



AGROMETEOROLOGICAL BULLETIN

*October 2022
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



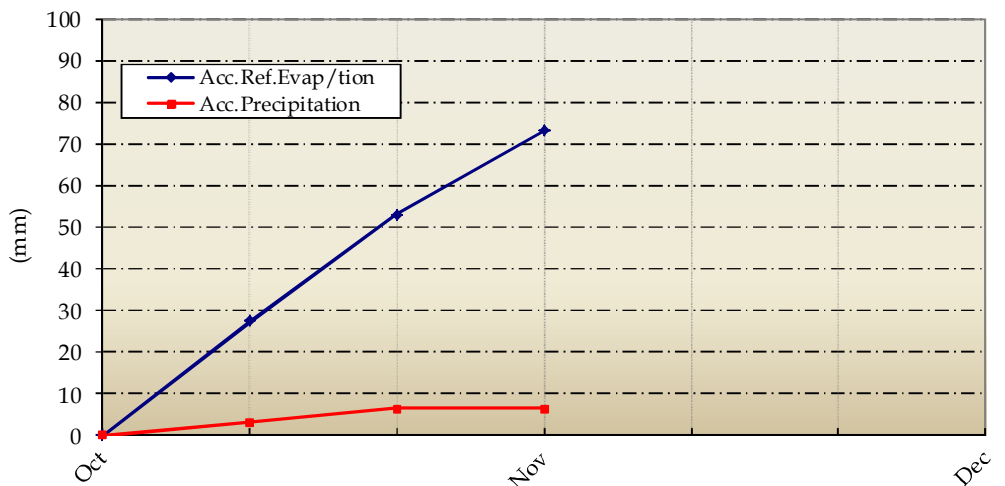
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.8	20.0	22.4	22.4	22.8	26.4	25.0	22.0	22.4	23.0	25.0	22.7	17.9	18.7
	Min	9.8	1.6	8.4	8.0	9.8	10.2	10.2	11.6	9.6	7.8	8.4	8.7	9.3	9.4
Relative Humidity	Max	78	89	91	92	95	95	90	83	88	92	92	90	84	89
	Min	37	40	63	52	47	35	29	36	30	40	35	40	50	54
Soil Temperature at 10 cm	06 UTC	16.2	15.0	16.2	16.4	16.6	17.0	17.6	17.2	16.2	16.0	15.6	16.4	13.5	13.1
	12 UTC	19.0	16.6	19.6	19.8	19.6	20.0	20.4	19.8	19.6	18.8	19.0	19.3	16.0	16.2
Sunshine Duration		9.7	9.5	7.3	9.1	8.1	8.7	7.6	9.5	9.5	8.7	5.2	8.4	7.6	4.2
Precipitation														0.0	15.9
Evaporation		3.1	2.3	4.4	1.4	2.2	4.0	3.6	2.4	5.0	2.0	3.2	33.6	33.3	35.8
Growing Degrees	5	9.3	5.8	10.4	10.2	11.3	13.3	12.6	11.8	11.0	10.4	11.7	117.8	94.7	89.0
	10	4.3	0.8	5.4	5.2	6.3	8.3	7.6	6.8	6.0	5.4	6.7	62.8	39.7	41.8

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.2	20.9	15.2
Precipitation - Reference Evapotranspiration	-20.2	-20.9	0.7
Number of Rainy Days	0.0	0.0	1.7
Number of Dry Days	16.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

