



AGROMETEOROLOGICAL BULLETIN

April 2023
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



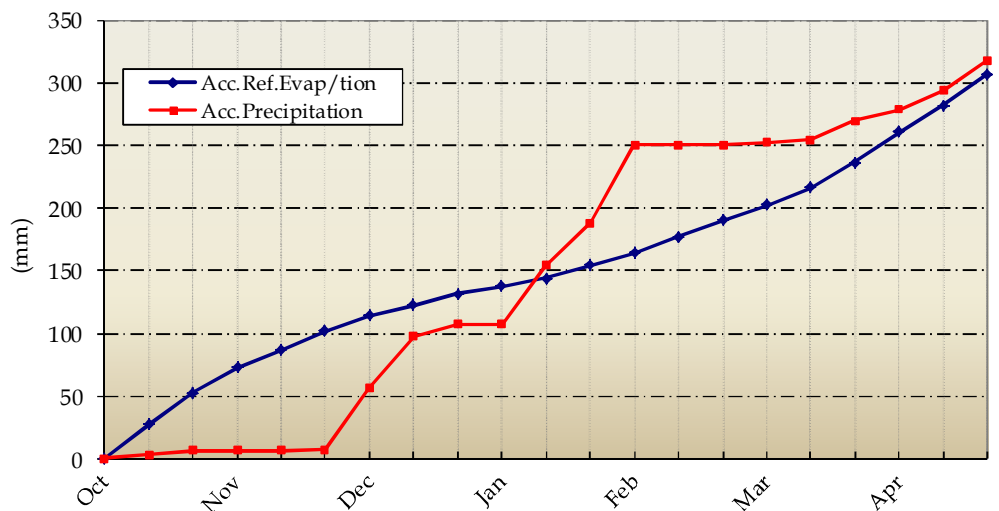
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.4	16.4	17.0	19.0	17.6	19.6	18.4	16.4	14.6	17.4	17.0	15.6	17.9
	Min	7.8	10.0	3.4	8.6	14.8	13.0	12.0	9.0	8.0	7.2	9.4	4.6	8.2
Relative Humidity	Max	92	90	91	88	95	98	95	93	95	94	93	89	88
	Min	68	66	61	55	70	62	59	71	80	73	66	44	50
Soil Temperature at 10 cm	06 UTC	11.2	11.6	10.6	12.8	14.4	15.0	15.6	14.6	13.8	13.0	13.3	11.2	12.8
	12 UTC	12.0	13.2	14.6	14.2	17.2	16.8	16.6	16.6	15.0	15.0	15.1	13.5	15.9
Sunshine Duration		0.0	2.7	11.6	8.3	8.1	6.0	4.5	5.7	2.6	8.4	5.8	7.0	7.4
Precipitation		2.4	1.6			0.0	10.6		8.0	2.1		24.7	25.4	11.7
Evaporation		3.0	2.0	3.0	4.0	4.9	2.7	3.0	4.0	0.1	4.2	30.9	38.8	40.2
Growing Degrees	5	5.6	8.2	5.2	8.8	11.2	11.3	10.2	7.7	6.3	7.3	81.8	51.3	72.5
	10	0.6	3.2	0.2	3.8	6.2	6.3	5.2	2.7	1.3	2.3	31.8	11.0	29.3

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.3	27.2	27.6
Precipitation - Reference Evapotranspiration	0.4	-1.8	-15.9
Number of Rainy Days	5.0	3.0	2.2
Number of Dry Days	5.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

