ESO specific observations preparation: tools and concepts.

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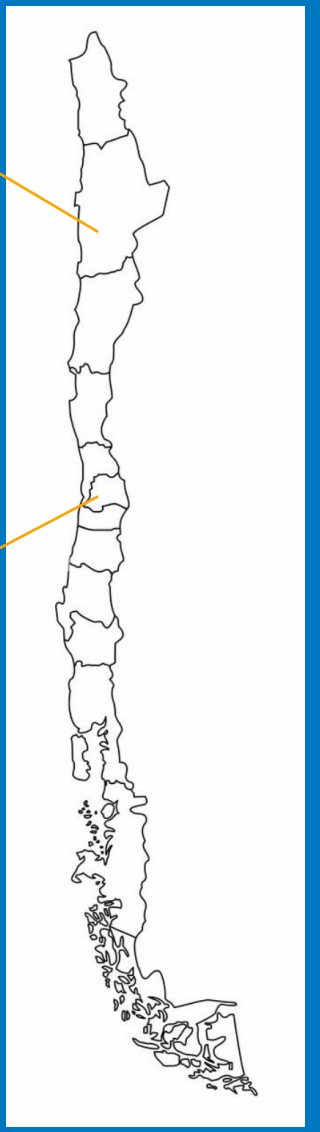
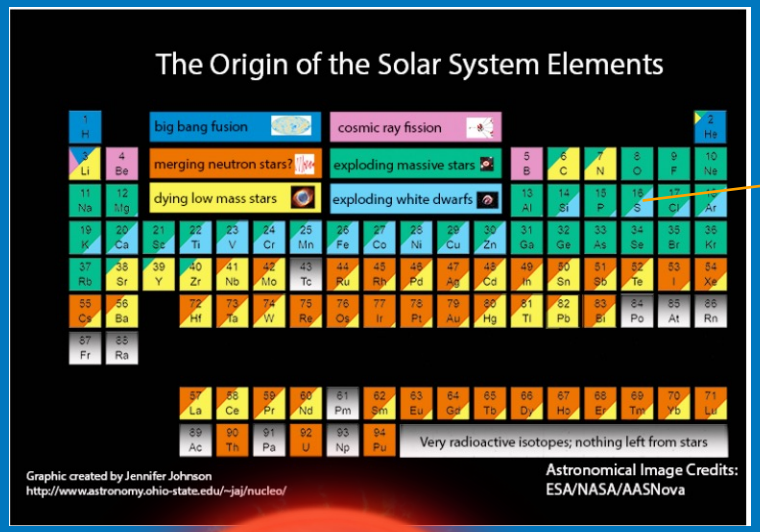
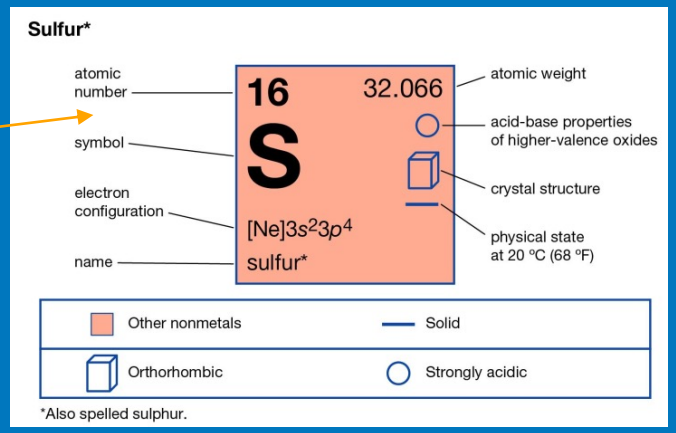
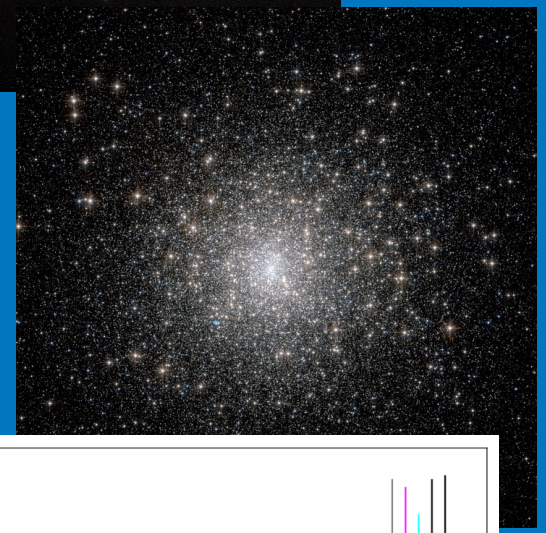
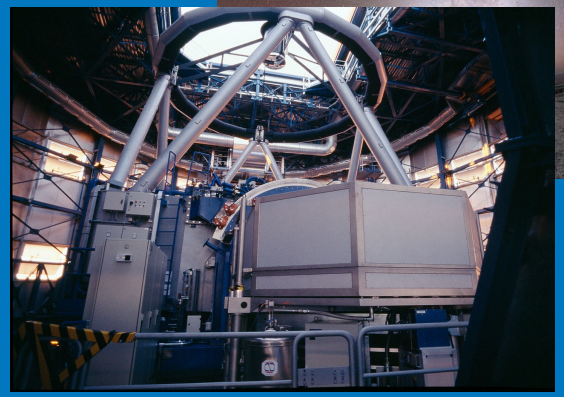


