



AGROMETEOROLOGICAL BULLETIN

March 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



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

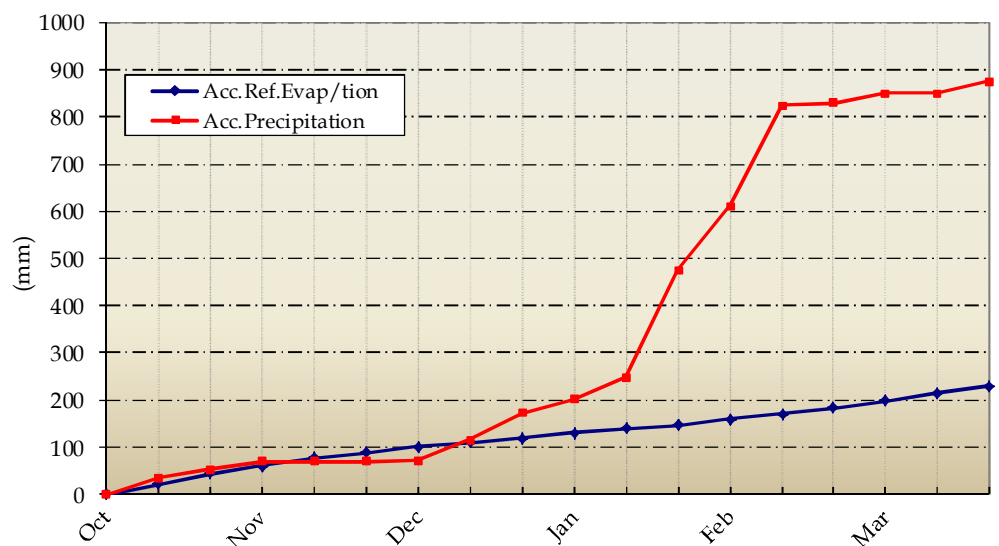
Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

Alexandroupoli

2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.6	8.8	15.4	15.0	15.6	10.6	11.6	10.2	7.6	9.0	11.4	16.0	11.6
	Min	4.2	-2.4	2.0	5.6	8.4	5.2	5.0	4.0	1.4	5.2	3.9	2.9	2.9
Relative Humidity	Max	84	92	90	98	93	91	91	90	91	91	91	85	-
	Min	44	58	59	72	68	74	64	60	75	65	64	44	-
Soil Temperature at 10 cm	06 UTC	8.6	5.6	7.2	9.0	10.6	9.8	8.8	8.0	7.6	6.8	8.2	8.8	6.6
	12 UTC	8.6	8.6	9.8	11.4	12.6	10.4	10.4	9.4	7.6	7.8	9.7	12.8	8.9
Sunshine Duration		5.1	2.9	7.7	5.9	4.7	0.1	0.8	0.8	0.0	0.0	2.8	8.8	4.9
Precipitation		6.8				6.9	1.2	0.0	0.0	8.1	2.8	25.8	3.3	14.4
Evaporation		0.0	0.0	1.0	3.1	1.6	0.5	0.4	2.1	1.0	0.8	10.5	18.7	21.8
Growing Degrees	5	2.4	0.0	3.7	5.3	7.0	2.9	3.3	2.1	0.0	2.1	28.8	44.5	27.0
	10	0.0	0.0	0.0	0.3	2.0	0.0	0.0	0.0	0.0	0.0	2.3	9.5	3.4

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.7	23.7	18.1
Precipitation - Reference Evapotranspiration	11.1	-20.4	-3.7
Number of Rainy Days	5.0	1.0	2.2
Number of Dry Days	0.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

