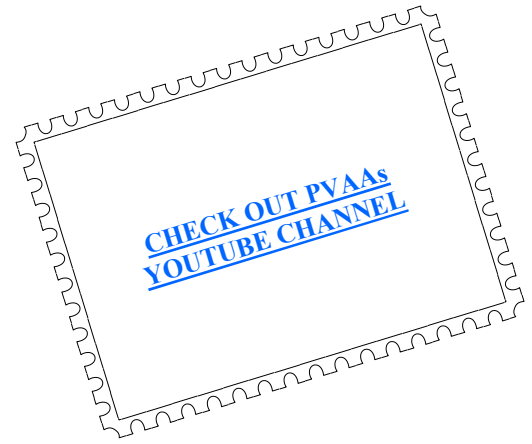




**nightwatch**  
 Newsletter of the Pomona Valley Amateur Astronomers

It's not what you look at that matters, it's what you see.  
*Henry David Thoreau*



Volume 44 Number 5

*nightwatch*

May 2024

**Club Events Calendar**

|                |  |                |                                   |
|----------------|--|----------------|-----------------------------------|
| <b>May 17</b>  | <b>General Meeting 7:30 PM Denise Kaisler</b><br><b>"What Billionaires Want from Space."</b> | <b>Sept 11</b> | <b>Board Meeting</b>              |
|                |  | <b>Sep 20</b>  | <b>General Meeting 7:30 PM</b>    |
|                |  | <b>Sept 28</b> | <b>Star Party – GMARS</b>         |
| <b>Jun 8</b>   | <b>Star Party – GMARS</b>  | <b>Oct 9</b>   | <b>Board Meeting 6:15 PM</b>      |
| <b>Jun 12</b>  | <b>Board Meeting 6:15 PM</b>   | <b>Oct 12</b>  | <b>Star Party – Cahuilla Park</b> |
| <b>Jun 21</b>  | <b>General Meeting 7:30 PM</b>   | <b>Oct 18</b>  | <b>General Meeting 7:30 PM</b>    |
| <b>July 10</b> | <b>Board Meeting 6:15 PM</b>   | <b>Nov 2</b>   | <b>Star Party – GMARS</b>         |
| <b>July 19</b> | <b>General Meeting 7:30 PM</b>   | <b>Nov 6</b>   | <b>Board Meeting 6:15 PM</b>      |
| <b>July 27</b> | <b>Star Party – GMARS</b>  | <b>Nov 15</b>  | <b>General Meeting 7:30 PM</b>    |
| <b>Aug 7</b>   | <b>Board Meeting</b>   | <b>Nov 27</b>  | <b>Board Meeting 6:15 PM</b>      |
| <b>Aug 16</b>  | <b>General Meeting 7:30 PM</b>   | <b>Dec 7</b>   | <b>Holiday Party</b>              |
| <b>Aug 31</b>  | <b>Star Party – GMARS</b>  |                |                                   |

**PVAA Officers and Board**

**Officers**

|                   |                            |              |
|-------------------|----------------------------|--------------|
| President .....   | Mathew Wedel .....         | 909-767-9851 |
| Vice President .. | Joe Hillberg .....         | 909-949-3650 |
| Secretary .....   | position is currently open |              |
| Treasurer .....   | Gary Thompson .....        | 909-935-5509 |

**Board**

|                             |              |
|-----------------------------|--------------|
| Jim Bridgewater (2026)..... | 909-599-7123 |
| Richard Wismer(2026) .....  |              |
| Ron Hoekwater (2025).....   | 909-706-7453 |
| Howard Maculsay (2025)..... | 909-913-1195 |

**Directors**

|                            |                      |              |
|----------------------------|----------------------|--------------|
| Membership / Publicity.... | Gary Thompson        | 909-935-5509 |
| Outreach .....             | Jeff Schroeder ..... | 909-758-1840 |
| Programs .....             | Ron Hoekwater .....  | 909-391-1943 |

### PVAA General Meeting 04/26/2024

The PVAA monthly meeting was started with a call for members to volunteer to be on the Board of Directors, and a reminder for club dues.

The meeting featured members' experiences during the total solar eclipse on April 8<sup>th</sup>. Ken Elchert started out with a presentation of solar eclipses in general. We have solar eclipses because while the sun's diameter is 400 times greater than the moon; the moon is 400 times closer to Earth. This eclipse, due to the political boundaries of the International Date Line, started on Monday, April 8<sup>th</sup>, went into Tuesday, April 9<sup>th</sup>, and back into Monday April 8<sup>th</sup>. Into the future and back!

After a short break, Ron Ugolick presented some fantastic pictures he took from Bernet, Texas. He had two automated rigs set up. One was with a Stellarvue telescope, while the other was with a Canon EOS camera on a Sky Watcher mount.



