



# AGROMETEOROLOGICAL BULLETIN

*June 2020*  
*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



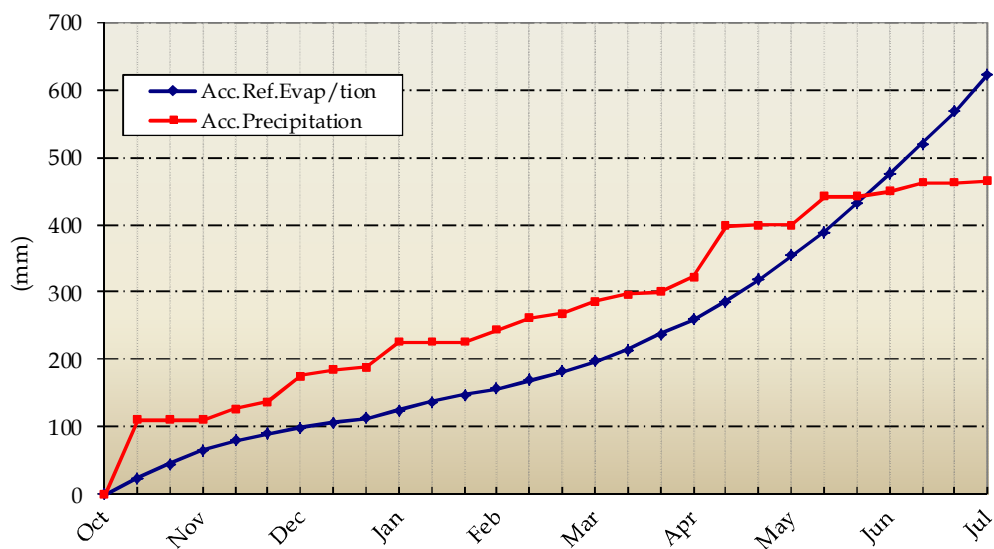
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*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 (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.2	28.6	27.2	28.2	30.2	29.4	31.8	33.2	32.6	34.4	30.4	32.1	28.7
	Min	17.4	15.6	15.2	19.0	17.4	22.0	21.0	13.8	15.4	17.6	17.4	21.1	16.0
Relative Humidity	Max	90	90	87	90	90	73	65	80	78	83	83	75	-
	Min	53	41	49	53	42	39	29	30	36	35	41	36	-
Soil Temperature at 10 cm	06 UTC	22.4	21.0	22.8	23.2	23.4	24.2	22.0	22.2	23.6	24.6	22.9	26.6	23.1
	12 UTC	23.2	23.6	25.6	25.6	26.0	27.0	25.6	26.8	27.0	27.4	25.8	30.3	27.7
Sunshine Duration		7.5	11.9	10.2	8.5	8.3	12.0	13.0	13.1	13.9	13.8	11.2	11.2	10.9
Precipitation		2.6				0.0	0.0					2.6		4.4
Evaporation		6.5	7.1	7.0	13.7	8.3	5.4	9.9	10.4	11.3	8.5	88.1	94.3	85.9
Growing Degrees	5	17.8	17.1	16.2	18.6	18.8	20.7	21.4	18.5	19.0	21.0	189.1	215.8	173.3
	10	12.8	12.1	11.2	13.6	13.8	15.7	16.4	13.5	14.0	16.0	139.1	165.8	123.3

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.0	61.8	55.0
Precipitation - Reference Evapotranspiration	-52.4	-61.8	-50.6
Number of Rainy Days	1.0	0.0	1.3
Number of Dry Days	19.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

