

# **ACTUAL EVAPOTRANSPIRATION ANALYSIS**

November 2022

Prepared for  
**East Kaweah Groundwater Sustainability Agency**

Prepared by  
 **LAND IQ**

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## SUMMARY

**TABLE 1. SUMMARY OF GSA ET AND PRECIPITATION (117,346 AC)**

	ET (ac-ft)	Precipitation (in)
Prior 12 months (DEC 1, 2021 - NOV 30, 2022)	256,634	7.6
Prior water year (OCT 1, 2021 - SEP 30, 2022)	257,436	8.6
Current water year to date (OCT 1, 2022 - NOV 30, 2022)	23,244	0.8
Prior water year to date (OCT 1, 2021 - NOV 30, 2022)	280,680	9.4

**TABLE 2. SENSORS USED IN DAILY AND MONTHLY ET<sub>A</sub> ANALYSIS BY CROP CATEGORY**

	Number of Active Stations	Number of Used Stations in model
Alfalfa	7	5
Almonds	14	11
Annuals	4	3
Citrus	16	8
Fallow/Native	8	7
Grapes	5	4
Olives	0	0
Pistachios	9	8
Pomegranates	1	1
Walnuts	1	1

**TABLE 3. PRECIPITATION MEASURED BY FIELD STATIONS**

Station ID	Source	November Precipitation (in)
<b>CIMIS #205: Coalinga</b>	CIMIS	0.37
<b>CIMIS #5: Shafter</b>	CIMIS	0.38
<b>CIMIS #15: Stratford</b>	CIMIS	0.47
<b>CIMIS #2: FivePoints</b>	CIMIS	0.45
<b>CIMIS #146: Belridge</b>	CIMIS	0.49
<b>CIMIS #80: Fresno State</b>	CIMIS	0.74
<b>CIMIS #182: Delano</b>	CIMIS	0.44
<b>CIMIS #169: Porterville</b>	CIMIS	0.7
<b>CIMIS #125: Arvin_Edison</b>	CIMIS	1.09
<b>LandIQ_EK_Full_Sumos</b>	Land IQ	0.56
<b>LandIQ_GK_Full_Murcotts</b>	Land IQ	0.91

CIMIS - California Irrigation Management Information System; CNRFC - California Nevada River Forecast Center; GHCN - Global Historical Climate Network.

## REMOTE SENSING RESULTS

TABLE 4. IMAGE DATES AND SOURCES

Date	Image Source
November 12, 2022	Sentinel-2
November 17, 2022	Sentinel-2
November 22, 2022	Sentinel-2
November 29, 2022	Landsat-9

