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Constellation known as the great bear

Tonight Tonight … a constellation you might or might not see, depending on your latitude. In our western skylore, the Big Dipper is part of the constellation Ursa Major, otherwise known as the Great Bear. But to the Mi'kmaq, an indigenous First Nations people living in southeastern Canada, a celestial Bear – our same familiar Big Dipper pattern – coming down to Earth signaled the start of hibernation season. This is when earthly bears return to their dens, and when the sap of trees returns to the warm womb of the underworld. In her birding blog called BeakingOff, Shyloh – who describes herself as “living in the Yukon Territory” – tells the Mi'kmaq story of the Bear. She writes that the Mi'kmaq story explains: … why Ursa Major (The Big Dipper) moves and changes its position between fall and spring. Ursa Major is known to some as the Bear. This is because the four stars that create the ‘pot’ of the Big Dipper look like a large animal, one star being the head, another being the tail, one for the right front leg, and another for the right back leg. The Mi'kmaq First Nations used to call Ursa Major the Bear, and thought that the Corona Borealis looked like the Bear's cave. Following the Bear are seven stars: the three stars that create the handle of the Big Dipper, and four stars from Boötes. These seven stars were thought to be birds hunting the Bear: Robin, Chickadee, Moosebird (aka Gray Jay), Pigeon, Blue Jay, Owl (some sources say Great Horned Owl), and Saw-whet Owl. View larger. | The Bear and her hunters, in the Micmac tradition. Image via Sana Kavanagh/ GreenTeacher. In this sky lore, hunters catch Celestial Bear each year in the fall, and it's the dripping blood from the Bear that colors the autumn landscape. But, as Shyloh explains in her blog: … this is not the end of Bear's story. All winter, her skeleton lies on its back, but her spirit has entered another bear who also lies upon her back in the den, invisible, and sleeping the winter sleep. When the spring comes around again, this bear will again leave the den, will again be hunted and then killed. And her spirit will enter the next bear sleeping in the den. So this cycle repeats each spring, when the sun awakens the sleeping earth. Read more from Shyloh: Mi'kmaq story of the stars View at EarthSky Community Photos. | Ariel Atienza in Iqaluit, Nunavut, Canada, captured the Big Dipper and a green aurora on September 30, 2020. In the Northern Hemisphere, the Big Dipper is probably the sky's best known asterism – not an official constellation – but an extremely recognizable pattern of stars. But it's harder to see the Dipper in the evening at this time of year than at any other time. Every year, the Big Dipper (Great Bear) descends to its lowest point in the sky on November evenings. In fact, people in the southern part of the United States can't see the Big Dipper in the evening right now, because it swings beneath their northern horizon. Even in the northern states, the Big Bear is hard to spot. The Big Dipper skims along the northern horizon in the evening, ducking behind any obstructions such as trees or mountains. And, of course, it can't be seen in the evening from Southern Hemisphere latitudes now either. But take heart, for the Bear will return in spring! EarthSky lunar calendars are cool! They make great gifts. Order now. Going fast! Classical Ursa Major constellation. Image via AlltheSky.com. Bottom line: The Big Dipper is difficult, or impossible, to see on November evenings. If you're in the southern U.S. or a similar latitude around the world, the Dipper is below your northern horizon in the evening now. If you're in the northern U.S. or a similar latitude, the Big Dipper may be above your horizon in the evening, but it will be low in the northern sky. Read more: The History of the Newfoundland Mi'kmaq Donate: Your support means the world to us Bruce McClure has served as lead writer for EarthSky's popular Tonight pages since 2004. He's a sundial aficionado, whose love for the heavens has taken him to Lake Titicaca in Bolivia