



AGROMETEOROLOGICAL BULLETIN

*August 2023
2nd 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



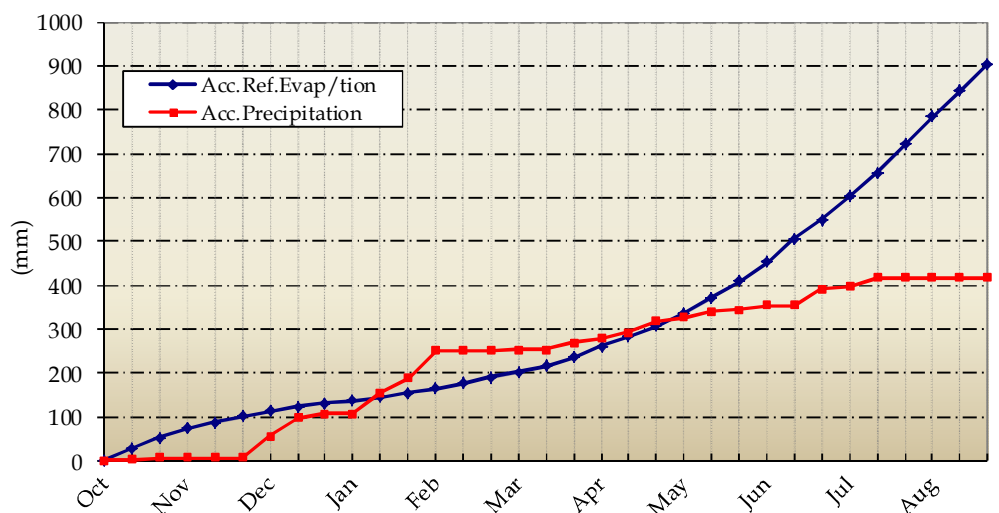
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2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	32.2	30.6	32.6	31.4	33.4	37.2	36.8	35.0	36.4	33.5	32.5	32.1
	Min	17.2	19.0	22.0	22.6	25.0	21.6	24.8	26.6	26.2	26.0	23.1	19.8	19.4
Relative Humidity	Max	76	81	68	67	83	91	62	53	62	62	70	88	76
	Min	40	24	36	39	57	44	31	30	29	22	35	41	34
Soil Temperature at 10 cm	06 UTC	27.0	27.0	27.8	28.0	28.6	28.5	29.4	30.2	30.2	29.6	28.6	28.4	26.2
	12 UTC	31.8	31.2	30.0	30.4	31.6	33.0	33.6	34.0	35.2	33.6	32.4	32.2	29.8
Sunshine Duration		9.3	11.2	5.3	5.4	5.7	12.0	12.1	11.5	8.9	10.6	9.2	11.2	11.6
Precipitation														4.2
Evaporation		7.8	12.2	10.4	6.6	8.3	8.7	13.1	14.0	13.4	11.6	106.1	83.0	94.6
Growing Degrees	5	18.1	20.6	21.3	22.6	23.2	22.5	26.0	26.7	25.6	26.2	232.8	211.9	190.4
	10	13.1	15.6	16.3	17.6	18.2	17.5	21.0	21.7	20.6	21.2	182.8	161.9	144.4

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	61.5	51.0	47.1
Precipitation - Reference Evapotranspiration	-61.5	-51.0	-42.9
Number of Rainy Days	0.0	0.0	0.6
Number of Dry Days	43.0	55.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

