



# AGROMETEOROLOGICAL BULLETIN

*August 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



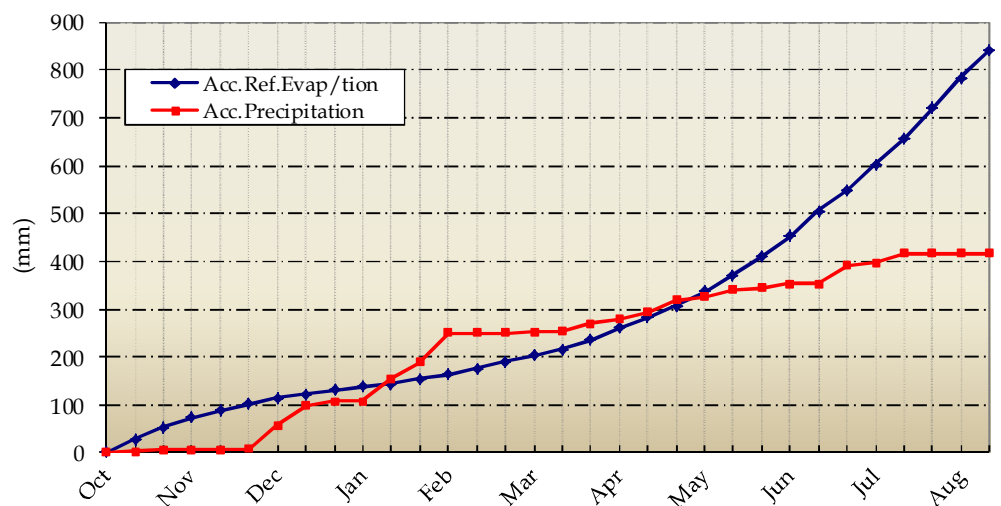
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*Web adresses of HNMS*  
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1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	31.4	34.0	39.0	38.0	31.8	33.4	30.4	30.4	30.0	33.0	34.0	32.7
	Min	20.0	19.8	19.0	20.0	25.0	21.6	22.8	21.0	19.2	19.2	20.8	20.8	20.2
Relative Humidity	Max	80	87	75	85	74	83	88	73	78	72	80	78	76
	Min	42	41	35	24	36	47	30	35	31	35	36	29	33
Soil Temperature at 10 cm	06 UTC	28.6	28.6	29.0	29.4	30.6	30.6	30.2	30.0	28.0	27.8	29.3	28.3	26.7
	12 UTC	32.8	33.0	35.6	34.0	35.0	33.8	33.0	34.0	32.0	31.6	33.5	31.6	30.4
Sunshine Duration		12.6	12.8	13.0	13.0	12.9	11.4	13.0	11.6	12.5	9.8	12.3	12.1	11.5
Precipitation														5.0
Evaporation		8.0	8.0	11.0	11.0	9.5	5.5	11.6	12.4	9.6	8.0	94.6	108.6	89.9
Growing Degrees	5	20.8	20.6	21.5	24.5	26.5	21.7	23.1	20.7	19.8	19.6	218.8	223.9	194.3
	10	15.8	15.6	16.5	19.5	21.5	16.7	18.1	15.7	14.8	14.6	168.8	173.9	148.9

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.6	65.8	50.1
Precipitation - Reference Evapotranspiration	-58.6	-65.8	-45.1
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	33.0	45.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

