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 microsatellites, 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 IIC 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.	The IIC-HQ west field was flown by the CSU Drone Center's UAS in 2020. PlanetScope images used, for cloud free days and days with no wetting events and when the wind direction was favorable for heat fluxes measurements by the EC system. Maps produced include: a) true color map (RGB), b) UAS NDVI map, and c) microsatellite PlanetScope NDVI map.

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 IIC-HQ is located at the intersection of Prospect Rd. and Interstate-25 in Fort Collins, CO (Elevation of 1,525 m amsl, Lat. 40.557270 N, Long. -105.004932 W), includes 38.5 acres of land that is surface irrigated from multiple water sources. The research field used was approximately 6.2 ha (348 × 200 m) located at the south-west (SW) corner of the site. Maize (Syngenta G02K39-3120) was planted on May 13, 2020 with a density of 81,500 plants per hectare. Soil texture is Otero sandy loam. The climate is arid to semi-arid. The irrigation system is surface furrows, which were supplied of water by syphons (every other furrow) from a head ditch.
Temporal coverage Describe the temporal coverage of your dataset: Start: Time of day, Date, Month, Year Finish: Time of day, Date, Month Year	The IIC-HQ west field was flown by the CSU Drone Center's UAS the following dates in 2020: July 16 and 31, August 4, 7, 19, and September 5. Further, PlanetScope images used, for cloud free days and days with no wetting events and when the wind direction was favorable for heat fluxes measurements by the EC system include: July 15, 19; August 1, 2, 4, 9, 10, 15, 16, 20, 21, 27, 31; September 1, 2, 4, 5, 19, and 20.
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."	The data was collected over maize fields. Thus, the applicability of the analysis is restricted to crops that have water uptake rates and plant physiological responses to similar to maize.
Citations Please include full citations and DOIs for articles published based on or related to this dataset. Or indicate "None."	
Keywords Please add a few appropriate National Agricultural Library keywords: https://agclass.nal.usda.gov/vocabularies/nalt	unmanned aerial vehicles; multispectral imagery; microsatellites; remote sensing
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.	reflectance based crop coefficient method
Acronyms & abbreviations Please define any acronyms, site abbreviations, or other project specific designations used in your dataset. Or indicate "none."	UAS - unmanned aerial systems
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.	Data results and discussion available in project final report.