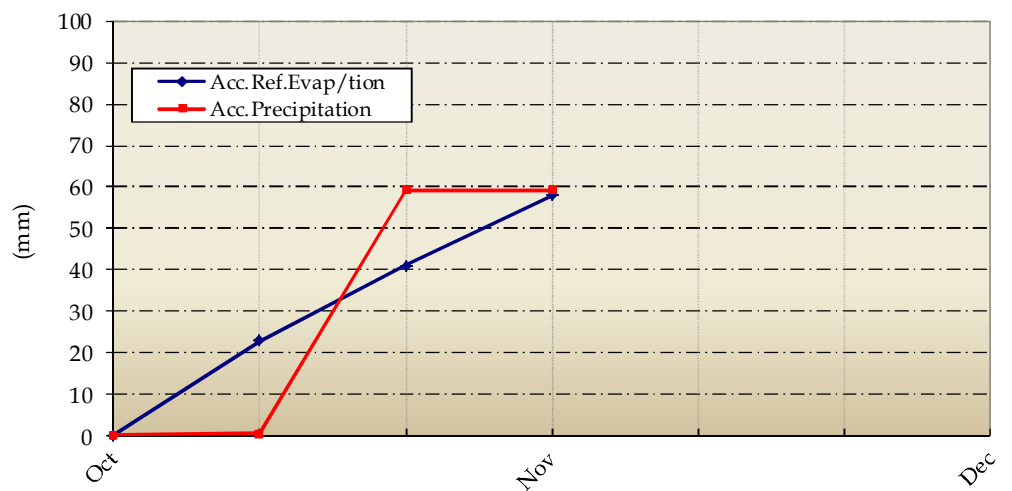


3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.9	23.2	23.3	25.1	24.8	24.4	26.0	26.6	25.4	25.5	23.6	24.8	22.1	22.5
	Min	8.3	8.1	11.0	12.0	12.6	12.0	11.5	10.6	9.1	7.4	9.0	10.1	11.4	12.2
Relative Humidity	Max	94	95	98	98	99	99	98	96	83	86	94	95	95	92
	Min	37	44	65	58	57	51	46	34	29	26	43	45	50	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.6	17.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.4	20.2
Sunshine Duration		9.8	8.1	8.0	8.0	8.3	7.4	8.4	8.8	9.4	9.4	9.4	8.6	5.9	4.7
Precipitation														7.3	18.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	15.7	48.5
Growing Degrees	5	11.6	10.7	12.2	13.6	13.7	13.2	13.8	13.6	12.3	11.5	11.3	137.2	129.2	111.5
	10	6.6	5.7	7.2	8.6	8.7	8.2	8.8	8.6	7.3	6.5	6.3	82.2	74.2	65.8

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.8	15.2	17.7
Precipitation - Reference Evapotranspiration	-16.8	-7.9	1.0
Number of Rainy Days	0.0	2.0	2.1
Number of Dry Days	16.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

