Hands On: AstroPlanner

Website: http://astroplanner.net/

Cost: $45.00

Description: AstroPlanner is a software application for Macintosh and Windows computers that facilitates astronomical observation planning, visualization and logging, as well as control of telescopes with computerized go-to mounts. Additionally you can import your own images in this application.

Requirements:

- Mac – Mac OS X 10.11 or later, 350 MB disk space
- Windows – Windows 7 SP1 or later, 350 MB disk space
- Catalogs – Up to 2GB+ disk space required if all catalogs are downloaded.

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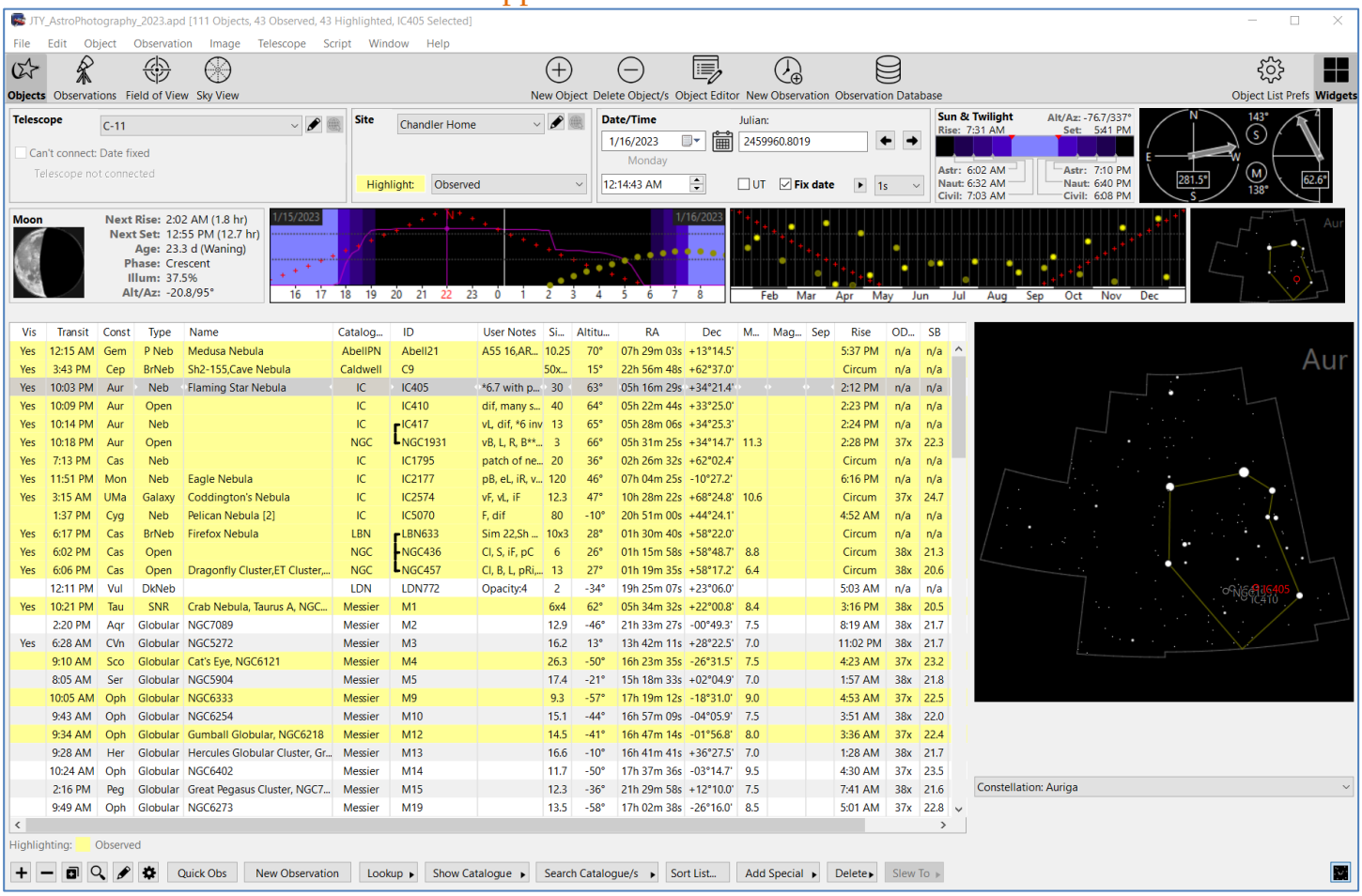
Application Default Screen



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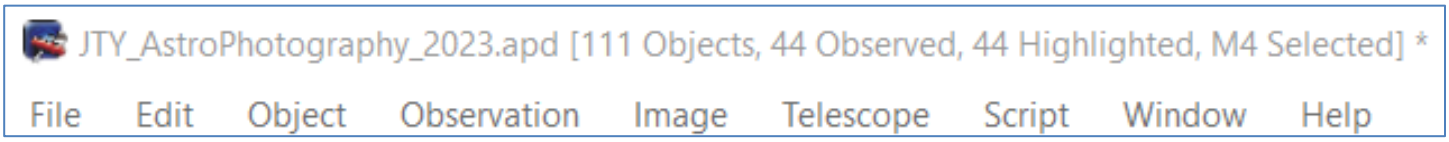
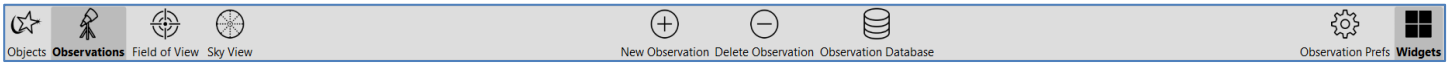
Main Sections of the Application

File Name and Menu Bar



More information in some menu selections later in the demo.

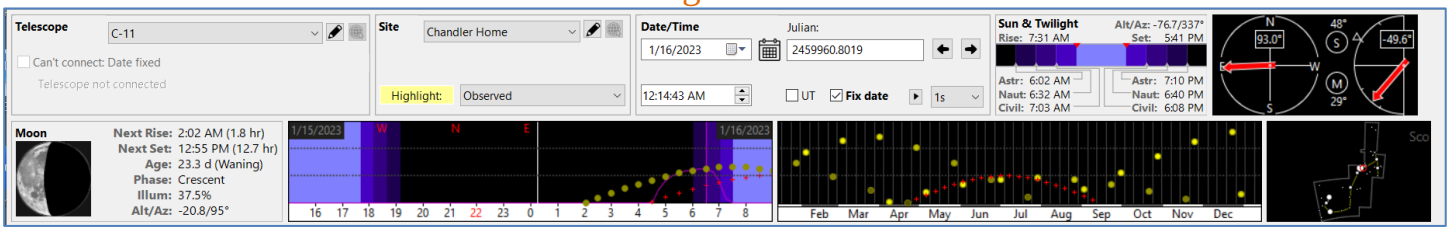
Task Selections Bar



Access primary functions and features by selecting the appropriate icons appearing in this bar.

