MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

Sue French, New York

June 2024

Report #185

NGC 6118 Galaxy in Serpens

Sharing Observations and Bringing Amateur Astronomers Together

Introduction

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It's open to everyone who's interested, and if you're able to contribute notes and/or drawings, we'll be happy to include them in our monthly summary. Visual astronomy depends on what's seen through the eyepiece. Not only does it satisfy an innate curiosity, but it allows the visual observer to discover the beauty and the wonderment of the night sky. Before photography, all observations depended on what astronomers saw in the eyepiece, and how they recorded their observations. This was done through notes and drawings, and that's the tradition we're stressing in the Observer's Challenge. And for folks with an interest in astrophotography, your digital images and notes are just as welcome. The hope is that you'll read through these reports and become inspired to take more time at the eyepiece, study each object, and look for those subtle details that you might never have noticed before.

This month's target by Roger Ivester:

Many amateurs consider NGC 6118, also known as "The Blinking Galaxy" to be the most difficult object in the entire Herschel 400 list.

I remember first reading about this galaxy almost 30 or more years ago in an astronomy publication, possibly the Astronomical League, Reflector Magazine. This article concerned an amateur who was just beginning his quest to see the entire list, and "as bad luck would have it" chose NGC 6118 as his first object, known as "The Blinking Galaxy" and was unsuccessful after many attempts. So, after consulting with other amateurs, he was told that NGC 6118 was extremely faint and was possibly the most difficult object in the entire list. I was working on the list at the time (1994-1995) while reading this article, but had not attempted to locate and observe this galaxy. I had completed about 250 of the list, but due to light pollution and a very poor southern view was forced to cancel my efforts

However, since that time, I've just not been able to forget about galaxy NGC 6118 and the article, concerning its difficulty.

So, on August 5, 2023, shortly after sunset, the skies looked pretty good. However, the humidity was very high at 91%, which in-part caused poor transparency. And I was also having to look over the town of Boiling Springs, with lots of light pollution. It was also a bit late in the year, as the galaxy was already too far to the west.

March, April and May 2024
I also attempted two very early morning observing sessions in March and April of 2024, from my suburban backyard, but again without success. A dark site is really needed to observe any low-surface-brightness galaxy, especially one as dim and faint as NGC 6118.

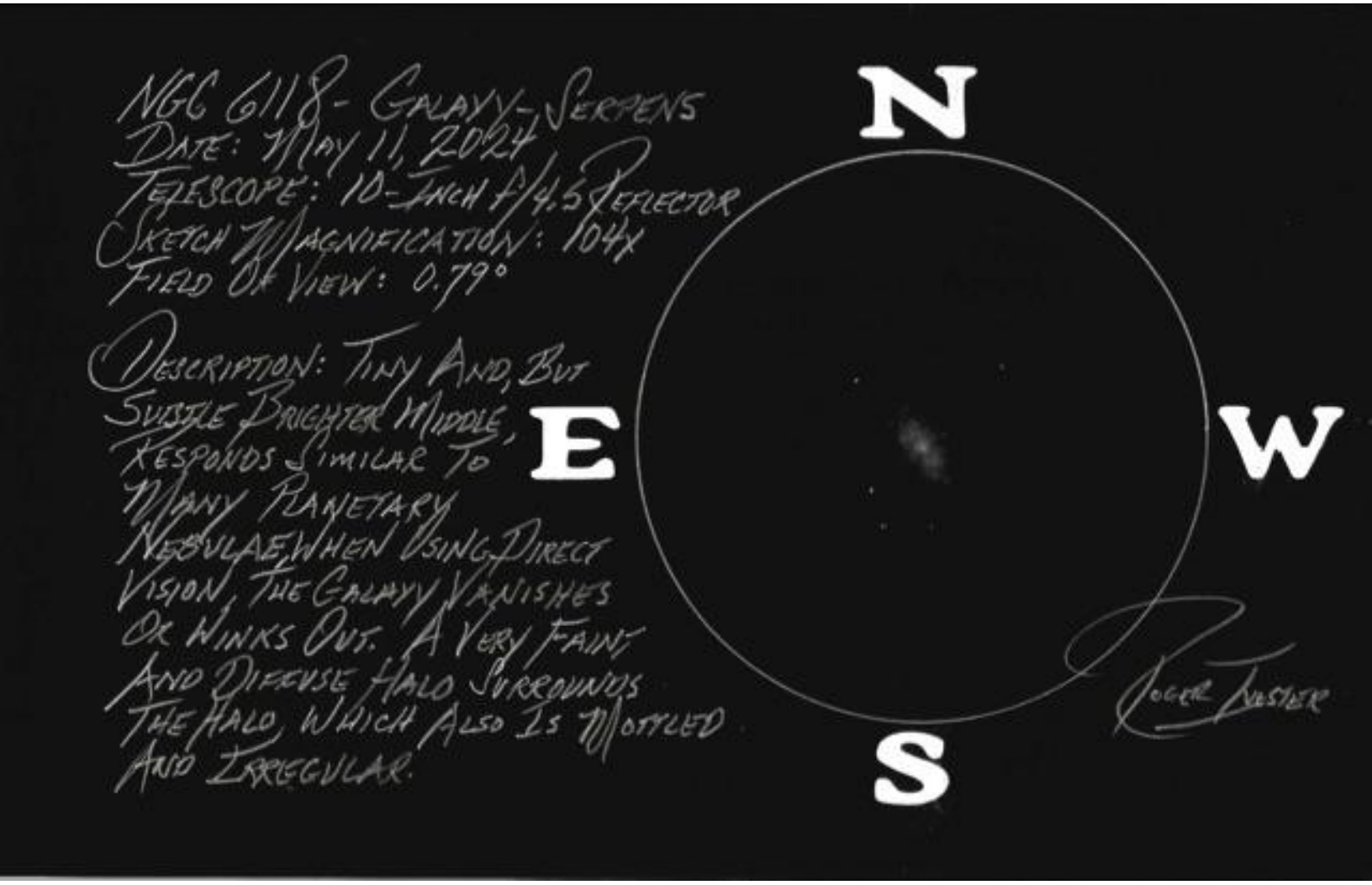
However, traveling to a dark-site has been over for me now for many years. The disassembly of a heavy equatorial mount and handling a large solid-tube Newtonian, loading, driving, unloading, reassembly, and then having to do it all again, became just too much. I will continue to do my best from the backyard.