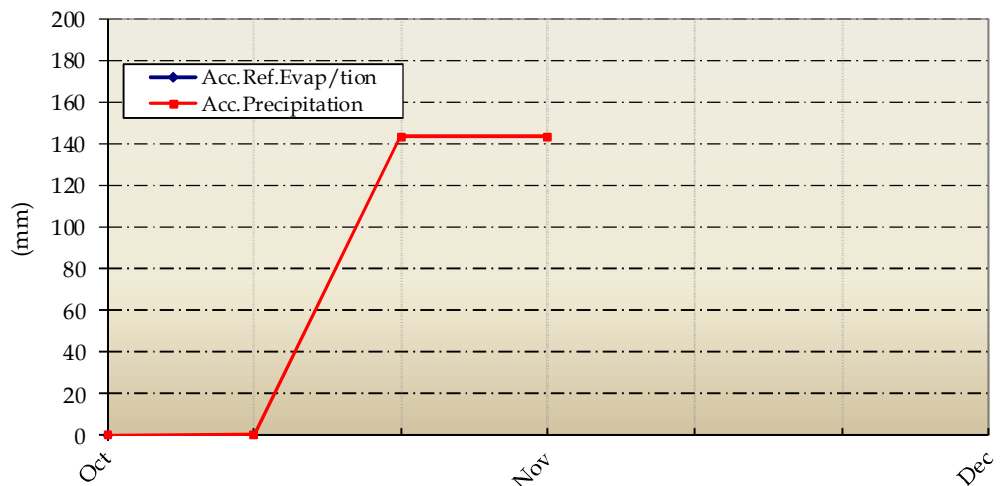


3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	20.2	21.8	22.6	24.6	24.0	22.6	21.6	20.6	20.4	20.8	21.9	20.7	22.7
	Min	18.8	17.4	11.6	14.8	14.6	15.6	15.2	17.0	18.6	16.4	14.6	15.9	15.7	16.2
Relative Humidity	Max	76	84	88	92	83	94	90	76	79	83	89	85	89	86
	Min	51	57	56	72	50	48	73	64	66	68	61	61	65	61
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.7	8.5	9.6	9.2	9.4	9.5	9.1	8.3	6.6	6.8	8.6	8.6	4.8	4.1
Precipitation														22.9	36.2
Evaporation		3.5	2.0	3.4	9.8	3.3	0.7	3.7	1.9	3.6	1.9	2.2	36.0	26.0	44.0
Growing Degrees	5	15.0	13.8	11.7	13.7	14.6	14.8	13.9	14.3	14.6	13.4	12.7	152.5	145.3	152.3
	10	10.0	8.8	6.7	8.7	9.6	9.8	8.9	9.3	9.6	8.4	7.7	97.5	90.3	99.3

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	0.0	4.0	2.6
Number of Dry Days	14.0	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

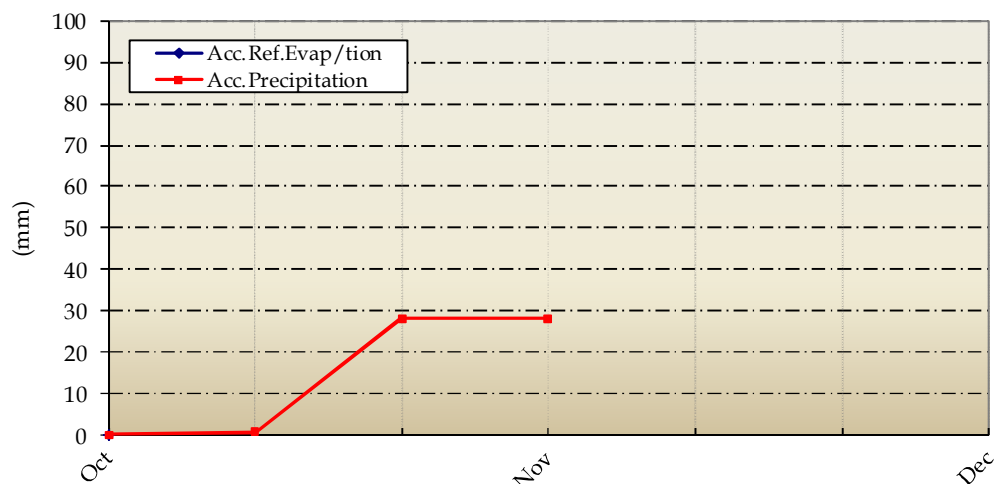


3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	22.4	24.7	28.0	26.5	26.6	25.6	22.6	23.0	23.2	25.9	24.7	18.6	19.0
	Min	2.3	2.3	4.1	5.0	3.6	4.6	4.8	10.4	15.2	7.3	3.4	5.7	5.6	7.5
Relative Humidity	Max	100	100	100	100	100	100	96	74	70	95	98	94	94	97
	Min	28	36	31	31	28	29	36	36	30	29	29	31	48	55
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	12.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	13.5
Sunshine Duration		10.3	8.9	7.4	8.8	8.9	8.7	8.7	10.1	9.1	9.0	8.8	9.0	6.3	3.1
Precipitation														4.7	32.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	7.7	7.4	9.4	11.5	10.1	10.6	10.2	11.5	14.1	10.3	9.7	112.3	78.1	72.4
	10	2.7	2.4	4.4	6.5	5.1	5.6	5.2	6.5	9.1	5.3	4.7	57.3	23.4	29.2

