

MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

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April 2022

Report #159

NGC 3079, Galaxy in Ursa Major

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:

William Herschel discovered NGC 3079 with his 18.7-inch reflector on April Fool's Day, 1790. Decrypted, his hand-written journal reads: *Considerably or very bright , much extended from north-preceding to south-following. About 8' long, 2' broad. Very gradually much brighter in the middle.*

Lord Rosse's description as seen with the 72-inch Leviathan reflector was published in *The Scientific Transactions of the Royal Dublin Society* (August 1879, Volume II ; New Series, p.81. Reading much like Herschel's notes, the decrypted entry reads: *Very bright, very much elongated preceding-following, very much brighter in the middle, many bright stars near.*

NGC 3079 is often called the Phantom Frisbee Galaxy, a name that will strike a chord with many an observer. I have no idea who originated the moniker.

— Sue

Bertrand Laville: Observer from France



© B Laville



NGC 3079
NGC 3073
PGC 28990
T635 x 312 & 445
2008 03 02 20h56 UT
Le Petit Telle (05)

3''

Date of sighting: March 2, 2008 8:37 PM UT
Duration of observation: 20 mins
Object position: Alt: 65.3°, Az: 49.5°
Viewing location: Puimoisson le PetitTelle
Instrument : TN 635 Dobsonian Obsession
Main eyepiece: Tele Vue Radian 10mm
Magnification: 312×

The galaxy is superb, large, brilliant, structured. The difference in shape and convexity of the E and W boundaries is obvious. The central condensation, $d \sim 2.3' \times 0.4'$, is glued against the W boundary of the halo. On this central condensation we perceive 2 brighter zones, the main one, $d \sim 1.0' \times 0.3'$, almost centered, and the second $\sim 0.8' \times 0.3'$. [Note 2008 03 04: ccd photos show that this second area is actually a large HII region]

The halo is grainy; it extends very far to the S, but weakening. The dark band is suspected without knowing it. There's a star at the N end of the halo, which curves slightly to the NE. Several stars around the halo, including 3 on the SW side.

In the field, NGC 3073 and PGC 28990 are also evident.

Second sketch:

Date of sighting: 28 Feb. 2019 01:04 UT
Duration of observation: 56 min
Object position: Alt: 68.9°, Az: 312.0°
Place of observation: Observatory of the Baronnies Provençales
Instrument: TN 635 Dobsonian Obsession
Main eyepiece: Tele Vue Ethos 6mm
Magnification: 519×

×125 ES 25mm/100°

This is the galaxy close to the double quasar. The galaxy is beautiful, long, and bright. It easily supports a higher magnification, especially since the viewing conditions are exceptional.

×520 Tele Vue Ethos 6mm

We are near the pole, the image drifts little. I stayed on the galaxy for a long time; it can be detailed, but with patience.

I found the shape of the halo, more tapered at N, wider at S. I also analyzed the spire (?) S, which ends in a of HII regions, not separated.

The dark band is difficult; I perceived a stellar core, $m \sim 16v$. I haven't, for lack of time (because the purpose of the observation was the double quasar) detailed the stellar field, much denser than on my drawing.

NGC 3073 and even PGC 28990 are obvious, elongations and position angle too, easy gradients, and stellar core in the center of NGC 3073.

Sketch follows.

© B Laville

N
E LMa

NGC 3079
NGC 3076
PGC 26990
7825 x 520
2019 02 28 01h00-07
Obs des Barrois
Provenceles .05

You can see more of Bertrand's sketches at: <http://www.deepsky-drawings.com/>

Uwe Glahn: Observer from Germany



Object: NGC 3079

Telescope: 20" f/4 Newton

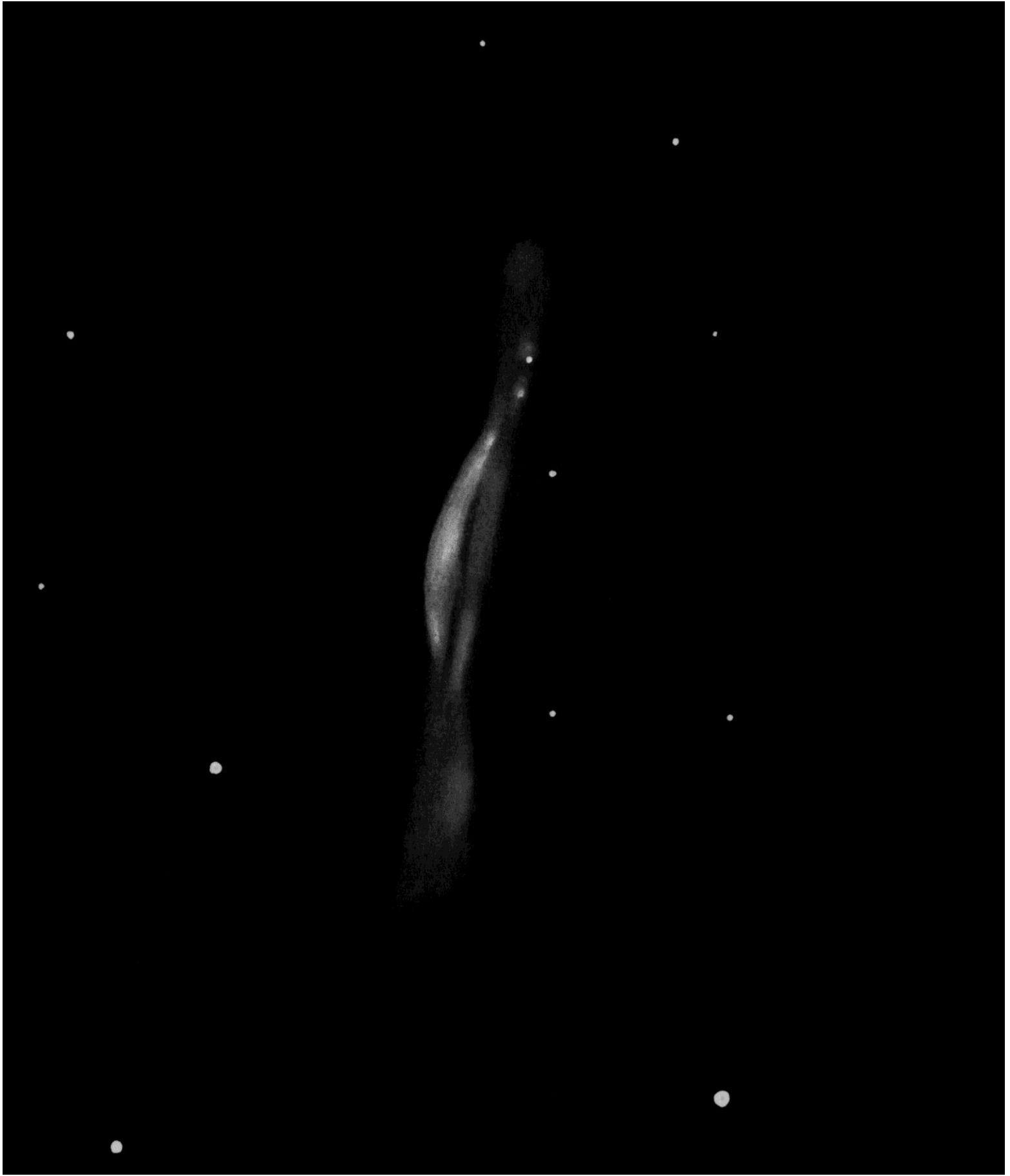
Magnification: 201×-287×

NELM: fst 6m5+

Seeing: III

Location: Sudelfeld

Sketch follows.



You can see more of Uwe's sketches at: <http://www.deepsky-drawings.com/>

Rony De Laet: Observer from Belgium



NGC 3079 appears as a thin and faint streak of light in my lowest power eyepiece. I try various powers. The optimum magnification seems to be 280 \times . The halo is elongated in an almost N-S orientation. The northern tip harbours a faint star. The halo brightens towards the centre. The core is a tad brighter than the halo and also elongated. It appears mottled. No stellar nucleus is visible. Concentric rings of light and shadow seem to surround the core. Averted vision and a lot of patience are needed to notice these subtle features in the halo. Together they shape the illusion of a Frisbee.

