

November Novelties - 2022

- Moon Shots: First qtr - 1st; Full Moon - 8th; Last qtr - 16th; New moon - 23th; First qtr - 30th
 - Full Moon - Beaver Moon
 - Total lunar eclipse - 8th
- Planetary views:
 - Major attractions - outer planet bonanza
 - Mars - closest to Earth on 30th
- Meteor showers:
 - Taurid - peak night on 12th
 - Leonid - peak night on 18th
- Comet Search:
 - C/2022 E3
- Constellations:
 - featured DSOs in Pisces, Cassiopeia, Cepheus

Moon Shots - November 8, Lunar Eclipse



Bonus opportunity to see Taurid meteor shower



timeanddate.com

Time/General Weather Time Zone DST Changes Sun & Moon

Sun & Moon Today Sunrise & Sunset Moonrise & Moonset Moon Phases **Eclipses** Night Sky

Nov 8, 2022 at 2:59 am

Global Event: Total Lunar Eclipse

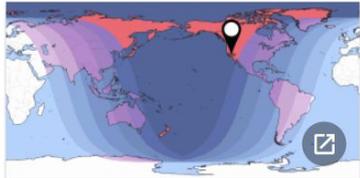
Local Type: Total Lunar Eclipse, in Tehachapi

Begins: Tue, Nov 8, 2022 at 12:02 am

Maximum: Tue, Nov 8, 2022 at 2:59 am 1.359 Magnitude

Ends: Tue, Nov 8, 2022 at 5:56 am

Duration: 5 hours, 54 minutes



Meteor Watch - Taurid Meteor Shower, peak November 12

- most active 11/5 - 11/12; average rate 5-15/hour; pebbles instead of dust grains
- derived from breakup of a very large comet around 20,000 years ago
- debris from breakup created Encke comet which orbits the sun once every 3 years - shortest of any comet
- split into two streams due mostly due to Jupiter's gravitational attraction
- Beta Taurids (summer) may be responsible for 1908 Tunguska explosion



Northern Taurid bolide
photographed from Skibotn, Norway
December 4, 2020 14:30 CET.^[16]

