



AGROMETEOROLOGICAL BULLETIN

October 2023
3rd 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



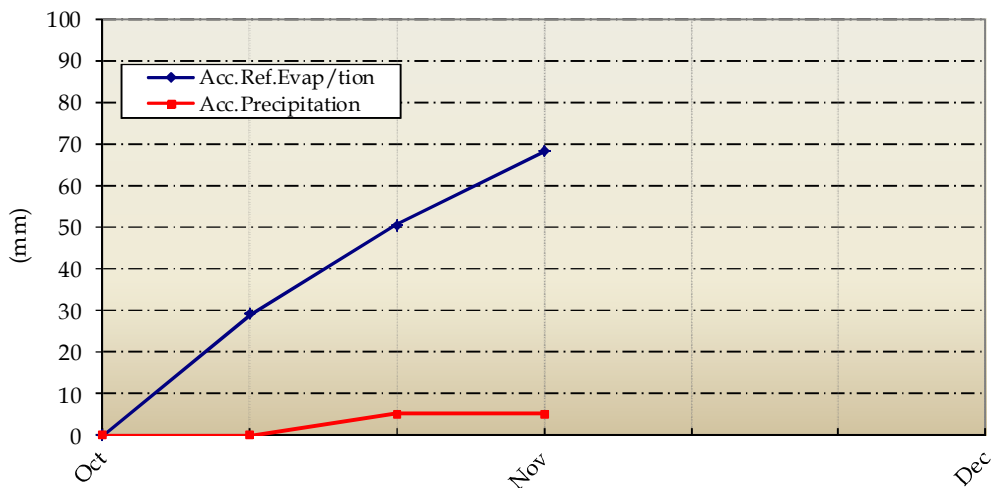
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www.hnms.gr
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3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	25.0	22.6	22.2	23.0	24.2	23.4	25.2	25.8	27.0	22.4	24.2	22.7	18.7
	Min	19.0	16.0	13.0	17.0	13.0	17.2	17.6	16.0	16.8	14.2	10.6	15.5	8.7	9.4
Relative Humidity	Max	88	92	96	96	94	94	96	96	96	93	95	94	90	89
	Min	64	52	78	74	75	69	80	71	53	50	70	67	40	54
Soil Temperature at 10 cm	06 UTC	19.6	20.0	19.4	20.4	20.0	20.6	21.0	20.6	20.7	20.2	19.0	20.1	16.4	13.1
	12 UTC	21.6	23.8	22.4	22.2	22.4	23.4	23.6	25.2	25.2	25.4	23.4	23.5	19.3	16.2
Sunshine Duration		8.7	7.0	4.1	5.3	0.0	3.9	3.4	8.4	8.3	8.6	7.2	5.9	8.4	4.2
Precipitation															15.9
Evaporation		2.8	3.7	1.0	1.0	8.2	1.5	1.0	4.0	2.2	3.6	2.5	31.5	33.6	35.8
Growing Degrees	5	17.0	15.5	12.8	14.6	13.0	15.7	15.5	15.6	16.3	15.6	11.5	163.1	117.8	89.0
	10	12.0	10.5	7.8	9.6	8.0	10.7	10.5	10.6	11.3	10.6	6.5	108.1	62.8	41.8

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.8	20.2	15.2
Precipitation - Reference Evapotranspiration	-17.8	-20.2	0.7
Number of Rainy Days	0.0	0.0	1.7
Number of Dry Days	13.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

