



AGROMETEOROLOGICAL BULLETIN

*October 2021
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



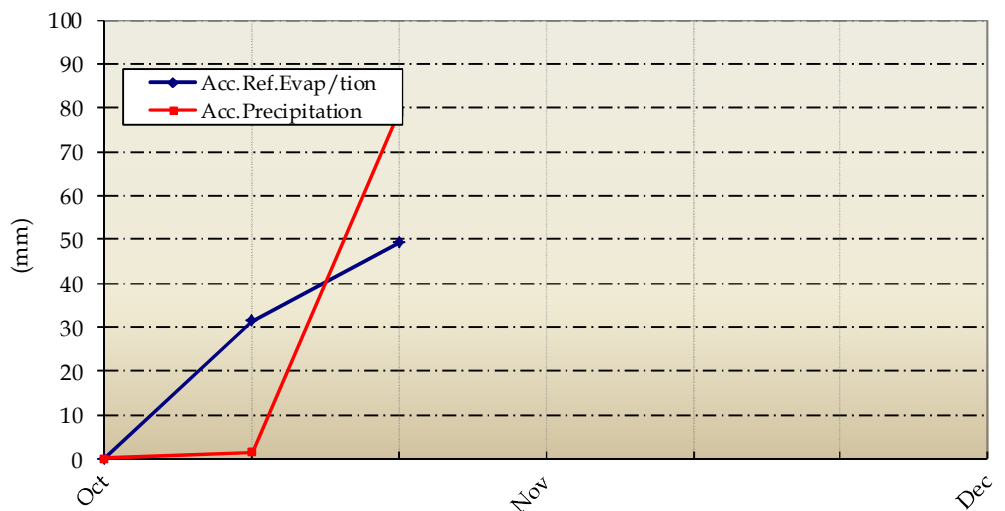
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	20.0	17.4	19.0	19.4	20.4	18.0	19.6	19.0	19.4	19.3	23.3	21.1
	Min	14.0	15.0	11.6	10.0	13.4	13.8	13.2	7.8	8.2	7.6	11.5	12.9	11.5
Relative Humidity	Max	90	96	95	93	93	95	91	88	90	92	92	89	89
	Min	62	68	68	50	75	70	59	41	45	38	58	54	53
Soil Temperature at 10 cm	06 UTC	16.8	17.4	17.0	16.0	16.0	16.4	17.0	14.6	14.6	13.6	15.9	18.4	14.5
	12 UTC	19.0	19.0	18.2	17.0	17.0	18.4	17.0	17.6	16.8	17.4	17.7	21.0	18.6
Sunshine Duration		3.4	4.1	3.7	2.2	1.3	4.5	1.2	9.2	8.4	8.6	4.7	7.6	4.4
Precipitation		5.9	29.0	3.9	0.1	19.5	18.6	0.4				77.4	17.7	12.2
Evaporation		6.3	3.1	3.9	4.3	6.1	4.2	2.6	3.5	5.1	2.7	41.8	36.4	37.3
Growing Degrees	5	12.5	12.5	9.5	9.5	11.4	12.1	10.6	8.7	8.6	8.5	103.9	130.9	101.5
	10	7.5	7.5	4.5	4.5	6.4	7.1	5.6	3.7	3.6	3.5	53.9	80.9	57.1

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.8	22.3	16.8
Precipitation - Reference Evapotranspiration	59.6	-4.6	-4.6
Number of Rainy Days	7.0	1.0	1.8
Number of Dry Days	2.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

