

MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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NGC-3184 Face-On Spiral Galaxy In Ursa Major

Introduction

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It's open to everyone that's interested, and if you're able to contribute notes, and/or drawings, we'll be happy to include them in our monthly summary. We also accept digital imaging. 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 the astronomer 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 Observers Challenge. We're not excluding those with an interest in astrophotography, either. Your 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.

NGC-3184 Face-On Spiral Galaxy In Ursa Major

NGC-3184, also known as H-168-1 is a face-on spiral galaxy that lies approximately 40 million light-years away. It contains two significant H-II regions known as NGC-3180 and NGC-3181. It has been the site of several supernova from 1921, 1937 and the most recent in 1999. It's also known to be rich in heavy elements.

William Herschel discovered it on 18 March, 1787.

Though it has a fairly bright listed mag. of 10.4, the surface brightness makes this a challenging object to spot visually.

Observations/Drawings/Photos

John Lourdes-Pierce: Observer From Nevada



I might've seen NGC-3184 on April 17, 2015 at 9:45, but can't confirm it. However, the next night, on April 18, 2015, at 9:30 PM, I clearly saw a very dim, diffused light source, visible at the X position in the drawing below. It had no form or shape. However, with averted vision, I saw some indication of a round nebulous area.

For this observation I used a 6-inch Newtonian reflector at 90X and viewed the object both nights from the LVAS club observing site at Mt. Potosi, Nevada.

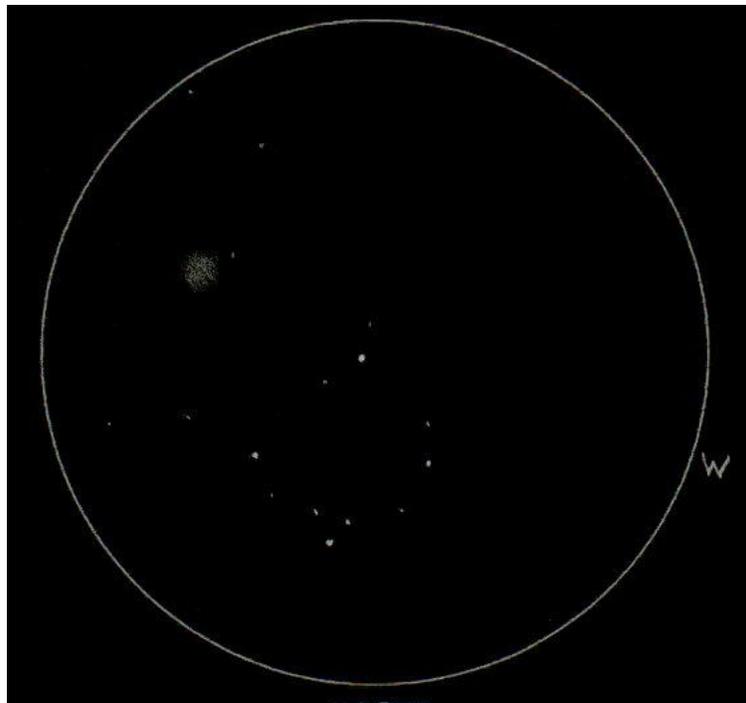


Glenn Chaple: Observer From Massachusetts



I observed NGC-3184 on March 23, 2015 with a 13.1-inch f/4.5 reflector and a 16mm eyepiece (94X). The NELM was 5.0.

It was a ghostly object at best. Not visible at low power (50X). At 94X and 166X, it showed a circular form. An easy star-hop from mu UMa, but I still wouldn't have been located it without an accurate finder chart.



Gary Ahlers: Observer From Nevada



NGC-3184 is a large spiral galaxy located in Ursa Major. At a distance of 40 million light years, reported mags. range from 9.8 to 10.6. My imaging exposures agree at slightly over mag. 10. It is notable for the super nova which appeared in 1999 and the high level of heavy elements present. Much of the light illuminating the gas and arms is from numerous very young blue stars. This gives the galaxy an overall bluish appearance.

The galaxy displayed a very small bright core with 2 major arms, although the upper arm appeared bifurcated. Arms were long and knotty in appearance. The large dense concentrations of HII gas were most evident in the inverted image, as was the star clustering and faint spherical envelope of luminous gas around the galaxy.

My image is from a Mallincam Xtr418, 25 frames stacked, exposure 40sec each through a Ritchey-Chretien 8-inch at F4. Sky conditions, unfortunately, were rather poor @ 4/5 transparency and 3/5 seeing.



Gus Johnson: Observer from Maryland



I observed NGC-3184 in April, 1972 with a 6-inch reflector @ 59X. It was large, with very low-surface-brightness. Very dim.