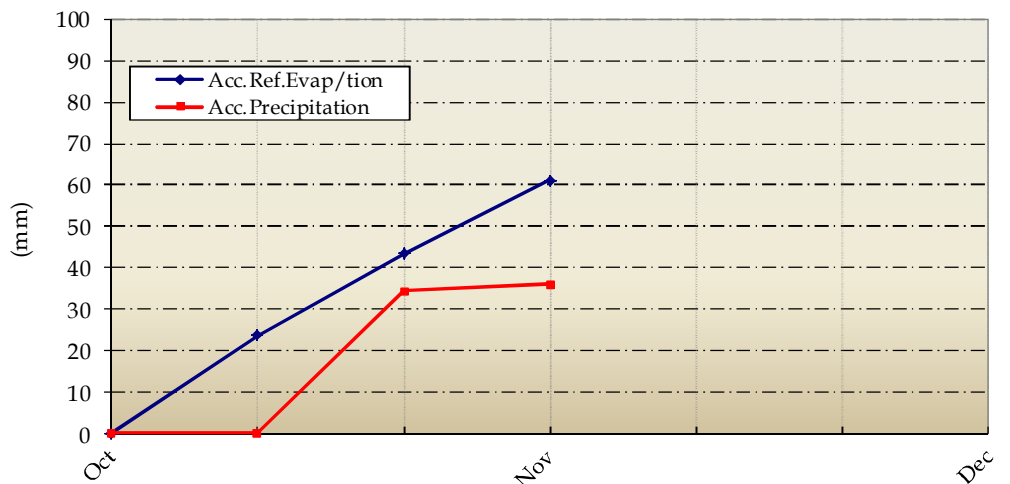


3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.6	29.8	26.7	26.2	25.2	23.4	25.6	26.8	25.6	25.4	24.6	26.1	24.8	22.5
	Min	13.9	17.9	17.6	14.1	15.8	17.2	15.8	18.4	16.1	13.5	14.6	15.9	10.1	12.2
Relative Humidity	Max	94	88	99	98	89	99	99	99	99	99	97	96	95	92
	Min	39	34	55	55	56	62	60	62	55	60	60	54	45	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	20.2
Sunshine Duration		3.7	5.4	8.2	8.5	2.2	2.8	9.6	9.3	9.4	9.2	8.0	6.9	8.6	4.7
Precipitation							1.7						1.7		18.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	48.5
Growing Degrees	5	15.8	18.9	17.2	15.2	15.5	15.3	15.7	17.6	15.9	14.5	14.6	175.9	137.2	111.5
	10	10.8	13.9	12.2	10.2	10.5	10.3	10.7	12.6	10.9	9.5	9.6	120.9	82.2	65.8

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.8	16.8	17.7
Precipitation - Reference Evapotranspiration	-16.1	-16.8	1.0
Number of Rainy Days	1.0	0.0	2.1
Number of Dry Days	7.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



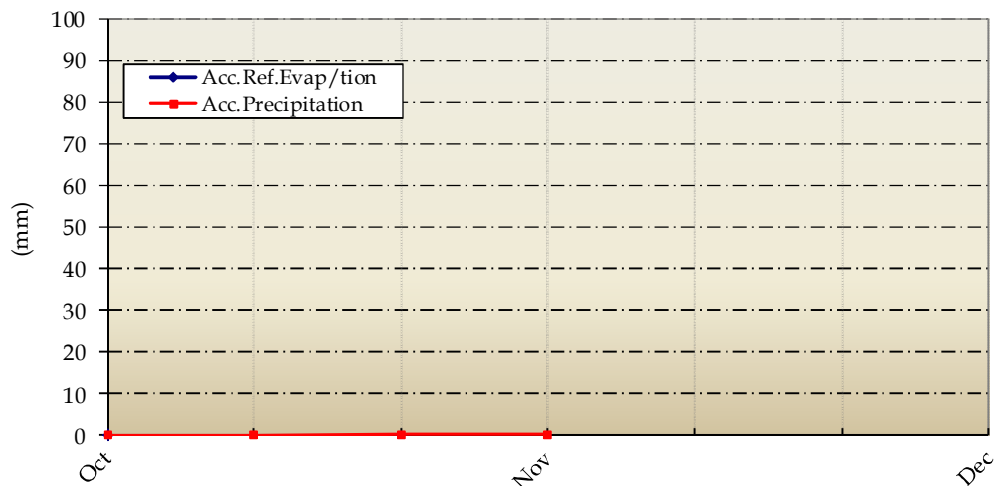
Iraklio

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	26.4	25.4	24.4	25.2	26.0	28.6	27.0	25.0	24.6	24.2	25.9	21.9	22.7
	Min	20.0	20.0	17.8	18.4	15.2	19.0	19.8	18.4	18.8	18.0	17.0	18.4	15.9	16.2
Relative Humidity	Max	81	87	92	94	91	73	91	87	92	92	94	89	85	86
	Min	48	60	61	70	62	48	40	52	68	71	57	58	61	61
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.8	9.1	9.2	8.9	7.7	1.6	9.0	9.0	8.2	7.4	8.6	8.0	8.6	4.1
Precipitation															36.2
Evaporation		4.0	2.4	1.2	3.0	1.1	3.8	3.7	2.4	2.2	2.7	2.3	28.8	36.0	44.0
Growing Degrees	5	19.3	18.2	16.6	16.4	15.2	17.5	19.2	17.7	16.9	16.3	15.6	188.9	152.5	152.3
	10	14.3	13.2	11.6	11.4	10.2	12.5	14.2	12.7	11.9	11.3	10.6	133.9	97.5	99.3