Almost thirty years ago, I fabricated a humble fabric light-block system which has helped me many times over the years to see difficult and faint galaxies. It's easy to set up and take down. When the fabric is removed for storage, the steel post and plastic-coated wires remain and are hardly noticeable.

I attribute my ability to finally see NGC 6118 was due to blocking a very bright LED carport light about 1/8 mile away. Why do some people choose to leave a light on all night?
Saturday morning; May 11th 2024 @ 1:00 AM, with a 5.0 NELM overhead, but far less in the sky near NGC 6118, due to overlooking the town of Boiling Springs.

With a bit of difficulty and after almost an hour, I was finally able to see the galaxy. One of my greatest problems had been a very bright LED streetlight in close proximity, shinning directly into my backyard. My portable "make-shift" observatory was the answer to finally seeing this faint and difficult object from my suburban backyard.

Sketch and description follow.



Description: A tiny and subtle brighter middle, which resembles that of a planetary nebula. And like so many planetary nebulae, when using direct vision, vanishes or winks out. I now know why NGC 6118 is known as "The Blinking Galaxy." The galaxy has a very faint and diffuse halo with mottling, which is oriented NE-SW.

Bertrand Laville: Observer from France

Instrument :	TN 635 Dobsonian Obsession
Main eyepiece:	Televue Ethos 21mm
Barlow:	(None)
Magnification:	148x
See Further Information at:	http://www.deepsky-drawings.com/ngc-6118/dsdlang/en

Mario Motta: Observer from Massachusetts

I had enormous difficulties obtaining the following image, as we've had terribly cloudy weather most all month.

I finally got color data last Friday (May 24th 2024) with the moon in the sky, but combined these with a Lum image I'd taken several years back on a moonless night with far better definition.

I was able to add color data to this prior image, however, the color is weak due to gradients from the moon, which was only 20º away. I can easily see why this would be a difficult object for the visual observer, especially under light polluted skies.

This was taken with my 32-inch f/6.5 telescope from Gloucester, MA, with about 3.5 hours total imaging, Lum from several years ago, and RGB last week with an interfering moon.

Processed in PixInsight.

Image Follows.