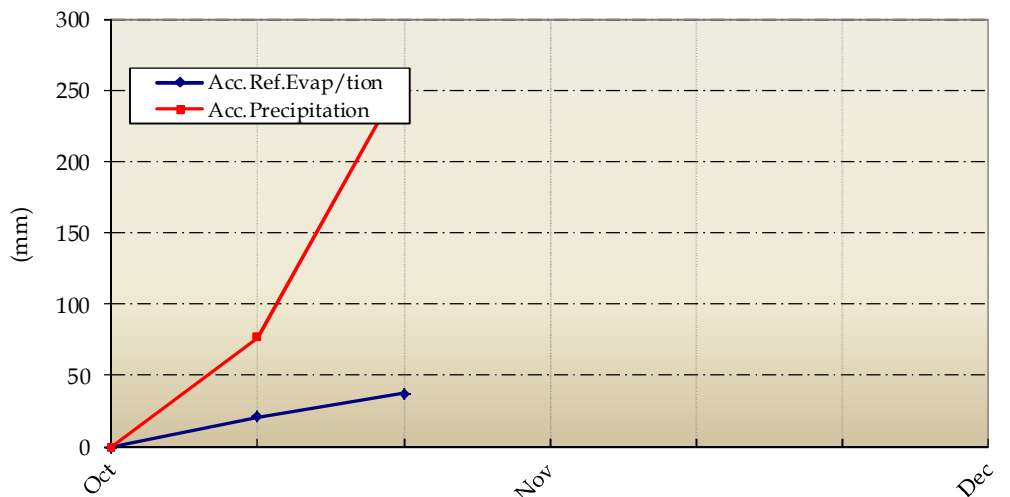


2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	21.9	21.6	18.8	19.7	19.7	21.2	21.8	24.3	22.9	21.7	24.2	24.4
	Min	14.2	13.9	13.6	12.8	15.3	13.7	15.3	11.7	10.9	9.8	13.1	13.1	13.7
Relative Humidity	Max	99	98	92	99	99	96	96	98	98	98	97	94	92
	Min	57	55	52	66	71	66	55	62	41	50	58	48	49
Soil Temperature at 10 cm	06 UTC	19.0	19.2	18.6	17.2	17.0	17.6	18.6	17.6	17.2	17.0	17.9	20.2	18.8
	12 UTC	20.6	20.6	20.6	18.0	18.0	19.0	19.0	21.4	21.2	19.2	19.8	21.9	22.2
Sunshine Duration		8.0	8.2	2.6	0.0	2.2	2.7	4.7	9.6	9.5	9.4	5.7	7.3	4.9
Precipitation		31.7	12.8	0.0	28.8	96.5	9.6	4.0				183.4	36.4	29.0
Evaporation		0.0	0.8	1.1	-	-	2.9	4.6	2.0	1.8	1.2	-	32.1	69.7
Growing Degrees	5	14.5	12.9	12.6	10.8	12.5	11.7	13.3	11.8	12.6	11.4	124.0	136.3	117.7
	10	9.5	7.9	7.6	5.8	7.5	6.7	8.3	6.8	7.6	6.4	74.0	86.3	75.7

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.2	-	22.4
Precipitation - Reference Evapotranspiration	167.2	-	6.6
Number of Rainy Days	6.0	3.0	2.0
Number of Dry Days	0.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