Canon EOS



Matt Wedel gave a presentation on his 10-day solar eclipse cruise on the Discovery Princess. Including the crew, there were over 5,000 people aboard. Matt was one of two speakers aboard for the eclipse. He brought his Sikhote-Alin meteorite, which he used to meet people with. He then showed a built Lego kit that had the Sun-Earth-Moon rotating (not to scale, but great for learning).



Discovery Princess with wrap-around sunset during totality.



Taken by Discovery Princess' ship photographer.

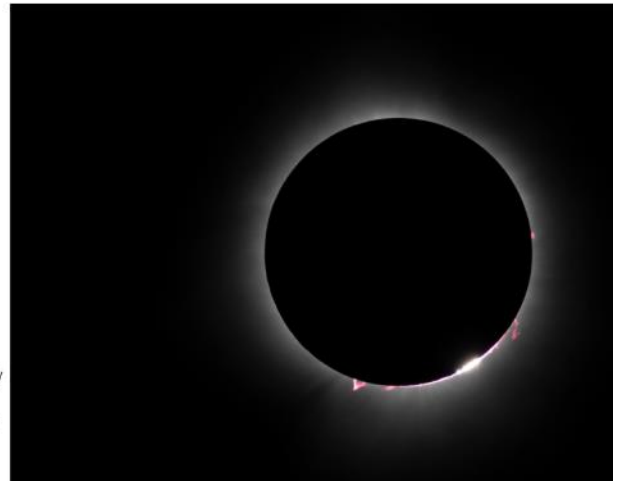


Taken by Discovery Princess' ship photographer.

Ken Elchert then gave the second part of his presentation, the eclipse from space. He showed pictures from satellites and the International Space Station. He then told of his luck in Wapakoneta, Ohio, where the weather was great for the eclipse.



Bailey's Beads and Prominences

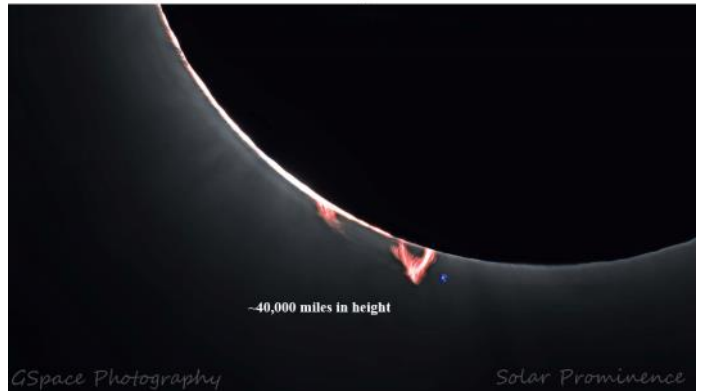


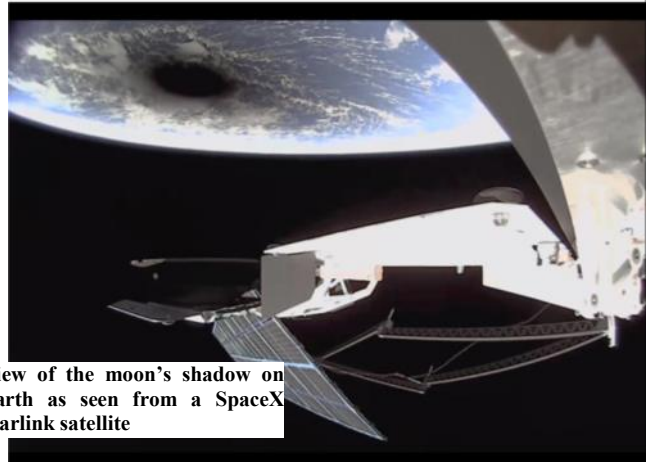
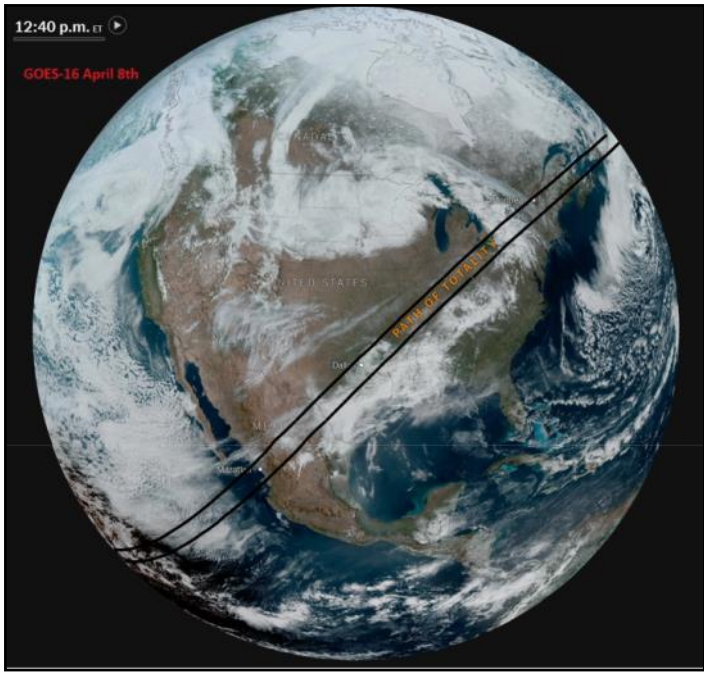
Stan Honda/AFP/  
Getty Images  
Magog, Quebec  
Canada