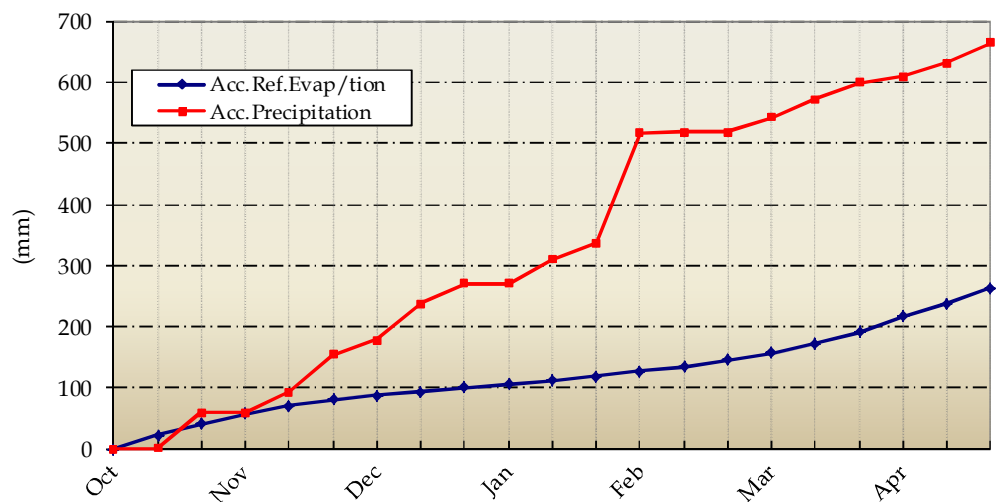


2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.2	17.8	21.0	21.6	18.8	17.2	18.5	17.8	17.8	19.0	18.7	19.6	19.8
	Min	5.9	12.7	8.2	10.5	7.9	11.9	10.4	9.5	9.6	9.4	9.6	8.8	9.7
Relative Humidity	Max	97	89	96	86	92	98	96	95	98	97	94	93	91
	Min	53	64	40	44	50	74	56	60	61	58	56	49	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.5
Sunshine Duration		7.2	7.9	8.0	4.3	3.1	0.5	6.8	7.2	9.0	10.4	6.4	8.3	8.1
Precipitation		1.2					29.4	0.9	1.2			32.7	26.3	8.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	39.1
Growing Degrees	5	6.6	10.3	9.6	11.1	8.4	9.6	9.5	8.7	8.7	9.2	91.4	92.2	80.8
	10	1.6	5.3	4.6	6.1	3.4	4.6	4.5	3.7	3.7	4.2	41.4	42.2	39.3

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.2	27.8	32.3
Precipitation - Reference Evapotranspiration	7.5	-1.5	-23.6
Number of Rainy Days	4.0	3.0	1.6
Number of Dry Days	0.0	9.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

