



# AGROMETEOROLOGICAL BULLETIN

*November 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



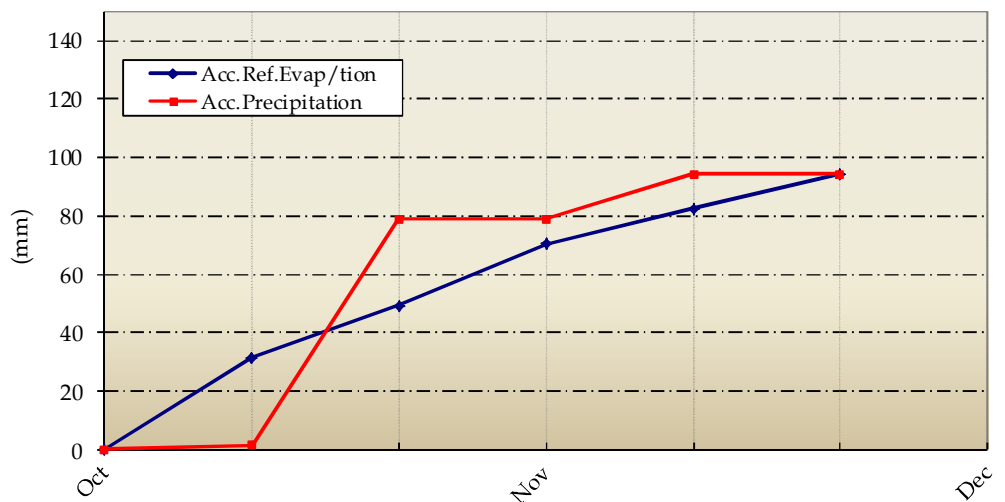
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS  
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2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	15.8	14.6	14.0	17.2	14.4	11.6	13.4	12.8	14.4	14.1	16.4	15.4
	Min	7.0	4.6	3.4	4.2	6.6	10.8	8.0	8.8	7.8	1.4	6.3	7.7	7.0
Relative Humidity	Max	81	85	93	94	91	75	76	81	89	91	86	91	90
	Min	45	41	58	71	43	50	50	54	55	44	51	66	60
Soil Temperature at 10 cm	06 UTC	10.4	10.4	10.0	10.4	10.6	11.4	11.6	11.4	11.6	8.2	10.6	12.3	11.5
	12 UTC	12.6	12.8	12.6	13.6	12.8	13.6	11.8	12.5	11.8	11.2	12.5	13.6	13.0
Sunshine Duration		5.8	8.8	7.5	2.0	6.9	3.3	0.0	1.2	0.5	7.2	4.3	4.3	4.3
Precipitation													0.1	23.1
Evaporation		4.6	2.4	2.6	3.4	2.0	3.1	4.4	1.7	4.5	1.0	29.7	29.0	18.6
Growing Degrees	5	5.0	5.2	4.0	4.1	6.9	7.6	4.8	6.1	5.3	2.9	51.9	70.7	56.5
	10	0.0	0.2	0.0	0.0	1.9	2.6	0.0	1.1	0.3	0.0	6.1	20.7	19.6

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.9	11.1	10.4
Precipitation - Reference Evapotranspiration	-11.9	-11.0	12.7
Number of Rainy Days	0.0	1.0	2.6
Number of Dry Days	18.0	18.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

