

Lecture 6

GLY102

2/18/2021

2.8M without power in Texas

Whether Texas' weather was climate change or not, it is an example of the political-social engine that cranks up when there is an extreme weather event.

Are we prepared for weather events outside the norm to occur? Is our infrastructure ready for those events?

Stefan-Boltzmann Law

How hot is an object (T)?

We can tell based on how much power it radiates per surface area (P/a).

The Stefan-Boltzmann Law relates to climate: **Energy in the sun-earth system**

Hotter objects emit at shorter wavelengths.

Hotter objects emit more energy.

FACT: The earth is much colder than the sun.

$$T_{\text{Earth}} < T_{\text{Sun}}$$

The sun mostly radiates in the UV/visible/IR part of the spectrum.

The earth radiates in the infrared (IR) part of the spectrum.

The sun shines light onto Earth

"**Incoming Solar Radiation**" --> (Insolation)

Short wave goes into earth, long wave comes out

ALBEDO - The reflectivity of a surface