



AGROMETEOROLOGICAL BULLETIN

*May 2023
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



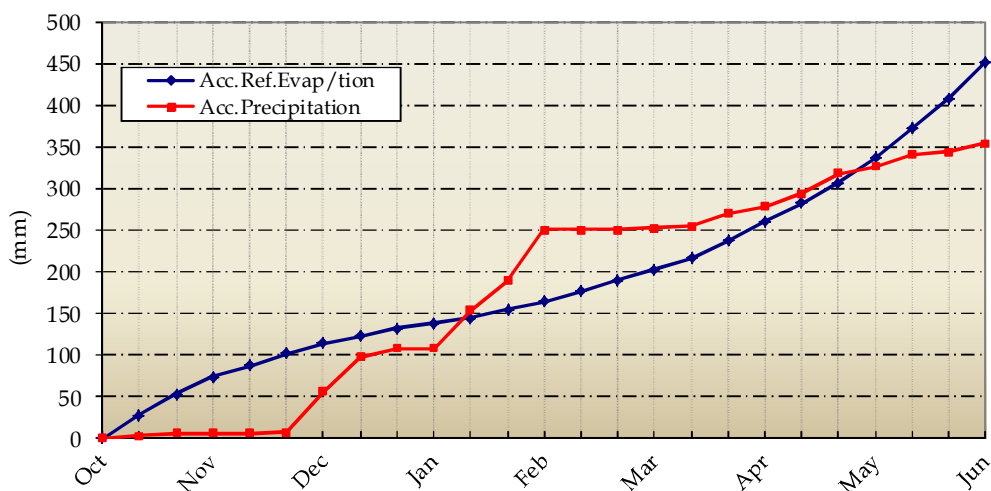
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
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3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.6	25.6	23.2	21.6	24.4	26.0	26.4	23.6	25.2	24.4	27.6	24.7	28.0	24.7
	Min	15.6	17.0	11.8	13.0	11.6	13.0	12.6	18.0	16.2	16.8	16.0	14.7	15.1	13.8
Relative Humidity	Max	80	82	91	95	93	91	88	86	94	92	92	89	87	87
	Min	47	35	52	73	54	48	43	52	50	58	40	50	44	48
Soil Temperature at 10 cm	06 UTC	18.4	18.8	19.2	18.2	17.8	19.0	18.4	20.4	20.4	19.6	20.4	19.1	21.9	20.4
	12 UTC	20.6	22.5	22.0	20.6	21.8	22.0	22.4	22.4	22.6	22.6	24.0	22.1	25.3	24.2
Sunshine Duration		5.9	11.7	5.3	5.1	8.4	7.9	11.1	6.7	3.4	4.7	6.6	7.0	10.3	9.5
Precipitation				2.2	0.2		0.9			6.7			10.0	4.5	15.6
Evaporation		7.0	6.6	4.0	3.7	2.5	4.9	6.4	7.4	4.9	6.1	3.9	57.4	76.2	79.6
Growing Degrees	5	14.6	16.3	12.5	12.3	13.0	14.5	14.5	15.8	15.7	15.6	16.8	161.6	182.3	145.0
	10	9.6	11.3	7.5	7.3	8.0	9.5	9.5	10.8	10.7	10.6	11.8	106.6	127.3	94.0

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.2	51.9	40.2
Precipitation - Reference Evapotranspiration	-33.2	-47.4	-24.6
Number of Rainy Days	4.0	1.0	2.3
Number of Dry Days	2.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