Site : Bekkevoort, Belgium (51° N)

Date : February 28, 2022

Time : around 23:30 UT

Telescope : Taurus 16"

EP: Morpheus 6.5mm 76°, 280 \times

Filter : none

Seeing : 4/5

Sky brightness : 20.1 magnitudes per square arc second near zenith (SQM reading).

Sketch Orientation: N up, W right.

Digital sketch made with Corel Paint Shop Pro X2, based on a raw pencil sketch

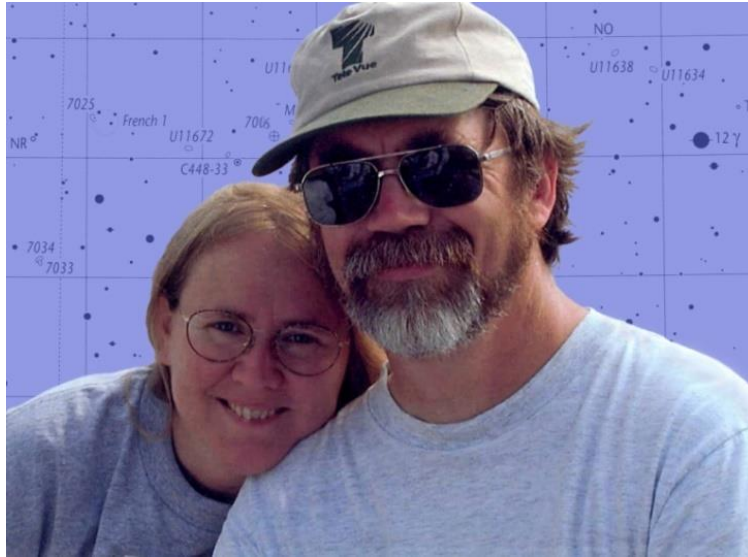
Sketch follows.

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Rony De Laet

Sue French: Observer from New York



N



E

As seen through my 105mm f/5.8 refractor at 87 \times .
Seeing and transparency both good. The arrow points to a little fuzzball, which is NGC 3073.

Other observations:

105mm f/5.8 refractor: Seeing good, Transparency fair, 13°F (I give myself extra credit for cold nights).

47×: Visible as an elongated streak.

87×: Tipped a little west of north. Southern tip reaches almost to the northern side of a triangle formed by one 8th- and two 9½-magnitude stars. The galaxy appears about 4 arcminutes long and one-seventh as wide. It has a large, slightly brighter, elongated core.

127×: There's a very faint star at the northern tip.

105mm f/5.8 refractor: Seeing fair, Transparency fair.

47×: A nice, highly elongated spindle brighter toward the long axis. Position angle about 170°.

87×: NGC 3073 joins the scene, but disappears when I look straight at it. The galaxy looks very small and very faint even with averted vision. It makes a perfect diamond with three field stars, its pointy ends being 13.2' apart.

10-inch f/6 reflector: Seeing fair, Transparency fair.

48×: Very long and thin needle of light. Quite pretty. Juts into a small isosceles triangle of fairly bright field stars.

14.5-inch f/6 reflector: Seeing fair, Transparency fair.

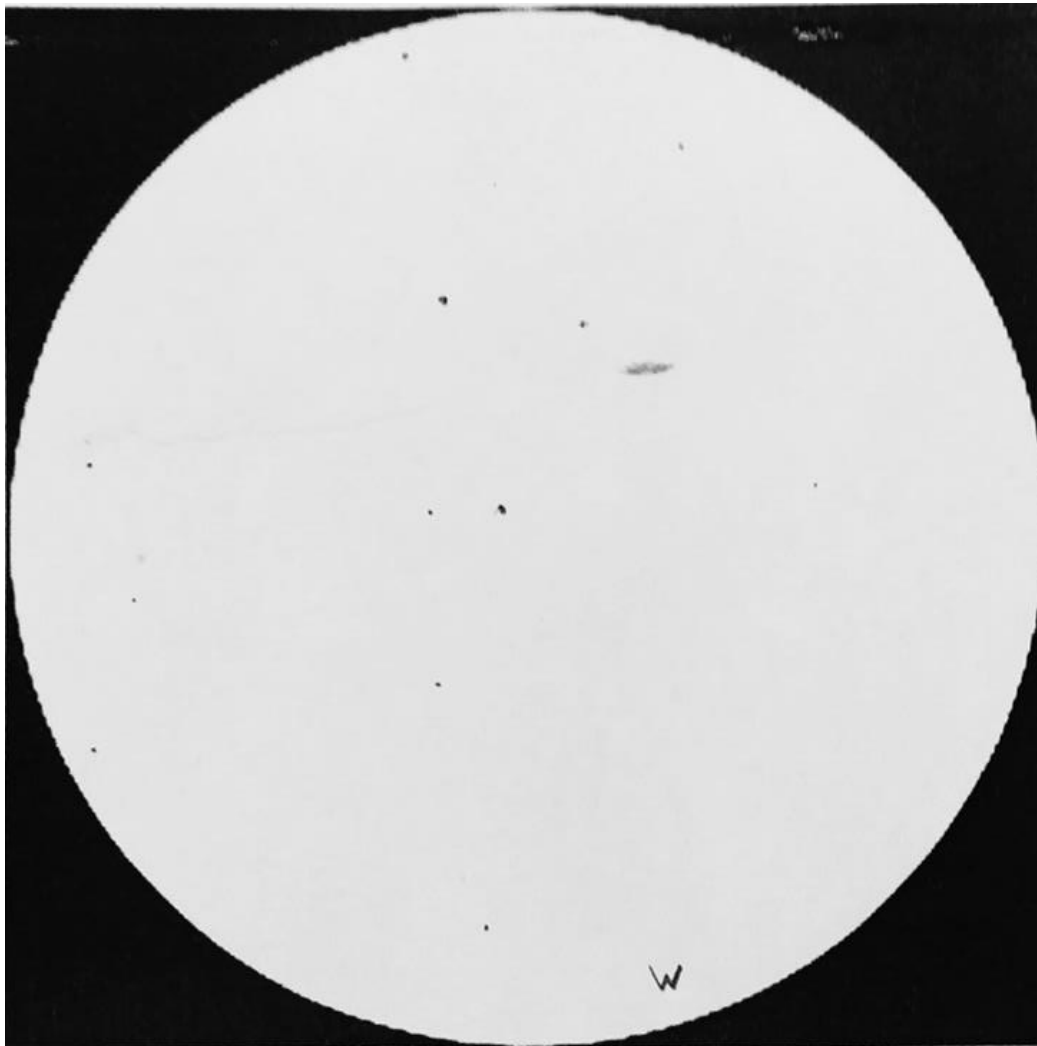
170×: NGC3079, NGC 3073, and CGCG 265-055 (aka MCG +9-17-9) are all visible in the same field of view. The CGCG galaxy is a small, very faint smudge 3.7' east-northeast of a pair of stars of about magnitude 13½. NGC 3073 is 5' of the same pair, and is considerably brighter and larger. The galaxy appears round and grows brighter toward the center. NGC 3079's southern tip touches the near side of the triangle of bright stars noted through the 105mm refractor. The galaxy is irregular in brightness and shape and holds a large, brighter, elongated core. The core area bulges eastward. NGC 3079 is very elongated and tip a bit west of north. The galaxy north of the core has a superimposed star and looks brighter than the part of the galaxy south of the core.

245×: I estimated a size of roughly 6'×1'.

Glenn Chaple: Observer from Massachusetts



NGC 3079, as seen with 10-inch f/5 reflector at 141 \times . Field diameter=0.6 degrees. Sketch by Glenn Chaple



If you're a fan of edge-on or nearly edge-on galaxies, you'll love this month's Observer's Challenge- the barred spiral galaxy NGC 3079 in Ursa Major. Modern observations reveal a 3000 light-year-wide gaseous "bubble" emanating from the galaxy's center, created either by a massive black hole or a burst of star formation.

