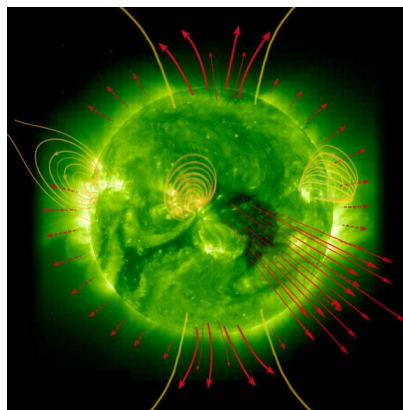


USES OF SOLAR ENERGY

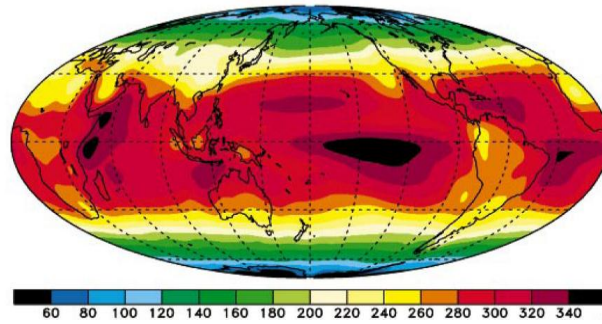


The sun is a star that humans have always identified and that we have used in different ways, it is directly or indirectly the main source of energy in the solar system. This electromagnetic energy source is essential for the existence of known life.

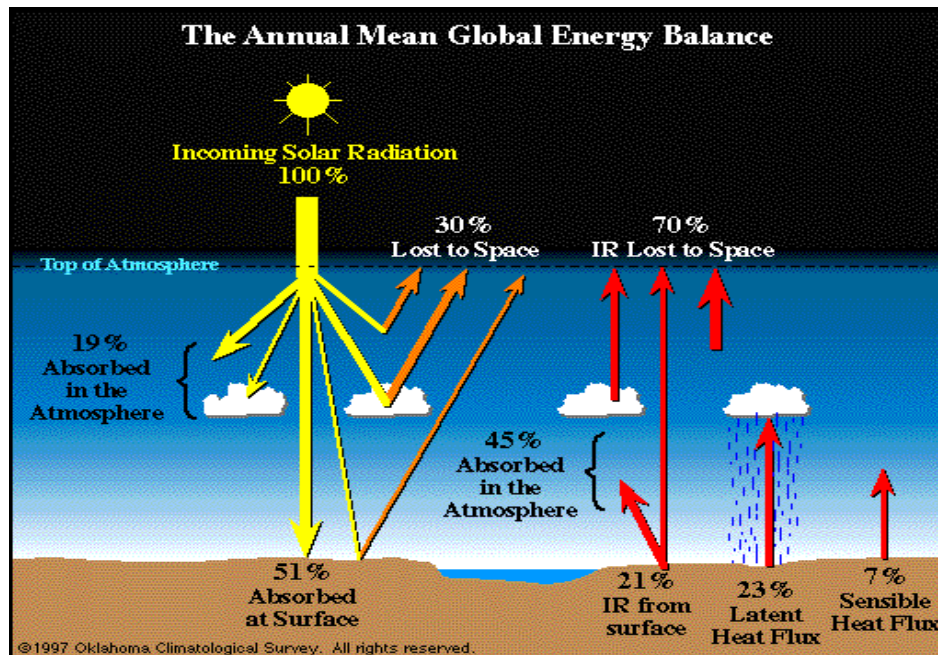


The Earth receives about 275 million gigawatt-year (275×10^{15} watts) of solar radiation in the upper atmosphere each year, which means a total of 8.2 million of “quads” of energy per year (currently humanity consumes 400 quads

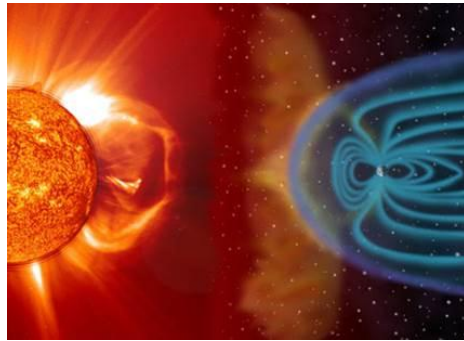
per year). In other words, each passing day the Earth receives 56 times the energy consumed in a year by mankind.



