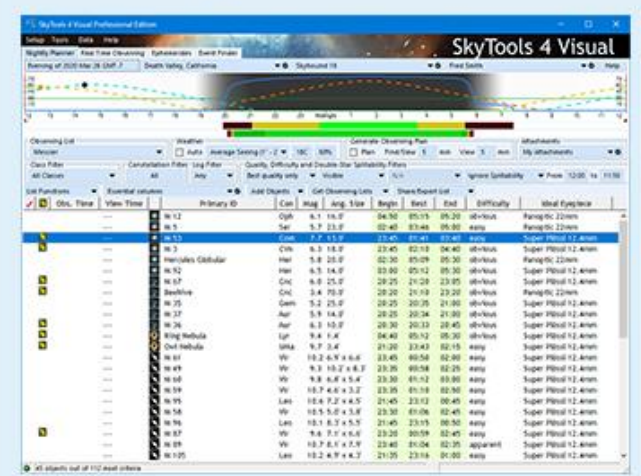




## SkyTools 4

SkyTools is the most powerful Software for every kind of observing!

### SkyTools 4 Visual



The ultimate software for visual observing

### SkyTools 4 Imaging

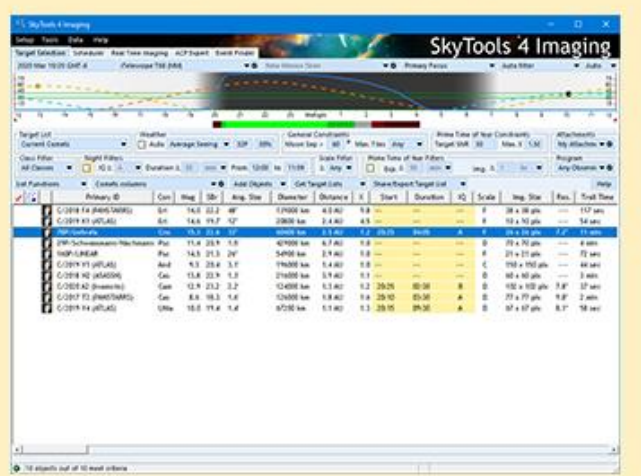


Image smarter

SkyTools is unique software that models contrast in the eyepiece and signal to noise ratio on detectors, to predict what you can see or image with any equipment under any conditions, setting it far above other planning software.

### SkyTools 4 Visual

SkyTools is the premier software for observing. It is not a mere planetarium or a planner, but software designed to aid in every aspect of astronomical observing.

### The Legendary Nightly Planner

There is nothing else that comes close to the SkyTools 4 Nightly Planner, both in terms of raw power and ease of use. It distills the most sophisticated astronomical calculations into a remarkably simple interface that anyone (even absolute beginners) can use.



## SkyTools 4 Standard Edition

Backyard observers can leverage the power of SkyTools to make every observing session a successful one. SkyTools makes what is difficult about the hobby easier: know which objects are worth looking at in your telescope. Observe them when they are at their best without having to know the details of airmass, zenith distance, or astronomical seeing. Find them without tedious star hopping.

### Plan

There is nothing else that comes close to the Nightly Planner, both in terms of raw power and ease of use. It distills the most sophisticated astronomical calculations into a remarkably simple interface that anyone (even absolute beginners) can use. It doesn't just organize your observations, it helps you pick targets that are suitable for your location, telescope, and conditions, and ensures that you will get the best possible view. The developer of SkyTools is a highly-experienced observer who has done all of the calculations for you, so all you need to do to is take out the telescope. Have you spotted the pillars of creation, or the jet in M87 yet?

Personal SkyTools 4 Real Time Observing x

https://skyhound.com/st4v\_rt.html

# Skyhound

Innovative Astronomical Software

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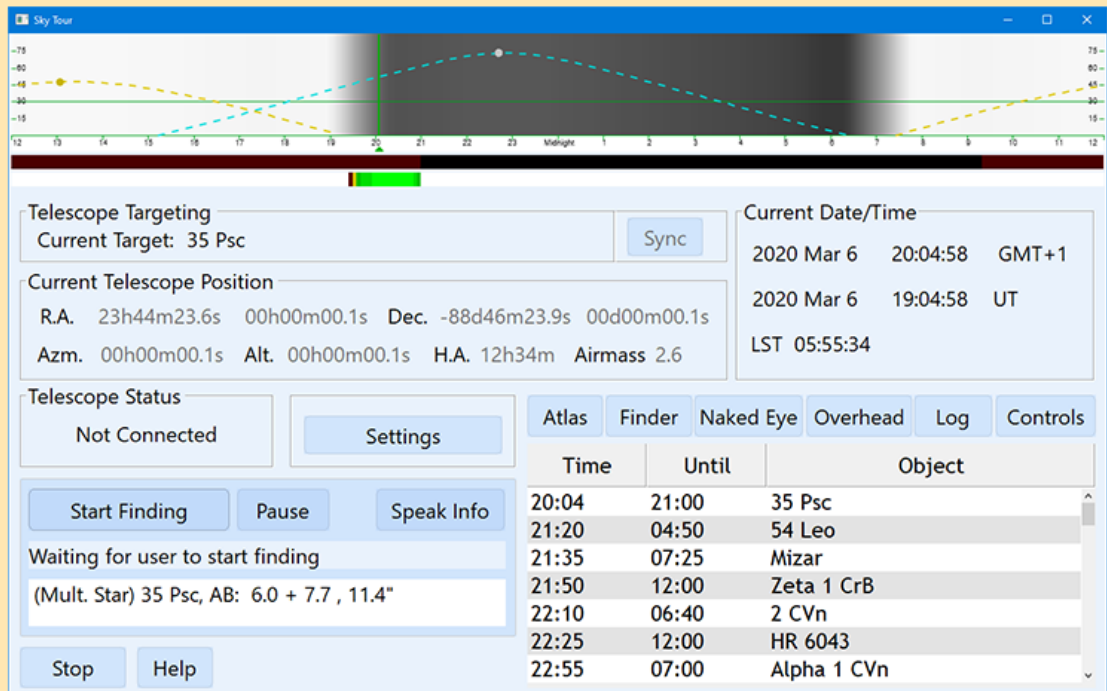
Standard Edition Real Time Observing Pro Edition New Features / Upgrade

## SkyTools 4 Real Time Observing

This tool is all about planning for right now at the telescope. Use it to drive your telescope with your laptop or tablet, or to navigate the sky with on-screen finding charts.

### SkyTour for a Hands-Free Experience at the Eyepiece

The SkyTour generates a plan that takes you from object to object with a minimum of interaction, allowing you to stay at the eyepiece and to stay dark adapted. At each stop, a voice reads information about the object and suggests the ideal eyepiece to use. The tour is organized unlike any other, always ensuring the best possible view.



The screenshot shows the SkyTour software interface. At the top is a sky chart with a dashed yellow line representing the tour path and a green line for the horizon. Below the chart is a control panel with several sections:

- Telescope Targeting:** Current Target: 35 Psc, with a Sync button.
- Current Telescope Position:** R.A. 23h44m23.6s 00h00m00.1s Dec. -88d46m23.9s 00d00m00.1s; Azm. 00h00m00.1s Alt. 00h00m00.1s H.A. 12h34m Airmass 2.6
- Current Date/Time:** 2020 Mar 6 20:04:58 GMT+1; 2020 Mar 6 19:04:58 UT; LST 05:55:34
- Telescope Status:** Not Connected, with a Settings button.
- Navigation Buttons:** Atlas, Finder, Naked Eye, Overhead, Log, Controls.
- Control Panel:** Start Finding, Pause, Speak Info buttons. Status: Waiting for user to start finding. (Mult. Star) 35 Psc, AB: 6.0 + 7.7, 11.4". Stop, Help buttons.
- Object Schedule Table:**

Time	Until	Object
20:04	21:00	35 Psc
21:20	04:50	54 Leo
21:35	07:25	Mizar
21:50	12:00	Zeta 1 CrB
22:10	06:40	2 CVn
22:25	12:00	HR 6043
22:55	07:00	Alpha 1 CVn

Personal SkyTools 4 Professional Edition

https://skyhound.com/st4v\_pro.html

# Skyhound

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## SkyTools 4 Professional Edition

The ultimate software for visual observing. The SkyTools 4 planning tools make other software look trivial in comparison. Featuring highly-corrected integrated databases, atlas, sky event finder, and customized finder charts are also unmatched.

### Plan

There is nothing else that comes close to the **Nightly Planner**, both in terms of raw power and ease of use. It distills the most sophisticated astronomical calculations into a remarkably simple interface that anyone (even absolute beginners) can use. It doesn't just organize your observations, it helps you pick targets that are suitable for your location, telescope, and conditions, and ensures that you will get the best possible view. The developer of SkyTools is a highly-experienced observer who has done all of the calculations for you, so all you need to do to is take out the telescope. Have you spotted the pillars of creation, or the jet in M87 yet?

**Generate an observing plan** that starts with objects that are setting and then minimizes how far you have to move the telescope from one object to the next.

The **Event Finder** heralds upcoming meteor showers, eclipses, transits, appulses, jupiter satellight events, GRS transits, and informs you when a faint planetary satellight is far enough away from the planet to spot.

**Subscriptions** to current comets, novae/supernovae, and interesting minor planets, automatically keep you updated with the best and most current data available. No other software provides vetted comet data that includes the latest magnitudes and coma diameters. No other software puts this information to work to accurately predict whether you can see a comet in your telescope and with observing conditions. Imagine being able to see a supernova on any given night, or spot a fast-moving asteroid as it passes the earth. Effortlessly.

Personal SkyTools 4 Feature Comparison x +

https://skyhound.com/compare.html

**Skyhound** Innovative Astronomical Software

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Standard Edition Real Time Observing Pro Edition New Features / Upgrade

## SkyTools 4 Visual Feature Comparison

SkyTools 4 comes in three editions for visual observing. For imaging, we offer a separate product, [SkyTools 4 Imaging](#). For those who want the ultimate in astronomy software, we offer the [SkyTools 4 Visual Pro Edition plus Imaging bundle](#).

SkyTools 4 Visual is available in three editions: **Standard Edition**, **Standard Edition plus Real Time Observing**, and the **Professional Edition**.

The **Standard Edition** is for the casual back yard observer with a telescope less than 14-inches (360 mm).

The **Real Time Observing** tool is designed for use at the telescope and includes telescope control, it is included with the Professional Edition.

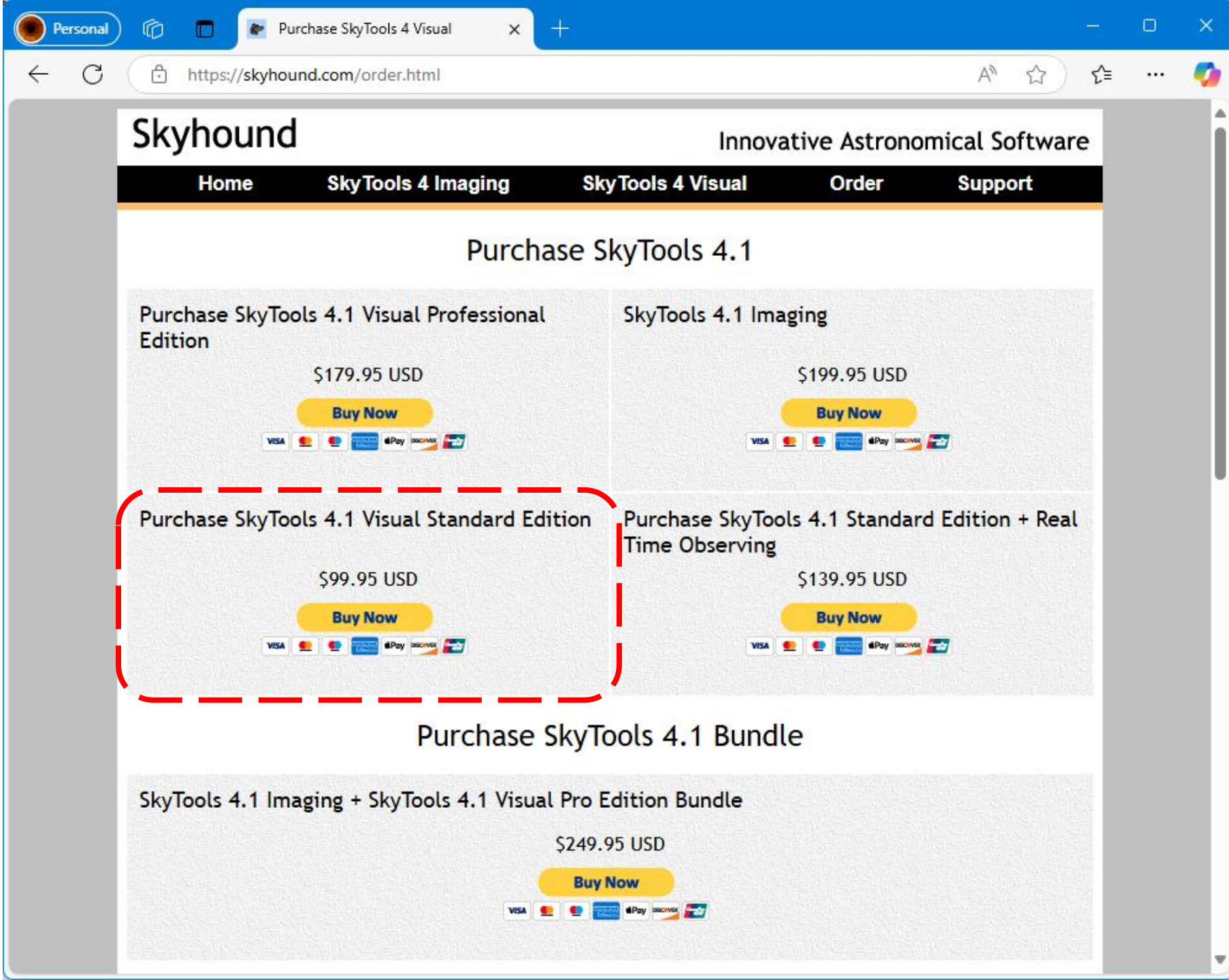
The **Professional Edition** is for the serious observer who observes from dark site, has a telescope larger than 14-inches (360 mm), or any serious visual observer who wants the very best in observing software. This edition has a much larger stellar database, with stars down to 20th magnitude and more advanced features throughout.

Edition	Standard	Standard plus Real Time Observing	Professional
Level	For the casual back yard observer with a telescope less than 14-inches (390mm).	For the casual back yard observer with a telescope less than 14-inches (390mm) who wants to use software in the field or to control their mount.	For the experienced visual observer who observes from a dark site, or has a telescope larger than 14-inches (360mm).
Stars	<b>16 million stars</b> down to 15th magnitude in some areas	<b>16 million stars</b> down to 15th magnitude in some areas	<b>522 million stars</b> as faint as 20th magnitude
Real Time Observing	<b>No</b>	<b>Included</b>	<b>Included</b>
Nightly Planner	Yes	Yes	Yes
Custom Finder Charts for Binoculars and Telescopes	Yes	Yes	Yes
Nightly Observing List Generator	Yes	Yes	Yes
Naked Eye and Overhead Sky Charts	Yes	Yes	Yes

features throughout.

Edition	Standard	Standard plus Real Time Observing	Professional
Level	For the casual back yard observer with a telescope less than 14-inches (390mm).	For the casual back yard observer with a telescope less than 14-inches (390mm) who wants to use software in the field or to control their mount.	For the experienced visual observer who observes from a dark site, or has a telescope larger than 14-inches (360mm).
Stars	<b>16 million stars</b> down to 15th magnitude in some areas	<b>16 million stars</b> down to 15th magnitude in some areas	<b>522 million stars</b> as faint as 20th magnitude
Real Time Observing	No	Included	Included
Nightly Planner	Yes	Yes	Yes
Custom Finder Charts for Binoculars and Telescopes	Yes	Yes	Yes
Nightly Observing List Generator	Yes	Yes	Yes
Naked Eye and Overhead Sky Charts	Yes	Yes	Yes
Auto-download of current data for bright comets, novae, and supernovae	Yes	Yes	Enhanced
Interactive Atlas	Yes	Yes	Yes
Eyepiece Viewer (movable eyepiece simulation attached to Atlas)	Yes	Yes	Yes
Observing Logbook	Yes	Yes	Yes
Sky Events Planner (eclipses, appulses, Jupiter satellite events, meteor showers, etc)	Yes	Yes	Yes
Ephemeris Generator	Yes	Yes	Yes
Database Power Search	Yes	Yes	Enhanced





Skyhound

Innovative Astronomical Software

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SkyTools 4 Imaging

SkyTools 4 Visual

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## Purchase SkyTools 4.1

Purchase SkyTools 4.1 Visual Professional Edition

\$179.95 USD

Buy Now



SkyTools 4.1 Imaging

\$199.95 USD

Buy Now



Purchase SkyTools 4.1 Visual Standard Edition

\$99.95 USD

Buy Now



Purchase SkyTools 4.1 Standard Edition + Real Time Observing

\$139.95 USD

Buy Now



## Purchase SkyTools 4.1 Bundle

SkyTools 4.1 Imaging + SkyTools 4.1 Visual Pro Edition Bundle

\$249.95 USD

Buy Now



## Purchase SkyTools 4 Upgrade from SkyTools 3

### Upgrade Pricing

The pricing depends on your edition of SkyTools 3. You can upgrade to the equivalent edition of SkyTools 4 for half price, or apply that discount to an upgrade to a higher product/edition.

### Detailed pricing

**SkyTools 4** installs as a completely separate App on your computer. An import function is provided to import your visual telescopes, locations, observers, observing lists, notes/links/images, and logs entries.

**SkyTools 3 Serial Number:** the SkyTools 3 serial number is displayed on the **SkyTools Preferences** dialog, opened from the SkyTools 3 planner tool bar.

**Step 1:** Enter the email that was used to order SkyTools 3 and your serial number

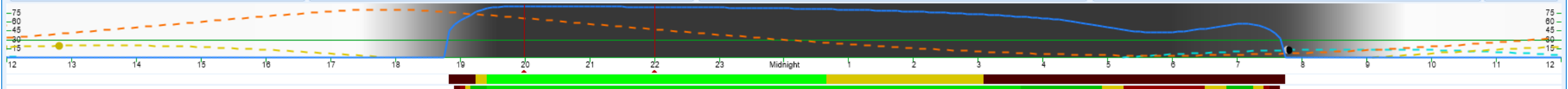
(Not for upgrading from any version of SkyTools 4, see below)

Email

SkyTools 3 Serial Number

Continue to order form

**IMPORTANT:** if you already have **SkyTools 4**, do not use this form to upgrade. Instead, use the "*Upgrade Your Product*" option on the top-level Setup menu.