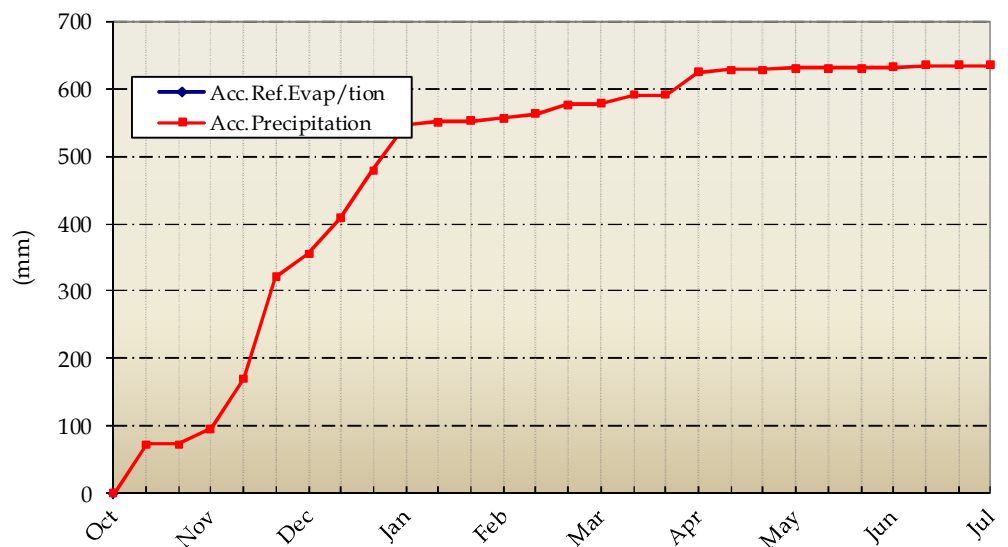


3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.6	26.5	26.8	29.3	30.3	31.2	31.0	31.6	30.8	31.5	29.6	33.5	28.9
	Min	20.1	16.9	16.4	18.0	18.2	18.4	17.9	17.9	18.3	18.2	18.0	20.2	17.0
Relative Humidity	Max	86	91	94	95	93	93	90	90	92	90	91	84	-
	Min	54	50	58	48	45	39	38	33	48	42	46	32	-
Soil Temperature at 10 cm	06 UTC	26.4	25.8	26.2	26.0	27.0	27.2	27.4	27.3	27.6	27.6	26.8	28.1	25.9
	12 UTC	28.4	28.0	28.4	28.7	29.0	29.4	30.0	30.4	30.6	30.6	29.4	30.5	30.7
Sunshine Duration		13.7	12.1	10.7	13.0	13.4	13.5	13.6	13.4	13.4	13.5	13.0	12.7	12.3
Precipitation														1.3
Evaporation		9.8	7.5	8.0	7.6	8.2	9.4	9.4	11.9	10.8	11.0	93.6	81.5	74.3
Growing Degrees	5	18.4	16.7	16.6	18.7	19.3	19.8	19.5	19.8	19.6	19.9	188.0	218.7	179.7
	10	13.4	11.7	11.6	13.7	14.3	14.8	14.5	14.8	14.6	14.9	138.0	168.7	129.7

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	62.3	53.3
Precipitation - Reference Evapotranspiration	-	-62.3	-52.0
Number of Rainy Days	0.0	0.0	0.2
Number of Dry Days	23.0	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



