



AGROMETEOROLOGICAL BULLETIN

November 2021
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



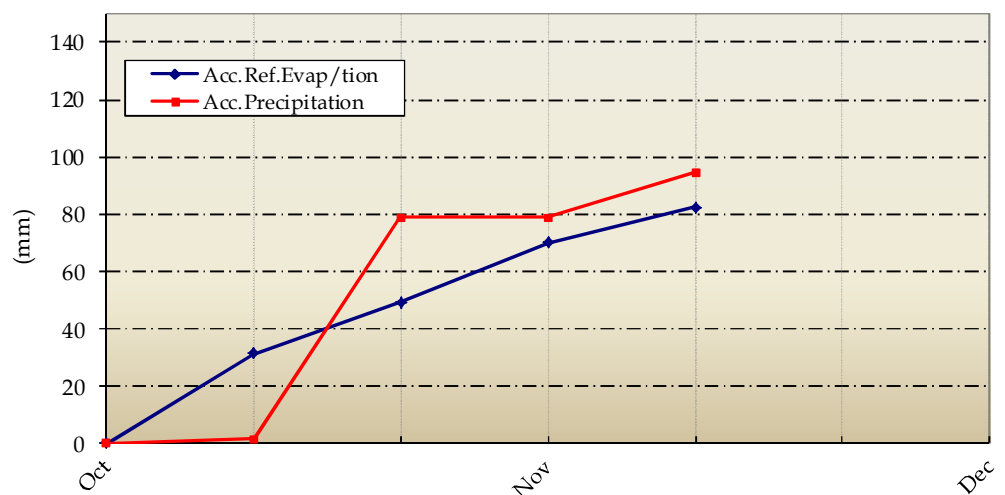
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.0	17.4	20.8	22.6	21.4	19.6	18.0	16.2	17.8	14.2	18.7	18.1	17.3
	Min	11.2	6.8	10.8	11.2	11.8	11.2	13.8	10.0	10.0	8.0	10.5	9.7	8.1
Relative Humidity	Max	92	96	95	95	98	100	95	95	93	86	94	88	90
	Min	55	85	64	62	60	65	67	77	66	34	64	57	57
Soil Temperature at 10 cm	06 UTC	14.6	13.4	14.4	15.4	15.4	15.4	16.0	14.6	14.6	12.4	14.6	13.8	12.6
	12 UTC	16.4	14.8	17.6	18.2	18.6	17.6	16.8	15.2	16.4	13.6	16.5	15.2	14.4
Sunshine Duration		3.5	0.0	7.2	7.8	4.6	4.3	2.6	2.5	1.6	8.5	4.3	5.4	5.5
Precipitation		0.9	14.6									15.5		18.8
Evaporation		2.4	1.4	0.5	1.8	2.7	1.8	2.0	0.4	1.7	1.1	15.8	30.6	23.6
Growing Degrees	5	10.1	7.1	10.8	11.9	11.6	10.4	10.9	8.1	8.9	6.1	95.9	89.3	72.3
	10	5.1	2.1	5.8	6.9	6.6	5.4	5.9	3.1	3.9	1.1	45.9	39.3	30.8

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.2	16.0	11.7
Precipitation - Reference Evapotranspiration	3.3	-16.0	7.1
Number of Rainy Days	2.0	0.0	1.5
Number of Dry Days	14.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

