The Basics for a Night of Visual Observing

Peterborough Astronomical Association
Novice Astronomy Class
March 7, 2025
Brett Hardy

Location, Location, Location

Where to Observe ?

- Convenience & Safety
  - backyard
  - have an observing buddy
- Light Pollution
  - local green space out of town
  - scout potential sited during daylight
  - Harold Town Conservation Area
- PAA Organized Events
  - Members' Nights
  - Dance Nature Preserve
  - Public Outreach
- PAA Dome

Cedar Knoll Observatory
Image courtesy: Rick Stankiewicz

Plan for Success

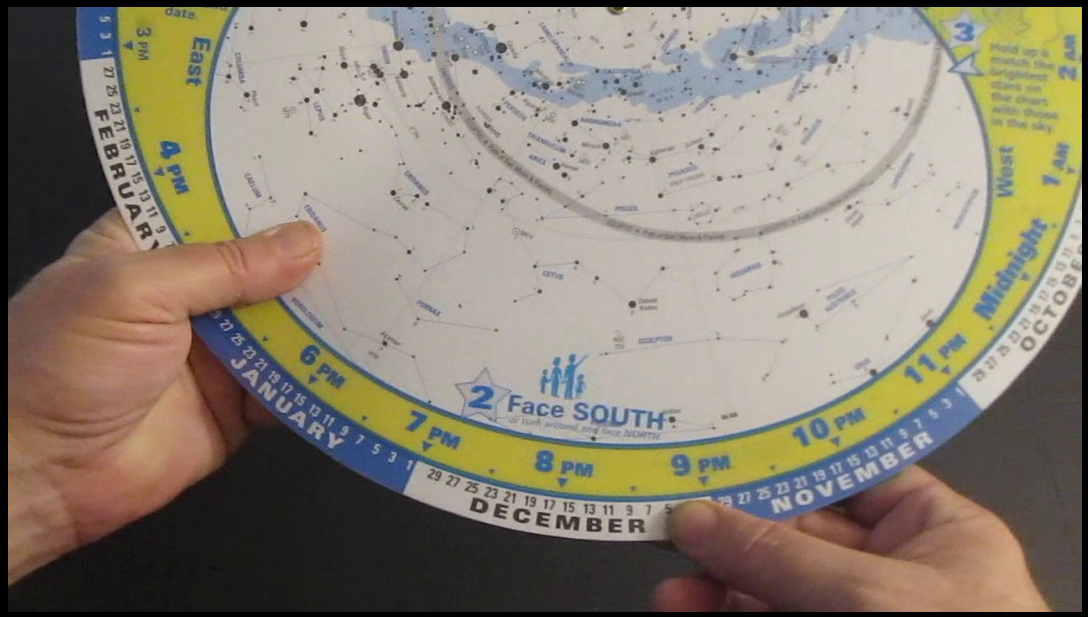
- Dress appropriately
- Have a goal and observing list
- Allow your eyes to dark adapt
- Protect night vision
    - avoid white lights
    - utilize a red light for reading charts, etc.
- Sketch and make notes

Relax

- lounge chair
- hot/cold beverages
- blanket

Things to Bring

- Observing list
- Planisphere & sky chart
- Red light
- Insect repellant/Thermacell
- lounge chair & blanket
- Snacks, hot or cold beverages
- Binoculars
- Tripod



Binoculars

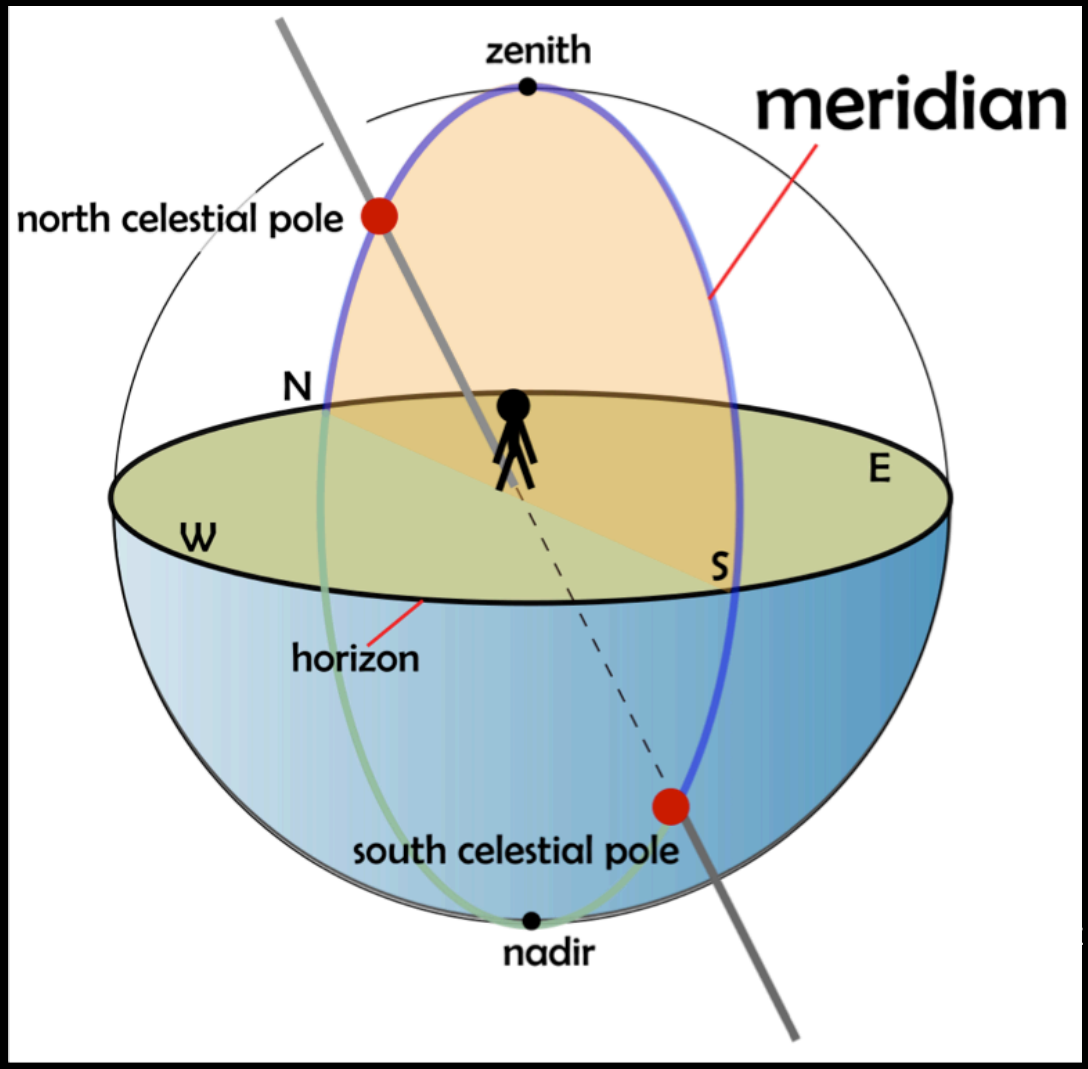
- Ideal starter instrument
- Use what you already have
- Eyes ~ 120°
- Binoculars ~ 6° and less

