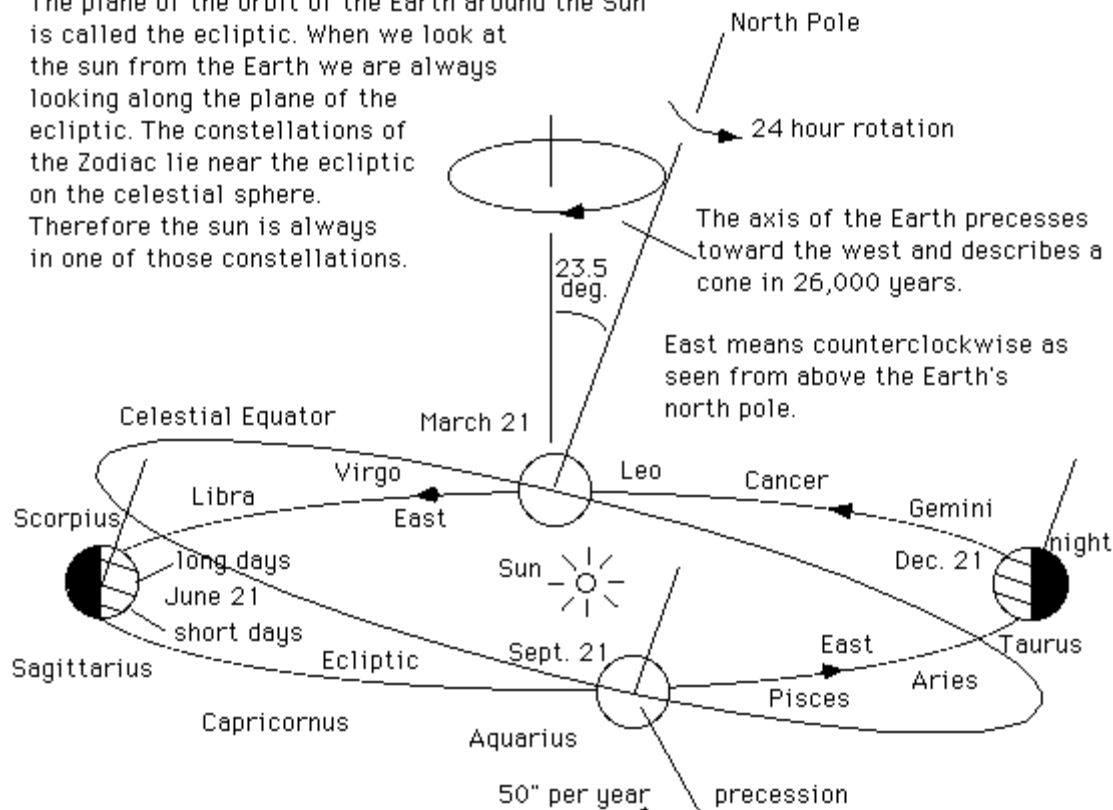


THE YEAR, THE SEASONS, EARTH'S ORBIT

The plane of the orbit of the Earth around the Sun is called the ecliptic. When we look at the sun from the Earth we are always looking along the plane of the ecliptic. The constellations of the Zodiac lie near the ecliptic on the celestial sphere. Therefore the sun is always in one of those constellations.



On June 21 the Earth's northern hemisphere is tilted toward the sun. The days are long and it is the summer solstice. But in June it is winter in the southern hemisphere because that hemisphere is tilted away from the sun. The opposite happens on December, the winter solstice.

At latitudes above 66.5 N (the Arctic circle) the sun does not set in June, but does not rise in December.

On March 21 (Vernal Equinox) and Sept. 21 (Autumnal Equinox) the Earth's axis is sideways to the sun. The days and nights are equal.

First point of Aries. One of the two places where the plane of the equator cuts the plane of the ecliptic. The sun is seen there near March 21. It is the analog in the celestial sphere of the Greenwich meridian. Due to the precession of the Earth's axis, the first point of Aries is also precessing toward the west at a rate of about 50" of arc per year (26,000 years to go around). This is the precession of the equinoxes.

Source: Dr. Manuel Huerta,

http://www.physics.miami.edu/huerta/class/110/110_gif/ECLIPTIC_ZODIAC.GIF