



AGROMETEOROLOGICAL BULLETIN

November 2024
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



Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

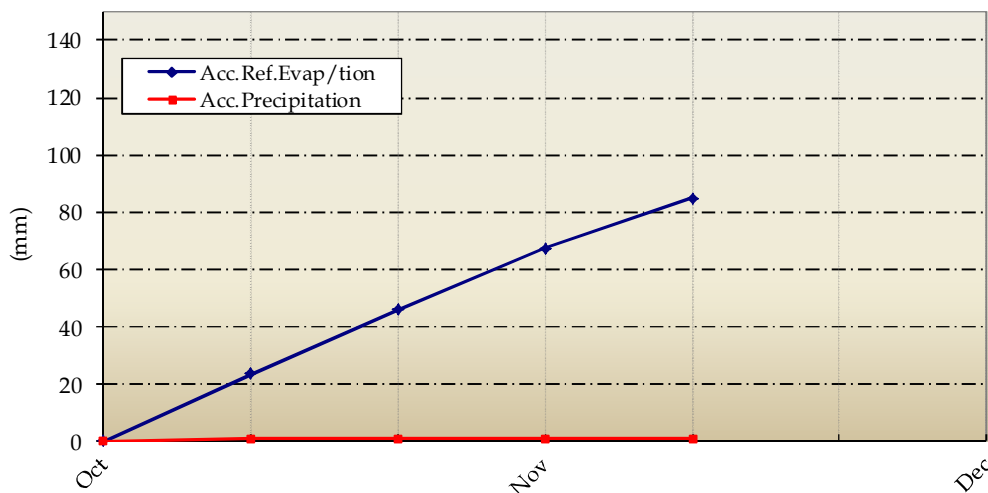
Web adresses of HNMS
www.emy.gr
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

Alexandroupoli

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.8	21.0	16.8	15.6	16.2	15.6	17.0	19.2	17.2	14.0	17.4	22.5	17.3
	Min	7.4	4.4	7.4	4.4	4.8	3.4	8.0	5.0	2.2	3.8	5.1	13.9	8.1
Relative Humidity	Max	91	93	78	81	71	84	75	85	69	81	81	94	90
	Min	39	44	48	41	35	44	47	32	36	44	41	64	57
Soil Temperature at 10 cm	06 UTC	14.6	14.0	15.2	13.2	12.4	12.0	12.6	12.4	12.4	12.0	13.1	18.2	12.6
	12 UTC	18.0	17.4	16.6	16.2	15.6	15.0	15.4	15.6	15.4	15.0	16.0	20.5	14.4
Sunshine Duration		8.7	8.9	4.0	9.0	8.7	9.3	8.0	9.1	9.2	6.4	8.1	5.8	5.5
Precipitation													94.5	18.8
Evaporation		2.3	3.8	3.9	2.3	4.0	4.5	4.3	8.2	4.0	4.0	41.3	19.0	23.6
Growing Degrees	5	9.6	7.7	7.1	5.0	5.5	4.5	7.5	7.1	4.7	3.9	62.6	132.0	72.3
	10	4.6	2.7	2.1	0.0	0.5	0.0	2.5	2.1	0.0	0.0	14.5	82.0	30.8

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.3	14.7	11.7
Precipitation - Reference Evapotranspiration	-17.3	79.8	7.1
Number of Rainy Days	0.0	3.0	1.5
Number of Dry Days	35.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