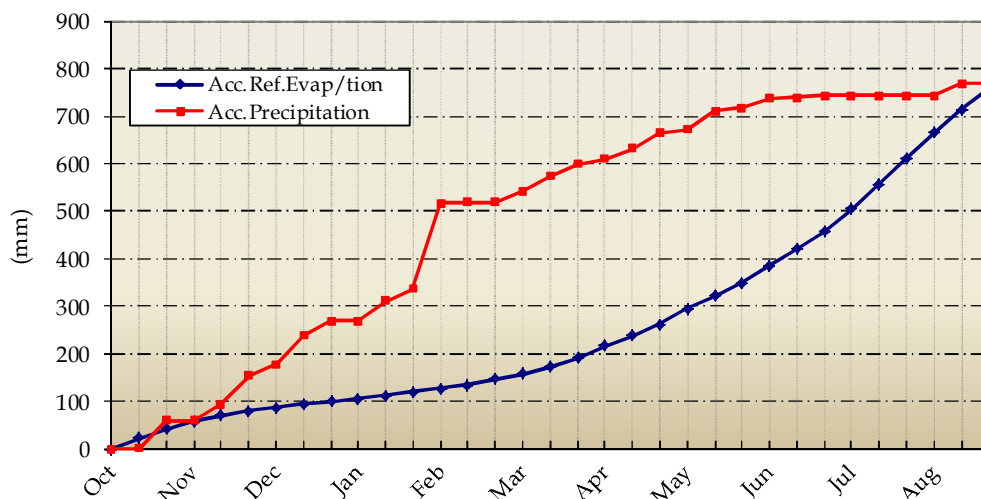


2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.2	30.0	31.9	31.4	31.8	31.2	32.6	32.8	34.1	33.8	32.1	32.2	31.7
	Min	18.9	19.0	17.4	17.4	19.2	19.7	19.6	20.0	19.8	19.8	19.1	20.7	19.7
Relative Humidity	Max	92	92	83	87	95	94	94	97	91	94	92	87	88
	Min	39	41	34	33	47	49	52	44	37	35	41	41	36
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	33.8
Sunshine Duration		12.4	6.9	9.8	10.6	12.1	12.3	10.9	11.8	11.9	11.0	11.0	11.4	11.5
Precipitation														1.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	83.9
Growing Degrees	5	20.1	19.5	19.7	19.4	20.5	20.5	21.1	21.4	22.0	21.8	205.8	214.8	170.7
	10	15.1	14.5	14.7	14.4	15.5	15.5	16.1	16.4	17.0	16.8	155.8	164.8	129.5

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.4	45.3	43.1
Precipitation - Reference Evapotranspiration	-43.4	-45.3	-42.1
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	15.0	71.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

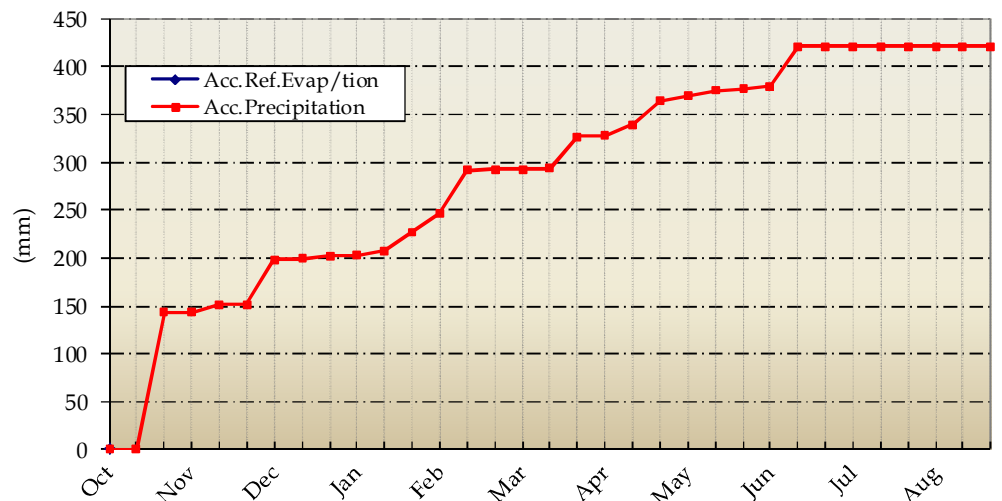


2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	28.6	28.6	28.6	28.8	29.8	30.6	30.8	30.6	30.4	29.5	30.0	29.5
	Min	21.0	24.0	23.0	22.6	24.0	22.0	23.2	23.2	23.2	22.0	22.8	23.3	23.0
Relative Humidity	Max	95	75	82	86	84	83	92	87	84	83	85	83	78
	Min	54	50	60	67	60	60	50	53	56	50	56	53	53
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	12.0	11.2	12.4	11.9	11.9	11.8	11.8	12.0	11.6	11.9	12.3	11.6
Precipitation														0.4
Evaporation		6.4	8.1	6.7	5.0	5.4	6.2	7.0	6.4	5.1	6.7	63.0	69.9	72.4
Growing Degrees	5	19.7	21.3	20.8	20.6	21.4	20.9	21.9	22.0	21.9	21.2	211.7	216.8	205.6
	10	14.7	16.3	15.8	15.6	16.4	15.9	16.9	17.0	16.9	16.2	161.7	166.8	157.3

