

Because the low latitudes of the Earth, the areas near the equator, receive more heat than the latitudes near the poles, and because the nature of heat is to expand and move, heat is transported from the tropics to the middle and high latitudes .

Some of this heat is moved by winds and some by ocean currents, and some gets stored in the atmosphere in the form of latent heat .

The term “latent heat” refers to the energy that has to be used to convert liquid water to water vapor .

We know that if we warm a pan of water on a stove, it will evaporate, or turn into vapor, faster than if it is allowed to sit at room temperature .

We also know that if we hang wet clothes outside in the summertime they will dry faster than in winter, when temperatures are colder .

The energy used in both cases to change liquid water to water vapor is supplied by heat – supplied by the stove in the first case and by the Sun in the latter case .

This energy is not lost .

It is stored in water vapor in the atmosphere as latent heat .

Eventually, the water stored as vapor in the atmosphere will condense to liquid again, and the energy will be released to the atmosphere .

In the atmosphere, a large portion of the Sun's incoming energy is used to evaporate Water, primarily in the tropical oceans .

Scientists have tried to quantify this proportion of the Sun's energy .

By analyzing temperature, water vapor, and wind data around the globe, they have estimated the quantity to be about 90 watts per square meter, or nearly 30 percent of the Sun's energy .

Once this latent heat is stored within the atmosphere, it can be transported, primarily to higher latitudes, by prevailing, large-scale winds .

Or it can be transported vertically to higher levels in the atmosphere, where it forms clouds and subsequent storms, which then release the energy back to the atmosphere .