

This approximation has the advantage that the solar altitude angle does not have to be explicitly calculated.

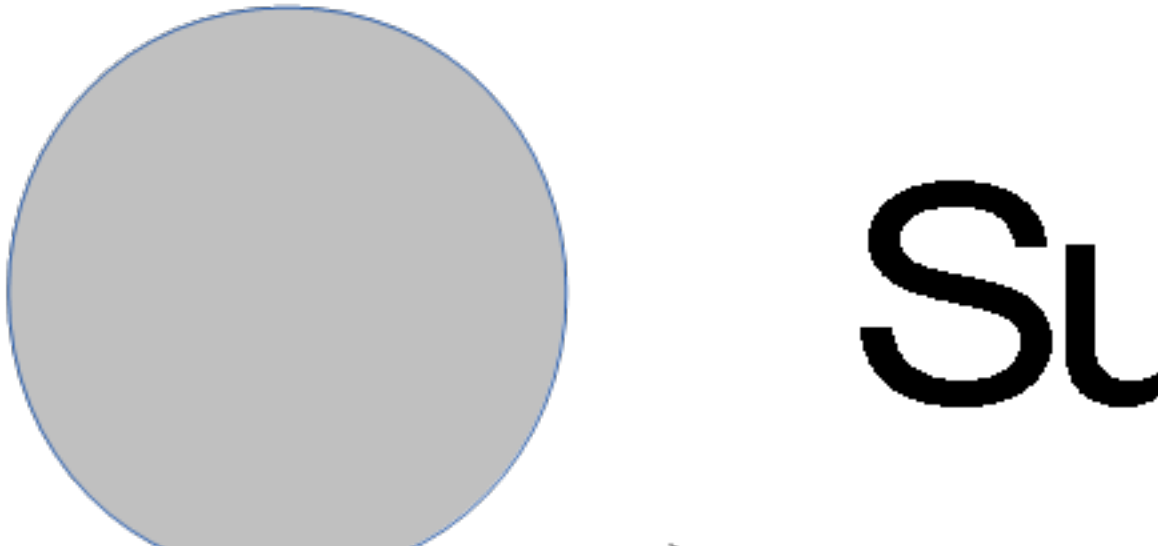


Figure 1. The three types of irradiance falling upon a surface perpendicular to the position of the sun in the sky.  $I_o$  is the extraterrestrial beam irradiance.  $I_b$  is the beam irradiance falling on the surface.  $I_d$  is the diffuse irradiance falling on the surface.  $I_r$  is the reflected irradiance falling on the surface.  $\alpha$  is the solar altitude angle.

The total (or global) irradiance falling on the Earth's surface at the ground can be divided into three types: the beam irradiance,  $I_b$ , the diffuse irradiance,  $I_d$ , and the reflected irradiance,  $I_r$  (Figure 1). Beam irradiance comes directly from the sun, and is also called