

SOUTHERN CONSTELLATION, SEXTANS

Sextans constellation lies in the southern sky, near the celestial equator. The celestial equator is, like the North and South Poles, a protraction of its Earth equivalent onto the sky. The constellation represents an astronomical sextant and is located in a dim region of the sky between the constellations Hydra, Crater, and Leo.

Sextans was created by the Polish astronomer **Johannes Hevelius** in the 17th century. The constellation is a rather faint one, with only one star brighter than fifth magnitude.

A sextant is a navigational instrument containing a graduated sixty-degree arc (the sixth part of a circle) used for measuring the altitudes of celestial bodies to determine latitude and longitude. Or a sextant is an instrument used to measure the angle between any two visible objects. **Its primary use is to determine the angle between a celestial object and the horizon.**

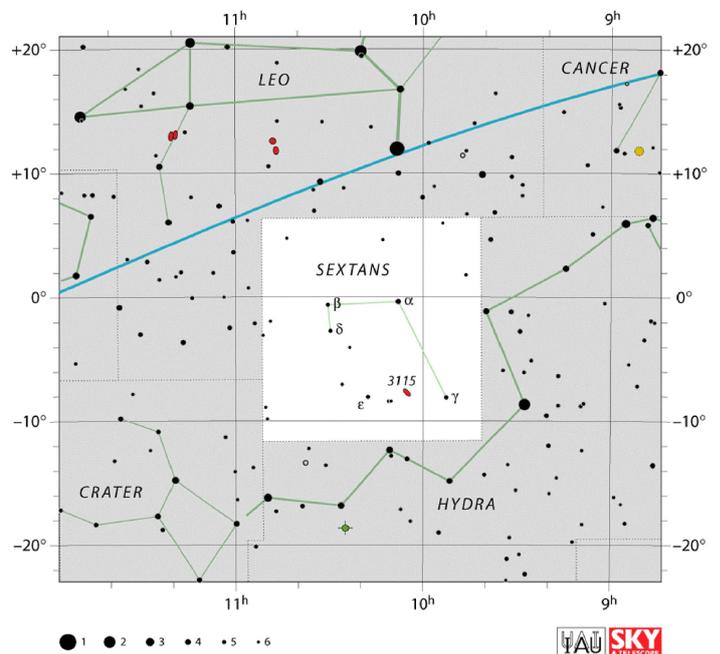
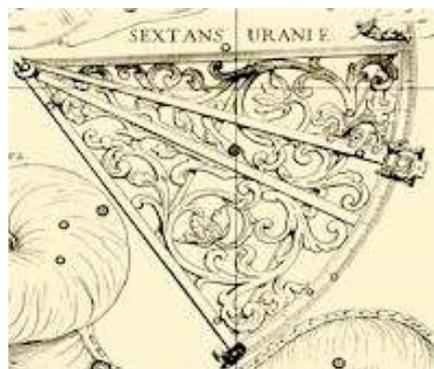
The alpha and beta stars of Sextans are right on the zero latitude line (zero declination) on the celestial equator. Above the alpha star of Sextans, the alpha star of Leo (Regulus) straddles the ecliptic line.

This constellation, *Sextans Uraniae*, was created with *Urania* the muse of astronomy in mind. It was placed on the Hydra's back and named by Hevelius "as a sort of commemoration of the destruction of his instruments" when his house at Danzig was burnt in September 1679; or, as he expresses it, "when Vulcan overcame Urania". (Urania was one of the nine Muses of classical mythology and was usually depicted pointing to a globe with a staff. Muses were goddesses of music, dance and knowledge and the source of inspiration to poets. The nine were assigned specific artistic spheres: Kalliope, epic poetry; Kleio, history; Urania, astronomy; Thaleia, comedy; Melpomene, tragedy; Polyhymnia, religious hymns; Erato, erotic poetry; Euterpe, lyric poetry; and Terpsikhore, choral song and dance).

Uranography is the branch of astronomy concerned with mapping the stars, galaxies, or other celestial bodies. The constellation Sextans represents the astronomical sextant used by Johannes Hevelius to compile one of the first accurate star maps. Its inventor's great name has kept it in the sky, and it is still recognized by astronomers as Sextans.

Christians saw a representation of the Sudarium Veronice, the sacred handkerchief of Saint Veronica, in the stars of Sextans, the face-cloth that bears the resemblance of the face of Jesus imprinted on it (not the shroud of Turin that covered his body in the tomb). Saint Veronica was a pious woman of Jerusalem, who moved with pity as Jesus carried his cross to Golgotha, gave him her handkerchief that he might mop the sweat from his forehead. Jesus accepted the offering and after using it, handed it back to her, the image of his face miraculously impressed upon it. The event is commemorated in the sixth Station of the Cross with Veronica depicted holding a cloth with the face of Jesus face imprinted on it. Saint Veronica is the patron of

linen-drapers and washerwomen. Here, on the frame of the instrument, 9° south by east from the star Regulus, **De Rheita** (1604–1660 Czech astronomer and optician) thought that he had found a representation of the Sudarium Veronice, the sacred handkerchief of Saint Veronica. Commenting upon this discovery, **Sir John Herschel** said that "many strange things were seen among the stars before the use of powerful telescopes became common."