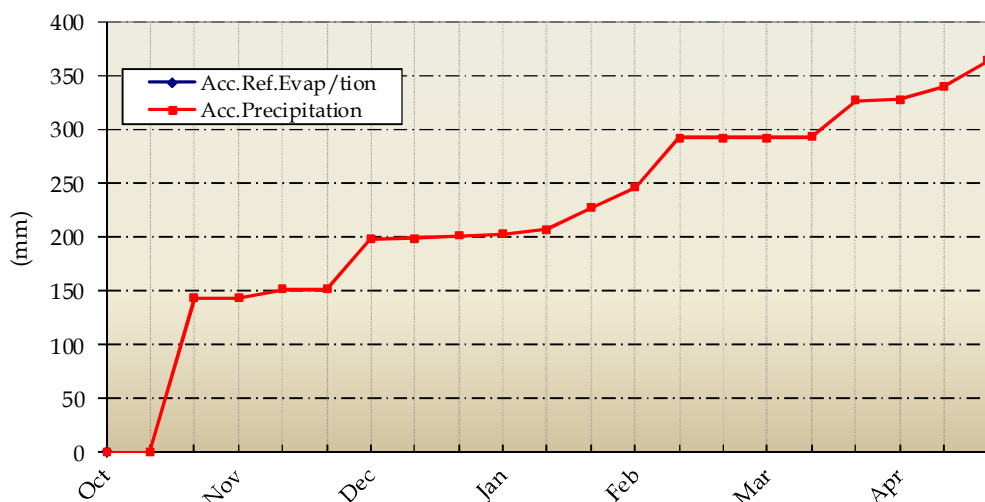


2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	18.4	18.6	24.6	20.0	18.8	20.0	19.6	19.2	19.6	19.3	19.4	21.0
	Min	10.4	10.4	10.4	11.6	17.4	13.0	13.0	13.0	11.4	13.6	12.4	10.9	12.8
Relative Humidity	Max	95	88	95	86	95	98	91	88	90	88	91	86	84
	Min	73	61	68	42	48	71	67	55	57	60	60	43	49
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.7	11.4	12.3	11.9	3.5	8.4	11.1	9.7	11.6	11.8	9.3	8.9	8.6
Precipitation		24.8										24.8	0.0	7.1
Evaporation		1.4	6.0	12.8	5.4	3.4	2.3	3.9	3.4	4.5	3.5	46.6	38.6	40.1
Growing Degrees	5	7.3	9.4	9.5	13.1	13.7	10.9	11.5	11.3	10.3	11.6	108.6	101.7	106.8
	10	2.3	4.4	4.5	8.1	8.7	5.9	6.5	6.3	5.3	6.6	58.6	51.7	61.8

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	1.0	0.0	1.5
Number of Dry Days	0.0	27.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

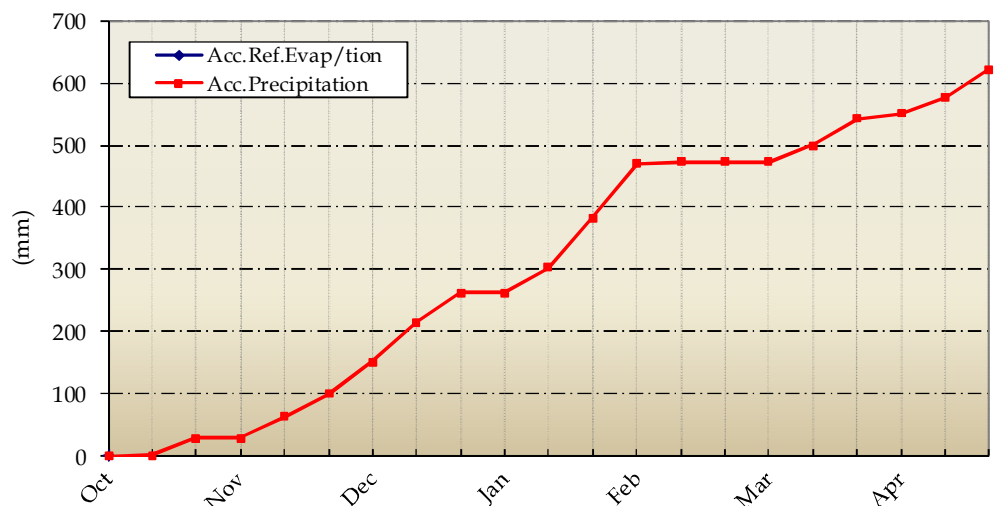


2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	18.6	20.3	16.0	17.0	14.1	13.5	16.5	14.9	17.4	16.5	18.1	17.9
	Min	4.4	1.2	0.8	11.7	4.4	6.3	7.7	6.5	8.4	6.6	5.8	4.1	6.3
Relative Humidity	Max	89	99	100	98	96	94	100	100	100	100	98	89	93
	Min	29	34	40	36	45	64	59	49	66	43	46	38	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.4
Sunshine Duration		10.7	11.5	9.9	5.1	6.8	0.9	2.3	2.8	2.4	8.0	6.0	6.6	5.8
Precipitation					9.6	0.0	15.2	6.3	10.4	4.5		46.0	5.8	24.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	5.6	4.9	5.6	8.9	5.7	5.2	5.6	6.5	6.7	7.0	61.6	61.0	57.3
	10	0.6	0.0	0.6	3.9	0.7	0.2	0.6	1.5	1.7	2.0	11.7	18.0	19.9

