Winter Observing in the South





NGC 513



Feast your eyes from dusk until dawn on a selection of targets well-suited to more southerly latitudes.

hen I retired, I bought a home in Naples, southern Florida, to escape the harsh Massachusetts winters. I took a 14-inch Celestron Edge there in order to catch those wonderful deep-sky objects that are hard or impossible to observe or image from my home up north (where I have my 32-inch telescope). To my delight, the extra 20° of latitude brought a multitude of fascinating southerly targets to a much higher altitude. In February 2023, I was finally able to attend my first Winter Star Party in the Florida Keys - it's an excellent dark-sky site, and I anticipated observing unfamiliar objects low in the southern sky.

To my astonishment, a large number of attendees who had lugged telescope gear from all across North America were concentrating their efforts on deep-sky objects they could see from home! Harking back to the excitement of my first forays into southern skies in Naples, I suggested "new"

targets to my fellow observers, which they warmly accepted. That experience has led to this article. Hopefully northern observers, who may find themselves at southerly latitudes this winter, can explore exciting deep-sky objects with which they may not be familiar. We'll start by covering targets west of the Milky Way that should be observed before they set in the early evening, followed by some winter Milky Way guarries, and, lastly, objects east of the Milky Way as they rise in the morning hours. In the following, "smaller" scopes refer to those around 3 to 4 inches, by "medium" I mean 10 to 14 inches in aperture, and finally with "larger" I'm referring to those 16 inches and up.

Early Evening

As twilight deepens, start off by exploring the many wonderful galaxies that are too low to fully appreciate at northern





latitudes. Sculptor harbors some of the most beautiful barred spiral galaxies in the entire sky, and first up on our list – as it will set very early – is **NGC 55**. It's a large galaxy some 32' long and at 8th magnitude is easily observed even in small telescopes. In larger scopes, look for knots in the spiral arms and a dust lane close to the core. Robert Burnham, Jr., in his classic *Burnham's Celestial Handbook*, calls NGC 55 "one of the outstanding galaxies of the southern heavens." For those star-hopping, you'll readily find it 3^{40} northwest of 2.4-magnitude Alpha (α) Phoenicis.

Next jump north to NGC 253 in Sculptor, another bright, 29'-long galaxy located a bit more than 7° degrees south of 2nd-magnitude Beta (β) Ceti. This galaxy, normally low in northern skies, now is glorious and — at magnitude 7.2 — easy to snag in any size telescope.

After this, we'll turn to Fornax, starting with the impressive galaxy **NGC 1097**. Find this 9.5-magnitude beauty by locating 4.5-magnitude Beta Fornacis, then slewing a smidgen more than 2° north-northwest. Smaller apertures will reveal the large, 9′-long central bar, but even with a modest scope in dark sky you should be able to spot the two fainter spiral arms emanating from either end of the bar.

Now, let's go to one of my favorite galaxies in the entire sky: the classic **NGC 1365**, an incredible 10th-magnitude barred spiral with widely splayed-out arms. Find this target by center-

▼ FROM DUSK TIL DAWN This sky tour is designed so you can observe all night long from more southerly latitudes. Should you plan to attend the Winter Star Party in the Florida Keys in February, that would be a great place to use this guide.

ing on 4.2-magnitude g Eridani (itself a nice orange star), then point west some 3.2°. I can readily detect the 11′-long central bar in my 6-inch scope with a magnification of 100×, but a 16-inch scope will reveal the galaxy's far-flung spiral arms.

To bring this run of galaxies to conclusion, we'll head north into Eridanus to get to the impressive barred spiral **NGC 1300**. This beautiful, 10.4-magnitude galaxy is smaller in overall size at 6' than the previous targets, but you should have no difficulty detecting it in an 8-inch scope at magnification 120×. To find it, locate the yellow, 3.7-magnitude star τ^4 Eridani and then slew directly north some 2.3°.

You can guess by now that I'm partial to galaxies, but let's return to Fornax for something different – **NGC 1360**, the Robin's Egg Nebula, a fairly large and bright (magnitude 9.4) planetary wider than 6' in diameter. In more light-polluted areas use an O III filter; under a dark sky the filter will show subtle detail, and you should easily see the central star. For best results, use an 8-inch telescope at magnification $120\times$. The planetary shines a pleasing blue-green hue, and you'll find it by extending the line joining Beta to Alpha (α) Fornacis toward the northeast by almost the same distance.