3rd 10-day period (21-31/10/2022)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	6.1
Precipitation - Reference Evapotranspiration	-	26.8
Number of Rainy Days	0.0	3.0
Number of Dry Days	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

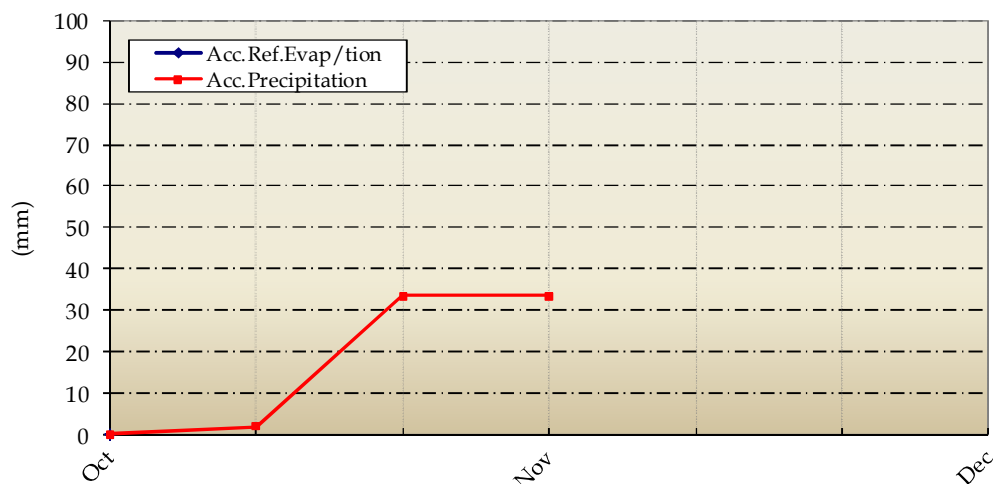


3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.2	24.3	26.1	26.4	25.6	25.6	26.4	26.9	25.4	24.0	23.7	25.4	23.2	23.5
	Min	12.0	9.7	10.9	12.2	10.9	11.3	11.6	14.6	13.8	8.2	7.0	11.1	13.3	12.3
Relative Humidity	Max	85	91	92	97	98	98	96	77	86	92	90	91	82	91
	Min	32	36	46	45	45	47	42	28	29	26	42	38	46	49
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.0	17.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.8	19.4
Sunshine Duration		9.8	9.9	9.5	9.3	9.3	9.3	9.0	8.8	9.6	9.6	9.5	9.4	5.8	5.5
Precipitation														6.2	27.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	45.1
Growing Degrees	5	13.6	12.0	13.5	14.3	13.3	13.5	14.0	15.8	14.6	11.1	10.4	145.9	145.5	131.3
	10	8.6	7.0	8.5	9.3	8.3	8.5	9.0	10.8	9.6	6.1	5.4	90.9	90.5	80.0

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	14.6
Precipitation - Reference Evapotranspiration	-	-	12.9
Number of Rainy Days	0.0	3.0	2.8
Number of Dry Days	16.0	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