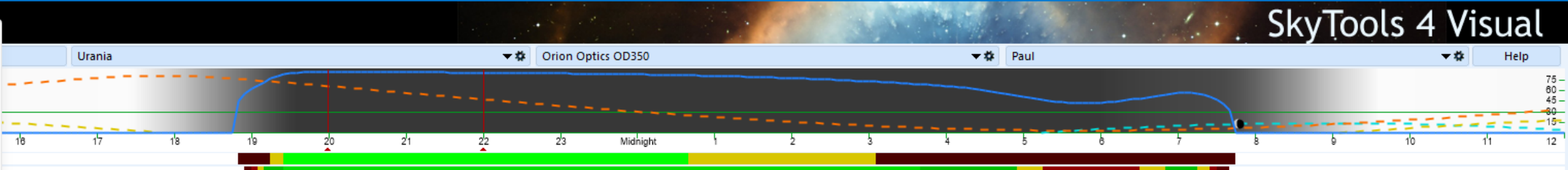


Observing List:  Weather:  Auto

Class Filter:  Constellation Filter:  Log Filter:  Quality, Difficulty and Double-Star Splitability Filters:     From  to

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Begin	Best	End	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200 ly	19:05	20:01	07:30	1	obvious	Ethos 4,7mm SX110 <sup>+</sup>	
☆☆☆☆ Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	19:10	20:53	03:00	15	obvious	Nagler Type 5 31mm	
☆☆☆☆ M 36	NGC 1960	Aur	6.3	10.0'	12 ly	4300 ly	19:15	22:42	05:25	12	obvious	Series 5000 UWA 4.7mm	
☆☆☆☆ M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600 ly	19:20	22:10	03:10	2	obvious	Ethos 8mm	
☆☆☆☆ M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	19:20	22:34	05:10	12	obvious	Ethos 6mm	
☆☆☆☆ M 37	NGC 2099	Aur	5.9	14.0'	18 ly	4500 ly	19:20	22:58	05:30	12	obvious	Series 5000 UWA 4.7mm	
☆☆☆☆ M 52	NGC 7654	Cas	6.8	15.0'	20 ly	4600 ly	19:25	20:01	02:55	71	easy	Series 5000 UWA 4.7mm	
☆☆☆☆ Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2400 ly	19:25	20:06	02:00	2	easy	Ethos 4,7mm SX110 <sup>+</sup>	
☆☆☆☆ M 39	NGC 7092	Cyg	4.9	29.0'	9 ly	1100 ly	19:25	19:54	22:55	73	obvious	Ethos 6mm	
☆☆☆☆ Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2'	130000 ly	2.6 Mly	19:25	20:00	00:40	3	easy	Nagler Type 5 31mm
☆☆☆☆ M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	19:25	20:00	00:45	3	easy	Ethos 4,7mm SX110 <sup>+</sup>
☆☆☆☆ M 35	NGC 2168	Gem	5.2	25.0'	22 ly	3000 ly	19:25	23:14	05:05	25	obvious	Ethos 6mm	
☆☆☆☆ Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Series 5000 UWA 4.7mm
☆☆☆☆ Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Ethos 6mm
☆☆☆☆ M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	19:30	20:02	00:00	3	easy	Series 5000 UWA 4.7mm
☆☆☆☆ Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	19:30	20:05	00:15	2	easy	Ethos 17mm
☆☆☆☆ M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	19:30	20:09	23:20	6	easy	Ethos 6mm
☆☆☆☆ M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly		19:35	20:03	22:50	4	easy	Ethos 6mm
☆☆☆☆ M 15	NGC 7078	Peg	6.3	18.0'	220 ly	42000 ly	19:35	19:53	20:40	75	easy	Ethos 10mm	
☆☆☆☆ Cooling Tower	M 29	Cyg	7.3	10.0'	11 ly	3700 ly	19:40	19:52	20:15	62	easy	Ethos 8mm	
☆☆☆☆ Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---		19:40	22:41	02:00	16	easy	Ethos 13mm
☆☆☆☆ M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	20:05	04:16	07:40	32	easy	Ethos 4,7mm SX110 <sup>+</sup>
☆☆☆☆ Beehive	M 44	Cnc	3.4	70.0'	12 ly	610 ly	20:20	01:45	07:10	24	obvious	Ethos 17mm	
☆☆☆☆ Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2000 ly	20:45	04:19	07:35	32	easy	Ethos 4,7mm SX110 <sup>+</sup>	
☆☆☆☆ M 50	NGC 2323	Mon	6.0	14.0'	13 ly	3300 ly	21:00	00:08	03:20	27	obvious	Nagler Type 6 7mm	
☆☆☆☆ M 67	NGC 2682	Cnc	6.0	25.0'	22 ly	3000 ly	21:25	01:56	06:30	24	easy	Ethos 6mm	
☆☆☆☆ M 48	NGC 2548	Hya	5.3	30.0'	22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm	
☆☆☆☆ M 47	NGC 2422	Pup	4.4	25.0'	12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm	
☆☆☆☆ M 41	NGC 2287	CMa	4.2	39.0'	26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm	
☆☆☆☆ M 46	NGC 2437	Pup	5.9	20.0'	26 ly	4500 ly	22:30	00:47	03:10	26	easy	Ethos 8mm	
☆☆☆☆ M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'	38000 ly	17.0 Mly	23:00	05:35	07:45	43	obvious	Ethos 4,7mm SX110 <sup>+</sup>
☆☆☆☆ M 93	NGC 2447	Pup	5.8	10.0'	10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm	
☆☆☆☆ M 92	NGC 6341	Her	6.5	14.0'	130 ly	33000 ly	03:25	06:58	07:35	52	easy	Ethos 6mm	
☆☆☆☆ Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm
☆☆☆☆ Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm

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- Upgrade Your Product
- Night Vision Mode



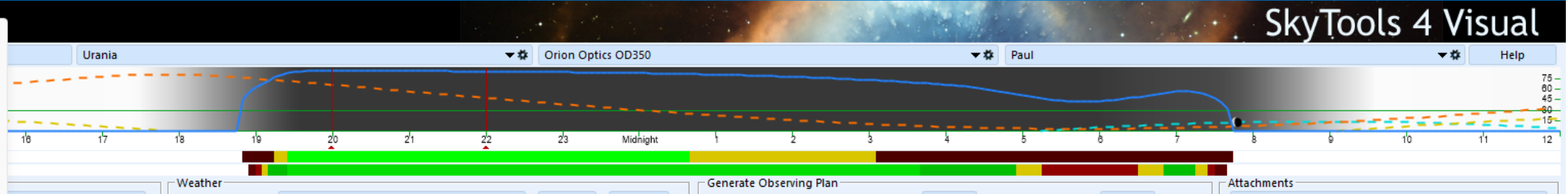
Weather:  Auto Good Seeing (0.4" - 1" P8-9) 18C 60% Generate Observing Plan  Plan Find/Slew Time 3 min View Time 5 min Attachments My Attachments

Constellation Filter: All Log Filter Any Quality, Difficulty and Double-Star Splitability Filters Any quality Easy and less difficult Ignore Splitability From 20:00 to 22:00

List Functions	Default columns	Add Objects	Get Observing Lists	Share/Export List	Primary ID	Alternate ID	Con	Mag	SBR	Ang. Size	Diameter	Distance	Begin	Best	End	P...	Difficulty	Ideal Eyepiece
☆☆☆☆	M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200 ly	19:05	20:01	07:30	1	obvious	Ethos 4,7mm SX110°					
☆☆☆☆	Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	19:10	20:53	03:00	15	obvious	Nagler Type 5 31mm					
☆☆☆☆	M 36	NGC 1960	Aur	6.3	10.0'	12 ly	4300 ly	19:15	22:42	05:25	12	obvious	Series 5000 UWA 4.7mm					
☆☆☆☆	M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600 ly	19:20	20:10	03:10	2	obvious	Ethos 8mm					
☆☆☆☆	M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	19:20	22:34	05:10	12	obvious	Ethos 6mm					
☆☆☆☆	M 37	NGC 2099	Aur	5.9	14.0'	18 ly	4500 ly	19:20	22:58	05:30	12	obvious	Series 5000 UWA 4.7mm					
☆☆☆☆	M 52	NGC 7654	Cas	6.8	15.0'	20 ly	4600 ly	19:25	20:01	02:55	71	easy	Series 5000 UWA 4.7mm					
☆☆☆☆	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2400 ly	19:25	20:06	02:00	2	easy	Ethos 4,7mm SX110°					
☆☆☆☆	M 39	NGC 7092	Cyg	4.9	29.0'	9 ly	1100 ly	19:25	19:54	22:55	73	obvious	Ethos 6mm					
☆☆☆☆	Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2'	130000 ly	2.6 Mly	19:25	20:00	00:40	3	easy	Nagler Type 5 31mm				
☆☆☆☆	M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	19:25	20:00	00:45	3	easy	Ethos 4,7mm SX110°				
☆☆☆☆	M 35	NGC 2168	Gem	5.2	25.0'	22 ly	3000 ly	19:25	23:14	05:05	25	obvious	Ethos 6mm					
☆☆☆☆	Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Series 5000 UWA 4.7mm				
☆☆☆☆	Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Ethos 6mm				
☆☆☆☆	M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	19:30	20:02	00:00	3	easy	Series 5000 UWA 4.7mm				
☆☆☆☆	Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	19:30	20:05	00:15	2	easy	Ethos 17mm				
☆☆☆☆	M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	19:30	20:09	23:20	6	easy	Ethos 6mm				
☆☆☆☆	M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly	19:35	20:03	22:50	4	easy	Ethos 6mm					
☆☆☆☆	M 15	NGC 7078	Peg	6.3	18.0'	220 ly	42000 ly	19:35	19:53	20:40	75	easy	Ethos 10mm					
☆☆☆☆	Cooling Tower	M 29	Cyg	7.3	10.0'	11 ly	3700 ly	19:40	19:52	20:15	62	easy	Ethos 8mm					
☆☆☆☆	Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---	19:40	22:41	02:00	16	easy	Ethos 13mm					
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☆☆☆☆	Beehive	M 44	Cnc	3.4	70.0'	12 ly	610 ly	20:20	01:45	07:10	24	obvious	Ethos 17mm					
☆☆☆☆	Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2000 ly	20:45	04:19	07:35	32	easy	Ethos 4,7mm SX110°					
☆☆☆☆	M 50	NGC 2323	Mon	6.0	14.0'	13 ly	3300 ly	21:00	00:08	03:20	27	obvious	Nagler Type 6 7mm					
☆☆☆☆	M 67	NGC 2682	Cnc	6.0	25.0'	22 ly	3000 ly	21:25	01:56	06:30	24	easy	Ethos 6mm					
☆☆☆☆	M 48	NGC 2548	Hya	5.3	30.0'	22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm					
☆☆☆☆	M 47	NGC 2422	Pup	4.4	25.0'	12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm					
☆☆☆☆	M 41	NGC 2287	CMa	4.2	39.0'	26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm					
☆☆☆☆	M 46	NGC 2437	Pup	5.9	20.0'	26 ly	4500 ly	22:30	00:47	03:10	26	easy	Ethos 8mm					
☆☆☆☆	M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'	38000 ly	17.0 Mly	23:00	05:35	07:45	43	obvious	Ethos 4,7mm SX110°				
☆☆☆☆	M 93	NGC 2447	Pup	5.8	10.0'	10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm					
☆☆☆☆	M 92	NGC 6341	Her	6.5	14.0'	130 ly	33000 ly	03:25	06:58	07:35	52	easy	Ethos 6mm					
☆☆☆☆	Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm					
☆☆☆☆	Dumbbell	M 27	Vul	7.3	18.4	8.0'	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm					



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- Manage Subscriptions
- Updates, Registration and Feedback
- Upgrade Your Product
- Night Vision Mode



Primary ID	Alternate ID	Con	Mag	SBr	Ang. S
M 103	NGC 581	Cas	6.6	5.0'	
Pleiades	M 45	Tau	1.2	120.0'	
M 36	NGC 1960	Aur	6.3	10.0'	
M 34	NGC 1039	Per	4.9	35.0'	
M 38	NGC 1912	Aur	5.9	20.0'	
M 37	NGC 2099	Aur	5.9	14.0'	
M 52	NGC 7654	Cas	6.8	15.0'	
Little Dumbbell	Barbell	Per	10.1	18.1	2.7'
M 39	NGC 7092	Cyg	4.9	29.0'	
Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.0°
M 32	NGC 221	And	8.9	21.0	7.8' x 4.1'
M 35	NGC 2168	Gem	5.2	25.0'	
Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.0'
Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 9.0'
M 110	NGC 205	And	8.9	22.5	16.2' x 9.0'
Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 30.0'
M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.0'
M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.0'
M 15	NGC 7078	Peg	6.3	18.0'	
Cooling Tower	M 29	Cyg	7.3	10.0'	
Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 2.0'
M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.0'
Beehive	M 44	Cnc	3.4	70.0'	
Owl Nebula	M 97	UMa	9.7	21.0	3.4'
M 50	NGC 2323	Mon	6.0	14.0'	
M 67	NGC 2682	Cnc	6.0	25.0'	
M 48	NGC 2548	Hya	5.3	30.0'	
M 47	NGC 2422	Pup	4.4	25.0'	
M 41	NGC 2287	CMa	4.2	39.0'	
M 46	NGC 2437	Pup	5.9	20.0'	
M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'
M 93	NGC 2447	Pup	5.8	10.0'	
M 92	NGC 6341	Her	6.5	14.0'	
Ring Nebula	M 57	Lyr	9.4	18.8	1.4'
Dumbbell	M 27	Vul	7.3	18.4	8.0'

### Observing Sites

#### Favorite Locations

- Antwerp, Belgium
- La Bergerie (Morvan)
- Medendorf**
- Louvergnny
- Preitenegg
- Urania
- Wibrin

#### Location Data

Longitude: 06°17'11" W

Latitude: 50°20'02" N

Elevation: 575 meters

Time Zone: GMT+ +1

Standard Time  Daylight Saving Rules [Configure](#)

Best naked-eye mag. limit: 6.5

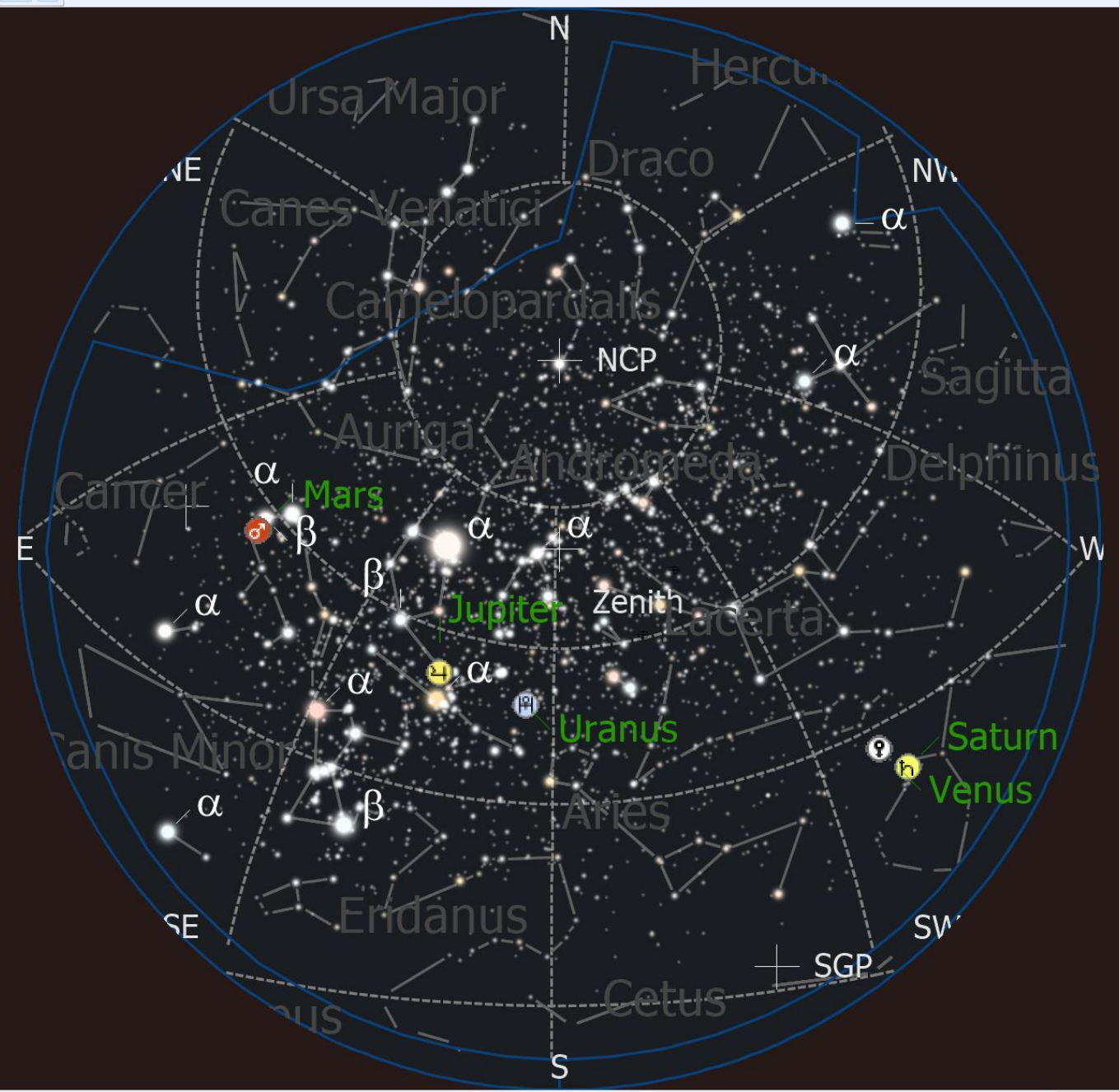
[Set Weather](#)

Obstructed horizon: not defined [Create](#)

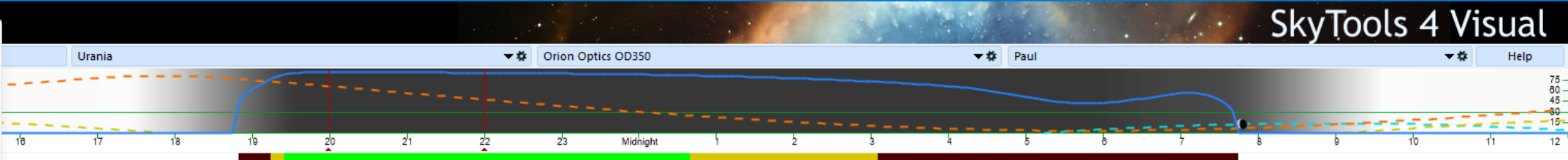
[New](#) [Delete](#) [Edit](#) [GPS](#)

[OK](#) [Cancel](#) [Help](#)

22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm
12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm
26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm
26 ly	4500 ly	22:30	00:47	03:10	26	easy	Ethos 8mm
38000 ly	17.0 Mly	23:00	05:35	07:45	43	obvious	Ethos 4,7mm SX110°
10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm
130 ly	33000 ly	03:25	06:58	07:35	52	easy	Ethos 6mm
1 ly	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm
2 ly	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm



- Setup
- Tools
- Data
- Help
- Telescopes
- Binoculars
- Locations
- Observers
- Preferences
- Manage Subscriptions
- Updates, Registration and Feedback
- Upgrade Your Product
- Night Vision Mode



Weather:  Auto Good Seeing (0.4" - 1" P8-9) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Constellation Filter: All Log Filter: Any Quality, Difficulty and Double-Star Splitability Filters: Any quality Easy and less difficult Ignore Splitability From 20:00 to 22:00

List Functions	Default columns	Add Objects	Get Observing Lists	Share/Export List
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★☆☆	Primary ID	Alternate ID	Con	Mag	SBR	Ang. Size	Diameter	Distance	Begin	Best	End	P...	Difficulty	Ideal Eyepiece
☆☆☆☆	M 103	NGC 581	Cas	6.6	5.0'									
☆☆☆☆	Pleiades	M 45	Tau	1.2	120.0'									
☆☆☆☆	M 36	NGC 1960	Aur	6.3	10.0'									
☆☆☆☆	M 34	NGC 1039	Per	4.9	35.0'									
☆☆☆☆	M 38	NGC 1912	Aur	5.9	20.0'									
☆☆☆☆	M 37	NGC 2099	Aur	5.9	14.0'									
☆☆☆☆	M 52	NGC 7654	Cas	6.8	15.0'									
☆☆☆☆	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'								
☆☆☆☆	M 39	NGC 7092	Cyg	4.9	29.0'									
☆☆☆☆	Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.0°								
☆☆☆☆	M 32	NGC 221	And	8.9	21.0	7.8' x 4.0'								
☆☆☆☆	M 35	NGC 2168	Gem	5.2	25.0'									
☆☆☆☆	Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.0'								
☆☆☆☆	Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 9.0'								
☆☆☆☆	M 110	NGC 205	And	8.9	22.5	16.2' x 9.0'								
☆☆☆☆	Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 30.0'								
☆☆☆☆	M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.0'								
☆☆☆☆	M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.0'								
☆☆☆☆	M 15	NGC 7078	Peg	6.3	18.0'									
☆☆☆☆	Cooling Tower	M 29	Cyg	7.3	10.0'									
☆☆☆☆	Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'								
☆☆☆☆	M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	20:05	04:16	07:40	32	easy	Ethos 4,7mm SX110°
☆☆☆☆	Beehive	M 44	Cnc	3.4	70.0'		12 ly	610 ly	20:20	01:45	07:10	24	obvious	Ethos 17mm
☆☆☆☆	Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2 ly	2000 ly	20:45	04:19	07:35	32	easy	Ethos 4,7mm SX110°
☆☆☆☆	M 50	NGC 2323	Mon	6.0	14.0'		13 ly	3300 ly	21:00	00:08	03:20	27	obvious	Nagler Type 6 7mm
☆☆☆☆	M 67	NGC 2682	Cnc	6.0	25.0'		22 ly	3000 ly	21:25	01:56	06:30	24	easy	Ethos 6mm
☆☆☆☆	M 48	NGC 2548	Hya	5.3	30.0'		22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm
☆☆☆☆	M 47	NGC 2422	Pup	4.4	25.0'		12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm
☆☆☆☆	M 41	NGC 2287	CMa	4.2	39.0'		26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm
☆☆☆☆	M 46	NGC 2437	Pup	5.9	20.0'		26 ly	4500 ly	22:30	00:47	03:10	26	easy	Ethos 8mm
☆☆☆☆	M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'	38000 ly	17.0 Mly	23:00	05:35	07:45	43	obvious	Ethos 4,7mm SX110°
☆☆☆☆	M 93	NGC 2447	Pup	5.8	10.0'		10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm
☆☆☆☆	M 92	NGC 6341	Her	6.5	14.0'		130 ly	33000 ly	03:25	06:58	07:35	52	easy	Ethos 6mm
☆☆☆☆	Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm
☆☆☆☆	Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm

### Observers

**Observer List**

- Novice Observer
- New Observer
- Default Observer
- Paul**

Add Delete

**Observer Data**

Age:

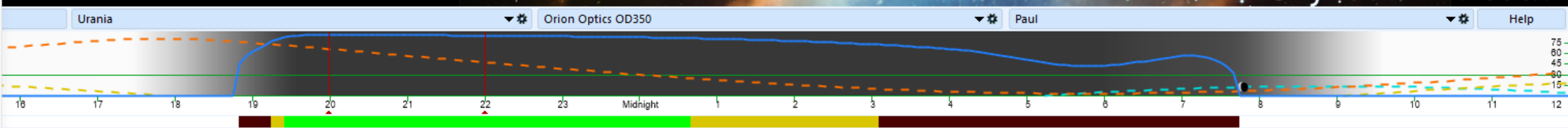
Pupil:  Compute

Experience: Intermediate

OK Cancel Help



- Telescopes
- Binoculars
- Locations
- Observers
- Preferences
- Manage Subscriptions
- Updates, Registration and Feedback
- Upgrade Your Product
- Night Vision Mode