By chance, I was in the neighborhood of NGC 3079 on the evening of April 28, 1976 when I viewed the double star Struve 1402 (magnitudes 8 and 9, separation 33") with a 3-inch f/10 reflecting telescope. The pair was faintly seen, as was a 10th-magnitude companion, 132" south of the main star. NGC 3079 was less than a half degree north-northwest of Struve 1402, but there is no way I would have glimpsed the 11th-magnitude galaxy with this little scope.

On the evening of March 21, 2022, I sought out NGC 3079 with a 10-inch f/5 reflector. Plugging the galaxy's 2000.0 coordinates (RA 10h 01m 57.8s, Dec. +55° 40' 47") into the AAVSO's online Variable Star Plotter (VSP), I came up with a finder chart that showed a star-hop pathway connecting it to the nearby 4th-magnitude star υ Ursae Majoris. Low power eyepiece in place, I followed a path 3 degrees south-southeast from υ to a triangle of 8th- and 9th-magnitude stars which lies just south of NGC 3079. Increasing the magnification to 141 \times , I spotted a faint, elongated smudge just northwest of the northernmost star in the triangle. The bright central region was barely visibly directly, while averted vision fleshed out the outer extensions, which ran roughly north to south.

NGC 3079 was discovered by William Herschel on April 1, 1790. A recent calculation indicates a distance of 54 million light-years.

John Bishop: Observer from Massachusetts



On April 22, 2022, I observed NGC 3079, a barred spiral galaxy in Ursa Major. This object was new to me. I observed with my f/8.1 long-tube 5 inch apo refractor. It is a portable setup, with a motor driven equatorial mount, without go-to. I was among a group of observers at the ATMob Clubhouse in Westford, Massachusetts. The sky was clear. Transparency appeared promising early on, but contrast in the eyepiece was weak; there may have been moisture in the atmosphere. Seeing was decent, except closer to the horizon, as usual. Beta Monocerotis, low in the sky, separated easily into its three components in my 5 inch refractor, but the image was unsteady. Temperature was 59 degrees F at 5:00 pm, dropping to 37 degrees F at 1:00 am.

Luginbuhl and Skiff assign NGC 3079 a visual magnitude of 10.6, with surface brightness of 13.2. L&S state that a 6-inch aperture "easily" shows NGC 3079 as a thin, undetailed streak. L&S is my main and favorite deep sky guide, but I always factor in that many of their observations were made at dark sites where the limiting visual magnitude was about 7.0. I estimated that the limiting visual magnitude at the ATMob site this night was about 5.0, perhaps slightly higher. So, I assumed this object could be a nice test for a 5-inch scope.

After darkness settled in, I warmed up on a few preliminary objects, including M51 in Ursa Major. M51 was visible, but washed out. I began my search for NGC 3079, and the evening soon became a tale of two observations. My first view of the galaxy was through another telescope. A fellow observer located NGC 3079 in his excellent 18-inch Dob. Naturally I took a look. The galaxy was easily visible without averted vision. My view was brief (there was a line at the big scope), but my immediate impression was that the image was dimmer than I expected in an 18-inch scope. Low surface brightness!

Back at my scope, I soon ran into a mechanical problem. NGC 3079 was high in the sky. With my long OTA nearly vertical, the mount and tripod legs interfered with the traverse of the tube. The eyepiece, diagonal and focuser would contact the tripod legs and base of the mount so I could not quite bring the tube to bear in the correct direction. At that moment, NGC 3079 was in a hole. Not making things easier was the extreme observing angle, with the main eyepiece and finder eyepiece uncomfortably low. I decided to suspend my search until later in the evening.

After a few hours of observing more accessible objects, I came back to NGC 3079. The galaxy was no longer in a hole, and I could star hop to the target. I brought out an adjustable observing chair, which gave me a more comfortable viewing position.

Working from the Interstellarum Deep Sky Atlas, I used Upsilon Ursa Majoris as the starting point to star-hop to NGC 3079. The FOV in my 7×50 finder showed the entire pathway, i.e., from Upsilon UMa, southerly through two 6th-magnitude pointer stars to Struve 1402. NGC 3079 was shown a short distance to the west, near an 8th-magnitude star.

Except that when I arrived at the target location, all I saw were stars and empty space - no galaxy. I was fairly sure I was in the right neighborhood, so I slowly scanned the field (moving the eye and/or the eyepiece can help in this situation). In a few minutes I saw a faint glow. I alternated direct and averted vision on that spot. The glow gradually became brighter and elongated, an amazing intersection of astronomy and biology. This was NGC 3079.

In my 5-inch scope at 138×, NGC 3079 was a faint, nebulous elongation. Averted vision was required to spot it. After a few minutes, the image would "build up" on the eye, but the image remained faint and unstable (fluctuating in brightness and size). I saw limited detail and structure. The elongated shape was obvious. In the steadiest moments, the galaxy was asymmetrical, i.e., the relatively bright center (no bright stellar nucleus) was not quite in the center of the elongated halo. The two arms of the halo did not look even, in size or shape.

Several other observers looked through my scope and confirmed that they saw the galaxy. I said to one of them, "What can I say about this? I can hardly see it!". My colleague said, "That's it! Say 'I could hardly see it!'"

There you go. But I saw enough to make it a rewarding challenge object.

Joseph Rothchild: Observer from Massachusetts



I observed the galaxy NGC 3079 on March 21st from dark skies on Cape Cod. I again observed with my 10" Dobsonian.

I initially was unable to see the galaxy, but once dark adapted was able to locate it near a small triangular asterism. It was best seen with my 27 mm (53×) and 14 mm (102×) eyepieces. Although not completely edge-on, it appeared linear similar to NGC 4565, although 1/3 the length and without a central bulge.

Gus Johnson: Observer from Maryland



May 10, 1972: 6-inch reflector at 59 \times appears dim, elongated, very narrow, and situated very close to a triangle of stars. An almost equal double star about $1/2^\circ$ away.

March 1991: 4-inch reflector at 59 \times . Very faint, elongated, with little detail. Difficult...

Mike McCabe: Observer from Massachusetts



OBSERVATION LOG - OBJECT: NGC 3079, PHANTOM FRISBEE

DATE 4/19/22 /z TIME 21:15 /z EDT LOCAL OBSERVING LOCATION 42°N, 71°W

SCOPE/APERTURE 8" SCT

EYEPIECE 26, 15, 12mm MAGNIFICATION 78x, 135x, 170x

FILTER — SEEING 2/5 TRANSPARENCY 3/5

TEMP 45°F BARO PRES. — WIND SW 6 to 15

COMMENTS: _____

VERY NICE OBSERVATION.

GALAXY BEST SEEN AT 135x

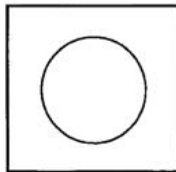
WITH THIS COMBO OF GEAR

AND SKY CONDITIONS.

ELONGATION AND

ORIENTATIONAL COMPLETELY

OBVIOUS.



ORIENTATION AND/OR ROTATION

M.T.M.



April 19th 2022, 21:15 EDT: It's a pleasant spring evening with temps in the mid-40's, and although the breeze is gusting to about 15mph out of the southwest, I'm well shielded from it by the building I'm set up next to. On this particular night I'm out test driving a new-to-me old classic telescope (a 1984 Celestron C8 to be exact) and things are going well. I'm finding that the setting circles on the Celestron/Byers RA drive and on the fork mount arms are a delight to use, not like the tiny things on most of my GEM mounts. This thing is regularly landing targets in the restricted field of view that 2,032mm's of focal length provides, and I decide that this is as good a time as any to give the April Observer's Challenge a try.