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	30.0
Precipitation - Reference Evapotranspiration	-	-	-5.4
Number of Rainy Days	5.0	2.0	3.3
Number of Dry Days	3.0	7.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

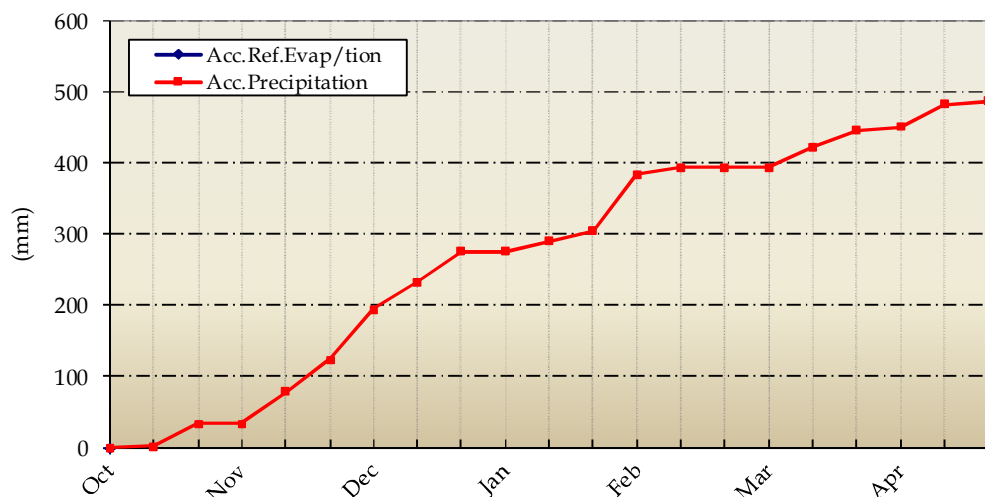


2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.7	21.0	20.0	20.8	22.5	19.8	19.7	20.4	20.4	20.8	20.4	20.0	20.7
	Min	8.7	7.3	8.1	7.7	8.9	9.0	10.9	9.7	7.6	8.2	8.6	8.2	9.1
Relative Humidity	Max	87	94	98	98	90	93	96	96	95	96	94	93	91
	Min	45	35	51	53	32	41	61	49	43	48	46	40	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	15.7	14.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	17.1	17.0
Sunshine Duration		9.4	10.8	11.9	10.1	9.6	4.9	5.2	4.1	9.9	11.0	8.7	9.1	8.3
Precipitation		1.1						3.5	0.3	0.1		5.0	31.6	10.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	41.9
Growing Degrees	5	8.7	9.2	9.1	9.3	10.7	9.4	10.3	10.1	9.0	9.5	95.1	91.0	90.3
	10	3.7	4.2	4.1	4.3	5.7	4.4	5.3	5.1	4.0	4.5	45.1	41.0	44.4

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	30.7
Precipitation - Reference Evapotranspiration	-	-	-20.4
Number of Rainy Days	4.0	3.0	2.5
Number of Dry Days	0.0	17.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

