

Metadata Records
Irrigation Innovation Consortium-Supported Project Datasets

Please use a separate sheet for each dataset. Answers are automatically saved.
 Questions? Contact Diane DeJong: diane.de_jong@colostate.edu.

Thank you!

Question	Answer
Project name	Satellite and UAS imagery use to implement timely irrigation strategies
Project background	Unmanned aerial systems (UASs) and satellites have been recognized as available platforms to provide near real time feedback of temporal and spatial conditions found in agricultural fields throughout the crop growing season. However, UASs have not been widely studied in irrigated settings. Further, traditional multispectral satellites have a low revisit frequency and large pixel sizes; which has limited their wide adoption for routine agricultural water management. With the advent of new multispectral microsattellites, capable of high revisit frequency (daily to several times per day) and high spatial pixel resolution (3 m), an opportunity exists to evaluate their applicability in monitoring crop water use. Therefore, the main objectives of this study were: a) to assess the potential use, and accuracy, of UASs and microsatellite images, in ETa models, to determine actual water use for irrigated maize, citrus, and onions; and b) to assess the accuracy of a single source energy balance and a reflectance based ETa models.
Dataset name	Colorado LIRF Data
Primary author Include first & last name, institution affiliation, and email address.	José Chávez, Colorado State University, jose.chavez@colostate.edu
Primary contact The primary contact may be the same or different from the primary author. Include first & last name, institution affiliation, and email address.	José Chávez, Colorado State University, jose.chavez@colostate.edu
Dataset description Please provide a brief, clear summary description of the dataset contents. Indicate as applicable: purpose and scope; time period; areas of investigation; and any other special characteristics.	1) During 2019, daily PlanetScope surface reflectance images were acquired during the maize growth season. However, only cloud-free images were used including dates (images) in which the maize fields were not affected by irrigation or rainfall events (i.e., wet surface, soil water redistribution). 2) Estimates of RS of ETa performed with the 'SAT-Kcbrf' method at the LIRF site were evaluated with ET derived from an Eddy Covariance system, a soil water balance, and sap flow data.
Spatial coverage Please be specific as possible about the geographic coverage of your data, and record the information according to defined standards, such as FGDC or the Getty Thesaurus of Geographic Names. You can enter lat/long data, county names, state names, etc.	The research fields at LIRF were located near Greeley, CO at an elevation of 1,425 m above mean sea level (amsl), latitude 40.4463° North and longitude 104.6371° West. Data were collected on two fields (~185 m × 108 m ea.) in 2019. The West (W) field was deficit irrigated (two irrigations totaling 226 mm or 8.9 in) and the East (E) field was fully irrigated (453 mm or 17.85 in, replenishing full crop ET) in 2019. The irrigation system was sub-surface drip (SSD), with laterals (pipes) buried at a depth of 0.23 m below ground level (BGL) and with a spacing of 0.30 m.

<p>Temporal coverage Describe the temporal coverage of your dataset: Start: Time of day, Date, Month, Year Finish: Time of day, Date, Month Year</p>	2019
<p>Re-use limitations Describe known problems or caveats that would limit reuse of the data (e.g., uncertainty, sampling problems, blanks, quality control samples) and/or that future potential users of your dataset should know about. Or indicate "None."</p>	The data was collected over maize fields. Thus, the applicability of the analysis is restricted to similar crops that have water uptake rates and plant physiological responses to similar to maize.
<p>Citations Please include full citations and DOIs for articles published based on or related to this dataset. Or indicate "None."</p>	
<p>Keywords Please add a few appropriate National Agricultural Library keywords: https://agclass.nal.usda.gov/vocabularies/nalt</p>	unmanned aerial vehicles; multispectral imagery; microsattellites; remote sensing
<p>Tags Please add a few of your own user-defined tags that would be useful to others who might use your dataset in the future.</p>	reflectance based crop coefficient method
<p>Acronyms & abbreviations Please define any acronyms, site abbreviations, or other project specific designations used in your dataset. Or indicate "none."</p>	UAS - unmanned aerial systems
<p>Other dataset storage location Has this dataset already been uploaded elsewhere? Yes or No Reasons may include a requirement as part of publishing a paper or storing data on GitHub or other locations to make accessible to others. If yes, please provide the link or other information to explain where the dataset is located and where or how it can be accessed.</p>	Data results and discussion available in project final report.