NGC 3079, aka “The Phantom Frisbee Galaxy” looks like a formidable challenge on paper. The listed visual magnitude for this object is generally in the 11 to 11.5 magnitude range, with a surface brightness about a magnitude dimmer. With apparent dimensions of 1.5' by 7.9', the fairly compact stature should negate any issues with diffuse and thus invisible nebulosity, but the thing that intrigued me most as I did my pre-observing research was its appearance in images. This thing is insanely dusty, so much so that I was left wondering if there would be enough lighter material to allow this galaxy to be visible to the visual observer.

As it turns out I was borrowing trouble. Even under my Bortle 6 sky, which I estimated to present a transparency of 3/5 on the evening of the 19th, the galaxy was readily visible in the eyepiece at a power of 78×. The elongated shape and orientation of the position angle were immediately obvious, and the galaxy appeared to sit atop a triangle of 8th- and 9th-magnitude stars which appeared significantly brighter than anything else in the field of view. Experimenting with a variety of higher powers revealed that the galaxy was best rendered at 135× given the equipment used and conditions experienced during this observation.

Larry McHenry: Observer from Pittsburgh, Pennsylvania



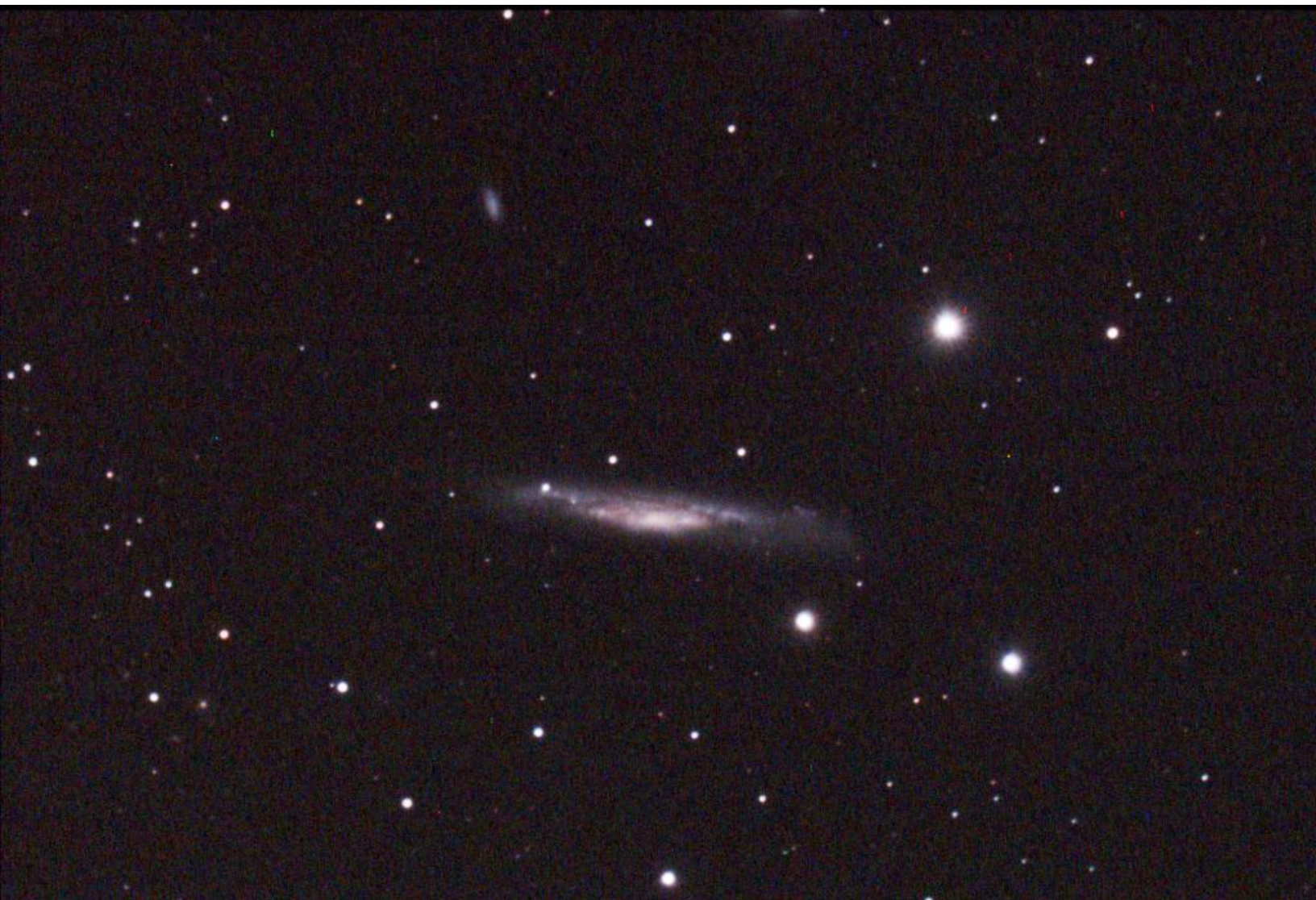
NGC 3079 is a +11th Mag barred-spiral galaxy located in the spring constellation of Ursa Major – ‘The Great Bear’. It is about 67 million light-years distant. Using his “20-foot” telescope (with a 18.5-inch speculum metal mirror), William Herschel discovered this galaxy (*entry #47 in Class-V, very large nebulae*) on the night of April 1st 1790, at his house in Slough, and listed it in his third catalog published in 1802.

In both Hubble and Chandra X-ray photos, the center of the galaxy is currently undergoing a starburst formation driven by a supermassive black hole that has created a large ~4000 l-y in diameter ‘bubble’ of material on either side of the galaxy’s core containing multiple plumes of gas and dust filaments shaped by high-speed stellar winds from the newborn stars.

NGC 3079 is a fairly bright spiral, displaying dark lanes and knots, with diffuse arms on either end of the elongated galaxy. Located nearby in the same field-of-view is the small +16th-mag spiral PGC28990.

Video-Capture/EAA:

12/02/2021: from Big Woodchuck Observatory backyard in Pittsburgh, PA. 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 30 minutes.



Mario Motta: Observer from Massachusetts



I had previously sent an image of NGC 3079 from a few years ago using my 32-inch telescope. However, I wanted to retake an image of this galaxy with my 14-inch Schmidt-Cassegrain, from Florida with a wider field of view, and to see what was possible.

I was alerted to the fact that the 14-inch image, also contains the double quasar QSO 0957+561A/B by Mr. Helton, a club member.

This quasar causes the image of galaxy NGC 3079 and the much wider field to be far more interesting!

So, the following image was taken with my C-14 telescope, from Naples, Florida, and about 90 minutes total imaging time.

In addition to the galaxy itself, two other galaxies can be seen, as noted in the field.

On the left side of the following image, the double quasar is noted, which is a gravitationally lensed double quasar about 8.7 billion light-years away. This is an amazing field, and the double quasar is worthy of contemplation!

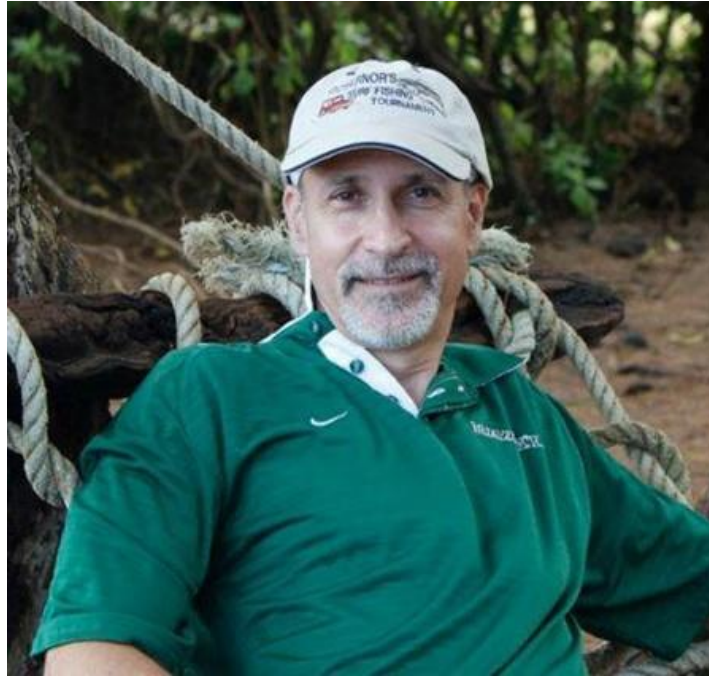
14-inch Schmidt-Cassegrain image following:



The following image of galaxy NGC 3079, was made about five years ago with my 32-inch, f/6 relay telescope from Gloucester. About one hour total integration with an STL 1001E Camera.