May 2023

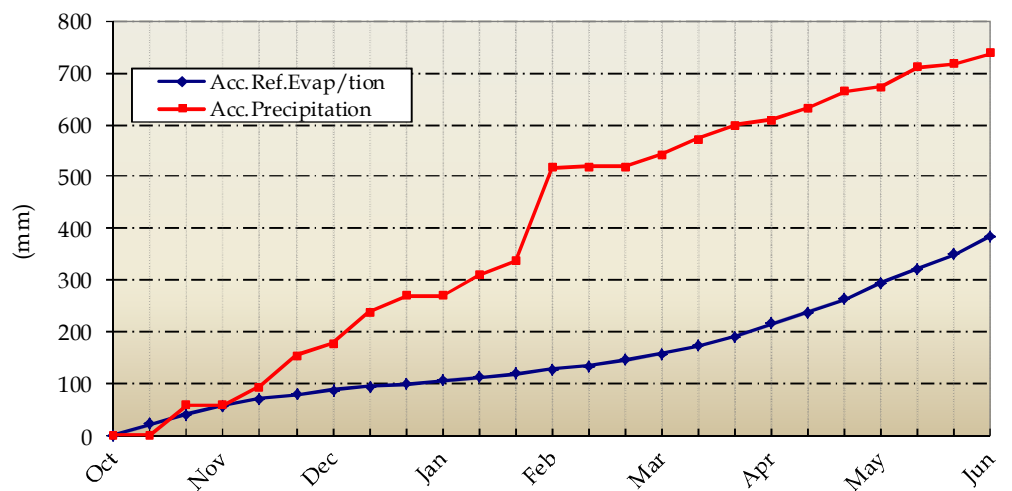
Andravida

3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	21.3	24.8	24.6	26.3	28.0	26.1	26.4	26.9	26.0	25.5	25.5	28.7	25.7
	Min	15.7	14.8	11.0	12.1	12.8	12.9	13.6	13.4	14.3	14.2	13.8	13.5	14.0	14.6
Relative Humidity	Max	98	99	98	98	97	98	96	97	97	94	98	97	93	91
	Min	52	72	46	53	53	44	47	47	47	49	57	52	38	42
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	22.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8
Sunshine Duration		0.2	0.0	8.2	8.2	7.7	7.7	7.9	7.1	4.9	8.2	5.9	6.0	11.6	10.1
Precipitation		11.9	6.7				0.2			1.0	1.0	0.1	20.9	1.2	3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	73.4
Growing Degrees	5	15.0	13.1	12.9	13.4	14.6	15.5	14.9	14.9	15.6	15.1	14.7	159.4	180.0	138.7
	10	10.0	8.1	7.9	8.4	9.6	10.5	9.9	9.9	10.6	10.1	9.7	104.4	125.0	93.2

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.5	48.7	43.0
Precipitation - Reference Evapotranspiration	-14.6	-47.5	-39.1
Number of Rainy Days	6.0	1.0	0.8
Number of Dry Days	3.0	27.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

