



FIGURE 7.25. The origin of tides. (A) The bulge in Earth's ocean-water surface due to the position of the Moon explains the semidiurnal tidal period (two high tides and two low tides per day). (B) Diurnal inequality of semidiurnal tidal amplitudes due to Moon's declination. (C) The eccentric elliptical orbit of the Moon around Earth results in neap and spring tides (two of each per month), and inequality of successive neap-tidal amplitudes (at solstices) and spring-tidal amplitudes (at equinoxes). The eccentric elliptical orbit of Earth around the Sun results in changes in peak spring- and neap-tidal amplitudes. Modified from J. R. L. Allen (1985).