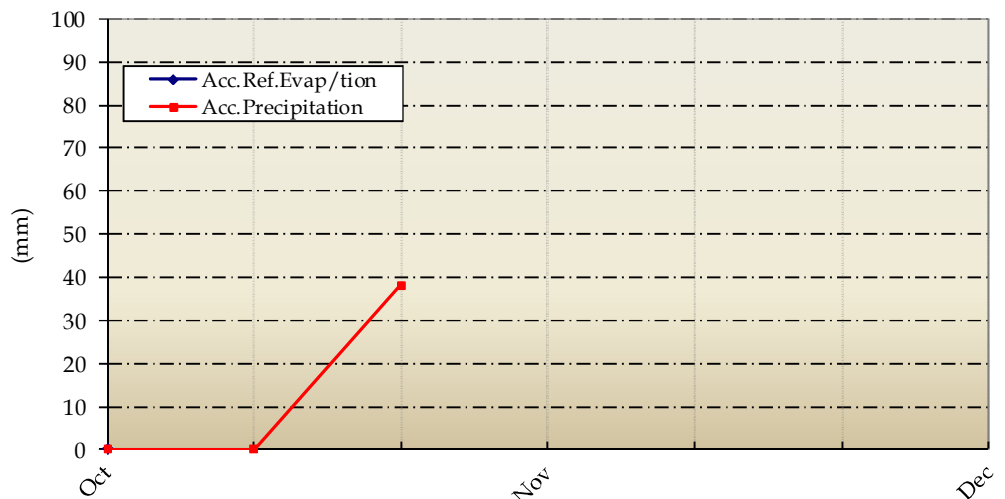
Iraklio

2nd 10-day period (11-20/10/2021)		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	24.6	24.0	25.0	26.8	24.4	23.2	21.4	21.4	20.4	23.8	26.5	24.7
	Min	20.0	19.6	15.8	17.8	15.8	19.0	15.2	15.2	18.8	18.4	17.6	18.5	17.8
Relative Humidity	Max	89	83	80	92	100	80	80	83	77	69	83	88	85
	Min	50	37	51	61	48	45	57	64	60	56	53	60	58
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		3.8	4.5	7.3	2.3	8.6	5.1	6.4	6.3	8.5	6.1	5.9	6.9	4.7
Precipitation			2.4		4.3	26.4			0.0			33.1	95.9	23.2
Evaporation		0.7	3.4	1.5	3.1	5.8	3.5	0.4	1.9	3.6	4.4	28.3	-	47.1
Growing Degrees	5	18.5	17.1	14.9	16.4	16.3	16.7	14.2	13.3	15.1	14.4	156.9	175.2	154.9
	10	13.5	12.1	9.9	11.4	11.3	11.7	9.2	8.3	10.1	9.4	106.9	125.2	107.0

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	3.0	2.0	1.9
Number of Dry Days	18.0	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

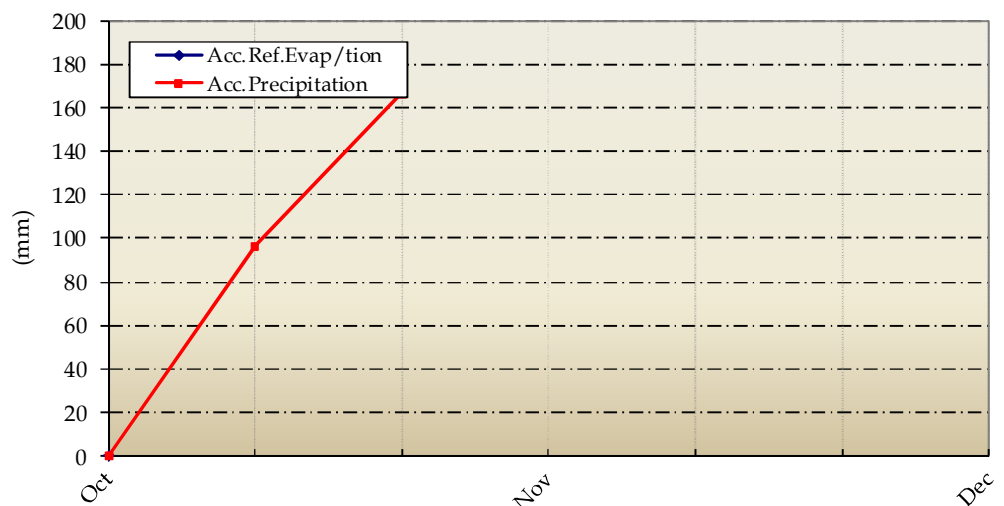


2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.3	17.7	17.7	10.8	16.2	18.2	17.9	19.8	20.8	19.6	17.7	19.7	21.0
	Min	13.2	9.9	5.1	10.2	9.2	11.0	11.8	11.5	8.9	8.8	10.0	7.6	8.8
Relative Humidity	Max	100	98	100	99	96	99	98	100	100	100	99	99	96
	Min	60	57	50	94	68	62	62	55	67	46	62	53	52
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.4
Sunshine Duration		3.2	4.8	3.6	0.0	0.0	3.3	0.0	3.7	6.7	6.1	3.1	4.6	3.7
Precipitation		16.0	10.3	4.1	18.2	16.5	3.9	0.0	1.2	0.0		70.2	92.7	42.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	10.8	8.8	6.4	5.5	7.7	9.6	9.9	10.7	9.9	9.2	88.3	86.8	81.9
	10	5.8	3.8	1.4	0.5	2.7	4.6	4.9	5.7	4.9	4.2	38.3	36.8	41.1