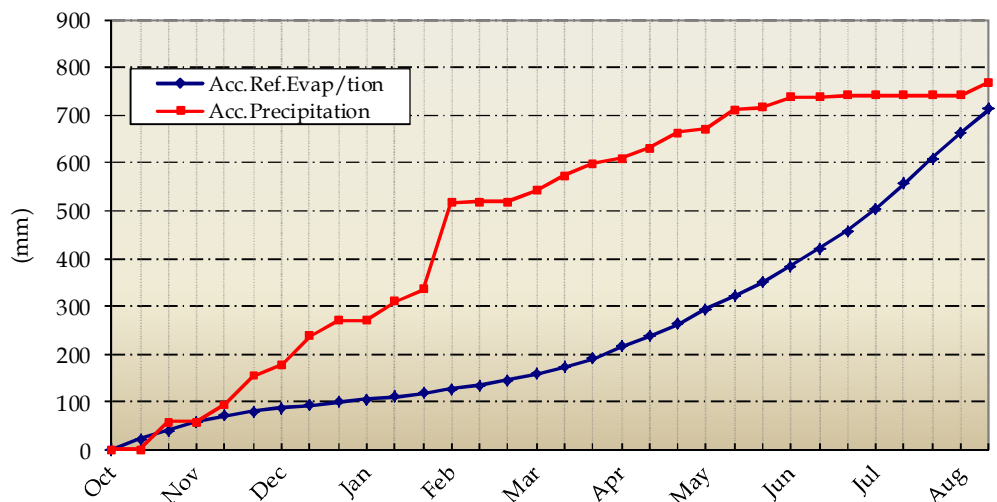


1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.2	32.9	32.0	32.4	32.2	29.0	30.2	30.7	31.6	29.3	31.4	34.0	31.8
	Min	20.7	20.2	21.6	21.0	21.8	21.6	19.9	18.0	20.4	20.3	20.6	20.3	19.8
Relative Humidity	Max	95	94	96	96	98	90	86	96	89	90	93	85	88
	Min	40	52	48	47	55	49	44	41	38	47	46	33	39
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	34.2
Sunshine Duration		12.8	13.0	12.8	12.6	10.5	12.8	12.9	12.0	10.2	12.0	12.2	11.9	11.9
Precipitation						25.8						25.8		1.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	82.2
Growing Degrees	5	22.0	21.6	21.8	21.7	22.0	20.3	20.1	19.4	21.0	19.8	209.5	221.7	167.9
	10	17.0	16.6	16.8	16.7	17.0	15.3	15.1	14.4	16.0	14.8	159.5	171.7	127.5

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.6	48.2	57.9
Precipitation - Reference Evapotranspiration	-22.8	-48.2	-56.9
Number of Rainy Days	1.0	0.0	0.2
Number of Dry Days	48.0	61.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



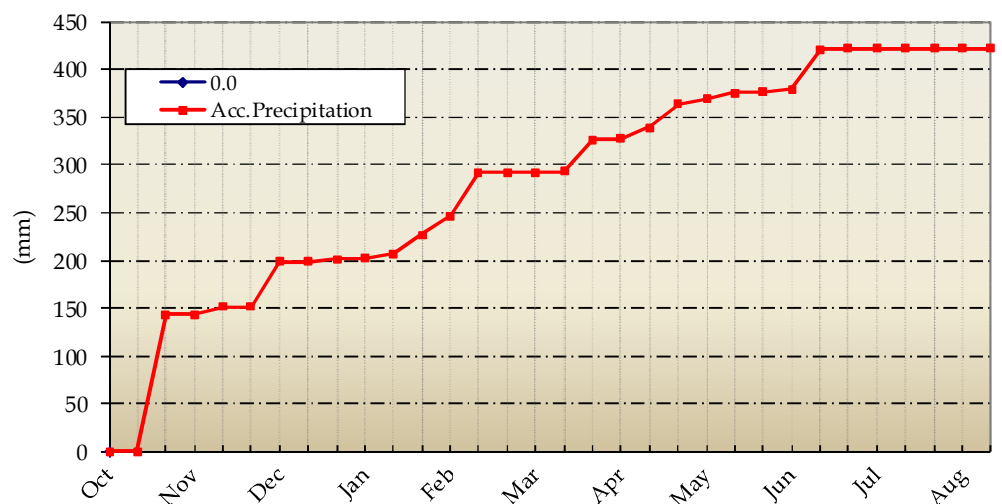
Iraklio

1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	31.2	32.0	30.4	31.2	31.0	29.4	29.2	28.2	29.0	30.2	29.2	29.5
	Min	23.6	22.0	23.0	21.6	22.0	22.6	23.2	22.4	26.0	24.8	23.1	24.5	23.2
Relative Humidity	Max	76	74	85	92	86	86	81	80	76	84	82	76	79
	Min	56	54	44	60	60	60	59	64	51	48	56	54	55
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.7	12.8	12.9	12.7	12.5	11.8	12.7	12.8	12.8	12.8	12.6	12.5	12.0
Precipitation														0.0
Evaporation		5.5	7.0	2.0	12.2	3.3	6.0	5.5	7.0	8.6	7.6	64.7	74.6	71.2
Growing Degrees	5	21.8	21.6	22.5	21.0	21.6	21.8	21.3	20.8	22.1	21.9	216.4	218.3	202.9
	10	16.8	16.6	17.5	16.0	16.6	16.8	16.3	15.8	17.1	16.9	166.4	168.3	155.4