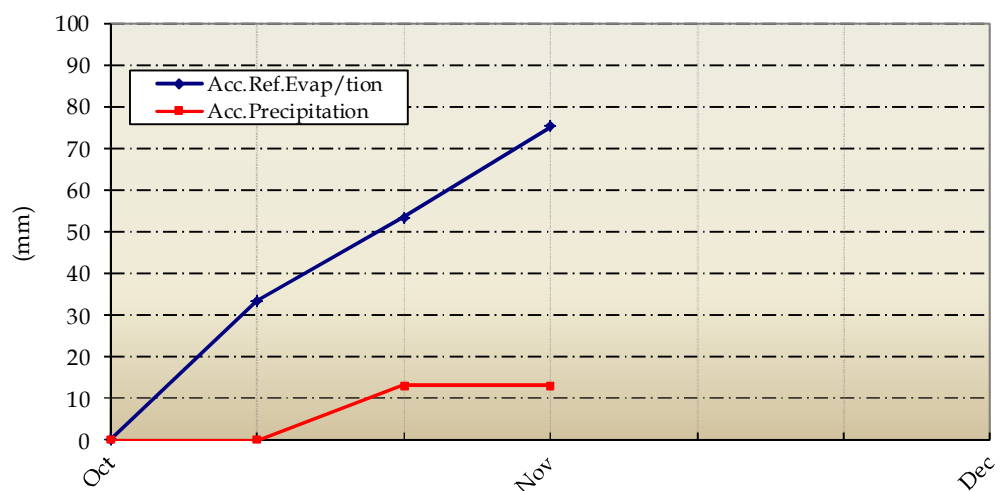


Larisa

3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.5	22.6	28.0	28.0	26.9	27.6	24.6	22.6	22.9	23.8	24.6	24.6	18.6	20.4
	Min	7.4	4.5	7.4	9.6	10.0	8.0	9.6	11.2	6.6	4.4	6.8	7.8	8.0	9.2
Relative Humidity	Max	98	100	99	99	100	99	95	92	92	91	83	95	94	94
	Min	59	41	31	32	37	33	43	42	37	33	33	38	48	50
Soil Temperature at 10 cm	06 UTC	16.2	16.0	16.4	17.2	17.6	17.6	17.2	17.4	17.0	16.6	16.2	16.9	14.3	15.8
	12 UTC	18.4	18.8	17.8	18.8	18.8	19.0	19.2	19.2	19.0	17.8	17.2	18.5	16.3	16.5
Sunshine Duration		4.3	8.2	7.8	8.1	7.9	6.3	7.8	8.2	8.3	8.3	6.3	7.4	5.0	3.1
Precipitation														0.9	17.6
Evaporation		5.0	3.0	3.3	3.7	5.1	3.5	4.7	4.2	7.2	-	2.6	-	28.2	37.2
Growing Degrees	5	8.5	8.6	12.7	13.8	13.5	12.8	12.1	11.9	9.8	9.1	10.7	123.3	91.7	99.3
	10	3.5	3.6	7.7	8.8	8.5	7.8	7.1	6.9	4.8	4.1	5.7	68.3	36.7	48.9

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.8	17.2	15.6
Precipitation - Reference Evapotranspiration	-21.8	-16.3	2.0
Number of Rainy Days	0.0	2.0	2.5
Number of Dry Days	17.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



