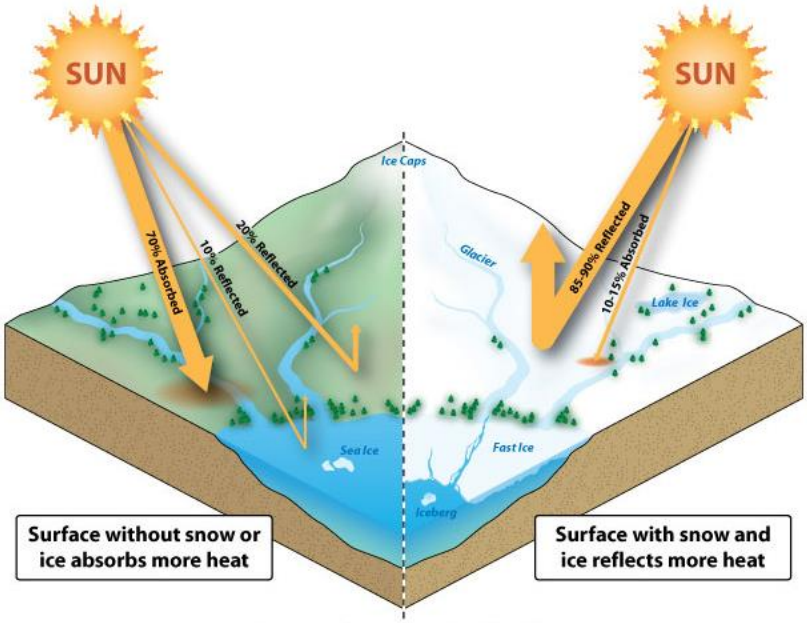
Albedo:

The definition of albedo is simple: how well the Earth's surfaces reflect the sun's energy. Bright surfaces, such as glaciers, have a high albedo and thus reflect a lot of the sun's energy (Figure 1). Dark surfaces, like the ocean, are less reflective and have a lower albedo. The larger the bright surface the greater the albedo effect. Consequences of altering Earth's albedo are the changes brought upon by the intensification or dampening of solar energy. This can lead to global changes related to weather patterns, ocean circulation, and biodiversity. Variation in the Earth's albedo is not an unheard of event; it can be affected daily by cloud cover, seasonally with the formation and melting of sea ice, and in the long term (10kyrs) with glacial maxima and minima. Changes in Earth's albedo are enhanced by a positive feedback mechanism. This means that where a reduction in the albedo occurs an increased rate of loss will be observed, and vice versa. Understanding changes in the globe requires careful monitoring of the Earth's albedo state. With such knowledge scientists can outline potential dangers and changes that may be expected in the future of the natural world
http://oceanbites.org/sea-ice-and-albedo-should-we-be-worried/

In months that there is snow the albedo is increased, compared to months with melt ponds, which have a decreased albedo.

Researchers also determined that since 1979 there has been a %15 decrease in clear sky albedo whereas all sky albedo has decreased by only 8%.



http://oceanbites.org/sea-ice-and-albedo-should-we-be-worried/

Her følger flere data mm. om Albedo:

Snow	80%
Dry sand in the desert	40%
Water, sun at 10°	38% (sun close to horizon)
Grassland	22%
Rainforest	13%
Wet soil	10%
Water, sun at 25°	9%
Water, sun at 45°	6%
Water, sun at 90°	3.5% (sun directly overhead)

Forskellige typer Jordoverflade har forskellige refleksions-koefficienter.

The Earth receives both short and long wave radiation from the Sun

Some radiation is reflected back to space

Albedo-global mean planetary reflectance

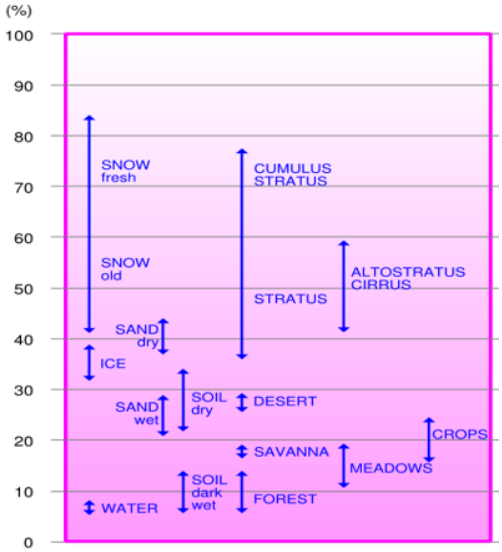
Clouds, air molecules, particles, surface reflection.

