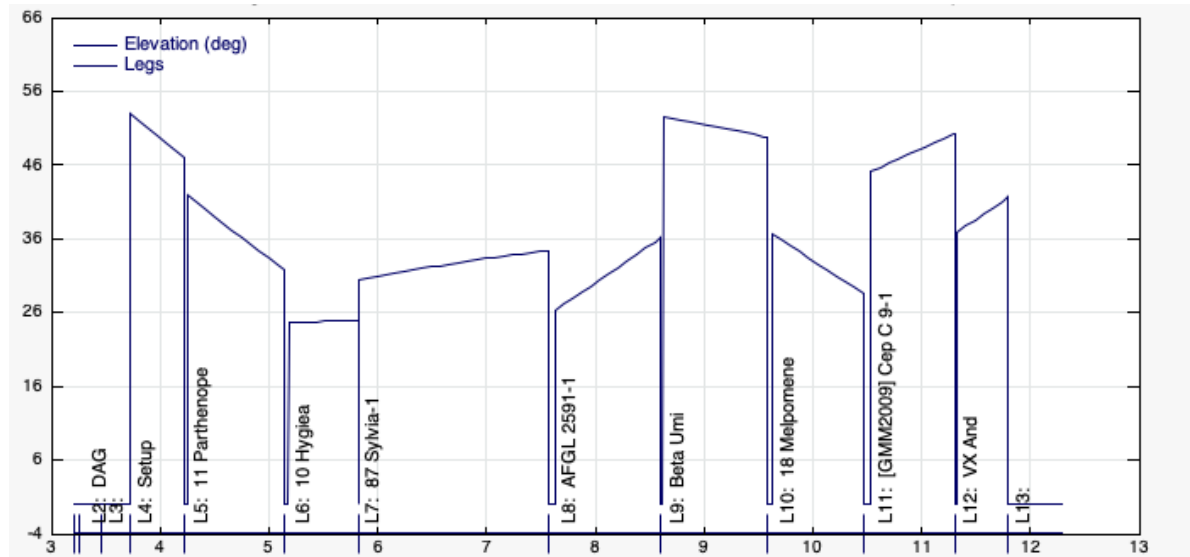
Departure UTC: 03:11
Arrival UTC: 12:18

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	09h00m38.37s	41d46m58.5s	3:43	30	
5	09_0176	McAdam	11 Parthenope	09h39m34.46s	17d00m19.3s	4:14	54	
6	90_0097	Calibration	10 Hygiea	14h00m01.69s	-17d29m06.7s	5:10	38	
7	08_0105	Humes	87 Sylvia	14h55m34.86s	-10d28m15.3s	5:49	105	
8	09_0092	Pitts	AFGL 2591	20h29m25.04s	40d11m20.3s	7:37	58	10 min lost due to pointing challenges
9	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	8:37	57	
10	09_0176	McAdam	18 Melpomene	14h51m35.70s	-00d19m59.9s	9:37	50	
11	09_0006	Karnath	Cep C	23h05m45.80s	62d30m22.0s	10:31	46.7	
12	09_0145	Sloan	VX And	00h19m54.02s	44d42m33.9s	11:18	28.4	

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



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



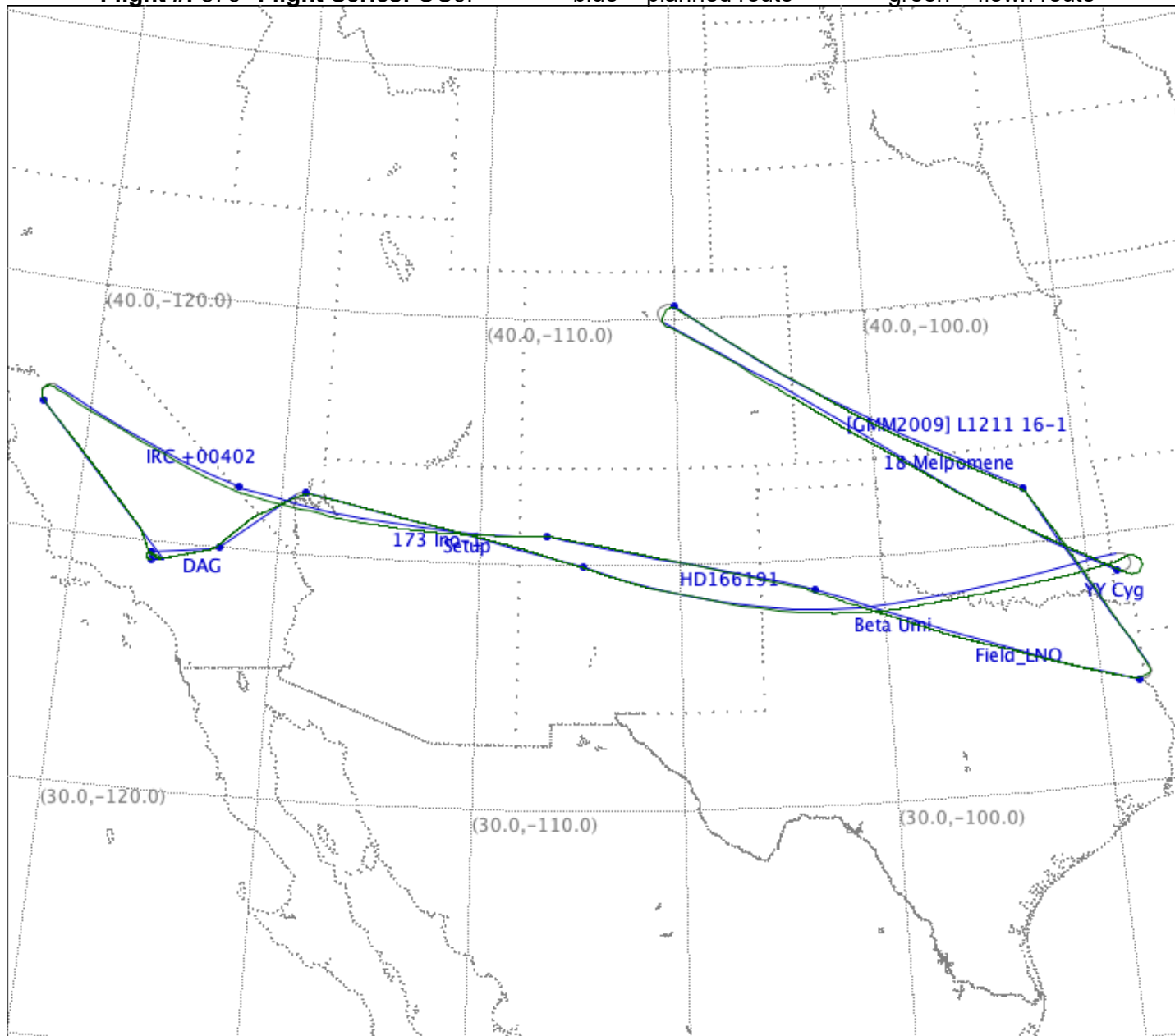
MISSION ID: 2022-05-25_FO_F876

Date: 2022-05-25UT Instrument: FORCAST

Flight #: 876 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Intermittent turbulence.

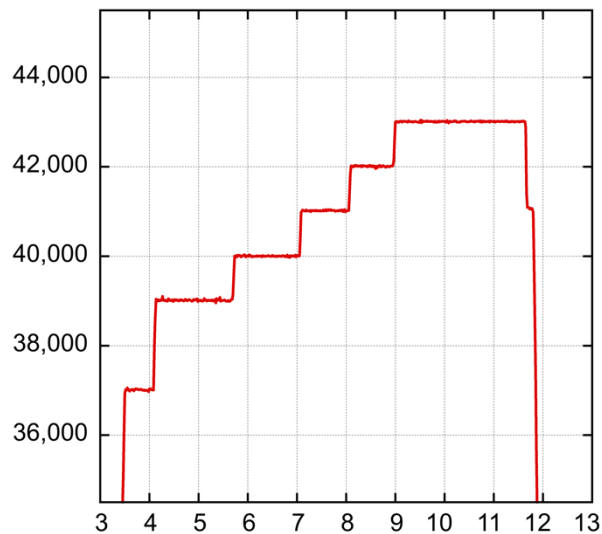
Flight 876
Palmdale to
Palmdale

Mission ID 2022-05-25_FO_F876
Take off date UTC:
25-MAY-2022

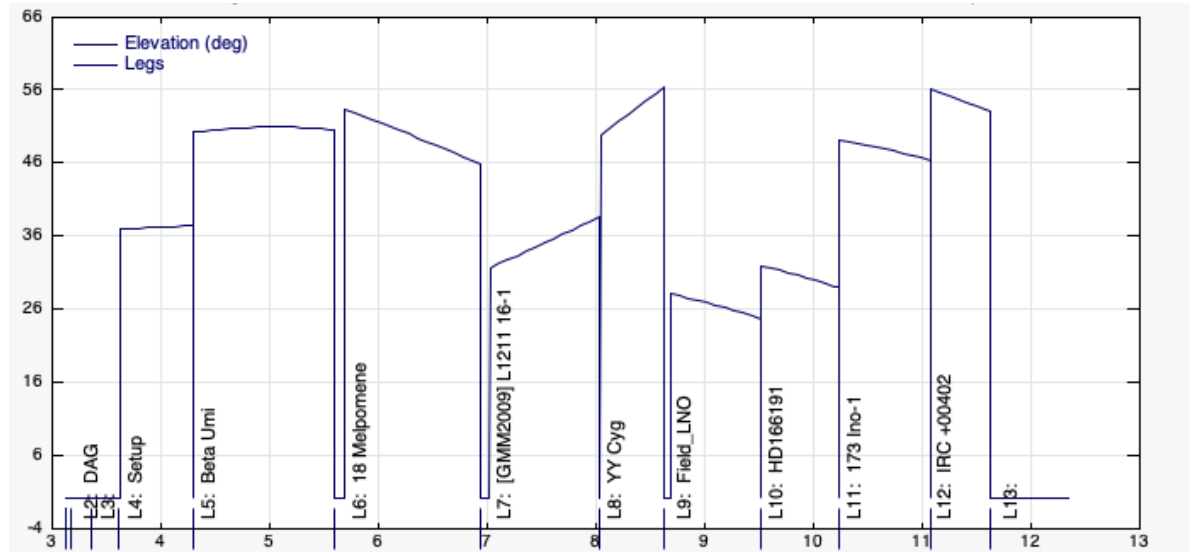
Departure UTC: 03:06
Arrival UTC: 12:20

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	17h32m12.99s	86d35m11.3s	3:38	40	
5	90_0096_01	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	4:18	78	Turbulence.
6	09_0176_08	McAdam	18 Melpomene	14h50m52.71s	-00d18m06.8s	5:42	75	
7	09_0006_15	Karnath	L1211	22h47m12.21s	62d01m43.5s	7:02	60	
8	09_0145_09	Sloan	YY Cyg	21h22m28.71s	42d23m46.5s	8:03	35	Significant turbulence led to 7min loss
9	09_0216_03	Hankins	Galactic Center	17h44m27.86s	-29d25m50.2s	8:41	50	Turbulence at beginning of leg.
10	09_0027_01	Su	HD166191	18h10m30.34s	-23d34m00.3s	9:31	43	
11	75_0104_11	Discretionary	173 Ino	19h03m45.76s	-05d40m16.0s	10:15	50	
12	09_0046_04	Kraemer	IRC +00402	18h58m24.27s	04d39m55.3s	11:05	33	

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



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



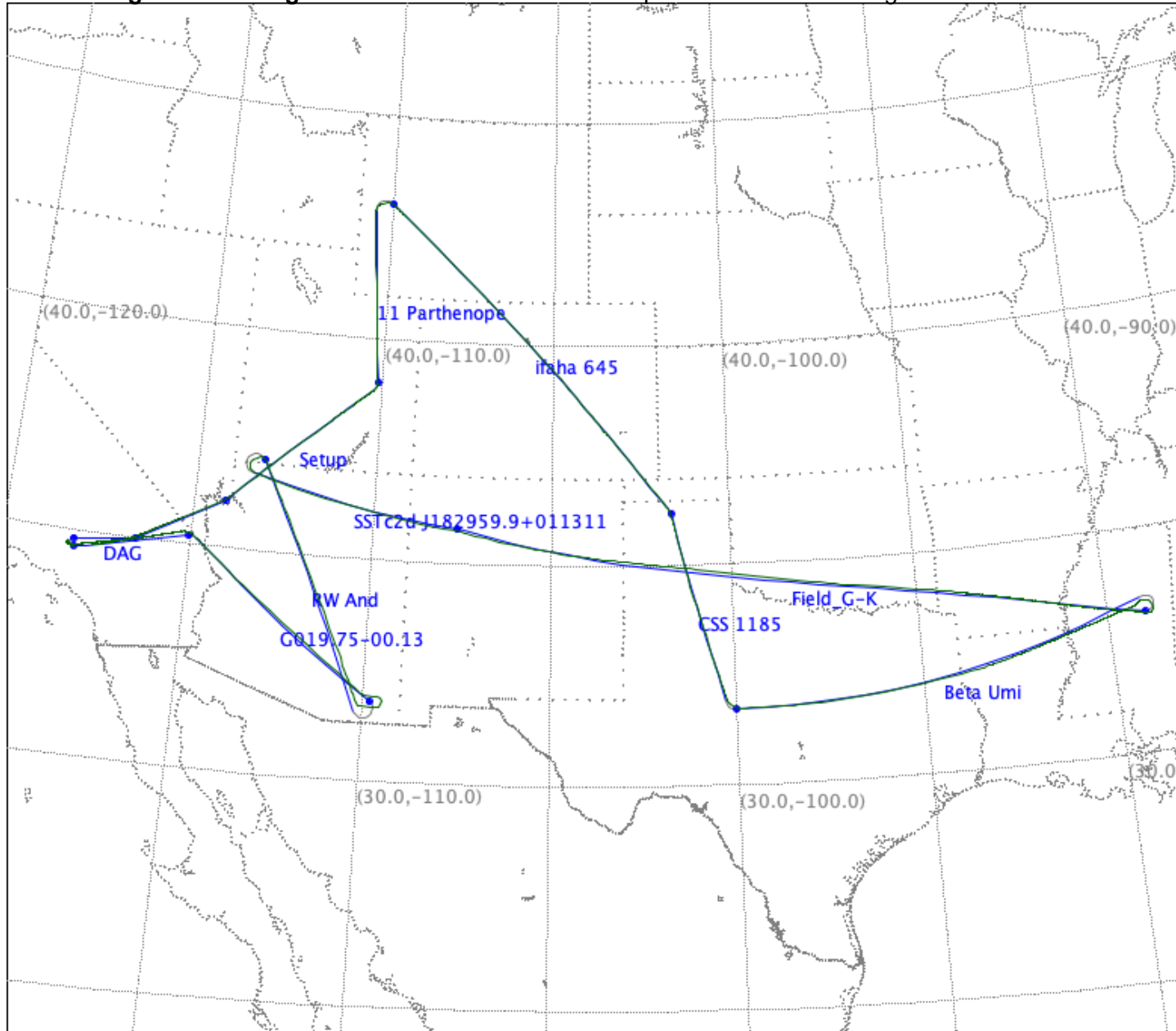
MISSION ID: 2022-05-26_FO_F877

Date: 2022-05-26UT Instrument: FORCAST

Flight #: 877 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Turbulence event on leg 9.

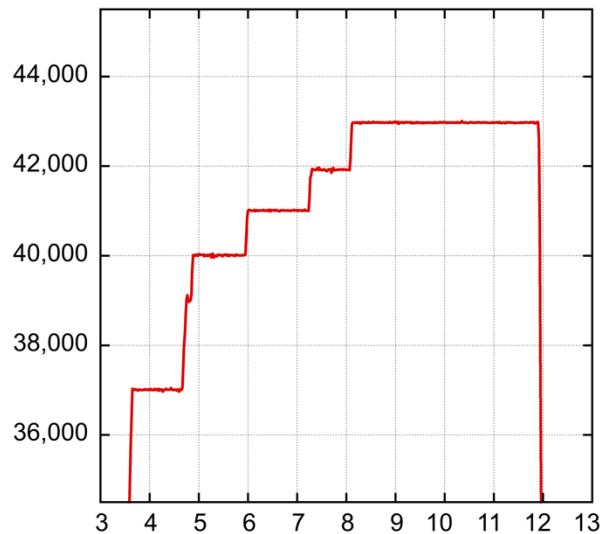
Flight 877
Palmdale to
Palmdale

Mission ID 2022-05-26_IN_F877
Take off date UTC:
26-MAY-2022

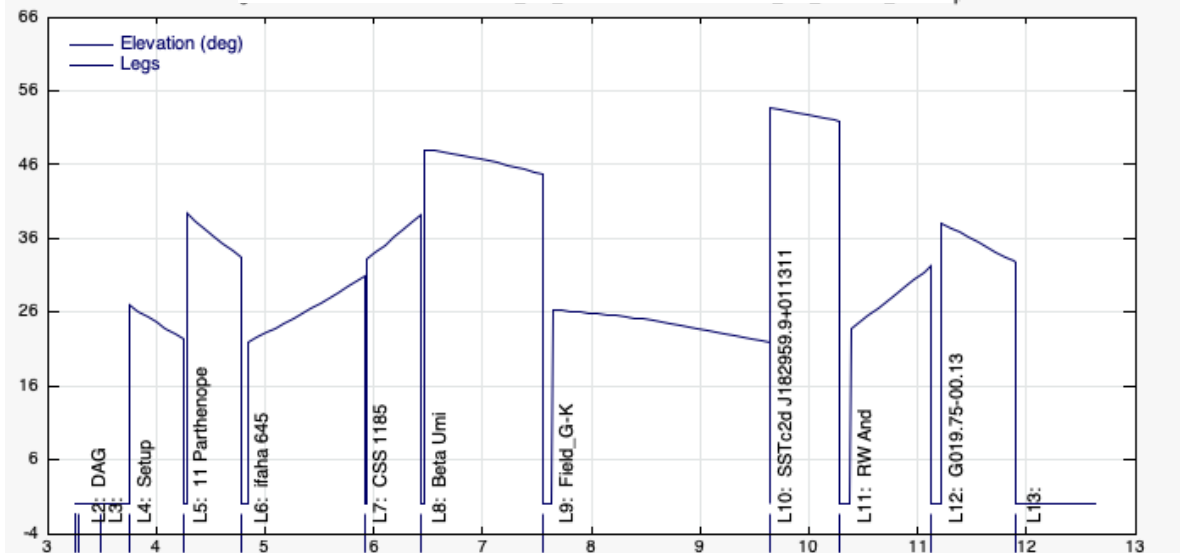
Departure UTC: 03:13
Arrival UTC: 12:24

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	06h24m53.90s	49d17m16.4s	3:45	30	
5	09_0176	McAdam	11 Parthenope	09h41m39.89s	16d49m55.8s	4:17	30	
6	09_0006	Karnath	ifaha 645	21h03m54.63s	50d14m37.0s	4:50	64.6	
7	09_0046	Kraemer	CSS 1185	20h03m10.02s	29d59m11.3s	5:56	30	
8	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	6:28	65	
9	09_0216	Hankins	Galactic Center	17h44m58.70s	-29d14m36.4s	7:38	120	Major turbulence at beginning of leg caused some loss of observing time
10	09_0006	Karnath	SSTc2d J182959.9+011311	18h29m59.92s	01d13m11.6s	9:38	38	
11	09_0046	Kraemer	RW And	00h47m18.91s	32d41m08.2s	10:23	44.1	
12	09_0085	Tan	G019.75-00.13	18h27m31.60s	-11d45m54.7s	11:13	41.1	Last 15min had bright skies but guiding seemed to be ok.

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



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



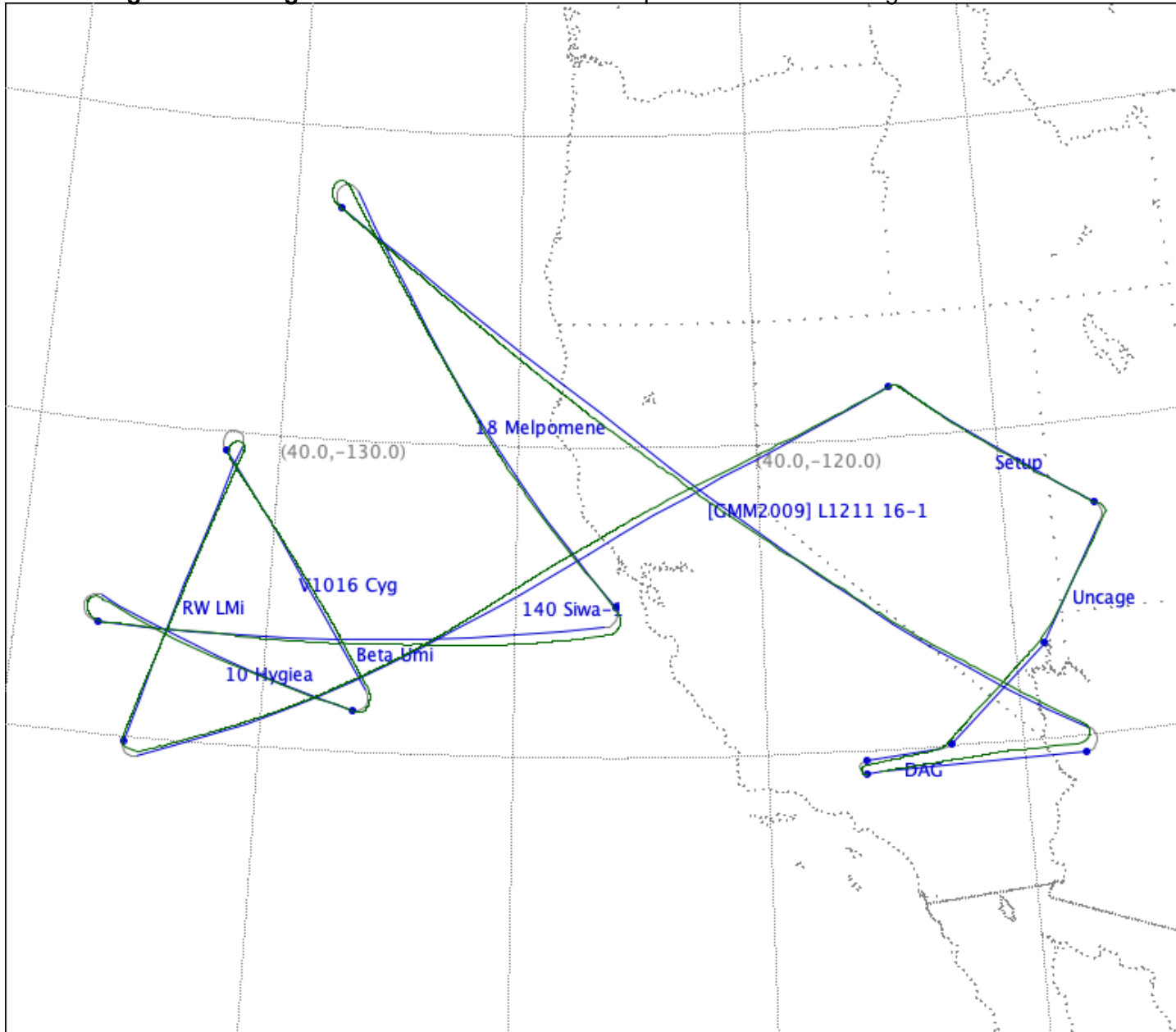
MISSION ID: 2022-05-27_FO_F878

Date: 2022-05-27UT Instrument: FORCAST

Flight #: 878 Flight Series: OC9P

blue = planned route

green = flown route



Flight notes: Significant turbulence on several legs.

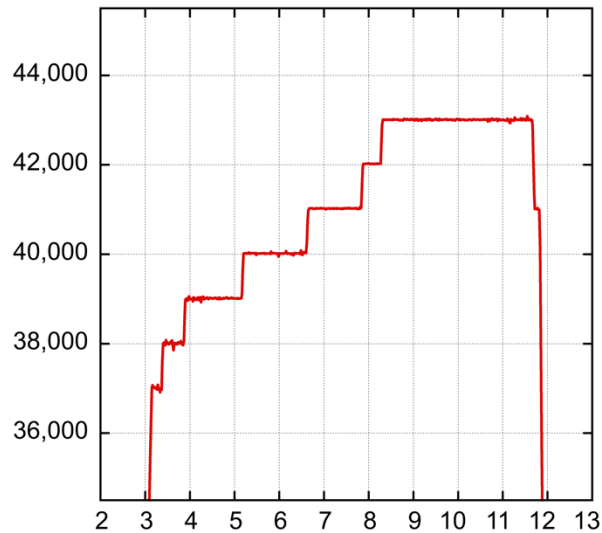
Flight 878
Palmdale to
Palmdale

Mission ID 2022-05-27_FO_F878
Take off date UTC:
27-MAY-2022

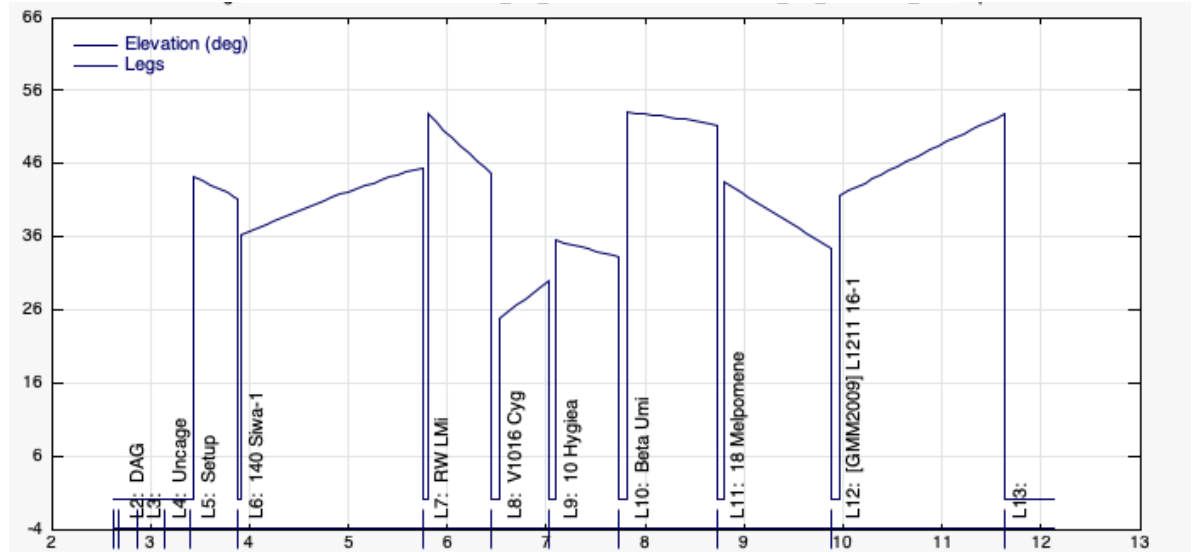
Departure UTC: 02:38
Arrival UTC: 12:25

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	10h51m05.41s	-03d05m33.6s	3:26	27	
6	08_0105	Humes	140 Siwa	14h04m30.75s	-07d56m10.7s	3:55	110	Turbulence.
7	09_0145	Sloan	RW LMi	10h16m02.28s	30d34m19.0s	5:48	37.9	
8	09_0051	Sankrit	V1016 Cyg	19h57m05.02s	39d49m36.1s	6:32	30	
9	90_0097	Calibration	10 Hygiea	13h58m37.58s	-17d16m10.9s	7:06	38	
10	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	7:49	55	Turbulence.
11	09_0176	McAdam	18 Melpomene	14h49m06.09s	-00d13m56.5s	8:48	65	Turbulence.
12	09_0006	Karnath	L1211	22h47m12.21s	62d01m43.5s	9:58	100.18	Turbulence.

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



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



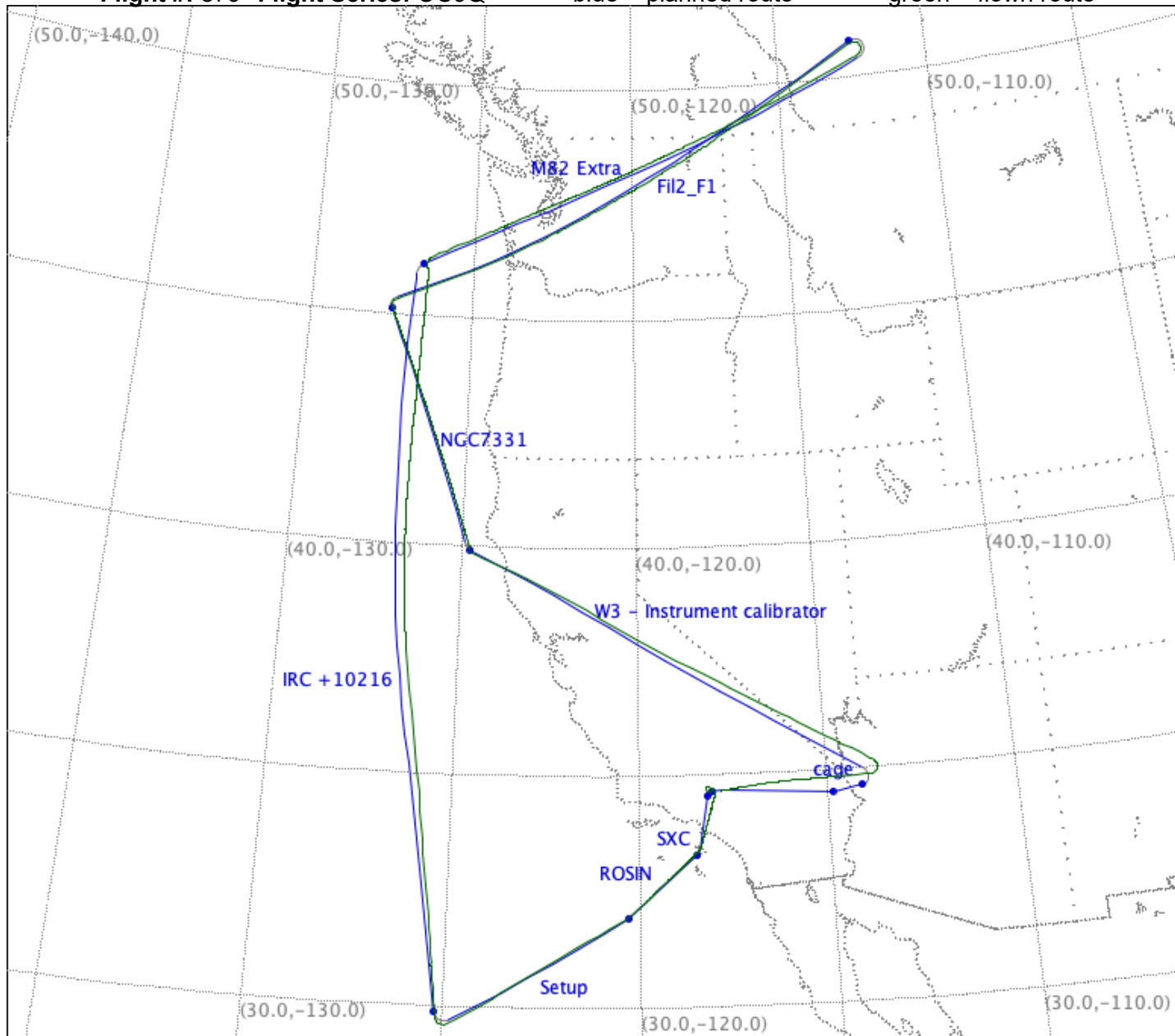
MISSION ID: 2022-06-01_HA_F879

Date: 2022-06-01UT Instrument: HAWC+

Flight #: 879 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: No irregularities.

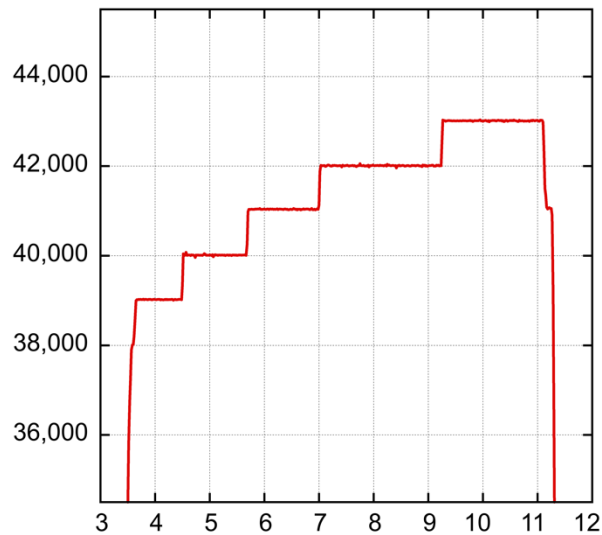
Flight 879
Palmdale to
Palmdale

Mission ID 2022-06-01_HA_F879
Take off date UTC:
01-JUN-2022

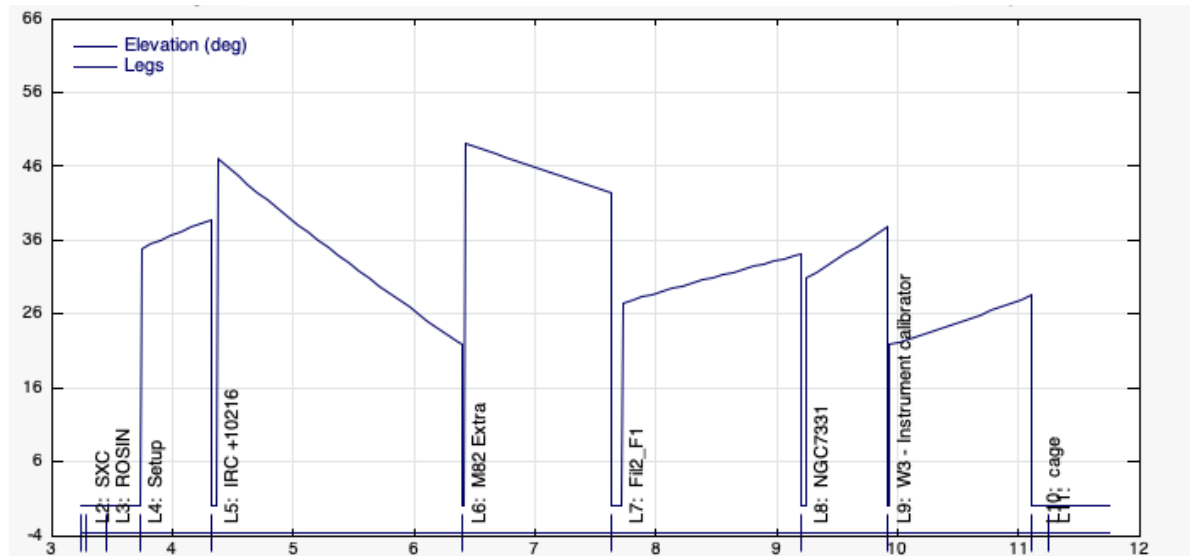
Departure UTC: 03:10
Arrival UTC: 11:47

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	14h10m50.49s	-16d18m07.3s	3:44	35	
5	90_0086	Calibration	IRC +10216	09h47m57.41s	13d16m43.6s	4:22	121	
6	08_0012	Lopez-Rodriguez	M82 Extra	09h55m52.43s	69d40m46.9s	6:25	73	
7	08_0186	Stephens	Fil2	18h38m48.97s	-07d04m08.1s	7:43	89	
8	08_0012	Lopez-Rodriguez	NGC7331	22h37m04.10s	34d24m57.3s	9:14	40	
9	90_0086	Calibration	W3	02h26m05.19s	62d02m01.5s	9:56	70	

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



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



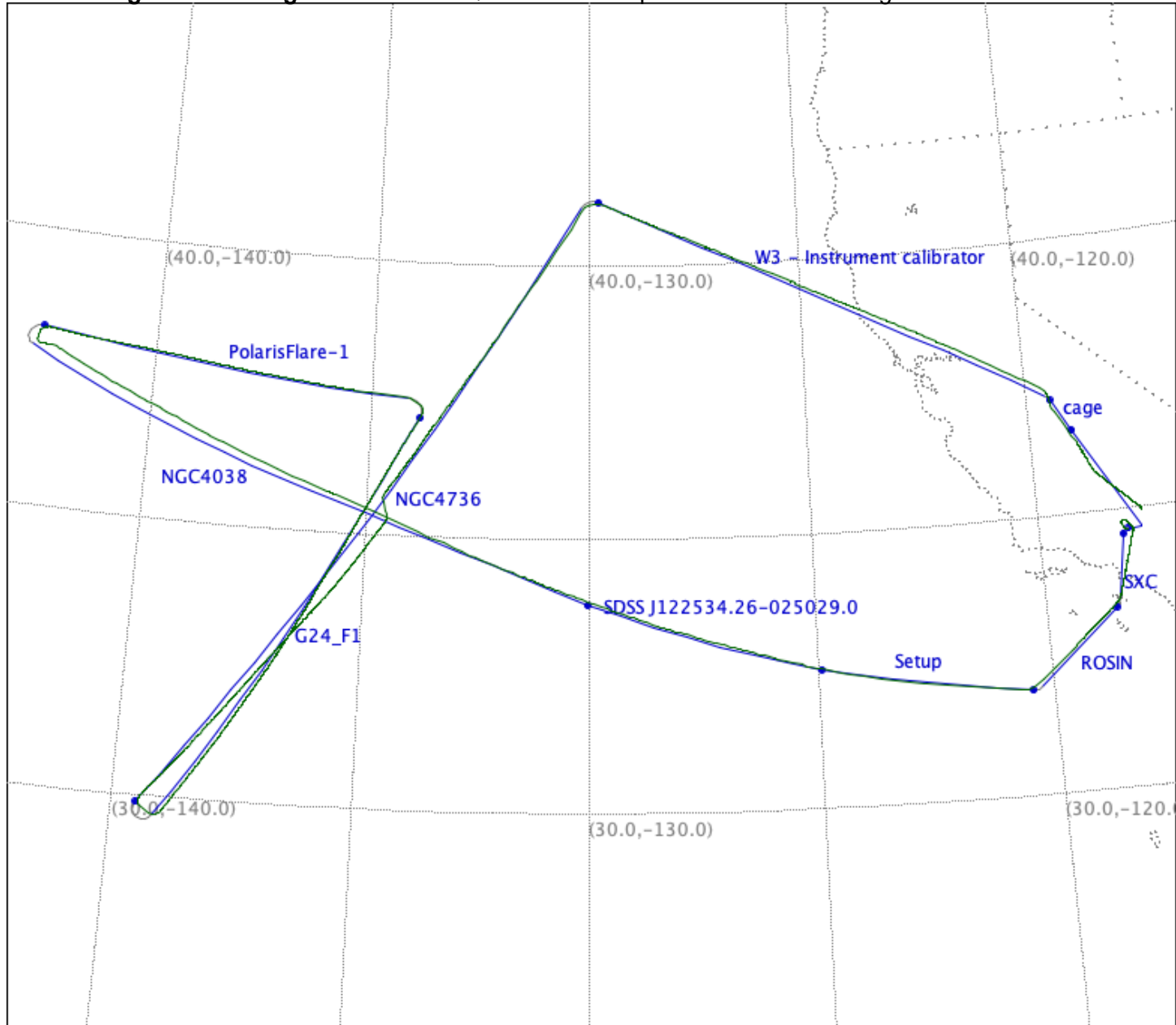
MISSION ID: 2022-06-02_HA_F880

Date: 2022-06-02UT Instrument: HAWC+

Flight #: 880 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: No irregularities.