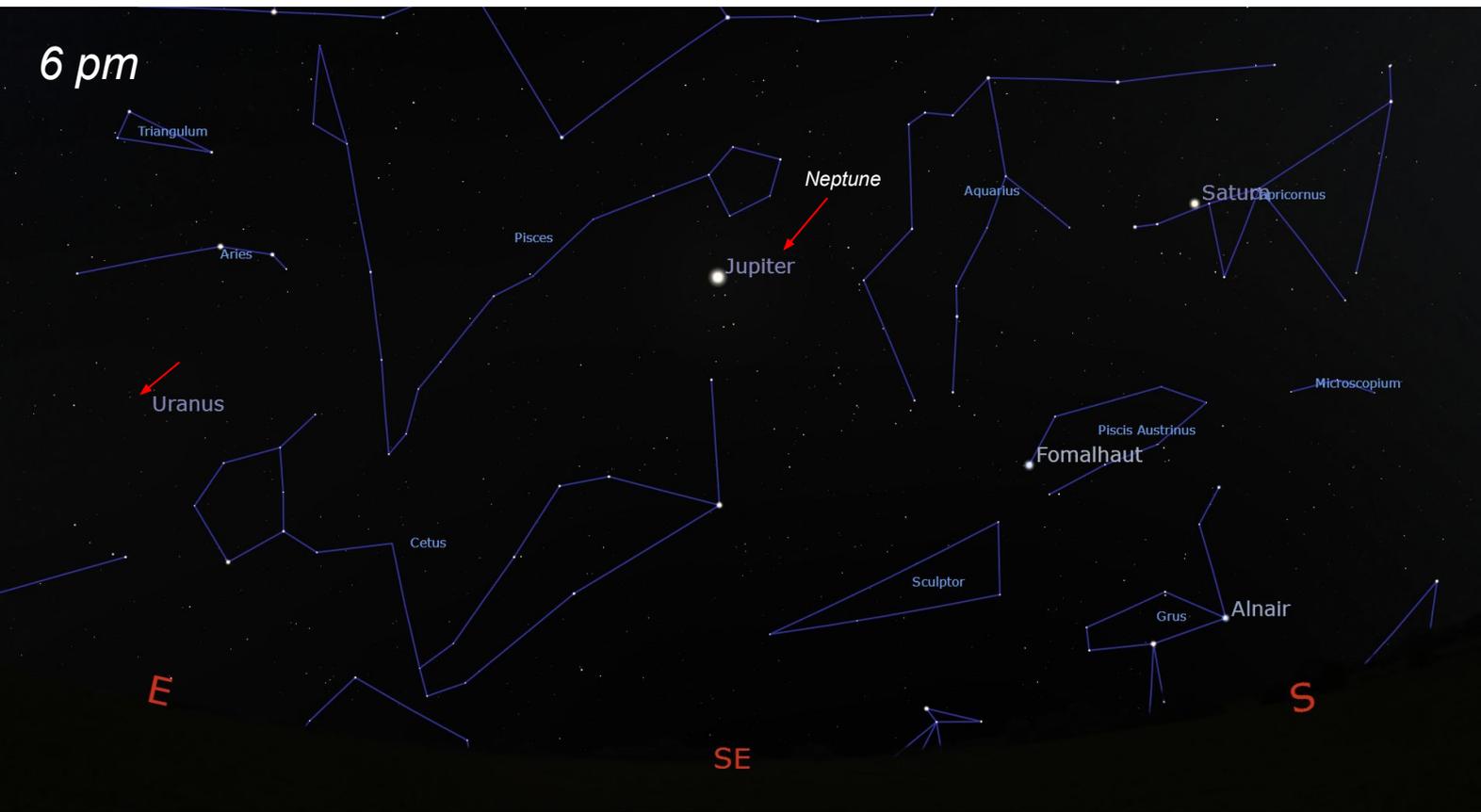


Mario Korman/Robert Neuma/PhotoBee.com



Planet Views - Outer planets, November 15

Uranus & Neptune visible through binoculars



Planet Views - Outer planets, November 15

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Uranus

Alcyone

Kaffalj

Menkar

Planet Views - Outer planets, November 15

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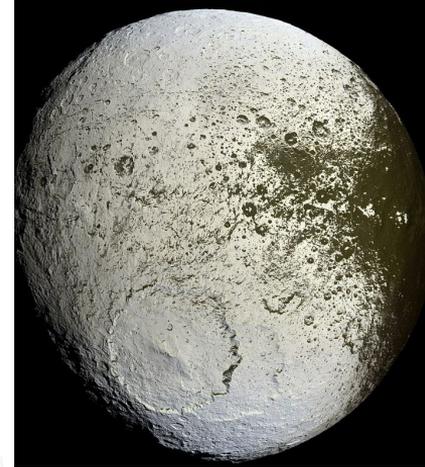
6 pm



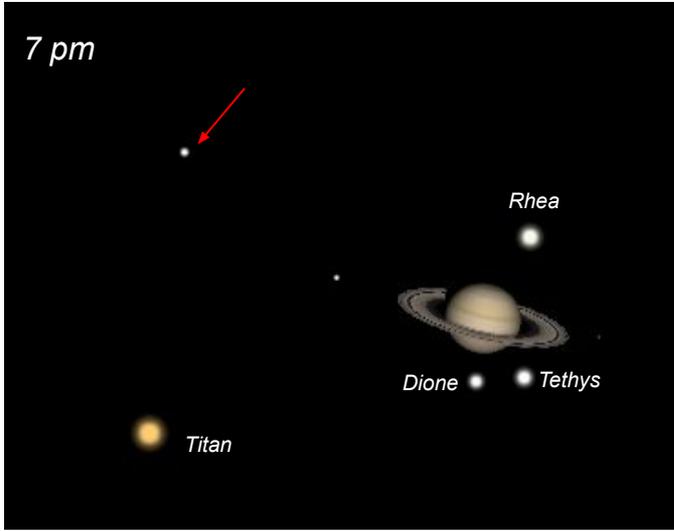
Planet Views - Saturn moon Iapetus, November 15