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	62.0	69.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

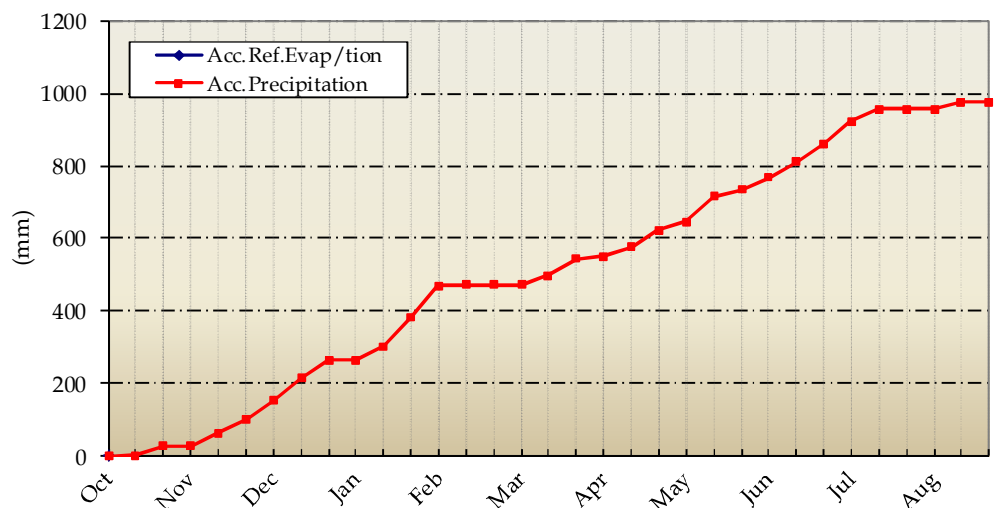


2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	28.9	28.2	29.6	31.3	32.7	34.5	35.4	35.7	34.7	32.2	32.7	32.0
	Min	12.8	18.8	14.9	20.2	14.4	13.8	16.5	16.6	15.9	17.0	16.1	14.7	15.8
Relative Humidity	Max	63	88	60	100	100	95	100	99	93	100	90	97	88
	Min	28	31	36	33	36	32	31	26	29	22	30	29	32
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.0
Sunshine Duration		10.5	4.9	5.8	3.3	12.0	12.2	11.4	12.1	11.3	12.0	9.6	9.5	10.0
Precipitation						0.1						0.1	5.6	8.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	16.7	18.9	16.6	19.9	17.9	18.3	20.5	21.0	20.8	20.9	191.3	187.2	148.2
	10	11.7	13.9	11.6	14.9	12.9	13.3	15.5	16.0	15.8	15.9	141.3	137.2	109.1

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	34.9
Precipitation - Reference Evapotranspiration	-	-	-26.5
Number of Rainy Days	1.0	3.0	1.3
Number of Dry Days	8.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