Benefits of Binoculars

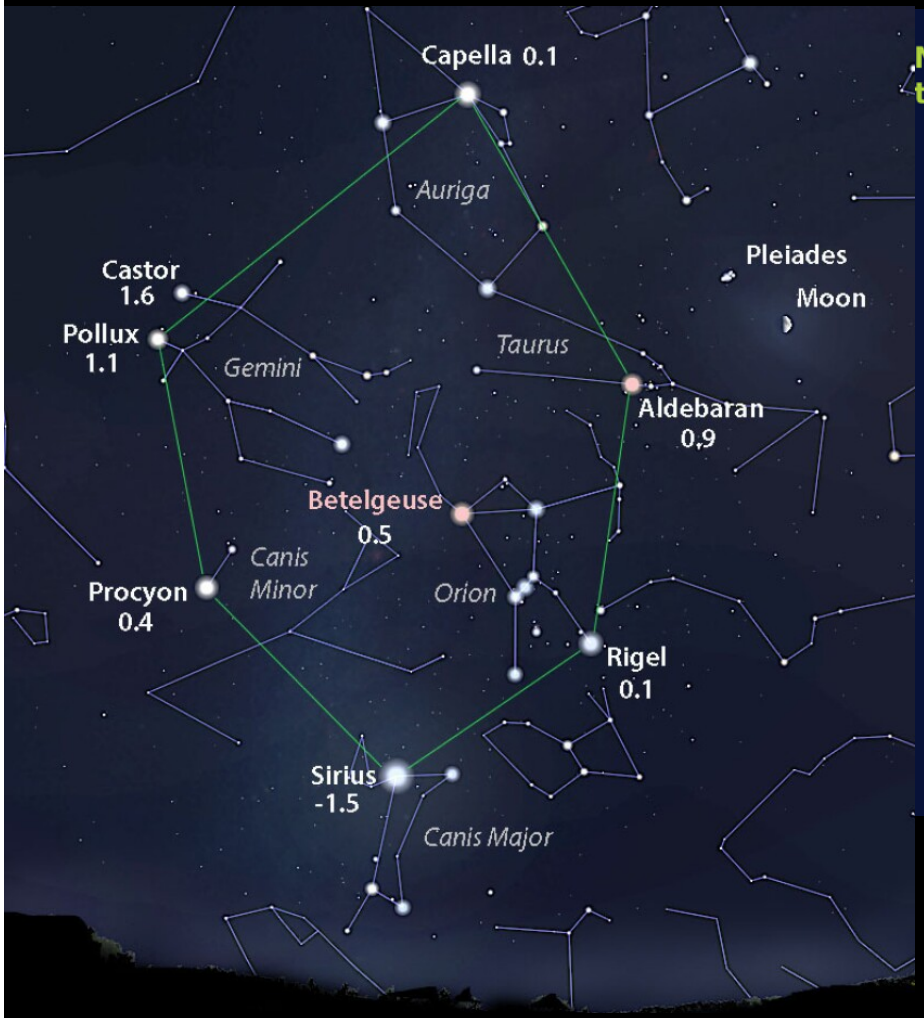
- Simple to use
- Images are right side up
- Large field of view
- Inexpensive first instrument
- Two eyes are better than one
- Highly portable
- Short duration viewing

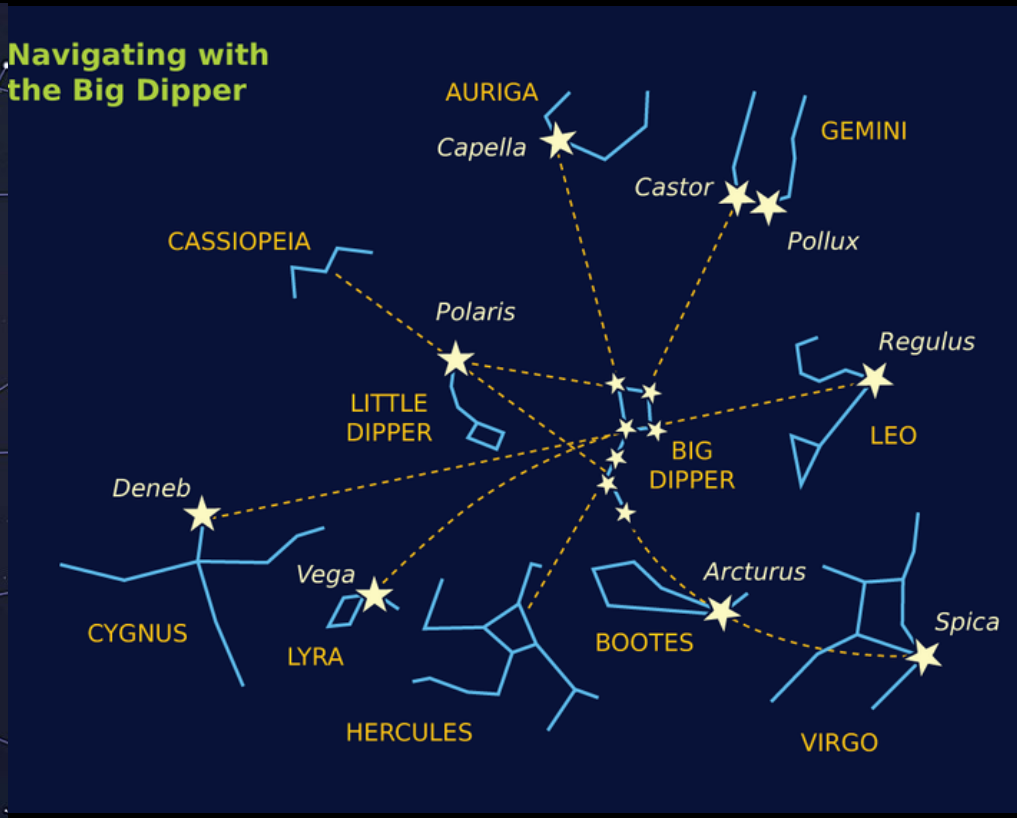
Celestial Sphere

- Cardinal directions
- Meridian
- North Celestial Pole
  - Polaris (North Star)
- Zenith
- Horizon