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	0.0	0.0	2.6
Number of Dry Days	12.0	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



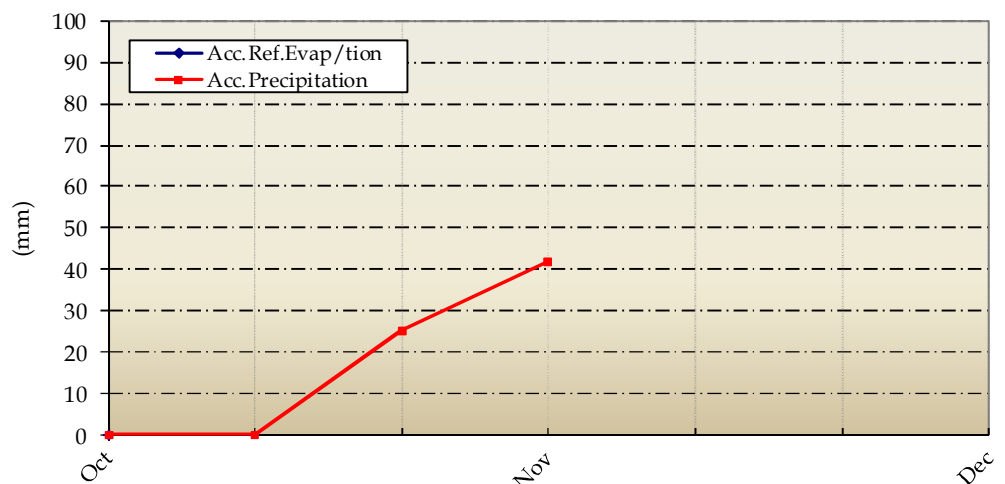
Ioannina

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	23.8	25.7	24.3	22.7	20.4	20.9	22.9	24.0	23.4	23.2	23.3	24.7	19.0
	Min	13.7	17.6	12.7	12.0	10.0	15.0	14.3	15.3	10.2	7.4	5.1	12.1	5.7	7.5
Relative Humidity	Max	81	100	100	100	100	100	100	100	100	100	100	98	94	97
	Min	32	48	56	49	44	37	64	63	61	38	41	48	31	55
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	12.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	13.5
Sunshine Duration		2.5	3.8	8.3	4.8	3.3	4.1	0.8	3.7	5.2	6.7	5.6	4.4	9.0	3.1
Precipitation			0.0			0.1	3.7	0.0	12.8			0.0	16.6		32.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	14.6	15.7	14.2	13.2	11.4	12.7	12.6	14.1	12.1	10.4	9.2	140.0	112.3	72.4
	10	9.6	10.7	9.2	8.2	6.4	7.7	7.6	9.1	7.1	5.4	4.2	85.0	57.3	29.2

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	6.1
Precipitation - Reference Evapotranspiration	-	-	26.8
Number of Rainy Days	3.0	0.0	3.0
Number of Dry Days	6.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

