



AGROMETEOROLOGICAL BULLETIN

*May 2023
1st 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



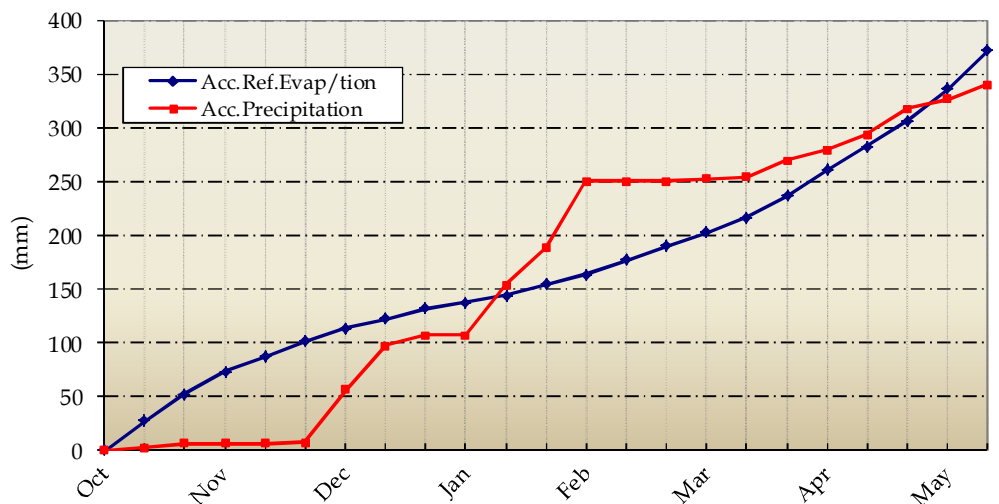
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www.emy.gr
www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	23.2	18.6	22.4	20.8	21.4	24.0	21.0	17.4	17.8	20.8	20.9	21.8
	Min	8.2	10.2	11.4	12.0	14.6	14.0	9.0	6.6	11.8	11.2	10.9	8.8	10.7
Relative Humidity	Max	94	88	90	90	91	85	92	87	91	81	89	86	88
	Min	62	25	55	53	49	42	38	40	63	45	47	40	47
Soil Temperature at 10 cm	06 UTC	15.0	14.8	15.6	15.2	16.8	16.6	15.4	14.8	17.2	15.2	15.7	15.2	16.7
	12 UTC	17.6	17.4	15.4	17.6	17.6	16.6	19.2	18.4	18.0	17.2	17.5	17.9	20.5
Sunshine Duration		7.5	11.7	0.9	7.3	5.3	1.8	13.0	12.3	0.7	3.3	6.4	8.9	8.5
Precipitation		6.3		3.1	3.8	0.1				0.6		13.9	2.5	10.5
Evaporation		3.8	5.3	3.3	3.9	6.0	3.0	8.7	6.9	3.2	3.5	47.6	56.4	51.5
Growing Degrees	5	9.8	11.7	10.0	12.2	12.7	12.7	11.5	8.8	9.6	9.5	108.5	98.6	99.3
	10	4.8	6.7	5.0	7.2	7.7	7.7	6.5	3.8	4.6	4.5	58.5	48.6	55.3

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.1	38.9	35.4
Precipitation - Reference Evapotranspiration	-21.2	-36.4	-24.9
Number of Rainy Days	5.0	2.0	1.9
Number of Dry Days	0.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