Constellations as Pointers



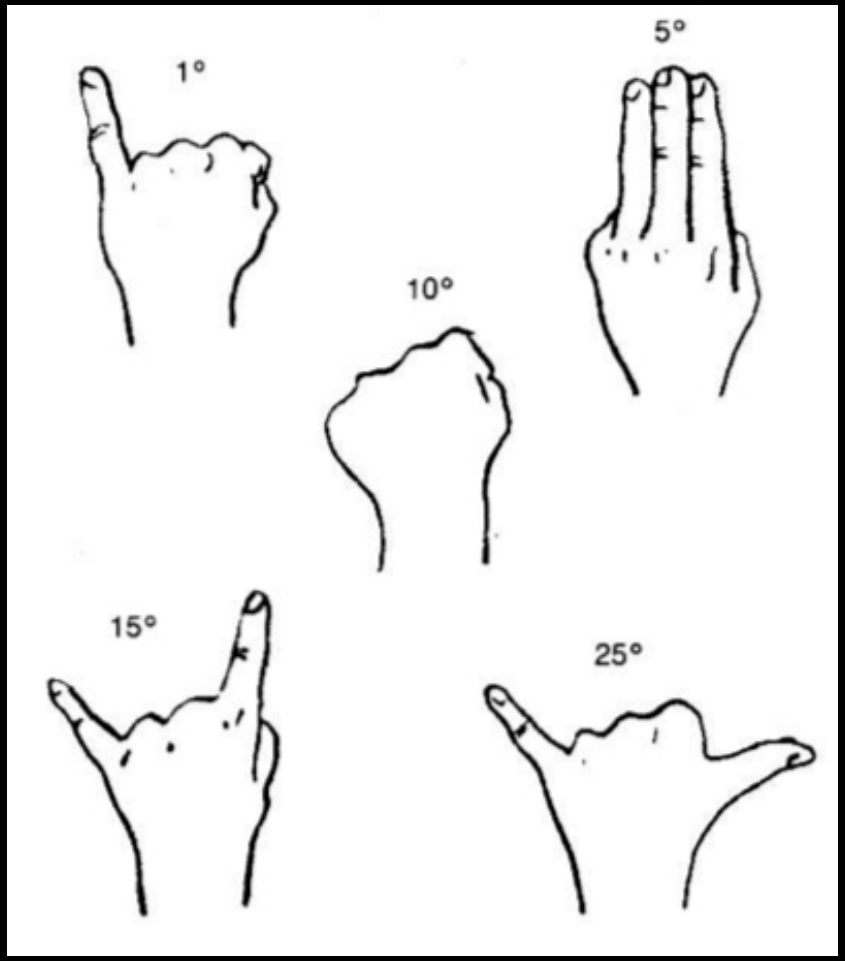


Simulation Curriculum Corp

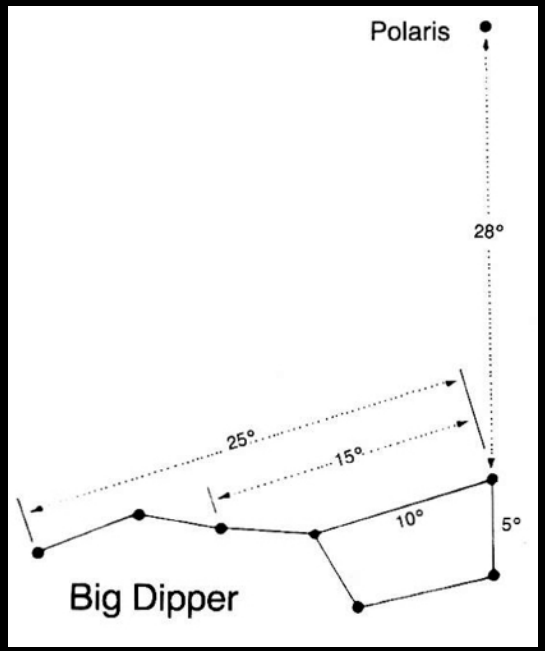
Astro Bob

Navigating the Night Sky

- Distance measured in degrees
- Azimuth is direction in degrees
  - North = 0°
  - East = 90°
  - South = 180°
  - West = 270°
- Altitude is height above the horizon in degrees
- 1° = 60’
- Moon = 1/2° = 30’
- Polaris (North Star) = observer’s latitude: 44° above north horizon



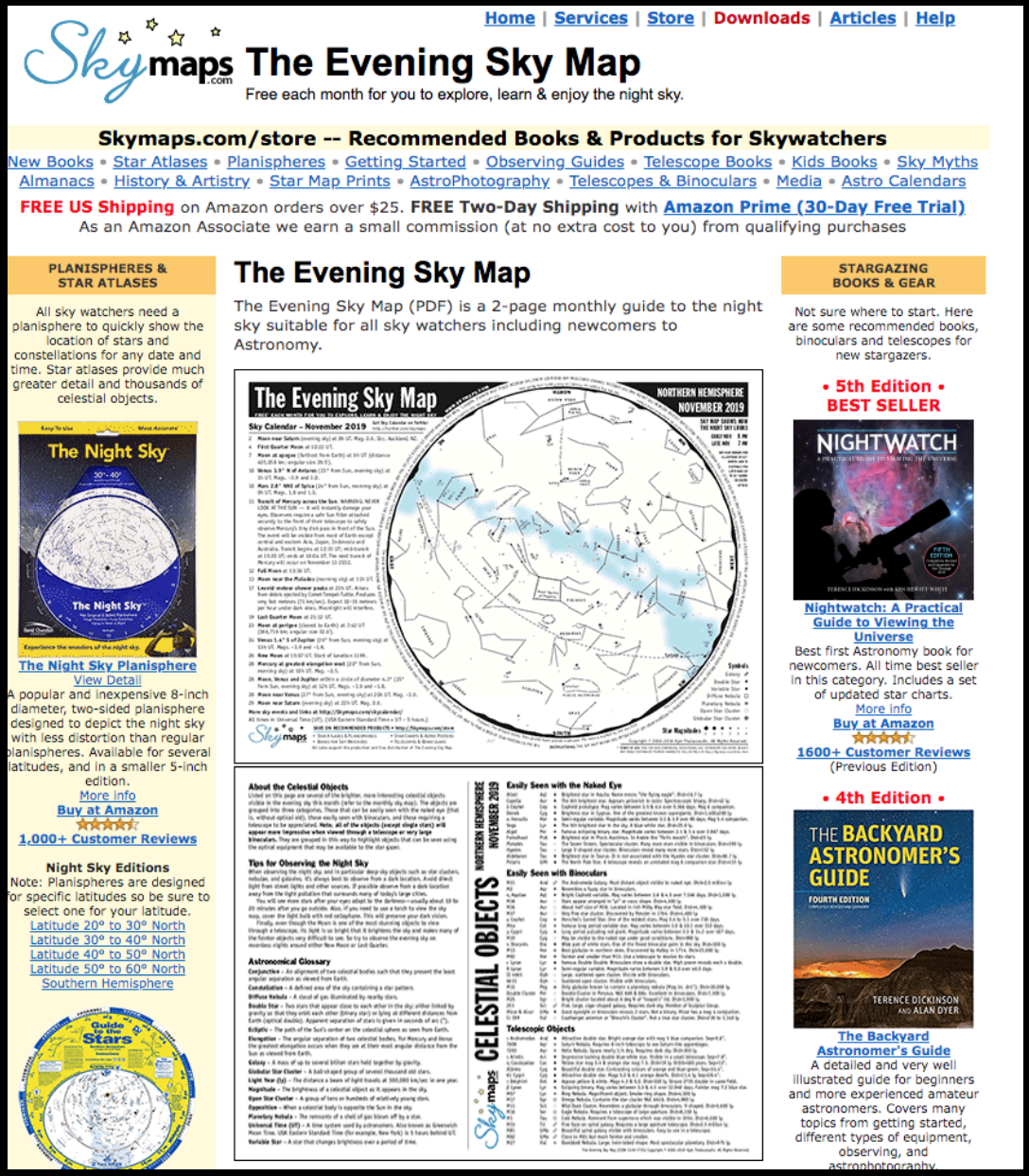
Terrance Dickinson: Night Watch



Terrance Dickinson: Night Watch

Observation Planning

- Sky Maps
  - skymaps.com/downloads.html



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PLANISPHERES & STAR ATLASES

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The Night Sky Planisphere
View Detail
A popular and inexpensive 8-inch diameter, two-sided planisphere designed to depict the night sky with less distortion than regular planispheres. Available for several latitudes, and in a smaller 5-inch edition.
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Note: Planispheres are designed for specific latitudes so be sure to select one for your latitude.
Latitude 20° to 30° North
Latitude 30° to 40° North
Latitude 40° to 50° North
Latitude 50° to 60° North
Southern Hemisphere

The Evening Sky Map

The Evening Sky Map (PDF) is a 2-page monthly guide to the night sky suitable for all sky watchers including newcomers to Astronomy.

