



# AGROMETEOROLOGICAL BULLETIN

*July 2021  
3rd 10-day period*

- Temperature
- Relative Humidity
- Soil Temperature
- Sunshine Duration
- Precipitation
- Evaporation
- Growing Degrees
- Reference Evapotranspiration
- Accumulated Rainfall from the beginning of wet period
- Accumulated Reference Evapotranspiration
- Number of dry days



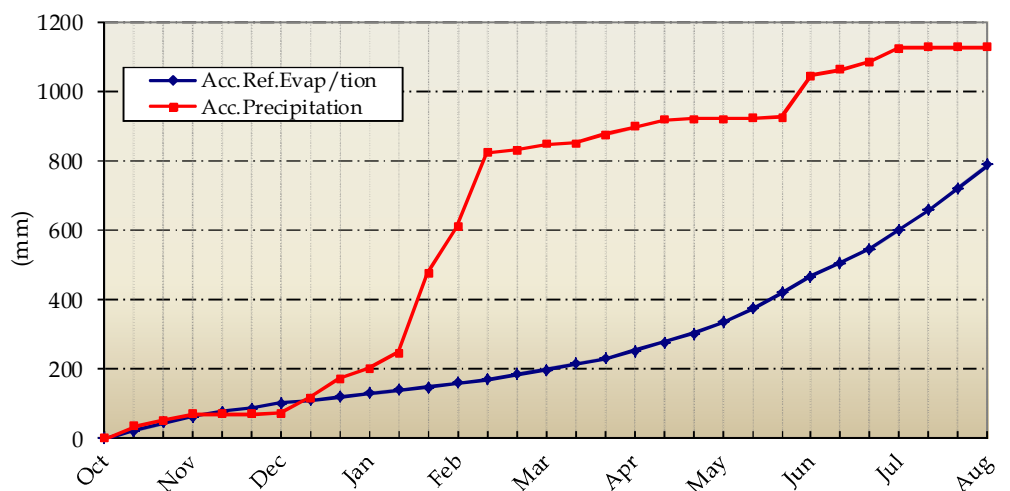
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.0	31.2	31.4	30.6	32.2	33.4	35.2	36.6	37.0	34.6	38.0	33.9	34.1	30.8
	Min	23.0	23.0	22.4	18.0	18.4	15.6	17.6	18.4	19.2	20.4	21.0	19.7	21.7	18.1
Relative Humidity	Max	80	58	48	69	57	82	70	73	71	79	71	69	66	-
	Min	37	31	26	26	31	26	23	22	22	33	24	27	31	-
Soil Temperature at 10 cm	06 UTC	28.6	28.0	25.6	24.8	24.8	24.2	25.4	26.4	26.0	26.6	26.8	26.1	24.7	24.5
	12 UTC	31.6	30.6	28.0	27.6	28.4	27.2	29.4	29.2	30.4	30.0	31.0	29.4	28.0	28.7
Sunshine Duration		11.0	11.3	13.2	13.3	11.6	13.1	12.8	12.6	12.4	12.5	12.5	12.4	12.8	10.3
Precipitation															5.5
Evaporation		7.5	15.4	12.6	10.4	8.2	11.0	9.2	10.2	11.5	9.5	8.6	114.1	111.3	104.4
Growing Degrees	5	23.0	22.1	21.9	19.3	20.3	19.5	21.4	22.5	23.1	22.5	24.5	240.1	251.7	213.8
	10	18.0	17.1	16.9	14.3	15.3	14.5	16.4	17.5	18.1	17.5	19.5	185.1	196.7	158.8

3rd 10-day period (21-31/07/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	67.0	71.9
Precipitation - Reference Evapotranspiration	-67.0	-71.9
Number of Rainy Days	0.0	1.1
Number of Dry Days	28.0	40.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

