Mass-Transfer Theory versus Pan Evaporation

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On a large scale, all bodies of water are constantly evaporating. It is very important to understand the negative effects that increased evaporation can have on the environment. Water vapor is the atmosphere's main greenhouse gas. An increase in the amount of water vapor in the atmosphere will increase the amount of greenhouse gas. As a result the climate of the Earth will continue to get warmer. By knowing exactly how much water vapor is being released into the atmosphere, scientists could develop ways to monitor and maintain positive levels of evaporation. As of now, there are many methods to calculate reservoir evaporation. However, many of these methods are extensive mathematical equations that can become difficult to complete. On a smaller scale, yet still very important, mining through the use of lakes has become extremely important in order to obtain materials such as limestone. Man-made lakes are aquifer tapped, which directly causes water loss that in turn will effect water levels. Dramatically changing water levels could have a detrimental effect on the aquifer and the environment. The experimenters are using a device called a VP-4 and a DataTrac Data Logger. Together, the devices can collect the data and values that can be plugged into the Mass-Transfer Theory. The results of this will then be compared to the well-known and tested Class A Evaporation Pan. The evaporation pan is a shallow metal pan that is placed near the reservoir being measured. The researchers the measure the amount of water that has evaporated. The DataTrac machine is secured to the side of the dock, extending out over the reservoir. Here it automatically records data every fifteen minutes. The researchers found that the Mass Transfer Theory results were spot on with the Class A Pan.

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