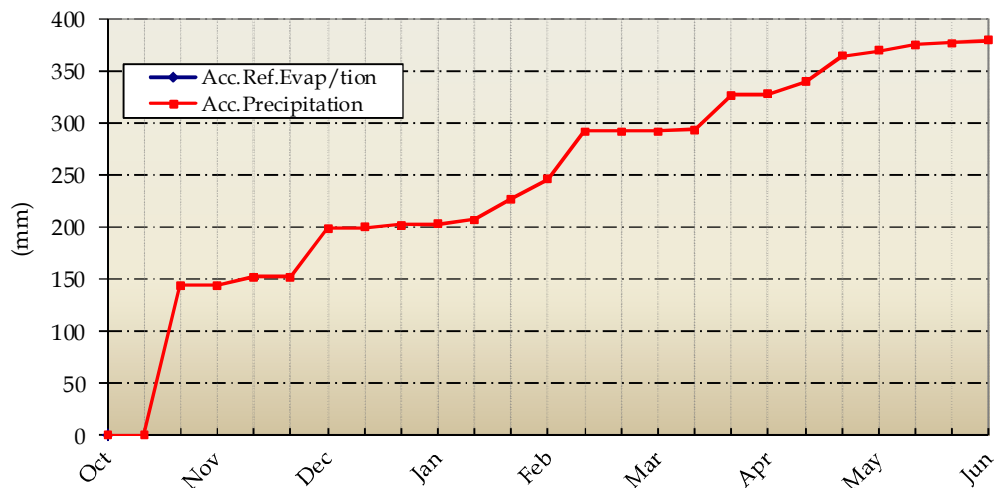


3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	21.8	21.8	22.2	23.4	22.4	21.0	23.6	22.6	23.4	22.6	22.3	26.9	24.8
	Min	17.0	15.6	15.0	18.0	13.8	15.0	19.2	19.2	19.0	16.0	16.2	16.7	17.7	16.6
Relative Humidity	Max	90	93	93	89	90	91	92	83	90	94	96	91	83	84
	Min	71	60	57	63	57	73	77	63	68	67	79	67	44	54
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.7	5.1	10.8	10.4	12.0	6.7	0.7	11.7	9.4	12.1	2.7	7.5	12.4	10.1
Precipitation		0.6	0.4				0.5	0.6				0.7	2.8	0.3	3.7
Evaporation		1.7	2.4	5.2	3.0	5.1	2.9	4.3	2.6	3.6	4.9	4.9	40.6	59.4	55.9
Growing Degrees	5	14.0	13.7	13.4	15.1	13.6	13.7	15.1	16.4	15.8	14.7	14.4	159.9	190.5	156.6
	10	9.0	8.7	8.4	10.1	8.6	8.7	10.1	11.4	10.8	9.7	9.4	104.9	135.5	106.9

3rd 10-day period (21-31/05/2023)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	5.0	1.0
Number of Dry Days	9.0	19.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

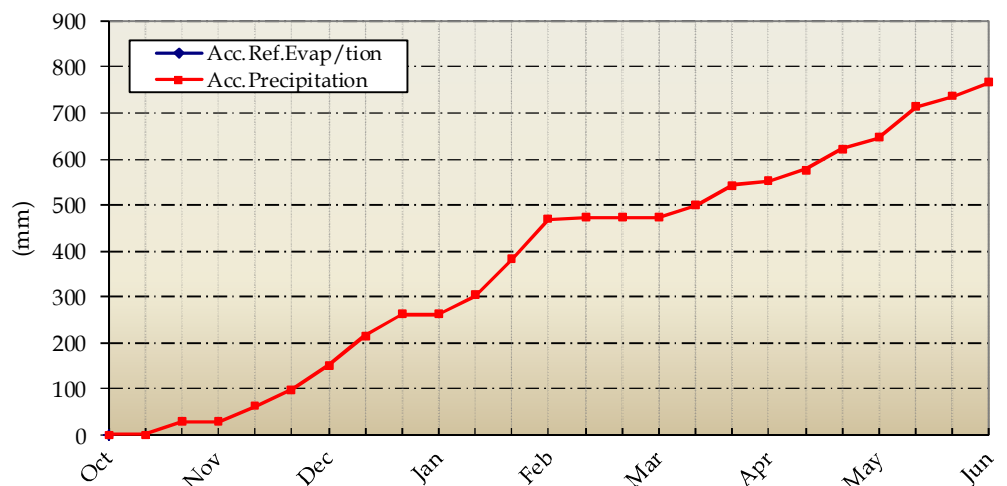


3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.9	20.6	23.1	24.0	25.8	24.1	25.5	25.0	23.3	22.6	24.9	23.3	30.5	24.5
	Min	12.4	14.3	9.3	8.7	7.4	12.4	10.2	10.6	11.7	11.7	11.8	11.0	10.2	10.9
Relative Humidity	Max	100	90	100	100	100	100	100	100	100	100	100	99	97	95
	Min	55	48	39	43	56	40	36	52	53	48	45	47	27	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	19.9
Sunshine Duration		0.2	4.3	6.4	4.6	6.3	3.8	6.0	5.2	6.2	5.4	5.4	4.9	11.4	7.8
Precipitation		9.9		4.8		0.0		0.5	7.2	2.6	1.9	4.8	31.7	0.6	21.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	10.2	12.5	11.2	11.4	11.6	13.3	12.9	12.8	12.5	12.2	13.4	133.7	168.9	119.1
	10	5.2	7.5	6.2	6.4	6.6	8.3	7.9	7.8	7.5	7.2	8.4	78.7	113.9	72.8