TABLE 5. MONTHLY GSA ET<sub>A</sub>

Unit	OCT, 2022	Nov, 2022
(mm)	40.9	19.8
(inch)	1.6	0.8
(AF)	15,727	7,632

TABLE 6. MONTHLY FIELD ET<sub>A</sub>

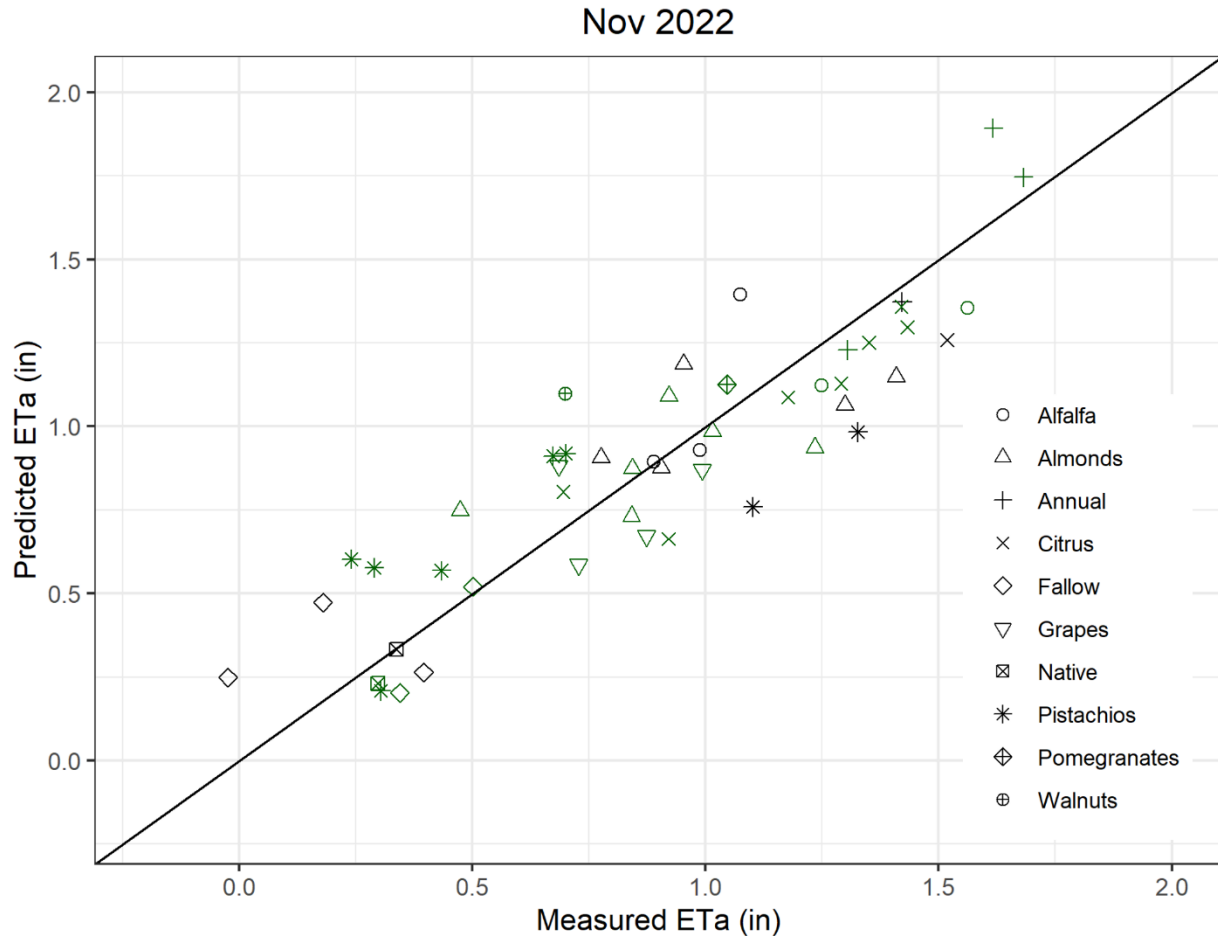
ET <sub>A</sub> (in) Including Fallow			
	Field Size (ac)	OCT, 2022	NOV, 2022
<b>Maximum</b>	230.1	3.3	1.6
<b>Minimum</b>	0.1	0.0	0.0
<b>Average</b>	10	1.9	0.9
ET <sub>A</sub> (in) Excluding Fallow			
	Field Size (ac)	OCT, 2022	NOV, 2022
<b>Maximum</b>	230.1	3.3	1.6
<b>Minimum</b>	0.1	0.0	0.0
<b>Average</b>	10.3	2.1	0.9

TABLE 7. MONTHLY GSA PRECIPITATION

Precipitation Unit	OCT, 2022	NOV, 2022
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(mm)	0.0	19.8
(inch)	0.0	0.8
(AF)	0	7,628

### ACCURACY OF REMOTE SENSING RESULTS



**FIGURE 1. MEASURED VERSUS PREDICTED ET<sub>A</sub> FOR THE MONTH. SYMBOL COLORS REPRESENT THE STATION TYPES (BLACK = FULL, GREEN = WATER IQ (WIQ))**

**TABLE 8. MEASURED VS. PREDICTED MONTHLY ET<sub>A</sub>**

R <sup>2</sup>	RMSE (IN)
0.79	0.17

Note: The R<sup>2</sup> value is the relative measure of fit of the observed data to the predicted result, where a value of 1 indicates a perfect fit. RMSE can be interpreted as the standard deviation, where a value of 0 indicates a perfect fit to the observed data.