The Atlanta Astronomy Club

Charlie Elliot Chapter

Observing 101

Observing 101 – Sept 24, 2011

- The Sky Tonight
- Our Solar System This Week
- This Month's Astro Events
- Target List
- Binocular Basics

The Sky Tonight

- Sunset at 7:29 PM
- Venus sets at 8:01 PM
- Saturn sets at 8:20 PM
- Jupiter rises at 9:12 PM
- Uranus & Neptune visible all evening

The Sky Tonight

Tomorrow morning:

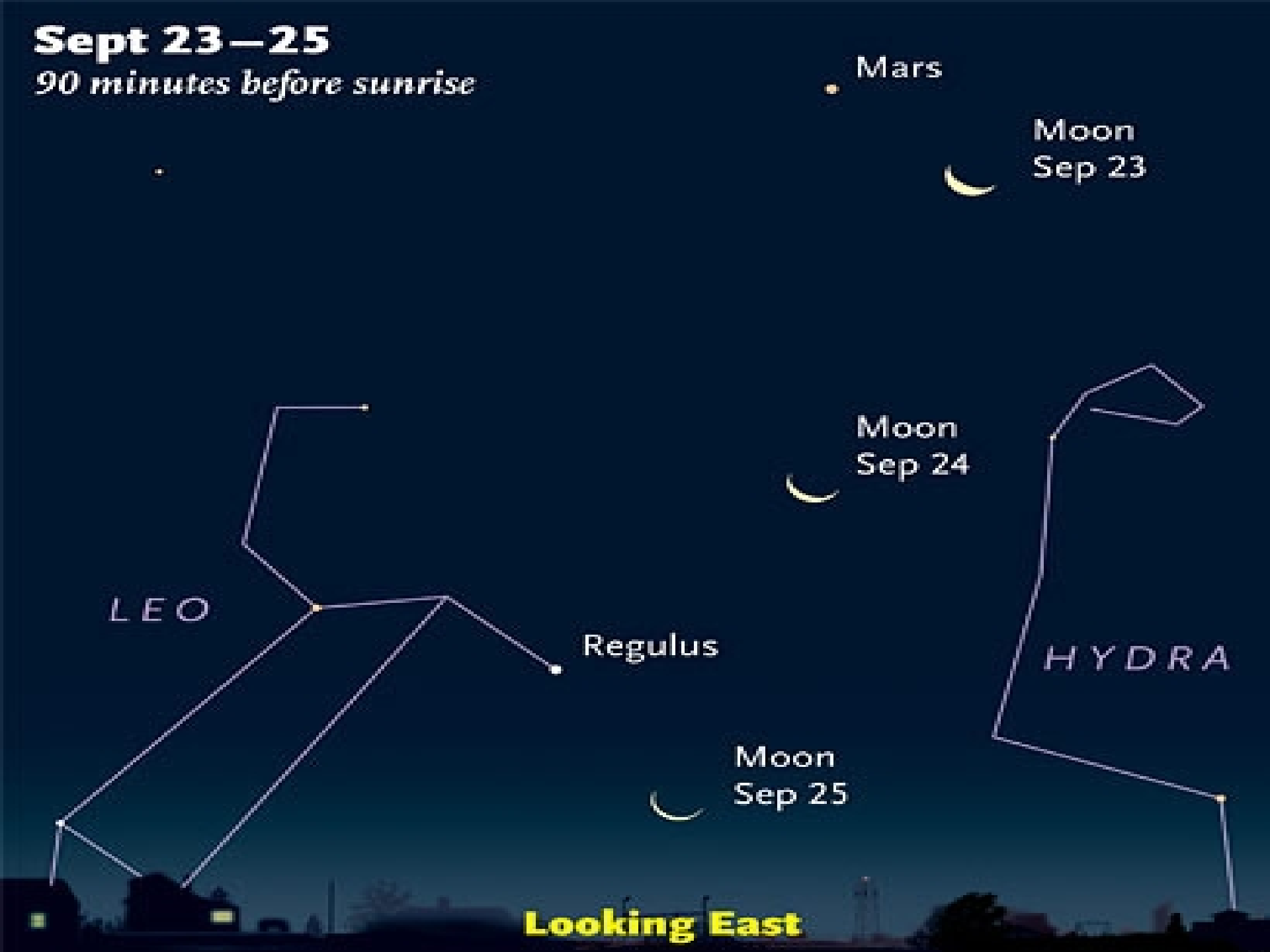
- Pluto sets at 12:51 AM
- Mars rises at 2:46 AM
- Neptune sets at 4:53 AM
- Moon rises at 5:16 AM
- Sunrise at 7:25 AM

Our Solar System this week

- Mercury - Hidden in the glare of sunrise
- Venus - Near the western horizon about 15 minutes after sunset
- Mars - In the E/NE early morning to dawn
- Jupiter - Rises in the E/NE around 9:00 PM and high in the South before dawn
- Saturn - Low above the western horizon after sunset
- Uranus - High in the South mid to late evening
- Neptune - High in the SE mid to late evening
- Pluto - Highest in the South after sunset in northern Sagittarius

This Month's Astro Events

- Sept 25 - Uranus reaches opposition
- Sept 27 - New moon at 7:09 AM
- Sept 28 - Saturn 2º above Venus after sunset
- October 1 - Mars passes through the Beehive
- October 1 - Crescent moon near Antares
- October 4 - A trio of large lunar craters
- October 8 - Draconid meteor shower peaks
- October 11 - Full moon
- Oct 12/13 - Jupiter near moon from dusk to dawn
- Oct 14/15 - The moon passes near the Pleiades
- October 21 - Orionid meteor shower peaks
- October 22 - Next CE Chapter meeting