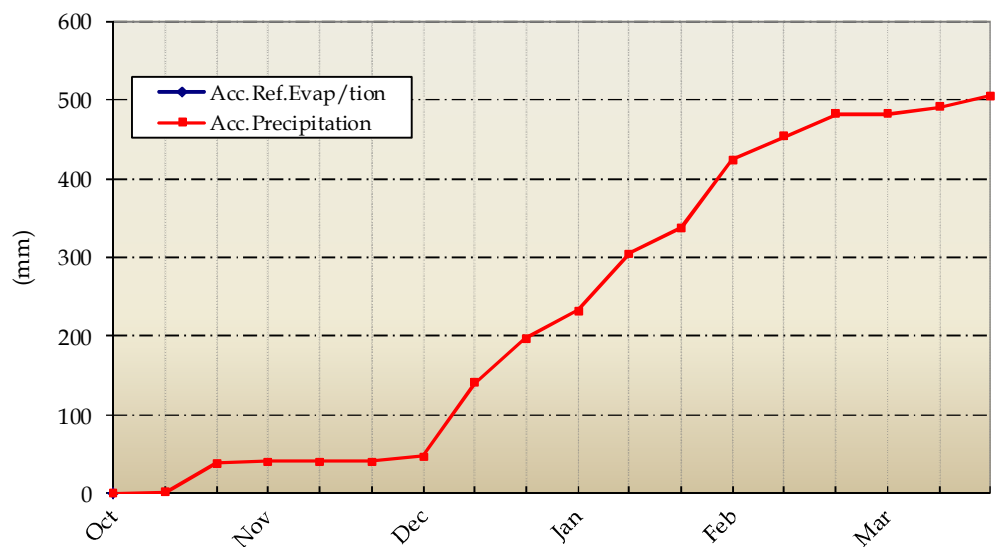


2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.3	16.2	17.2	18.7	15.5	15.3	14.2	15.1	16.3	17.2	16.1	18.5	15.7
	Min	8.3	2.6	6.8	9.2	9.3	9.2	6.2	4.3	7.3	9.4	7.3	4.9	6.3
Relative Humidity	Max	93	94	93	93	95	68	93	96	97	95	92	94	-
	Min	47	48	59	44	36	40	42	42	61	62	48	42	-
Soil Temperature at 10 cm	06 UTC	14.4	12.2	12.6	13.4	13.8	13.4	12.4	11.8	12.0	13.4	12.9	12.9	10.6
	12 UTC	13.8	14.0	14.4	14.0	14.4	13.2	13.4	12.8	13.4	14.4	13.8	14.4	12.8
Sunshine Duration		9.1	10.6	3.7	7.9	4.6	9.8	7.7	5.4	7.1	0.0	6.6	9.7	6.4
Precipitation		1.9				1.4		1.9	2.7	3.6	2.6	14.1	0.4	25.8
Evaporation		3.1	3.2	2.4	3.0	2.3	4.9	3.3	0.3	0.6	1.4	24.5	33.6	26.9
Growing Degrees	5	6.8	4.4	7.0	9.0	7.4	7.3	5.2	4.7	6.8	8.3	66.8	67.2	60.4
	10	1.8	0.0	2.0	4.0	2.4	2.3	0.2	0.0	1.8	3.3	17.7	19.3	15.6

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.3	-	21.0
Precipitation - Reference Evapotranspiration	-4.2	-	4.8
Number of Rainy Days	6.0	1.0	3.7
Number of Dry Days	0.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



