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

Conveners: Andrew VanderZaag[1], and Aaron Glenn[2]

Co-chairs: Andrew VanderZaag[1], and Aaron Glenn[2]

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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.

Primary Affiliation: CSAFM

C02: Agrometeorological and Satellite derived Decision Support Tools for Agriculture in a Changing Climate

Conveners: Andrew Nadler, Manasah Mkhabela and Yinsuo Zhang

Co-chairs: Andrew Nadler[1], Manasah Mkhabela[2] and Yinsuo Zhang[3]

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Session Description

Advanced satellite imagery and weather monitoring technologies have enabled the timely monitoring of crop and environmental conditions in near-real-time and to adopt decision support tools that assist with *crop management and environmental sustainability*. These tools are becoming more sophisticated as the industry continues to invest in the application of these tools, from precision agriculture at the farm level to yield forecasting at regional and global levels. This session will review the trends in technologies and tools that utilise agrometeorological and satellite (remote sensing) derived inputs for on-farm precision farming and decision making across all scales. The session will also cover/ demonstrate the use of these technologies and tools across all scales for crop growth monitoring/modelling, disease/pest prediction and monitoring and yield forecasting under extreme variable weather and a changing climate.

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