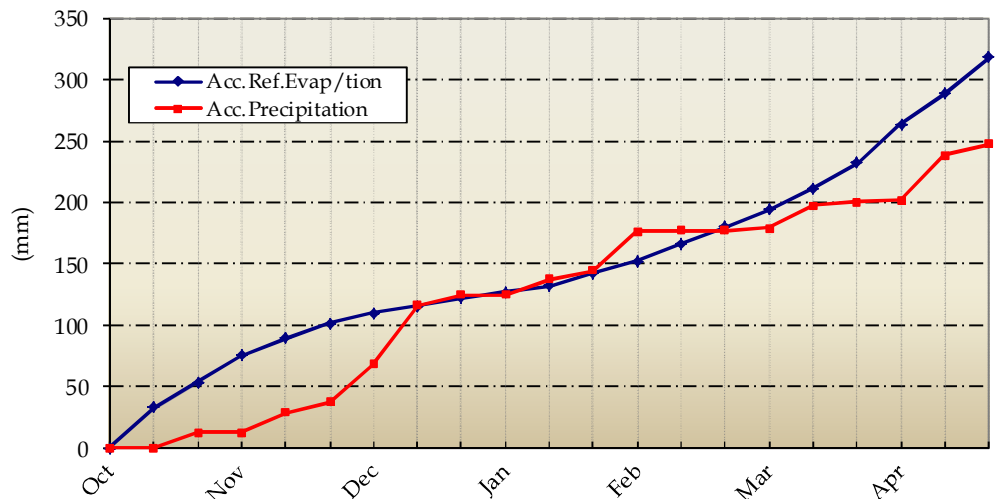


Larisa

2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	22.0	22.9	25.2	21.4	20.0	17.4	19.2	19.0	20.6	20.6	18.1	20.5
	Min	3.6	3.4	3.4	8.4	4.0	9.2	8.4	10.9	7.6	5.0	6.4	5.5	7.2
Relative Humidity	Max	100	100	100	100	94	100	100	100	100	100	99	92	93
	Min	38	33	36	28	29	41	55	44	54	41	40	44	40
Soil Temperature at 10 cm	06 UTC	13.8	13.6	14.2	15.4	15.6	16.4	16.0	16.0	16.0	15.4	15.2	13.3	13.4
	12 UTC	15.0	15.2	15.2	15.6	16.4	17.2	17.8	16.8	17.0	17.0	16.3	15.2	14.8
Sunshine Duration		6.0	9.2	10.7	4.7	11.7	5.4	4.0	6.0	3.4	7.8	6.9	6.9	7.3
Precipitation		2.3						1.8	4.8	0.0		8.9	16.9	9.9
Evaporation		2.3	6.4	5.1	4.9	7.1	4.8	8.2	3.7	2.6	3.3	48.4	35.8	43.9
Growing Degrees	5	5.7	7.7	8.2	11.8	7.7	9.6	7.9	10.1	8.3	7.8	84.7	68.1	83.0
	10	0.7	2.7	3.2	6.8	2.7	4.6	2.9	5.1	3.3	2.8	34.7	18.6	37.0

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.6	28.8	53.8
Precipitation - Reference Evapotranspiration	-20.7	-11.9	-43.9
Number of Rainy Days	3.0	4.0	2.5
Number of Dry Days	0.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