July 2021

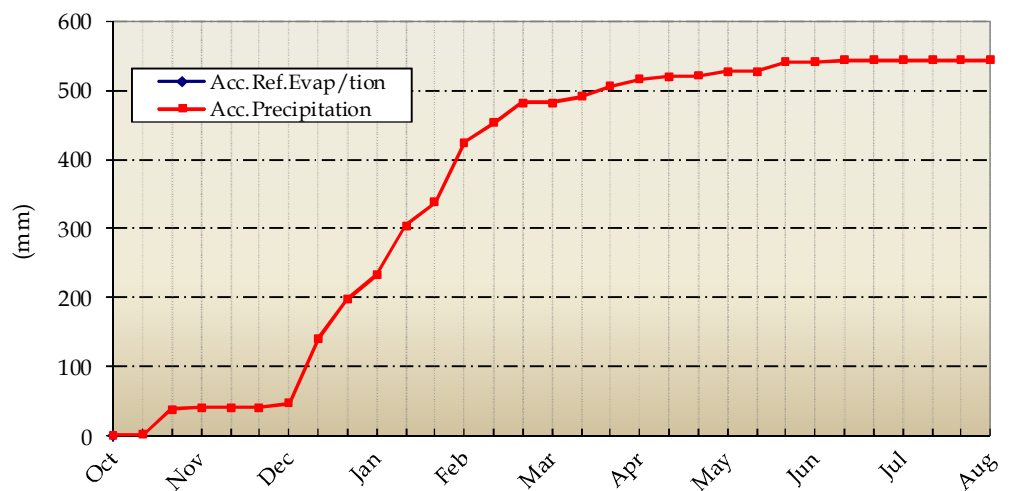
Andravida

3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.0	36.9	31.7	31.7	33.1	34.1	35.9	39.3	37.8	37.8	37.0	35.2	33.3	30.6
	Min	19.7	20.1	21.9	19.5	17.2	17.4	18.6	19.3	22.2	19.8	20.1	19.6	18.6	18.5
Relative Humidity	Max	93	87	87	93	91	92	88	91	77	79	85	88	89	-
	Min	47	37	36	40	28	31	30	23	26	23	26	32	38	-
Soil Temperature at 10 cm	06 UTC	30.2	30.4	31.0	30.8	30.0	29.4	29.8	30.0	30.4	30.6	30.6	30.3	28.6	27.4
	12 UTC	32.6	33.2	33.0	33.0	33.2	32.0	32.8	35.8	34.0	33.2	33.4	33.3	31.4	31.9
Sunshine Duration		12.2	12.8	12.7	12.8	12.8	12.2	12.2	12.4	11.9	11.9	12.5	12.4	12.8	11.8
Precipitation															2.9
Evaporation		9.8	9.4	10.0	10.4	10.6	1.7	11.0	1.7	12.1	14.0	14.4	105.1	119.1	81.3
Growing Degrees	5	20.9	23.5	21.8	20.6	20.2	20.8	22.3	24.3	25.0	23.8	23.6	246.6	230.3	215.1
	10	15.9	18.5	16.8	15.6	15.2	15.8	17.3	19.3	20.0	18.8	18.6	191.6	175.3	160.1

3rd 10-day period (21-31/07/2021)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	56.0	-	59.5
Precipitation - Reference Evapotranspiration	-56.0	-	-56.6
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	51.0	25.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

