= Circinus =

Circinus is a small , faint constellation in the southern sky , first defined in 1756 by the French astronomer Nicolas @-@ Louis de Lacaille . Its name is Latin for compass , referring to the drafting tool used for drawing circles ( it should not be confused with Pyxis , a constellation that represents a mariner 's compass which points north ) . Its brightest star is Alpha Circini , with an apparent magnitude of 3 @.@ 19 . Slightly variable , it is the brightest rapidly oscillating Ap star in the night sky . AX Circini is a Cepheid variable visible with the unaided eye , and BX Circini is a faint star thought to have been formed from the merger of two white dwarfs . Two sun @-@ like stars have planetary systems : HD 134060 has two small planets , and HD 129445 has a Jupiter @-@ like planet . Supernova SN 185 appeared in Circinus in 185 AD and was recorded by Chinese observers . Two novae have been observed more recently , in the 20th century .
The Milky Way runs through the constellation , featuring prominent objects such as the open cluster NGC 5823 and the planetary nebula NGC 5315 . Circinus hosts one notable spiral galaxy , the Circinus Galaxy , which was discovered in 1977 and is the closest Seyfert galaxy to the Milky Way . The Alpha Circinids ( ACI ) , a meteor shower also discovered in 1977 , radiate from this constellation .

= = History = =

In 1756 , French astronomer Nicolas @-@ Louis de Lacaille introduced the constellation of Circinus with the French name le Compas , representing a pair of dividing compasses , on a chart of the southern sky . On that chart , Lacaille portrayed the constellations of Norma , Circinus , and Triangulum Australe , respectively , as a set square and ruler , a compass , and a surveyor 's level in a set of draughtsman 's instruments . Circinus was given its current name in 1763 , when Lacaille published an updated sky map with Latin names for the constellations he introduced .

= = Characteristics = =

Bordered by Centaurus , Musca , Apus , Triangulum Australe , Norma and Lupus , Circinus lies adjacent to the Alpha and Beta Centauri stars . As it is at declination ? 50 ° to ? 70 ° , the whole constellation is only visible south of latitude 30 ° N. The official constellation boundaries , as set by Eugène Delporte in 1930 , are defined by a polygon of 14 segments . In the equatorial coordinate system , the right ascension coordinates of these borders lie between 13h 38.4m and 15h 30.2m , and the declination coordinates are between ? 55 @.@ 43 ° and ? 70 @.@ 62 ° . Circinus culminates each year at 9 p.m. on 30 July . The recommended three @-@ letter abbreviation for the constellation , as adopted by the International Astronomical Union in 1922 , is ' Cir ' .

= = Notable features = =

= = = Stars = = =

Circinus is a faint constellation , with only one star brighter than fourth magnitude . Alpha Circini , a white main sequence star with an apparent magnitude of 3 @.@ 19 , is 54 light @-@ years away and 4 ° south of Alpha Centauri . Not only the brightest star in the constellation , it is also the brightest example of a rapidly oscillating Ap ( RoAp ) star in the night sky . It has the unusual spectral type A7 Vp SrCrE , showing increased emissions of strontium , chromium and europium . Stars of this type have oddly localised magnetic fields and are slightly variable . Alpha Circini forms a binary star system with an orange dwarf companion of spectral type K5 and magnitude 8 @.@ 5 , which with a separation of 5 @.@ 7 arcseconds is only discernible with a telescope . The distance between the two stars is 260 AU and they take 2600 years to rotate around a common centre of gravity . The second brightest star is Beta Circini , a white main sequence star of spectral type A3Va

and a magnitude of 4 @.@ 07 , about 100 light @-@ years away . It has around 1 @.@ 8 times the diameter of the Sun .