Iapetus passed through superior conjunction on far side of its orbit around Saturn on the 13th - normally resides far outside field of view with Saturn

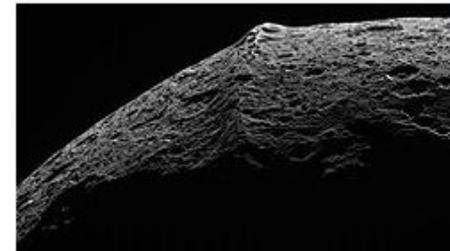
Cassini probe in 2007



7 pm

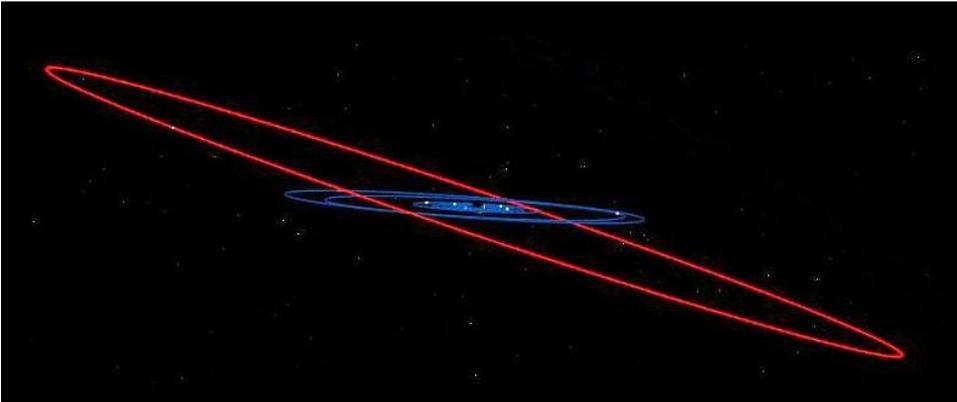


Iapetus orbit (red) highly inclined to other Saturn moons



Iapetus's equatorial ridge up close as imaged by Cassini

Ridge 12 miles high, 3rd tallest mtn. system in SS



Meteor Watch - Leonid Meteor Shower, peak November 18

- active 11/6 - 11/30
- derived from 55P Tempel-Tuttle comet orbiting the sun once every 33 years
- normal rate one per six minutes; once every 33 years can reach 1000 to 100,000 per hour
- fragments penetrate Earth's atmosphere at 44 miles/second
- larger, brighter fireballs are spectacular - as bright as Venus or even the full moon!



Leo rises soon after midnight



Best viewing - waning crescent moon, radiant 70 az



Comet Search - C/2022 E3

- Discovered in March 2022
- January 2023 - path will cross half the sky in a few nights
- February 2023 - peak at 5th magnitude

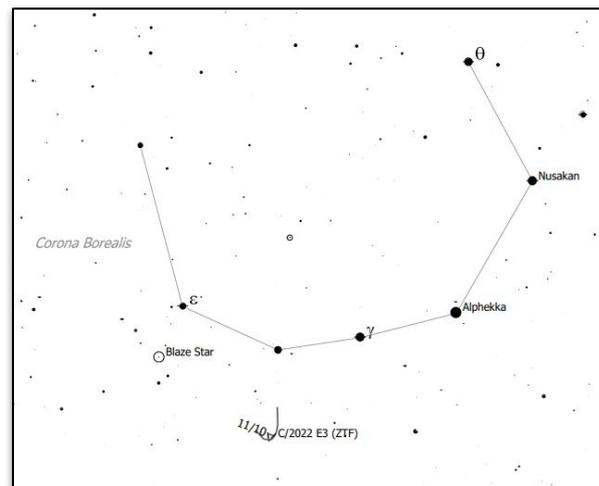
Comet Chasing in November

Comet chasing is the visual observation of telescopic comets.