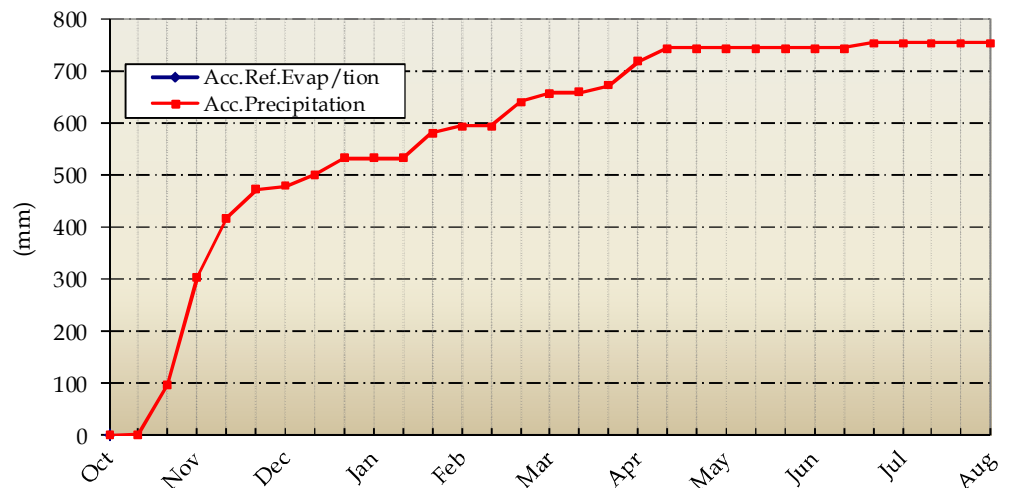


3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.2	30.4	28.2	28.0	28.0	27.8	28.8	28.8	31.4	32.8	36.2	30.0	29.2	28.6
	Min	22.6	26.0	25.8	25.2	24.0	24.4	22.6	23.0	23.2	28.2	26.0	24.6	23.0	22.4
Relative Humidity	Max	95	92	81	79	87	88	96	85	84	79	85	86	75	-
	Min	75	73	64	60	70	76	77	76	66	58	61	69	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.7	12.5	12.8	12.6	12.0	12.3	12.6	12.6	12.7	12.6	12.4	12.5	12.7	11.6
Precipitation															0.4
Evaporation		5.2	11.3	9.6	9.9	6.7	6.7	6.7	7.3	11.1	9.9	8.8	93.2	78.4	102.1
Growing Degrees	5	20.9	23.2	22.0	21.6	21.0	21.1	20.7	20.9	22.3	25.5	26.1	245.3	232.2	225.3
	10	15.9	18.2	17.0	16.6	16.0	16.1	15.7	15.9	17.3	20.5	21.1	190.3	177.2	170.3

3rd 10-day period (21-31/07/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	0.4
Number of Rainy Days	0.0	0.1
Number of Dry Days	45.0	59.0

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

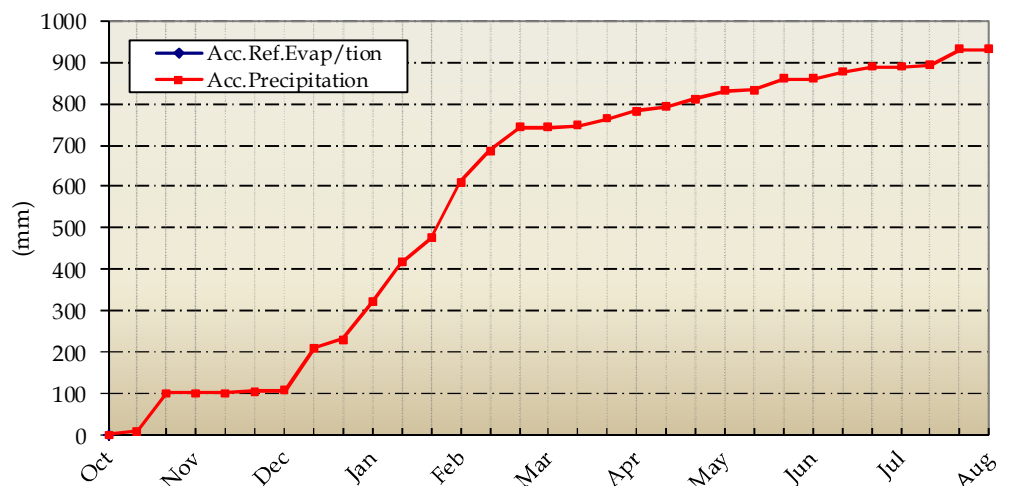


3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.9	33.2	31.5	32.1	34.4	36.5	39.2	39.9	40.4	39.6	38.4	36.3	34.2	31.1
	Min	16.5	17.1	16.7	13.8	13.8	15.7	16.7	16.3	15.9	14.6	16.0	15.7	15.3	15.7
Relative Humidity	Max	97	86	82	91	96	87	89	85	84	59	87	86	88	-
	Min	30	25	29	26	21	24	21	16	10	16	15	21	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	23.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	27.8
Sunshine Duration		12.4	11.9	12.2	10.5	12.3	11.6	11.2	9.2	12.1	12.1	12.4	11.6	12.4	10.1
Precipitation					0.0								0.0		10.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	85.3
Growing Degrees	5	20.2	20.2	19.1	18.0	19.1	21.1	23.0	23.1	23.2	22.1	22.2	231.1	216.8	197.9
	10	15.2	15.2	14.1	13.0	14.1	16.1	18.0	18.1	18.2	17.1	17.2	176.1	161.8	144.4