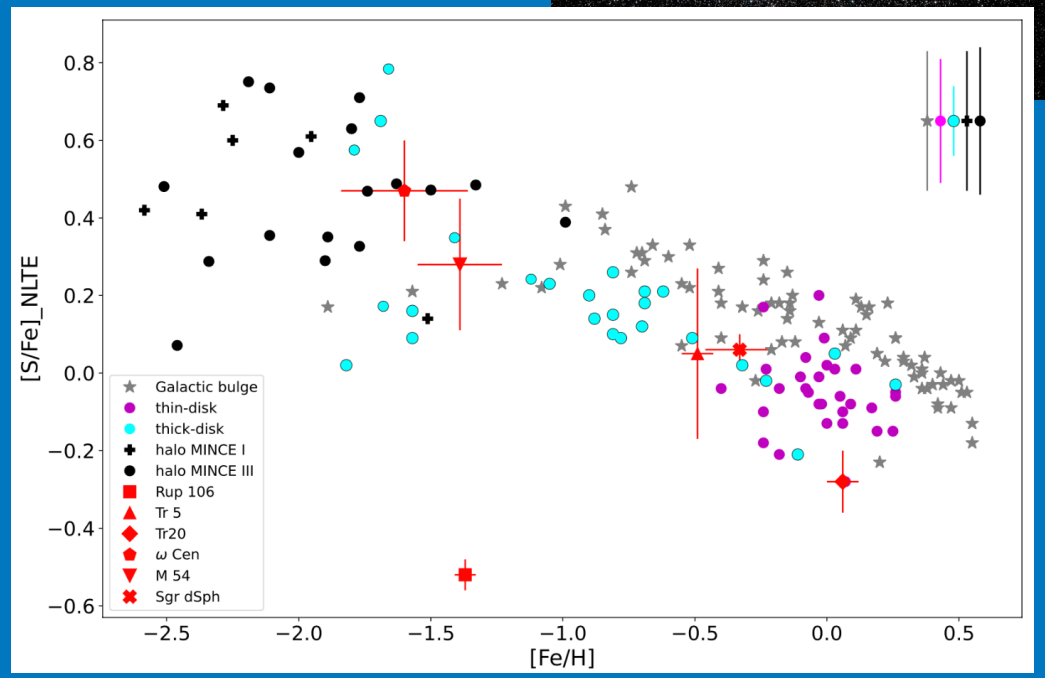


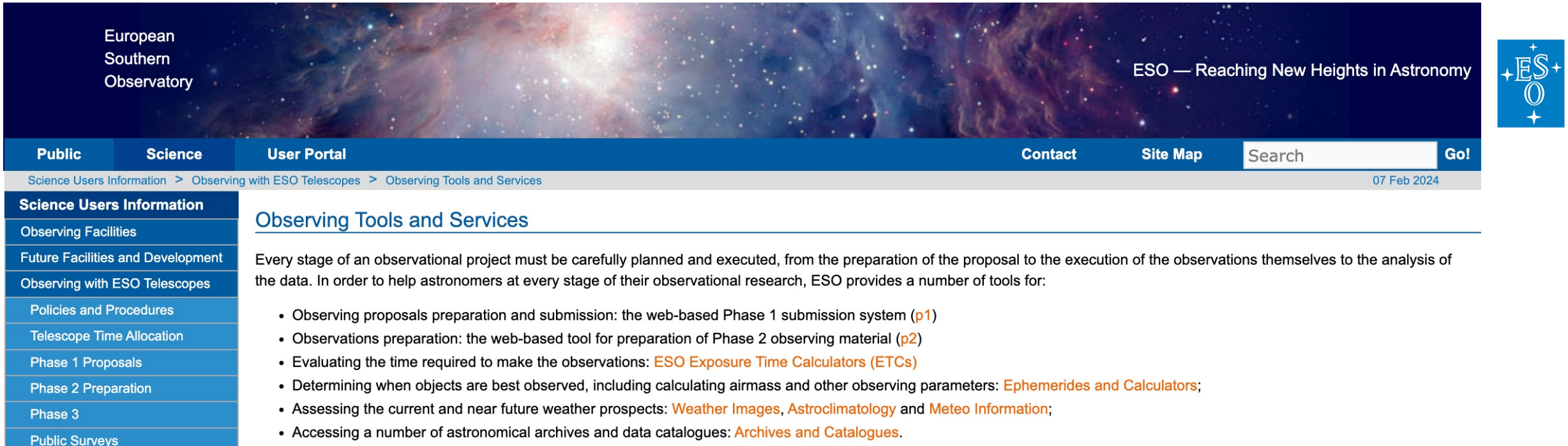




CHEMICAL (Sulfur!) ABUNDANCES





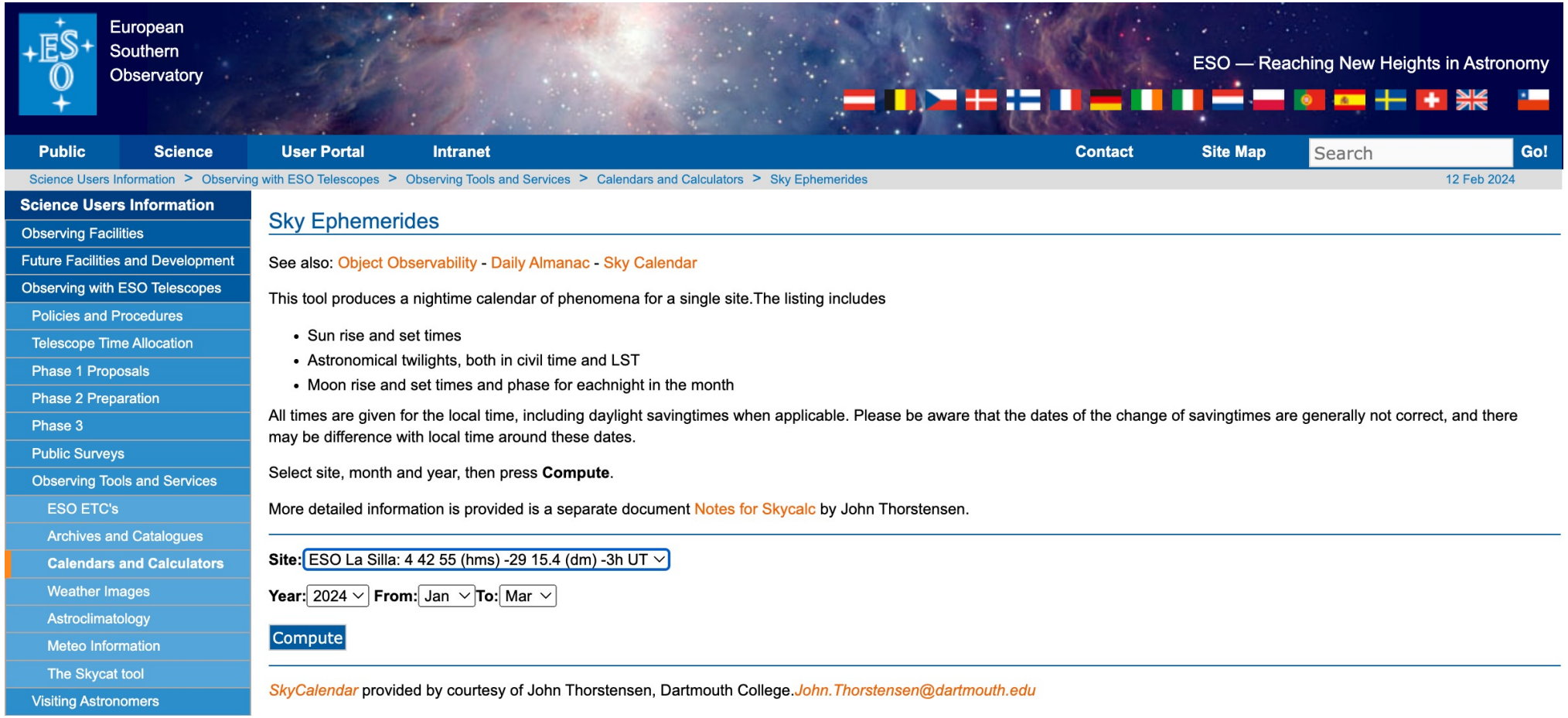


Content

- ESO TOOLS - https://www.eso.org/sci/observing/tools.html :
  - Ephemerides → Object visibility (STARALT), airmass calculation, observing parameters
  - Archives and Catalogues
  - ESO Exposure Time Calculation (ETC)
- OBSERVATION PREPARATION → Phase 2 (P2)

Ephemerides - https://www.eso.org/sci/observing/tools/calendar/skycalc.html -

Tables that give the position of astronomical objects



Ephemerides - https://www.eso.org/sci/observing/tools/calendar/skycalc.html -

Tables that give the position of astronomical objects

MOON PHASES FOR 2024, at ESO La Silla

Times and dates are given in Chilean time, zone = 4 hr West.
They are generally better than +– 2 minutes.
Daylight savings time used.

The end of the previous year and the beginning of the next are included for continuity.

NEW		1ST		FULL		LAST	
Dec 12	20 32	Dec 19	15 40	Dec 26	21 34	Jan 04	0 33
Jan 11	8 58	Jan 18	0 54	Jan 25	14 55	Feb 02	20 20
Feb 09	20 01	Feb 16	12 02	Feb 24	9 31	Mar 03	12 25
Mar 10	6 03	Mar 17	1 12	Mar 25	4 02	Apr 02	0 16
Apr 08	14 23	Apr 15	15 14	Apr 23	19 51	May 01	7 28
May 07	23 24	May 15	7 50	May 23	9 56	May 30	13 14
Jun 06	8 40	Jun 14	1 20	Jun 21	21 11	Jun 28	17 55
Jul 05	18 59	Jul 13	18 50	Jul 21	6 20	Jul 27	22 54
Aug 04	7 14	Aug 12	11 20	Aug 19	14 29	Aug 26	5 29
Sep 02	21 57	Sep 11	3 07	Sep 17	23 37	Sep 24	15 53
Oct 02	15 51	Oct 10	15 56	Oct 17	8 28	Oct 24	5 05
Nov 01	9 48	Nov 09	2 57	Nov 15	18 30	Nov 22	22 30
Dec 01	3 22	Dec 08	12 28	Dec 15	6 03	Dec 22	19 20
Dec 30	19 28	Jan 06	20 58	Jan 13	19 28	Jan 21	17 32

***** 2024 FEBRUARY *****

Calendar for ESO La Silla, west longitude (h.m.s) = 4 42 55, latitude (d.m) = -29 15.4
Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Chilean time (4 hr W), for 2347 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn) (2024 at start)	JDmid (-2460000)	LMSTmidn	Sun: set	Sun: twi.end	Sun: twi.beg	Sun: rise	LST twilight: eve	LST twilight: morn	Moon: rise	Moon: set	Moon: %illum	Moon: RA	Moon: Dec
Thu Feb 01/Fri Feb 02	342.6	7 04 21	20 48	22 08	5 46	7 06	5 12	12 51	0 19	.....	58	14 05.3	-13 23
Fri Feb 02/Sat Feb 03	343.6	7 08 18	20 47	22 07	5 47	7 07	5 15	12 56	0 51	.....	48	14 52.4	-18 13
Sat Feb 03/Sun Feb 04	344.6	7 12 14	20 46	22 06	5 48	7 07	5 18	13 01	1 28	.....	38	15 43.2	-22 21
Sun Feb 04/Mon Feb 05	345.6	7 16 11	20 46	22 05	5 49	7 08	5 21	13 06	2 13	.....	28	16 38.4	-25 28
Mon Feb 05/Tue Feb 06	346.6	7 20 07	20 45	22 04	5 50	7 09	5 24	13 11	3 06	.....	19	17 37.8	-27 14
Tue Feb 06/Wed Feb 07	347.6	7 24 04	20 44	22 03	5 51	7 10	5 27	13 16	4 09	18 19	11	18 40.3	-27 20
Wed Feb 07/Thu Feb 08	348.6	7 28 00	20 44	22 02	5 52	7 11	5 30	13 21	5 19	19 18	5	19 43.8	-25 36
Thu Feb 08/Fri Feb 09	349.6	7 31 57	20 43	22 01	5 53	7 12	5 33	13 26	6 33	20 10	1	20 46.2	-22 03
Fri Feb 09/Sat Feb 10	350.6	7 35 53	20 42	22 00	5 54	7 12	5 36	13 31	.....	20 55	0	21 45.9	-16 58
Sat Feb 10/Sun Feb 11	351.6	7 39 50	20 41	21 59	5 55	7 13	5 39	13 36	.....	21 34	2	22 42.5	-10 46
Sun Feb 11/Mon Feb 12	352.6	7 43 47	20 40	21 58	5 56	7 14	5 42	13 41	.....	22 09	7	23 36.4	- 3 55
Mon Feb 12/Tue Feb 13	353.6	7 47 43	20 40	21 57	5 58	7 15	5 44	13 46	.....	22 43	14	0 28.6	3 05
Tue Feb 13/Wed Feb 14	354.6	7 51 40	20 39	21 56	5 59	7 16	5 47	13 51	.....	23 16	23	1 20.3	9 51
Wed Feb 14/Thu Feb 15	355.6	7 55 36	20 38	21 55	6 00	7 17	5 50	13 56	.....	23 51	33	2 12.7	16 00
Thu Feb 15/Fri Feb 16	356.6	7 59 33	20 37	21 54	6 01	7 17	5 53	14 01	.....	0 29	44	3 06.4	21 13
Fri Feb 16/Sat Feb 17	357.6	8 03 29	20 36	21 53	6 02	7 18	5 56	14 06	.....	1 12	55	4 02.0	25 15
Sat Feb 17/Sun Feb 18	358.6	8 07 26	20 35	21 52	6 03	7 19	5 59	14 11	.....	1 59	65	4 59.1	27 55
Sun Feb 18/Mon Feb 19	359.6	8 11 22	20 34	21 50	6 04	7 20	6 01	14 16	.....	2 51	74	5 57.0	29 04
Mon Feb 19/Tue Feb 20	360.6	8 15 19	20 33	21 49	6 04	7 20	6 04	14 21	17 28	3 48	83	6 54.3	28 43
Tue Feb 20/Wed Feb 21	361.6	8 19 16	20 32	21 48	6 05	7 21	6 07	14 26	18 17	4 46	89	7 49.6	26 58
Wed Feb 21/Thu Feb 22	362.6	8 23 12	20 31	21 47	6 06	7 22	6 10	14 31	18 59	5 44	95	8 42.0	23 58
Thu Feb 22/Fri Feb 23	363.6	8 27 09	20 30	21 46	6 07	7 23	6 13	14 35	19 35	6 40	98	9 31.4	20 00
Fri Feb 23/Sat Feb 24	364.6	8 31 05	20 29	21 45	6 08	7 23	6 15	14 40	20 07	.....	100	10 17.8	15 17
Sat Feb 24/Sun Feb 25	365.6	8 35 02	20 28	21 43	6 09	7 24	6 18	14 45	20 36	.....	100	11 01.9	10 02
Sun Feb 25/Mon Feb 26	366.6	8 38 58	20 27	21 42	6 10	7 25	6 21	14 50	21 02	.....	98	11 44.6	4 29
Mon Feb 26/Tue Feb 27	367.6	8 42 55	20 26	21 41	6 11	7 25	6 23	14 55	21 28	.....	94	12 26.6	- 1 12
Tue Feb 27/Wed Feb 28	368.6	8 46 51	20 25	21 40	6 12	7 26	6 26	15 00	21 54	.....	89	13 09.0	- 6 50
Wed Feb 28/Thu Feb 29	369.6	8 50 48	20 24	21 39	6 13	7 27	6 29	15 04	22 21	.....	82	13 52.7	-12 14
Thu Feb 29/Fri Mar 01	370.6	8 54 45	20 23	21 37	6 13	7 28	6 32	15 09	22 51	.....	74	14 38.7	-17 13

Object visibility: STARALT

-http://catserver.ing.iac.es/staralt/index.php -

ISAAC NEWTON GROUP OF TELESCOPES

About ING ▼ Astronomy ▼ Developments ▼ Public Information ▼ Search:

