= Caelum =

Caelum / ?si?l?m / is a faint constellation in the southern sky , introduced in the 1750s by Nicolas Louis de Lacaille and counted among the 88 modern constellations . Its name means ? chisel ? in Latin , and it was formerly known as Caelum Scalptorium (? the engravers ? chisel ?) ; It is a rare word , unrelated to the far more common Latin caelum , meaning ? sky , heaven , atmosphere ? . It is the eighth @-@ smallest constellation , and subtends a solid angle of around 0 @.@ 038 steradians , just less than that of Corona Australis .

Due to its small size and location away from the plane of the Milky Way , Caelum is a rather barren constellation , with few objects of interest . The constellation 's brightest star , Alpha Caeli , is only of magnitude 4 @.@ 45 , and only one other star , (Gamma) ? 1 Caeli , is brighter than magnitude 5 . Other notable objects in Caelum are RR Caeli , a binary star with one known planet approximately 20 @.@ 13 parsecs (65 @.@ 7 ly) away ; X Caeli , a Delta Scuti variable that forms an optical double with ? 1 Caeli ; and HE0450 @-@ 2958 , a Seyfert galaxy that at first appeared as just a jet , with no host galaxy visible .

= = History = =

Caelum was first introduced in the eighteenth century by Nicolas Louis de Lacaille , a French astronomer who introduced thirteen other southern constellations at the same time . Lacaille gave the constellation the French name Burin , which was originally Latinized to Caelum Scalptorium (? The Engravers ? Chisel ?) .

Francis Baily shortened this name to Caelum , as suggested by John Herschel . In Lacaille 's original chart , the constellation was shown both as a burin and an échoppe , although it has come to be recognized simply as a chisel . Johann Elert Bode stated the name as plural with a singular possessor , Caela Scalptoris ? in German (die) Grabstichel (? the Engraver ? s Chisels ?) ? but this did not stick .

= = Characteristics = =

Caelum is bordered by Dorado and Pictor to the south , Horologium and Eridanus to the east , Lepus to the north , and Columba to the west . Covering only 125 square degrees , it ranks 81st of the 88 modern constellations in size . It appears prominently in the southern sky during the Southern Hemisphere 's summer , and the whole constellation is visible for at least part of the year to observers south of latitude 41 ° N. Its main asterism consists of four stars , and twenty stars in total are brighter than magnitude 6 @.@ 5 .

The constellation ? s boundaries , as set by Eugène Delporte in 1930 , are defined by a 12 @-@ sided polygon . In the equatorial coordinate system , the right ascension coordinates of these borders lie between 04h 19.5m and 05h 05.1m , while the declination coordinates are between ? 27 @.@ 02 ° and ? 48 @.@ 74 ° . The International Astronomical Union (IAU) adopted the three @-@ letter abbreviation ? Cae ? for the constellation in 1922 .

= = Notable features = =

= = = Stars = = =

Caelum is a faint constellation : It has no star brighter than magnitude 4 and only two stars brighter than magnitude 5 .

Lacaille gave six stars Bayer designations , labeling them Alpha (?) to Zeta (?) in 1756 , but omitted Epsilon (?) and designated two adjacent stars as Gamma (?) . Bode extended the designations to Rho (?) for other stars , but most of these have fallen out of use . Caelum is too far south for any of its stars to bear Flamsteed designations .

The brightest star , (Alpha) ? Caeli , is a double star , containing an F @-@ type main @-@ sequence star of magnitude 4 @.@ 45 and a red dwarf of magnitude 12 @.@ 5 , 20 @.@ 17 parsecs (65 @.@ 8 ly) from Earth . (Beta) ? Caeli , another F @-@ type star of magnitude 5 @.@ 05 , is further away , being located 28 @.@ 67 parsecs (93 @.@ 5 ly) from Earth . Unlike ? , ? Caeli is a subgiant star , slightly evolved from the main sequence . (Delta) ? Caeli , also of magnitude 5 @.@ 05 , is a B @-@ type subgiant and is much farther from Earth , at 216 parsecs (700 ly) .

(Gamma) ? 1 Caeli is a double @-@ star with a red giant primary of magnitude 4 @.@ 58 and a secondary of magnitude 8 @.@ 1 . The primary is 55 @.@ 59 parsecs (181 @.@ 3 ly) from Earth . The two components are difficult to resolve with small amateur telescopes because of their difference in visual magnitude and their close separation . This star system forms an optical double with the unrelated X Caeli (previously named ? 2 Caeli) , a Delta Scuti variable located 98 @.@ 33 parsecs (320 @.@ 7 ly) from Earth . These are a class of short @-@ period (six hours at most) pulsating stars that have been used as standard candles and as subjects to study astroseismology . X Caeli itself is also a binary star , specifically a contact binary , meaning that the stars are so close that they share envelopes . The only other variable star in Caelum visible to the naked eye is RV Caeli , a pulsating red giant of spectral type M1III , which varies between magnitudes 6 @.@ 44 and 6 @.@ 56 .

Three other stars in Caelum are still occasionally referred to by their Bayer designations , although they are only on the edge of naked @-@ eye visibility . (Nu) ? Caeli is another double star , containing a white giant of magnitude 6 @.@ 07 and a star of magnitude 10 @.@ 66 , with unknown spectral type . The system is approximately 52 @.@ 55 parsecs (171 @.@ 4 ly) away . (Lambda) ? Caeli , at magnitude 6 @.@ 24 , is much redder and farther away , being a red giant around 227 parsecs (740 ly) from Earth . (Zeta) ? Caeli is even fainter , being only of magnitude 6 @.@ 36 . This star , located 132 parsecs (430 ly) away , is a K @-@ type subgiant of spectral type K1 . The other twelve naked @-@ eye stars in Caelum are not referred to by Bode 's Bayer designations anymore , including RV Caeli .

One of the nearest stars in Caelum is the eclipsing binary star RR Caeli , at a distance of 20 @.@ 13 parsecs (65 @.@ 7 ly) . This star system consists of a dim red dwarf and a white dwarf . Despite its closeness to the Earth , the system 's apparent magnitude is only 14 @.@ 40 due to the faintness of its components , and thus it cannot be easily seen with amateur equipment . In 2012 , the system was found to contain a giant planet , and there is evidence for a second substellar body . The system is a post @-@ common @-@ envelope binary and is losing angular momentum over time , which will eventually cause mass transfer from the red dwarf to the white dwarf . In approximately 9 ? 20 billion years , this will cause the system to become a cataclysmic variable .

= = = Deep @-@ sky objects = = =

Due to its small size and location away from the plane of the Milky Way , Caelum is rather devoid of deep @-@ sky objects , and contains no Messier objects . The only deep @-@ sky object in Caelum to receive much attention is HE0450 @-@ 2958 , an unusual Seyfert galaxy . Originally , the jet 's host galaxy proved elusive to find , and this jet appeared to be emanating from nothing . Although it has been suggested that the object is an ejected supermassive black hole , the host is now agreed to be a small galaxy that is difficult to see due to light from the jet and a nearby starburst galaxy .