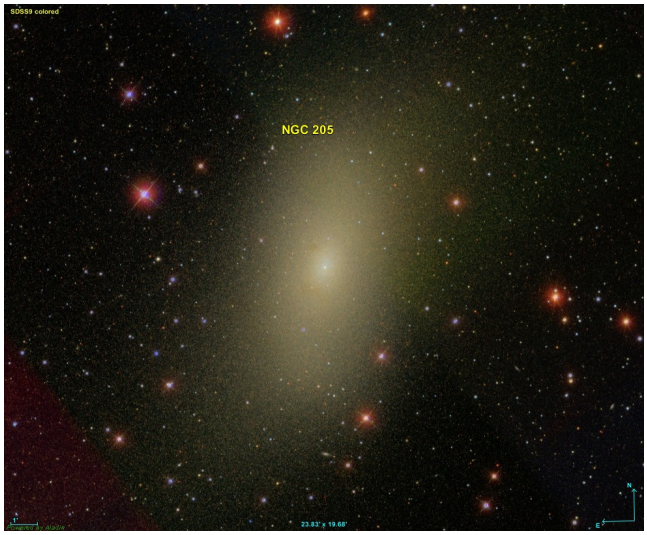
Messier 110, Dwarf elliptical galaxy in Andromeda
Messier 110, or M110, also known as NGC 205, is a dwarf elliptical galaxy that is a satellite of the Andromeda Galaxy. Although **Charles Messier** never included the galaxy in his list, it was depicted by him, together with M32, on a drawing of the Andromeda Galaxy; a label on the drawing indicates that Messier first observed NGC 205 on August 10, 1773.
The galaxy was independently discovered by **Caroline Herschel** on August 27, 1783; her brother **William Herschel** described her discovery in 1785. The suggestion to assign the galaxy a Messier number was made by **Kenneth Glyn Jones** in 1967.
OBSERVATION DATA (J2000 EPOCH)
Constellation Andromeda
Right ascension 00h 40m 22.05446s
Declination +41° 41' 07.4963"
Redshift -0.000804±0.000010
Apparent size (V) 21'.9 × 11'.0



Messier 110 Dwarf Galaxy has a morphological classification of pec dE5, indicating a dwarf elliptical galaxy with a flattening of 50%. It is designated peculiar because there are patches of dust and young blue stars located near the centre. The reason for this peculiarity is unclear. Unlike M32, (as of 2005) it does not show evidence for a supermassive black hole at its centre.

M110 is an elliptical galaxy, which means that it has a smooth and nearly featureless structure. Elliptical galaxies do not have arms or regions of star formation. They are oftentimes considered “dead” compared to spiral galaxies, and the stars in elliptical galaxies are often older than those in other galaxies. However, there is evidence that a population of young blue stars exists at the centre of M110.
This small elliptical galaxy has approximately 10 billion stars, as well as at least eight globular clusters (the brightest of which can be seen with large telescopes).
The interstellar dust in M110 has a mass of (1.1–1.8)×104 M○ with a temperature of 18–22 K, and the interstellar gas has (4–7)×106 M○. The inner regions of M110 show a deficiency in the interstellar medium materials, which most likely were ejected by supernova explosions. Tidal interactions with the Andromeda Galaxy may have stripped away a significant fraction of the expelled gas and dust, leaving the galaxy as a whole deficient in its density.
A few novae have been detected in this galaxy, including one discovered in 1999 by **Johnson and Modjaz**, and another detected in 2002, by **Nakano and Sumoto**. The latter, designated EQ J004015.8+414420, had also been captured in images taken by the Sloan Digital Sky Survey in October, 2002.


Andromeda Galaxy M31 with the Messier 110 Dwarf Elliptical Galaxy to the right below it. M32 is to the left just above M31

About half of the Andromeda's satellite galaxies are orbiting the host galaxy along a highly flattened plane, with 14 out of 16 following the same sense of rotation. One theory proposes that these objects once belonged to a subhalo surrounding M110, then the group was broken up by tidal forces during a close encounter with Andromeda.
The Andromeda Galaxy, also known as Messier 31, M31, or NGC 224 and originally the Andromeda Nebula, is a spiral galaxy approximately 780 kiloparsecs from Earth, and the nearest major galaxy to the Milky Way. The galaxy's name stems from the area of the Earth's sky in which it appears, the constellation of Andromeda.
The Andromeda Galaxy is the closest large galaxy to the Milky Way and is one of a few galaxies that can be seen unaided from the Earth. In approximately 4.5 billion years the Andromeda Galaxy and the Milky Way are expected to collide and the result will be a giant elliptical galaxy.

AK, with EarthSky and Wikipedia Notes