

MESSIER 40 (WINNECKE 4) DOUBLE STAR

Messier 40 is a double star in the constellation Ursa Major. It was discovered by **Charles Messier** in 1764 while he was searching for a nebula that had been reported in the area by **Johannes Hevelius**. Not seeing any nebulae, Messier catalogued this double star instead. It was subsequently rediscovered by **Friedrich August Theodor Winnecke** in 1863, and included in the Winnecke Catalogue of Double Stars as number 4. **Burnham** calls M40 "one of the few real mistakes in the Messier catalog," faulting Messier for including it when all he saw was a double star, not a nebula of any sort.

OBSERVATION DATA Epoch J2000.0

Constellation, Ursa Major

A Right ascension 12h 22m 12.5278s

Declination +58° 4' 58.539"

Apparent magnitude (V)

Spectral type K0 III

B - Right ascension 12h 22m 18.9989s

Declination +58° 5' 10.364"

Apparent magnitude (V)

Spectral type G0 V

Other designations M40, WNC 4, BD+56 1372, CCDM 12223+5805, WDS J12222+5805

A: HD 238107, SAO 28353

B: HD 238108, SAO 28355

In 1991 the separation between the components was measured at 51.7", an increase since Messier's time. Data gathered by astronomers **Brian Skiff** (2001) and **Richard L. Nugent** (2002) strongly suggested that this was merely an optical double star rather than a physically connected system. In 2016 it was definitively proven that the two stars are entirely unrelated, confirming the previous suggestion by Skiff and Nugent.

HISTORY OF OBSERVATION:

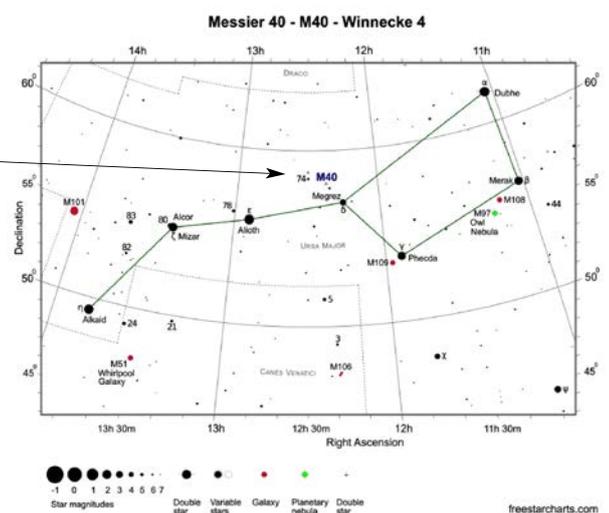
Messier 40 was discovered by Charles Messier in 1764 while he was searching for a nebula that had been reported in the area by Johann Hevelius. As he wrote at the time:

"The same night on October 24-25, [1764], I searched for the nebula above the tail of the Great Bear [Ursa Major], which is indicated in the book Figure of the Stars, second edition: it should have, in 1660, the right ascension 183d 32' 41", and the northern declination 60d 20' 33". I have found, by means of this position, two stars very near to each other and of equal brightness, about the 9th magnitude, placed at the beginning of the tail of Ursa Major: one has difficulty to distinguish them with an ordinary refractor of 6 feet. There is reason to presume that Hevelius mistook these two stars for a nebula."

History often credits Messier for being a little bit crazy for cataloguing a double star, but upon having read Messier's report, I feel like he was an astronomer doing his job. If Hevelius reported a nebula here – then he was bound to look and write down what he saw!

LOCATING MESSIER 40:

Finding Messier 40 isn't very difficult for fairly large binoculars and small telescopes – but remember it's a double star. First locate the easily recognized constellation of Ursa Major and focus on the 'Big Dipper' and look for the two stars that form the edge that connect to the handle – Phecda and Megrez. You will see a fainter star to the northeast of Megrez. Hop there. Now, scan slightly further northeast and you will locate M40. Higher magnification may help to more closely examine this Messier catalogue curiosity. AK, with Wikipedia Notes



The location of Messier 40 in Ursa Major, above and to the left of Megrez