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	17.3
Precipitation - Reference Evapotranspiration	-	-	25.0
Number of Rainy Days	7.0	5.0	2.6
Number of Dry Days	0.0	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

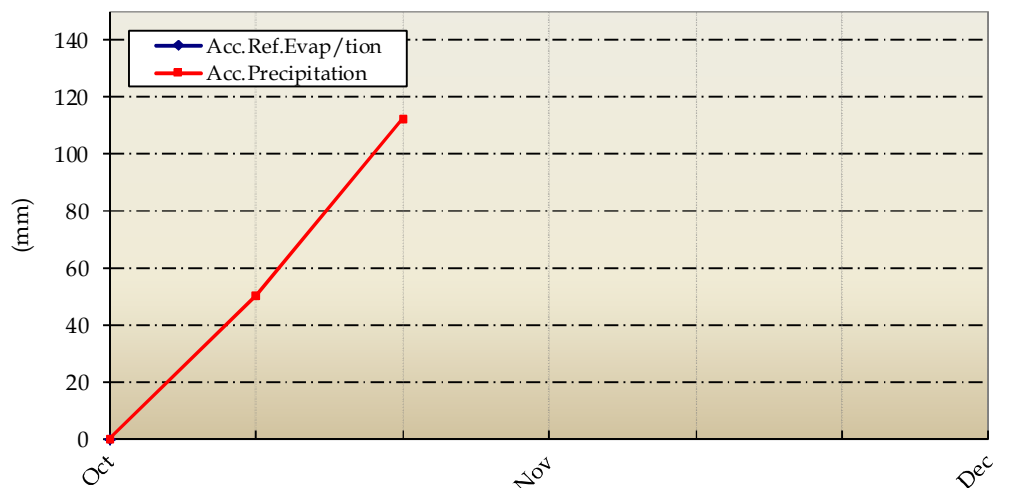


2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.5	21.4	21.2	21.1	22.5	20.8	23.5	23.2	23.4	22.8	22.5	24.7	25.0
	Min	15.9	15.1	11.9	12.0	19.0	12.6	14.6	12.2	12.2	11.3	13.7	13.8	13.6
Relative Humidity	Max	97	98	96	98	96	97	97	93	98	97	97	96	92
	Min	53	59	55	69	58	63	56	49	45	45	55	52	48
Soil Temperature at 10 cm	06 UTC	20.0	20.0	18.5	17.5	18.5	16.4	17.5	17.4	17.5	18.2	18.2	20.0	19.3
	12 UTC	22.6	21.8	20.0	18.0	19.0	19.5	22.8	23.4	23.4	20.0	21.0	22.1	21.1
Sunshine Duration		6.0	5.3	2.5	0.3	1.1	2.6	7.2	7.2	8.6	9.0	5.0	7.2	5.7
Precipitation		7.5	8.5	-	22.9	19.6	1.9	0.5	0.2	0.4	0.4	61.9	26.7	20.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	34.3	45.0
Growing Degrees	5	15.7	13.3	11.6	11.6	15.8	11.7	14.1	12.7	12.8	12.1	131.1	142.8	127.9
	10	10.7	8.3	6.6	6.6	10.8	6.7	9.1	7.7	7.8	7.1	81.1	92.8	82.8

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	19.1
Precipitation - Reference Evapotranspiration	-	-	1.5
Number of Rainy Days	9.0	3.0	2.4
Number of Dry Days	0.0	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