- **Objects** – List of objects in the active document.
- **Observations** – Document observations made on an object.
- **Field of View** – View what an object will look like for your configuration.
- **Sky View** – All-Sky Charts

Widgets Bar



Row 1Sections

- **Telescope** – Telescope selection and control
- **Site** – Observation site
- **Date/Time** – Current or fixed Date and Time
- **Sun & Twilight** – Sun rise/set information
- **Alt/Az coordinates** – Alt/Az coordinates of selected object

Row 2 Sections

- **Moon** – Graphic representation of moon with moon information
- **Night Chart** – Short term visibility indicator
- **Year Chart –** Long term visibility chart
- **Constellation Chart** – Location of selected object in constellation

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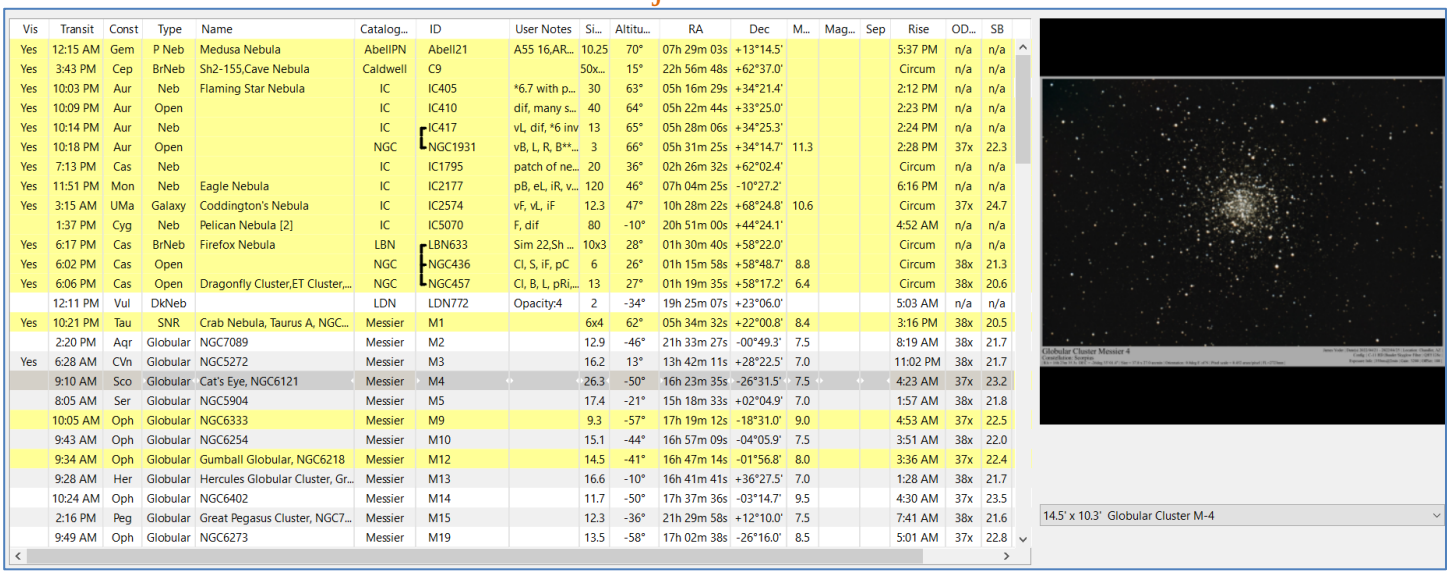
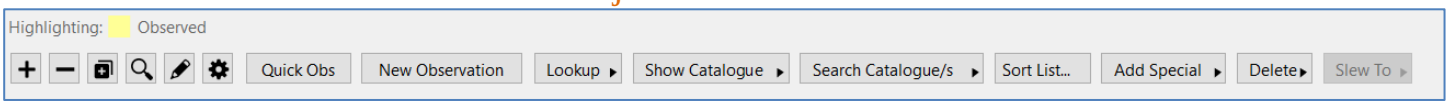
Objects Table



Vis	Transit	Const	Type	Name	Catalog...	ID	User Notes	Si...	Altitu...	RA	Dec	M...	Mag...	Sep	Rise	OD...	SB
Yes	12:15 AM	Gem	P Neb	Medusa Nebula	AbellPN	Abell21	A55 16,AR...	10.25	70°	07h 29m 03s	+13°14.5'				5:37 PM	n/a	n/a
Yes	3:43 PM	Cep	BrNeb	Sh2-155,Cave Nebula	Caldwell	C9		50x...	15°	22h 56m 48s	+62°37.0'				Circum	n/a	n/a
Yes	10:03 PM	Aur	Neb	Flaming Star Nebula	IC	IC405	*6.7 with p...	30	63°	05h 16m 29s	+34°21.4'				2:12 PM	n/a	n/a
Yes	10:09 PM	Aur	Open		IC	IC410	dif, many s...	40	64°	05h 22m 44s	+33°25.0'				2:23 PM	n/a	n/a
Yes	10:14 PM	Aur	Neb		IC	IC417	vL, dif, *6 inv	13	65°	05h 28m 06s	+34°25.3'				2:24 PM	n/a	n/a
Yes	10:18 PM	Aur	Open		NGC	NGC1931	vB, L, R, B**...	3	66°	05h 31m 25s	+34°14.7'	11.3			2:28 PM	37x	22.3
Yes	7:13 PM	Cas	Neb		IC	IC1795	patch of ne...	20	36°	02h 26m 32s	+62°02.4'				Circum	n/a	n/a
Yes	11:51 PM	Mon	Neb	Eagle Nebula	IC	IC2177	pB, eL, iR, v...	120	46°	07h 04m 25s	-10°27.2'				6:16 PM	n/a	n/a
Yes	3:15 AM	UMa	Galaxy	Coddington's Nebula	IC	IC2574	vF, vL, iF	12.3	47°	10h 28m 22s	+68°24.8'	10.6			Circum	37x	24.7
	1:37 PM	Cyg	Neb	Pelican Nebula [2]	IC	IC5070	F, dif	80	-10°	20h 51m 00s	+44°24.1'				4:52 AM	n/a	n/a
Yes	6:17 PM	Cas	BrNeb	Firefox Nebula	LBN	LBN633	Sim 22,Sh ...	10x3	28°	01h 30m 40s	+58°22.0'				Circum	n/a	n/a
Yes	6:02 PM	Cas	Open		NGC	NGC436	Cl, S, iF, pC	6	26°	01h 15m 58s	+58°48.7'	8.8			Circum	38x	21.3
Yes	6:06 PM	Cas	Open	Dragonfly Cluster,ET Cluster,...	NGC	NGC457	Cl, B, L, pRi,...	13	27°	01h 19m 35s	+58°17.2'	6.4			Circum	38x	20.6
	12:11 PM	Vul	DkNeb		LDN	LDN772	Opacity:4	2	-34°	19h 25m 07s	+23°06.0'				5:03 AM	n/a	n/a
Yes	10:21 PM	Tau	SNR	Crab Nebula, Taurus A, NGC...	Messier	M1		6x4	62°	05h 34m 32s	+22°00.8'	8.4			3:16 PM	38x	20.5
	2:20 PM	Aqr	Globular	NGC7089	Messier	M2		12.9	-46°	21h 33m 27s	-00°49.3'	7.5			8:19 AM	38x	21.7
Yes	6:28 AM	CVn	Globular	NGC5272	Messier	M3		16.2	13°	13h 42m 11s	+28°22.5'	7.0			11:02 PM	38x	21.7
	9:10 AM	Sco	Globular	Cat's Eye, NGC6121	Messier	M4		26.3	-50°	16h 23m 35s	-26°31.5'	7.5			4:23 AM	37x	23.2
	8:05 AM	Ser	Globular	NGC5904	Messier	M5		17.4	-21°	15h 18m 33s	+02°04.9'	7.0			1:57 AM	38x	21.8
	10:05 AM	Oph	Globular	NGC6333	Messier	M9		9.3	-57°	17h 19m 12s	-18°31.0'	9.0			4:53 AM	37x	22.5
	9:43 AM	Oph	Globular	NGC6254	Messier	M10		15.1	-44°	16h 57m 09s	-04°05.9'	7.5			3:51 AM	38x	22.0
	9:34 AM	Oph	Globular	Gumball Globular, NGC6218	Messier	M12		14.5	-41°	16h 47m 14s	-01°56.8'	8.0			3:36 AM	37x	22.4
	9:28 AM	Her	Globular	Hercules Globular Cluster, Gr...	Messier	M13		16.6	-10°	16h 41m 41s	+36°27.5'	7.0			1:28 AM	38x	21.7
	10:24 AM	Oph	Globular	NGC6402	Messier	M14		11.7	-50°	17h 37m 36s	-03°14.7'	9.5			4:30 AM	37x	23.5
	2:16 PM	Peg	Globular	Great Pegasus Cluster, NGC7...	Messier	M15		12.3	-36°	21h 29m 58s	+12°10.0'	7.5			7:41 AM	38x	21.6
	9:49 AM	Oph	Globular	NGC6273	Messier	M19		13.5	-58°	17h 02m 38s	-26°16.0'	8.5			5:01 AM	37x	22.8

- **Objects Table** – Configurable table containing information on selected objects. Multiple columns are available that can be ordered to your preference.
- **Image Frame** – Contains image of object downloadable from catalogs, or user images and chart images.