Home > Astronomy > *Object Visibility*

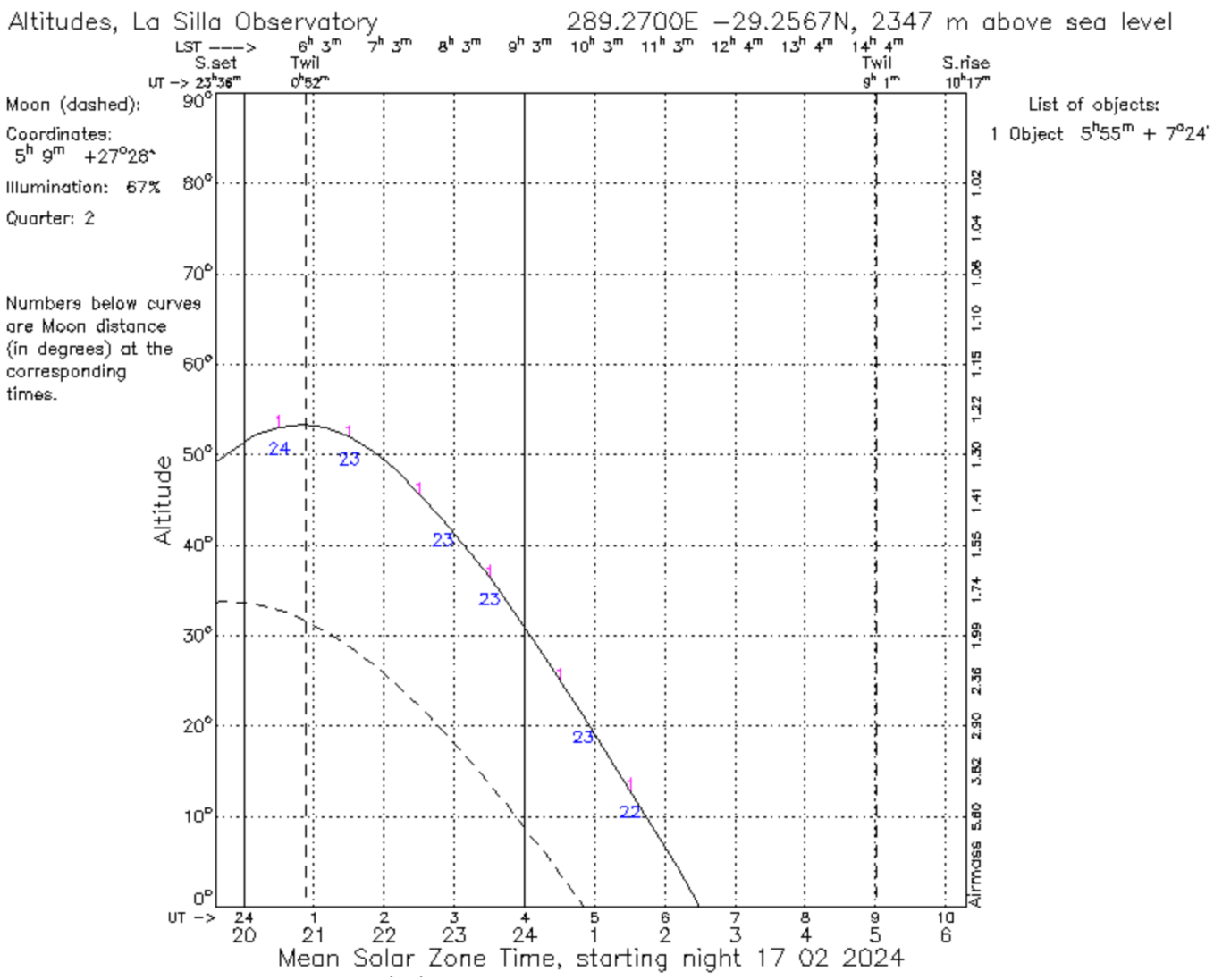
Object Visibility – STARALT

Staralt is a program that shows the observability of objects in various ways: either you can plot altitude against time for a particular night (**Staralt**), or plot the path of your objects across the sky for a particular night (**Startrack**), or plot how altitude changes over a year (**Starobs**), or get a table with the best observing date for each object (**Starmult**). For further information, click on the "help" button at the bottom of the page.

Mode	Staralt
Night	17 February 2024 or date when the local night starts. *Staralt, Startrack only.*
Observatory	La Silla Observatory (Chile) Select one above or specify your own site with this format: `Longitude(°E) Latitude(°N) Altitude(metres) UT-offset(hours)` Ex.: `289.2767 -30.2283 2725 -4`

Coordinates	Formats can be any of these:
	`name hh mm ss ±dd mm ss`
	`name hh:mm:ss ±dd:mm:ss`
	`name ddd.ddd dd.ddd`
	name must be a single word with no dots, avoid using single numbers. Every entry must be in the same format, do not use different formats with different entries. We recommmend a maximum of 100 targets per submission.
	`05 55 10.30536 +07 24 25.4304`
	Alternatively, you can upload a file with coordinates. You can use the same format as in the TCS catalog. Target names must be single words with no dots.
	Choose File No file chosen

Options	Moon distance Included on plot. Moon coordinates at ~02:00 UT. *Staralt only.* 10°, X=5.8 Min. elevation (or max. airmass X). *Starobs, Starmult only.* GIF [inline] Output format
Submit	Retrieve Help
Telescope limits	**WHT:** 89.8° < Altitude < 12° (plot). Targets with +28:57:40>Dec>+28:33:40 won´t be accessible when transiting the zenital blind spot (~0.2° size). **INT:** 90° < Altitude < 33° (20° if lower shutter raised), -6h < HA < +6, +90°>Dec>-30° 09´ 30" (HA-Dec plot - lower shutter raised; lowest altitude-Dec plot).
More	These are other useful resources for planning observations: iObserve, astronomy tools, JSkyCalc, obstools, NOT´s visplot.



Sky Model Calculator: SKYCALC

- https://www.eso.org/observing/etc/bin/gen/form?INS.MODE=swspectr+INS.NAME=SKYCALC -

Coordinate system: Horizontal | Projection: Equirectangular | Milkyway

☑ **Optional Parameter Initialisation using Almanac Service**

Site

Observatory: 2400m (La Silla location, Paranal sky model)

La Silla -29°.2563, -70°.738 (-29°15:22 ,-70°44:16)

Apparent horizon altitude = -1°.87

Time

◉ UT 19/02/2024 03:00:00

○ MJD 60359.125

Time step forward/back: 1 hour [+] [−]

La Silla Local Civil Time LCT = 00:00:00

La Silla Local Sidereal Time LST = 08:11:20

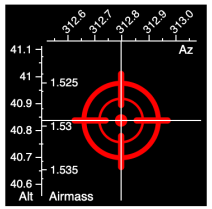
First third of night

Target

Target coordinates from CDS Simbad searching by

Name or ID: betelgeuse [search]

α 05:55:10.305358 δ 07:24:25.4304 [toggle units]



Barycentric velocity correction dv = 25.447 km/s, dz = 8.488e-5

Hour Angle HA = 02:16:10

Target az = 312°.80 alt = 40°.83

Zenith distance = 49°.17

Airmass = 1.529

Ecliptic heliocentric coords = 121°.90 , -16°.02

Galactic coords = 199°.76 , -8°.95

Moon/target separation = 21°.67

Sun

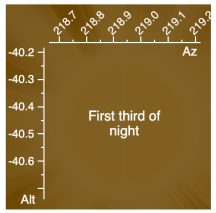
Sun alt = -40°.46 , az = 218°.94

$\alpha_\odot$ = 22:08:10 $\delta_\odot$ = -11:29:13

Sunrise / noon / set = 10:20 / 16:55 / 23:33 UT

Solar radio flux data is not yet available

***Note:** The Cerro Paranal Advanced Sky Model does **not** take telluric scattered sun light into account*



Moon

Moon alt = 23°.44 decreasing

$\alpha_\leftmoon$ = 05:56:59 , $\delta_\leftmoon$ = 29:04:16

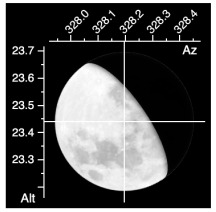
Moonrise / culm. / set = 19:34 / 00:41 / 05:50 UT

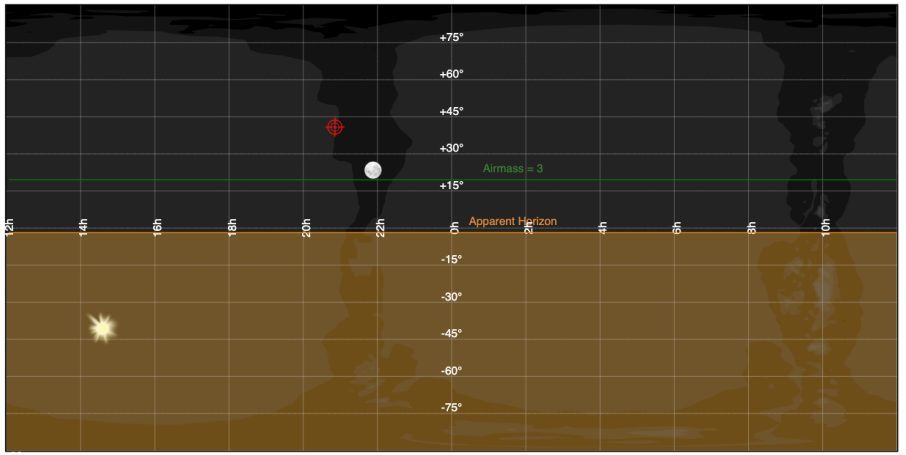
Phase angle=119°.23 , FLI ≈ 0.744 Waxing

Position angle=272°.87 , Zenith angle=124°.60

Earth/Moon distance normalised = 1.01546

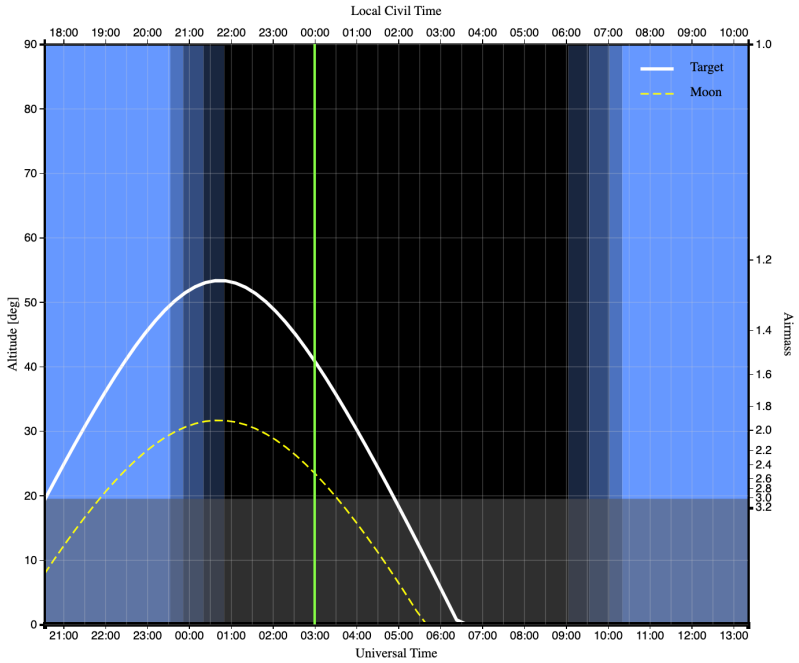
Apparent diameter = 0°.50995 = 00°30'35"





Sun and Moon symbols are not to scale. The red target symbol can be moved.