C/2022 E3 (ZTF): A northern hemisphere morning comet visible in small telescopes

This comet begins the month in Serpens Caput at magnitude 10.3. Look for a 1' coma. It should brighten by about 1.5 magnitudes by month's end. [FINDER CHART](#)

Latitude	Visibility October 29	Visibility November 5	Visibility November 12	Visibility November 19	Visibility November 26	Nights Visible
55° N	Fairly high in the western sky during evening twilight at ~18:30	Fairly high in the western sky during evening twilight at ~18:10	Fairly high in the western sky during evening twilight at ~18:00	Fairly high in the western sky during evening twilight at ~17:50	Fairly high in the eastern sky during evening twilight at ~05:50	1-
40° N	Fairly high in the western sky during evening twilight at ~18:30	Fairly high in the western sky during evening twilight at ~18:10	Low in the western sky during evening twilight at ~18:10	Low in the western sky during evening twilight at ~18:00	Low in the eastern sky during morning twilight at ~05:30	1-
Equator	Not visible	1-2, 4-4				
30° S	Not visible					



Planet Views - Mars, November 30

magnitude/apparent diameter grows through the month; good telescope opportunities



closest approach to Earth, only 50.6 million miles

Planet Views - Mars, through November

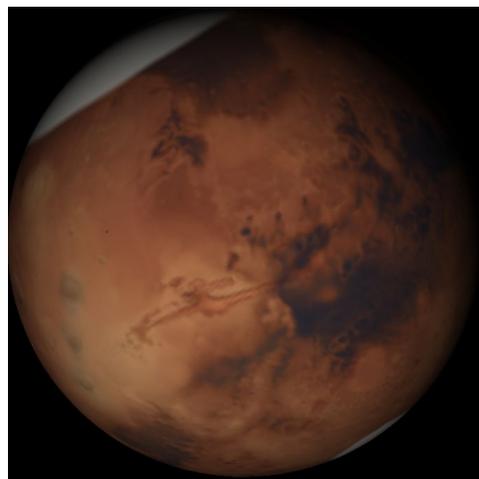
Nov 8



Olympus Mons
Tharsis Ridge

Nov 17

Tharsis Ridge
Valles Marineris

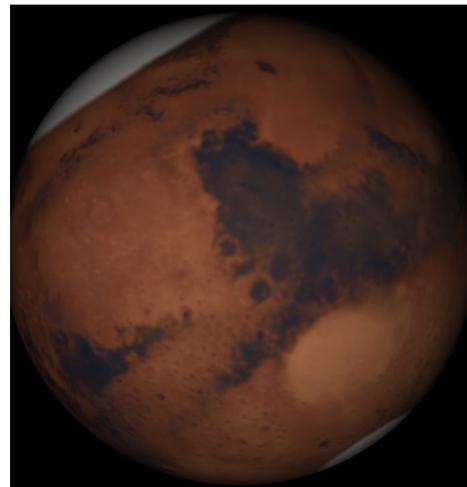


Nov 23



Valles Marineris
Sinus Meridiani

Nov 30



Syrtis Major
Hellas Planitia
Isidis Planitia



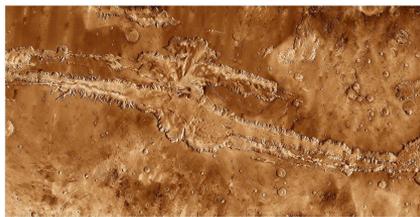
Planet Views - Mars, through November

Nov 8



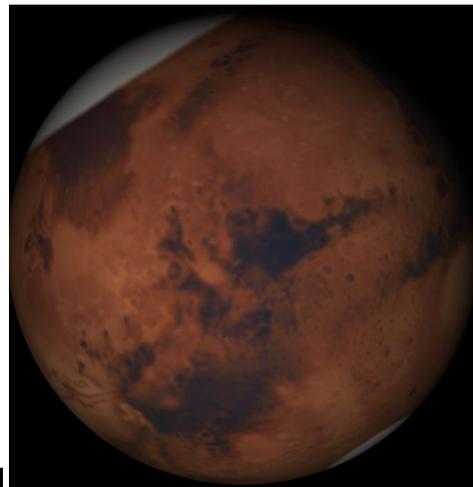
Olympus Mons
Tharsis Ridge

Nov 17



Tharsis Ridge
Valles Marineris

Nov 23



Valles Marineris
Sinus Meridiani

Nov 30



Syrtis Major
Hellas Planitia
Isidis Planitia

November constellations

Nov 15 - 8 pm

Andromeda, Cassiopeia, Cepheus, Cetus, Pisces

November Deep Sky Objects

- 1 - M31 (Andromeda Galaxy)
- 2 - M74 (Phantom Galaxy)
- 3 - NGC 7380 (Wizard Nebula)
- 4 - IC 1805, 1848 (Heart & Soul Nebulas)
- 5 - NGC 253 (Sculptor Galaxy)
- 6 - PGC 2248 (Cartwheel Galaxy)