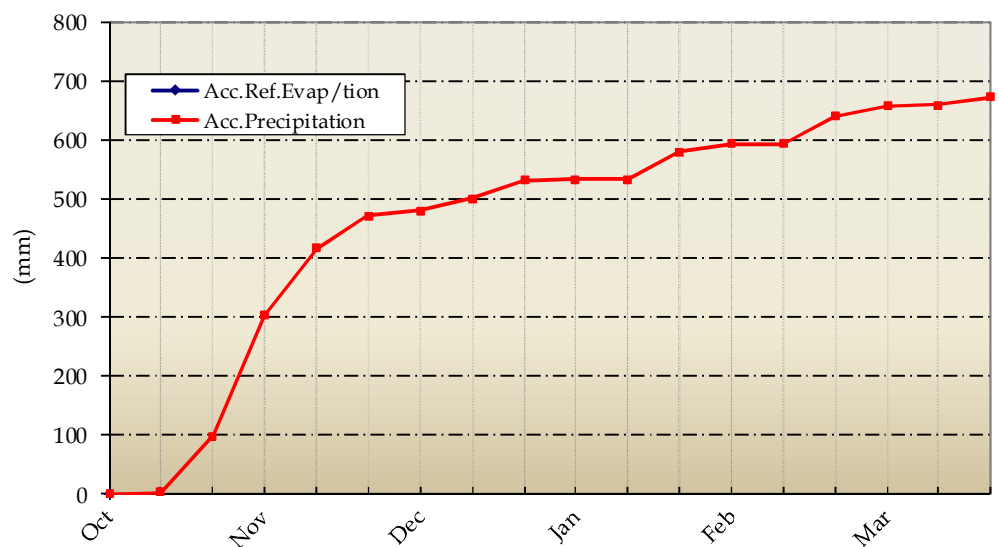
Iraklio

2nd 10-day period (11-20/03/2021)		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	14.0	17.2	16.0	20.4	18.4	15.6	15.8	20.0	20.4	17.6	16.5	15.9
	Min	11.0	10.8	8.0	11.6	11.0	10.4	10.0	10.4	9.4	12.2	10.5	11.5	9.4
Relative Humidity	Max	83	89	90	93	88	95	80	79	95	95	89	78	-
	Min	53	59	65	79	52	47	49	49	55	45	55	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.0	8.5	8.5	0.0	7.9	7.8	8.9	9.8	9.9	9.9	7.7	7.8	5.5
Precipitation		0.6			0.6		3.5	0.1		0.4	7.3	12.5	2.2	23.2
Evaporation		3.5	3.7	2.0	1.2	3.2	2.9	1.7	4.5	3.5	6.0	32.2	39.5	33.8
Growing Degrees	5	9.4	7.4	7.6	8.8	10.7	9.4	7.8	8.1	9.7	11.3	90.2	89.6	76.5
	10	4.4	2.4	2.6	3.8	5.7	4.4	2.8	3.1	4.7	6.3	40.2	39.6	28.0

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	23.2
Number of Rainy Days	6.0	1.0	3.5
Number of Dry Days	1.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

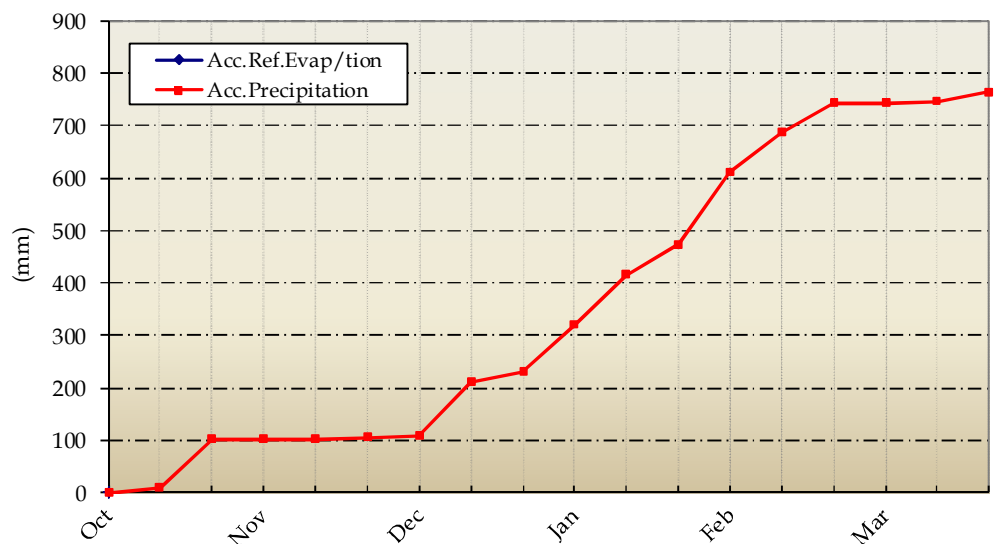


2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.5	15.2	16.6	13.4	10.4	10.1	11.2	10.1	12.3	8.6	12.1	19.3	12.6
	Min	4.2	-2.6	-1.1	1.9	3.4	1.6	-3.4	-3.7	0.0	1.9	0.2	1.5	2.7
Relative Humidity	Max	97	98	99	99	96	97	96	93	96	100	97	91	-
	Min	33	30	46	59	54	40	31	31	42	85	45	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.8
Sunshine Duration		9.4	9.1	5.3	2.1	2.6	5.4	8.1	4.4	5.3	0.0	5.2	8.2	4.5
Precipitation		1.0				12.7	0.4	0.0	0.0	0.1	2.9	17.1	1.3	29.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	18.6
Growing Degrees	5	3.9	1.3	2.8	2.7	1.9	0.9	0.0	0.0	1.2	0.3	14.7	53.7	28.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	3.0