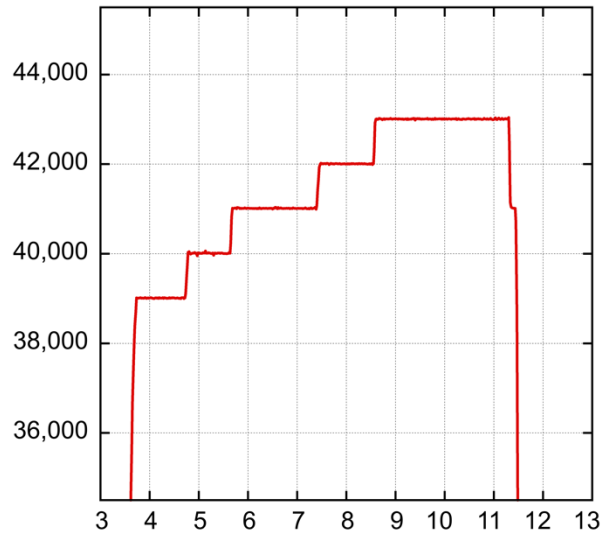
Flight 880
Palmdale to
Palmdale

Mission ID 2022-06-02_HA_F880
Take off date UTC:
02-JUN-2022

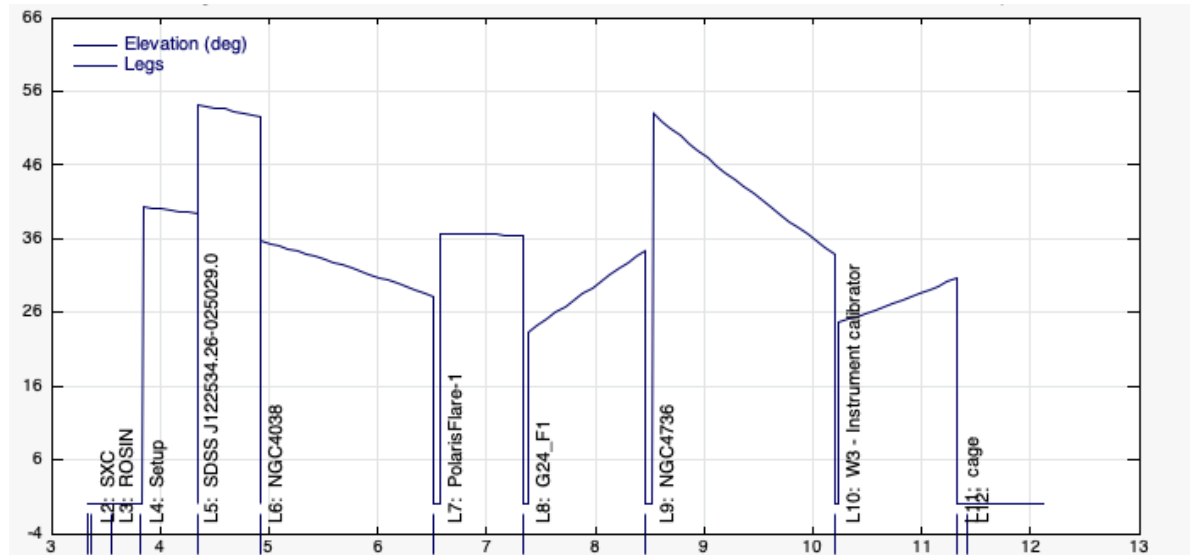
Departure UTC: 03:16
Arrival UTC: 11:53

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	12h15m48.37s	-17d32m30.9s	3:50	30	
5	09_0158	Lenkic	SDSS J122534.26-025029.0	12h25m34.26s	-02d50m29.1s	4:20	35	
6	08_0012	Lopez-Rodriguez	NGC4038	12h01m53.00s	-18d52m03.3s	4:55	95	
7	75_0081	Discretionary	PolarisFlare	01h51m30.70s	87d41m45.3s	6:34	45	
8	08_0186	Stephens	G24	18h32m49.55s	-07d51m37.3s	7:22	64	
9	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	8:31	100	
10	90_0086	Calibration	W3	02h26m05.19s	62d02m01.5s	10:14	65	

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



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



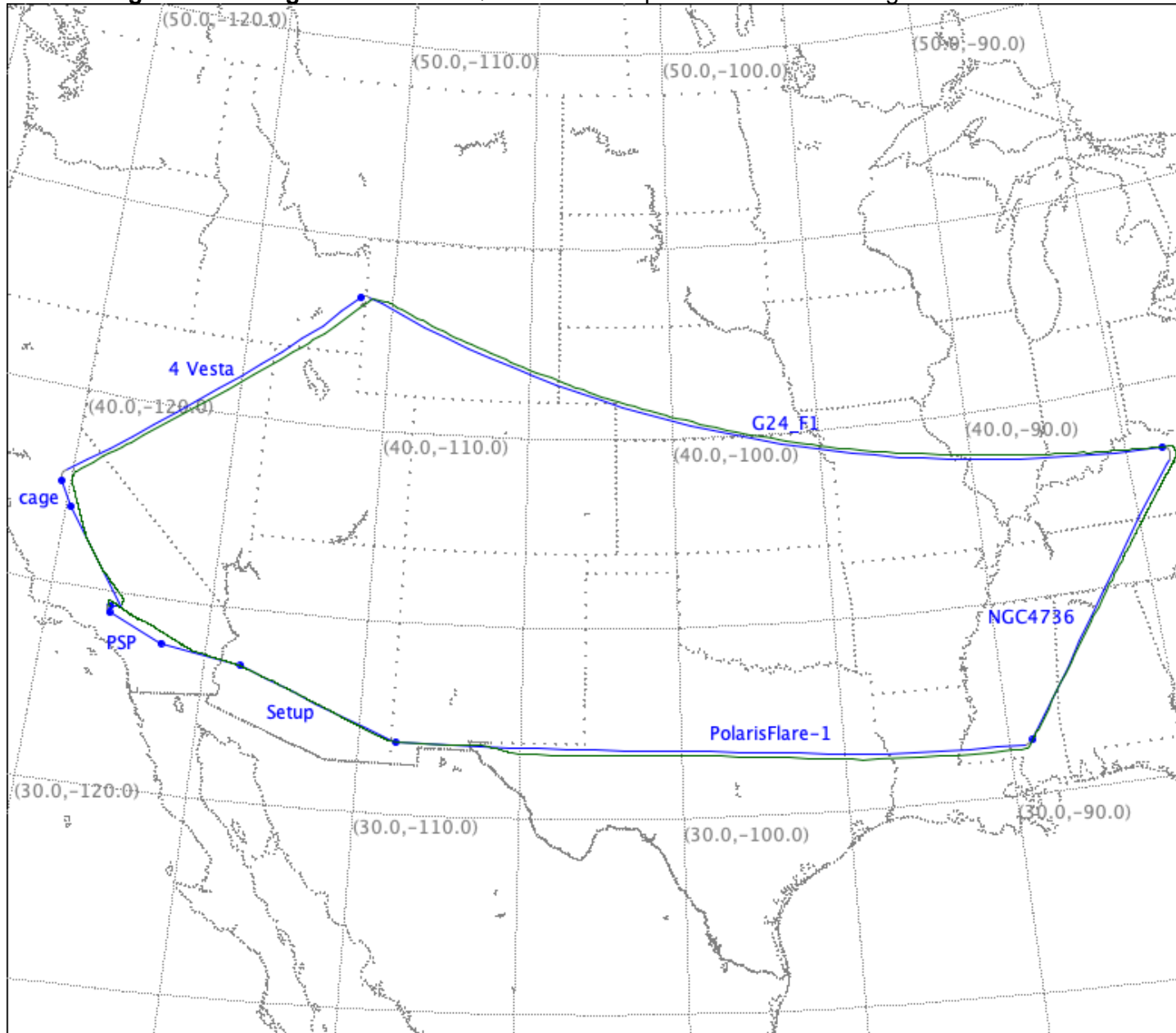
MISSION ID: 2022-06-03_HA_F881

Date: 2022-06-03UT Instrument: HAWC+

Flight #: 881 Flight Series: OC9Q

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

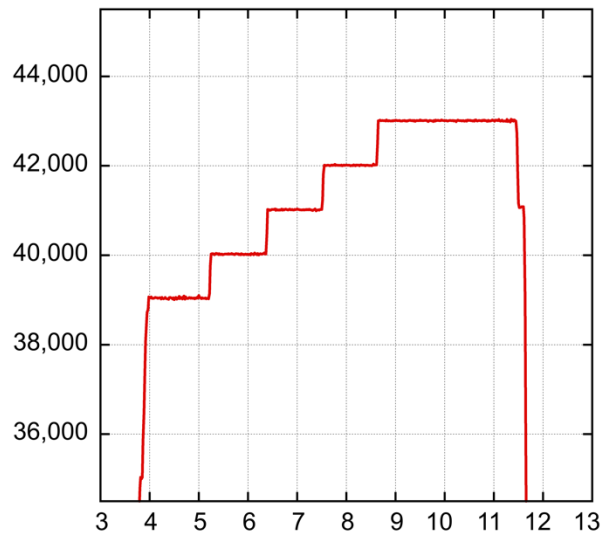
Flight 881
Palmdale to
Palmdale

Mission ID 2022-06-03_HA_F881
Take off date UTC:
03-JUN-2022

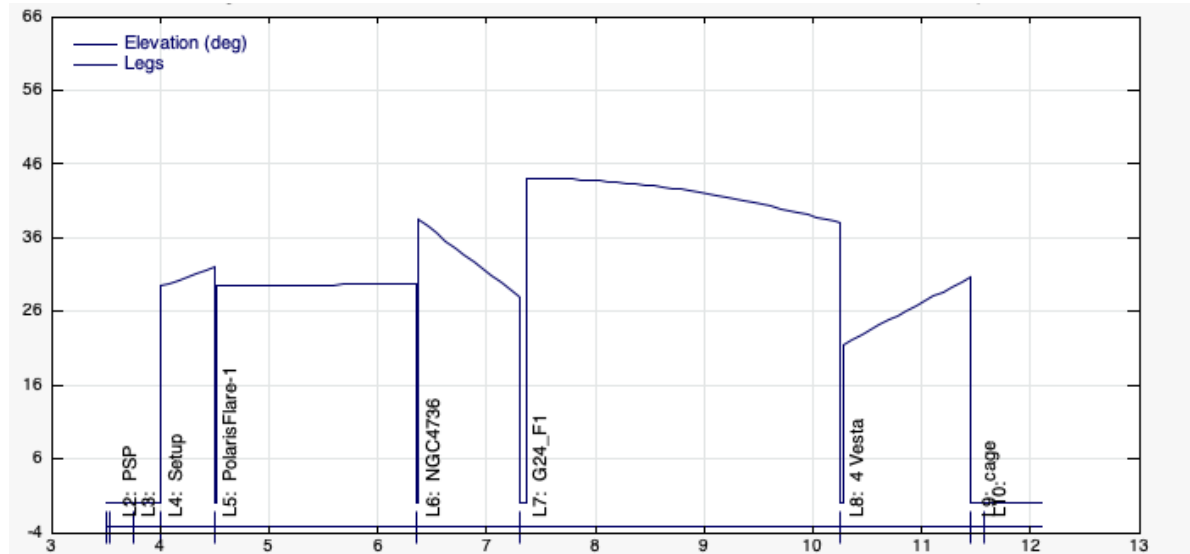
Departure UTC: 03:27
Arrival UTC: 12:06

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h32m21.59s	69d39m40.2s	4:00	30	
5	75_0081	Discretionary	PolarisFlare	01h51m30.70s	87d41m45.3s	4:30	110	Deviation for weather with some observing time lost
6	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	6:22	56	
7	08_0186	Stephens	G24	18h32m49.55s	-07d51m37.3s	7:21	173	
8	90_0083	Calibration	4 Vesta	22h21m54.40s	-13d42m42.0s	10:16	70	

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



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



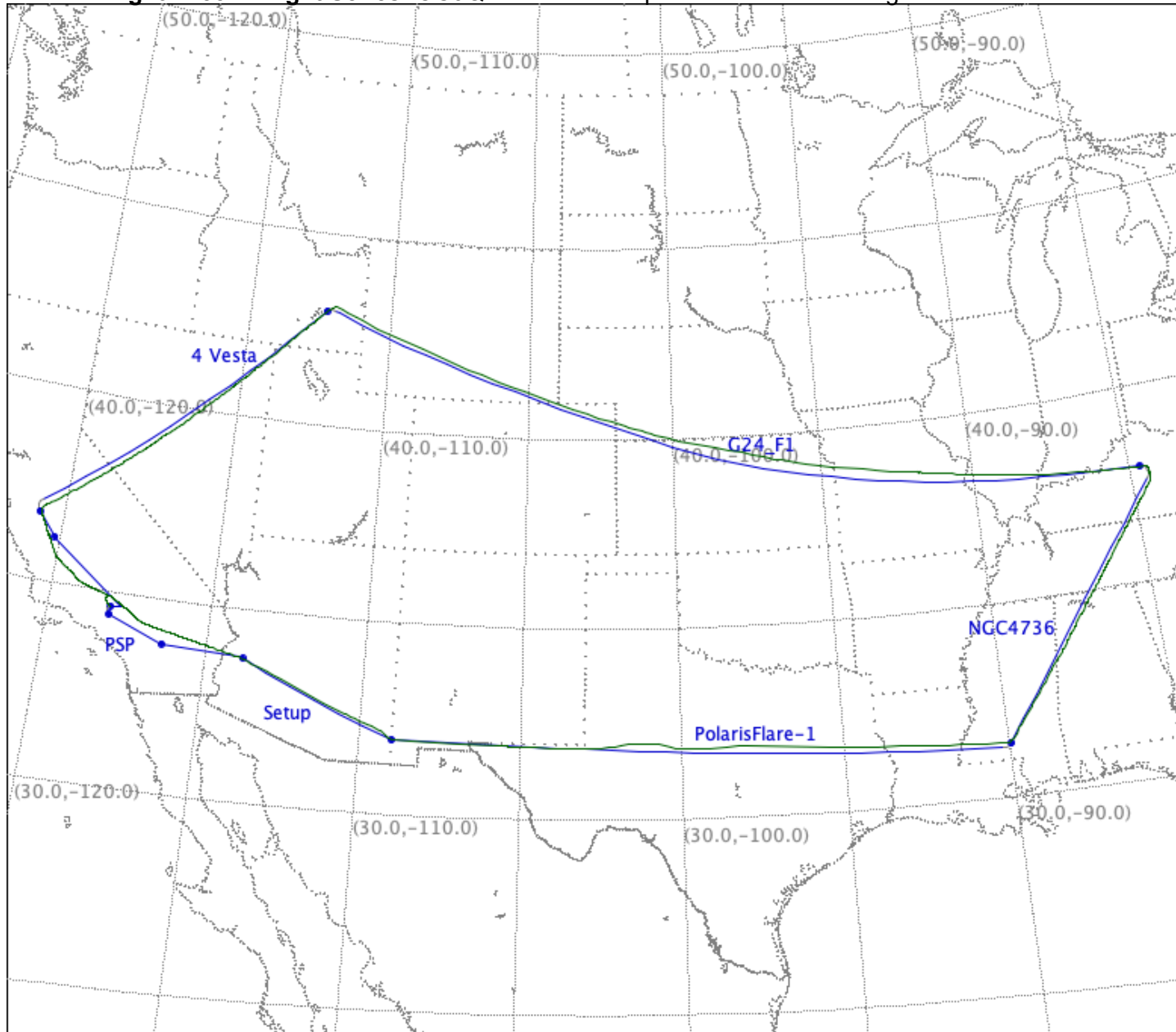
MISSION ID: 2022-06-04_HA_F882

Date: 2022-06-04UT Instrument: HAWC+

Flight #: 882 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: No irregularities.

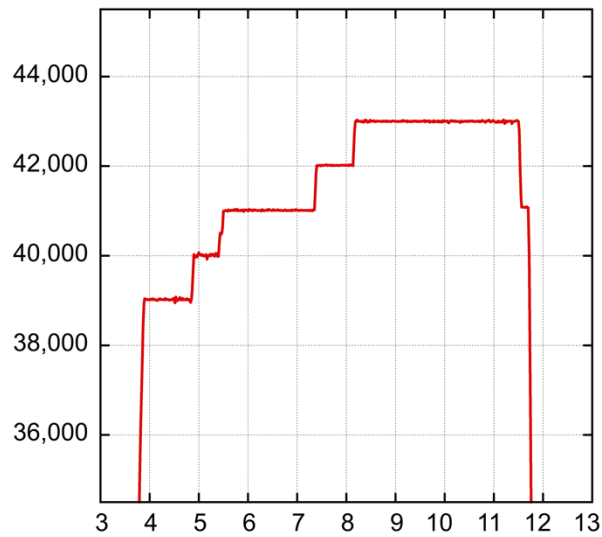
Flight 882
Palmdale to
Palmdale

Mission ID 2022-06-04_HA_F882
Take off date UTC:
04-JUN-2022

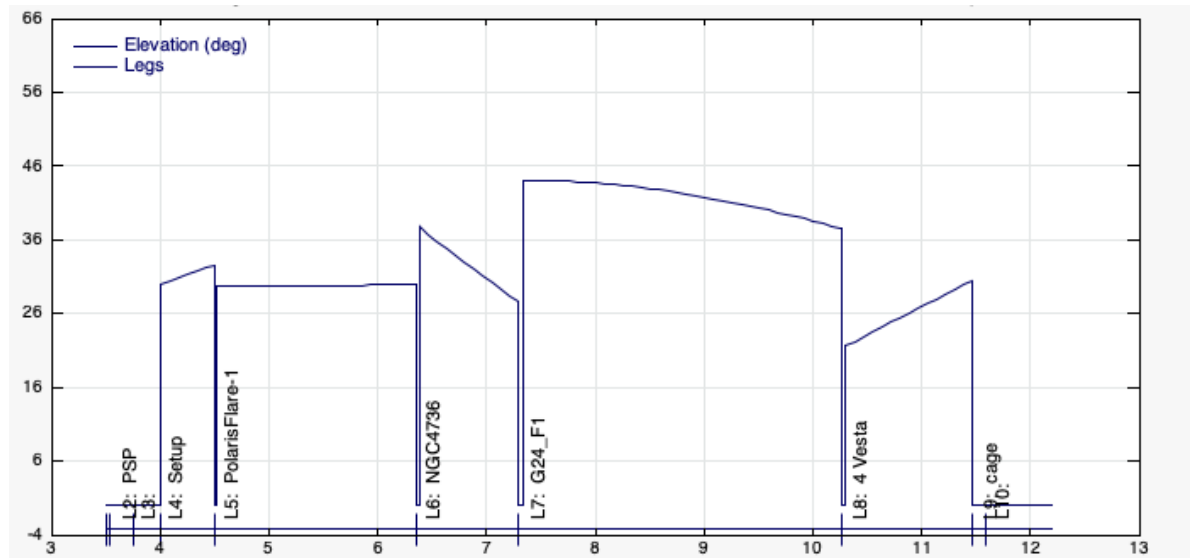
Departure UTC: 03:27
Arrival UTC: 12:09

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	19h32m21.59s	69d39m40.2s	4:00	30	
5	75_0081	Discretionary	PolarisFlare	01h51m30.70s	87d41m45.3s	4:31	110	Lost 45min due to clouds and storms.
6	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	6:22	54	
7	08_0186	Stephens	G24	18h32m49.55s	-07d51m37.3s	7:20	176	
8	90_0083	Calibration	4 Vesta	22h22m53.28s	-13d41m17.2s	10:18	70	

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



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



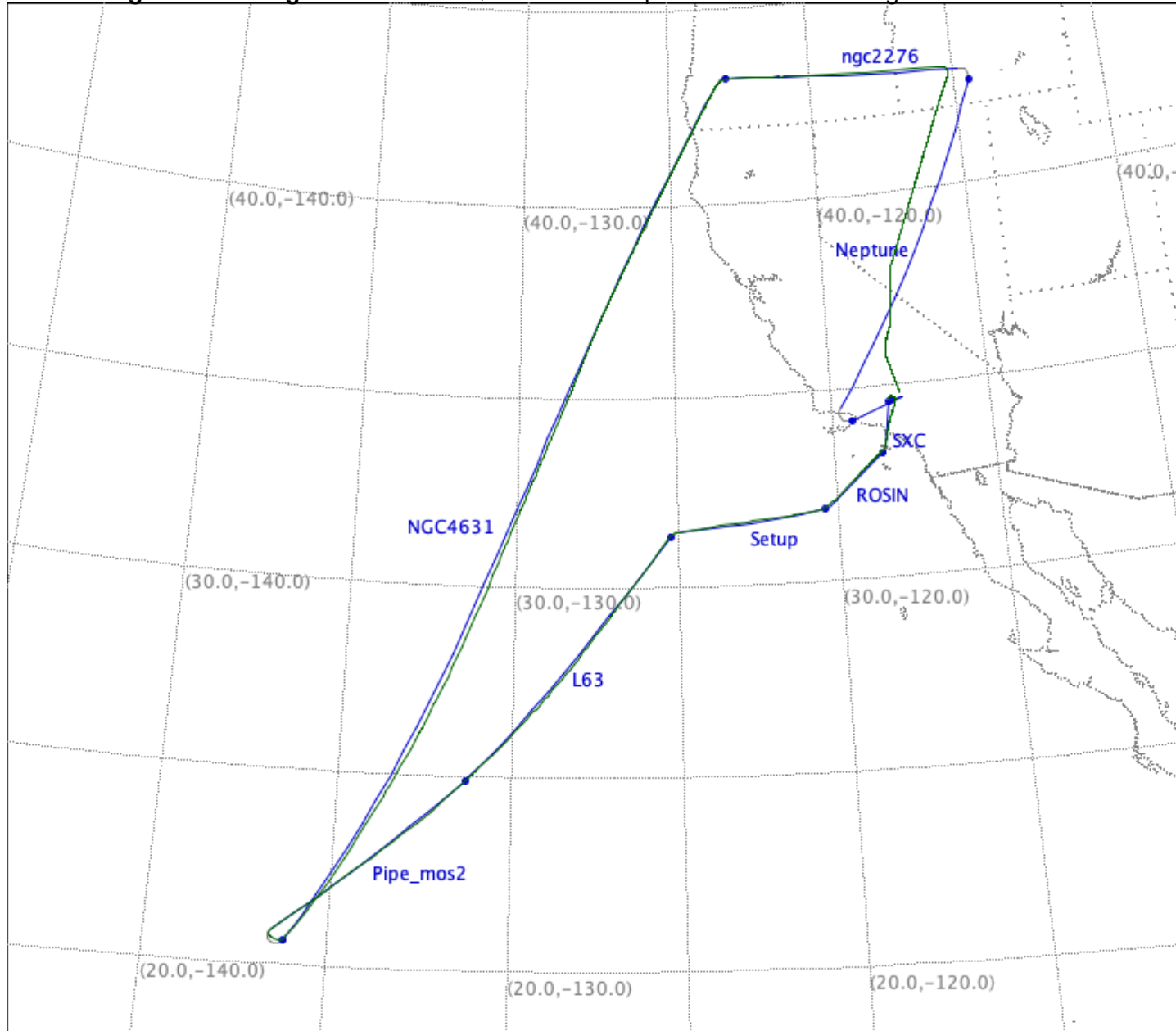
MISSION ID: 2022-06-07_HA_F883

Date: 2022-06-07UT Instrument: HAWC+

Flight #: 883 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: Technical challenges throughout flight.

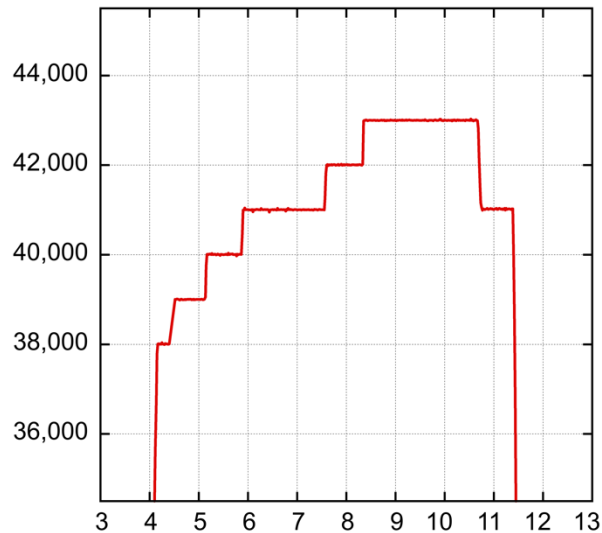
Flight 883
Palmdale to
Palmdale

Mission ID 2022-06-07_HA_F883
Take off date UTC:
07-JUN-2022

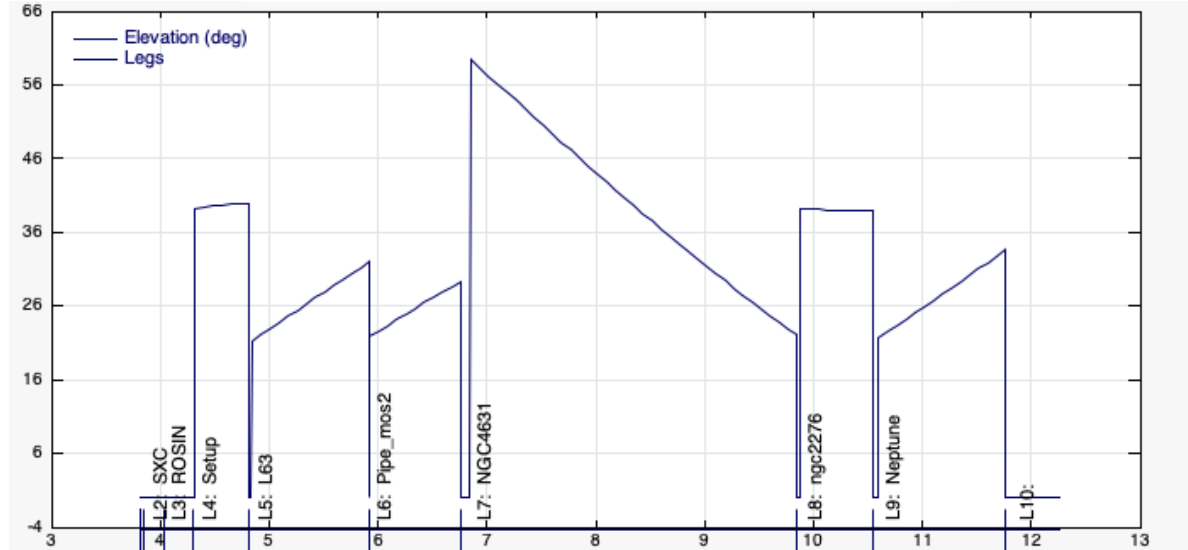
Departure UTC: 03:43
Arrival UTC: 11:50

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	13h49m52.28s	-18d08m03.0s	4:18	30	
5	09_0155	Scibelli	L63	16h50m14.90s	-18d06m22.5s	4:49	65	Telescope control software unresponsive; no data.
6	09_0215	Pillai	Pipe	17h11m50.80s	-27d26m01.0s	5:54	50	Telescope control software unresponsive; lost first 50% of leg
7	08_0012	Lopez-Rodriguez	NGC4631	12h42m08.01s	32d32m29.4s	6:50	180	With 20min left on leg, detector temperature was increased to 225mK to preserve cryo hold time.
8	75_0073	Discretionary	ngc2276	07h27m14.49s	85d45m16.2s	9:52	40	Detector temperature at 225mK throughout leg.
9	90_0083	Calibration	Neptune	23h43m32.96s	-03d02m55.3s	10:35	70	Cooling ran out; no data collected on leg

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



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



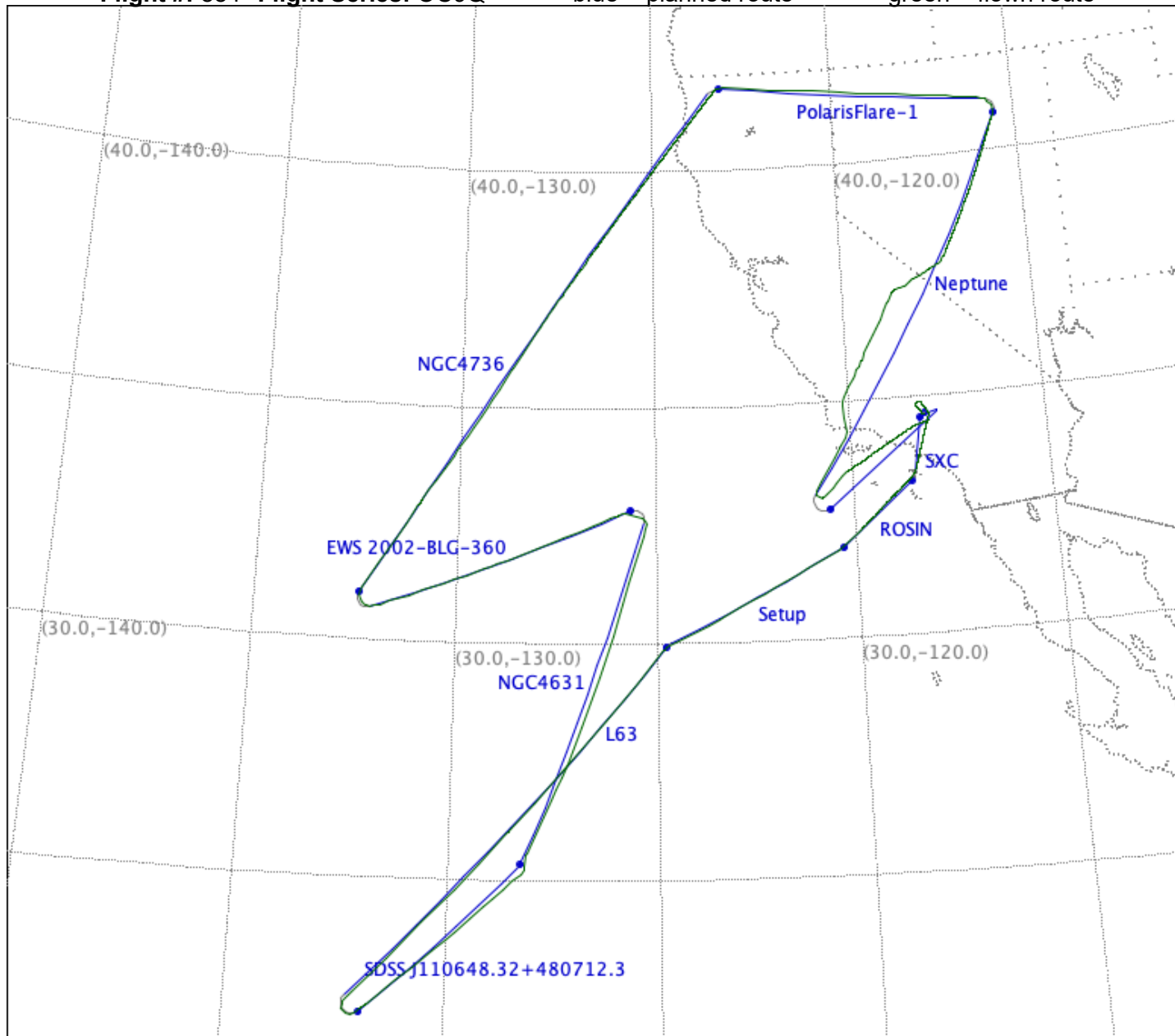
MISSION ID: 2022-06-09_HA_F884

Date: 2022-06-09UT Instrument: HAWC+

Flight #: 884 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: Air Traffic Control deviation near end of flight.

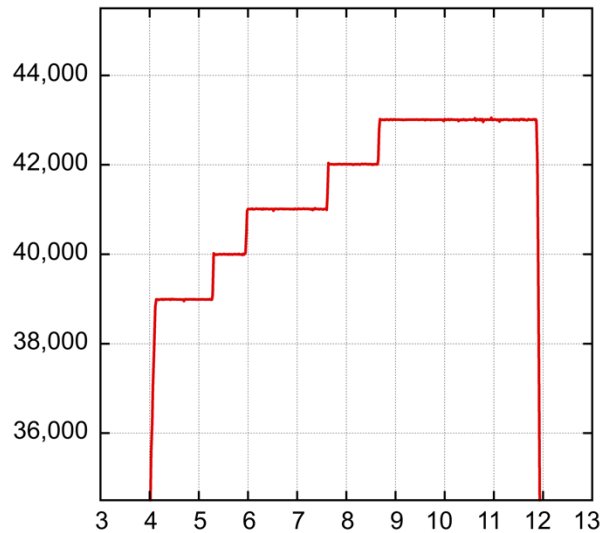
Flight 884
Palmdale to
Palmdale

Mission ID 2022-06-09_HA_F884
Take off date UTC:
09-JUN-2022

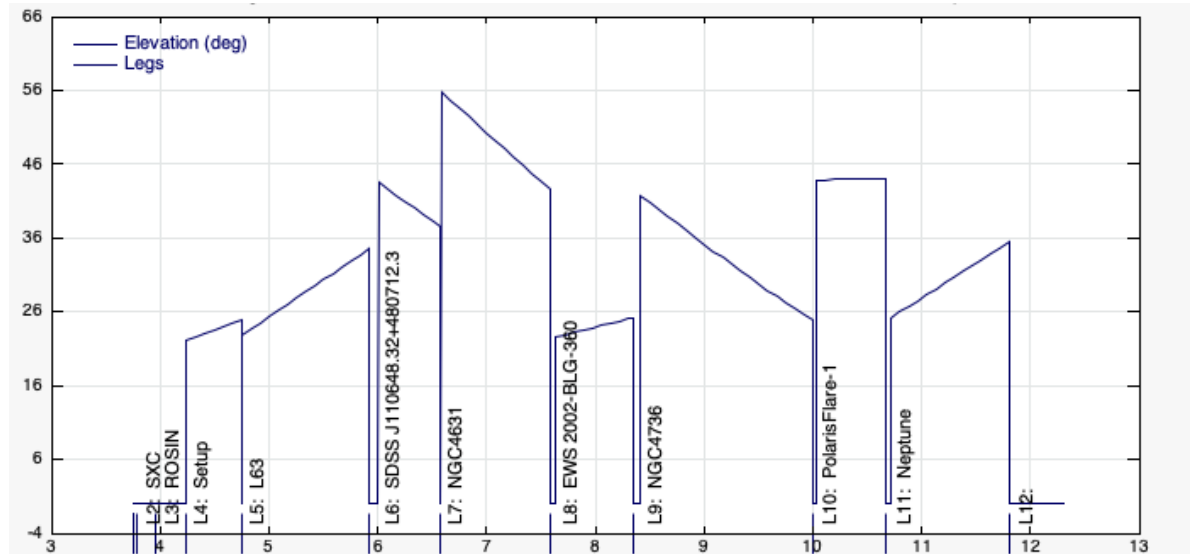
Departure UTC: 03:37
Arrival UTC: 12:21

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h17m49.84s	-30d08m55.2s	4:12	30	
5	09_0155	Scibelli	L63	16h50m14.90s	-18d06m22.5s	4:43	70	
6	09_0070	Veilleux	SDSS J110648.32+480712.3	11h06m48.33s	48d07m12.2s	5:58	34	
7	08_0012	Lopez-Rodriguez	NGC4631	12h42m08.01s	32d32m29.4s	6:32	60	
8	09_0088	Menten	EWS 2002-BLG-360	17h57m38.99s	-29d46m05.2s	7:36	43	
9	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	8:23	95	
10	75_0081	Discretionary	PolarisFlare	01h53m43.72s	87d41m24.0s	9:59	38	
11	90_0083	Calibration	Neptune	23h43m37.80s	-03d02m30.2s	10:40	65	Air Traffic Control deviation led to loss of half of leg

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



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



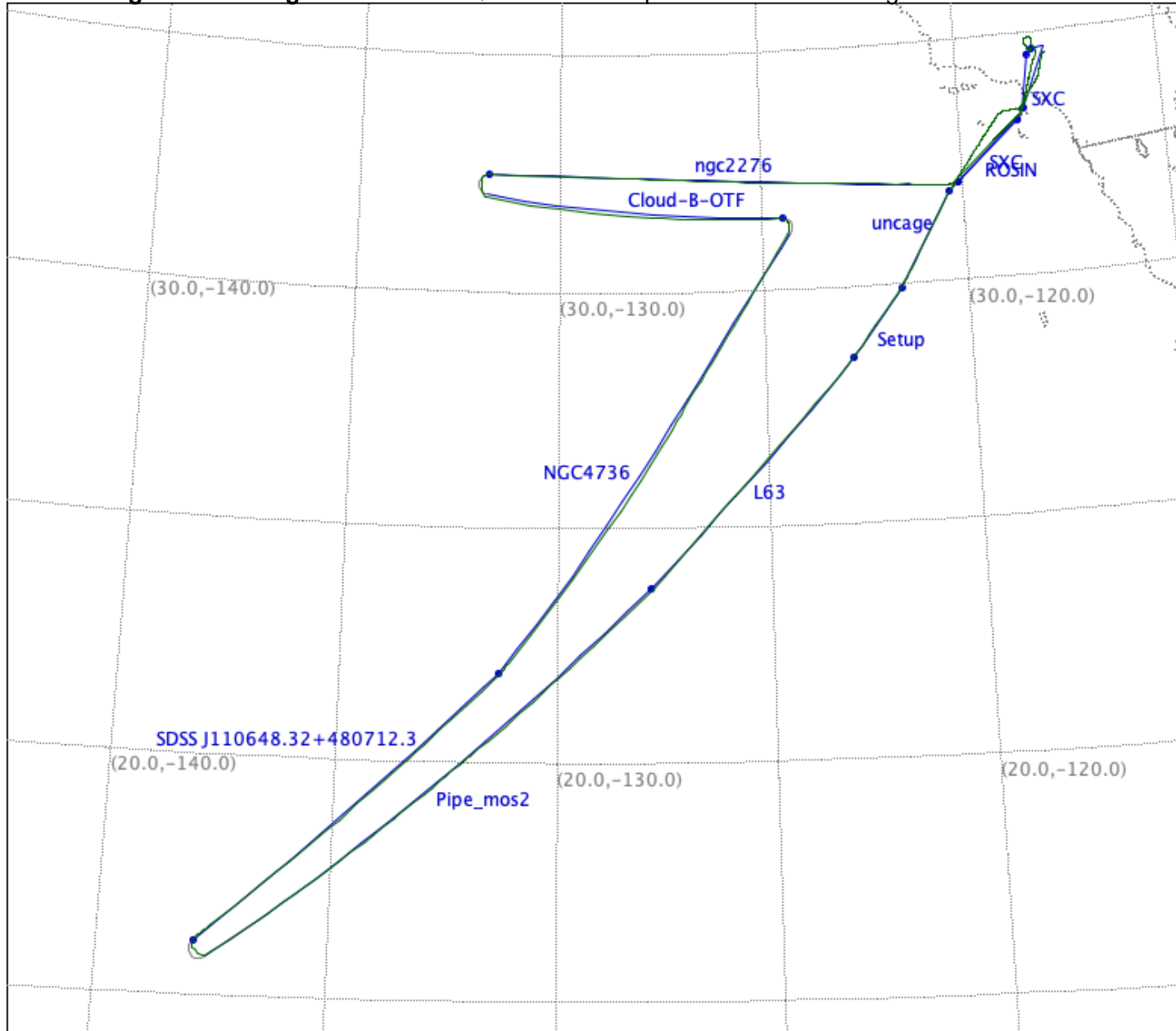
MISSION ID: 2022-06-10_HA_F885

Date: 2022-06-10UT Instrument: HAWC+

Flight #: 885 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: No irregularities.

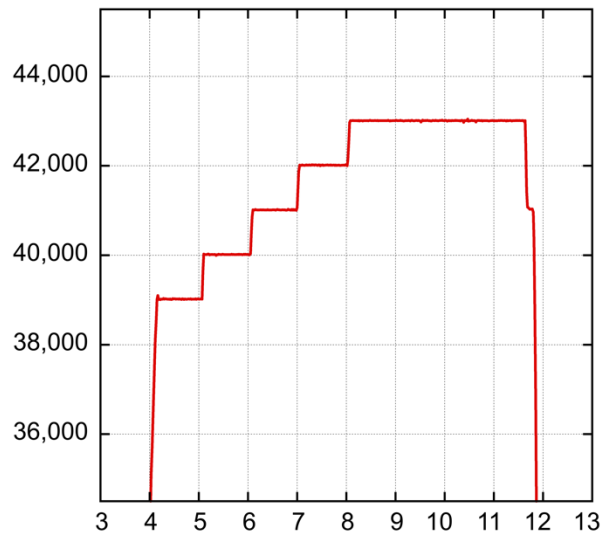
Flight 885
Palmdale to
Palmdale

Mission ID 2022-06-10_HA_F885
Take off date UTC:
10-JUN-2022

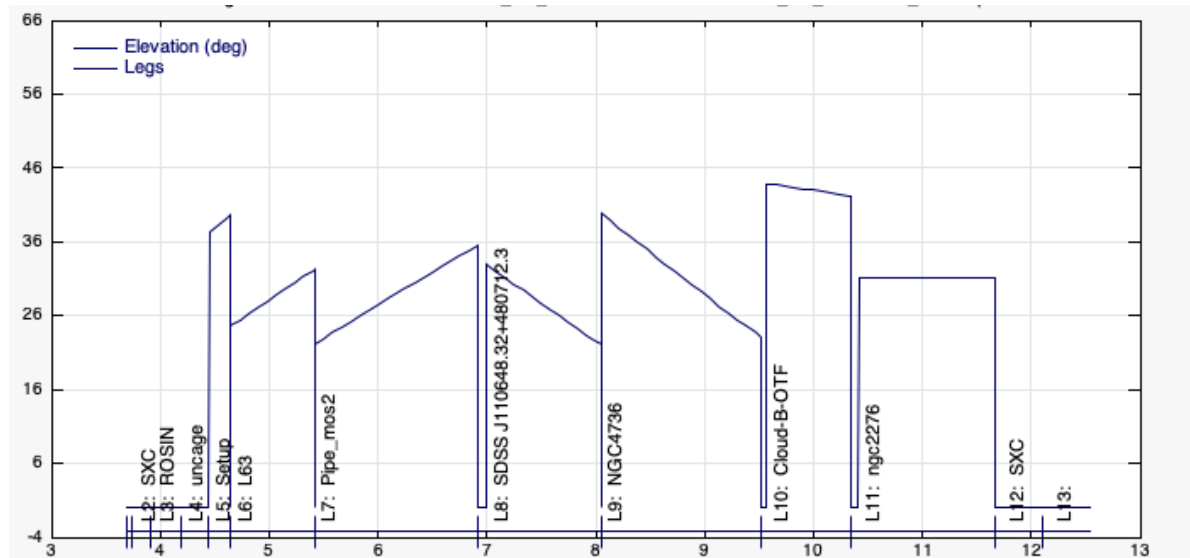
Departure UTC: 03:36
Arrival UTC: 12:20

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	16h18m19.29s	-04d41m33.0s	4:24	12	
6	09_0155	Scibelli	L63	16h50m14.90s	-18d06m22.5s	4:36	46	
7	09_0215	Pillai	Pipe	17h11m50.80s	-27d26m01.0s	5:22	90	
8	09_0070	Veilleux	SDSS J110648.32+480712.3	11h06m48.33s	48d07m12.2s	6:57	63	
9	08_0012	Lopez-Rodriguez	NGC4736	12h50m53.15s	41d07m12.6s	8:00	88	
10	09_0104	Tan	Cloud-B-OTF	18h25m45.00s	-12d04m30.0s	9:31	46	
11	75_0073	Discretionary	ngc2276	07h27m14.49s	85d45m16.2s	10:22	75	

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



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



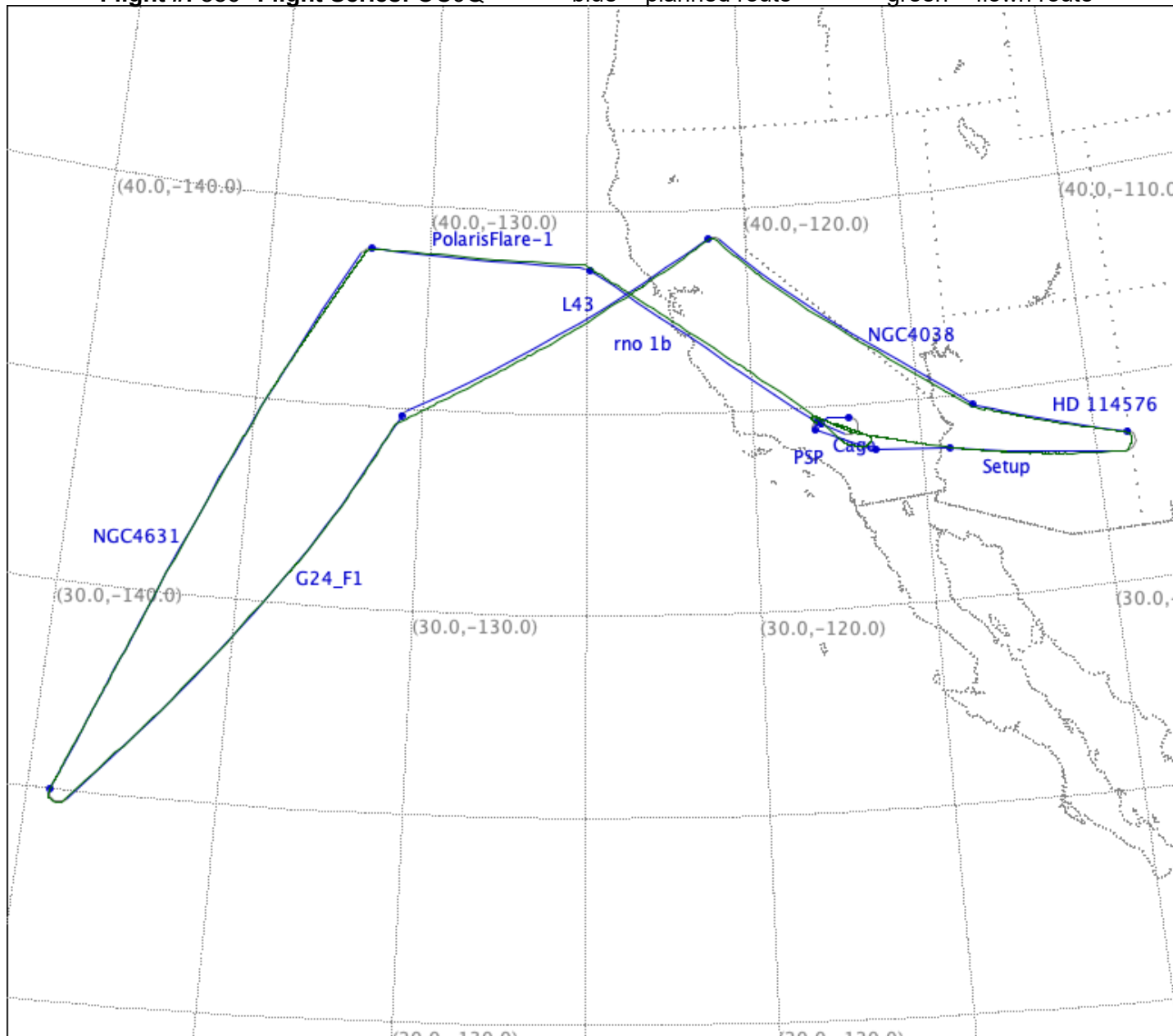
MISSION ID: 2022-06-11_HA_F886

Date: 2022-06-11UT Instrument: HAWC+

Flight #: 886 Flight Series: OC9Q

blue = planned route

green = flown route



Flight notes: No irregularities.