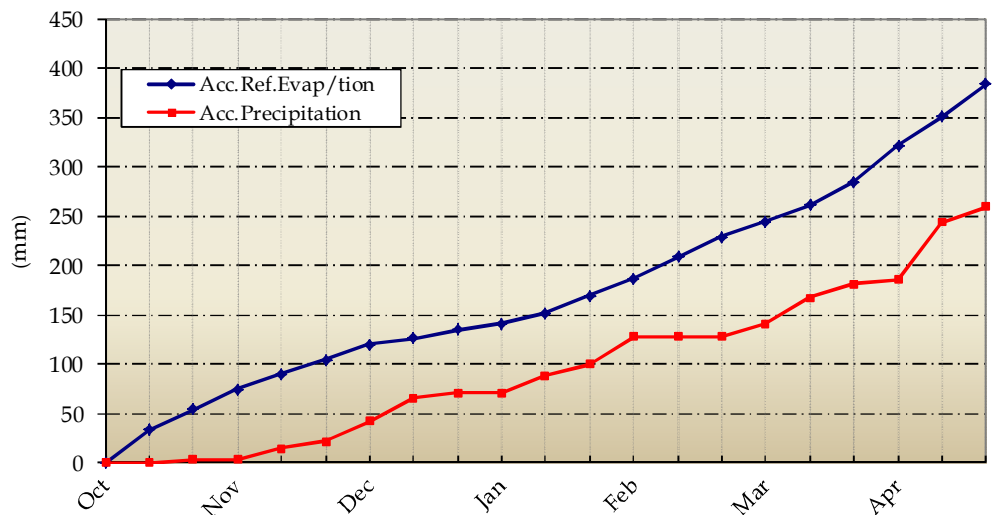
Mikra

2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.9	19.2	21.8	22.6	20.2	18.9	17.4	18.2	20.4	20.6	19.7	17.2	19.3
	Min	6.5	13.0	4.5	9.2	7.2	9.9	11.7	9.9	10.7	7.6	9.0	6.8	8.8
Relative Humidity	Max	97	70	88	100	100	100	100	100	100	100	96	91	87
	Min	40	32	31	39	37	49	62	56	51	47	44	44	43
Soil Temperature at 10 cm	06 UTC	11.4	12.4	12.0	13.4	13.0	14.0	14.8	14.0	14.6	15.0	13.5	12.3	13.6
	12 UTC	13.2	14.2	14.0	14.8	15.0	15.0	16.9	15.8	16.2	15.0	15.0	13.7	17.5
Sunshine Duration		9.8	10.7	12.1	1.4	11.6	3.5	3.9	6.6	8.4	8.7	7.7	7.7	7.1
Precipitation					0.5			7.8	0.3	7.2		15.8	19.7	11.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	45.1
Growing Degrees	5	7.2	11.1	8.2	10.9	8.7	9.4	9.6	9.1	10.6	9.1	93.7	69.6	80.5
	10	2.2	6.1	3.2	5.9	3.7	4.4	4.6	4.1	5.6	4.1	43.7	19.9	36.6

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.4	31.9	25.3
Precipitation - Reference Evapotranspiration	-17.6	-12.2	-14.3
Number of Rainy Days	4.0	3.0	2.5
Number of Dry Days	3.0	16.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