Visibility plot. Note that the green line is movable and corresponds to the selected UT/LCT



Sky Model Calculator: SKYCALC

- https://www.eso.org/observing/etc/bin/gen/form?INS.MODE=swspectr+INS.NAME=SKYCALC -

Observatory Height above Sea Level: 2400m (La Silla)

Altitude of Target above Horizon: alt= 40.8 *[19.5, 90]°*
zenith distance z=0°

alt, z and x are coupled through the plane parallel approximation x=sec(z), z being the zenith distance z=90°−alt

Airmass: x = 1.53 *[1, 3]*

Season and Period of Night: Season: Feb/Mar
Night Period: First third of Night

Precipitable Water Vapor: PWV = 2.5 mm

Monthly Averaged Solar Radio Flux: 130 sfu

Select Components to Include in the Radiance Model:

☑ **Scattered Moonlight**
Note the following moon coordinate constraints: $|z - z_{moon}| \leq \varrho \leq |z + z_{moon}|$
where ϱ=moon/target separation, z=90°−alt and $z_{moon}=90°-alt_{moon}$

Sun-Moon Separation (Moon Phase)	119.2	*[0,360]°*	FLI ≈ 0.500 *(Half Moon Waxing)*
Moon-Target Separation (ϱ)	21.7	*[0,180]°*	
Moon Altitude over Horizon *(alt_{moon})*	23.4	*[-90, 90]°*	z_{moon}=45°
Moon-Earth Distance Normalised	1.0155	*[0.91, 1.08]*	

☑ **Scattered Starlight**

☑ **Zodiacal Light**

Heliocentric Ecliptic Longitude of Target	121.9	*[-180, 180]°*
Ecliptic Latitude of Target	-16.0	*[-90, 90]°*

☑ **Molecular Emission of Lower Atmosphere**

☑ **Emission Lines of Upper Atmosphere**

☑ **Airglow/Residual Continuum**

☐ **Instrumental Thermal Emission**
This radiance component represents an instrumental effect. The emission is provided relative to the other model components. To obtain the correct absolute flux, documentation).

$Element_1$ *(e.g. Telescope)*	T_1 =	K	$Emissivity_1$ =	*[0,1[*
$Element_2$ *(e.g. Instrument)*	T_2 =	K	$Emissivity_2$ =	*[0,1[*
$Element_3$ *(e.g. Cryostat)*	T_3 =	K	$Emissivity_3$ =	*[0,1[*

Wavelength Grid

◉ Vacuum
○ Air (using the formula of Edlén 1966)

λ_{min}= 1000.00 nm *[≥ 300 nm]*

λ_{max}= 2000.00 nm *[≤ 30,000 nm]*

○ Linear binning Δλ = nm/bin
◉ Logarithmic binning λ/Δλ = 20000 *[≤ 10^6]*

Convolving Line Spread Function

◉ None
○ Gaussian FWHM= bins
○ Boxcar Width= bins

Bins: 13863 bins
λ/Δλ : 20000 (max 1000000)
FITS file size: 0.77Mb (max 30 Mb)
Approx. response time: 3.2 s

Outputs

☑ Plot Radiance Spectrum ☑ Plot Radiance Components
☑ Plot Transmission Spectrum ☑ Plot Transmission Components

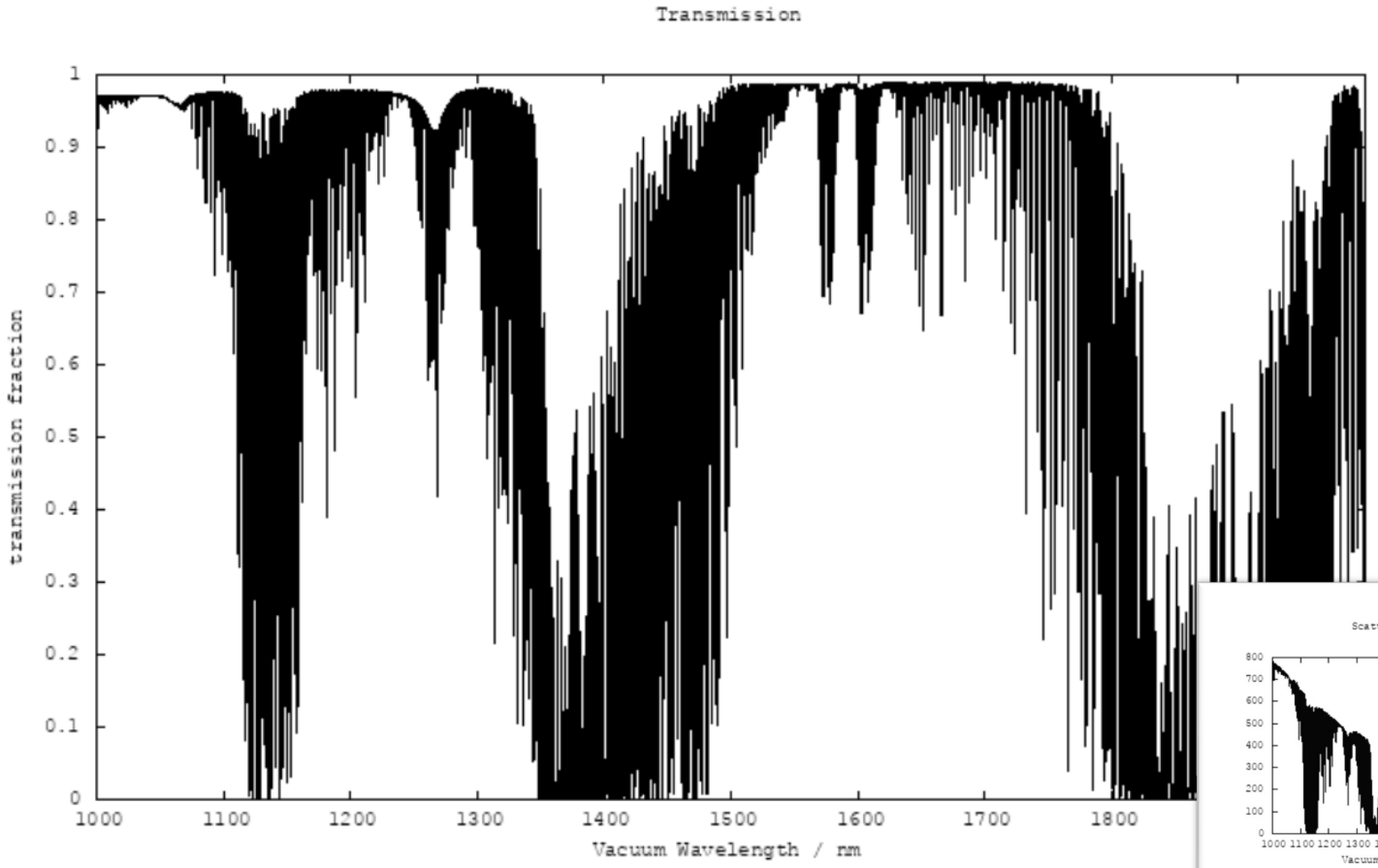
☐ Calculate Broad-Band UBVRIZYJHKLMNQ magnitudes per $arcsec^2$

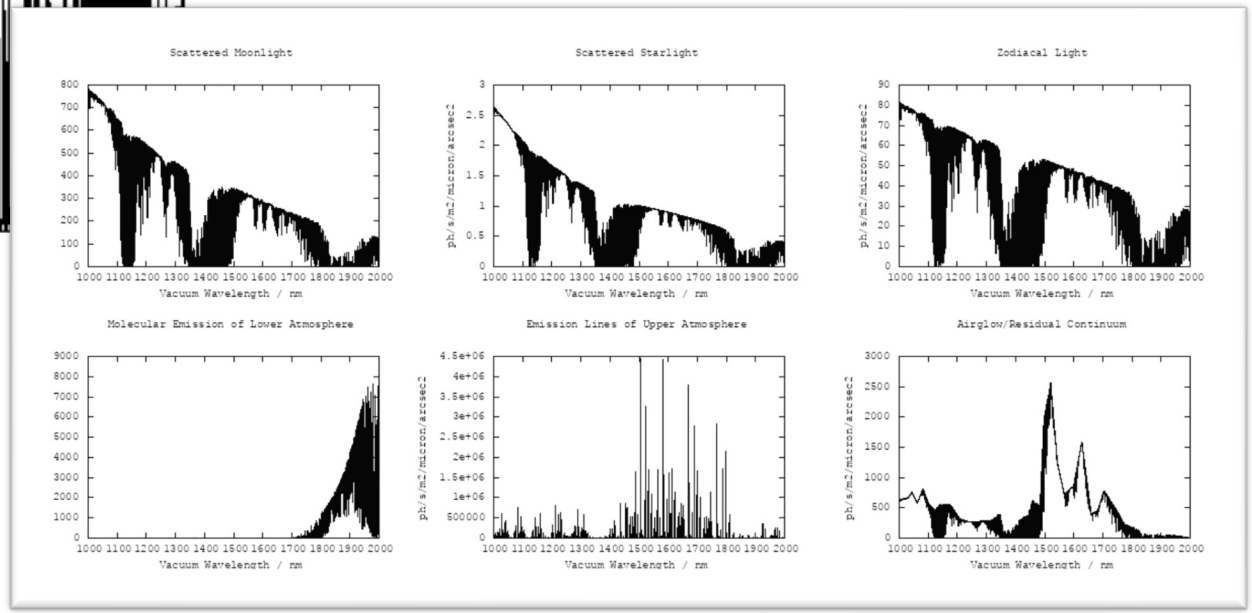
☐ Plot LSF Kernel *(select an LSF kernel to enable this option)*

Submit Reset

Sky Model Calculator: SKYCALC

- https://www.eso.org/observing/etc/bin/gen/form?INS.MODE=swspectr+INS.NAME=SKYCALC -





Archives and Catalogues - https://www.eso.org/sci/observing/tools/catalogues.html -

Archives

- ESO Science Archive Query Form for raw data and ESO Archive Science Portal for processed data.
  For a comprehensive overview of the on-line ESO/ST-ECF archives and catalogues please refer to the Science Archive Facility.
- ESO Online Digitized Sky Survey (DSS)
- Interactive 2MASS Image Service for the NASA/IPAC Infrared Sciene Archive

Catalogues and Databases

- Standard Star Catalogue Search Tool
- HST Guide Star Catalogue (GSC)
- ESO/ST-ECF USNO-A2.0 Catalogue Server
- Gaia Archive

Standard Stars Data

Optical

- Landolt's Standard Fields, with finding charts scanned
- Peter Stetson's Photometric Standard Fields
- The General Catalogue of Photometric Data (GCPD)
- Optical and UV Spectrophotometric Standards

Infrared

- Photometric Standard Stars: NICMOS and ARNICA
- Spectrophotometric Standards
  - Mid-IR spectrophotometric standard stars; Mid-IR standards Siebenmorgen/Sterzik list
  - List of InfraRed Telluric Standards
  - Sky map of InfraRed Spectrophotometric standard
  - UVESPOP: A Library of High-Resolution Spectra of Stars across the Hertzsprung-Russell Diagram

Optical/Infrared Interferometry

- Bad Calibrators Catalogue for optical/infrared interferometry, a registry of stars which have proven to be poor calibrators.

