Geophysical Research Abstracts
Vol. 19, EGU2017-19145, 2017
EGU General Assembly 2017


# Validating large water productivity datasets of the Middle East and Africa: a physical approach

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Improving crop water productivity has been identified as an important way to reach the Sustainable Development Goals (SDGS). This is evident through SDG2.3 and SDG6.4 which state that that agricultural productivity should be doubled and 2030 (SGD2.3) that water use efficiency must be substantially increased (SDG6.4). Currently the United Nations Food and Agricultural Organisation (FAO), in partnership with UNESCO-IHE, IWMI and the eLEAF - VITO - ITC-UTwente data producer consortium, are investing in the development of large water productivity (WP) component (above ground biomass and evapotranspiration) datasets to monitor and evaluate the water productivity performance in the Middle East and Africa. If the reliability and confidence of these estimates can be considered acceptable, it provides water managers, agriculture ministries, farmers and policy makers on both local and global scales to valuable information in decision making for best practice. However, there is still significant uncertainty in estimates produced in continental scale attempts to model and determine evapotranspiration and biomass. This unique and extensive dataset provides great opportunity to observe the interaction of mass and energy transfer as a tool for validation. This research will focus on fundamental mass and energy balance transfer approaches (and accounting) such as water balance and physical and biophysical partitioning of energy.