C01: What the flux?! Surface-atmosphere exchange of energy and mass

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Session Description

Over the past two decades, micrometeorological techniques have been increasingly used to by meteorologists, ecologists and agricultural scientists to measure the surface-atmosphere exchange of energy and mass. Advances in fast-response sonic anemometry-thermometry, infra-red gas analyzers, data acquisition, processing and storage systems have allowed for near continuous, multiyear measurements of sensible heat and water vapor fluxes that can be used to directly assess components of the surface energy and water balance. With further recent developments of field-robust instrumentation to measure mass concentrations at sufficient frequencies, researchers now routinely employ micrometeorological methods such as eddy covariance, flux gradient, mass balance techniques, and inverse-dispersion analysis to measure fluxes of trace gases such as CO_2, CH_4, N_2O, NH_3, and various isotopologues, as well as, particulate matter between the atmosphere and a plethora of land surfaces including natural ecosystems, urban landscapes and agricultural sites. The purpose of this session is to bring together scientists from the various backgrounds and disciplines utilizing micrometeorological methods to share their surface-atmosphere flux-related discoveries and challenges.

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