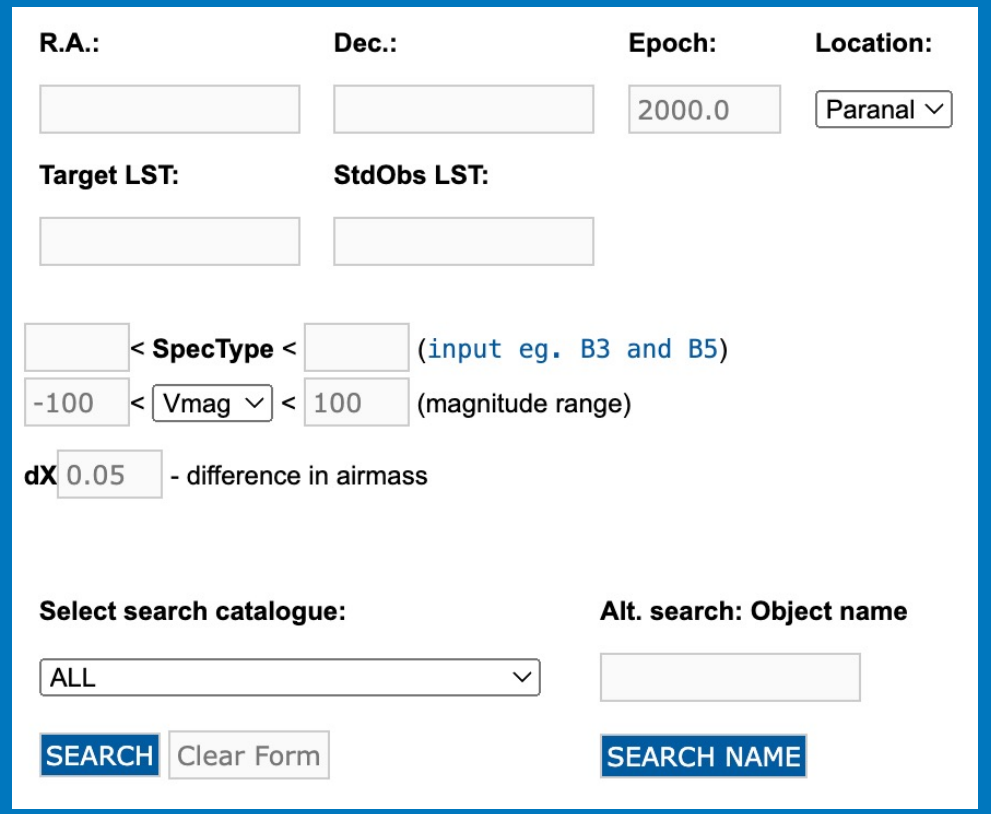
- Standard Star
  - Telluric correction (mainly IR)
  - Flux Calibration
  - 2 < IR mag < 9
- Guide Star
  - Telescope Guiding (Tip Tilt correction, Field stabilization)
  - 9 < R < 13

Archives and Catalogues - https://www.eso.org/sci/observing/tools/catalogues.html -

Found the following stars with abs(X-1.273) < 0.05 at LST=5:00

	ID	RA	Dec	Sp.Type	Vmag	Imag	Jmag	Hmag	Kmag	Lmag	Mmag	Nmag	Airmass	d(airmass)
	Hip009022	1:56:9.40000	-49:50:11.3000	B8/B9V	6.37000	6.43000	6.49300	6.52600	6.51700	...	...	...	1.308	-0.035
	Hip011900	2:33:33.5600	-62:35:12.3000	B9V	6.79000	6.82000	6.84700	6.90400	6.87500	...	...	...	1.322	-0.049
	Hip015251	3:16:44.3900	-3:21:50.3000	B8	7.71000	7.71000	7.69100	7.68700	7.70300	...	...	...	1.230	0.043
	Hip016368	3:30:51.6800	-66:29:23.0000	B8V	5.81000	5.84000	5.82300	5.85900	5.81400	...	...	...	1.299	-0.026
	Hip020244	4:20:16.6300	7:51:13.3000	B8	7.95000	7.77000	7.71600	7.75800	7.74500	...	...	...	1.275	-0.002
	Hip022597	4:51:43.3800	9:58:30.3000	B5V	6.11000	6.04000	5.85700	5.82800	5.86600	...	...	...	1.292	-0.019
	Hip024337	5:13:25.1400	-65:14:10.1000	B8V	8.38000	8.42000	8.41400	8.44600	8.51500	...	...	...	1.237	0.036
	Hip024632	5:17:5.30000	9:55:38.3000	B8	7.48000	7.45000	7.40000	7.42500	7.42400	...	...	...	1.294	-0.021
	Hip026487	5:38:1.11000	7:32:29.2000	B8III	5.87000	5.91000	5.93300	5.99700	5.96400	...	...	...	1.268	0.005
	Hip028543	6:1:31.3400	3:11:11.5000	B8	7.19000	7.10000	6.97400	6.97200	6.98200	...	...	...	1.230	0.043
	Hip029134	6:8:44.3400	-68:50:36.4000	B8V	5.06000	5.14000	...	5.19600	5.19400	...	...	...	1.322	-0.049
	Hip029429	6:11:58.7300	7:23:28.8000	B9.5V	7.04000	7.12000	8.23800	8.23200	8.27200	...	...	...	1.316	-0.043
	Hip029907	6:17:49.7900	-64:1:48.9000	B9V	7.53000	7.58000	7.59900	7.68000	7.63500	...	...	...	1.251	0.022
	Hip030382	6:23:18.4900	3:45:52.2000	B3V	6.41000	6.56000	6.70400	6.77200	6.79100	...	...	...	1.279	-0.006
	Hip030524	6:24:55.8100	-63:49:41.4000	B6V	6.26000	6.36000	6.52300	6.61900	6.62400	...	...	...	1.254	0.019
	Hip030798	6:28:16.7700	1:54:45.8000	B9V	6.48000	6.52000	6.53900	6.58800	6.58800	...	...	...	1.263	0.010
	Hip031335	6:34:14.4400	-63:55:5.30000	B9V	8.53000	8.57000	8.61500	8.66300	8.70000	...	...	...	1.265	0.008
	Hip032950	6:51:48.9800	-65:37:10.6000	B9IV	8.54000	8.55000	8.56000	8.59200	8.55900	...	...	...	1.310	-0.037
	Hip034669	7:10:46.9600	-9:20:9.60000	B4V	7.41000	7.51000	7.56500	7.65500	7.64500	...	...	...	1.244	0.029
	Hip034772	7:11:54.6200	-6:33:43.8000	B9	8.54000	8.56000	8.47500	8.53300	8.50100	...	...	...	1.277	-0.004
	Hip035352	7:18:8.22000	-10:39:33.1000	B8V	8.28000	8.32000	8.32300	8.42700	8.38100	...	...	...	1.255	0.018
	Hip036673	7:32:41.8300	-9:40:9.60000	B8V	7.56000	7.61000	7.62700	7.65500	7.67700	...	...	...	1.319	-0.046
	Hip037043	7:36:43.9300	-48:49:48.6000	B9.5V	5.69000	5.70000	5.69500	5.70200	5.68700	...	...	...	1.230	0.043
	Hip037261	7:39:7.11000	-18:40:42.3000	B6V	6.72000	6.77000	6.76000	6.85700	6.82800	...	...	...	1.263	0.010
	Hip037530	7:42:10.2200	-58:37:51.4000	B2.5V	6.40000	6.48000	6.54900	6.66400	6.61000	...	...	...	1.312	-0.039

Standard Star Catalogue Search Tool



ESO Exposure Time Calculators

News and Notes

August 31, 2023: P113 phase 1

- HARPS/NIRPS detector parameters updated, including saturation limits. Introduced LSF convolution.

August 24, 2023: P113 phase 1

- ERIS-NIX LSS mode supported.
- XSHOOTER: Added a note about NIR stray-light.
- FORS2 imaging: Updated 530-25 +84 filter profile.

Bug fixes
Details here

Documentation and Tools

- Support: https://support.eso.org
- Frequently Asked Questions
- Formula Book
- Database of efficiency profiles
- Deprecated ETCs select...
- SkyCalc Sky Model Calculator
  - with advanced Almanac
  - command-line interface skycalc_cli

Facility	Imaging	Spectroscopy
La Silla	EFOSC2, SUSI, WFI, SOFI	EFOSC2, HARPS/NIRPS, FEROS, SOFI
Paranal UT1	FORS2	FORS2, KMOS
Paranal UT2	VISIR	UVES, UVES-FLAMES, GIRAFFE, VISIR
Paranal UT3	SPHERE-IRDIS, SPHERE-ZIMPOL	X-SHOOTER, SPHERE-IFS, CRIRES
Paranal UT4	HAWK-I, ERIS	MUSE, ERIS
Paranal ICCF		ESPRESSO
Paranal VLTI	GRAVITY, MATISSE	VisCalc, CalVin
Paranal VISTA	VIRCAM	4MOST
Paranal VST	OmegaCAM	
ELT	ELT imaging	ELT spectroscopy

- https://www.eso.org/observing/etc/ -

ETC

Target Input Flux Distribution

◉ Template Spectrum	A0V (Pickles)	Redshift z = 0.00	Target Magnitude and Mag.System: V = 7.00 ◉ Vega ○ AB
○ MARCS Stellar Model	Teff=4000 log(g)=-0.5 [Fe/H]= 0 M= 1		
○ Upload Spectrum	Select...		
○ Blackbody	Temperature: K		*Magnitudes are given per arcsec^2 for extended sources*
○ Power Law	Index: $F(\lambda) \propto \lambda^{index}$		
○ Emission Line	Lambda: nm Flux: 10^{-16} ergs/s/cm^2 *(per arcsec^2 for extended sources)* FWHM: nm		

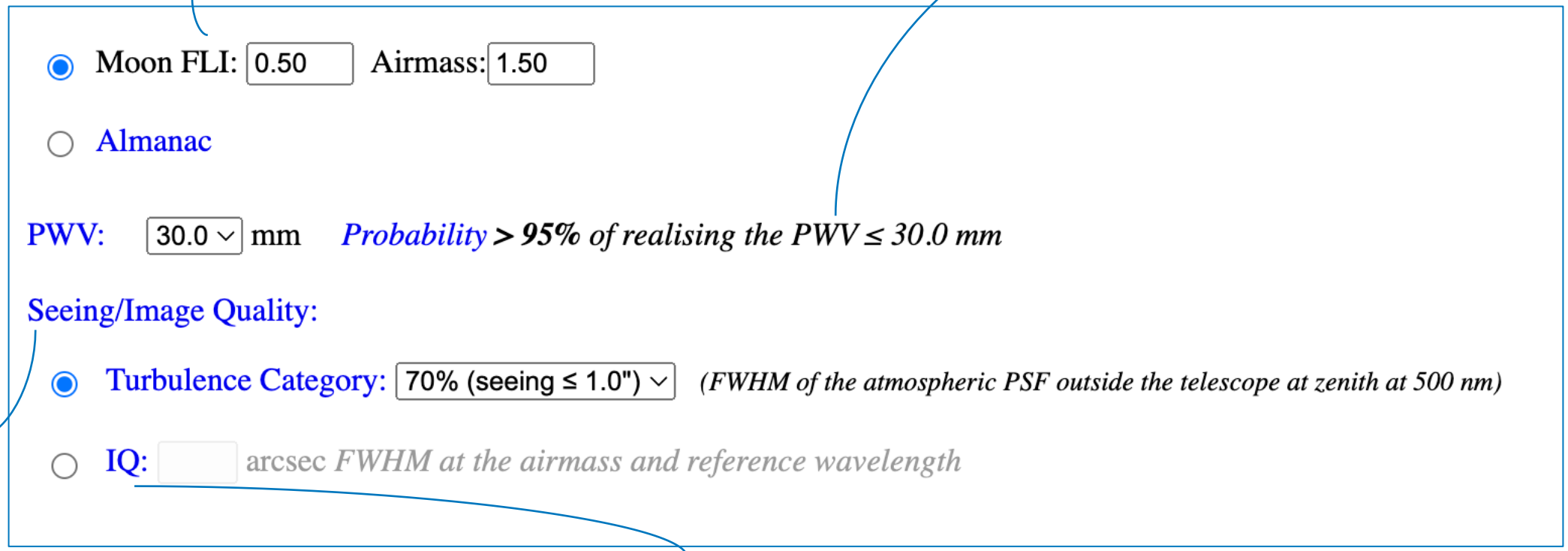
Spatial Distribution: ◉ Point Source

ETC

Sky Conditions

Fraction of Lunar Illumination

Precipitable Water Vapour



Seeing is an inherent property of the atmospheric turbulence, which is independent of the telescope that is observing through the atmosphere.

