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	A Remote Sensing Approach to Identify Critical Areas in California Orchards for Improving Irrigation Water Management through Precision Agriculture Technology
Project background	In 2013, California growers from 18 counties (Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, Santa Cruz, Stanislaus, Sutter, Tulare, Ventura, Napa, Yolo, San Luis Obispo, Riverside, Colusa, and Glenn) responded to a survey on their perceived changes in irrigation water use due to adopting precision agriculture technology such as soil moisture sensors as part of a study conducted by CIT, Fresno State funded by PG&E. That study indicated significant opportunities to improve irrigation efficiency through adopting technology such as soil moisture sensors. In that context, this project proposes a remote sensing approach to evaluate crop water status in the orchards of the same counties in California. This project is outlined toward the following specific objectives: 1) Identify and map orchards that are consistently facing water stress issues throughout 18 California counties using available satellite imageries from different sources 2) Identify areas where grower community are not utilizing any precision agriculture technology 3) Outline orchard areas where irrigation management can potentially be improved through use of available precision agriculture technologies.
Dataset name	NDVI (Normalized Difference Vegetation Indices) and SAVI (Soil Adjusted Vegetation Indices) Images
Primary author Include first & last name, institution affiliation, and email address.	Dilruba Yeasmin, Center of Irrigation Technology, California State University, Fresno, dyeasmin@csufresno.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.	Dilruba Yeasmin, Center of Irrigation Technology, California State University, Fresno, dyeasmin@csufresno.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.	NDVI (Normalized Difference Vegetation Indices) and SAVI (Soil Adjusted Vegetation Indices) images were created from Landsat8 (Multispectral Images) for 18 California counties from 2016 to 2020. Similar datasets are also created from Sentinel 2 images for 10 California counties, there were missing data issues for the rest of the counties.
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.	18 California Counties: Fresno, Kern, Kings, Madera, Merced, Monterey, San Joaquin, Santa Cruz, Stanislaus, Sutter, Tulare, Ventura, Napa, Yolo, San Luis Obispo, Riverside, Colusa, and Glenn

Temporal coverage Describe the temporal coverage of your dataset: Start: Time of day, Date, Month, Year Finish: Time of day, Date, Month Year	2016 - 2020
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."	Soil Adjusted Vegetation Index (SAVI) derived from Landsat 8 data sometimes gave unusual (out of range) values. Analysis was done but the issue was not found. Sentinel 2 Datasets were better resolution than Landsat (Sentinel Resolution: 10m*10m and compared to Landsat Resolution: 30m*30m) but there were a lot of missing data tiles in Sentinel 2 data. The research team figured out a pattern in the dataset that can help to find specific dates with no missing data. It worked most of the time but still there were some missing data.
Citations Please include full citations and DOIs for articles published based on or related to this dataset. Or indicate "None."	None
Keywords Please add a few appropriate National Agricultural Library keywords: https://agclass.nal.usda.gov/vocabularies/nalt	California orchards; remote sensing; precision agriculture technology; normalized difference vegetation index; Landsat; irrigation
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.	
Acronyms & abbreviations Please define any acronyms, site abbreviations, or other project specific designations used in your dataset. Or indicate "none."	NDVI - Normalized Difference Vegetation Index; SAVI - Soil Adjusted Vegetation Index
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.	No