Mapping Evapotranspiration for Water Administration in Idaho

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Mapping Evapotranspiration

Introduction

As part of the Idaho ET program, specific crops are grown and water used in irrigation to determine water consumption in Idaho. The Mapping Evapotranspiration for Grain Crops (MEP) model uses remote sensing and hydrologic input data to estimate ET for Idaho. The ET values are the difference between the energy available from the sunny sky and the energy consumed by the process of evaporation from the bare soil. The MEP model uses the Moderate Resolution Imaging Spectroradiometer (MODIS) for surface energy balance at the earth's surface using the equation ET = Rn - G - H - LE - ETo, where ET is the evapotranspiration, Rn is the net solar radiation, G is the ground heat flux, H is the sensible heat flux, LE is the latent heat flux, and ETo is the reference ET.

Curtailment Order

Curtailment orders are put in place by the Idaho Department of Water Resources to limit water use in certain areas of the state. These orders are typically put in place when there is a shortage of water, and water rights holders are required to reduce their water usage to the extent necessary to meet the demand. The orders are enforced by the Idaho Supreme Court, and violations can result in fines or legal action.

Endangered Species

Idaho is home to several endangered species, including the Salmon, the Cutthroat Trout, and the Snake River Dace. The state has implemented various measures to protect these species, including the creation of conservation plans and the implementation of water conservation measures to ensure the health of these species.

Accuracy

The Accuracy of the MEP model was evaluated by comparing the ET estimates with ET measured in the field. The accuracy of the MEP model was found to be within 5% of the measured ET values, indicating that the model is a reliable tool for estimating ET in Idaho.

Applications in Idaho

The MEP model has been used in Idaho to estimate ET for various applications, including hydrologic modeling, water calls, and water rights purchase. The model has also been used to evaluate the impact of water conservation measures on ET and to inform water management decisions.

References


Water Rights Purchase

Water rights purchase is the process of acquiring water rights to irrigate crops or for other uses. In Idaho, water rights are typically purchased through the Idaho Department of Water Resources, and the process involves obtaining a water rights certificate and paying the required fees. The purchased water rights are then used to irrigate crops or for other purposes as specified in the certificate.

Water Delivery Call

Water delivery calls are a mechanism used by the Idaho Department of Water Resources to allocate water to specific users. The calls are put in place when there is a shortage of water, and water users must reduce their water usage to the extent necessary to meet the demand. The calls are enforced by the Idaho Supreme Court, and violations can result in fines or legal action.

Importance of Water Rights

Water rights are essential for the management of water resources in Idaho. They provide a mechanism for ensuring that water is distributed fairly and efficiently among users, and they also help to protect water rights holders from losing their water rights in the face of shortages.

The Role of Water Rights in Idaho

Water rights in Idaho are governed by the Idaho Constitution and state law. The state has implemented various measures to protect water rights holders, including the creation of conservation plans and the implementation of water conservation measures to ensure the health of the state's water resources.

Water Rights in Idaho

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