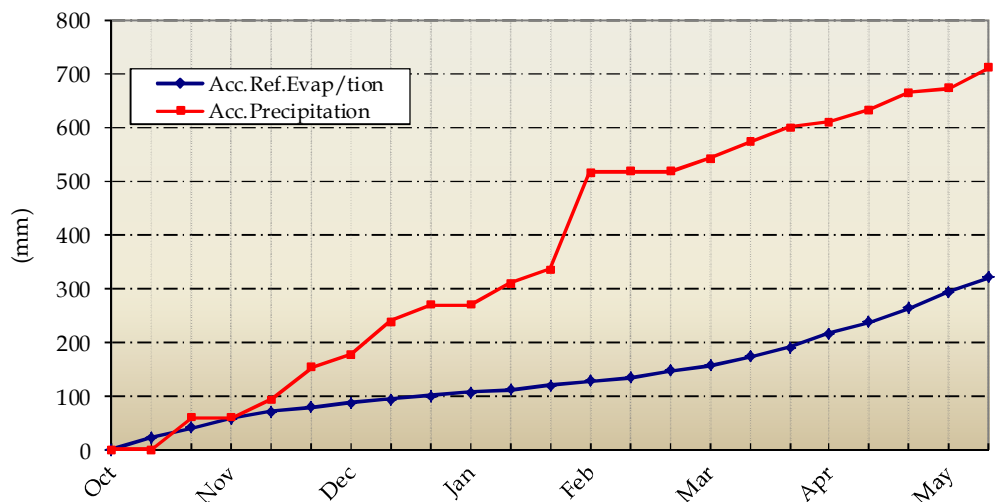


1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.4	21.0	19.7	21.4	22.2	23.4	23.6	22.8	23.3	23.7	21.8	22.1	23.0
	Min	13.3	9.8	15.0	13.5	12.7	11.0	10.0	11.3	15.0	13.1	12.5	10.8	12.2
Relative Humidity	Max	99	98	96	98	97	97	95	96	96	97	97	96	92
	Min	69	54	63	55	58	52	46	55	58	58	57	48	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.1
Sunshine Duration		0.0	0.1	4.6	2.7	9.6	10.9	9.6	7.8	0.0	5.1	5.0	7.4	9.5
Precipitation		16.5	4.9	9.5	5.8	2.2						38.9	4.6	4.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	51.2
Growing Degrees	5	10.4	10.4	12.4	12.5	12.5	12.2	11.8	12.1	14.2	13.4	121.6	114.3	102.1
	10	5.4	5.4	7.4	7.5	7.5	7.2	6.8	7.1	9.2	8.4	71.6	64.3	61.4

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.4	30.9	25.8
Precipitation - Reference Evapotranspiration	11.5	-26.3	-21.5
Number of Rainy Days	5.0	1.0	1.1
Number of Dry Days	0.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