STARGAZING BOOKS & GEAR

Not sure where to start. Here are some recommended books, binoculars and telescopes for new stargazers.

• 5th Edition •
BEST SELLER

Nightwatch: A Practical Guide to Viewing the Universe
Best first Astronomy book for newcomers. All time best seller in this category. Includes a set of updated star charts.
More info
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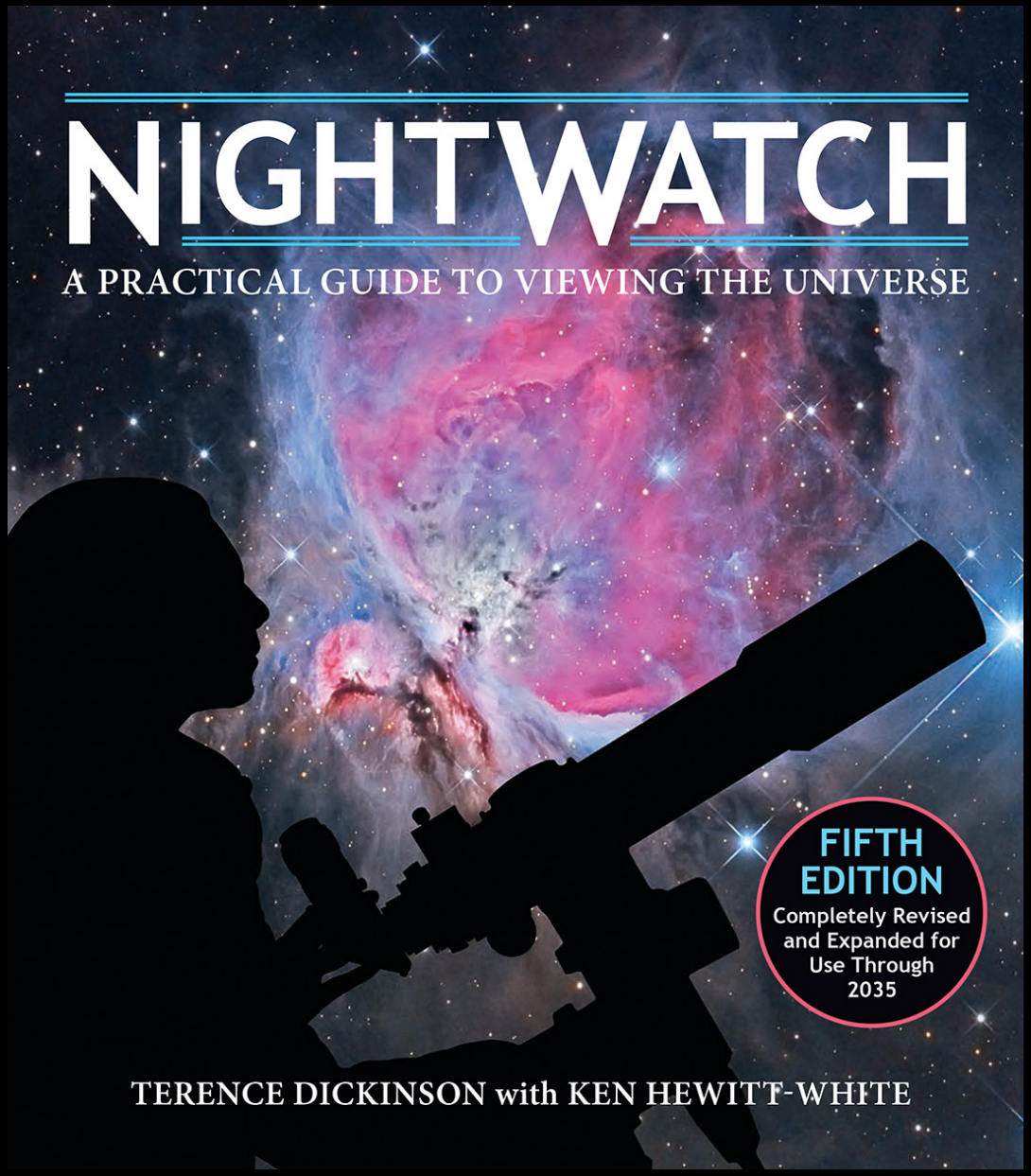
(Previous Edition)

• 4th Edition •

The Backyard Astronomer's Guide
A detailed and very well illustrated guide for beginners and more experienced amateur astronomers. Covers many topics from getting started, different types of equipment, observing, and astrophotography.