3rd 10-day period (21-31/05/2023)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	34.6
Precipitation - Reference Evapotranspiration	-	-13.1
Number of Rainy Days	7.0	2.9
Number of Dry Days	2.0	-

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

May 2023

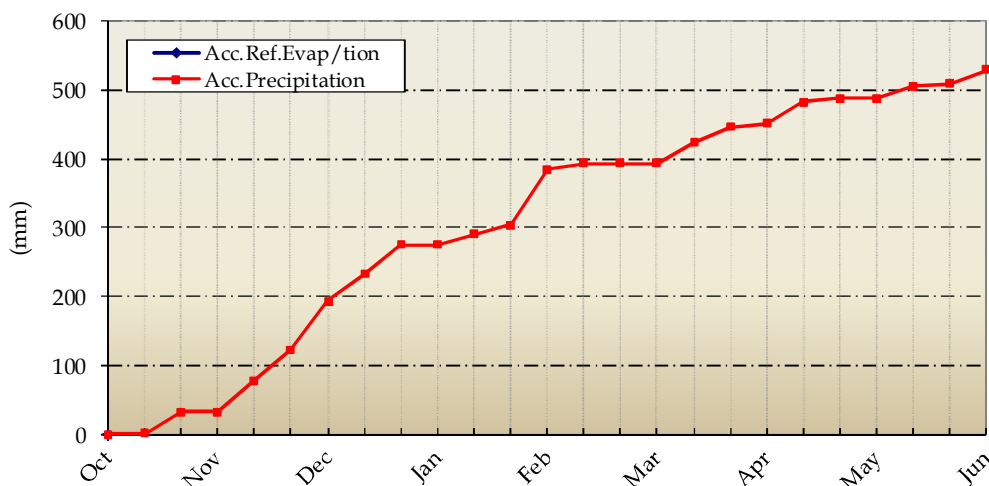
Kalamata

3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.1	22.4	24.2	23.4	25.9	26.1	28.0	25.2	24.7	25.4	28.4	25.6	28.7	26.2
	Min	15.7	16.0	12.7	12.8	12.0	12.7	14.6	14.2	13.4	13.7	13.8	13.8	13.3	13.9
Relative Humidity	Max	94	97	96	94	95	93	96	96	96	97	97	96	90	92
	Min	41	67	54	52	47	44	43	50	44	50	50	49	37	41
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.2	20.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.4	23.0
Sunshine Duration		0.2	0.2	0.2	11.0	12.2	10.0	7.8	7.6	7.8	10.2	10.1	7.0	12.6	9.7
Precipitation		1.0	2.4	4.5				9.4	1.4	0.5		0.0	19.2	0.3	7.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	57.6
Growing Degrees	5	16.9	14.2	13.5	13.1	14.0	14.4	16.3	14.7	14.1	14.6	16.1	161.7	175.9	151.1
	10	11.9	9.2	8.5	8.1	9.0	9.4	11.3	9.7	9.1	9.6	11.1	106.7	120.9	101.3

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	45.9
Precipitation - Reference Evapotranspiration	-	-	-38.3
Number of Rainy Days	6.0	1.0	1.5
Number of Dry Days	0.0	9.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