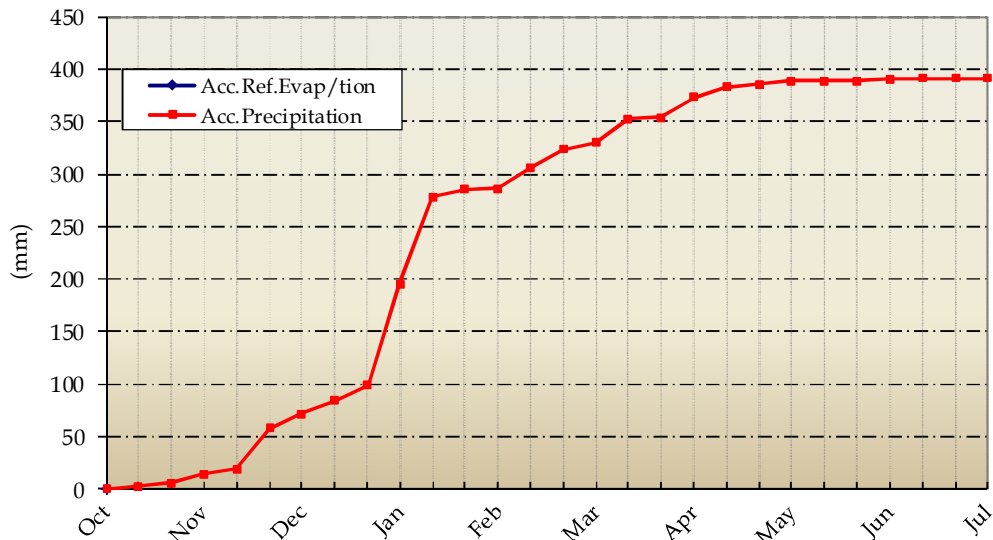
Iraklio

3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	25.4	25.0	25.8	26.0	27.4	26.8	27.8	28.8	30.4	27.2	29.7	28.2
	Min	21.8	19.4	18.0	19.0	19.2	22.8	23.6	23.0	20.2	20.4	20.7	23.7	20.4
Relative Humidity	Max	66	81	87	91	92	83	73	75	70	73	79	74	-
	Min	27	48	53	61	68	62	52	42	45	40	50	51	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.9	10.4	13.0	12.8	12.4	13.0	13.1	13.1	13.1	12.9	12.7	12.8	12.3
Precipitation														0.0
Evaporation		8.5	7.5	5.3	5.6	4.7	7.3	7.0	8.9	8.2	9.0	72.0	79.2	89.0
Growing Degrees	5	20.1	17.4	16.5	17.4	17.6	20.1	20.2	20.4	19.5	20.4	189.6	217.2	193.1
	10	15.1	12.4	11.5	12.4	12.6	15.1	15.2	15.4	14.5	15.4	139.6	167.2	143.1

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	66.5	-
Precipitation - Reference Evapotranspiration	-	-66.5	0.0
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	28.0	46.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

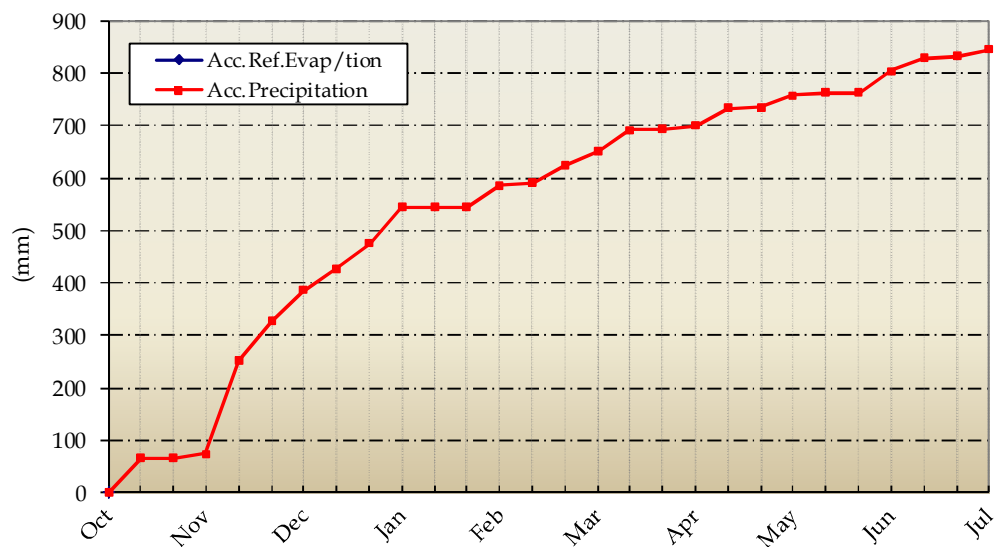


3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.7	26.1	25.5	28.8	29.5	31.8	31.7	33.0	33.1	34.0	30.1	32.1	29.4
	Min	10.1	10.6	12.5	16.0	16.3	14.9	14.8	15.5	13.6	17.0	14.1	17.8	13.7
Relative Humidity	Max	99	100	100	100	100	100	100	100	100	100	100	89	-
	Min	33	42	57	46	42	38	42	39	34	34	41	36	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.9
Sunshine Duration		10.3	5.7	5.8	5.1	4.0	10.5	11.6	11.7	11.2	13.3	8.9	11.3	10.8
Precipitation		0.0	11.4	1.5	0.1	1.2		0.5	0.0			14.7	2.0	6.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	67.3
Growing Degrees	5	13.9	13.4	14.0	17.4	17.9	18.4	18.3	19.3	18.4	20.5	171.3	199.3	166.2
	10	8.9	8.4	9.0	12.4	12.9	13.4	13.3	14.3	13.4	15.5	121.3	149.3	116.2