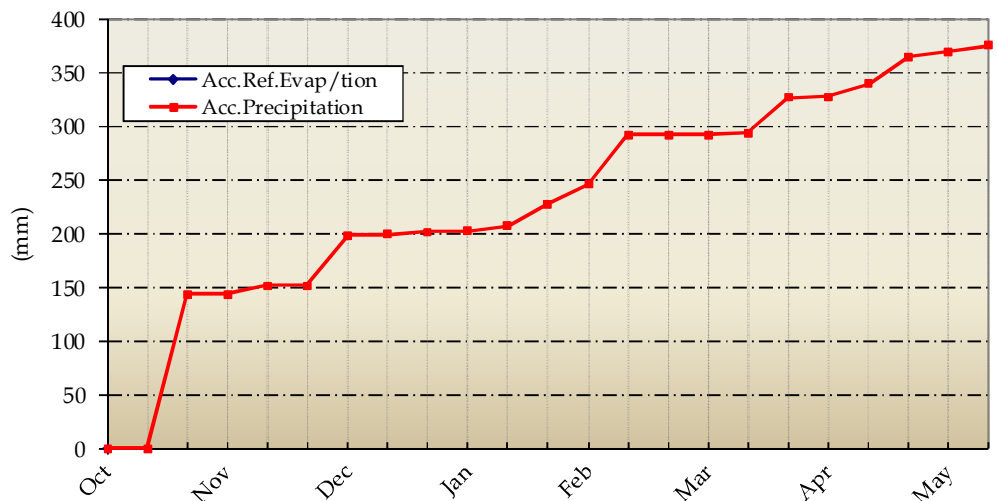


1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.0	22.4	24.4	22.4	20.0	18.4	20.4	21.0	22.4	19.6	21.0	20.2	22.6
	Min	12.4	12.6	16.0	13.6	16.2	15.2	15.0	12.8	13.0	15.0	14.2	13.8	14.4
Relative Humidity	Max	91	93	73	90	89	91	76	77	92	91	86	89	85
	Min	77	27	28	43	66	68	59	53	39	74	53	60	54
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.5	3.4	2.6	2.8	7.8	3.3	12.7	11.5	6.7	1.7	5.4	9.0	10.1
Precipitation		0.0	0.2	0.0	3.5	0.4	1.3				0.4	5.8	0.8	2.9
Evaporation		3.5	5.7	4.0	1.4	5.7	1.2	3.4	4.1	4.0	0.6	33.6	32.0	41.8
Growing Degrees	5	10.7	12.5	15.2	13.0	13.1	11.8	12.7	11.9	12.7	12.3	125.9	120.2	118.4
	10	5.7	7.5	10.2	8.0	8.1	6.8	7.7	6.9	7.7	7.3	75.9	70.2	74.4

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	5.0	1.0	1.1
Number of Dry Days	4.0	38.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

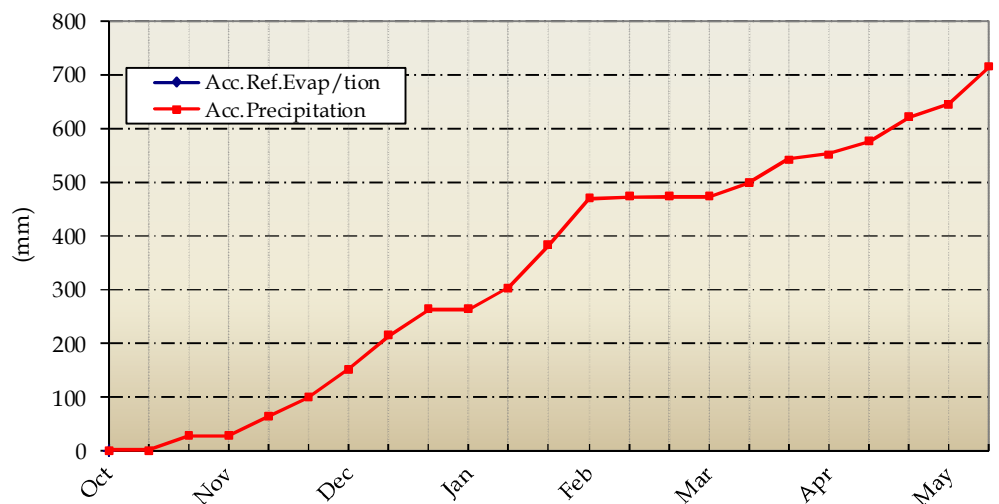


1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.3	18.1	16.1	12.8	22.1	23.8	24.3	24.2	21.7	16.1	20.0	20.8	21.9
	Min	10.2	9.6	10.6	9.3	8.1	6.0	9.1	7.9	11.9	12.1	9.5	8.2	9.1
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	95	94
	Min	45	51	55	81	38	33	35	33	50	73	49	44	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.0
Sunshine Duration		1.4	0.1	2.8	0.0	10.0	8.7	11.4	7.6	0.0	0.0	4.2	5.0	7.2
Precipitation		0.1	5.4	31.1	11.8	0.1			0.0	0.0	20.5	69.0	12.1	18.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	10.3	8.9	8.4	6.1	10.1	9.9	11.7	11.1	11.8	9.1	97.2	95.1	85.0
	10	5.3	3.9	3.4	1.1	5.1	4.9	6.7	6.1	6.8	4.1	47.2	45.1	44.7