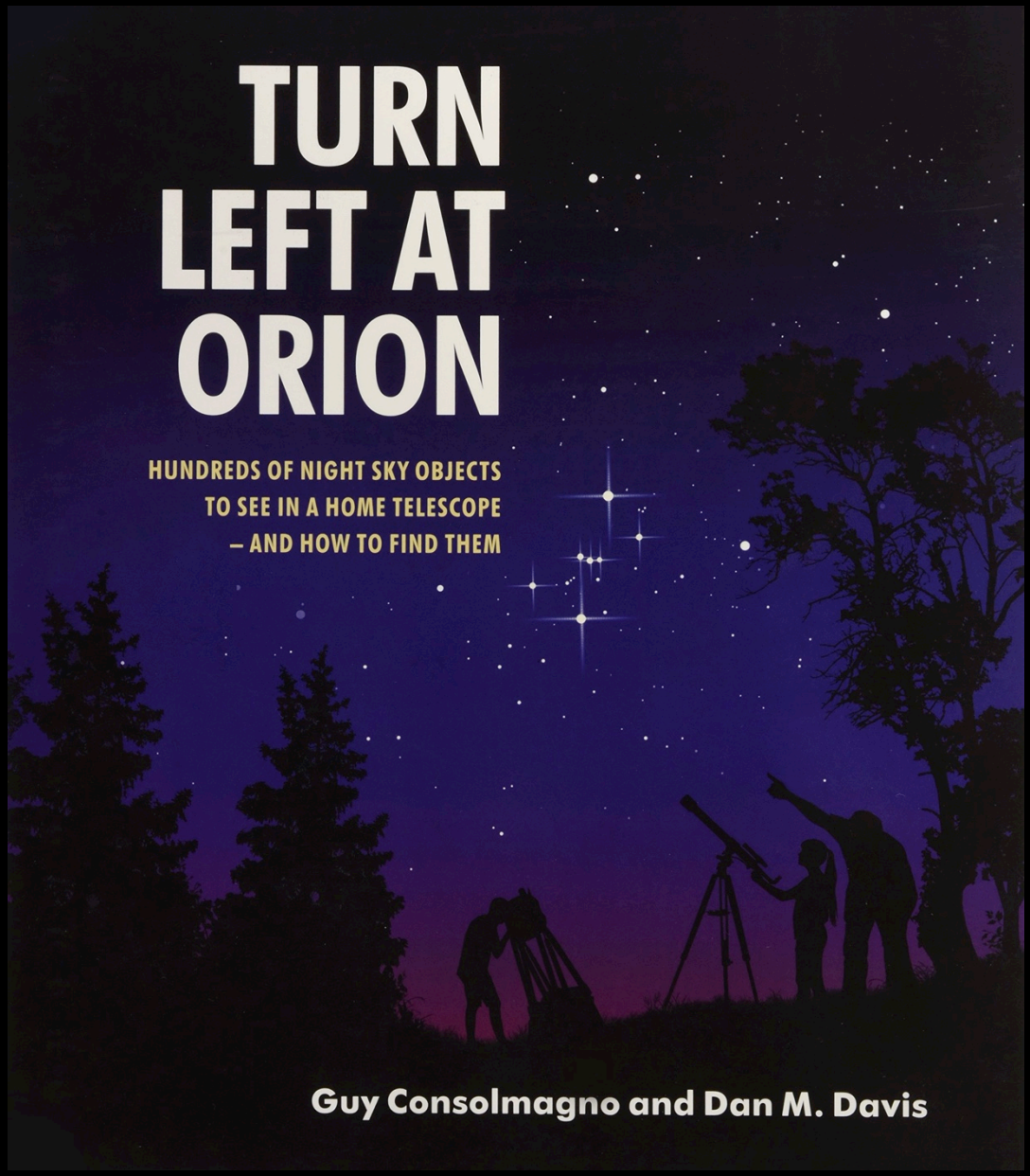
Print Resources

- NightWatch: A Practical Guide to Viewing the Universe
- Terence Dickinson & Ken Hewitt-White
- Spiral bound
- Firefly Books
- ISBN: 978-0228104391
- $38.96



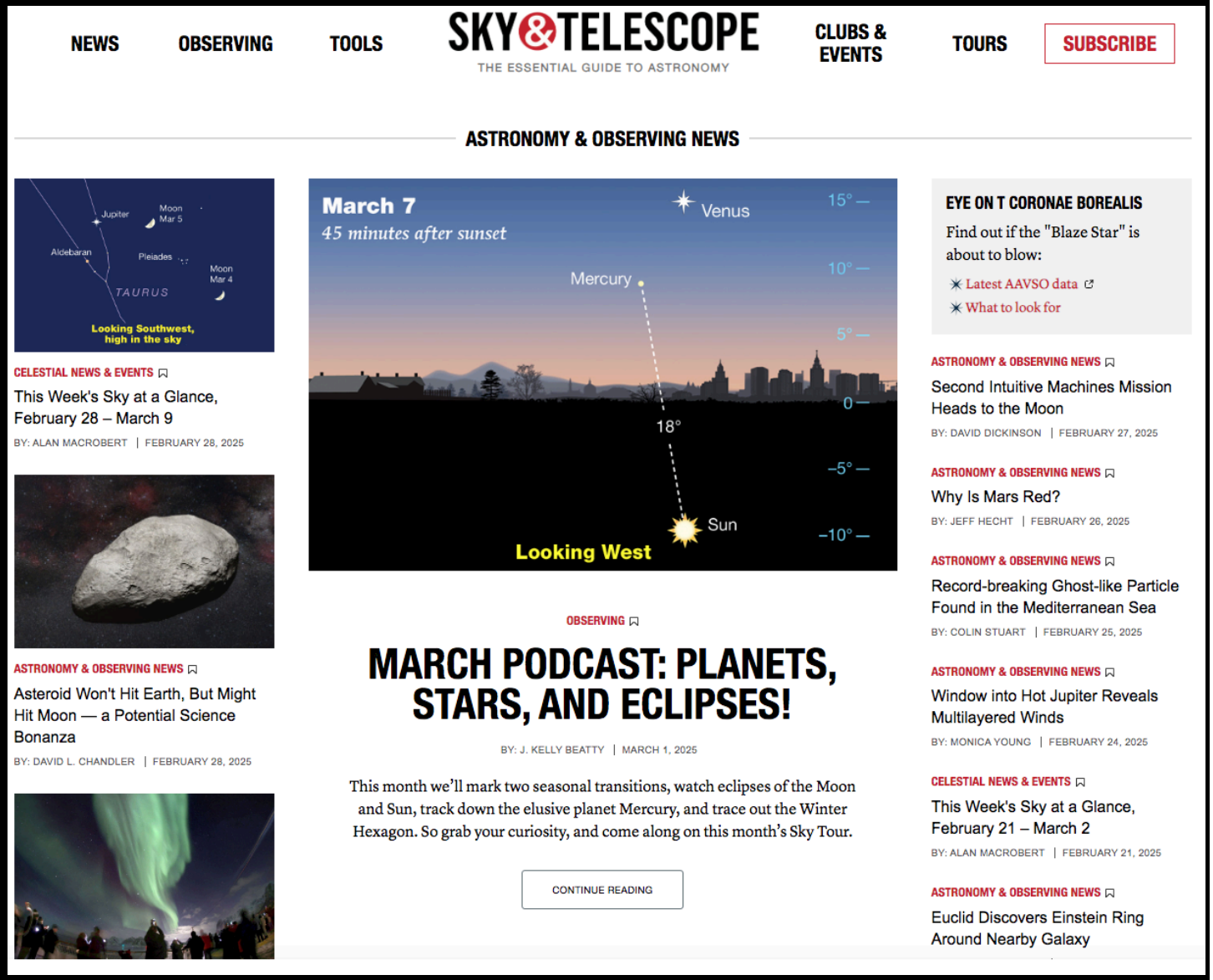
Print Resources

- Turn Left At Orion
- Guy Consolmagno & Dan M. Davis
- Hard cover or spiral bound
- Cambridge University Press
- ISBN: 978-0521781909
- $34.97