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	50.2
Precipitation - Reference Evapotranspiration	-	-	-43.7
Number of Rainy Days	5.0	1.0	1.3
Number of Dry Days	9.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

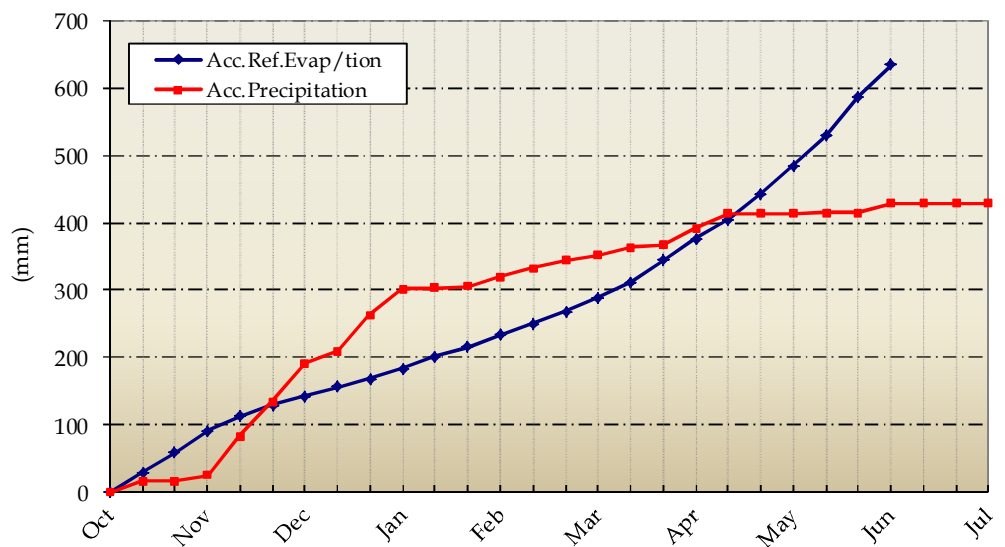


3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	28.0	28.9	29.2	28.2	30.4	30.9	29.0	30.4	35.3	30.0	32.5	30.4
	Min	17.6	15.0	15.4	15.6	18.0	16.5	16.6	15.6	16.9	20.0	16.7	19.8	16.7
Relative Humidity	Max	78	99	100	100	95	100	92	95	100	82	94	82	-
	Min	25	42	37	36	50	34	42	45	43	33	39	33	-
Soil Temperature at 10 cm	06 UTC	25.0	25.0	25.0	25.6	26.6	26.5	25.6	27.0	26.6	27.0	26.0	27.6	24.2
	12 UTC	27.0	27.5	28.5	28.5	29.5	29.0	29.5	29.8	30.5	31.0	29.1	31.4	28.7
Sunshine Duration		12.6	8.8	12.1	10.1	10.3	8.7	12.1	12.6	12.3	11.4	11.1	11.0	11.8
Precipitation														0.4
Evaporation		13.8	9.0	7.3	3.9	9.8	8.2	6.4	9.6	9.4	8.4	85.8	93.3	88.4
Growing Degrees	5	18.9	16.5	17.2	17.4	18.1	18.5	18.8	17.3	18.7	22.7	183.9	211.7	185.7
	10	13.9	11.5	12.2	12.4	13.1	13.5	13.8	12.3	13.7	17.7	133.9	161.7	135.7

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	62.4	58.1
Precipitation - Reference Evapotranspiration	-	-62.4	-57.7
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	30.0	15.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