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	16.8
Precipitation - Reference Evapotranspiration	-	-	12.7
Number of Rainy Days	5.0	1.0	3.4
Number of Dry Days	0.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

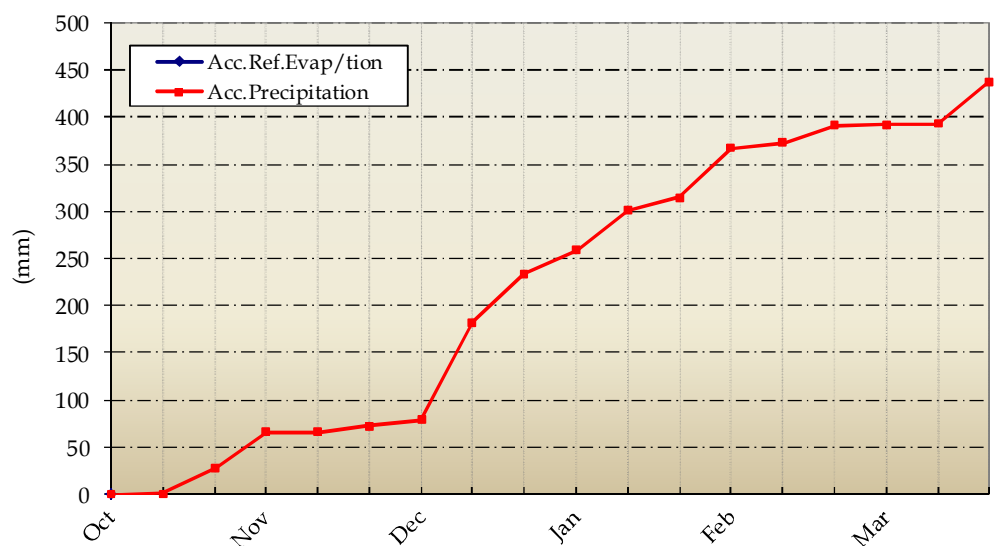


2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.8	17.5	19.4	17.3	15.7	15.7	13.9	15.8	17.5	18.8	16.7	19.2	16.3
	Min	8.8	2.9	4.3	6.7	5.7	5.6	3.0	0.7	9.0	9.2	5.6	6.3	5.8
Relative Humidity	Max	99	85	91	94	100	92	92	97	95	100	94	87	-
	Min	34	38	42	58	42	33	46	37	57	55	44	32	-
Soil Temperature at 10 cm	06 UTC	14.0	10.6	11.5	12.4	12.0	10.5	10.0	9.5	11.5	12.6	11.5	11.9	10.9
	12 UTC	14.4	14.0	14.0	13.6	12.5	12.3	11.8	12.0	13.0	14.0	13.2	14.9	13.0
Sunshine Duration		6.4	10.3	8.3	1.7	4.7	6.4	6.9	6.4	3.2	3.1	5.7	9.6	6.1
Precipitation		4.0				10.6	9.8	1.6	1.6	14.5	3.2	45.3	3.0	22.7
Evaporation		4.5	2.0	3.8	1.5	0.1	1.1	0.3	1.3	0.1	3.2	17.9	40.4	33.5
Growing Degrees	5	7.3	5.2	6.9	7.0	5.7	5.7	3.5	3.3	8.3	9.0	61.7	77.8	60.5
	10	2.3	0.2	1.9	2.0	0.7	0.7	0.0	0.0	3.3	4.0	15.0	28.1	15.1

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	32.9	21.7
Precipitation - Reference Evapotranspiration	-	-29.9	1.0
Number of Rainy Days	7.0	1.0	3.8
Number of Dry Days	8.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



