

# Draco

Subjects: [Astronomy & Astrophysics](#)

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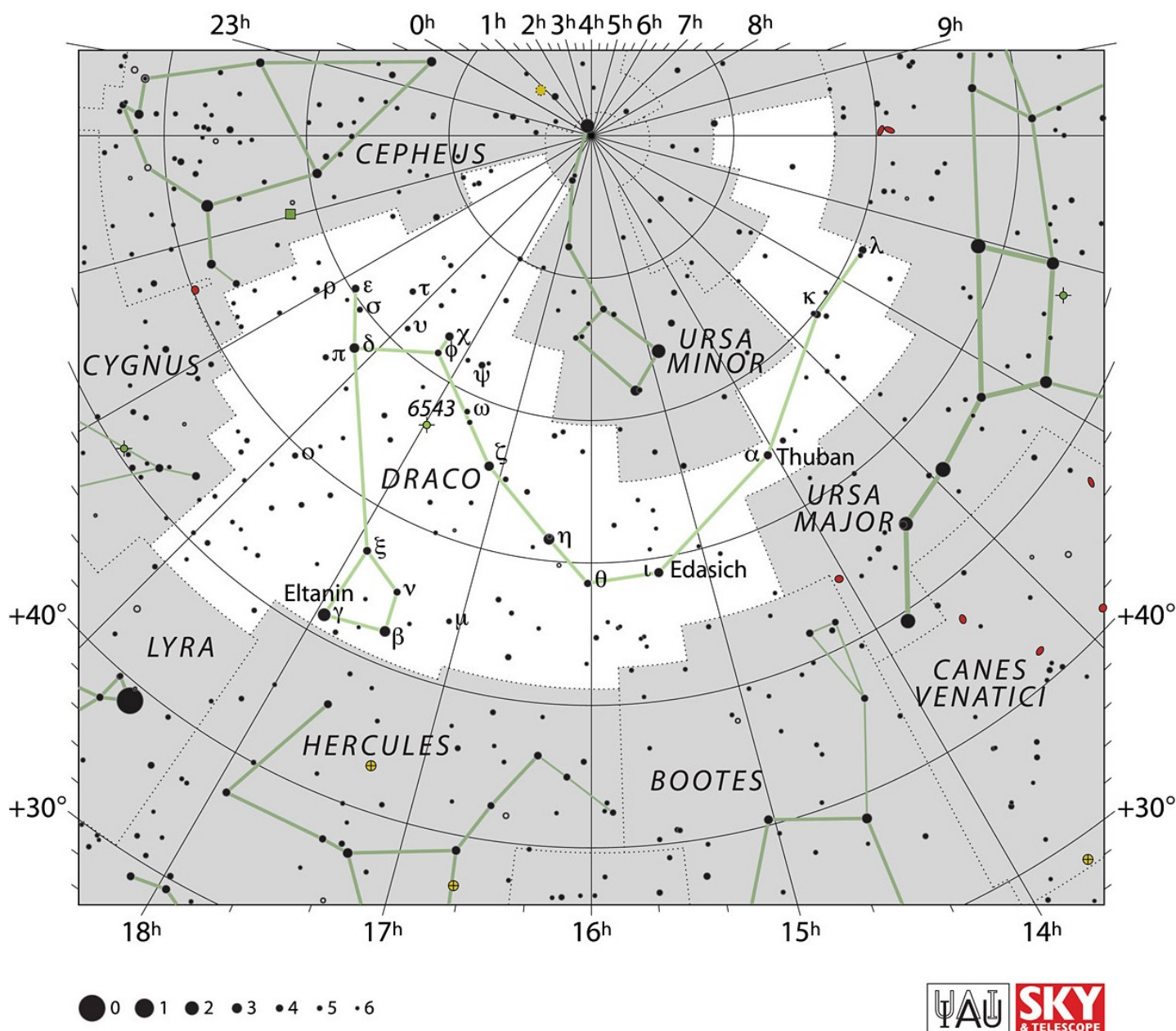
Draco, Latin for "the dragon," is a large and distinctive constellation in the northern celestial hemisphere. It is renowned for its winding shape, resembling a serpentine dragon winding around the celestial pole, and is home to several notable deep-sky objects, including the Cat's Eye Nebula and the Draco Dwarf Galaxy.

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## 1. Introduction

Draco, named after the Latin word for "the dragon," is a constellation located in the northern celestial hemisphere. It is one of the 88 modern constellations recognized by the International Astronomical Union. Draco is notable for its distinctive winding shape, which evokes the image of a serpentine dragon coiled around the north celestial pole. Spanning an area of approximately 1083 square degrees, Draco ranks as the eighth-largest constellation in the night sky. This celestial serpent winds its way between the constellations Ursa Major and Ursa Minor, Lyra and Cygnus, and Cepheus and Ursa Minor, serving as a prominent feature of the northern sky. Its celestial coordinates lie between approximately 15h 25m and 21h 30m of right ascension and 51° to 90° of declination (**Figure 1**).