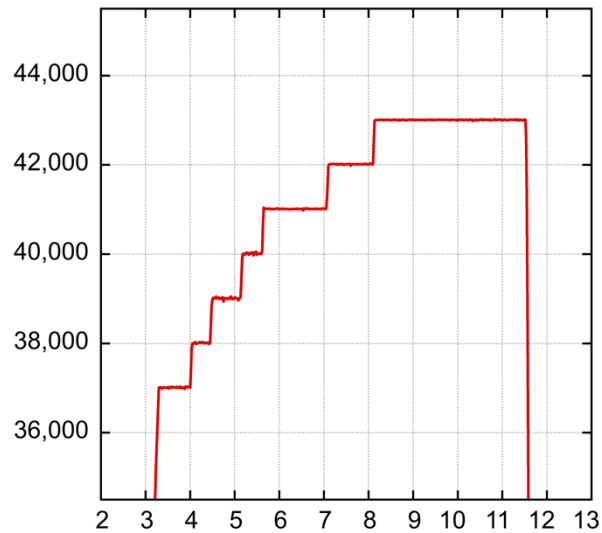
Flight 886
Palmdale to
Palmdale

Mission ID 2022-06-11_HA_F886
Take off date UTC:
11-JUN-2022

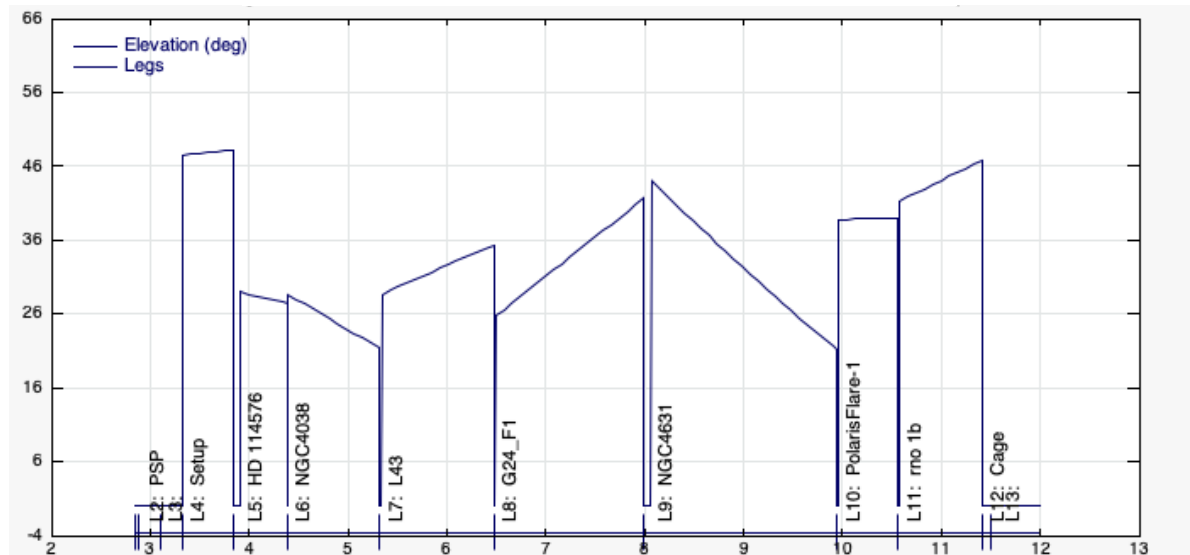
Departure UTC: 02:49
Arrival UTC: 12:00

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	14h50m42.33s	74d09m19.8s	3:21	30	
5	09_0182	Balling	HD 114576	13h11m39.20s	-26d33m06.2s	3:56	28	
6	08_0012	Lopez-Rodriguez	NGC4038	12h01m53.00s	-18d52m03.3s	4:24	55	Final 2 HWP sets may be contaminated by high clouds.
7	09_0159	Zielinski	L43	16h34m29.30s	-15d47m11.0s	5:21	68	
8	08_0186	Stephens	G24	18h32m54.99s	-07d50m11.8s	6:30	90	
9	08_0012	Lopez-Rodriguez	NGC4631	12h42m08.01s	32d32m29.4s	8:05	112	
10	75_0081	Discretionary	PolarisFlare	01h53m43.72s	87d41m24.0s	9:59	36	
11	75_0075	Discretionary	rno 1b	00h36m45.99s	63d28m53.0s	10:35	50	

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



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

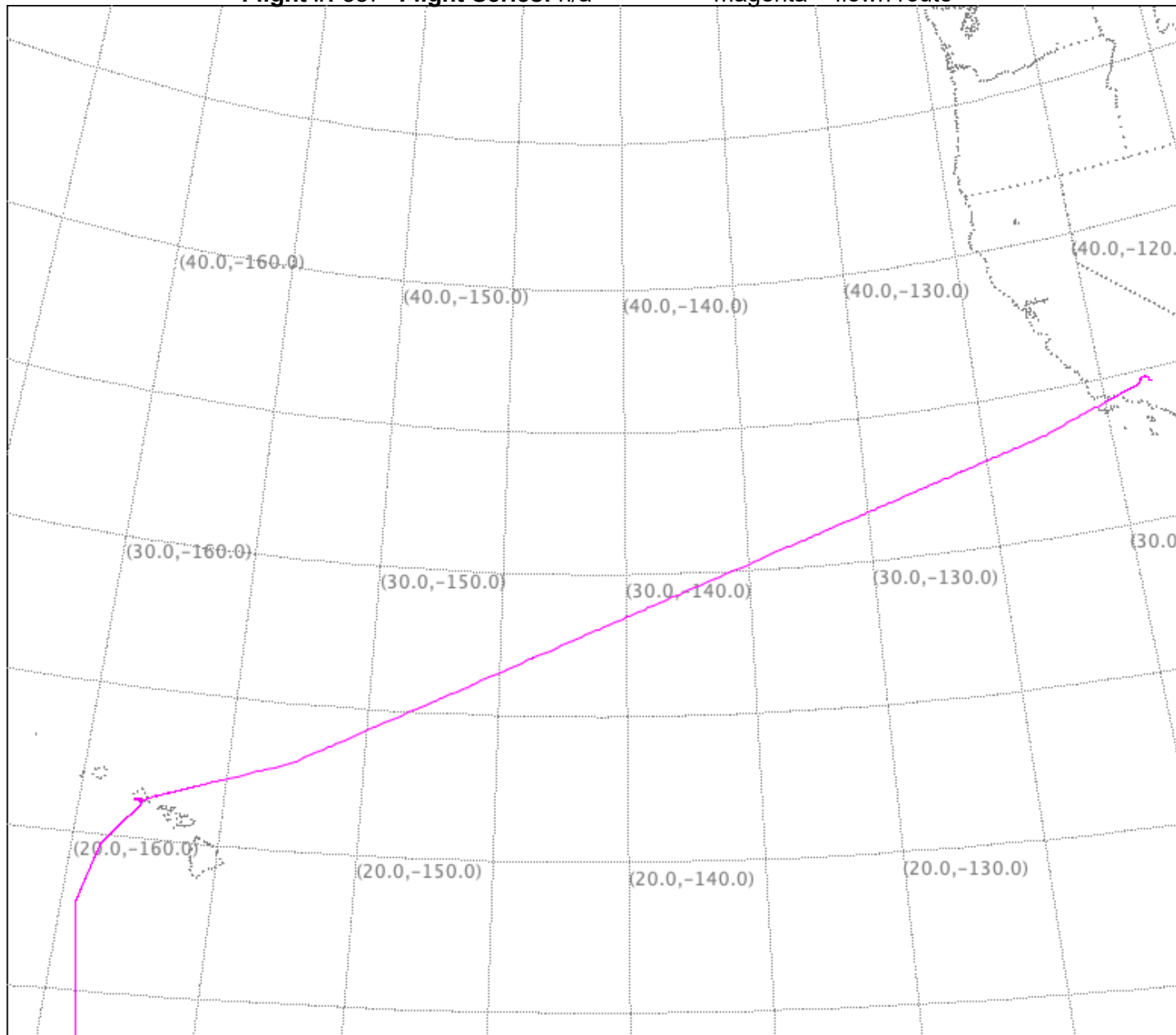


MISSION ID: 2022-06-18_NO_F887

Date: 2022-06-18UT Instrument: n/a

Flight #: 887 Flight Series: n/a

magenta = flown route



Flight notes:

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

Flight 887
Palmdale to
Honolulu

Mission ID 2022-06-18_NO_F887
Take off date UTC:
18-JUN-2022

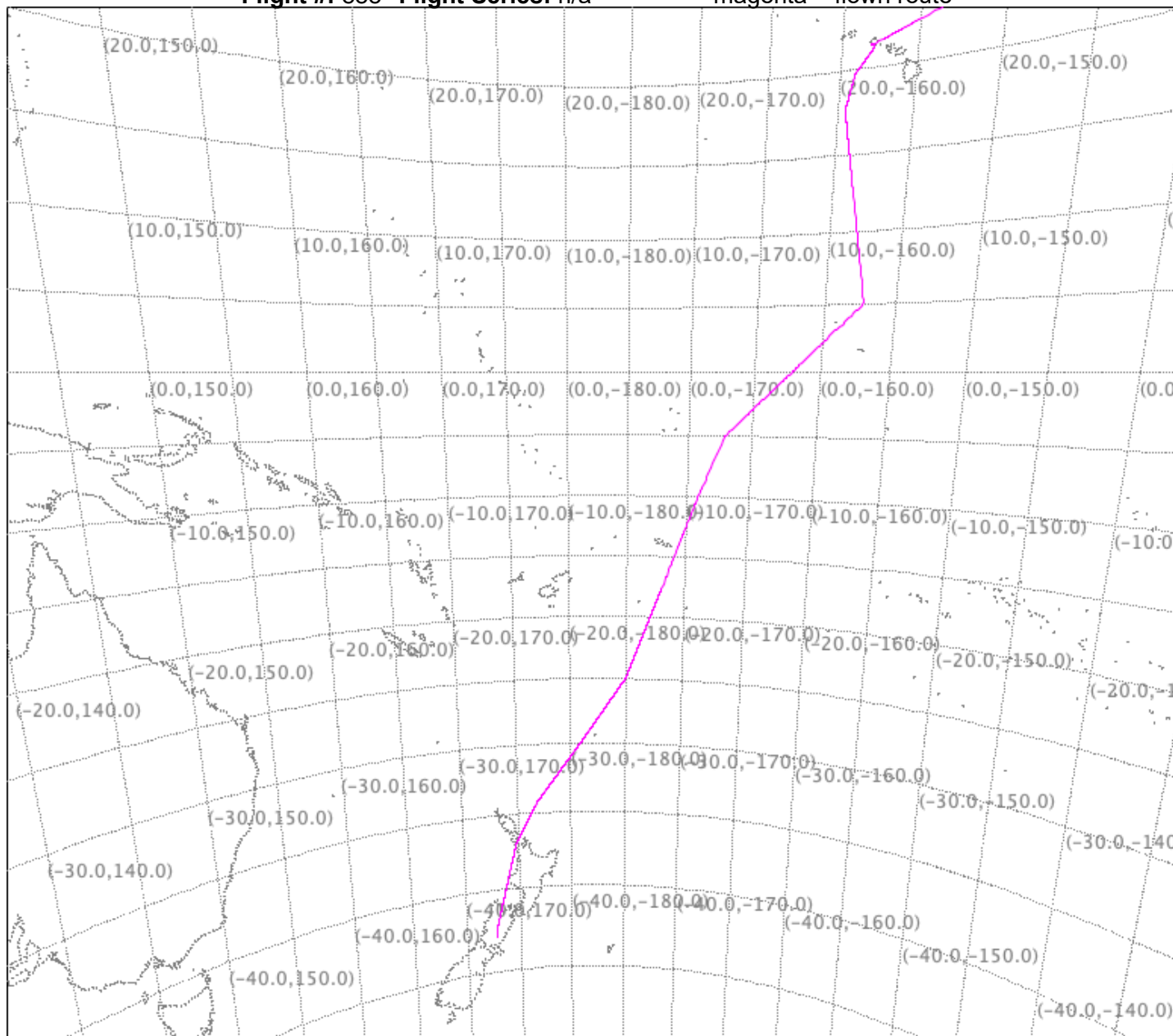
Departure UTC: Arrival UTC:
HH:MM HH:MM

MISSION ID: 2022-06-18_NO_F888

Date: 2022-06-18UT Instrument: n/a

Flight #: 888 Flight Series: n/a

magenta = flown route



Flight notes:

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

Flight 888
Honolulu to
Christchurch

Mission ID 2022-06-18_NO_F888
Take off date UTC:
18-JUN-2022

Departure UTC: 13:36
Arrival UTC: 23:16

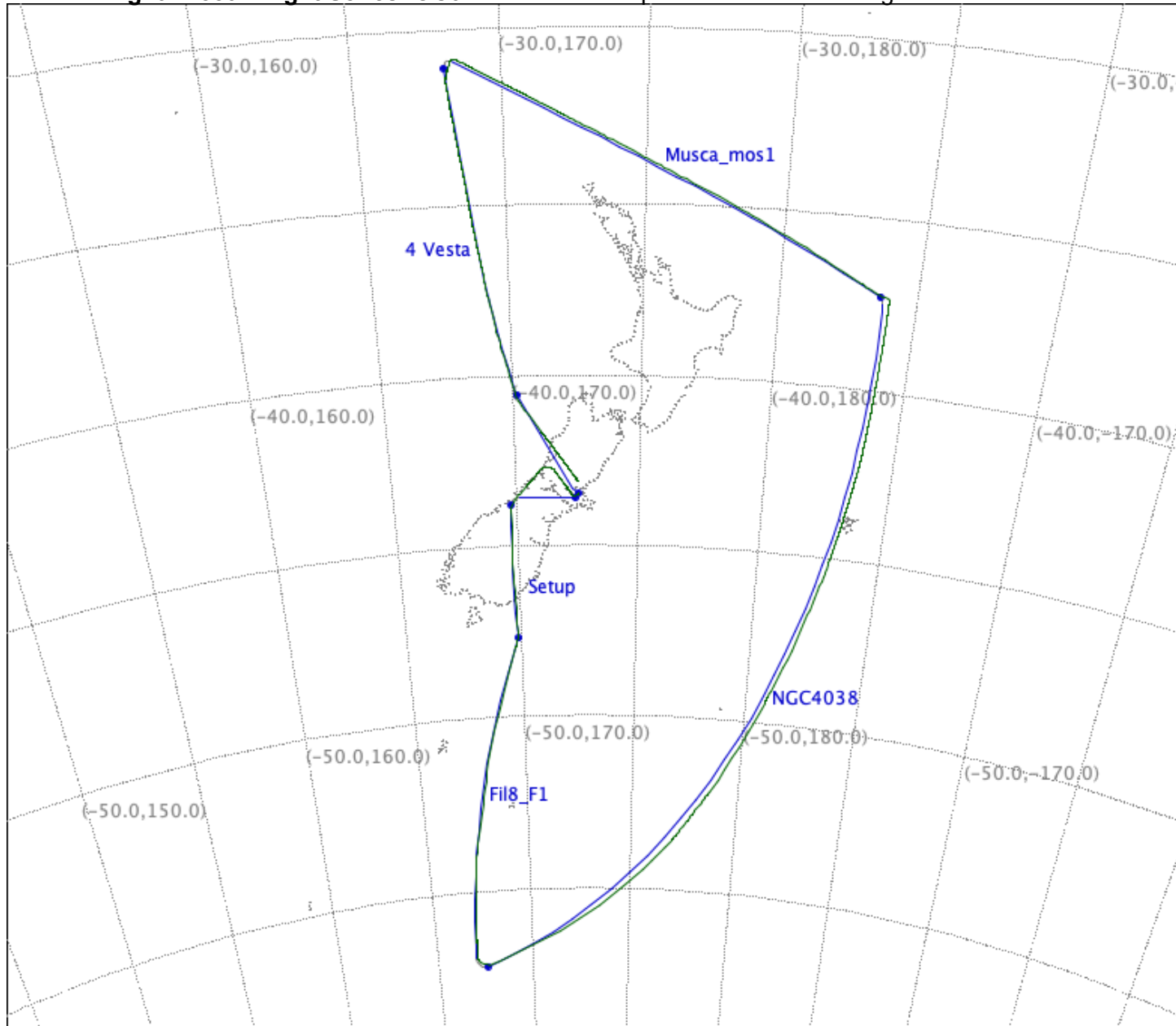
MISSION ID: 2022-06-21_HA_F889

Date: 2022-06-21UT Instrument: HAWC+

Flight #: 889 Flight Series: OC9R

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

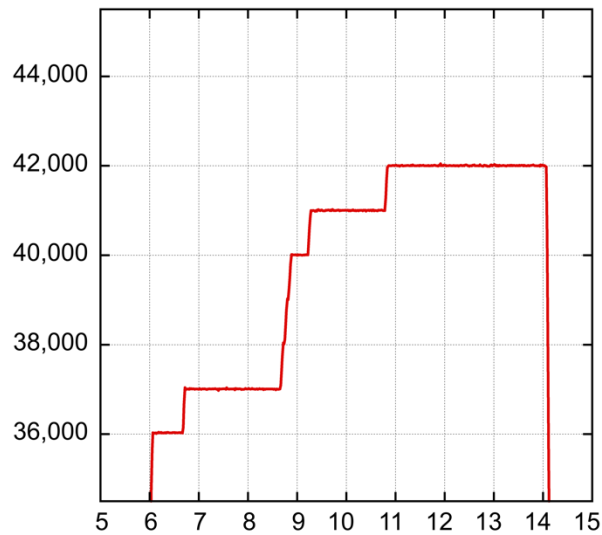
Flight 889
Christchurch-
Christchurch

Mission ID 2022-06-21_HA_F889
Take off date UTC:
21-JUN-2022

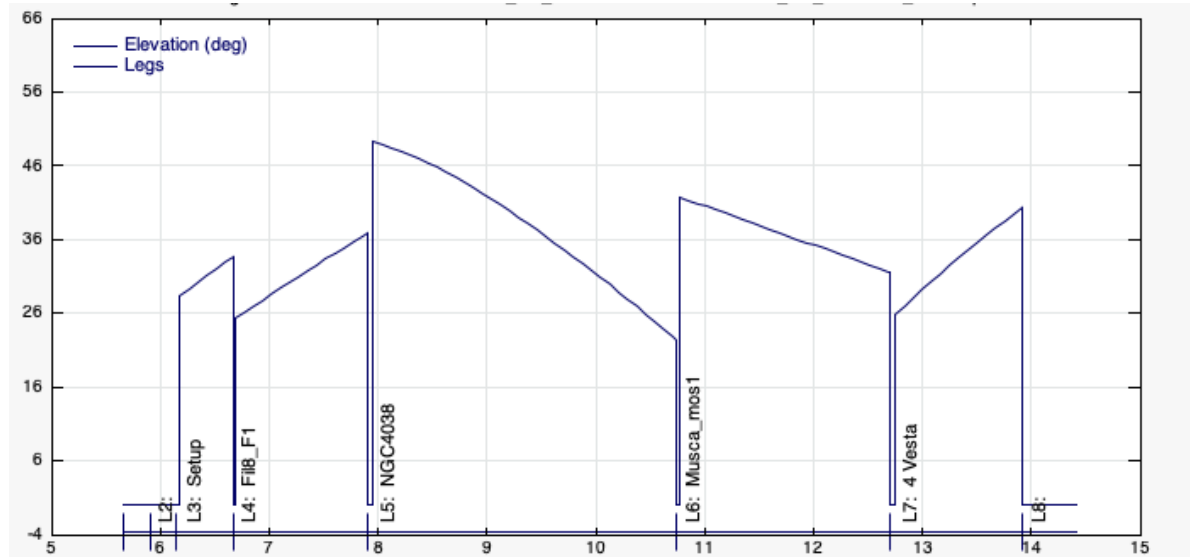
Departure UTC: 05:42
Arrival UTC: 14:28

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	16h06m48.43s	-20d40m09.1s	6:10	30	
4	08_0186	Stephens	Fil8	17h41m22.55s	-31d05m29.5s	6:41	73	Telescope nonfunctional; entire leg lost.
5	08_0012	Lopez-Rodriguez	NGC4038	12h01m53.00s	-18d52m03.3s	7:57	167	Started leg at low altitude (37k ft) before ascending to 40k ft.
6	09_0215	Pillai	Musca	12h25m00.90s	-71d46m19.6s	10:46	116	
7	90_0083	Calibration	4 Vesta	22h36m18.33s	-13d41m19.1s	12:45	70	

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



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



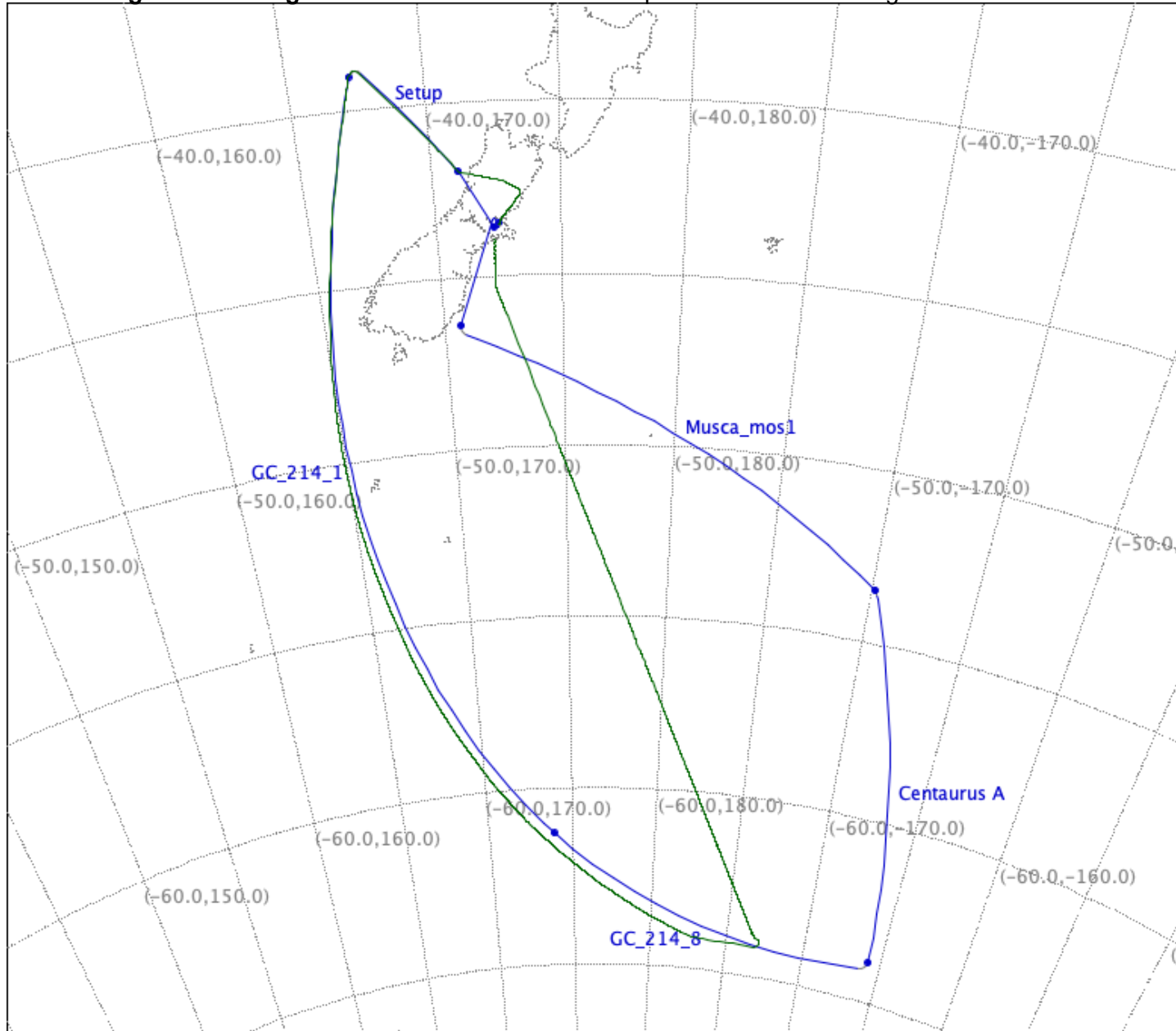
MISSION ID: 2022-06-23_HA_F890

Date: 2022-06-23UT Instrument: HAWC+

Flight #: 890 Flight Series: OC9R

blue = planned route

green = flown route



Flight notes: HAWC+ cooling failure led to premature end of flight.

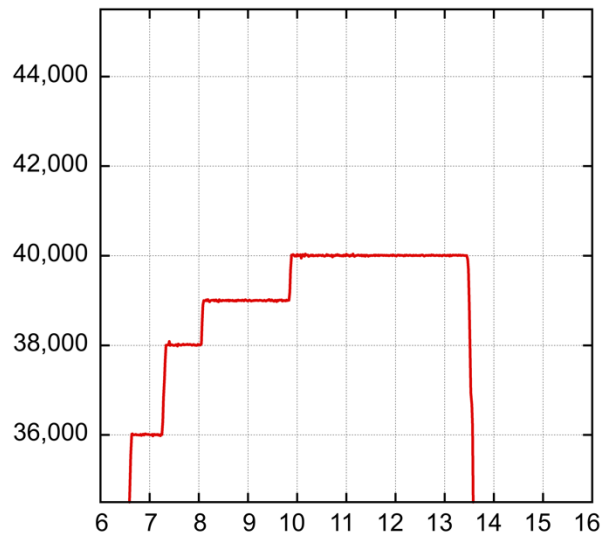
Flight 890
Christchurch-
Christchurch

Mission ID 2022-06-23_HA_F890
Take off date UTC:
23-JUN-2022

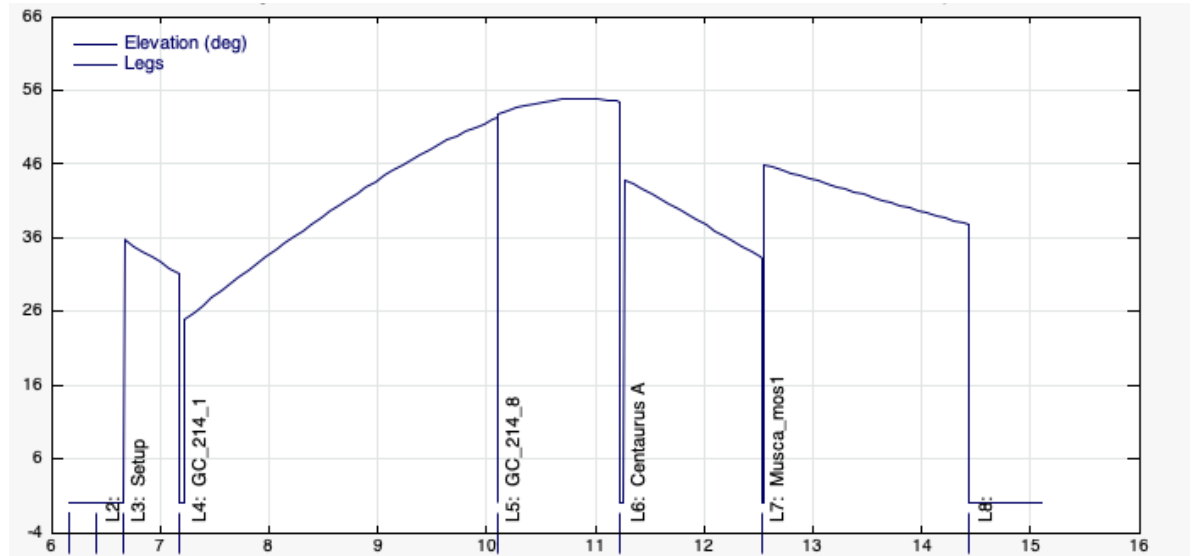
Departure UTC: 06:12
Arrival UTC: 14:00

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	06h34m58.58s	-52d58m32.2s	6:40	30	
4	09_0054	Chuss	Galactic Center	17h47m05.62s	-28d29m40.4s	7:13	173	
5	09_0054	Chuss	Galactic Center	17h45m46.25s	-28d58m40.9s	10:06	67	HAWC+ cooler failed 2/3rds into the leg; returned to base.
6	08_0012	Lopez-Rodriguez	Centaurus A	13h25m27.62s	-43d01m08.8s	11:16	76	Leg not flown; return to Christchurch base
7	09_0215	Pillai	Musca	12h25m00.90s	-71d46m19.6s	12:33	113	Leg not flown; return to Christchurch base

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



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



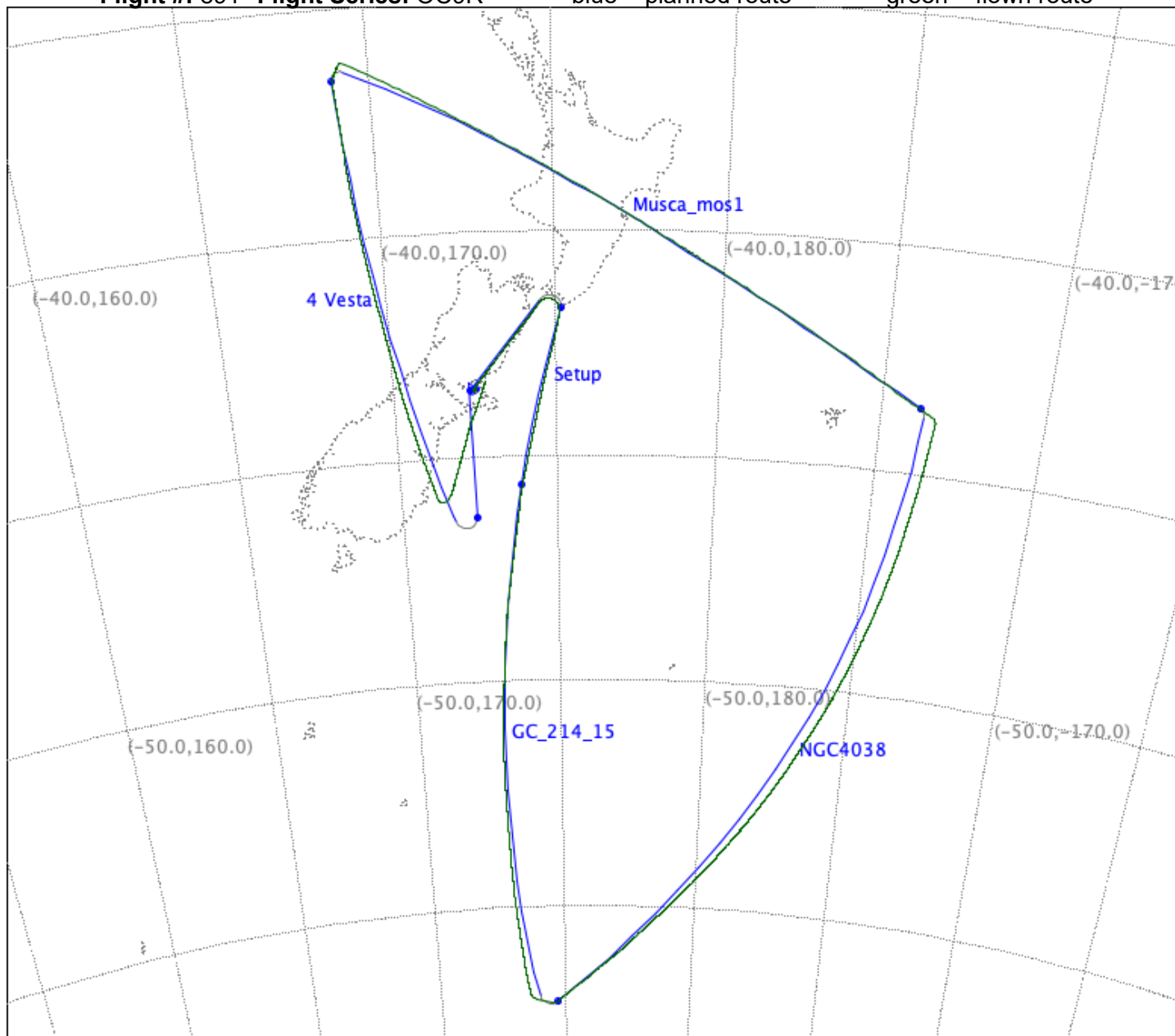
MISSION ID: 2022-06-27_HA_F891

Date: 2022-06-27UT Instrument: HAWC+

Flight #: 891 Flight Series: OC9R

blue = planned route

green = flown route

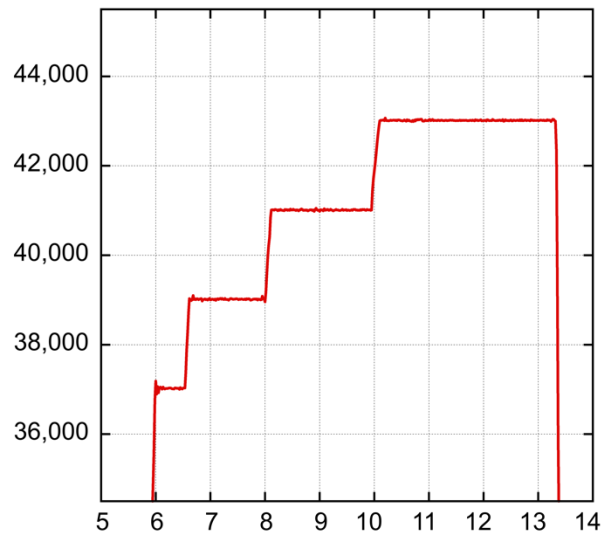


**Flight notes:
No irregularities.**

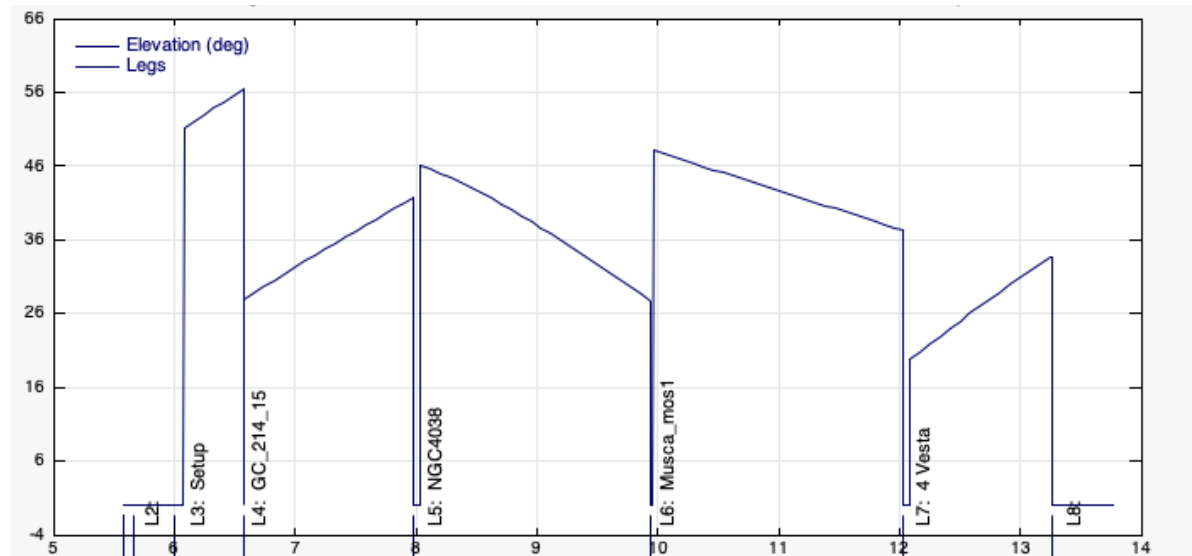
Flight 891 Mission ID 2022-06-27_HA_F891
 Christchurch-Christchurch Take off date UTC: 27-JUN-2022
 Departure UTC: 05:35 Arrival UTC: 13:49

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	15h38m03.20s	-42d34m02.4s	6:05	30	
4	09_0054	Chuss	Galactic Center	17h44m38.93s	-29d22m42.7s	6:35	84	
5	08_0012	Lopez-Rodriguez	NGC4038	12h01m53.00s	-18d52m03.3s	8:02	114	
6	09_0215	Pillai	Musca	12h25m01.15s	-71d46m19.2s	9:58	124	
7	90_0083	Calibration	4 Vesta	22h39m19.63s	-13d53m23.6s	12:05	71	

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



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



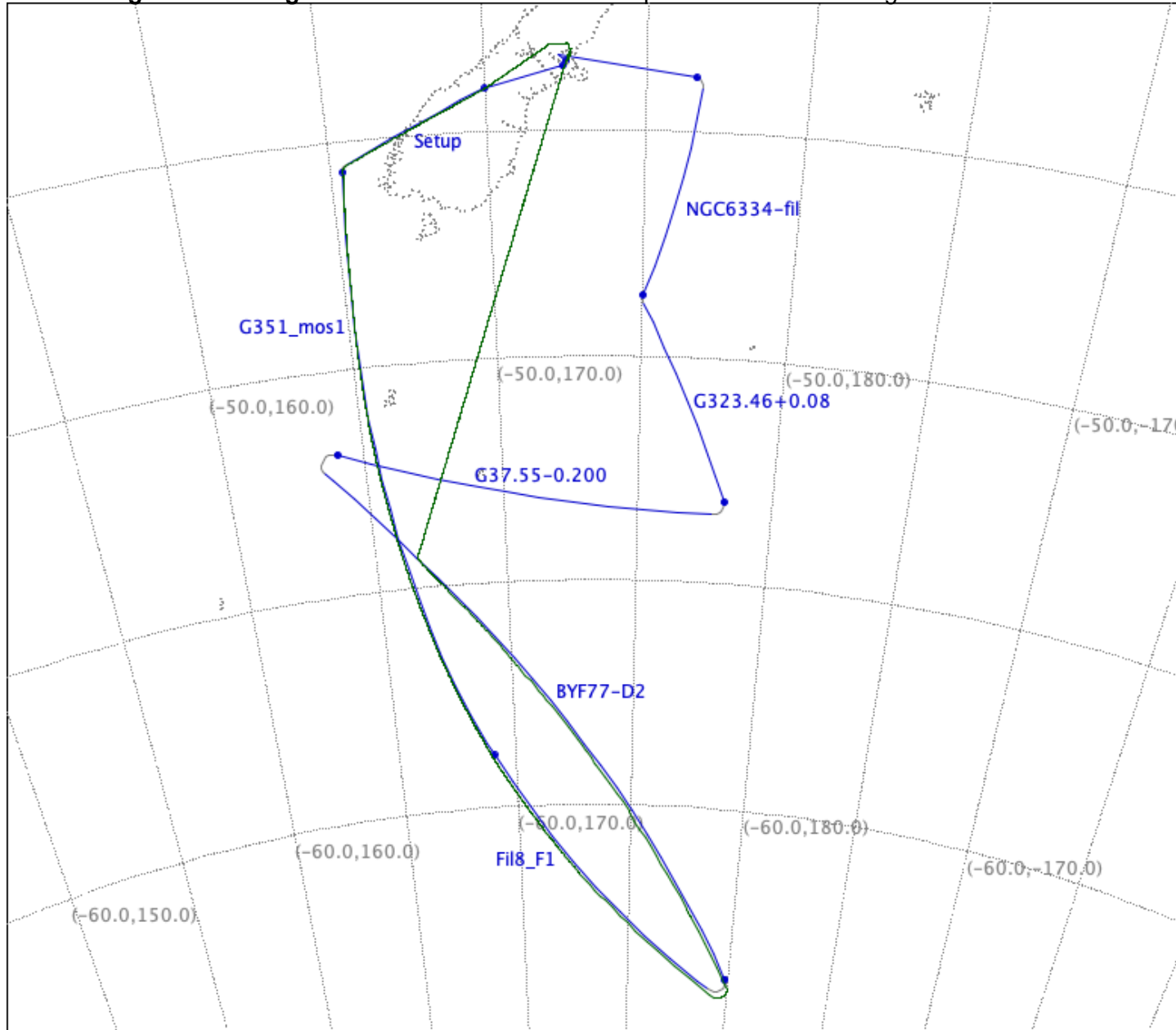
MISSION ID: 2022-06-30_HA_F892

Date: 2022-06-30UT Instrument: HAWC+

Flight #: 892 Flight Series: OC9R

blue = planned route

green = flown route



Flight notes:

HAWC+ cooling failure led to premature end of flight.