and sailing in the North Atlantic, where he earned his celestial navigation certificate through the School of Ocean Sailing and Navigation. He also writes and hosts public astronomy programs and planetarium programs in and around his home in upstate New York. Constellation in the northern celestial hemisphere This article is about the constellation. For the pattern of stars (asterism), see Big Dipper. For other uses, see Ursa Major (disambiguation). Ursa MajorConstellationList of stars in Ursa MajorAbbreviationUMaGenitiveUrsae MajorisPronunciation/ˈɜːrsə ˈmeɪdʒər/,genitive /ˌɜːrsiː məˈdʒɒrɪs/Symbolismthe Great BearRight ascension10.67h Declination+55.38°QuadrantNQ2Area1280 sq. deg. (3rd)Main stars7, 20Bayer/Flamsteedstars93Stars with planets21Stars brighter than 3.00m7Stars within 10.00 pc (32.62 ly)8Brightest starε UMa (Alioth) (1.76m)Messier objects7Meteor showersAlpha Ursa MajoridsLeonids-UrsidsBorderingconstellationsDracoCamelopardalisLynxLeo MinorLeoComa BerenicesCanes VenaticiBoötesVisible at latitudes between +90° and −30°.Best visible at 21:00 (9 p.m.) during the month of April. The Big Dipper or Plough Ursa Major (/ˈɜːrsə ˈmeɪdʒər/; also known as the Great Bear) is a constellation in the northern sky, whose associated mythology likely dates back into prehistory. Its Latin name means "greater (or larger) she-bear," referring to and contrasting it with nearby Ursa Minor, the lesser bear. In antiquity, it was one of the original 48 constellations listed by Ptolemy in the 2nd century AD. Today it is the third largest of the 88 modern constellations. Ursa Major is primarily known from the asterism of its main seven stars, which has been called the "Big Dipper," "the Wagon," "Charles's Wain," or "the Plough," among other names. In particular, the Big Dipper's stellar configuration mimics the shape of the "Little Dipper." Two of its stars, named Dubhe and Merak (α Ursae Majoris and β Ursae Majoris), can be used as the navigational pointer towards the place of the current northern pole star, Polaris in Ursa Minor. Ursa Major, along with asterisms that incorporate or comprise it, is significant to numerous world cultures, often as a symbol of the north. Its depiction on the flag of Alaska is a modern example of such symbolism. Ursa Major is visible throughout the year from most of the northern hemisphere, and appears circumpolar above the mid-northern latitudes. From southern temperate latitudes, the main asterism is invisible, but the southern parts of the constellation can still be viewed. Characteristics Ursa Major covers 1279.66 square degrees or 3.10% of the total sky, making it the third largest constellation. In 1930, Eugène Delporte set its official International Astronomical Union (IAU) constellation boundaries, defining it as a 28-sided irregular polygon. In the equatorial coordinate system, the constellation stretches between the right ascension coordinates of 08h 08.3m and 14h 29.0m and the declination coordinates of +28.30° and +73.14°.[1] Ursa Major borders eight other constellations: Draco to the north and northeast, Boötes to the east, Canes Venatici to the east and southeast, Coma Berenices to the southeast, Leo and Leo Minor to the south, Lynx to the southwest and Camelopardalis to the northwest. The three-letter constellation abbreviation "UMa" was adopted by the IAU in 1922.[2] Features See also: List of stars in Ursa Major Asterisms The constellation Ursa Major as it can be seen by the unaided eye. The outline of the seven bright stars of Ursa Major form the asterism known as the "Big Dipper" in the United States and Canada, while in the United Kingdom[3] it is called the Plough[4] or (historically) Charles' Wain.[5] Six of the seven stars are of second magnitude or higher, and it forms one of the best-known patterns in the sky.