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	55.8
Precipitation - Reference Evapotranspiration	-	-	-45.5
Number of Rainy Days	0.0	0.0	1.5
Number of Dry Days	11.0	14.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

## July 2021

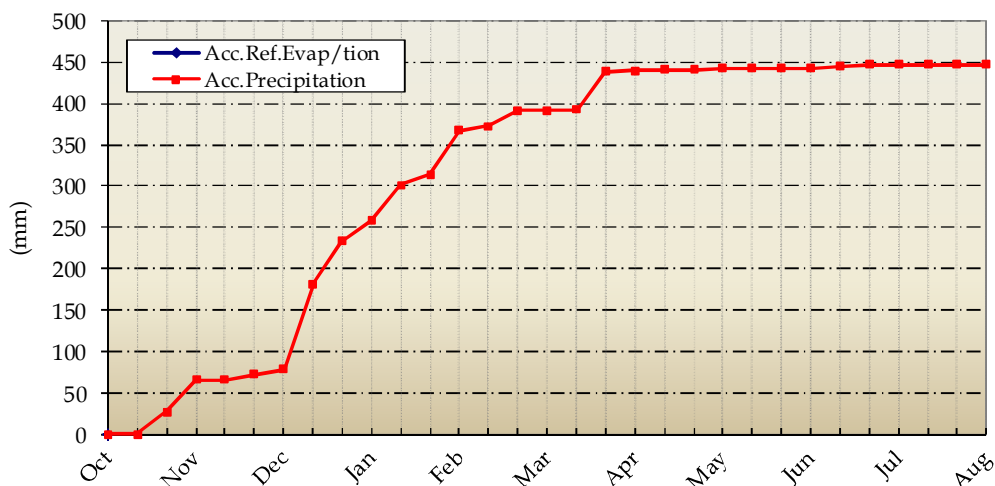
Kalamata

3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	31.7	31.1	32.1	33.6	34.2	32.7	35.0	37.3	37.9	39.8	34.3	34.3	31.5
	Min	23.7	21.2	20.7	20.1	18.0	16.6	20.0	21.8	19.1	20.9	23.7	20.5	19.5	18.2
Relative Humidity	Max	77	86	87	90	71	77	82	82	74	78	62	79	79	-
	Min	43	46	45	33	28	32	34	33	27	26	16	33	25	-
Soil Temperature at 10 cm	06 UTC	28.4	29.5	26.0	25.8	24.6	28.0	28.2	28.4	28.6	29.0	29.4	27.8	28.3	26.0
	12 UTC	33.0	33.2	33.0	34.6	32.0	32.4	32.3	32.6	33.0	33.2	33.0	32.9	32.6	30.3
Sunshine Duration		12.8	10.3	9.2	10.9	12.6	12.5	12.6	12.1	10.5	11.8	12.0	11.6	12.3	11.2
Precipitation															0.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	101.4	90.1
Growing Degrees	5	23.0	21.5	20.9	21.1	20.8	20.4	21.4	23.4	23.2	24.4	26.8	246.7	240.8	218.3
	10	18.0	16.5	15.9	16.1	15.8	15.4	16.4	18.4	18.2	19.4	21.8	191.7	185.8	163.3

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	62.2
Precipitation - Reference Evapotranspiration	-	-	-61.3
Number of Rainy Days	0.0	0.0	0.4
Number of Dry Days	46.0	17.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