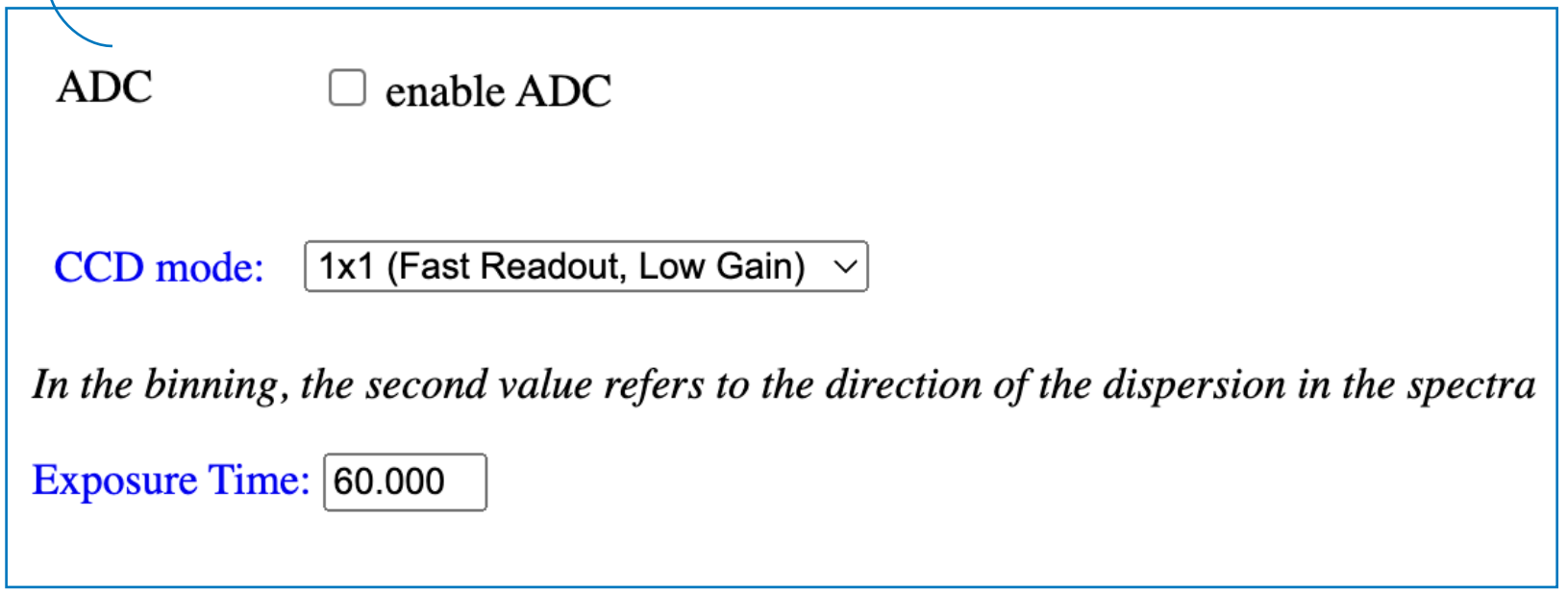
IQ is the FWHM of long-exposure stellar images, is a property of the images obtained in the focal plane of an instrument mounted on a telescope observing through the atmosphere.