Weather:  Auto **Good Seeing (0.4" - 1" P8-9)** 18C 60%

Generate Observing Plan:  Plan Find/Slew Time **3** min View Time **5** min

Attachments: My Attachments

Constellation Filter: All Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Any quality Easy and less difficult Ignore Splitability From 20:00 to 22:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size
☆☆☆☆ M 103	NGC 581	Cas	6.6	5.0'	
☆☆☆☆ Pleiades	M 45	Tau	1.2	120.0'	
☆☆☆☆ M 36	NGC 1960	Aur	6.3	10.0'	
☆☆☆☆ M 34	NGC 1039	Per	4.9	35.0'	
☆☆☆☆ M 38	NGC 1912	Aur	5.9	20.0'	
☆☆☆☆ M 37	NGC 2099	Aur	5.9	14.0'	
☆☆☆☆ M 52	NGC 7654	Cas	6.8	15.0'	
☆☆☆☆ Little Dumbbell	Barbell	Per	10.1	18.1	2.7'
☆☆☆☆ M 39	NGC 7092	Cyg	4.9	29.0'	
☆☆☆☆ Andromeda Galaxy	M 31	And	4.3	22.7	3.0' x 1.2'
☆☆☆☆ M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'
☆☆☆☆ M 35	NGC 2168	Gem	5.2	25.0'	
☆☆☆☆ Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'
☆☆☆☆ Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'
☆☆☆☆ M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'
☆☆☆☆ Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'
☆☆☆☆ M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'
☆☆☆☆ M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'
☆☆☆☆ M 15	NGC 7078	Peg	6.3	18.0'	
☆☆☆☆ Cooling Tower	M 29	Cyg	7.3	10.0'	
☆☆☆☆ Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'
☆☆☆☆ M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'
☆☆☆☆ Beehive	M 44	Cnc	3.4	70.0'	
☆☆☆☆ Owl Nebula	M 97	UMa	9.7	21.0	3.4'
☆☆☆☆ M 50	NGC 2323	Mon	6.0	14.0'	
☆☆☆☆ M 67	NGC 2682	Cnc	6.0	25.0'	
☆☆☆☆ M 48	NGC 2548	Hya	5.3	30.0'	
☆☆☆☆ M 47	NGC 2422	Pup	4.4	25.0'	
☆☆☆☆ M 41	NGC 2287	CMa	4.2	39.0'	
☆☆☆☆ M 46	NGC 2437	Pup	5.9	20.0'	
☆☆☆☆ M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'
☆☆☆☆ M 93	NGC 2447	Pup	5.8	10.0'	
☆☆☆☆ M 92	NGC 6341	Her	6.5	14.0'	
☆☆☆☆ Ring Nebula	M 57	Lyr	9.4	18.8	1.4'
☆☆☆☆ Dumbbell	M 27	Vul	7.3	18.4	8.0'

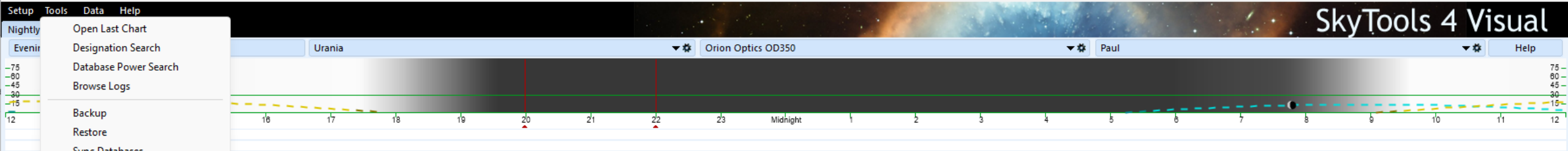
### Subscriptions

Choose what to automatically download at startup

- Current bright comets (15th magnitude)
- Current bright novae/supernovae (15th magnitude)
- Current bright minor planets

OK Update Now Help

22 ly	3000 ly	21:25	01:56	06:30	24	easy	Ethos 6mm
22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm
12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm
26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm
26 ly	4500 ly	22:30	00:47	03:10	26	easy	Ethos 8mm
38000 ly	17.0 Mly	23:00	05:35	07:45	43	obvious	Ethos 4,7mm SX110*
10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm
130 ly	33000 ly	03:25	06:58	07:35	52	easy	Ethos 6mm
1 ly	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm
2 ly	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm



Auto   
 Good Seeing (0.4" - 1" P8-9)   
 18C   
 60%   
 Generate Observing Plan   
 Plan   
 Find/Slew Time 3 min   
 View Time 5 min   
 Attachments: My Attachments

Class Filter: All Classes   
 Constellation Filter: All   
 Log Filter: Any   
 Quality, Difficulty and Double-Star Splitability Filters: Any quality   
 and less difficult   
 Ignore Splitability   
 From 20:00 to 22:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Begin	Best	End	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ M 103	NGC 581	Cas	6.6		5.0'	10 ly	7200 ly	19:05	20:01	06:25	1	obvious	Ethos 4,7mm SX110°
☆☆☆☆ Pleiades	M 45	Tau	1.2		120.0'	17 ly	490 ly	19:10	20:53	03:00	15	obvious	Nagler Type 5 31mm
☆☆☆☆ M 36	NGC 1960	Aur	6.3		10.0'	12 ly	4300 ly	19:15	22:42	05:25	12	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ M 34	NGC 1039	Per	4.9		35.0'	17 ly	1600 ly	19:20	20:10	03:10	2	obvious	Ethos 8mm
☆☆☆☆ M 38	NGC 1912	Aur	5.9		20.0'	20 ly	3500 ly	19:20	22:34	05:10	12	obvious	Ethos 6mm
☆☆☆☆ M 37	NGC 2099	Aur	5.9		14.0'	18 ly	4500 ly	19:20	22:58	05:30	12	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ M 52	NGC 7654	Cas	6.8		15.0'	20 ly	4600 ly	19:25	20:01	02:55	71	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	19:25	20:06	02:00	2	easy	Ethos 4,7mm SX110°
☆☆☆☆ M 39	NGC 7092	Cyg	4.9		29.0'	9 ly	1100 ly	19:25	19:54	22:55	73	obvious	Ethos 6mm
☆☆☆☆ Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2°	130000 ly	2.6 Mly	19:25	20:00	00:40	3	obvious	Nagler Type 5 31mm
☆☆☆☆ M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	19:25	20:00	00:45	3	obvious	Ethos 4,7mm SX110°
☆☆☆☆ M 35	NGC 2168	Gem	5.2		25.0'	22 ly	3000 ly	19:25	23:14	05:05	25	obvious	Ethos 6mm
☆☆☆☆ Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Series 5000 UWA 4.7mm
☆☆☆☆ Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	19:30	03:01	07:40	31	easy	Ethos 6mm
☆☆☆☆ M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	19:30	20:02	00:00	3	easy	Series 5000 UWA 4.7mm
☆☆☆☆ Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	19:30	20:05	00:15	2	easy	Ethos 17mm
☆☆☆☆ M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	19:30	20:09	23:20	6	easy	Ethos 6mm
☆☆☆☆ M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly		19:35	20:03	22:50	4	easy	Ethos 6mm
☆☆☆☆ M 15	NGC 7078	Peg	6.3		18.0'	220 ly	42000 ly	19:35	19:53	20:40	75	easy	Ethos 10mm
☆☆☆☆ Cooling Tower	M 29	Cyg	7.3		10.0'	11 ly	3700 ly	19:40	19:52	20:15	62	easy	Ethos 8mm
☆☆☆☆ Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---		19:40	22:41	02:00	16	obvious	Ethos 13mm
☆☆☆☆ M 79	NGC 1904	Lep	7.7		9.6'	140 ly	49000 ly	20:05	22:29	01:00	16	easy	Ethos 10mm
☆☆☆☆ Beehive	M 44	Cnc	3.4		70.0'	12 ly	610 ly	20:20	01:45	07:10	24	obvious	Ethos 17mm
☆☆☆☆ M 50	NGC 2323	Mon	6.0		14.0'	13 ly	3300 ly	21:00	00:08	03:20	27	obvious	Nagler Type 6 7mm
☆☆☆☆ M 67	NGC 2682	Cnc	6.0		25.0'	22 ly	3000 ly	21:25	01:56	06:30	24	obvious	Ethos 6mm
☆☆☆☆ M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	21:35	04:16	07:40	32	easy	Ethos 4,7mm SX110°
☆☆☆☆ Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2 ly	2000 ly	21:40	04:19	07:35	32	easy	Ethos 4,7mm SX110°
☆☆☆☆ M 48	NGC 2548	Hya	5.3		30.0'	22 ly	2500 ly	22:00	01:19	04:40	26	obvious	Ethos 8mm
☆☆☆☆ M 47	NGC 2422	Pup	4.4		25.0'	12 ly	1600 ly	22:00	00:41	03:25	26	obvious	Ethos 8mm
☆☆☆☆ M 41	NGC 2287	CMa	4.2		39.0'	26 ly	2300 ly	22:05	23:51	01:40	27	obvious	Ethos 10mm
☆☆☆☆ M 46	NGC 2437	Pup	5.9		20.0'	26 ly	4500 ly	22:30	00:47	03:10	26	obvious	Ethos 8mm
☆☆☆☆ M 93	NGC 2447	Pup	5.8		10.0'	10 ly	3400 ly	23:30	00:49	02:10	26	obvious	Ethos 10mm
☆☆☆☆ M 92	NGC 6341	Her	6.5		14.0'	130 ly	33000 ly	04:10	06:58	07:35	52	easy	Ethos 6mm
☆☆☆☆ Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	05:35	07:06	07:35	63	obvious	Ethos 6mm
☆☆☆☆ Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	06:10	07:09	07:35	64	easy	Ethos 10mm

Open Last Chart  
 Designation Search  
 Database Power Search  
 Browse Logs  
  
 Backup  
 Restore  
 Sync Databases

Designation Search Tool -- Add Objects to Observing List

Search Browse

Quick Search (type all or part of any designation here)

Thor's helmet

Search Results

- Thor's Helmet
- Orion's Belt

Narrow fuzzy search to:

All

Recent Targets

Data For Currently Selected Target

RA: 07h18m30s Dec: -13°14'00" J2000 
  
 Mag:      Size: 10'    Con CMa   

Observing List

Distance	Begin	Best
0 ly	19:05	20:01
0 ly	19:10	20:53
0 ly	19:15	22:42
0 ly	19:20	20:10
0 ly	19:20	22:34
0 ly	19:20	22:58
0 ly	19:25	20:01
0 ly	19:25	20:06
0 ly	19:25	19:54
Mly	19:25	20:00
Mly	19:25	20:00
0 ly	19:25	23:14
0 Mly	19:30	03:01
0 Mly	19:30	03:01
Mly	19:30	20:02
Mly	19:30	20:05
0 Mly	19:30	20:09
	19:35	20:03
00 ly	19:35	19:53
0 ly	19:40	19:52
	19:40	22:41
00 ly	20:05	22:29
ly	20:20	01:45
0 ly	21:00	00:08
0 ly	21:25	01:56
0 Mly	21:35	04:16
0 ly	21:40	04:19
0 ly	22:00	01:19
0 ly	22:00	00:41
0 ly	22:05	23:51
0 ly	22:30	00:47
0 ly	23:30	00:49
00 ly	04:10	06:58
0 ly	05:35	07:06
0 ly	06:10	07:09

Object Information - Thor's Helmet

R.A. 07h18m30.0s    Dec. -13°14'00"    (2000)

Galactic lon: +227°46'    Galactic lat: -00°08'
  
in Canis Major

Also known as  
 NGC 2359, Sh 2-298, LBN 1041, H V-21, Ced 94a
 Magnitude: unknown  
Size: 10.0'

Comments  
 Likely HII region
 Catalog Data

Synopsis    Notes    NightBar    YearBar    Apparent Data    Images    Links    Observing Lists    Visual Difficulty    Chart Numbers    Catalog Notes    Nearby Objects

On this night Thor's Helmet is best visible between 21:54 and 02:53, with the optimum view at 00:23. Look for it in Canis Major, fairly high in the southern sky in complete darkness. It is perceptible visually in the Orion Optics OD350.

In the following 30 days this object is perceptible visually from January 24 through February 3, and again from February 17 on, with the best view coming on January 24.

At its best, Thor's Helmet rises above the obstructed horizon for 9 hours at Urania. The viewing season is from early January through late May, with the best evening viewing in mid March.

Settings  
 2025 Jan 24 00:00 GMT+1 
  
 Urania 
  
 Orion Optics OD350 
  
 Paul

Thor's Diffuse Nebula

Also known as NGC 2359, Sh 2-298, LBN 1041, H V-21, Ced 94a

Comments: Likely Hill region

**Thor's Helmet**  
Diffuse Nebula

R.A. 07h18m30.0s  
Galactic lon: +227°46'  
in Canis Major

Dec. -13°14'00"  
Galactic lat: -00°08'  
(2000)

Magnitude: unknown  
Size: 10.0'

Catalog Data

Synopsis: Evenings

6h

4h

2h

Sunrise, Moon, Comets

Full

Synopsis Notes NightBar YearBar Apparent Data Images Links Observing Lists Visual Difficulty Chart Numbers Catalog Notes Nearby Objects

Deep Sky Within 1 degree Ideal Conditions

Object ID	R	Mag	Size/Sep	Difficulty
Berkeley 36	30.5'	11.0	5.0'	perceptible
Haffner 6	22.4'	10.1	6.0'	perceptible
Basel 11	48.5'	8.9	5.0'	easy
NGC 2361	5.1'	---	stellar	difficult

Settings

2025 Jan

Urania

Orion

Paul

Settings

2025 Jan 24 00:00 GMT+1

Urania

Orion Optics OD350

Paul

Silence

Speech

Actions

Setup Tools Data Help

Nightly  
Evening

Open Last Chart  
Designation Search  
Database Power Search  
Browse Logs  
Backup  
Restore  
Sync Databases

Observed  
Messier

Class Filter  
All Classes

List Functions  
Default columns

Primary ID

- ☆☆☆☆ M 103 NGC
- ☆☆☆☆ Pleiades M 45
- ☆☆☆☆ M 36 NGC
- ☆☆☆☆ M 34 NGC
- ☆☆☆☆ M 38 NGC
- ☆☆☆☆ M 37 NGC
- ☆☆☆☆ M 52 NGC
- ☆☆☆☆ Little Dumbbell Barb
- ☆☆☆☆ M 39 NGC
- ☆☆☆☆ Andromeda Galaxy M 31
- ☆☆☆☆ M 32 NGC
- ☆☆☆☆ M 35 NGC
- ☆☆☆☆ Cigar Galaxy M 81
- ☆☆☆☆ Bode's Galaxy M 81
- ☆☆☆☆ M 110 NGC
- ☆☆☆☆ Triangulum Galaxy Tri
- ☆☆☆☆ M 77 NGC
- ☆☆☆☆ M 74 NGC
- ☆☆☆☆ M 15 NGC
- ☆☆☆☆ Cooling Tower M 29
- ☆☆☆☆ Orion Nebula M 42
- ☆☆☆☆ M 79 NGC
- ☆☆☆☆ Beehive M 44
- ☆☆☆☆ M 50 NGC
- ☆☆☆☆ M 67 NGC
- ☆☆☆☆ M 108 NGC
- ☆☆☆☆ Owl Nebula M 97
- ☆☆☆☆ M 48 NGC
- ☆☆☆☆ M 47 NGC
- ☆☆☆☆ M 41 NGC
- ☆☆☆☆ M 46 NGC
- ☆☆☆☆ M 93 NGC
- ☆☆☆☆ M 92 NGC
- ☆☆☆☆ Ring Nebula M 57
- ☆☆☆☆ Dumbbell M 27

### Database Power Search Tool

Stars Galactic Deep Sky Extragalactic

Databases to Search  
Planetary Nebulae  
Diffuse Nebulae  
Dark Nebulae  
Open Clusters  
Globular Clusters

Supplemental Deep Sky

Catalog Designations  
All Selected only

Common Name  
Messier  
NGC  
IC  
Abell  
Minkowski  
Henize  
Haro  
Kohoutek  
PN G  
PK  
ARO  
ESO

Common Data Limits  
Magnitude  $\geq$  None  $\leq$  None  
Size  $\geq$  None arc-min  $\leq$  None arc-min  
Distance  $\geq$  None  $\leq$  None ly

Planetary Nebulae Limits  
SBr.  $\leq$  None mag/arcsec<sup>2</sup>  
Morphology Any

Diffuse Nebulae  
Type Any type

Dark Nebulae  
Opacity  $\geq$  None Any type

Open Clusters  
Age  $\geq$  None  $\leq$  None Million years

Visibility Filters  
Orion Optics OD350  
Urania  
Paul  
Ideal conditions

Visual Detection Difficulty  
Ignore difficulty

Min. Quality (for specific date only)  
Any quality  
After 00:00  
Before 00:00

Search Constellations  
Any Selected  
And Ari CVn Cen Com Cyg For  
Ant Aur CMa Cep CrA Del Gem  
Aps Boo CMi Cet CrB Dor Gru  
Aqr Cae Cap Cha Crv Dra Her  
Aql Cam Car Cir Crt Equ Hor  
Ara Cnc Cas Col Cru Eri Hya

Select All Clear All

Search Radius  
Within 001 degrees  
of Nothing

Include Objects with Log Entries  
Any Logged Unlogged

Search Reset Help

Object ID	Con	RA	Dec	Mag	Distance	Age Myrs	Type	Difficulty
Abell 61		19h20	+46°18	14.4	4200 ly	---	Smooth disk	---
Campbell's Hydrogen Star		19h36	+30°34	9.6	5500 ly	---	Ring structure	---
Blinking Planetary		19h45	+50°35	8.8	3600 ly	---	Irregular disk	---
K 3-46		19h51	+33°50	16.4	8700 ly	---		---
NGC 6833		19h50	+49°01	13.8	18000 ly	---	Smooth disk	---
K 4-37		19h52	+31°06	---	---	---		---
He 2-450		19h53	+33°03	14.7	22000 ly	---		---
K 3-49		19h55	+33°26	19.0	---	---		---
K 4-41		19h58	+32°26	15.9	26000 ly	---		---
PK 075-5.1		19h58	+39°54	---	---	---		---
He 1-4		20h00	+31°59	14.1	8100 ly	---	Irregular disk	---
PK 069-1.1		20h02	+33°20	---	---	---		---
PK 070-1.1		20h03	+33°37	13.3	---	---		---
K 3-52		20h04	+30°37	18.7	8000 ly	---		---
K 3-73		20h05	+49°23	15.2	---	---		---
PN G075.6+04.3		20h05	+39°40	16.0	12000 ly	---		---
M 1-75		20h06	+31°32	16.0	10000 ly	---	Irregular disk	---
K 3-55		20h08	+32°21	---	11000 ly	---		---

Copy to Observing List  
Current Comets New Add to List Select All Unselect All

Search Complete: 96 objects found

Setup Tools Data Help

Nightly Planner: Evening of 202...