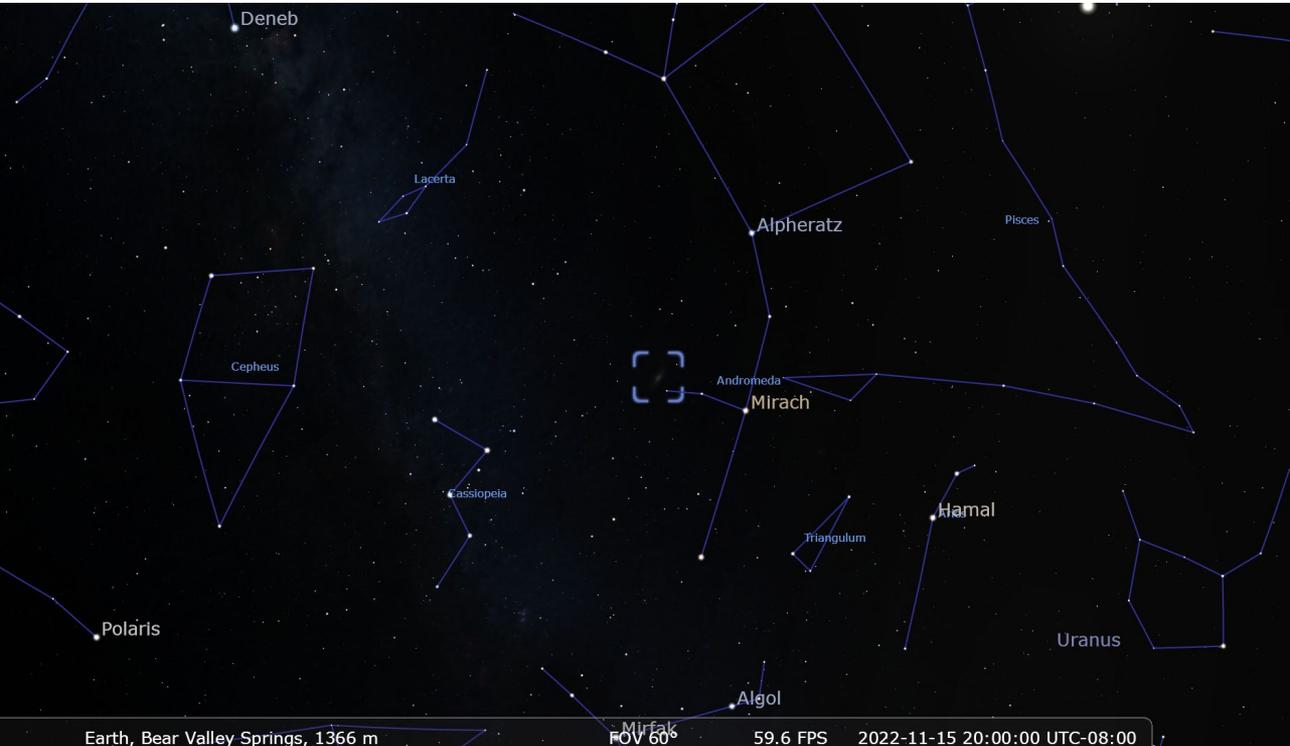


Andromeda Galaxy

*2.5M light years from Earth
best observed Oct - Dec (naked eye, binoculars)
on collision course with Milky Way (70 miles/sec)*



Image: Stellarium



View of Andromeda 3.85 billion years from now

Phantom Galaxy

30M light years from Earth

Similar size to Milky Way

best observed Oct - Dec (large binoculars, scopes)