Object Actions Bar



- **Add -** Add custom objects to list
- **Remove** – Remove selected objects from list
- **Duplicate** – Duplicate objects in list
- **Find** – Search for object in list
- **Edit** – Edit selected object in list
- **List Preferences** – Set list preferences
- **Quick Obs** – Add observation for selected object
- **New Observation –** Add observation for selected object
- **Lookup** – Locate object by ID or Name in any one of multiple catalogs
- **Show Catalogue –** Display objects in any one of many catalogs
- **Search Catalogue/s** – Perform search on any one or multiple catalogs based on provided criteria
- **Sort List** – Set sorting order of list based on selected column(s)
- **Add Special** – Add Planets, sun, comet, etc. to list
- **Delete** – Delete objects from list based on selected criteria

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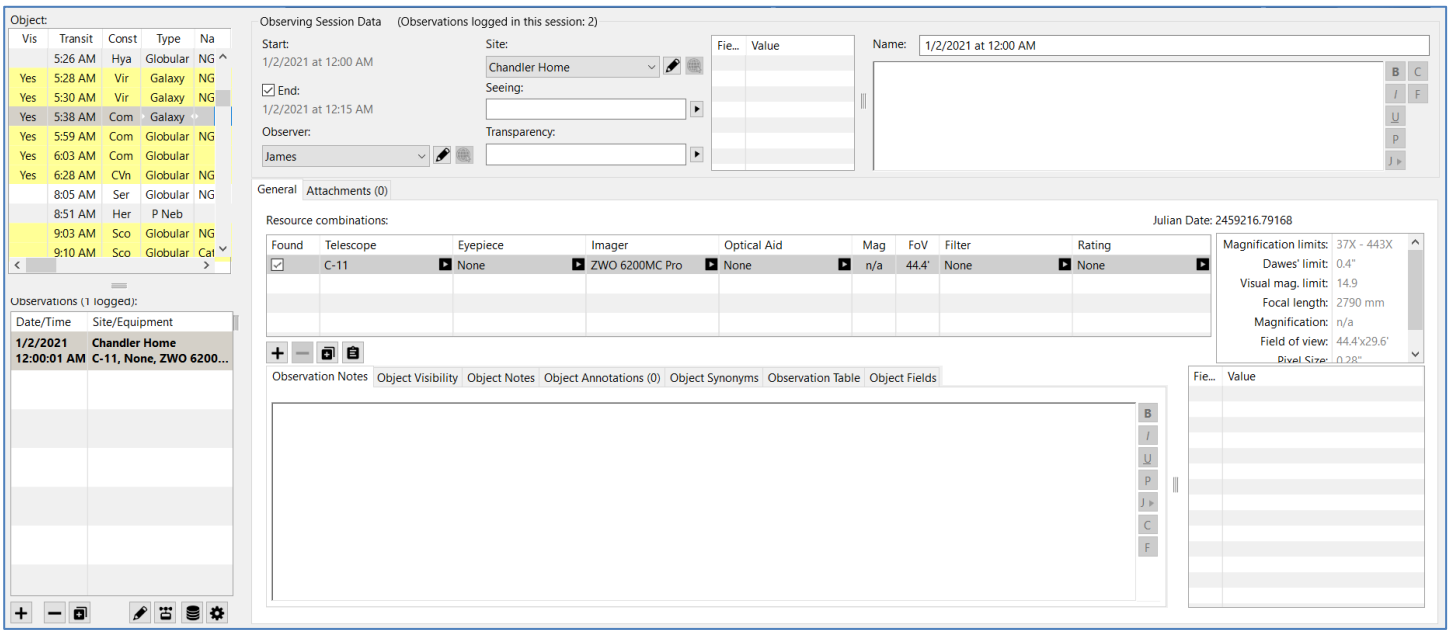
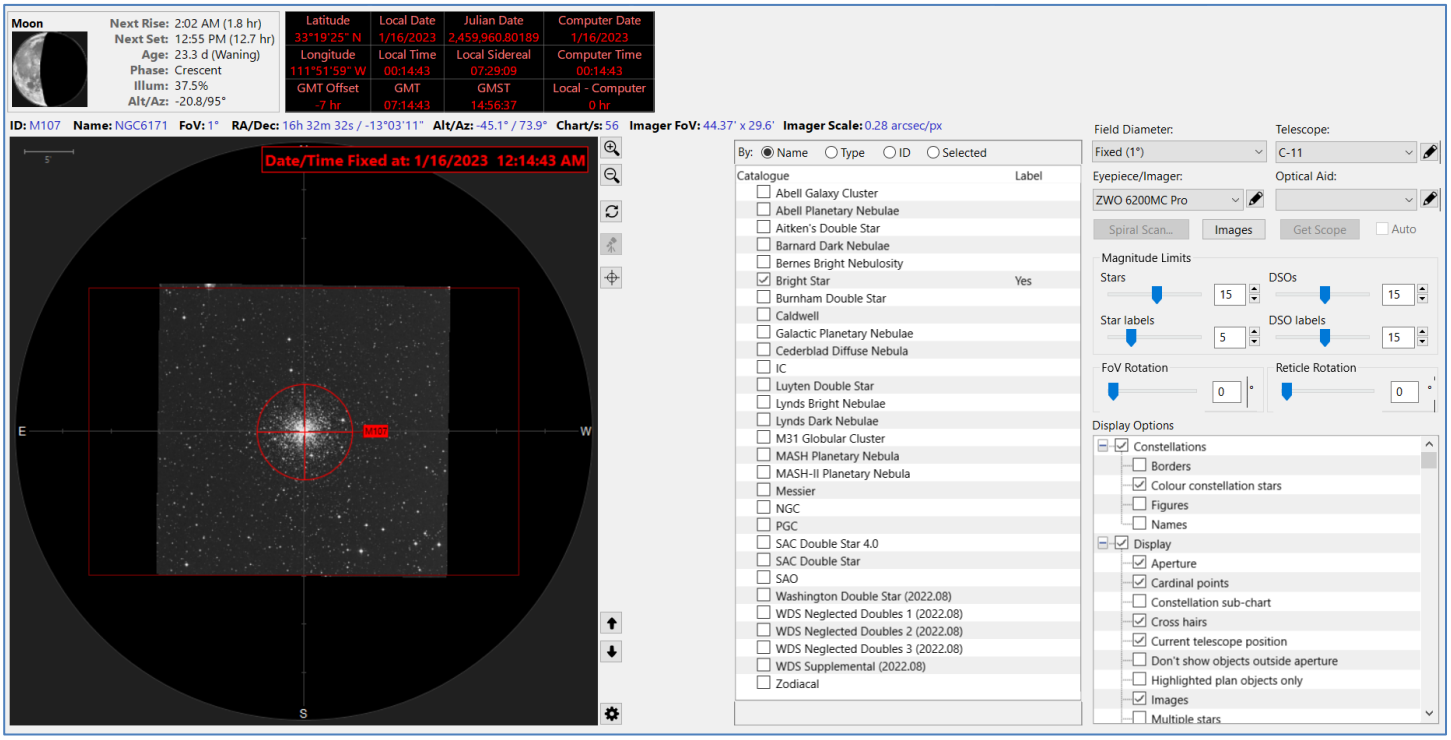
Observations Screen