Comets  
Minor Planets  
Novae and Supernovae  
Supplemental Deep Sky  
Skymarks

Attachments  
Plottable Images  
Import Shared Data from File

Urania Orion Optics OD350 Paul Help

Weather:  Auto Good Seeing (0.4" - 1" P8-9) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Any quality Easy and less difficult Ignore Splitability From 20:00 to 22:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	12:20	18:49	21:30	19:25	20:06	02:00	+77°55'	+280°15'	2	easy	Ethos 4,7mm SX110°
☆☆☆☆ Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	06:05	13:06	20:50	06:10	07:09	07:35	+18°26'	+076°17'	64	easy	Ethos 10mm
☆☆☆☆ Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	05:23	11:56	21:02	05:35	07:06	07:35	+35°29'	+079°28'	63	obvious	Ethos 6mm
☆☆☆☆ Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---	---	17:25	22:41	03:55	19:40	22:41	02:00	+33°29'	+180°09'	16	obvious	Ethos 13mm
☆☆☆☆ M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	21:34	04:16	03:37	21:35	04:16	07:40	+85°37'	+000°06'	32	easy	Ethos 4,7mm SX110°
☆☆☆☆ Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2 ly	2000 ly	21:40	04:19	04:15	21:40	04:19	07:35	+86°16'	+000°41'	32	easy	Ethos 4,7mm SX110°
☆☆☆☆ M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	11:34	17:49	05:04	19:25	20:00	00:45	+65°18'	+258°42'	3	obvious	Ethos 4,7mm SX110°
☆☆☆☆ Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	15:46	03:01	18:08	19:30	03:01	07:40	+71°35'	+000°04'	31	easy	Series 5000 UWA 4.7mm
☆☆☆☆ M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	14:04	19:48	01:31	19:30	20:09	23:20	+38°46'	+186°38'	6	easy	Ethos 6mm
☆☆☆☆ Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	15:11	03:01	18:18	19:30	03:01	07:40	+72°12'	+359°58'	31	easy	Ethos 6mm
☆☆☆☆ M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	11:32	17:46	04:34	19:30	20:02	00:00	+65°06'	+261°25'	3	easy	Series 5000 UWA 4.7mm
☆☆☆☆ Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2°	130000 ly	2.6 Mly	11:34	17:49	05:05	19:25	20:00	00:40	+65°32'	+259°29'	3	obvious	Nagler Type 5 31mm
☆☆☆☆ M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly	---	11:35	18:43	01:46	19:35	20:03	22:50	+51°15'	+211°57'	4	easy	Ethos 6mm
☆☆☆☆ Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	12:01	18:40	02:54	19:30	20:05	00:15	+64°14'	+225°59'	2	easy	Ethos 17mm
☆☆☆☆ M 52	NGC 7654	Cas	6.8	15.0'	15.0'	20 ly	4600 ly	09:07	16:31	11:29	19:25	20:01	02:55	+60°00'	+311°08'	71	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ M 103	NGC 581	Cas	6.6	5.0'	5.0'	10 ly	7200 ly	11:24	18:40	14:15	19:05	20:01	06:25	+75°10'	+318°21'	1	obvious	Ethos 4,7mm SX110°
☆☆☆☆ M 39	NGC 7092	Cyg	4.9	29.0'	29.0'	9 ly	1100 ly	08:17	14:38	19:42	19:25	19:54	22:55	+41°24'	+299°53'	73	obvious	Ethos 6mm
☆☆☆☆ M 92	NGC 6341	Her	6.5	14.0'	14.0'	130 ly	33000 ly	04:08	10:20	19:49	04:10	06:58	07:35	+55°22'	+083°08'	52	easy	Ethos 6mm
☆☆☆☆ M 34	NGC 1039	Per	4.9	35.0'	35.0'	17 ly	1600 ly	13:37	19:48	05:27	19:20	20:10	03:10	+80°56'	+206°21'	2	obvious	Ethos 8mm
☆☆☆☆ Cooling Tower	M 29	Cyg	7.3	10.0'	10.0'	11 ly	3700 ly	07:09	13:30	23:45	19:40	19:52	20:15	+25°55'	+300°08'	62	easy	Ethos 8mm
☆☆☆☆ M 38	NGC 1912	Aur	5.9	20.0'	20.0'	20 ly	3500 ly	16:09	22:34	08:08	19:20	22:34	05:10	+74°44'	+179°44'	12	obvious	Ethos 6mm
☆☆☆☆ M 36	NGC 1960	Aur	6.3	10.0'	10.0'	12 ly	4300 ly	16:12	22:42	07:56	19:15	22:42	05:25	+73°01'	+180°02'	12	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ M 37	NGC 2099	Aur	5.9	14.0'	14.0'	18 ly	4500 ly	16:24	22:58	07:13	19:20	22:58	05:30	+71°25'	+180°05'	12	obvious	Series 5000 UWA 4.7mm
☆☆☆☆ M 35	NGC 2168	Gem	5.2	25.0'	25.0'	22 ly	3000 ly	16:21	23:14	07:08	19:25	23:14	05:05	+63°12'	+179°47'	25	obvious	Ethos 6mm
☆☆☆☆ Pleiades	M 45	Tau	1.2	120.0'	120.0'	17 ly	490 ly	13:59	20:53	04:45	19:10	20:53	03:00	+63°03'	+180°07'	15	obvious	Nagler Type 5 31mm
☆☆☆☆ Beehive	M 44	Cnc	3.4	70.0'	70.0'	12 ly	610 ly	18:42	01:45	09:10	20:20	01:45	07:10	+58°26'	+179°51'	24	obvious	Ethos 17mm
☆☆☆☆ M 15	NGC 7078	Peg	6.3	18.0'	18.0'	220 ly	42000 ly	07:48	14:36	21:20	19:35	19:53	20:40	+16°11'	+269°34'	75	easy	Ethos 10mm
☆☆☆☆ M 67	NGC 2682	Cnc	6.0	25.0'	25.0'	22 ly	3000 ly	19:15	01:56	08:37	21:25	01:56	06:30	+50°35'	+179°53'	24	obvious	Ethos 6mm
☆☆☆☆ M 48	NGC 2548	Hya	5.3	30.0'	30.0'	22 ly	2500 ly	20:06	01:19	06:31	22:00	01:19	04:40	+33°02'	+180°09'	26	obvious	Ethos 8mm
☆☆☆☆ M 50	NGC 2323	Mon	6.0	14.0'	14.0'	13 ly	3300 ly	19:09	00:08	05:07	21:00	00:08	03:20	+30°26'	+180°06'	27	obvious	Nagler Type 6 7mm
☆☆☆☆ M 47	NGC 2422	Pup	4.4	25.0'	25.0'	12 ly	1600 ly	20:18	00:41	05:07	22:00	00:41	03:25	+24°19'	+179°54'	26	obvious	Ethos 8mm
☆☆☆☆ M 46	NGC 2437	Pup	5.9	20.0'	20.0'	26 ly	4500 ly	20:25	00:47	05:10	22:30	00:47	03:10	+23°59'	+180°07'	26	obvious	Ethos 8mm
☆☆☆☆ M 41	NGC 2287	CMa	4.2	39.0'	39.0'	26 ly	2300 ly	20:05	23:51	03:36	22:05	23:51	01:40	+18°04'	+180°02'	27	obvious	Ethos 10mm
☆☆☆☆ M 93	NGC 2447	Pup	5.8	10.0'	10.0'	10 ly	3400 ly	21:26	00:49	04:12	23:30	00:49	02:10	+14°56'	+179°57'	26	obvious	Ethos 10mm
☆☆☆☆ M 79	NGC 1904	Lep	7.7	9.6'	9.6'	140 ly	49000 ly	19:11	22:29	01:47	20:05	22:29	01:00	+14°21'	+179°57'	16	easy	Ethos 10mm

Nightly Planner

- Comets
- Minor Planets
- Novae and Supernovae
- Supplemental Deep Sky
- Skymarks
- Attachments
- Plottable Images
- Import Shared Data from File

Urania Orion Optics OD350

Weather: Good Seeing (0.4" - 1" P8-9) 18C 60%

Generate Observing Plan

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Any quality Easy

Begin	Best	End	Alt	Az
19:25	20:06	02:00	+77°55'	+280°15'
19:10	07:09	07:35	+18°26'	+076°17'
19:35	07:06	07:35	+35°29'	+079°28'
19:40	22:41	02:00	+33°29'	+180°09'
19:35	04:16	07:40	+85°37'	+000°06'
19:40	04:19	07:35	+86°16'	+000°41'
19:25	20:00	00:45	+65°18'	+258°42'
19:30	03:01	07:40	+71°35'	+000°04'
19:30	20:09	23:20	+38°46'	+186°38'
19:30	03:01	07:40	+72°12'	+359°58'
19:30	20:02	00:00	+65°06'	+261°25'
19:25	20:00	00:40	+65°32'	+259°29'
19:35	20:03	22:50	+51°15'	+211°57'
19:30	20:05	00:15	+64°14'	+225°59'
19:25	20:01	02:55	+60°00'	+311°08'
19:05	20:01	06:25	+75°10'	+318°21'
19:25	19:54	22:55	+41°24'	+299°53'
19:10	06:58	07:35	+55°22'	+083°08'
19:20	20:10	03:10	+80°56'	+206°21'
19:40	19:52	20:15	+25°55'	+300°08'
19:20	22:34	05:10	+74°44'	+179°44'
19:15	22:42	05:25	+73°01'	+180°02'
19:20	22:58	05:30	+71°25'	+180°05'
19:25	23:14	05:05	+63°12'	+179°47'
19:10	20:53	03:00	+63°03'	+180°07'
19:20	01:45	07:10	+58°26'	+179°51'
19:35	19:53	20:40	+16°11'	+269°34'
19:25	01:56	06:30	+50°35'	+179°53'
19:00	01:19	04:40	+33°02'	+180°09'
19:00	00:08	03:20	+30°26'	+180°06'
19:00	00:41	03:25	+24°19'	+179°54'
19:00	00:47	03:10	+23°59'	+180°07'
19:00	23:51	03:36	+18°04'	+180°02'
19:00	23:30	00:49	+14°56'	+179°57'
19:00	20:05	22:29	+14°21'	+179°57'

### Comet Database

The comet database contains all know historical comets. The orbits need to be updated as new comets are discovered and new orbits are published for existing ones. For comets that can be observed visually, periodically updating the Current Comets observing list will suffice. For fainter comets you may wish to download the MPC Observable Comets database below.

Comets that are currently in use cannot be deleted. These are marked in bold in the list.

Find Num Designation

- C/2022 N2 (PANSTARRS)
- C/2022 P1 (NEOWISE)
- C/2022 R2 (ATLAS)
- C/2022 S3 (PANSTARRS)
- C/2022 U2 (ATLAS)
- C/2023 A2 (SWAN)
- C/2023 A3 (Tsuchinshan-ATLAS)**
- 2024 Sep 27.74
- C/2023 C2 (ATLAS)
- C/2023 E1 (ATLAS)
- C/2023 H2 (Lemmon)
- C/2023 P1 (Nishimura)
- C/2023 R2 (PANSTARRS)
- C/2023 S2 (ATLAS)

3409 element sets total, 3409 sets for 2073 objects displayed

Accept Cancel all Changes Help

### Comet -- Osculating Elements

Comet Name/Designation: **Tsuchinshan-ATLAS**

IAU Designation: 2023 A3

C (non periodic) P/I

Epoch of Osculation: 2024 11 30 00h00m00s TT

Magnitude: h 6.70 g 2.30

Year Month Day Time (or JD)

Time of Perihelion Passage: JD 2460581.241700001061 TT

Coma Diameter: AU Tail Length: 0.02082631 AU

Year Month Day Time (or JD) Calculate Calculate

Orbit Scale: e 1.000093000 q 0.391438000 AU a -4209.010752693 AU

Orbit Orientation: Arg. of Perihelion 308.492100000 Longitude of 21.559500000 Inclination 139.110800000 Equinox J2000

Degree of Condensation (DC): 5 - Condensation is a diffuse spot in coma center; moderately con

Last Observed for Mag/Diameter: 2024 Dec 1

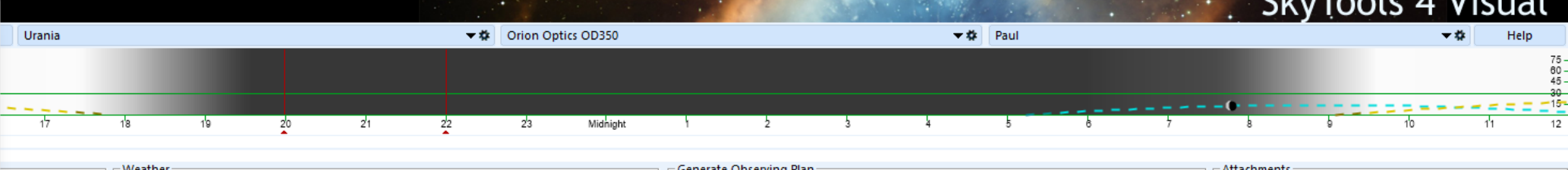
Date Lost (approximate):

Year Month Day Time (or JD) Year Month Day Time (or JD)

Source: MPEC 2024-VJ2

Ok Cancel Paste Help

- Nightly Planner
- Evening of 2024
- Comets
- Minor Planets
- Novae and Supernovae
- Supplemental Deep Sky
- Skymarks
- Attachments
- Plottable Images



Minor Planet Database

Asteroids and other objects with significant orbital elements that change over days, so they must be plotted on the chart for the epoch used.

Minor Planets are listed for plotting on the chart for the epoch used.

Buttons: Enter, Down, Cl

Saved Epochs

Date
2024 Oct 16
2024 Mar 30
2023 Sep 12
2023 Feb 24
2022 Aug 8

☆☆☆☆ M 67
☆☆☆☆ M 48
☆☆☆☆ M 50
☆☆☆☆ M 47
☆☆☆☆ M 46
☆☆☆☆ M 41
☆☆☆☆ M 93
☆☆☆☆ M 79
☆☆☆☆ NGC 2422 Pup
☆☆☆☆ NGC 2437 Pup
☆☆☆☆ NGC 2287 CMa
☆☆☆☆ NGC 2447 Pup 5.8 10.0' 10
☆☆☆☆ NGC 1904 Lep 7.7 9.6' 14

Nova, Supernova, and Star Database

This database stores stars that have been downloaded from various sources. Novae and Supernovae are included. Novae/SN that have since faded are not included. This database may become cluttered over time. Stars currently in use are marked in bold in the list.

Buttons: Enter New, Update Current, Clean

Deep Sky Object Database

The SkyTools Deep Sky databases are very nearly complete, but sometimes objects that are not included. This database supplements the existing databases with exceptional objects.

Objects currently in use are marked in bold in the list.

Buttons: Enter New

Skymark Database

A Skymark is a simple location in the sky. It is used to mark a spot so that you can come back to it later.

Skymarks currently in use cannot be deleted. These are marked in bold in the list.

Buttons: Enter New Skymark

Find Designation

00h00m06.4s +00°01'43"

Test

2 element sets total, 2 sets for 2 objects displayed

Buttons: Accept, Cancel all Changes, Help

Difficulty	Ideal Eyepiece
easy	Ethos 4,7mm SX110°
easy	Ethos 10mm
obvious	Ethos 6mm
	m
	m SX110°
	m SX110°
	0 UWA 4.7mm
	0 UWA 4.7mm
	e 5 31mm
	m
	0 UWA 4.7mm
	m SX110°
	m
	m
	e 6 7mm
	m
	m
	m



# Het maken van een waarneemplan

- Stap 1: Selecteer
  - Datum
  - Locatie
  - Instrument
  - Waarnemer
  - Begin- en eindtijd van de waarneemsessie

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. A 'Date of Local Evening' dialog box is open, showing a calendar for January 2025 with the 23rd selected. The main window shows the 'Evening of 2025 Jan 23 GMT+1' for the location 'Urania' and telescope 'Orion Optics OD350'. The 'Generate Observing Plan' section is active, showing a table of targets with columns for Begin, Best, End, Alt, Az, P..., Difficulty, and Ideal Eyepiece. The table lists 78 targets, with the first few rows highlighted in red, yellow, and green. The status bar at the bottom indicates '78 targets of 112 meet criteria.'

**Date of Local Evening Dialog:**

Buttons: Tonight, Tomorrow, Last Night

Quick Date: Year Month Day

Calendar: 2025 January

Calendar Grid:

Su	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

**Generate Observing Plan Section:**

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Star Splitability Filters: Perceptible and less difficult Ignore Splitability From 20:00 to 04:38

et	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
	19:20	20:03	02:35	+78°22'	+280°04'	2	easy	Ethos 10mm
:17	19:25	07:13	20:15	+19°03'	+077°01'	64	easy	Ethos 17mm
:44	05:30	07:10	07:45	+36°06'	+080°10'	63	obvious	Ethos 13mm
:17	19:40	22:41	01:55	+33°29'	+180°09'	16	obvious	Ethos 13mm
	02:45	04:16	05:50	+85°37'	+000°06'	32	easy	Ethos 10mm
	20:05	04:19	07:45	+86°16'	+000°41'	32	easy	Ethos 10mm
	19:15	19:56	00:55	+65°55'	+257°38'	3	obvious	Ethos 10mm
	04:05	05:39	07:10	+79°28'	+163°22'	43	obvious	Ethos 10mm
:33	23:50	04:23	07:40	+51°49'	+179°53'	34	easy	Ethos 10mm
:48	03:25	05:40	07:30	+27°05'	+178°52'	47	easy	Series 5000 UWA 14mm
	19:25	03:01	07:45	+71°35'	+000°04'	31	easy	Ethos 10mm
:45	04:55	06:37	07:25	+08°51'	+179°06'	46	easy	Nagler Type 5 31mm
:00	23:25	03:52	07:35	+51°18'	+179°53'	34	easy	Ethos 10mm
:53	19:25	20:06	23:25	+38°49'	+185°40'	6	easy	Ethos 13mm
12:52	01:25	05:36	07:40	+50°19'	+176°07'	45	easy	Ethos 13mm
14:06	00:50	05:42	07:45	+60°10'	+171°12'	45	easy	Ethos 10mm
12:53	01:25	05:37	07:40	+50°12'	+175°53'	45	easy	Ethos 13mm
12:49	01:20	05:33	07:40	+50°30'	+176°36'	45	easy	Ethos 13mm
	19:25	03:01	07:45	+72°12'	+359°58'	31	easy	Ethos 10mm
12:45	01:05	05:30	07:40	+51°06'	+178°05'	45	easy	Ethos 10mm
	23:55	06:45	07:45	+76°38'	+062°00'	53	easy	Ethos 10mm
12:44	00:50	05:21	07:40	+53°08'	+179°12'	45	easy	Ethos 10mm
12:56	00:45	05:24	07:40	+54°32'	+178°44'	45	easy	Ethos 10mm
11:34	00:00	04:25	07:35	+51°42'	+180°10'	34	easy	Ethos 10mm
13:13	00:40	05:25	07:40	+56°54'	+178°02'	45	easy	Ethos 10mm
12:55	01:20	05:32	07:40	+51°50'	+176°28'	45	easy	Ethos 10mm

78 targets of 112 meet criteria.

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1

Urania Orion Optrics OD350 Paul Help

Antwerp, Belgium  
La Bergerie (Morvan)  
Medendorf  
Louvergny  
Preitenegg  
✓ Urania  
Wibrin

Observing List  
Messier

Class Filter  
All Classes

Constella

Generate Observing Plan  
Plan Find/Slew Time 3 min View Time 5 min Attachments My Attachments

Average Seeing (1" - 2.5" P6-7) 18C 60%

Filter  
Quality, Difficulty and Double-Star Splitability Filters  
Any quality Perceptible and less difficult Ignore Splitability From 20:00 to 04:38

List Functions Default columns Add Objects Get Observing Lists Share/Export List

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78°22'	+280°04'	2	easy	Ethos 10mm
☆☆☆☆ Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	04:52	13:06	21:17	19:25	07:13	20:15	+19°03'	+077°01'	64	easy	Ethos 17mm
☆☆☆☆ Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	02:13	11:56	21:44	05:30	07:10	07:45	+36°06'	+080°10'	63	obvious	Ethos 13mm
☆☆☆☆ Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---	---	17:04	22:41	04:17	19:40	22:41	01:55	+33°29'	+180°09'	16	obvious	Ethos 13mm
☆☆☆☆ M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	-	04:16	-	02:45	04:16	05:50	+85°37'	+000°06'	32	easy	Ethos 10mm
☆☆☆☆ Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2 ly	2000 ly	-	04:19	-	20:05	04:19	07:45	+86°16'	+000°41'	32	easy	Ethos 10mm
☆☆☆☆ M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	-	17:49	-	19:15	19:56	00:55	+65°55'	+257°38'	3	obvious	Ethos 10mm
☆☆☆☆ M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'	38000 ly	17.0 Mly	-	05:55	-	04:05	05:39	07:10	+79°28'	+163°22'	43	obvious	Ethos 10mm
☆☆☆☆ M 65	NGC 3623	Leo	10.1	21.2	7.6' x 2.0'	90000 ly	41.0 Mly	21:13	04:23	11:33	23:50	04:23	07:40	+51°49'	+179°53'	34	easy	Ethos 10mm
☆☆☆☆ Sombrero Galaxy	M 104	Vir	9.1	21.3	8.5' x 4.9'	150000 ly	60.0 Mly	00:40	05:44	10:48	03:25	05:40	07:30	+27°05'	+178°52'	47	easy	Series 5000 UWA 14mm
☆☆☆☆ Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	-	03:01	-	19:25	03:01	07:45	+71°35'	+000°04'	31	easy	Ethos 10mm
☆☆☆☆ M 83	NGC 5236	Hya	7.8	21.6	13.5' x 13.2'	60000 ly	15.0 Mly	03:37	06:41	09:45	04:55	06:37	07:25	+08°51'	+179°06'	46	easy	Nagler Type 5 31mm
☆☆☆☆ M 105	NGC 3379	Leo	10.2	21.6	4.9' x 4.3'	64000 ly	45.0 Mly	20:45	03:52	11:00	23:25	03:52	07:35	+51°18'	+179°53'	34	easy	Ethos 10mm
☆☆☆☆ M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	13:44	19:48	01:53	19:25	20:06	23:25	+38°49'	+185°40'	6	easy	Ethos 13mm
☆☆☆☆ M 59	NGC 4621	Vir	10.7	21.8	4.6' x 3.2'	93000 ly	70.0 Mly	22:44	05:46	12:52	01:25	05:36	07:40	+50°19'	+176°07'	45	easy	Ethos 13mm
☆☆☆☆ Black Eye Galaxy	M 64	Com	9.3	21.8	10.5' x 5.4'	37000 ly	12.0 Mly	21:59	06:01	14:06	00:50	05:42	07:45	+60°10'	+171°12'	45	easy	Ethos 10mm
☆☆☆☆ M 60	NGC 4649	Vir	9.8	21.8	6.8' x 5.4'	140000 ly	70.0 Mly	22:46	05:48	12:53	01:25	05:37	07:40	+50°12'	+175°53'	45	easy	Ethos 13mm
☆☆☆☆ M 58	NGC 4579	Vir	10.5	21.8	5.0' x 3.8'	100000 ly	70.0 Mly	22:39	05:42	12:49	01:20	05:33	07:40	+50°30'	+176°36'	45	easy	Ethos 13mm
☆☆☆☆ Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	-	03:01	-	19:25	03:01	07:45	+72°12'	+359°58'	31	easy	Ethos 10mm
☆☆☆☆ M 87	NGC 4486	Vir	9.6	21.9	7.1' x 6.6'	140000 ly	70.0 Mly	22:29	05:35	12:45	01:05	05:30	07:40	+51°06'	+178°05'	45	easy	Ethos 10mm
☆☆☆☆ M 102	NGC 5866	Dra	10.7	21.9	6.3' x 2.8'	86000 ly	47.0 Mly	-	08:10	-	23:55	06:45	07:45	+76°38'	+062°00'	53	easy	Ethos 10mm
☆☆☆☆ St. Katherine's Wheel	Coma Pinwheel	Com	10.4	22.0	5.0' x 4.7'	100000 ly	70.0 Mly	22:05	05:23	12:44	00:50	05:21	07:40	+53°08'	+179°12'	45	easy	Ethos 10mm
☆☆☆☆ M 100	NGC 4321	Com	10.0	22.0	6.2' x 5.6'	130000 ly	70.0 Mly	22:02	05:27	12:56	00:45	05:24	07:40	+54°32'	+178°44'	45	easy	Ethos 10mm
☆☆☆☆ M 66	NGC 3627	Leo	9.7	22.0	10.2' x 4.6'	120000 ly	41.0 Mly	21:15	04:25	11:34	00:00	04:25	07:35	+51°42'	+180°10'	34	easy	Ethos 10mm
☆☆☆☆ M 85	NGC 4382	Com	10.0	22.1	6.9' x 5.4'	140000 ly	70.0 Mly	21:50	05:30	13:13	00:40	05:25	07:40	+56°54'	+178°02'	45	easy	Ethos 10mm
☆☆☆☆ M 90	NGC 4569	Vir	10.1	22.1	9.1' x 3.8'	190000 ly	70.0 Mly	22:30	05:41	12:55	01:20	05:32	07:40	+51°50'	+176°28'	45	easy	Ethos 10mm

78 targets of 112 meet criteria.