Sept 23—25
90 minutes before sunrise
Mars
Moon
Sep 23
Moon
Sep 24
LEO
Regulus
HYDRA
Moon
Sep 25
Looking East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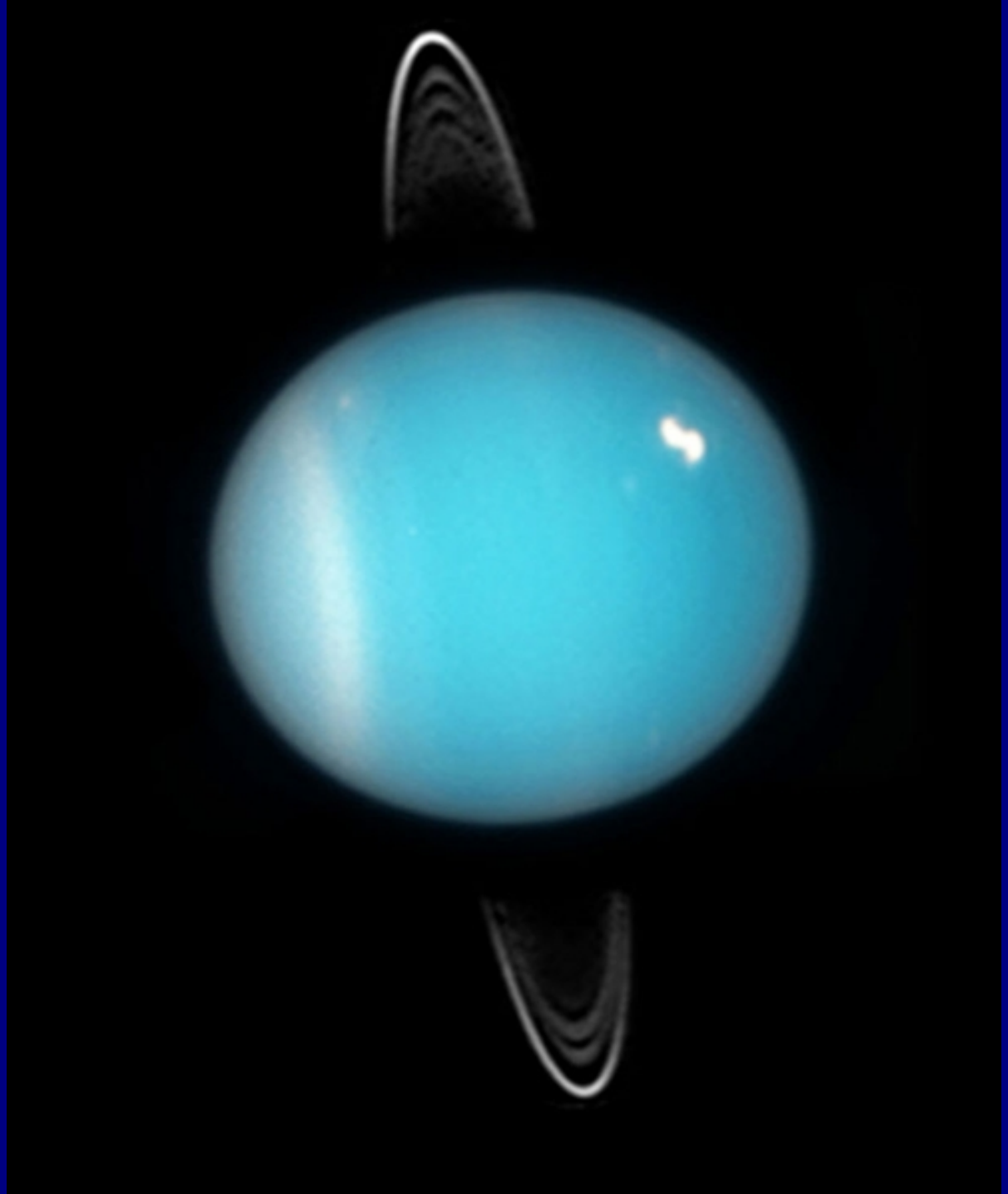
Uranus
CETUS
2°