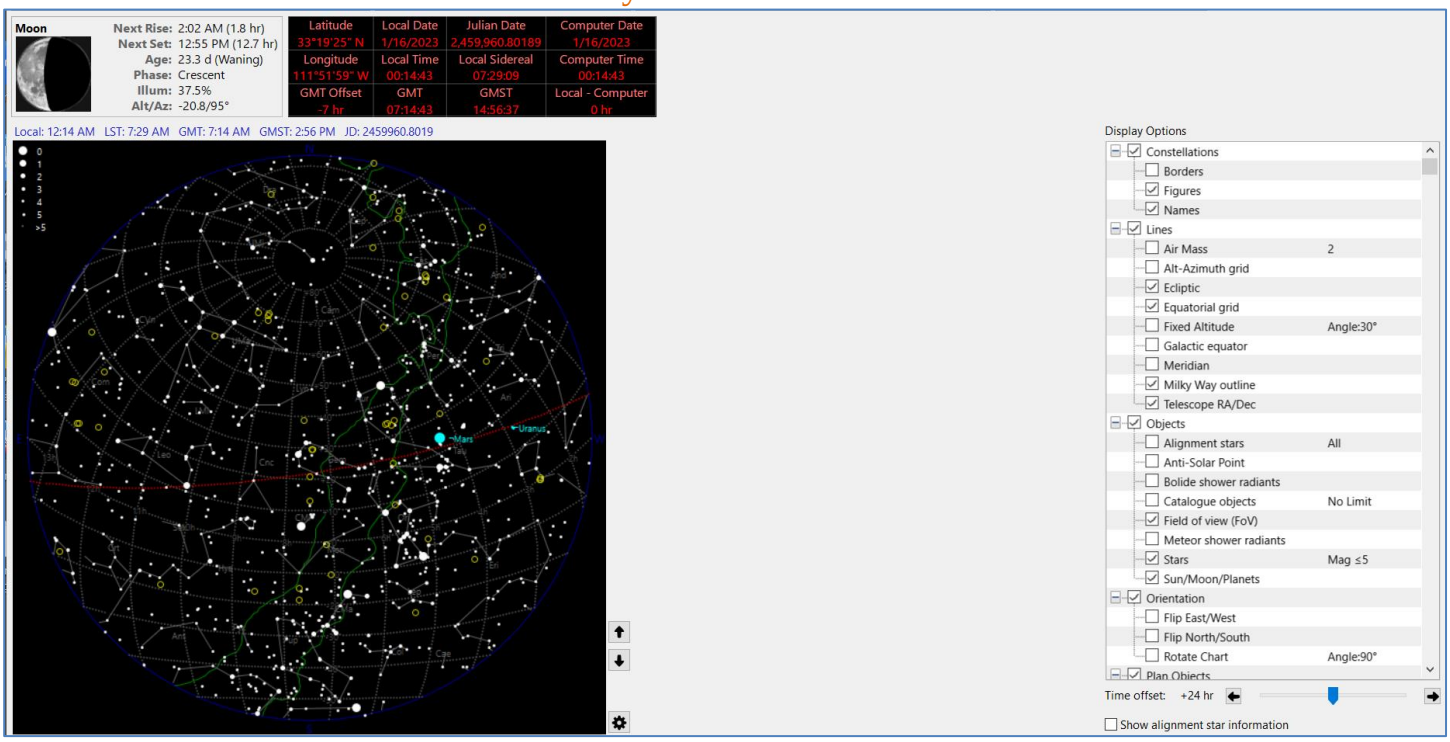
Screen is used to document objects that you have observed. Information including Observation site, conditions, date, time, hardware configuration are recorded here.

Field of View Screen



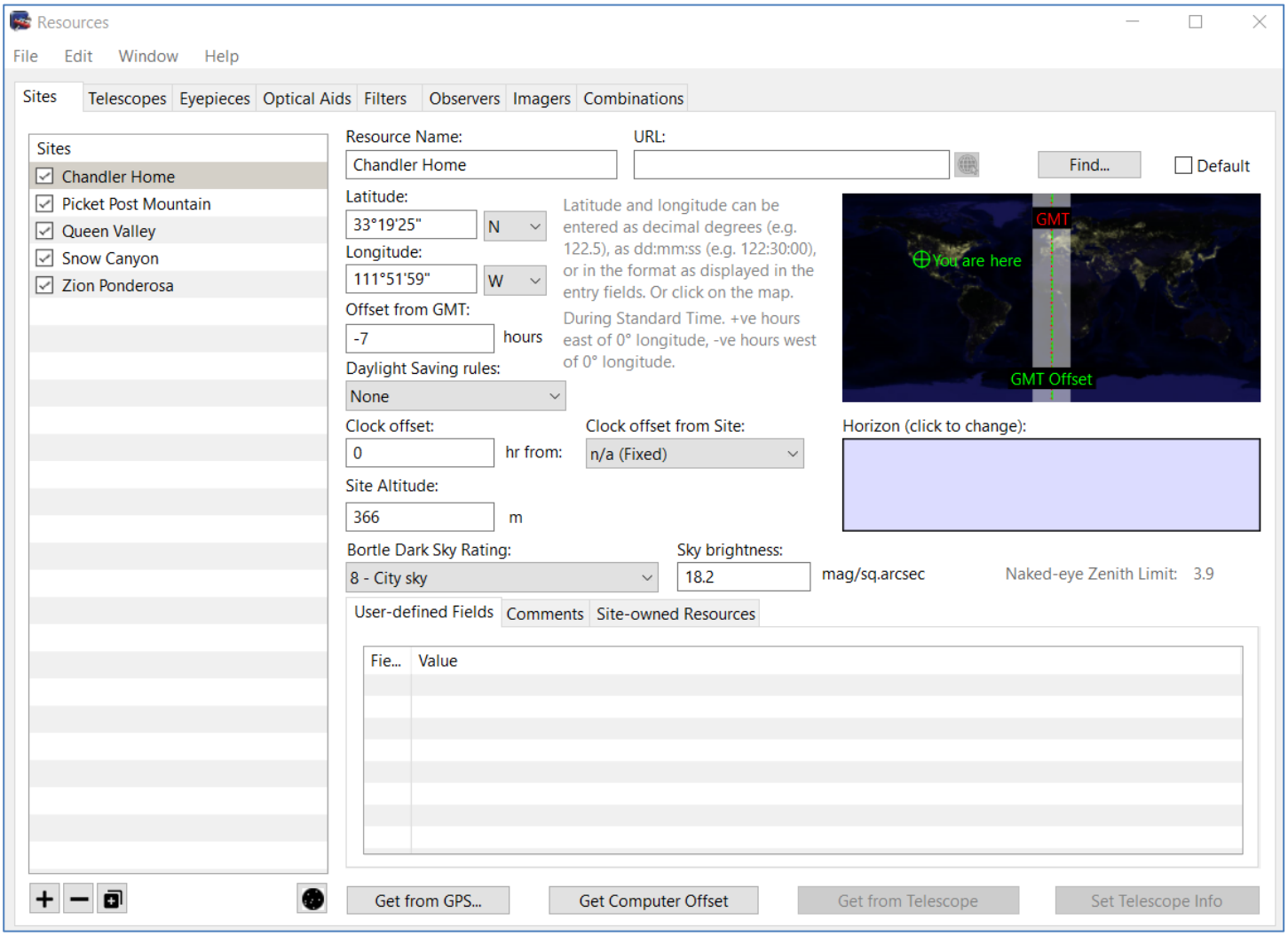
Show image size as it may appear in the configuration you haves specified for your hardware. If you have added camera specifications, you can see how it may appear when capturing an image.

Sky View Screen



Display various location/time values along with Star Chart representing night sky for Date/Time and location selected in application.

Resources



Accessed via Menu | **Edit** | **Resources** | this pop-up is where information associated with your location and equipment is specified. The more information you supply here the more effective the application can be.

- **Sites** – Add your observing sites
- **Telescopes** – Provide information on the telescopes you will be using
- **Eyepieces** – Provide specifications for eyepieces you own.
- **Optical Aids** – Items that may be added to the optical train such as focal reducers, barlow lens, etc.
- **Filters** – Provide information on filters you may use for imaging or observation.
- **Observers** – Provide demographics for observers that may be using the application.
- **Imagers** – Identify and provide specifications for any cameras you may be using for imaging.
- **Combinations** – Based on information provided in previous tabs this tab will provide information on various hardware combinations including Field of View, Magnification, Imaging Pixel Scale, etc.