I observed it a second time in April, 1978 with a 12-inch reflector @ 100X. It was very close to bright star Mu Uma. With a low surface brightness, it was large, mostly round, and with a subtle brightness in the central region.

Dr. James Dire: Observer From Hawaii



NGC-3184 is a face-on spiral galaxy in the constellation Ursa Major, near the border with Leo Minor. The easiest way to find the galaxy is to hop to the mag. 3 star Mu Ursae Majoris and proceed 48 arc minutes west! The galaxy lies in the same telescope field of view as mag. 6.6 GP Ursae Majoris.

The galaxy has a mag. of 9.8 and is 7 arc minutes in diameter. It has a spall nucleus with long winding spiral arms. It's classified as Sbc, meaning it's a barred spiral. Longer exposures (much longer than mine) of the galaxy show blue spiral arms spotted with red star-forming regions. There are a few foreground stars superimposed on the spiral arms.

My image of the galaxy is a 40-minute exposure taken with a 190 mm (7.5-inch) f/5.3 Maksutov-Newtonian with an SBIG ST-2000XCM CCD Camera. The brightest star in the image is GP Ursae Majoris.



Gary Bruno: Observer From Nevada



I viewed NGC-3184 with powers of 40X, 75X and 120X from my 10-inch reverse binoculars. At first, it didn't resemble a typical galaxy and it wasn't until I got to 120X that I was able to see its true origin. Even then, it didn't seem that bright, but pretty dim, due mostly to the low surface brightness.

Jay Thompson: Observer from Nevada



I observed NGC-3184 from Meadview, AZ in December 2014 and February 2015 with a 17-inch reflector.

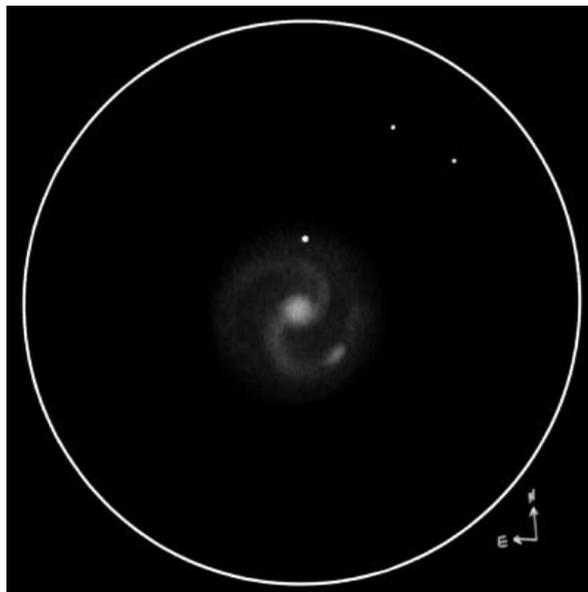
The galaxy is a moderate sized face-on spiral. It showed up well at 125X as a hazy area around a brighter core. There was an embedded star that was brighter than the core. It was preceded a couple galaxy diameters by a bright star. At 125X, I noticed some non-uniformity of the disc. At 227X, several very faint stars became evident in the disc. With averted vision, I spotted some subtle dark areas defining the spiral arms. At 125X the core of the galaxy was definitely fainter than the bright embedded star. A simple 12mm eyepiece (167X) showed the spiral structure, but the view was not necessarily an improvement over the wide-field eyepiece that gave 227X.

Jaakko Saloranta: Observer from Finland



I observed NGC-3184 on March 25, 2015 from Hartola, Finland with 8-inch reflector. The object was fairly high in the sky - at an altitude of 60° . The sky conditions were decent, with naked eye limiting magnitude (NELM) near zenith @ 6.8. The SQM-L reading showed 21.25. The temperature was 14°F , humidity $\sim 70\%$ and still some snow in the ground.

The galaxy was fairly faint, very low surface brightness with a bright, non-stellar nucleus surrounded by a 4' round halo. It was visible with direct vision @ 50X (50'), but faint. It was best visible @ 100X (35'), with the structure more evident @ 133X (18') and @ 200X (12'), but the galaxy dimmed considerably. With careful study, I noted a very weak CCW spiral structure emerging right at the edge of visibility, especially with averted vision. The most notable feature was NGC-3181, which appeared as a non-stellar patch in southern arm which also was the brighter of the two arms. A mag. 12 star touched the halo in the north. Total observing time 53 minutes.