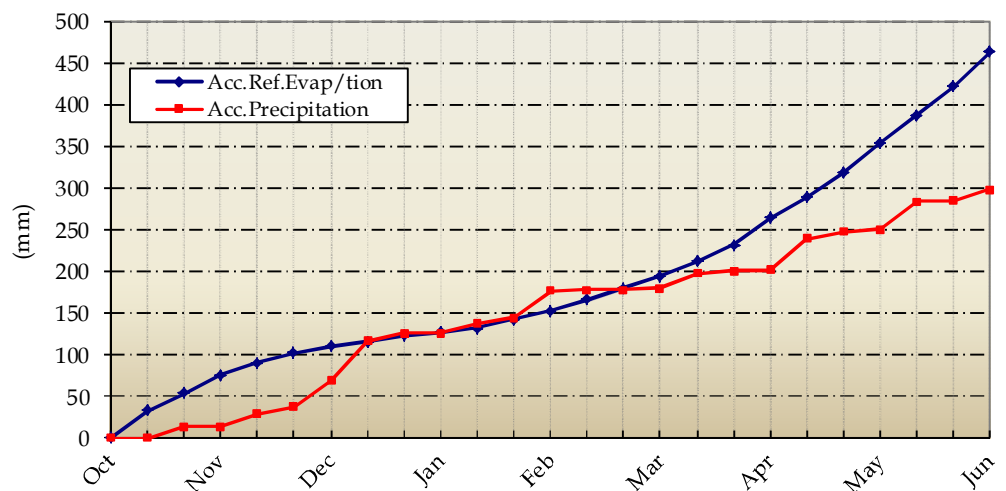


Larisa

3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	22.2	26.4	29.2	28.4	27.2	26.6	26.6	24.8	26.7	25.0	25.8	33.0	28.0
	Min	13.6	14.2	14.2	11.0	10.8	13.8	12.2	14.0	13.4	13.2	14.8	13.2	14.8	13.5
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	100	90	89
	Min	59	46	40	31	33	33	38	40	47	43	50	42	28	31
Soil Temperature at 10 cm	06 UTC	20.0	19.2	19.6	19.8	20.8	20.4	20.6	21.4	22.0	21.8	22.0	20.7	22.7	20.6
	12 UTC	20.8	20.8	20.8	21.0	21.6	21.8	25.0	25.0	25.5	25.4	21.6	22.7	24.9	22.2
Sunshine Duration		0.0	1.3	8.8	9.9	7.7	4.9	7.2	8.5	7.7	5.5	5.2	6.1	9.6	8.7
Precipitation		0.3	1.0	4.1		1.6				1.5		5.3	13.8	3.1	15.6
Evaporation		8.1	5.4	5.3	8.1	19.7	10.7	6.6	4.4	8.2	7.4	4.9	88.8	99.3	84.1
Growing Degrees	5	12.0	13.2	15.3	15.1	14.6	15.5	14.4	15.3	14.1	15.0	14.9	159.4	208.1	161.9
	10	7.0	8.2	10.3	10.1	9.6	10.5	9.4	10.3	9.1	10.0	9.9	104.4	153.1	110.9

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.2	62.6	50.9
Precipitation - Reference Evapotranspiration	-27.4	-59.5	-35.3
Number of Rainy Days	6.0	2.0	2.9
Number of Dry Days	1.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