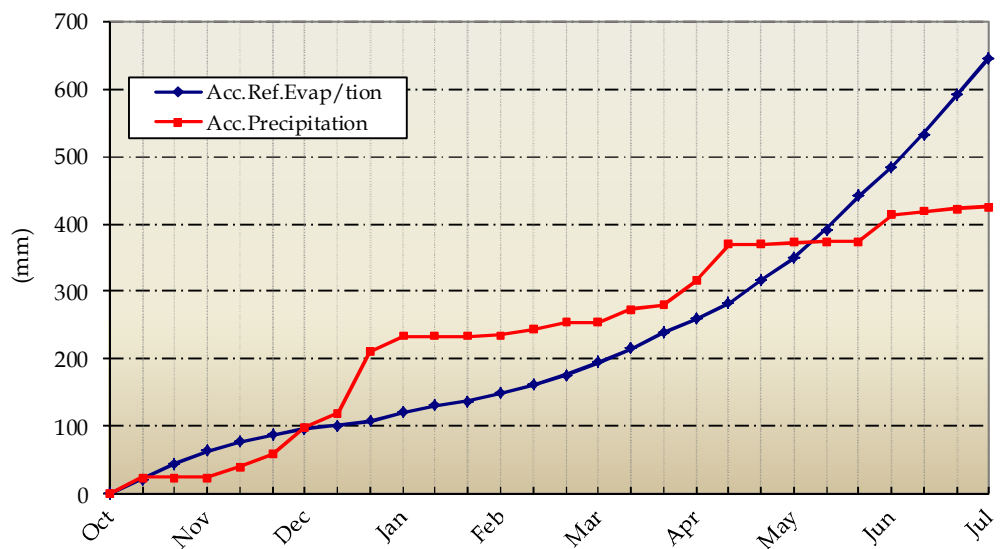
Larisa

3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	29.2	30.0	30.6	30.0	31.8	31.3	33.4	35.2	37.3	31.9	33.9	32.8
	Min	18.2	17.4	15.8	17.9	16.0	16.2	18.8	16.8	17.0	19.4	17.4	20.6	16.5
Relative Humidity	Max	90	93	97	98	90	86	81	73	72	72	85	81	-
	Min	33	33	36	44	38	35	29	29	28	25	33	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.7
Sunshine Duration		8.5	6.0	6.0	8.8	4.1	11.8	12.5	9.3	11.6	11.2	9.0	9.4	11.1
Precipitation			0.3	1.7	0.2							2.2	3.1	6.4
Evaporation		5.2	6.6	5.2	7.6	5.8	10.6	6.0	19.9	11.9	13.8	92.6	103.2	93.9
Growing Degrees	5	19.1	18.3	17.9	19.3	18.0	19.0	20.1	20.1	21.1	23.4	196.2	222.4	196.6
	10	14.1	13.3	12.9	14.3	13.0	14.0	15.1	15.1	16.1	18.4	146.2	172.4	146.6

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.6	58.8	61.9
Precipitation - Reference Evapotranspiration	-52.4	-55.7	-55.5
Number of Rainy Days	3.0	3.0	0.9
Number of Dry Days	1.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



