

# **ACTUAL EVAPOTRANSPIRATION ANALYSIS**

## **May 2022**

Prepared for  
**East Kaweah Groundwater Sustainability Agency**

Prepared by  
 **LAND IQ**  
2020 L Street, Ste 210  
Sacramento, CA  
Contact: Joel Kimmelshue  
916.265.6330

**JUNE 29, 2022**

## SUMMARY

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

	ET (ac-ft)	Precipitation (in)
Past 12 months	261,715	8.5
Prior water year (OCT 1 – MAY 31)	131,641	8.5
Prior calendar year (JAN 1 – MAY 31)	102,575	2.0

Prior water year - Oct in prior year to Sep in this year or present;  
 Prior calendar year - Jan to Dec in this year or present.

**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	10	8
Almonds	24	18
Annuals	7	1
Citrus	17	14
Fallow/Native	8	5
Grapes	11	7
Olives	2	2
Pistachios	13	8
Pomegranates	1	1
Walnuts	1	0

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

Station ID	Source	May Precipitation (in)
<b>CIMIS #205: Coalinga</b>	CIMIS	0
<b>CIMIS #5: Shafter</b>	CIMIS	0
<b>CIMIS #15: Stratford</b>	CIMIS	0
<b>CIMIS #2: FivePoints</b>	CIMIS	0
<b>CIMIS #146: Belridge</b>	CIMIS	0
<b>CIMIS #39: Parlier</b>	CIMIS	0
<b>CIMIS #105: Westlands</b>	CIMIS	0
<b>CIMIS #80: Fresno State</b>	CIMIS	0
<b>CIMIS #182: Delano</b>	CIMIS	0
<b>CIMIS #169: Porterville</b>	CIMIS	0
<b>CIMIS #258: Lemon Cove</b>	CIMIS	0
<b>CIMIS #125: Arvin_Edison</b>	CIMIS	0
<b>LandIQ_EK_Full_Sumos</b>	Land IQ	0
<b>LandIQ_GK_Full_Murcotts</b>	Land IQ	0

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
May 01, 2022	Sentinel 2
May 06, 2022	Sentinel 2
May 13, 2022	Landsat 8
May 16, 2022	Sentinel 2
May 21, 2022	Landsat 9
May 21, 2022	Sentinel 2
May 26, 2022	Sentinel 2
May 31, 2022	Sentinel 2

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

Unit	JAN	FEB	MAR	APR	MAY
(mm)	23.8	34.0	60.5	68.2	80.3
(inch)	0.9	1.3	2.4	2.7	3.2
(AF)	9,148	13,080	23,288	26,248	30,926

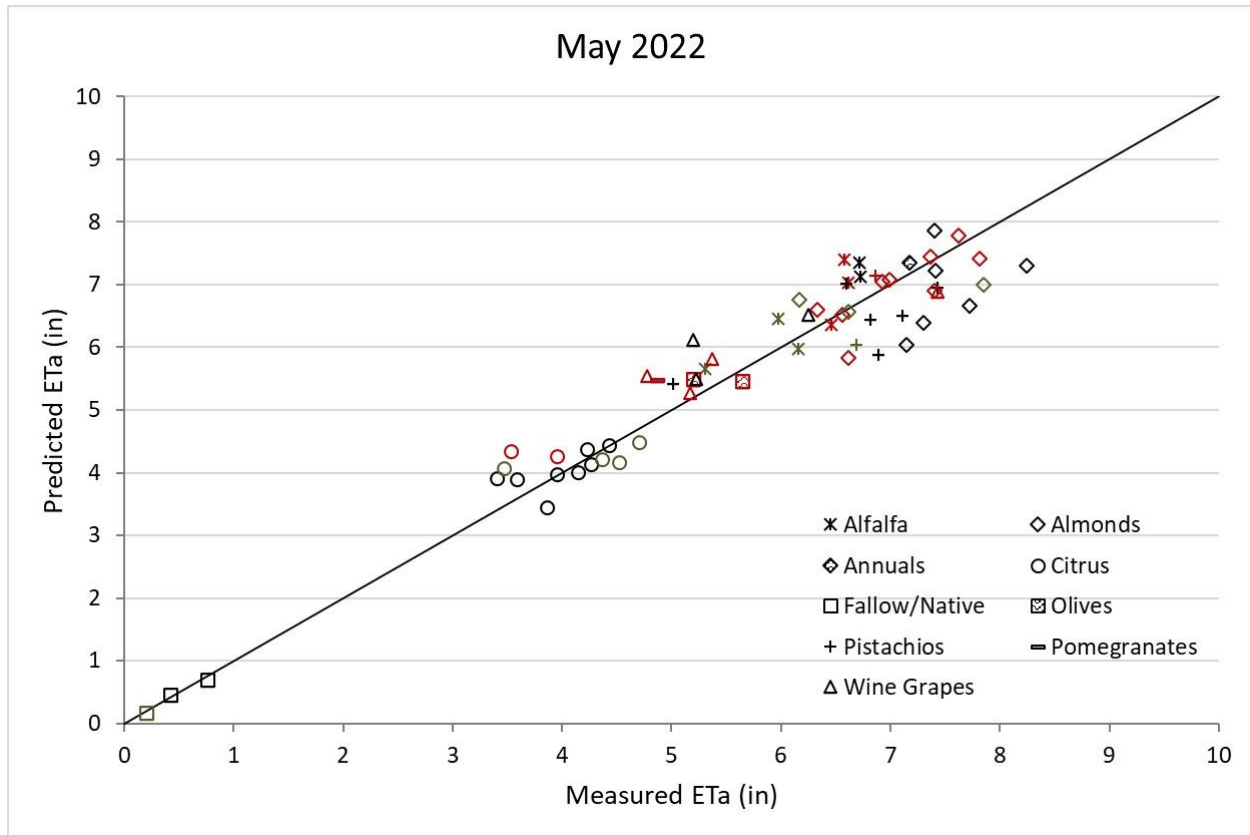
TABLE 6. MONTHLY FIELD ET<sub>A</sub>

ET <sub>A</sub> (in) Including Fallow						
	Field Size (ac)	JAN	FEB	MAR	APR	MAY
<b>Maximum</b>	230.1	1.5	2.2	3.8	5.3	7.2
<b>Minimum</b>	0.1	0.4	0.3	0.4	0.4	0.1
<b>Average</b>	10	1.0	1.4	2.4	2.6	3.4
ET <sub>A</sub> (in) Excluding Fallow						
	Field Size (ac)	JAN	FEB	MAR	APR	MAY
<b>Maximum</b>	230.1	1.5	2.2	3.8	5.3	7.2
<b>Minimum</b>	0.1	0.4	0.4	0.5	0.5	0.1
<b>Average</b>	10.3	1.0	1.4	2.4	2.6	3.7

**TABLE 7. MONTHLY GSA PRECIPITATION**

Precipitation Unit	JAN	FEB	MAR	APR	MAY
(mm)	0.9	11.5	28.7	8.6	0.0
(inch)	0.0	0.5	1.1	0.3	0.0
(AF)	353	4,417	11,049	3,314	0

**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), RED = TULE TECH)**

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

R <sup>2</sup>	RMSE (IN)
0.9	0.88

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 perfect fit to the observed data.