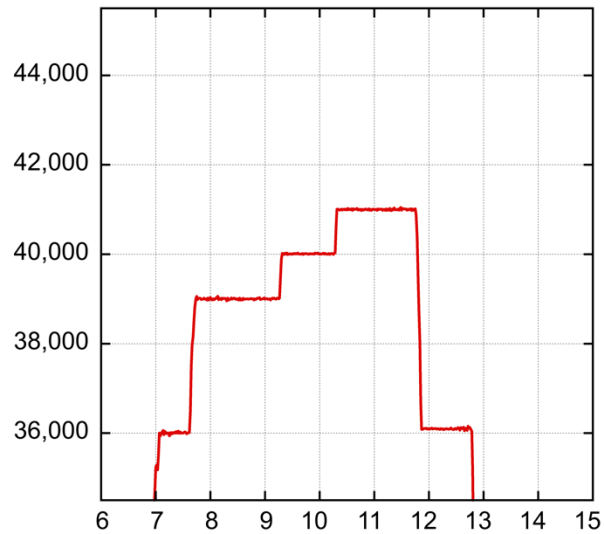
Flight 892
Christchurch-
Christchurch

Mission ID 2022-06-30_HA_F892
Take off date UTC:
30-JUN-2022

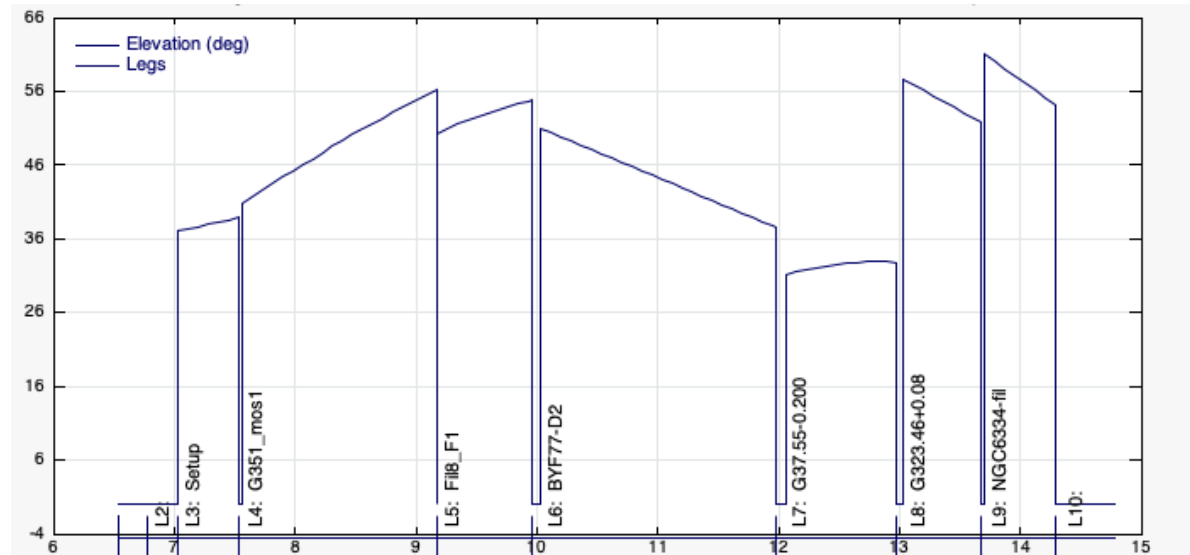
Departure UTC: 06:36
Arrival UTC: 13:15

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	20h00m35.55s	-72d54m37.8s	7:02	30	
4	09_0215	Pillai	G351	17h26m34.14s	-36d06m47.8s	7:33	97	
5	08_0186	Stephens	Fil8	17h41m15.77s	-31d06m48.9s	9:10	47	Detector temperature was increased to 225mK to try to preserve HAWC cryo
6	09_0048	Barnes	BYF77-D2	10h37m23.77s	-58d39m10.8s	10:02	117	Detector temp still at 225mK, but cooling failed 75% into the leg; return to base.
7	09_0136	Eislöffel	G37.55-0.200	18h59m09.98s	04d12m15.5s	12:03	55	Leg not flown; return to Christchurch base
8	75_0103	Discretionary	G323.46+0.08	15h29m19.36s	-56d31m22.2s	13:02	39	Leg not flown; return to Christchurch base
9	09_0137	Schuller	NGC6334	17h20m36.00s	-35d50m11.1s	13:42	35	Leg not flown; return to Christchurch base

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



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



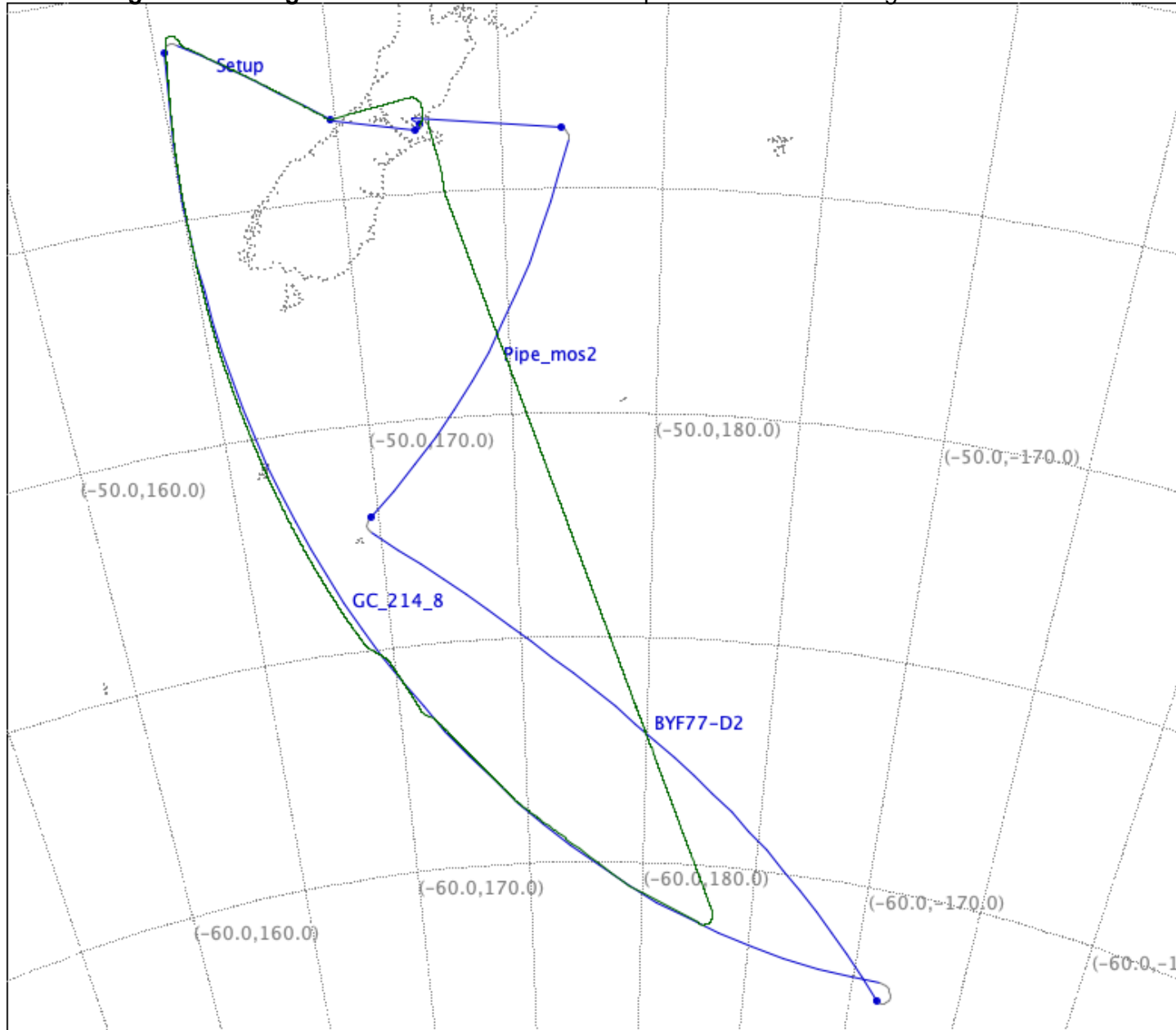
MISSION ID: 2022-07-03_HA_F893

Date: 2022-07-03UT Instrument: HAWC+

Flight #: 893 Flight Series: OC9R

blue = planned route

green = flown route



Flight notes: Telescope failure led to premature end of flight.

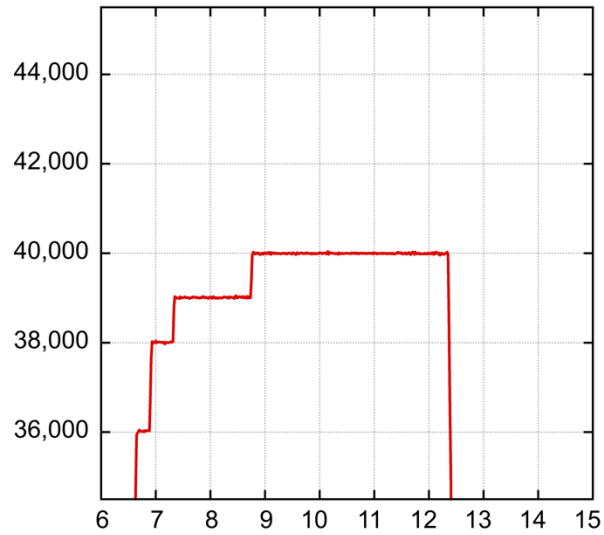
Flight 893
Christchurch-
Christchurch

Mission ID 2022-07-03_HA_F893
Take off date UTC:
03-JUL-2022

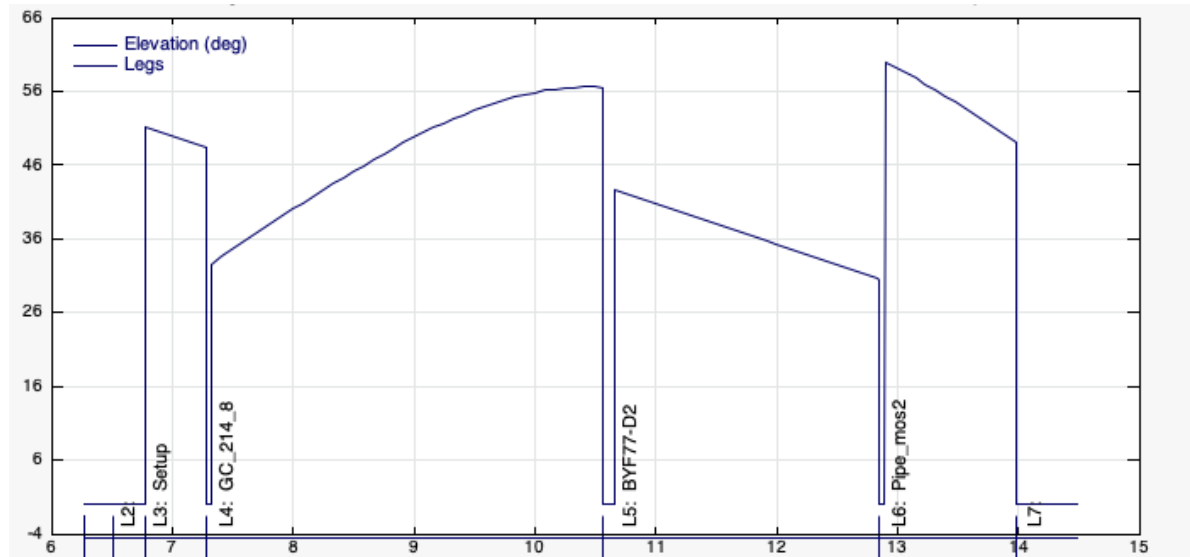
Departure UTC: 06:18
Arrival UTC: 12:47

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	09h05m38.37s	-70d32m18.6s	6:46	30	
4	09_0054	Chuss	Galactic Center	17h45m46.25s	-28d58m40.9s	7:19	194	Telescope failure halfway through leg; could not recover
5	09_0048	Barnes	BYF77-D2	10h37m23.77s	-58d39m10.8s	10:40	131	Leg not flown; return to Christchurch base
6	09_0215	Pillai	Pipe	17h11m50.60s	-27d25m00.7s	12:54	65	Leg not flown; return to Christchurch base

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



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



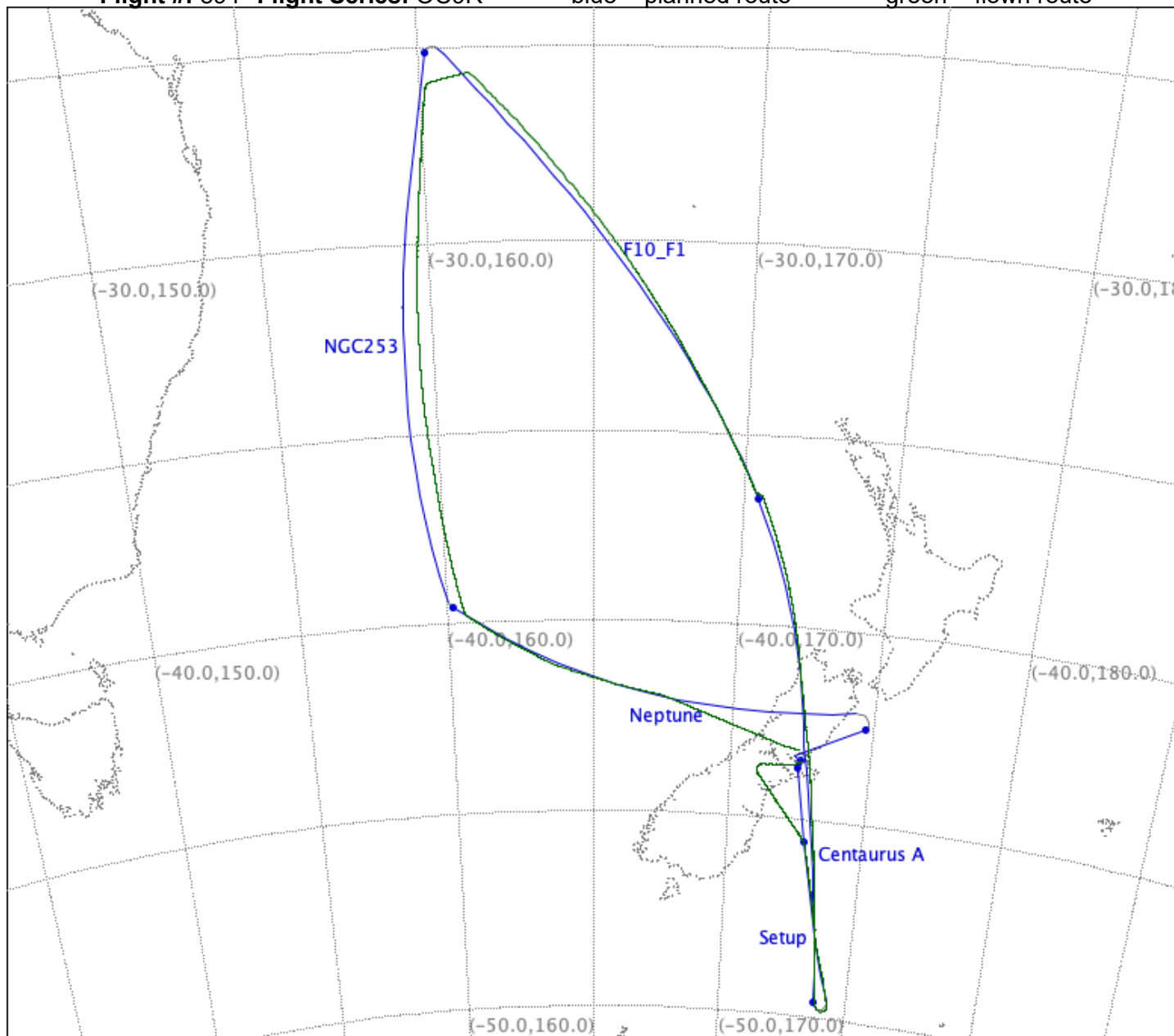
MISSION ID: 2022-07-05_HA_F894

Date: 2022-07-05UT Instrument: HAWC+

Flight #: 894 Flight Series: OC9R

blue = planned route

green = flown route



Flight notes:

HAWC+ cooling failure led to premature end of flight.

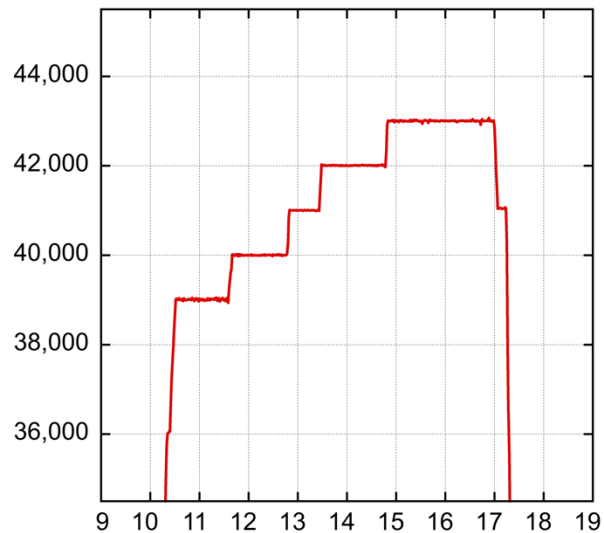
Flight 894
Christchurch-
Christchurch

Mission ID 2022-07-05_HA_F894
Take off date UTC:
05-JUL-2022

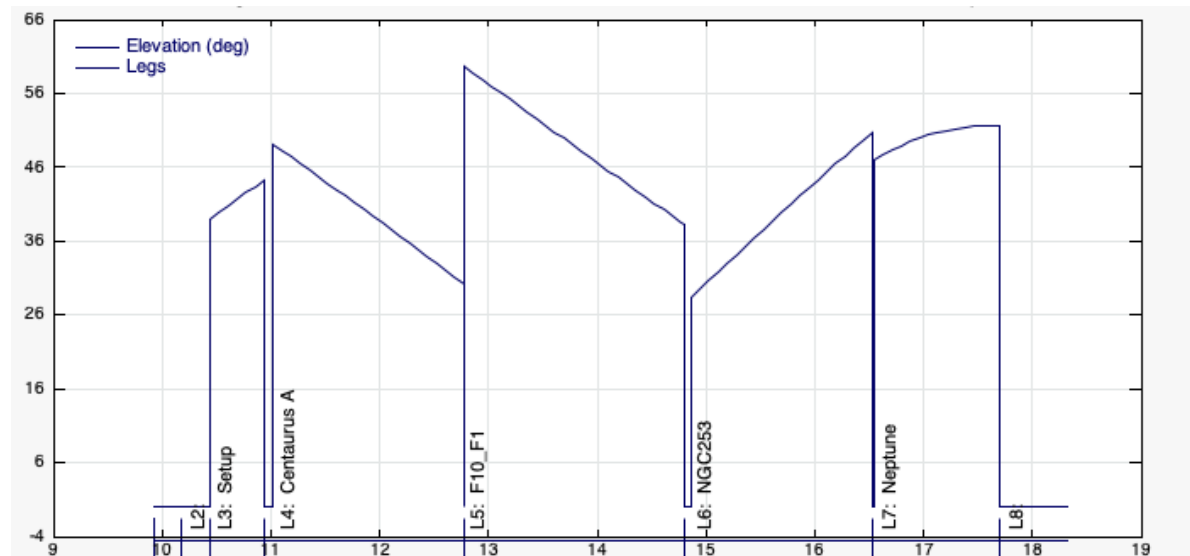
Departure UTC: 09:54
Arrival UTC: 17:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	20h51m49.29s	-26d55m08.9s	10:26	30	
4	08_0012	Lopez-Rodriguez	Centaurus A	13h25m27.62s	-43d01m08.8s	11:01	105	Possible detector temperature fluctuations
5	08_0186	Stephens	Fil10	16h16m23.88s	-50d52m00.4s	12:46	122	
6	08_0012	Lopez-Rodriguez	NGC253	00h47m33.13s	-25d17m19.7s	14:51	100	
7	90_0083	Calibration	Neptune	23h43m56.97s	-03d01m47.9s	16:32	69	10min into leg HAWC+ cooler failed; return to Christchurch base

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



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



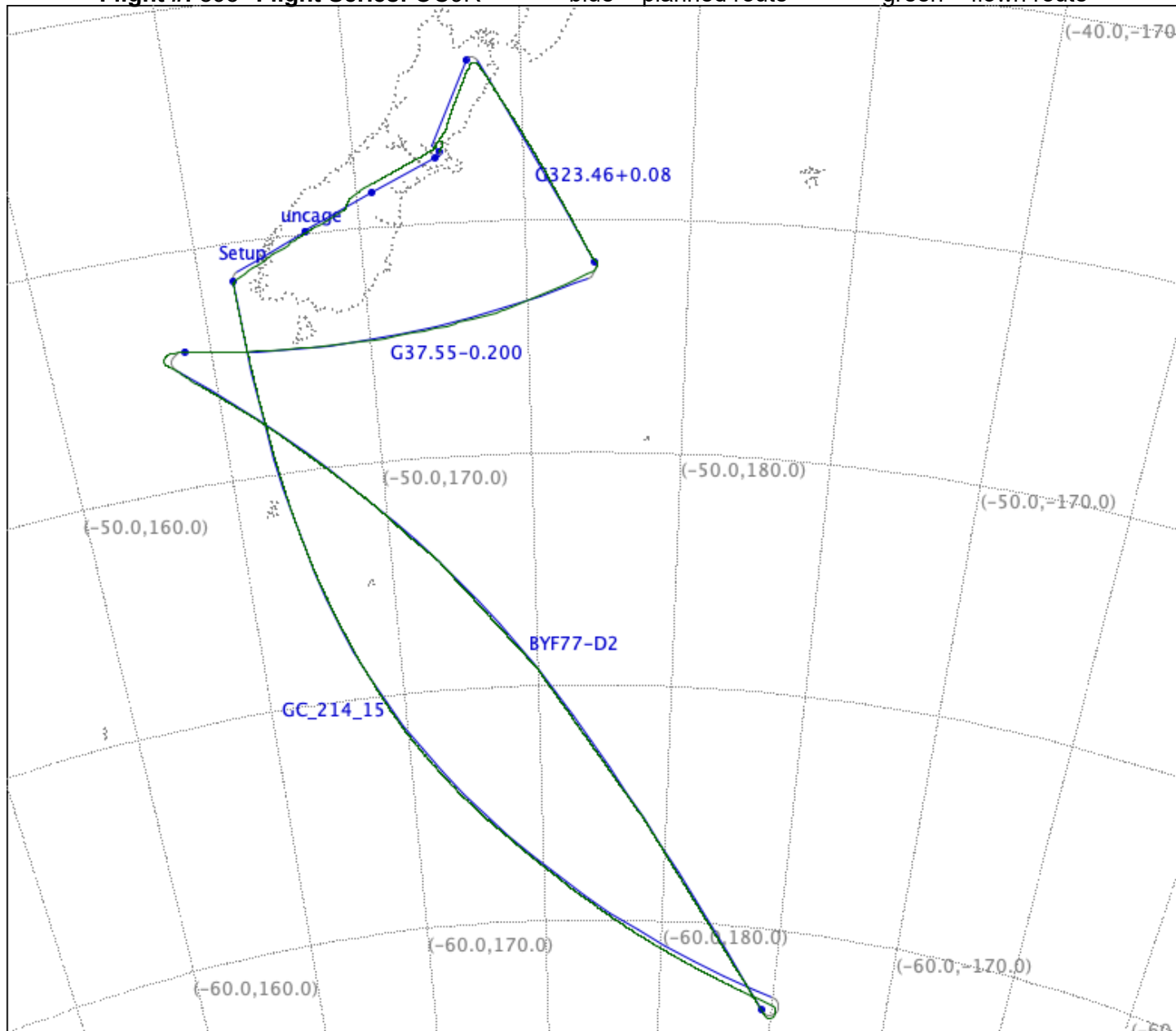
MISSION ID: 2022-07-06_HA_F895

Date: 2022-07-06UT Instrument: HAWC+

Flight #: 895 Flight Series: OC9R

blue = planned route

green = flown route



Flight notes: Technical challenges on leg 6.

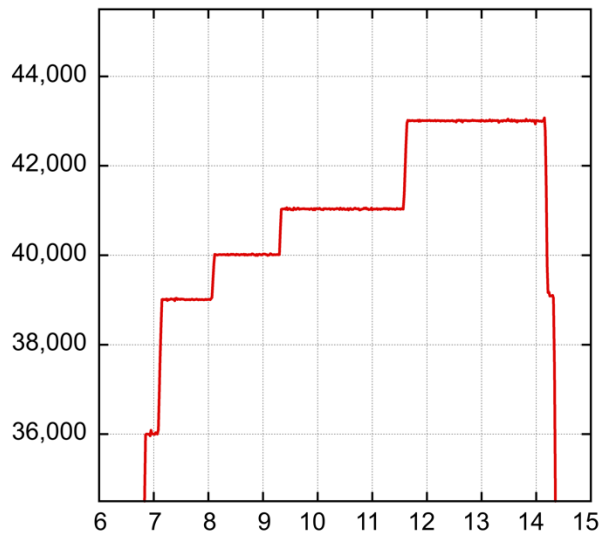
Flight 895
Christchurch-
Christchurch

Mission ID 2022-07-06_HA_F895
Take off date UTC:
06-JUL-2022

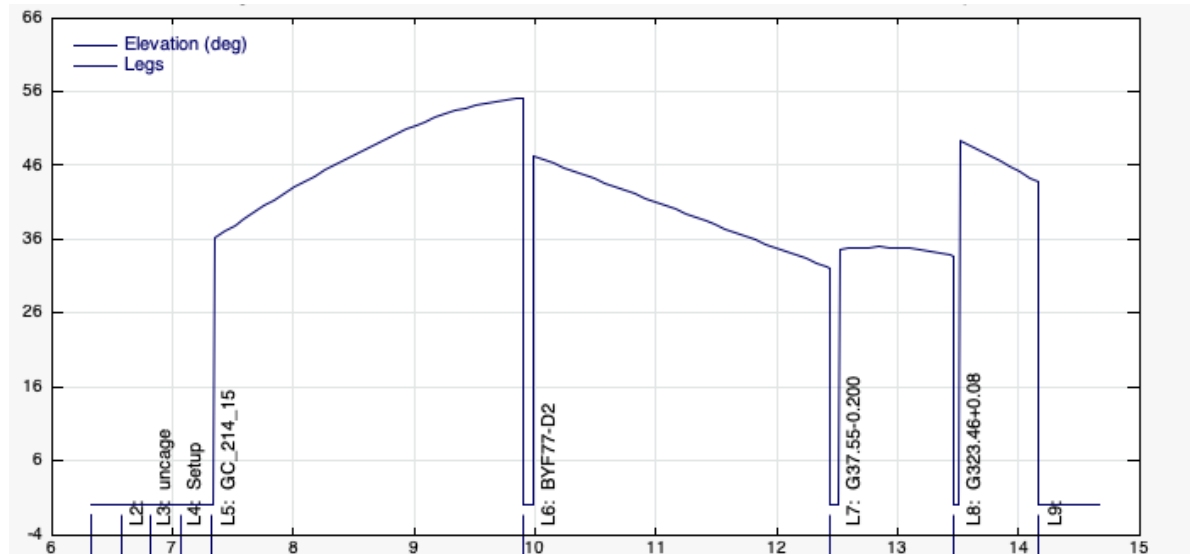
Departure UTC: 06:29
Arrival UTC: 14:41

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5	09_0054	Chuss	Galactic Center	17h44m38.93s	-29d22m42.7s	7:20	153	
6	09_0048	Barnes	BYF77-D2	10h37m23.77s	-58d39m10.8s	9:59	147	Stopped observing 1/3 into the leg to preserve HAWC+ cooling.
7	09_0136	Eislöffel	G37.55-0.200	18h59m09.98s	04d12m15.5s	12:31	57	
8	75_0103	Discretionary	G323.46+0.08	15h29m19.36s	-56d31m22.2s	13:31	39	

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



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



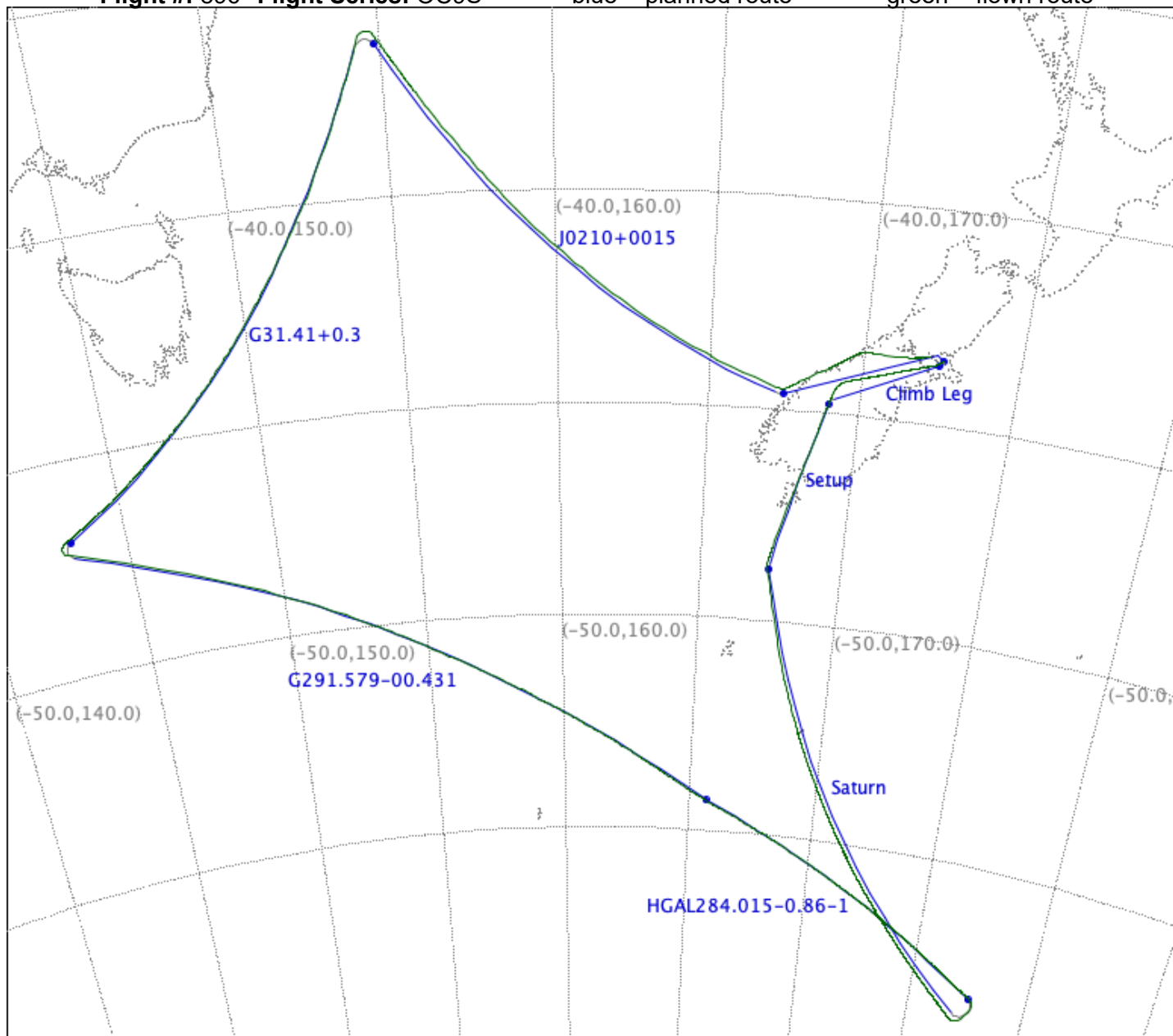
MISSION ID: 2022-07-10_GR_F896

Date: 2022-07-10UT Instrument: GREAT

Flight #: 896 Flight Series: OC9S

blue = planned route

green = flown route



Flight notes:
No irregularities.

Flight 896
 Christchurch-
 Christchurch

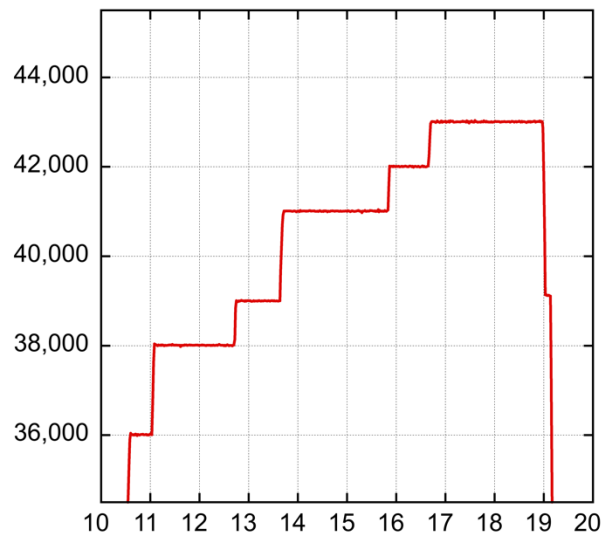
Mission ID 2022-07-10_GR_F896
 Take off date UTC:
 10-JUL-2022

Departure UTC: 10:07
 Arrival UTC: 19:40

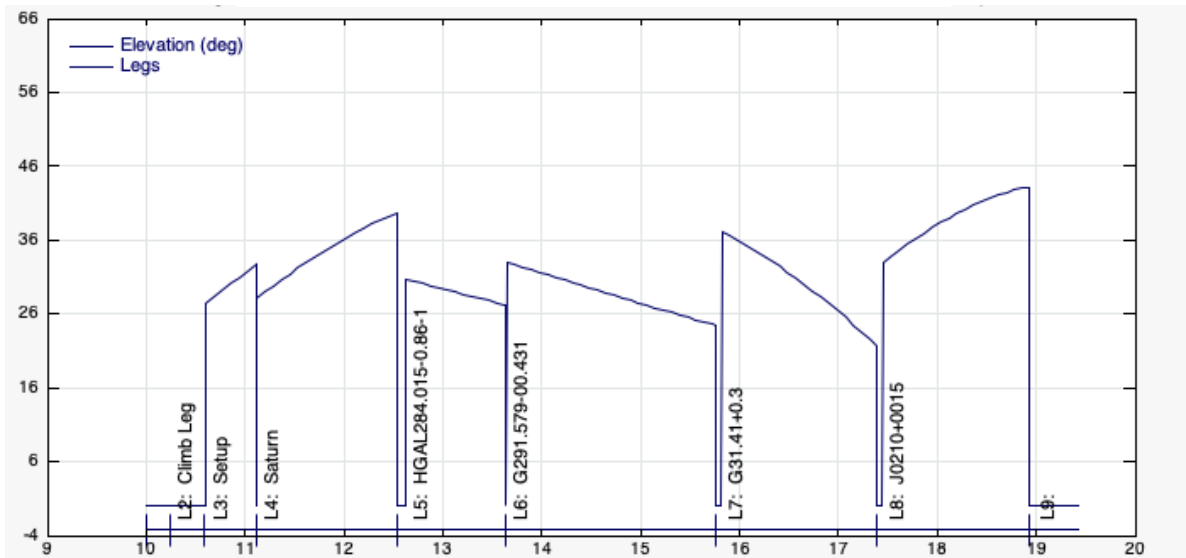
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	22h31m30.33s	-32d20m45.9s	10:36	30	
4	90_0008	Calibration	Saturn	21h46m45.76s	-14d41m46.0s	11:07	85	
5	08_0038	Neufeld	HGAL284.015-0.86	10h20m16.10s	-58d03m55.0s	12:37	61	
6	08_0038	Neufeld	G291.579-00.431	11h15m05.76s	-61d09m40.8s	13:38	127	
7	08_0038	Neufeld	G31.41+0.3	18h47m34.10s	-01d12m49.0s	15:49	94	
8	09_0059	Stacey	J0210+0015	02h09m41.14s	00d15m57.9s	17:27	89	

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



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

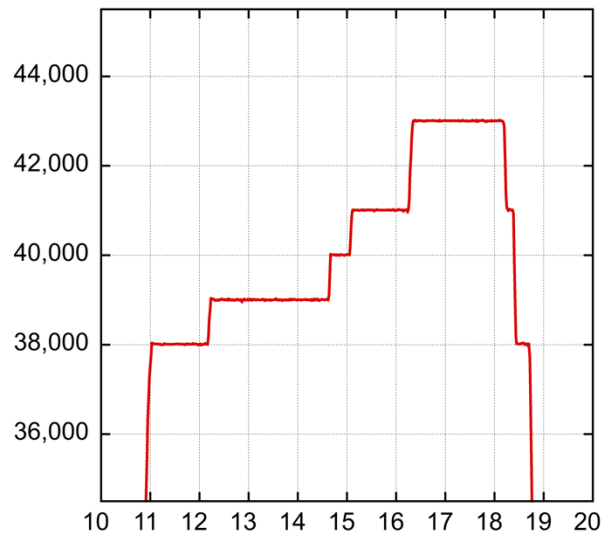


Flight notes:

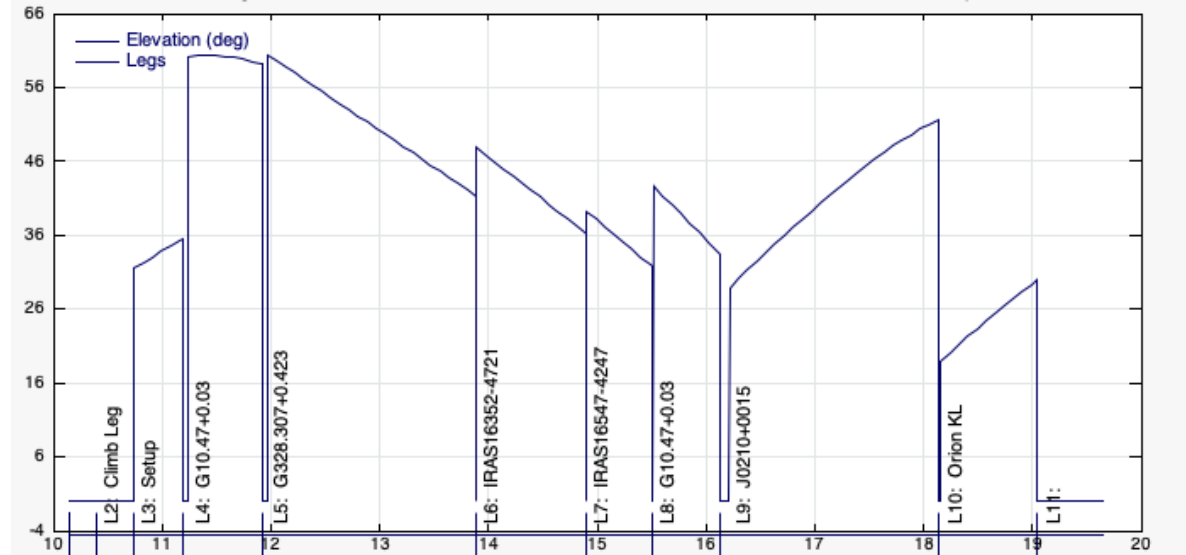
Early return to Christchurch base due to risk of rain upon arrival.

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	23h06m52.73s	-43d31m13.3s	10:44	27	
4	08_0038	Neufeld	G10.47+0.03	18h08m38.40s	-19d51m52.0s	11:14	41	
5	08_0038	Neufeld	G328.307+0.423	15h54m07.20s	-53d11m40.0s	11:58	115	
6	08_0038	Neufeld	IRAS16352-4721	16h38m50.60s	-47d28m04.0s	13:53	60.6	
7	08_0038	Neufeld	IRAS16547-4247	16h58m17.21s	-42d52m08.9s	14:54	36	
8	08_0038	Neufeld	G10.47+0.03	18h08m38.40s	-19d51m52.0s	15:31	37	
9	09_0059	Stacey	J0210+0015	02h09m41.14s	00d15m57.9s	16:13	115	
10	09_0134	Goicoechea	Orion KL	05h35m14.16s	-05d22m10.0s	18:09	53	Leg dropped to return to Christchurch before rain showers. 0% of data collected.