In the Middle of the Night

By this point in the night, Orion is on the meridian. If you must take your 1,000th view of M42, go ahead and enjoy it, but make it a brief visit so that you can explore other objects in the winter Milky Way south of there.

Start with a double galaxy in Canis Major. From 2nd-magnitude Delta (δ) Canis Majoris, nudge due west 4.6° and







you'll land on a trio of galaxies – two of which, NGC 2292 and NGC 2293, are merging. They're a delightful, compact sight, both 11th magnitude, and once you've located them they take high power (e.g., $300\times$) well.

Head southwest and pop into Columba to visit a very nice, large globular cluster. **NGC 1851**, at magnitude 7.1, is a pleasing sight in a moderate-power ($60-100\times$) eyepiece, and with its dense inner core it resembles a smaller version of the globular M3 in Canes Venatici. From 2.6-magnitude Alpha Columbae, head just a bit shy of 8° southwest to find your target.

Back in Canis Major we'll move on to a treat: the diffuse nebula **NGC 2359**, also known as Thor's Helmet. To find it, you can either slide 8.7° northeast of Sirius or 6° east-southeast of 4th-magnitude Theta (θ) Canis Majoris, the celestial Dog's nose. This is a stunning sight if you employ an O III filter and a beautiful object to behold. It's a bright emission nebula powered by a massive Wolf-Rayet star (see, e.g., S&T: Aug. 2019, p. 28) — strong stellar winds sculpted and distorted the nebula into the shape as seen on page 35. I suggest low-power views in your 8-inch telescope.

Puppis holds our next quarry, which is the delightful open cluster **M46** (NGC 2437) that has the planetary nebula **NGC 2438** superposed on it. Use a wide-field eyepiece for the

◀ **BARRED SPIRALS** Among the author's favorite targets, galaxies feature prominently in his observing, as he himself admits. These two barred specimens — NGC 1365 in Fornax and NGC 1300 in neighboring Eridanus — are sights to behold. They are pleasing in any size telescope, but in dark skies with a 14-inch or larger, you'll start noticing the beautiful detail of the spiral arms and the knots of hydrogen-alpha regions.

open cluster, but a high-power eyepiece enhanced with an Ultra High Contrast or O III filter will yield pleasing views of the planetary. From 3.3-magnitude Xi (ξ) Puppis, move your telescope about 10° north-northwest, and then use the 5thmagnitude star 140 Puppis to home in on your target – the 6th-magnitude cluster will be just ½° northeast.

Next we'll visit the delights of Vela. Another striking object is NGC 2736, also known as the Pencil Nebula (or Herschel's Ray), a bright streak of light that's an outer section of the Vela Supernova Remnant and its most easily visible portion. The eastern edge is sharp, while the western side widens in a way that visually resembles the quill of a pen. Find this object by locating 2nd-magnitude Lambda (λ) Velorum and then pointing almost 3° degrees southwest. If you want to try for a challenge object, go for the main body of the supernova nebula, a complex web of shock-wave nebulosity. It's faint, and you'll need dark sky and a very wide field of view. I recommend a small, low-f/ratio refractor fitted with an O III filter. Start at the Pencil Nebula and look directly west about 30'. The nebula is very large, and you'll only glimpse parts of it at a time. Large telescopes will simply zoom in too far, lowering the contrast and making it difficult to see.

We'll end our trip through Vela by moving east to the easy globular cluster NGC 3201. It's very bright at 7th magnitude overall, and at 20' it's equal in size to M13, the great globular in Hercules. From 3.8-magnitude q Velorum drop south some 4.3°. This is one of the best globular clusters in the sky.

Morning Marvels

We're heading into the early morning hours, but some fantastic sights await those willing to stay up to observe the third leg of our southern sky delights. Let's begin with the more northerly galaxy, M83, which will be rising after midnight. As it climbs into the sky you'll see why it's one of the most spectacular barred galaxies to behold. A moderate telescope will reveal its imposing bar and spiral arms, while users of larger telescopes can revel in the fine detail in their eyepieces. Look for this 7.5-magnitude beauty in Hydra, just over the border with Centaurus – you should readily spot it starting at 3rd-magnitude Gamma (γ) Hydrae and moving southeast about 7.8°.

