

Reflector

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Boötes (pronounced boe-OH-teez) is one of the largest constellations in the Northern Hemisphere. It is the 13th-largest of the 88 constellations, occupying 907 square degrees of the celestial sphere. Six of Boötes' brightest stars—Alpha (Arcturus), Epsilon (Izar), Delta, Beta (Nekkar), Gamma (Seginus), and Rho—trace out the “ice cream cone” asterism. While many of us see Boötes as an ice cream cone, some observers see this asterism as a kite, 21 degrees tall and 10 degrees at its widest. At the southern tip of the ice cream cone lies the star Arcturus, the fourth-brightest star in the night sky. Alpha Centauri is slightly brighter than Arcturus. However, Alpha Centauri is a binary star, whereas Arcturus is not. Arcturus is actually brighter than either of the Alpha Centauri system components (Proxima Centauri is far enough away from the Alpha Centauri binary and so much dimmer that it is negligible here).

Boötes is depicted in the sky as a herdsman with two hunting dogs on leashes—Asterion and Chara (Canes Venatici). The dogs are chasing the Great Bear, Ursa Major, but never quite gain on it as all three constellations endlessly circle the north celestial pole. The name of Arcturus comes from the ancient Greek and means “guardian of the bear.”

Despite the size of Boötes, the constellation contains no Messier objects and no NGC open star clusters. The constellation hosts 263 NGC objects. Of those, 259 are galaxies, of

DEEP-SKY OBJECTS

BOÖTES' BEST STAR CLUSTER

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which only one is brighter than magnitude 11 (NGC 5248). Three NGC objects are stars or double stars. And then there is one sole globular cluster, NGC 5466. Thus, I feel safe proclaiming NGC 5466 is Boötes' best star cluster!

globular cluster M3, located in the neighboring constellation Canes Venatici.

NGC 5466 is a very small globular star cluster. Globular clusters are more compact than galactic (open) star clusters and usually contain



NGC 5466 lies on the western edge of Boötes. The cluster is 9 degrees west and slightly north of the star Izar and 9 degrees north and slightly west of Arcturus. The globular cluster and these two stars form an equilateral triangle, making it easy to point to NGC 5466 with a red dot finder. NGC 5466 is 5 degrees due east of the brighter

many more and much older stars. Their ages indicate that they formed billions of years ago. Unlike open clusters, globular clusters have enough mass to gravitationally hold onto all of their stars. The Milky Way has 150 to 200 globular star clusters, which form a spherical halo around the disk of the galaxy. William

Herschel discovered NGC 5466 on May 17, 1784.

NGC 5466 shines at magnitude 9 and may be captured in binoculars under ideal sky conditions. The cluster can be resolved into scores of 12th- and 13th-magnitude stars with 8- to 10-inch telescopes. At first glance, these stars give the appearance of an open star cluster. This is due to the cluster's great distance from Earth, 52,000 light-years. At this distance, many of the stars are too faint to be spied in the eyepiece. Comparing NGC 5466

to nearby M3 really demonstrates the effect of distance. M3 is 34,000 light-years away. Were NGC 5466 at the same distance as M3, it would be one magnitude brighter than it appears today. Sixth-magnitude M3 would still be two magnitudes brighter than the relocated NGC 5466. The extra brightness of M3 is because M3 contains many more stars than NGC 5466. Visually, the denser core of M3

attests to that!

My image of NGC 5466 was taken with a William Optics GTF102 102 mm f/6.9 apochromatic refractor with an SBIG ST-2000XCM CCD camera. The exposure was 20 minutes. The image was processed to replicate the view through my 14-inch Newtonian telescope. The bright yellow star on the left (east) side of the cluster is SAO 83172, magnitude 6.9.

So, the next time you visit the bright globular cluster M3, take time to hop a few degrees to the east and check out Boötes' one and only star cluster, NGC 5466. ☀

Don't forget... the League now offers high-quality solar eclipse glasses for a very affordable price. These can be purchased by clubs (or individuals) for their own use, or for resale. Prices, excluding shipping, are 1-9 for \$1.00 each, 10 for \$9.00, 25 for \$20.00, 50 for \$37.50, 100 for \$60.00. Higher quantities are even less expensive per unit. Check out store.astroleague.org for further information.