1st 10-day period (1-10/08/2023)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	0.0	0.0
Number of Dry Days	52.0	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

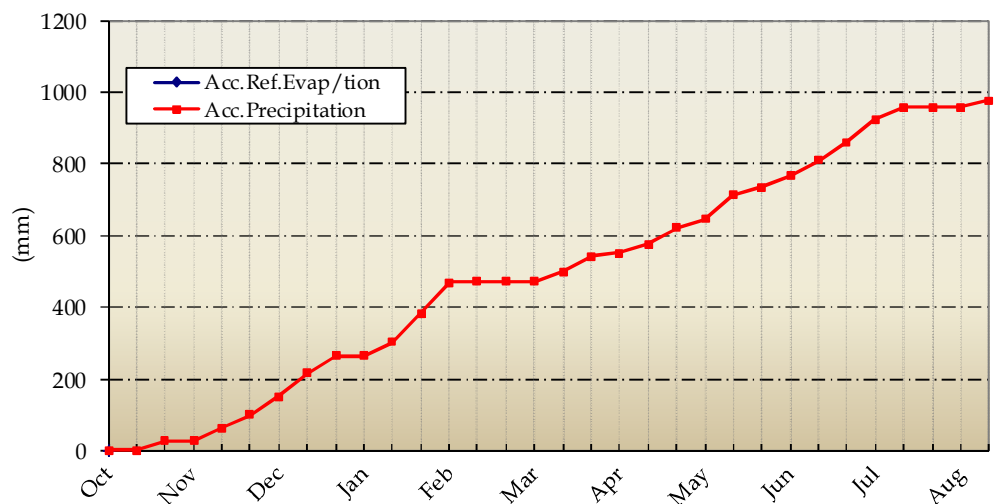


1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.3	32.5	33.9	35.1	32.5	26.7	29.6	31.0	30.8	29.7	31.5	33.6	32.1
	Min	17.0	15.1	15.1	14.3	15.8	16.4	12.2	13.0	14.5	13.6	14.7	16.5	16.6
Relative Humidity	Max	97	100	100	97	100	100	100	90	100	100	98	86	88
	Min	32	37	31	32	30	44	38	34	34	28	34	26	35
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.7
Sunshine Duration		10.1	11.6	12.3	12.3	8.1	8.6	10.8	11.9	11.8	11.3	10.9	9.2	10.1
Precipitation						14.1	5.3					19.4	9.5	7.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	20.2	18.8	19.5	19.7	19.2	16.6	15.9	17.0	17.7	16.7	181.1	200.7	150.1
	10	15.2	13.8	14.5	14.7	14.2	11.6	10.9	12.0	12.7	11.7	131.1	150.7	111.3

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.6
Precipitation - Reference Evapotranspiration	-	-	-26.0
Number of Rainy Days	2.0	2.0	1.1
Number of Dry Days	31.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