Totality as Seen from the Armstrong Air & Space Museum



Prominences Compared to Earth





View of the moon's shadow on Earth as seen from a SpaceX Starlink satellite

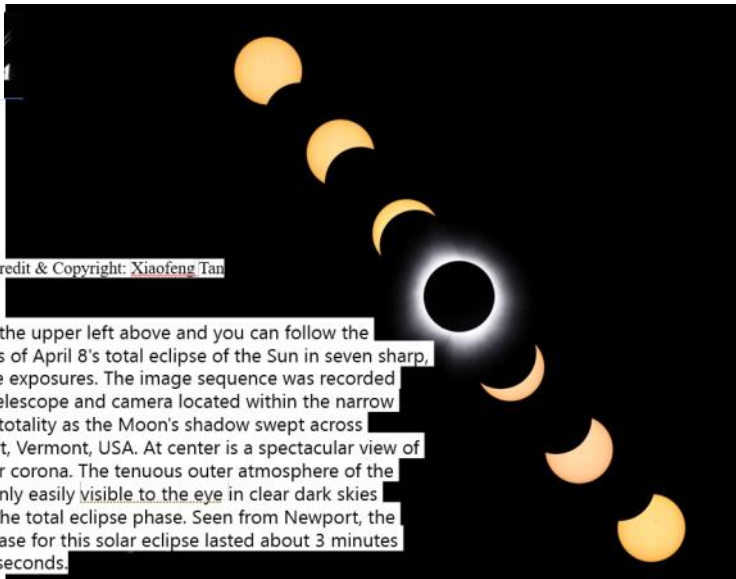
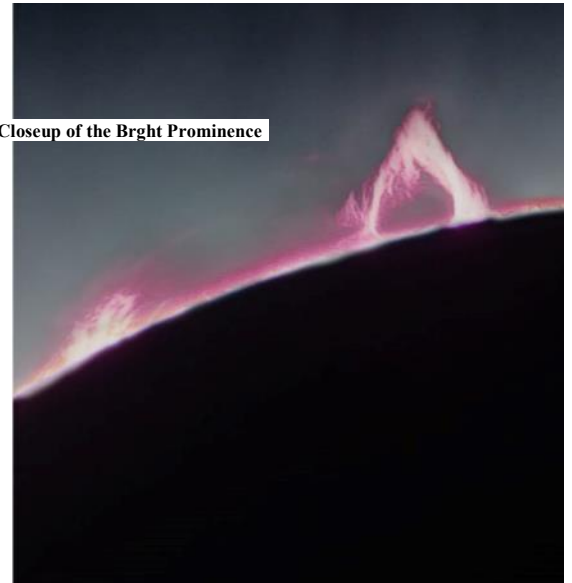


Image Credit & Copyright: Xiaofeng Tan

Start at the upper left above and you can follow the progress of April 8's total eclipse of the Sun in seven sharp, separate exposures. The image sequence was recorded with a telescope and camera located within the narrow path of totality as the Moon's shadow swept across Newport, Vermont, USA. At center is a spectacular view of the solar corona. The tenuous outer atmosphere of the Sun is only easily visible to the eye in clear dark skies during the total eclipse phase. Seen from Newport, the total phase for this solar eclipse lasted about 3 minutes and 26 seconds.



Closeup of the Bright Prominence

Gary Thompson

Another Look June 2024

On the morning of June 2, about 0300, the moon and Mars will be about 2° apart.

On the Evening of June 16, there will be a close approach of the moon and Spica. An occultation will occur in and around Turkmenistan.

On Thursday, June 20 at 1349 PDT summer begins. In the northern hemisphere the sun reaches 23.5 degrees north, making this the summer solstice for us and the first day of winter for the southern hemisphere.

On the Evening of June 20, the moon will occult Antares, visible from the South Pacific. Most of the world will observe a close approach.

There will be a conjunction of the moon and Saturn on June 27, rising at midnight. An occultation will be visible from the South Pacific.

Rising shortly after midnight, there will be a close approach of the moon and Neptune. An occultation will be visible from South America.

The New moon in June is on Thursday, June 6 at 0538 PDT. The Full Moon is on Friday, June 21 at 1817 PDT. June's Full Moon is the Strawberry Moon. Other native names are Berries Ripen Moon, Green Corn Moon, and Hot Moon.

The Celts name the June full moon the Mead Moon, Horse Moon, Dyan Moon, and Rose Moon. Other names are Flower Moon and Planting Moon.