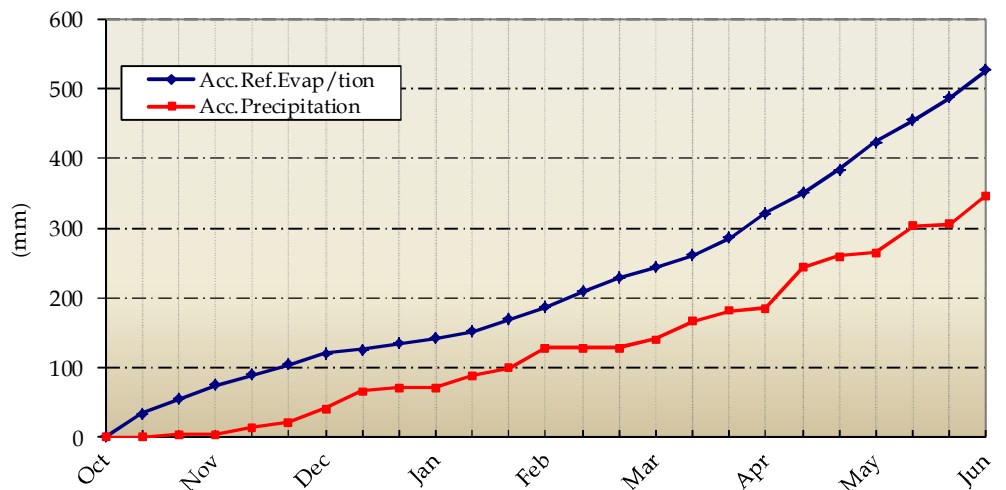


3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	22.4	26.3	27.2	27.0	26.2	25.4	25.4	25.0	24.6	24.0	25.1	30.5	26.3
	Min	16.1	14.8	14.0	13.4	14.4	15.5	15.3	15.2	15.4	16.4	16.0	15.1	16.1	15.3
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	100	92	83
	Min	66	59	34	38	44	42	53	52	55	61	70	52	36	37
Soil Temperature at 10 cm	06 UTC	19.0	18.4	18.2	19.0	20.2	19.8	19.8	19.6	19.5	20.2	20.4	19.5	22.3	21.5
	12 UTC	19.2	19.0	20.2	20.4	21.8	21.4	20.6	21.6	21.0	21.3	21.4	20.7	25.8	26.5
Sunshine Duration		0.0	4.2	10.8	12.2	8.5	4.9	6.2	2.4	6.5	4.4	2.5	5.7	10.9	9.0
Precipitation		0.3	0.3	1.3	0.0	2.2	2.8	4.7	9.0	6.4	9.2	4.9	41.1	2.9	13.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	79.3
Growing Degrees	5	14.6	13.6	15.2	15.3	15.7	15.9	15.4	15.3	15.2	15.5	15.0	166.5	201.3	157.4
	10	9.6	8.6	10.2	10.3	10.7	10.9	10.4	10.3	10.2	10.5	10.0	111.5	146.3	107.7

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.7	63.3	42.2
Precipitation - Reference Evapotranspiration	1.4	-60.4	-28.4
Number of Rainy Days	10.0	3.0	2.7
Number of Dry Days	4.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

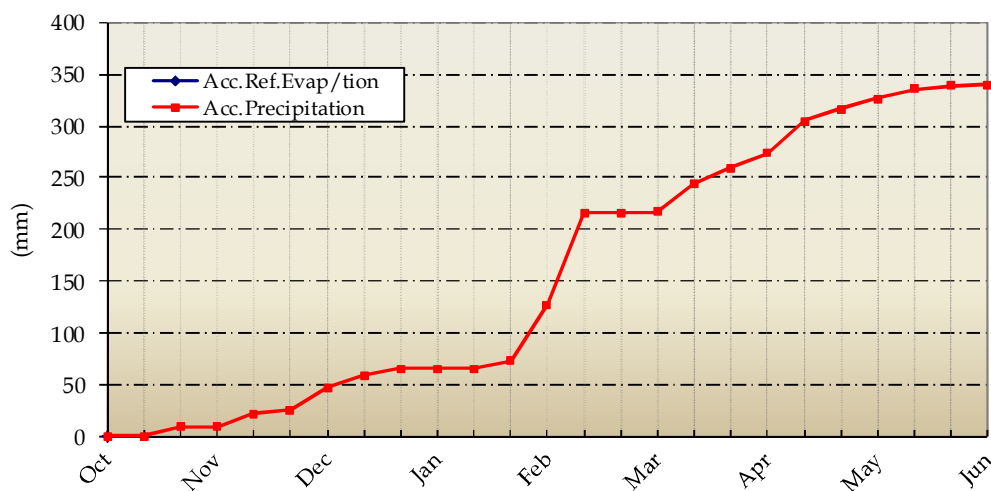


3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.1	21.2	24.0	26.6	27.3	26.2	24.7	23.2	23.7	26.4	25.4	24.6	31.7	26.6
	Min	15.2	13.0	12.2	11.8	11.3	12.4	14.0	16.0	15.5	14.5	12.8	13.5	15.1	14.0
Relative Humidity	Max	92	93	80	87	92	77	79	71	83	92	96	86	78	85
	Min	48	51	37	31	29	33	41	42	45	38	45	40	23	35
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.5	4.5	11.6	11.8	12.8	12.8	12.8	6.6	7.6	11.5	6.2	9.5	12.3	9.2
Precipitation		0.0							0.0	0.7			0.7	1.1	12.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	65.5
Growing Degrees	5	13.7	12.1	13.1	14.2	14.3	14.3	14.4	14.6	14.6	15.5	14.1	154.8	202.7	144.3
	10	8.7	7.1	8.1	9.2	9.3	9.3	9.4	9.6	9.6	10.5	9.1	99.8	147.7	97.5