[6][7] As many of its common names allude, its shape is said to resemble a ladle, an agricultural plough, or wagon. In the context of Ursa Major, they are commonly drawn to represent the hindquarters and tail of the Great Bear. Starting with the "ladle" portion of the dipper and extending clockwise (eastward in the sky) through the handle, these stars are the following: α Ursae Majoris, known by the Arabic name Dubhe ("the bear"), which at a magnitude of 1.79 is the 35th-brightest star in the sky and the second-brightest of Ursa Major. β Ursae Majoris, called Merak ("the loins of the bear"), with a magnitude of 2.37. γ Ursae Majoris, known as Phecda ("thigh"), with a magnitude of 2.44. δ Ursae Majoris, or Megrez, meaning "root of the tail," referring to its location as the intersection of the body and tail of the bear (or the ladle and handle of the dipper). ε Ursae Majoris, known as Alioth, a name which refers not to a bear but to a "black horse," the name corrupted from the original and mis-assigned to the similarly named Alcor, the naked-eye binary companion of Mizar.[8] Alioth is the brightest star of Ursa Major and the 33rd-brightest in the sky, with a magnitude of 1.76. It is also the brightest of the chemically peculiar Ap stars, magnetic stars whose chemical elements are either depleted or enhanced, and appear to change as the star rotates.[8] ζ Ursae Majoris, Mizar, the second star in from the end of the handle of the Big Dipper, and the constellation's fourth-brightest star. Mizar, which means "girdle," forms a famous double star, with its optical companion Alcor (80 Ursae Majoris), the two of which were termed the "horse and rider" by the Arabs. The ability to resolve the two stars with the naked eye is often quoted[by whom?] as a test of eyesight, although even people with quite poor eyesight can see the two stars.[citation needed] η Ursae Majoris, known as Alkaid, meaning the "end of the tail". With a magnitude of 1.85, Alkaid is the third-brightest star of Ursa Major.[9][10] Except for Dubhe and Alkaid, the stars of the Big Dipper all have proper motions heading toward a common point in Sagittarius. A few other such stars have been identified, and together they are called the Ursa Major Moving Group. Ursa Major and Ursa Minor in relation to Polaris The stars Merak (β Ursae Majoris) and Dubhe (α Ursae Majoris) are known as the "pointer stars" because they are helpful for finding Polaris, also known as the North Star or Pole Star. By visually tracing a line from Merak through Dubhe (1 unit) and continuing for 5 units, one's eye will land on Polaris, accurately indicating true north. Other stars Another asterism known as the "Three Leaps of the Gazelle"[11] is recognized in Arab culture. It is a series of three pairs of stars found along the southern border of the constellation. From southeast to southwest, the "first leap", comprising ν and ξ Ursae Majoris (Alula Borealis and Australis, respectively); the "second leap", comprising λ and μ Ursae Majoris (Tania Borealis and Australis); and the "third leap", comprising ι and κ Ursae Majoris, (Talitha Borealis and Australis respectively). W Ursae Majoris is the prototype of a class of contact binary variable stars, and ranges between 7.75m and 8.48m. 47 Ursae Majoris is a Sun-like star with a three-planet system.[12] 47 Ursae Majoris b, discovered in 1996, orbits every 1078 days and is 2.53 times the mass of Jupiter.[13] 47 Ursae Majoris c, discovered in 2001, orbits every 2391 days and is 0.54 times the mass of Jupiter.[14] 47 Ursae Majoris d, discovered in 2010, has an uncertain period, lying between 8907 and 19097 days; it is 1.64 times the mass of Jupiter.[15] The star is of magnitude 5.0 and is approximately 46 light-years from Earth.[12] The star TYC 3429-697-1 (9h 40m 44s 48° 14′ 2″), located to the east of θ Ursae Majoris and to the southwest of the "Big Dipper") has been recognized as the state star of Delaware, and is informally known as the Delaware Diamond.[16] Deep-sky objects Several bright galaxies are found in Ursa Major, including the pair Messier 81 (one of the brightest galaxies in the sky) and Messier 82 above the bear's head, and Pinwheel Galaxy (M101), a spiral northeast of η Ursae Majoris. The spiral galaxies Messier 108 and Messier 109 are also found in this constellation. The bright planetary nebula Owl Nebula (M97) can be found along the bottom of the bowl of the Big Dipper. M81 is a nearly face-on spiral galaxy 11.8 million light-years from Earth. Like most spiral galaxies, it has a core made up of old stars, with arms filled with young stars and nebulae. Along with M82, it is a part of the galaxy cluster closest to the Local Group. M82 is a nearly edgewise galaxy that is interacting gravitationally with M81. It is the brightest infrared galaxy in the sky.