In French its Pleine Lune de Juin, In Italian Luna Piena di Giugno, In German Vollmond im Juni, In Greek Πανσέληνος Ιουνίου or more familiarly Pansélinos Iouníou

Our little Bear is Orsa Monore in Italy, the Kleine Bar of Germany and the Petite Ourse of France, in Latin, of course, the Little Bear is Ursa Minor.

We need to spend time on the Little Bear and on Polaris, not in the context that we now think of them but what may be more likely 4000 and 5000 years ago, even before the Greeks; when the countries of the delta and the coastlines began their exploration and exploitation of the Middle Sea. A time when Greece was being settled by southward roaming tribes from Asia Minor and northward roaming tribes from Africa. Crete was being settled by tribes later known as Phoenician, Sicily is settled by tribes hopping across the Mediterranean and Cyprus by tribes hopping down from Turkey and across from Lebanon. 5000 years ago it wasn't even Thuban who was nearest the pole but Edasich, ἰ Draconis, down by the dragon's bottom coil. What this means to those ancestors of ours is that there was a void around which the heavens spun, a void that moved too slowly to be measured in the lifetime of a human.

That void was what the caravans kept to their right as they went west and what the seamen kept on their bow as they went north up the coast or across the sea.

The Euphratean and the Chaldean named the void An ta-aur-ra meaning The Upper Sphere or An-nas-sur-ra meaning High in Rising. They also used the word Unosara, later Kunosara, maybe because of different spellings or in different contexts. Kunosara derived into Kynosure, also meaning very high and maybe referring by then to Polaris. Today we have Cynosure, something that attracts and gives guidance. Singularly coincident with the foregoing Av-Koaoi-pa was the title that the distant Gaels gave to these stars, Drag-blod, the Fire Tail.

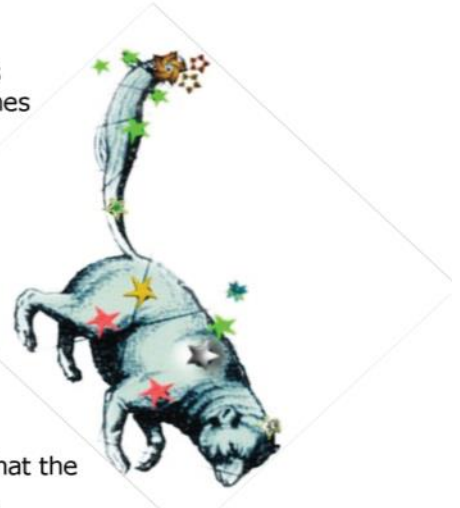
The early Greeks gave it the name Phoenice, after one of its cities or perhaps after the seafaring Phoenicians, or both, for the area, the little dipper asterism, and the pole star. In time it became Stella Polaris. Later in 19<sup>th</sup> century just Polaris. Its etymology is from the Latin Polaris, meaning heavenly, deriving, probably, from the Latin Polus, meaning end of an axle.

In Hymn to the North Star Bryant wrote:

Constellations come, and climb the heavens, and go.  
Star of the Pole and thou dost see them set.

Alone in thy cold skies,  
Thou keep'st thy old unmoving station yet,  
Nor join'st the dances of that glittering train,  
Nor dipp'st thy virgin orb in the blue western main.

On thy unaltering blaze



The half wrecked mariner, his compass lost,  
 Fixes his steady gaze,  
 And steers, undoubting, to the friendly coast  
 And they who stray in perilous wastes by night,  
 Are glad when thou dost shine to guide their footsteps right.

A beauteous type of that unchanging good,  
 That bright eternal beacon, by whose ray  
 The voyager of time should shape his heedful way.

Polaris,  $\alpha$  Ursa Minoris, (UMi) is a double star and a Cepheid variable. It is a beautiful sight in an 8 inch telescope under dark, desert skies. Polaris A is a bright 2<sup>nd</sup> mag and Polaris B is an easy 9<sup>th</sup> mag pinpoint next to it. One thing I really love about this star is its diamond ring of 7<sup>th</sup> mag stars. You also, will love it. Right there is Polaris Borealis, N3172, the closest NGC to the north pole. Houston gives its magnitude as 13 and the NGC has it at 14. I glimpsed it with an 8" under those same dark desert skies, so you can too. Polaris Borealis is very close to the pole and not easy to find. I adapted the chart below from Torres. By the way, STF1583 is a double star from the catalog of Friedrich Georg Wilhelm von Struve. And, By the Way #2, 188 is NGC 188 an open star cluster in Cepheus, less than 5° from the pole and also Caldwell 1. While there, look for NGC's 2300 and 2276. They are also within a few degrees from the pole in the NE corner of Cepheus, just off the bottom is this chart.