James Dire: Observer from Illinois



NGC 3079 is a 10th-magnitude spiral galaxy in the constellation Ursa Major. The galaxy lies 8.5 degrees west of the star Merak, one of the two pointer stars towards Polaris. The galaxy also lies two degrees northeast of the star Phi Ursae Majoris, a magnitude 4.6 star.

NGC 3079 is very similar in size to the Milky Way. And like our home galaxy, it is a barred spiral galaxy. The galaxy is 54 million light-years away. We see NGC 3079 nearly edge on. It measures 8.2×1.3 arcminutes in size, with the long axis running north to south.

The only telescope I had to view NGC3079 this month was a 132mm f/6.5 triplet apochromatic refractor. I tried view it on a night with just below 3-arcsec seeing and excellent transparency. Unfortunately my observing site, about 40 miles north of Baltimore, Maryland, suffers from suburban light pollution. The faintest star I could see was 10th magnitude. The 10th-magnitude galaxy was not discernable at any magnification.

I did image the galaxy from this site using a SBIG ST-2000XCM CCD camera with the same telescope, employing a Tele Vue 0.8× focal reducer/field flattener. The exposure was 2 hours. The image captures the central bar along with some of the spiral structure. There are several bright knots in the out spiral arms, both on the north and south sides of the galaxy.

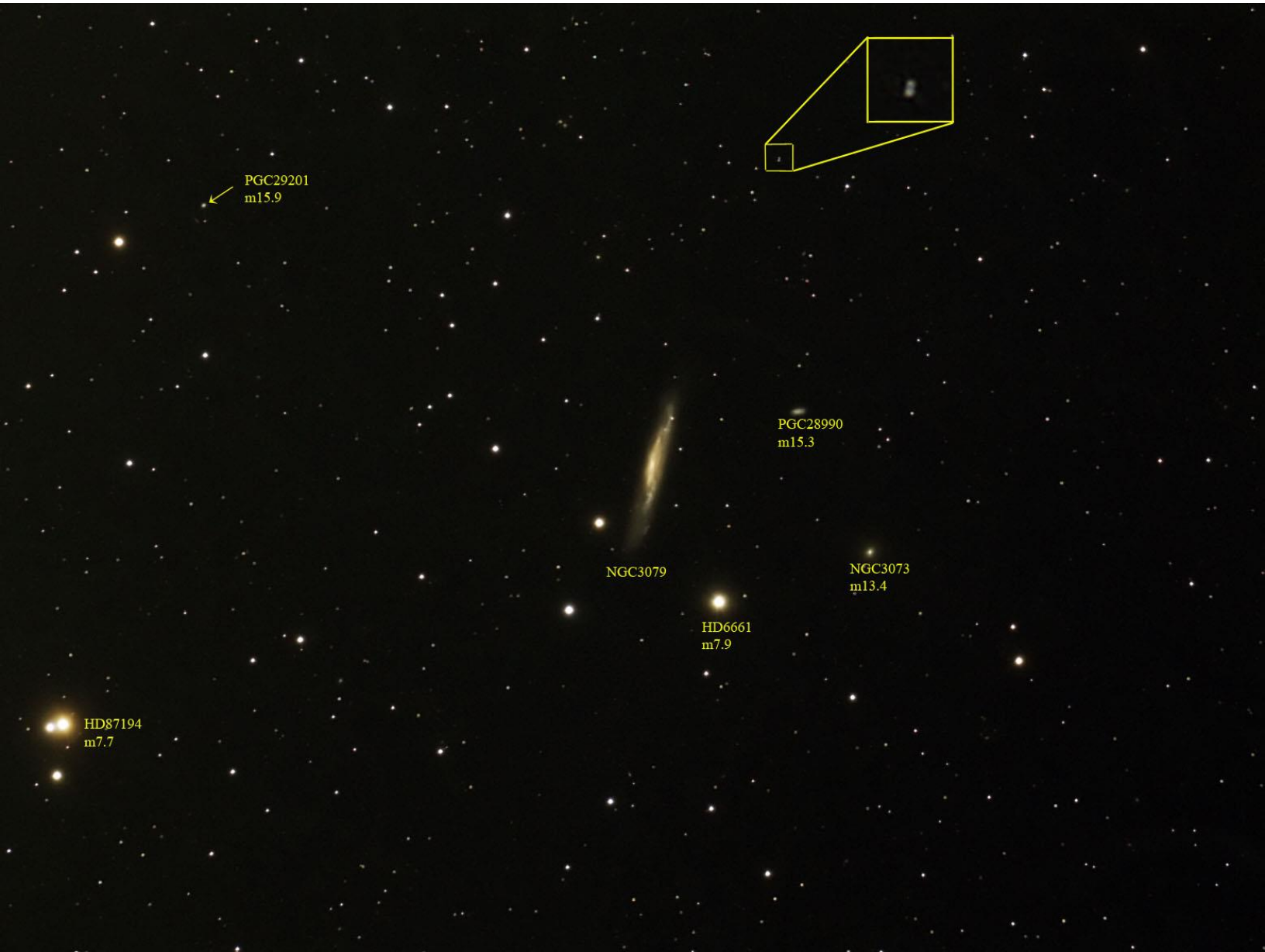
The second image labels the two brightest stars in the field of view as well as three faint galaxies with magnitudes between 12 and 16. Also in the second image I have enlarged what appears to be a double star. It is not.

Enlarged in the yellow square is the double quasar 0957+561. The object was discovered first by radio telescopes in 1979. The quasar is doubled due to gravitational lensing by a foreground galaxy. The foreground galaxy is a massive elliptical galaxy known as YGKOW G1. It can only be detected with long exposures with the world's largest telescopes. The galaxy, about 4 billion light-years, away lies directly in front of the southern quasar image.

The fainter quasar image is from light that travels 417 light-days farther to arrive at Earth. Whenever there is a change in the brightness of the southern component, 417 days later the same change occurs in the northern component. The quasar is located 7.8 billion light-years away and has a red shift of 1.413.

Quasar 0957+561 was the first object ever discovered that was the result of gravitational lensing. Such bending of light around a massive object is a result of Einstein's general theory of relativity. The fact that the gravitational lensing can be captured in a 5.2-inch refractor just amazes me." James Dire





PGC29201
m15.9

PGC28990
m15.3

NGC3079

NGC3073
m13.4

HD6661
m7.9

HD87194
m7.7

David Rust: Observer from Bloomington, Indiana



Wide Field is a WO GT71 w/ .8 flattener. DSO shot with TSO R-C $f/8$. Both using a ZWO ASI2600 cooled color camera (used with NGC 3079). The mount is an iOptron CEM40 on standard tripod.

I fight light pollution and increase contrast with a HEU1BI-II IDAS + Ha & Hb filter (used with NGC 3079)...and bring out the extended spectrum in nebulae and star-forming regions with a Triad Quad Ultra filter.

Strictly backyard shooting, and I carry the thing now, but expect a dolly any day.

