



AGROMETEOROLOGICAL BULLETIN

*July 2020
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



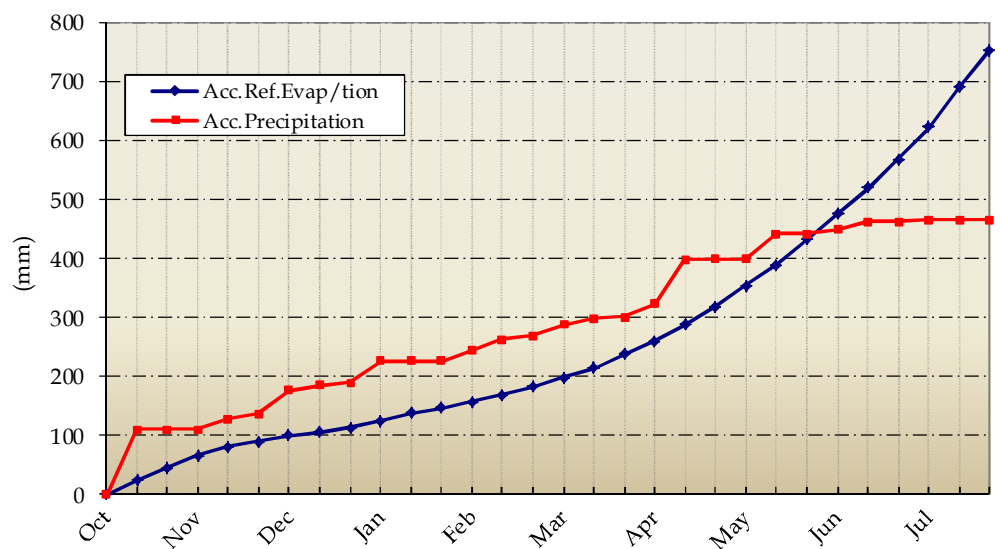
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2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.6	34.4	30.4	29.4	30.4	30.4	32.0	32.8	32.0	31.6	31.6	28.4	30.5
	Min	21.0	24.4	20.6	17.0	15.8	15.4	15.6	20.2	18.2	19.0	18.7	16.9	17.5
Relative Humidity	Max	66	67	61	65	54	74	75	78	80	77	70	91	-
	Min	34	26	33	28	26	33	31	26	32	40	31	38	-
Soil Temperature at 10 cm	06 UTC	22.8	23.0	24.2	23.0	21.6	22.4	23.0	24.2	25.0	26.0	23.5	22.5	24.2
	12 UTC	26.0	26.2	26.0	26.6	25.4	25.0	27.2	28.6	28.8	29.6	26.9	24.4	28.8
Sunshine Duration		13.8	13.9	9.5	13.6	13.7	12.8	13.5	13.5	13.2	12.5	13.0	10.4	11.2
Precipitation													17.7	5.1
Evaporation		10.4	10.6	9.2	17.4	10.1	10.7	7.6	8.0	10.4	7.8	102.2	58.0	98.7
Growing Degrees	5	21.8	24.4	20.5	18.2	18.1	17.9	18.8	21.5	20.1	20.3	201.6	176.7	190.1
	10	16.8	19.4	15.5	13.2	13.1	12.9	13.8	16.5	15.1	15.3	151.6	126.7	140.1

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.9	50.4	60.3
Precipitation - Reference Evapotranspiration	-62.9	-32.7	-55.2
Number of Rainy Days	0.0	3.0	0.9
Number of Dry Days	29.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

