

ACTUAL EVAPOTRANSPIRATION ANALYSIS

December 2022

Prepared for
East Kaweah Groundwater Sustainability Agency



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SUMMARY

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

	ET (ac-ft)	Precipitation (in)
Prior 12 months (JAN 1, 2022 - DEC 31, 2022)	256,034	6.8
Prior water year (OCT 1, 2021 - SEP 30, 2022)	257,436	8.6
Current water year to date (OCT 1, 2022 - DEC 31, 2022)	27,665	4.7
Prior water year to date (OCT 1, 2021 - DEC 31, 2022)	285,101	13.3

TABLE 2. SENSORS USED IN DAILY AND MONTHLY ET_A ANALYSIS BY CROP CATEGORY

	Number of Active Stations	Number of Used Stations in model
Alfalfa	5	5
Almonds	13	8
Annuals	0	0
Citrus	16	9
Fallow/Native	7	6
Grapes	7	5
Olives	0	0
Pistachios	11	11
Pomegranates	1	1
Walnuts	1	0

TABLE 3. PRECIPITATION MEASURED BY FIELD STATIONS

Station ID	Source	December Precipitation (in)
CIMIS #205: Coalinga	CIMIS	2.19
CIMIS #5: Shafter	CIMIS	1.87
CIMIS #15: Stratford	CIMIS	2.09
CIMIS #2: FivePoints	CIMIS	2.7
CIMIS #146: Belridge	CIMIS	2.15
CIMIS #80: Fresno State	CIMIS	5.37
CIMIS #182: Delano	CIMIS	2.27
CIMIS #169: Porterville	CIMIS	3.3
CIMIS #125: Arvin_Edison	CIMIS	2.31
LandIQ_GK_Full_Murcotts	Land IQ	4.16

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 22, 2022	Sentinel-2
January 26, 2023	Sentinel-2

TABLE 5. MONTHLY GSA ET_A

Unit	OCT, 2022	NOV, 2022	DEC, 2022
(mm)	40.9	19.8	11.5
(inch)	1.6	0.8	0.5
(AF)	15,727	7,632	4,427

TABLE 6. MONTHLY FIELD ET_A

ET _A (in) Including Fallow				
	Field Size (ac)	OCT, 2022	NOV, 2022	DEC, 2022
Maximum	230.1	3.3	1.6	0.8
Minimum	0.1	0.0	0.0	0.2
Average	10	1.9	0.9	0.5
ET _A (in) Excluding Fallow				
	Field Size (ac)	OCT, 2022	NOV, 2022	DEC, 2022
Maximum	230.1	3.3	1.6	0.8
Minimum	0.1	0.0	0.0	0.2
Average	10.3	2.1	0.9	0.5

TABLE 7. MONTHLY GSA PRECIPITATION

Precipitation Unit	OCT, 2022	NOV, 2022	DEC, 2022
(mm)	0.0	19.8	98.4
(inch)	0.0	0.8	3.9

(AF)	0	7,628	37,871
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ACCURACY OF REMOTE SENSING RESULTS

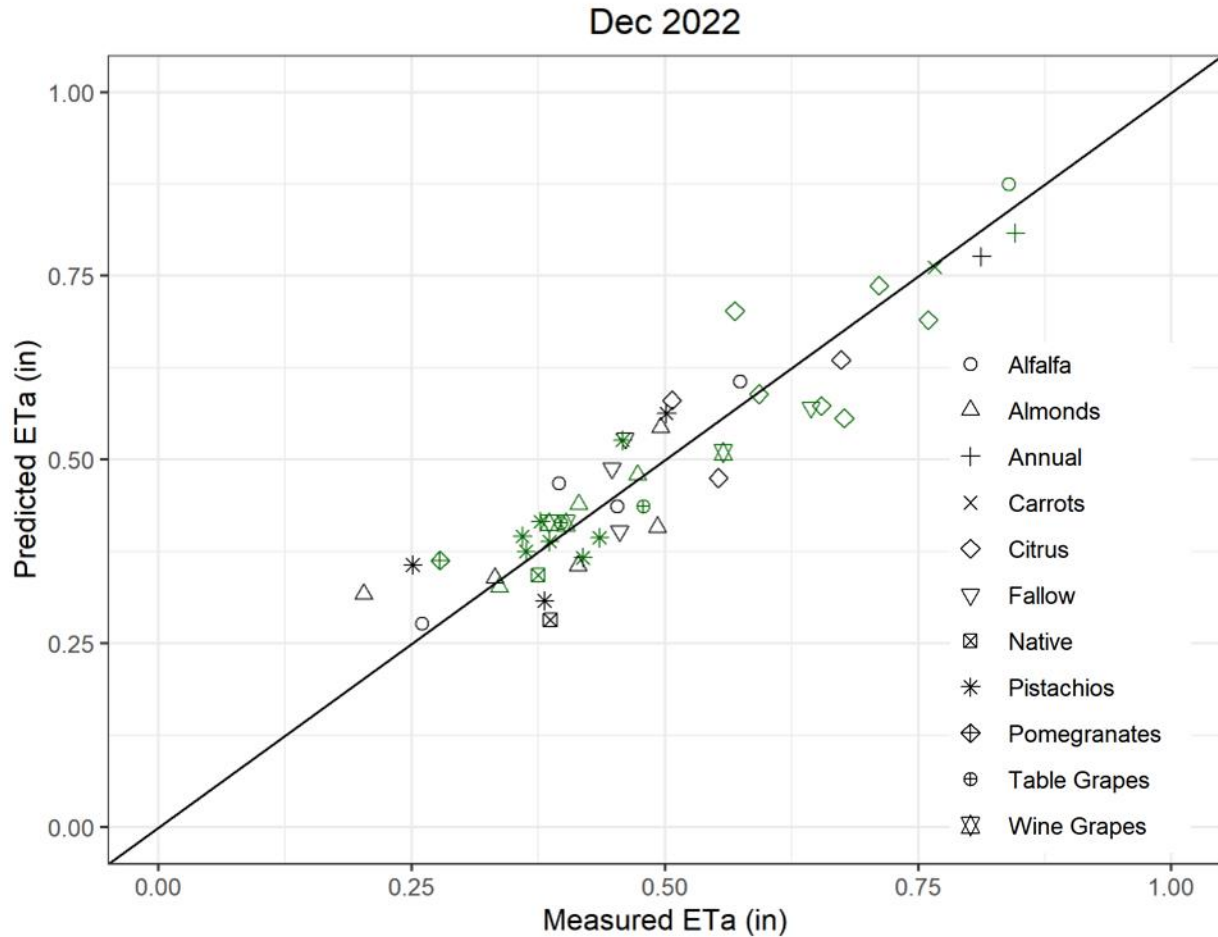


FIGURE 1. MEASURED VERSUS PREDICTED ET_A FOR THE MONTH. SYMBOL COLORS REPRESENT THE STATION TYPES (BLACK = FULL, GREEN = WATER IQ (WIIQ))

TABLE 8. MEASURED VS. PREDICTED MONTHLY ET_A

R ²	RMSE (IN)
0.86	0.06

Note: The R² 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.