Gamma Circini is a binary star 450 light @-@ years away , whose components need a telescope of 150 mm to be seen , as they are only 0 @.@ 8 arcseconds apart . The brighter component is a bluish Be star of spectral type B5IV + and magnitude 4 @.@ 51 , while the dimmer component is a yellow star of magnitude 5 @.@ 5 . They orbit each other every 180 years . Delta Circini is also a multiple star whose components have magnitudes of 5 @.@ 1 and 13 @.@ 4 and orbit around a common centre of gravity every 3 @.@ 9 days . The brighter component is a close eclipsing binary ( specifically , a rotating ellipsoidal variable ) , with a minor dip of magnitude ( 0 @.@ 1 ) . Both are hot blue stars of spectral types O7III @-@ V and O9.5V , respectively , and are estimated to have around 22 and 12 times the Sun 's mass . Over 3600 light @-@ years away , this system would outshine Venus at magnitude ? 4 @.@ 8 if it were 32 light @-@ years ( 10 parsecs ) distant . The two main components are separated by 50 arcseconds , resolvable to the naked eye for individuals with good vision and easily discernible with a telescope .

Eta Circini is a yellow giant of spectral type G8III and magnitude 5 @.@ 17 , located around 276 light @-@ years distant , and Zeta Circini is a blue @-@ white main sequence star of spectral type B3V and magnitude 6 @.@ 09 , located around 1273 light @-@ years away .

493 variable stars have been recorded in Circinus , but most have a very small range or are quite dim . Three prominent examples are Theta Circini , T Circini , and AX Circini . Theta Circini is a B @-@ class irregular variable , ranging in magnitude from 5 @.@ 0 to 5 @.@ 4 . T Circini has a B @-@ type spectrum , ranging in magnitude from 10 @.@ 6 to 9 @.@ 3 over a period of 3 @.@ 298 days , although it is actually an eclipsing binary system rather than a pulsating star . AX is a Cepheid variable that varies between magnitudes 5 @.@ 6 and 6 @.@ 19 over 5 @.@ 3 days . It is a yellow @-@ white supergiant of spectral type F8II + , 1600 light @-@ years away . BP Circini is another Cepheid variable with an apparent magnitude ranging from 7 @.@ 37 to 7 @.@ 71 over 2 @.@ 4 days . Both cepheids are spectroscopic binaries , with companions that are blue @-@ white stars of spectral type B6 and 5 and 4 @.@ 7 solar masses respectively . BX Circini is a faint star that fluctuates between magnitudes 12 @.@ 57 and 12 @.@ 62 over a period of 2 hours 33 minutes . Over 99 % of its composition appears to be helium . Its origin is unclear , but thought to be the result of the merger of a helium and a carbon / oxygen white dwarf .

Several stars with planetary systems lie within the borders of Circinus , although none of the host stars are particularly prominent . HD 134060 is a sun @-@ like yellow dwarf star of spectral type G0VFe + 0 @.@ 4 and magnitude 6 @.@ 29 , around 79 light @-@ years away . Its two planets were discovered in 2011 through the radial velocity method : the smaller , HD 134060 b , has a mass of 0 @.@ 0351 MJ ( Jupiter masses ) and orbits its star every 3 @.@ 27 days , at 0 @.@ 0444 AU ; the larger , HD 134060 c ( 0 @.@ 15 MJ ) , orbits farther out at 2 @.@ 226 AU , with a period of approximately 1161 days . Even fainter , at magnitude 8 @.@ 8 , HD 129445 is 220 light @-@ years away and has 99 % of the Sun 's mass and a similar spectral type of G8V . HD 129445 b , a Jupiter @-@ like planet ( 1 @.@ 6 MJ ) discovered in 2010 via the radial velocity method , orbits this star at a distance of 2 @.@ 9 AU , approximately every 1840 days .

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

Three open clusters and a planetary nebula are found within the borders of Circinus , all visible with amateur telescopes of varying sizes . NGC 5823 , also called Caldwell 88 , is an 800 @-@ million @-@ year @-@ old open cluster , located 3500 light @-@ years away and spanning a 12 @-@ light @-@ year region along the constellation 's northern border . Despite having an integrated magnitude of 7 @.@ 9 , the cluster can be seen by star hopping from Beta Circini or from Alpha Centauri . It contains 80 ? 100 stars of 10th magnitude and fainter , which are spread out over a diameter of 10 arcseconds . The brighter stars , however , are not true members of the cluster , as they are closer to the Earth than the dimmer ones . NGC 5823 appears distinct to the observer , sometimes seen as a reversed " S " , as described by John Herschel , although it has also been described as " tulip @-@ shaped " and " boxy " . That cluster can be easily mistaken with a similar