Magda Streicher: Observer from South Africa

While on the farm 7th of May 2024, I observed galaxy NGC 6118. My notes are as following:

RA: 16h 21m.8 – Dec: -02° 17'.3

Magnitude: 11.7 – Size: 4.6' x 1.9' – Date:

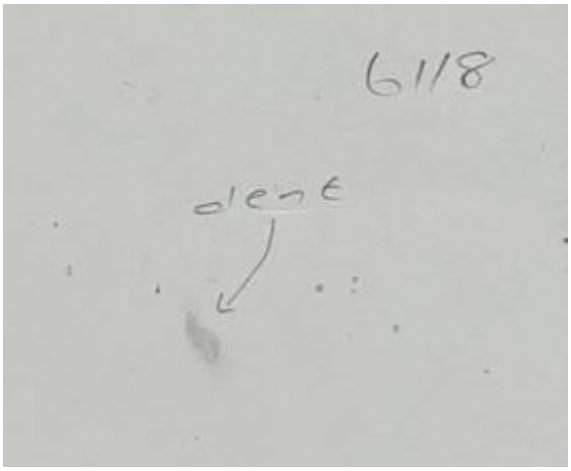
Telescope: 16-inch SC, using magnifications of 102x – 127x – 462x, with eyepieces of the following focal lengths: 41mm, 17mm, 12mm.

The galaxy displays a large relatively faint oval with a hazy envelope, slightly brighter towards the middle area which indicates a small nucleus.

A triangle of stars is situated in the southeastern field, with a mag. 12.8 star closest to the galaxy edge. A mag. 14.3 star lies just off the NW edge.

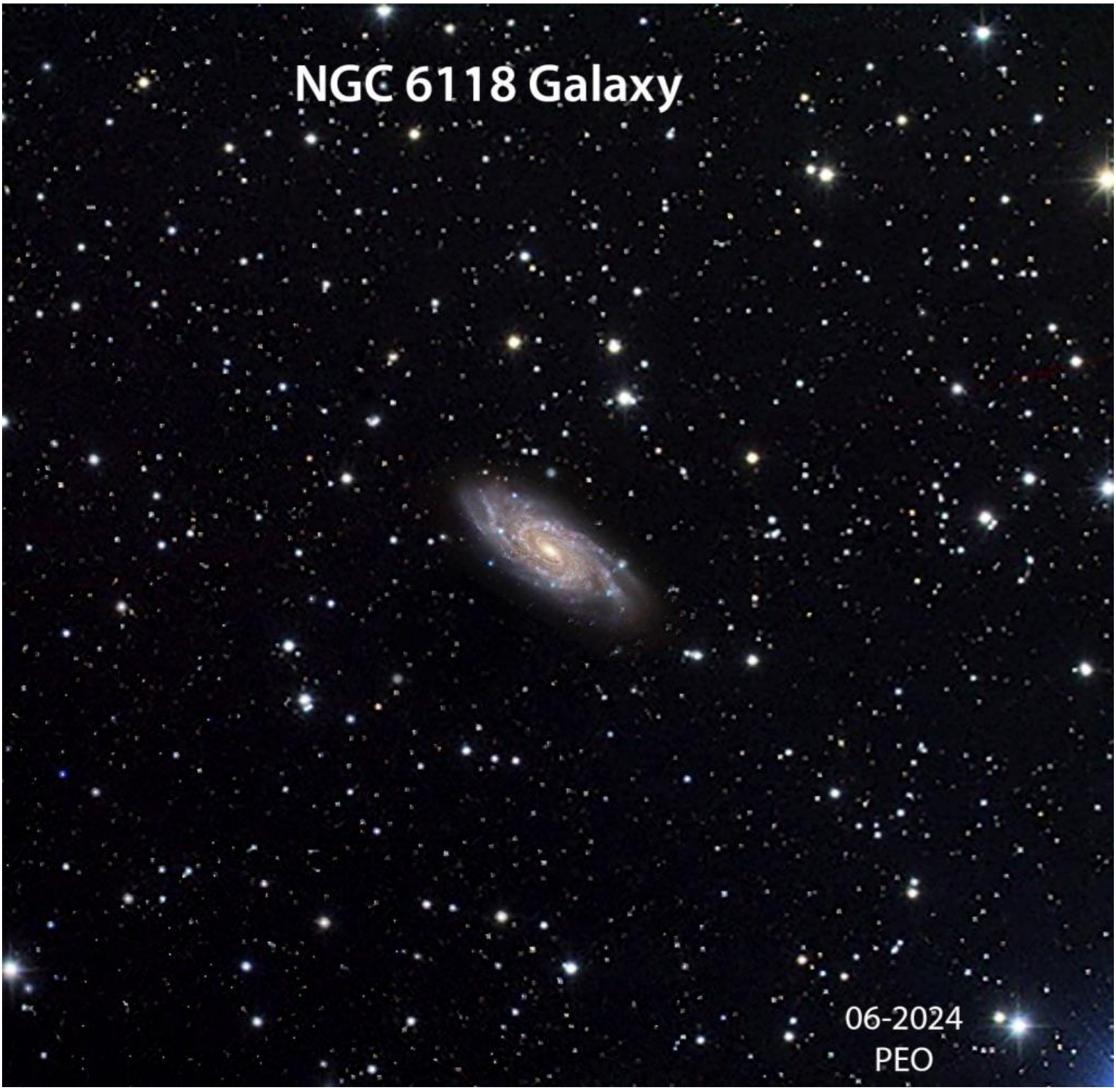
What really exited me was being able to see a slightly curved dent at the NE edge of the galaxy. When comparing images of this galaxy, confirms my sketch for this feature! Amazing!