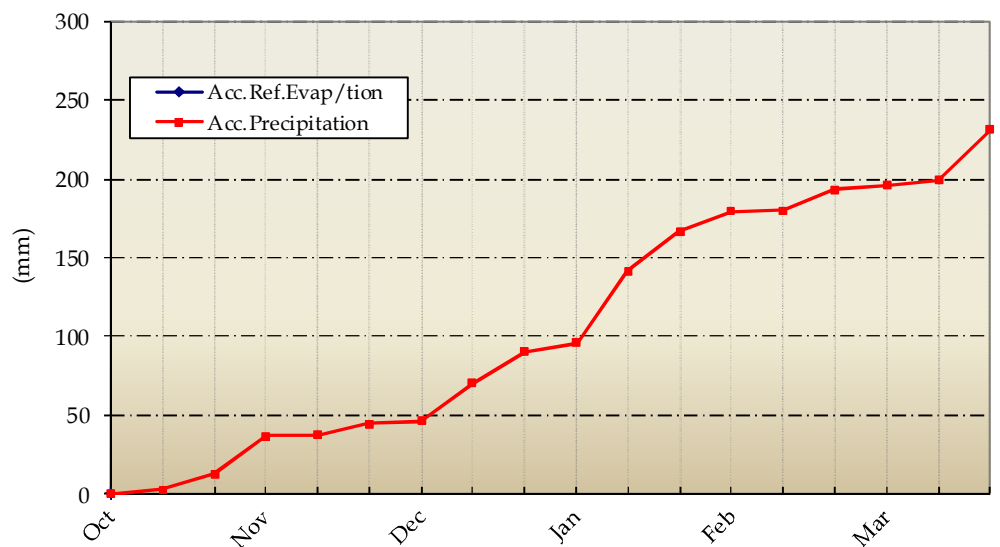
Larisa

2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.6	14.2	18.0	19.6	16.0	14.2	15.5	14.4	15.6	10.0	14.8	17.5	14.0
	Min	5.0	-3.2	0.6	3.2	3.6	6.5	1.4	-1.2	2.8	7.2	2.6	2.5	2.8
Relative Humidity	Max	92	96	96	98	94	63	75	78	87	99	88	93	-
	Min	44	46	43	47	36	32	23	31	42	78	42	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.5
Sunshine Duration		7.9	9.8	8.8	9.8	6.3	6.5	9.3	7.2	9.2	0.0	7.5	8.4	5.1
Precipitation		0.6									31.4	32.0	7.2	13.9
Evaporation		0.0	0.0	3.6	3.7	4.7	3.6	5.7	3.7	0.0	0.0	25.0	34.6	20.7
Growing Degrees	5	2.8	0.5	4.3	6.4	4.8	5.4	3.5	1.6	4.2	3.6	37.0	50.1	36.4
	10	0.0	0.0	0.0	1.4	0.0	0.4	0.0	0.0	0.0	0.0	1.8	10.2	5.5

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.4	23.6	18.5
Precipitation - Reference Evapotranspiration	9.6	-16.4	-4.6
Number of Rainy Days	2.0	2.0	3.1
Number of Dry Days	0.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