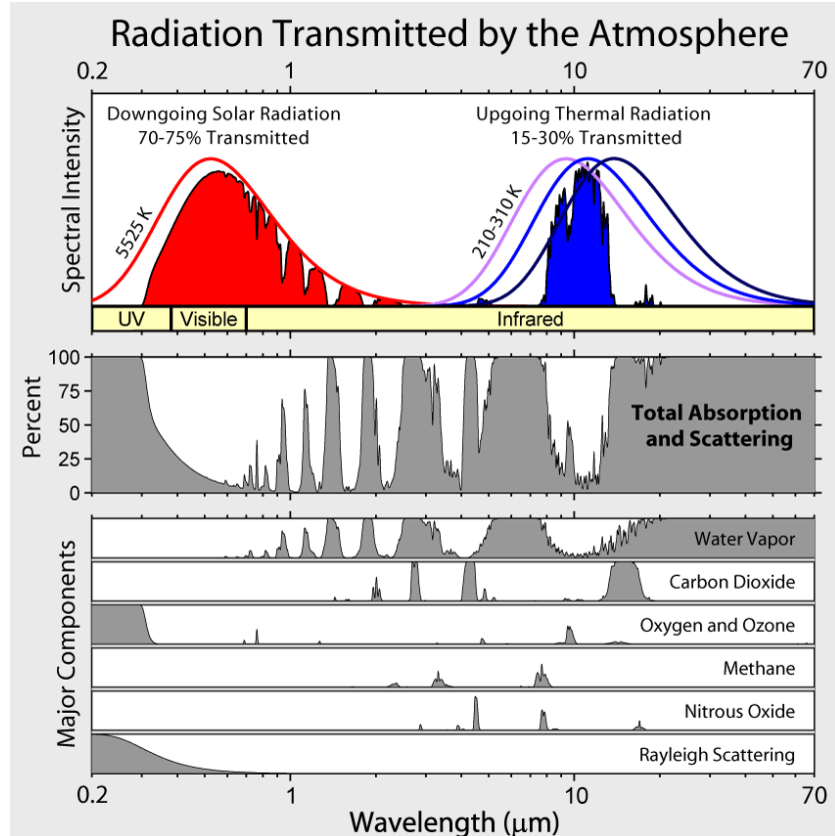
Approximately 30% of this energy is reflected back into space while the rest is absorbed by clouds, oceans and masses. On an annual average the Poles (North and South) receive less insolation than the equator, because the poles of the Earth's surface are not angled to the sun



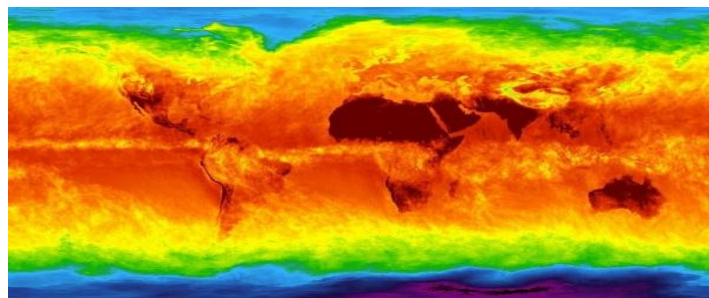
The insolation is a measure of solar radiation received on a surface area registered for a given time. It is also called solar radiation. Is measured in joules per square millimeter. Solar radiation contacts the planet which is within the magnetosphere. Some of the solar energy will be absorbed in the magnetosphere and the rest reflected. Usually the absorbed solar radiation is converted into thermal energy, causing a rise in temperature of the object.