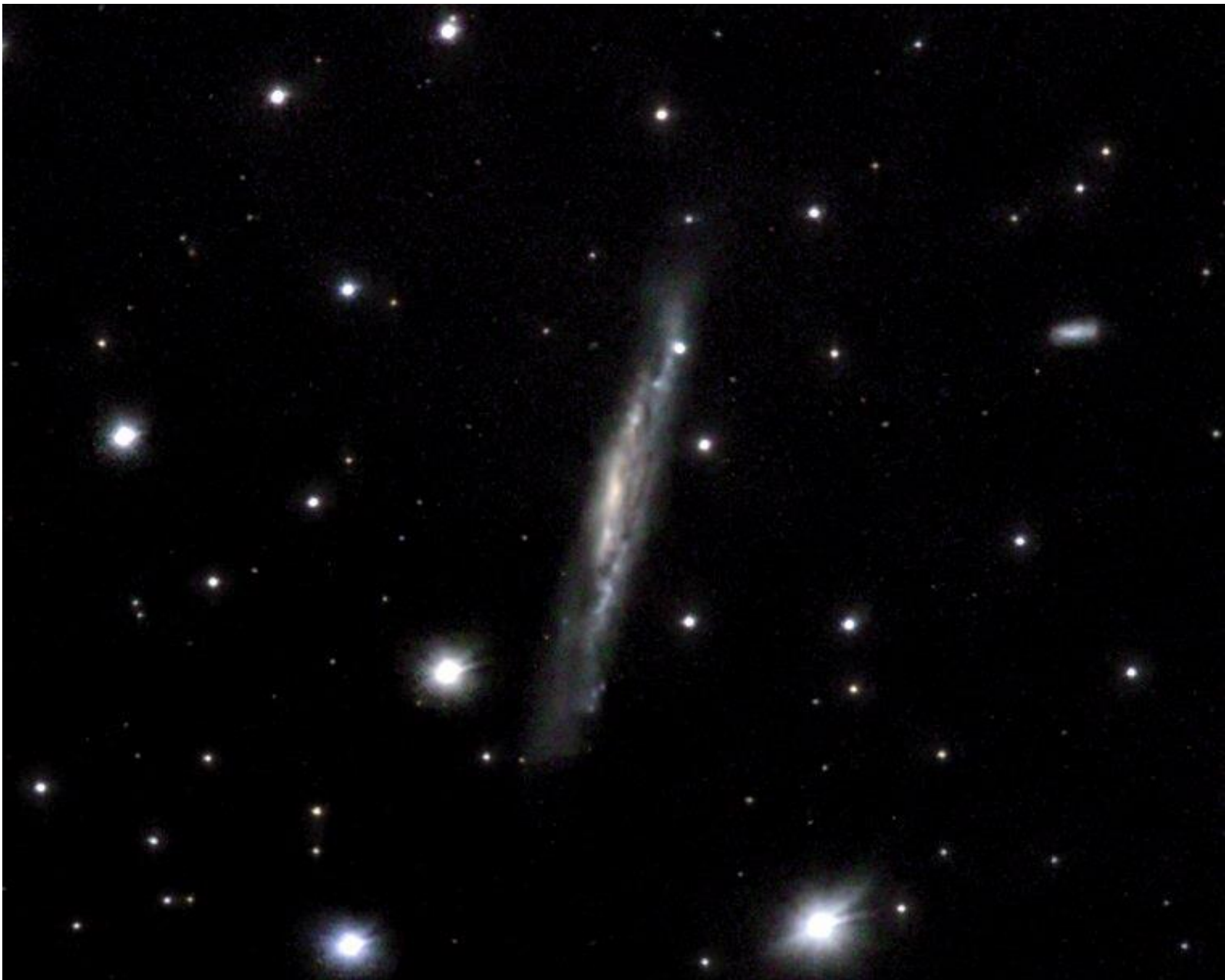
Doug Paul: Observer from Massachusetts

The first image is NGC 3079, technical info:

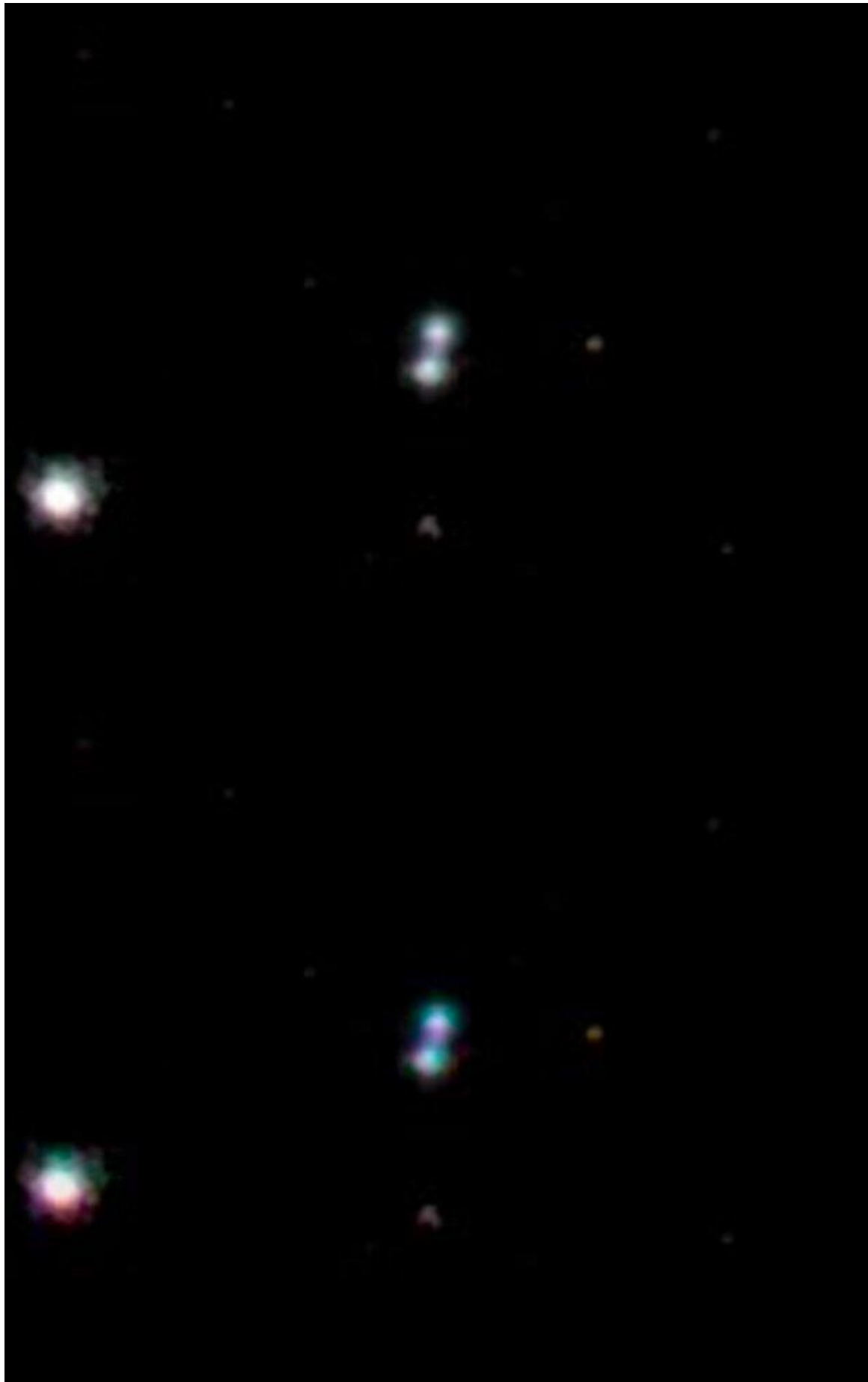
Canon 80D, 1200mm f/8.0 lens, ISO 800, 64 2min subs (total exposure 2hr 8min) 50% scale, north up.
Pixinsight, my own stretcher, and RawTherapee.

Following Mark Helton's report that the Twin Quasar QSO 0957+561 A/B was close by, I checked my master image and found it as well. (Image 2, same technical info except 100% scale=.64 arcsec/pixel. The two quasar images are 6 arcsec apart.)