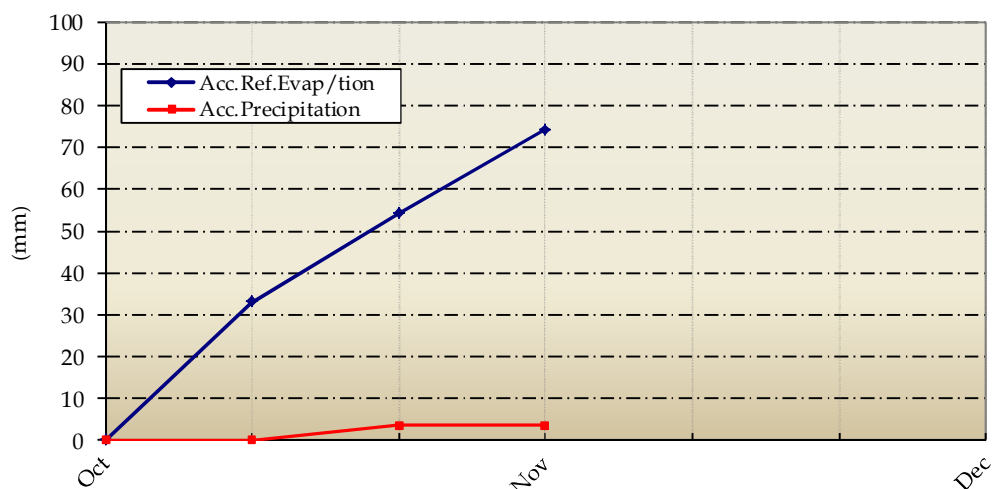
Mikra

3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	19.6	25.9	22.8	21.8	26.2	23.2	22.0	22.0	23.1	25.6	22.9	18.2	19.4
	Min	8.5	10.2	9.5	11.9	12.7	11.2	12.6	11.1	9.2	8.0	9.4	10.4	8.6	10.9
Relative Humidity	Max	92	98	100	100	100	100	100	100	87	94	90	96	90	86
	Min	55	63	44	63	68	41	54	48	44	36	36	50	52	53
Soil Temperature at 10 cm	06 UTC	16.2	16.4	16.6	17.4	18.0	17.4	18.0	17.8	16.8	16.2	16.2	17.0	14.6	15.2
	12 UTC	17.8	17.8	18.2	17.0	19.1	19.2	19.4	18.8	18.4	18.2	17.6	18.3	15.8	17.6
Sunshine Duration		9.0	7.8	8.7	8.3	5.4	8.0	7.6	6.9	9.7	9.4	6.1	7.9	6.4	3.8
Precipitation															16.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	39.5
Growing Degrees	5	9.4	9.9	12.7	12.4	12.3	13.7	12.9	11.6	10.6	10.6	12.5	128.4	92.4	107.1
	10	4.4	4.9	7.7	7.4	7.3	8.7	7.9	6.6	5.6	5.6	7.5	73.4	37.4	55.3

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.2	20.3	14.1
Precipitation - Reference Evapotranspiration	-20.2	-20.3	2.8
Number of Rainy Days	0.0	0.0	2.4
Number of Dry Days	16.0	13.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

