At different times of the year the sun follows different paths in the sky (Figure 3.6). The angle of inclination of the path of the sun from the perpendicular is equal to the latitude of the site.

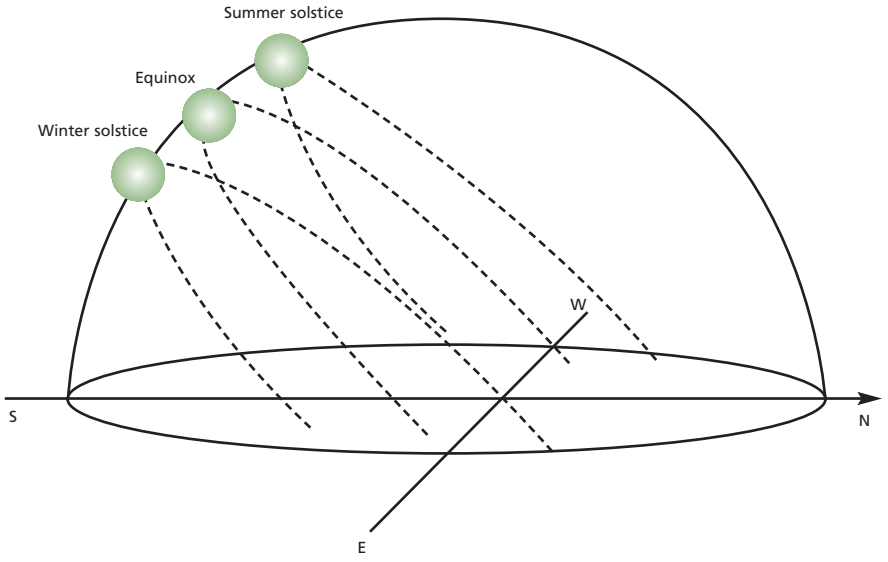

Figure 3.6 Annual variations in the sun path

To understand the reasons behind these sun paths and to be able to predict the position of the sun at any time it is necessary to consider the relative motions of the sun and the earth. The earth rotates on its axis in approximately 23 hours and 56 minutes and it orbits the sun once per year. The reason that days last approximately 24 hours is that due to its motion around the sun, the earth has to turn a little bit more than one rotation before the same point on its surface is facing the sun again. The orbit of the of the earth around the sun is shown in Figure 3.7.

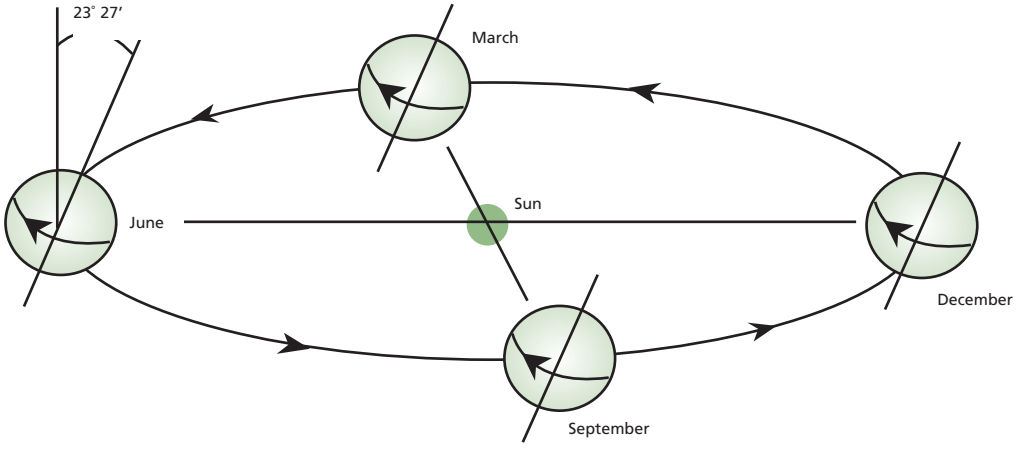

Figure 3.7 Orbit of the earth around the sun