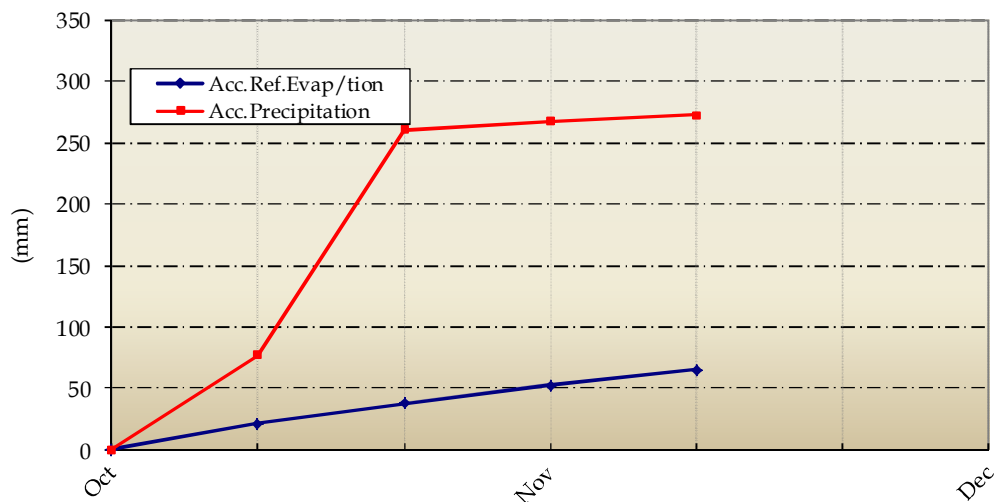


1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.9	23.9	23.6	26.2	28.9	27.5	27.6	23.2	22.1	21.9	24.6	22.4	21.1
	Min	8.1	15.6	13.3	13.0	11.2	11.3	13.8	15.2	14.2	13.6	12.9	9.4	11.0
Relative Humidity	Max	96	98	95	94	96	98	98	97	97	98	97	93	92
	Min	53	60	57	44	34	41	36	68	66	48	51	47	50
Soil Temperature at 10 cm	06 UTC	15.6	16.0	17.6	17.2	17.4	17.4	18.0	18.6	18.0	18.2	17.4	16.6	15.4
	12 UTC	17.2	18.0	19.2	19.0	20.0	19.0	20.6	19.8	20.0	20.2	19.3	18.9	18.4
Sunshine Duration		3.7	3.9	8.5	8.0	7.8	7.5	6.9	6.5	0.2	3.9	5.7	6.7	5.9
Precipitation		0.0	5.0									5.0		29.5
Evaporation		2.9	2.8	0.4	1.0	1.0	1.8	1.7	1.0	1.6	1.4	15.6	21.2	38.3
Growing Degrees	5	9.5	14.8	13.5	14.6	15.1	14.4	15.7	14.2	13.2	12.8	137.6	109.3	93.5
	10	4.5	9.8	8.5	9.6	10.1	9.4	10.7	9.2	8.2	7.8	87.6	59.3	51.4

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.4	-	15.4
Precipitation - Reference Evapotranspiration	-7.4	-	14.1
Number of Rainy Days	1.0	0.0	2.2
Number of Dry Days	7.0	13.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