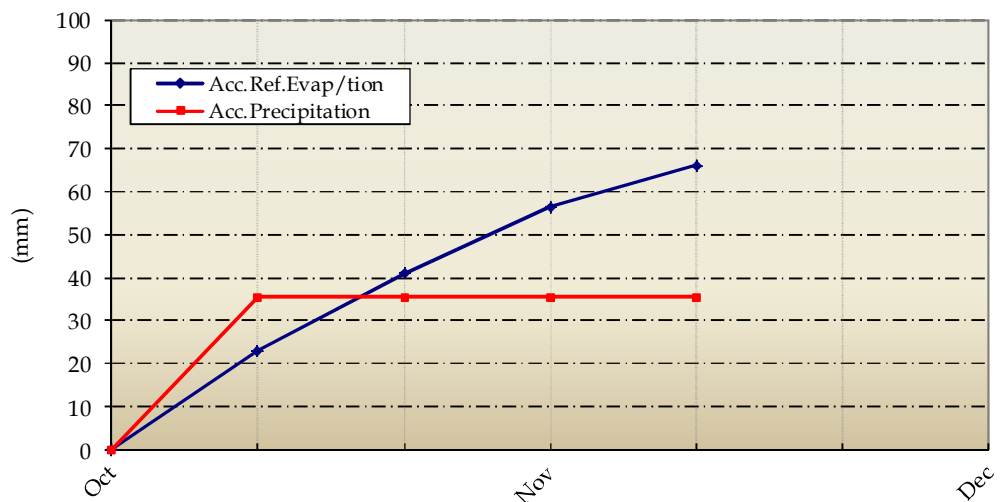


1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	22.6	24.4	23.0	23.0	22.3	22.6	20.0	22.8	21.4	22.6	23.7	21.1
	Min	7.2	9.0	7.4	8.4	7.4	6.2	4.3	7.9	4.2	5.4	6.7	16.0	11.0
Relative Humidity	Max	83	85	93	94	96	89	86	85	90	82	88	97	92
	Min	31	41	36	42	36	37	28	39	29	28	35	58	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4
Sunshine Duration		9.4	9.4	9.3	9.4	8.8	9.4	9.4	0.6	8.9	9.0	8.4	6.1	5.9
Precipitation													17.8	29.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	38.3
Growing Degrees	5	10.6	10.8	10.9	10.7	10.2	9.3	8.5	9.0	8.5	8.4	96.8	148.8	93.5
	10	5.6	5.8	5.9	5.7	5.2	4.3	3.5	4.0	3.5	3.4	46.8	98.8	51.4

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.8	12.8	15.4
Precipitation - Reference Evapotranspiration	-9.8	5.0	14.1
Number of Rainy Days	0.0	5.0	2.2
Number of Dry Days	35.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



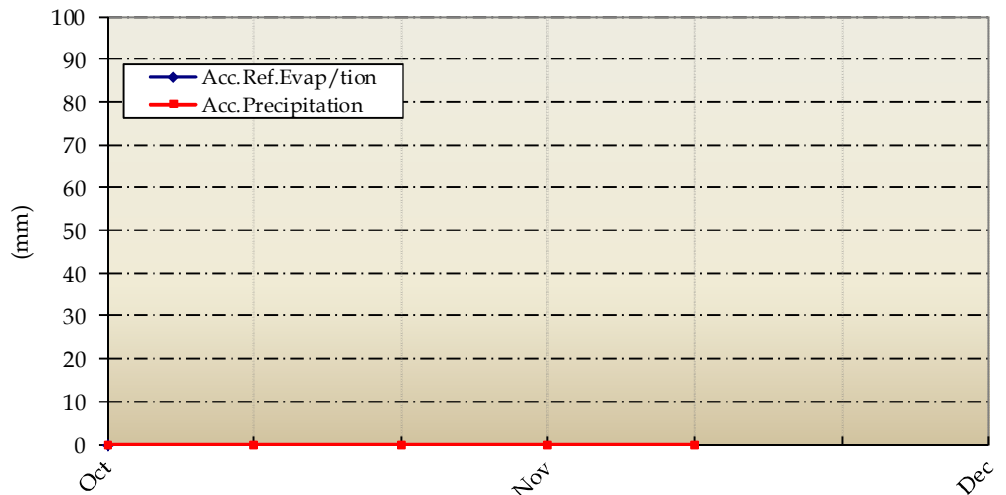
Iraklio

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.8	21.4	22.0	19.6	20.0	19.0	18.6	19.8	20.0	18.8	20.1	25.8	22.0
	Min	19.0	16.0	13.6	18.2	16.8	17.0	16.4	17.0	17.0	15.8	16.7	18.2	15.2
Relative Humidity	Max	82	95	95	74	73	73	74	76	79	79	80	88	86
	Min	69	70	64	60	63	65	64	67	64	66	65	58	60
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.4	8.2	6.1	5.2	7.2	6.2	4.6	6.3	6.4	4.5	6.2	7.9	5.4
Precipitation														18.9
Evaporation		2.3	1.6	4.0	4.4	4.9	3.9	5.4	1.5	2.0	5.3	35.3	33.8	35.6
Growing Degrees	5	15.4	13.7	12.8	13.9	13.4	13.0	12.5	13.4	13.5	12.3	133.9	170.2	131.6
	10	10.4	8.7	7.8	8.9	8.4	8.0	7.5	8.4	8.5	7.3	83.9	120.2	82.8