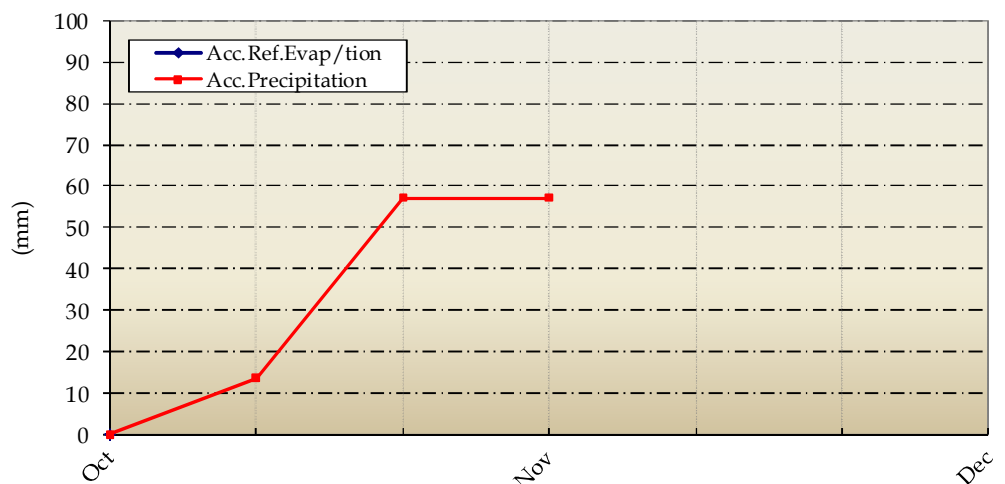


3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.7	27.0	27.5	27.7	26.8	27.1	27.1	27.7	28.0	28.1	26.8	27.3	25.4	23.5
	Min	15.3	16.7	15.9	16.3	14.2	16.9	16.2	15.0	16.1	14.5	13.5	15.5	11.1	12.3
Relative Humidity	Max	97	97	97	95	95	97	98	98	96	95	94	96	91	91
	Min	63	55	44	45	41	52	51	51	47	49	48	50	38	49
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	19.4
Sunshine Duration		7.3	8.6	9.0	8.9	3.7	4.0	8.0	7.6	7.9	9.1	9.2	7.6	9.4	5.5
Precipitation							0.0	0.0					0.0		27.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	45.1
Growing Degrees	5	16.0	16.9	16.7	17.0	15.5	17.0	16.7	16.4	17.1	16.3	15.2	180.6	145.9	131.3
	10	11.0	11.9	11.7	12.0	10.5	12.0	11.7	11.4	12.1	11.3	10.2	125.6	90.9	80.0

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	14.6
Precipitation - Reference Evapotranspiration	-	-	12.9
Number of Rainy Days	0.0	0.0	2.8
Number of Dry Days	13.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

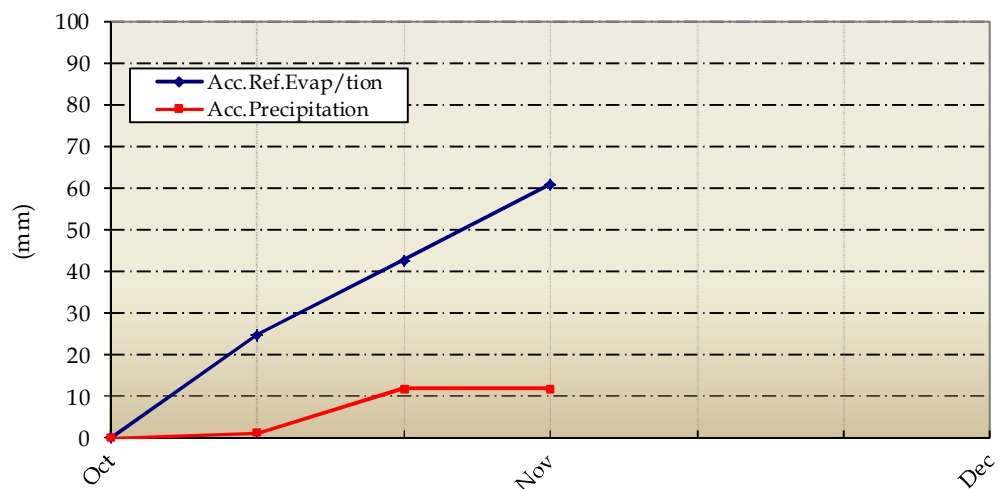


Larisa

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.9	27.2	28.0	25.8	24.8	22.6	25.6	28.6	27.0	25.2	23.4	25.9	24.6	20.4
	Min	12.0	16.0	13.2	12.2	13.0	12.6	11.4	14.4	13.4	8.6	8.6	12.3	7.8	9.2
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	100	95	94
	Min	55	61	53	47	47	64	50	42	41	40	51	50	38	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.9	15.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.5	16.5
Sunshine Duration		7.1	2.7	5.8	6.7	2.1	4.0	5.4	8.4	8.2	7.9	6.3	5.9	7.4	3.1
Precipitation															17.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	37.2
Growing Degrees	5	14.5	16.6	15.6	14.0	13.9	12.6	13.5	16.5	15.2	11.9	11.0	155.3	123.3	99.3
	10	9.5	11.6	10.6	9.0	8.9	7.6	8.5	11.5	10.2	6.9	6.0	100.3	68.3	48.9

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.4	21.8	15.6
Precipitation - Reference Evapotranspiration	-18.4	-21.8	2.0
Number of Rainy Days	0.0	0.0	2.5
Number of Dry Days	13.0	17.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



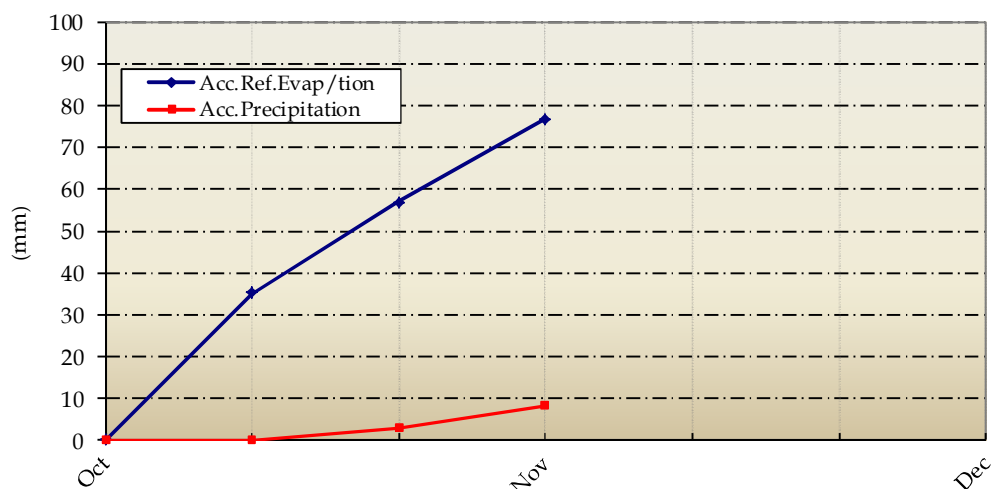
Mikra

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.4	24.1	24.0	25.9	22.0	25.4	25.8	27.6	26.6	24.6	24.0	24.9	22.9	19.4
	Min	13.6	17.6	15.6	14.2	14.3	17.4	14.2	16.4	13.9	11.6	11.2	14.5	10.4	10.9
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	95	100	100	96	86
	Min	71	74	72	45	75	48	52	49	33	40	47	55	50	53
Soil Temperature at 10 cm	06 UTC	18.8	20.0	20.2	19.4	19.6	20.2	18.8	19.2	19.0	18.0	17.4	19.1	17.0	15.2
	12 UTC	21.0	20.8	23.0	21.8	21.8	22.2	20.8	21.6	21.5	18.5	21.0	21.3	18.3	17.6
Sunshine Duration		6.7	4.3	6.6	5.2	1.8	4.1	5.8	7.6	9.5	8.3	6.4	6.0	7.9	3.8
Precipitation			0.1				5.2						5.3		16.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	39.5
Growing Degrees	5	13.5	15.9	14.8	15.1	13.2	16.4	15.0	17.0	15.3	13.1	12.6	161.7	128.4	107.1
	10	8.5	10.9	9.8	10.1	8.2	11.4	10.0	12.0	10.3	8.1	7.6	106.7	73.4	55.3

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.9	20.2	14.1
Precipitation - Reference Evapotranspiration	-14.6	-20.2	2.8
Number of Rainy Days	2.0	0.0	2.4
Number of Dry Days	2.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