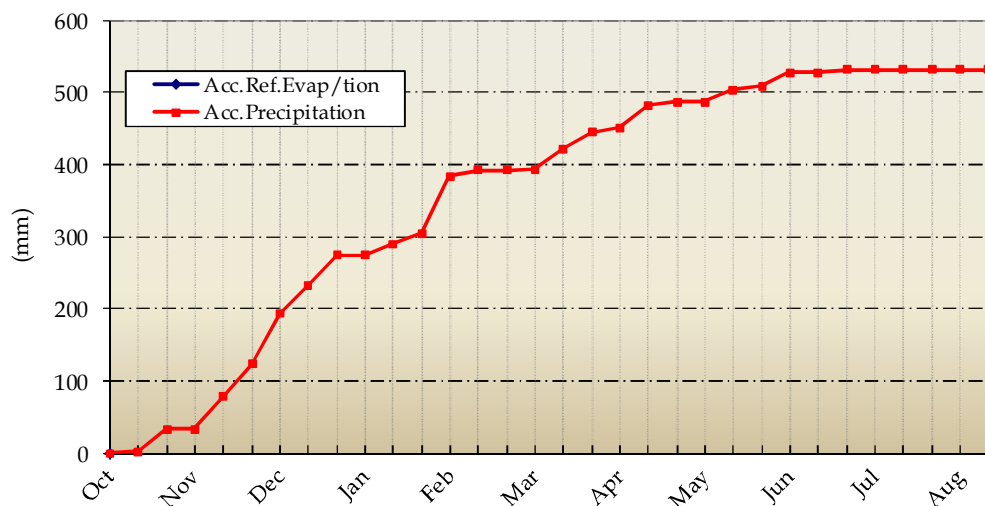


1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.2	35.8	33.6	32.5	33.6	32.5	33.8	32.2	31.2	30.7	32.9	34.7	32.7
	Min	19.8	19.7	19.0	19.4	19.7	19.8	17.5	19.3	20.0	18.5	19.3	19.8	19.5
Relative Humidity	Max	86	90	91	90	92	90	85	80	86	90	88	85	86
	Min	37	25	40	44	41	38	28	34	46	48	38	28	35
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.3
Sunshine Duration		11.9	12.3	12.2	12.2	11.5	11.6	12.2	12.2	7.8	12.1	11.6	10.7	11.3
Precipitation							0.0					0.0	2.5	3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	69.5
Growing Degrees	5	21.5	22.8	21.3	21.0	21.7	21.2	20.7	20.8	20.6	19.6	210.9	222.5	190.4
	10	16.5	17.8	16.3	16.0	16.7	16.2	15.7	15.8	15.6	14.6	160.9	172.5	145.2

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	41.0
Precipitation - Reference Evapotranspiration	-	-	-37.1
Number of Rainy Days	0.0	3.0	0.6
Number of Dry Days	53.0	23.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

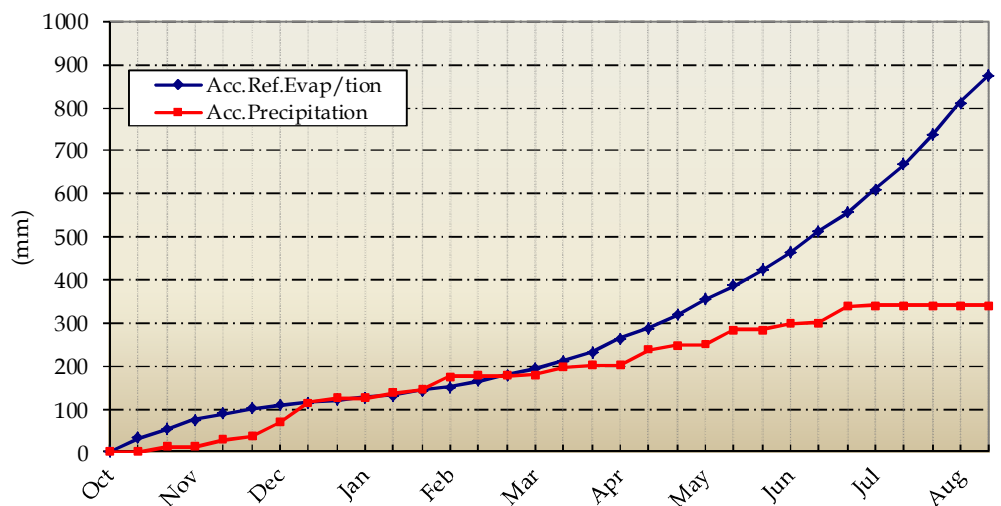


Larisa

1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.6	37.6	37.6	37.6	37.2	34.8	35.8	31.6	30.8	31.6	34.9	34.4	33.7
	Min	23.6	20.4	20.8	21.6	19.2	22.6	18.2	19.0	20.0	19.2	20.5	20.8	19.3
Relative Humidity	Max	86	89	89	96	70	67	65	67	67	100	80	67	81
	Min	37	17	30	22	30	18	20	28	36	37	28	24	30
Soil Temperature at 10 cm	06 UTC	30.4	30.6	30.6	30.8	30.4	30.0	29.8	29.6	29.2	28.0	29.9	28.9	27.6
	12 UTC	31.2	31.2	31.4	32.0	31.2	30.8	30.2	30.0	30.2	29.8	30.8	30.2	29.5
Sunshine Duration		10.2	10.9	11.0	10.9	9.5	11.1	10.8	11.2	7.9	6.1	10.0	10.2	10.5
Precipitation						0.0					0.0	0.0		6.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	111.7	98.8
Growing Degrees	5	24.1	24.0	24.2	24.6	23.2	23.7	22.0	20.3	20.4	20.4	226.9	225.7	194.0
	10	19.1	19.0	19.2	19.6	18.2	18.7	17.0	15.3	15.4	15.4	176.9	175.7	149.0

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.6	60.1	54.9
Precipitation - Reference Evapotranspiration	-62.6	-60.1	-48.0
Number of Rainy Days	0.0	0.0	1.5
Number of Dry Days	45.0	28.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