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	1.0	1.0	1.9
Number of Dry Days	9.0	9.0	-

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

May 2023

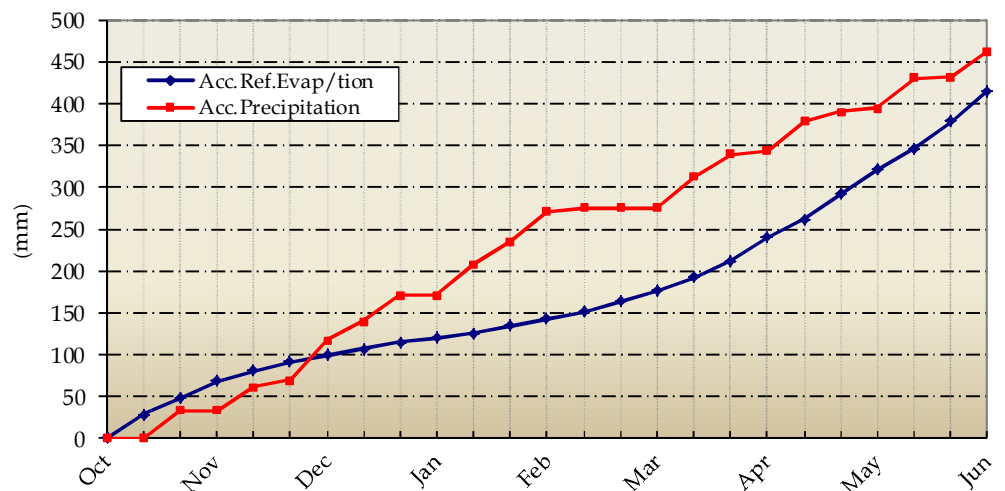
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3rd 10-day period (21-31/05/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.7	17.8	21.5	22.2	23.7	22.5	24.0	22.8	21.5	23.2	22.3	21.9	29.0	24.7
	Min	11.2	11.7	9.0	7.4	8.2	7.6	10.6	8.4	9.2	9.3	9.0	9.2	9.4	9.7
Relative Humidity	Max	97	97	100	99	99	98	92	95	99	99	99	98	93	88
	Min	51	66	46	36	33	41	34	40	48	41	41	43	20	34
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	19.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	23.4
Sunshine Duration		3.9	0.2	7.6	6.0	6.6	8.6	8.8	8.8	3.8	6.5	8.4	6.3	11.6	9.2
Precipitation		8.3	16.4	0.4	2.2		0.1			2.4	1.5		31.3	15.3	13.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	49.7
Growing Degrees	5	10.5	9.8	10.3	9.8	11.0	10.1	12.3	10.6	10.4	11.3	10.7	116.4	156.1	115.5
	10	5.5	4.8	5.3	4.8	6.0	5.1	7.3	5.6	5.4	6.3	5.7	61.4	101.1	68.7

3rd 10-day period (21-31/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.2	50.7	27.7
Precipitation - Reference Evapotranspiration	-4.9	-35.4	-14.0
Number of Rainy Days	7.0	4.0	2.5
Number of Dry Days	0.0	3.0	-

The missing info in the tables 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_n 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.

Past Years Mean Values 1991-2020 (Evaporation, Reference Evapotranspiration, Max and Min Relative Humidity 2005-2020)

UTC (Universal Time coordinates) in Greece

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

Mesurements Units

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

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