
Messier 31
Messier 32
& Messier 110
The Great Andromeda Galaxy
& Its Companions

Messier 31

NGC 224

Type: Spiral Galaxy g(SA(s)b)

Constellation: Andromeda

RA: 00h42.7m

Dec: +41°16’

Magnitude: 3.4

Surface Brightness: 13.6

Apparent Size: 3° x 1°

Distance: ~2.5 million light-years

Discovered By: Al Sufi, 905 AD

Photo: David Dayag

Messier 31

Containing about 300 billion stars spread over a diameter of 130,000 light-years, the Andromeda Galaxy is rushing towards us at 298 km/s.

M31 is a large galaxy, and is the dominant galaxy in the Local Group, the galaxy group which also contains our Milky Way.

In about 4 billion years, M31 and the Milky Way will collide and begin the process of merging into a single larger galaxy.

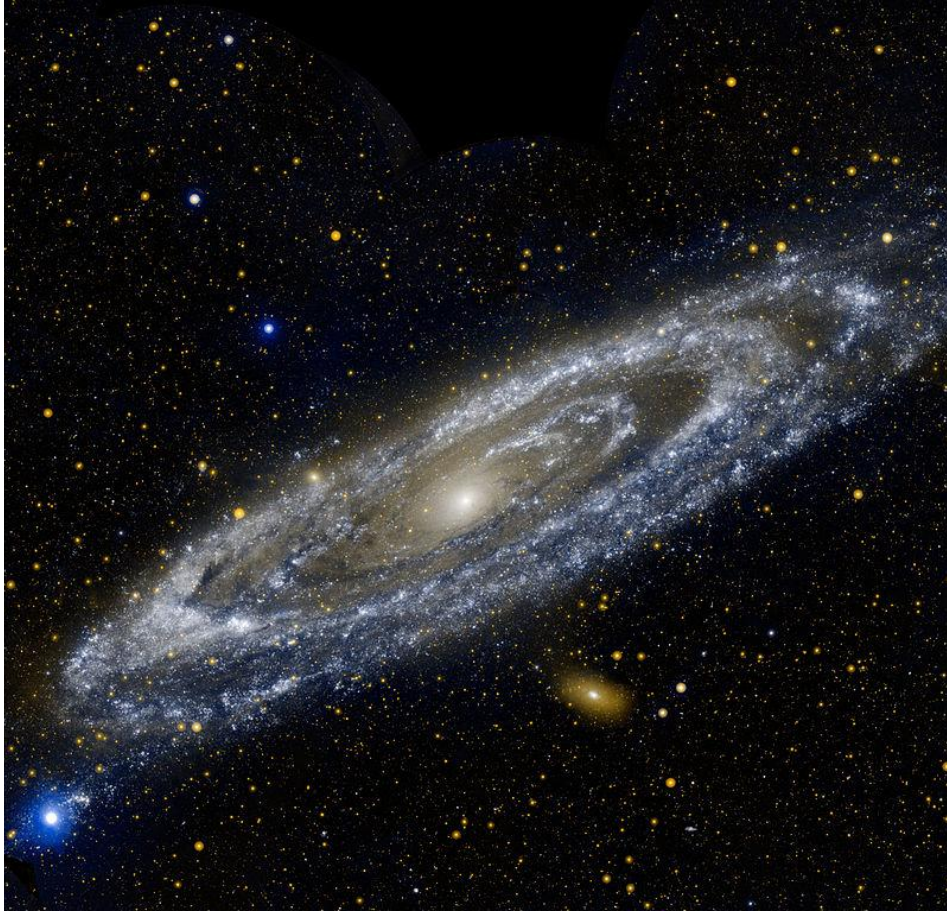


Photo: M31 In Ultraviolet - Hubble Space Telescope

Messier 32

NGC 221

Type: Dwarf Elliptical Galaxy g(cE3)

Constellation: Andromeda

RA: 00h42.7m

Dec: +40°52’

Magnitude: 8.2

Surface Brightness: 12.7

Diameter: 11.0’ x 7.3’

Distance: ~2.5 million light-years

Discovered By: Guillaume Le Gentil, 1749

Photo: Wikisky

Messier 32

Also known as ‘Le Gentil’ after it’s discoverer, this dwarf companion of the Great Andromeda Galaxy is only 6,500 light years across at its widest point.