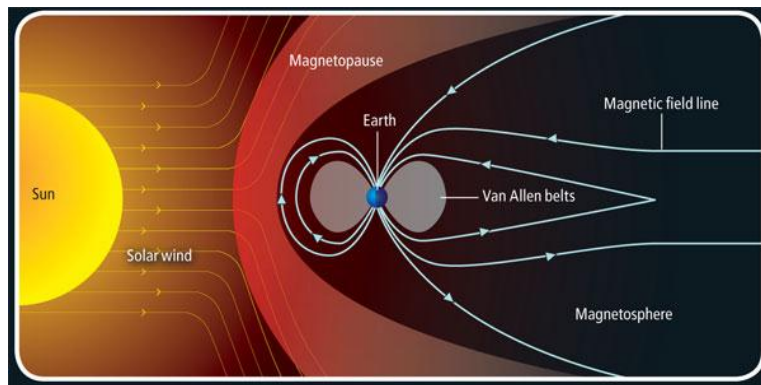
The spectrum of sunlight at the Earth's surface is in the visible and near infrared ranges with a small part of ultraviolet. The visible light is only part of the electromagnetic spectrum. The electromagnetic radiation is not monochromatic, but a range of different wavelengths and therefore energy levels.



The lithosphere, oceans and atmosphere absorb solar radiation and increases their temperature, allowing an environment which allows life to thrive. Plants use light to make food through photosynthesis, animals eat plants. Plants can be used as biomass energy and if decay under certain conditions, with the passage of time become fossil fuels like coal, oil, and natural gas that we use every day.



The sun also exerts interactions with the Earth through its electromagnetic field and gravity, causing its rotation and therefore heat from the Earth's core, which is then taken as Geothermal Energy and one the main origin of Energy of the oceans.

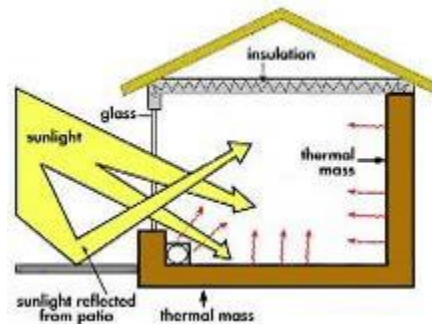


Currently, we have identified that solar energy can be harnessed in 4 different ways that are classified as “active” (panels, thermal collectors) or “passive” (sustainable construction) depending on the way they capture, convert and distribute solar energy :

(1) As heat source:



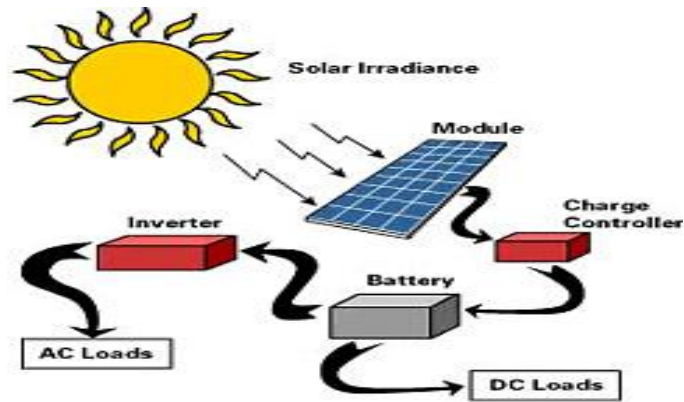
(2) Through a solar architecture



(3) To generate solar thermal electricity (transforming energy into kinetic energy and steam to power an electric generator)



(4) Through photovoltaic cells connected to a system with an electrical circuit.



Photovoltaic cells are arrays of semiconductor materials with a potential of an electron flow controlled to be energized by light photons to generate an electric current. This technology can be organized into modules or systems to power an electrical circuit to be exploited directly for home lights, appliances, business, transportation and lots of gadgets.

In general, the major obstacle of using solar energy is that current technology only works when the sun shines on the surface of the technology directly (at night or on cloudy days should replace the power supply, for example natural gas)



Source: <http://www.artinaid.com/2013/04/uses-of-solar-energy/>