That is what makes astronomy the best…

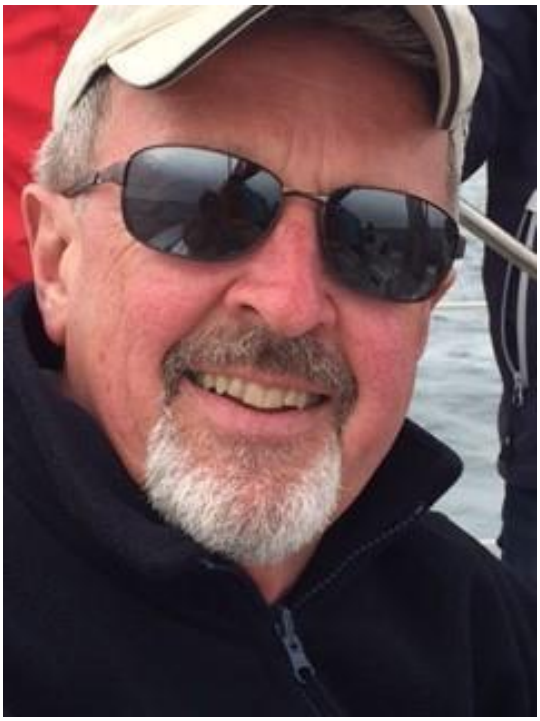


Phil Orbanes：Observer from Massachusetts

NGC 6118 is a grand design galaxy located in the constellation Serpens. It is at a distance of 63 million light years…much farther than the Virgo Cluster. Consequently it is quite small.
The telescope used for the following image: Planewave 14-inch with a FLI 16803 camera, using RBG plus a luminance layer. It was processed in Pixinsight and Photoshop.



John Bishop: Observer from Massachusetts



On June 1, 2024 I set out to observe NGC 6118, a "grand design" spiral galaxy located in Serpens. I observed from the ATMoB Clubhouse in Westford, Massachusetts. I used my usual 8.25 inch f/11.5 Dall-Kirkham reflector, a portable setup on a motor driven equatorial drive, without go-to. The sky was clear, but thin haze came and went during the evening, until clouds rolled in before midnight. The temperature was 54 degrees F. at midnight.

NGC 6118 has a reputation for being difficult to observe in small scopes, so I expected a challenging search. Luginbuhl & Skiff (Observing Handbook) report a surface brightness of 14.3.

I began starhopping from a pair of third magnitude stars in Ophiuchus, fairly recognizable even in the washed out southern sky: Delta Ophiuchi (a/k/a Yed Prior) and Epsilon Ophiuchi (a/k/a Yed Posterior). These two stars form the hand of Ophiuchus, the Serpent Bearer, that holds the head of the serpent, Serpens Caput. Yed is derived from the Arabic word "Yad", for hand.

I framed this pair in my 7x50 finder scope. In that FOV I located two nearby seventh and eighth magnitude stars, shown in the Interstellarum Deep Sky Atlas, that form a line roughly parallel to Yed Prior and Yed Posterior. NGC 6118 lies perpendicular to the seventh magnitude star on this line. I put the crosshairs of my finder onto the estimated location for NGC 6118, locked the drive clutches, and looked through the main scope, starting with a 50mm 2 inch eyepiece at 48x.