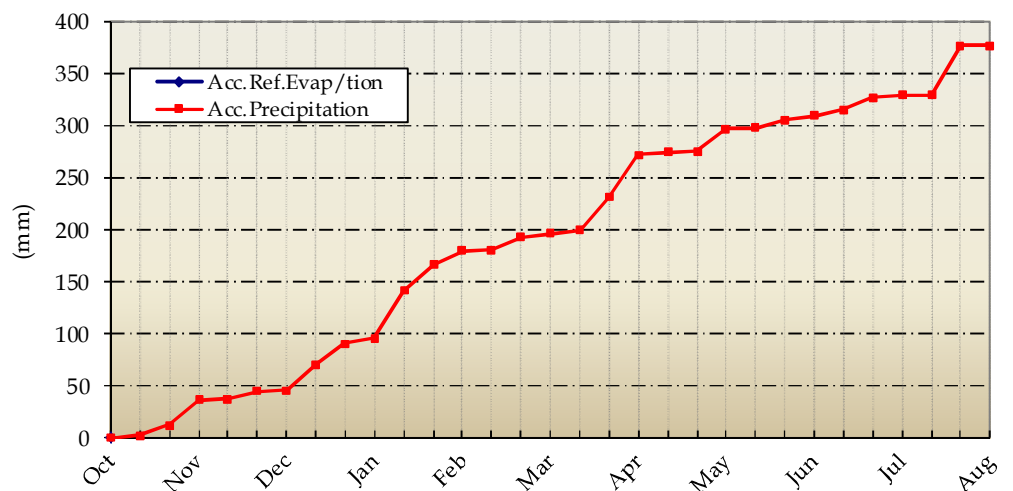


3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.6	32.0	30.6	29.4	32.2	34.0	37.4	37.4	39.8	41.5	39.6	35.4	35.1	33.2
	Min	24.6	22.0	19.4	17.0	17.2	18.2	19.2	20.0	20.2	20.0	20.2	19.8	19.5	18.1
Relative Humidity	Max	78	73	85	81	85	85	80	74	75	82	75	79	70	-
	Min	30	26	36	36	31	32	25	27	22	14	18	27	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	26.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	29.2
Sunshine Duration		10.7	11.6	9.8	7.3	11.7	10.9	11.5	11.0	12.3	11.6	11.5	10.9	11.4	10.7
Precipitation															4.4
Evaporation		15.9	12.2	10.1	7.1	9.3	10.9	11.0	10.9	13.5	12.0	11.8	124.7	137.2	104.1
Growing Degrees	5	25.1	22.0	20.0	18.2	19.7	21.1	23.3	23.7	25.0	25.8	24.9	248.8	245.5	227.1
	10	20.1	17.0	15.0	13.2	14.7	16.1	18.3	18.7	20.0	20.8	19.9	193.8	190.5	172.1

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	69.5	71.9	66.2
Precipitation - Reference Evapotranspiration	-69.5	-71.9	-61.8
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	11.0	14.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