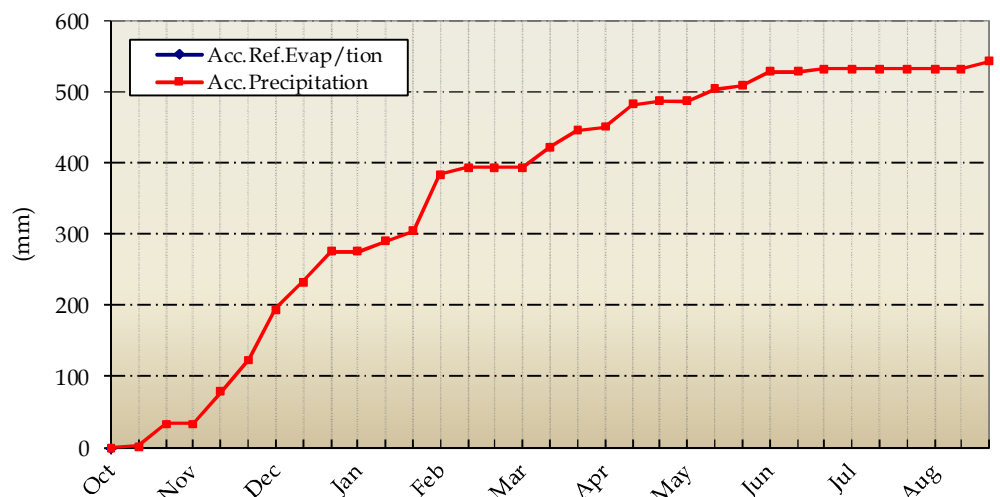


2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	32.7	31.5	31.0	34.2	35.0	34.6	32.9	32.8	32.4	32.7	33.4	32.2
	Min	19.6	21.2	17.9	17.7	18.3	21.8	21.4	20.6	19.2	20.4	19.8	20.1	19.4
Relative Humidity	Max	96	95	87	89	84	75	92	90	94	94	90	85	84
	Min	52	30	32	38	31	32	36	45	41	49	39	32	33
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.2
Sunshine Duration		7.6	5.1	6.1	11.5	12.2	12.2	11.6	11.8	11.5	10.9	10.0	11.1	11.4
Precipitation		8.4	1.8									10.2	1.8	3.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	71.8
Growing Degrees	5	19.9	22.0	19.7	19.4	21.3	23.4	23.0	21.8	21.0	21.4	212.7	217.4	188.4
	10	14.9	17.0	14.7	14.4	16.3	18.4	18.0	16.8	16.0	16.4	162.7	167.4	143.1

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	48.5
Precipitation - Reference Evapotranspiration	-	-	-45.3
Number of Rainy Days	2.0	1.0	0.6
Number of Dry Days	53.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

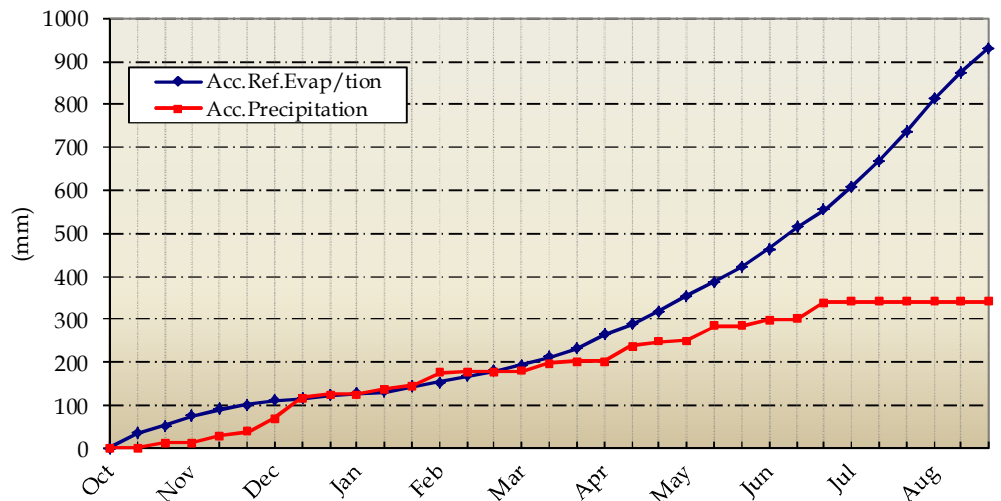


Larisa

2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	32.2	30.6	32.2	35.0	37.2	36.4	35.4	35.4	34.6	34.0	34.5	33.5
	Min	16.0	16.0	19.6	19.6	19.4	19.6	19.8	21.2	19.6	17.4	18.8	18.5	18.7
Relative Humidity	Max	100	85	63	64	74	78	68	68	71	69	74	86	76
	Min	31	26	26	32	25	24	28	27	22	26	27	29	26
Soil Temperature at 10 cm	06 UTC	28.0	-	-	-	-	-	-	-	-	-	28.0	27.7	27.2
	12 UTC	28.4	-	-	-	-	-	-	-	-	-	28.4	29.3	28.9
Sunshine Duration		9.3	10.9	5.5	9.6	10.5	10.8	11.2	10.5	10.8	10.7	10.0	8.8	10.9
Precipitation													3.7	3.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	89.6	91.8
Growing Degrees	5	18.4	19.1	20.1	20.9	22.2	23.4	23.1	23.3	22.5	21.0	214.0	215.1	195.4
	10	13.4	14.1	15.1	15.9	17.2	18.4	18.1	18.3	17.5	16.0	164.0	165.1	149.2

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.7	51.4	57.5
Precipitation - Reference Evapotranspiration	-57.7	-47.7	-54.2
Number of Rainy Days	0.0	1.0	0.8
Number of Dry Days	55.0	29.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