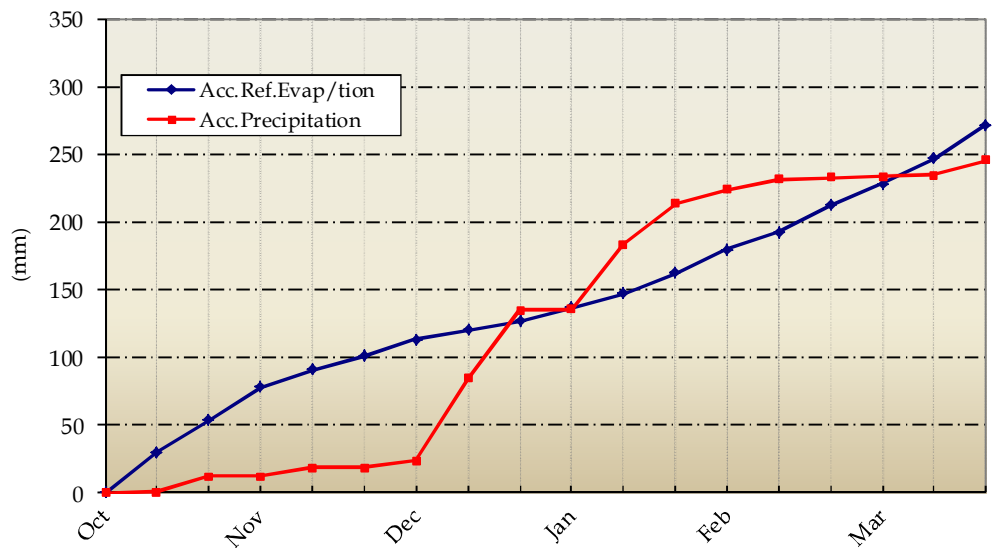
Mikra

2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	13.8	14.6	16.0	16.5	12.4	12.8	14.4	14.0	9.2	13.5	17.3	13.4
	Min	4.8	0.2	4.9	5.2	8.3	8.4	9.4	7.1	5.0	7.6	6.1	4.7	4.2
Relative Humidity	Max	86	89	93	94	94	63	59	67	79	93	82	90	-
	Min	44	45	62	71	38	41	32	30	47	81	49	43	-
Soil Temperature at 10 cm	06 UTC	8.8	7.1	9.2	10.2	11.4	10.2	10.0	9.2	10.0	10.6	9.7	10.4	8.1
	12 UTC	8.8	10.1	11.4	12.8	12.8	11.2	11.0	12.4	12.2	11.0	11.4	12.2	10.7
Sunshine Duration		2.5	9.2	6.5	8.2	4.2	5.6	9.9	10.5	7.0	0.0	6.4	9.0	4.9
Precipitation		2.4								0.2	8.4	11.0	15.2	13.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	27.0
Growing Degrees	5	3.0	2.0	4.8	5.6	7.4	5.4	6.1	5.8	4.5	3.4	47.9	60.1	38.9
	10	0.0	0.0	0.0	0.6	2.4	0.4	1.1	0.8	0.0	0.0	5.3	14.7	5.9

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.2	23.7	20.0
Precipitation - Reference Evapotranspiration	-14.2	-8.5	-6.5
Number of Rainy Days	3.0	2.0	3.0
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