[17] SN 2014J, an apparent Type Ia supernova, was observed in M82 on 21 January 2014.[18] M97, also called the Owl Nebula, is a planetary nebula 1,630 light-years from Earth; it has a magnitude of approximately 10. It was discovered in 1781 by Pierre Méchain.[19] M101, also called the Pinwheel Galaxy, is a face-on spiral galaxy located 25 million light-years from Earth. It was discovered by Pierre Méchain in 1781. Its spiral arms have regions with extensive star formation and have strong ultraviolet emissions.[17] It has an integrated magnitude of 7.5, making it visible in both binoculars and telescopes, but not to the naked eye.[20] NGC 2787 is a lenticular galaxy at a distance of 24 million light-years. Unlike most lenticular galaxies, NGC 2787 has a bar at its center. It also has a halo of globular clusters, indicating its age and relative stability.[17] NGC 2950 is a lenticular galaxy located 60 million light-years from Earth. NGC 3079 is a starburst spiral galaxy located 52 million light-years from Earth. It has a horseshoe-shaped structure at its center that indicates the presence of a supermassive black hole. The structure itself is formed by superwinds from the black hole.[17] NGC 3310 is another starburst spiral galaxy located 50 million light-years from Earth. Its bright white color is caused by its higher than usual rate of star formation, which began 100 million years ago after a merger. Studies of this and other starburst galaxies have shown that their starburst phase can last for hundreds of millions of years, far longer than was previously assumed.[17] NGC 4013 is an edge-on spiral galaxy located 55 million light-years from Earth. It has a prominent dust lane and has several visible star forming regions.[17] I Zwicky 18 is a young dwarf galaxy at a distance of 45 million light-years. The youngest-known galaxy in the visible universe, I Zwicky 18 is about 4 million years old, about one-thousandth the age of the Solar System. It is filled with star forming regions which are creating many hot, young, blue stars at a very high rate.[17] The Hubble Deep Field is located to the northeast of δ Ursae Majoris. Meteor showers The Kappa Ursae Majorids are a newly discovered meteor shower, peaking between November 1 and November 10.[21] Extrasolar planets HD 80606, a sun-like star in a binary system, orbits a common center of gravity with its partner, HD 80607; the two are separated by 1,200 AU on average. Research conducted in 2003 indicates that its sole planet, HD 80606 b is a future hot Jupiter, modeled to have evolved in a perpendicular orbit around 5 AU from its sun. The 4-Jupiter mass planet is projected to eventually move into a circular, more aligned orbit via the Kozai mechanism. However, it is currently on an incredibly eccentric orbit that ranges from approximately one astronomical unit at its apoapsis and six stellar radii at periapsis.[22] History Ursa Major shown on a carved stone, c.1700, Crail, Fife Ursa Major has been reconstructed as an Indo-European constellation.[23] It was one of the 48 constellations listed by the 2nd century AD astronomer Ptolemy in his Almagest, who called it Arktos Megale.[a] It is mentioned by such poets as Homer, Spenser, Shakespeare, Tennyson and also by Federico Garcia Lorca, in "Song for the Moon".[25] Ancient Finnish poetry also refers to the constellation, and it features in the painting Starry Night Over the Rhône by Vincent van Gogh.[26][27] It may be mentioned in the biblical book of Job, dated between the 7th and 4th centuries BC, although this is often disputed.[28] Mythology This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. (April 2019) (Learn how and when to remove this template message) The constellation of Ursa Major has been seen as a bear, usually female,[29] by many distinct civilizations.