Nothing. Not surprising, given the reputation of this object. I increased magnification to 100x, 134x, 200x. I was patient, as I was confident I was on the correct spot. Eventually, with averted vision, I sensed a slight brightening at one spot. This soon became a small, faint haze. A soft point of light (not a pinpoint) appeared in the middle of the haze. So, faint star, or DSO? As I continued to observe, mostly with averted vision, the haze filled in slightly, assuring me that this was more than a star. 100x and 134x gave the best views, sparse as they were. However, the object was so faint that I could not say definitely what the shape was, except that it was not round. Interestingly, the point of light seemed to come and go - one moment

there, the next moment gone. Later I was reminded that NGC 6118 is called "The Blinking Galaxy." Why this object would behave this way more than other DSOs (if it does) is an interesting question.

NGC 6118, which I believe I was viewing, was very faint, surely at the limits of my scope. Fortunately it is located among guide stars that make navigation to it fairly straightforward. Time and good tracking were helpful. My viewing time was cut short, as clouds rolled in, and that was it for the observing session. I would like to spend more time with this object as soon as the weather cooperates (which it hasn't since then). A definite challenge for an 8 inch scope, but it was worth the hunt.

Sue French: Observer from New York

Although I've observed NGC 6118 through my 130mm refractor at 63×, the surface brightness was fairly low and uniform. Its soft glow showed as a 3:1 oval tipped northeast by east. A triangle of three very faint stars lies 4′ south.

I examined the galaxy with my 10-inch reflector at magnifications of 68×, 115×, and 213×. The galaxy hosts a mildly brighter center, and has a faint star at the southern edge of the eastern end. A triangle of moderately bright stars rests 4 arcminutes south of the galaxy.

Larry McHenry: Observer from Pittsburg, Pennsylvania

Larry McHenry*:* Observer from Pittsburgh
http://stellar-journeys.org

NGC 6118, is located in the spring constellation of Serpens Caput: "The Serpent", and is a SA "Grand Design" Spiral at magnitude +12.4. The galaxy is about 83 million light-years distant, with a diameter of about 110,000 ly.

NGC 6118 (H2 402) was discovered on the night of April 14th, 1785 by William Herschel using his 20-ft reflector at his home's back garden in Datchet. NGC 6118 is considered to be one of the hardest Herschel 400 objects to observe visually. The moderately inclined, large, low-surface brightness galaxy is located near the bright star HD147550. It is nicknamed the "Blinking Galaxy" by amateurs, and requires nights of good transparency and use of adverted vision to see.

EAA Observation:

06/06/2024, from the Cherry Springs Star Party, using an 8-inch SCT optical tube @ f/6.3 on a GEM mount, with a CMOS color camera and broadband filter, 180-second guided exposure, live-stacked for 12 min. Wide-field and cropped negative, as following:

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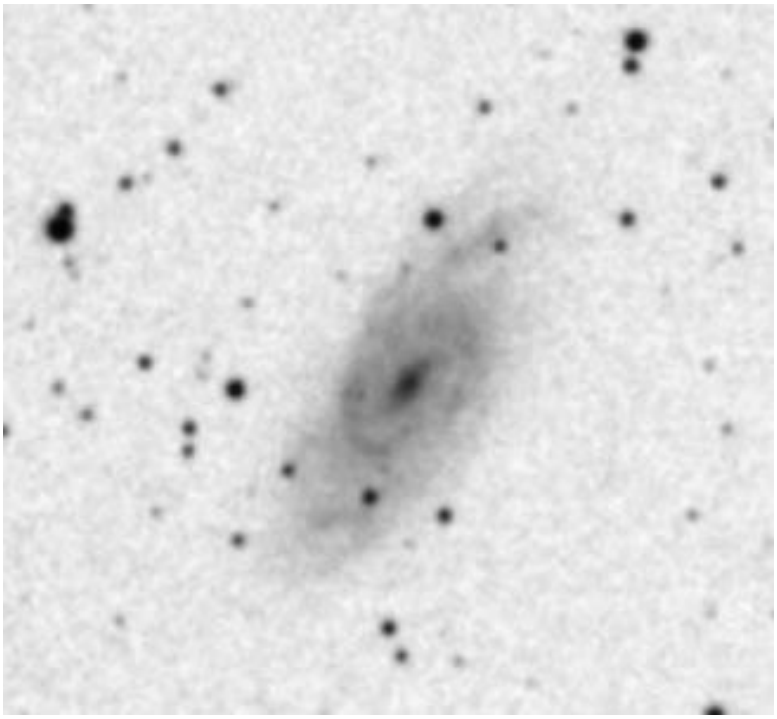