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	29.1
Precipitation - Reference Evapotranspiration	-	-	-11.0
Number of Rainy Days	6.0	5.0	3.0
Number of Dry Days	0.0	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

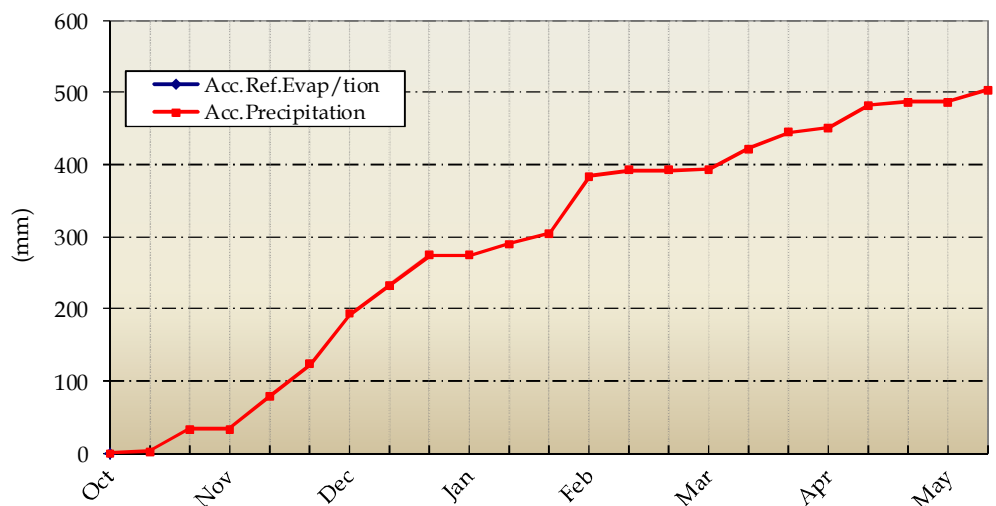


1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.1	20.7	21.3	22.0	22.8	26.8	25.1	23.8	23.8	24.6	22.8	23.3	23.5
	Min	13.4	10.4	12.2	13.9	12.5	11.2	10.8	10.5	14.7	13.6	12.3	11.3	11.3
Relative Humidity	Max	98	97	94	94	94	93	88	91	92	92	93	93	91
	Min	80	54	60	51	49	32	40	51	50	48	52	42	42
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	17.8	17.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	20.3	20.2
Sunshine Duration		0.6	0.9	7.7	10.9	2.1	8.8	10.5	9.0	0.0	6.7	5.7	8.7	9.5
Precipitation		11.7	2.8	1.6	0.1	0.0	0.6				0.0	16.8	15.5	6.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	54.5
Growing Degrees	5	10.3	10.6	11.8	13.0	12.7	14.0	13.0	12.2	14.3	14.1	125.6	123.0	106.0
	10	5.3	5.6	6.8	8.0	7.7	9.0	8.0	7.2	9.3	9.1	75.6	73.0	63.0

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	41.0
Precipitation - Reference Evapotranspiration	-	-	-34.4
Number of Rainy Days	5.0	3.0	1.8
Number of Dry Days	0.0	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

