MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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&

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JUNE 2015

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.

M83 – NGC-5236 The Southern Pinwheel Galaxy In Hydra

M83, also known as NGC-5236, is a face-in barred spiral galaxy in the southern sky, which lies in the constellation of Hydra. Charles Messier added it to his catalogue of non-comets in March 1781, but it was actually discovered by Nicolas Louis de Lacaille on February 23, 1752 from his observatory in the Cape of Good Hope in South Africa.

Six supernovae have been discovered in the galaxy since 1923. M83 is part of a confusing subgroup of galaxies associated with Centaurus A.

The galaxy shines at a relatively easy mag. 8.2, but because it's face-on, the surface brightness is spread out, similar to M33, making the mag. somewhat misleading. However, since it's quite small and concentrated in comparison to M33, it's a lot easier to see. Because it's so low to the horizon for many of our Challenge participants, the challenge may be seeing it through haze or finding a suitable spot without obstructions. This still should be a relatively easy object for most any aperture, including binoculars.

Observations/Drawings/Photos (Contributors listed in alphabetical order)

Gary Ahlers: LVAS Treasurer from Pahrump, Nevada

NGC-5236, or M83 is also known as the Southern Pinwheel galaxy. It's a very bright (mag. 7.5) and close, barred spiral galaxy in the constellation Hydra. At about 15 million light-years distant and 40,000 light-years in diameter, it's still a rather low contrast and difficult target from mid - northern latitudes – often given a brightness of mid mag. 10. This galaxy has been the site of some 60 recorded supernovae, evidenced by either direct observation or remnants of explosions. There is also a very active star production in the core and along the arms. There's also a double core, probably the result of a cannibalized satellite galaxy.

This image, from March 2015, shows the three spiral arms, prominent bar and double nucleus (this last was more evident in individual frames before stacking) (just the barest hint of the profusion of dust and gas along the arms). The entire galaxy appears embedded in a reflected light gas cloud.

Gary Bruno: LVAS Member from Las Vegas

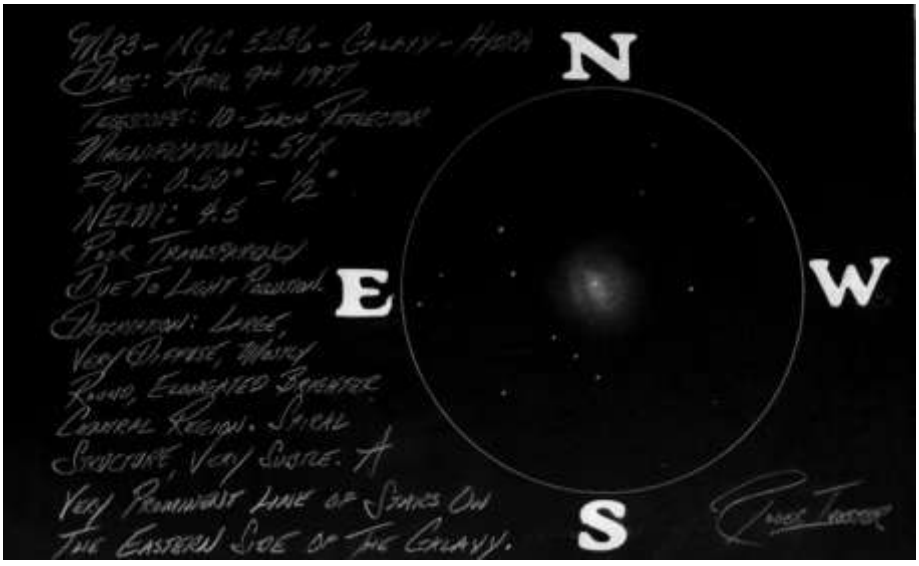
M83 was low the S/W sky @ 10 pm and was in a good location for me to observe. I found it using a low magnification of 87X (41mm eyepiece) in my 14-inch, which gave me the best view. Higher, the field background was too bright. At this magnification (87X), I could make out its shape and popping in and out, I'm positive I could see black spots or lines in the outer part of the galaxy. I stayed with it about an hour and kept seeing them (the black lines), from time to time.