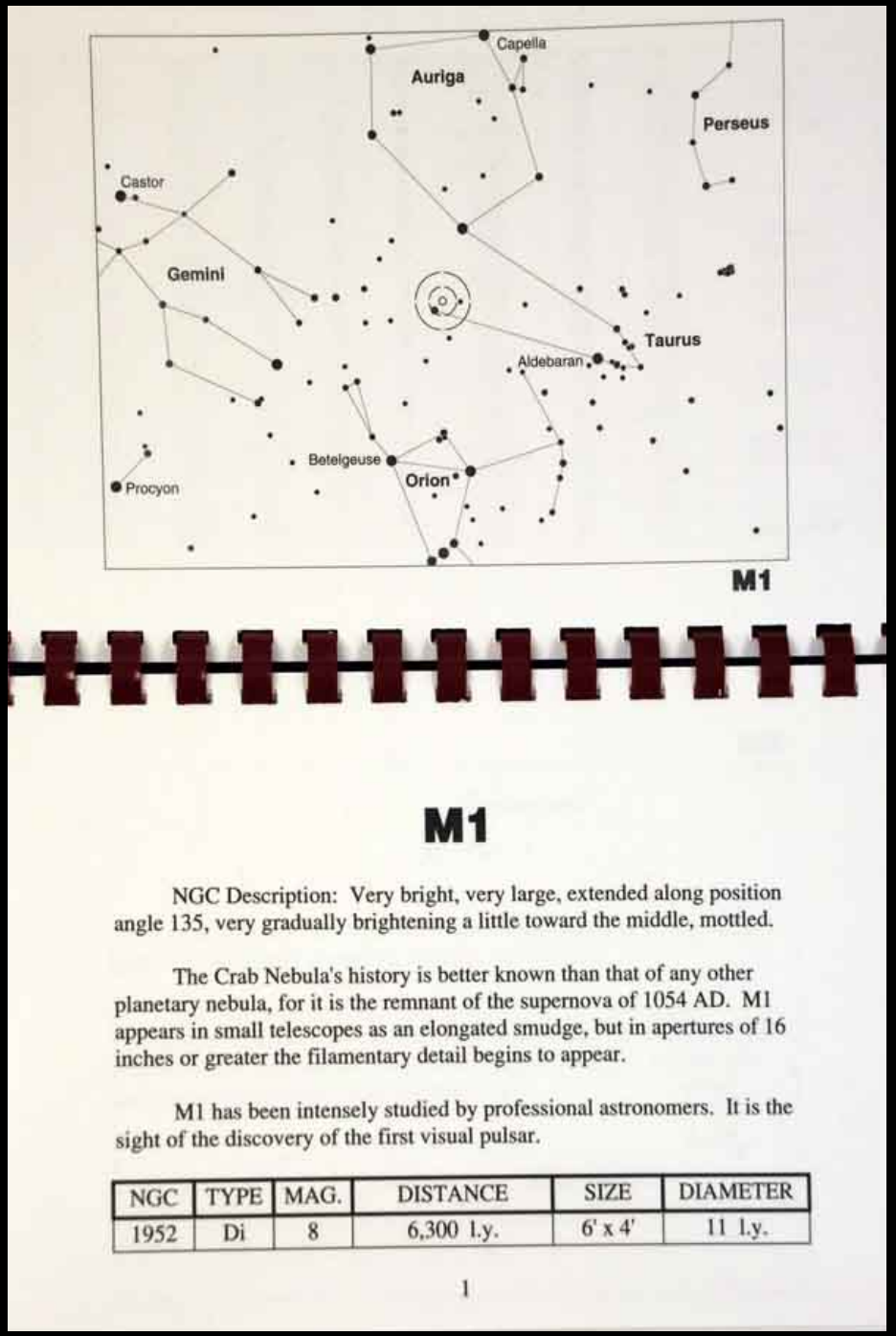
Print Resources

- Sky & Telescope
- Astronomy Magazine



Print Resources

- Messier object finder charts
- Two volume set
- Spiral bound & laminated
- sky-spot.com
- $39.99 USD