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: Messier

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Quality, Difficulty and Doubt: Any quality

Weather:  Auto Average Seeing (1" - 2.5" P6-7)

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min Attachments: My Attachments

and less difficult Ignore Splitability From 20:00 to 04:38

★☆☆	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆☆	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78° 22'	+280° 04'	2	easy	Ethos 10mm
☆☆☆☆	Dumbbell	M 27	Vul	7.3	18.4	8.0'	2 ly	1100 ly	04:52	13:06	21:17	19:25	07:13	20:15	+19° 03'	+077° 01'	64	easy	Ethos 17mm
☆☆☆☆	Ring Nebula	M 57	Lyr	9.4	18.8	1.4'	1 ly	2600 ly	02:13	11:56	21:44	05:30	07:10	07:45	+36° 06'	+080° 10'	63	obvious	Ethos 13mm
☆☆☆☆	Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---	---	17:04	22:41	04:17	19:40	22:41	01:55	+33° 29'	+180° 09'	16	obvious	Ethos 13mm
☆☆☆☆	M 108	NGC 3556	UMa	10.7	20.9	4.0' x 1.7'	61000 ly	53.0 Mly	-	04:16	-	02:45	04:16	05:50	+85° 37'	+000° 06'	32	easy	Ethos 10mm
☆☆☆☆	Owl Nebula	M 97	UMa	9.7	21.0	3.4'	2 ly	2000 ly	-	04:19	-	20:05	04:19	07:45	+86° 16'	+000° 41'	32	easy	Ethos 10mm
☆☆☆☆	M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	-	17:49	-	19:15	19:56	00:55	+65° 55'	+257° 38'	3	obvious	Ethos 10mm
☆☆☆☆	M 94	NGC 4736	CVn	8.7	21.1	7.8' x 6.8'	38000 ly	17.0 Mly	-	05:55	-	04:05	05:39	07:10	+79° 28'	+163° 22'	43	obvious	Ethos 10mm
☆☆☆☆	M 65	NGC 3623	Leo	10.1	21.2	7.6' x 2.0'	90000 ly	41.0 Mly	21:13	04:23	11:33	23:50	04:23	07:40	+51° 49'	+179° 53'	34	easy	Ethos 10mm
☆☆☆☆	Sombrero Galaxy	M 104	Vir	9.1	21.3	8.5' x 4.9'	150000 ly	60.0 Mly	00:40	05:44	10:48	03:25	05:40	07:30	+27° 05'	+178° 52'	47	easy	Series 5000 UWA 14mm
☆☆☆☆	Cigar Galaxy	M 82	UMa	9.0	21.5	11.0' x 5.1'	38000 ly	12.0 Mly	-	03:01	-	19:25	03:01	07:45	+71° 35'	+000° 04'	31	easy	Ethos 10mm
☆☆☆☆	M 83	NGC 5236	Hya	7.8	21.6	13.5' x 13.2'	60000 ly	15.0 Mly	03:37	06:41	09:45	04:55	06:37	07:25	+08° 51'	+179° 06'	46	easy	Nagler Type 5 31mm
☆☆☆☆	M 105	NGC 3379	Leo	10.2	21.6	4.9' x 4.3'	64000 ly	45.0 Mly	20:45	03:52	11:00	23:25	03:52	07:35	+51° 18'	+179° 53'	34	easy	Ethos 10mm
☆☆☆☆	M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	13:44	19:48	01:53	19:25	20:06	23:25	+38° 49'	+185° 40'	6	easy	Ethos 13mm
☆☆☆☆	M 59	NGC 4621	Vir	10.7	21.8	4.6' x 3.2'	93000 ly	70.0 Mly	22:44	05:46	12:52	01:25	05:36	07:40	+50° 19'	+176° 07'	45	easy	Ethos 13mm
☆☆☆☆	Black Eye Galaxy	M 64	Com	9.3	21.8	10.5' x 5.4'	37000 ly	12.0 Mly	21:59	06:01	14:06	00:50	05:42	07:45	+60° 10'	+171° 12'	45	easy	Ethos 10mm
☆☆☆☆	M 60	NGC 4649	Vir	9.8	21.8	6.8' x 5.4'	140000 ly	70.0 Mly	22:46	05:48	12:53	01:25	05:37	07:40	+50° 12'	+175° 53'	45	easy	Ethos 13mm
☆☆☆☆	M 58	NGC 4579	Vir	10.5	21.8	5.0' x 3.8'	100000 ly	70.0 Mly	22:39	05:42	12:49	01:20	05:33	07:40	+50° 30'	+176° 36'	45	easy	Ethos 13mm
☆☆☆☆	Bode's Galaxy	M 81	UMa	7.8	21.9	21.4' x 11.2'	75000 ly	12.0 Mly	-	03:01	-	19:25	03:01	07:45	+72° 12'	+359° 58'	31	easy	Ethos 10mm
☆☆☆☆	M 87	NGC 4486	Vir	9.6	21.9	7.1' x 6.6'	140000 ly	70.0 Mly	22:29	05:35	12:45	01:05	05:30	07:40	+51° 06'	+178° 05'	45	easy	Ethos 10mm
☆☆☆☆	M 102	NGC 5866	Dra	10.7	21.9	6.3' x 2.8'	86000 ly	47.0 Mly	-	08:10	-	23:55	06:45	07:45	+76° 38'	+062° 00'	53	easy	Ethos 10mm
☆☆☆☆	St. Katherine's Wheel	Coma Pinwheel	Com	10.4	22.0	5.0' x 4.7'	100000 ly	70.0 Mly	22:05	05:23	12:44	00:50	05:21	07:40	+53° 08'	+179° 12'	45	easy	Ethos 10mm
☆☆☆☆	M 100	NGC 4321	Com	10.0	22.0	6.2' x 5.6'	130000 ly	70.0 Mly	22:02	05:27	12:56	00:45	05:24	07:40	+54° 32'	+178° 44'	45	easy	Ethos 10mm
☆☆☆☆	M 66	NGC 3627	Leo	9.7	22.0	10.2' x 4.6'	120000 ly	41.0 Mly	21:15	04:25	11:34	00:00	04:25	07:35	+51° 42'	+180° 10'	34	easy	Ethos 10mm
☆☆☆☆	M 85	NGC 4382	Com	10.0	22.1	6.9' x 5.4'	140000 ly	70.0 Mly	21:50	05:30	13:13	00:40	05:25	07:40	+56° 54'	+178° 02'	45	easy	Ethos 10mm
☆☆☆☆	M 90	NGC 4569	Vir	10.1	22.1	9.1' x 3.8'	190000 ly	70.0 Mly	22:30	05:41	12:55	01:20	05:32	07:40	+51° 50'	+176° 28'	45	easy	Ethos 10mm

78 targets of 112 meet criteria.





# Het maken van een waarneemplan

- Stap 2:
  - Geef de weersverwachting in
    - Seeing, temperatuur en vochtigheidsgraad
      - “Auto”: Typische waarden voor deze locatie voor de geselecteerde maand
  - Zet de gewenste filters
    - Class: Type object
    - Constellations
    - Log Filter: Beperk de lijst tot objecten die je reeds of nog niet gelogd hebt
    - Quality: Any / Fair or better / Best quality only
    - Difficulty: Visible (Any difficulty) of van “Obvious” tot “Very Challenging”
    - Splitability: Enkel van toepassing voor dubbelsterren

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: Messier

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Double-Star Splitability Filters: Visible (any difficulty) N/A Ignore Splitability From 20:00 to 00:00

Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm
-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm
09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm
08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm
08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

Seeing Legend:

- Excellent Seeing (<0.4" P10)
- Good Seeing (0.4" - 1" P8-9)
- Average Seeing (1" - 2.5" P6-7)
- Poor Seeing (2.5" - 4" P4-5)
- Bad Seeing (>4" P1-3)

6 targets of 112 meet criteria.



# Het maken van een waarneemplan

The screenshot shows the SkyTools 4 Visual interface. The main window displays an observing plan for the evening of January 23, 2025, GMT+1. The timeline at the top shows the progression of the night from 12:00 to 12:00 (Midnight). The observing list is filtered by Messier objects, and the weather is set to 18C and 60% humidity. The observing plan is generated for a 3-minute find/slew time and a 5-minute view time. The table below shows the objects to be observed, including their alternate ID, constellation, magnitude, size, diameter, distance, rise, set, begin, best, end, altitude, azimuth, priority, difficulty, and ideal eyepiece.

Alternate ID	Con	Mag	SBr	App. Size	Diameter	Distance	Rise	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
NGC 1840	-	-	-	-	-	-	18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm
NGC 1948	-	-	-	-	-	-	19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm
NGC 2234	09:02	-	-	-	-	-	22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm
NGC 2242	08:41	-	-	-	-	-	22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm
NGC 2258	08:35	-	-	-	-	-	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
M 2053	05:13	-	-	-	-	-	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

The screenshot shows the SkyTools 4 Visual Standard Edition interface. The main window displays a star chart for the evening of 2025 Jan 23 GMT+1, centered on Urania. The chart shows a range of stars from magnitude 12 to 75. A color-coded bar at the bottom of the chart indicates the visibility of objects during the night, with colors ranging from red (low visibility) to green (high visibility).

Below the chart, the 'Observing List' is displayed. The list is filtered by 'Messier' objects and 'All Classes'. The 'Weather' section shows 'Average Seeing (1" - 2.5" P6-7)' set to 18C and 60%. The 'Generate Observing Plan' section is set to 'Plan' with 'Find/Slew Time' of 3 min and 'View Time' of 5 min. The 'Attachments' section is set to 'My Attachments'.

The 'Class Filter' is set to 'All Classes', the 'Constellation Filter' is set to 'All', and the 'Log Filter' is set to 'Any'. The 'Quality, Difficulty and Double-Star Splitability Filters' are set to 'Best quality only', 'Visible (any difficulty)', and 'N/A'. The 'Ignore Splitability' option is checked. The 'From' and 'to' times are set to 20:00 and 00:00 respectively.

The table below shows the results of the search, with columns for Primary ID, Alternate ID, Constellation, Magnitude, Surface Brightness, Angular Size, Diameter, Distance, Rise, Set, Best, End, Altitude, Azimuth, Priority, Difficulty, and Ideal Eyepiece. A tooltip is visible over the 'Best quality only' filter, showing options for 'Any quality', 'Fair quality or better', and 'Best quality only'.

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Dist	Rise	Set	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200		19:30	19:57	22:25		+75° 35'	+319° 24'	1	obvious	Ethos 10mm
M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600		19:40	20:08	22:00		+81° 04'	+204° 10'	2	obvious	Ethos 10mm
M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	12:07 22:34 09:02	21:15	22:34	00:00		+74° 44'	+179° 44'	12	obvious	Ethos 10mm
M 36	NGC 1960	Aur	6.3	10.0'	12 ly	4300 ly	12:43 22:42 08:41	20:40	22:42	00:45		+73° 01'	+180° 02'	12	obvious	Ethos 10mm
M 37	NGC 2099	Aur	5.9	14.0'	18 ly	4500 ly	13:20 22:58 08:35	21:10	22:58	00:50		+71° 25'	+180° 05'	12	obvious	Ethos 10mm
Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	12:32 20:53 05:13	19:45	20:53	22:25		+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

The screenshot shows the SkyTools 4 Visual Standard Edition interface. At the top, the title bar reads "SkyTools 4 Visual Standard Edition". Below it, the menu bar includes "Setup", "Tools", "Data", and "Help". The main window title is "SkyTools 4 Visual".

The interface is set to "Evening of 2025 Jan 23 GMT+1" in the "Urania" constellation, using an "Orion Optics OD350" telescope. The user's name is "Paul".

A star chart is visible at the top, showing the constellation's outline and a color-coded bar representing the observing schedule. The chart shows a range from 12 to 12 hours, with a "Midnight" marker.

Below the chart, there are several filter and control panels:

- Observing List:** Set to "Messier".
- Weather:** Includes "Auto" checkbox, "Average Seeing (1" - 2.5" P6-7)", "18C", and "60%".
- Generate Observing Plan:** Includes "Plan" checkbox, "Find/Slew Time 3 min", and "View Time 5 min".
- Attachments:** Set to "My Attachments".
- Class Filter:** Set to "All Classes".
- Constellation Filter:** Set to "All".
- Log Filter:** Set to "Any".
- Quality, Difficulty and Double-Star Splitability Filters:** Includes "Best quality only", "Visible (any difficulty)", "N/A", "Ignore Splitability", "From 20:00", and "to 00:00".

A table of objects is displayed below the filters. The table has columns for "Primary ID", "Alternate ID", "Con", "Mag", "SBr", "Ang. Size", "Diameter", "Distance", "Rise", "Tra...", "Set", and "Begin". A dropdown menu is open over the table, showing difficulty levels: "Ignore Difficulty", "Visible (any difficulty)", "Obvious", "Easy", "Perceptible", "Difficult", "Challenging", and "Very Challenging".

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin
M 103	NGC 581	Cas	6.6		5.0'	10 ly	7200 ly	-	18:40	-	19:30
M 34	NGC 1039	Per	4.9		35.0'	17 ly	1600 ly	-	19:48	-	19:48
M 38	NGC 1912	Aur	5.9		20.0'	20 ly	3500 ly	12:07	22:34	09:02	21:10
M 36	NGC 1960	Aur	6.3		10.0'	12 ly	4300 ly	12:43	22:42	08:41	20:40
M 37	NGC 2099	Aur	5.9		14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10
Pleiades	M 45	Tau	1.2		120.0'	17 ly	490 ly	12:32	20:53	05:13	19:40

At the bottom left, a status bar indicates "6 targets of 112 meet criteria."

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: Messier

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Class Filter: All Classes Constellation Filter: All Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Best quality only Easy only Ignore Splitability From 20:00 to 00:00

List Functions: Default columns Add Objects Get Observing Lists Share/Export List

Columns: Primary ID Alternate ID Con Mag SBr Ang. Size Diameter Distance Rise Tra... Set Begin Best End Alt

0 targets of 112 meet criteria.

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: Messier

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Best quality only Visible (any difficulty) N/A Ignore Splitability From 20:00 to 00:00

List Functions	Default columns	Add Objects	Get Observing Lists	Share/Export List	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty		
☆☆☆☆	M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200 ly	-	18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Etho						
☆☆☆☆	M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600 ly	-	19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Etho						
☆☆☆☆	M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	12:07	22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Etho						
☆☆☆☆	M 36	NGC 1960	Aur	6.3	10.0'	12 ly	4300 ly	12:43	22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Etho						
☆☆☆☆	M 37	NGC 2099	Aur	5.9	14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Etho						
☆☆☆☆	Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagl						

- Ignore Splitability
- Any visible split
- Obvious split only
- Easy split (or easier)
- Good split (or easier)
- Difficult split (or easier)
- Challenging split (or easier)
- Very challenging split only

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

- Stap 3: Selecteer of maak een “Observing list”
  - Deze kan je
    - Automatische laten genereren
    - Importeren van Skyhound
    - Importeren uit andere bronnen
    - Zelf samenstellen (Eventueel uit verschillende geïmporteerde lijsten)

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania

Observing List: Messier

Class Filter: All Classes

Constellation Filter: All

Log Filter: Any

Quality, Difficulty and: Best quality only

Weather:  Auto Average Seeing (1" - 2.5" P6-7)

List Functions: Default columns Add Objects Get Observing Lists Share/Export List

Primary ID	Alternate ID	Con	Mag	SPR	Tra
☆☆☆☆ M 103	NGC 581	Cas	6.6		18:
☆☆☆☆ M 34	NGC 1039	Per	4.9		19:
☆☆☆☆ M 38	NGC 1912	Aur	5.9		22:
☆☆☆☆ M 36	NGC 1960	Aur	6.3		22:
☆☆☆☆ M 37	NGC 2099	Aur	5.9	14.0' 18 ly 4500 ly	13:20 22:
☆☆☆☆ Pleiades	M 45	Tau	1.2	120.0' 17 ly 490 ly	12:32 20:

Get Observing Lists: **Nightly Observing List Generator**, Browse Skyhound, Read From SkyTools (.stx) File, Read From Text File

**Nightly Observing List Generator**

Type of List to Create

- Showpieces -- a list of objects to impress
- Shallow sky -- solar system objects of interest
- Interesting Deep sky -- objects of interest because of their appearance in the eyepiece or their intriguing nature
- NGC/IC -- a selection of well placed objects from the NGC and IC catalogs
- Off the beaten path -- a selection of less well known objects not typically observed
- Interesting stars -- red stars and variable stars
- Double stars -- appealing double and triple stars

Create a custom observing list for the night, location, observer and instrument selected in the planner.

Destination Observing List Folder: Auto Generated Lists **New**

Destination Observing List Name: 2025 Jan 23 at Urania

Observing List Size: Normal

Exclude objects with log entries

**Create Observing List** **Cancel** **Help**

If your results are empty, please check the date on the nightly planner to ensure that it is not near full moon.

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition software interface. The main window shows a star chart with a grid and various filters. A 'Download Observing List' dialog box is open, displaying a list of files and their details.

**Download Observing List**

File Type	Size	File Name
Observing List	728 bytes	100BrGal.stx
Observing List	753 bytes	2005ST.stx
Observing List	1.8 KB	410SmallScopes.stx
Observing List	107.7 KB	AI Northern 100.stx
Observing List	5.2 KB	ALCaldwell.stx
Observing List	1.7 KB	ALGalGroups.stx

**File Details**

**AL Caldwell Club Observing List**

Type: Observing List  
Includes: 110 objects, 110 notes  
File: ALCaldwell.stx  
Size: 5.2 KB  
Status: Not yet installed

**Description**

This is the observing list connected with the Astronomical League Caldwell Observing Award. It is a corrected version of the list that Sir Patrick Caldwell-Moore submitted, as a complement to the Messier catalog, to Sky and Telescope magazine in 1995 ("Beyond Messier: The Caldwell Catalog", Sky and Telescope, December 1995, p. 38). In addition to the corrections contained in the AL list, I had to use slightly different designations than those in the AL list for a few objects to match the appropriate entries in the SkyTools database. I have included notes associated with the objects to indicate where this was necessary.

**Main Window Data:**

Primary ID	Alternate ID	Con	Mag	SBr
M 103	NGC 581	Cas	6.6	
M 34	NGC 1039	Per	4.9	
M 38	NGC 1912	Aur	5.9	
M 36	NGC 1960	Aur	6.3	
M 37	NGC 2099	Aur	5.9	14.0' 18 ly
Pleiades	M 45	Tau	1.2	120.0' 17 ly

6 targets of 112 meet criteria.



# Het maken van een waarneemplan

The screenshot shows the SkyTools 4 Visual Standard Edition interface. The main window displays an observing plan for the evening of January 23, 2025, GMT+1, in the constellation of Urania, using an Orion Optics OD350 telescope. The interface includes a star chart at the top, a table of objects to be observed, and various filter settings.

**Observing List:** Messier

**Weather:** Average Seeing (1" - 2.5" P6-7), 18C, 60%

**Generate Observing Plan:** Plan, Find/Slew Time 3 min, View Time 5 min

**Class Filter:** All Classes

**Constellation Filter:** All

**Log Filter:** Any

**Quality, Difficulty and Double-Star Splitability Filters:** Best quality only, Visible (any difficulty), N/A, Ignore Splitability

**From:** 20:00 **to:** 00:00

Primary ID	Alternate ID	Con	Mag	SBr	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
M 103	NGC 581	Cas	6.6		18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm
M 34	NGC 1039	Per	4.9		19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm
M 38	NGC 1912	Aur	5.9		22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm
M 36	NGC 1960	Aur	6.3		22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm
M 37	NGC 2099	Aur	5.9		22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
Pleiades	M 45	Tau	1.2		20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

The image shows a Microsoft Copilot chat window in a browser. The browser tab is titled "Copilot | Microsoft 365" and the address bar shows a URL starting with "https://m365.cloud.microsoft/chat/?fromcode=bingchat&redirectid=80AA4966952D4CB1AC80A1F1...". The Copilot interface includes a search bar, a "Work" / "Web" toggle, and a "View prompts" link. The main chat area contains the following text:

Please generate a list of 100 good objects to observe in a 14 inch telescope from a location of 51° latitude under a moderate dark sky. The list should include objects outside the Messier list, not often viewed but interesting in some way to look at. Format the list unnumbered, with no other text and add a line break between each designation so I can import it into my software which reads simple text files.

Below the text is an "Add content" button and a character count "410 / 16000". At the bottom right of the chat area are icons for @, link, share, and send.

In the background, the SkyTools 4 Visual Standard Edition software is visible. The interface includes a "Nightly Planner" for "Evening of 2025 Jan 23 GMT+1", an "Observing List" with filters for "Messier" and "All Classes", and a table of objects with columns for "List Functions", "Default co", and "Primary ID". The table lists several objects with star ratings and names:

List Functions	Default co	Primary ID
☆☆☆☆		M 103
☆☆☆☆		M 34
☆☆☆☆		M 38
☆☆☆☆		M 36
☆☆☆☆		M 37
☆☆☆☆		Pleiades

At the bottom left of the screen, a status bar indicates "6 targets of 112 meet criteria."

Personal Copilot | Microsoft 365

https://m365.cloud.microsoft/chat/?fromcode=bingchat&redirectid=80AA4966952D4C...

Search

Copilot Work Web

Sure, here is a list of 100 interesting objects to observe with a 14-inch telescope from a location of 51° latitude under a moderate dark sky, excluding the Messier list:

- NGC 891
- NGC 7331
- NGC 4565
- NGC 6946
- NGC 253
- NGC 2903
- NGC 2403
- NGC 3628

View prompts

Message Copilot

+ Add content

0 / 16000

@

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1

Observing List

Messier

Class Filter

All Classes

List Functions Default columns

Primary ID	Alt
☆☆☆☆ M 103	NGC 5
☆☆☆☆ M 34	NGC 1
☆☆☆☆ M 38	NGC 1
☆☆☆☆ M 36	NGC 1
☆☆☆☆ M 37	NGC 2
☆☆☆☆ Pleiades	M 45

6 targets of 112 meet criteria.