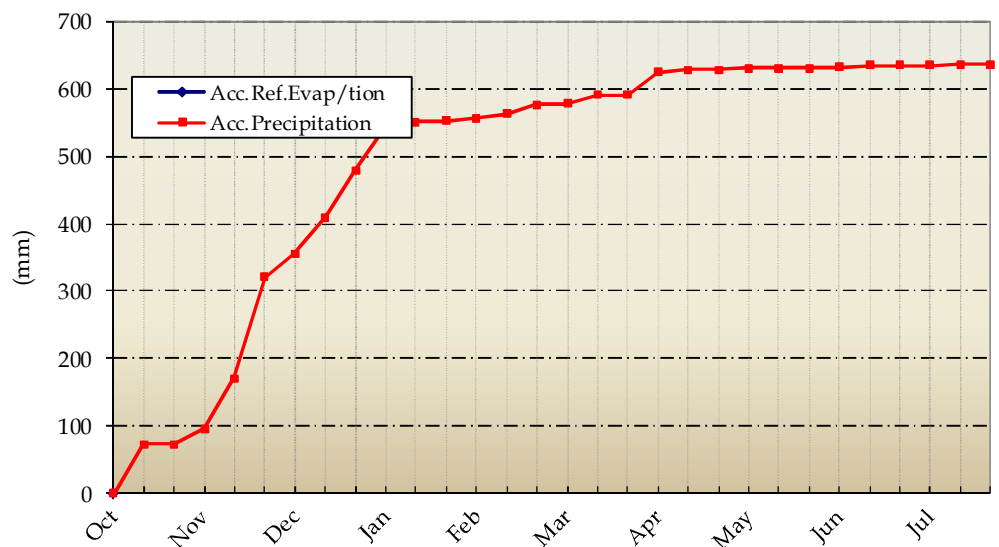


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	31.6	33.6	31.1	31.3	29.6	30.1	29.7	29.6	28.7	30.7	29.2	30.4
	Min	17.7	18.1	20.6	20.8	20.4	19.4	19.0	18.6	18.4	21.3	19.4	18.9	18.1
Relative Humidity	Max	95	92	88	90	93	91	96	93	90	90	92	92	-
	Min	31	43	47	53	43	56	50	43	47	40	45	39	-
Soil Temperature at 10 cm	06 UTC	28.4	28.4	29.2	29.4	29.0	29.4	29.6	28.6	28.6	28.0	28.9	27.2	27.1
	12 UTC	31.4	31.4	32.6	31.6	31.6	31.2	32.0	31.6	31.2	30.4	31.5	29.6	31.8
Sunshine Duration		13.3	13.6	12.8	13.6	12.6	13.6	12.9	13.0	13.3	13.3	13.2	10.4	12.3
Precipitation													8.3	0.8
Evaporation		7.1	9.0	10.6	9.8	11.0	10.4	11.3	11.2	12.4	8.4	101.2	65.7	77.4
Growing Degrees	5	19.8	19.9	22.1	21.0	20.9	19.5	19.6	19.2	19.0	20.0	200.7	190.6	192.4
	10	14.8	14.9	17.1	16.0	15.9	14.5	14.6	14.2	14.0	15.0	150.7	140.6	142.4

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	50.2	55.3
Precipitation - Reference Evapotranspiration	-	-41.9	-54.5
Number of Rainy Days	0.0	2.0	0.1
Number of Dry Days	14.0	28.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