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



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



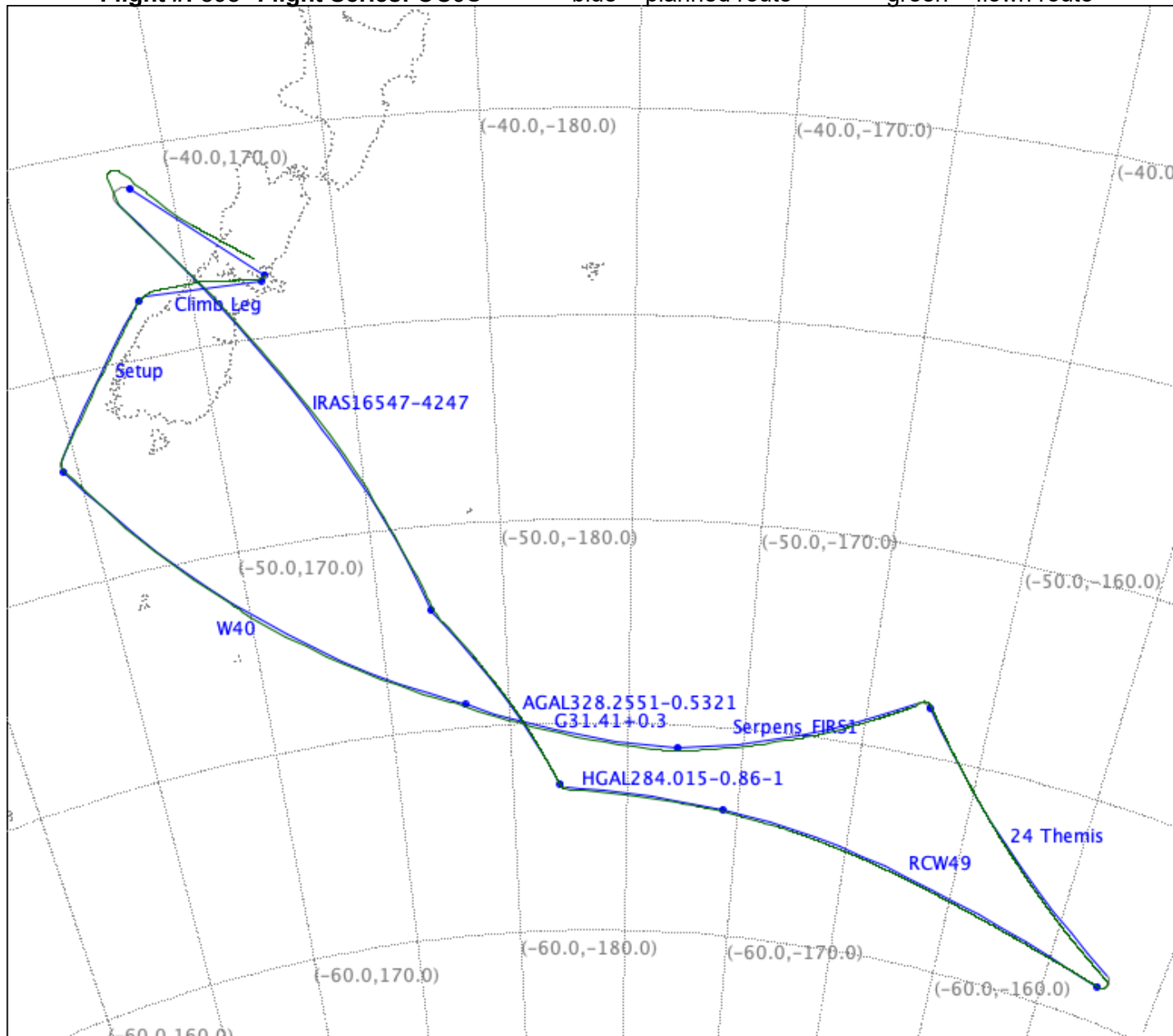
MISSION ID: 2022-07-12_GR_F898

Date: 2022-07-12UT Instrument: GREAT

Flight #: 898 Flight Series: OC9S

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 898
Christchurch-
Christchurch

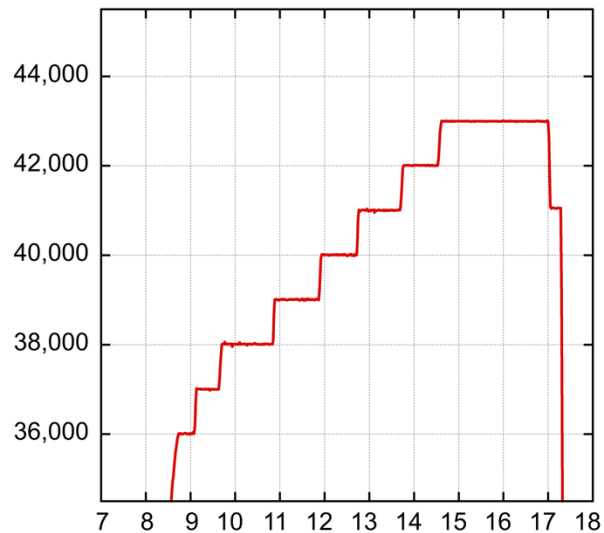
Mission ID 2022-07-12_GR_F898
Take off date UTC:
12-JUL-2022

Departure UTC: 08:02
Arrival UTC: 17:42

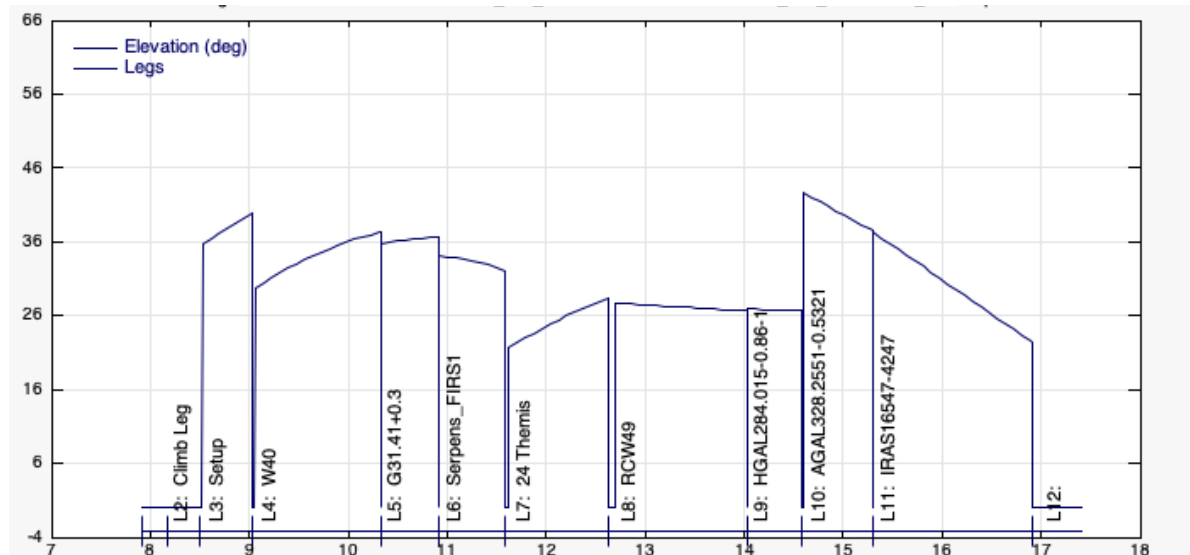
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	20h44m02.33s	-51d55m15.5s	8:31	30	
4	09_0096	Guevara	W40	18h31m25.23s	-02d04m21.6s	9:03	76	
5	08_0038	Neufeld	G31.41+0.3	18h47m34.10s	-01d12m49.0s	10:19	35	
6	08_0166	Caselli	SerpensFIRS1	18h29m49.80s	01d15m20.5s	10:55	40	
7	09_0200	Moulet	24 Themis	23h49m36.72s	-01d54m42.8s	11:37	60	Observation script error led to 13min loss
8	09_0096	Guevara	RCW49	10h24m15.23s	-57d46m42.5s	12:41	80	
9	08_0038	Neufeld	HGAL284.015-0.86	10h20m16.10s	-58d03m55.0s	14:01	33	
10	09_0161	Bouscasse	AGAL328.2551-0.5321	15h58m00.05s	-53d57m57.8s	14:36	42	
11	08_0038	Neufeld	IRAS16547-4247	16h58m17.21s	-42d52m08.9s	15:18	96	

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



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



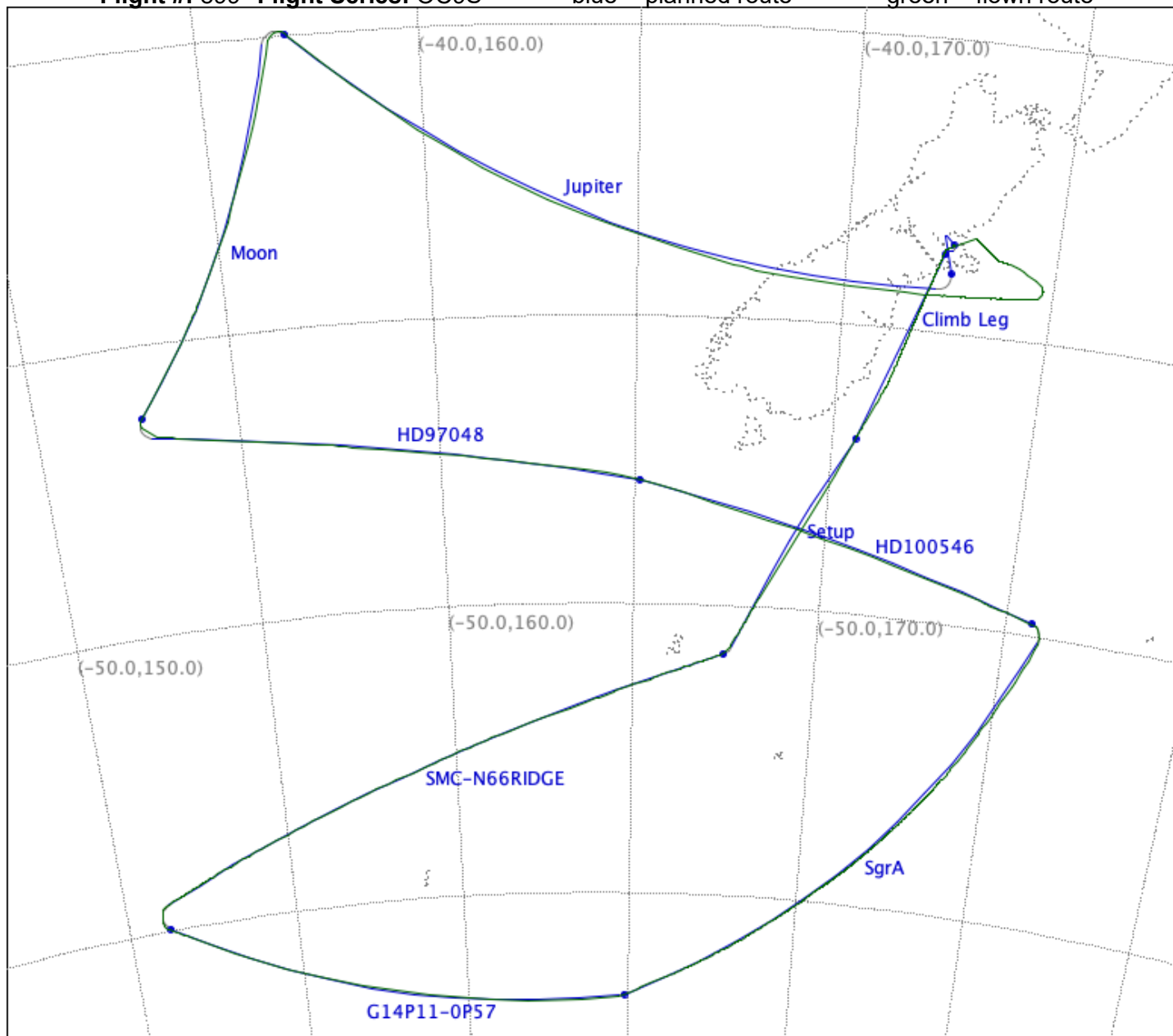
MISSION ID: 2022-07-13_GR_F899

Date: 2022-07-13UT Instrument: GREAT

Flight #: 899 Flight Series: OC9S

blue = planned route

green = flown route



Flight notes: No irregularities.

Flight 899
Christchurch-
Christchurch

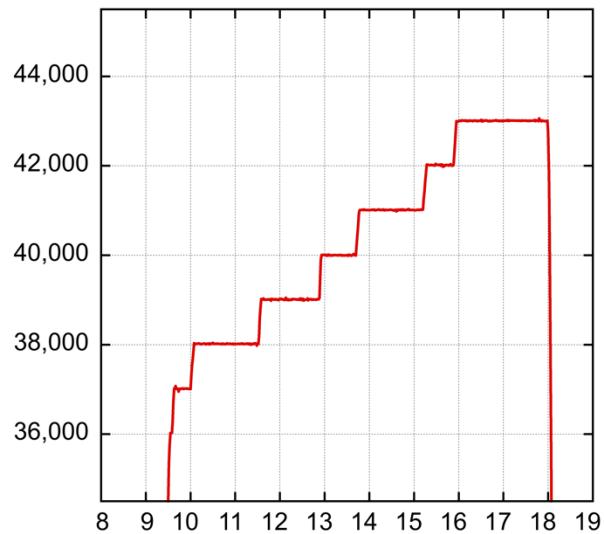
Mission ID 2022-07-13_GR_F899
Take off date UTC:
13-JUL-2022

Departure UTC: 09:03
Arrival UTC: 18:44

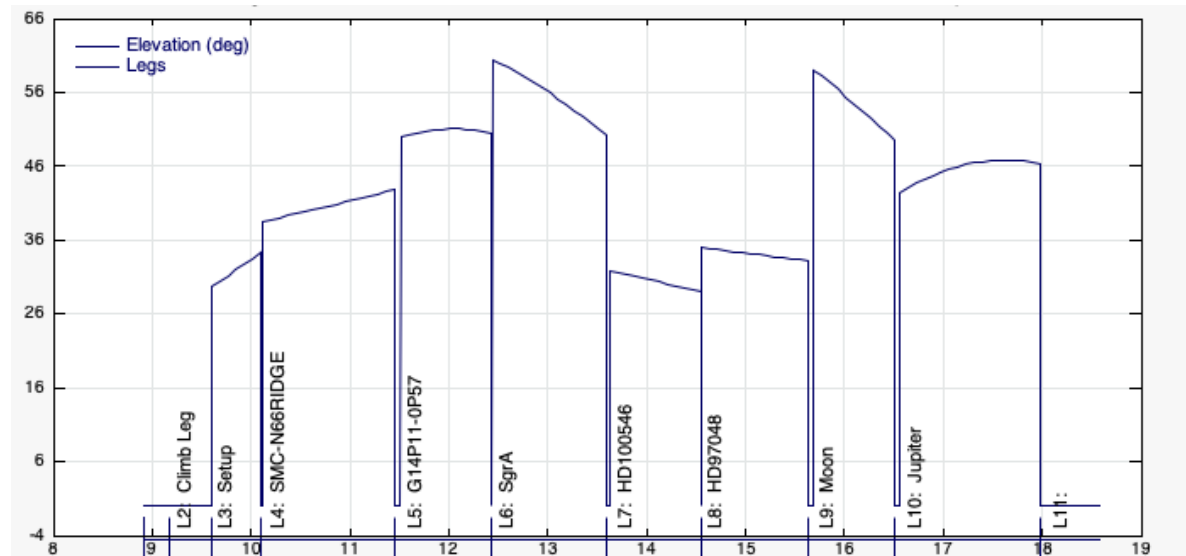
Consortium flight
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	22h06m06.89s	-39d32m36.1s	9:35	30	
4	83_0415	GREAT Consortium	SMC-N66 RIDGE	00h59m06.90s	-72d10m29.6s	10:07	80	
5	83_0922	GREAT Consortium	G14P11-0P57	18h18m10.62s	-16d44m54.0s	11:30	55	
6	83_0907	GREAT Consortium	SgrA	17h45m53.15s	-28d54m57.2s	12:26	70	
7	83_0514	GREAT Consortium	HD100546	11h33m25.40s	-70d11m41.2s	13:38	55	
8	83_0514	GREAT Consortium	HD97048	11h08m03.32s	-77d39m17.5s	14:33	65	
9	83_0903	GREAT Consortium	Moon	19h25m44.90s	-26d21m37.3s	15:41	49	
10	83_0903	GREAT Consortium	Jupiter	00h31m38.26s	01d56m24.7s	16:34	77	

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



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



Flight notes: No irregularities.

Flight 900
Christchurch-
Christchurch

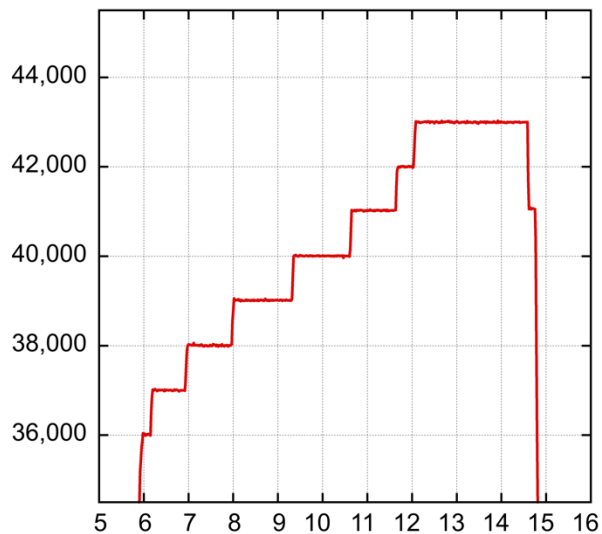
Mission ID 2022-07-16_GR_F900
Take off date UTC:
16-JUL-2022

Departure UTC: 05:28
Arrival UTC: 15:21

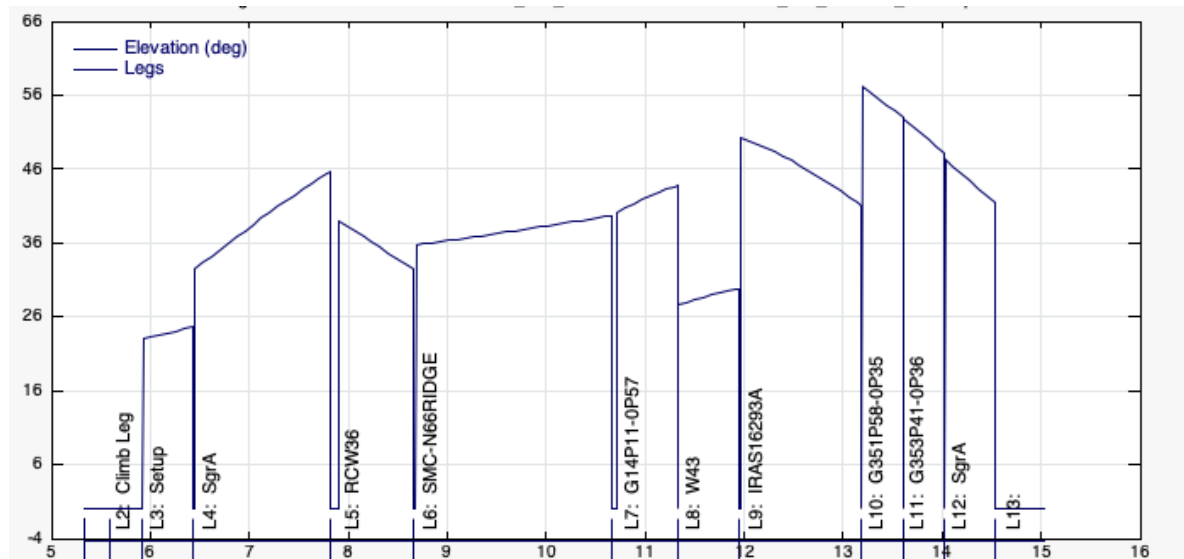
Consortium flight
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	22h27m19.97s	-64d57m58.9s	5:55	30	
4	83_0907	GREAT Consortium	SgrA	17h45m53.15s	-28d54m57.2s	6:27	82	
5	83_0926	GREAT Consortium	RCW36	08h59m06.80s	-43d47m51.0s	7:54	45	
6	83_0415	GREAT Consortium	SMC-N66 RIDGE	00h59m06.90s	-72d10m29.6s	8:41	119	
7	83_0922	GREAT Consortium	G14P11-0P57	18h18m19.49s	-16d45m23.1s	10:43	37	
8	83_0926	GREAT Consortium	W43	18h47m28.93s	-01d59m15.6s	11:20	37	
9	83_0908	GREAT Consortium	IRAS16293A	16h32m22.87s	-24d28m36.5s	11:58	73	
10	83_0922	GREAT Consortium	G351P58-0P35	17h25m25.03s	-36d12m45.4s	13:11	25	
11	83_0922	GREAT Consortium	G353P41-0P36	17h30m26.25s	-34d41m48.5s	13:36	25	
12	83_0907	GREAT Consortium	SgrA	17h45m53.15s	-28d54m57.2s	14:01	30	

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



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



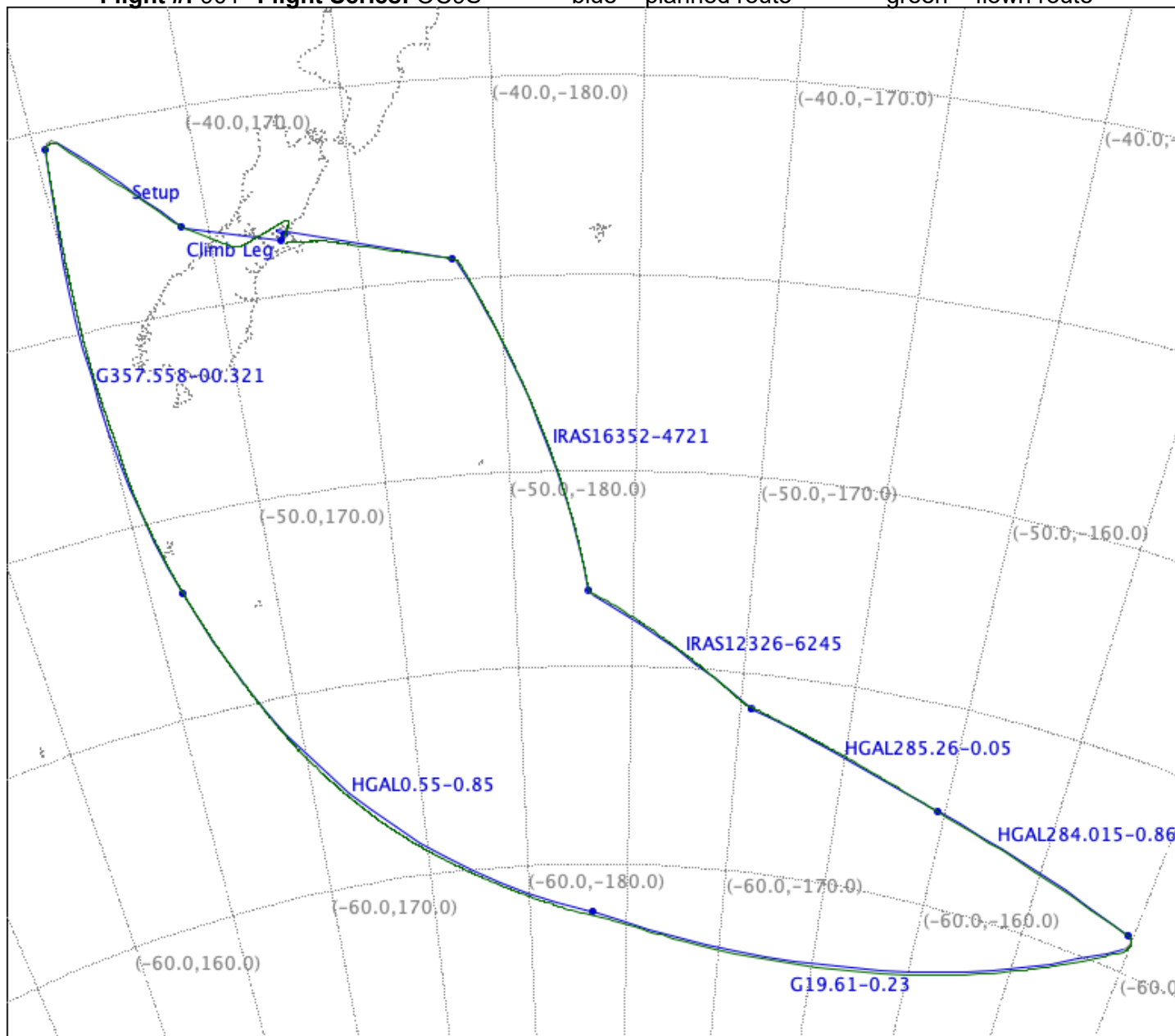
MISSION ID: 2022-07-17_GR_F901

Date: 2022-07-17UT Instrument: GREAT

Flight #: 901 Flight Series: OC9S

blue = planned route

green = flown route



Flight notes:

4G4 channel non-operational entire flight.

Flight 901
Christchurch-
Christchurch

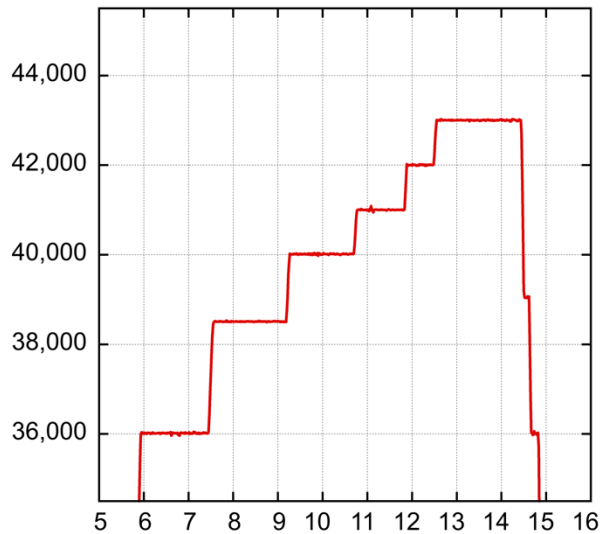
Mission ID 2022-07-17_GR_F901
Take off date UTC:
17-JUL-2022

Departure UTC: 05:31
Arrival UTC: 15:18

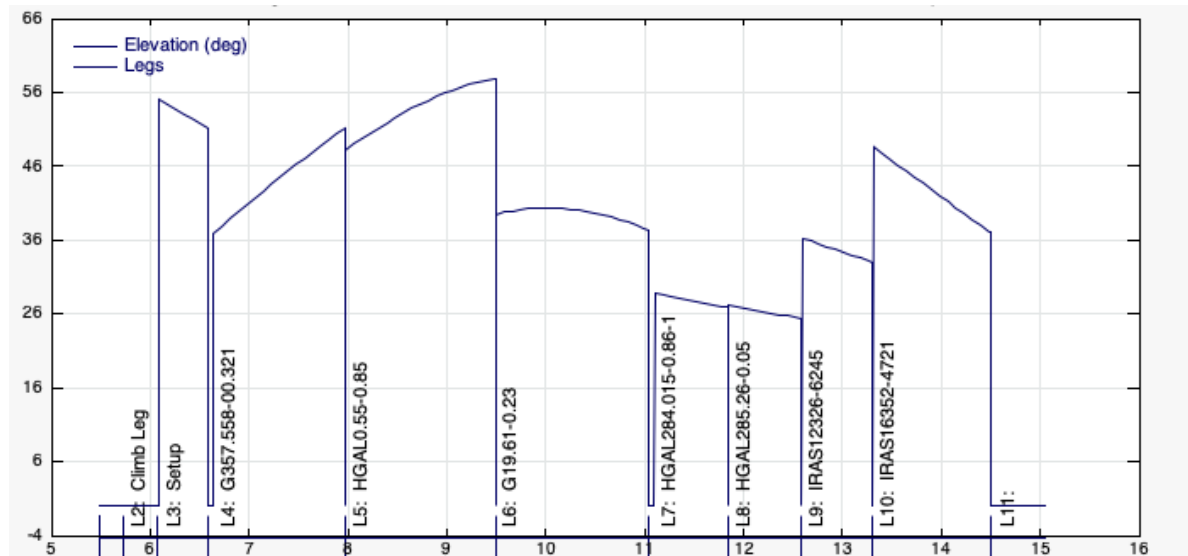
4G-HFA

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
3			Setup	09h39m21.00s	-61d19m41.0s	6:05	30	
4	08_0038	Neufeld	G357.558-00.321	17h40m57.19s	-31d10m59.3s	6:38	80	
5	08_0038	Neufeld	HGAL0.55-0.85	17h50m14.52s	-28d54m30.7s	7:58	91	
6	08_0038	Neufeld	G19.61-0.23	18h27m38.00s	-11d56m39.5s	9:29	93	
7	08_0038	Neufeld	HGAL284.015-0.86	10h20m16.10s	-58d03m55.0s	11:06	45	
8	08_0038	Neufeld	HGAL285.26-0.05	10h31m29.48s	-58d02m19.5s	11:51	44	
9	08_0038	Neufeld	IRAS12326-6245	12h35m35.90s	-63d02m29.0s	12:35	42	
10	08_0038	Neufeld	IRAS16352-4721	16h38m50.60s	-47d28m04.0s	13:18	71	

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



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

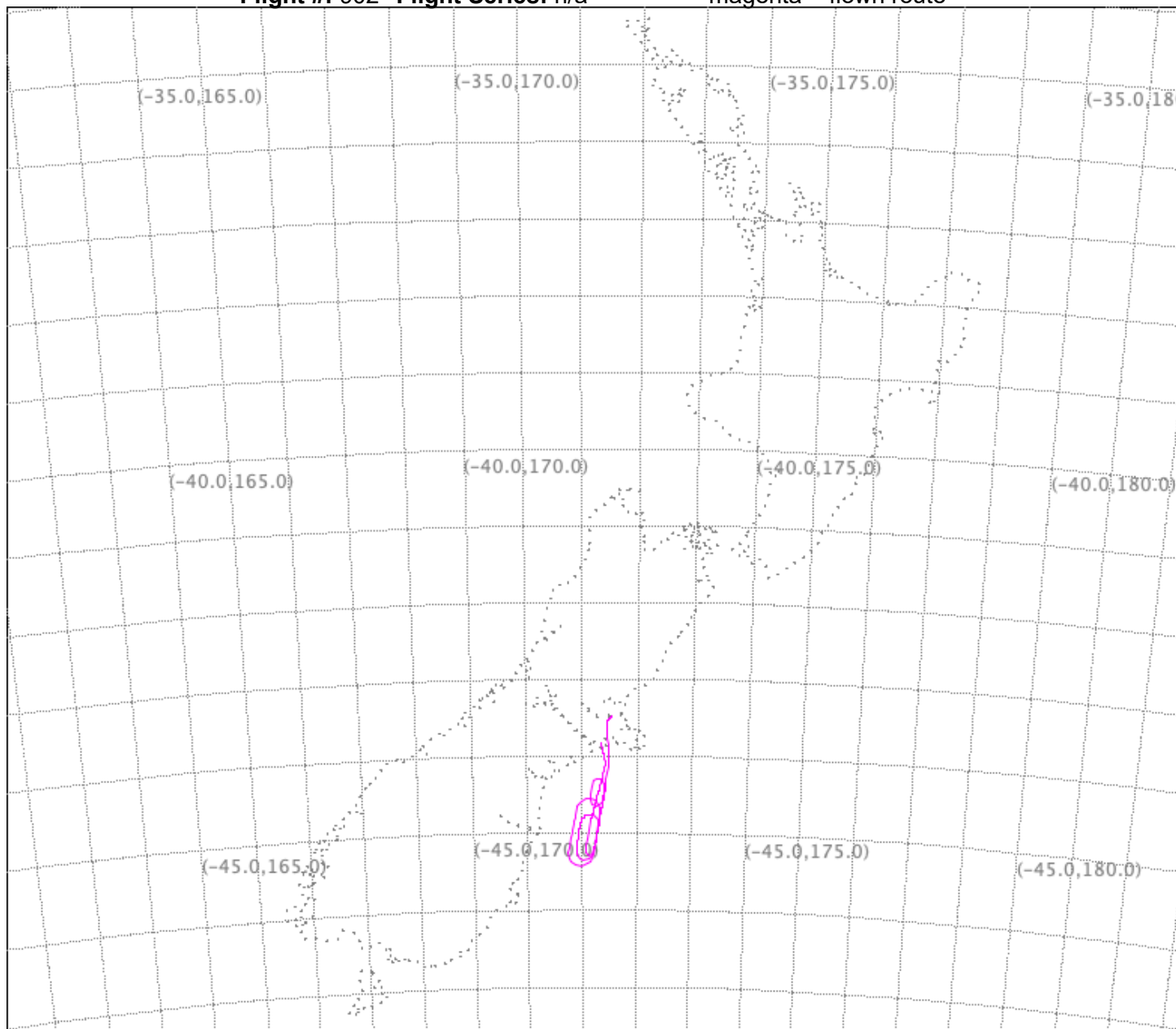


MISSION ID: 2022-08-08_NO_902

Date: 2022-08-08UT Instrument: n/a

Flight #: 902 Flight Series: n/a

magenta = flown route



Flight notes:
Check flight – no science.

Flight 902
Christchurch-
Christchurch

Mission ID 2022-08-08_NO_F902
Take off date UTC:
08-AUG-2022

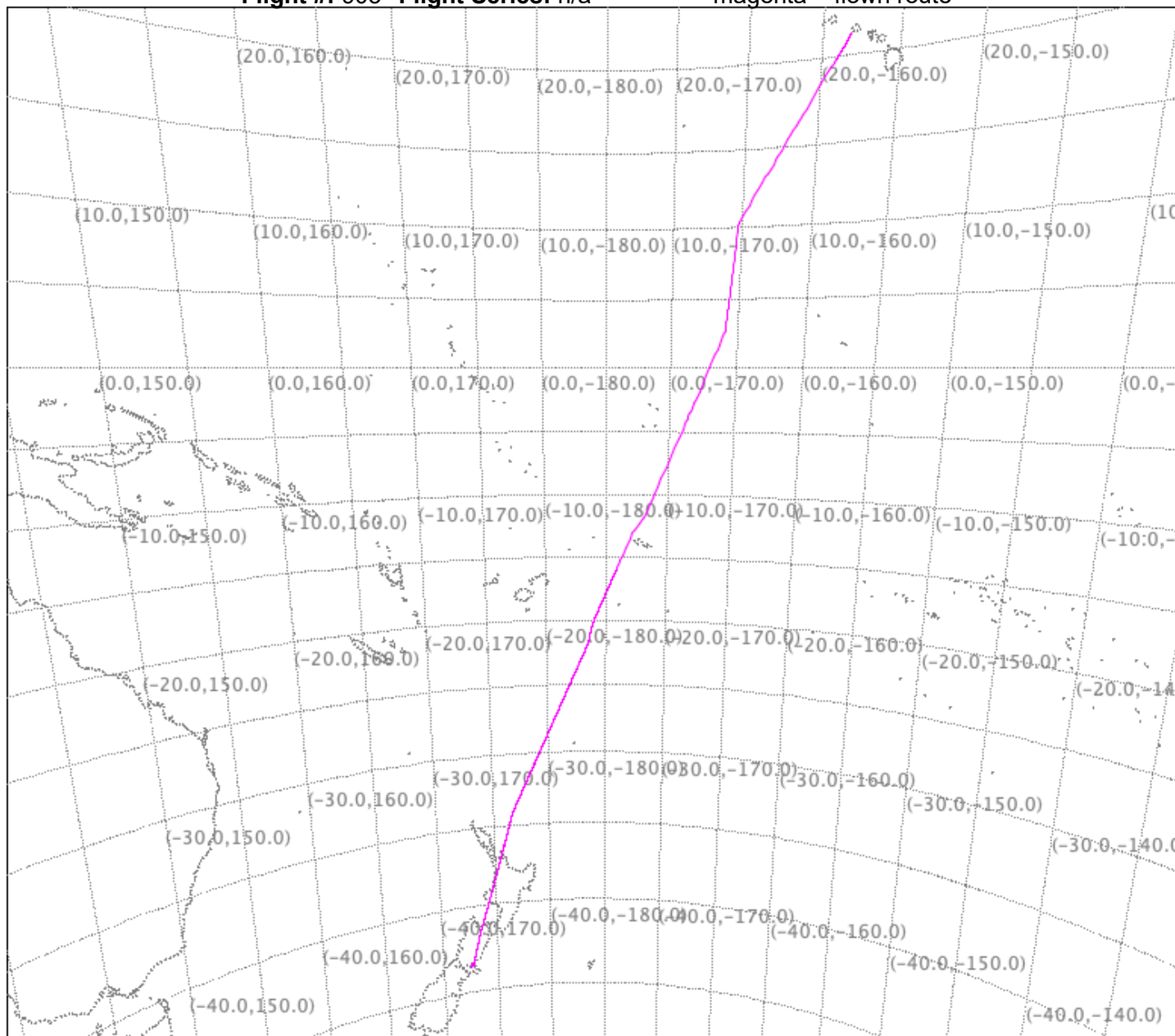
Departure UTC: Arrival UTC:
HH:MM HH:MM

MISSION ID: 2022-08-11_NO_903

Date: 2022-08-11UT Instrument: n/a

Flight #: 903 Flight Series: n/a

magenta = flown route



Flight notes:

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

Flight 902
Christchurch
to Honolulu

Mission ID 2022-08-11_NO_F903
Take off date UTC:
11-AUG-2022

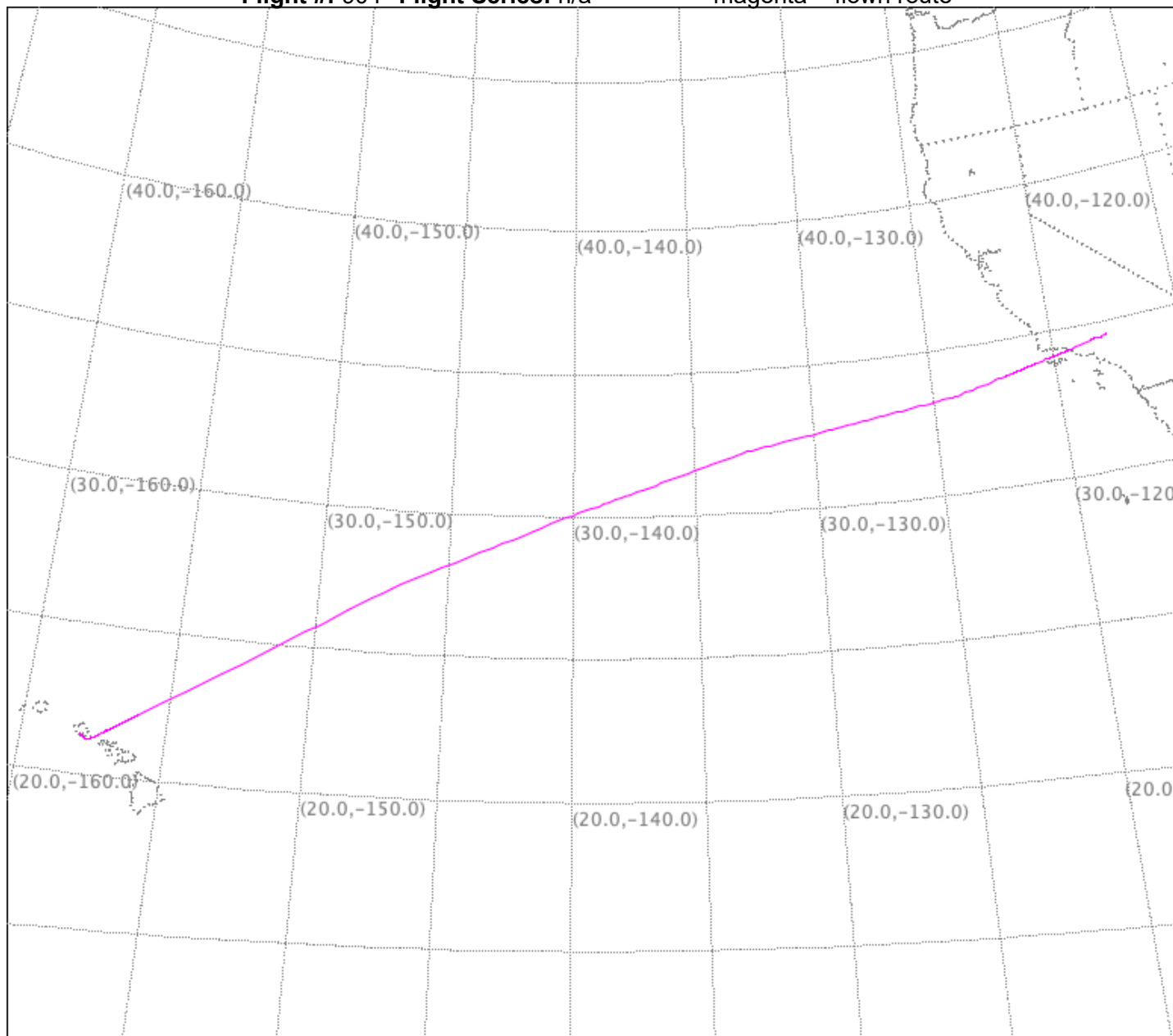
Departure UTC: 00:12
Arrival UTC: 09:00

MISSION ID: 2022-08-11_NO_904

Date: 2022-08-11UT Instrument: n/a

Flight #: 904 Flight Series: n/a

magenta = flown route



Flight notes:

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

Flight 902
Honolulu to
Palmdale

Mission ID 2022-08-11_NO_F904
Take off date UTC:
11-AUG-2022

Departure UTC: 12:06
Arrival UTC: 16:35

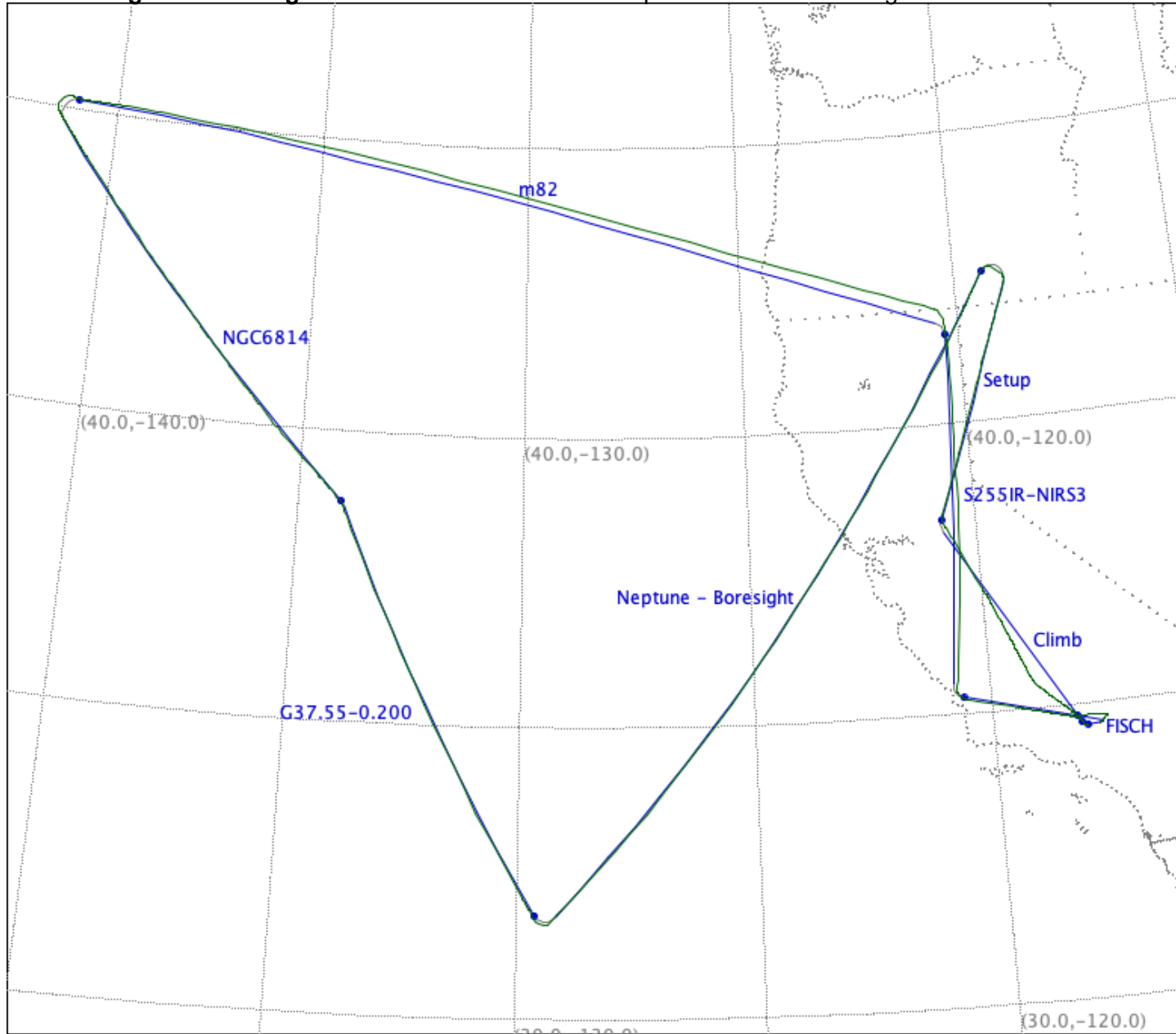
MISSION ID: 2022-08-24_FI_F905

Date: 2022-08-24UT Instrument: FIFI-LS

Flight #: 905 Flight Series: OC9T

blue = planned route

green = flown route



Flight notes: No irregularities.