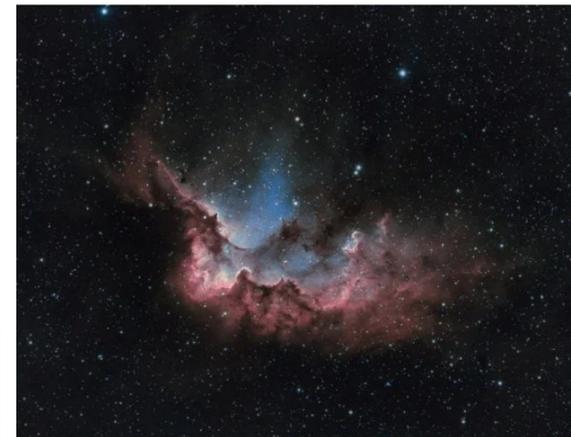
Face-on orientation



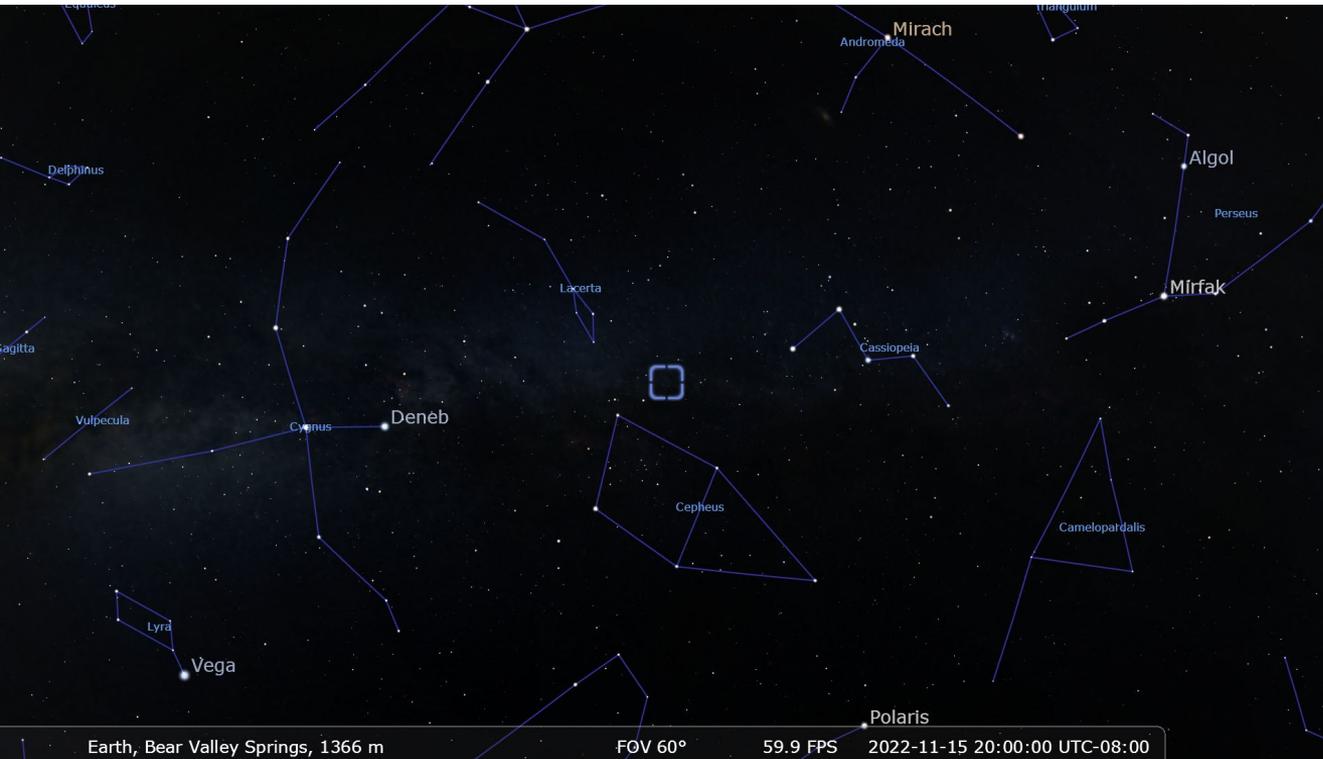
The grand-design spiral galaxy Messier 74 as photographed by the Hubble Space Telescope in 2007.