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	0.0	0.0	2.4
Number of Dry Days	41.0	22.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

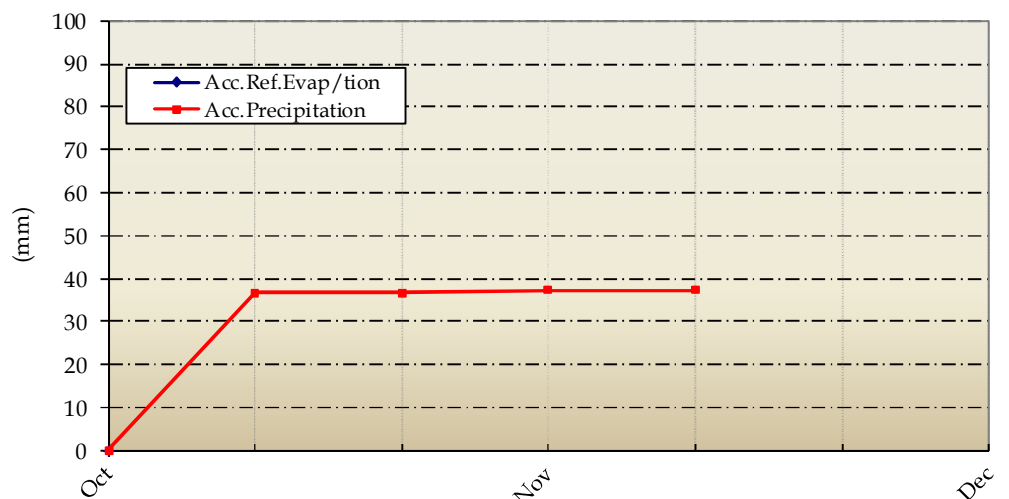


1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.7	21.0	22.4	19.8	20.8	19.6	21.7	20.3	21.3	17.6	20.5	19.0	17.1
	Min	3.7	0.7	1.8	2.0	3.3	1.3	-1.4	-2.1	0.6	-2.6	0.7	9.1	5.8
Relative Humidity	Max	100	100	100	100	100	100	100	100	94	100	99	100	98
	Min	37	48	37	44	31	39	22	18	21	23	32	66	56
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.4
Sunshine Duration		8.9	7.9	6.0	7.9	6.2	8.8	8.3	8.5	8.7	8.4	8.0	3.4	3.8
Precipitation													61.0	39.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	7.2	5.9	7.1	5.9	7.1	5.5	5.2	4.1	6.0	2.5	56.3	90.6	54.6
	10	2.2	0.9	2.1	0.9	2.1	0.5	0.2	0.0	1.0	0.0	9.7	40.8	17.8

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	10.1
Precipitation - Reference Evapotranspiration	-	-	29.5
Number of Rainy Days	0.0	7.0	2.9
Number of Dry Days	11.0	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

