



Synthesis on evaporation partitioning using stable isotopes

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Partitioning of evaporation into productive (transpiration) and non-productive evaporation (interception, soil evaporation) is of highest importance for water management practices, irrigation scheme design, and climate modeling. Despite this urge, the magnitude of the ratio of transpiration over total evaporation is still under debate and poorly understood due to measuring difficulties. However, with the current development in isotope measuring devices, new opportunities arise to untangle the partitioning of evaporation.

In this paper we synthesize the opportunities and limitations using stable water isotopes in evaporation partitioning. We will analyze a set of field as well as laboratory studies to demonstrate the different evaporation components for various climate and vegetation conditions using stable isotopes $^{18}\text{O}/^{16}\text{O}$ and $^2\text{H}/^1\text{H}$. Experimental data on evaporation partitioning of crops, grass, shrubs and trees are presented and we will discuss the specific experimental set-ups and data collection methods. The paper will be a synthesis of these studies.