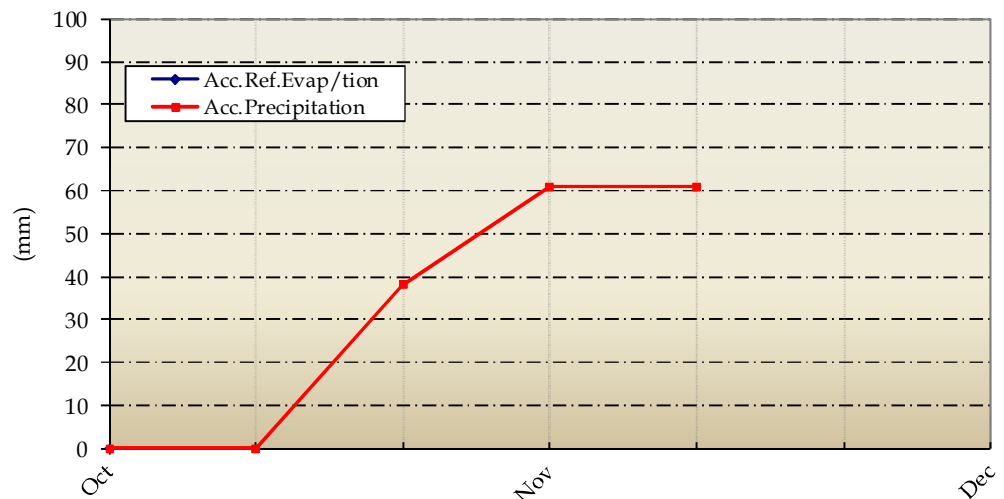
Iraklio

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	26.4	24.0	23.8	22.6	22.0	22.0	21.4	21.6	19.6	22.3	20.5	22.0
	Min	17.2	13.0	18.2	16.4	16.2	14.6	17.0	15.2	14.0	17.6	15.9	17.0	15.2
Relative Humidity	Max	91	88	92	92	91	98	96	95	96	84	92	89	86
	Min	66	52	72	70	71	81	74	73	76	63	70	68	60
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.6	8.4	8.9	8.8	5.1	8.3	6.4	7.1	5.6	1.0	6.4	3.4	5.4
Precipitation													113.7	18.9
Evaporation		1.8	1.3	2.5	3.1	0.8	1.9	0.8	1.5	6.0	3.2	22.9	22.4	35.6
Growing Degrees	5	13.6	14.7	16.1	15.1	14.4	13.3	14.5	13.3	12.8	13.6	141.4	137.6	131.6
	10	8.6	9.7	11.1	10.1	9.4	8.3	9.5	8.3	7.8	8.6	91.4	87.6	82.8

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	0.0	6.0	2.4
Number of Dry Days	10.0	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

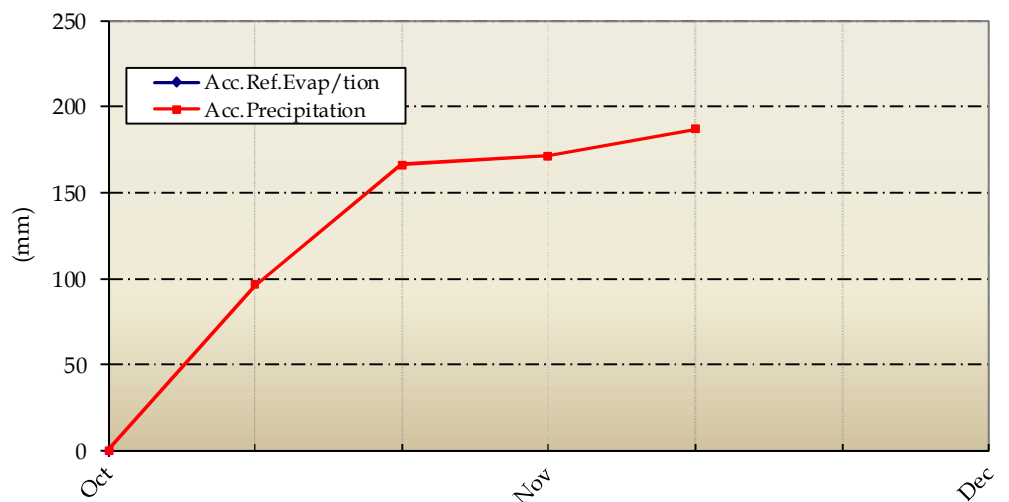


1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.5	19.6	20.5	23.6	25.1	27.0	23.5	21.4	21.2	19.5	21.8	19.7	17.1
	Min	-0.3	11.4	10.6	10.8	14.0	9.4	8.2	5.4	10.4	11.6	9.2	4.3	5.8
Relative Humidity	Max	100	99	100	96	94	97	100	100	97	95	98	98	98
	Min	44	67	48	41	36	30	56	55	56	60	49	45	56
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.4
Sunshine Duration		4.7	1.9	6.3	8.2	6.4	4.5	4.5	7.0	7.2	1.8	5.2	6.3	3.8
Precipitation			15.6									15.6		39.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	3.1	10.5	10.6	12.2	14.6	13.2	10.9	8.4	10.8	10.6	104.7	69.9	54.6
	10	0.0	5.5	5.6	7.2	9.6	8.2	5.9	3.4	5.8	5.6	56.6	21.0	17.8