SkyTools 4 Visual

Help

nts

chments

From 20:00 to 00:00



# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. The top menu bar includes Setup, Tools, Data, and Help. The main window shows the 'Nightly Planner' tab with the date 'Evening of 2025 Jan 23 GMT+1' and the location 'Urania'. The telescope is set to 'Orion Optics OD350' and the user is 'Paul'. A star chart is visible at the top, showing the sky with a color-coded visibility bar at the bottom.

The 'Observing List' panel is open, showing a list of objects. The 'Messier' filter is selected. The 'Auto Generated Lists' folder is expanded, and the 'AI Generated list of 100 non-messier objects' is highlighted. The 'Weather' section shows 'Average Seeing (1" - 2.5" P6-7)', '18C', and '60%'. The 'Generate Observing Plan' section has 'Plan' checked, 'Find/Slew Time' set to 3 min, and 'View Time' set to 5 min. The 'Attachments' section shows 'My Attachments'.

The 'Log Filter' is set to 'Any'. The 'Quality, Difficulty and Double-Star Splitability Filters' section shows 'Best quality only', 'Visible (any difficulty)', and 'Ignore Splitability'. The 'From' and 'to' times are set to '20:00' and '00:00' respectively.

The 'Get Observing Lists' menu is open, showing options like 'Nightly Observing List Generator', 'Browse Skyhound', 'Read From SkyTools (.stx) File', and 'Read From Text File'. A red arrow points to the 'Read From Text File' option.

SBR	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece			
	18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm			
	19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm			
	22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm			
	22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm			
14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

6 targets of 112 meet criteria.

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

The interface displays a star chart at the top with a color-coded observing plan bar below it. The bar is divided into segments of red, yellow, and green, indicating different observation phases or conditions. Below the chart are various control panels for filters and settings.

**Observing List**

AI Generated list of 100 non-messier objects

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Class Filter: All Classes Constellation Filter: All Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Any quality Visible (any difficulty) N/A Ignore Splitability From 20:00 to 00:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ Sculptor Galaxy	NGC 253	Scl	7.9	21.3	26.9' x 4.6'	100000 ly	13.0 Mly	14:11	17:54	21:37	19:30	19:48	20:30	+09°37'	+206°09'	7	perceptible	Nagler Type 5 31mm
☆☆☆☆ Whale Galaxy	NGC 4631	CVn	9.5	21.4	14.5' x 2.2'	120000 ly		20:11	05:46	15:26	23:50	05:34	07:45	+71°07'	+172°01'	43	easy	Ethos 10mm
☆☆☆☆ NGC 3628	Arp 317	Leo	10.0	22.1	11.0' x 3.4'	130000 ly		21:12	04:25	11:38	00:05	04:25	07:35	+52°18'	+180°09'	34	easy	Ethos 10mm
☆☆☆☆ NGC 2905 (NGC 2903)	NGC 2903	Leo	9.5	22.2	12.0' x 5.4'	97000 ly		18:36	02:37	10:38	21:35	02:37	07:25	+60°15'	+180°02'	35	easy	Ethos 10mm
☆☆☆☆ NGC 7331	MCG 6-49-45	Peg	10.2	22.2	9.3' x 3.8'	38000 ly		05:35	15:43	01:48	19:30	19:55	21:40	+42°29'	+275°06'	72	easy	Ethos 13mm
☆☆☆☆ NGC 4565	MCG 4-30-6	Com	10.1	22.4	16.6' x 2.9'	330000 ly		21:07	05:40	14:17	00:40	05:30	07:35	+64°37'	+174°31'	45	perceptible	Ethos 10mm
☆☆☆☆ NGC 2403	MCG 11-10-7	Cam	8.8	22.7	20.0' x 10.0'	62000 ly	11.0 Mly	-	00:43	-	19:25	00:43	07:35	+75°36'	+359°59'	21	easy	Ethos 10mm
☆☆☆☆ NGC 891	MCG 7-5-46	And	10.9	23.1	13.2' x 3.1'	53000 ly		-	19:29	-	19:30	20:09	01:20	+78°55'	+222°24'	2	perceptible	Ethos 10mm
☆☆☆☆ NGC 6946	Arp 29	Cep	9.8	23.2	11.5' x 11.0'	---		-	13:41	-	19:35	19:57	22:15	+40°44'	+319°13'	61	perceptible	Ethos 13mm

9 targets of 9 meet criteria.

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. At the top, the title bar reads "SkyTools 4 Visual Standard Edition". The main window shows a "Nightly Planner" for "Evening of 2025 Jan 23 GMT+1". The location is set to "Urania" and the telescope to "Orion Optics OD350". The user name is "Paul". A graph at the top shows the sky's visibility over time, with a color-coded bar indicating the observing window from approximately 19:00 to 01:00. Below the graph, there are several control panels: "Observing List" (set to "Showpieces for Newbies"), "Weather" (Average Seeing: 1" - 2.5" P6-7, Temp: 18C, Humidity: 60%), and "Generate Observing Plan" (Plan checked, Find/Slew Time: 3 min, View Time: 5 min). There are also filters for "Class Filter" (All Classes), "Constellation Filter" (All), "Log Filter" (Any), and "Quality, Difficulty and Double-Star Splitability Filters" (Best quality only, Visible: any difficulty, Ignore Splitability). A table of objects is displayed below, with columns for Primary ID, Alternate ID, Constellation, Magnitude, Surface Brightness, Angular Size, Diameter, Distance, Rise, Transit, Set, Begin, Best, End, Altitude, Azimuth, Priority, Difficulty, and Ideal Eyepiece. The table lists several objects, including Clown Face, ET Cluster, Chi Persei, h Persei, Almaak, M 37, Castor, and Pleiades. A status bar at the bottom indicates "8 targets of 68 meet criteria."

✓	☆☆☆☆	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
✓	☆☆☆☆	Clown Face	Eskimo Nebula	Gem	8.6	16.7	47"	48300 AU	3400 ly	16:37	00:34	08:32	23:30	00:34	01:45	+59° 43'	+179° 51'	25	obvious	Ethos 10mm
✓	☆☆☆☆	ET Cluster	Dragonfly	Cas	4.7		20.0'	46 ly	7900 ly	-	18:26	-	19:35	19:58	21:45	+74° 55'	+307° 48'	3	obvious	Ethos 10mm
✓	☆☆☆☆	Chi Persei	NGC 884	Per	4.7		18.0'	40 ly	7600 ly	-	19:29	-	19:30	20:03	22:55	+82° 05'	+323° 53'	2	obvious	Ethos 10mm
✓	☆☆☆☆	h Persei	Double Cluster	Per	4.6		18.0'	35 ly	6800 ly	-	19:25	-	19:30	20:02	22:55	+81° 52'	+322° 14'	2	obvious	Ethos 10mm
	☆☆☆☆	Almaak	Gamma 1 And	And	2.1		stellar	---	350 ly	-	19:10	-	18:25	19:29	22:55	+80° 43'	+202° 21'	2	obvious	Ethos 21mm
	☆☆☆☆	M 37	NGC 2099	Aur	5.9		14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
	☆☆☆☆	Castor	Alpha Gem	Gem	1.6		stellar	---	52 ly	15:11	00:40	10:09	21:45	00:40	03:40	+70° 41'	+180° 05'	22	obvious	Ethos 13mm
✓	☆☆☆☆	Pleiades	M 45	Tau	1.2		120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm

8 targets of 68 meet criteria.

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. The main window shows a star chart for the evening of 2025 Jan 23 GMT+1, with a list of objects below it. The 'List Functions' menu is open, with 'Copy Checked To...' highlighted by a red arrow. Two dialog boxes are overlaid: 'Add Object to Observing List' and 'Create New Observing List'. The 'Create New Observing List' dialog shows a folder named 'Prepared Lists', a title 'SkyTools Demo', and a description field. The background window shows a table of objects with columns for Primary ID, Alternate ID, Con, Mag, SBr, Ang. Size, Diameter, Distance, and Rise. The status bar at the bottom indicates '8 targets of 68 meet criteria.'

8 targets of 68 meet criteria.



# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. The main window shows an observing plan for the evening of 2025 Jan 23 GMT+1, centered on Urania. The interface includes a star chart at the top, a table of objects, and a dialog box for adding objects to the observing list.

**Observing List Table:**

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter
☆☆☆☆ BOWL OF STARS		Cas	8.0	stellar	---	---
☆☆☆☆ POT AND PITCHER		And	8.5	stellar	---	---
☆☆☆☆ KEMBLE'S KITE		Cas	8.5	stellar	---	---
☆☆☆☆ ALADIN'S LAMP		Cas	9.0	stellar	---	---
☆☆☆☆ TOBACCO PIPE		Cep	8.0	stellar	---	---
☆☆☆☆ YACHT		Cep	9.0	stellar	---	---
☆☆☆☆ AIRPLANE		Cas	9.5	stellar	---	---
☆☆☆☆ RENOU 18		Psc	9.0	stellar	---	---
☆☆☆☆ TPK 1		And	10.0	stellar	---	---
☆☆☆☆ ET Cluster	Dragonfly	Cas	4.7	20.0'	46 ly	---
☆☆☆☆ GOLF PUTTER		And	---	stellar	---	---
☆☆☆☆ FISH HOOK		Tau	9.0	stellar	---	---
☆☆☆☆ SEVEN SISTERS OF THE POLI		Cep	---	stellar	---	---
☆☆☆☆ ALLY'S BRAID		Tau	---	stellar	---	---
☆☆☆☆ FLYING MINNOW		Aur	---	stellar	---	---
☆☆☆☆ BARBECUE FORK		Tau	10.0	stellar	---	---
☆☆☆☆ DAVIS DOG		Tau	---	stellar	---	---
☆☆☆☆ SPADE		UMa	10.0	stellar	---	---
☆☆☆☆ INCHWORM		Lyn	4.0	stellar	---	---
☆☆☆☆ BROKEN ENGAGEMENT RING		UMa	7.0	stellar	---	---

**Add Object to Observing List Dialog:**

Folder: Prepared Lists (New)

Observing List: SkyTools Demo (New)

Buttons: OK, Cancel, Help

**Table of Observing Plan Data:**

Time	RA	Dec	Mag	Diff	Eye					
17:00	19:45	19:54	21:55	+53° 24'	+359° 30'	1				
12:35	20:53	05:11	20:05	20:53	21:45	+62° 44'	+180° 07'	15	unknown	Ethos 10mm
12:33	22:25	08:17	20:50	22:25	00:05	+72° 33'	+180° 13'	12	unknown	Ethos 3,7mm SX110°
14:48	22:48	06:49	21:00	22:48	00:40	+60° 12'	+179° 47'	14	unknown	Ethos 3,7mm SX110°
13:27	21:28	05:30	21:10	21:28	21:50	+60° 20'	+179° 55'	15	unknown	Ethos 3,7mm SX110°
-	02:47	-	22:45	02:47	06:50	+87° 56'	+000° 11'	33	unknown	Any
-	02:10	-	22:45	02:10	05:40	+77° 01'	+179° 59'	33	unknown	Any
-	03:56	-	23:35	03:56	07:55	+85° 08'	+359° 28'	32	unknown	Any

20 targets of 89 meet criteria.

# Het maken van een waarneemplan

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

The interface displays a star chart with a color-coded observing path (blue and orange lines) and a weather bar (green and yellow) indicating seeing conditions. The main table below lists the objects to be observed, including their magnitude, size, distance, and observation times.

Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
8.0	stellar	---	---	---	-	17:01	-	19:00	19:32	21:25	+67° 22'	+298° 51'	72	unknown	Any
8.5	stellar	---	---	---	-	19:01	-	19:00	19:41	22:35	+78° 07'	+219° 15'	2	unknown	Any
8.5	stellar	---	---	---	-	20:34	-	19:05	20:34	01:25	+69° 13'	+359° 59'	11	unknown	Any
9.0	stellar	---	---	---	-	19:43	-	19:05	19:55	00:25	+73° 28'	+355° 50'	1	unknown	Any
8.0	stellar	---	---	---	-	15:36	-	19:10	19:33	20:35	+57° 10'	+328° 12'	71	unknown	Any
9.0	stellar	---	---	---	-	16:31	-	19:10	19:36	21:10	+62° 47'	+316° 50'	71	unknown	Any
9.5	stellar	---	---	---	-	16:27	-	19:10	19:36	21:00	+62° 30'	+312° 36'	71	unknown	Any
9.0	stellar	---	---	---	09:05	18:20	03:31	19:10	19:37	21:10	+64° 34'	+221° 42'	3	unknown	Any
10.0	stellar	---	---	---	-	16:45	-	19:15	19:36	20:40	+62° 19'	+279° 48'	72	unknown	Any
4.7	20.0'	46 ly	7900 ly	---	-	18:26	-	19:35	19:58	21:45	+74° 55'	+307° 48'	3	obvious	Ethos 10mm
---	stellar	---	---	---	07:47	18:59	06:08	19:35	19:55	21:15	+73° 05'	+221° 24'	2	unknown	Ethos 3,7mm SX110°
9.0	stellar	---	---	---	13:30	21:31	05:31	19:40	21:31	23:25	+60° 10'	+180° 10'	15	unknown	Any
---	stellar	---	---	---	-	17:06	-	19:45	19:54	21:55	+53° 24'	+356° 30'	1	unknown	Ethos 3,7mm SX110°
---	stellar	---	---	---	12:35	20:53	05:11	20:05	20:53	21:45	+62° 44'	+180° 07'	15	unknown	Ethos 3,7mm SX110°
---	stellar	---	---	---	12:33	22:25	08:17	20:50	22:25	00:05	+72° 33'	+180° 13'	12	unknown	Ethos 3,7mm SX110°
10.0	stellar	---	---	---	14:48	22:48	06:49	21:00	22:48	00:40	+60° 12'	+179° 47'	14	unknown	Any
---	stellar	---	---	---	13:27	21:28	05:30	21:10	21:28	21:50	+60° 20'	+179° 55'	15	unknown	Ethos 3,7mm SX110°
10.0	stellar	---	---	---	-	02:47	-	22:45	02:47	06:50	+87° 56'	+000° 11'	33	unknown	Any
4.0	stellar	---	---	---	-	02:10	-	22:45	02:10	05:40	+77° 01'	+179° 59'	33	unknown	Any
7.0	stellar	---	---	---	-	03:56	-	23:35	03:56	07:55	+85° 08'	+359° 28'	32	unknown	Any

Observing List: Asterisms

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 3 min View Time 5 min

Attachments: My Attachments

Filter: All Log Filter: Any Quality, Difficulty and Double-Star Splitability Filters: Best quality only Visible (any difficulty) N/A Ignore Splitability From 20:00 to 00:00

Left Panel: Auto Generated Lists, Current, Default, Favorites (Asterisms, Messier, OIII Filters, O'Meara's Hidden Treasures, Showpieces for Newbies, Sun, Moon & Planets), Prepared Lists (Coreso 24 Oct, CPS 5-11, Deepie 2024, SkyTools Demo, Wibrin Jan 2024)

Bottom: 20 targets of 89 meet criteria.

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. The main window shows an observing plan for the evening of January 23, 2025, GMT+1, in the constellation of Urania. The observing session is planned for Orion Optics OD350 equipment, with the observer's name Paul. The sky map shows a color-coded observing path across the constellation. Below the map, the 'Observing List' is configured with 'SkyTools Demo' as the observing list, 'All Classes' as the class filter, and 'All' as the constellation filter. The weather is set to 'Average Seeing (1" - 2.5" P6-7)', '18C', and '60%'. The 'Generate Observing Plan' section is set to 'Plan' with a 'Find/Slew Time' of 3 minutes and a 'View Time' of 5 minutes. The 'Quality, Difficulty and Double-Star Splitability Filters' are set to 'Best quality only', 'Visible (any difficulty)', and 'N/A'. The 'Ignore Splitability' option is checked. The 'List Functions' section shows 'Default columns' selected. The table below lists the objects to be observed, including their primary and alternate IDs, constellation, magnitude, size, distance, rise and set times, and observation times.

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆☆ Chi Persei	NGC 884	Per	4.7	18.0'	40 ly	7600 ly	-	19:29	-	19:30	20:03	22:55	+82°05'	+323°53'	2	obvious	Ethos 10mm	
☆☆☆☆ h Persei	Double Cluster	Per	4.6	18.0'	35 ly	6800 ly	-	19:25	-	19:30	20:02	22:55	+81°52'	+322°14'	2	obvious	Ethos 10mm	
☆☆☆☆ ET Cluster	Dragonfly	Cas	4.7	20.0'	46 ly	7900 ly	-	18:26	-	19:35	19:58	21:45	+74°55'	+307°48'	3	obvious	Ethos 10mm	
☆☆☆☆ Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63°03'	+180°07'	15	obvious	Nagler Type 5 31mm	
☆☆☆☆ Clown Face	Eskimo Nebula	Gem	8.6	16.7	47"	48300 AU	3400 ly	16:37	00:34	08:32	23:30	00:34	01:45	+59°43'	+179°51'	25	obvious	Ethos 10mm

5 targets of 24 meet criteria.

# Het maken van een waarneemplan

- Eens je je lijst hebt
  - Eventueel gewenste kolommen (de-)selecteren
  - Sorteren op gewenste kolom
    - Bvb beste tijdstip
      - Kan tijdstip van culminatie zijn
      - Of een beter moment rekening houdende met “Dobson’s hole”, obstructed horizon, opkomst/ondergang Maan, ..
  - Indien gewenst een “plan” genereren
    - Ingave van “Find/slew time” en “View time”
      - View time kan per object ook nog aangepast worden
  - Printen die handel!!!



# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. At the top, the title bar reads "SkyTools 4 Visual Standard Edition". Below it, the menu bar includes "Setup", "Tools", "Data", and "Help". The main window title is "SkyTools 4 Visual".

The interface is set to "Evening of 2025 Jan 23 GMT+1". The observing location is "Urania" and the telescope is "Orion Optics OD350". The observer's name is "Paul".

The "Generate Observing Plan" section is highlighted with a red dashed box. It includes a checked "Plan" checkbox, "Find/Slew Time" set to 5 min, and "View Time" set to 10 min. Other settings include "Weather" (Auto), "Average Seeing (1\" - 2.5\" P6-7)", "18C", and "60%".

The "Class Filter" is set to "All Classes", "Constellation Filter" to "All", and "Log Filter" to "Any". The "Quality, Difficulty and Double-Star Splitability Filters" are set to "Fair quality or better", "Visible (any difficulty)", "N/A", and "Any visible split".

The "List Functions" section shows "Default columns" selected. The "Add Objects" and "Get Observing Lists" buttons are visible.

The main table displays 16 objects scheduled for observation. The columns include: Obs. Time, View Time, Primary ID, Alternate ID, Con, Mag, SBr, Ang. Size, Diameter, Distance, Rise, Tra..., Set, Begin, Best, End, Alt, Az, P..., Difficulty, and Ideal Eyepiece.

★☆☆	Obs. Time	View Time	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
☆☆☆	20:00	10 min	37 Cluster	NGC 2169	Ori	5.6	5.0'	5 ly	3400 ly	15:58	23:14	06:29	19:05	23:14	04:30	+52° 49'	+180° 07'	25	obvious	Ethos 10mm	
☆☆☆	20:15	10 min	M 39	NGC 7092	Cyg	4.9	29.0'	9 ly	1100 ly	-	14:38	-	19:20	19:50	22:55	+41° 57'	+299° 23'	73	obvious	Ethos 13mm	
☆☆☆	20:30	10 min	ET Cluster	Dragonfly	Cas	4.7	20.0'	46 ly	7900 ly	-	18:26	-	19:35	19:58	21:45	+74° 55'	+307° 48'	3	obvious	Ethos 10mm	
☆☆☆	20:45	10 min	M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200 ly	-	18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm	
☆☆☆	21:00	10 min	M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600 ly	-	19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm	
☆☆☆	21:15	10 min	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78° 22'	+280° 04'	2	easy	Ethos 10mm
☆☆☆	21:30	10 min	h Persei	Double Cluster	Per	4.6	18.0'	35 ly	6800 ly	-	19:25	-	19:30	20:02	22:55	+81° 52'	+322° 14'	2	obvious	Ethos 10mm	
☆☆☆	21:45	10 min	Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm	
☆☆☆	22:00	10 min	Crab Nebula	M 1	Tau	8.4	22.2	4.0'	---	-	14:35	22:40	06:45	19:35	22:40	03:10	+60° 53'	+180° 00'	14	perceptible	Ethos 10mm
☆☆☆	22:15	10 min	M 35	NGC 2168	Gem	5.2	25.0'	22 ly	3000 ly	14:53	23:14	07:36	19:15	23:14	05:05	+63° 12'	+179° 47'	25	obvious	Ethos 10mm	
☆☆☆	22:30	10 min	Chi Persei	NGC 884	Per	4.7	18.0'	40 ly	7600 ly	-	19:29	-	19:30	20:03	22:55	+82° 05'	+323° 53'	2	obvious	Ethos 10mm	
☆☆☆	22:45	10 min	M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	-	17:46	-	19:25	19:59	00:30	+65° 34'	+260° 40'	3	easy	Ethos 10mm
☆☆☆	23:00	10 min	M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly	-	11:12	18:43	02:10	19:30	20:01	23:15	+51° 25'	+211° 13'	4	easy	Ethos 10mm
☆☆☆	23:15	10 min	Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	09:18	18:40	03:57	19:20	20:02	00:35	+64° 35'	+224° 43'	2	easy	Ethos 17mm
☆☆☆	23:30	10 min	M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	12:07	22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm	
☆☆☆	23:45	10 min	M 41	NGC 2287	CMA	4.2	39.0'	26 ly	2300 ly	19:38	23:51	04:03	23:05	23:51	00:40	+18° 04'	+180° 02'	27	obvious	Ethos 21mm	

At the bottom left, a status bar indicates "16 objects of 122 scheduled for observation."

# Het maken van een waarneemplan

The screenshot displays the SkyTools 4 Visual Standard Edition interface. At the top, the title bar reads "SkyTools 4 Visual Standard Edition". Below it, the menu bar includes "Setup", "Tools", "Data", and "Help". The main window title is "SkyTools 4 Visual".

The interface is set to "Evening of 2025 Jan 23 GMT+1" with the location "Urania" and telescope "Orion Optics OD350". A star chart at the top shows the sky with various objects and a viewing path. Below the chart, the "Generate Observing Plan" section is active, showing a "Plan" checkbox checked, "Find/Slew Time" set to 5 min, and "View Time" set to 10 min. The "Attachments" section shows "My Attachments".

The "Class Filter" is set to "All Classes", "Constellation Filter" to "All", and "Log Filter" to "Any". The "Quality, Difficulty and Double-Star Splitability Filters" are set to "Fair quality or better", "Visible (any difficulty)", and "N/A". The "View Time" filter is set to "Any visible split".

The "List Functions" section shows "Default columns" selected. The "List Functions" dropdown is set to "Add Objects". The "Get Observing Lists" dropdown is set to "Share/Export List".

The main table displays the following columns: Obs. Time, View Time, Primary ID, Alternate ID, Con, Mag, SBr, Ang. Size, Diameter, Distance, Rise, Tra..., Set, Begin, Best, End, Alt, Az, P..., Difficulty, and Ideal Eyepiece. The table contains 15 rows of scheduled observations.

A "Select Viewing Time" dialog box is overlaid on the table, showing "20 minutes" and "OK" and "Cancel" buttons.

At the bottom left, a status bar indicates "15 objects of 122 scheduled for observation."

Obs. Time	View Time	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
20:00	10 min	37 Cluster	NGC 2169	Ori	5.6	5.0'	5.0'	5.0"	12000 ly	17:46	-	-	19:05	23:14	04:30	+52°49'	+180°07'	25	obvious	Ethos 10mm
20:15	10 min	M 39	NGC 7092	Cyg	4.9	29.0'	9.0'	9.0"	2.6 Mly	18:40	03:57	-	19:20	19:50	22:55	+41°57'	+299°23'	73	obvious	Ethos 13mm
20:30	10 min	ET Cluster	Dragonfly	Cas	4.7	20.0'	46.0'	46.0"	2.9 Mly	18:40	03:57	-	19:35	19:58	21:45	+74°55'	+307°48'	3	obvious	Ethos 10mm
20:45	20 min	M 103	NGC 581	Cas	6.6	5.0'	10.0'	10.0"	2.9 Mly	18:40	03:57	-	19:30	19:57	22:25	+75°35'	+319°24'	1	obvious	Ethos 10mm
21:10	10 min	M 34	NGC 1039	Per	4.9	35.0'	17.0'	17.0"	2.9 Mly	18:40	03:57	-	19:40	20:08	22:00	+81°04'	+204°10'	2	obvious	Ethos 10mm
21:25	10 min	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2.7"	2.9 Mly	18:40	03:57	-	19:20	20:03	02:35	+78°22'	+280°04'	2	easy	Ethos 10mm
21:40	10 min	h Persei	Double Cluster	Per	4.6	18.0'	35.0'	35.0"	2.9 Mly	18:40	03:57	-	19:30	20:02	22:55	+81°52'	+322°14'	2	obvious	Ethos 10mm
21:55	10 min	Pleiades	M 45	Tau	1.2	120.0'	17.0'	17.0"	2.9 Mly	18:40	03:57	-	19:45	20:53	22:25	+63°03'	+180°07'	15	obvious	Nagler Type 5 31mm
22:10	10 min	Crab Nebula	M 1	Tau	8.4	22.2	4.0'	4.0"	2.9 Mly	18:40	03:57	-	19:35	22:40	03:10	+60°53'	+180°00'	14	perceptible	Ethos 10mm
22:25	10 min	Chi Persei	NGC 884	Per	4.7	18.0'	40.0'	40.0"	2.9 Mly	18:40	03:57	-	19:30	20:03	22:55	+82°05'	+323°53'	2	obvious	Ethos 10mm
22:40	10 min	M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	17:46	-	-	19:25	19:59	00:30	+65°34'	+260°40'	3	easy	Ethos 10mm
22:55	10 min	M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly	2.9 Mly	11:12	18:43	02:10	19:30	20:01	23:15	+51°25'	+211°13'	4	easy	Ethos 10mm
23:10	10 min	Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	09:18	18:40	03:57	19:20	20:02	00:35	+64°35'	+224°43'	2	easy	Ethos 17mm
23:25	10 min	M 38	NGC 1912	Aur	5.9	20.0'	20.0'	20.0"	3500 ly	12:07	22:34	09:02	21:15	22:34	00:00	+74°44'	+179°44'	12	obvious	Ethos 10mm
23:40	10 min	M 41	NGC 2287	CMa	4.2	39.0'	26.0'	26.0"	2300 ly	19:38	23:51	04:03	23:05	23:51	00:40	+18°04'	+180°02'	27	obvious	Ethos 21mm

# Het maken van een waarneemplan

The image shows the SkyTools 4 Visual Standard Edition interface. The main window displays an observing list for 'Orion Optics OD350' on 'Evening of 2025 Jan 23 GMT+1'. A 'Print/Copy Observing List' dialog is open, showing printer settings (Brother MFC-L3770CDW series), margins (0.50 inches), font (Arial 12pt), and options (NightBar checked, Symbol Key unchecked). The 'Default Column Scheme Settings' dialog is also open, showing various data and coordinate options. A red arrow points to the 'Print/Copy' option in the 'List Functions' menu.

**Print/Copy Observing List Dialog:**

- Printer: Brother MFC-L3770CDW series (landscape)
- Margins (inches): Left 0.50, Right 0.50, Top 0.50, Bottom 0.50
- Font: Arial 12pt, Automatically select font size to fit page checked
- Options: NightBar checked, Symbol Key unchecked
- Column Scheme: Default
- Buttons: Print, Copy, Cancel, Help

**Default Column Scheme Settings Dialog:**

- Basic Data: Primary designation, Alternate designation, Surface brightness, Constellation, Size checked; Physical diameter, Magnitude/opacity, Distance checked; Object Class, (B-V) Color index (stars), Type (Sp, galaxy type, etc.) unchecked
- Atlas Chart Numbers: Millennium Star Atlas, Sky Atlas 2000, Uranometria 2000, Uranometria 2nd Ed., Herald Bobroff Astroatlas, Pocket Sky Atlas checked
- Coordinates: 2000 Astrometric, Apparent, Ecliptical, Galactic unchecked; Altitude/Azimuth checked; Airmass, Hour angle unchecked
- Real Time Only: Download Number, Separation from Current Telescope Position unchecked
- Column Scheme Title: Default
- Buttons: Save, Cancel, Help

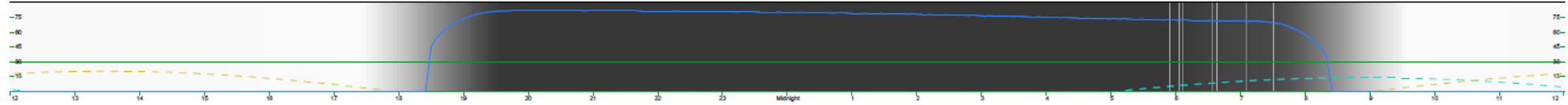
**Background Observing List:**

Object	Mag	Size	Dist	RA	Dec	Alt	HA	Mag	HA
Crab Nebula	M 1								
M 43	NGC 1982								
Orion Nebula	M 42								
M 36	NGC 1960								
M 78	NGC 2068								
M 37	NGC 2099								
M 35	NGC 2168								
37 Cluster	NGC 2169								
M 41	NGC 2287								
M 50	NGC 2323								

51 targets of 122 meet criteria.



## SkyTools Demo Observing List Evening of 2025 Jan 23 at Urania



Sunset 17:54, Twilight ends 19:50, Twilight begins 07:09, Sunrise 09:05, Moon rise 05:07, Moon set 12:16

Completely dark from 19:50 to 05:07. Waning Crescent Moon. All times local (GMT+1).

Weather: 18.3C, humidity 60%, good seeing.

Listing all classes at fair or better quality and that are visible (at any difficulty) after 20:00 and before 00:00.

Rating	Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Transit	Set	Begin	Best	End	Alt	Az	PSA	Difficulty	Ideal Eyepiece
	M 39	NGC 7092	Cyg	4.9		29.0'	9 ly	1100 ly	-	14:38	-	19:20	19:50	22:55	+41°57'	+299°23'	73	obvious	Ethos 13mm
	M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	-	17:49	-	19:15	19:56	00:55	+65°55'	+257°38'	3	obvious	Ethos 10mm
	M 103	NGC 581	Cas	6.6		5.0'	10 ly	7200 ly	-	18:40	-	19:30	19:57	22:25	+75°35'	+319°24'	1	obvious	Ethos 10mm
	Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2°	130000 ly	2.6 Mly	-	17:49	-	19:20	19:57	00:55	+66°00'	+258°42'	3	obvious	Nagler Type 5 31mm
	M 52	NGC 7654	Cas	6.8		15.0'	20 ly	4600 ly	-	16:31	-	19:15	19:58	07:30	+60°21'	+311°06'	71	obvious	Ethos 10mm
****	ET Cluster	Dragonfly	Cas	4.7		20.0'	46 ly	7900 ly	-	18:26	-	19:35	19:58	21:45	+74°55'	+307°48'	3	obvious	Ethos 10mm
	M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	-	17:46	-	19:25	19:59	00:30	+65°34'	+260°40'	3	easy	Ethos 10mm
	M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly		11:12	18:43	02:10	19:30	20:01	23:15	+51°25'	+211°13'	4	easy	Ethos 10mm
	h Persei	Double Cluster	Per	4.6		18.0'	35 ly	6800 ly	-	19:25	-	19:30	20:02	22:55	+81°52'	+322°14'	2	obvious	Ethos 10mm
	Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	09:18	18:40	03:57	19:20	20:02	00:35	+64°35'	+224°43'	2	easy	Ethos 17mm
	Chi Persei	NGC 884	Per	4.7		18.0'	40 ly	7600 ly	-	19:29	-	19:30	20:03	22:55	+82°05'	+323°53'	2	obvious	Ethos 10mm
	Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78°22'	+280°04'	2	easy	Ethos 10mm
	M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	13:44	19:48	01:53	19:25	20:06	23:25	+38°49'	+185°40'	6	easy	Ethos 13mm
	M 34	NGC 1039	Per	4.9		35.0'	17 ly	1600 ly	-	19:48	-	19:40	20:08	22:00	+81°04'	+204°10'	2	obvious	Ethos 10mm
	Pleiades	M 45	Tau	1.2		120.0'	17 ly	490 ly	12:32	20:53	05:13	19:45	20:53	22:25	+63°03'	+180°07'	15	obvious	Nagler Type 5 31mm
	M 38	NGC 1912	Aur	5.9		20.0'	20 ly	3500 ly	12:07	22:34	09:02	21:15	22:34	00:00	+74°44'	+179°44'	12	obvious	Ethos 10mm
	Crab Nebula	M 1	Tau	8.4	22.2	4.0'	—		14:35	22:40	06:45	19:35	22:40	03:10	+60°53'	+180°00'	14	perceptible	Ethos 10mm
	M 43	NGC 1982	Ori	9.0	22.6	7.0' x 6.0'	—		17:03	22:41	04:18	20:40	22:41	00:45	+33°36'	+180°05'	16	perceptible	Ethos 13mm
****	Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	—		17:04	22:41	04:17	19:40	22:41	01:55	+33°29'	+180°09'	16	obvious	Ethos 13mm
	M 36	NGC 1960	Aur	6.3		10.0'	12 ly	4300 ly	12:43	22:42	08:41	20:40	22:42	00:45	+73°01'	+180°02'	12	obvious	Ethos 10mm
	M 78	NGC 2068	Ori	8.0	22.9	8.0'	—		16:48	22:52	04:56	20:25	22:52	01:25	+38°57'	+179°59'	14	perceptible	Ethos 13mm
	M 37	NGC 2099	Aur	5.9		14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10	22:58	00:50	+71°25'	+180°05'	12	obvious	Ethos 10mm
	M 35	NGC 2168	Gem	5.2		25.0'	22 ly	3000 ly	14:53	23:14	07:36	19:15	23:14	05:05	+63°12'	+179°47'	25	obvious	Ethos 10mm
**	37 Cluster	NGC 2169	Ori	5.6		5.0'	5 ly	3400 ly	15:58	23:14	06:29	19:05	23:14	04:30	+52°49'	+180°07'	25	obvious	Ethos 10mm
	M 41	NGC 2287	CMa	4.2		39.0'	26 ly	2300 ly	19:38	23:51	04:03	23:05	23:51	00:40	+18°04'	+180°02'	27	obvious	Ethos 21mm
	M 50	NGC 2323	Mon	6.0		14.0'	13 ly	3300 ly	18:46	00:08	05:29	21:10	00:08	03:10	+30°26'	+180°06'	27	obvious	Ethos 13mm
****	Thor's Helmet	NGC 2359	CMa		23.0	10.0'	—		19:27	00:23	05:19	23:55	00:23	01:00	+25°35'	+179°54'	27	perceptible	Ethos 17mm

# De "NightBar"

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: SkyTools Demo

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 5 min View Time 10 min

Attachments: My Attachments

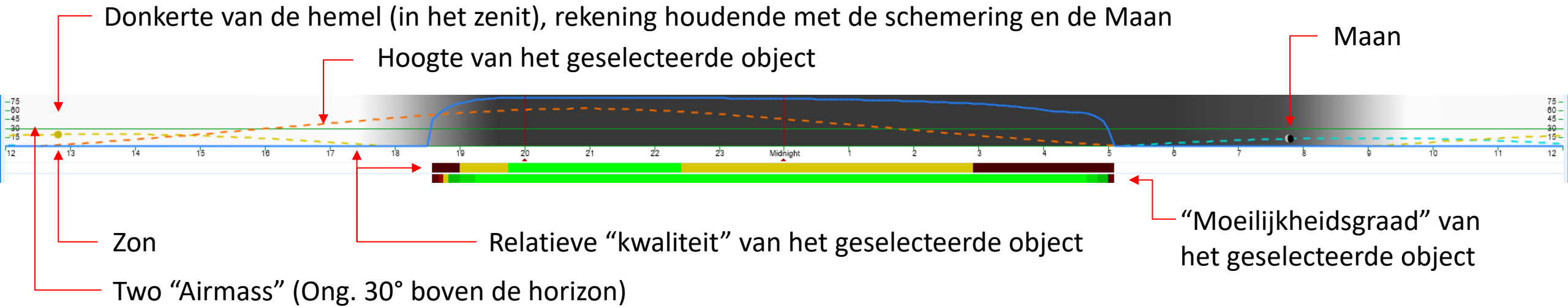
Class Filter: All Classes Constellation Filter: All Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Fair quality or better Visible (any difficulty) N/A Any visible split From 20:00 to 00:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece
M 39	NGC 7092	Cyg	4.9	29.0'	9 ly	1100 ly	-	14:38	-	-	19:20	19:50	22:55	+41° 57'	+299° 23'	73	obvious	Ethos 13mm
M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	-	17:49	-	19:15	19:56	00:55	+65° 55'	+257° 38'	3	obvious	Ethos 10mm
M 103	NGC 581	Cas	6.6	5.0'	10 ly	7200 ly	-	18:40	-	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm
Andromeda Galaxy	M 31	And	4.3	22.7	3.0" x 1.2"	130000 ly	2.6 Mly	-	17:49	-	19:20	19:57	00:55	+66° 00'	+258° 42'	3	obvious	Nagler Type 5 31mm
M 52	NGC 7654	Cas	6.8	15.0'	20 ly	4600 ly	-	16:31	-	-	19:15	19:58	07:30	+60° 21'	+311° 06'	71	obvious	Ethos 10mm
ET Cluster	Dragonfly	Cas	4.7	20.0'	46 ly	7900 ly	-	18:26	-	-	19:35	19:58	21:45	+74° 55'	+307° 48'	3	obvious	Ethos 10mm
M 110	NGC 205	And	8.9	22.5	16.2' x 9.5'	12000 ly	2.6 Mly	-	17:46	-	19:25	19:59	00:30	+65° 34'	+260° 40'	3	easy	Ethos 10mm
M 74	NGC 628	Psc	9.7	22.8	10.0' x 9.3'	40000 ly	-	11:12	18:43	02:10	19:30	20:01	23:15	+51° 25'	+211° 13'	4	easy	Ethos 10mm
h Persei	Double Cluster	Per	4.6	18.0'	35 ly	6800 ly	-	19:25	-	-	19:30	20:02	22:55	+81° 52'	+322° 14'	2	obvious	Ethos 10mm
Triangulum Galaxy	Triangulum Pinwheel	Tri	6.4	22.9	61.7' x 36.3'	52000 ly	2.9 Mly	09:18	18:40	03:57	19:20	20:02	00:35	+64° 35'	+224° 43'	2	easy	Ethos 17mm
Chi Persei	NGC 884	Per	4.7	18.0'	40 ly	7600 ly	-	19:29	-	-	19:30	20:03	22:55	+82° 05'	+323° 53'	2	obvious	Ethos 10mm
Little Dumbbell	Barbell	Per	10.1	18.1	2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78° 22'	+280° 04'	2	easy	Ethos 10mm
M 77	NGC 1068	Cet	9.7	21.7	6.2' x 5.6'	130000 ly	70.0 Mly	13:44	19:48	01:53	19:25	20:06	23:25	+38° 49'	+185° 40'	6	easy	Ethos 13mm
M 34	NGC 1039	Per	4.9	35.0'	17 ly	1600 ly	-	19:48	-	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm
Pleiades	M 45	Tau	1.2	120.0'	17 ly	490 ly	-	12:32	20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm
M 38	NGC 1912	Aur	5.9	20.0'	20 ly	3500 ly	-	12:07	22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm
Crab Nebula	M 1	Tau	8.4	22.2	4.0'	---	-	14:35	22:40	06:45	19:35	22:40	03:10	+60° 53'	+180° 00'	14	perceptible	Ethos 10mm
M 43	NGC 1982	Ori	9.0	22.6	7.0' x 6.0'	---	-	17:03	22:41	04:18	20:40	22:41	00:45	+33° 36'	+180° 05'	16	perceptible	Ethos 13mm
Orion Nebula	M 42	Ori	4.0	20.8	40.0' x 20.0'	---	-	17:04	22:41	04:17	19:40	22:41	01:55	+33° 29'	+180° 09'	16	obvious	Ethos 13mm
M 36	NGC 1960	Aur	6.3	10.0'	12 ly	4300 ly	-	12:43	22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm
M 78	NGC 2068	Ori	8.0	22.9	8.0'	---	-	16:48	22:52	04:56	20:25	22:52	01:25	+38° 57'	+179° 59'	14	perceptible	Ethos 13mm
M 37	NGC 2099	Aur	5.9	14.0'	18 ly	4500 ly	-	13:20	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm
M 35	NGC 2168	Gem	5.2	25.0'	22 ly	3000 ly	-	14:53	23:14	07:36	19:15	23:14	05:05	+63° 12'	+179° 47'	25	obvious	Ethos 10mm
37 Cluster	NGC 2169	Ori	5.6	5.0'	5 ly	3400 ly	-	15:58	23:14	06:29	19:05	23:14	04:30	+52° 49'	+180° 07'	25	obvious	Ethos 10mm
M 41	NGC 2287	CMa	4.2	39.0'	26 ly	2300 ly	-	19:38	23:51	04:03	23:05	23:51	00:40	+18° 04'	+180° 02'	27	obvious	Ethos 21mm
M 50	NGC 2323	Mon	6.0	14.0'	13 ly	3300 ly	-	18:46	00:08	05:29	21:10	00:08	03:10	+30° 26'	+180° 06'	27	obvious	Ethos 13mm

51 targets of 122 meet criteria.