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Dr. James Dire: Observer from Texas

NGC 6118 is a small faint galaxy in Serpens. The galaxy is right on the border between Serpens and Ophiuchus and has at times been cataloged in Ophiuchus. The galaxy measures 4.7 x 2.0 arcmin is size. I have seen its brightness listed as magnitude 11.7 and magnitude 12.4. The galaxy is located 83 million light years away.

NGC 6118 can be found two and one-third degrees northeast of the star Delta Ophiuchi, a 3rd magnitude star orange star on the southwest side of Ophiuchus. Delta forms a naked eye double star with Epsilon Ophiuchi. The two stars are separated by approximately one and a half degrees, which can be used to gage the distance to NGC 6118.

NGC 6118 is sometimes called the Blinking Galaxy because in small telescopes when you look at it, it is hard to see. But using averted vision allows it to be spied. This is similar to blinking planetary nebulae. I looked for it in Bortle 4.5 skies recently on a night with average transparency using a 10-inch f/12 Cassegrain reflector. I could not see the galaxy looking directly at it, but saw a hint with averted vision.

NGC 6118 is classified as an SA spiral galaxy. This is a normal spiral galaxy with loosely wound spiral arms.

My image of NGC 6118 was taken with a 132mm f/7 Apo using an SBIG ST-4000XCM CCD camera. Six ten-minute exposures were captured unfiltered in Bortle 4.5 skies. Six more ten-minute exposures were captured in Bortle 6 skies (my backyard) using a triband (Hα, Hβ, OIII) filter. I use MaximDL for image capture; SBIG software for darks, flats, and removal of hot and cold pixels; Images Plus 6.5 for registering, stacking and stretching; and Photoshop for the final touches. I have used myriad image processing software over the years and have not found any that remove hot and cold pixels for SBIG cameras better than the original software that came with the camera nearly 25 years ago!

The image shows the galactic core, which appears elongated due to the tilt of the galaxy to our line of sight. It is not a bar. At this scale, the loose spiral arms are clearly captured. The bright star in the image is SAO141129 (spectral class B9V), magnitude 6.25 lying 407 light years away. The star and the galaxy are separated by 18.3 arc minutes.

Observer's Challenge* – June 2024

by Glenn Chaple

NGC 6118 – Spiral Galaxy in Serpens (Magnitude 11.7; Size 4.6' X 1.9')

Anyone brave enough to tackle the Astronomical League's Herschel 400 Program is all too familiar with this month's Observer's Challenge, the spiral galaxy NGC 6118 in Serpens Cauda. It is deemed by many to be the most difficult Herschel 400 object to see visually and is considered a challenge for a 10-inch scope under typical suburban skies. However, it can be glimpsed by a skilled observer using a small-aperture instrument if skies are dark enough. In a Cloudy Nights post, one correspondant reported seeing it with a 70mm refractor! Because of its faintness and a tendency to drift in and out of view, NGC 6118 is nicknamed the "Blinking Galaxy."

William Herschel discovered NGC 6118 on the evening of April 14, 1785. In his Catalogue of Nebulae and Clusters of Stars, he described it as "Faint, considerably large, extended south proceeding north following, resolvable, 3' long 2' broad." Older star atlases identify NGC 6118 by its Herschel designation H II-402, his 402nd Class II (Faint Nebulae) entry.

NGC 6118 **is located at the southeast corner of Serpens Cauda at the 2000.0 coordinates RA 16^{h}21^{m}48.6^s and Dec -02°17'01", a little over a 2 degree star-hop northeast of the 3rd magnitude star delta (δ) Ophiuchi.** A 6th magnitude star (HD 147550) that lies 17 arc-minutes to the galaxy's northwest may create a distracting glare.

A recent measurement places its distance at about 67 million light-years, which means those photons striking your retina left around the time of the demise of the dinosaurs. Given that distance and its apparent dimensions, NGC 6118 is slightly smaller than our Milky Way Galaxy.

**The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to anyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'd be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge, log on to rogerivester.com/category/observers-challenge-reports-complete.*

NGC 6118 Finder Chart