[30] This may stem from a common oral tradition of Cosmic Hunt myths stretching back more than 13,000 years.[31] Using statistical and phylogenetic tools, Julien d'Huy reconstructs the following Palaeolithic state of the story: "There is an animal that is a horned herbivore, especially an elk. One human pursues this ungulate. The hunt locates or get to the sky. The animal is alive when it is transformed into a constellation. It forms the Big Dipper." [32] Greco-Roman tradition In Roman mythology, Jupiter (the king of the gods) lusts after a young woman named Callisto, a nymph of Diana. Juno, Jupiter's jealous wife, discovers that Callisto has a son named Arcas, and believes it is by Jupiter.[33] Juno then transforms the beautiful Callisto into a bear so she no longer attracts Jupiter. Callisto, while in bear form, later encounters her son Arcas. Arcas almost shoots the bear, but to avert the tragedy, Jupiter turns Arcas into a bear too and puts them both in the sky, forming Ursa Major and Ursa Minor. Callisto is Ursa Major and her son, Arcas, is Ursa Minor. An alternate version has Arcas become the constellation Boötes. In ancient times the name of the constellation was Helike, ("turning"), because it turns around the Pole. In Book Two of Lucan it is called Parrhasian Helice, since Callisto came from Parrhasia in Arcadia, where the story is set.[34] The Odyssey notes that it is the sole constellation that never sinks below the horizon and "bathes in the Ocean's waves," so it is used as a celestial reference point for navigation.[35] It is also called the "Wain."[36] Hindu tradition In Hinduism, Ursa Major is known as Saptarshi, each of the stars representing one of the Saptarshis or Seven Sages viz. Bhrigu, Atri, Angiras, Vasishtha, Pulastya, Pulaha and Kratu. The fact that the two front stars of the constellations point to the pole star is explained as the boon given to the boy sage Dhruva by Lord Vishnu.[37] Judeo-Christian tradition One of the few star groups mentioned in the Bible (Job 9:9; 38:32; – Orion and the Pleiades being others), Ursa Major was also pictured as a bear by the Jewish peoples. "The Bear" was translated as "Arcturus" in the Vulgate and it persisted in the King James Bible. East Asian traditions In China and Japan, the Big Dipper is called the "North Dipper" 北斗 (Chinese: běidǒu, Japanese: hokuto), and in ancient times, each one of the seven stars had a specific name, often coming themselves from ancient China: "Pivot" 樞 (C: shū J: sū) is for Dubhe (Alpha Ursae Majoris) "Beautiful jade" 璇 (C: xuán J: sen) is for Merak (Beta Ursae Majoris) "Pearl" 璣 (C: jī J: ki) is for Phecda (Gamma Ursae Majoris) "Balance"[38] 權 (C: quán J: ken) is for Megrez (Delta Ursae Majoris) "Measuring rod of jade" 玉衡 (C: yùhéng J: gyokkō) is for Alioth (Epsilon Ursae Majoris) "Opening of the Yang" 開陽 (C: kāiyáng J: kaiyō) is for Mizar (Zeta Ursae Majoris) Alkaid (Eta Ursae Majoris) has several nicknames: "Sword" 劍 (C: jiàn J: ken) (short form from "End of the sword" 劍先 (C: jiàn xiān J: ken saki)), "Flickering light" 搖光 (C: yáoguāng J: yōkō), or again "Star of military defeat" 破軍星 (C: pòjūn xīng J: hagun sei), because travel in the direction of this star was regarded as bad luck for an army.[39] In Shinto, the seven largest stars of Ursa Major belong to Amenominakanushi, the oldest and most powerful of all kami. In South Korea, the constellation is referred to as "the seven stars of the north." In the related myth, a widow with seven sons found comfort with a widower, but to get to his house required crossing a stream. The seven sons, sympathetic to their mother, placed stepping stones in the river. Their mother, not knowing who put the stones in place, blessed them and, when they died, they became the constellation. Native American traditions The Iroquois interpreted Alioth, Mizar, and Alkaid as three hunters pursuing the Great Bear. According to one version of their myth, the first hunter (Alioth) is carrying a bow and arrow to strike down the bear. The second hunter (Mizar) carries a large pot – the star Alcor – on his shoulder in which to cook the bear while the third hunter (Alkaid) hauls a pile of firewood to light a fire beneath the pot. The Lakota people call the constellation Wičhákhiyuhapi, or "Great Bear."