<https://www.astrobin.com/full/5ozizr/0/>

Ursa Minor has one named exoplanet. 8 UMi is a 7<sup>th</sup> magnitude red star named Baekhu. It was given the name by South Korea, naming it for Paektu Mountain, the tallest mountain in North Korea. Baekhu has an exoplanet. South Korea named it Halla, after Hallason, the tallest mountain in South Korea.

Kochab,  $\beta$  beta Ursae Minoris and Pherkad,  $\gamma$  gamma Ursae Minoris are the two "guardians of the pole", having been the nearest stars to the pole for around 2000 years from 1500BC to 500AD. Their names are derived from the Arabic. Kochab from the word for star and Pherkad of the words from the dimmer of the two calves.

Yildun,  $\delta$  delta Umi, is the middle star in the handle. Its name is derived from the Turkish for "star".  $\zeta$  Zeta and  $\eta$  Eta Umi have the interesting names of Akhfa al Farkadain for Zeta and Anwar al Farkadain for Eta. These fascinating names come from the Arabic for brighter or dimmer of the two calves. The last star in the tail is Epsilon  $\epsilon$  UMi, a triple star system

UGC 9749 is the Ursa Minor Dwarf, also know as PGC 54074

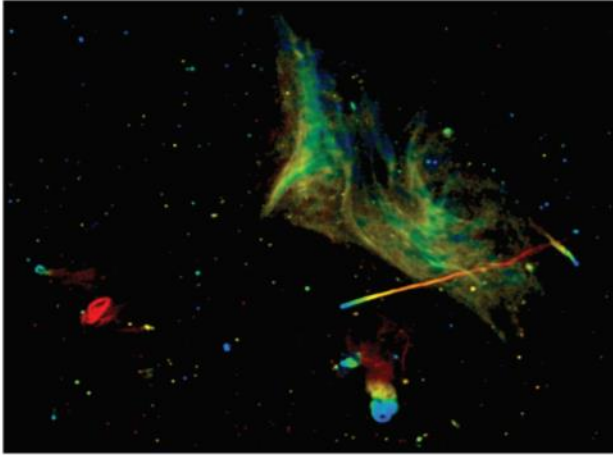
It's a really old one, and as you can see, sort of ovalish and diffuse.



It's in the 11<sup>th</sup> magnitude so look for it and you'll find it.

<https://www.astrobin.com/4jk8tu/?q=9749>

<https://public.nrao.edu/gallery/abell-2256/>

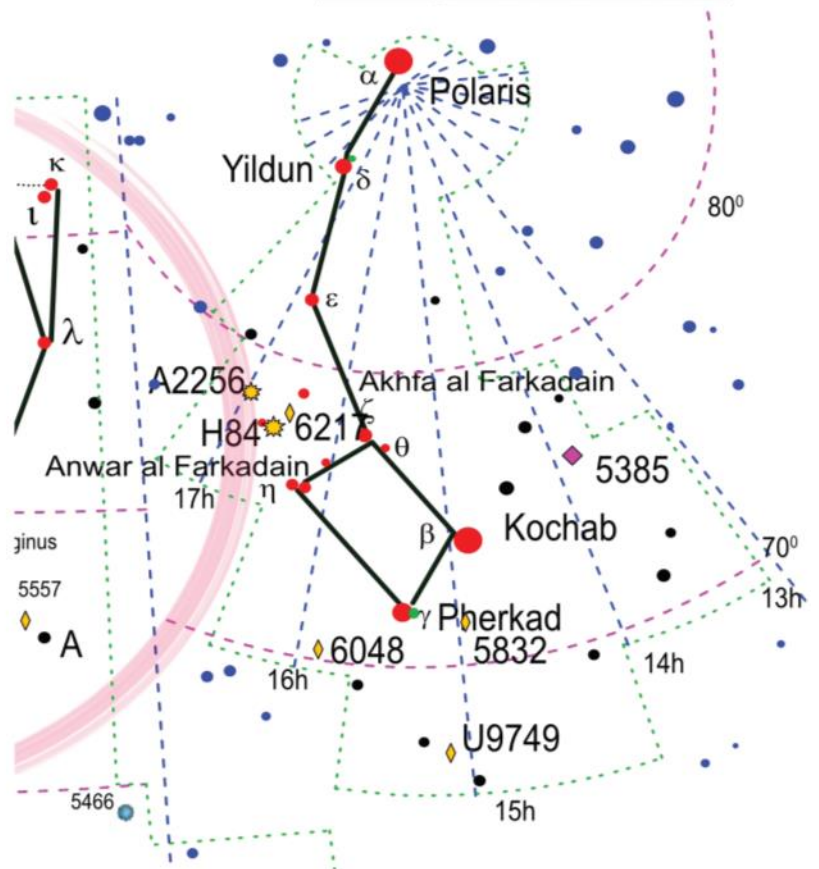
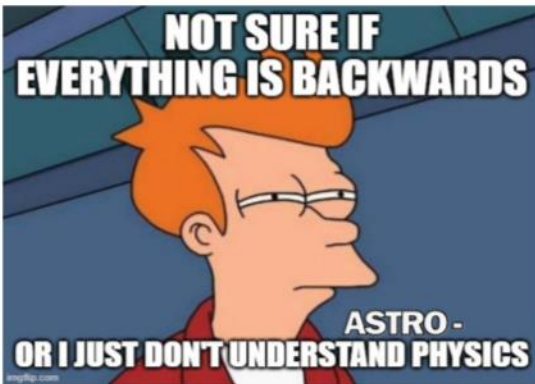