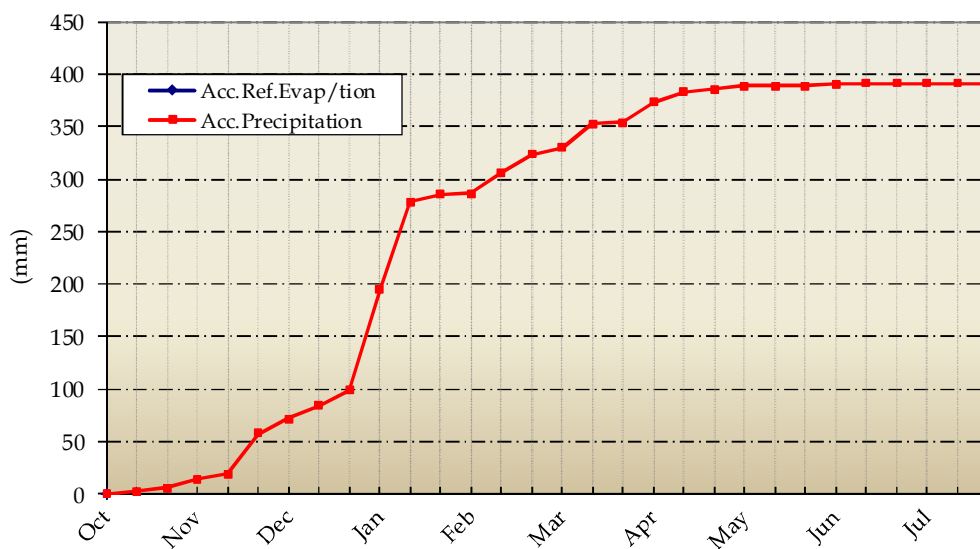


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.0	28.4	29.4	28.4	27.4	27.6	28.8	28.4	28.0	29.4	28.3	28.6	28.5
	Min	23.4	20.8	25.4	24.2	22.6	22.8	21.6	21.6	20.2	20.8	22.3	22.8	22.1
Relative Humidity	Max	79	79	70	77	73	83	86	95	85	98	82	78	-
	Min	57	49	48	52	47	61	43	56	65	45	52	51	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.9	12.9	13.0	12.3	12.6	12.9	12.9	12.8	12.7	12.9	12.8	11.8	12.1
Precipitation													4.6	0.0
Evaporation		8.1	8.4	8.2	8.3	6.7	7.2	7.5	2.1	9.2	5.1	70.8	74.2	93.8
Growing Degrees	5	20.2	19.6	22.4	21.3	20.0	20.2	20.2	20.0	19.1	20.1	203.1	207.0	203.0
	10	15.2	14.6	17.4	16.3	15.0	15.2	15.2	15.0	14.1	15.1	153.1	157.0	153.0

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	59.7	-
Precipitation - Reference Evapotranspiration	-	-55.1	0.0
Number of Rainy Days	0.0	1.0	0.0
Number of Dry Days	48.0	62.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

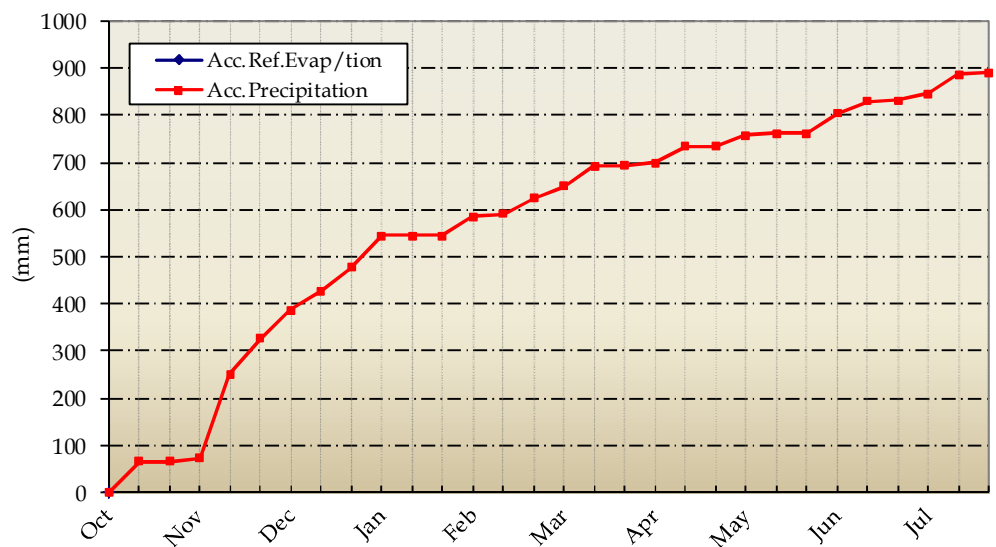


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	33.6	33.4	28.0	30.0	29.0	29.0	29.8	29.0	29.6	30.3	28.1	31.4
	Min	12.8	14.8	16.4	16.6	15.0	14.2	13.6	14.0	13.0	10.2	14.1	15.0	15.3
Relative Humidity	Max	100	98	100	100	100	100	94	88	90	70	94	97	-
	Min	32	35	38	44	47	40	45	50	32	33	40	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.8
Sunshine Duration		12.7	11.9	11.3	9.2	11.2	12.2	8.6	10.6	12.7	13.0	11.3	8.9	10.3
Precipitation						0.6		3.0				3.6	22.7	13.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	83.3
Growing Degrees	5	17.1	19.2	19.9	17.3	17.5	16.6	16.3	16.9	16.0	14.9	171.7	165.5	178.2
	10	12.1	14.2	14.9	12.3	12.5	11.6	11.3	11.9	11.0	9.9	121.7	115.5	129.5