Now, end your night with a bang with three of the most eye-catching (I think!) objects in the night sky, all located in Centaurus. Observing these will give you fond memories and bragging rights back home. Begin with the spectacular radio galaxy NGC 5128, also known as Centaurus A. The most likely scenario for its amazing appearance is a collision between a large elliptical galaxy and an edge-on spiral. It's visually large – it spans $\frac{1}{2}^{\circ}$ – and bright at magnitude 6.8. With an 8-inch scope and magnification 100× you should easily see the dark lane that characterizes this incredible

object. It rises at about 1:30 a.m. local time in February, and later in the morning hours it will be well-placed. Look for it 6.3° south-southeast of 3rd-magnitude Iota (ι) Centauri.

Next, feast your eyes on the largest globular cluster in the Milky Way, **Omega Centauri**. This eye-popping globular is almost twice the size of the full Moon at 55'. It's so large that astronomers speculate that it may be the core of a small galaxy captured by the Milky Way. You'll need a wide field to see it in its entirety, for example a 4-inch scope at 50×. You can't miss it as it rises majestically over the Straits of Florida.

And finally, if you have the stamina, there's an overlooked - but large - galaxy about 4° southwest of Omega Centauri. You'll find 8.4-magnitude NGC 4945 some 3' east of 4.8-magnitude Xi¹ (ξ^1) Centauri. This 20'-long object is surrounded by several smaller galaxies.

By now you may be packing up for the night. If you have a water view, end your spectacular night by looking south before morning twilight to see the top stars of the Southern Cross peeking just above the horizon.

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Object	Туре	Constellation	Mag(v)	Size	RA	Dec.
NGC 55	Barred spiral	Sculptor	7.9	32.4' imes 5.6'	00 ^h 15.1 ^m	–39° 13′
NGC 253	Intermediate spiral	Sculptor	7.2	29.0' imes 6.8'	00 ^h 47.6 ^m	–25° 17′
NGC 1097	Barred spiral	Fornax	9.5	9.3' × 6.3'	02 ^h 46.3 ^m	–30° 16′
NGC 1365	Barred spiral	Fornax	9.6	11.0′ × 6.2′	03 ^h 33.6 ^m	-36° 08′
NGC 1300	Barred spiral	Eridanus	10.4	6.2' × 4.1'	03 ^h 19.7 ^m	–19° 25′
NGC 1360	Planetary nebula	Fornax	9.4	6.4′	03 ^h 33.2 ^m	–25° 52′
NGC 2292	Interacting galaxy	Canis Major	11.0	4.1′ × 3.6′	06 ^h 47.7 ^m	–26° 45′
NGC 2293	Interacting galaxy	Canis Major	11.2	4.2' imes 3.3'	06 ^h 47.7 ^m	–26° 45′
NGC 1851	Globular cluster	Columba	7.1	12.0′	05 ^h 14.1 ^m	-40° 03′
NGC 2359	Emission nebula	Canis Major	—	9' × 6'	07 ^h 18.6 ^m	–13° 12′
M46 (NGC 2437)	Open cluster	Puppis	6.1	20′	07 ^h 41.8 ^m	-14° 49′
NGC 2438	Planetary nebula	Puppis	10.8	1.3′	07 ^h 41.8 ^m	-14° 44′
NGC 2736	Supernova remnant	Vela	—	20' × 3'	09 ^h 00.3 ^m	-45° 57′
NGC 3201	Globular cluster	Vela	6.9	20.0′	10 ^h 17.6 ^m	-46° 25′
M83 (NGC 5236)	Barred spiral	Hydra	7.5	12.9′ × 11.5′	13 ^h 37.0 ^m	–29° 52′
NGC 5128	Lenticular/Elliptical	Centaurus	6.8	25.7' imes 20.0'	13 ^h 25.5 ^m	-43° 01′
Omega Centauri (NGC 5139)	Globular cluster	Centaurus	3.9	55.0′	13 ^h 26.8 ^m	-47° 29′
NGC 4945	Barred spiral	Centaurus	8.4	20.0' × 3.8'	13 ^h 05.4 ^m	-49° 29′

Angular sizes are from recent catalogs. Visually, an object's size is often smaller than the cataloged value and varies according to the aperture and magnification of the viewing instrument. Right ascension and declination are for equinox 2000.0.

Southerly Winter Targets



VARIETY IS THE SPICE The author pointed his telescope and camera at a plethora of objects. NGC 2359 is a fine example of a bright nebula powered by a massive star, while NGC 3201 is a delightful globular. And, at left we have the barred spiral NGC 1097. He acquired the images for NGC 1097 and NGC 2359 with his 32-inch in Massachusetts, and he used his Celestron C14 from Florida to capture NGC 3201.