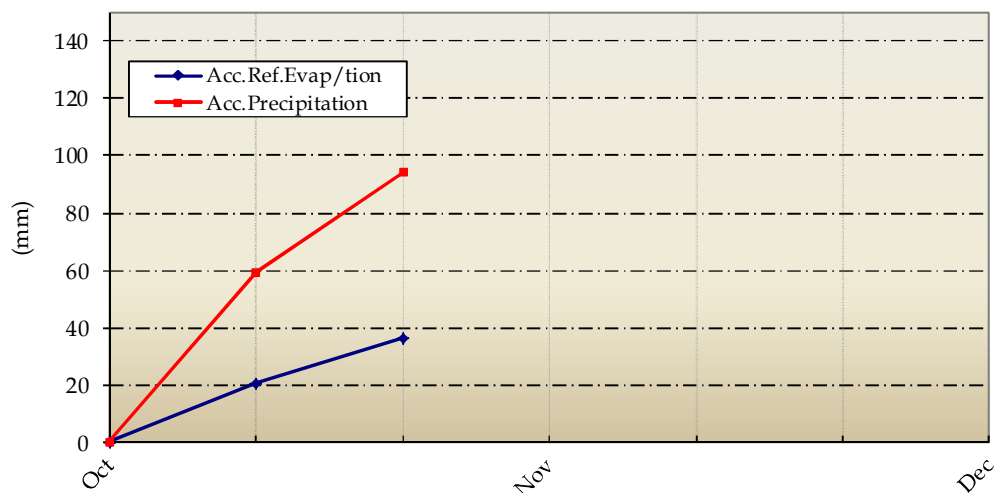
Larisa

2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.4	18.6	19.8	13.4	13.0	19.0	18.8	21.8	20.6	21.2	19.0	24.0	23.1
	Min	15.4	12.2	9.8	10.6	9.8	11.2	8.2	12.6	9.8	7.6	10.7	11.0	11.1
Relative Humidity	Max	99	98	95	98	99	97	98	100	98	98	98	92	93
	Min	59	57	55	80	90	63	55	54	46	46	60	39	44
Soil Temperature at 10 cm	06 UTC	18.0	17.4	16.0	16.4	14.4	14.8	14.6	16.0	15.0	14.6	15.7	-	17.7
	12 UTC	20.8	19.0	16.2	16.0	16.0	17.4	16.8	19.0	17.4	18.4	17.7	-	18.6
Sunshine Duration		6.6	4.4	8.5	0.0	0.0	3.3	0.1	4.3	9.3	9.2	4.6		3.5
Precipitation		5.8	2.9	3.5	14.9	7.3	0.3					34.7	9.8	16.7
Evaporation		4.5	1.0	2.7	0.0	0.0	2.2	0.6	3.0	4.3	1.7	20.0	42.5	34.8
Growing Degrees	5	14.4	10.4	9.8	7.0	6.4	10.1	8.5	12.2	10.2	9.4	98.4	124.7	111.4
	10	9.4	5.4	4.8	2.0	1.4	5.1	3.5	7.2	5.2	4.4	48.4	74.7	65.2

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.9	-	16.7
Precipitation - Reference Evapotranspiration	18.8	-	0.0
Number of Rainy Days	6.0	1.0	2.2
Number of Dry Days	0.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