Glenn Chaple: LVAS Friend from Massachusetts

Using my 4.5-inch f/7.9 reflector and a 16mm EP, which gave me a magnification of 57X and a FOV of .14°, I observed M83. It was low above the southern horizon and difficult, due to light pollution. It seemed to surround a faint star, or was the star actually the galaxy's nucleus? It was visible with averted vision only. NOTE: A later check showed that the "star" was indeed M83's nucleus.

Roger Ivester: LVAS Member from North Carolina

On April 9, 1997, I observed M83/NGC-5236 from my back yard with my 10-inch f/4.5 Newtonian. The magnification was 57X, FOV: 0.50º - 1/2º. The transparency was poor due to my southerly latitude. NELM was 4.5 at zenith.



Visual description: The galaxy was very bright, with a stellar nucleus, brighter elongated central region, oriented NNE-SSW, with a faint, mostly round halo. With patience and averted vision, I saw a very subtle curving arm, ESE of the core. This

was very surprising considering the sky glow and southerly location of this galaxy from my backyard. Despite the light pollution, and haze, it was fairly easy to locate using the 10-inch at 57X.

My first recorded notes of M83 are as follows, but not my first observation. My only regrets as an amateur: I just wish that I had started making observational notes and sketches when I did my first deep-sky studies at a very young age in the fall of 1966.

May 1992: 10-inch reflector @ 57X: Faint, stellar nucleus, mostly round, but a subtle elongated shape when using averted vision. Very difficult due to unshielded streetlights in very close proximity.

Gus Johnson: LVAS Friend from Maryland

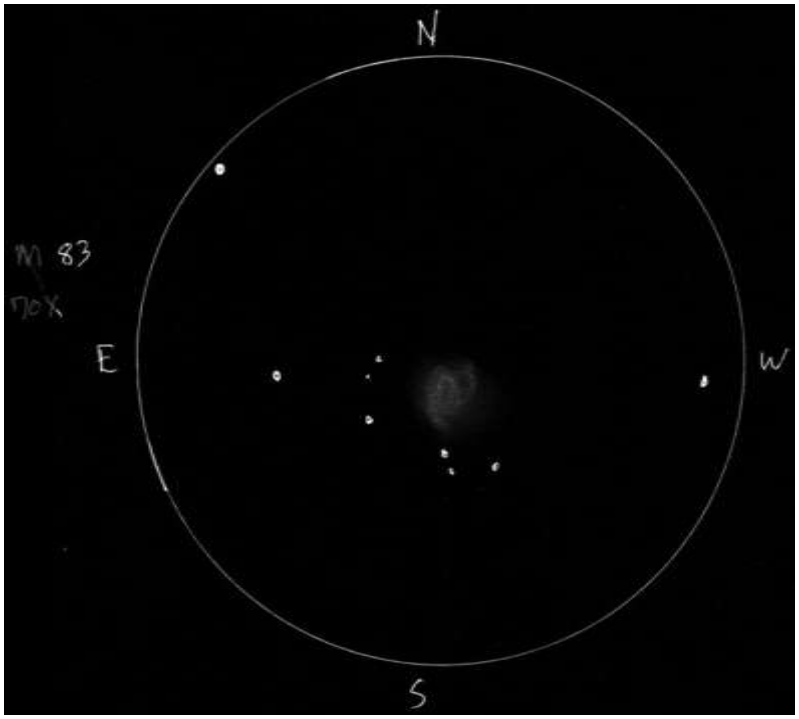
In May, 1986, I used an 8-inch @ 95X to see a large, soft mostly round glow. It was visible in the 8 X 50 finder.

In April, 1991, I used a 2.4-inch refractor @ 25X to see a dim line of stars on the SE side of the galaxy.