"The number six is expressed either in the hexagon [hex- from Greek hex, six], or, better still, in the six-pointed star formed by a pair of inverted triangles.



Johannes Hevelius (1611 – 1687) was a councilor and mayor of Danzig (Gdansk) As an astronomer he gained a reputation as the founder of lunar topography and described ten new constellations, seven of which are still recognized by astronomers

Halley had been instructed by **Robert Hooke** and **John Flamsteed** to persuade Hevelius to use telescopes for his measurements, yet Hevelius demonstrated that he could do well with only quadrant and alidade. He is thus considered the last astronomer to do major work without the use of a telescope. Hevelius made observations of sunspots, 1642–1645, devoted four years to charting the lunar surface, discovered the Moon's libration in longitude, and published his results in *Selenographia, sive Lunae descriptio* (1647), a work **which entitles him to be called "the founder of lunar topography."**

He discovered four comets, in 1652, 1661 (probably Ikeya-Zhang), 1672 and 1677. These discoveries led to his thesis that such bodies revolve around the Sun in parabolic paths.

FACTS, LOCATION & MAP

Sextans is the 47th constellation in size, occupying an area of 314 square degrees. It is located in the second quadrant of the southern hemisphere and can be seen at latitudes between +80° and -90°. The neighbouring constellations are Crater, Hydra and Leo.

Sextans contains several notable deep sky objects, among them the Spindle Galaxy (NGC 3115), the spiral galaxies NGC 3166 and NGC 3169, and the irregular galaxies Sextans A and Sextans B. Sextans has five stars with known planets, but contains no Messier objects.

Sextans belongs to the Hercules family of constellations (19 constellations depicting figures from the myth of Heracles), along with along with **Aquila, Ara, Centaurus, Corona Australis, Corvus, Crater, Crux, Cygnus, Hercules, Hydra, Lupus, Lyra, Ophiuchus, Sagitta, Scutum, Serpens, Triangulum Australe and Vulpecula.**

MAJOR STARS IN SEXTANS

Alpha Sextantis is a white giant star with the stellar classification A0III. It has an apparent magnitude of 4.48 and is approximately 287 light years distant from Earth. It is the brightest star in Sextans. It is 122 times more luminous than the Sun and has a mass three times solar. The star is believed to be about 300 million years old. It is informally considered to be an "equator star," currently located less than a quarter of a degree south of the celestial equator. In 1900, it was 7 arcminutes north of the equator, but crossed over to the southern hemisphere in December 1923. The star lies almost exactly south of the bright star Regulus in Leo constellation.

Beta Sextantis is a blue-white main sequence dwarf with the stellar classification B6V. It has an apparent visual magnitude of 5.0 to 5.1 and is approximately 345 light years distant. It is classified as an *Alpha-2 Canum Venaticorum* type variable star. It has a period of variability of around 15.4 days.

Gamma Sextantis is a triple star system in Sextans constellation. It has an apparent visual magnitude of 5.07 and is approximately 262 light years distant. The system consists of a close binary star with the stellar classification A1. The two stars are separated by 0.38 arcseconds and have visual magnitudes of 5.8 and 6.2. They orbit each other with a period of 77.6 years.

Delta Sextantis is a blue-white main sequence dwarf with the stellar classification of B9.5V. It has an apparent visual magnitude of 5.19 and is approximately 300 light years distant from the solar system.

Epsilon Sextantis is a yellow-white giant star belonging to the stellar class F2 III. It has an apparent magnitude of 5.25 and is approximately 183 light years distant from the Sun.

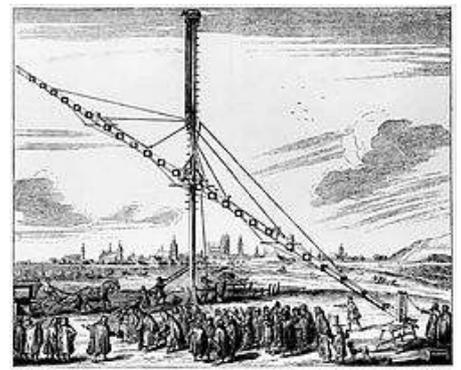
DEEP SKY OBJECTS IN SEXTANS

The Spindle Galaxy – NGC 3115 is a lenticular galaxy in Sextans. It has an apparent visual magnitude of 9.9 and is approximately 31.6 million light years distant from Earth. The galaxy appears almost exactly edge-on. It is several times bigger than the Milky Way. It has a supermassive black hole at its centre and is the nearest galaxy with a billion-solar-mass black hole to Earth. The galaxy was discovered by **William Herschel** on February 22, 1787.

Sextans A is a small dwarf irregular galaxy in Sextans. It is only about 5,000 light years across. It has a visual magnitude of 11.9.

Sextans B is an irregular galaxy with an apparent magnitude of 11.9.

It is approximately 4.44 million light years distant.



Woodcut of Hevelius' large Keplerian telescope of 46m focal length, with a wood and wire tube he constructed himself. This may have been the longest "tubed" telescope before the advent of the tubeless aerial telescope. The observatory was known by the name Sternenburg or "Star Castle"



A member of the local group of galaxies Sextans A is about 4 million light years distant. The bright Milky Way foreground stars appear yellow in this view. Beyond them lie the stars of Sextans A with young blue star clusters clearly visible.