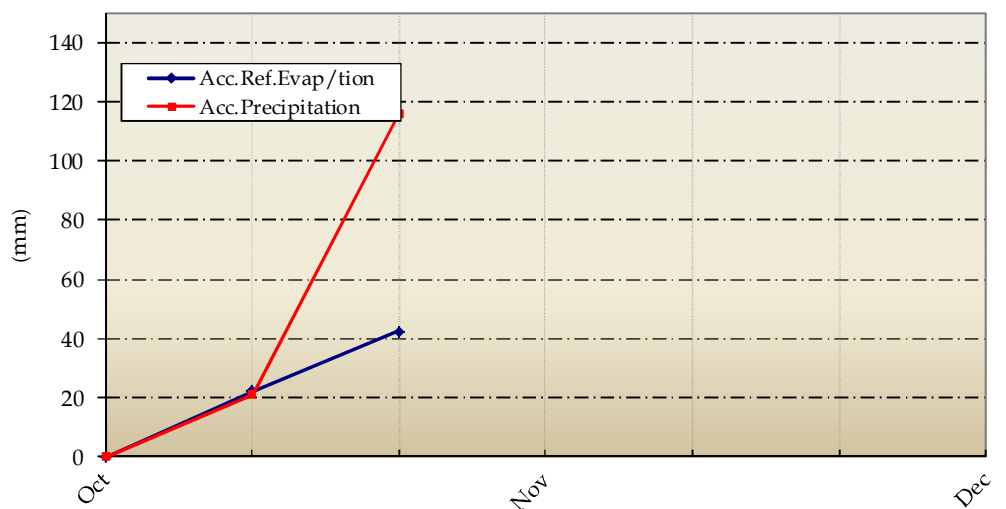
Mikra

2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	18.0	19.4	17.0	13.8	16.8	18.8	18.4	20.4	19.5	18.3	23.8	21.7
	Min	15.0	12.8	12.7	10.2	10.0	12.4	14.1	14.1	12.4	10.7	12.4	13.8	12.9
Relative Humidity	Max	98	93	91	93	95	87	93	96	93	93	93	88	84
	Min	70	62	42	80	89	65	56	73	41	61	64	42	49
Soil Temperature at 10 cm	06 UTC	17.6	18.0	15.2	15.2	12.8	14.0	14.8	16.4	16.0	15.4	15.5	19.7	17.2
	12 UTC	19.0	18.0	16.4	15.2	13.6	15.2	16.0	16.0	17.0	17.0	16.3	21.3	20.1
Sunshine Duration		5.3	0.7	8.5	0.0	0.0	5.7	0.0	2.1	9.0	9.0	4.0	7.6	4.1
Precipitation		23.4	6.2		38.5	24.1	1.6		1.0			94.8	11.5	11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	37.6
Growing Degrees	5	13.0	10.4	11.1	8.6	6.9	9.6	11.5	11.3	11.4	10.1	103.8	137.7	115.0
	10	8.0	5.4	6.1	3.6	1.9	4.6	6.5	6.3	6.4	5.1	53.8	87.7	68.2

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.2	24.2	17.0
Precipitation - Reference Evapotranspiration	74.6	-12.7	-5.7
Number of Rainy Days	6.0	3.0	1.9
Number of Dry Days	0.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



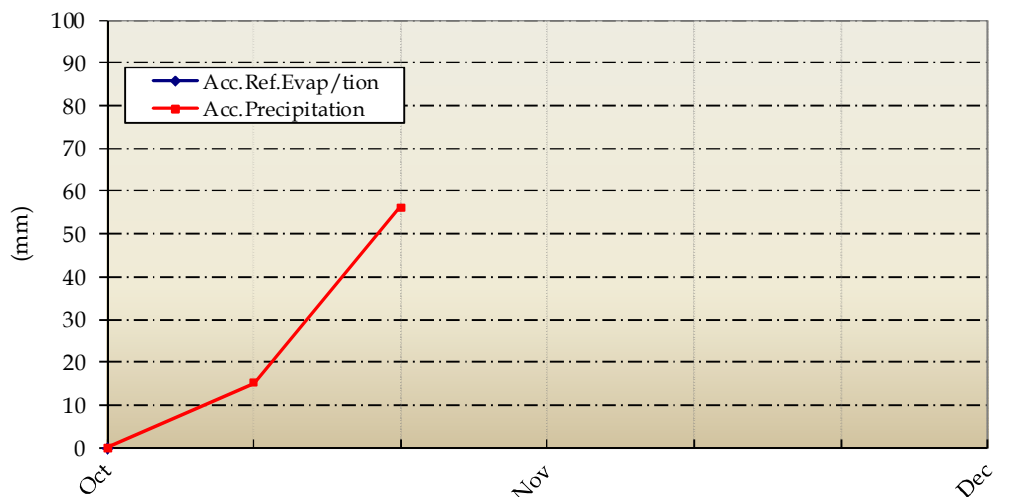
Tanagra

2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.8	20.9	21.2	20.0	16.0	19.4	19.0	20.8	18.6	19.6	20.1	24.3	22.9
	Min	14.6	14.2	9.6	12.5	12.4	11.1	14.0	12.1	11.6	9.6	12.2	13.1	12.9
Relative Humidity	Max	99	96	100	100	100	100	96	97	98	99	98	95	92
	Min	41	44	48	82	94	50	59	47	51	46	56	38	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.7	4.8	5.9	1.5	0.7	0.9	0.9	6.4	2.7	6.6	3.5	7.0	4.9
Precipitation		3.0	2.7	0.0	7.3	27.3	0.9					41.2	8.1	11.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	35.9
Growing Degrees	5	15.2	12.6	10.4	11.3	9.2	10.3	11.5	11.5	10.1	9.6	111.5	137.1	111.6
	10	10.2	7.6	5.4	6.3	4.2	5.3	6.5	6.5	5.1	4.6	61.5	87.1	68.6

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	5.0	2.0	1.8
Number of Dry Days	0.0	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



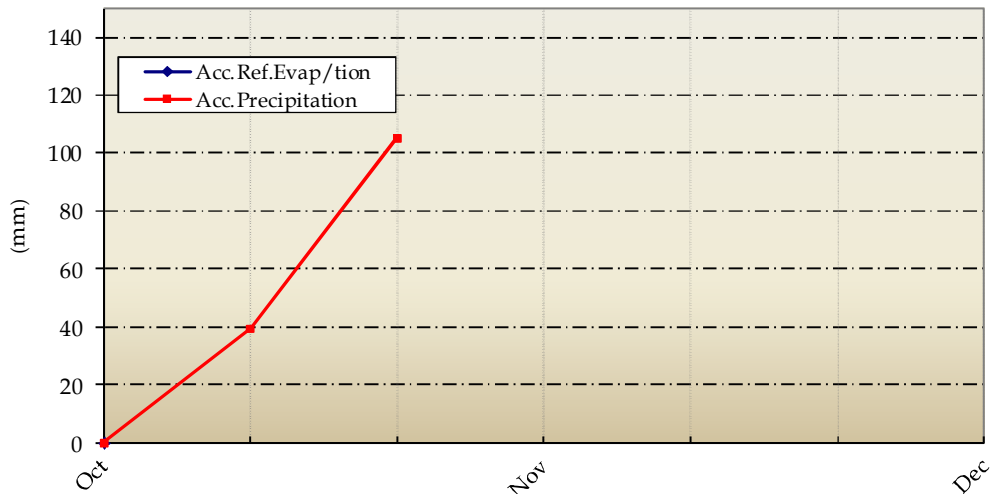
Tripoli

2nd 10-day period (11-20/10/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.7	16.0	17.3	15.3	17.5	16.8	18.4	18.7	18.4	19.5	17.9	21.4	21.6
	Min	12.1	11.0	5.4	6.2	11.0	9.3	11.2	7.1	9.2	5.1	8.8	8.8	7.9
Relative Humidity	Max	99	96	98	99	99	94	99	100	100	100	98	95	95
	Min	57	54	53	79	64	53	49	50	50	42	55	41	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.6
Sunshine Duration		5.6	7.0	3.4	0.0	1.3	6.1	2.9	4.2	5.9	7.8	4.4	7.5	4.2
Precipitation		9.9	5.5		12.5	31.9	0.8	0.6	4.5			65.7	12.1	17.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	31.5
Growing Degrees	5	11.4	8.5	6.4	5.8	9.3	8.1	9.8	7.9	8.8	7.3	83.1	101.0	77.2
	10	6.4	3.5	1.4	0.8	4.3	3.1	4.8	2.9	3.8	2.3	33.1	51.0	37.6

2nd 10-day period (11-20/10/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.6	-	14.8
Precipitation - Reference Evapotranspiration	51.1	-	2.8
Number of Rainy Days	7.0	5.0	2.4
Number of Dry Days	0.0	14.0	-

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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