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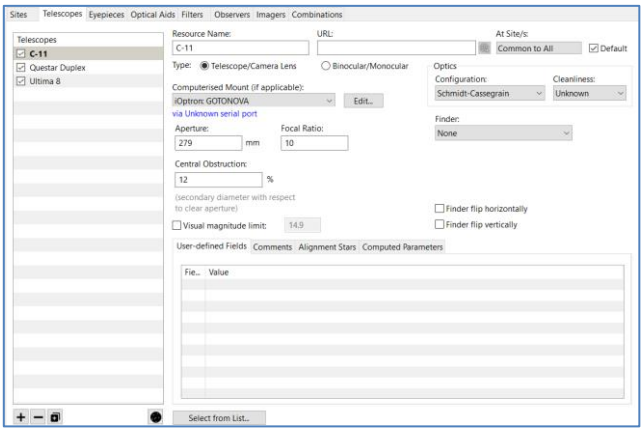
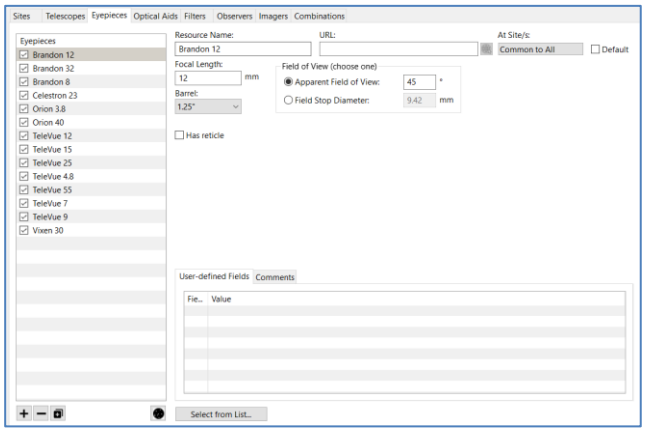
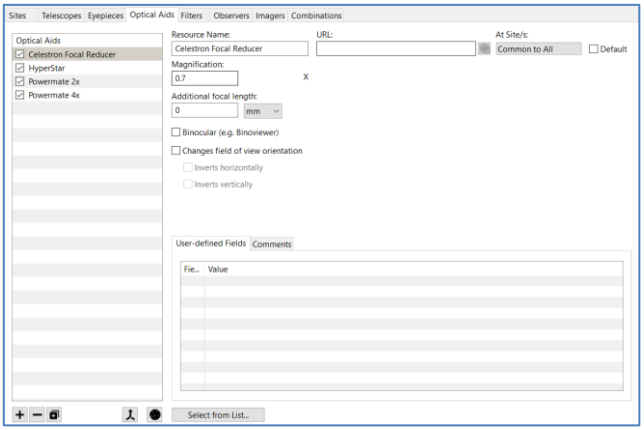
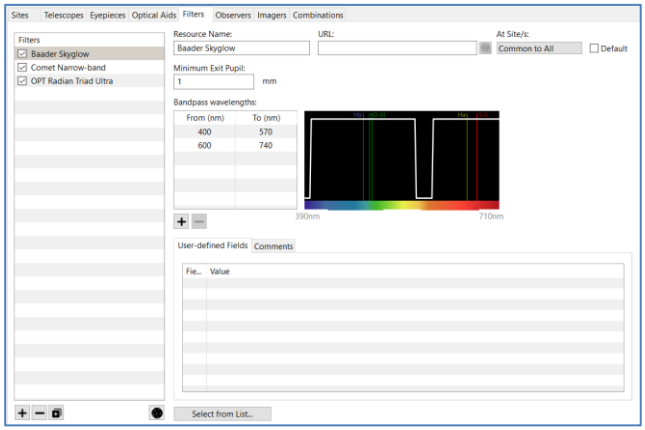
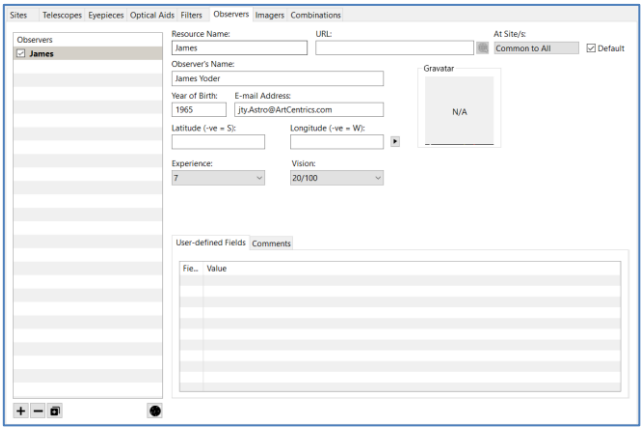
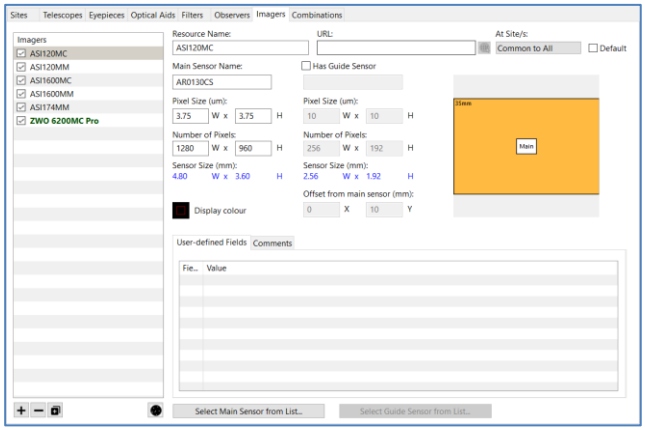


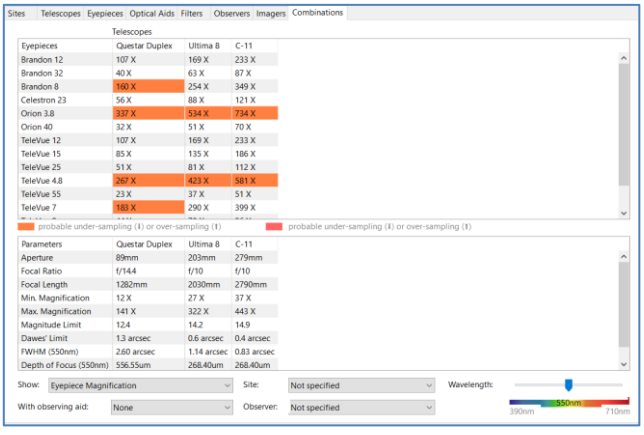












Real World Scenarios

Case 1, **Observation Session**: I am planning to visit some family at a location that has fairly dark skies. I will be taking my 6" NexStar 6se (Schmidt-Cassegrain) with me. I would like a list of good targets to show my family.

Case 2, **Deep Sky Imaging Session**: The moon can present a real problem when it is near full for deep sky objects. By imaging small Planetary Nebula, the moon plays less of a factor since Planetary tend to be highly concentrated and have a high surface brightness (SB). Utilizing a tri-narrow band filter, I have found I can image planetariums as close to 1 day from the full moon and get great results. Using AstroPlanner we can to identify targets and help form an imaging plan.
Since we are looking at a small portion of the sky we might be able to use a planetary camera instead of our regular Full Frame Camera (ZWO 6200MC Pro, FOV=44' x 30'), or we can use the regular camera and crop the final image.

Planetary Nebula Imaged one day before and after Full Moon

Hands On: AstroPlanner

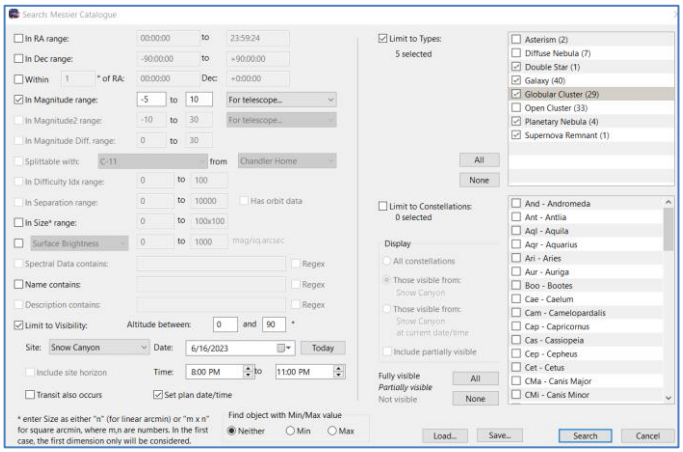
Case 1: Observation Planning

Location: Snow Canyon, Utah
Date: Friday, June 16th
Time: 8pm – 11pm
Telescope: Celestron NexStar 6se
Eyepieces: Orion 40mm Plossl, TeleVue Zoom 8mm-24mm

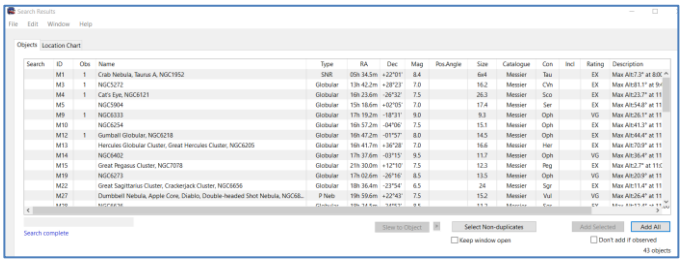
Workflow

- Add Planets & Moon [**Add Special**] button
    - Eliminate items not well positioned (low Altitude) – Venus & Mars remaining
- Search Catalogs and Add prospects [**Search Catalogue/s**] button

Search Criteria



Search Results



- **SAC Double Star Catalog Search Parameters** → 4 Star Systems Identified
    - **Primary Magnitude Range**: -5 to 4
    - **In Magnitude Diff Range**: 0 to 4
    - **In Separation Range**: 5 to 30
    - Limit to Visibility
        - **Altitude between**: 30 and 90°
        - **Site**: Snow Canyon
        - **Date**: 06/06/2024
        - **Time**: 8:00 PM – 11: PM

- Messier List Search Parameters → 25 objects Identified
    - **Magnitude Range**: -5 to 10
    - **In Size Range**: 5 to 100
    - Limit to Visibility
        - **Altitude between**: 30 and 90 °
        - **Site**: Snow Canyon
        - **Date**: 06/06/2024
        - **Time**: 8:00 PM – 11: PM
    - **Limit Types**: All but Asterism and Open Clusters

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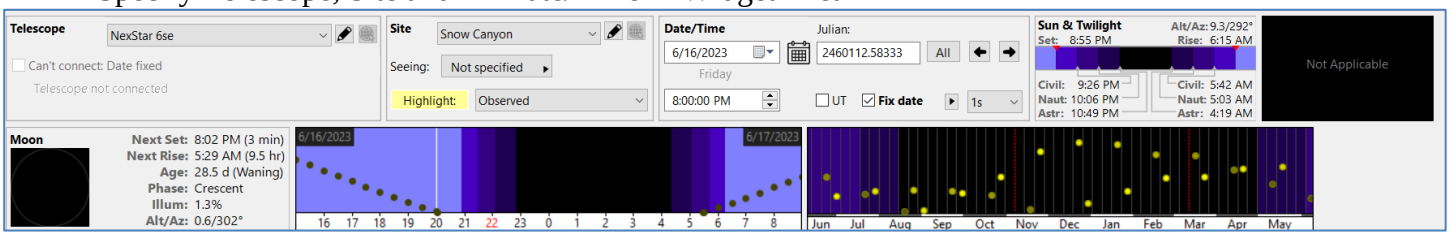
- Specify Telescope, Site and fix Date/Time in Widget Area



- Eliminate and Refine Selection → 12 Objects Remaining
  - Set Observation time to 9:30pm (Middle of observation session)
  - Identify prime prospects for various types of objects based on Altitude
    - Sort List: Type, Altitude>45°, Magnitude
      - Eliminate 2 Doubles, 1 Galaxy, 5 Globulars,
    - Sort List: Type, Surface Brightness (SB) < 22.5
      - Eliminate 10 galaxies, 1 Globular Cluster

- Sort plan by Transit Time to provide ordered list
  - Double Stars (2)
  - Galaxies (4)
  - Globular Clusters (4)
  - Planets (2)

Final Observation List

ID	Images	Name	Type	RA	Dec	Azim...	Altitu...	Rise	Transit	Set	Vis	Obs	Rating	ODM	Mag	Ma...	Sep	Diff Idx	L Rating	Size	Const	Catalog...	Chart#	Spect	SB
Venus			Planet	08h 52m ...	+19°30.1'	275°	27°	9:45 AM	4:50 PM	11:56 PM	Yes			n/a	-4.1			n/a		27.4"	Cnc		BSA: 5, ...		11.8
Mars			Planet	09h 14m ...	+17°24.0'	270°	30°	10:14 AM	5:12 PM	12:10 AM	Yes			n/a	1.9			n/a		4.4"	Cnc		BSA: 5, ...		13.7
M82	U	Cigar Galaxy, Ursa ...	Galaxy	09h 55m ...	+69°40.8'	336°	47°	Circum	5:54 PM	Circum	Yes	1		21x	9.2			n/a		10.5x5.1	UMa	Messier	BSA: 1, ...		22.2
M66	U	Leo Triplet, NGC362...	Galaxy	11h 20m ...	+12°59.4'	240°	51°	12:35 PM	7:18 PM	2:02 AM	Yes			21x	9.7			n/a		9.1x4.1	Leo	Messier	BSA: 5, ...		22.3
SACDB...	D	STF 1692,ALPHA CV...	Dbl	12h 56m ...	+38°18.0'	281°	82°	12:22 PM	8:54 PM	5:26 AM	Yes			n/a	2.9	5.4	19.4	n/a			CVn	SACDBL	BSA: 6, ...	A0	n/a
M64	D	Black Eye Galaxy, SI...	Galaxy	12h 56m ...	+21°41.0'	211°	72°	1:41 PM	8:55 PM	4:08 AM	Yes			21x	9.3			n/a		10.3x5	Com	Messier	BSA: 6, ...		22.2
SACDB...	D	STF 1744,ZETA UMA...	Dbl	13h 23m ...	+54°55.0'	354°	72°	Circum	9:22 PM	Circum	Yes			n/a	2.4	4.0	14.4	n/a			UMa	SACDBL	BSA: 2, ...	A2	n/a
M51	U D	Whirlpool Galaxy, Q...	Galaxy	13h 29m ...	+47°11.7'	354°	80°	11:40 AM	9:28 PM	7:16 AM	Yes			21x	8.9			n/a		10.8x6.6	CVn	Messier	BSA: 6, ...		22.2
M3	U	NGC5272	Globular	13h 42m ...	+28°22.5'	171°	81°	2:00 PM	9:40 PM	5:21 AM	Yes	1		21x	7.0			n/a		16.2	CVn	Messier	BSA: 6, ...		21.7
M5	U	NGC5904	Globular	15h 18m ...	+02°04.9'	140°	48°	5:07 PM	11:17 PM	5:26 AM	Yes			21x	7.0			n/a		17.4	Ser	Messier	BSA: 6, ...		21.8
M13	U D	Hercules Globular Cl...	Globular	16h 41m ...	+36°27.5'	77°	53°	4:19 PM	12:40 AM	9:01 AM	Yes			21x	7.0			n/a		16.6	Her	Messier	BSA: 7, ...		21.7
M92	U	NGC6341	Globular	17h 17m ...	+43°08.1'	64°	48°	4:08 PM	1:15 AM	10:22 AM	Yes			21x	7.5			n/a		11.2	Her	Messier	BSA: 7, ...		21.4