In April, 1991, I used a 6-inch reflector to see the galaxy very low in the sky. It was large, mostly round, and with a stellar nucleus.

Fred Rayworth: LVAS Vice President and AL Coordinator from Las Vegas

Turns out, this was the last object of the Messier catalog that I needed to complete my Astronomical League certificate back in late 1997. Thought I'd seen it several times before that, starting on April 4, 1986, that was my "official" observation for the Messier list.



I was never able to officially observe it for the Challenge this year, so I had to rely on a multitude of seven recorded observations between 1986 and 2000 for this June Challenge. However, I had plenty of notes and even a drawing or two to rely on to make my new drawing. Below is a composite of all of those notes and drawings into one.

The locations ranged from Incirlik Air Base, Turkey at an altitude of 230 feet, with high humidity and the major city of Adana just fifteen miles away, to Tipton, Oklahoma at 1,300 feet, with moderate humidity between thunderstorms and a major security light that my neighbor was kind enough to block with a semi

trailer, to Roman Nose State Park, in Oklahoma at an altitude of 1,250 feet, with weather similar to my back yard in Tipton (though a good bit darker), to Lemon Lake Park, in Northwest, Indiana at an altitude of 608 feet with dripping humidity and the skyglow of Chicago on the horizon. The real problem with Lemon Lake was the humidity was so bad that even the major stars out that night created halos in the sky.

The scopes used ranged from my home-built 8-inch f/9.44 at a magnification of about 70X to my home-built 16-inch f/6.4, also at a magnification of 70X.

My observations ranged as follows: Very faint. Could see a core and something around it. Not much. This was the last Messier object. I've now seen all of them, though not all recorded in this log yet. Small bright nucleus with traces of arms going out. Looked like an out of focus star with just a hint of haze around it. Very faint, but fairly large area. The core contrasted sharply with surrounding halo. Barely saw it. Completes the Messier catalogue. Looked several times, but missed it. Finally found it and looked like an out-of-focus star. Very slight hint of a halo.

The drawings I did showed more detail than my notes. For the Messier certificate and for my log book, I stood at the eyepiece and drew what I saw. At those times, I wasn't very wordy with the notes, but fortunately, my drawings were more detailed. Below is a composite.

Jaakko Saloranta: LVAS Friend from Finland

I decided to jump the gun now that I'm still on my vacation and finished my piece on M83 today. Like you've probably guessed, these are old sketches and I mean old. Not only is the midnight sun upon us, but M83 is a real horizon kisser from Finland, rising only barely above the horizon.

As I've written on the second description of M83, the latter sketch is adequate at best, and it was on my "discard" pile because as the original field sketch says "northern spiral arm is messed up". Looking at the sketch now, it is obvious that the northern spiral arm is drawn as too wide, but there's not much I can do about it nearly 8 years later.