Oct 1, 5 am
Beehive
Mars
10°
LEO
Regulus
Looking East
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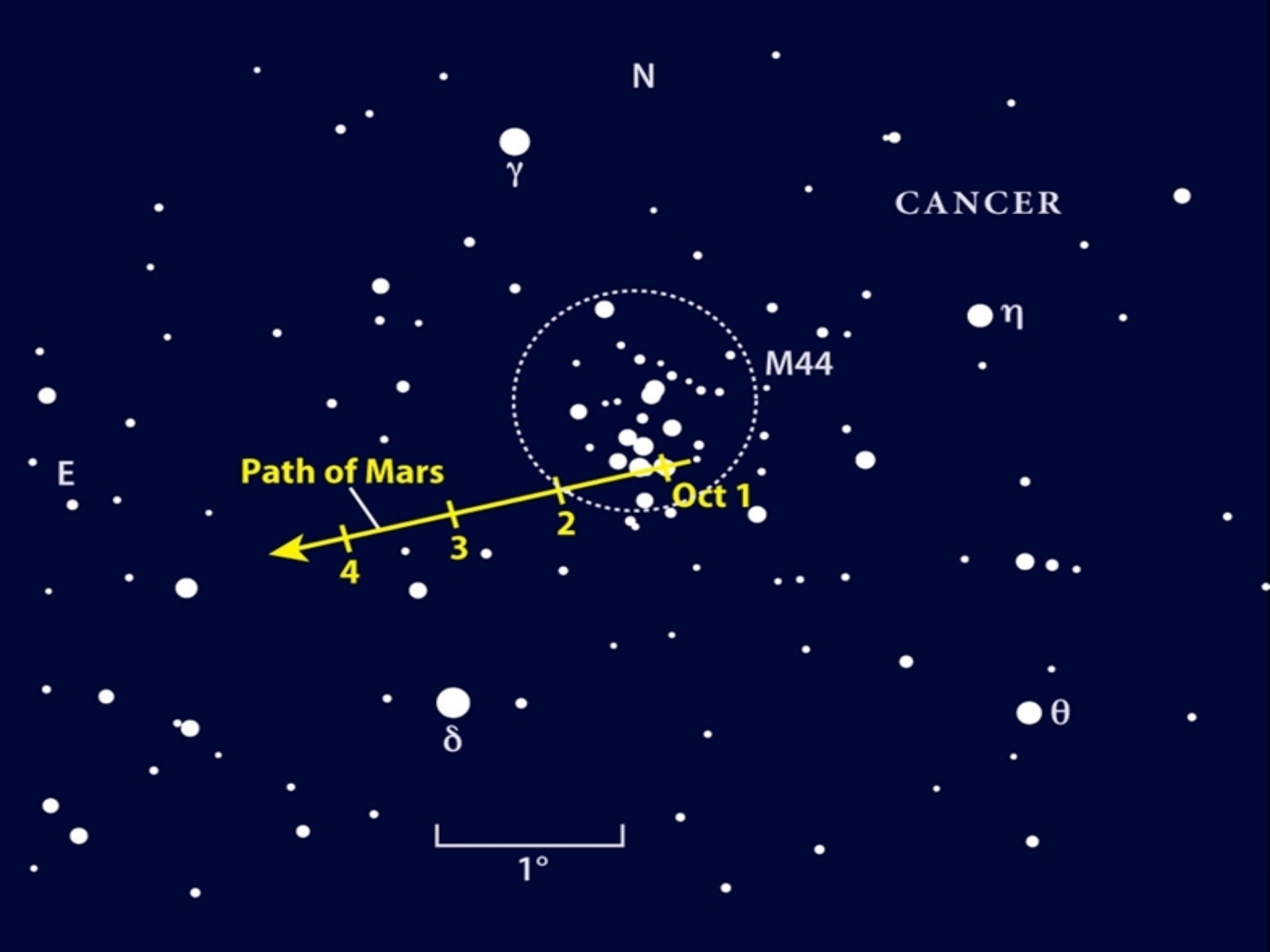
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Path of Mars
Oct 1
2
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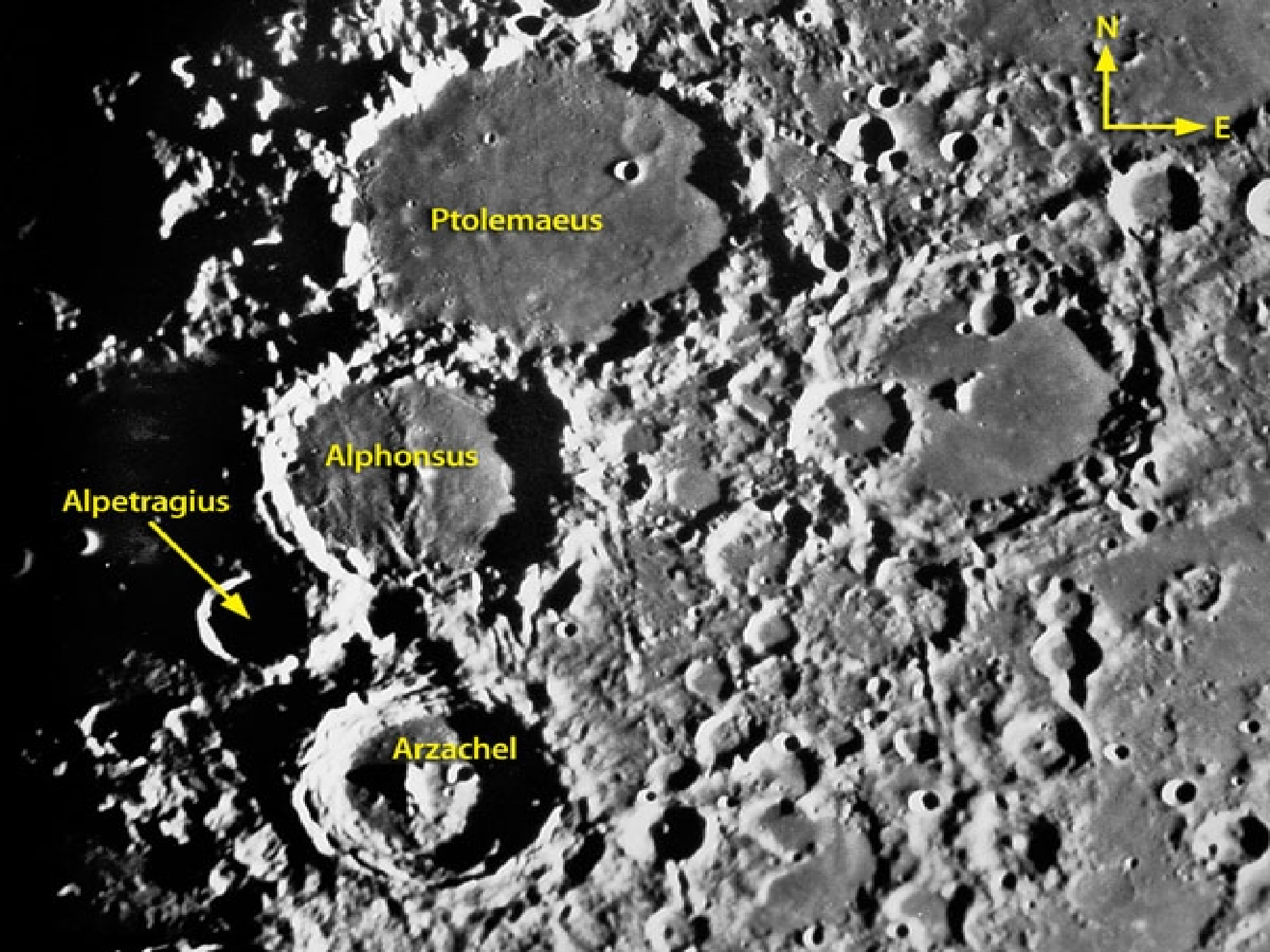
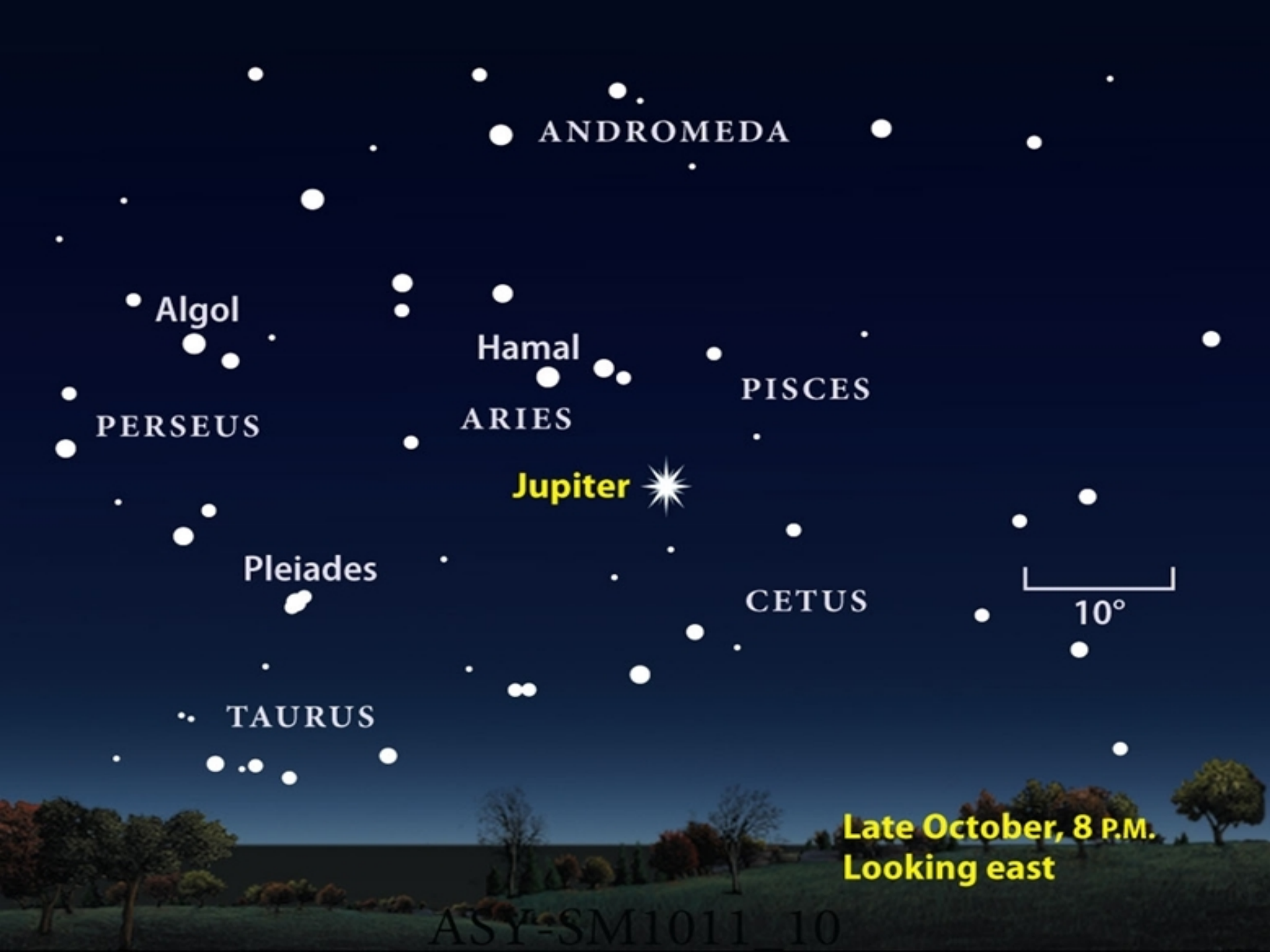
1°