Wizard Nebula

*7000 light years from Earth
only 5M years old
can be seen in a small telescope
challenging object to observe, requires an OIII filter, exceptionally clear dark skies*



The Wizard Nebula (NGC 7380) was created with Ha, OIII, and SII filters using the Hubble Palette.
Image: Wikimedia Commons/Chuck Ayoub

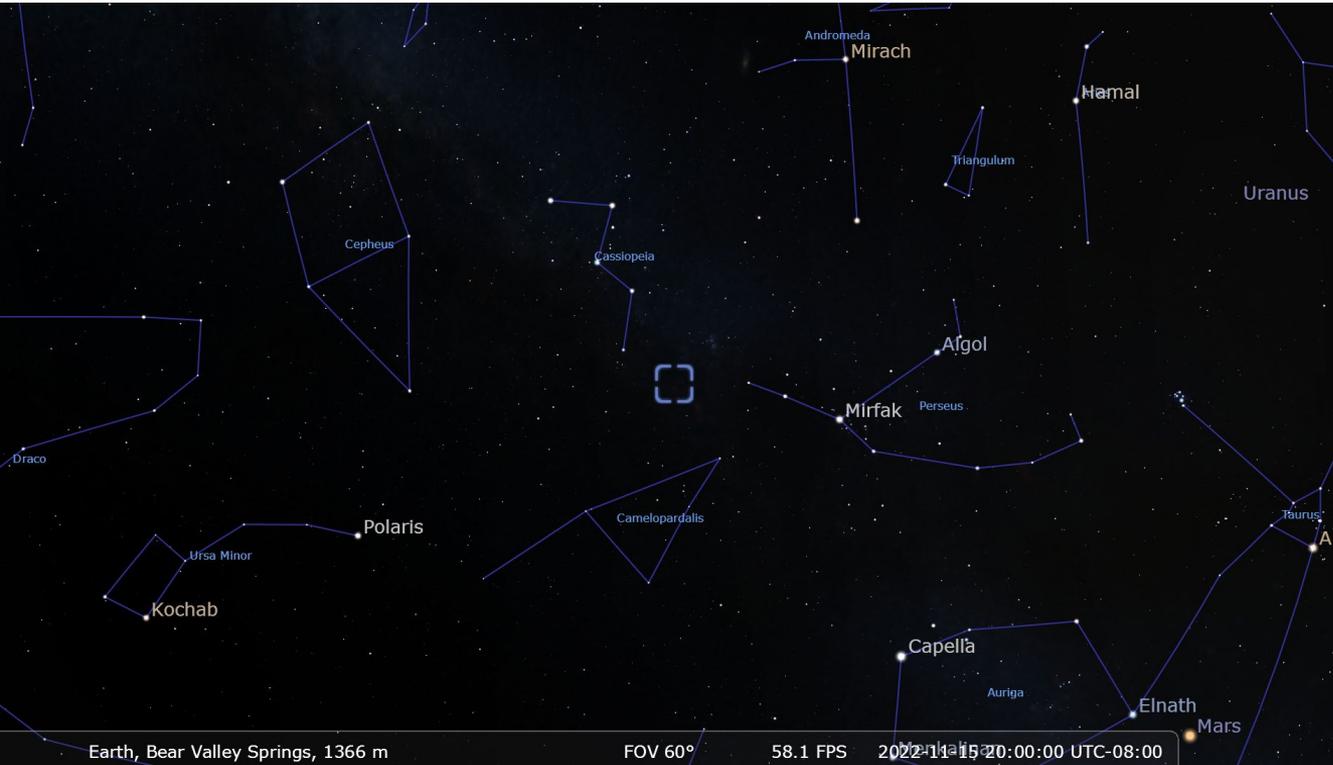


Heart & Soul Nebulas

*7500 light years from Earth
barely visible in small telescopes
popular with astrophotographers*