Look just up from ζ and η and there are three deep space objects very close to each other. Abell 2256 is, like most Abell's a pretty big cluster of galaxies. There is an added bonus, however, courtesy of the Chandra X-ray telescope. Compare it to the Cloudy Skys image and the NRAO, the National Radio Astronomy Observatory. They tell us we are looking at two lobes, meaning the merging (read collision) of two super-clusters. They also tell us that we are seeing synchrotron filaments in the Chandra image. And yes, that's a jet, starting and stopping we know not where. It's apparently pretty old, if the curve near the center means anything.

In the same area of sky is Hickson 84, like all Hicksons, a smallish galaxy cluster and then there is 6217 a wowser of a face on spiral at 11<sup>th</sup> magnitude. The other two will be a little more challenging. The brightest central galaxy in A 2256 is N6331, you can make it out in the center of the image. Magnitude estimates are all over the place, but the French give us a 12.85. The Hickson galaxies are all less than 15, the image by Gary Imm on Astrobin counts six galaxies for us. <https://images.mantrapskies.com/search?designation=nqc+6217>

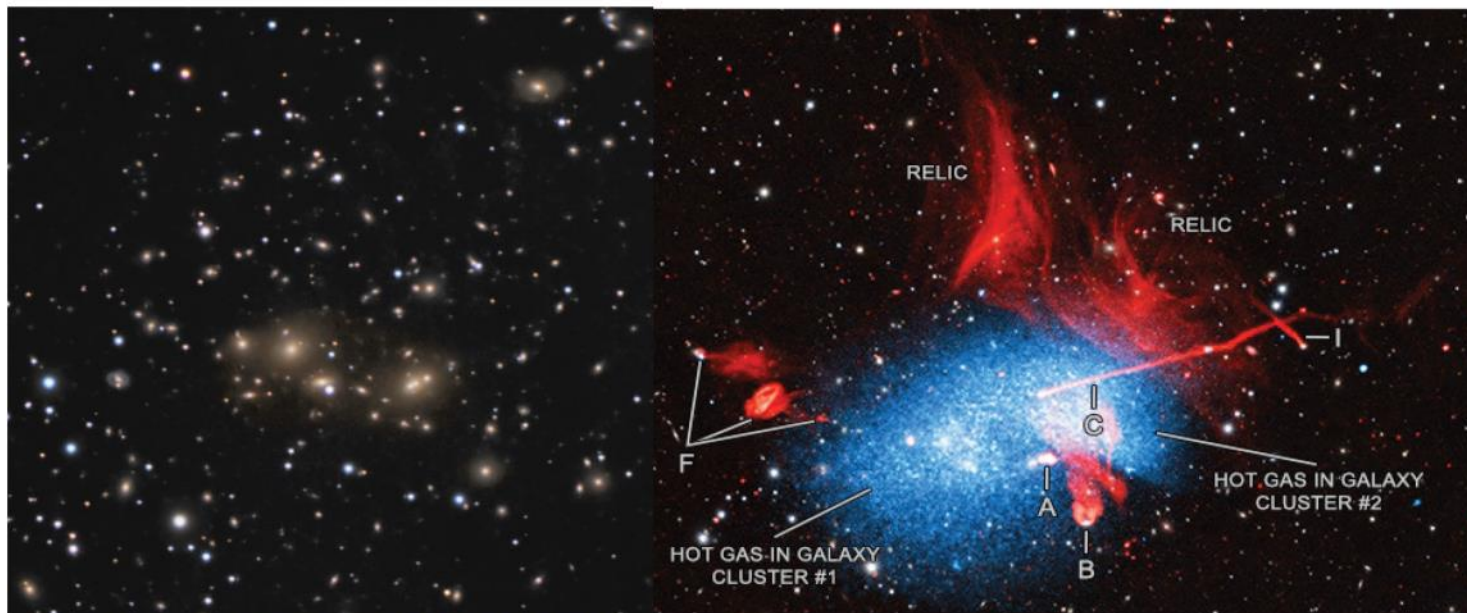


<https://www.astrobin.com/9e2mpo/?q=hickson84>





<https://www.cloudynights.com/topic/445876-abel-2256-cluster-of-overlapping-galaxy-halos/>