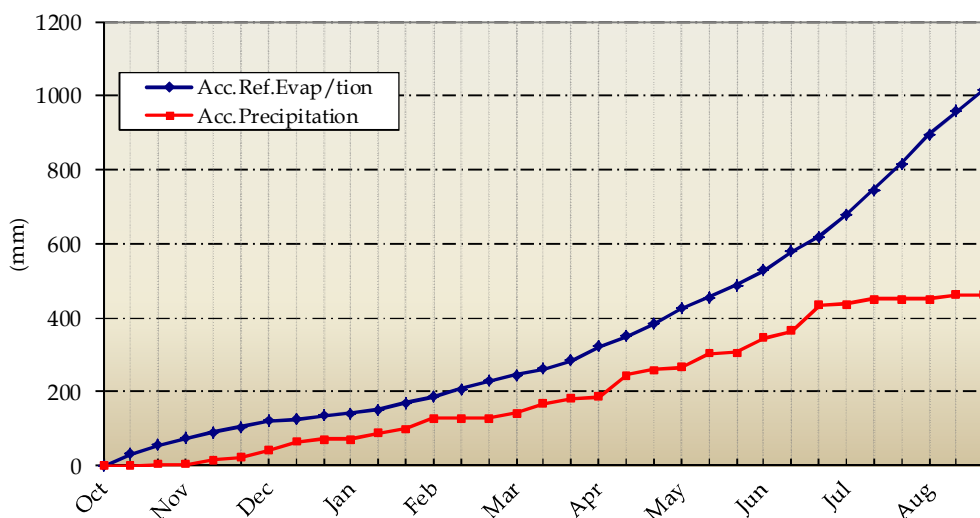
Mikra

2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	29.8	31.0	31.6	32.0	33.4	34.8	37.2	34.4	34.3	32.8	32.6	32.4
	Min	20.3	19.3	22.2	19.8	20.2	20.0	22.3	24.6	24.0	22.0	21.5	20.8	20.8
Relative Humidity	Max	72	81	71	76	77	77	83	76	73	70	76	86	73
	Min	33	46	38	29	41	45	31	31	29	28	35	37	31
Soil Temperature at 10 cm	06 UTC	24.0	24.6	25.0	25.4	25.4	25.8	26.4	27.0	27.2	27.4	25.8	27.3	27.7
	12 UTC	26.0	26.2	27.0	26.8	28.2	27.0	28.5	28.4	29.6	28.8	27.6	29.3	32.5
Sunshine Duration		12.4	10.8	8.7	8.2	11.7	12.7	11.4	12.0	12.2	11.8	11.2	9.3	11.0
Precipitation													2.4	2.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	90.8
Growing Degrees	5	20.1	19.6	21.6	20.7	21.1	21.7	23.6	25.9	24.2	23.2	221.5	217.1	199.7
	10	15.1	14.6	16.6	15.7	16.1	16.7	18.6	20.9	19.2	18.2	171.5	167.1	153.5

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.2	56.0	55.6
Precipitation - Reference Evapotranspiration	-58.2	-53.6	-53.3
Number of Rainy Days	0.0	4.0	0.9
Number of Dry Days	10.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