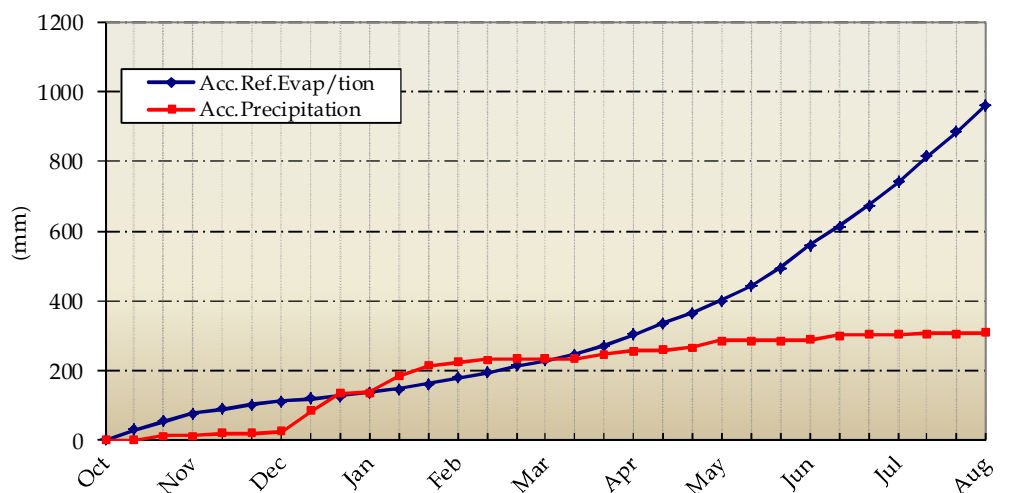


3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.8	31.9	31.2	30.1	32.0	33.2	34.5	36.4	38.2	38.4	39.2	34.4	33.7	31.8
	Min	25.9	23.6	21.3	21.6	18.6	19.9	21.3	22.9	22.0	22.8	22.8	22.1	21.9	19.4
Relative Humidity	Max	63	73	78	80	82	77	80	76	77	72	73	76	74	-
	Min	24	34	35	43	35	37	32	29	27	28	23	32	34	-
Soil Temperature at 10 cm	06 UTC	30.0	29.0	29.4	29.2	27.8	28.6	29.2	30.0	30.2	30.4	30.8	29.5	29.0	26.8
	12 UTC	32.6	32.0	32.0	31.4	30.6	31.8	32.4	32.8	33.0	33.4	34.4	32.4	32.1	31.6
Sunshine Duration		11.6	11.3	8.8	10.0	12.7	11.8	12.2	11.3	11.5	12.0	12.5	11.4	12.5	10.5
Precipitation					1.4								1.4	0.0	9.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	101.0
Growing Degrees	5	24.9	22.8	21.3	20.9	20.3	21.6	22.9	24.7	25.1	25.6	26.0	255.8	250.9	226.2
	10	19.9	17.8	16.3	15.9	15.3	16.6	17.9	19.7	20.1	20.6	21.0	200.8	195.9	171.2

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	76.5	71.7	65.4
Precipitation - Reference Evapotranspiration	-75.1	-71.7	-56.0
Number of Rainy Days	1.0	0.0	1.5
Number of Dry Days	20.0	12.0	-

The missing info in the tables are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





# Agrometeorological Data

July 2021

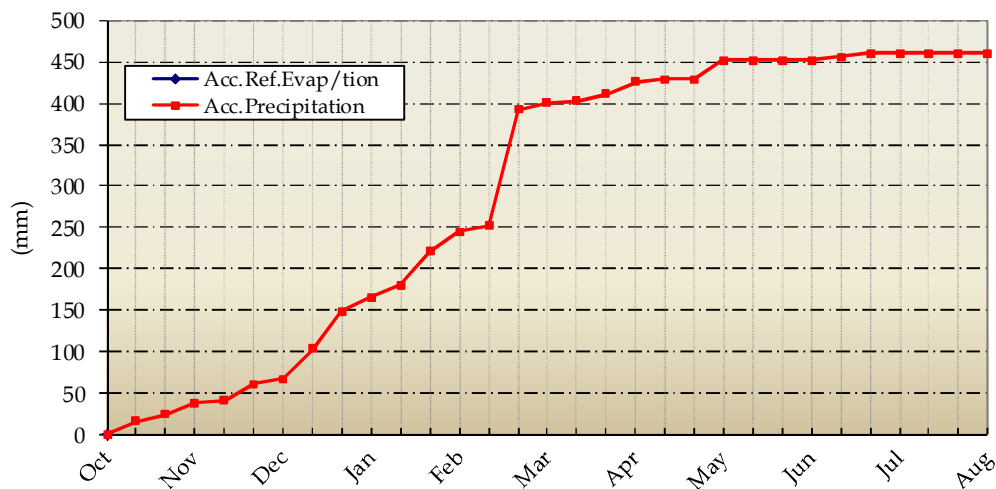
Tanagra

3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.5	30.4	30.2	29.5	29.6	32.1	35.0	35.4	38.9	40.0	40.0	34.1	33.1	32.0
	Min	22.8	24.8	18.7	19.6	19.8	18.4	18.8	22.0	20.5	22.1	23.6	21.0	20.6	18.6
Relative Humidity	Max	68	59	66	59	63	59	51	45	51	51	42	56	59	-
	Min	29	26	23	25	24	16	17	16	14	11	12	19	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.5	12.6	12.3	12.4	13.1	12.8	13.5	12.5	12.5	12.4	12.2	12.3	13.2	
Precipitation															1.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	23.2	22.6	19.5	19.6	19.7	20.3	21.9	23.7	24.7	26.1	26.8	247.9	240.3	
	10	18.2	17.6	14.5	14.6	14.7	15.3	16.9	18.7	19.7	21.1	21.8	192.9	185.3	

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	1.3
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	46.0	39.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