# De "NightBar"



# Kaartjes

SkyTools 4 Visual Standard Edition

Setup Tools Data Help

Nightly Planner Ephemerides Event Finder

Evening of 2025 Jan 23 GMT+1 Urania Orion Optics OD350 Paul Help

Observing List: SkyTools Demo

Weather:  Auto Average Seeing (1" - 2.5" P6-7) 18C 60%

Generate Observing Plan:  Plan Find/Slew Time 5 min View Time 10 min

Attachments: My Attachments

Class Filter: All Classes

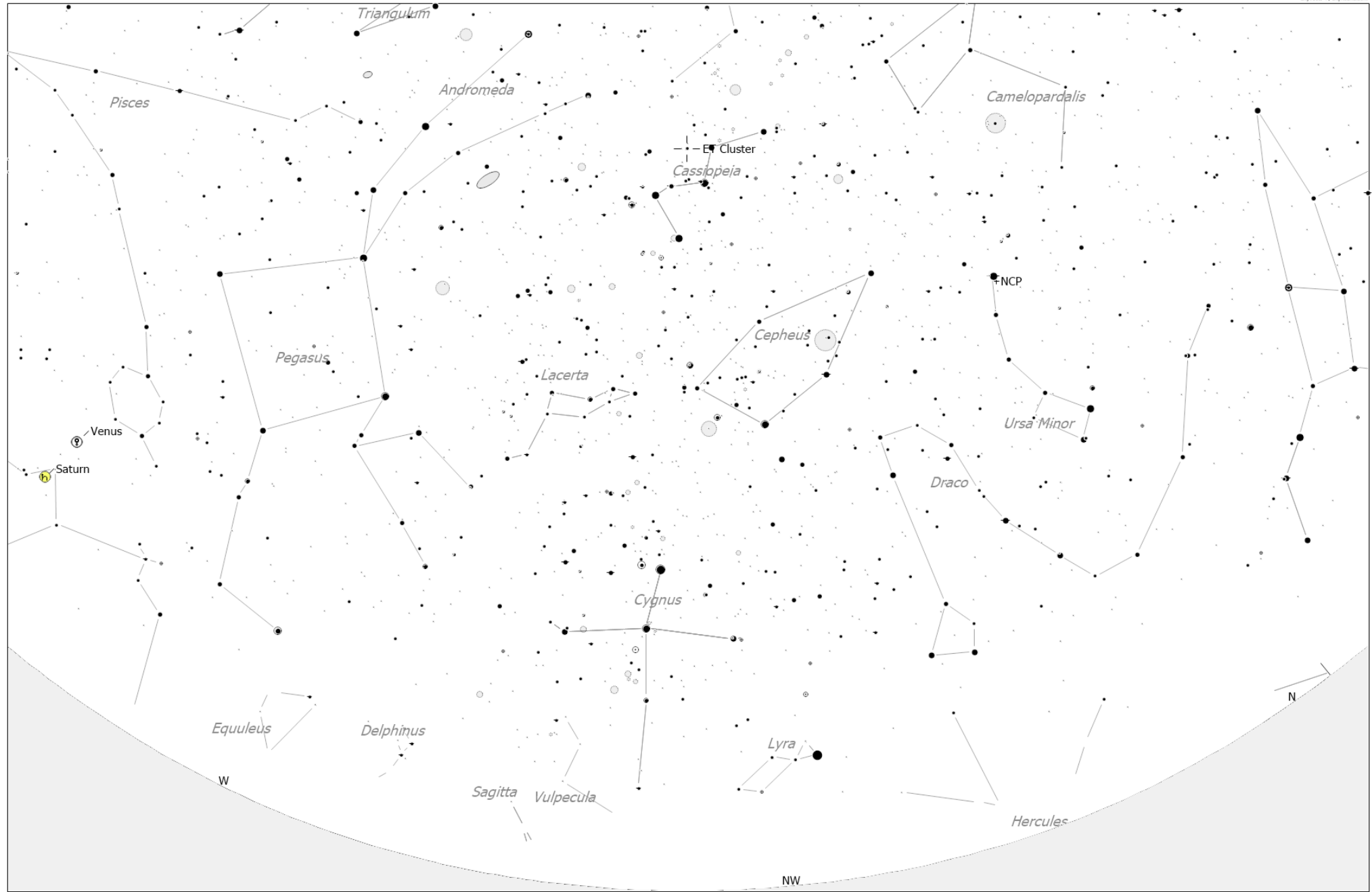
Constellation Filter: All

Log Filter: Any

Quality, Difficulty and Double-Star Splitability Filters: Fair quality or better Visible (any difficulty) N/A Any visible split From 20:00 to 00:00

Primary ID	Alternate ID	Con	Mag	SBr	Ang. Size	Diameter	Distance	Rise	Tra...	Set	Begin	Best	End	Alt	Az	P...	Difficulty	Ideal Eyepiece		
M 39	NGC 7092	Cyg	4.9		29.0'	9 ly	1100 ly	-	14:38	-	19:20	19:50	22:55	+41° 57'	+299° 23'	73	obvious	Ethos 13mm		
M 32	NGC 221	And	8.9	21.0	7.8' x 4.9'	5900 ly	2.6 Mly	-	17:49	-	19:15	19:56	00:55	+65° 55'	+257° 38'	3	obvious	Ethos 10mm		
M 103	NGC 581	Cas	6.6		5.0'	10 ly	7200 ly	-	18:40	-	19:30	19:57	22:25	+75° 35'	+319° 24'	1	obvious	Ethos 10mm		
Andromeda Galaxy	M 31	And	4.3	22.7	3.0° x 1.2°	130000 ly	2.6 Mly	-	17:49	-	19:20	19:57	00:55	+66° 00'	+258° 42'	3	obvious	Nagler Type 5 31mm		
M 52	NGC 7654	Cas	6.8		15.0'	20 ly	4600 ly	-	16:31	-	19:15	19:58	07:30	+60° 21'	+311° 06'	71	obvious	Ethos 10mm		
ET Cluster	Dragonfly	Cas	4.7		20.0'	46 ly	7900 ly	-	18:26	-	19:35	19:58	21:45	+74° 55'	+307° 48'	3	obvious	Ethos 10mm		
M 110	Object Info				16.2' x 9.5'	12000 ly	2.6 Mly	-	17:46	-	19:25	19:59	00:30	+65° 34'	+260° 40'	3	easy	Ethos 10mm		
M 74	View Interactive Atlas				10.0' x 9.3'	40000 ly		11:12	18:43	02:10	19:30	20:01	23:15	+51° 25'	+211° 13'	4	easy	Ethos 10mm		
h Persei	View Overhead Sky				18.0'	35 ly	6800 ly	-	19:25	-	19:30	20:02	22:55	+81° 52'	+322° 14'	2	obvious	Ethos 10mm		
Triangulum	View Naked Eye				61.7' x 36.3'	52000 ly	2.9 Mly	09:18	18:40	03:57	19:20	20:02	00:35	+64° 35'	+224° 43'	2	easy	Ethos 17mm		
Chi Persei	View Scope/Binocs				18.0'	40 ly	7600 ly	-	19:29	-	19:30	20:03	22:55	+82° 05'	+323° 53'	2	obvious	Ethos 10mm		
Little Dipper	Orion Optics OD350				2.7'	2 ly	2400 ly	-	18:49	-	19:20	20:03	02:35	+78° 22'	+280° 04'	2	easy	Ethos 10mm		
M 77	View Scope/Binocs										19:48	01:53	19:25	20:06	23:25	+38° 49'	+185° 40'	6	easy	Ethos 13mm
M 34	Center in Current Chart										19:48	-	19:40	20:08	22:00	+81° 04'	+204° 10'	2	obvious	Ethos 10mm
Pleiades	Print Chart										20:53	05:13	19:45	20:53	22:25	+63° 03'	+180° 07'	15	obvious	Nagler Type 5 31mm
M 38	Slew Scope to										22:34	09:02	21:15	22:34	00:00	+74° 44'	+179° 44'	12	obvious	Ethos 10mm
Crab Nebula	Slew Scope to and Center in Chart										22:40	06:45	19:35	22:40	03:10	+60° 53'	+180° 00'	14	perceptible	Ethos 10mm
M 43	Create Quick Log Entry										22:41	04:18	20:40	22:41	00:45	+33° 36'	+180° 05'	16	perceptible	Ethos 13mm
Orion Nebula	Create Log Entries										22:41	04:17	19:40	22:41	01:55	+33° 29'	+180° 09'	16	obvious	Ethos 13mm
M 36	Get DSS image										22:42	08:41	20:40	22:42	00:45	+73° 01'	+180° 02'	12	obvious	Ethos 10mm
M 78	Copy To...										22:52	04:56	20:25	22:52	01:25	+38° 57'	+179° 59'	14	perceptible	Ethos 13mm
M 37	Move To...				14.0'	18 ly	4500 ly	13:20	22:58	08:35	21:10	22:58	00:50	+71° 25'	+180° 05'	12	obvious	Ethos 10mm		
M 35	Delete Entry				25.0'	22 ly	3000 ly	14:53	23:14	07:36	19:15	23:14	05:05	+63° 12'	+179° 47'	25	obvious	Ethos 10mm		
37 Clusters					5.0'	5 ly	3400 ly	15:58	23:14	06:29	19:05	23:14	04:30	+52° 49'	+180° 07'	25	obvious	Ethos 10mm		
M 41					39.0'	26 ly	2300 ly	19:38	23:51	04:03	23:05	23:51	00:40	+18° 04'	+180° 02'	27	obvious	Ethos 21mm		
M 50					14.0'	13 ly	3300 ly	18:46	00:08	05:29	21:10	00:08	03:10	+30° 26'	+180° 06'	27	obvious	Ethos 13mm		

51 targets of 122 me

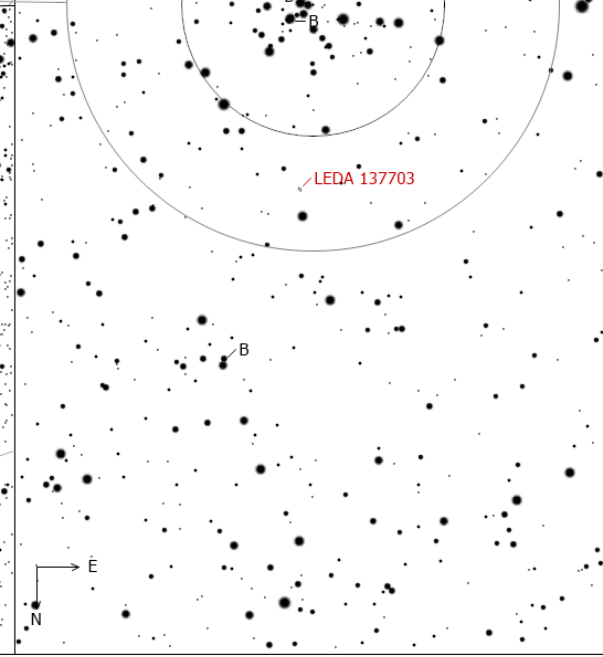
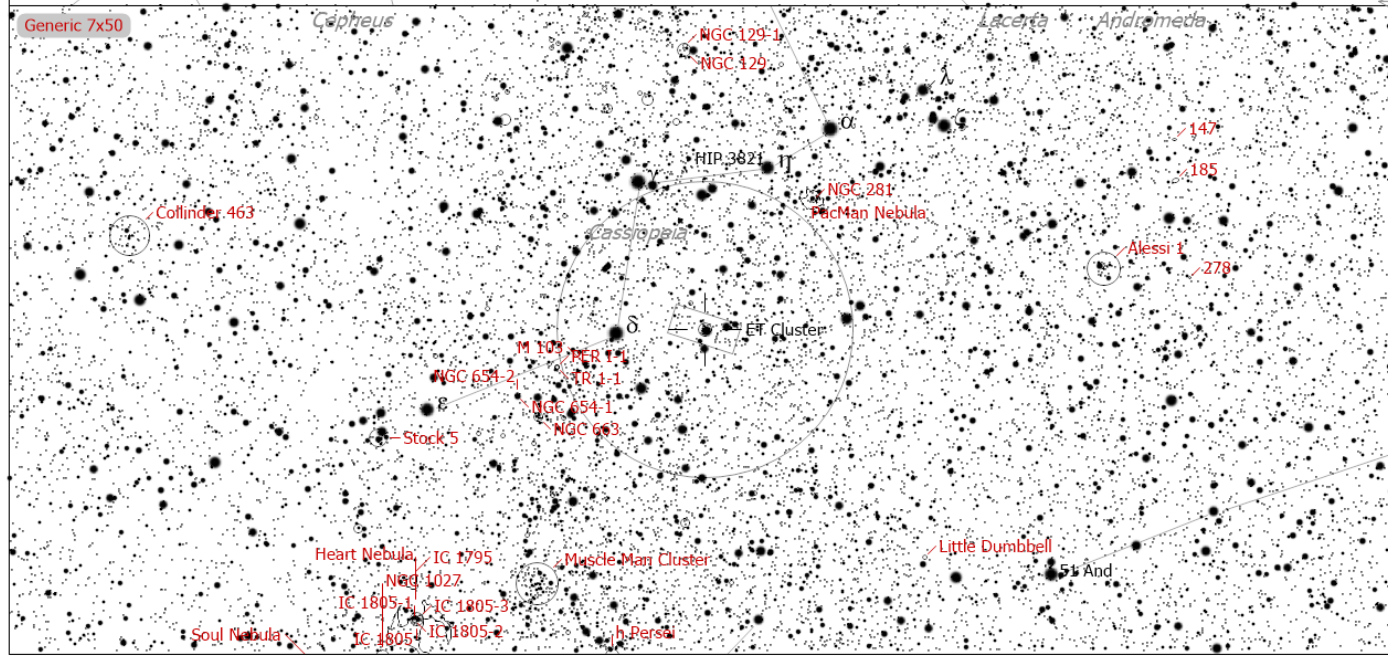
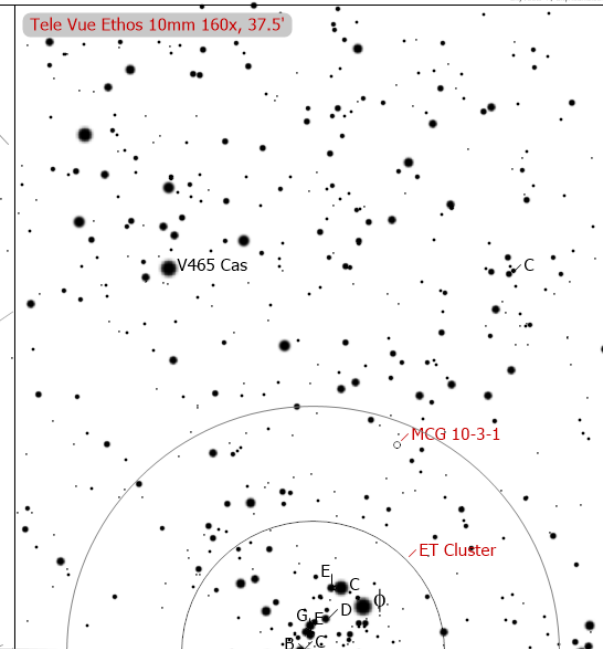
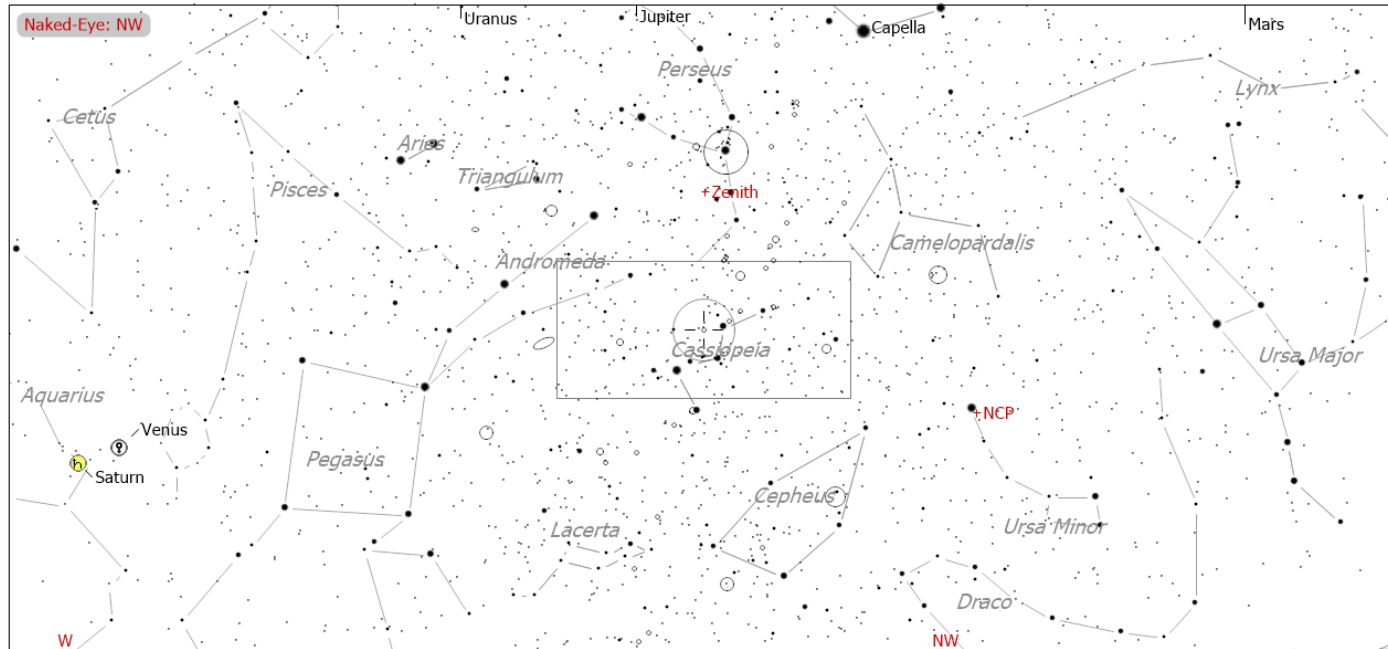


2025 January 23 20:00, Urania  
Fully dark

● Globular Cl.	◇ Dark Neb.	□ HII Region	● Mult. Star	● +5	● +3	● +1	● -1
○ Globule	□ SN Remnant	○ Comet	○ Galaxy	● -6	● -4	● -2	● 0
● Open Cl.	□ Ref. Neb.	○ Galaxy					

# ET Cluster

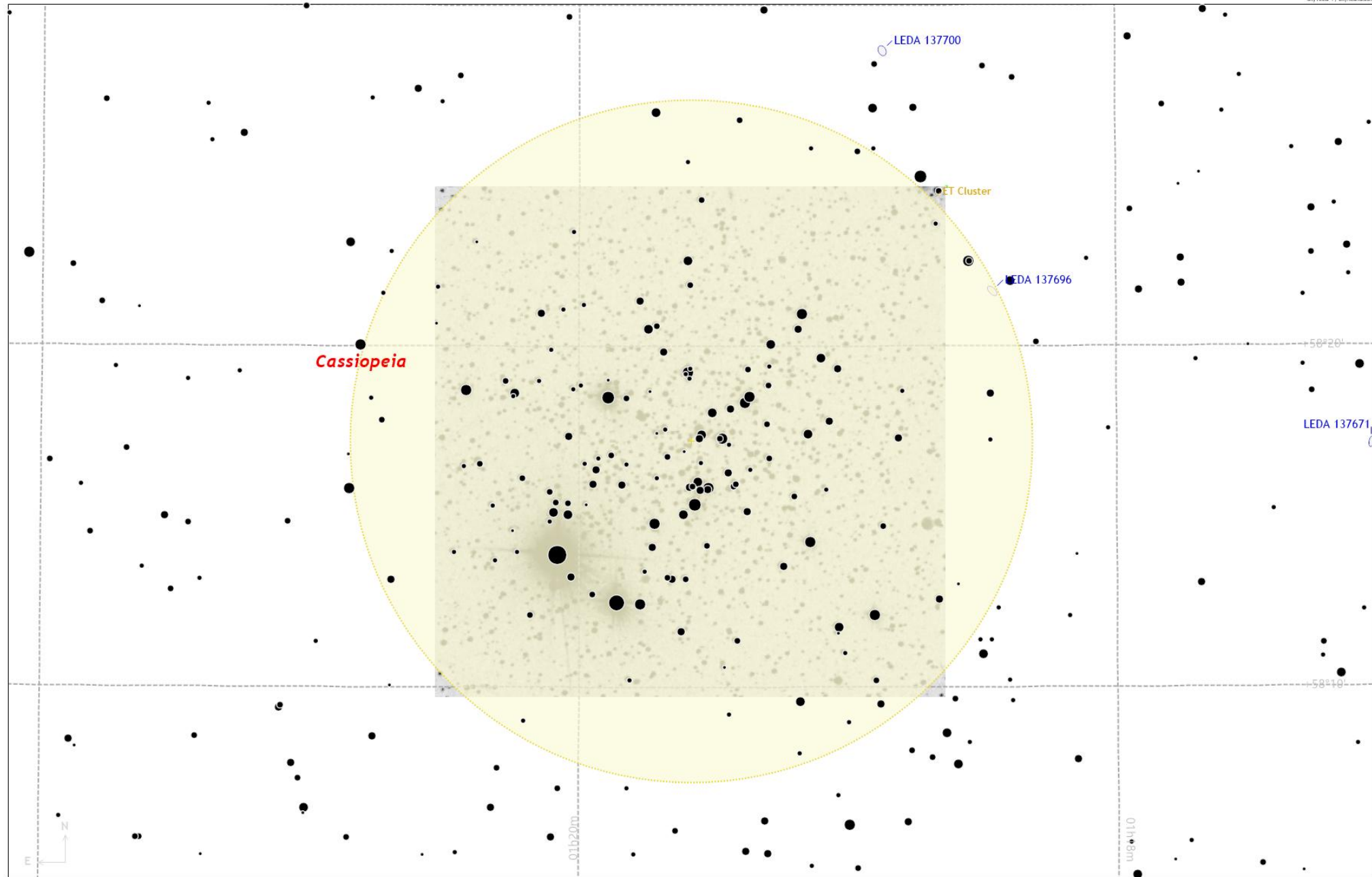
SkyTools 4 / Skyhound.com



2025 January 23 20:00, Urania  
Fully dark ML 15.7 target obvious

○● Globular Cl.	◆◆ Dark Neb.	□■ HII Region	○● Galaxy Gr.	☄ Comet
× Skymark	○● Globule	□■ SN Remnant	+ Quasar	● Minor Planet
○● Open Cl.	○● Ref. Neb.	○● Planetary		

● 14	● 12	● 10	● 8
● 15	● 13	● 11	● 9



ET Cluster (Open Cluster)  
 aka Dragonfly, NGC 457, Collinder 12, H VII-42, Melotte 7, Raab 3, OCL 321  
 Magnitude: 4.70 Size: 20.0' Distance: 7900 ly

○ Dark Neb.	● Quasar	● Mult. Star	● 15	● 12	● 9
● Globule	● Planetary	● Comet	● 16	● 13	● 10
● Open Cl.	□ HII Region	● Minor Planet	● 14	● 11	
● Globular Cl.	□ SN Remnant	○ Galaxy			
× Skymark	□ Ref. Neb.	○ Galaxy Gr.			

Real-life demo...