Dusk, Sept 30—Oct 2
30 minutes after sunset
Moon
Oct 2
Moon
Oct 1
Antares
Moon
Sept 30
SCORPIUS
Looking South-Southwest
© 2011 Sky & Telescope


N
E
Ptolemaeus
Alphonsus
Alpetragius
Arzachel


ANDROMEDA
Algol
Hamal
PISCES
PERSEUS
ARIES
Jupiter
Pleiades
CETUS
10°
TAURUS
Late October, 8 P.M.
Looking east
ASY-SM1011_10

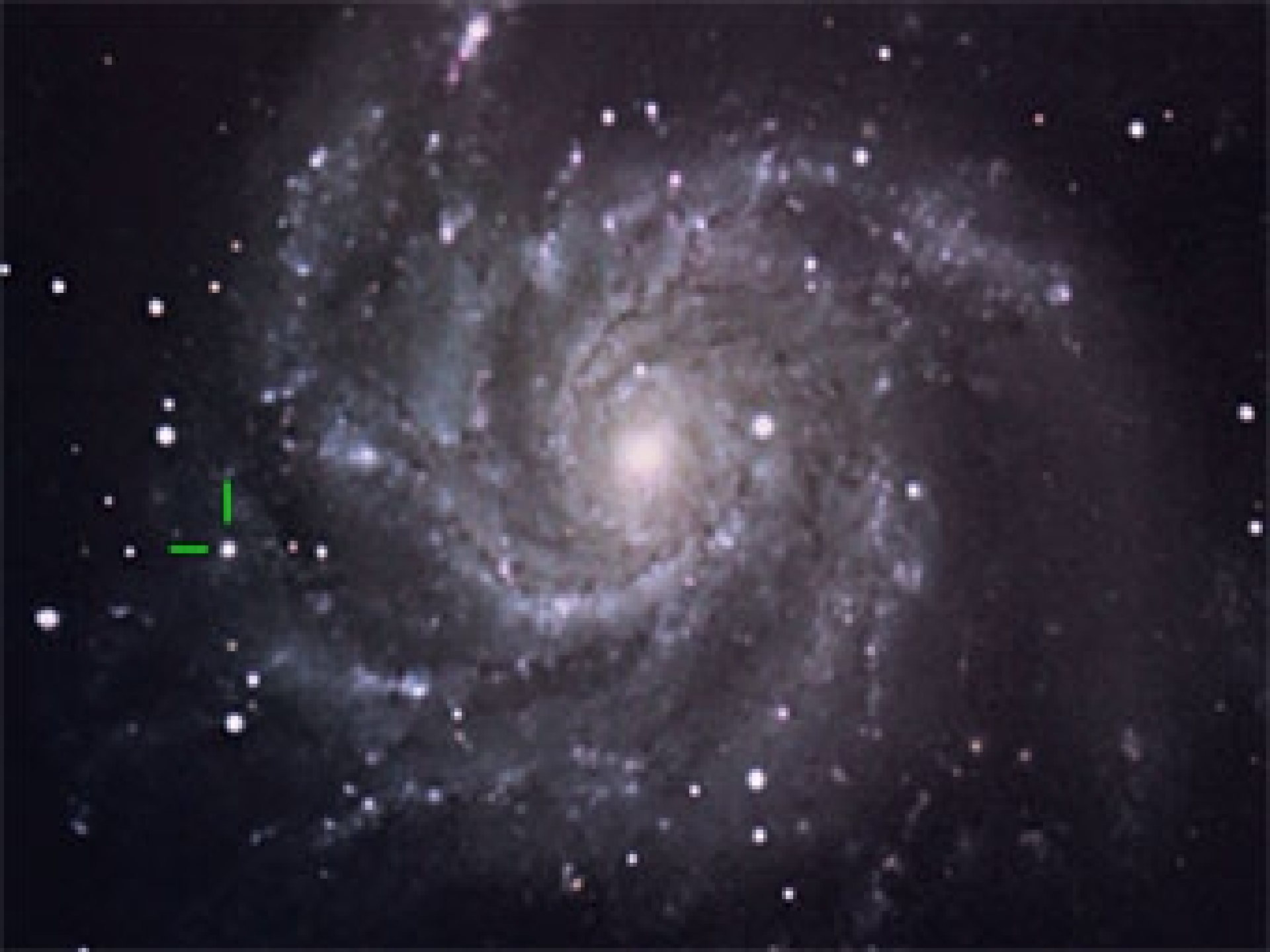

Aldebaran
TAURUS
Radiant
GEMINI
Castor
Pollux
ORION
Betelgeuse
Rigel
LEPUS
Procyon
10°
Sirius
CANIS MAJOR
October 22, 2 A.M.
Looking southeast