ETC

Instrument Setup

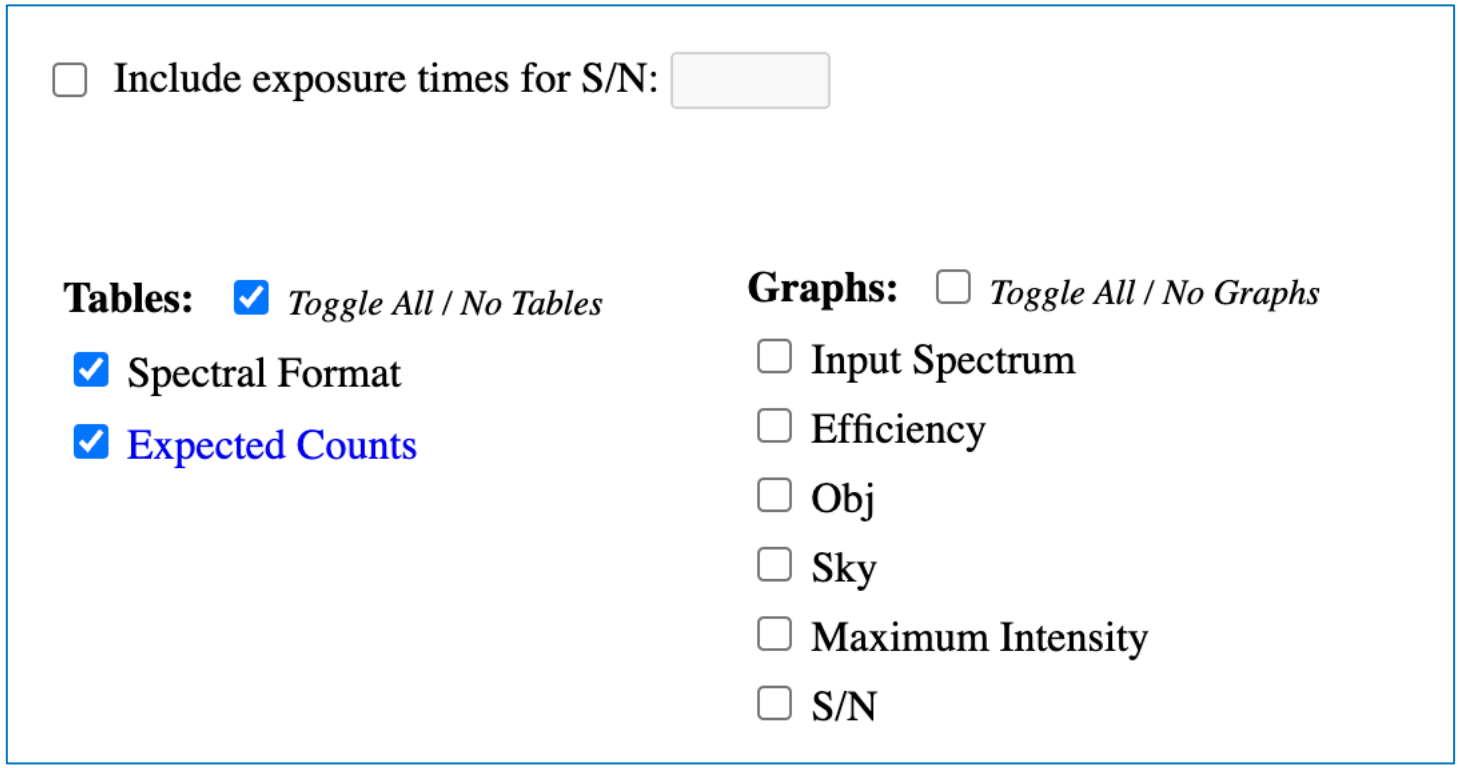
Atmospheric Dispersion Compensator

Pre Slit Prism that allow to allign the observed spectrum with the slit



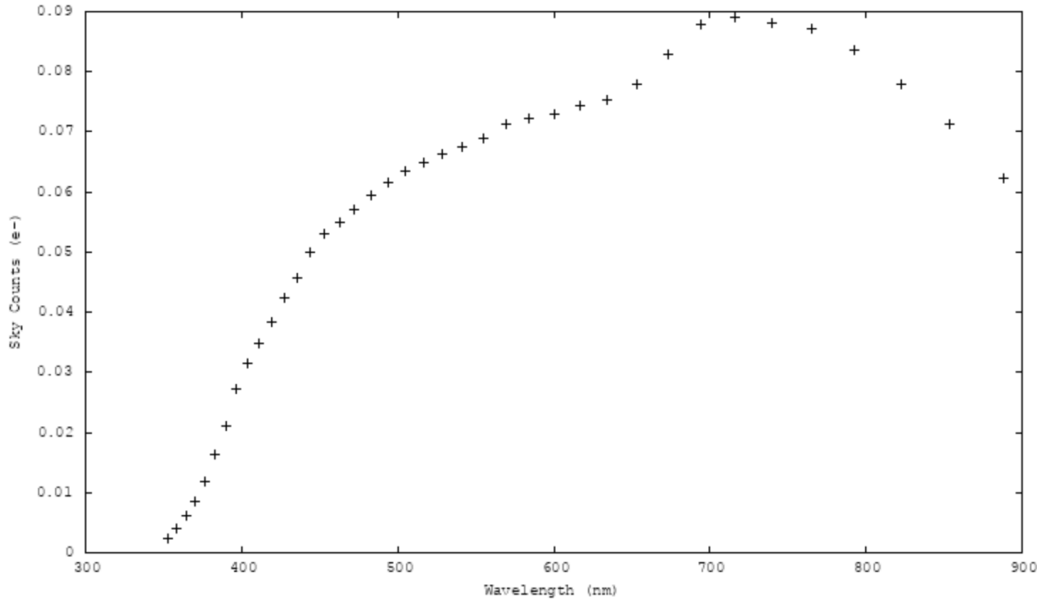
ETC

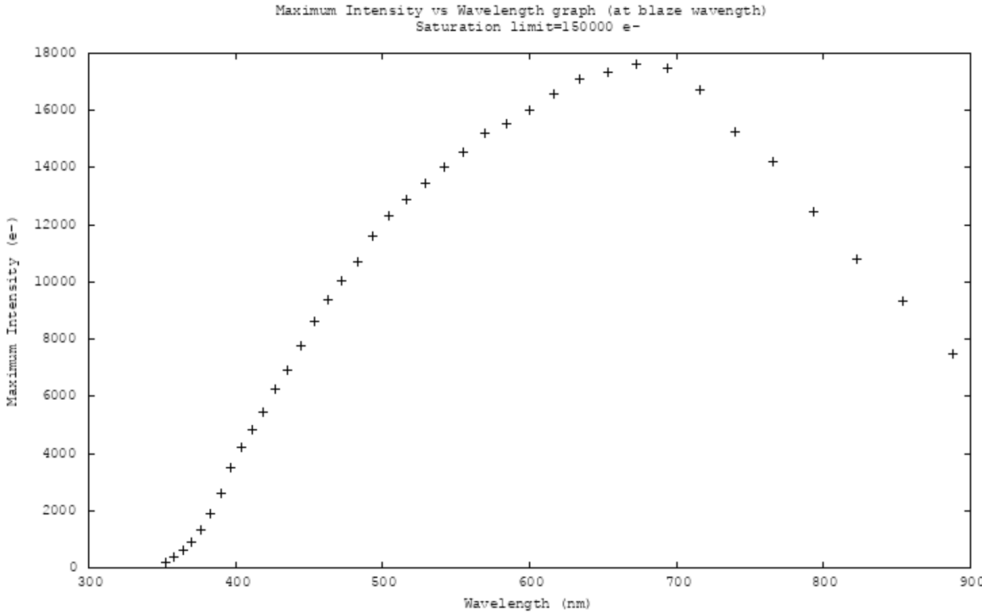
Results

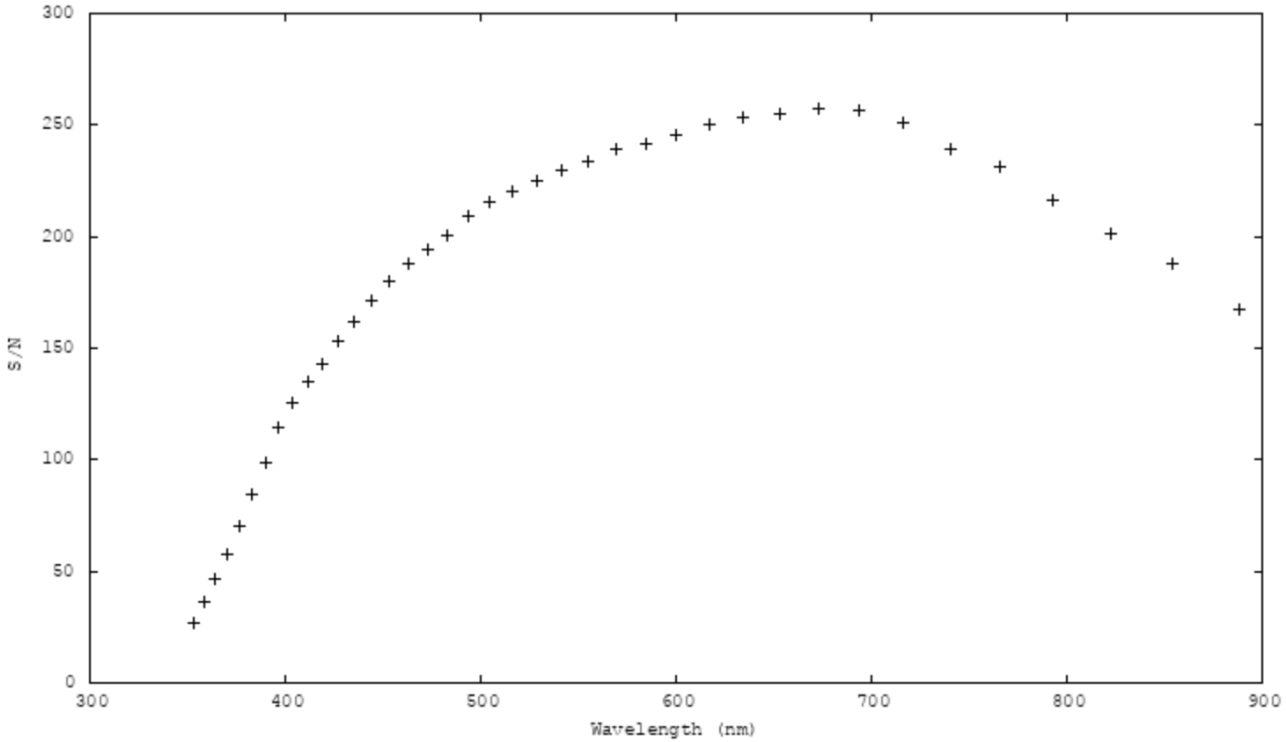

Include exposure times for S/N:
Tables:
Toggle All / No Tables
Spectral Format
Expected Counts
Graphs:
Toggle All / No Graphs
Input Spectrum
Efficiency
Obj
Sky
Maximum Intensity
S/N

ETC

Results


Sky Counts (e-)
Wavelength (nm)


Maximum Intensity vs Wavelength graph (at blaze wavength)
Saturation limit=150000 e-
Maximum Intensity (e-)
Wavelength (nm)

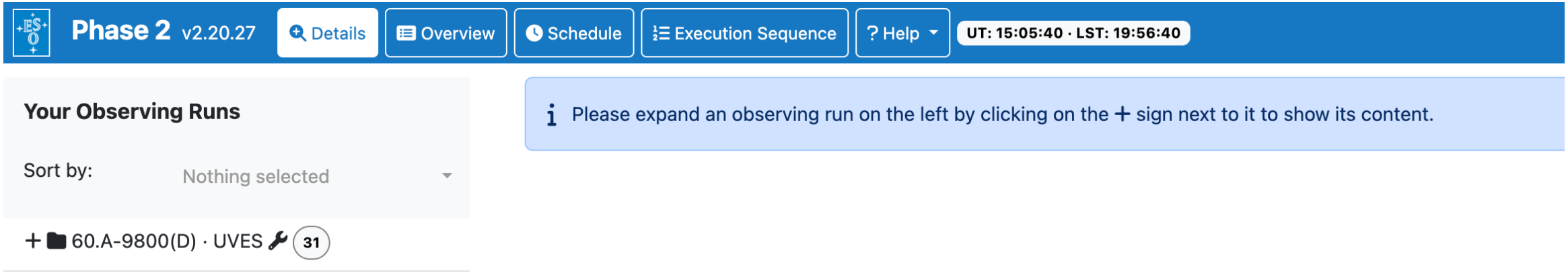

S/N
Wavelength (nm)

Observation Preparation: Phase 2 (P2) - https://www.eso.org/p2/ -

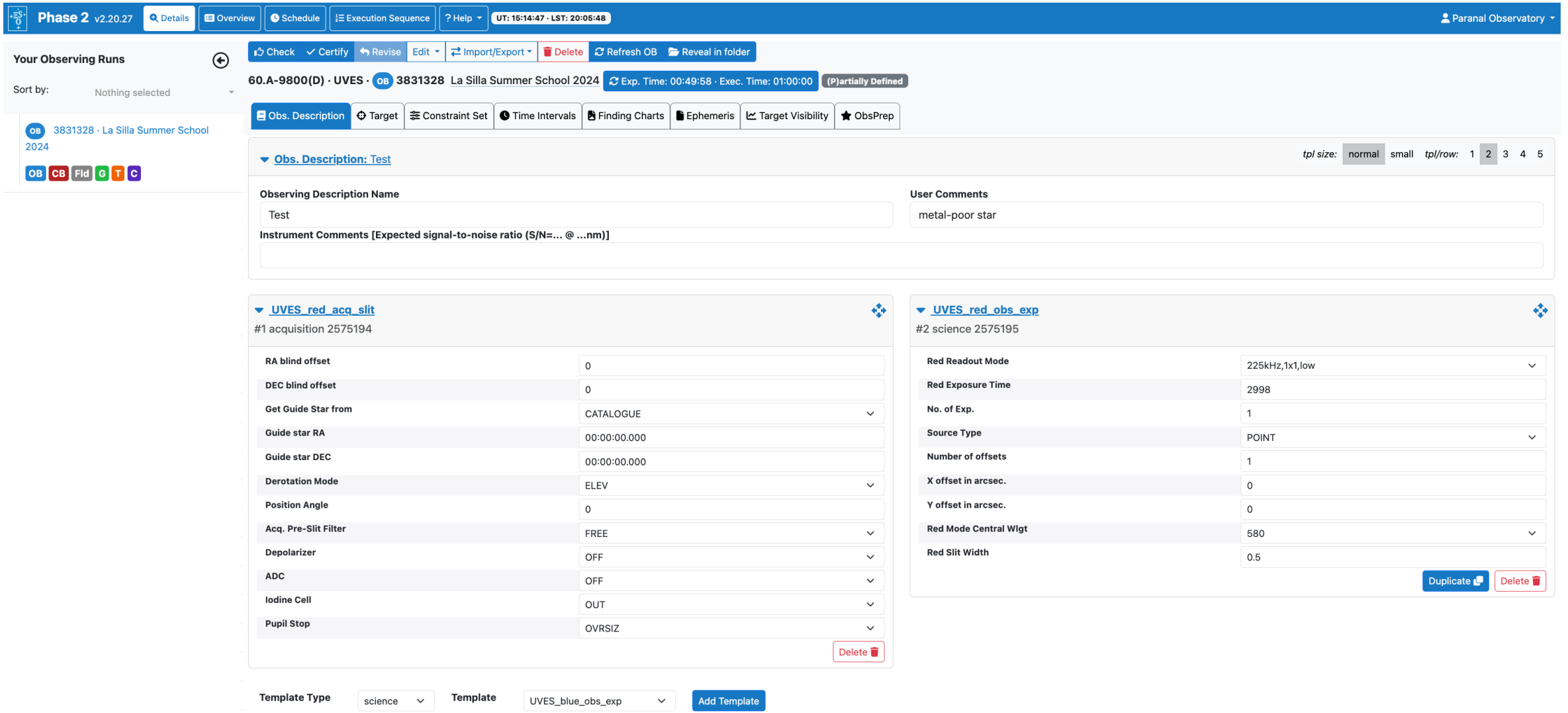
The Observation Block (OB) is the basic unit for the observation.

- It contains all the important information for a single observation: target position, instrument and exposure parameters, special scheduling requirements, the time constraints, finding charts, etc.
- OB types:
  - Science OB → Astronomical target (and reference) information
  - Calibration Block (CB) → lamp flat field, biases, etc.
- They can be organized in “Scheduling Containers“: groups, concatenations, etc.