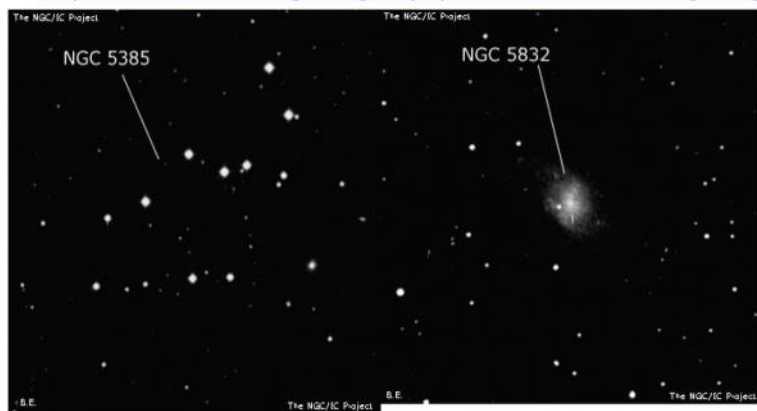
<https://chandra.harvard.edu/photo/2023/a2256/>

Down near the southern tip of Ursa Minor, near Kochab and Pherkad. Are a couple of galaxies of interest that you can find. N6048 is close enough to Pherkad that you can use him as a jump off point. 6048 is a small elliptical with a quite bright nucleus. It listed at 12<sup>th</sup> magnitude.

[https://kosmoved.ru/get\\_ngcic.php?ID=NGC-5832&lang=eng](https://kosmoved.ru/get_ngcic.php?ID=NGC-5832&lang=eng)

[https://kosmoved.ru/get\\_ngcic.php?ID=NGC-6048&lang=eng](https://kosmoved.ru/get_ngcic.php?ID=NGC-6048&lang=eng)

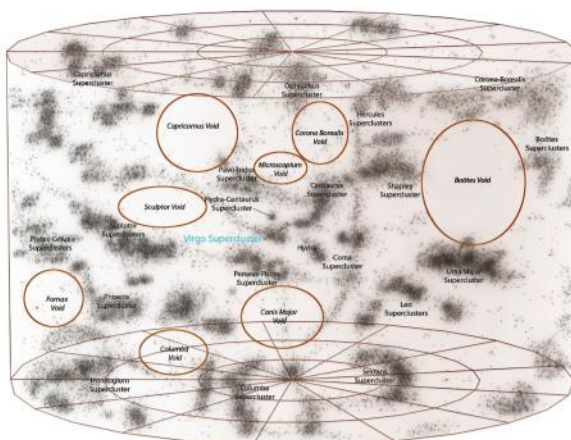
[https://kosmoved.ru/get\\_ngcic.php?ID=NGC-5385&lang=eng](https://kosmoved.ru/get_ngcic.php?ID=NGC-5385&lang=eng)



5832  
6048

spiral so you may be able to get some definition. N5385 is a different probably isn't. There are about a dozen stars scattered about. Still,

Crowding slightly into Ursa Minor is a large circular region roughly centered on Boötes call the Boötes Void. I bring it up because a significant area of UMi is in the void. Simply, a void a region of space essentially with an insignificant numbers of and types of galaxies. There are a number of voids in our observable universe. What I think we are looking at is the space between strings and filaments. It is possible that the unimaginable gravity of giant super-clusters workin



filament of galaxies and dark matter to form and then to suck a region of space between them clear of any other mass. Huh? In other words, a Void. Dark Skys Dave