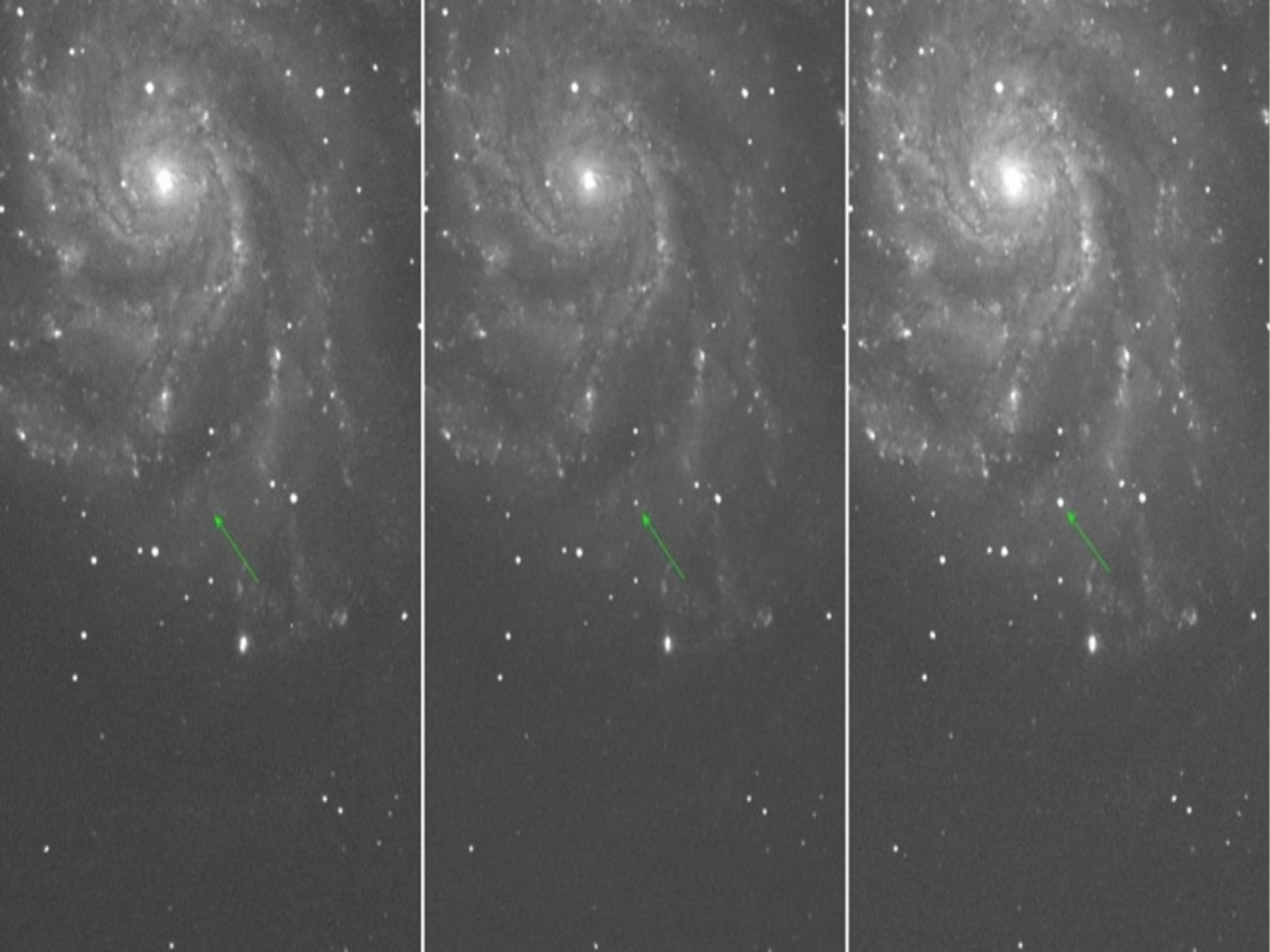
Astro Events

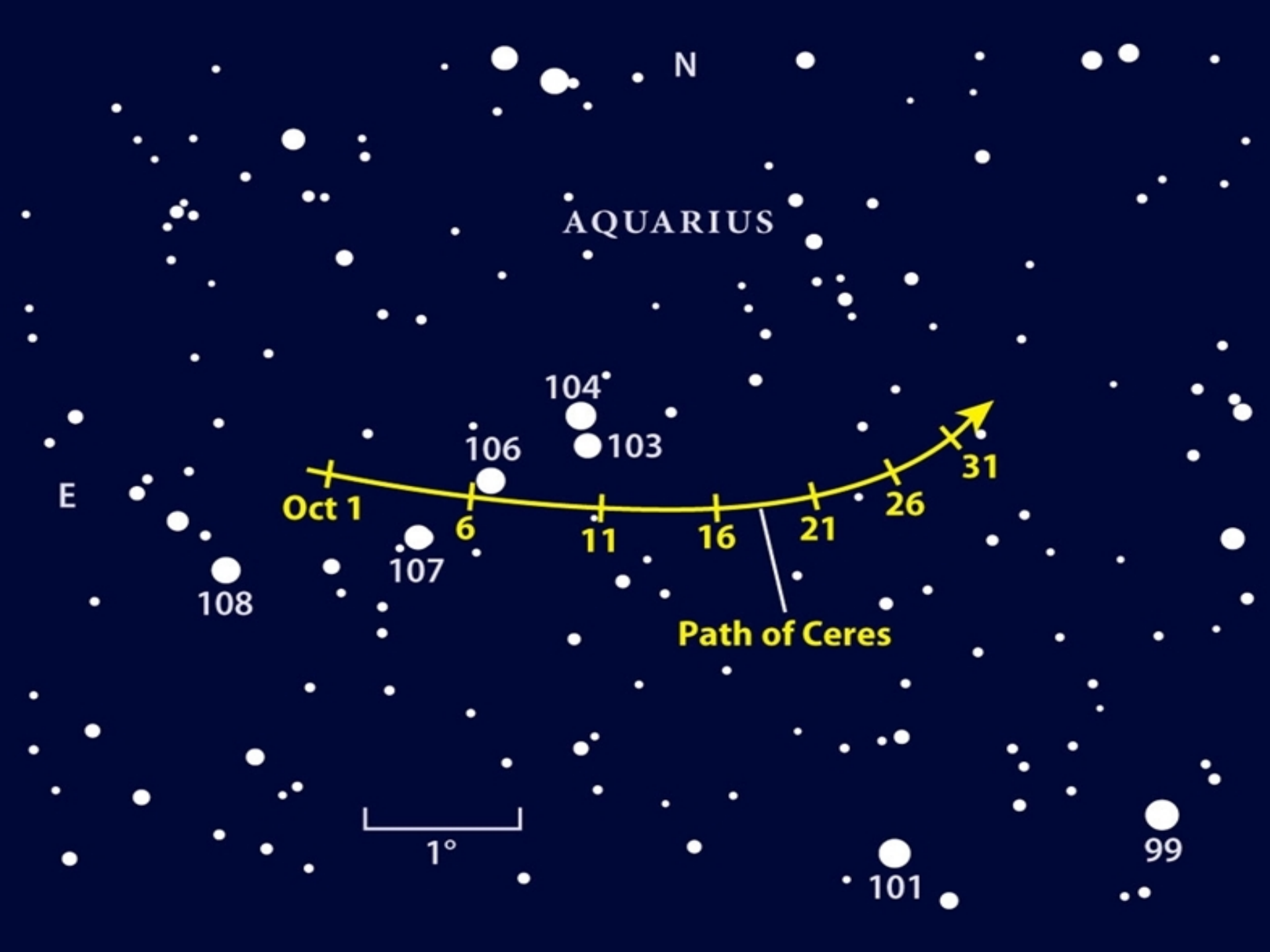
Events visible during the next month:

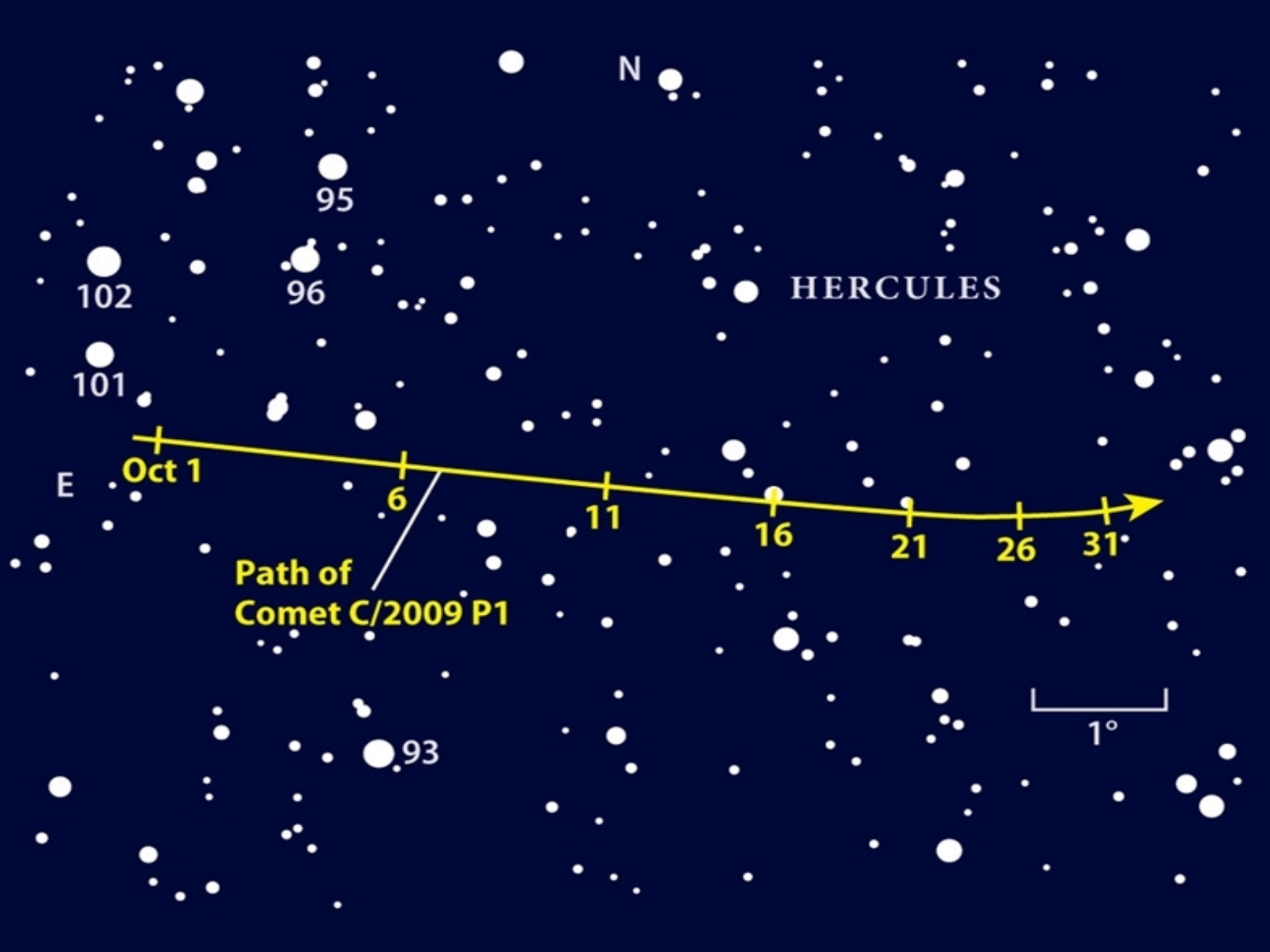
- Zodiacal light visible in the east before dawn from September 25 – October 10
- Supernova 2011fe begins to fade
- Asteroid Ceres travels through Southeastern Aquarius
- Comet Garradd moves slowly through the constellation Hercules