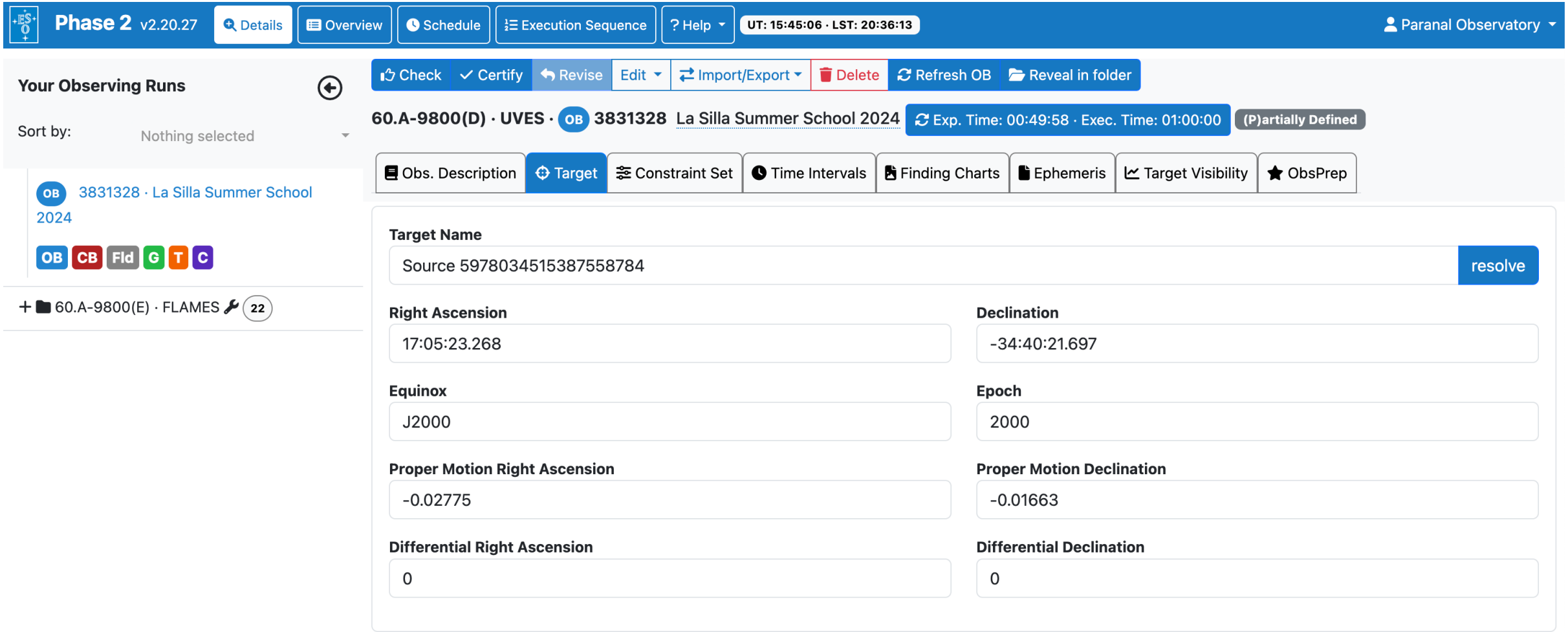
P2: Details


Phase 2 v2.20.27
Details
Overview
Schedule
Execution Sequence
Help
UT: 15:05:40 · LST: 19:56:40
Your Observing Runs
Sort by:
Nothing selected
60.A-9800(D) · UVES
31
Please expand an observing run on the left by clicking on the + sign next to it to show its content.

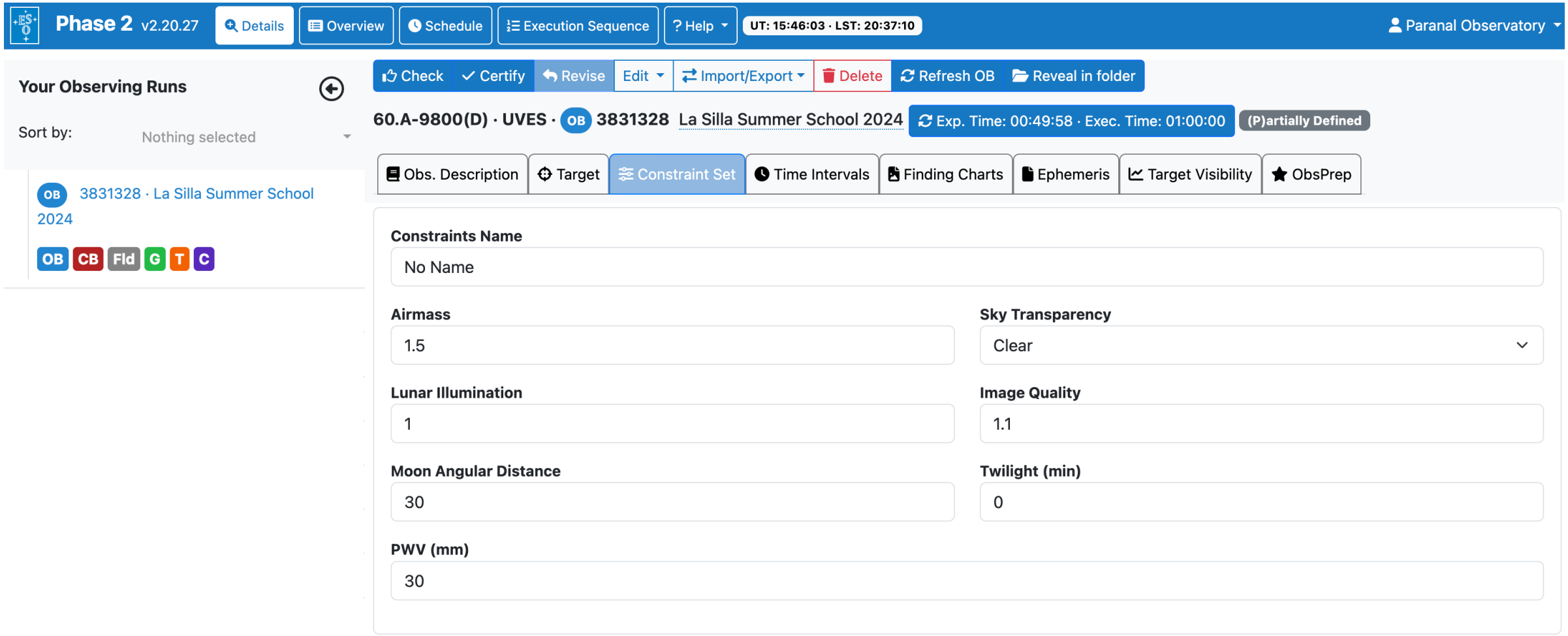
P2: Obs. Description



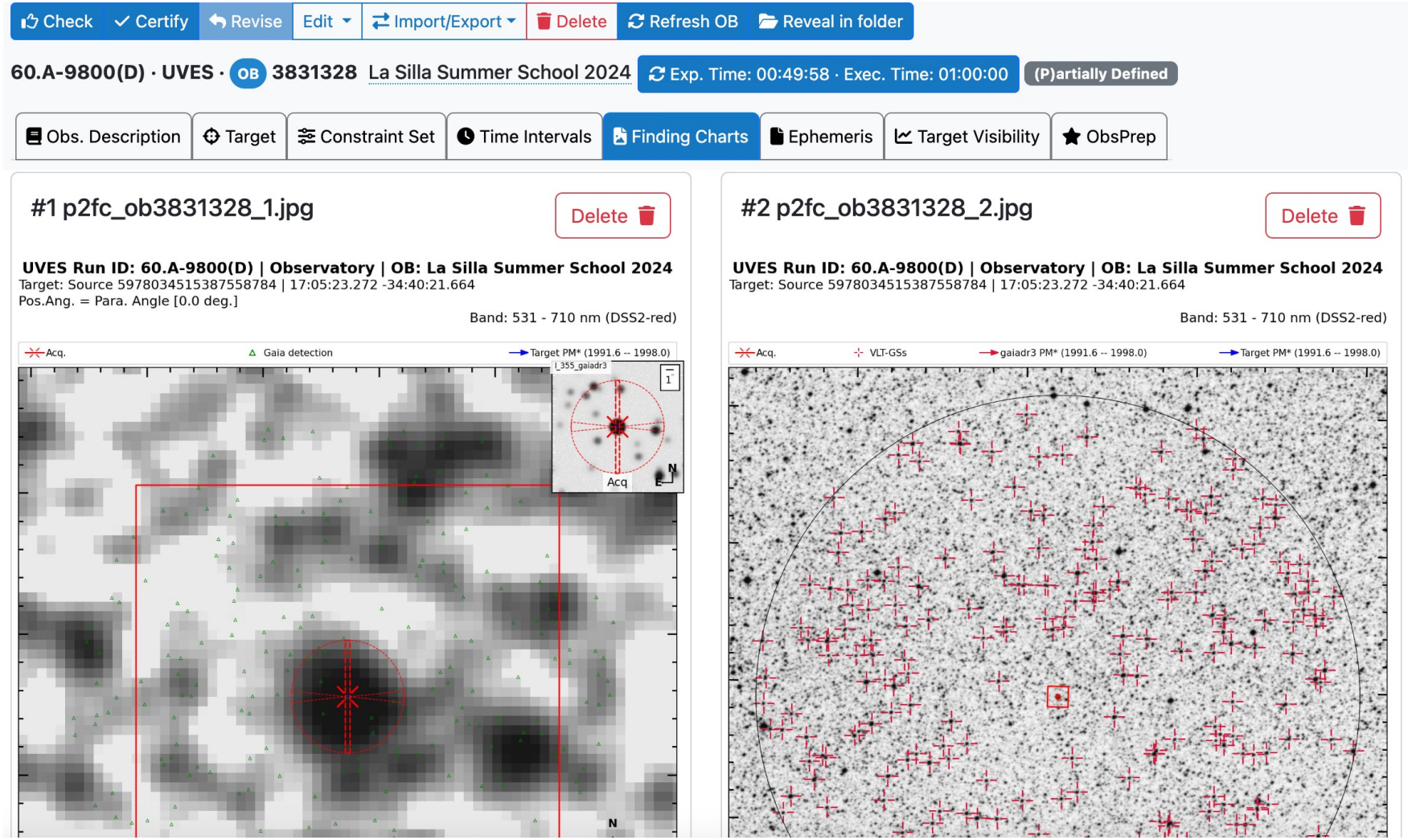
P2: Target


Phase 2 v2.20.27
Details
Overview
Schedule
Execution Sequence
? Help
UT: 15:45:06 · LST: 20:36:13
Paranal Observatory
Your Observing Runs
Sort by:
Nothing selected
OB 3831328 · La Silla Summer School 2024
OB CB Fld G T C
60.A-9800(E) · FLAMES 22
Check
Certify
Revise
Edit
Import/Export
Delete
Refresh OB
Reveal in folder
60.A-9800(D) · UVES · OB 3831328 La Silla Summer School 2024
Exp. Time: 00:49:58 · Exec. Time: 01:00:00
(P)artially Defined
Obs. Description
Target
Constraint Set
Time Intervals
Finding Charts
Ephemeris
Target Visibility
ObsPrep
Target Name
Source 5978034515387558784
resolve
Right Ascension
17:05:23.268
Declination
-34:40:21.697
Equinox
J2000
Epoch
2000
Proper Motion Right Ascension
-0.02775
Proper Motion Declination
-0.01663
Differential Right Ascension
0
Differential Declination
0

P2: Constraint Set



P2: Finding Charts



P2:

Overview

Phase 2 v2.20.27 | Details | Overview | Schedule | Execution Sequence | ? Help | UT: 15:53:00 · LST: 20:44:08 | Paranal Observatory

Your Observing Runs			Obs. Description	Target	Constraint Set	Acquisition Template	Finding Charts	Ephemeris File
OB 3831328 · La Silla Summer School 2024		P	Test	Source 5978034515387558784	No Name	UVES_red_acq_slit	(2) p2fc_ob3831328_1.jpg p2fc_ob3831328_2.jpg	

Schedule

Phase 2 v2.20.27 | Details | Overview | Schedule | Execution Sequence | ? Help | UT: 15:53:31 · LST: 20:44:39 | Paranal Observatory

Your Observing Runs			User Priority	Absolute Time Intervals	Group Contribution	Earliest/ Latest after previous
OB 3831328 · La Silla Summer School 2024		P	1	0		

1 < Priority < 10
High priority → 1
Low priority → 10

Thank you!

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