M32 was the first elliptical galaxy discovered. It contains almost no dust or gas, and no star-forming activity is taking place.

With about 3 billion stars inside it, it also houses a supermassive black hole of about between 1.5 and 5 million solar masses.

Photo: M32 In Ultraviolet - Hubble Space Telescope

Messier 110

NGC 205

Type: Peculiar Dwarf Elliptical Galaxy g(dE5pec)

Constellation: Andromeda

RA: 00h40.4m

Dec: +41°41’

Magnitude: 8.1

Surface Brightness: 13.9

Diameter: 19.5’ x 12.5’

Distance: ~2.5 million light-years

Discovered By: Charles Messier, 1773

Photo: Wikisky

Messier 110

The larger of M31’s close companions has 10 billion stars, but strangely contains dust lanes and patches and blue supergiant stars, most unusual features for an elliptical galaxy.

A number of small dwarf galaxies that orbit M31 have the same orbital as M110. It is thought that these were stolen from orbiting around M110 when it first encountered M31.

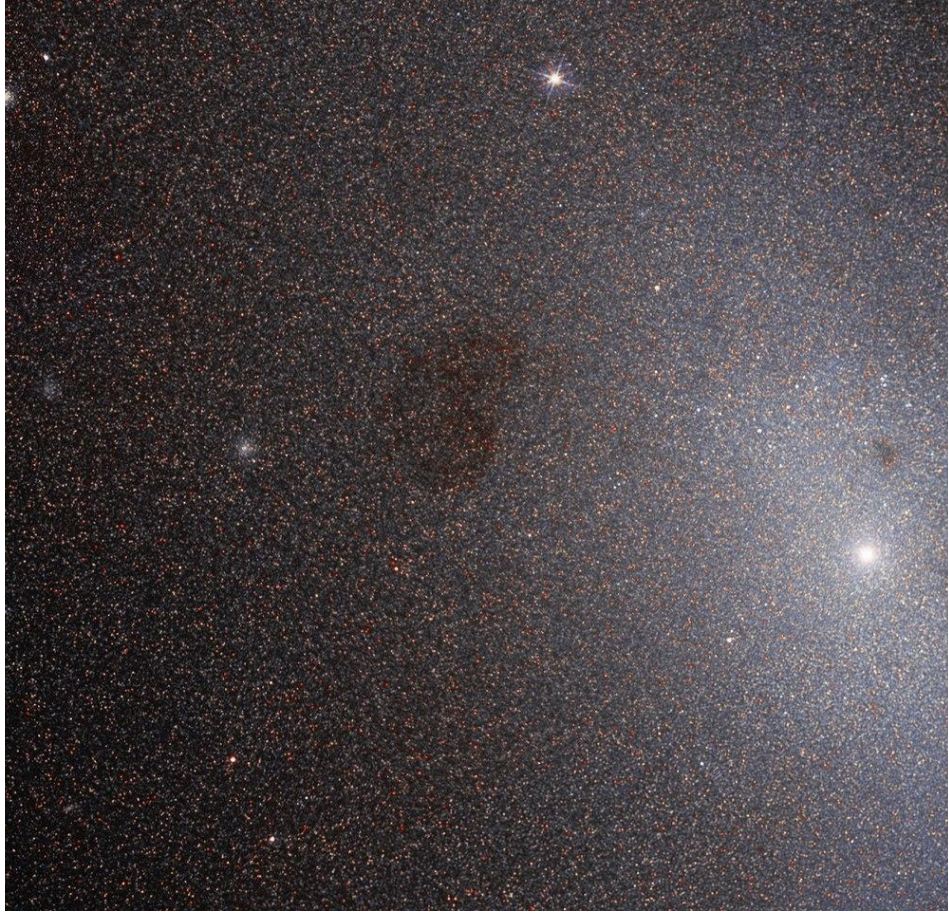


Photo: Hubble Space Telescope

Finding Messier 31 - November/December Evenings

Located ~7º northwest of Mirach, Beta Andromedae. Star hop from Mirach to Mu then Nu Andromedae and then to M31.