Earth's albedo $\alpha \sim 0.3$ About 30% of the incoming solar flux is reflected back to space

Table: - Solar reflectance (albedo) of select material surfaces

Material surface	Solar Reflectance
Black paint	0.06
White paint	0.8
Sand (wet)	0.2 to 0.3
Sand (dry)	0.35 to 0.45
Soil (dark and wet)	0.05 to 0.15
Soil (dry)	0.225 to 0.35
Forest	0.05 to 0.15
Desert	0.25
Savanna	0.17
New concrete (traditional)	0.2 to 0.5
New concrete with white Portland cement	0.3 to 0.7
Grass(green)	0.1to 0.35
Grass(dry)	0.2to 0.45
Water (small zenith angle)	0.03 to 0.1
Water (large zenith angle)	0.1 to 1
Snow (old – fresh)	0.4 to 0.85
Agricultural crops	0.15 to 0.25
Clouds (thick)	0.6 to 0.9
Clouds (thin)	0.3 to 0.5

Sources: Oke, 1992, Ahrens, 2006



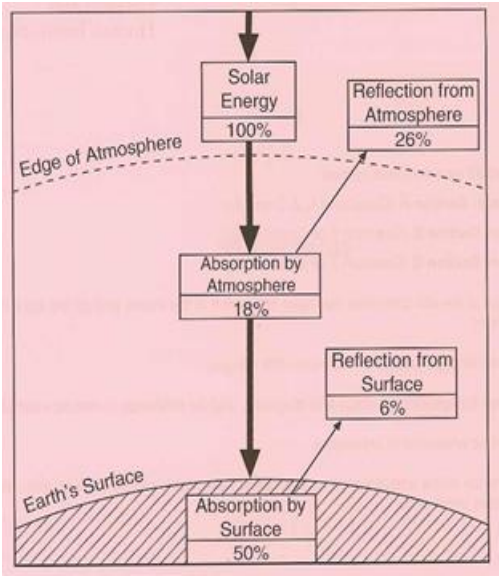
Reflection of solar radiation are due to ice, snow, clouds, aerosols, and deserts surfaces.

Surface	Percent of Earth's Total Surface Area	Area Square Kilometers
Earth's Surface Area Covered by Land	29.2%	148,940,000
Earth's Surface Area Covered by Water	70.8%	361,132,000
Pacific Ocean	30.5%	155,557,000
Atlantic Ocean	20.8%	76,762,000
Indian Ocean	14.4%	68,556,000
Southern Ocean	4.0%	20,327,000
Arctic Ocean	2.8%	14,056,000

Snow and Ice Cover on Earth

The exact amount of snow and ice cover upon the Earth changes drastically with the seasons. Seasonal snow cover can cover up to 33 percent of the Earth's land mass, but this is not a permanent feature and mainly occurs during winter in the Northern Hemisphere. Only 12 percent of the Earth's surface is permanently covered in ice and snow, the majority of which is found in the polar regions.

http://arctic-news.blogspot.dk/2012/07/albedo-change-in-arctic.html



http://www.patarnott.com/atms360/pptATMS360/Albedo_Presentation33.ppt

Jorden er dækket af ca. 70 % Havvand

For the Earth as a whole, only about half the solar radiation present at the top of the atmosphere reaches Earth's surface. The solar radiation must pass through Earth's atmosphere where it is absorbed by gases and particles and reflected back into space by clouds and particles. Approximately 70% of the Earth is covered by clouds at any given moment. The next lab, Stratospheric Ozone, focuses on the absorption of solar radiation by a gas, ozone, in a layer of the atmosphere known as the stratosphere. The left-side portion of the image below shows the absorption and reflection of solar radiation by the atmosphere and Earth's surface. Note that the incoming solar radiation is 341.3 W m^{-2}, rather than the solar constant value of 1365.2 W m^{-2}. The solar constant is averaged across the entire surface of Earth; therefore, the value is divided by four. The 341.3 W m^{-2} value is the total solar radiation reaching the top of the atmosphere per second (174,226,942,644,300,000 W) divided by the surface area of Earth (510,000,000,000,000 m^2).
http://sites.gsu.edu/geog1112/solar-radiation-seasons/