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	10.1
Precipitation - Reference Evapotranspiration	-	-	29.5
Number of Rainy Days	1.0	0.0	2.9
Number of Dry Days	8.0	25.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

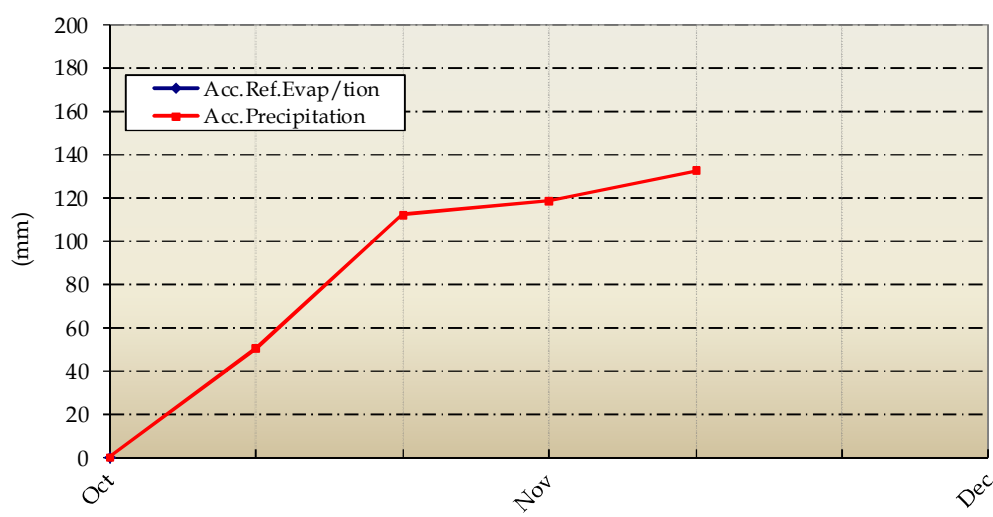


1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	24.7	23.1	-	28.2	28.9	24.3	23.3	22.7	23.8	24.5	23.3	22.0
	Min	8.8	15.7	11.6	11.4	12.5	11.3	13.3	13.2	14.9	12.4	12.5	11.2	10.7
Relative Humidity	Max	95	98	97	97	95	92	97	96	95	94	96	86	91
	Min	44	66	60	63	42	39	59	67	62	44	55	39	47
Soil Temperature at 10 cm	06 UTC	14.6	17.2	15.0	17.0	16.2	17.2	17.2	17.8	18.6	17.8	16.9	16.4	16.1
	12 UTC	20.4	19.4	20.8	21.0	21.2	18.4	18.4	18.8	18.8	18.6	19.6	17.6	17.5
Sunshine Duration		4.1	3.1	8.3	7.8	7.7	5.1	5.0	6.5	1.9	5.2	5.5	7.8	6.5
Precipitation		0.0	14.2									14.2		27.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	28.6	26.8
Growing Degrees	5	10.1	15.2	12.4	-	15.4	15.1	13.8	13.3	13.8	13.1	-	122.2	103.1
	10	5.1	10.2	7.4	-	10.4	10.1	8.8	8.3	8.8	8.1	-	72.2	57.9

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	19.3
Precipitation - Reference Evapotranspiration	-	-	8.4
Number of Rainy Days	1.0	0.0	2.3
Number of Dry Days	6.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