Image: Stellarium



Sculptor Galaxy

11,600 light years from Earth

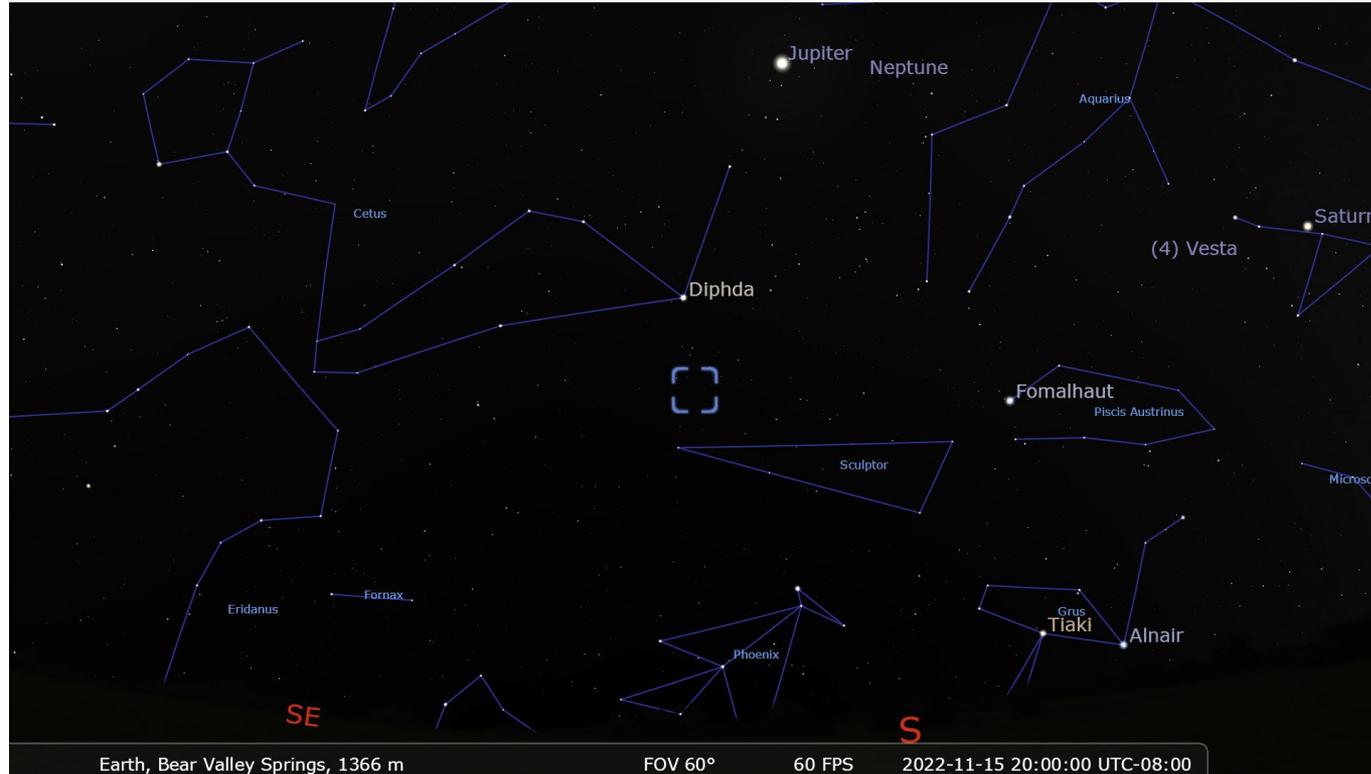
visible with binoculars

considered one of the most easily viewed galaxies after Andromeda

good target for observation with 12 in telescope or larger



Image: Stellarium



Cartwheel Galaxy

500 million light years from Earth
wagon wheel appearance from collision w/ another galaxy 200-300 million years ago
1.5X larger than Milky Way



The Cartwheel Galaxy is a ring galaxy located around 500 million light years away in the constellation of Sculptor. This image is a composite of images produced by the James Webb Space Telescope's NIRCam and MIRI detectors; these images were also released separately. Image credit: NASA, ESA, CSA, STScI