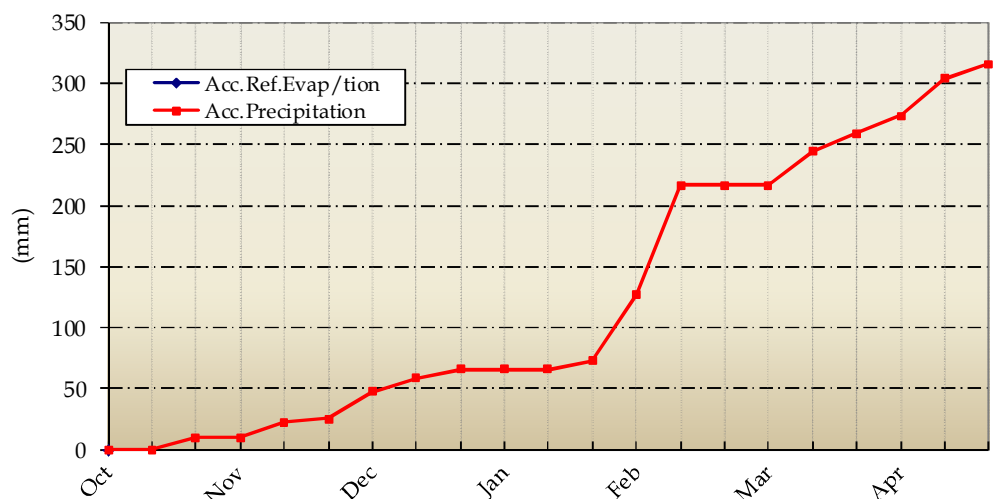


2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.6	21.2	22.0	23.8	22.1	20.8	21.4	18.8	19.0	20.9	20.6	17.2	19.9
	Min	6.8	6.8	5.4	7.4	11.5	9.6	11.6	7.8	7.5	5.4	8.0	5.8	8.4
Relative Humidity	Max	96	79	91	94	74	93	93	96	97	98	91	93	89
	Min	44	27	33	28	15	31	31	44	46	40	34	41	38
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.5	11.7	11.4	10.5	10.2	8.4	7.3	6.8	6.6	11.3	9.0	7.9	8.1
Precipitation		5.4						0.8		5.6		11.8	15.9	8.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	41.0
Growing Degrees	5	6.2	9.0	8.7	10.6	11.8	10.2	11.5	8.3	8.3	8.2	92.7	65.0	79.9
	10	1.2	4.0	3.7	5.6	6.8	5.2	6.5	3.3	3.3	3.2	42.7	15.0	36.6

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	3.0	4.0	1.8
Number of Dry Days	0.0	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



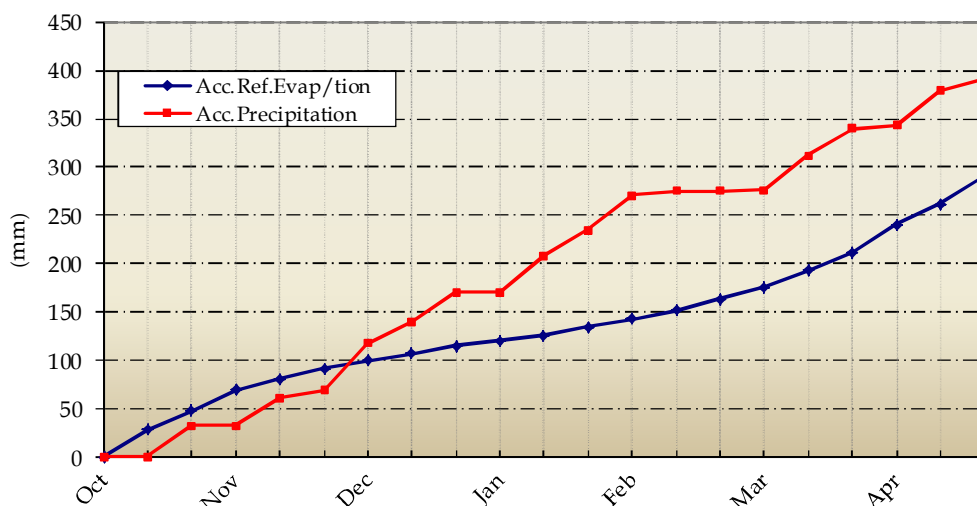
Tripoli

2nd 10-day period (11-20/04/2023)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.6	8.4	20.1	20.2	18.1	16.4	17.2	16.5	15.7	20.0	16.7	15.9	18.4
	Min	2.9	1.3	1.6	4.5	5.1	7.0	7.6	4.1	2.4	1.9	3.8	3.4	5.1
Relative Humidity	Max	97	98	95	95	89	94	95	97	97	100	96	94	89
	Min	29	26	36	26	26	37	45	40	45	28	34	37	36
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.9
Sunshine Duration		8.9	10.9	11.4	10.4	7.5	7.4	5.3	10.6	6.9	10.2	9.0	7.6	7.8
Precipitation		6.8			0.0	0.0	0.0	4.2		0.2		11.2	30.3	14.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	32.1
Growing Degrees	5	3.8	0.0	5.9	7.4	6.6	6.7	7.4	5.3	4.1	6.0	53.0	46.6	59.2
	10	0.0	0.0	0.9	2.4	1.6	1.7	2.4	0.3	0.0	1.0	10.2	5.5	21.0

2nd 10-day period (11-20/04/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.6	26.7	29.1
Precipitation - Reference Evapotranspiration	-18.4	3.6	-14.6
Number of Rainy Days	3.0	3.0	2.6
Number of Dry Days	0.0	9.0	-

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 ET_0 (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



ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

anastasia.papakrivou@hnms.gr

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