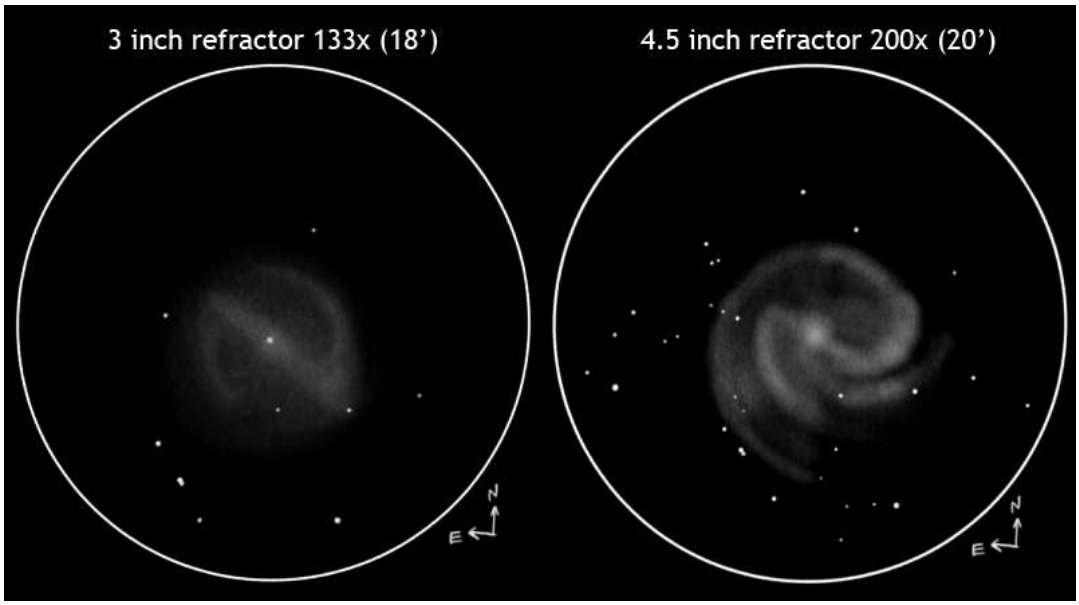
You can - of course - simply use the description and sketch made with the 3 incher. Here are the notes:

EDITORS NOTE: I'm leaving the sketch in because I think it's cool. Besides, with sketching, we don't always get the details 100% and Jaakko's work is well-worth the look anyway.
M83 has a special place in my heart as it was the final Messier object I needed to log to complete the Messier catalog. This was done some 15 years ago from a hotel balcony in Lanzarote, Canary Islands. There are a handful of Messier objects that never rise above the horizon from my northern location of Finland. Messier 83 is not one of these objects, but even from the most southern point of mainland Finland, it only rises less than 40' – that's arc minutes folks - above the horizon. Safe to say, I haven't seen the galaxy from Finland during my observing career, but several times from more southern locations. Here are two of them:

3- inch (80mm) f/5.0:
Base del Teide, Tenerife, Spain (altitude 7,480 ft), NELM ~7.1, seeing 2, background sky 2, transparency 2.
It was bright, but the details were difficult. It was easily visible even with a pair of 8X30 binoculars. It had an elongated shape with an extended bar running through a tiny, non-stellar nucleus. Two spiral arms merged from the background sky @ 127X, both being roughly of equal brightness, but the northern arm was more

massive. Two stars were visible within the halo. It was staggering to see this much detail with a budget $200 telescope and a $30 Plössl eyepiece.

4.7-inch (120mm) f/6.0:
Nordic Optical Telescope, La Palma, Spain (altitude 7,840 ft), NELM ~8.0, seeing 1-2 (0.8"), background sky 1-2, transparency 2, superb weather, strong NE wind, + 37°F, humidity ~27%.



It was a bright, magnificent spiral galaxy. The sketch had some issues (see below). The core was round and a bar was seen running NE-SW through it. At high magnification, a barely non-stellar nucleus was present. The spiral structure was gorgeous, but very challenging. @80X (30'), I could see the central bar and spiral arm stubs with averted vision. The western spiral arm was more massive and brighter and nearly wrapped around the whole galaxy. In the sketch, I drew the northern spiral arm too wide. There were several knots and brightenings in the arm that confused the view. The eastern arm was easier [overall] to discern and ran counterclockwise from the galaxy's core. The southern arm was the most difficult. It was impossible to discern properly and see if it actually connected to the nucleus. It was brightest between a mag.12 and 14 star. Several stars and some knots were visible within the halo. Size 8' X 7'.

Jay Thompson: LVAS Member from Nevada

I observed NGC-4244 from Meadview, AZ on a couple nights in February 2015 with a 17-inch reflector.

At 63X, the galaxy was evident as a very thin elongated streak. The view at 125X was nice, but the best view was with a wide-angle eyepiece at 227X. Along one end of the galaxy, there was a diagonal of three fainter stars. On the other end there was a single star. There was also slight brightening toward the center, but it was minimal.