



Contribution ID: 662

Type: Oral Presentation

Data driven analysis of evapotranspiration estimated by the water balance and eddy covariance methods

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We present the results of a data driven analysis of energy and water balances from one of the field observatories within the Danish Hydrological Observatory HOBE. From this field observatory long time series have been collected of precipitation (several different type of rain gauges), radiation (four component sensors), latent and sensible heat (flux tower measurements using eddy covariance), soil heat flux (heat flux plates), soil moisture (capacity, time domain reflectometry and cosmic ray sensors) and recharge (underground lysimeters). Ideally, both energy and water balance closure should be obtained when based on the individual measurements. However, it is a well-known problem that a biased imbalance is commonly present between the in- and outgoing energy fluxes when based on the eddy covariance method and evapotranspiration (ET) may therefore be consistently underestimated. ET enters in the energy balance as latent heat flux and in the water balance as water flux and it is therefore possible to cross-check this component. We demonstrate that based on six years of observations ET estimated as a residual term in the water balance equation and ET estimated from the eddy covariance measurements compare well. Thus, we infer that the energy imbalance commonly present when based on the eddy covariance method can likely be attributed to errors in the measurements of the other energy fluxes

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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