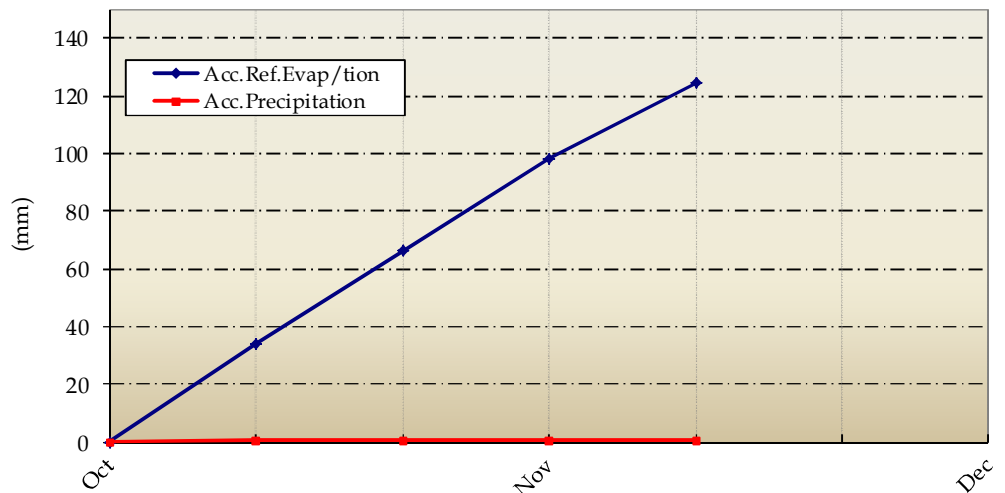


1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.1	25.1	24.7	24.9	26.6	24.6	24.6	24.4	23.2	23.3	24.6	26.0	22.0
	Min	15.4	9.8	9.5	12.9	10.0	12.4	9.6	8.0	8.9	7.8	10.4	13.4	10.7
Relative Humidity	Max	88	83	86	90	87	89	85	77	86	73	84	96	91
	Min	27	32	37	31	26	22	22	19	23	22	26	50	47
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		9.5	8.9	9.3	6.4	9.0	8.8	9.1	8.2	8.4	8.3	8.6	5.8	6.5
Precipitation													11.9	27.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	26.8
Growing Degrees	5	14.8	12.5	12.1	13.9	13.3	13.5	12.1	11.2	11.1	10.6	124.9	146.7	103.1
	10	9.8	7.5	7.1	8.9	8.3	8.5	7.1	6.2	6.1	5.6	74.9	96.7	57.9

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	26.2	-	19.3
Precipitation - Reference Evapotranspiration	-26.2	-	8.4
Number of Rainy Days	0.0	2.0	2.3
Number of Dry Days	36.0	14.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

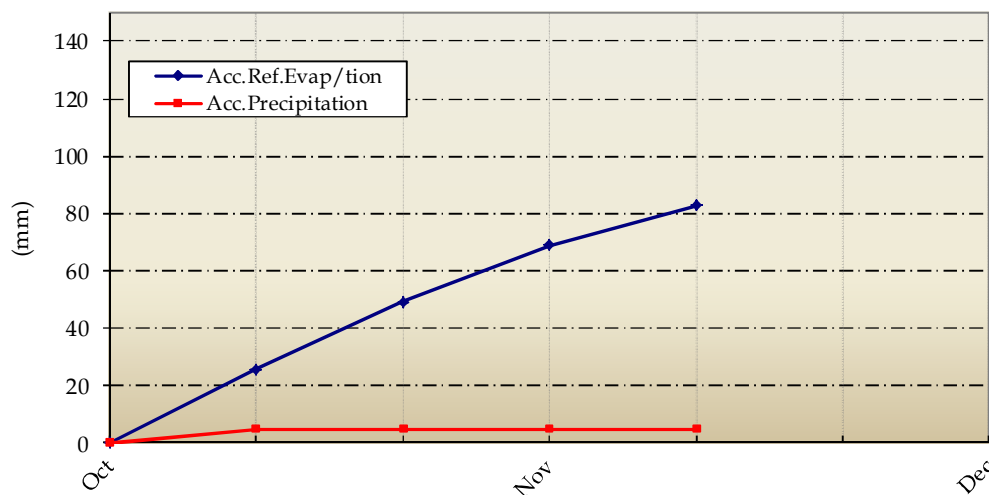


Larisa

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.5	23.5	19.4	20.1	16.6	18.8	17.8	18.8	19.2	13.8	19.2	23.3	18.5
	Min	4.6	5.0	4.5	13.0	4.6	9.2	3.0	0.2	-1.2	2.2	4.5	10.6	7.4
Relative Humidity	Max	91	86	81	100	100	98	92	96	82	86	91	100	96
	Min	31	32	46	50	56	44	42	35	27	46	41	48	52
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.4
Sunshine Duration		7.9	8.3	3.8	4.4	0.7	6.1	6.8	7.8	7.9	0.1	5.4	4.9	4.3
Precipitation					0.0							0.0	10.5	11.7
Evaporation		4.4	1.0	1.2	2.6	0.8	1.6	3.2	1.6	3.7	1.7	21.8	-	29.2
Growing Degrees	5	9.1	9.3	7.0	11.6	5.6	9.0	5.4	4.5	4.0	3.0	68.3	119.8	75.3
	10	4.1	4.3	2.0	6.6	0.6	4.0	0.4	0.0	0.0	0.0	21.8	69.8	30.4

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.0	14.2	9.6
Precipitation - Reference Evapotranspiration	-14.0	-3.7	2.1
Number of Rainy Days	0.0	4.0	2.0
Number of Dry Days	36.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



