

15.5.4 Artificial satellites

Strangely enough, most sky watchers recognize satellites. Satellites appear in the night sky as small points of light that travel in a line crossing the sky in about 10 minutes. Airplanes are easier to spot because of their blinking lights. In contrast, satellites may brighten and dim as they cross the sky but they will not blink.

15.5.5 Eclipses

Solar eclipses occur when the Moon passes between the Earth and the Sun, casting a shadow on the surface of the Earth. Lunar eclipses occur when the Earth passes between a full Moon and the Sun, placing the Moon in the Earth's shadow. Lunar eclipses, when they occur, can be seen by everyone who can see the Moon.

p. 360 Therefore they are location- dependent in that the Moon has to be visible. In contrast, total solar eclipses are common worldwide but rarely recur in a particular location. For example, Ghana experienced total solar eclipses in 2006 and 1947, but the path of totality through the country was different for each. The best internet source for finding the dates of solar and lunar eclipses is the NASA website⁴ and Mr. Eclipse site,⁵ both calculated by 'Mr Eclipse', Fred Espanek.

15.6 Complicated Terms

15.6.1 Faint stars

Bright stars are easy to find, as are their home constellations. However, many cultures have constellations and legends surrounding faint stars as well. Most faint stars do not have 'names' but are simply designated with a Greek letter and the name of the constellation, and a Greek letter is assigned to each star in order of brightness for each constellation (these are known as the Bayer names). There are only twenty-four Greek letters and far more faint stars; once the letters are exhausted the remaining stars are numbered from west to east—these are the Flamsteed names (really numbers!). Fig. 15.8 shows the constellation Sagittarius with star names, while Fig. 15.9 shows Sagittarius with both the Bayer and Flamsteed star names.

Identifying faint stars is often really the researcher's best guess made by first identifying the closest bright stars, then estimating the angular distance and direction from two or three bright stars, and finally sitting down with a star chart and field notes to do a final identification.

15.6.2 Navigation stars

The most common star used for navigation in the Northern Hemisphere is Polaris which is near the North Celestial Pole. It appears to not move and marks North. Many cultures use the Big Dipper to find Polaris, since Polaris is not a bright star. The two stars that make up the leading edge of the Dipper are often called the pointing stars because they point to Polaris. Thus, Ursa Major and Ursa Minor are common constellations used for navigation in the Northern Hemisphere. When Ursa Major is not visible, Cassiopeia is sometimes used to aid in finding Polaris (see Figure 15.1). As mentioned earlier, the Southern Hemisphere does not have a star that marks the South Celestial Pole. The Magellanic Clouds and the Southern Cross are often used to locate South (see Figure 15.6).