The "bridge" between the two quasar images looked brighter than expected so I enlarged Image 2 by a factor of three to confirm that it was indeed brighter than expected. (Image 3). Finally, I increased the color saturation of image 3 to show that the bridge color differs from the quasar color (Image 4), suggesting that the bridge might be due to the lensing galaxy. (A Hubble image of the Twin Quasar shows the lensing galaxy as red.)







James Gianoulakis: Observer from Las Vegas



NGC 3079 is a barred spiral galaxy of some 70,000 light-years across, located 56.4 million light-years away in the constellation Ursa Major. It is moving away from us at 1116 kilometers per second, possibly together with a companion, the elliptical galaxy NGC 3073. Much has been discussed about the central “bubble”, an intense star forming region. The bubble forming in the center of NGC 3079 is believed to be about 3000 [light-years](#) wide and to rise more than 3500 light-years above the disc of the galaxy. It is speculated that the bubble is being formed by particles streaming at high speeds, which were in turn caused by a large burst of [star formation](#). This current bubble is thought to have been created about one million years ago, and computer modeling suggests that there is an ongoing cycle of forming bubbles, with a new bubble forming approximately every 10 million years. There are several Hubble images that show this in incredible detail.

While researching this object I viewed several images. In one such image the gentleman pointed out an interesting object he had captured while imaging NGC 3079. “A very interesting object is the unassuming double star near the upper right corner, which is actually a gravitationally lensed image of the distant quasar Q0957+561, about 9 billion l-y away, by a foreground galaxy about 4 billion l-y. away.”

This from SciencePhoto.com: Twin quasar (Q0957+561), is in the constellation Ursa Major. Quasars are very distant, yet extremely luminous astronomical objects. They are thought to be the centers of active galaxies, emitting vast quantities of high-energy radiation as matter gravitates towards supermassive black holes. The Twin quasar is in fact a single quasar, but two images of it are seen as a result of gravitational lensing. A large mass concentration, such as a galaxy, between the quasar and Earth bends the light, causing a double image. This quasar, discovered in 1979, was the first known example of gravitational lensing.

In my image the object is identified by crosshairs. I might not have known of this but for this challenge.

About the photo:

Equipment used: PlaneWave 17" CDK, Paramount ME, STX 16803 ccd, Astrodon 50mm color filters.

Location: Arizona Sky Village

The photo is an integration of several subframes through red, green, blue and luminance filters. The subframes break down like this: 14×600s R, 14×600s G, 14×600s B and 18×600s Lum. Darks, flats and bias applied. Total integration time 10 hours. Average seeing is around 2 arcsec/pixel.

Pix-insight Workflow:

Weighted Batch Processing script

Normalized Scale Gradient script

Muir Denoise

Deconvolution (luminance image)

Dynamic Crop

Channel Combination

Photometric Color Calibration

LRGB Blending

Image follows.



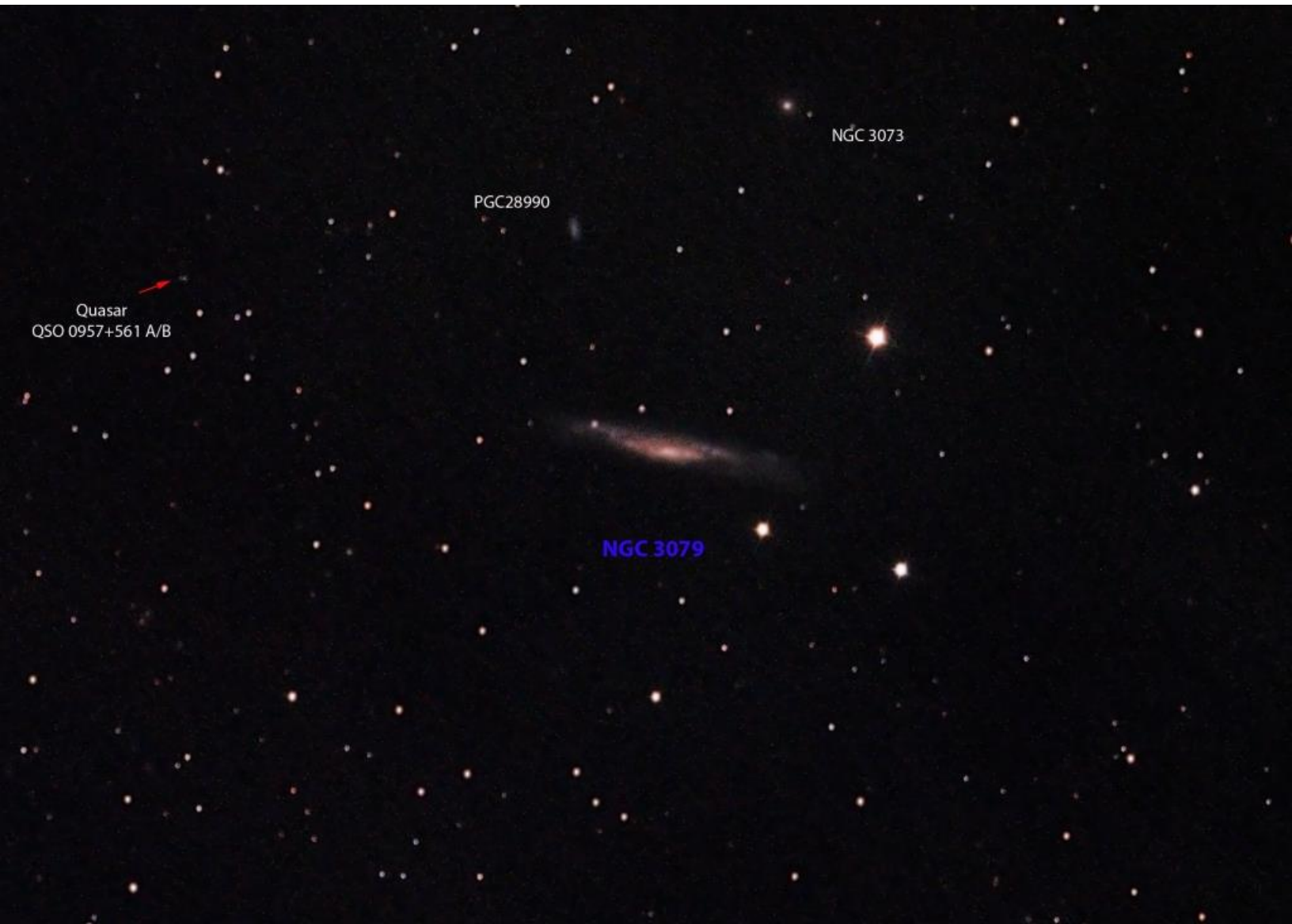
Barry Yomtov: Observer from Massachusetts



The first image is a wide-field of galaxy NGC 3079, and including two nearby galaxies, NGC 3073 and PGC 28990. NGC 3073 is a dwarf lenticular galaxy which is approximately 65 Mly away. My session for imaging NGC 3079 was short due to clouds rolling in. Unfortunately, I was only able to process 36 subs at 25 second exposures for 15 minutes total with the f/2.2 optics compared to my 100+ images for a typical session.

I also included a second image with the field zoomed in. With the guidance of my fellow astroimager here in New England, Mario Motta I was able to identify the twin quasar QSO 0957+561 A/B which is an amazing 87 billion ly away.