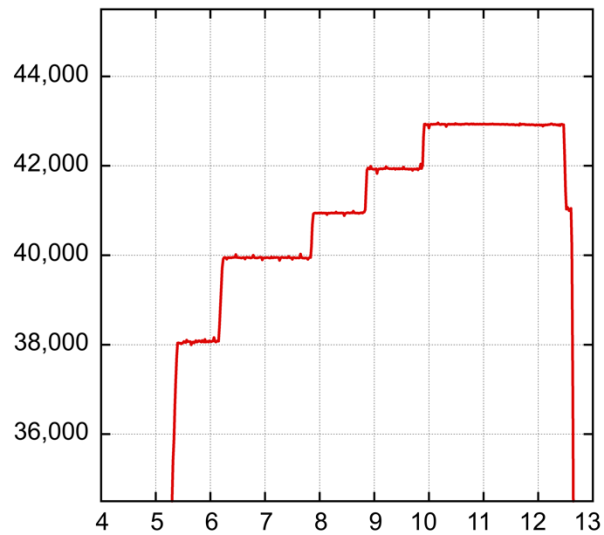
Flight 905
Palmdale to
Palmdale

Mission ID 2022-08-24_FI_F905
Take off date UTC:
24-AUG-2022

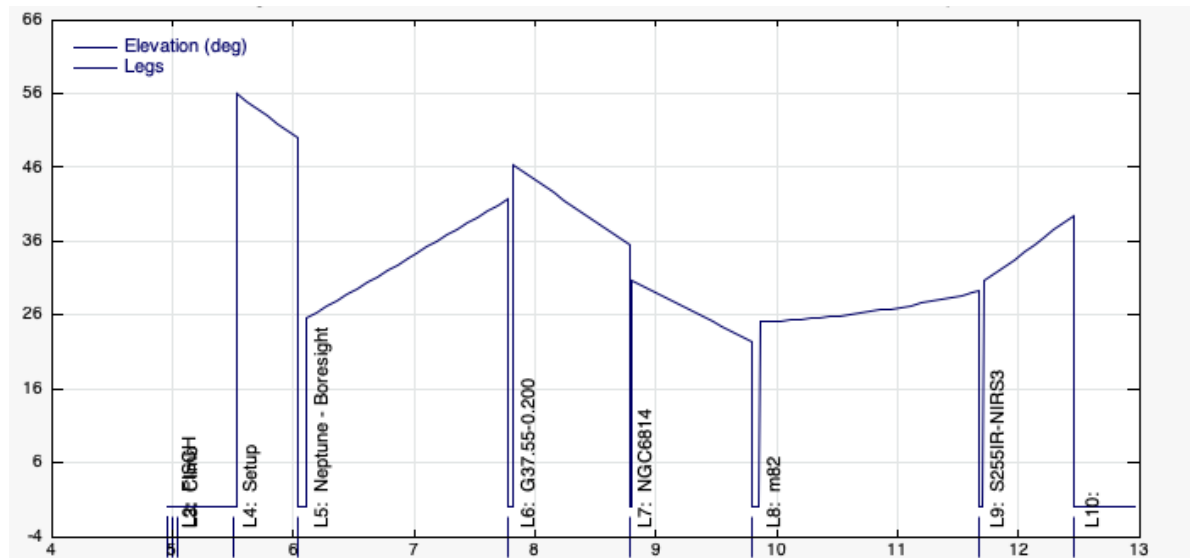
Departure UTC: 04:57
Arrival UTC: 13:00

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h42m53.77s	38d55m20.1s	5:31	30	
5	90_0032	Calibration	Neptune	23h41m08.96s	-03d21m58.8s	6:06	100	
6	09_0136	Eislöffel	G37.55-0.200	18h59m09.98s	04d12m15.6s	7:49	57.87	
7	08_0069	Smith	NGC6814	19h42m40.64s	-10d19m24.6s	8:48	60	
8	70_0908	GTO	m82	09h55m52.73s	69d40m45.8s	9:51	109	
9	75_0110	Discretionary	S255IR-NIRS3	06h12m54.01s	17d59m23.1s	11:42	45	

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



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



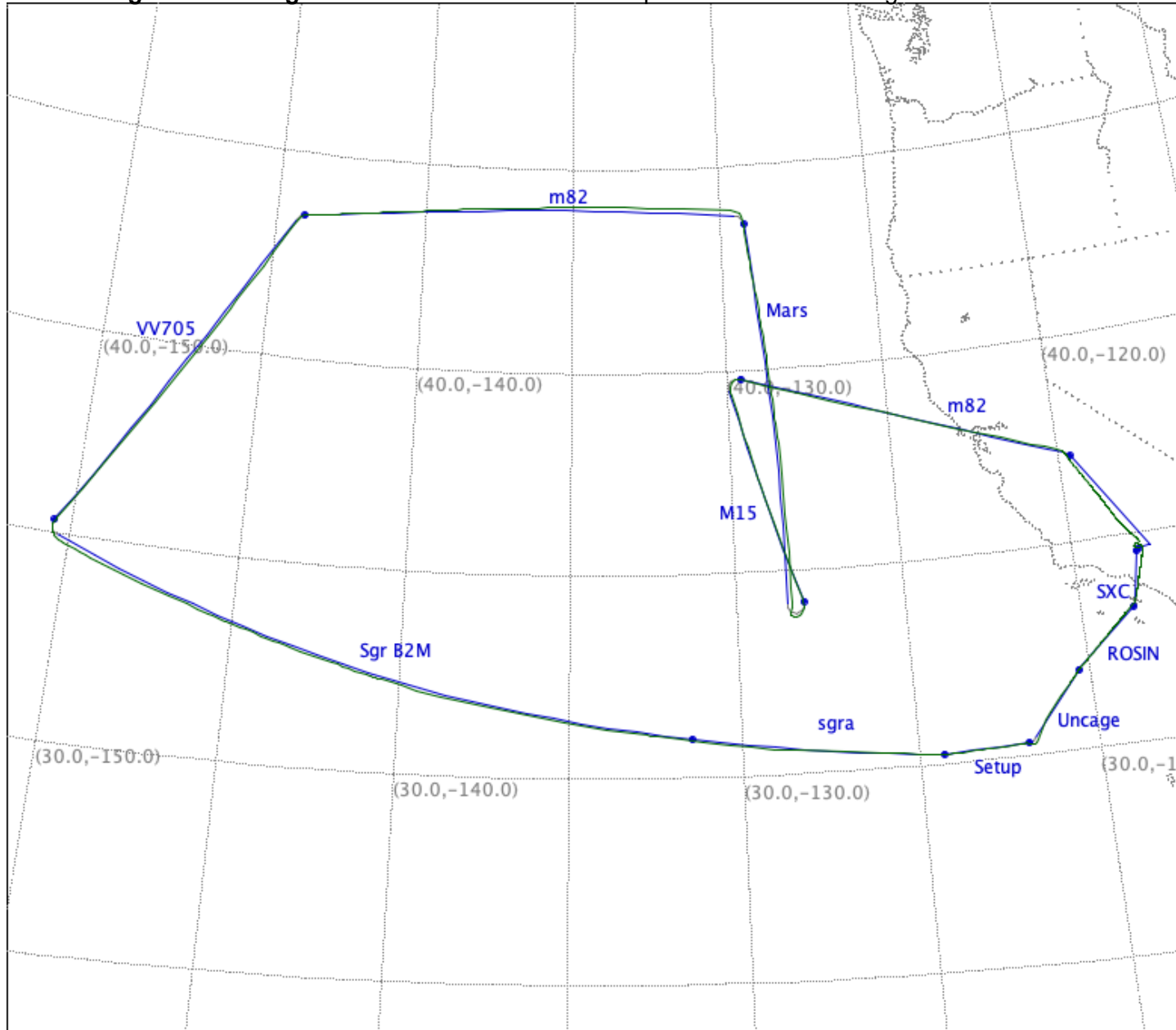
MISSION ID: 2022-08-25_FI_F906

Date: 2022-08-25UT Instrument: FIFI-LS

Flight #: 906 Flight Series: OC9T

blue = planned route

green = flown route



Flight notes:
No irregularities.

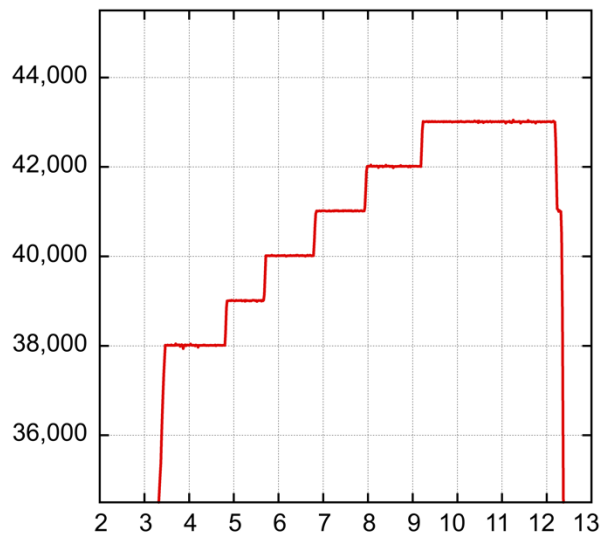
Flight 906
 Palmdale to
 Palmdale

Mission ID 2022-08-25_FI_F906
 Take off date UTC:
 25-AUG-2022

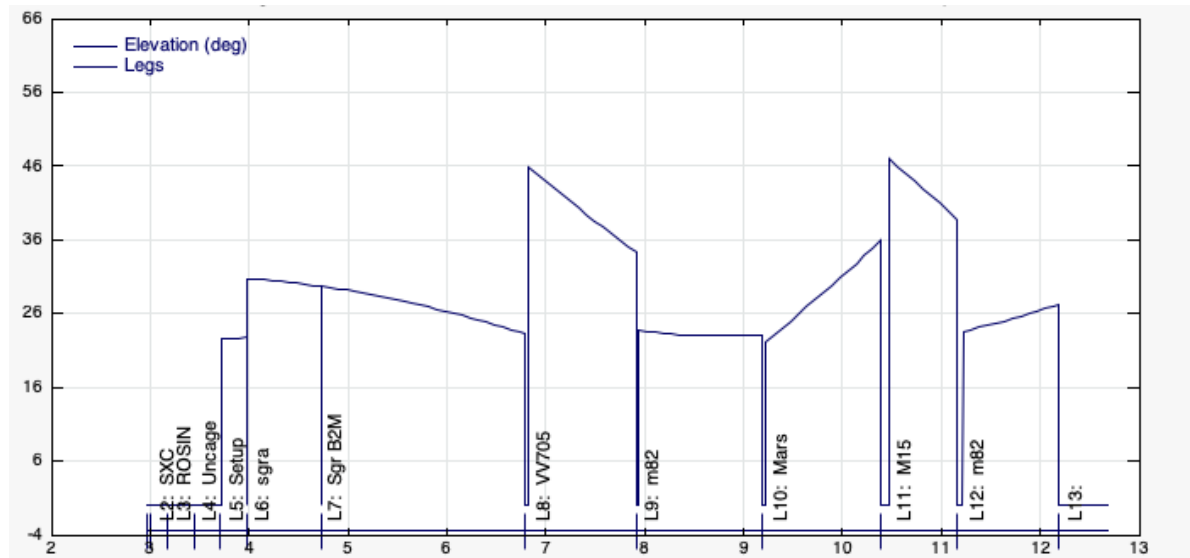
Departure UTC: 02:52
 Arrival UTC: 12:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	18h17m37.64s	-36d45m42.1s	3:43	15	
6	70_0908	GTO	sgra	17h45m40.04s	-29d00m28.1s	3:58	45	
7	09_0160	Bryant	Sgr B2M	17h46m01.26s	-28d51m23.1s	4:43	123	
8	08_0069	Smith	VV705	15h18m06.35s	42d44m36.7s	6:49	65	
9	70_0908	GTO	m82	09h55m52.73s	69d40m45.8s	7:55	75	
10	90_0033	Calibration	Mars	04h03m18.07s	19d17m35.7s	9:13	70	
11	09_0151	Gregg	M15	21h29m58.38s	12d10m00.6s	10:28	41	
12	70_0908	GTO	m82	09h55m52.73s	69d40m45.8s	11:13	58	

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



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



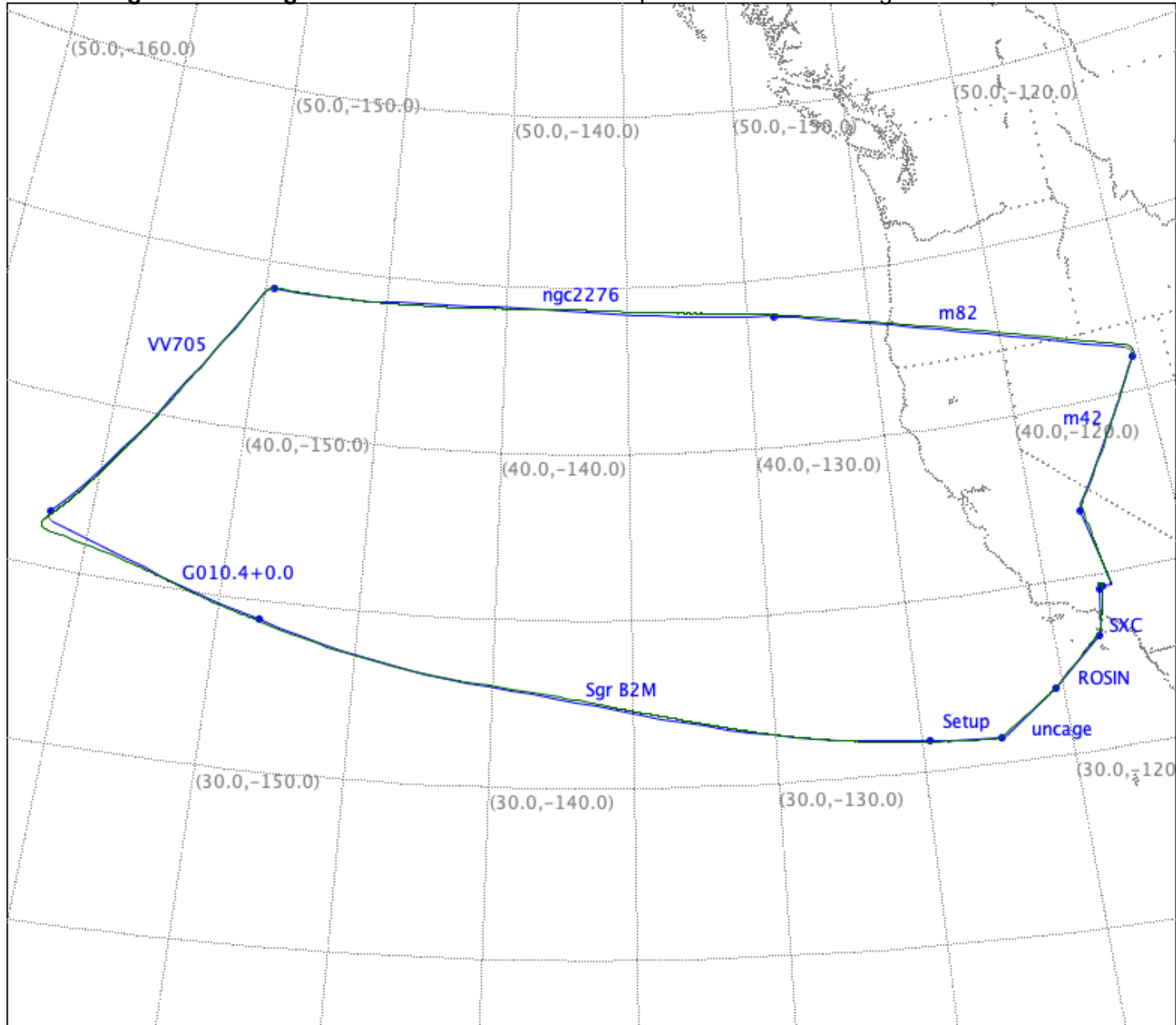
MISSION ID: 2022-08-30_FI_F907

Date: 2022-08-30UT Instrument: FIFI-LS

Flight #: 907 Flight Series: OC9T

blue = planned route

green = flown route



Flight notes: No irregularities.

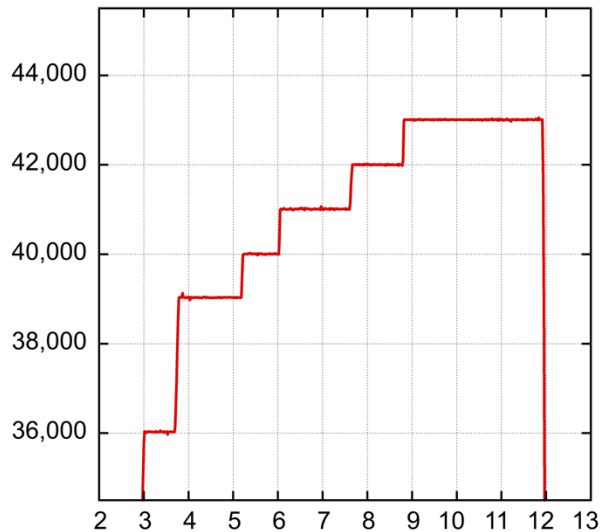
Flight 907
Palmdale to
Palmdale

Mission ID 2022-08-30_FI_F907
Take off date UTC:
30-AUG-2022

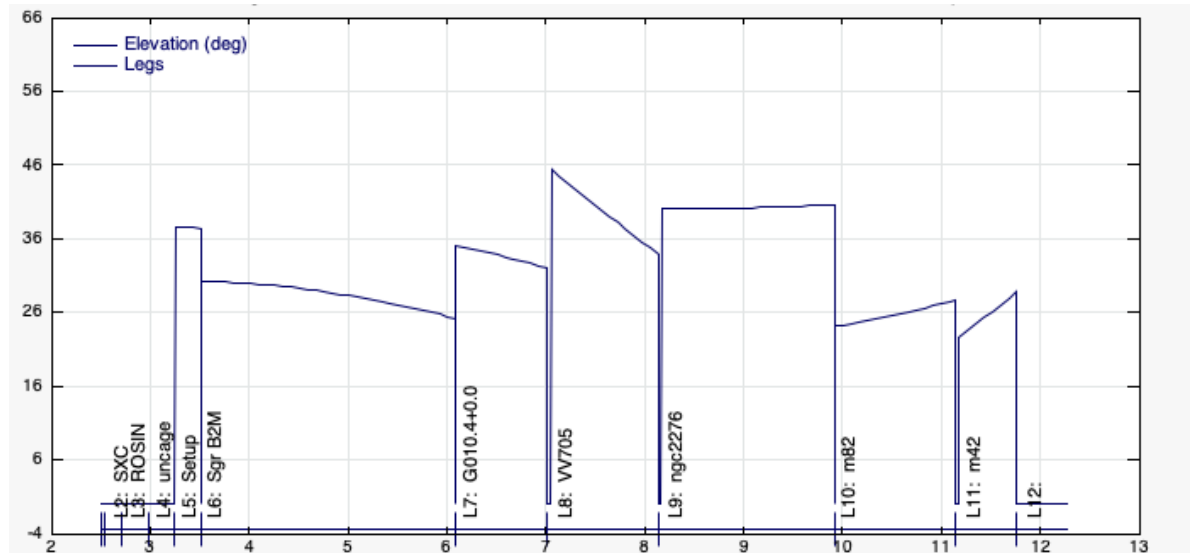
Departure UTC: 02:24
Arrival UTC: 12:15

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	17h43m25.79s	-21d40m59.5s	3:15	15	
6	09_0160	Bryant	Sgr B2M	17h46m01.26s	-28d51m23.1s	3:30	155	At low altitude (36k ft) for first 10 minutes of leg, then 39k ft.
7	09_0150	Pineda	G010.4+0.0	18h08m39.68s	-19d54m35.7s	6:05	55	
8	08_0069	Smith	VV705	15h18m06.35s	42d44m36.7s	7:02	65	
9	75_0109	Discretionary	NGC2276A	07h26m59.95s	85d45m20.5s	8:09	105	
10	70_0908	GTO	m82	09h55m52.73s	69d40m45.8s	9:54	73	
11	70_0908	GTO	m42	05h35m16.48s	-05d23m22.8s	11:10	35	Telescope guiding issues led to loss of about 20% of the leg.

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



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



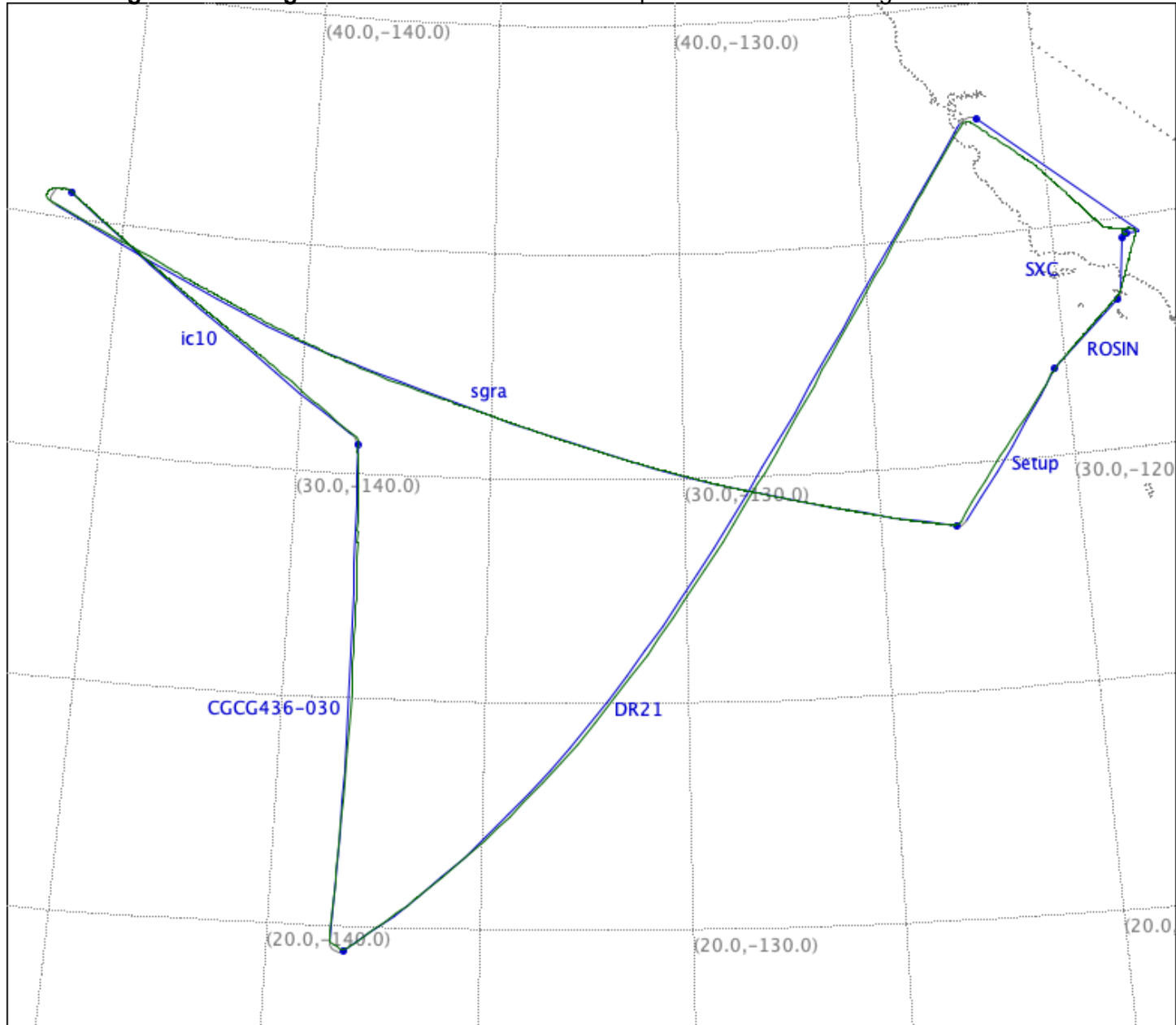
MISSION ID: 2022-08-31_FI_F908

Date: 2022-08-31UT Instrument: FIFI-LS

Flight #: 908 Flight Series: OC9T

blue = planned route

green = flown route



**Flight notes:
No irregularities.**

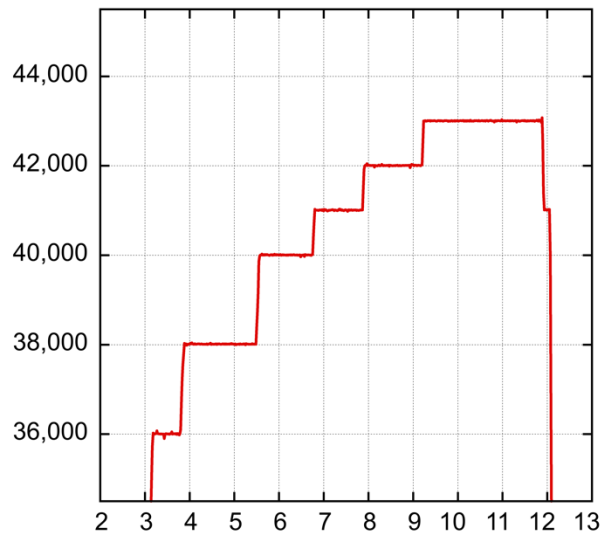
Flight 908
Palmdale to
Palmdale

Mission ID 2022-08-31_FI_F908
Take off date UTC:
31-AUG-2022

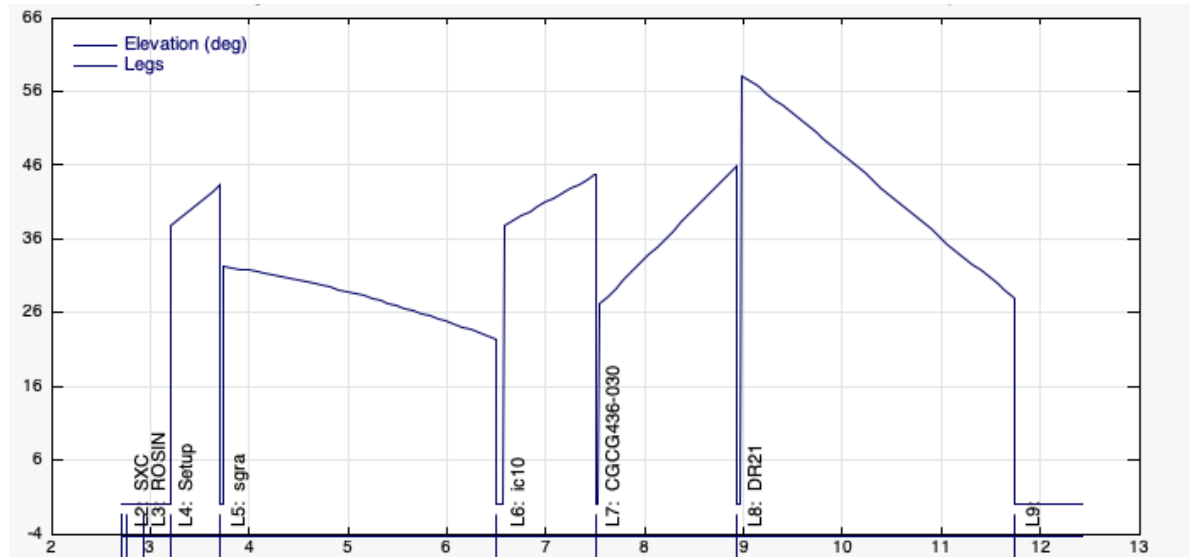
Departure UTC: 02:38
Arrival UTC: 12:25

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h38m20.28s	-01d06m18.4s	3:11	30	
5	70_0908	GTO	SgrA	17h45m41.72s	-28d59m35.5s	3:43	165	At low altitude (38k ft) for first 40min of leg, data quality suspect
6	70_0908	GTO	ic10	00h20m17.34s	59d18m13.6s	6:34	56	
7	08_0069	Smith	CGCG436-030	01h20m02.72s	14d21m42.9s	7:31	83	
8	09_0079	Fischer	DR21	20h39m00.90s	42d22m26.2s	8:58	166	

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



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



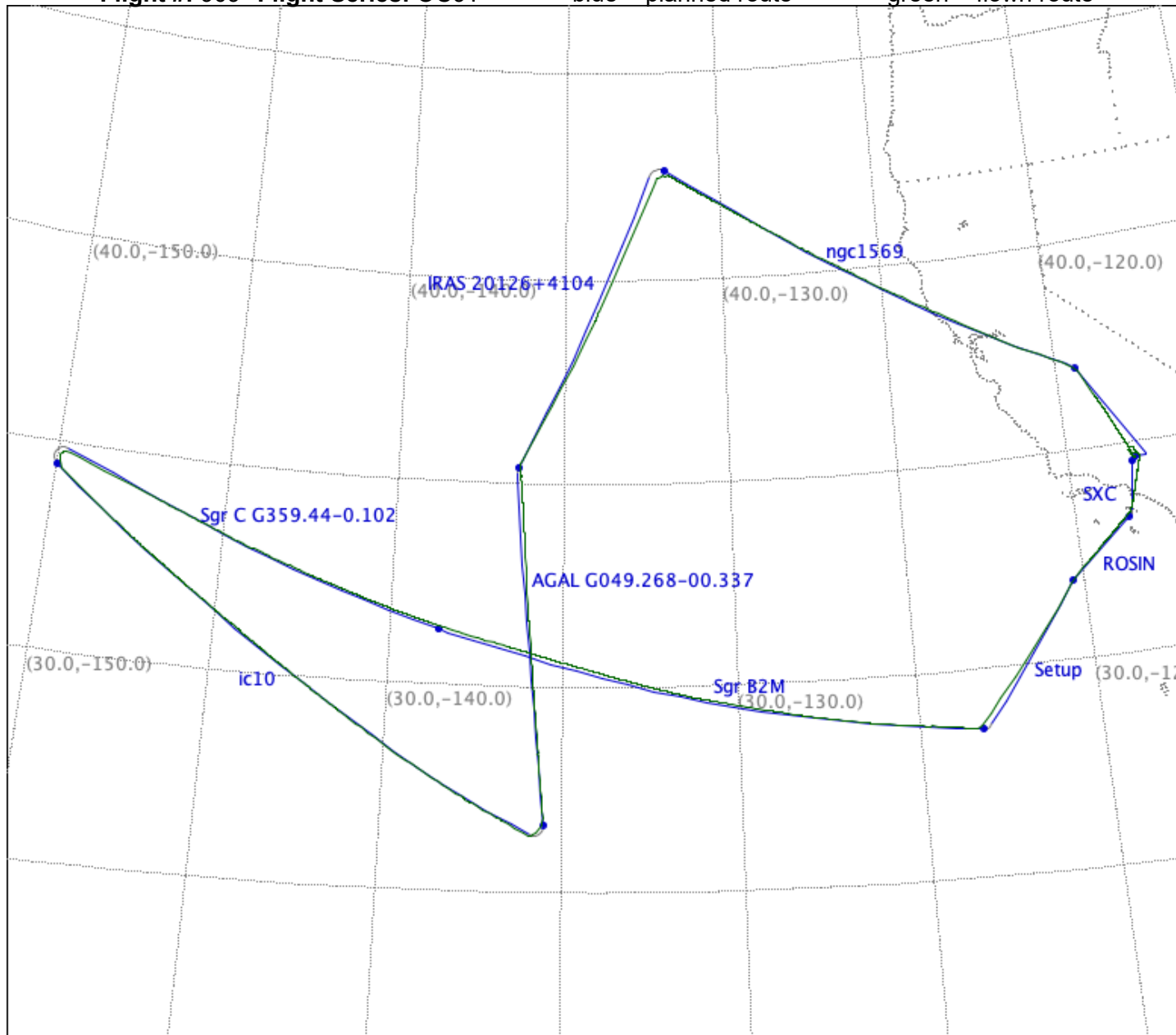
MISSION ID: 2022-09-01_FI_F909

Date: 2022-09-01UT Instrument: FIFI-LS

Flight #: 909 Flight Series: OC9T

blue = planned route

green = flown route



Flight notes: No irregularities.

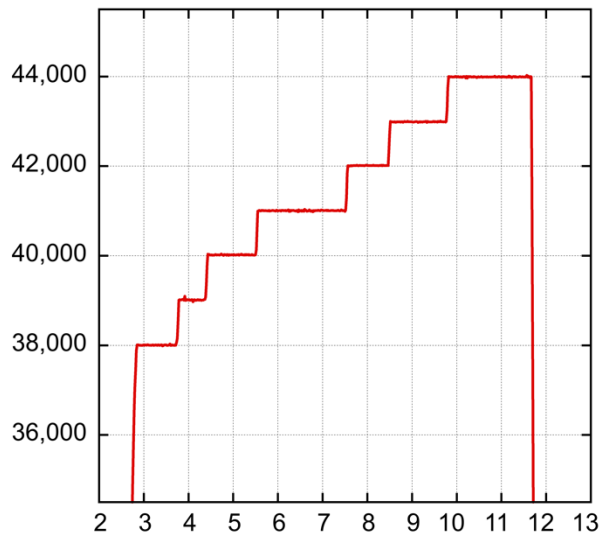
Flight 909
Palmdale to
Palmdale

Mission ID 2022-09-01_FI_F909
Take off date UTC:
01-SEP-2022

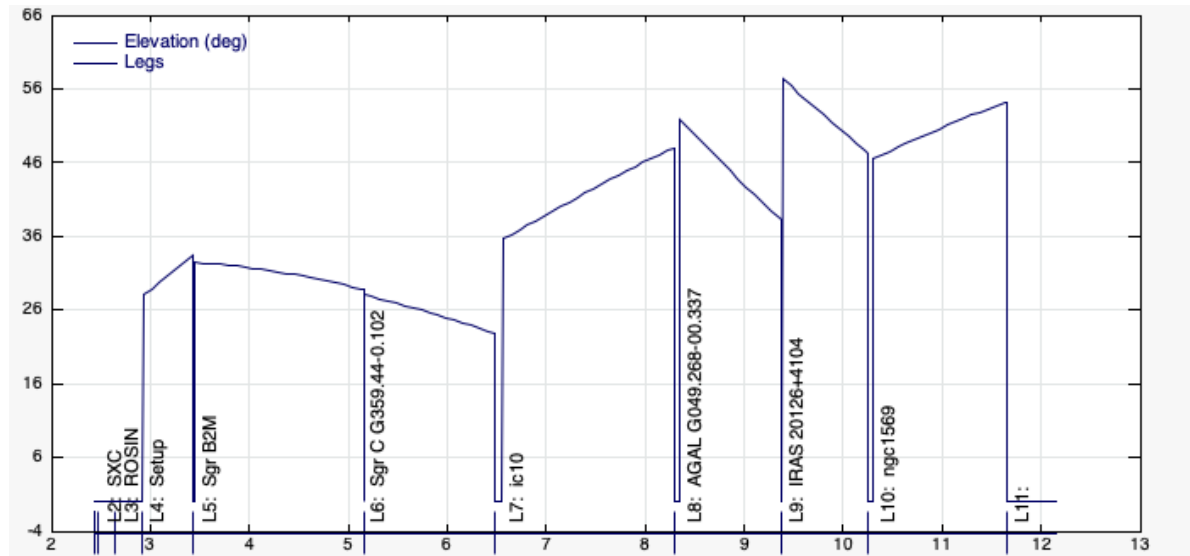
Departure UTC: 02:19
Arrival UTC: 12:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	20h47m40.55s	-09d29m44.8s	2:54	30	
5	09_0160	Bryant	Sgr B2M	17h46m01.26s	-28d51m23.1s	3:26	102	First several minutes at low altitude (38k ft) affected data quality.
6	09_0160	Bryant	Sgr C G359.44-0.102	17h44m40.79s	-29d28m01.5s	5:08	80	
7	70_0908	GTO	ic10	00h20m17.34s	59d18m13.6s	6:32	104	
8	09_0169	Yang	AGAL G049.268-00.337	19h23m09.24s	14d22m51.1s	8:20	61	
9	09_0169	Yang	IRAS 20126+4104	20h14m25.88s	41d13m36.9s	9:22	52	
10	70_0908	GTO	ngc1569	04h30m49.06s	64d50m52.6s	10:17	81	

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



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



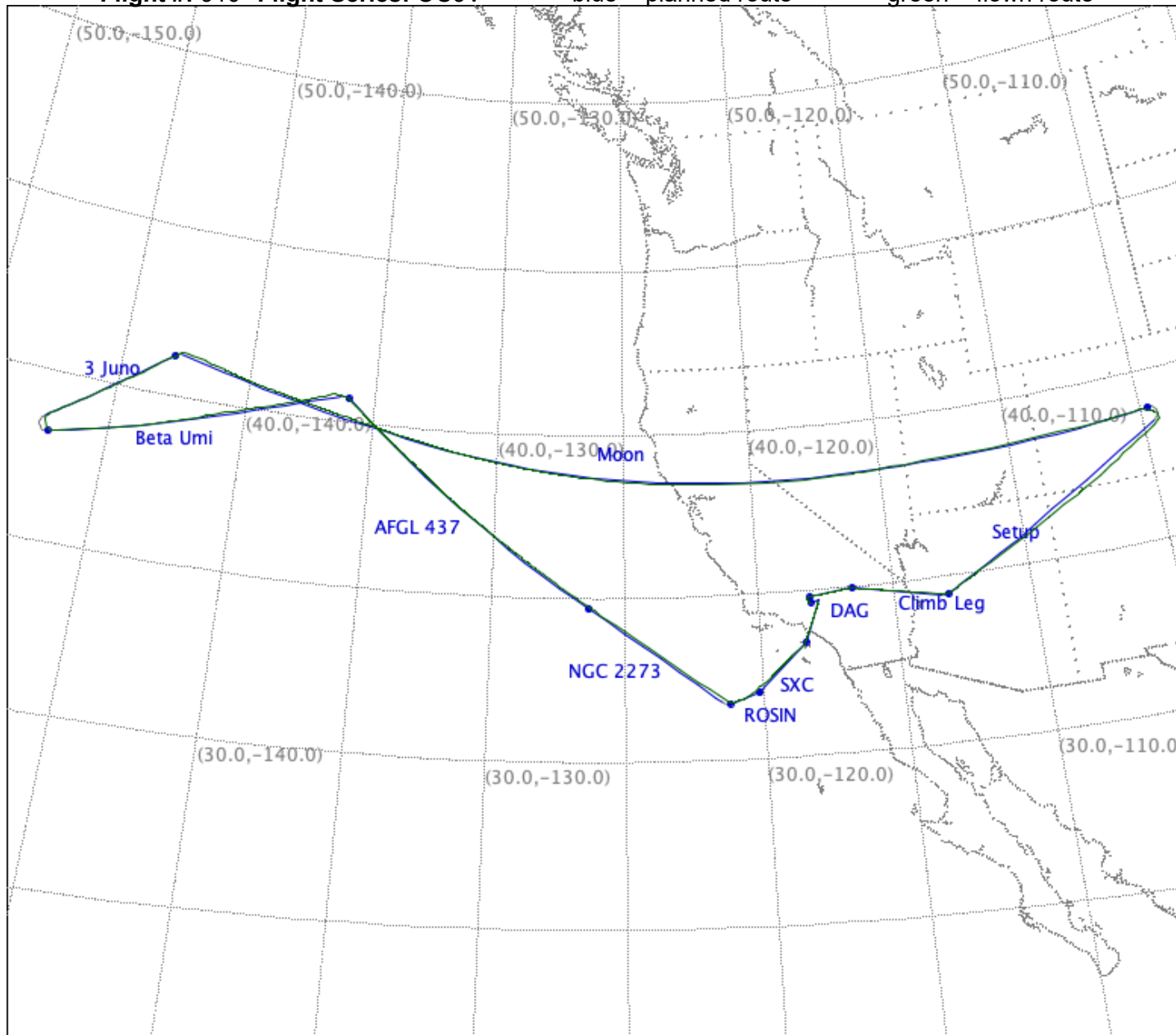
MISSION ID: 2022-09-07_FO_F910

Date: 2022-09-07UT Instrument: FORCAST

Flight #: 910 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

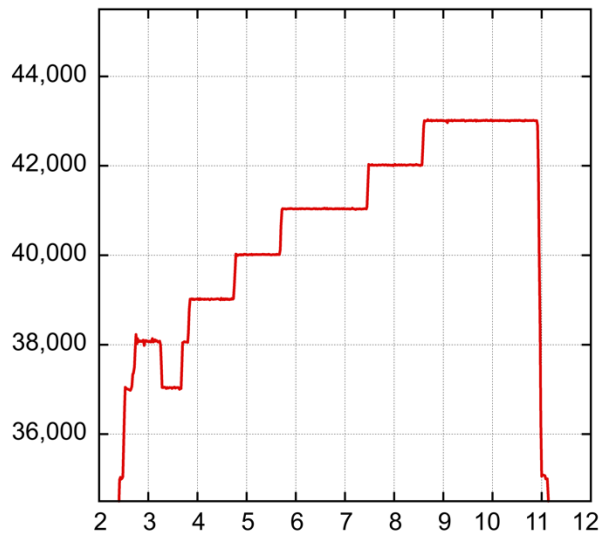
Flight 910
Palmdale to
Palmdale

Mission ID 2022-09-07_FO_F910
Take off date UTC:
07-SEP-2022

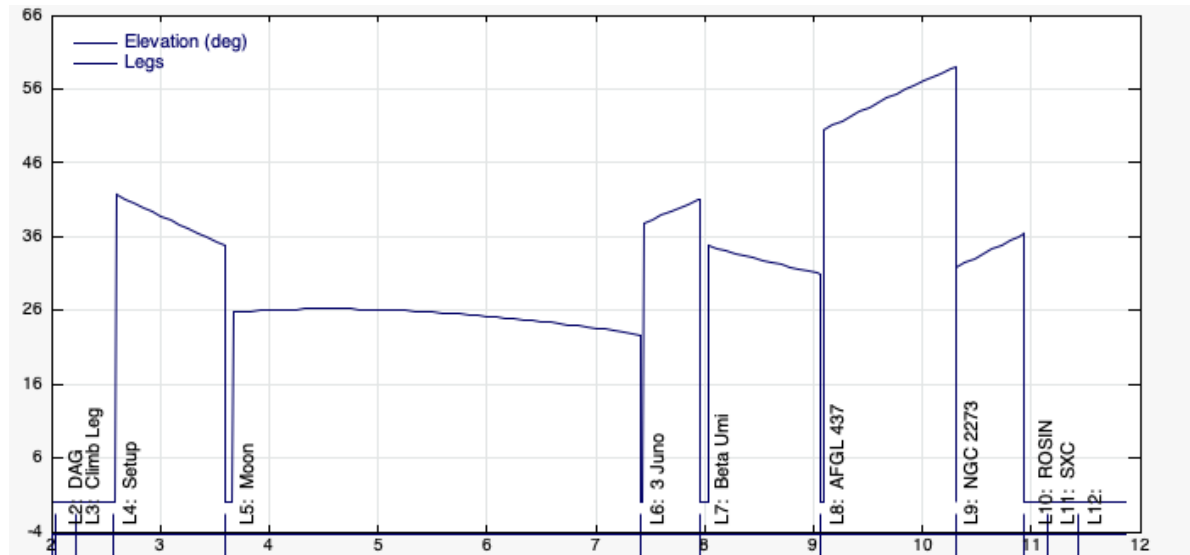
Departure UTC: 01:58
Arrival UTC: 11:37

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	13h51m25.94s	64d43m23.8s	2:36	60	
5	09_0171	Lucey	Moon	20h11m53.28s	-24d59m30.6s	3:40	225	About 15min lost due to observation scripting issues
6	90_0047	Calibration	3 Juno	23h00m49.91s	-04d00m56.9s	7:26	31	
7	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	8:02	62	
8	75_0116	Discretionary	AFGL 437	03h07m24.60s	58d30m44.4s	9:05	73	
9	75_0117	Discretionary	NGC 2273	06h50m08.67s	60d50m44.9s	10:18	37	