Draco is distinguished by its lack of bright stars, with none exceeding third magnitude. However, its winding form and its position near the celestial pole make it easily recognizable to stargazers and astronomers. Notable stars within Draco include Thuban (Alpha Draconis), historically known as the North Star around 3000 BCE due to the precession of the Earth's axis, and Edasich (Iota Draconis), a binary star system with a faint companion. Beyond its stars, Draco is home to several noteworthy deep-sky objects. These include the Cat's Eye Nebula (NGC 6543), a planetary nebula notable for its striking appearance, and the Draco Dwarf Galaxy, one of the faintest and smallest galaxies known. These celestial wonders contribute to Draco's significance in astronomical observation and exploration, offering captivating targets for amateur astronomers and researchers alike.



**Figure 1.** IAU chart of Draco. Source: <https://www.iau.org/static/archives/images/screen/aqr.jpg>. Credit: IAU and Sky & Telescope. Reproduced under CC BY 4.0 license.

## 2. Historical Background and Mythology

The constellation Draco holds a rich historical background and mythological significance that stretches back to ancient times. Its association with dragons and serpents has been a common theme across various cultures, each imbuing the constellation with unique tales and beliefs. In ancient Greek mythology, Draco is often linked to the legend of Cadmus, the founder of Thebes. According to myth, Cadmus slew a dragon sacred to Ares, the god of war, and planted its teeth in the ground. From these teeth sprang forth armed men, who ultimately became the

founding members of Thebes. As a reward for his bravery, Cadmus was transformed into a serpent and placed among the stars by the goddess Athena. Draco is said to represent the dragon slain by Cadmus, coiled around the celestial pole as a reminder of his heroic deed.

Another mythological interpretation of Draco comes from Mesopotamian culture, where it was associated with Tiamat, the primordial goddess of the salt sea and chaos. Tiamat was often depicted as a monstrous dragon, symbolizing the forces of chaos and creation. In Babylonian astronomy, Draco was known as the "Dragon of Tiamat," representing this primordial chaos in the cosmos.

In Chinese mythology, Draco is often associated with the myth of the Azure Dragon, one of the four celestial guardians in Chinese cosmology. The Azure Dragon, also known as Qinglong, is said to represent the east and the spring season, and its celestial counterpart is believed to reside within the Draco constellation. According to legend, the Azure Dragon was responsible for controlling the rains and ensuring bountiful harvests, making it a revered figure in Chinese culture.

Draco's significance in ancient astronomy is also noteworthy. In ancient Egypt, the constellation was associated with the goddess Nehebkau, a deity depicted with the body of a serpent and the arms of a human. Nehebkau was believed to guard the entrance to the underworld and was often invoked for protection and guidance in the afterlife. The appearance of Draco in the northern sky may have held symbolic importance in Egyptian funerary rituals, guiding the souls of the deceased to their final resting place.

## 3. Notable Stars

### Thuban (Alpha Draconis)

Thuban, also designated Alpha Draconis, is one of the most historically significant stars in Draco. It was the pole star around 3000 BCE during the time of the ancient Egyptians. Thuban is a binary star system composed of a giant star and a smaller companion. Despite its historical importance, Thuban is now much fainter than Polaris, the current pole star, and is visible only under dark skies.

### Eltanin (Gamma Draconis)

Eltanin, or Gamma Draconis, is a bright giant star situated around 148 light-years away from Earth. It is the brightest star in Draco, with a magnitude of approximately 2.2. Eltanin is known for its distinctive orange hue, making it easily recognizable in the night sky. It is a binary star system, though the companion star is much fainter and difficult to observe without specialized equipment.

### Rastaban (Beta Draconis)

Rastaban, also designated Beta Draconis, is a double star located roughly 362 light-years away from Earth. It consists of a bright giant star and a fainter companion. Rastaban has a magnitude of approximately 2.8, making it

one of the brighter stars in Draco. Its name is derived from the Arabic phrase meaning "head of the serpent," reflecting its position in the constellation.

## 4. Deep-Sky Objects

**Cat's Eye Nebula (NGC 6543):** The Cat's Eye Nebula is a striking planetary nebula located in the Draco constellation. It earned its name from its resemblance to a cat's eye when viewed through telescopes. This nebula is the result of a dying star shedding its outer layers, creating a colorful and intricate structure of gas and dust. At the center of the Cat's Eye Nebula lies a hot, dense white dwarf star, the remnant core of the original star that once existed. The expelled outer layers of the star have formed concentric shells of material expanding outward, giving the nebula its distinctive appearance.

**Draco Dwarf Galaxy (UGC 10822):** The Draco Dwarf Galaxy is a satellite galaxy of the Milky Way located in the Draco constellation. It is one of the faintest and smallest galaxies known, with a relatively low surface brightness. Despite its diminutive size, the Draco Dwarf Galaxy holds significant scientific importance. This dwarf galaxy is classified as a dwarf spheroidal galaxy, characterized by its low luminosity and lack of prominent spiral arms or distinct structure. It contains relatively few stars compared to larger galaxies but is rich in dark matter, making it an intriguing target for studies of galaxy formation and the nature of dark matter.

**NGC 4236:** NGC 4236 is a barred spiral galaxy located in the Draco constellation. It is a relatively large galaxy, spanning approximately 22,400 light-years in diameter. NGC 4236 is notable for its elongated shape and its prominent central bar structure, which distinguishes it from other spiral galaxies. This galaxy is inclined at an angle to our line of sight, providing astronomers with a unique perspective on its structure and dynamics. NGC 4236 exhibits ongoing star formation activity in its spiral arms, characterized by bright regions of young, hot stars.

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