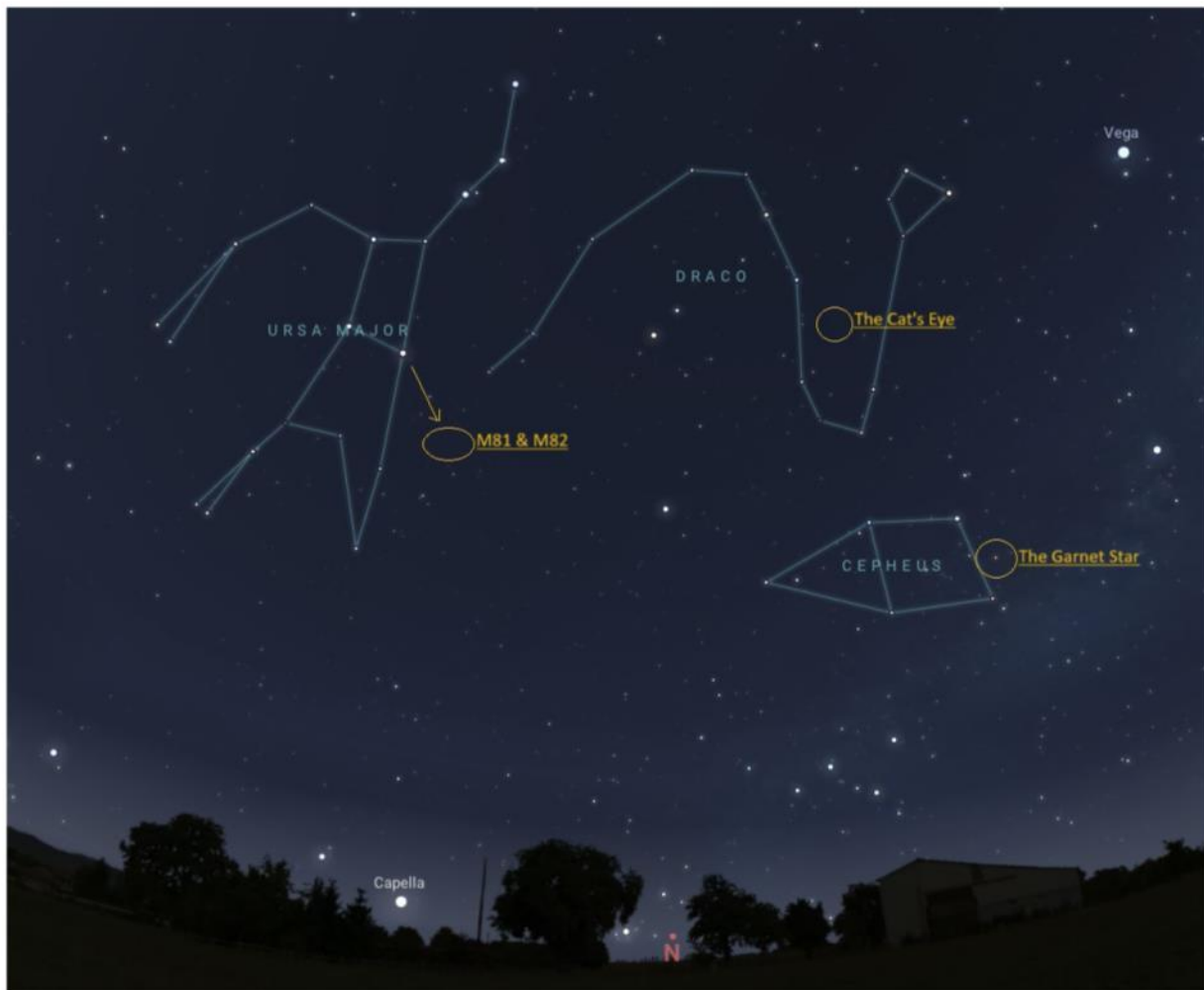
This article is distributed by NASA's Night Sky Network (NSN).

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

### Constant Companions: Circumpolar Constellations, Part III

By Kat Troche

In our final installment of the stars around the North Star, we look ahead to the summer months, where depending on your latitude, the items in these circumpolar constellations are nice and high. Today, we'll discuss **Cepheus**, **Draco**, and **Ursa Major**. These objects can all be spotted with a medium to large-sized telescope under dark skies.



From left to right: Ursa Major, Draco, and Cepheus. Credit: Stellarium Web.

- **Herschel's Garnet Star:** Mu Cephei is a deep-red hypergiant known as The Garnet Star, or Erakis. While the star is not part of the constellation pattern, it sits within the constellation boundary of Cepheus, and is more than 1,000 times the size of our Sun. Like its neighbor Delta Cephei, this star is variable, but is not a reliable Cepheid variable. Rather, its

brightness can vary anywhere between 3.4 to 5.1 in visible magnitude, over the course of 2-12 years.



This composite of data from NASA's Chandra X-ray Observatory and Hubble Space Telescope gives astronomers a new look for NGC 6543, better known as the Cat's Eye nebula. This planetary nebula represents a phase of stellar evolution that our sun may well experience several billion years from now. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI

- **The Cat's Eye Nebula:** Labeled a [planetary nebula](#), there are no planets to be found at the center of this object. Observations taken with NASA's Chandra X-ray Observatory and Hubble Space Telescopes give astronomers a better understanding of this complex, potential binary star, and how its core ejected enough mass to produce the rings of dust.

When searching for this object, look towards the 'belly' of Draco with a medium-sized telescope.



The Cigar Galaxy. Credit: NASA, ESA, CXC, and JPL-Caltech

- **Bode's Galaxy and the Cigar Galaxy:** Using the arrow on the star map, look diagonal from the star Dubhe in Ursa Major. There you will find Bode's Galaxy (Messier 81) and the Cigar Galaxy (Messier 82). Sometimes referred to as Bode's Nebula, these two galaxies can be spotted with a small to medium-sized telescope. Bode's Galaxy is a classic spiral shape, similar to our own Milky Way galaxy and our neighbor, Andromeda. The Cigar Galaxy, however, is known as a starburst galaxy type, known to have a high star formation rate and incredible shapes. This image composite from 2006 combines the power of three great observatories: the Hubble Space Telescope imaged hydrogen in orange, and visible light in yellow green; Chandra X-Ray Observatory portrayed X-ray in blue; [Spitzer Space Telescope](#) captured infrared light in red.

Up next, we celebrate the solstice with our upcoming mid-month article on the [Night Sky Network](#) page through NASA's website!

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