Roger Ivester: Observer from North Carolina



On February 25, 2000, I observed NGC-3184 with my 10-inch Newtonian reflector at various magnifications. The transparency was fair and the NELM was 5.0. The galaxy had a very low surface brightness, mostly round with a slight N-S elongation. The overall texture was very smooth with a brighter core, however, very subtle. A mag. 12 star lay just to the north, possibly touching the galaxy halo. I was very surprised that despite the LSB, a fairly high magnification of 143X worked extremely well for my careful view of the central region. To the west at about 30 arc minutes was bright star, Mu Ursa Majoris. The cataloged mag. 9.8 of this galaxy was very deceiving, as it appeared much dimmer, due to the very low surface brightness. If transparency is not good, this galaxy can be very difficult. It's best observed from a dark site for sure.

My first observation of this galaxy was in 1993. During this session, the skies were much darker with a NELM of mag. 5.8. The galaxy was easy to locate, according to my notes, using the same 10-inch telescope. Light pollution has increased in my backyard over the past twenty-five years. According to my notes from 1993: "Low surface brightness, mostly round shape with a brighter more concentrated central region."

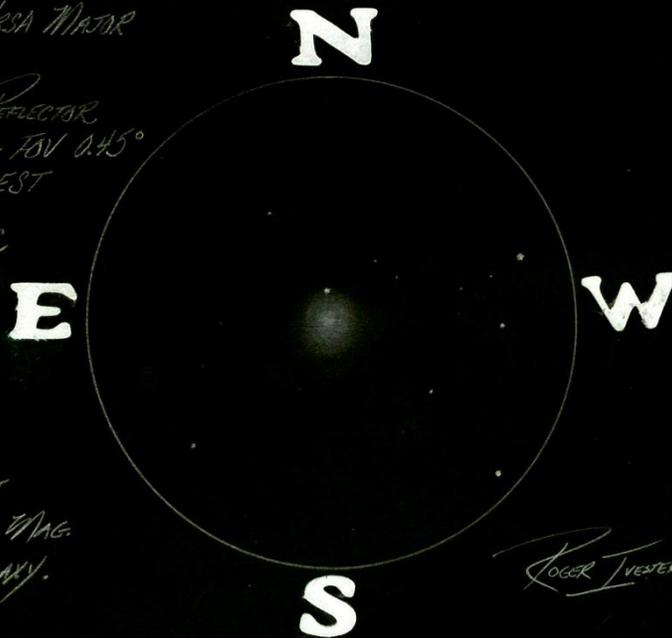
NGC 3184 - GALAXY - URSA MAJOR
FEBRUARY 25th 2010
TELESCOPE: 10-INCH REFLECTOR
MAGNIFICATION: 143X - FOV 0.45°
NELM: 5.0 - 11:00 EST

LOW SURFACE BRIGHTNESS,
MOSTLY FOUND - BRIGHTER
MIDDLE, BUT SUBTLE.

SLIGHT N-S ELONGATION.

MAGNITUDE 11 STAR ON
N-TIP, STILL IN HALO.

DUE TO AMBIENT LIGHT,
IN-PART WAS DIFFICULT
TO LOCATE. BRIGHT STAR MAG.
3.0, LOCATED W OF GALAXY.



Fred Rayworth: Observer from Nevada



I've observed this object several times before, starting in 2004. However, for the Observer's Challenge, I "officially" studied it on February 14, 2015 from my usual dark site at Redstone Picnic Area on the North Shore Road of Lake Mead, Nevada.

At an altitude of 2,100 feet, it was cool, with a slight breeze that died off at dark. Some high, thin clouds drifted across the sky during the evening. I thought it would affect the transparency, and it did, to some effect. However, when the holes opened up, they really did and the sky became awesome in those empty spots. I found a lot of Herschel galaxies in some areas to the east, while in other areas, I could barely pull anything in because the stars had nebulae around them (that weren't supposed to have nebulae). Same old stuff, yet I picked up some beauts. Still not the best night, but not bad in the long run.

Using my commercial 16-inch f/4.5 at 70X, the April Observer's Challenge was a medium-sized face-on and easy to spot because of its size. It was mottled with a bright core, but also kind of dim. There was a star at the due-northern edge. I tried hard to see spiral shape, but the observing conditions at that moment didn't warrant that much detail.

I tried again on April 18, 2015 from our club observatory site at Mt. Potosi at an altitude of 5,890 feet. It was clear, but started with gusty winds that died down after dark. It was cool and getting cold but, that wasn't much of an issue once we bundled up. However, the big problem was the transparency, which was terrible, unless looking straight up and even that wasn't nothing to brag about.

NGC-3184 was an extremely dim glow next to a dim star with a red star nearby. It was an obvious face-on glow but showed no features at all and even averted vision displayed no details. All I could say was that I saw it and that was about it. My observation in February was the best one. The drawing is derived from that February observation and my notes at that time.