July 2021

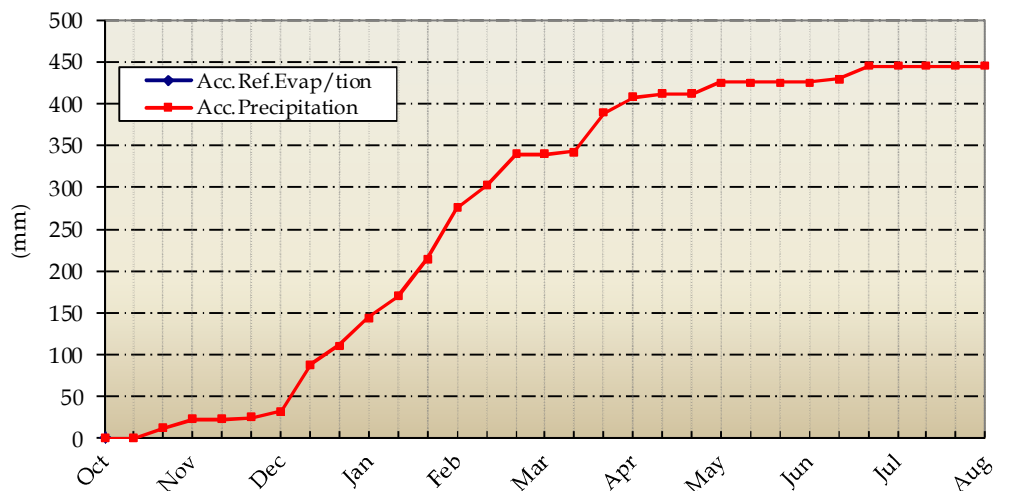
Tripoli

3rd 10-day period (21-31/07/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.7	29.7	29.4	30.2	30.0	32.8	34.6	35.0	37.2	38.4	39.4	33.6	32.5	30.5
	Min	17.2	17.0	17.5	13.9	13.9	18.4	20.1	24.2	24.2	17.1	16.5	18.2	15.9	14.6
Relative Humidity	Max	92	97	80	81	78	50	38	33	53	64	65	66	83	-
	Min	27	31	27	23	21	14	15	15	11	11	7	18	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	28.5
Sunshine Duration		8.0	6.0	11.0	8.8	12.9	12.7	12.5	12.6	12.2	10.8	12.3	10.9	12.0	10.6
Precipitation		0.0											0.0	4.0	4.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	71.9
Growing Degrees	5	20.0	18.4	18.5	17.1	17.0	20.6	22.4	24.6	25.7	22.8	23.0	229.7	211.0	192.7
	10	15.0	13.4	13.5	12.1	12.0	15.6	17.4	19.6	20.7	17.8	18.0	174.7	156.0	137.7

3rd 10-day period (21-31/07/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	66.1	62.6	58.9
Precipitation - Reference Evapotranspiration	-66.1	-58.6	-54.7
Number of Rainy Days	0.0	1.0	1.2
Number of Dry Days	41.0	7.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





◆ **List of Symbols and Abbreviations**

**Reference Evapotranspiration ETo (mm):**

Calculated by the FAO Penman-Montieth equation

$$ET_0 = \frac{0.408 * \Delta * (R_n - G) + \gamma * \frac{900}{T + 273} * u_2 * (e_s - e_a)}{\Delta + \gamma * (1 + 0.34 * u_2)}$$

using 10-day step.

R<sub>n</sub> is estimated from sunshine measurements and G assumed to be zero.

**Growing Degrees:** Degrees with mean temperature exceeding the base of 5 or 10 °C.

**Number of Rainy Days:** Number of days with precipitation of at least 0.1 mm.

**Number of Dry Days:** Number of dry days recorded since the last rainy day.

**Measurements Units**

- ◆ Temperature : °C
- ◆ Relative Humidity : %
- ◆ Soil Temperature : °C
- ◆ Sunshine Duration : Hours
- ◆ Precipitation : mm
- ◆ Evaporation (Pan) : mm
- ◆ Growing Degrees : °C

**UTC (Universal Time coordinates) in Greece**

- ◆ Winter : Time(UTC) = Local time - 2
- ◆ Summer : Time(UTC) = Local time - 3

© HELLENIC NATIONAL METEOROLOGICAL SERVICE

Reproduction is prohibited without written permission

El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



ΕΘΝΙΚΗ  
ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens