



# AGROMETEOROLOGICAL BULLETIN

*October 2021  
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



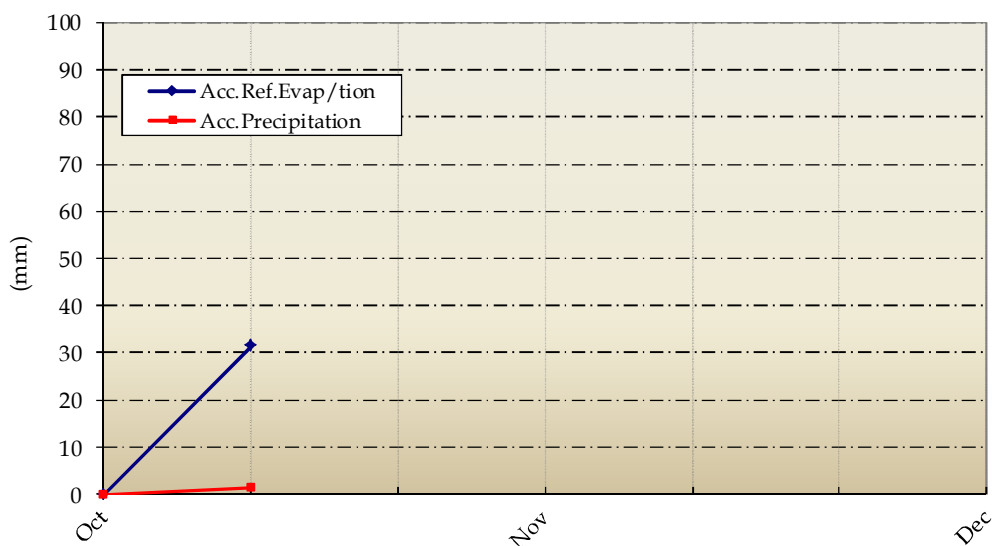
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1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.0	21.6	22.6	23.8	22.2	23.0	22.0	17.8	16.0	17.6	20.9	24.6	23.1
	Min	11.8	13.6	10.0	7.6	8.4	8.2	10.6	14.0	13.8	13.6	11.2	14.7	12.6
Relative Humidity	Max	85	69	82	86	89	82	79	87	80	85	82	94	88
	Min	31	32	36	34	31	39	40	56	66	61	43	61	48
Soil Temperature at 10 cm	06 UTC	19.6	18.8	17.0	17.6	17.0	16.6	17.6	18.8	17.0	17.4	17.7	20.0	15.9
	12 UTC	21.6	21.8	22.0	23.0	20.2	21.4	21.6	19.8	17.8	18.6	20.8	23.8	21.1
Sunshine Duration		3.5	8.0	10.7	10.7	10.3	9.6	9.6	0.7	0.1	2.5	6.6	7.0	5.2
Precipitation									1.5			1.5	34.4	20.4
Evaporation		4.2	3.4	9.5	9.4	4.2	4.1	7.3	1.8	3.9	1.3	49.1	37.0	45.3
Growing Degrees	5	11.9	12.6	11.3	10.7	10.3	10.6	11.3	10.9	9.9	10.6	110.1	146.2	113.7
	10	6.9	7.6	6.3	5.7	5.3	5.6	6.3	5.9	4.9	5.6	60.1	96.2	69.9

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.5	21.6	19.3
Precipitation - Reference Evapotranspiration	-30.0	12.8	1.1
Number of Rainy Days	1.0	1.0	1.6
Number of Dry Days	14.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

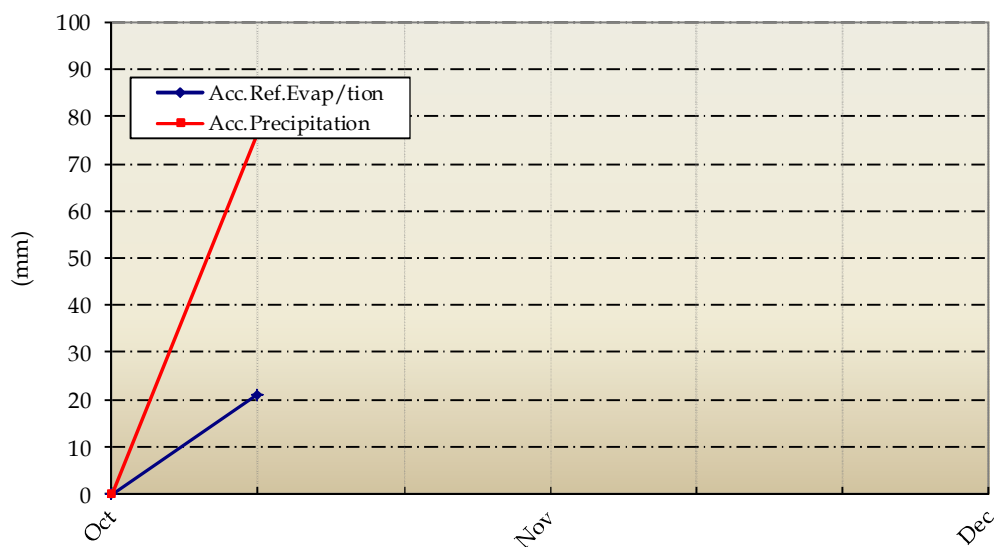


1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	26.5	26.3	26.8	27.0	26.4	22.8	25.9	22.8	23.5	25.4	28.3	25.7
	Min	13.7	10.4	9.5	9.3	9.0	9.9	18.4	16.8	16.3	17.3	13.1	16.5	14.9
Relative Humidity	Max	89	80	83	87	88	96	98	98	97	99	92	94	91
	Min	34	32	32	27	33	37	64	53	62	72	45	45	45
Soil Temperature at 10 cm	06 UTC	24.2	22.2	22.0	21.2	20.8	21.0	22.8	20.6	20.8	20.0	21.6	22.4	20.6
	12 UTC	25.8	24.4	24.0	24.4	24.8	25.0	22.8	22.2	22.8	20.2	23.6	24.3	24.6
Sunshine Duration		10.3	10.5	10.3	10.3	10.4	8.7	1.0	8.3	3.9	1.1	7.5	6.7	5.1
Precipitation								8.2	16.2	9.0	43.4	76.8	1.5	13.5
Evaporation		5.2	5.0	5.0	4.6	3.9	3.8	0.4	0.8	10.6	-	-	49.5	56.5
Growing Degrees	5	15.1	13.5	12.9	13.1	13.0	13.2	15.6	16.4	14.6	15.4	142.5	174.0	127.0
	10	10.1	8.5	7.9	8.1	8.0	8.2	10.6	11.4	9.6	10.4	92.5	124.0	85.7

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.0	-	27.7
Precipitation - Reference Evapotranspiration	55.8	-	-14.2
Number of Rainy Days	4.0	1.0	1.5
Number of Dry Days	23.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

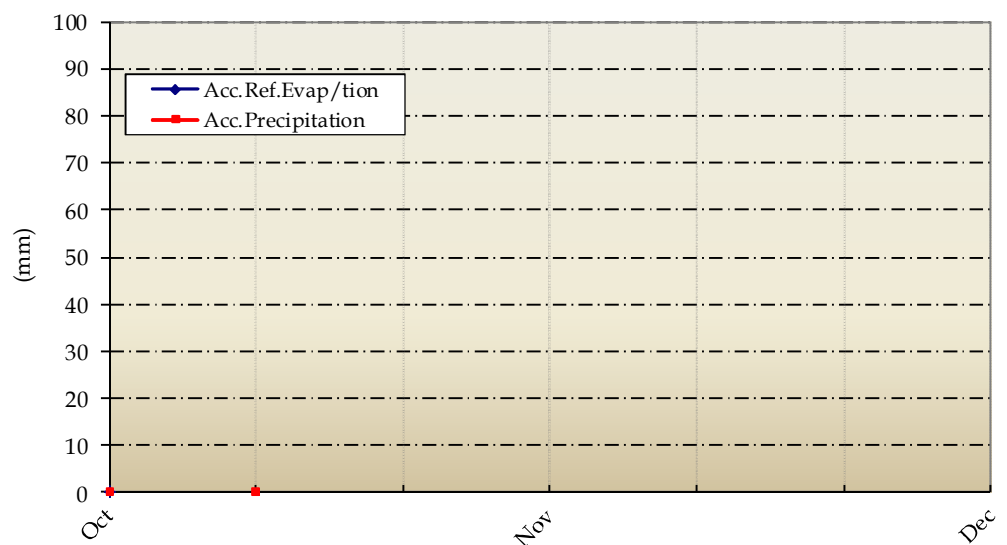


1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	22.0	22.4	22.6	22.6	22.2	22.8	30.2	26.2	25.2	23.9	28.0	25.4
	Min	20.4	20.0	19.6	19.6	20.0	19.8	15.8	15.4	18.2	17.0	18.6	20.2	18.3
Relative Humidity	Max	87	92	85	84	83	85	98	96	96	94	90	84	83
	Min	68	74	74	76	71	73	81	63	69	66	72	47	57
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.7	5.6	9.0	8.4	9.2	9.1	9.9	9.8	9.8	9.3	8.8	8.6	5.3
Precipitation													1.9	4.9
Evaporation		5.8	6.0	5.8	5.2	6.6	3.7	4.4	3.9	2.7	5.2	49.3	41.1	44.3
Growing Degrees	5	16.4	16.0	16.0	16.1	16.3	16.0	14.3	17.8	17.2	16.1	162.2	191.1	163.1
	10	11.4	11.0	11.0	11.1	11.3	11.0	9.3	12.8	12.2	11.1	112.2	141.1	114.7

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	4.9
Number of Rainy Days	0.0	1.0	1.1
Number of Dry Days	17.0	18.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



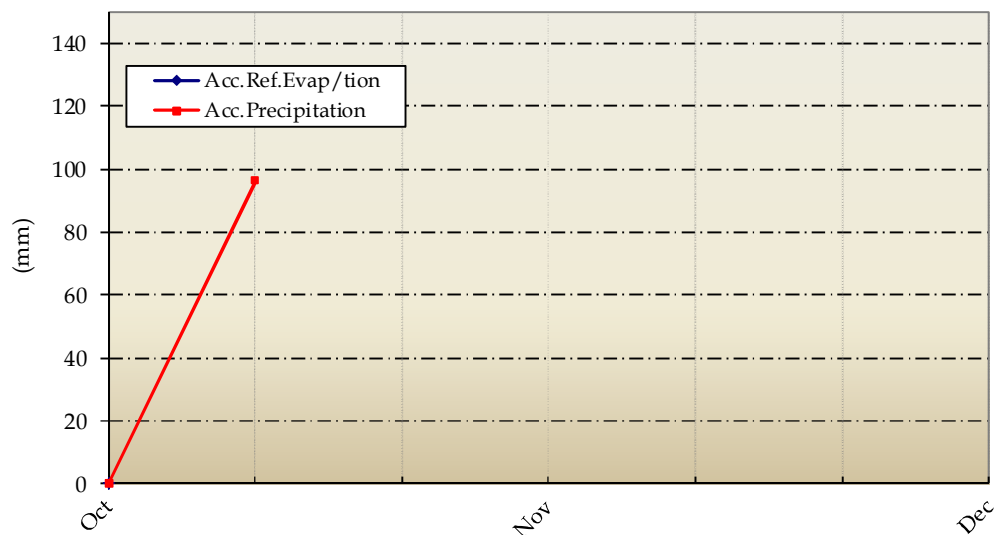
Ioannina

1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	22.5	24.5	25.9	26.2	25.0	16.9	17.4	20.2	20.8	22.2	24.7	22.8
	Min	12.2	8.7	4.8	4.2	4.7	6.4	12.9	13.1	11.3	13.3	9.2	11.1	10.1
Relative Humidity	Max	100	98	100	100	100	99	100	100	-	100	100	96	96
	Min	38	34	24	20	23	30	79	67	64	63	44	47	49
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.1
Sunshine Duration		6.9	-	7.0	9.7	9.7	8.2	0.0	0.0	-	3.7	5.6	5.6	3.8
Precipitation		0.2						64.6	11.2	8.0	12.4	96.4	9.5	22.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	12.3	10.6	9.7	10.1	10.5	10.7	9.9	10.3	10.8	12.1	106.7	129.1	94.9
	10	7.3	5.6	4.7	5.1	5.5	5.7	4.9	5.3	5.8	7.1	56.7	79.1	53.4

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	21.1
Precipitation - Reference Evapotranspiration	-	-	1.8
Number of Rainy Days	5.0	4.0	2.1
Number of Dry Days	0.0	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

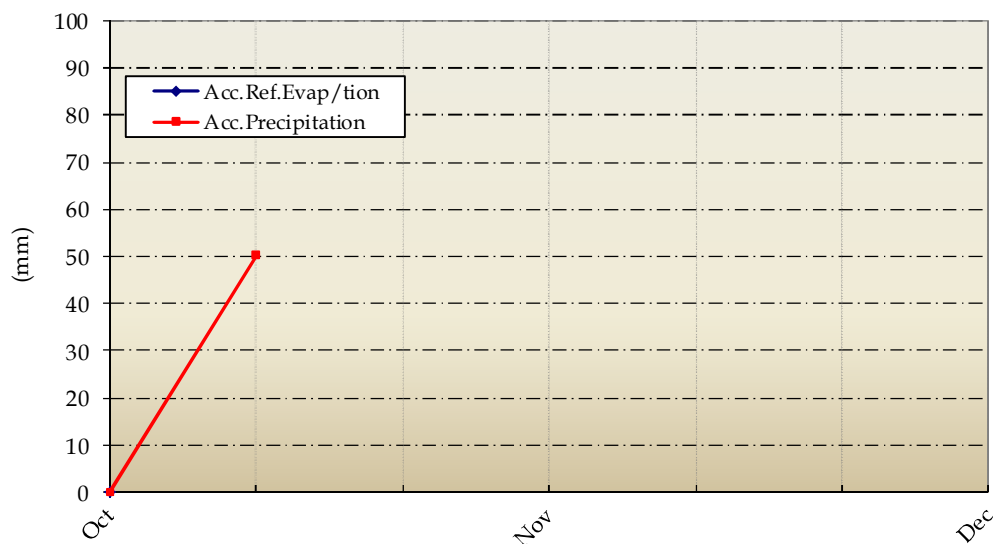


1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.6	26.5	27.2	25.9	26.3	26.1	24.7	25.8	23.0	25.4	25.8	28.8	26.3
	Min	15.2	13.9	15.1	13.1	11.5	12.0	16.7	16.9	16.3	15.5	14.6	15.5	14.6
Relative Humidity	Max	63	65	65	77	80	86	95	98	97	97	82	91	91
	Min	33	32	26	25	34	48	49	62	66	60	44	36	44
Soil Temperature at 10 cm	06 UTC	20.0	19.4	20.8	21.6	21.0	19.8	22.0	21.0	20.5	19.0	20.5	22.1	20.8
	12 UTC	25.4	24.6	25.2	25.0	25.0	24.8	24.5	23.0	22.0	22.0	24.2	25.1	22.7
Sunshine Duration		8.5	9.9	9.5	10.1	10.3	8.3	4.4	3.5	3.7	4.8	7.3	8.3	6.5
Precipitation									34.2	2.4	13.7	50.3	0.4	17.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	42.1	46.1
Growing Degrees	5	15.9	15.2	16.2	14.5	13.9	14.1	15.7	16.4	14.7	15.5	151.9	171.7	142.6
	10	10.9	10.2	11.2	9.5	8.9	9.1	10.7	11.4	9.7	10.5	101.9	121.7	96.5

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	28.6
Precipitation - Reference Evapotranspiration	-	-	-11.4
Number of Rainy Days	3.0	1.0	2.2
Number of Dry Days	8.0	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



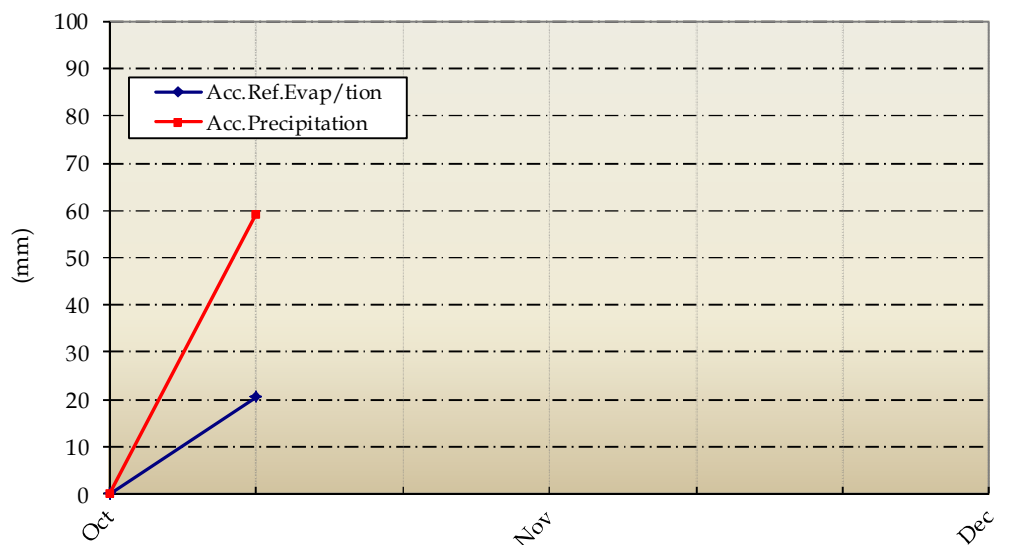
Larisa

1st 10-day period (1-10/10/2021)		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	21.2	22.8	24.2	25.0	20.8	16.8	17.6	17.2	20.8	20.6	27.6	25.3
	Min	15.4	13.8	6.0	6.4	8.6	12.7	14.8	15.0	13.8	14.1	12.1	12.8	12.3
Relative Humidity	Max	87	88	96	96	97	91	96	100	98	99	95	94	92
	Min	56	42	42	36	43	57	67	78	81	70	57	40	43
Soil Temperature at 10 cm	06 UTC	19.2	18.0	22.0	16.5	17.2	19.0	19.0	18.8	17.0	17.0	18.4	-	19.9
	12 UTC	19.4	23.4	21.0	22.0	22.0	22.0	18.2	19.0	18.2	19.0	20.4	-	21.3
Sunshine Duration		0.4	4.8	8.1	10.3	10.3	4.2	0.0	1.1	0.1	3.0	4.2		4.1
Precipitation			0.0					3.2	44.8	1.4	9.9	59.3	2.6	13.3
Evaporation		2.1	3.6	4.1	4.0	5.2	3.8	0.3	0.0	0.2	0.9	24.2	39.8	55.4
Growing Degrees	5	12.5	12.5	9.4	10.3	11.8	11.8	10.8	11.3	10.5	12.5	113.3	151.6	130.1
	10	7.5	7.5	4.4	5.3	6.8	6.8	5.8	6.3	5.5	7.5	63.3	101.6	83.1

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.5	-	21.0
Precipitation - Reference Evapotranspiration	38.8	-	-7.7
Number of Rainy Days	4.0	1.0	2.1
Number of Dry Days	7.0	9.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



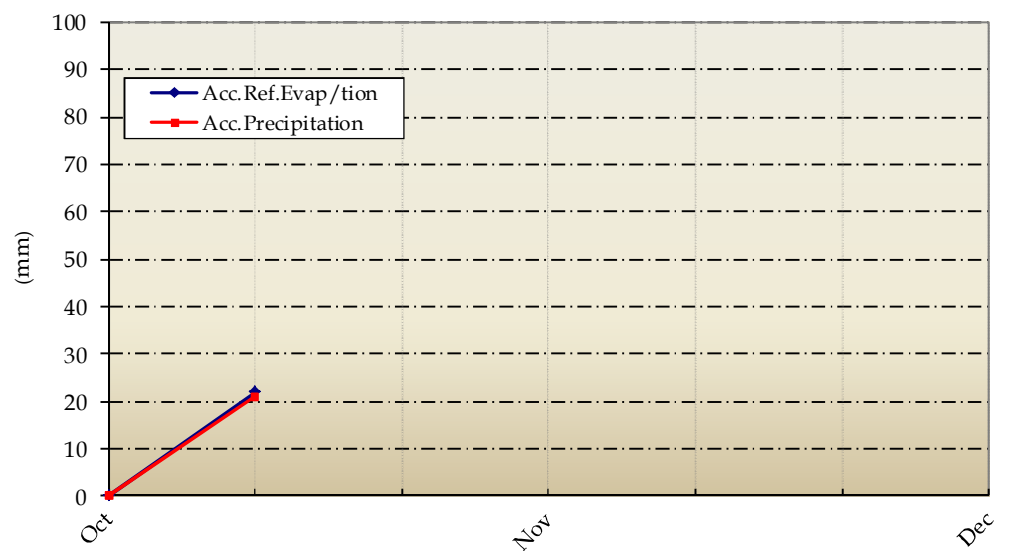
Mikra

1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	21.6	22.2	23.0	23.3	21.1	20.1	18.0	17.1	16.5	20.4	25.7	23.7
	Min	16.6	13.0	10.8	10.9	12.7	14.2	12.5	15.0	15.3	14.6	13.6	15.5	14.2
Relative Humidity	Max	81	75	82	85	86	76	86	89	91	98	85	88	85
	Min	49	39	46	40	54	52	47	61	71	78	54	48	48
Soil Temperature at 10 cm	06 UTC	20.4	19.2	18.8	18.4	18.8	20.0	19.2	19.4	18.4	18.2	19.1	21.2	19.2
	12 UTC	21.2	25.0	25.2	20.4	20.8	20.2	20.2	19.2	18.4	17.8	20.8	22.6	22.3
Sunshine Duration		0.1	9.0	9.9	10.4	8.0	3.1	0.0	0.0	0.0	0.0	4.0	7.1	4.7
Precipitation								0.1	3.0	0.6	17.3	21.0	0.9	11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	47.9
Growing Degrees	5	13.7	12.3	11.5	12.0	13.0	12.7	11.3	11.5	11.2	10.6	119.7	155.9	132.5
	10	8.7	7.3	6.5	7.0	8.0	7.7	6.3	6.5	6.2	5.6	69.7	105.9	85.2

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.0	30.0	20.2
Precipitation - Reference Evapotranspiration	-1.0	-29.1	-8.9
Number of Rainy Days	4.0	1.0	1.8
Number of Dry Days	7.0	9.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



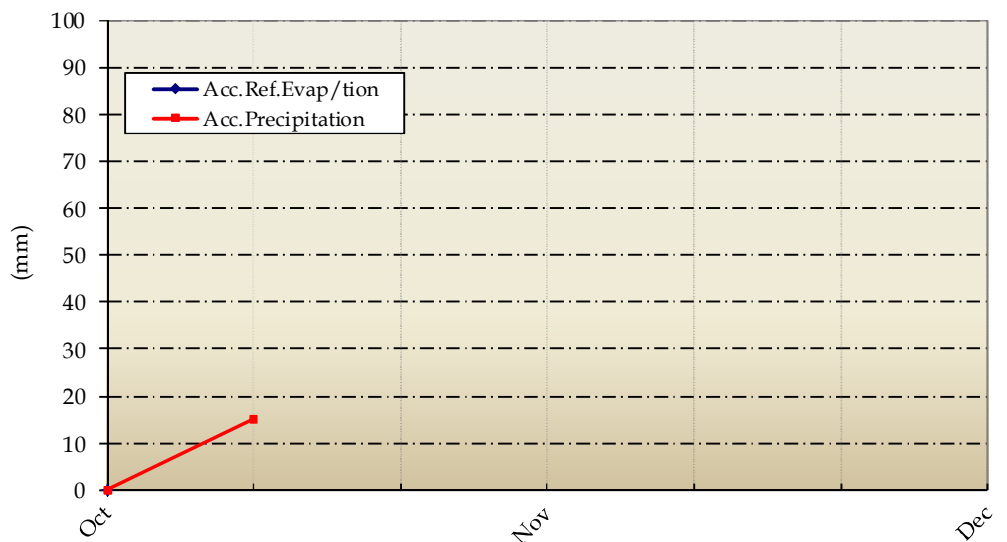


1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.5	20.4	21.4	22.6	23.7	22.4	21.5	20.0	21.9	22.8	21.8	27.9	24.9
	Min	16.5	16.6	13.4	10.4	10.4	11.2	10.6	12.8	15.3	16.6	13.4	15.3	13.9
Relative Humidity	Max	51	57	79	80	82	83	82	99	98	99	81	92	89
	Min	36	32	37	35	35	37	45	61	59	60	44	34	41
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.3	4.5	9.5	10.1	10.2	9.6	7.0	1.9	4.3	4.6	6.8	7.4	6.3
Precipitation									9.9	1.0	4.2	15.1	16.2	7.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	14.0	13.5	12.4	11.5	12.1	11.8	11.1	11.4	13.6	14.7	126.0	165.8	123.3
	10	9.0	8.5	7.4	6.5	7.1	6.8	6.1	6.4	8.6	9.7	76.0	115.8	80.9

1st 10-day period (1-10/10/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	7.0
Number of Rainy Days	3.0	2.0
Number of Dry Days	14.0	13.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

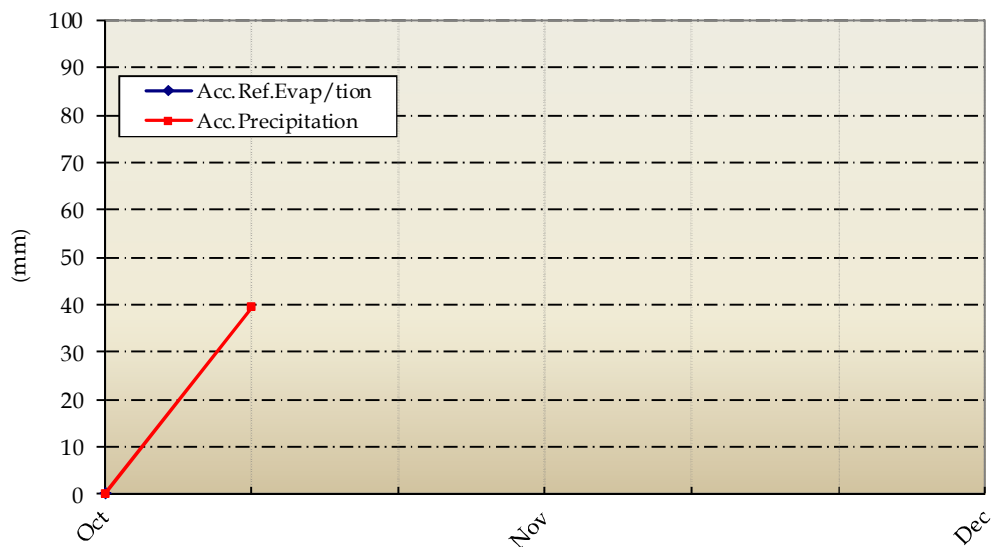


1st 10-day period (1-10/10/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.4	17.9	21.9	22.7	24.6	22.7	20.4	20.0	19.2	21.4	20.9	27.1	23.6
	Min	10.3	8.0	3.4	4.2	3.1	5.0	10.8	13.5	11.6	11.4	8.1	10.0	9.1
Relative Humidity	Max	78	89	96	95	95	93	98	99	99	100	94	91	93
	Min	44	41	31	23	18	33	52	59	66	51	42	28	40
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.8
Sunshine Duration		-	-	3.3	9.6	9.8	9.9	3.5	-	-	4.4	6.8	6.7	4.8
Precipitation			0.0	0.0					23.3	3.8	12.4	39.5	0.0	8.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	30.1
Growing Degrees	5	9.4	8.0	7.7	8.5	8.9	8.9	10.6	11.8	10.4	11.4	95.3	135.2	89.9
	10	4.4	3.0	2.7	3.5	3.9	3.9	5.6	6.8	5.4	6.4	45.3	85.2	50.5

1st 10-day period (1-10/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	17.7
Precipitation - Reference Evapotranspiration	-	-	-9.2
Number of Rainy Days	3.0	0.0	1.7
Number of Dry Days	24.0	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





◆ **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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