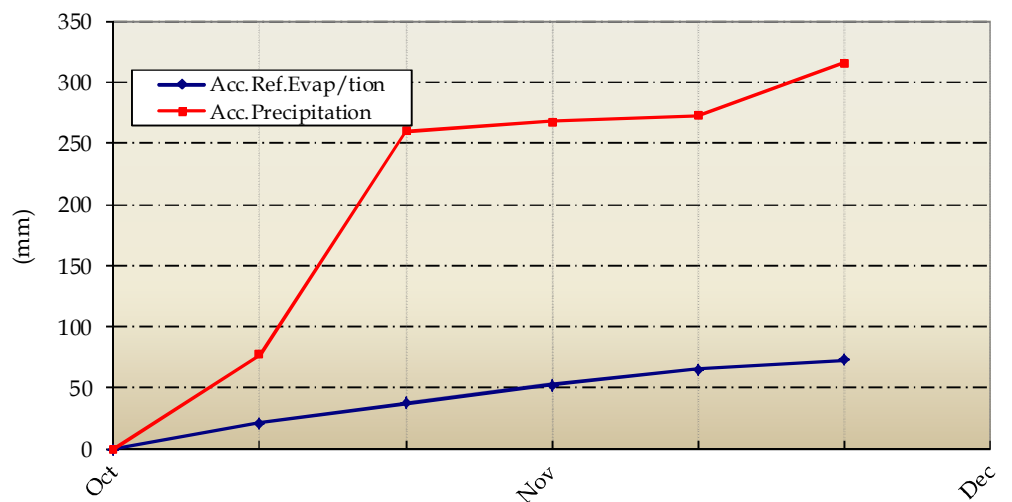


2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	20.0	18.2	20.8	20.9	20.6	17.8	18.6	19.2	18.4	19.6	20.7	19.4
	Min	8.9	5.2	7.0	10.7	13.9	10.3	8.8	12.0	10.3	6.8	9.4	8.4	10.3
Relative Humidity	Max	93	95	98	98	98	98	96	98	99	98	97	91	92
	Min	34	48	58	58	59	53	64	69	66	51	56	50	52
Soil Temperature at 10 cm	06 UTC	17.0	16.2	16.0	16.2	17.2	16.4	15.4	16.6	16.4	16.0	16.3	15.3	14.0
	12 UTC	17.8	18.4	16.0	16.0	17.8	16.8	16.6	17.0	17.0	15.2	16.9	17.1	16.5
Sunshine Duration		4.4	7.9	1.7	1.3	2.0	4.0	0.2	1.1	4.6	7.3	3.4	5.7	5.4
Precipitation				6.3	0.1	4.0	0.3		25.4	7.2		43.3	0.0	47.8
Evaporation		1.0	0.6	1.0	1.4	0.3	0.2	0.9	1.0	0.8	0.6	7.8	15.0	55.5
Growing Degrees	5	10.1	7.6	7.6	10.8	12.4	10.5	8.3	10.3	9.8	7.6	94.8	95.5	84.8
	10	5.1	2.6	2.6	5.8	7.4	5.5	3.3	5.3	4.8	2.6	44.8	45.5	41.7

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.2	-	7.3
Precipitation - Reference Evapotranspiration	35.1	-	40.5
Number of Rainy Days	6.0	0.0	3.4
Number of Dry Days	10.0	23.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



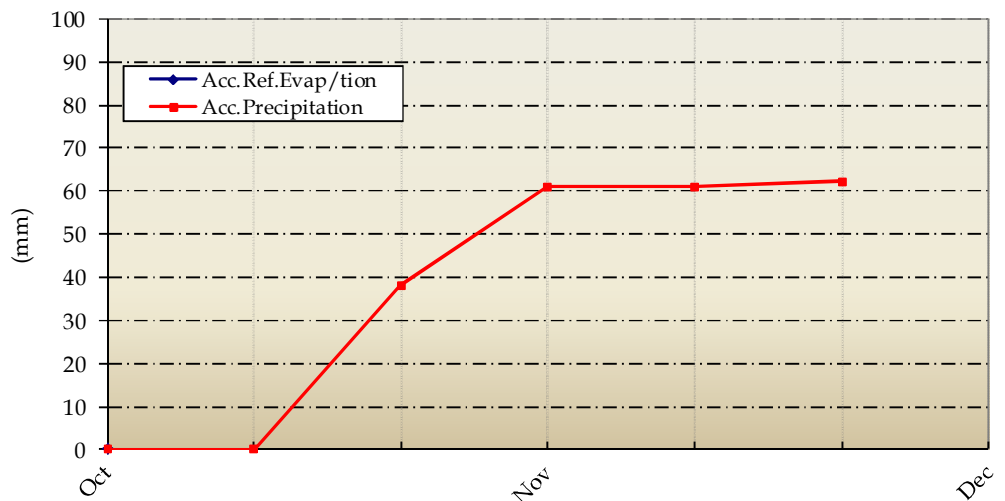
Iraklio

2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.2	19.4	20.0	21.4	20.2	19.6	18.6	18.4	18.4	15.6	19.0	18.6	20.6
	Min	16.4	15.4	15.0	15.4	14.6	16.2	15.8	14.4	12.0	15.0	15.0	14.6	14.0
Relative Humidity	Max	70	89	89	91	92	89	87	90	93	68	86	89	86
	Min	62	63	63	67	71	72	69	68	56	55	65	66	61
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		2.3	5.7	1.9	6.3	3.3	2.0	1.2	2.7	0.7	1.9	2.8	4.8	5.1
Precipitation							0.9	0.3			0.0	1.2	54.5	23.1
Evaporation		3.6	0.8	3.7	0.7	9.7	0.4	1.7	0.9	3.4	4.1	29.0	-	29.1
Growing Degrees	5	12.3	12.4	12.5	13.4	12.4	12.9	12.2	11.4	10.2	10.3	120.0	115.9	118.0
	10	7.3	7.4	7.5	8.4	7.4	7.9	7.2	6.4	5.2	5.3	70.0	65.9	69.5

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	2.0	5.0	2.7
Number of Dry Days	15.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

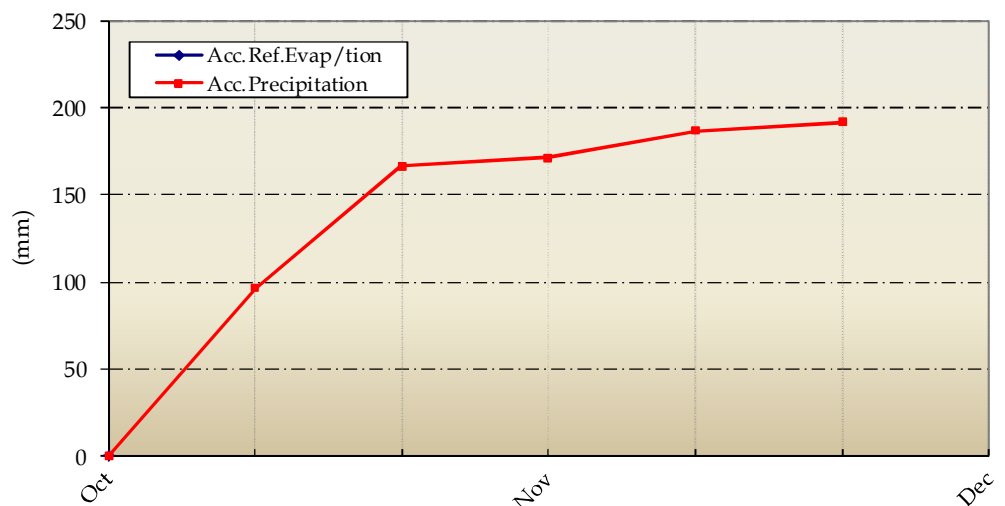


2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.5	18.0	17.2	17.0	14.6	17.2	16.3	12.9	16.8	19.5	16.5	16.6	14.8
	Min	3.4	1.7	-0.8	4.2	7.6	11.3	3.6	4.5	7.9	0.9	4.4	3.0	4.6
Relative Humidity	Max	94	100	100	97	99	90	98	100	100	98	98	99	97
	Min	42	37	44	73	54	44	52	85	60	48	54	51	61
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.6
Sunshine Duration		2.6	7.5	7.3	1.6	0.0	6.7	2.4	0.0	5.2	6.1	3.9	5.0	3.3
Precipitation						0.0			1.3	3.8		5.1	3.2	45.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	4.5	4.9	3.2	5.6	6.1	9.3	5.0	3.7	7.4	5.2	54.7	47.9	38.4
	10	0.0	0.0	0.0	0.6	1.1	4.3	0.0	0.0	2.4	0.2	8.5	7.0	7.0

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	7.4
Precipitation - Reference Evapotranspiration	-	-	38.3
Number of Rainy Days	2.0	1.0	3.5
Number of Dry Days	15.0	32.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

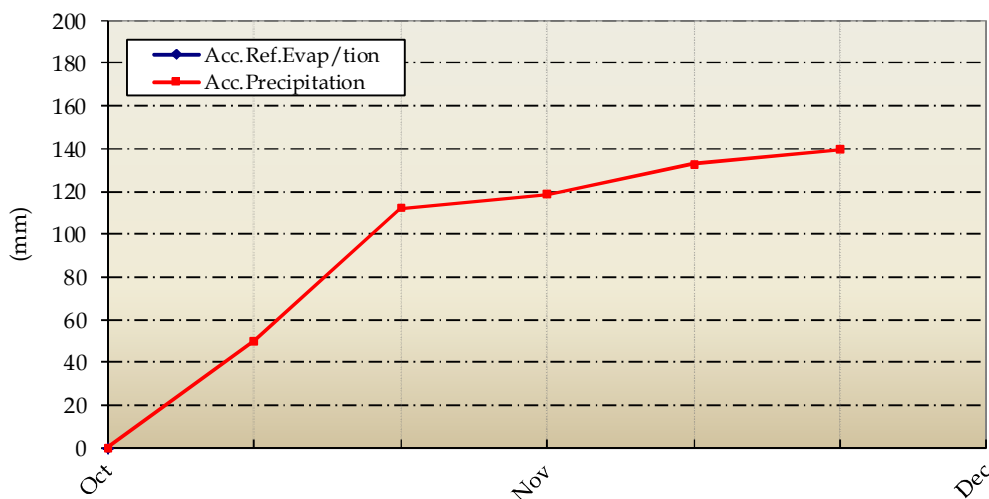


2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	20.9	20.5	21.9	22.0	19.3	20.1	20.3	20.0	20.6	20.7	21.6	20.2
	Min	10.7	8.5	9.1	11.3	14.2	13.8	9.7	9.9	12.5	7.7	10.7	10.1	9.8
Relative Humidity	Max	67	81	92	95	96	89	88	95	97	92	89	90	92
	Min	37	52	59	60	61	62	56	61	65	47	56	43	52
Soil Temperature at 10 cm	06 UTC	16.4	15.6	16.0	16.2	17.6	16.8	16.0	15.6	16.2	15.2	16.2	15.2	15.0
	12 UTC	18.4	17.0	-	17.4	17.6	17.0	17.0	17.2	17.0	15.6	17.1	17.4	16.3
Sunshine Duration		3.9	7.7	4.7	6.1	4.4	0.9	3.9	5.1	2.4	8.0	4.7	6.7	5.6
Precipitation						4.1	1.3	0.0	0.1	1.4		6.9	6.3	43.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	21.9	26.9
Growing Degrees	5	11.2	9.7	9.8	11.6	13.1	11.6	9.9	10.1	11.3	9.2	107.3	108.1	91.1
	10	6.2	4.7	4.8	6.6	8.1	6.6	4.9	5.1	6.3	4.2	57.3	58.1	45.3

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	17.3
Precipitation - Reference Evapotranspiration	-	-	26.1
Number of Rainy Days	4.0	2.0	3.4
Number of Dry Days	12.0	18.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



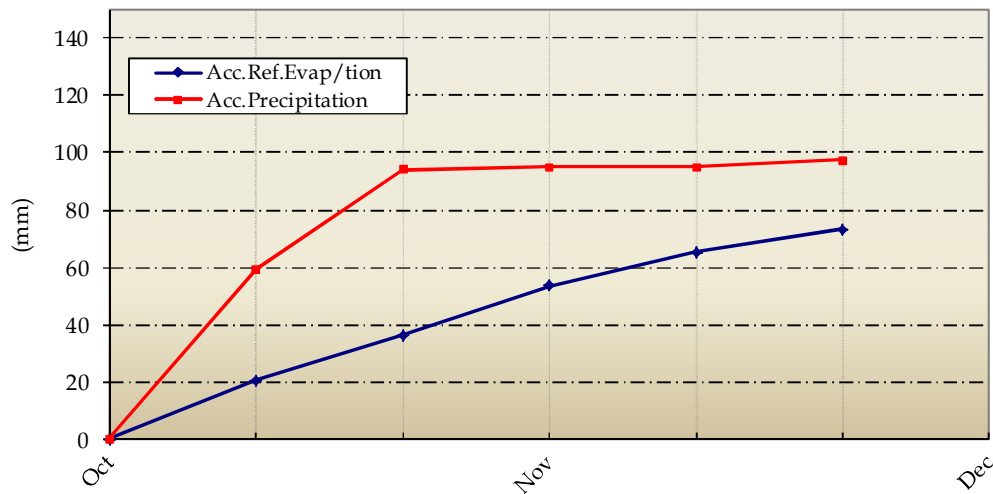
Larisa

2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.0	16.2	15.8	15.0	13.0	14.0	13.4	15.7	13.8	15.6	14.6	16.8	16.1
	Min	3.7	1.4	0.4	4.8	11.6	11.8	10.9	8.0	9.8	1.0	6.3	7.1	6.5
Relative Humidity	Max	96	98	97	93	98	93	93	100	98	96	96	94	96
	Min	52	42	53	62	83	64	70	65	63	49	60	56	59
Soil Temperature at 10 cm	06 UTC	12.4	11.0	10.4	11.6	13.6	13.6	12.0	12.0	13.6	10.6	12.1	-	12.1
	12 UTC	14.2	13.6	12.8	13.0	13.8	13.8	13.0	14.2	14.0	12.4	13.5	-	12.8
Sunshine Duration		2.4	7.3	7.7	1.8	0.0	0.0	0.0	2.4	0.3	6.8	2.9		3.5
Precipitation						1.7				0.7		2.4	6.9	16.4
Evaporation		1.9	1.4	0.9	1.0	1.7	1.5	0.5	0.0	0.7	2.8	12.4	16.3	14.2
Growing Degrees	5	3.9	3.8	3.1	4.9	7.3	7.9	7.2	6.9	6.8	3.3	55.0	69.4	58.3
	10	0.0	0.0	0.0	0.0	2.3	2.9	2.2	1.9	1.8	0.0	11.0	19.7	17.5

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.9	-	10.3
Precipitation - Reference Evapotranspiration	-5.5	-	6.1
Number of Rainy Days	2.0	2.0	3.2
Number of Dry Days	12.0	14.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



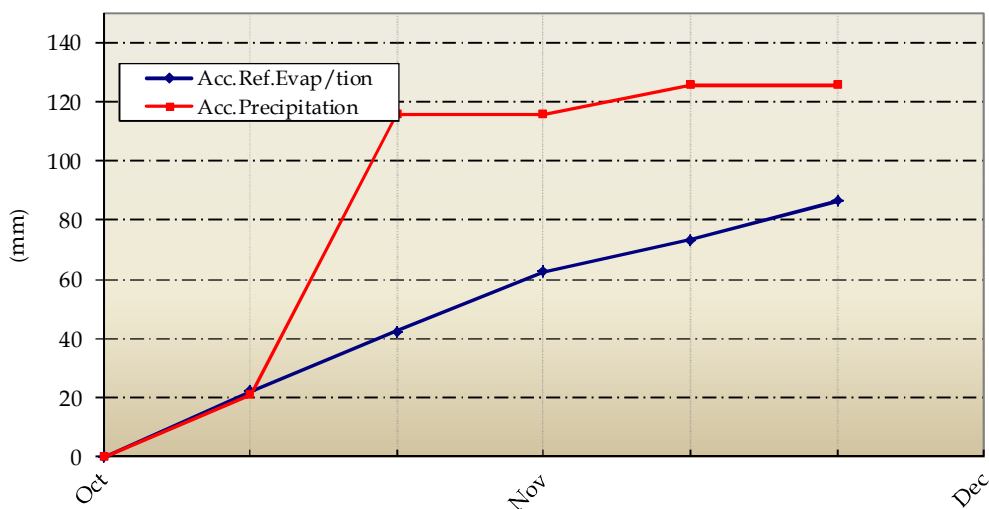
Mikra

2nd 10-day period (11-20/11/2021)		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	15.4	15.2	15.0	14.6	15.2	14.0	15.8	14.4	17.9	15.2	17.3	15.8
	Min	6.2	4.5	3.4	8.4	11.8	10.5	11.0	10.1	11.0	9.6	8.6	8.8	8.4
Relative Humidity	Max	87	91	93	92	94	74	82	90	62	86	85	89	89
	Min	56	49	65	66	37	51	60	57	43	47	53	54	57
Soil Temperature at 10 cm	06 UTC	14.0	12.4	12.2	13.0	14.2	13.6	13.8	13.6	13.0	12.0	13.2	14.1	12.0
	12 UTC	14.0	14.8	13.2	13.8	14.6	14.2	13.8	14.0	13.0	12.6	13.8	15.8	13.9
Sunshine Duration		6.1	8.2	8.6	2.4	0.0	0.5	0.0	6.0	2.8	7.5	4.2	5.4	4.3
Precipitation													0.1	12.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	17.5
Growing Degrees	5	5.4	5.0	4.3	6.7	8.2	7.9	7.5	8.0	7.7	8.8	69.3	80.6	66.1
	10	0.4	0.0	0.0	1.7	3.2	2.9	2.5	3.0	2.7	3.8	20.1	30.6	24.2

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.3	10.7	8.1
Precipitation - Reference Evapotranspiration	-13.3	-10.6	4.6
Number of Rainy Days	0.0	1.0	2.6
Number of Dry Days	10.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





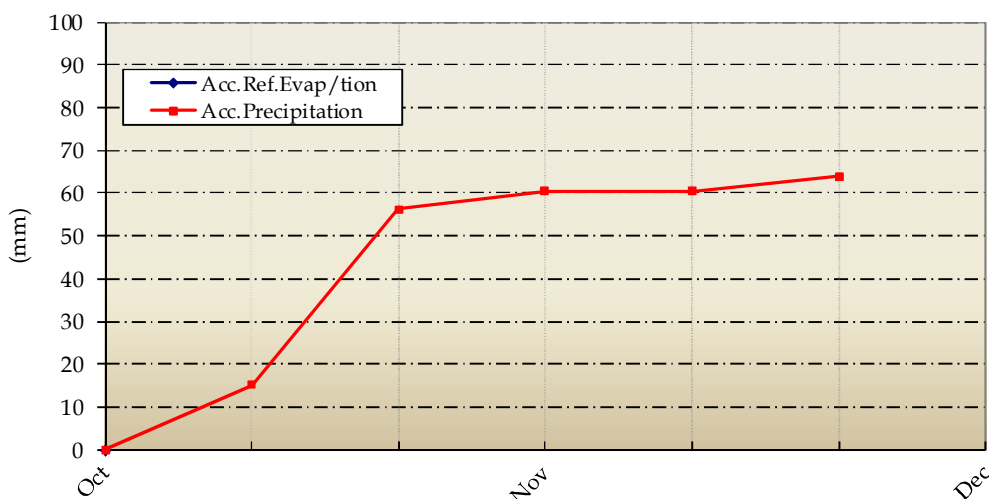
Tanagra

2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.5	16.6	17.0	15.2	16.2	15.6	12.6	16.5	13.2	14.5	15.2	17.2	17.4
	Min	9.2	7.3	5.1	6.4	11.6	13.0	10.9	10.3	11.6	9.7	9.5	8.9	8.8
Relative Humidity	Max	74	93	97	95	85	93	96	94	98	83	91	92	95
	Min	49	48	47	68	62	51	74	55	61	53	57	50	57
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		3.0	6.5	8.2	0.0	0.1	0.1	0.0	5.6	0.0	2.4	2.6	4.3	4.2
Precipitation							0.0	3.3		0.1		3.4	20.7	19.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	20.4
Growing Degrees	5	6.9	7.0	6.1	5.8	8.9	9.3	6.8	8.4	7.4	7.1	73.5	80.5	70.3
	10	1.9	2.0	1.1	0.8	3.9	4.3	1.8	3.4	2.4	2.1	23.5	30.5	28.7

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	2.0	3.0	2.8
Number of Dry Days	16.0	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



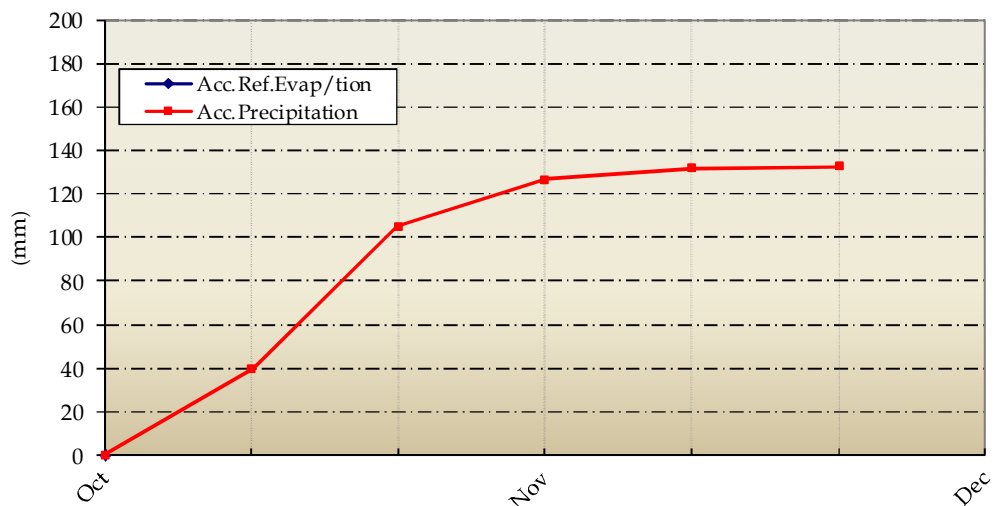
Tripoli

2nd 10-day period (11-20/11/2021)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.7	16.7	17.1	17.2	13.1	12.4	14.8	17.7	11.4	13.9	14.9	16.2	15.6
	Min	6.0	0.1	0.6	7.3	11.0	10.2	5.4	4.5	6.1	4.2	5.5	4.7	4.4
Relative Humidity	Max	93	99	99	97	96	95	99	99	99	100	98	93	95
	Min	36	31	45	59	83	70	59	53	81	47	56	45	52
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.8
Sunshine Duration		4.4	7.4	6.4	5.0	0.0	0.5	3.5	3.9	0.0	5.6	3.7	5.2	4.9
Precipitation						0.8	0.2		0.0	0.0	0.0	1.0	2.3	36.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.1
Growing Degrees	5	5.4	3.4	3.9	7.3	7.1	6.3	5.1	6.1	3.8	4.1	52.2	54.4	41.9
	10	0.4	0.0	0.0	2.3	2.1	1.3	0.1	1.1	0.0	0.0	7.2	6.4	8.0

2nd 10-day period (11-20/11/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.5	-	8.1
Precipitation - Reference Evapotranspiration	-8.5	-	28.1
Number of Rainy Days	2.0	2.0	3.1
Number of Dry Days	5.0	20.0	-

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<sub>n</sub> 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

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Issue Editors :

Papakrivou Anastasia

anastasia.papakrivou@hnms.gr

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