What does Messier 31, M32 and M110 look like?

Binoculars:

M31 is an elliptical disc whose surface brightness gradually fades away from a star-like core. M32 is easy to mistake for a slightly swollen 8th magnitude star roughly 0.5 degree south and slightly east of M31’s nucleus. M110 is a similarly bright, but larger elliptical haze 37’ northwest of M31’s nucleus.

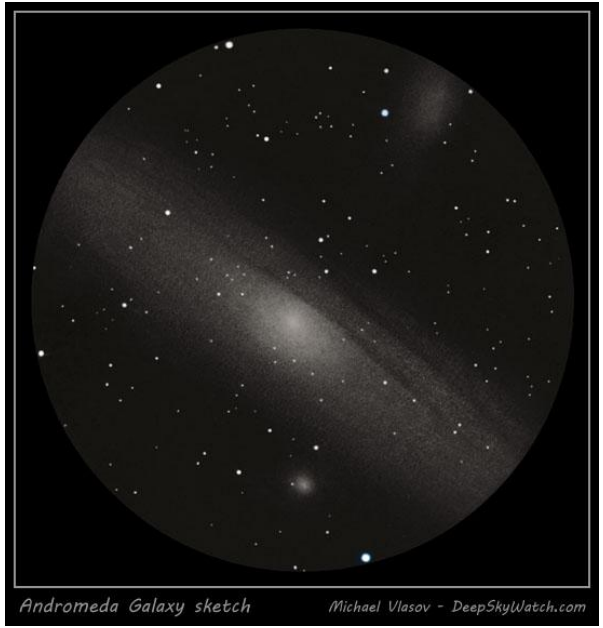
Small Telescope:

M31’s bright star-like core is surrounded by layers of progressively more faint and elliptical halos. Under very dark and transparent skies and with increasing aperture, lacy swirls and splotches of dust and dust lanes become visible.

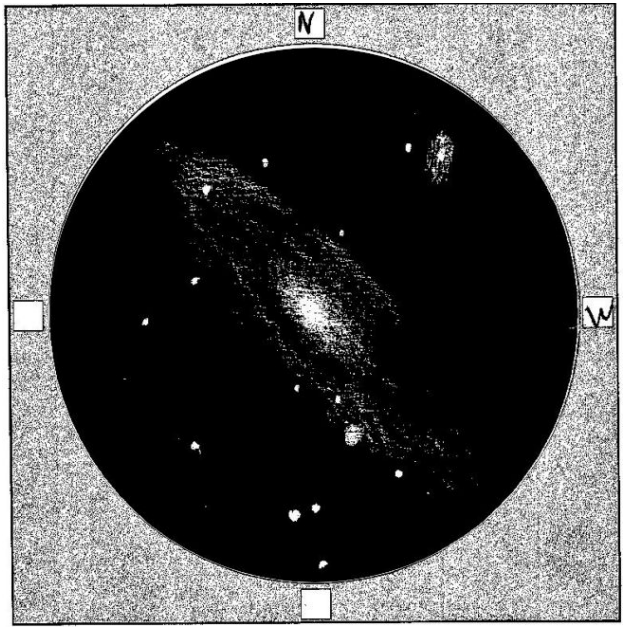
At high magnification, M32 appears to have a star-like core and perhaps a NE-SW vertical extension in its dense haze.

M110 has an almost-stellar nucleus and a gauzier appearance than M32. Under dark, transparent skies, the core appears a bit mottled.

Sketches of Messier 31, M32 and M110



By: Michael Vlasov
8 inch Skywatcher Dobsonian



By: Michael Wright
4.5 Inch Newtonian, 2015

By: Jeremy Perez
10x50 Binoculars

References

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