[40] The Wampanoag people (Algonquian) referred to Ursa Major as "maske," meaning "bear" according to Thomas Morton in The New England Canaan.[41] The Wasco-Wishram Native Americans interpreted the constellation as 5 wolves and 2 bears that were left in the sky by Coyote.[42] Northern European traditions In the Finnish language, the asterism is sometimes called by its old Finnish name, Otava. The meaning of the name has been almost forgotten in Modern Finnish; it means a salmon weir. Ancient Finns believed the bear (Ursus arctos) was lowered to earth in a golden basket off the Ursa Major, and when a bear was killed, its head was positioned on a tree to allow the bear's spirit to return to Ursa Major. Southeast Asian traditions In Burmese, Pucwan Tārā (□□□□□□ □□□□, pronounced "bazun taya") is the name of a constellation comprising stars from the head and forelegs of Ursa Major; pucwan (□□□□□□) is a general term for a crustacean, such as prawn, shrimp, crab, lobster, etc. In Javanese, it is known as "lintang jong," which means "the jong constellation." Likewise, in Malay it is called "bintang jong."[43] Esoteric lore In Theosophy, it is believed that the Seven Stars of the Pleiades focus the spiritual energy of the Seven Rays from the Galactic Logos to the Seven Stars of the Great Bear, then to Sirius, then to the Sun, then to the god of Earth (Sanat Kumara), and finally through the seven Masters of the Seven Rays to the human race.[44] Graphic visualisation This section needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. (April 2019) (Learn how and when to remove this template message) In European star charts, the constellation was visualized with the 'square' of the Big Dipper forming the bear's body and the chain of stars forming the Dipper's "handle" as a long tail. However, bears do not have long tails, and Jewish astronomers considered Alioth, Mizar, and Alkaid instead to be three cubs following their mother, while the Native Americans saw them as three hunters. H. A. Rey's alternative asterism for Ursa Major can be said to give it the longer head and neck of a polar bear, as seen in this photo, from the left side. Noted children's book author H. A. Rey, in his 1952 book The Stars: A New Way to See Them, (ISBN 0-395-24830-2) had a different asterism in mind for Ursa Major, that instead had the "bear" image of the constellation oriented with Alkaid as the tip of the bear's nose, and the "handle" of the Big Dipper part of the constellation forming the outline of the top of the bear's head and neck, rearwards to the shoulder, potentially giving it the longer head and neck of a polar bear.[45] Ursa Major as depicted in Urania's Mirror, a set of constellation cards published in London c.1825. Johannes Hevelius drew Ursa Major as if being viewed from outside the celestial sphere. Starry Night Over the Rhone by Vincent van Gogh (1888) Polaris and the Big Dipper on the flag of Alaska. Ursa Major is also pictured as the Starry Plough, the Irish flag of Labour, adopted by James Connolly's Irish Citizen Army in 1916, which shows the constellation on a blue background; on the state flag of Alaska; and on the House of Bernadotte's variation of the coat of arms of Sweden. The seven stars on a red background of the flag of the Community of Madrid, Spain, may be the stars of the Plough asterism (or of Ursa Minor). The same can be said of the seven stars pictured in the bordure azure of the coat of arms of Madrid, capital of that country. See also Ursa Minor Southern Cross Notes ^ Ptolemy named the constellations in Greek, Ἄρκτος μεγάλη (Arktos Megale) or the great bears.[24] References ^ "Ursa Major, Constellation Boundary". The Constellations. International Astronomical Union. Archived from the original on 5 June 2013. Retrieved 16 August 2015. ^ "The Constellations". Retrieved 2019-06-07. ^ "Charles' Wain". 