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	50.5
Precipitation - Reference Evapotranspiration	-	-	-37.2
Number of Rainy Days	2.0	6.0	1.6
Number of Dry Days	7.0	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

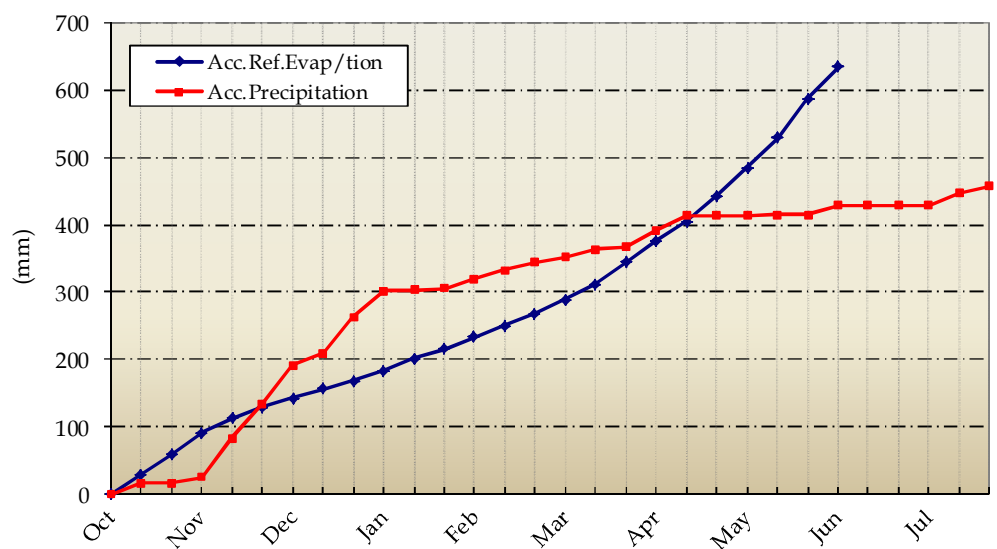


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	30.6	33.3	31.3	28.2	31.9	29.8	30.7	31.2	32.6	31.0	30.7	31.2
	Min	18.8	17.6	19.3	21.6	19.8	18.6	19.5	18.6	21.0	21.0	19.6	18.5	17.8
Relative Humidity	Max	92	92	99	100	96	92	95	91	73	70	90	81	-
	Min	51	35	32	40	56	31	48	28	29	24	37	32	-
Soil Temperature at 10 cm	06 UTC	27.0	27.0	27.4	28.4	26.0	25.5	27.0	26.5	27.0	27.2	26.9	27.0	25.6
	12 UTC	31.8	32.0	31.5	30.0	29.5	29.0	30.5	31.0	32.0	31.2	30.8	30.7	30.0
Sunshine Duration		12.7	12.6	11.2	4.7	12.1	12.8	11.5	12.1	12.8	12.7	11.5	10.4	11.5
Precipitation					10.7							10.7	21.5	3.4
Evaporation		13.4	8.6	9.6	8.3	11.2	8.0	17.2	8.6	9.6	10.3	104.8	67.4	87.7
Growing Degrees	5	19.4	19.1	21.3	21.5	19.0	20.3	19.7	19.7	21.1	21.8	202.7	196.0	195.0
	10	14.4	14.1	16.3	16.5	14.0	15.3	14.7	14.7	16.1	16.8	152.7	146.0	145.0

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	59.5	57.1
Precipitation - Reference Evapotranspiration	-	-38.0	-53.7
Number of Rainy Days	1.0	2.0	0.4
Number of Dry Days	6.0	29.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