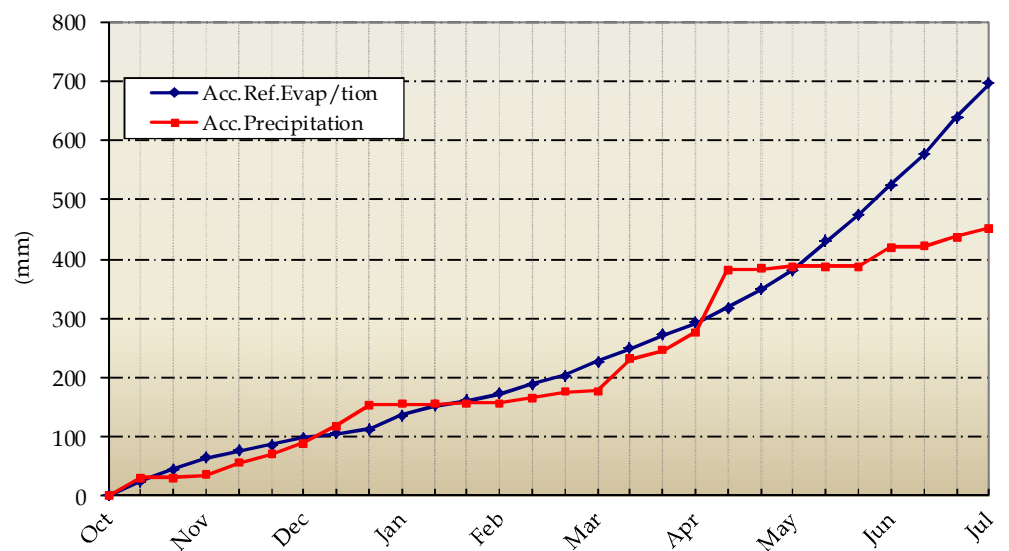
Mikra

3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	29.0	28.5	28.4	29.2	30.8	30.6	31.4	34.2	35.6	30.6	33.0	30.8
	Min	21.0	17.4	19.0	19.9	20.1	19.8	21.9	20.2	19.2	19.8	19.8	22.2	17.9
Relative Humidity	Max	74	70	99	87	91	90	78	76	73	72	81	83	-
	Min	39	36	51	50	48	40	36	34	30	37	40	34	-
Soil Temperature at 10 cm	06 UTC	25.6	25.0	26.0	24.6	24.6	25.0	25.4	25.6	25.4	26.0	25.3	25.9	25.3
	12 UTC	27.4	28.4	27.0	27.0	27.2	27.8	28.3	28.6	29.0	29.4	28.0	30.3	30.2
Sunshine Duration		9.9	12.7	7.8	7.7	8.1	12.3	10.9	12.1	13.6	13.8	10.9	11.0	11.0
Precipitation				9.8	0.4	4.0						14.2	26.2	4.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	93.3
Growing Degrees	5	19.7	18.2	18.8	19.2	19.7	20.3	21.3	20.8	21.7	22.7	202.2	226.0	193.2
	10	14.7	13.2	13.8	14.2	14.7	15.3	16.3	15.8	16.7	17.7	152.2	176.0	143.2

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.3	64.3	61.4
Precipitation - Reference Evapotranspiration	-43.1	-38.1	-56.6
Number of Rainy Days	3.0	3.0	1.1
Number of Dry Days	5.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



