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BRIDGET: a toolbox for the integration and scaling of diverse in-situ evapotranspiration measurements

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Cross-compartment fluxes of mass and energy play a key role in the functioning of the earth system. Yet their understanding is largely hampered by the fact that related observations occur on multiple scales, involve multiple sensors, and data are collected across different research disciplines. Evapotranspiration (ET) is one of these fluxes and of key importance in the Earth's water and energy cycle, and comparisons and scaling of in-situ ET measurements face the same challenges.

BRIDGET aims to provide tools that will allow storage, merging and visualisation of multi-scale and multi-sensor ET data and ultimately facilitate their scientific analysis. Approaches to estimate ET are manifold with respect to the underlying observations, scales, footprints and associated uncertainties, and measurements are gathered within various research disciplines. For this toolbox we therefore need to incorporate the appropriate metadata catalogue that describes the data comprehensively across disciplines. Special emphasis is placed on providing uncertainty estimates for the data, particularly when scaling functions are applied. Finally, we develop tools for visualisation including the different support of the measurements and (geo-)statistical analysis of the various ET data.

The BRIDGET toolbox is envisioned as a standalone python package but will also be implemented in an already existing virtual research environment (V-FOR-WaTer), facilitating the merging of different ET estimates across sensors and scales.