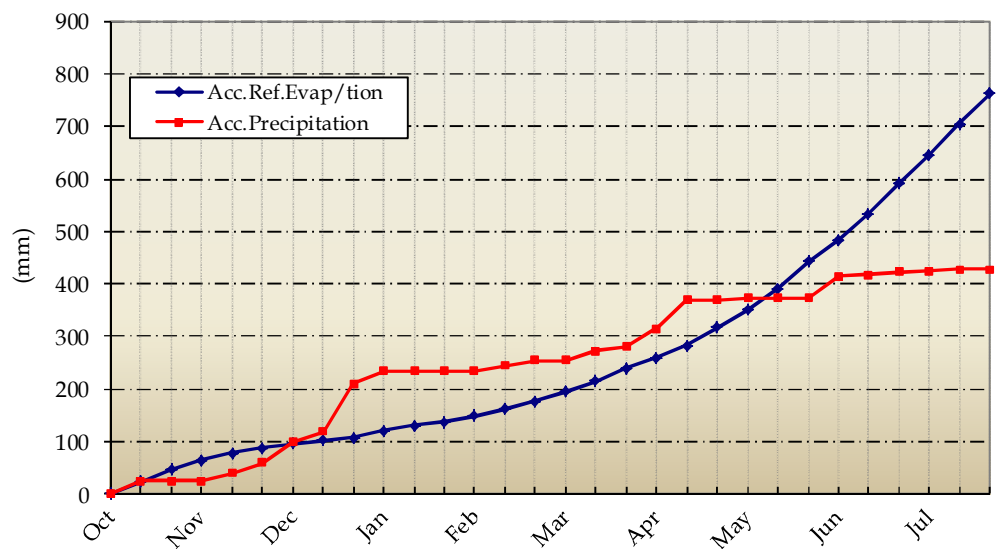
Larisa

2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	34.6	31.6	26.6	31.8	32.0	32.4	32.0	32.2	33.2	31.9	30.2	33.3
	Min	16.4	16.8	22.7	19.0	17.8	18.6	18.6	17.4	18.6	17.4	18.3	18.1	17.9
Relative Humidity	Max	80	81	64	93	74	79	89	93	84	84	82	92	-
	Min	33	30	33	42	32	38	34	32	35	31	34	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.2
Sunshine Duration		11.6	11.4	10.4	5.1	11.3	11.1	8.2	10.9	11.3	11.4	10.3	9.4	11.0
Precipitation					0.8			0.2				1.0	35.3	9.9
Evaporation		11.0	11.1	11.4	5.1	10.0	12.7	7.9	11.2	10.6	8.4	99.4	72.7	96.3
Growing Degrees	5	19.3	20.7	22.2	17.8	19.8	20.3	20.5	19.7	20.4	20.3	201.0	191.5	205.9
	10	14.3	15.7	17.2	12.8	14.8	15.3	15.5	14.7	15.4	15.3	151.0	141.5	155.9

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.5	51.1	62.2
Precipitation - Reference Evapotranspiration	-57.5	-15.8	-52.3
Number of Rainy Days	2.0	4.0	1.2
Number of Dry Days	7.0	10.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