M101
Alkaid
Mizar
Alioth
Megrez
Dubhe
Phad
Merak






N
AQUARIUS
104
103
106
E
Oct 1
6
11
16
21
26
31
107
108
Path of Ceres
1°
99
101


N
95
102
96
HERCULES
101
E
Oct 1
6
11
16
21
26
31
Path of
Comet C/2009 P1
1°
93

Target List – Small Telescopes & Binoculars

Object	Type	Mag	Size/Sep	Constellation
Albireo	Double Star	3.1	34.7”	Cygnus
δ Cygni	Double Star	2.9	2.0”	Cygnus
Deneb	Double Star	1.2	75.4”	Cygnus
γ Delphini	Double Star	4.3	9.8”	Delphinus
M31	Galaxy	4.3	189' x 61'	Andromeda
M2	Globular	7.5	12.9'	Aquarius
M15	Globular	7.5	12.3'	Pegasus
M22	Globular	6.5	24'	Sagittarius
M11	Open Cluster	7.0	14'	Scutum
M39	Open Cluster	5.5	32'	Cygnus
NGC 6633	Open Cluster	4.6	20'	Ophiuchus
NGC 7000	Diffuse Nebula	4.5	120'	Cygnus
M27	Planetary Neb	7.5	15.2'	Vulpecula
M57	Planetary Neb	9.5	2.5'	Lyra

Binocular Basics
Why use Binoculars ?

- A great tool beginners – A good 1st scope
- Binoculars are more versatile – also good for bird watching, looking at sailboats, sporting events, etc.
- Binoculars are more intuitive and act like a natural extension of the user's eyes
- Images seen in binoculars are not “upside down” or reversed left to right
- A pair of binoculars can help familiarize a novice observer with the night sky with a minimal investment

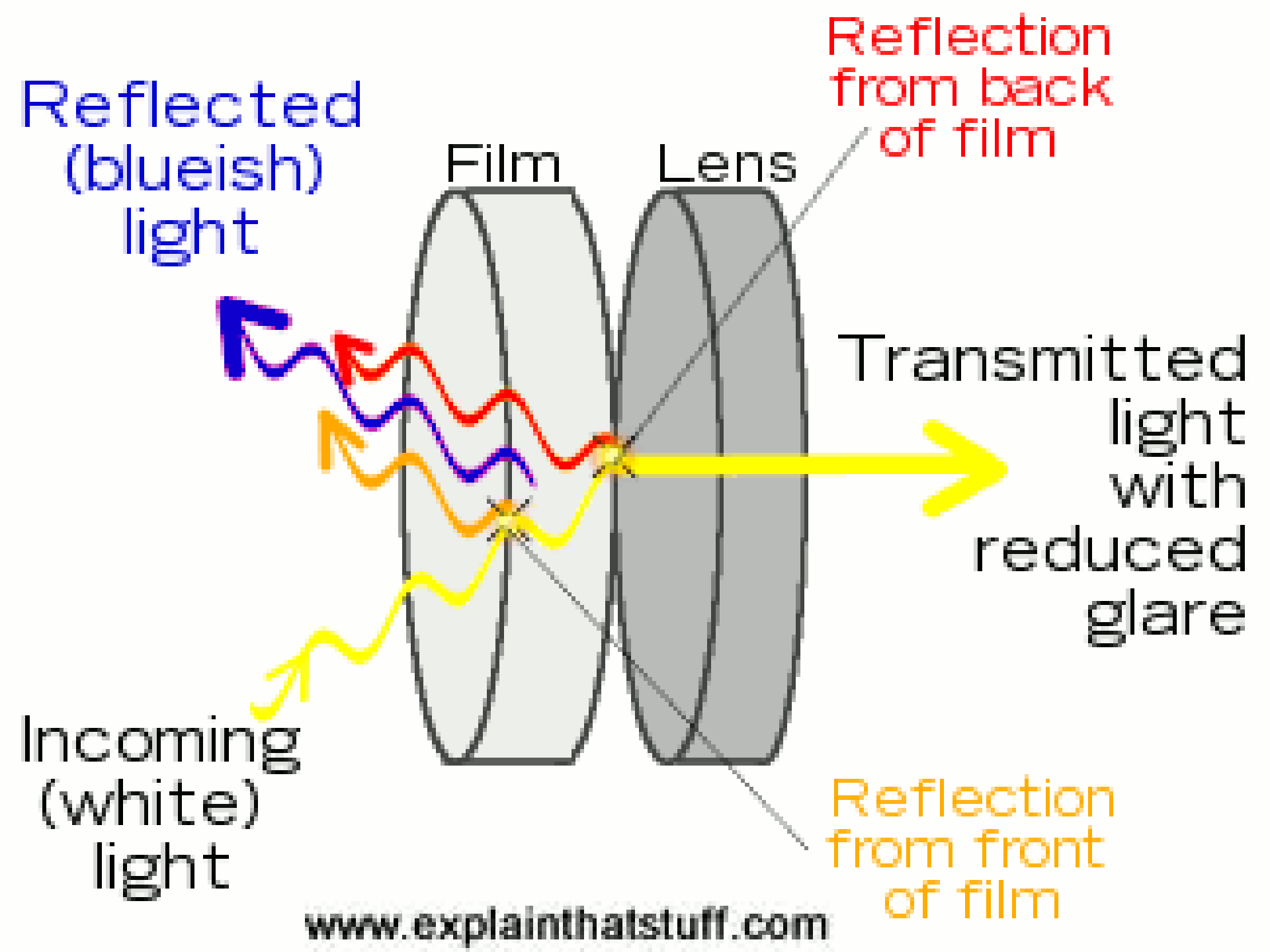
Binocular Basics - Selecting the right pair

- The best choice for hand held is no smaller than 50mm for adequate light gathering and no larger than 60mm due to weight considerations
- Magnification should be 10 power or less for hand held use
- Fixed magnification binoculars are preferred and provide a field of view 50% greater than zoom binoculars
- BAK4 prisms (Barium Crown Glass) are the highest quality available
- Optical coatings, eye relief, and exit pupil are always important considerations

OBERWERK

Binocular Basics - Coatings

- Coatings reduce light scatter and flares from bright objects. They also increase image contrast.
- The best binoculars have fully multi-coated optics - this means that every optical (glass) surface is coated with multiple layers of magnesium fluoride.
- Fully coated optics have a single layer of magnesium fluoride on every optical surface.
- Fully multi-coated optics have a green hue.
- Fully coated optics have a light blue hue.
- Binoculars with ruby red objective lenses filter red from the color spectrum to compensate for poor quality optics - they also give astronomical objects an unnatural greenish cast – buy a better pair.