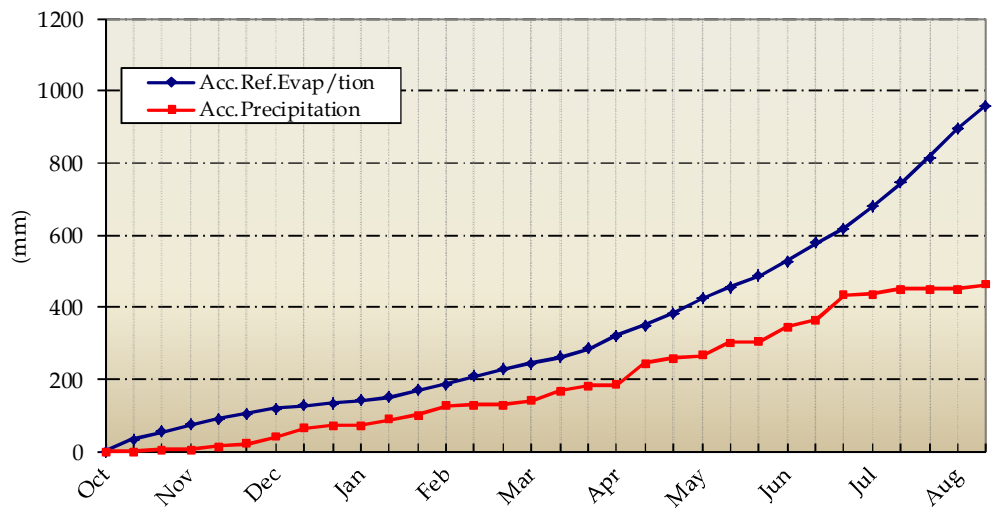
Mikra

1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.3	34.4	35.8	36.3	35.8	33.0	33.0	30.1	29.2	25.8	32.6	33.7	32.7
	Min	21.8	21.8	22.2	22.3	22.3	24.1	18.7	21.9	20.8	18.2	21.4	22.9	21.5
Relative Humidity	Max	80	79	93	86	85	82	70	59	70	96	80	71	75
	Min	44	40	37	28	39	34	20	36	39	56	37	30	35
Soil Temperature at 10 cm	06 UTC	28.0	28.2	29.0	28.4	28.0	28.6	27.6	27.6	27.0	27.0	27.9	28.9	28.3
	12 UTC	30.0	30.2	35.0	32.0	32.6	30.2	29.8	31.0	27.0	27.0	30.5	31.2	33.0
Sunshine Duration		11.9	12.4	12.8	12.9	11.2	13.0	12.8	12.0	8.9	4.2	11.2	11.3	10.6
Precipitation											11.1	11.1	0.3	11.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	95.6
Growing Degrees	5	22.1	23.1	24.0	24.3	24.1	23.6	20.9	21.0	20.0	17.0	219.9	232.9	201.4
	10	17.1	18.1	19.0	19.3	19.1	18.6	15.9	16.0	15.0	12.0	169.9	182.9	155.9

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	63.8	67.4	44.3
Precipitation - Reference Evapotranspiration	-52.7	-67.1	-32.8
Number of Rainy Days	1.0	1.0	1.4
Number of Dry Days	35.0	28.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