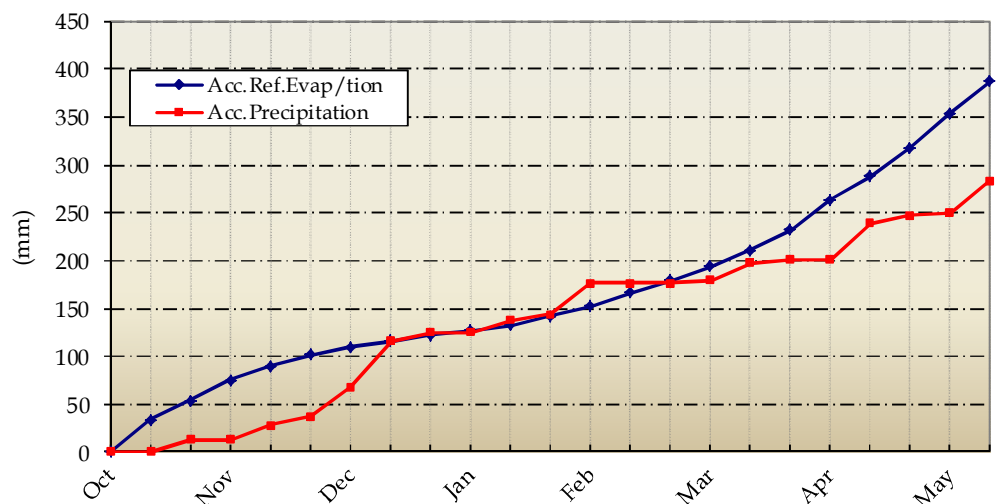


Larisa

1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	19.6	18.2	19.8	23.0	23.6	25.4	26.0	18.2	15.2	21.2	21.4	24.5
	Min	13.0	11.2	11.8	10.0	10.8	12.6	9.4	10.2	14.0	12.0	11.5	9.6	10.3
Relative Humidity	Max	98	100	100	100	100	100	100	100	100	100	100	95	91
	Min	41	44	66	56	45	35	37	40	74	10	45	42	34
Soil Temperature at 10 cm	06 UTC	18.4	18.4	18.2	17.2	17.6	18.6	18.4	19.8	20.4	18.0	18.5	16.6	16.7
	12 UTC	19.8	19.4	18.6	19.0	18.0	19.6	20.4	20.4	20.2	18.4	19.4	18.0	18.3
Sunshine Duration		5.8	0.8	3.9	1.9	8.2	7.6	11.7	8.6	0.0	0.4	4.9	5.9	8.0
Precipitation			0.7	17.8	0.0		0.3			5.4	9.5	33.7	4.4	8.9
Evaporation		9.8	0.0	0.3	4.6	5.2	3.6	6.0	6.3	2.3	2.0	40.1	56.6	65.3
Growing Degrees	5	13.0	10.4	10.0	9.9	11.9	13.1	12.4	13.1	11.1	8.6	113.5	105.1	111.8
	10	8.0	5.4	5.0	4.9	6.9	8.1	7.4	8.1	6.1	3.6	63.5	55.1	66.6

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.2	33.9	42.1
Precipitation - Reference Evapotranspiration	0.5	-29.5	-33.2
Number of Rainy Days	5.0	2.0	2.3
Number of Dry Days	5.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



