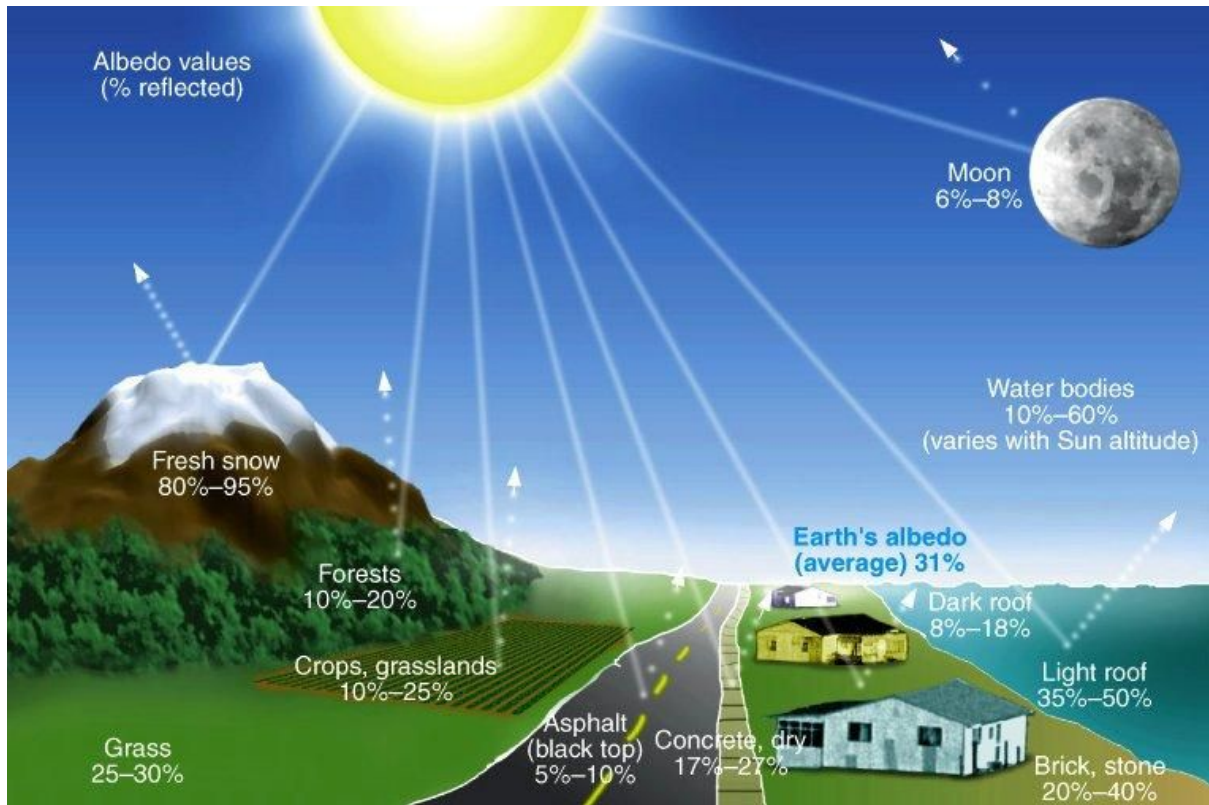


## Albedo, Melting Ice and Climate Change Background Reading

Earth's radiation budget is a concept that helps us understand how much energy Earth receives from the Sun and how much it radiates back into space.



Albedo measures the percentage of light that is reflected off a surface. An object that reflects all the light would have albedo of 1 (100%), whereas a completely opaque object would have an albedo of zero.

If Earth was completely covered in ice like a giant snowball, its albedo would be about 0.84, meaning it would reflect 84 percent of incoming sunlight and absorb 16 percent. On the other hand, if Earth was completely covered by a dark green forest canopy, its albedo would be about 0.14, meaning most of the sunlight would get absorbed and our world would be significantly warmer than it is today.

Satellite measurements made since the late 1970s estimate Earth's average albedo to be about 0.30. In other words, about 30 percent of incoming solar radiation is reflected back into space, and 70 percent is absorbed. Earth's radiation budget is balanced when the amount of incoming radiation is equal to the amount of outgoing radiation. If the budget is out of balance, Earth may experience net warming or cooling. Over the past century, there has been a net warming trend, which has caused Earth's temperature to increase by about 0.8°C.