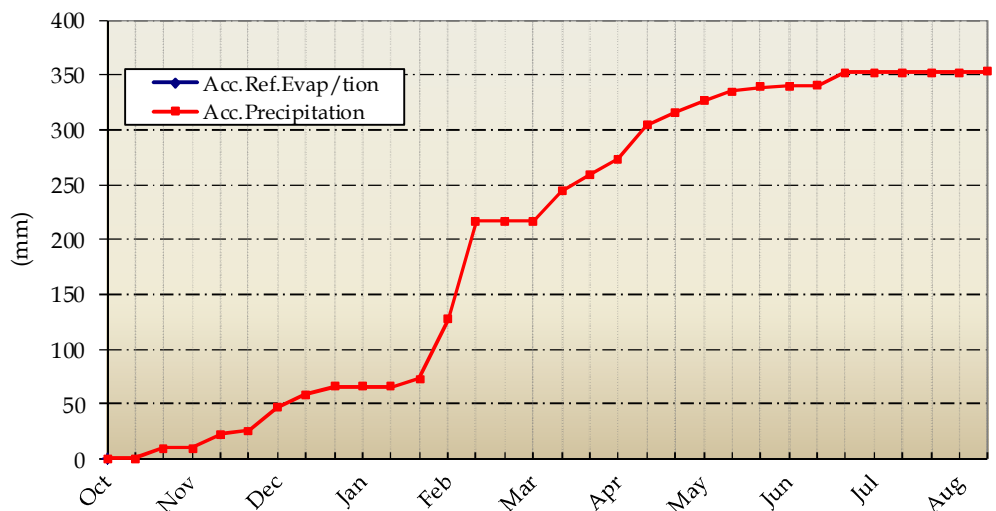
Tanagra

1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.3	35.6	36.9	37.6	38.6	33.8	34.5	30.8	29.2	31.1	34.1	31.4	32.4
	Min	21.1	20.8	22.3	22.4	22.1	25.8	20.0	20.6	21.5	16.4	21.3	21.8	20.4
Relative Humidity	Max	69	68	69	64	63	56	61	61	63	81	66	59	68
	Min	30	24	21	21	19	20	17	29	30	26	24	28	27
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.5	13.0	13.0	13.0	12.2	13.1	13.2	12.5	12.7	5.9	12.1	12.9	11.8
Precipitation											0.5	0.5		4.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	97.2
Growing Degrees	5	22.2	23.2	24.6	25.0	25.4	24.8	22.3	20.7	20.4	18.8	227.2	216.2	186.5
	10	17.2	18.2	19.6	20.0	20.4	19.8	17.3	15.7	15.4	13.8	177.2	166.2	143.0

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	1.0	0.0	0.5
Number of Dry Days	52.0	31.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



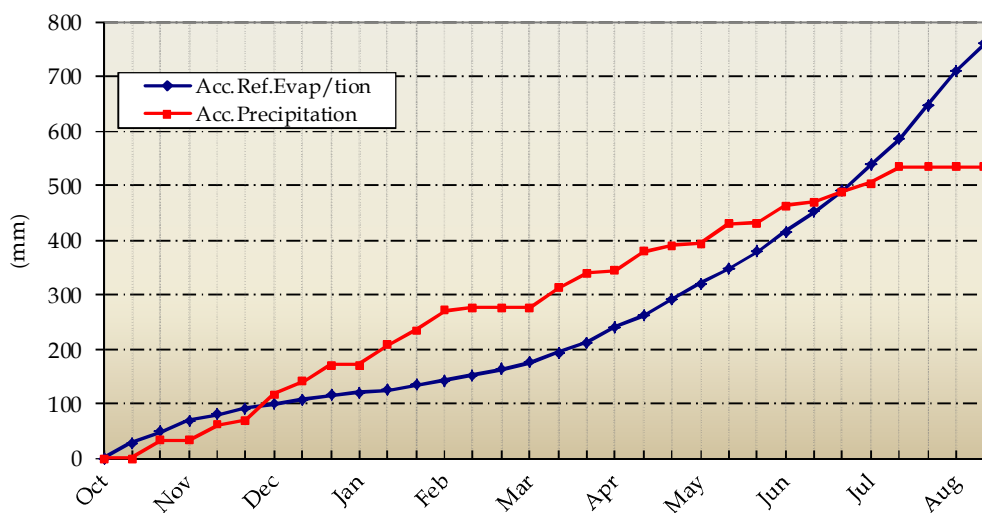
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1st 10-day period (1-10/08/2023)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.1	32.9	34.9	35.5	32.4	27.7	31.7	31.4	28.4	29.9	31.7	31.3	31.7
	Min	15.4	17.9	13.8	15.9	16.6	18.9	10.9	11.9	19.8	14.5	15.6	16.3	15.3
Relative Humidity	Max	83	79	86	88	77	82	89	95	86	93	86	75	83
	Min	31	21	10	18	11	30	14	24	36	27	22	22	26
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.7
Sunshine Duration		10.3	12.9	12.8	12.6	12.3	12.2	12.6	10.7	6.4	12.5	11.5	11.4	10.6
Precipitation														4.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	67.4
Growing Degrees	5	18.8	20.4	19.4	20.7	19.5	18.3	16.3	16.7	19.1	17.2	186.3	188.0	145.7
	10	13.8	15.4	14.4	15.7	14.5	13.3	11.3	11.7	14.1	12.2	136.3	138.0	106.2

1st 10-day period (1-10/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.2	57.3	36.2
Precipitation - Reference Evapotranspiration	-51.2	-57.3	-31.4
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	36.0	28.0	-

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<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.

**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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