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



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



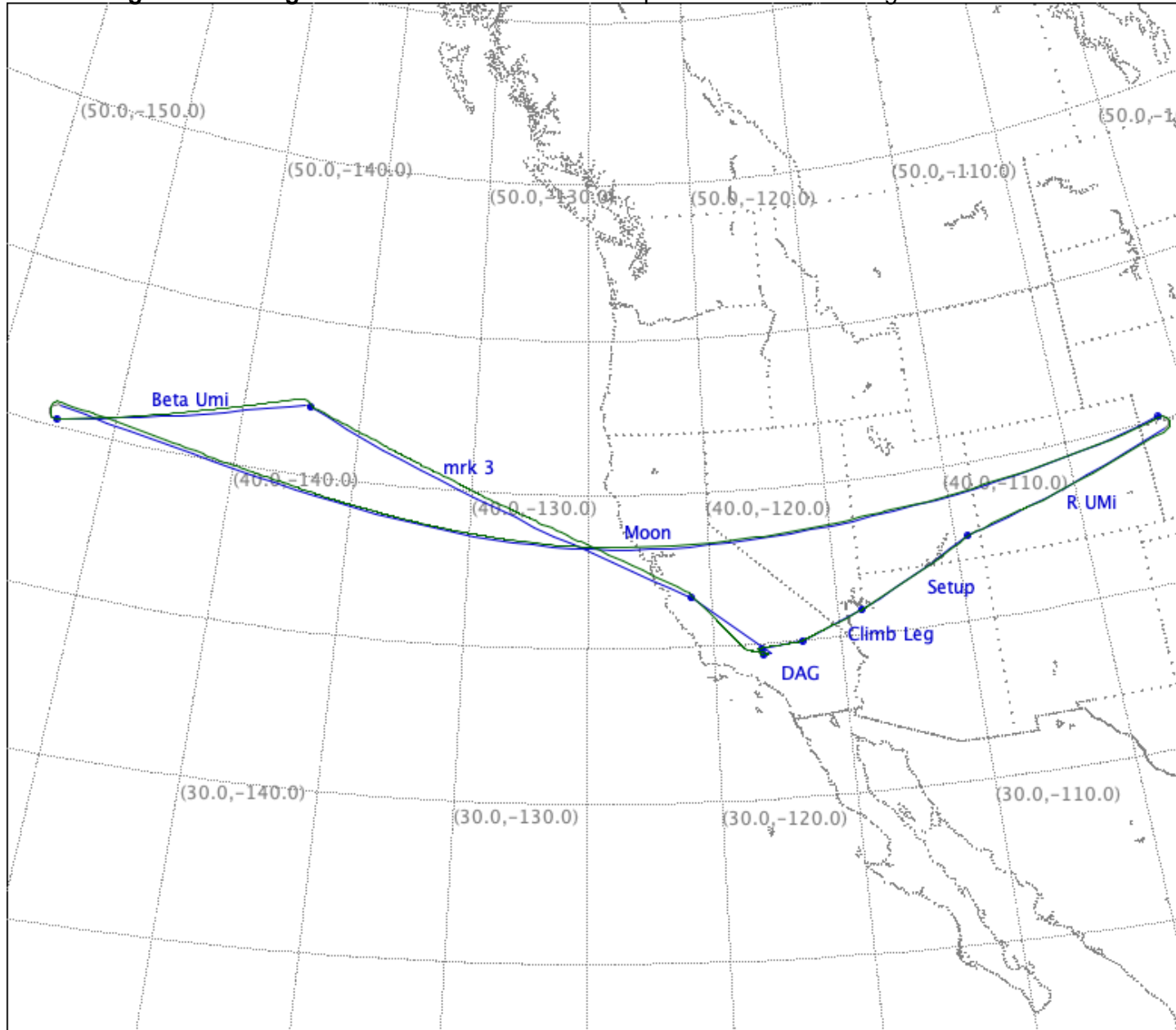
MISSION ID: 2022-09-08_FO_F911

Date: 2022-09-08UT Instrument: FORCAST

Flight #: 911 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

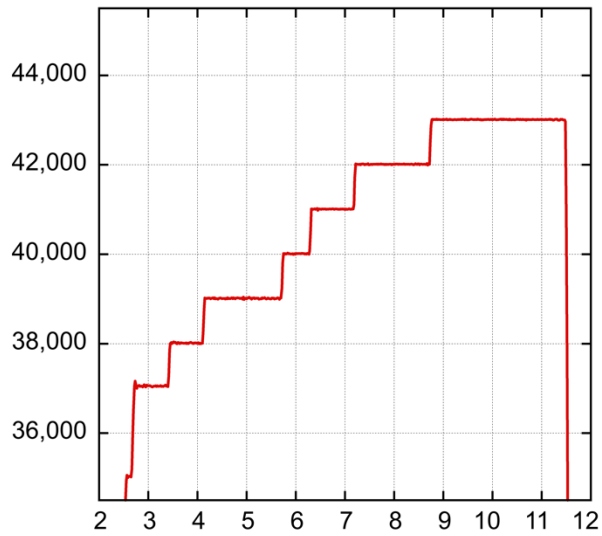
Flight 911
Palmdale to
Palmdale

Mission ID 2022-09-08_FO_F911
Take off date UTC:
08-SEP-2022

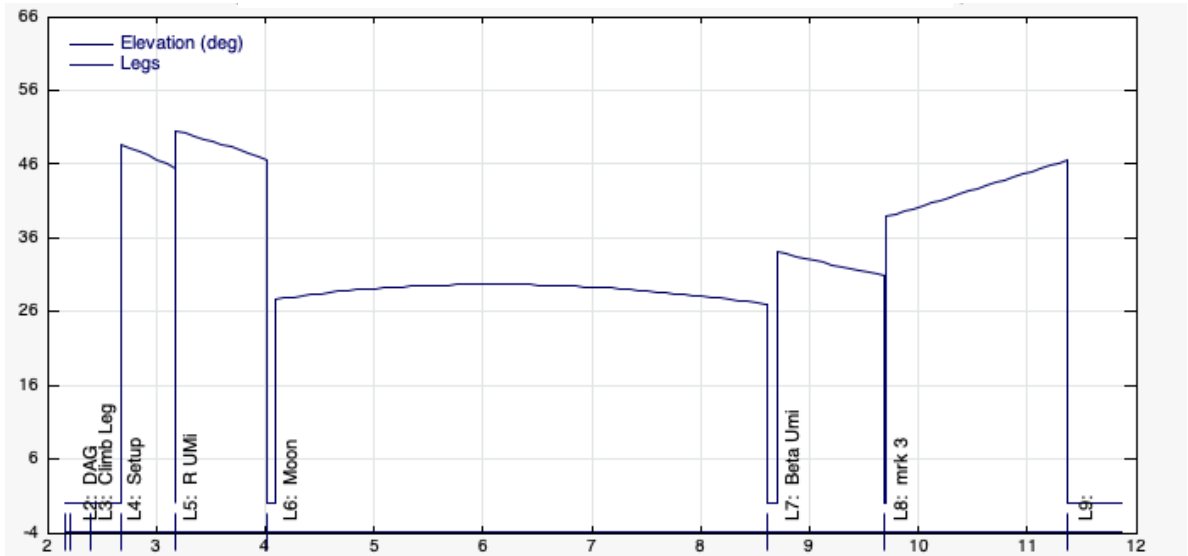
Departure UTC: 02:06
Arrival UTC: 11:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	14h57m35.01s	65d55m56.9s	2:41	30	
5	75_0062	Discretionary	R UMi	16h29m57.89s	72d16m49.2s	3:12	50	
6	09_0171	Lucey	Moon	21h14m45.79s	-21d16m48.3s	4:06	271	
7	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	8:43	59	
8	75_0117	Discretionary	mrk 3	06h15m36.28s	71d02m14.8s	9:43	100	

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



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



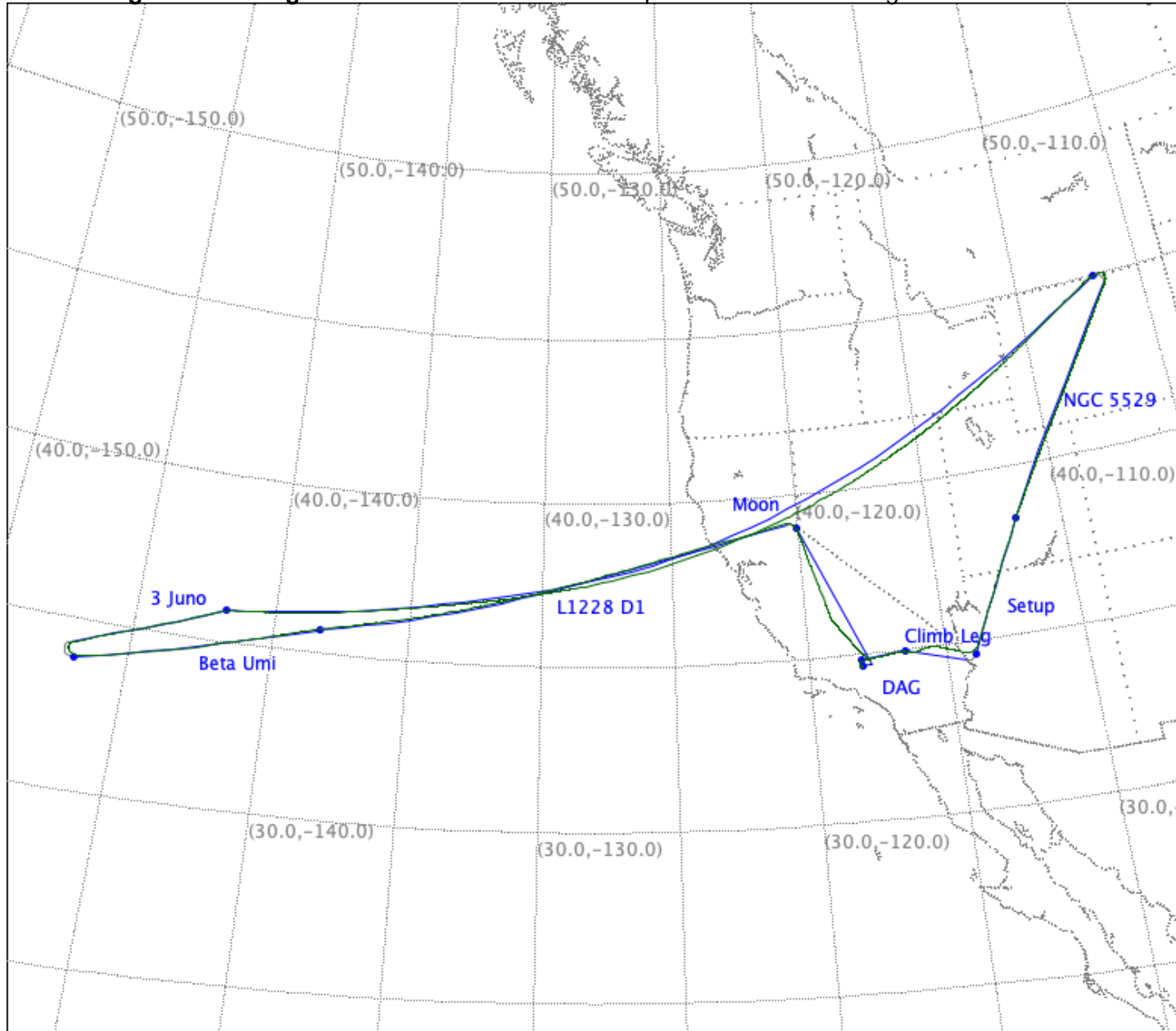
MISSION ID: 2022-09-09_FO_F912

Date: 2022-09-09UT Instrument: FORCAST

Flight #: 912 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

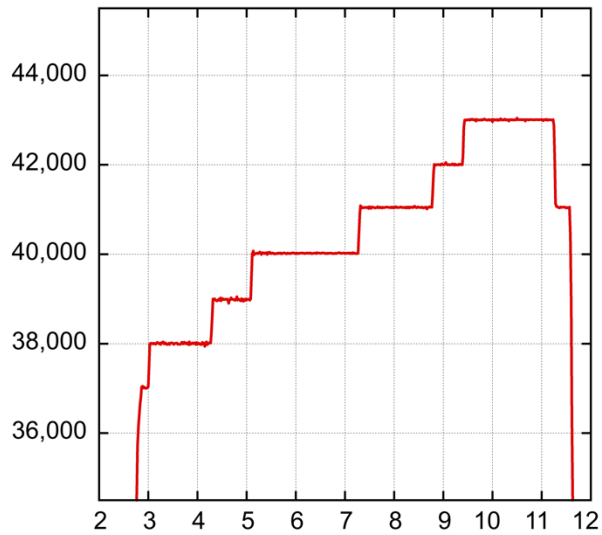
Flight 912
Palmdale to
Palmdale

Mission ID 2022-09-09_FO_F912
Take off date UTC:
09-SEP-2022

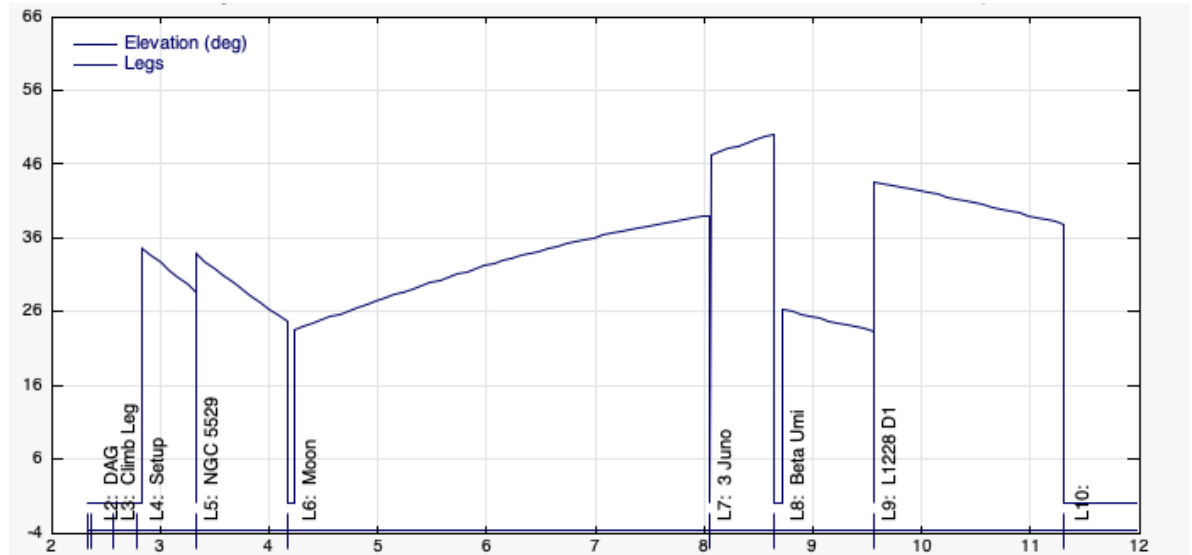
Departure UTC: 02:19
Arrival UTC: 12:09

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	13h51m47.48s	34d26m39.3s	2:50	30	
5	02_0036	Holwerda	NGC 5529	14h15m34.10s	36d13m36.0s	3:20	50	
6	09_0171	Lucey	Moon	22h13m12.33s	-16d16m18.3s	4:14	229	
7	90_0047	Calibration	3 Juno	22h59m20.02s	-04d25m13.2s	8:04	35	
8	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	8:44	50.3	
9	75_0065	Discretionary	L1228 D1	20h57m12.92s	77d36m16.1s	9:34	105	

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



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



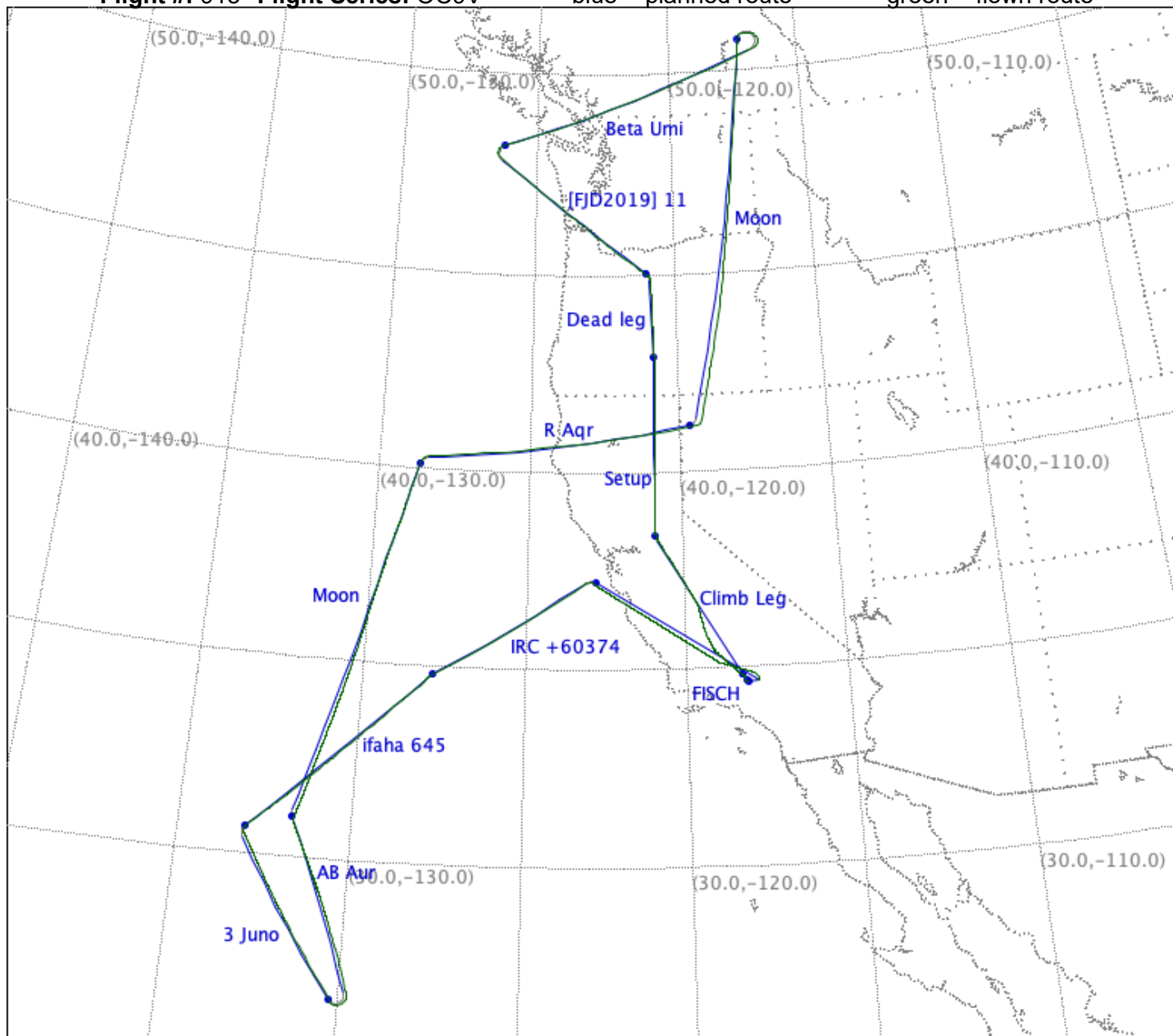
MISSION ID: 2022-09-14_FO_F913

Date: 2022-09-14UT Instrument: FORCAST

Flight #: 913 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

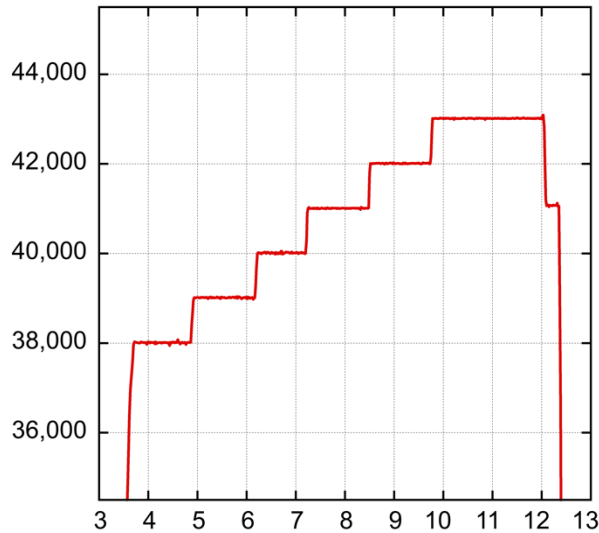
Flight 913
Palmdale to
Palmdale

Mission ID 2022-09-14_FO_F913
Take off date UTC:
14-SEP-2022

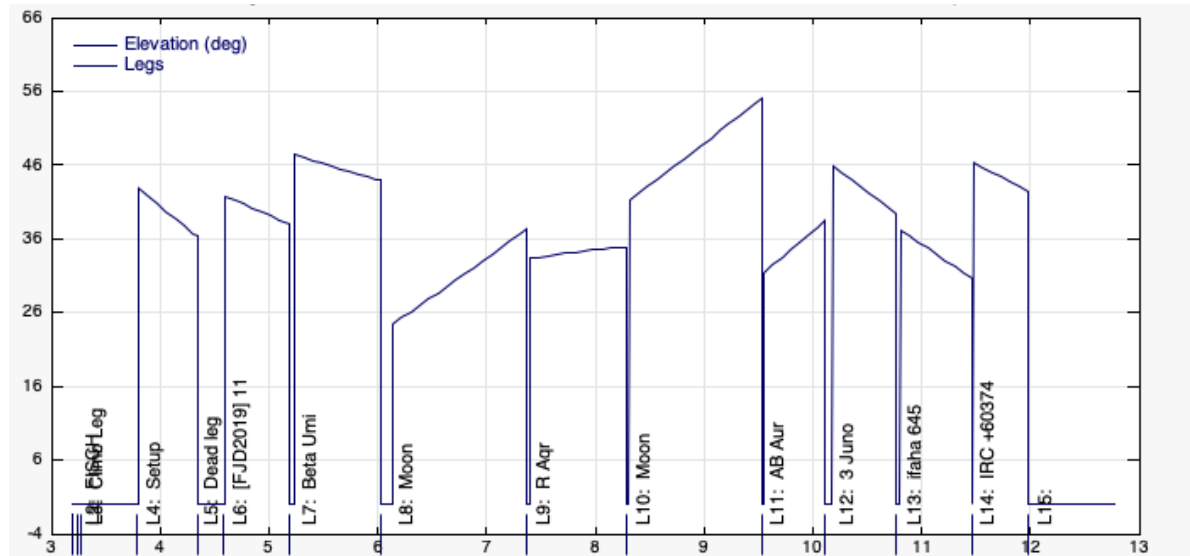
Departure UTC: 03:12
Arrival UTC: 12:49

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	15h51m15.91s	20d58m40.5s	3:48	32	
6	09_0006	Karnath	[FJD2019] 11	18h29m49.66s	01d15m21.1s	3:48	35	
7	90_0096	Calibration	Beta Umi	14h50m42.33s	74d09m19.8s	4:36	47	
8	09_0171	Lucey	Moon	02h29m44.40s	14d19m34.2s	5:14	74	
9	09_0077	Omelian	R Agr	23h43m49.46s	-15d17m04.2s	6:08	53	
10	09_0171	Lucey	Moon	02h34m10.48s	14d47m23.6s	7:24	73	
11	08_0158	Shuping	AB Aur	04h55m45.80s	30d33m04.0s	8:18	34	
12	90_0047	Calibration	3 Juno	22h55m34.89s	-05d26m47.4s	9:33	35	
13	09_0006	Karnath	ifaha 645	21h03m54.63s	50d14m37.0s	10:11	40	
14	09_0046	Kraemer	IRC +60374	22h53m12.33s	61d17m00.6s	10:48	30.2	

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



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



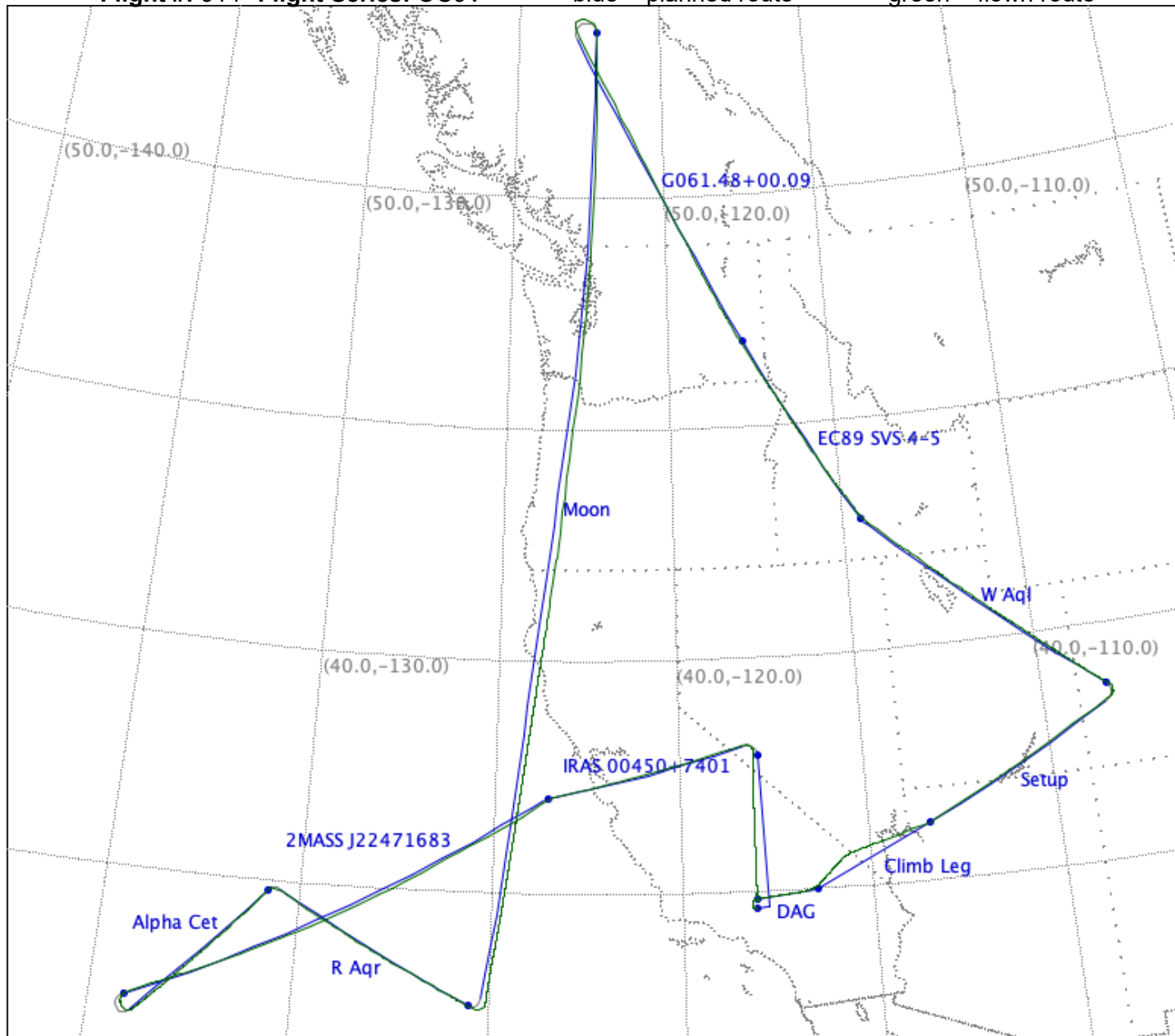
MISSION ID: 2022-09-15_FO_F914

Date: 2022-09-15UT Instrument: FORCAST

Flight #: 914 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

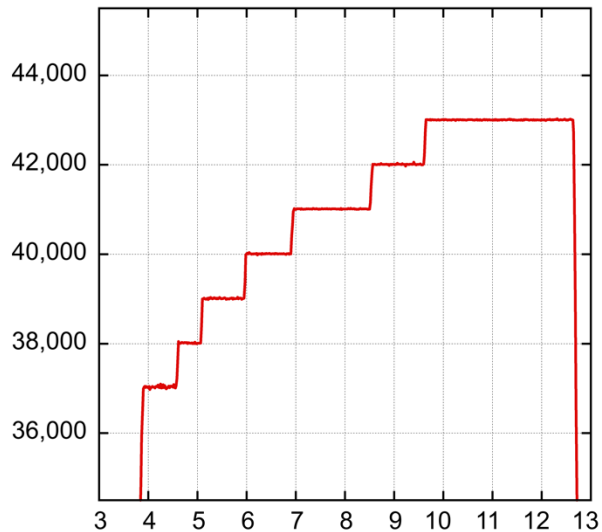
Flight 914
Palmdale to
Palmdale

Mission ID 2022-09-15_FO_F914
Take off date UTC:
15-SEP-2022

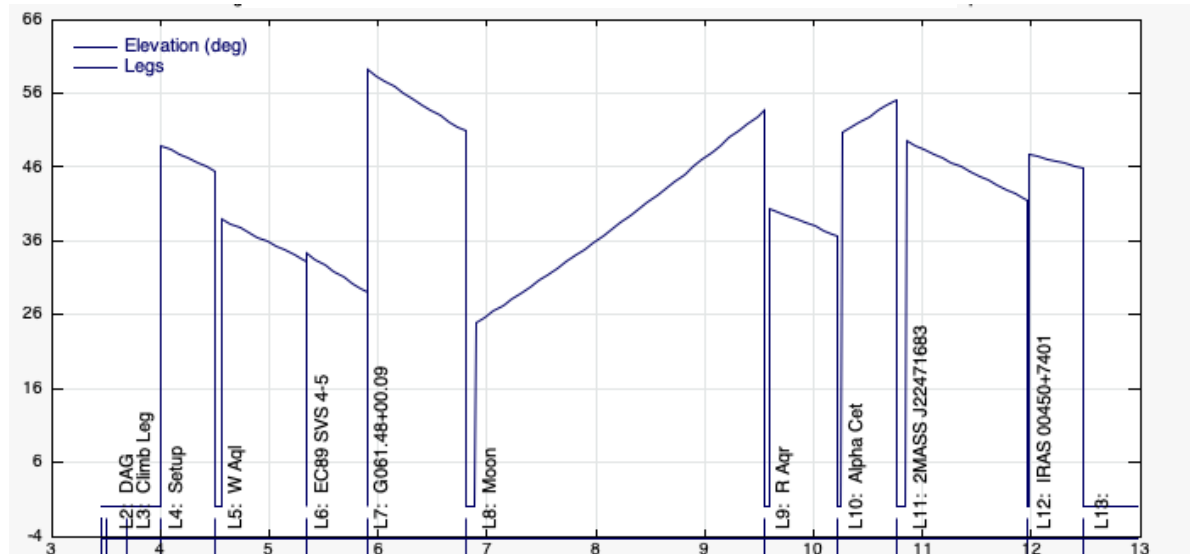
Departure UTC: 03:25
Arrival UTC: 13:04

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h40m55.12s	64d35m20.6s	4:00	30	
5	09_0051	Sankrit	W Aql	19h15m23.36s	-07d02m50.3s	4:33	46.5	
6	09_0006	Karnath	EC89 SVS 4-5	18h29m57.59s	01d13m00.6s	5:20	33.2	
7	09_0085	Tan	G061.48+00.09	19h46m49.07s	25d12m44.0s	5:53	54	
8	09_0171	Lucey	Moon	03h20m39.57s	19d11m31.1s	6:53	159	Observation scripting errors led to loss of 30 minutes
9	09_0077	Omelian	R Aqr	23h43m49.46s	-15d17m04.2s	9:35	38	
10	90_0062	Calibration	Alpha Cet	03h02m16.77s	04d05m23.1s	10:15	30.3	
11	09_0006	Karnath	2MASS J22471683+6202354	22h47m16.84s	62d02m35.4s	10:50	67	
12	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	11:58	29.6	

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



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



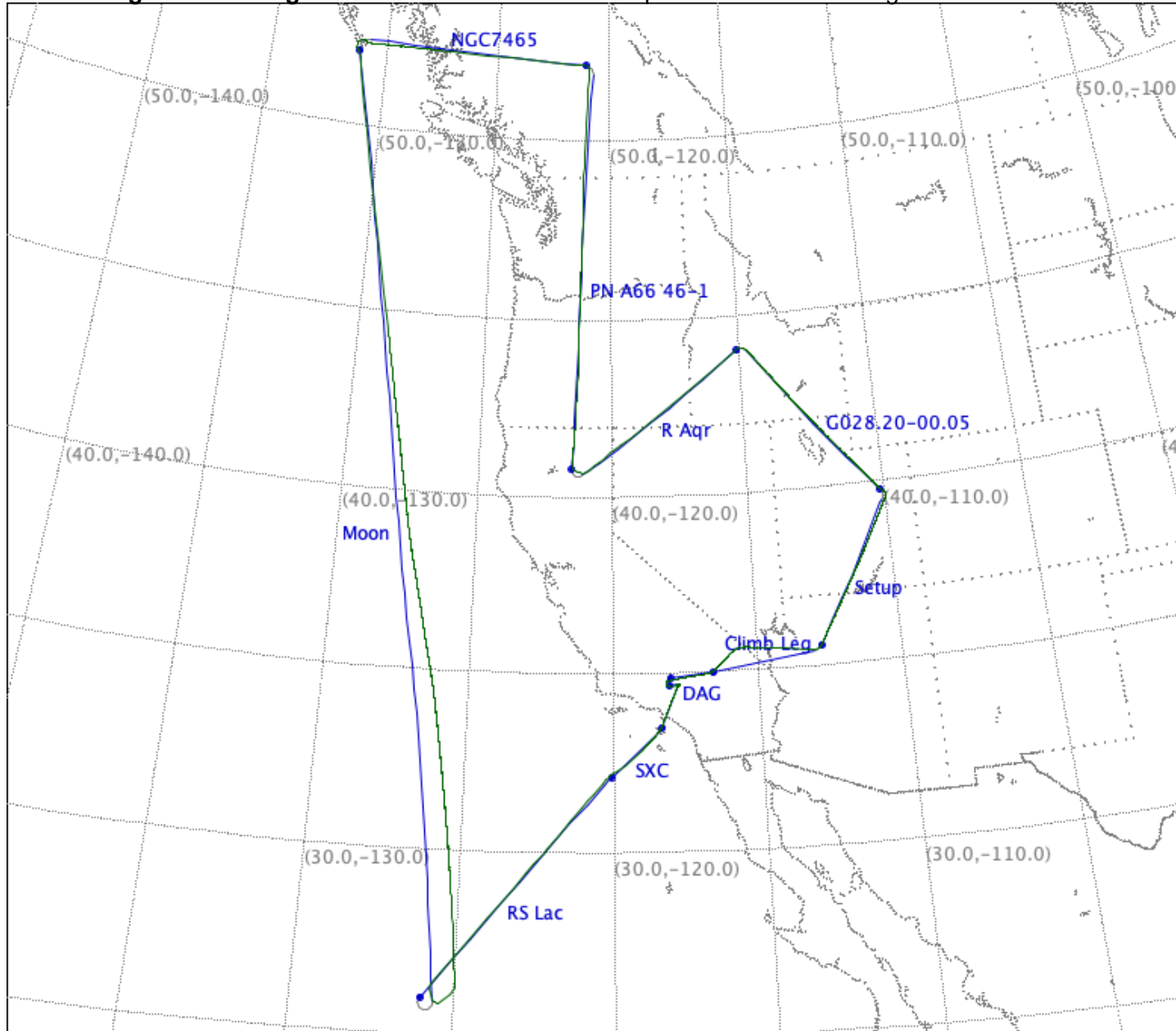
MISSION ID: 2022-09-17_FO_F915

Date: 2022-09-17UT Instrument: FORCAST

Flight #: 915 Flight Series: OC9V

blue = planned route

green = flown route



Flight notes: No irregularities.

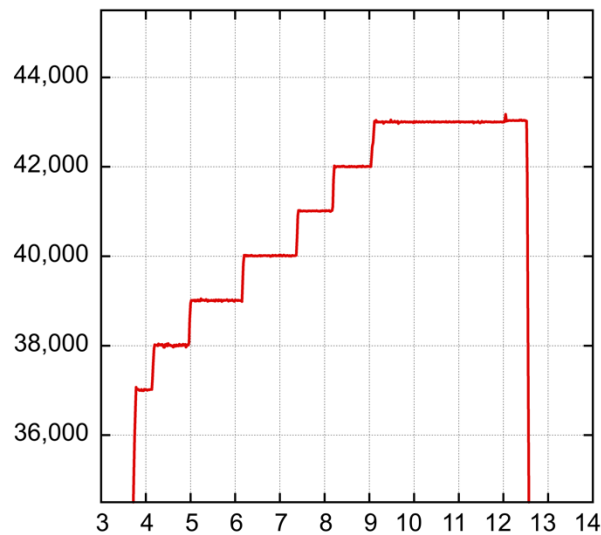
Flight 915
Palmdale to
Palmdale

Mission ID 2022-09-17_FO_F915
Take off date UTC:
17-SEP-2022

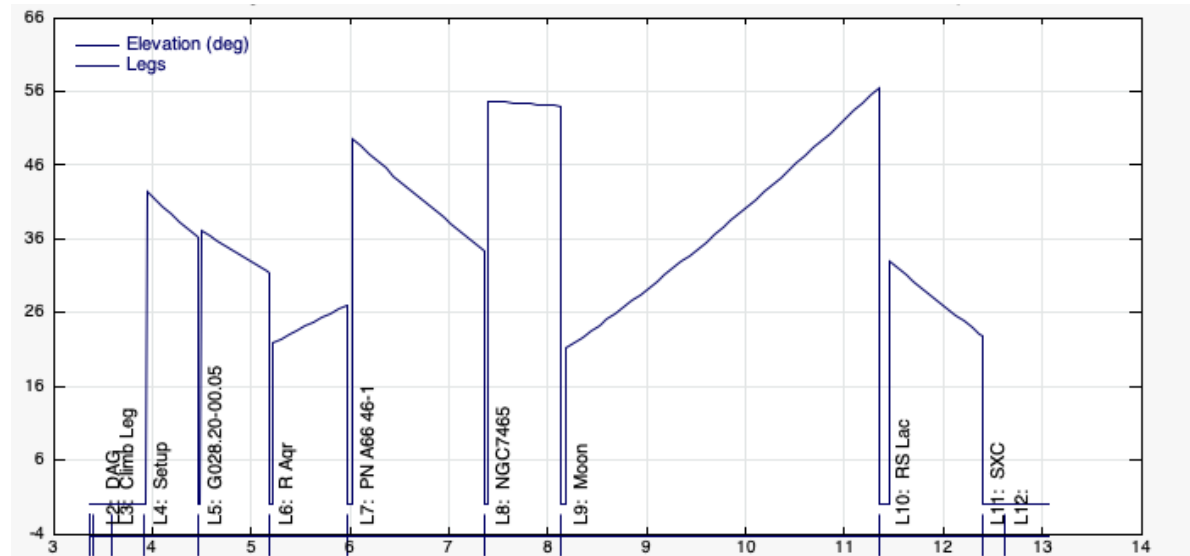
Departure UTC: 03:19
Arrival UTC: 12:57

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	16h08m58.30s	36d29m27.4s	3:56	31	
5	09_0085	Tan	G028.20-00.05	18h42m58.14s	-04d14m04.9s	4:29	41	
6	09_0077	Omelian	R Aqr	23h43m49.46s	-15d17m04.2s	5:12	45.1	
7	08_0161	Guzman-Ramirez	PN A66 46	18h31m18.29s	26d56m12.9s	6:01	80	
8	08_0014	Lopez-Rodriguez	NGC7465	23h02m00.95s	15d57m53.5s	7:23	44	
9	09_0171	Lucey	Moon	05h06m02.85s	25d42m36.4s	8:10	190	Increased setup time and guide camera focus issues led to a loss of 28min on leg.
10	08_0106	Arneson	RS Lac	22h12m52.52s	43d45m00.8s	11:26	57	

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



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



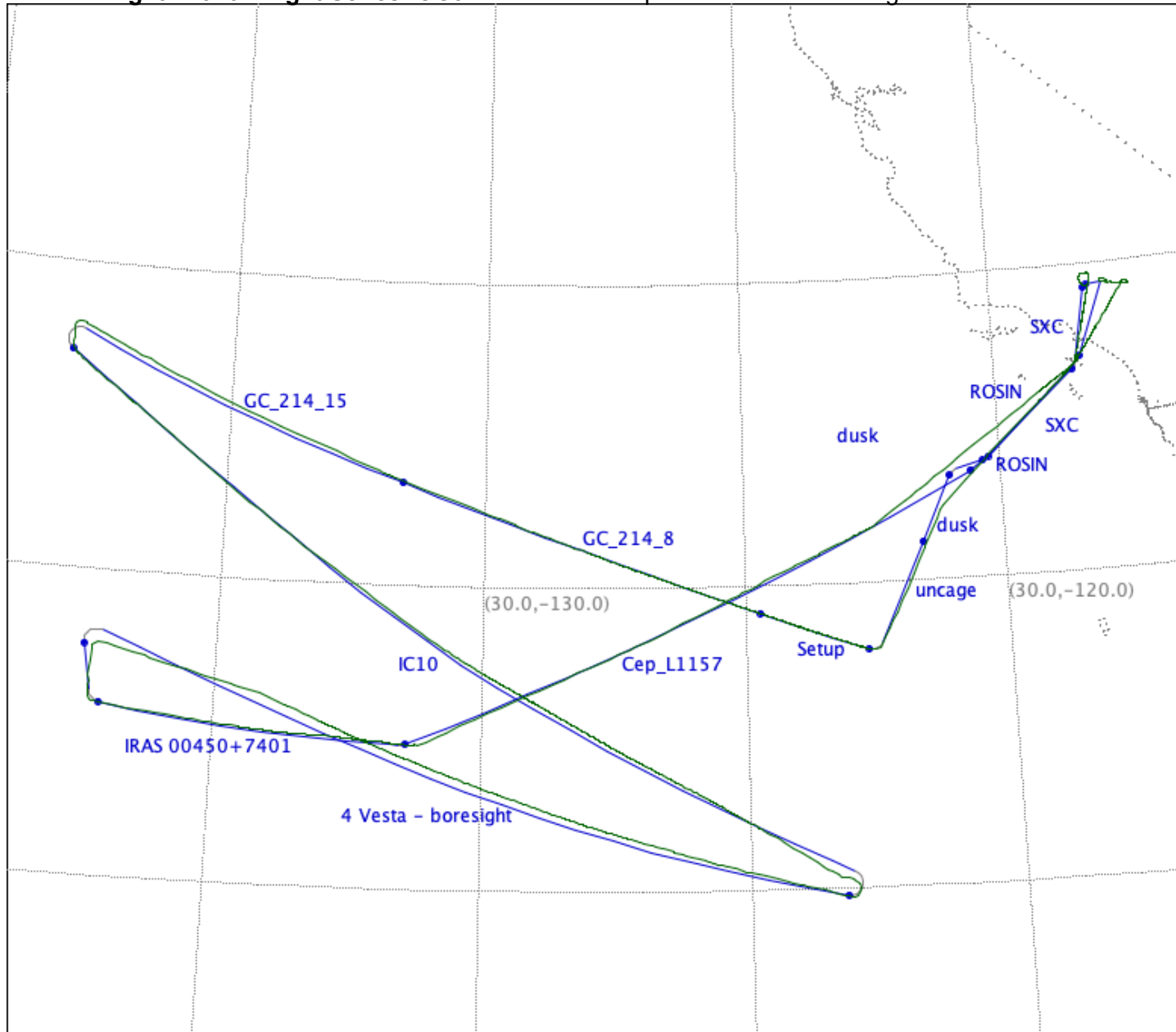
MISSION ID: 2022-09-21_HA_F916

Date: 2022-09-21UT Instrument: HAWC+

Flight #: 916 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

HAWC+ cooling failed near end of flight leading to an early return to Palmdale base.