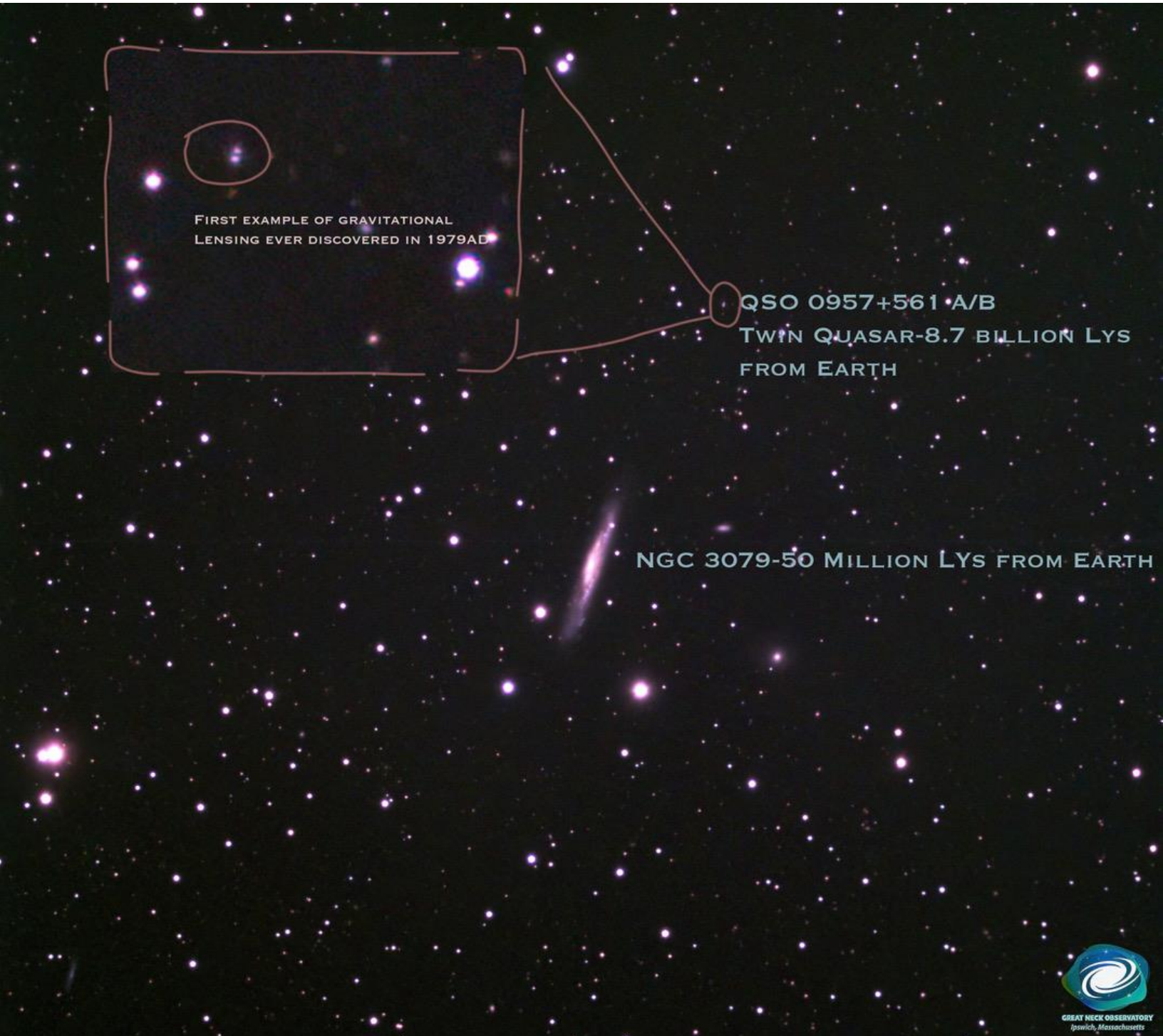




Mark Helton: Observer from Massachusetts

Here is my contribution to the April Observers Challenge and a little surprise target that was pointed out to me by my friend and ATMOB member Dave Rust in Bloomington Indiana!

So I finally got one clear night last week to try for the April Observers Challenge NGC3079. What an amazing area of space this is. Not only is NGC3079 a fascinating target, but what I discovered, with the help of my friend Dave Rust out in Indiana, who pointed it out to me, well it's just amazing!



Venu Venugopal: Observer from Massachusetts



17 minutes with a 8" Newtonian.

The nearby (on the sky) double quasar is the fuzzy spot just to the left of the blue label. A zoomed-in version is on the following page.





*Gravitational Lensing
First example
Discovered 1979
Quasar-QSO-0957+561 A/B, or the Twin Quasar*

Sameer S. Bharadwaj: Observer from Massachusetts

10×2 min subs of R, G, B each.

NGC 3079 and the Double Quasar



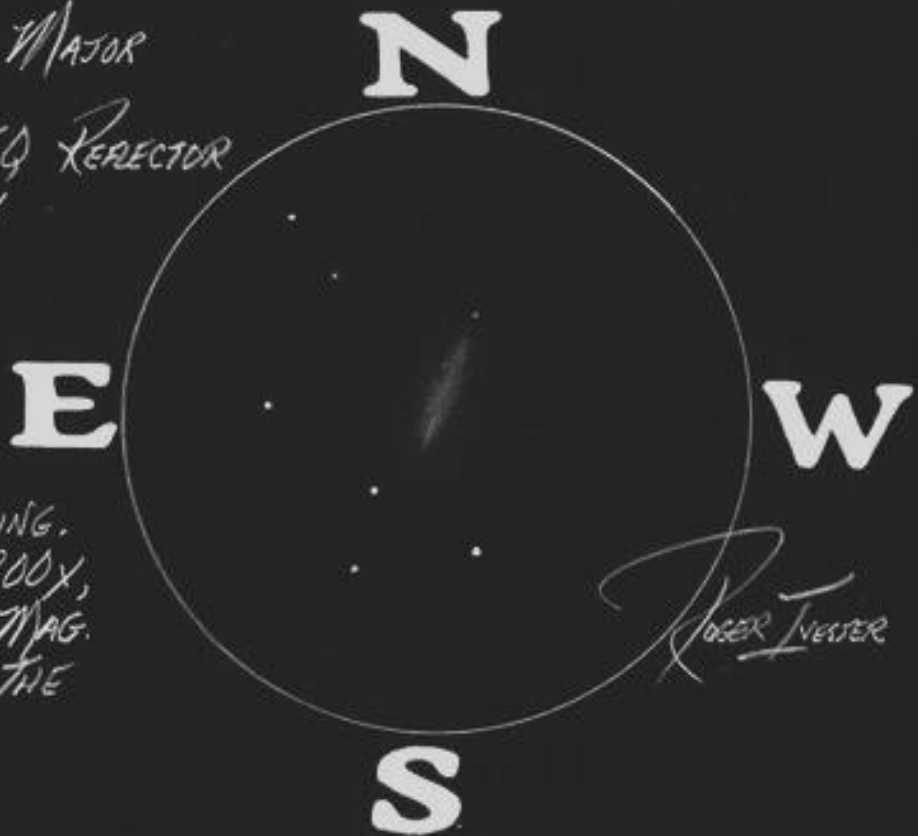
Roger Ivester: Observer from North Carolina



NGC 3079 - GALAXY - Vrsa MAJOR
DATE: MARCH 2022
TELESCOPE: 10-INCH F/4.5 EQ REFLECTOR
SKETCH MAGNIFICATION: 200X
FIELD OF VIEW: 0.33°

LOCATION: BACKYARD 5.0 NELM
GALAXY IS FAIRLY FAINT WITH
LOW SURFACE BRIGHTNESS.

HIGHLY ELONGATED WITH MOTTLING.
NO CENTRAL BRIGHTNESS. AT 200X,
AND WITH AVERTED VISION, A MAG.
13 STAR CAN BE SEEN JUST OFF THE
N TIP OF THE GALAXY.



Date: March 2022

Telescope: 10-inch f/4.5 Equatorial Newtonian

Sketch Magnification: 200×

Field-of-View: 0.33°

Observing from my moderately light polluted backyard, with about a 5.0 NELM. The galaxy is located north of a line of three stars, oriented ENE-SSW with a fourth star, SSE creating an apex.

The galaxy is fairly faint with low surface brightness, highly elongated with some mottling noted, especially at higher magnifications. After another observation, I could see a very subtle brightening in the southern-most part of the galaxy.

My notes at 200×, and with averted vision, a mag. 13 star can be seen at the northern tip of the galaxy.

The following is the complete listing of all Observer's Challenge reports to-date.

<https://rogerivester.com/category/observers-challenge-reports-complete/>