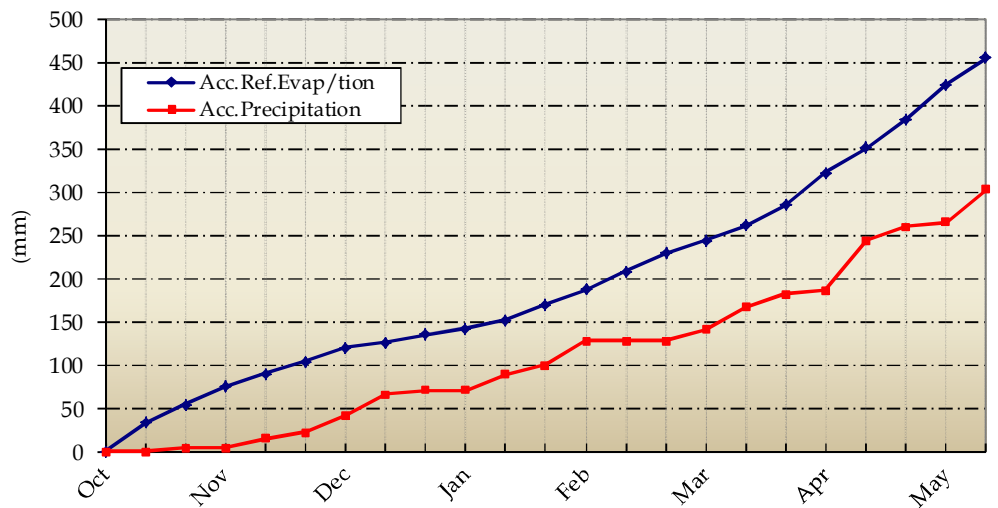
Mikra

1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	21.3	17.6	19.1	22.2	24.2	24.3	23.4	18.8	16.4	20.8	21.5	23.4
	Min	9.9	9.6	12.8	13.0	10.8	13.6	14.5	11.5	14.6	13.5	12.4	10.6	12.0
Relative Humidity	Max	100	100	100	100	100	89	81	100	100	100	97	96	83
	Min	55	41	71	75	54	34	40	44	95	65	57	43	39
Soil Temperature at 10 cm	06 UTC	16.2	16.0	16.0	16.4	16.4	17.2	17.6	17.6	18.2	17.0	16.9	16.5	17.9
	12 UTC	18.2	18.0	17.0	18.2	18.2	19.4	21.0	19.6	18.0	17.2	18.5	18.6	22.7
Sunshine Duration		8.2	4.1	0.9	2.9	5.2	12.0	11.6	10.1	0.0	0.0	5.5	8.0	8.5
Precipitation		1.0		6.5	2.5	0.4				21.4	5.7	37.5	6.4	12.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	59.5
Growing Degrees	5	10.2	10.5	10.2	11.1	11.5	13.9	14.4	12.5	11.7	10.0	115.8	110.3	114.1
	10	5.2	5.5	5.2	6.1	6.5	8.9	9.4	7.5	6.7	5.0	65.8	60.3	69.5

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.7	38.2	34.7
Precipitation - Reference Evapotranspiration	6.8	-31.8	-21.8
Number of Rainy Days	6.0	3.0	2.2
Number of Dry Days	4.0	1.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