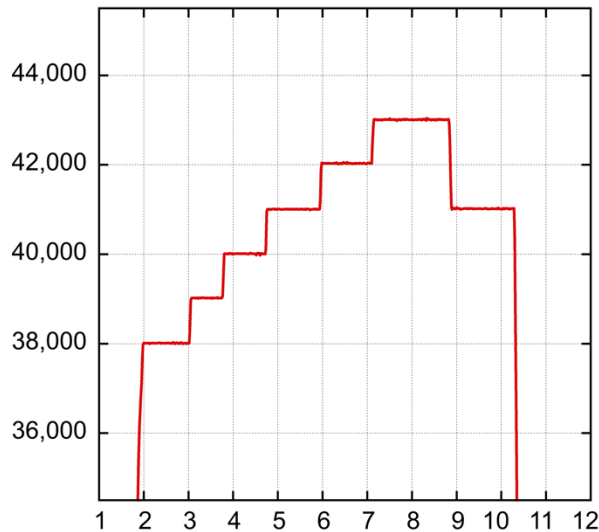
Flight 916
Palmdale to
Palmdale

Mission ID 2022-09-21_HA_F916
Take off date UTC:
21-SEP-2022

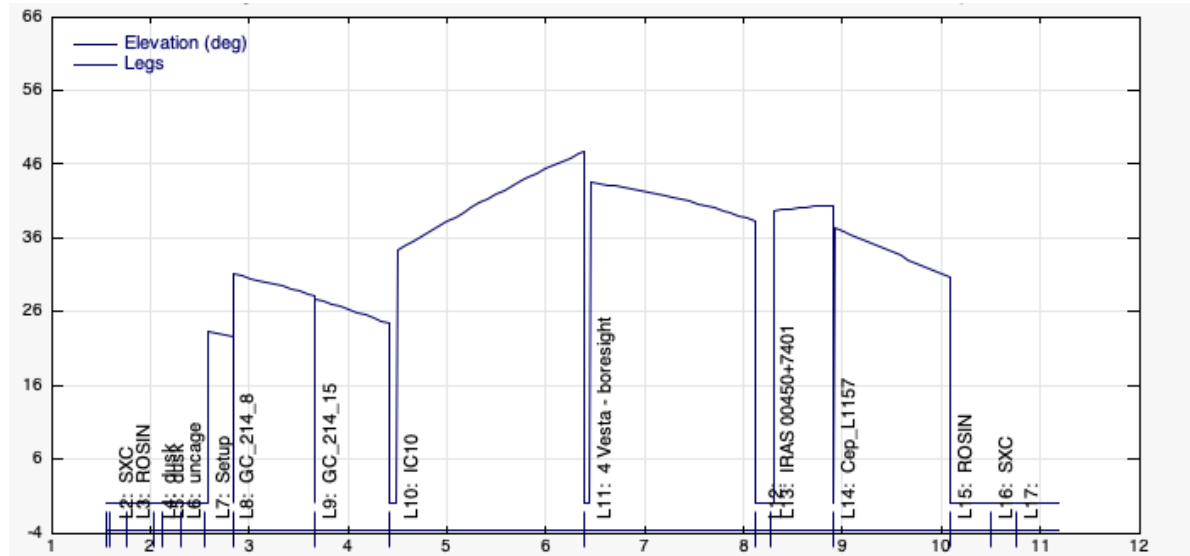
Departure UTC: 01:29
Arrival UTC: 10:56

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
7			Setup	17h33m36.52s	-37d06m13.8s	2:38	15	
8	09_0054	Chuss	Galactic Center	17h45m46.04s	-28d58m45.3s	2:53	50	
9	09_0054	Chuss	Galactic Center	17h44m38.93s	-29d22m42.7s	3:43	45	
10	08_0012	Lopez-Rodriguez	IC10	00h20m23.16s	59d17m34.7s	4:33	113	Did not observe last 20min of leg to preserve HAWC+ cooling
11	90_0086	Calibration	4 Vesta	21h56m34.93s	-22d34m00.7s	6:30	100	
13	75_0087	Discretionary	IRAS 00450+7401	00h48m22.32s	74d17m57.4s	8:21	36	Increased detector temperature to 0.2mK to try to extend cooling, but cooling failed 5 min into leg; return to base
14	09_0215	Pillai	Cep L1157	20h39m42.13s	67d40m01.5s	8:58	70	Leg not flown; return to Palmdale base

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



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



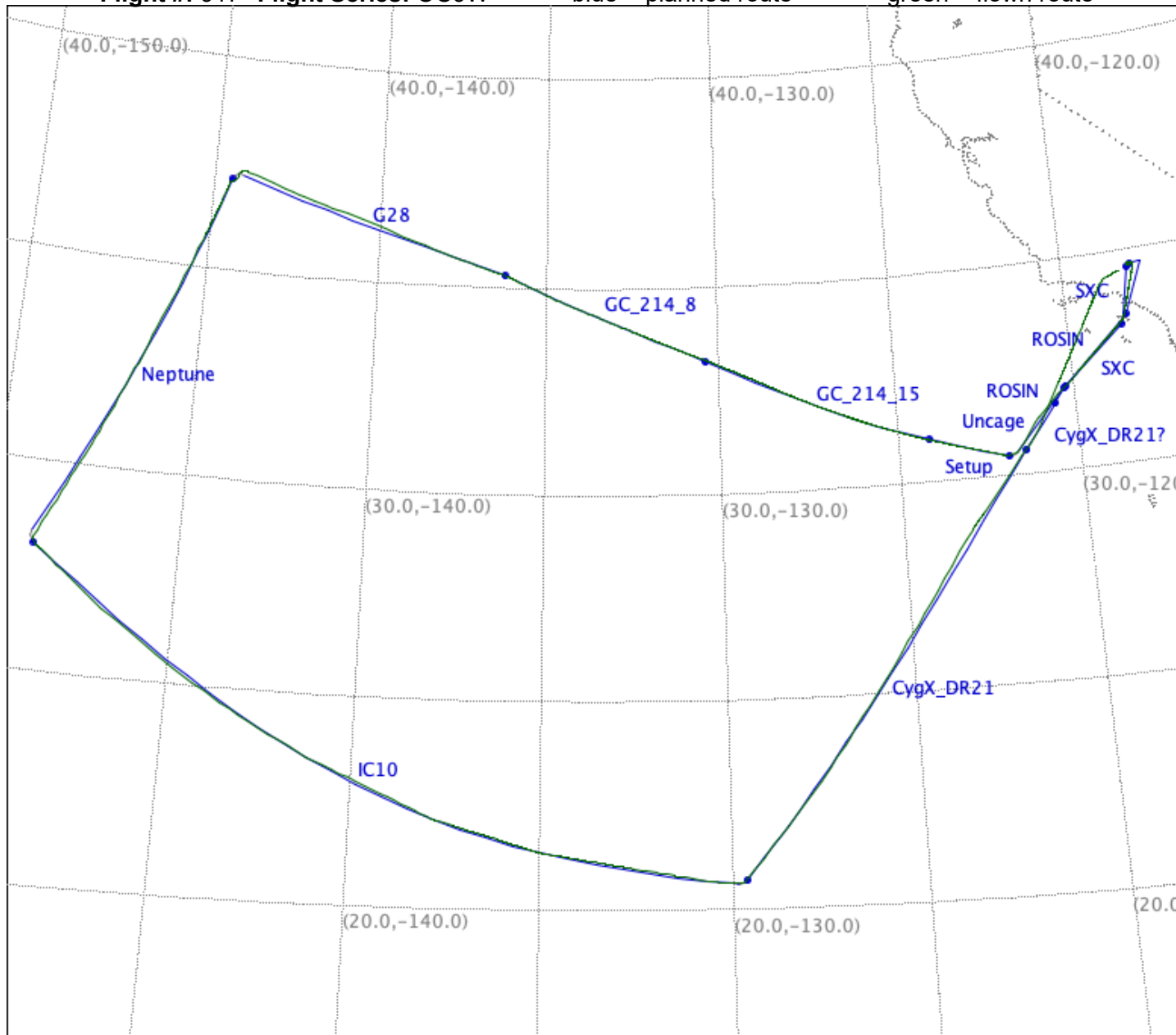
MISSION ID: 2022-09-22_HA_F917

Date: 2022-09-22UT Instrument: HAWC+

Flight #: 917 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

Observations on legs 10 and 11 reduced to extend the life of HAWC+ cooling.

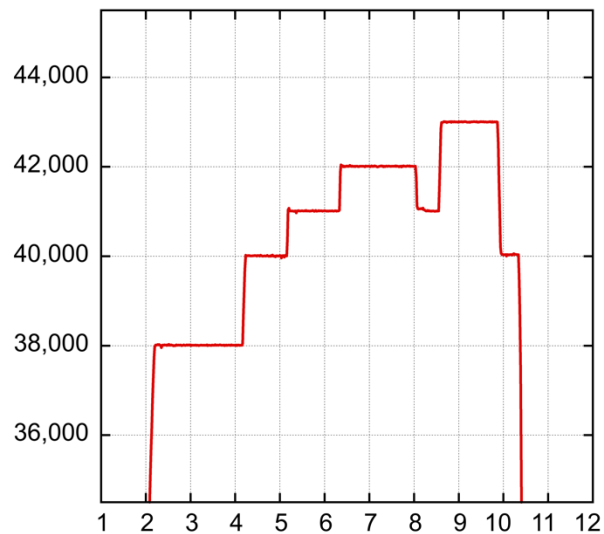
Flight 917
Palmdale to
Palmdale

Mission ID 2022-09-22_HA_F917
Take off date UTC:
22-SEP-2022

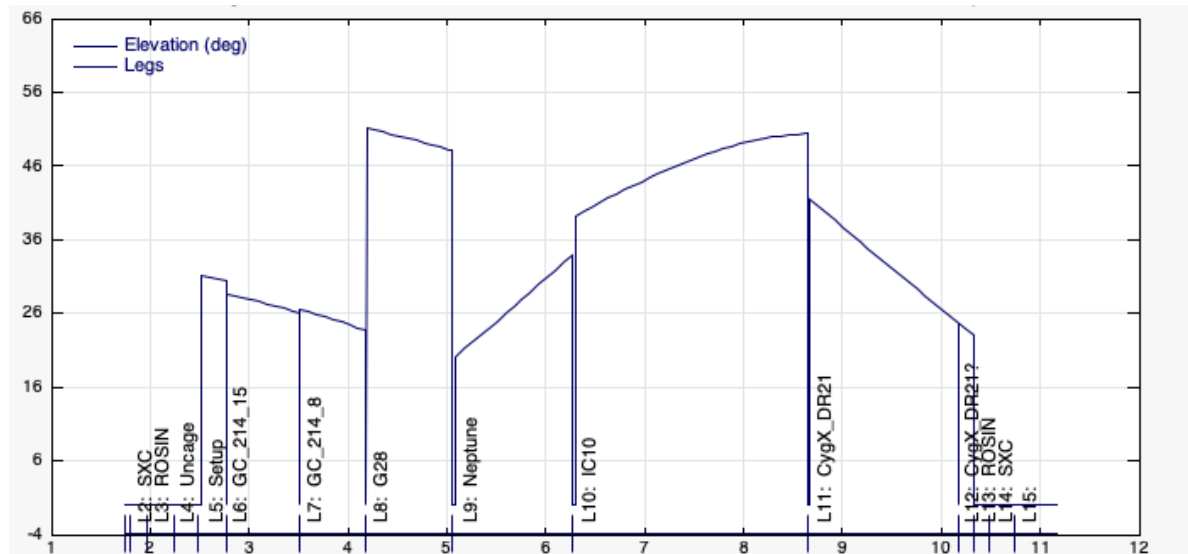
Departure UTC: 01:41
Arrival UTC: 10:53

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	17h47m33.62s	-27d49m50.8s	2:32	15	
6	09_0054	Chuss	Galactic Center	17h44m38.93s	-29d22m42.7s	2:47	45	
7	09_0054	Chuss	Galactic Center	17h45m46.04s	-28d58m45.3s	3:32	40	
8	09_0215	Pillai	G28	18h42m41.35s	-04d01m40.3s	4:12	52	
9	90_0083	Calibration	Neptune	23h38m18.11s	-03d40m50.7s	5:06	70	
10	08_0012	Lopez-Rodriguez	IC10	00h20m23.16s	59d17m34.7s	6:19	141	Observations halted 1/3 of the way into leg to preserve cooling for rest of flight.
11	09_0215	Pillai	CygX_DR21	20h39m01.33s	42d22m26.6s	8:41	90	Cooling failed 53min into leg; return to base
12	09_0215	Pillai	CygX_DR21	20h39m01.33s	42d22m26.6s	10:11	9	Leg not flown; return to Palmdale base

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



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



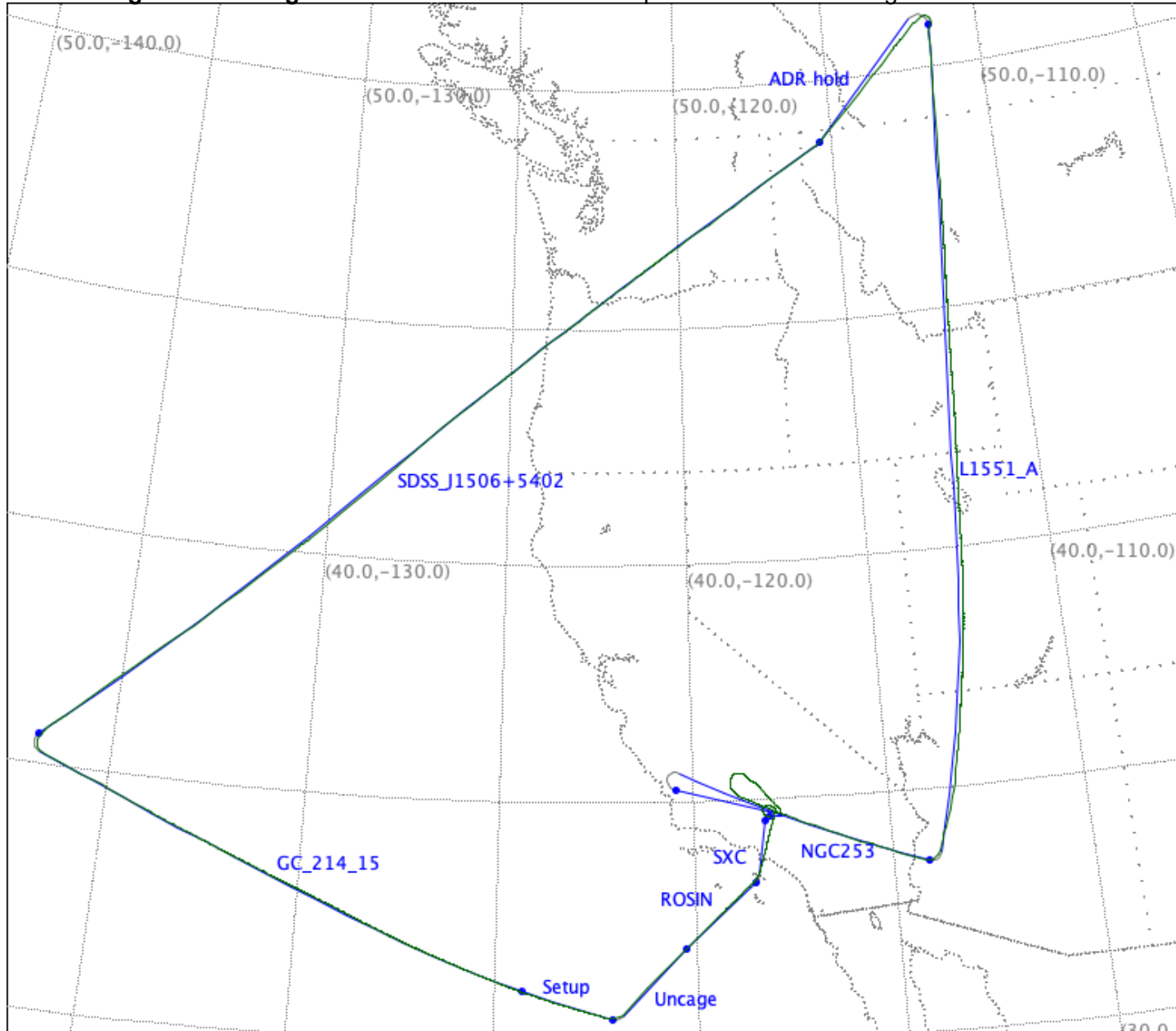
MISSION ID: 2022-09-23_HA_F918

Date: 2022-09-23UT Instrument: HAWC+

Flight #: 918 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

Observations on legs 7 and 9 reduced to extend the life of HAWC+ cooling.

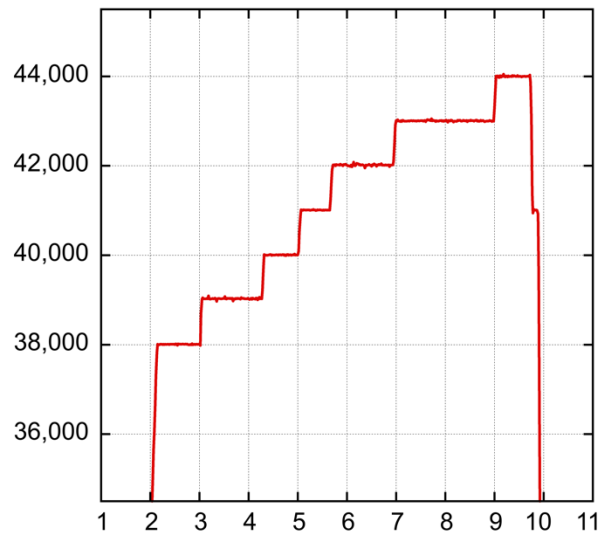
Flight 918
Palmdale to
Palmdale

Mission ID 2022-09-23_HA_F918
Take off date UTC:
23-SEP-2022

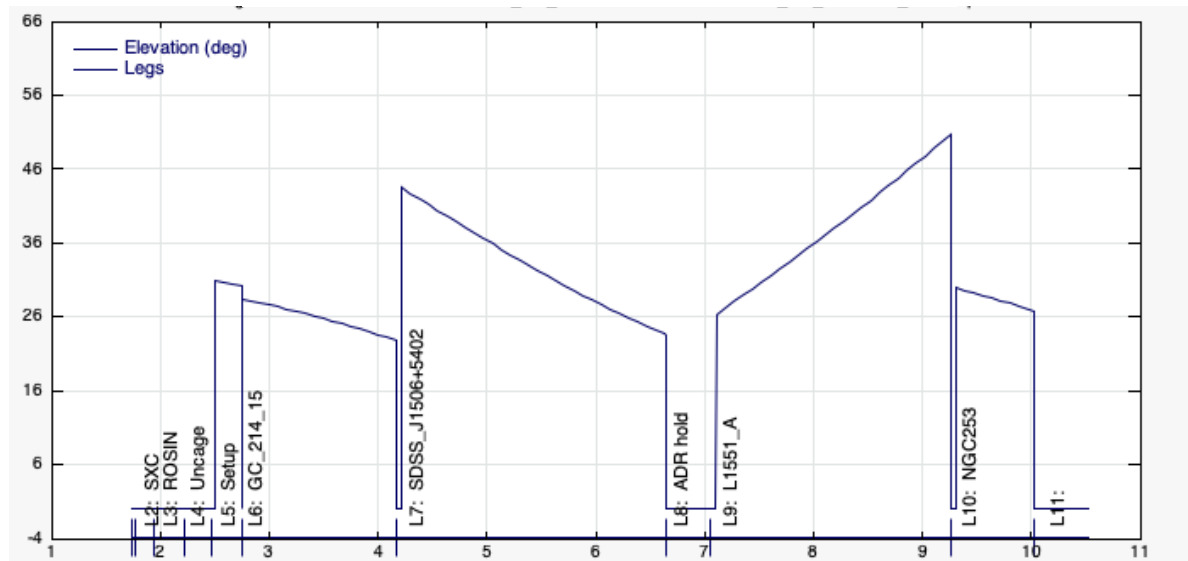
Departure UTC: 01:39
Arrival UTC: 10:16

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	17h47m33.62s	-27d49m50.8s	2:29	15	
6	09_0054	Chuss	Galactic Center	17h44m38.93s	-29d22m42.7s	2:44	85	
7	08_0086	Coil	SDSS_J1506+5402	15h06m36.30s	54d02m20.9s	4:13	146	No observing on last 25min of leg to preserve HAWC+ cooling
9	09_0231	Lazarian	L1551_A	04h31m32.50s	18d11m00.0s	7:06	129.2	No observing on last 16min of leg to preserve HAWC+ cooling
10	08_0012	Lopez-Rodriguez	NGC253	00h47m33.13s	-25d17m19.7s	9:18	43	HAWC+ cooling failed 21min into leg; return to Palmdale base early

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



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



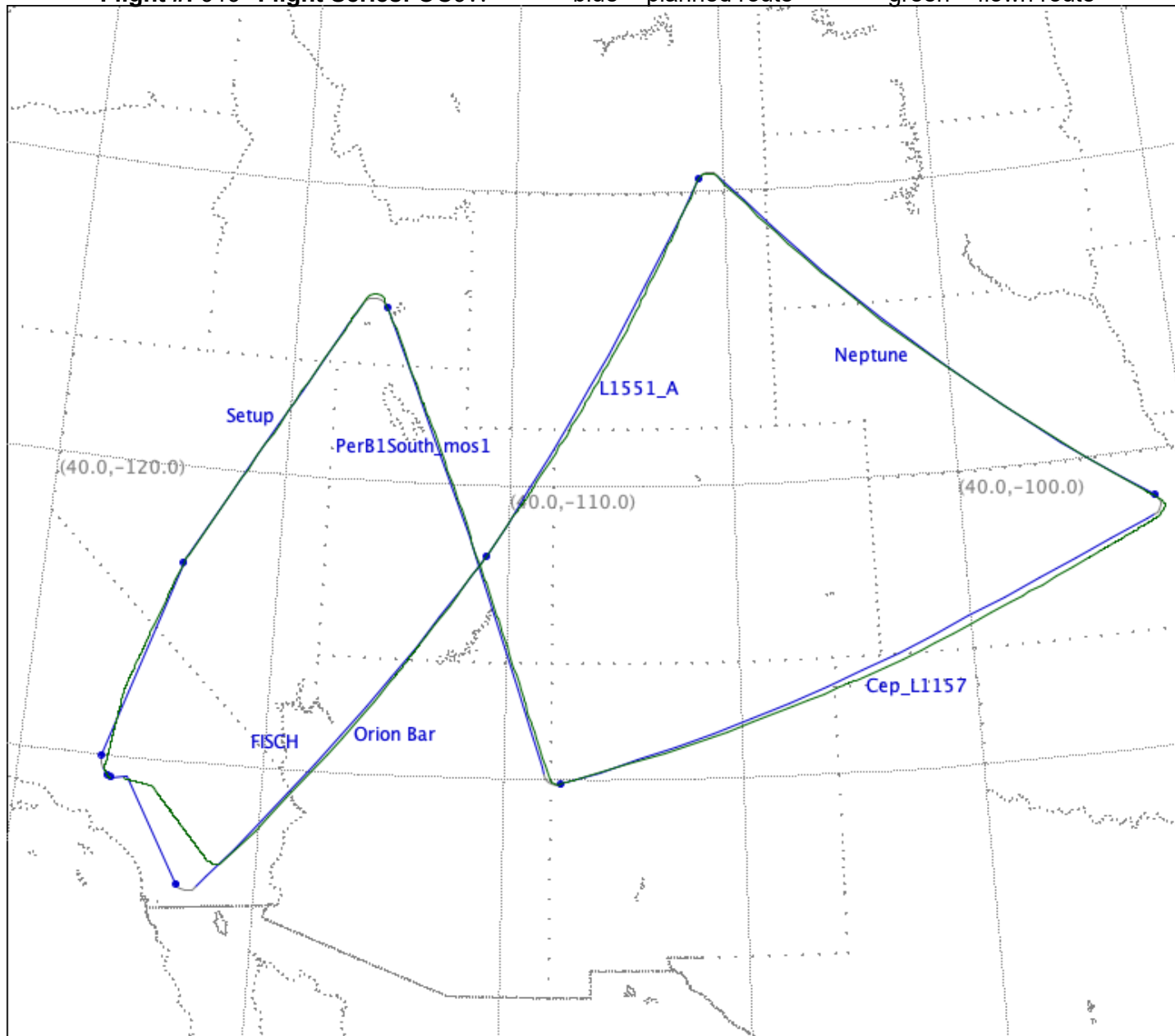
MISSION ID: 2022-09-27_HA_F919

Date: 2022-09-27UT Instrument: HAWC+

Flight #: 919 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

Observations on leg 8 reduced to extend the life of HAWC+ cooling.

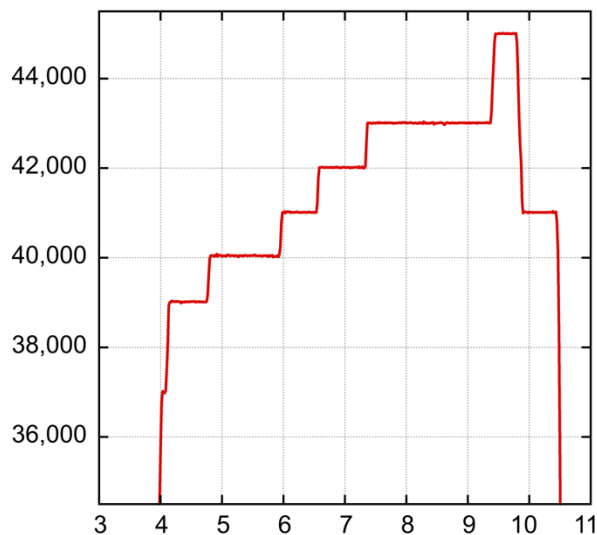
Flight 919
Palmdale to
Palmdale

Mission ID 2022-09-27_HA_F919
Take off date UTC:
27-SEP-2022

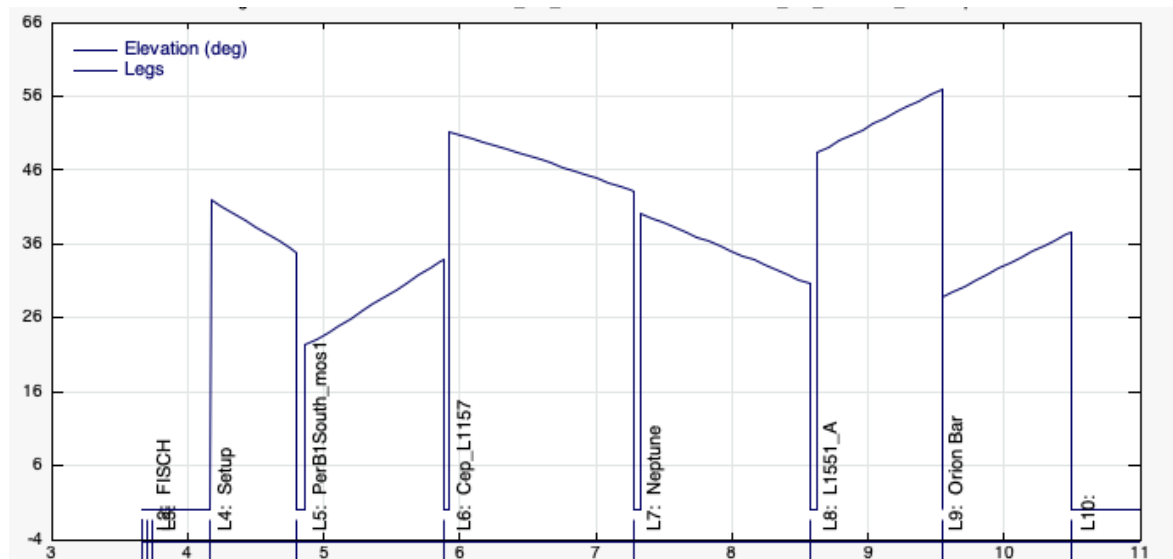
Departure UTC: 03:39
Arrival UTC: 10:54

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			HIP 80704	16h28m38.55s	41d52m54.0s	4:10	38	
5	09_0215	Pillai	PerB1	03h32m58.56s	31d03m53.9s	4:51	61	Difficulty setting up guiding led to 10min loss on leg
6	09_0215	Pillai	Cep_L1157	20h39m42.13s	67d40m01.5s	5:55	81	
7	90_0083	Calibration	Neptune	23h37m47.42s	-03d44m09.4s	7:19	75	
8	09_0231	Lazarian	L1551_A	04h31m32.50s	18d11m00.0s	8:37	55	No observing on last 10min of leg to preserve HAWC+ cooling
9	09_0037	Andersson	Orion Bar	05h35m24.80s	-05d26m01.0s	9:32	57	Detector temperatures raised partway into leg to 0.225K to preserve cooling; HAWC+ cooling failed after 3/4s of leg flown; early return to Palmdale base.

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



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



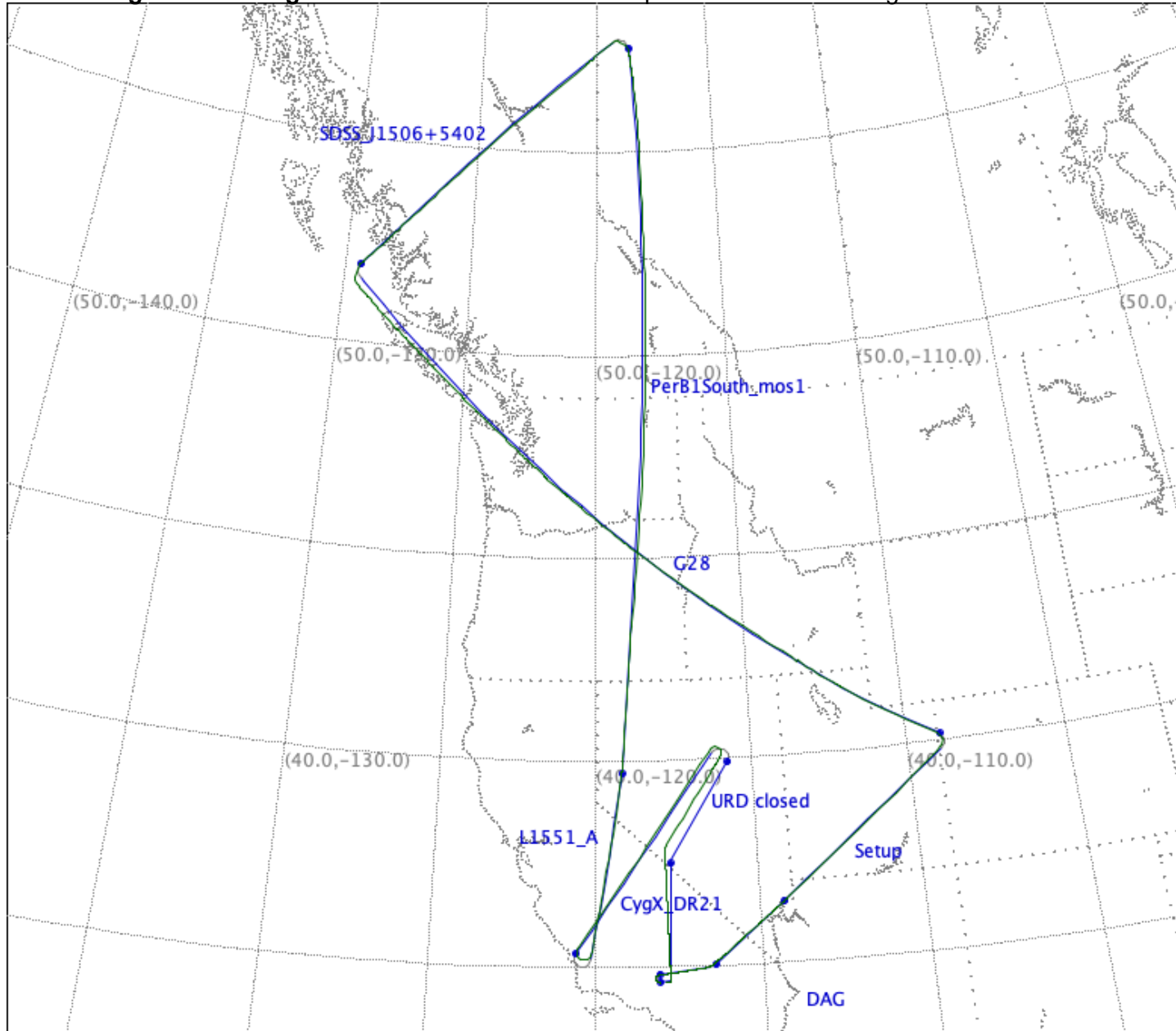
MISSION ID: 2022-09-28_HA_F920

Date: 2022-09-28UT Instrument: HAWC+

Flight #: 920 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

Observations on legs 6 and 7 reduced to extend the life of HAWC+ cooling.

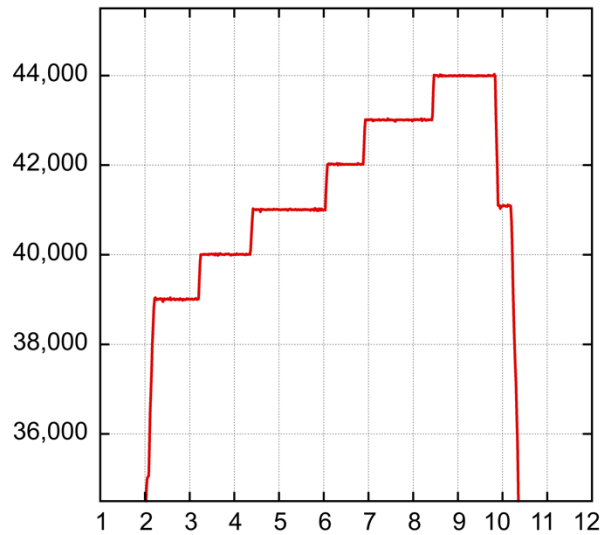
Flight 920
Palmdale to
Palmdale

Mission ID 2022-09-28_HA_F920
Take off date UTC:
28-SEP-2022

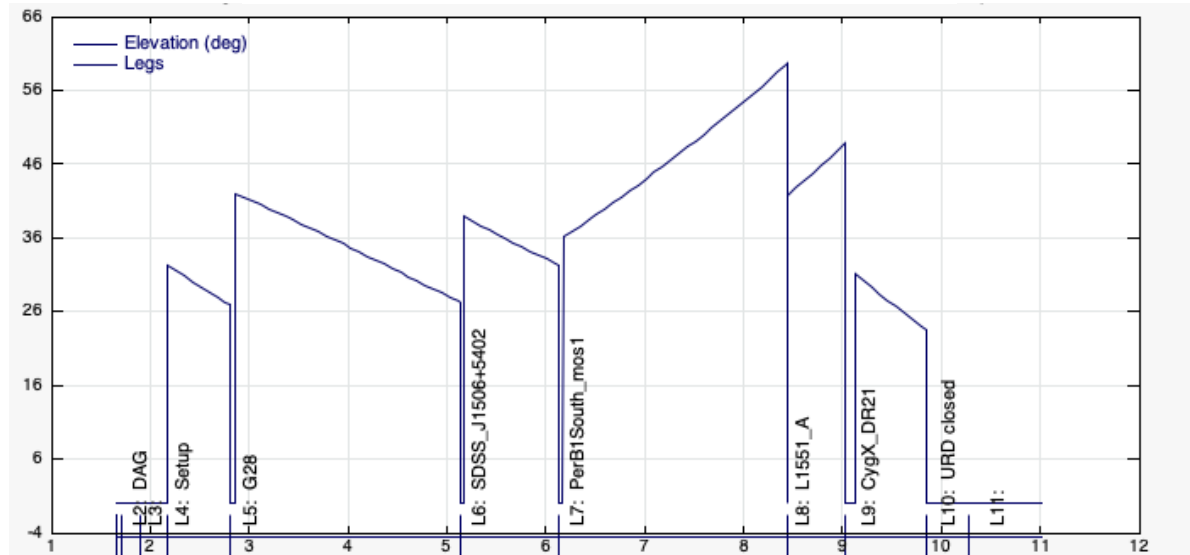
Departure UTC: 01:39
Arrival UTC: 10:46

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
4			Setup	13h23m55.89s	54d55m31.5s	2:11	38	
5	09_0215	Pillai	G28	18h42m41.35s	-04d01m40.3s	2:52	136	HAWC+ computer issues at beginning of leg led to a loss of 1/3 of leg.
6	08_0086	Coil	SDSS_J1506+5402	15h06m36.30s	54d02m20.9s	5:11	57	No observations made to preserve HAWC+ cooling for rest of flight.
7	09_0215	Pillai	PerB1	03h32m58.56s	31d03m53.9s	6:11	136	No observations last 30min of leg to preserve HAWC+ cooling for rest of flight
8	09_0231	Lazarian	L1551_A	04h31m32.50s	18d11m00.0s	8:27	35	
9	09_0215	Pillai	CygX_DR21	20h39m01.33s	42d22m26.6s	9:08	43	

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



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



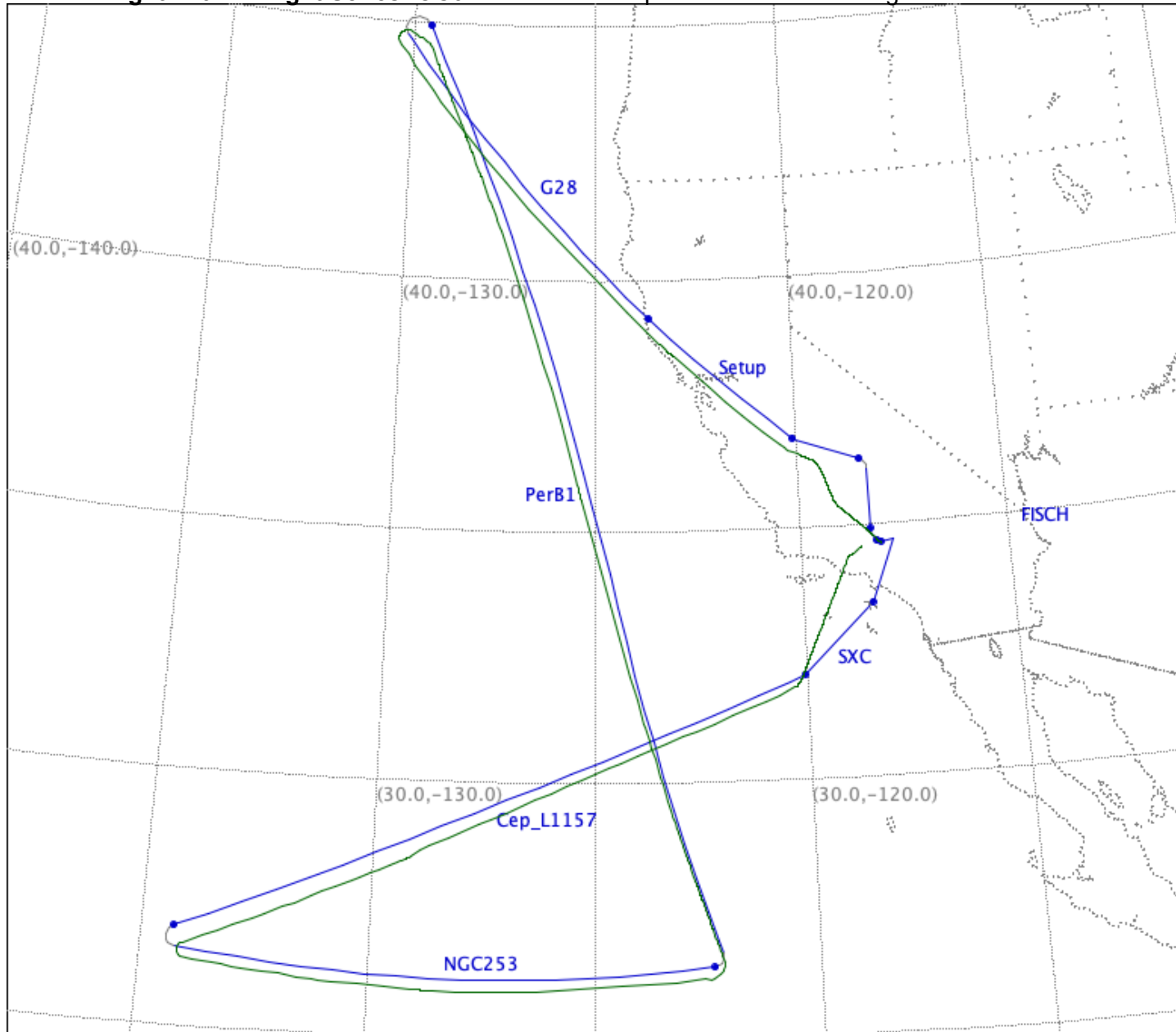
MISSION ID: 2022-09-29_HA_F921

Date: 2022-09-29UT Instrument: HAWC+

Flight #: 921 Flight Series: OC9W

blue = planned route

green = flown route



Flight notes:

HAWC+ detector warmed at end of leg 9.

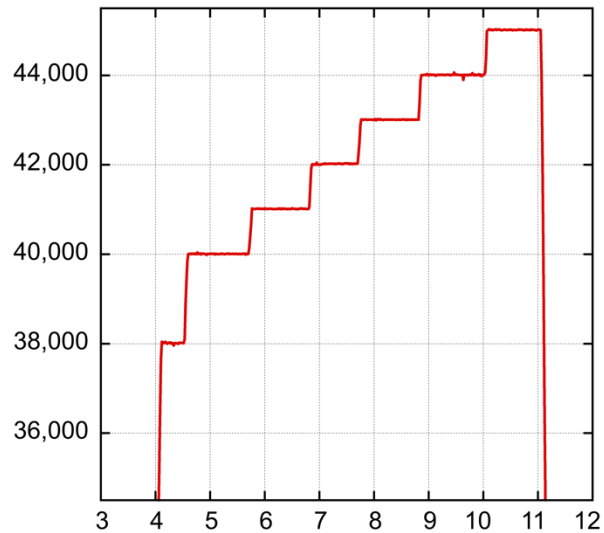
Flight 921
Palmdale to
Palmdale

Mission ID 2022-09-29_HA_F921
Take off date UTC:
29-SEP-2022

Departure UTC: 03:44
Arrival UTC: 11:41

Leg	Plan ID	PI Name	Target Name	RA (2000)	Dec (2000)	Start time	Leg time	Leg notes
5			Setup	18h35m12.43s	-08d14m38.7s	4:06	30	
6	09_0215	Pillai	G28	18h42m41.35s	-04d01m40.3s	4:36	61	
7	09_0215	Pillai	PerB1	03h32m58.56s	31d03m53.9s	5:43	136	
8	08_0012	Lopez-Rodriguez	NGC253	00h47m33.13s	-25d17m19.7s	8:02	85	
9	09_0215	Pillai	Cep_L1157	20h39m42.13s	67d40m01.5s	9:31	97	44min into leg HAWC+ detector temp raised to 0.225K and data taken with lower sensitivity.

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



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