cluster , NGC 5822 , nearby in Lupus . Comparatively , open cluster NGC 5715 is fainter ( integrated magnitude of 9 @.@ 8 ) ? its brightest star is only 11th magnitude ? and smaller ( 7 @.@ 0 arcminutes ) , comprising only 30 stars . The third open cluster , Pismis 20 , contains 12 stars in a diameter of 4 @.@ 5 arcseconds but exhibits a magnitude similar to NGC 5823 ( 7 @.@ 8 ) . At 8270 light @-@ years , it requires an amateur telescope with an aperture over 300 mm to be easily discerned .

The planetary nebula NGC 5315 has a magnitude of 9 @.@ 8 around a central star of magnitude 14 @.@ 2 , located 5 @.@ 2 degrees west @-@ southwest of Alpha Circini . It is only visible as a disc at magnifications over 200 @-@ fold . Bernes 145 is a dark and reflection nebula first listed in the 1971 Bernes Catalog . The dark nebula component is easily visible in a large amateur telescope , and it measures 12 by 5 arcminutes . The smaller reflection nebula component requires a larger instrument and averted vision to be seen .

Circinus also houses ESO 97 @-@ G13 , commonly known as the Circinus Galaxy . Discovered in 1977 , it is a relatively unobscured galaxy ( magnitude 10 @.@ 6 ) , which is unusual for galaxies located in constellations near the Milky Way , since their dim light is obscured by gas and dust . This oblong spiral galaxy with 6 @.@ 9 by 3 @.@ 0 arcminutes and 26 @,@ 000 light @-@ years in diameter , is located 13 million light @-@ years away from Earth and lies 4 degrees off the galactic plane . It is the closest Seyfert galaxy to the Milky Way , and therefore hosts an active galactic nucleus .

Circinus X @-@ 1 is an X @-@ ray binary star system that includes a neutron star . Observations of Circinus X @-@ 1 in July 2007 revealed the presence of X @-@ ray jets normally found in black hole systems . Located at 19 @,@ 000 light @-@ years , the pulsar PSR B1509 @-@ 58 , also called the Circinus Pulsar , has expelled a 20 @-@ light @-@ year @-@ long jet of material from its southern pole , clearly visible in the X @-@ ray spectrum . Another supernova remnant in Circinus is that of SN 185 . Recorded by Chinese observers in 185 AD , SN 185 was visible in the night sky for around eight months ; its remnants , known as RCW 86 , cover an area larger than the typical full moon .

A white dwarf star in a close binary system can accumulate material from its companion until it ignites and blows off in a thermonuclear explosion , known as a nova . These stars generally brighten by 7 to 16 magnitudes . Nova Circini 1926 , also known as X Circini , was observed at magnitude 6 @.@ 5 on 3 September 1926 , before fading and fluctuating between magnitudes 11 @.@ 7 and 12 @.@ 5 , during 1928 , and magnitude 13 , in 1929 . Nova Circini 1995 ( BY Circini ) reached an maximum apparent magnitude of 7 @.@ 2 in January 1995 . BW Circini is a low mass X @-@ ray binary system , comprising a black hole of around 8 solar masses and a yellow G0III @-@ G5III subgiant star . X @-@ ray outbursts were recorded in 1987 and 1997 , and possibly 1971 ? 72 .

= = = Meteor showers = = =

Circinus is the radiant of an annual meteor shower , the Alpha Circinids ( ACI ) . First observed in Queensland in 1977 , the meteors have an average velocity of 27 @.@ 1 km / s and are thought to be associated with a long @-@ period comet . In 2011 , Peter Jenniskens proposed that the debris trail of comet C / 1969 T1 could intersect with the Earth 's orbit and generate a meteor outburst coming from a radiant close to Beta Circini . The ACI shower peaks on 4 June , the day it was first observed .