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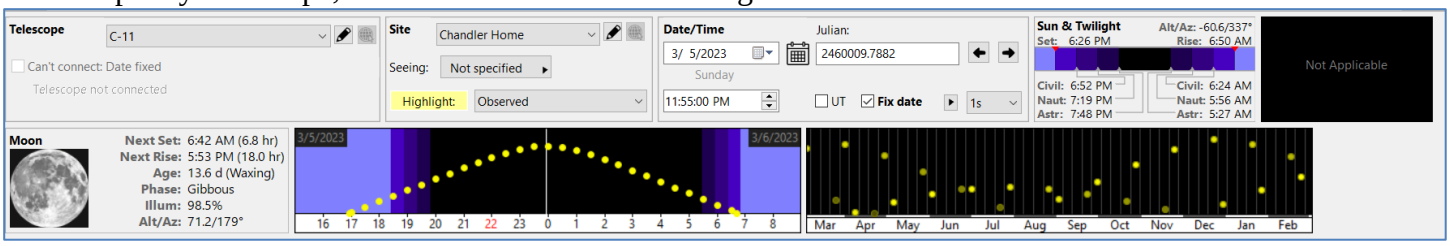
Case 2: Planetary Nebula Imaging

Location: Chandler, Arizona
Date: Saturday, December 6th, 2 nights before full moon
Time: 7:48 pm – 4:52am (1 hour after/before Astronomical Dusk/Dawn to allow at least 1hr for imaging time)
Telescope: Celestron C-ll HD (Primary Focus)
Filter: OPT Radian Triad Ultra
Camera: ZWO 6200MC Pro,

