

# **ACTUAL EVAPOTRANSPIRATION ANALYSIS**

## **October 2021**

Prepared for  
**East Kaweah Groundwater Sustainability Agency**

Prepared by  
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## SUMMARY

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

	ET (ac-ft)	Precipitation (in)
Past 12 months	253,262	6.3
Prior water year (OCT 1 – SEP 30)	257,182	4.7
Prior calendar year (JAN 1 – OCT 31)	240,732	5.4

**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	10	7
Almonds	24	13
Annuals	5	1
Citrus	14	10
Fallow/Native	7	4
Grapes	9	5
Olives	2	0
Pistachios	11	7
Pomegranates	1	1
Walnuts	1	1

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

Station ID	Source	October Precipitation (in)
LandIQ_EK_Full_Sumos	Land IQ	1.3
<b>CIMIS #205: Coalinga</b>	CIMIS	0.57
<b>CIMIS #5: Shafter</b>	CIMIS	0.98
<b>CIMIS #2: FivePoints</b>	CIMIS	1.24
<b>CIMIS #146: Belridge</b>	CIMIS	0.73
<b>CIMIS #39: Parlier</b>	CIMIS	1.39
<b>CIMIS #105: Westlands</b>	CIMIS	0.52
<b>CIMIS #182: Delano</b>	CIMIS	0.74
<b>CIMIS #169: Porterville</b>	CIMIS	1.2
<b>FTNC1</b>	CNRFC	1.25
<b>KTLC1</b>	CNRFC	0.58
<b>PNOC1</b>	CNRFC	0.67
<b>SCSC1</b>	CNRFC	1.36
<b>USW00023155</b>	GHCN	0.94
<b>USW00093193</b>	GHCN	1.27
<b>USW00053119</b>	GHCN	1.1
<b>USC00044890</b>	GHCN	2.21
<b>USW00023110</b>	GHCN	0.71
<b>USC00049367</b>	GHCN	1.54

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
October 13, 2021	Sentinel 2
October 28, 2021	Sentinel 2

**TABLE 5. MONTHLY DISTRICT ET<sub>A</sub>**

Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
(mm)	22.3	26.9	43.4	70.5	82.0	99.8	98.8	80.2	60.2	41.1
(inch)	0.9	1.1	1.7	2.8	3.2	3.9	3.9	3.2	2.4	1.6
(AF)	8,594	10,375	16,704	27,149	31,560	38,424	38,041	30,878	23,177	15,829

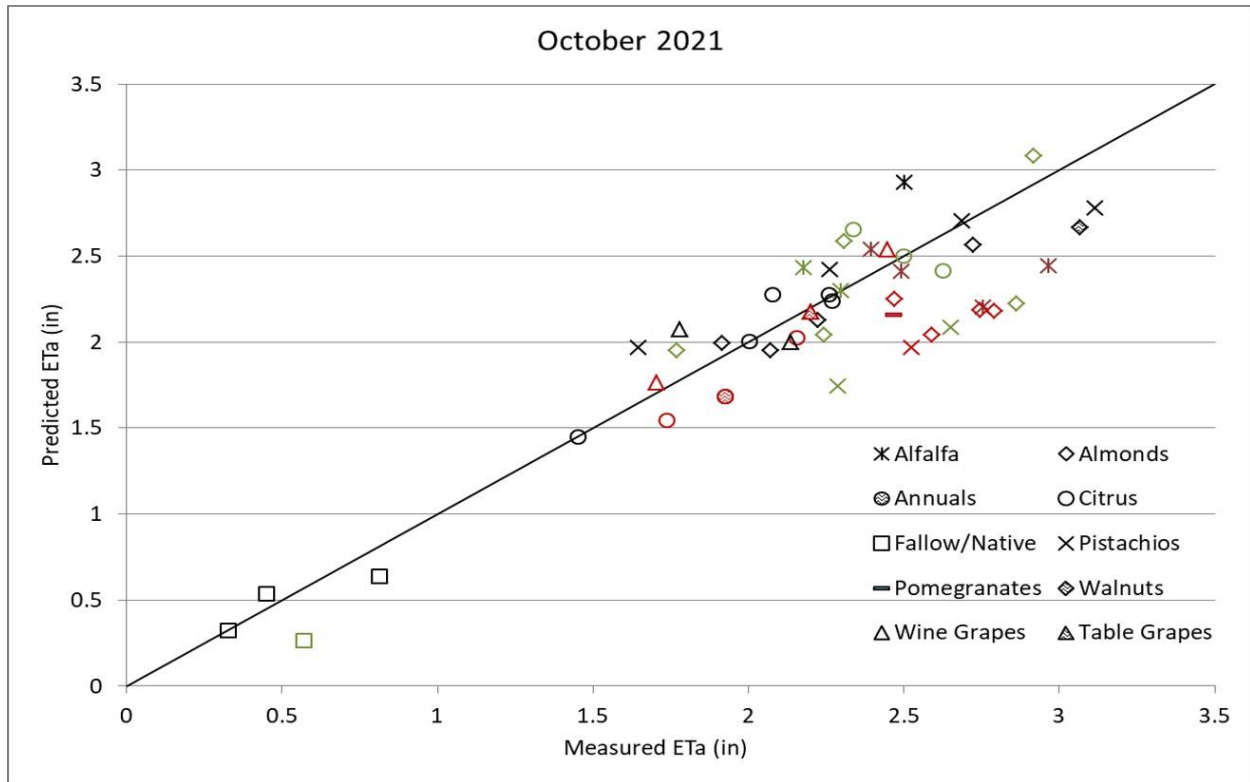
**TABLE 6. MONTHLY FIELD ET<sub>A</sub>**

ET <sub>A</sub> (in) Including Fallow											
	Field Size (ac)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Maximum	230.1	1.6	2.0	3.5	5.5	7.4	8.6	7.4	7.0	5.0	2.8
Minimum	0.02	0.1	0.0	0.5	0.3	0.1	0.1	0.0	0.0	0.1	0.1
Average	9.8	1.0	1.2	1.7	2.8	3.4	4.1	4.0	3.3	2.6	1.8
ET <sub>A</sub> (in) Excluding Fallow											
	Field Size (ac)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Maximum	230.1	1.6	2.0	3.5	5.5	7.4	8.6	7.4	7.0	5.0	2.8
Minimum	0.02	0.1	0.0	0.5	0.3	0.1	0.1	0.0	0.0	0.1	0.2
Average	10	1.0	1.3	1.8	2.9	3.5	4.3	4.3	3.5	2.8	1.9

**TABLE 7. MONTHLY DISTRICT PRECIPITATION**

Precipitation Unit	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
(mm)	50.1	12.1	28.2	4.8	0.0	0.1	0.1	0.0	0.2	41.5
(inch)	2.0	0.5	1.1	0.2	0.0	0.0	0.0	0.0	0.0	1.6
(AF)	19,302	4,660	10,850	1,857	12	29	26	0	84	15,964

## 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)
0.8	0.3

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.