Reflected (blueish) light
Reflection from back of film
Film
Lens
Transmitted light with reduced glare
Incoming (white) light
Reflection from front of film
www.explainthatstuff.com


10x25
68m/1000m

Binocular Basics – Eye Relief

- Eye relief is the distance you need to hold the binoculars away from your eye in order to see the full field of view.
- Eye relief values range from 8mm to 23mm.
- If your binoculars have short eye relief you cannot see the full field of view with eyeglasses.
- Users who do not wear glasses are usually comfortable with 12-13mm of eye relief.
- Users with eyeglasses should choose binoculars with at least 19-20mm of eye relief. The design of the rubber eyecups should also be considered.

Binocular Basics – Exit Pupil Diameter

- Exit pupil is the diameter of the light shaft entering your eye and is measured in millimeters.
- Exit pupil size roughly equals the size of the objective lens divided by magnification (A pair of 10 x 50mm binoculars will have a 5mm exit pupil)
- A larger exit pupil is generally more desirable for astronomical binoculars since our eyes dilate in the darkness. A wider shaft of light makes the image appear brighter because more light hits your retina.
- Caveat: Your age is also a consideration because as we get older the pupil will dilate less. People under 30 can usually achieve 7mm of dilation. People in their 50's or 60's have a maximum dilation of about 5mm.

Manufacturer	Model	Features	FOV	Eye Relief	Exit Pupil	IPD Range	Min. focus	Weight
Oberwerk	8x32	Broadband FMC, WP	7.4°	17.0mm	4.0mm	57-74mm	3 m	1.4 lbs.
Oberwerk	8x40M	Broadband FMC, WP, WA	8.4°	18.0mm	5.0mm	60-73mm	5 m	2.2 lbs.
Oberwerk	10x42	Broadband FMC, WP	5.8°	15.0mm	4.2mm	57-74mm	3 m	1.2 lbs.
Oberwerk	7x50M	Broadband FMC, WP, WA	7.0°	24.0mm	7.1mm	60-73mm	10 m	2.8 lbs.
SeeCoast	Mark III	Weatherproof, 10x binocular	7.0°	mm	5.0mm	mm	17 m	105 lbs.
Oberwerk	Ultra10x50	Broadband FMC, WP	6.5°	17.0mm	5.0mm	57-75mm	10 m	3.5 lbs.
Oberwerk	10x50	Broadband FMC, WP, WA	6.0°	18.0mm	5.0mm	58-73mm	9 m	2.25 lbs.
Oberwerk	12x50	Broadband FMC, WP	4.7°	14.0mm	4.1mm	57-74mm	3 m	1.8 lbs.
Oberwerk	8x56	Broadband FMC	6.0°	24.0mm	7.0mm	58-73mm	10 m	2.25 lbs.
Oberwerk	11x56	Broadband FMC, WA	6.0°	19.0mm	5.0mm	58-73mm	10 m	2.25 lbs.
Oberwerk	9x60	Broadband FMC	5.5°	16.0mm	6.6mm	58-73mm	10 m	2.6 lbs.
Oberwerk	10x60M	Broadband FMC, WP	5.3°	23.0mm	6.0mm	60-73mm	15 m	3.2 lbs.
Oberwerk	12x60	Broadband FMC, WA	5.7°	14.0mm	5.0mm	58-73mm	15 m	2.6 lbs.
Oberwerk	15x60	Broadband FMC	4.1°	12.0mm	4.0mm	58-73mm	15 m	2.6 lbs.
Oberwerk	20x60	Broadband FMC	3.0°	10.0mm	3.0mm	58-73mm	20 m	2.6 lbs.
Oberwerk	Ultra10.5x70	Broadband FMC, WP	4.6°	23.0mm	6.6mm	57-75mm	10 m	5.0 lbs.
Oberwerk	11x70	Broadband FMC	4.5°	23.0mm	6.3mm	58-73mm	20 m	3.0 lbs.
Oberwerk	15x70	Broadband FMC	4.3°	16.0mm	4.6mm	58-73mm	20 m	3.0 lbs.
Oberwerk	Ultra15x70	Broadband FMC, WP	4.4°	18.0mm	4.6mm	57-75mm	10 m	5.0 lbs.
Oberwerk	20x80 Standard	Broadband FMC	3.2°	18.0mm	4.0mm	58-73mm	20 m	4.5 lbs.
Oberwerk	20x80 LW	Broadband FMC	3.2°	16.0mm	4.0mm	58-73mm	25 m	3.6 lbs.
Oberwerk	20x80 D III	Broadband FMC, WP, mount	3.25°	18.0mm	4.0mm	55-74mm	25 m	7.0 lbs.
Oberwerk	20x90 Deluxe	Broadband FMC, WP, mount	3.2°	17.0mm	4.5mm	59-73mm	30 m	8.6 lbs.
Miyauchi	Bj-100iC	45°, 20x/37x, hard case	2.5°	18.0mm	5.0mm	54-78mm	20 m	13.0 lbs.
Oberwerk	25x100D	Broadband FMC, WP, mount	2.4°	18.0mm	4.0mm	56-74mm	30 m	10.0 lbs.
Oberwerk	25x100 IF	Broadband FMC, WP, mount	2.5°	18.0mm	4.0mm	60-73mm	30 m	10.0 lbs.

Web Links

- Astronomy Magazine
- www.astronomy.com
- Sky & Telescope Magazine
- www.skyandtelescope.com
- The Old Farmer's Almanac
- www.almanac.com
- Explain that stuff
- www.explainthat stuff.com
- Big Binoculars
- www.bigbinoculars.com
- Phil Harrington
- www.philharrington.net

Clear Skies!