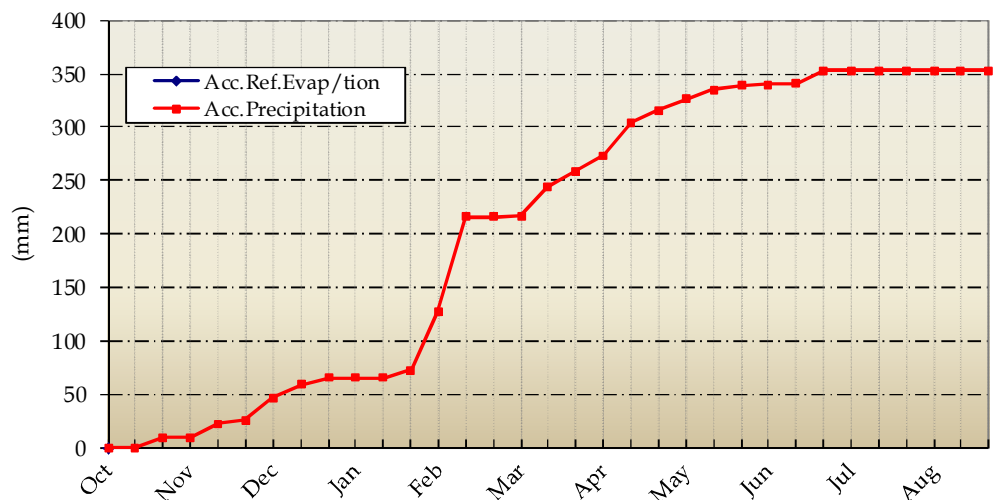
Tanagra

2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	29.3	28.0	29.4	33.0	33.8	31.7	33.4	32.6	32.0	31.2	33.6	32.1
	Min	17.3	19.7	22.4	23.6	20.6	19.4	21.8	23.5	23.7	22.3	21.4	20.2	19.7
Relative Humidity	Max	86	65	51	65	69	69	59	59	57	64	64	65	69
	Min	32	26	35	42	27	24	31	28	26	29	30	23	26
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	12.4	4.9	9.9	11.6	12.4	12.0	12.3	12.5	11.9	11.2	12.1	11.6
Precipitation		0.0										0.0	0.0	1.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	95.5
Growing Degrees	5	18.1	19.5	20.2	21.5	21.8	21.6	21.8	23.5	23.2	22.2	213.2	218.8	183.3
	10	13.1	14.5	15.2	16.5	16.8	16.6	16.8	18.5	18.2	17.2	163.2	168.8	139.5

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	10.0	41.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

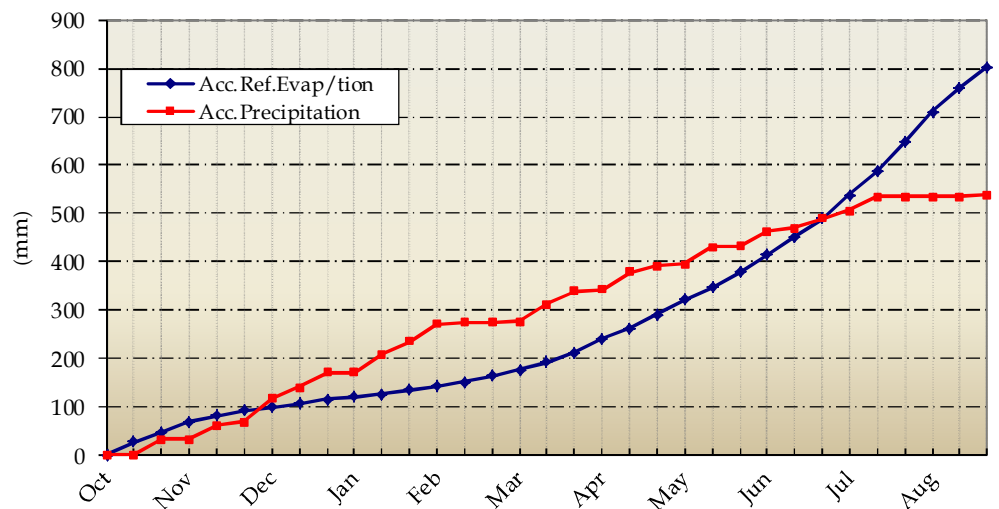


2nd 10-day period (11-20/08/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.1	28.8	28.6	29.2	30.8	32.2	33.3	33.6	33.6	32.7	31.1	32.4	31.4
	Min	14.8	17.3	12.8	12.4	13.9	14.0	14.1	15.1	14.6	14.0	14.3	14.4	14.8
Relative Humidity	Max	94	76	82	97	91	95	90	94	91	95	90	86	79
	Min	31	26	27	30	70	22	23	25	24	25	30	20	24
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.3
Sunshine Duration		7.2	8.6	11.0	7.9	8.5	9.4	9.4	10.1	9.3	11.7	9.3	10.0	10.7
Precipitation		0.7			1.9	0.2						2.8		11.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	55.9
Growing Degrees	5	16.5	18.1	15.7	15.8	17.4	18.1	18.7	19.4	19.1	18.4	177.0	184.0	143.9
	10	11.5	13.1	10.7	10.8	12.4	13.1	13.7	14.4	14.1	13.4	127.0	134.0	104.2

2nd 10-day period (11-20/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.6	46.0	32.5
Precipitation - Reference Evapotranspiration	-40.8	-46.0	-20.7
Number of Rainy Days	3.0	0.0	1.2
Number of Dry Days	36.0	38.0	-

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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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