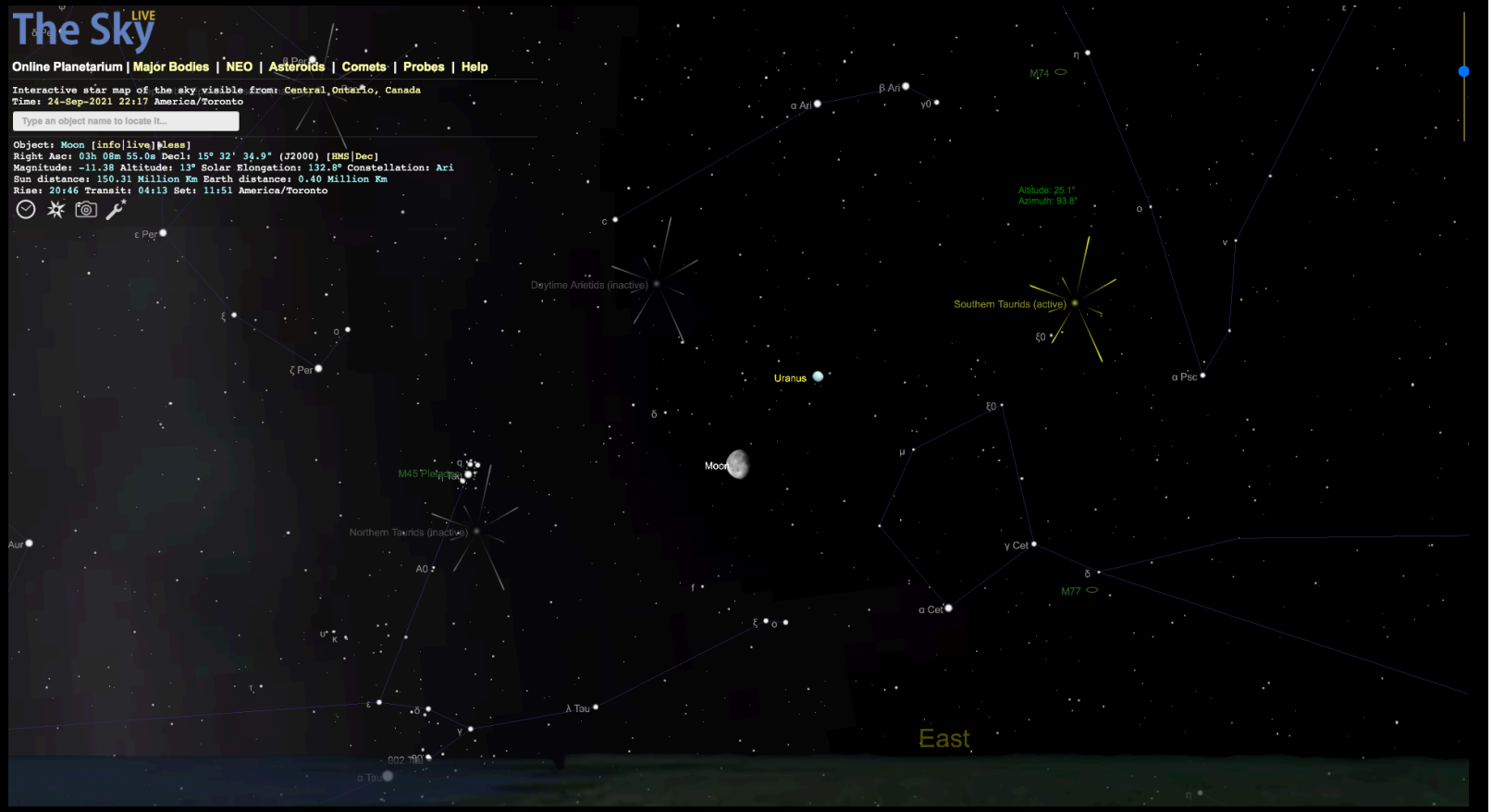


Online Planning

The Sky Live

- No registration required
- Select your location

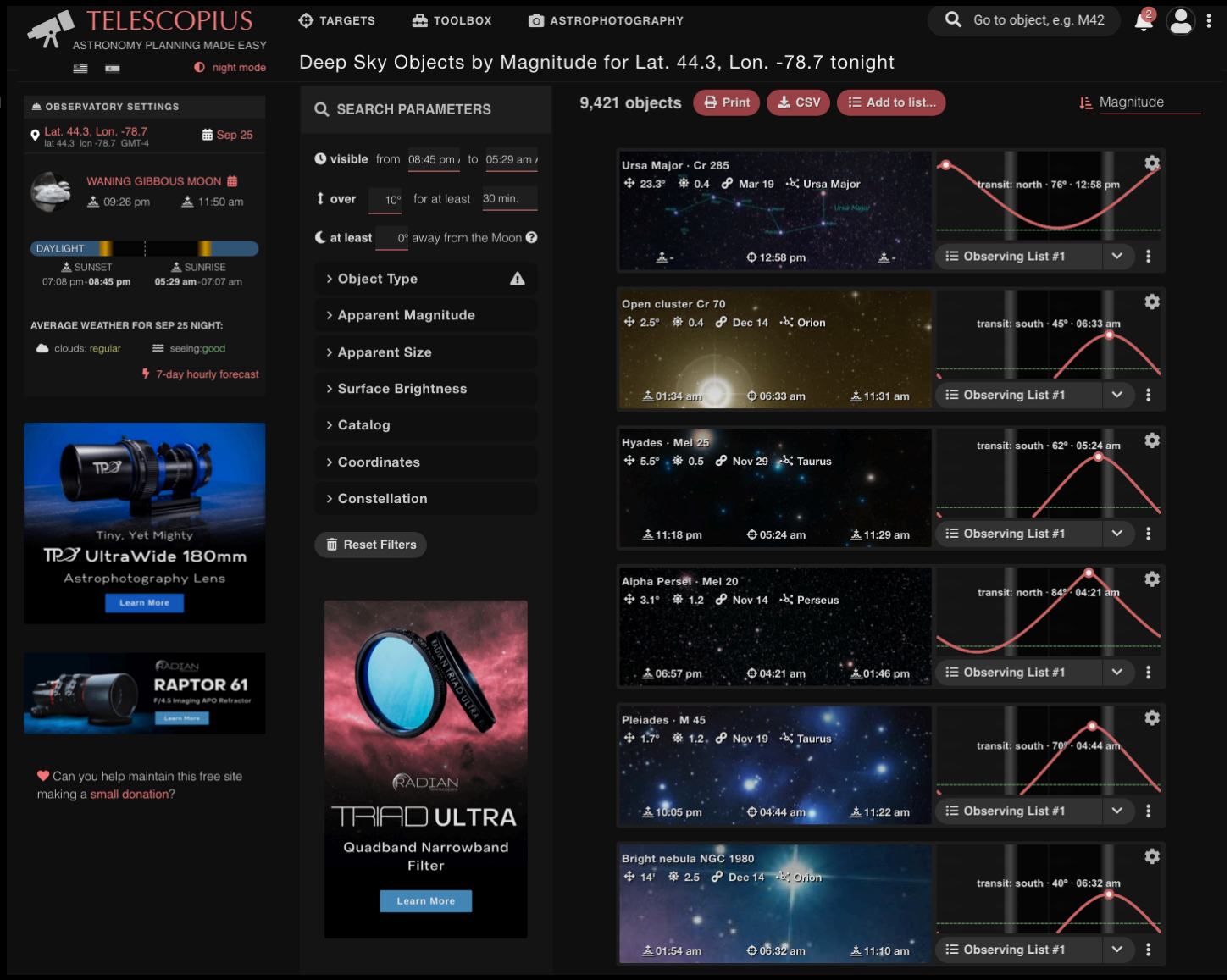
URL: theskylive.com



Online Planning

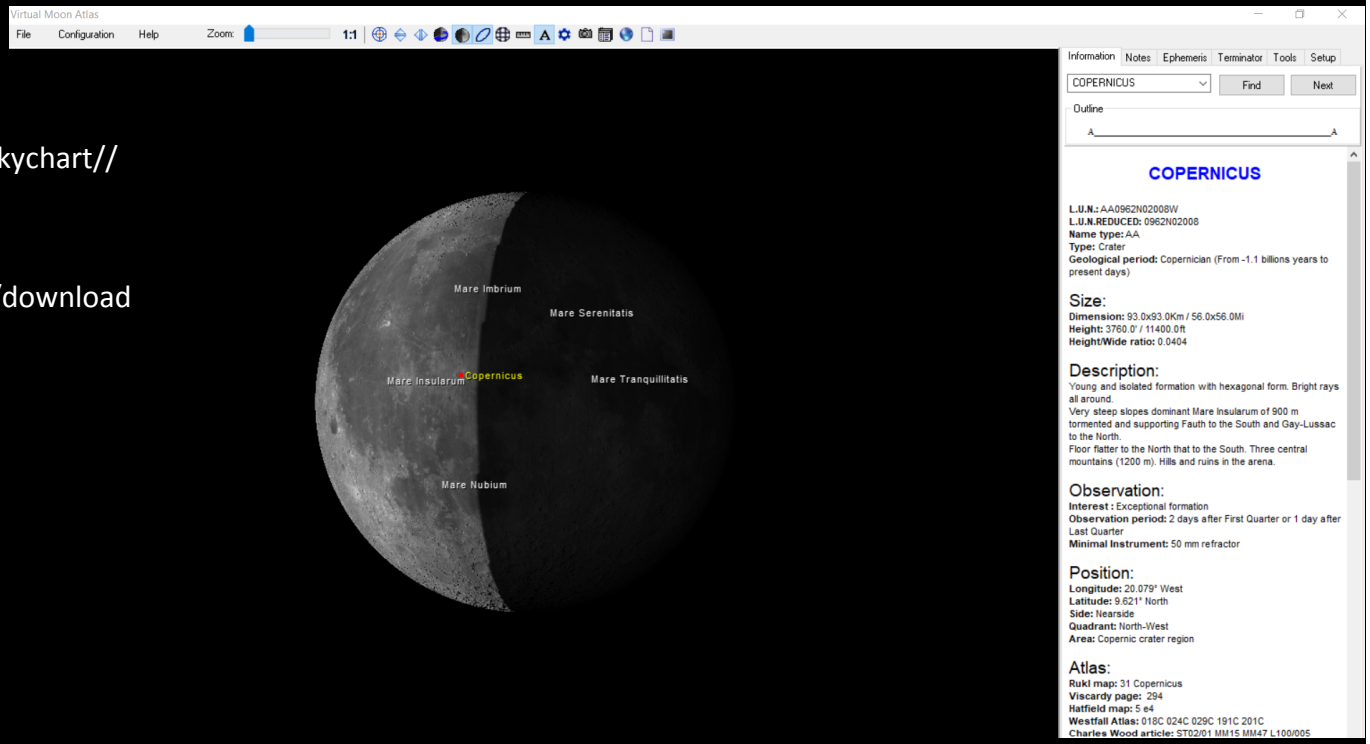
Telescopius

- Registration required
- URL: telescopius.com



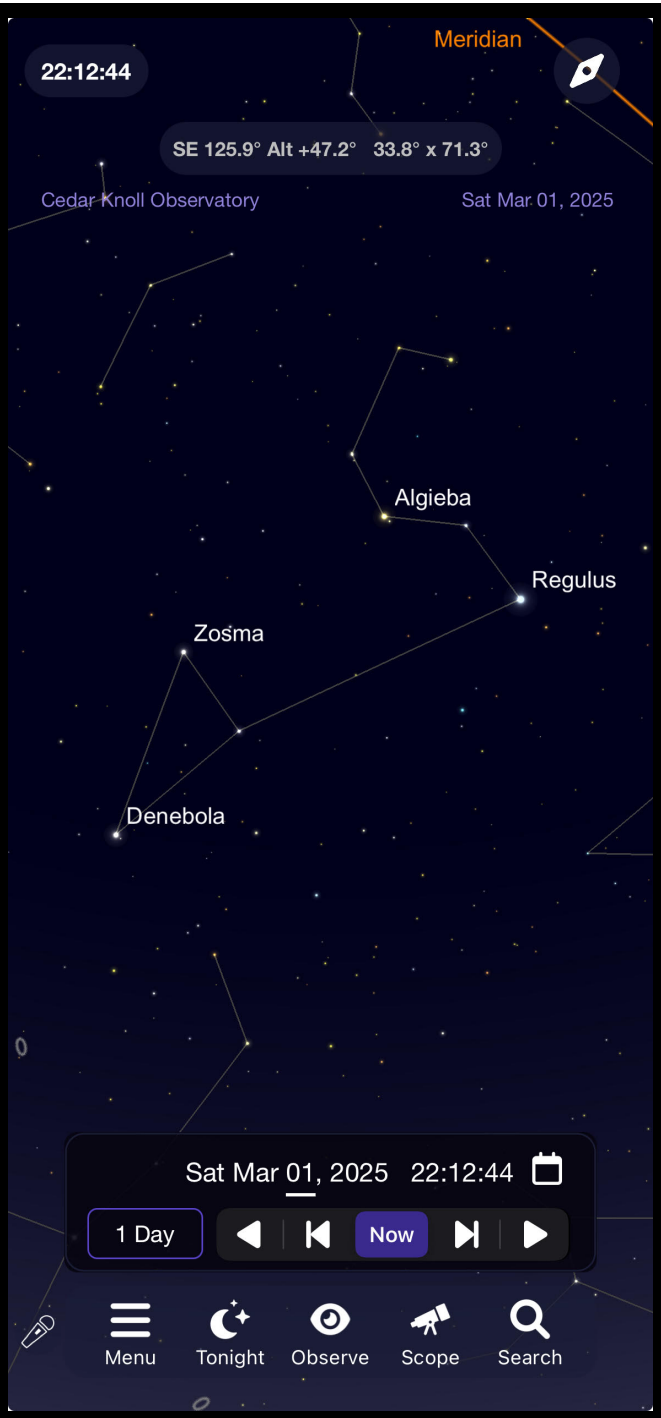
Computer Software

- Stellarium
