ZONNEWIJZER

UW ZONNEWIJZER OP MAAT THE SUN SHINES FOR EVERYONE

Declination and right ascension of a star

The declination of a star is the number of degrees north or south of the celestial equator. This angle is positive when the star is north of the celestial equator and negative when the star is south. You can find the declination of a star on the front of the astrolabe, using the ruler.

The declination

Suppose you want to know the declination of the star Betelgeuse of the constellation Orion. Turn the ruler to the star Betelgeuse and read the declination on the ruler, this is 7.5°, see figure 1. The celestial equator itself is also present on the astrolabe. The declination of the celestial equator is 0°.

The right ascension of a star

The vernal equinox in the sky is the place of the sun when spring starts. This is the intersection of the ecliptic and the celestial equator. It is the location where zodiac sign Pisces changes into Aries, see figure 1. The right ascension of a star is the angle measured from the vernal equinox to the position on the celestial equator that is exactly north or south of the star. The angle is positive to the east.

Find the right ascension of a star

Suppose you want to know the right ascension of the star Betelgeuse. Place this star on the south line at XII o'clock. Place the ruler over the vernal equinox and read the right ascension at the ruler in the edge, see figure 2. You can find that the right ascension of Betelgeuse is 5 hours and 55 minutes. It is customary to express the right ascension in hours and minutes.

Convert the right ascension to degrees if you like

Suppose you want the angle in degrees and not in hours and minutes. Execute the following calculation:

24 hours corresponds to 360°, so 1 hour corresponds to 15°.
1 hour corresponds to 15°, then 1 minute corresponds to a quarter of a degree.

Now multiply the number of hours by 15 and divide the number of minutes by 4. Add these numbers together to get the number of degrees.
For Betelgeuse this results in 5 x 15 + 55 /4 = 88.75°

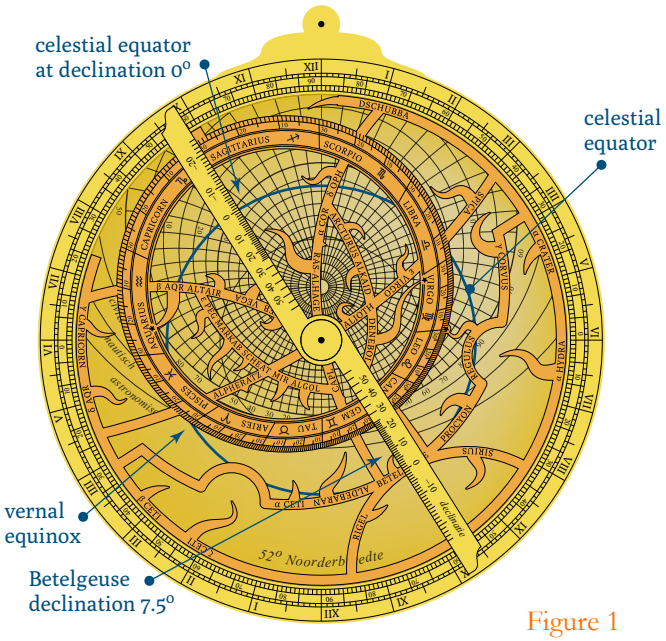

Figure 1

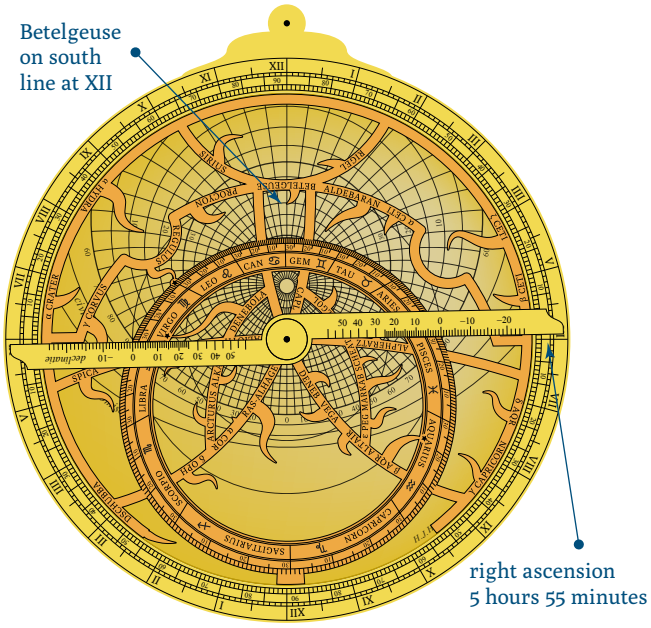

Figure 2

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