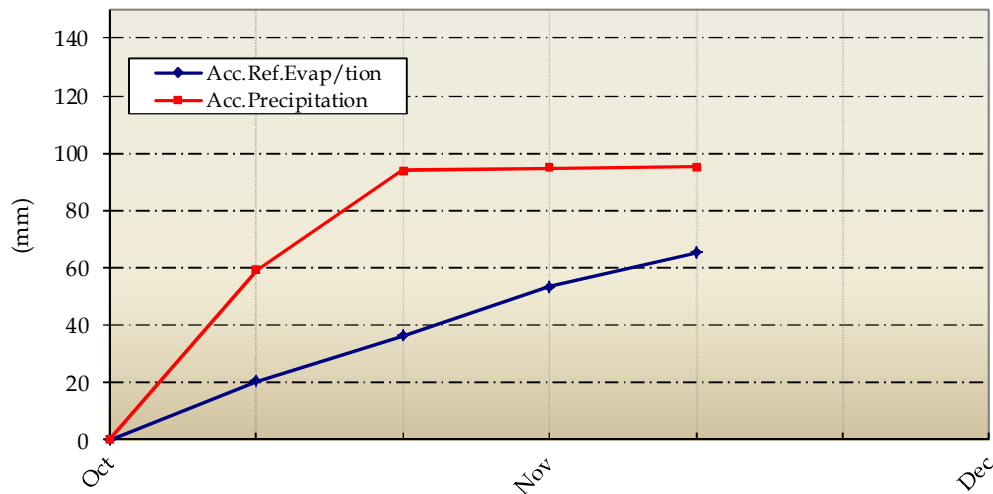
Larisa

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.0	18.2	23.2	22.4	20.2	17.2	21.8	21.2	18.4	16.2	19.7	18.9	18.5
	Min	5.5	9.8	6.8	8.6	11.0	10.2	10.0	7.4	10.6	11.6	9.2	8.6	7.4
Relative Humidity	Max	99	99	99	99	100	100	100	100	100	94	99	95	96
	Min	52	70	45	58	71	83	64	62	73	66	64	56	52
Soil Temperature at 10 cm	06 UTC	12.0	14.4	13.2	14.2	14.2	14.4	15.0	14.4	15.2	15.0	14.2	-	13.6
	12 UTC	16.0	15.4	16.6	17.2	16.6	16.6	17.2	16.8	16.4	15.0	16.4	-	14.4
Sunshine Duration		7.7	0.9	8.3	7.3	4.6	1.0	4.0	6.3	0.0	0.0	4.0		4.3
Precipitation			0.2									0.2	0.6	11.7
Evaporation		1.9	0.9	1.5	3.5	1.0	0.1	2.6	0.2	1.8	1.5	15.0	19.3	29.2
Growing Degrees	5	6.8	9.0	10.0	10.5	10.6	8.7	10.9	9.3	9.5	8.9	94.2	87.6	75.3
	10	1.8	4.0	5.0	5.5	5.6	3.7	5.9	4.3	4.5	3.9	44.2	37.6	30.4

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.6	-	9.6
Precipitation - Reference Evapotranspiration	-11.4	-	2.1
Number of Rainy Days	1.0	1.0	2.0
Number of Dry Days	7.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



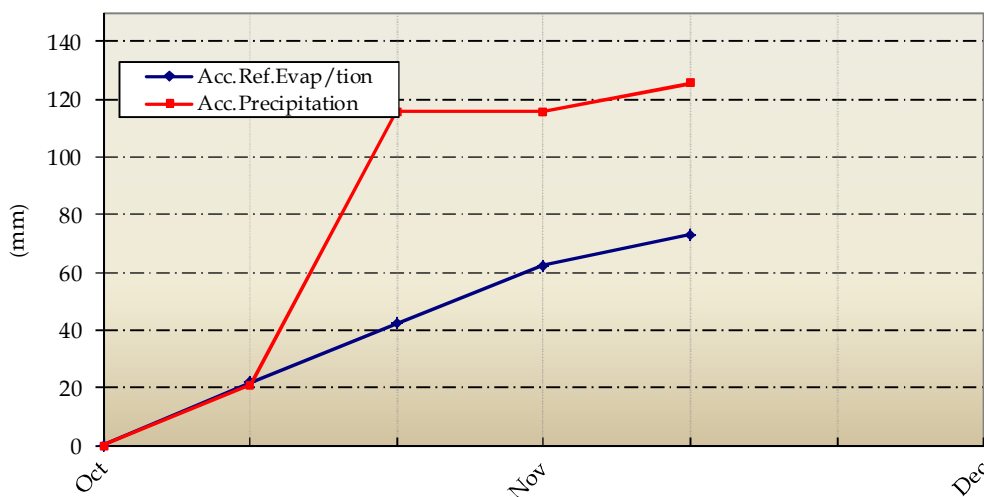
Mikra

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	16.1	18.7	18.6	20.6	21.1	19.4	18.0	19.3	16.5	18.6	19.3	17.8
	Min	6.1	9.4	11.0	13.3	15.0	13.0	12.4	12.2	15.4	9.9	11.8	9.9	9.2
Relative Humidity	Max	93	98	100	94	97	100	100	99	89	92	96	94	88
	Min	52	79	80	78	69	68	81	77	59	60	70	51	54
Soil Temperature at 10 cm	06 UTC	13.4	14.0	14.8	15.6	16.6	-	16.4	16.6	17.0	16.0	15.6	15.6	13.3
	12 UTC	15.4	14.4	16.0	16.6	17.2	17.6	17.4	17.4	17.8	17.4	16.7	17.4	15.6
Sunshine Duration		8.6	1.0	6.4	0.9	0.6	5.1	3.3	0.1	2.7	0.0	2.9	5.4	5.0
Precipitation			8.9								1.1	10.0	6.4	10.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	23.9
Growing Degrees	5	6.9	7.8	9.9	11.0	12.8	12.1	10.9	10.1	12.4	8.2	101.8	95.8	79.8
	10	1.9	2.8	4.9	6.0	7.8	7.1	5.9	5.1	7.4	3.2	51.8	45.8	34.9

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.8	12.9	9.2
Precipitation - Reference Evapotranspiration	-0.8	-6.5	1.3
Number of Rainy Days	2.0	2.0	1.7
Number of Dry Days	14.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



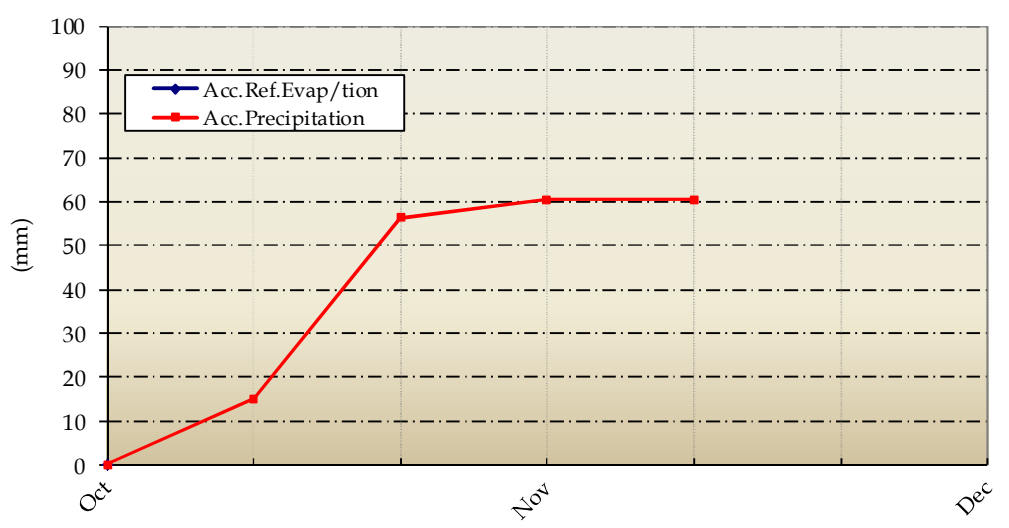
Tanagra

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	23.0	24.0	22.8	23.4	20.4	21.6	20.5	17.9	15.3	20.8	18.9	19.2
	Min	9.0	9.3	8.8	7.8	13.6	15.0	12.2	9.6	10.2	13.4	10.9	12.0	10.0
Relative Humidity	Max	97	97	96	100	100	100	100	100	100	70	96	86	93
	Min	43	56	36	51	59	77	57	60	72	44	56	52	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.8	2.5	8.3	8.4	5.6	1.2	6.7	7.1	0.0	4.8	5.1	3.0	5.0
Precipitation			0.0				0.0					0.0	3.1	20.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	29.3
Growing Degrees	5	9.2	11.2	11.4	10.3	13.5	12.7	11.9	10.1	9.1	9.4	108.6	104.5	82.8
	10	4.2	6.2	6.4	5.3	8.5	7.7	6.9	5.1	4.1	4.4	58.6	54.5	40.7

1st 10-day period (1-10/11/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	0.0	1.0
Number of Dry Days	10.0	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



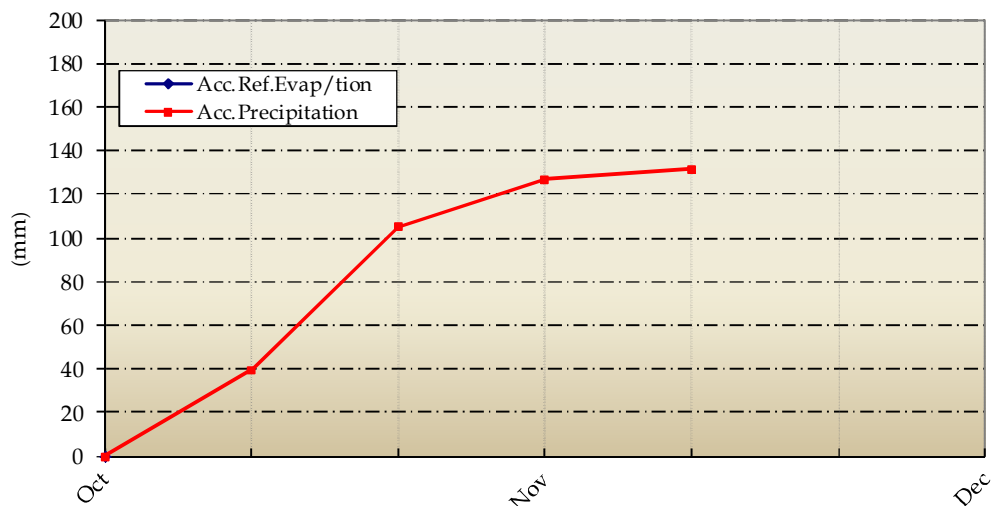
Tripoli

1st 10-day period (1-10/11/2021)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	19.1	21.6	24.0	25.8	25.8	24.5	22.7	16.6	13.0	21.0	17.6	17.8
	Min	4.2	11.6	5.7	3.6	6.3	7.1	7.5	4.9	9.1	11.4	7.1	6.6	5.1
Relative Humidity	Max	100	97	99	99	99	96	92	99	100	83	96	93	95
	Min	44	71	33	35	28	32	27	29	79	58	44	48	46
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.4
Sunshine Duration		2.8	2.3	8.7	7.6	7.2	5.1	5.7	7.4	0.0	2.0	4.9	5.6	6.0
Precipitation		0.0	4.6						0.0	0.4		5.0	0.0	19.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	27.9
Growing Degrees	5	5.6	10.4	8.7	8.8	11.1	11.5	11.0	8.8	7.9	7.2	90.8	71.0	54.3
	10	0.6	5.4	3.7	3.8	6.1	6.5	6.0	3.8	2.9	2.2	40.8	21.2	17.6

1st 10-day period (1-10/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.2	-	10.0
Precipitation - Reference Evapotranspiration	-9.2	-	9.1
Number of Rainy Days	2.0	0.0	1.9
Number of Dry Days	7.0	13.0	-

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.

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