**Heating of Land vs Water**

**5 factors**

1. **Specific Heat**.

* How a substance responds to the input/output of heat.
* Heat required to raise the temperature of 1 gram of a substance 1 degree Celsius (C).
* Pure water has a specific heat value of 1.0. What this means is that 1 calorie of heat applied to 1 gram of pure water will raise the temperature of that water 1 degree C.
* Dry sand = .19
* Concrete = .2
* If dirt has a specific heat of .25 we would say that dirt heats up four times faster than water.

1. **Land is Opaque**.

* Not able to be seen through.
* You can't see (and light won't shine) through very much dirt.
* Sunlight shining on land has a difficult time penetrating very far.
* Solar radiation is concentrated on the surface thus heating it quicker.

1. **Water is Translucent**.

* Solar radiation can penetrate deeper into water.

1. **Water is Mobile**.

* Water is highly mobile -- constantly mixing upward and downward due to **convection** currents.
* Because water molecules are in constant motion, it takes longer for solar radiation to uniformly raise the temperature of a given body of water.

1. **Evaporation**.

* Greater over water than over land.
* Because energy is needed for the evaporation process, the energy used is not available for heating.