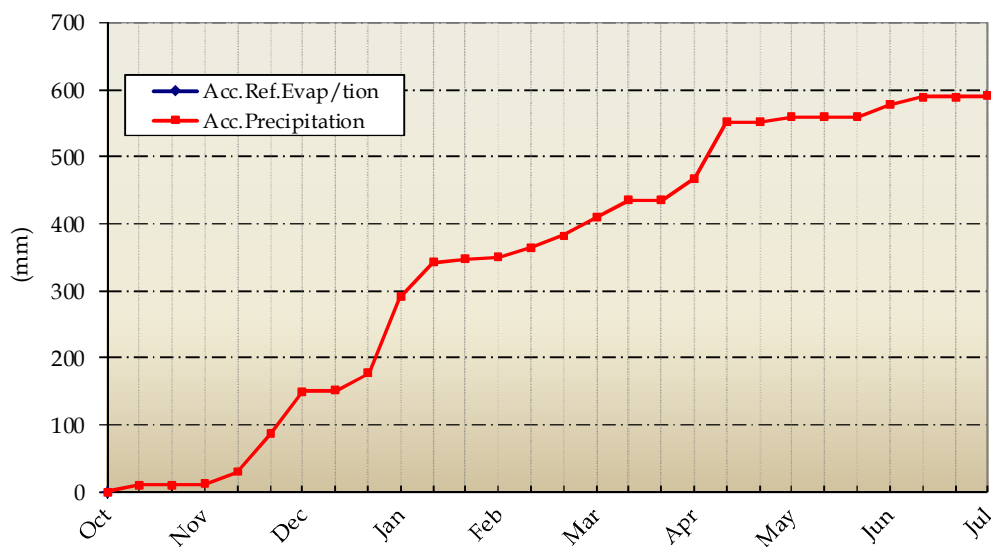


3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	27.5	29.0	29.0	30.3	29.0	29.8	31.2	33.0	35.6	30.5	32.3	31.5
	Min	17.8	17.1	16.2	17.3	17.1	19.6	21.3	18.4	14.0	18.4	17.7	20.7	17.1
Relative Humidity	Max	76	82	94	94	97	69	63	60	60	67	76	66	-
	Min	27	33	32	32	34	41	26	17	23	17	28	26	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	6.7	9.4	9.8	13.0	13.2	13.3	13.7	13.5	13.3	11.8	12.4	
Precipitation			0.4	0.0								0.4		2.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	19.2	17.3	17.6	18.2	18.7	19.3	20.6	19.8	18.5	22.0	191.1	215.1	
	10	14.2	12.3	12.6	13.2	13.7	14.3	15.6	14.8	13.5	17.0	141.1	165.1	

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	62.7	
Precipitation - Reference Evapotranspiration	-	-62.7	2.6
Number of Rainy Days	1.0	0.0	0.8
Number of Dry Days	18.0	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

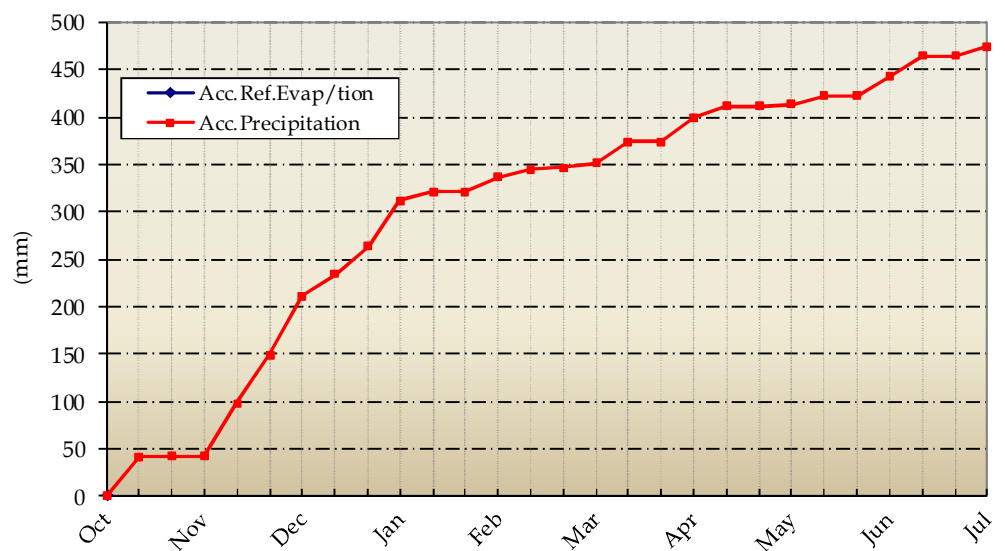


3rd 10-day period (21-30/06/2020)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.3	25.4	24.3	25.2	27.6	29.4	30.0	31.6	32.0	33.0	28.6	30.0	29.8
	Min	11.3	10.0	10.6	11.5	15.8	12.6	14.3	10.3	12.9	13.6	12.3	16.2	12.5
Relative Humidity	Max	84	97	99	98	99	95	85	87	98	99	94	89	-
	Min	23	31	44	46	30	32	23	17	24	24	29	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	23.1	24.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	31.2	27.2
Sunshine Duration		11.6	8.2	7.9	5.3	10.8	11.7	13.2	13.1	9.8	10.6	10.2	11.1	11.1
Precipitation			2.5	4.1	0.3	0.5				3.0		10.4	4.1	5.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	65.6
Growing Degrees	5	14.3	12.7	12.5	13.4	16.7	16.0	17.2	16.0	17.5	18.3	154.4	181.1	161.5
	10	9.3	7.7	7.5	8.4	11.7	11.0	12.2	11.0	12.5	13.3	104.4	131.1	111.5

3rd 10-day period (21-30/06/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.0	54.6	53.9
Precipitation - Reference Evapotranspiration	-35.6	-50.5	-48.5
Number of Rainy Days	5.0	1.0	0.7
Number of Dry Days	18.0	1.0	-

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