October 2023

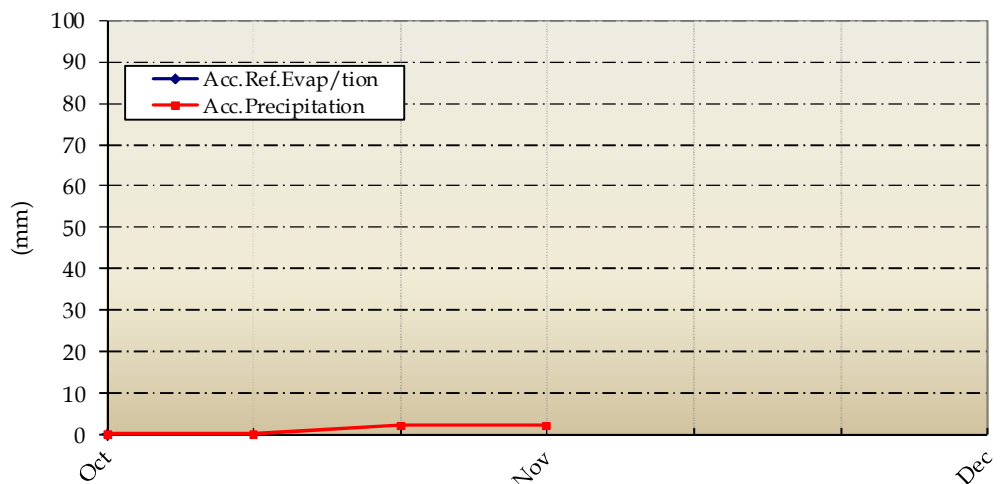
Tanagra

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	30.4	27.0	26.9	26.1	23.4	26.2	28.4	26.7	26.0	26.8	27.0	23.7	20.8
	Min	12.5	19.0	13.8	13.8	12.1	17.8	14.4	14.2	15.8	13.0	9.9	14.2	11.0	11.2
Relative Humidity	Max	96	98	99	98	97	83	94	91	93	92	97	94	88	92
	Min	32	26	44	43	48	60	37	32	41	44	33	40	35	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.3	8.2	8.1	8.4	3.9	1.0	7.7	8.6	8.3	7.2	7.7	7.0	8.2	4.8
Precipitation															18.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	34.8
Growing Degrees	5	15.7	19.7	15.4	15.4	14.1	15.6	15.3	16.3	16.3	14.5	13.4	171.5	136.0	97.1
	10	10.7	14.7	10.4	10.4	9.1	10.6	10.3	11.3	11.3	9.5	8.4	116.5	81.0	52.7

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	0.0	0.0	2.0
Number of Dry Days	13.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



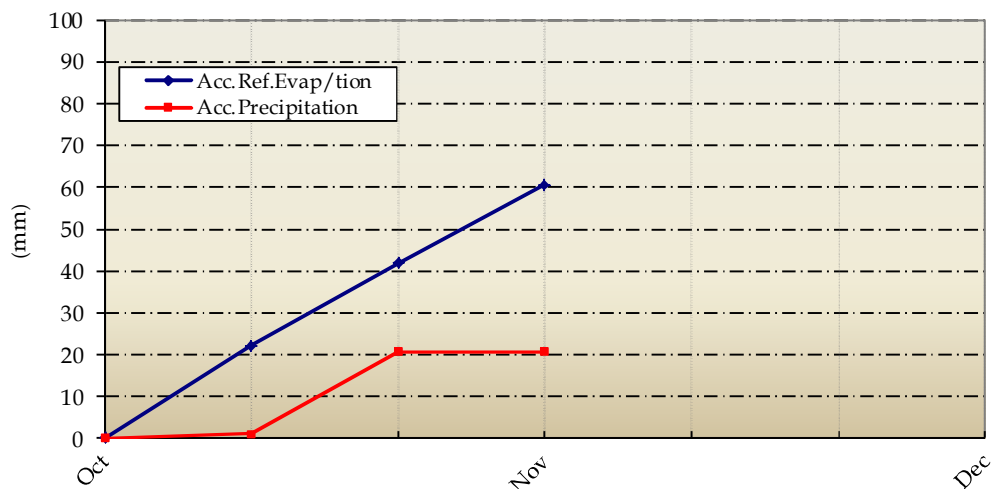
Tripoli

3rd 10-day period (21-31/10/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.0	26.3	25.4	26.7	25.4	23.2	23.0	24.8	25.2	25.0	23.9	25.0	23.8	19.3
	Min	7.3	10.2	7.8	7.1	8.2	11.4	9.0	10.6	8.3	6.5	6.3	8.4	5.5	6.5
Relative Humidity	Max	98	99	98	98	97	97	98	98	98	98	99	98	93	95
	Min	31	27	19	31	32	33	45	40	35	28	32	32	23	48
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	11.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	15.4
Sunshine Duration		7.7	6.8	8.9	8.9	2.9	2.0	7.9	8.4	7.8	7.7	7.5	7.0	8.6	4.1
Precipitation				0.0									0.0		20.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	23.3
Growing Degrees	5	11.7	13.3	11.6	11.9	11.8	12.3	11.0	12.7	11.8	10.8	10.1	128.8	106.1	69.5
	10	6.7	8.3	6.6	6.9	6.8	7.3	6.0	7.7	6.8	5.8	5.1	73.8	51.1	28.1

3rd 10-day period (21-31/10/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.7	21.0	11.1
Precipitation - Reference Evapotranspiration	-18.7	-21.0	9.2
Number of Rainy Days	0.0	0.0	2.4
Number of Dry Days	13.0	16.0	-

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)

UTC (Universal Time coordinates) in Greece

- ◆ Winter : Time(UTC) = Local time - 2
- ◆ Summer : Time(UTC) = Local time - 3

Mesurements Units

- ◆ Temperature : °C
- ◆ Relative Humidity : %
- ◆ Soil Temperature : °C
- ◆ Sunshine Duration : Hours
- ◆ Precipitation : mm
- ◆ Evaporation (Pan) : mm
- ◆ Growing Degrees : °C

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ΥΠΗΡΕΣΙΑ**

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Division of Climatology-Applications

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