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The Deep Photographic Guide to the Constellations: Ursa Major The clickable Ursa Major AAVSO: The Myths of Ursa Major The Origin of the Greek Constellations (paywalled) Star Tales – Ursa Major Warburg Institute Iconographic Database (over 180 medieval and early modern images of Ursa Major) Coordinates: 10h 40m 12s, +55° 22′ 48″ Retrieved from " 2Star in the constellation Ursa Major This article is about π2 Ursae Majoris. For other stars with this Bayer designation, see π Ursae Majoris. Pi² Ursae Majoris Location of π² Ursae Majoris (circled) near the center Observation data Epoch J2000.0 Equinox J2000.0 Constellation Ursa Major Right ascension 08h 40m 12.81767s[1] Declination +64° 19′ 40.5700″[1] Apparent magnitude (V) +4.620[2] Characteristics Spectral type K2 III[3] U−B color index +1.193[2] B−V color index +1.159[2] AstrometryRadial velocity (Rv)+14.62[4] km/sProper motion (μ) RA: –60.05[1] mas/yr Dec.: +26.40[1] mas/yr Parallax (π)12.74 ± 0.26[1] masDistance256 ± 5 ly (78 ± 2 pc)Absolute magnitude (MV)0.150[3] DetailsMass1.234 ± 0.15[5] M☉Radius18.79±0.38[6] R☉Luminosity112.4±10.0[6] L☉Surface gravity (log g)1.8 ± 0.15[5] cgsTemperature4336±99[6] KMetallicity [Fe/H]-0.25 ± 0.04[5] dexRotational velocity (v sin i)8[7] km/sAge4.18 ± 1.95[3] Gyr Other designations π² Ursae Majoris, π² UMa, Pi² UMa, 4 Ursae Majoris, BD+64°698, FK5 2677, GC 11850, HD 73108, HIP 42527, HR 3403, PPM 16713, SAO 14616. Database referencesSIMBADdata 4 Ursae Majoris (sometimes abbreviated 4 Uma) is the Flamsteed designation of a star in the northern circumpolar constellation of Ursa Major. It also bears the Bayer designation of Pi² Ursae Majoris (Pi² UMa, π² Ursae Majoris, π² UMa) and is traditionally named Muscida. With an apparent visual magnitude of +4.6,[2] this star is visible from suburban or darker skies based upon the Bortle Dark-Sky Scale. From parallax measurements made during the Hipparcos mission, this star is at a distance of 256 light-years (78 parsecs) from Earth.[1] As of 2011[update], one extrasolar planet has been confirmed to be orbiting the star. Properties This star has a stellar classification of K2 III,[3] indicating that, at an estimated age of around four billion years,[3] it is an evolved star that has reached the giant stage. It has a mass about 1.2 times larger than the Sun, but has expanded to 18 times the Sun's girth.[5] The effective temperature of the star's outer atmosphere is 4,415 K.[5] This heat gives it the cool, orange-hued glow of a K-type star.[8] Pi² Ursae Majoris is a member of the Milky Way galaxy's thin disk population. It is following an orbit through the galaxy with an eccentricity of 0.10, which carries it as close to the Galactic Center as 27.7 kly (8.5 kpc) and as far as 34.1 kly (10.5 kpc). The inclination of this orbit lies close to the galactic plane, so it departs this plane by no more than 260 light-years (80 parsecs).[3] Planetary system Based upon observed radial velocity changes in the star, in 2007 the presence of a planetary companion was announced. The planet, designated 4 Ursae Majoris b, is at least seven times more massive than Jupiter. Its orbit is eccentric, orbiting 4 Ursae Majoris at 87% the distance from Sun to Earth. Compared to the Sun, this star has a lower abundance of elements other than hydrogen and helium, what astronomers term the star's metallicity. This is curious, because most main sequence stars with planets tend to have a higher abundance of metals.[5] The 4 Ursae Majoris planetary system[5] Companion(in order from star) Mass Semimajor axis(AU) Orbital period(days) Eccentricity Inclination Radius b >7.1 ± 1.6 MJ 0.87 ± 0.04 269.3 ± 1.96 0.432 ± 0.024 — — Naming and etymology With π1, σ1, σ2, ρ, A and d, it composed the Arabic asterism Al Ṭhibāʾ, the Gazelle.[9] According to the catalogue of stars in the Technical Memorandum 33-507 - A Reduced Star Catalog Containing 537 Named Stars, Al Ṭhibā were the title for seven stars : A as Althiba I, π1 as Althiba II, this star (π2) as Althiba III, ρ as Althiba IV, σ1 as Althiba V, σ2 as Althiba VI, and d as Althiba VII.[10] See also Pi Ursae Majoris Muscida 47 Ursae Majoris References ^ a b c d e f van Leeuwen, F. 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