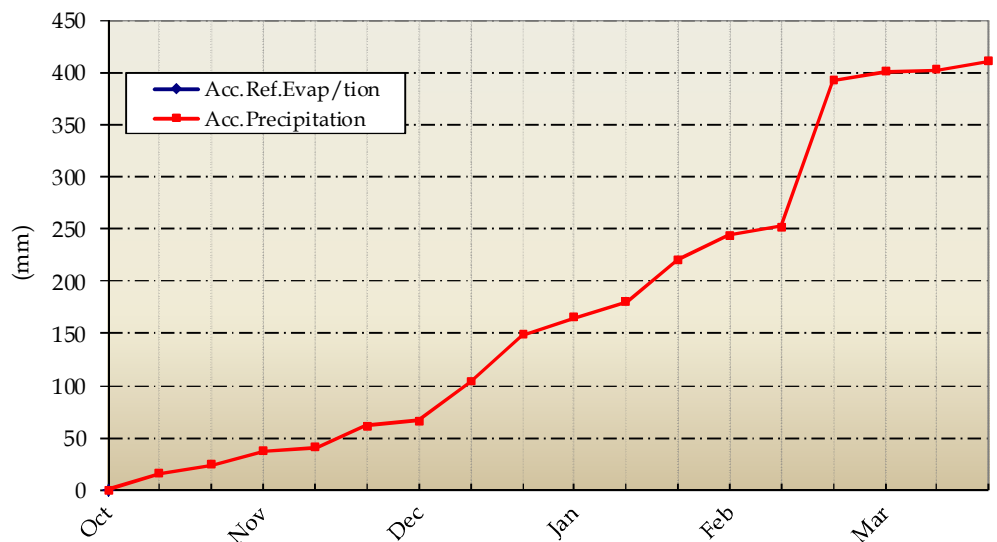


2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	14.8	18.5	17.5	16.6	15.0	15.4	15.5	18.0	11.6	15.2	16.2	14.3
	Min	7.4	1.7	1.6	8.4	4.8	7.9	1.7	0.7	7.1	8.1	4.9	4.4	4.4
Relative Humidity	Max	88	99	100	96	93	67	75	88	100	100	91	86	-
	Min	58	45	38	45	39	28	21	23	34	81	41	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.1	9.8	6.7	4.4	7.2	10.3	10.7	8.1	8.2	0.0	6.6	8.1	
Precipitation		4.7	0.4						0.0	0.1	3.3	8.5	0.3	16.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	3.5	3.3	5.1	8.0	5.7	6.5	3.6	3.1	7.6	4.9	51.0	53.0	
	10	0.0	0.0	0.1	3.0	0.7	1.5	0.0	0.0	2.6	0.0	7.7	12.3	

2nd 10-day period (11-20/03/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	16.7
Number of Rainy Days	4.0	1.0
Number of Dry Days	3.0	5.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



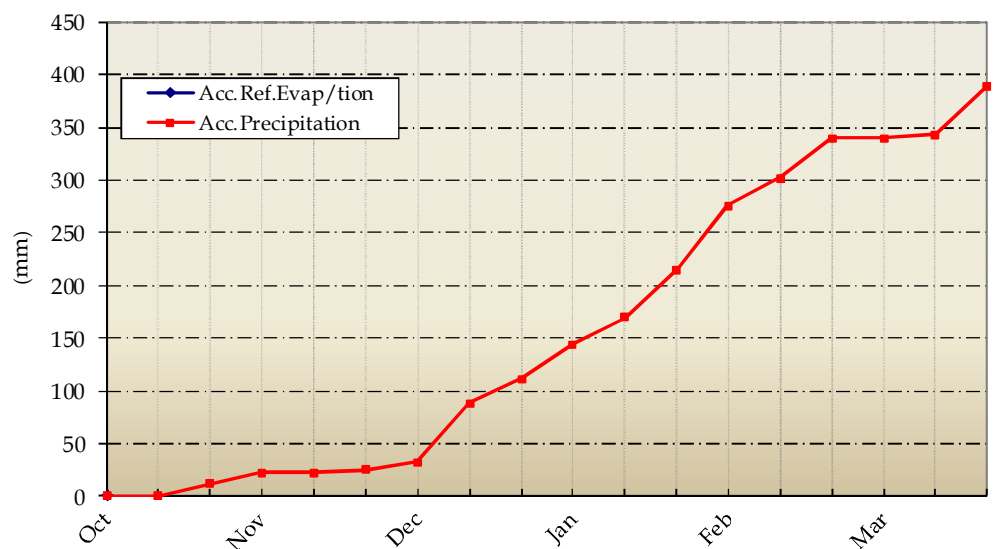
Tripoli

2nd 10-day period (11-20/03/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.8	14.6	15.2	14.4	10.1	10.9	10.6	11.2	13.4	15.0	12.6	18.2	12.2
	Min	4.9	-3.4	-0.9	2.2	3.2	3.7	1.7	1.8	3.0	6.2	2.2	0.4	1.7
Relative Humidity	Max	96	99	97	96	89	76	83	98	99	97	93	85	-
	Min	38	35	44	47	51	26	31	26	46	57	40	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.1
Sunshine Duration		8.3	9.5	5.6	2.9	2.9	9.5	9.1	7.9	5.4	2.5	6.4	8.4	5.7
Precipitation		8.1				5.7	0.1	0.7	3.3	25.7	3.1	46.7		22.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	20.1
Growing Degrees	5	2.9	0.6	2.2	3.3	1.7	2.3	1.2	1.5	3.2	5.6	24.3	-	24.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	-	2.5

2nd 10-day period (11-20/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.4	-	19.5
Precipitation - Reference Evapotranspiration	26.3	-	2.8
Number of Rainy Days	7.0	0.0	4.1
Number of Dry Days	3.0	11.0	-

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

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