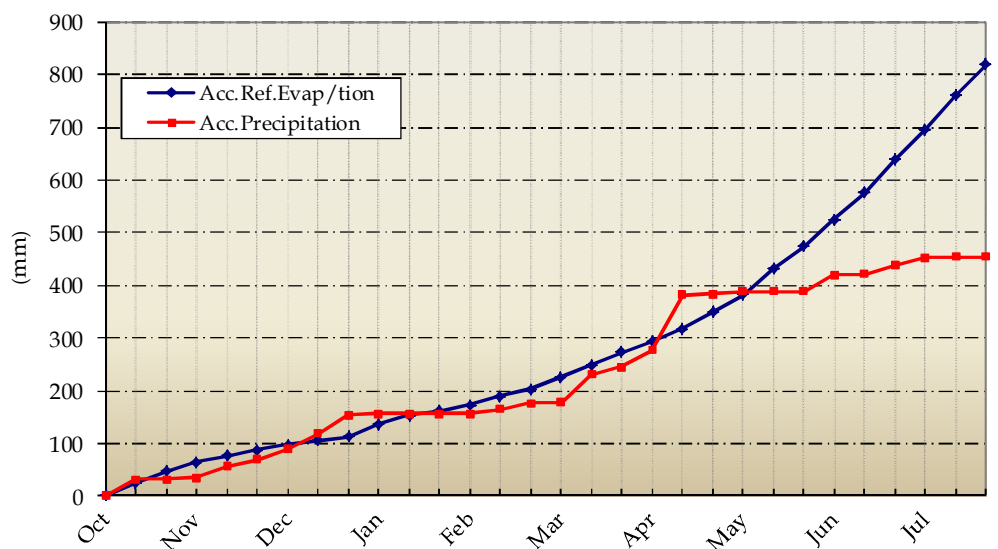
Mikra

2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	33.4	30.2	27.6	29.3	30.0	30.8	31.4	30.4	31.5	30.6	29.3	31.7
	Min	19.7	19.8	21.9	21.2	18.6	19.9	19.2	21.2	20.1	20.9	20.2	19.1	18.9
Relative Humidity	Max	75	82	80	81	78	78	81	90	93	83	82	89	-
	Min	42	39	34	48	37	39	40	44	41	36	40	36	-
Soil Temperature at 10 cm	06 UTC	26.4	27.8	26.6	27.2	26.2	27.0	27.2	27.8	27.8	25.2	26.9	24.8	26.6
	12 UTC	26.6	27.2	29.4	27.8	29.4	30.2	30.2	30.8	30.8	31.0	29.3	28.1	31.5
Sunshine Duration		13.7	13.0	8.0	6.4	12.8	12.2	9.8	8.3	13.1	13.1	11.0	10.1	10.8
Precipitation										0.1		0.1	47.4	4.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	94.9
Growing Degrees	5	20.3	21.6	21.1	19.4	19.0	20.0	20.0	21.3	20.3	21.2	204.0	191.9	203.4
	10	15.3	16.6	16.1	14.4	14.0	15.0	15.0	16.3	15.3	16.2	154.0	141.9	153.4

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.6	55.0	60.5
Precipitation - Reference Evapotranspiration	-59.5	-7.6	-56.2
Number of Rainy Days	1.0	3.0	1.4
Number of Dry Days	12.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