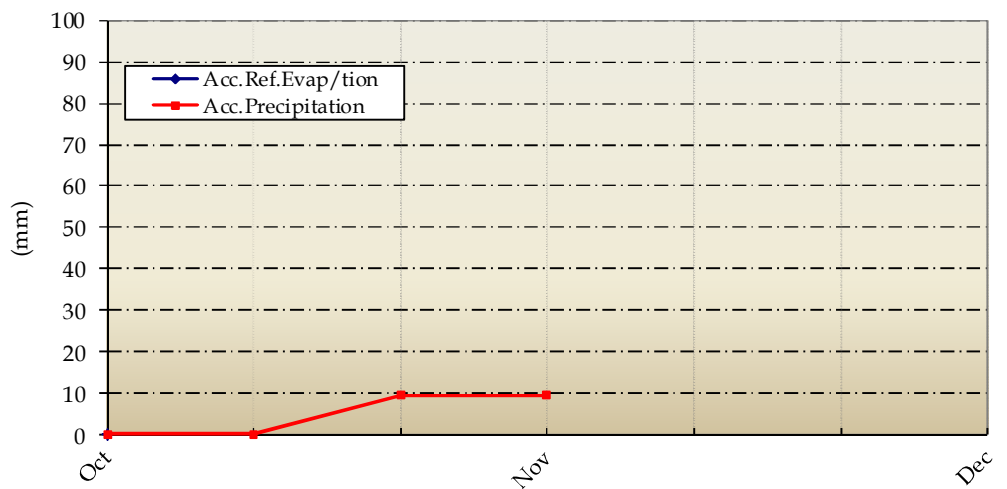


3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.5	21.9	27.2	27.5	26.6	26.9	24.6	21.4	20.4	20.9	24.0	23.7	19.0	20.8
	Min	10.0	9.2	9.1	10.8	11.0	12.1	12.3	12.0	14.6	10.8	9.2	11.0	10.4	11.2
Relative Humidity	Max	85	92	93	93	93	97	97	86	74	79	77	88	86	92
	Min	43	40	29	29	29	28	38	40	40	39	28	35	45	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.5	8.5	8.4	8.3	8.5	8.4	8.4	6.9	8.4	8.6	7.9	8.2	6.6	4.8
Precipitation														4.3	18.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	34.8
Growing Degrees	5	9.8	10.6	13.2	14.2	13.8	14.5	13.5	11.7	12.5	10.9	11.6	136.0	106.6	97.1
	10	4.8	5.6	8.2	9.2	8.8	9.5	8.5	6.7	7.5	5.9	6.6	81.0	51.6	52.7

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	0.0	2.0	2.0
Number of Dry Days	16.0	8.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



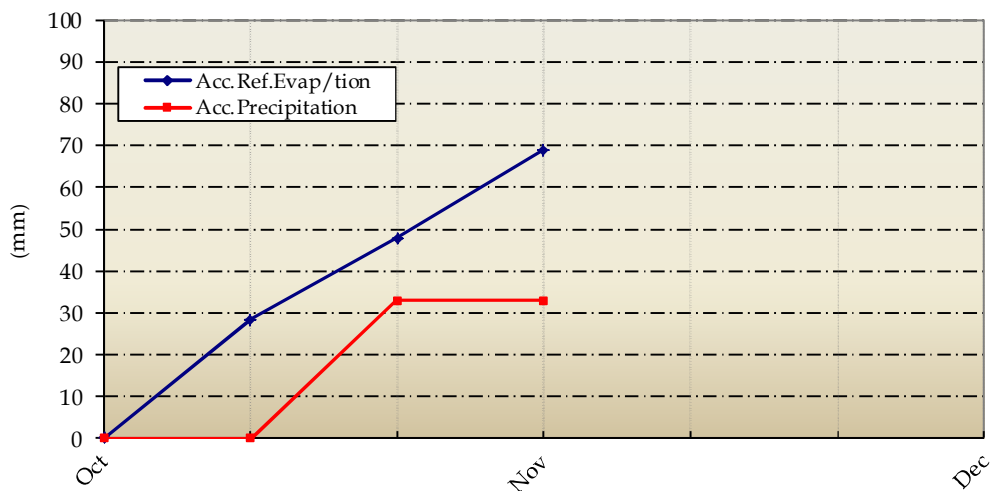
Tripoli

3rd 10-day period (21-31/10/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	22.8	29.2	29.2	28.5	26.4	23.2	20.6	19.5	19.8	22.5	23.8	17.0	19.3
	Min	5.5	1.4	4.5	6.4	6.1	5.9	6.4	10.8	9.4	4.1	0.2	5.5	7.2	6.5
Relative Humidity	Max	97	100	93	96	98	97	95	79	84	93	96	93	90	95
	Min	27	16	16	17	11	18	32	37	30	25	26	23	49	48
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	11.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	15.4
Sunshine Duration		9.1	5.7	9.3	8.6	9.0	8.9	8.6	9.2	8.8	8.9	8.6	8.6	6.1	4.1
Precipitation														21.6	20.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	23.3
Growing Degrees	5	7.7	7.1	11.9	12.8	12.3	11.2	9.8	10.7	9.5	7.0	6.4	106.1	78.2	69.5
	10	2.7	2.1	6.9	7.8	7.3	6.2	4.8	5.7	4.5	2.0	1.4	51.1	23.7	28.1

3rd 10-day period (21-31/10/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.0	-	11.1
Precipitation - Reference Evapotranspiration	-21.0	-	9.2
Number of Rainy Days	0.0	2.0	2.4
Number of Dry Days	16.0	5.0	-

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

© HELLENIC NATIONAL METEOROLOGICAL SERVICE

Reproduction is prohibited without written permission

El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



**ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ**

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

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