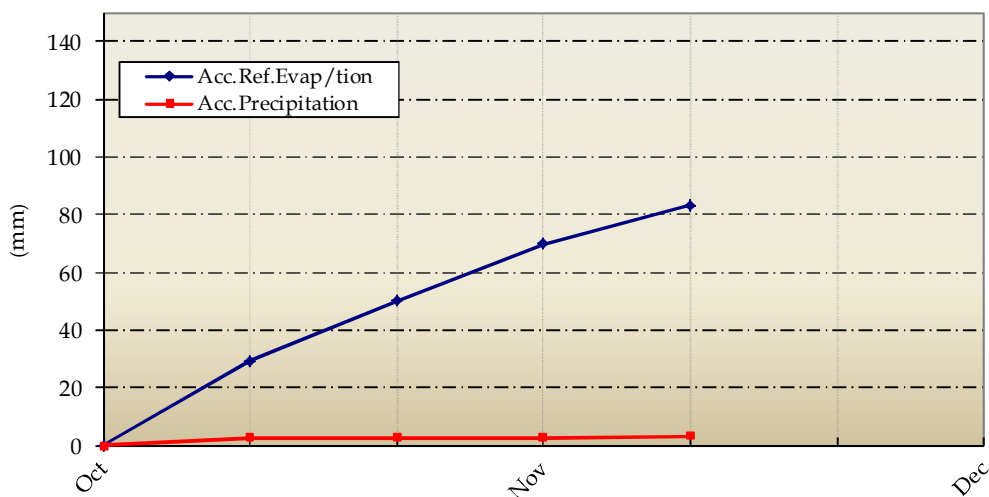
Mikra

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.3	22.6	19.6	18.9	17.5	17.6	17.5	19.2	19.8	15.0	18.9	22.6	17.8
	Min	7.8	8.0	9.4	12.6	6.6	7.1	6.4	4.3	3.3	7.2	7.3	13.4	9.2
Relative Humidity	Max	89	83	95	95	85	80	77	86	71	84	84	97	88
	Min	38	40	50	45	52	48	51	34	26	53	44	50	54
Soil Temperature at 10 cm	06 UTC	15.0	15.4	16.0	16.8	16.6	14.2	14.4	13.4	12.8	13.4	14.8	17.2	13.3
	12 UTC	18.2	18.2	18.4	18.2	16.4	16.5	16.4	15.2	14.8	13.8	16.6	19.0	15.6
Sunshine Duration		7.8	9.0	1.5	6.4	7.9	8.7	8.4	8.8	9.2	0.0	6.8	6.2	5.0
Precipitation					0.5							0.5	9.2	10.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	23.9
Growing Degrees	5	9.6	10.3	9.5	10.8	7.1	7.4	7.0	6.8	6.6	6.1	80.9	130.0	79.8
	10	4.6	5.3	4.5	5.8	2.1	2.4	2.0	1.8	1.6	1.1	30.9	80.0	34.9

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.4	18.0	9.2
Precipitation - Reference Evapotranspiration	-12.9	-8.8	1.3
Number of Rainy Days	1.0	5.0	1.7
Number of Dry Days	29.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