  - stellarium.org
- Cartes de Ceil
  - https://www.ap-i.net/skychart//en/start
- Virtual Moon Atlas
  - https://ap-i.net/avl/en/download

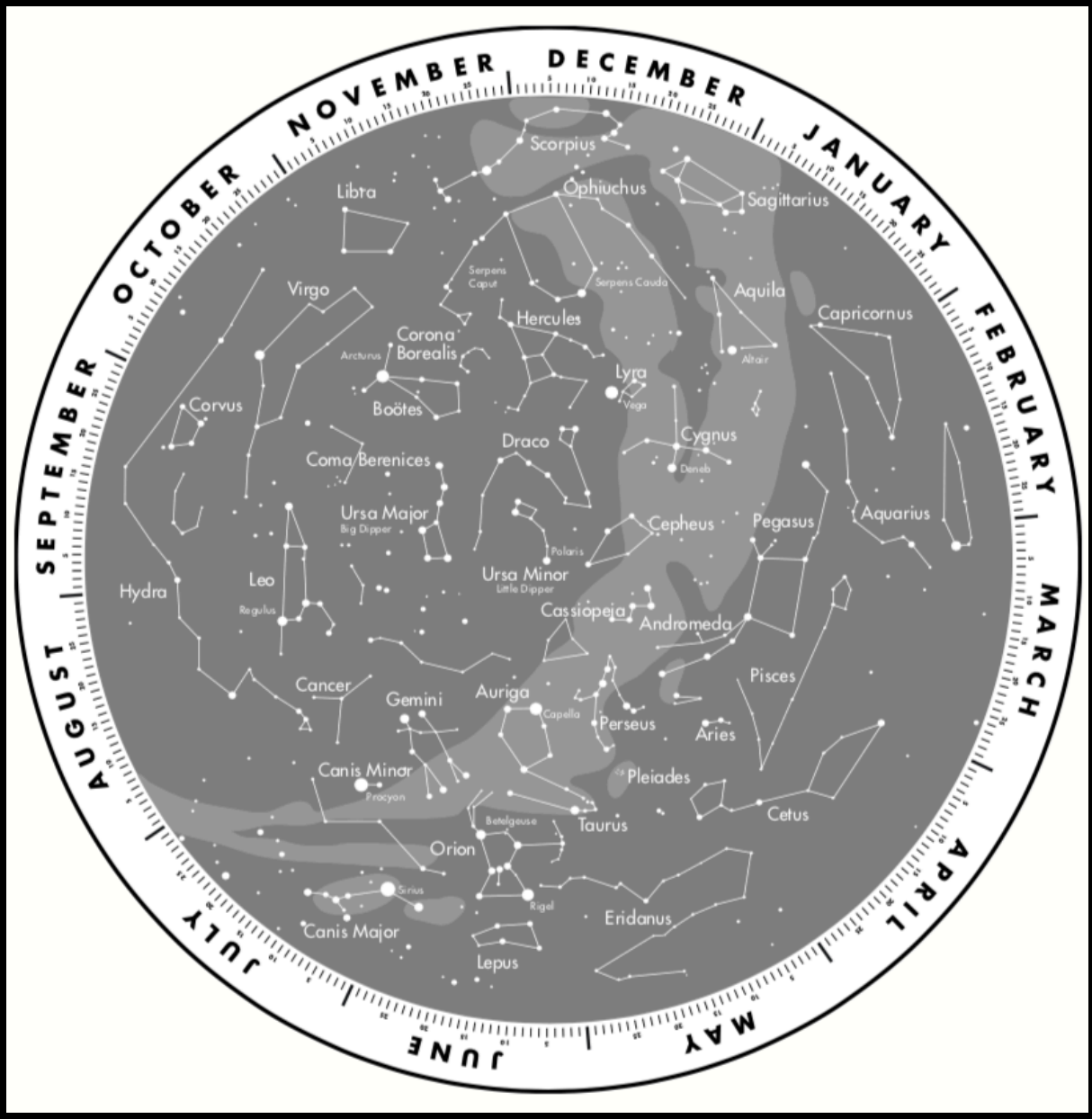


Phone & Tablet Apps

- Many to choose from
  - Sky Safari 7
  - Night Sky 11
  - Stellarium Mobile
  - Star Walk 2



Make Your Own Planisphere



Novice Astronomy Class
Solar System Series: Mercury
April 4, 2025

NASA