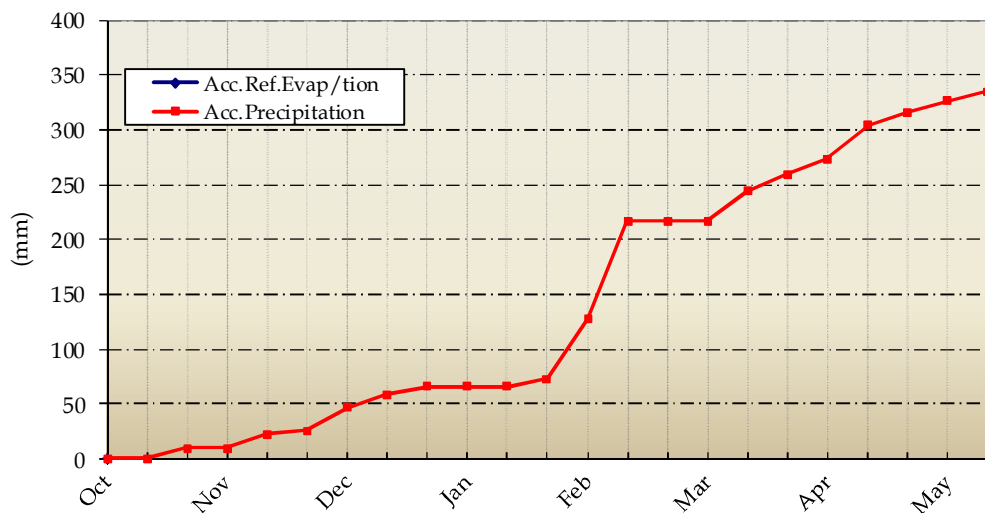
Tanagra

1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.6	20.2	22.6	20.8	16.0	20.4	23.2	24.0	18.0	17.0	20.2	20.6	23.4
	Min	10.5	8.4	10.6	10.0	13.9	14.4	11.2	8.6	13.2	12.1	11.3	9.6	10.9
Relative Humidity	Max	97	98	97	98	97	79	81	82	95	96	92	88	85
	Min	57	46	39	52	63	43	31	34	62	55	48	38	32
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.3	4.0	6.6	7.8	0.0	6.1	12.4	10.8	0.0	1.2	4.9	7.5	9.3
Precipitation		0.0	0.0	0.0		7.1				1.3	0.4	8.8	3.6	6.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	48.7
Growing Degrees	5	10.1	9.3	11.6	10.4	10.0	12.4	12.2	11.3	10.6	9.6	107.4	101.0	99.0
	10	5.1	4.3	6.6	5.4	5.0	7.4	7.2	6.3	5.6	4.6	57.4	51.0	57.8

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	3.0	2.0	1.5
Number of Dry Days	7.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

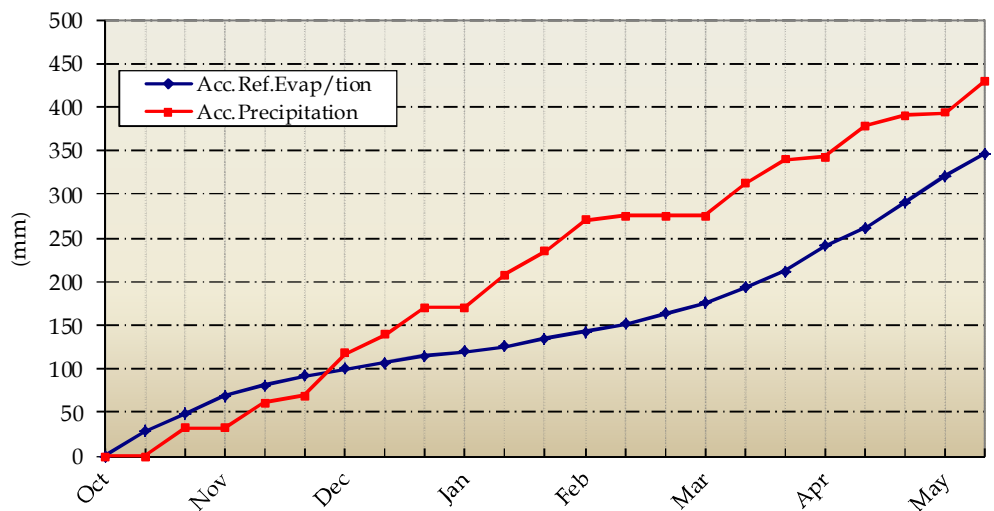


1st 10-day period (1-10/05/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.5	14.5	18.3	19.0	15.4	20.8	21.6	23.4	18.8	16.3	18.2	19.1	21.8
	Min	9.8	6.7	6.6	7.2	10.0	11.1	5.0	5.1	12.4	9.5	8.3	5.9	7.2
Relative Humidity	Max	98	98	99	96	98	86	94	97	95	96	96	96	89
	Min	69	55	42	38	64	38	30	32	52	65	48	36	34
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.8
Sunshine Duration		0.0	1.2	5.0	5.9	1.0	10.2	9.2	8.0	0.2	0.6	4.1	6.8	9.0
Precipitation		7.4	12.6	11.9	0.3	4.2				0.0	0.1	36.5	14.5	10.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	35.1
Growing Degrees	5	6.7	5.6	7.5	8.1	7.7	11.0	8.3	9.3	10.6	7.9	82.5	75.1	77.5
	10	1.7	0.6	2.5	3.1	2.7	6.0	3.3	4.3	5.6	2.9	32.5	25.1	37.5

1st 10-day period (1-10/05/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.9	29.5	31.0
Precipitation - Reference Evapotranspiration	10.6	-15.0	-20.9
Number of Rainy Days	6.0	4.0	2.3
Number of Dry Days	0.0	0.0	

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)

Mesurements 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

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