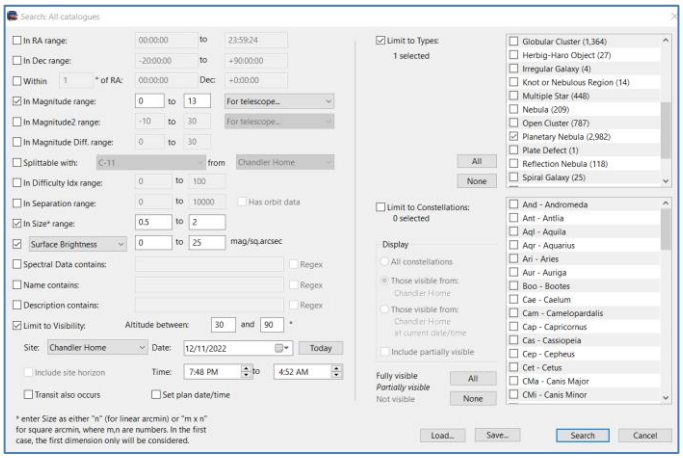
Workflow

- Specify Telescope, Site and fix Date/Time in Widget Area

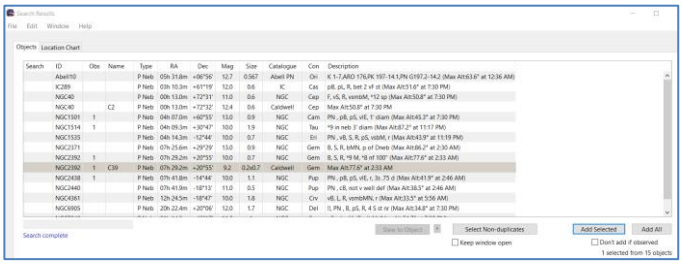


- Search Catalogs and Add prospects [**Search Catalogue/s**] button

Search Criteria



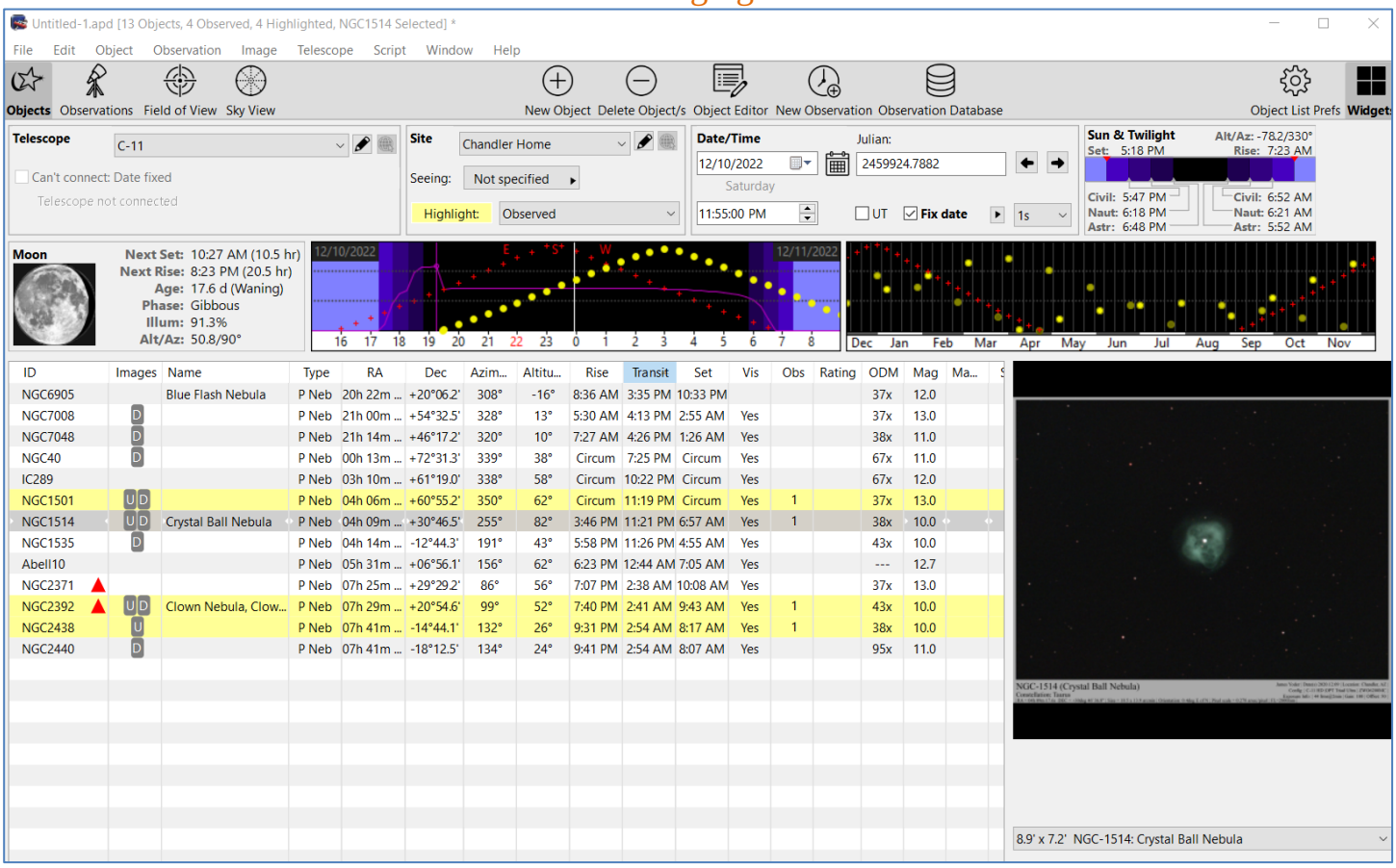
Search Results



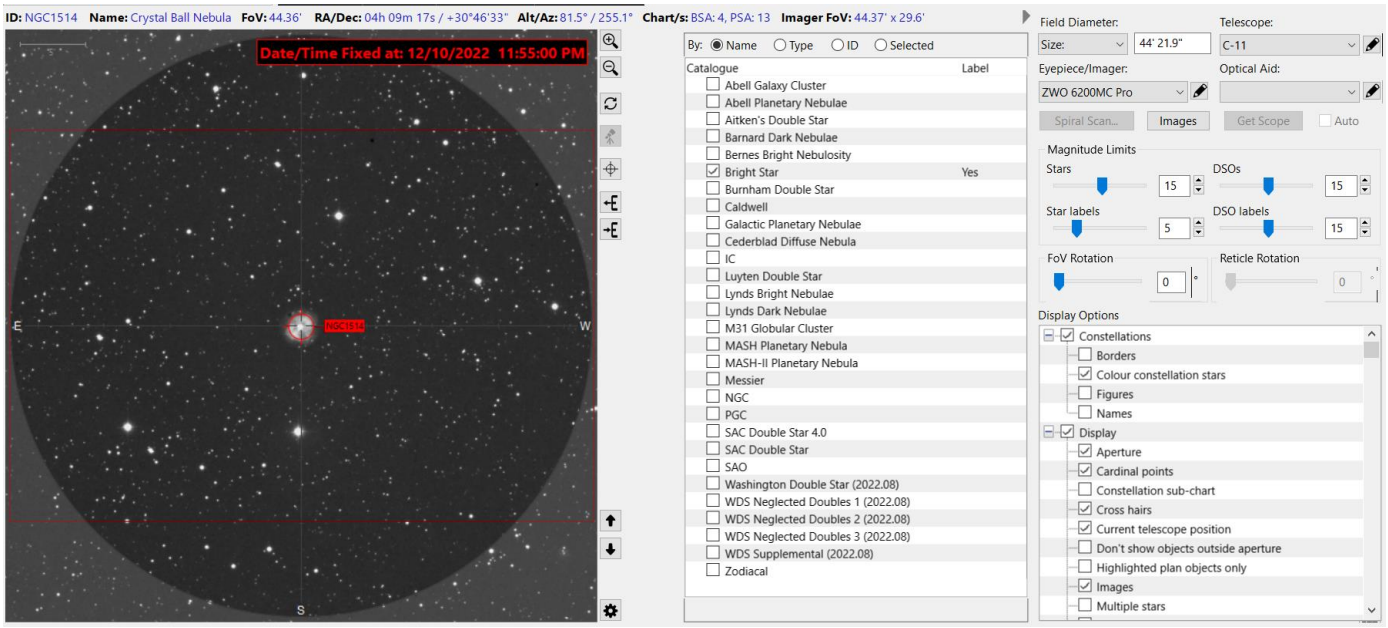
- **Search All Catalogs Parameters** → 15 Objects Identified
  - **Magnitude Range**: 0 to 13
  - **In Size Range**: 0.5 to 2.0’
  - **Surface Brightness**: 0 to 25 mag/sq.arsec
  - Limit to Visibility
    - **Altitude between**: 30 and 90°
    - **Site**: Chandler Home
    - **Date**: 12/06/2024
    - **Time**: 7:48 PM – 4:52 PM
  - **Limit to Types**: Planetary Nebula (97)

- Inspect and eliminate duplicates→ 13 objects Identified

Final Imaging List



Field Of View for NGC-1514 for C-11 with ZWO 6200MC Pro camera



User Contributed Plans

Hundreds of additional user contributed plans are available to download at no cost. These are plans associated with magazine articles, books, societies, and atlases. A list of these plans is viewed by selecting | File | User-Contributed Plans | Download |

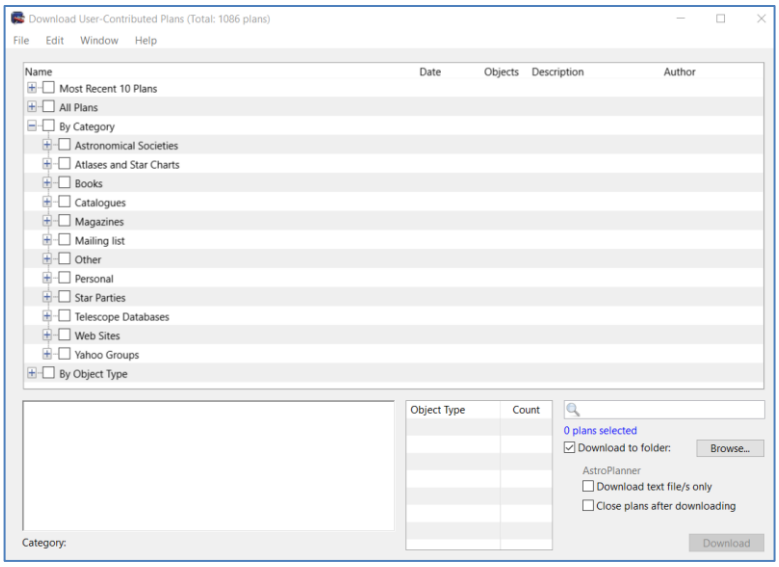
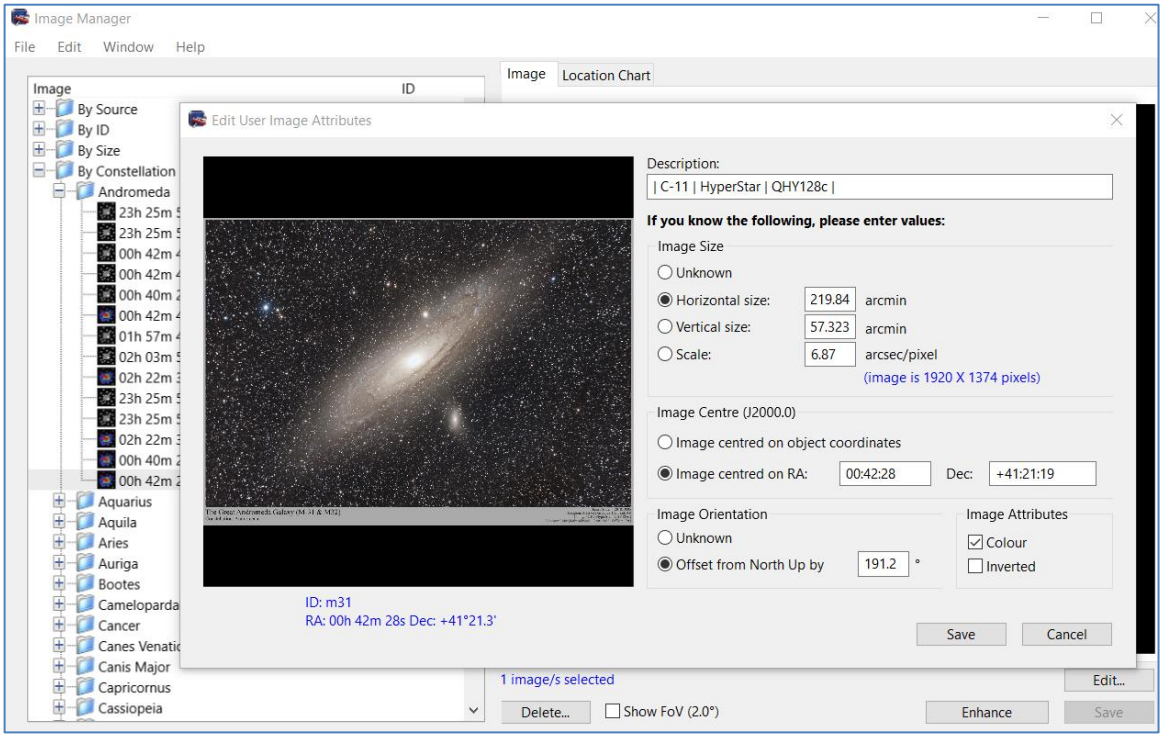


Image Manager

The image manager allows you to add your own images to the application. If you provide the required information these images can be utilized in the Field of View feature. Access the image manager by selecting | Image | Image Manager |



Conclusion

If the user takes the time to enter the information about their hardware and demographics, the AstroPlanner application is a very powerful tool that can be used to track what objects you have viewed or imaged and help develop an observation plan in very short order customized to your hardware and preferences much better than any “Tonight’s Best” tour can. At $45 this is a very good investment.

Contact Information

- James Yoder
- jty.Astro@ArtCentrics.com