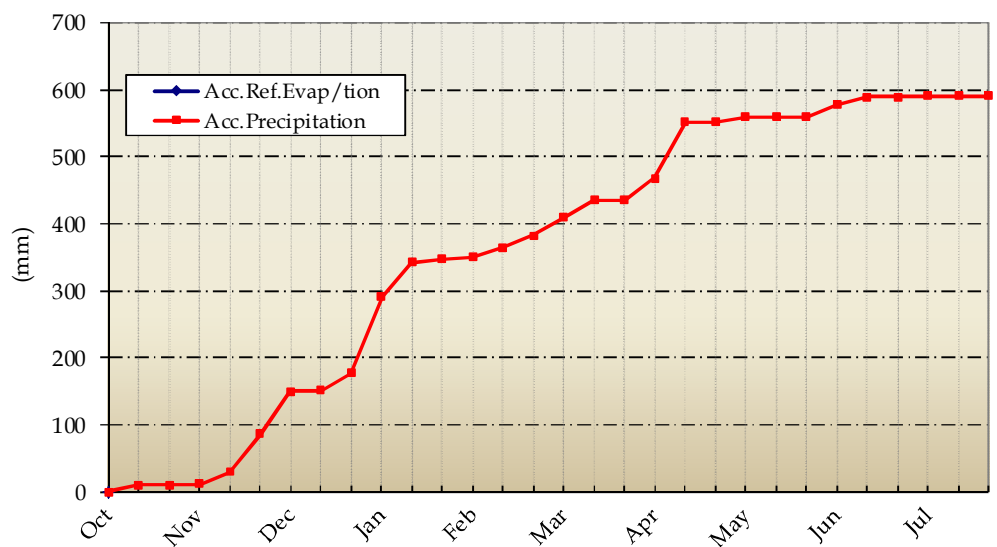


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	31.8	29.2	28.0	30.2	30.5	30.8	31.8	31.8	32.4	30.7	28.8	32.1
	Min	18.1	17.8	20.9	21.5	15.8	17.0	17.2	18.1	17.8	18.5	18.3	17.9	18.3
Relative Humidity	Max	67	66	59	59	62	66	63	66	65	62	64	87	-
	Min	20	26	34	23	24	28	26	24	28	28	26	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		13.7	13.4	11.5	12.9	13.3	11.5	12.3	13.1	13.2	13.1	12.8	9.2	
Precipitation													19.8	2.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	19.5	19.8	20.1	19.8	18.0	18.8	19.0	20.0	19.8	20.5	195.1	183.2	
	10	14.5	14.8	15.1	14.8	13.0	13.8	14.0	15.0	14.8	15.5	145.1	133.2	

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	47.5	
Precipitation - Reference Evapotranspiration	-	-27.7	2.0
Number of Rainy Days	0.0	5.0	0.4
Number of Dry Days	28.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

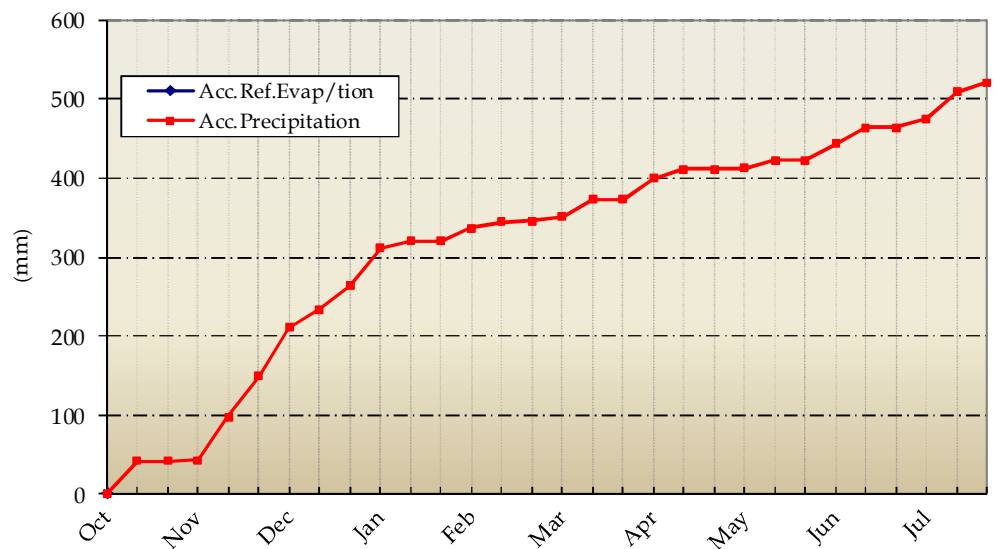


2nd 10-day period (11-20/07/2020)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	32.0	29.7	26.5	27.2	28.9	28.6	28.8	30.5	31.0	29.4	27.3	30.6
	Min	11.6	13.4	15.0	18.9	12.6	11.9	13.2	14.6	13.5	12.0	13.7	14.7	14.1
Relative Humidity	Max	59	95	89	81	96	98	100	100	96	92	91	90	-
	Min	24	22	32	37	35	23	32	30	23	24	28	32	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	24.2	25.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	29.4	28.3
Sunshine Duration		13.0	13.0	8.9	3.2	7.7	8.0	6.2	5.4	12.1	13.1	9.1	9.1	10.5
Precipitation				0.0		3.8	0.1	7.5				11.4	15.0	9.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	63.7
Growing Degrees	5	16.3	17.7	17.4	17.7	14.9	15.4	15.9	16.7	17.0	16.5	165.4	159.9	173.2
	10	11.3	12.7	12.4	12.7	9.9	10.4	10.9	11.7	12.0	11.5	115.4	109.9	123.2

2nd 10-day period (11-20/07/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.0	46.6	53.3
Precipitation - Reference Evapotranspiration	-32.6	-31.6	-44.2
Number of Rainy Days	3.0	3.0	1.4
Number of Dry Days	8.0	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





◆ **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.

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

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