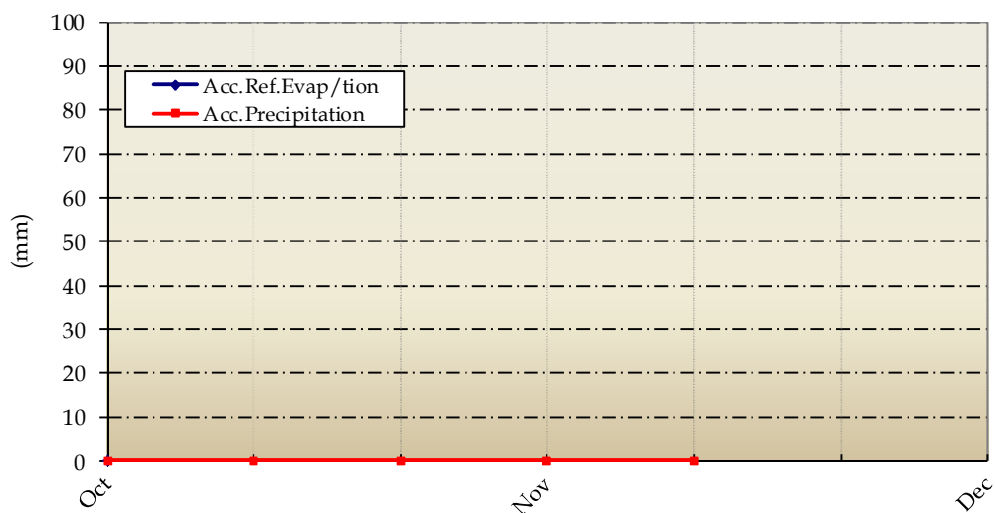
Tanagra

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.3	22.6	20.8	17.7	18.6	16.6	16.8	18.4	18.6	15.5	18.7	24.8	19.2
	Min	11.3	9.5	9.8	12.2	8.2	5.2	7.5	8.4	8.4	6.4	8.7	14.4	10.0
Relative Humidity	Max	78	86	73	81	87	79	72	76	72	80	78	84	93
	Min	36	33	42	41	35	40	35	40	31	45	38	40	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.4	8.2	7.3	3.8	8.3	7.7	7.7	6.9	8.4	3.9	7.1	5.9	5.0
Precipitation													11.2	20.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	29.3
Growing Degrees	5	11.3	11.1	10.3	10.0	8.4	5.9	7.2	8.4	8.5	6.0	86.9	146.2	82.8
	10	6.3	6.1	5.3	5.0	3.4	0.9	2.2	3.4	3.5	1.0	36.9	96.2	40.7

1st 10-day period (1-10/11/2024)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	0.0	2.0
Number of Dry Days	50.0	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



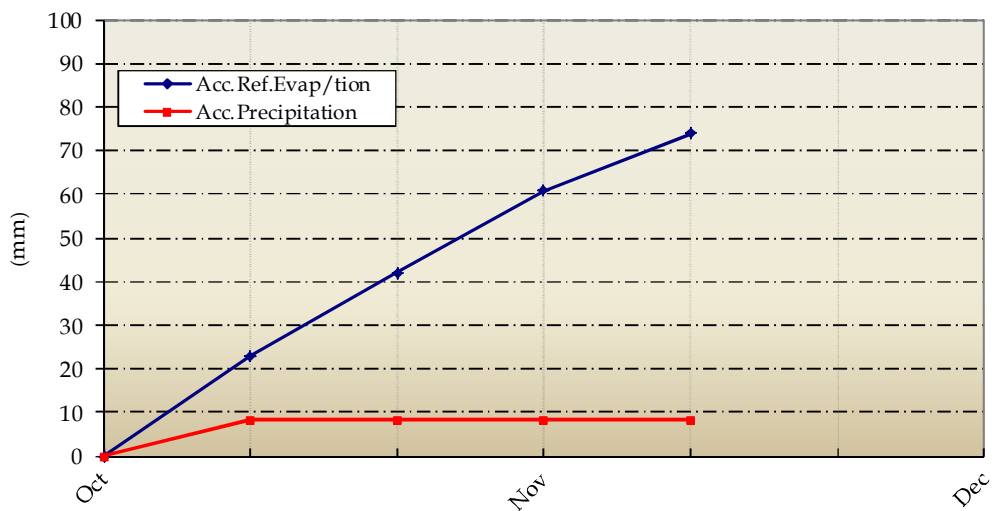
Tripoli

1st 10-day period (1-10/11/2024)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	21.5	19.6	17.6	17.2	17.2	17.0	17.5	18.5	15.4	18.1	21.6	17.8
	Min	10.6	2.0	1.0	6.7	1.2	3.7	-0.6	-2.5	-1.4	-2.7	1.8	10.3	5.1
Relative Humidity	Max	86	96	94	95	94	93	98	96	96	94	94	95	95
	Min	35	26	38	46	43	37	34	30	25	38	35	40	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.4
Sunshine Duration		8.8	8.2	7.8	7.0	8.3	8.8	7.4	7.1	7.6	7.9	7.9	5.5	6.0
Precipitation								0.0				0.0	28.7	19.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	27.9
Growing Degrees	5	9.9	6.8	5.3	7.2	4.2	5.5	3.2	2.5	3.6	1.4	49.4	109.6	54.3
	10	4.9	1.8	0.3	2.2	0.0	0.5	0.0	0.0	0.0	0.0	9.6	59.6	17.6

1st 10-day period (1-10/11/2024)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.2	14.9	10.0
Precipitation - Reference Evapotranspiration	-13.2	13.8	9.1
Number of Rainy Days	0.0	3.0	1.9
Number of Dry Days	36.0	14.0	-

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

© HELLENIC NATIONAL METEOROLOGICAL SERVICE
 Reproduction is prohibited without written permission
 El. Venizelou street 14, Zip Code 16777
 Helliniko, Athens

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens