



# AGROMETEOROLOGICAL BULLETIN

*September 2022*  
*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



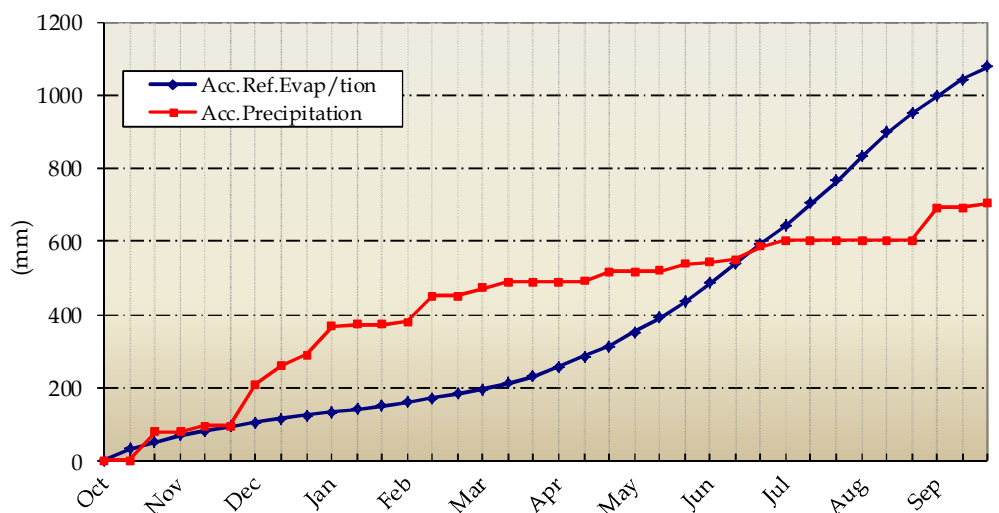
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
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[www.meteo.gov.gr](http://www.meteo.gov.gr)  
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2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	27.0	26.6	27.2	27.2	28.6	28.2	28.2	25.0	24.6	27.2	28.4	27.4
	Min	17.0	18.0	17.0	12.8	16.8	16.4	19.4	20.2	12.0	10.0	16.0	13.6	15.6
Relative Humidity	Max	87	90	92	91	90	93	93	95	78	79	89	85	82
	Min	46	46	40	49	51	57	65	47	34	31	47	38	40
Soil Temperature at 10 cm	06 UTC	24.0	23.8	22.6	21.0	22.6	22.4	23.6	25.0	21.8	20.4	22.7	21.6	22.4
	12 UTC	27.4	25.6	24.0	23.4	24.0	25.4	26.4	27.0	24.4	25.6	25.3	25.7	26.1
Sunshine Duration		11.0	8.6	8.6	11.1	10.7	10.0	8.3	8.2	9.8	10.7	9.7	9.6	9.0
Precipitation			11.0									11.0	1.2	4.6
Evaporation		10.0	4.6	10.4	4.6	3.2	7.5	4.7	6.0	7.0	11.0	69.0	61.7	68.9
Growing Degrees	5	18.4	17.5	16.8	15.0	17.0	17.5	18.8	19.2	13.5	12.3	166.0	160.0	151.2
	10	13.4	12.5	11.8	10.0	12.0	12.5	13.8	14.2	8.5	7.3	116.0	110.0	105.5

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.6	35.4	30.2
Precipitation - Reference Evapotranspiration	-24.6	-34.2	-25.6
Number of Rainy Days	1.0	2.0	0.6
Number of Dry Days	10.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

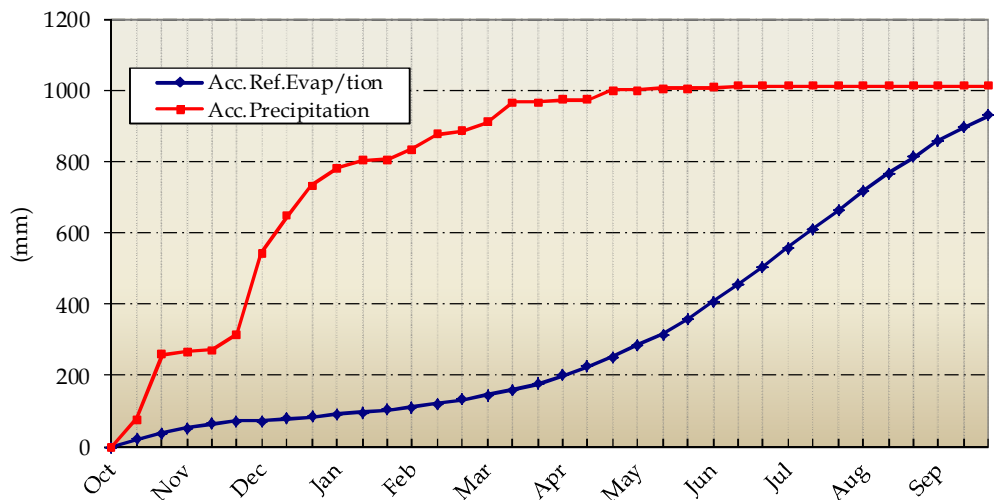


2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	29.4	28.3	29.4	29.2	29.7	31.0	27.2	26.4	27.8	29.1	30.0	28.5
	Min	22.6	20.0	18.3	17.8	17.7	18.2	20.6	21.9	13.5	14.3	18.5	17.6	17.2
Relative Humidity	Max	98	90	89	88	90	94	95	97	86	94	92	94	89
	Min	45	38	49	42	44	44	50	44	37	45	44	40	41
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	24.6	24.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	27.8	29.0
Sunshine Duration		9.1	11.5	11.2	11.1	10.8	10.8	9.5	11.4	11.9	10.1	10.7	8.8	9.1
Precipitation													18.1	10.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	48.1	58.4
Growing Degrees	5	22.5	19.7	18.3	18.6	18.5	19.0	20.8	19.6	15.0	16.1	187.9	187.6	151.4
	10	17.5	14.7	13.3	13.6	13.5	14.0	15.8	14.6	10.0	11.1	137.9	137.6	109.0

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.0	30.7	26.5
Precipitation - Reference Evapotranspiration	-34.0	-12.6	-16.2
Number of Rainy Days	0.0	2.0	1.4
Number of Dry Days	102.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

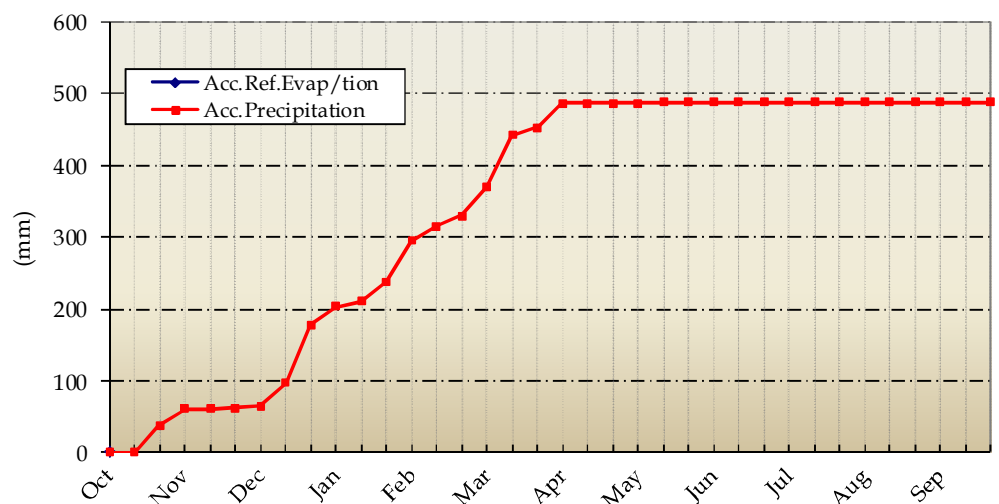


2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	28.8	26.8	26.6	27.8	28.4	28.4	30.0	27.6	27.4	28.2	28.6	27.4
	Min	22.2	22.0	23.2	19.0	17.0	18.4	18.8	21.6	21.6	18.2	20.2	21.3	20.3
Relative Humidity	Max	89	82	81	90	73	81	86	89	83	90	84	89	84
	Min	61	47	55	45	53	48	53	55	56	63	54	65	57
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.6	11.4	10.8	10.1	11.0	11.0	11.2	10.7	8.9	10.9	10.7	10.5	9.3
Precipitation														6.7
Evaporation		5.4	6.3	5.7	5.9	4.8	4.4	3.7	5.4	4.9	4.4	50.9	56.6	52.8
Growing Degrees	5	21.1	20.4	20.0	17.8	17.4	18.4	18.6	20.8	19.6	17.8	191.9	199.7	181.2
	10	16.1	15.4	15.0	12.8	12.4	13.4	13.6	15.8	14.6	12.8	141.9	149.7	133.3

2nd 10-day period (11-20/09/2022)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	0.0	0.8
Number of Dry Days	100.0	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

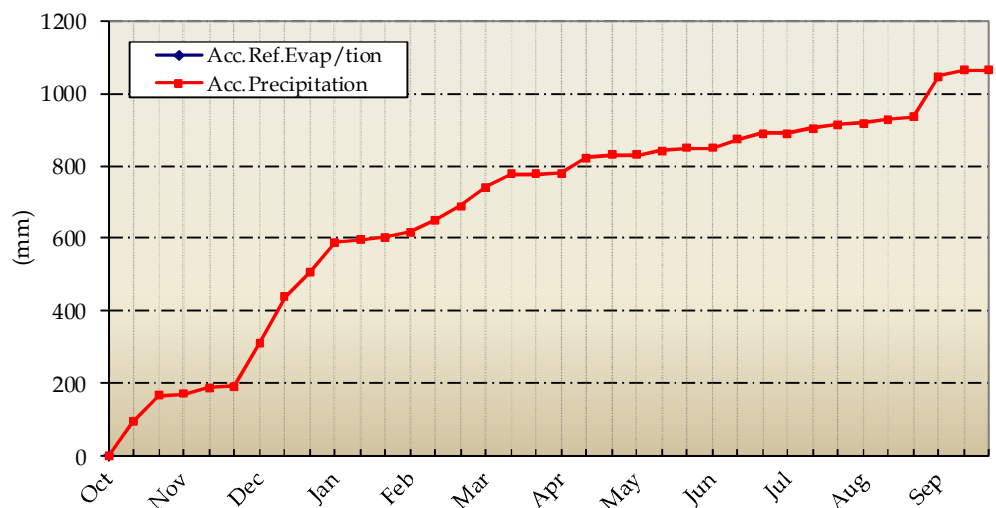


2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.4	28.9	27.6	27.8	31.2	31.4	28.7	25.2	25.5	26.5	28.2	29.7	26.6
	Min	15.2	11.6	9.8	9.3	11.1	11.9	14.3	14.4	4.8	5.2	10.8	12.0	12.5
Relative Humidity	Max	100	100	93	100	100	99	100	100	100	95	99	97	93
	Min	32	26	29	35	23	22	49	31	16	27	29	29	41
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.1
Sunshine Duration		10.8	10.8	10.7	10.7	10.4	10.1	5.4	9.9	10.3	10.5	10.0	7.2	6.9
Precipitation													0.7	13.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	17.3	15.3	13.7	13.6	16.2	16.7	16.5	14.8	10.2	10.9	144.9	158.8	108.7
	10	12.3	10.3	8.7	8.6	11.2	11.7	11.5	9.8	5.2	5.9	94.9	108.8	71.4

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	16.1
Precipitation - Reference Evapotranspiration	-	-	-2.7
Number of Rainy Days	0.0	2.0	1.8
Number of Dry Days	17.0	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

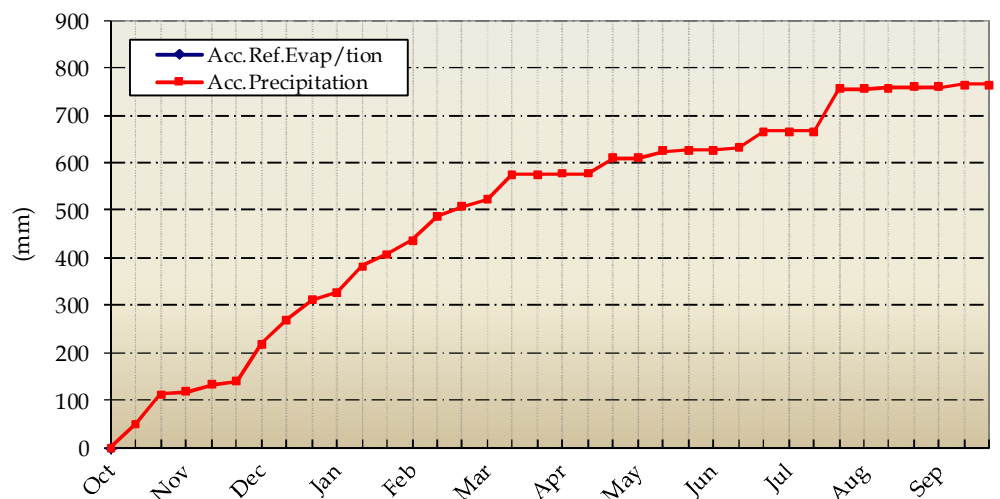


2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.9	33.1	28.6	28.6	29.6	31.7	32.2	31.9	28.6	29.5	30.9	30.5	29.0
	Min	21.4	20.7	17.8	16.1	15.4	16.6	18.4	19.2	12.9	13.3	17.2	17.1	16.7
Relative Humidity	Max	94	89	89	90	95	93	94	96	77	92	91	85	88
	Min	27	28	52	49	47	40	39	27	28	31	37	38	40
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	23.3	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	27.4	25.9
Sunshine Duration		11.5	11.6	8.4	10.5	10.8	10.8	10.4	10.6	11.1	7.4	10.3	8.5	9.2
Precipitation													1.4	14.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	58.5
Growing Degrees	5	23.2	21.9	18.2	17.4	17.5	19.2	20.3	20.6	15.8	16.4	190.3	188.0	162.3
	10	18.2	16.9	13.2	12.4	12.5	14.2	15.3	15.6	10.8	11.4	140.3	138.0	117.0

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	25.3
Precipitation - Reference Evapotranspiration	-	-	-10.9
Number of Rainy Days	0.0	2.0	1.5
Number of Dry Days	15.0	2.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



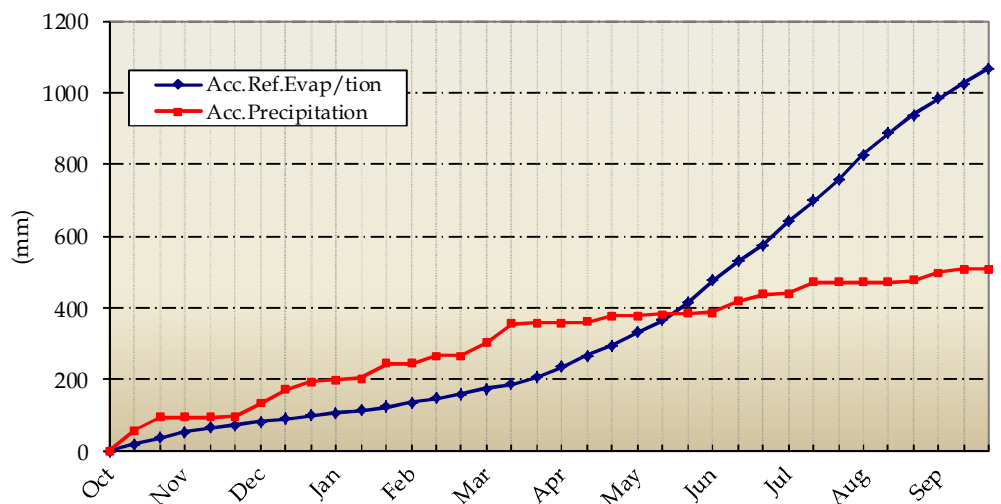
Larisa

2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	29.8	29.6	31.0	35.8	38.2	37.0	31.0	27.5	26.8	32.2	32.0	29.4
	Min	19.3	19.0	17.4	12.0	14.0	15.4	17.4	18.8	10.8	11.2	15.5	15.3	14.9
Relative Humidity	Max	76	71	67	80	95	96	98	73	75	90	82	88	87
	Min	24	29	25	21	20	18	22	23	26	24	23	28	33
Soil Temperature at 10 cm	06 UTC	25.8	25.8	25.4	24.4	24.6	24.4	26.0	26.4	24.6	24.0	25.1	22.8	23.3
	12 UTC	27.8	27.6	27.0	26.0	26.8	27.2	27.8	26.6	26.2	26.4	26.9	27.8	25.3
Sunshine Duration		9.2	10.5	10.2	10.2	9.9	9.9	6.6	10.3	10.4	10.0	9.7	8.7	7.2
Precipitation														8.9
Evaporation		9.2	9.8	5.5	8.0	8.6	5.4	11.3	10.5	11.6	7.3	87.2	72.6	69.5
Growing Degrees	5	22.2	19.4	18.5	16.5	19.9	21.8	22.2	19.9	14.2	14.0	188.5	186.5	156.5
	10	17.2	14.4	13.5	11.5	14.9	16.8	17.2	14.9	9.2	9.0	138.5	136.5	111.0

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.0	41.2	38.1
Precipitation - Reference Evapotranspiration	-44.0	-41.2	-29.2
Number of Rainy Days	0.0	0.0	1.5
Number of Dry Days	14.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



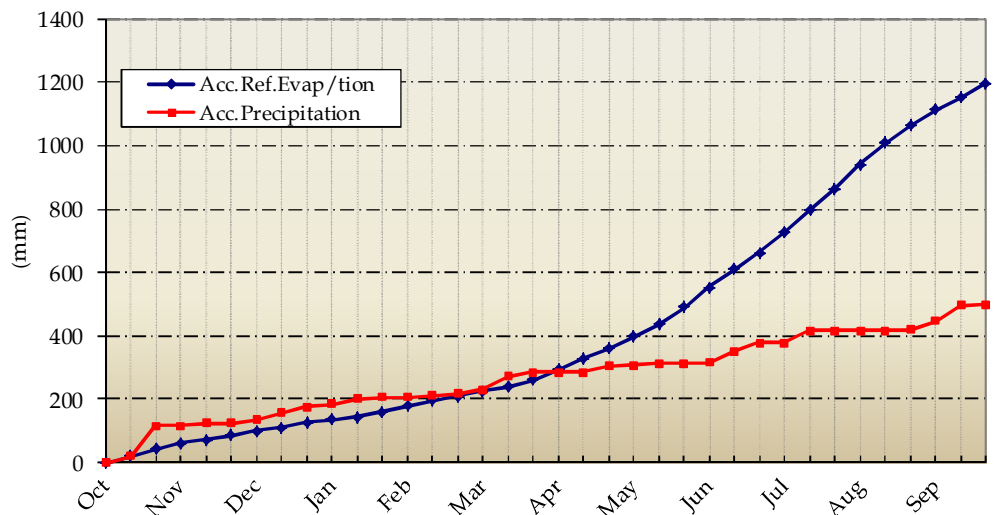
Mikra

2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.7	27.9	27.0	28.4	29.9	27.8	31.0	24.4	24.4	24.4	27.8	29.9	27.9
	Min	18.4	20.7	19.3	13.1	16.3	17.4	19.4	17.3	11.0	14.5	16.7	16.8	16.9
Relative Humidity	Max	100	67	71	88	96	98	100	100	92	97	91	82	80
	Min	26	37	32	31	49	64	55	40	31	33	40	39	39
Soil Temperature at 10 cm	06 UTC	24.2	23.4	21.6	21.0	21.4	22.8	23.6	23.2	20.0	21.0	22.2	23.4	23.2
	12 UTC	25.6	24.4	23.4	23.6	24.2	25.0	25.4	23.4	22.8	22.5	24.0	25.2	27.0
Sunshine Duration		11.1	12.0	11.3	11.1	10.7	10.1	7.8	10.6	11.2	10.3	10.6	9.0	8.4
Precipitation		0.1	2.8									2.9	0.1	7.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	66.8
Growing Degrees	5	20.6	19.3	18.2	15.8	18.1	17.6	20.2	15.9	12.7	14.5	172.7	183.5	162.8
	10	15.6	14.3	13.2	10.8	13.1	12.6	15.2	10.9	7.7	9.5	122.7	133.5	116.0

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.8	39.4	27.9
Precipitation - Reference Evapotranspiration	-42.9	-39.3	-20.9
Number of Rainy Days	2.0	1.0	1.4
Number of Dry Days	5.0	8.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





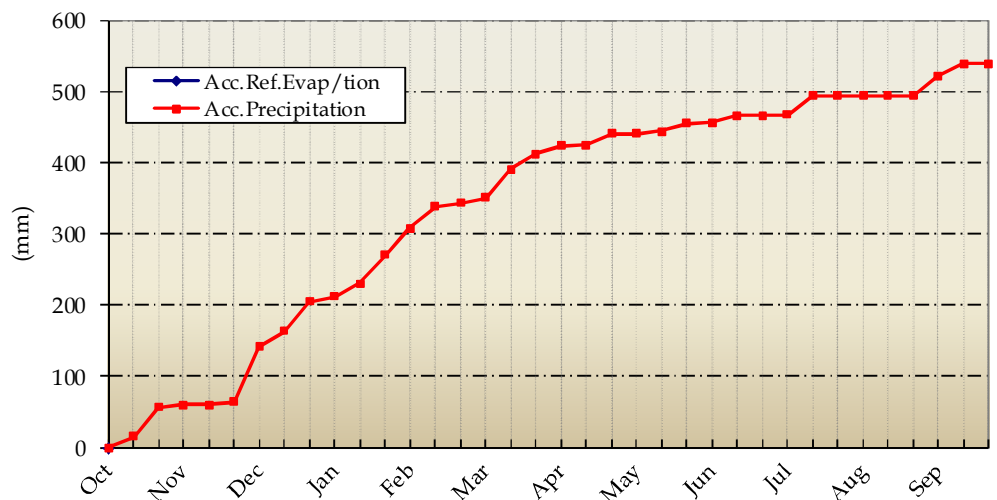
Tanagra

2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.5	27.8	26.2	30.1	32.2	35.1	33.3	33.4	27.0	25.4	30.4	31.3	28.3
	Min	21.6	20.8	17.5	15.3	14.5	17.2	19.2	24.9	17.8	15.2	18.4	17.5	16.5
Relative Humidity	Max	76	65	70	74	80	78	73	59	78	75	73	72	79
	Min	24	32	30	16	23	17	29	12	31	29	24	23	33
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	12.0	11.2	11.4	11.5	10.7	10.5	11.0	10.8	10.1	11.2	8.7	8.7
Precipitation													0.0	10.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	68.1
Growing Degrees	5	22.6	19.3	16.9	17.7	18.4	21.2	21.3	24.2	17.4	15.3	194.0	194.0	153.5
	10	17.6	14.3	11.9	12.7	13.4	16.2	16.3	19.2	12.4	10.3	144.0	144.0	109.5

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	15.0	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



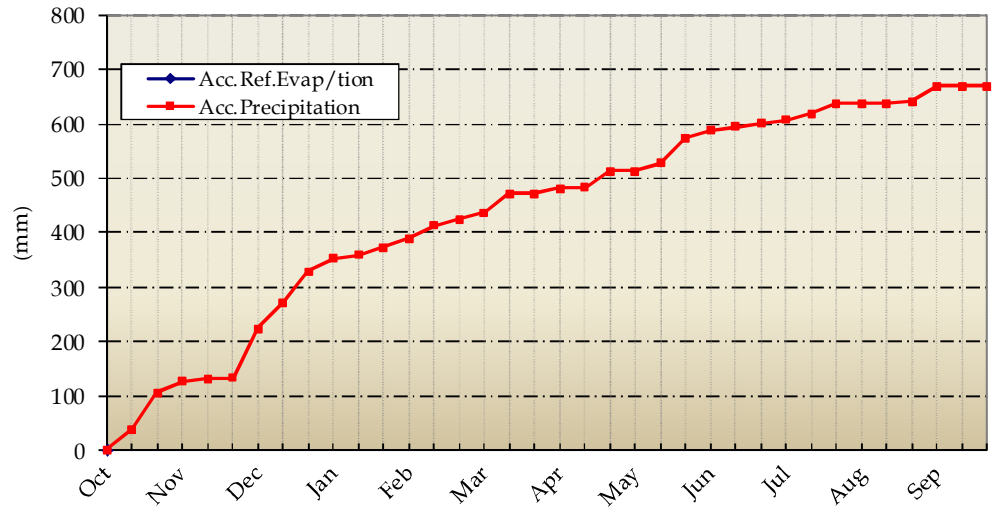
Tripoli

2nd 10-day period (11-20/09/2022)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	29.6	26.4	28.7	32.2	33.8	33.0	27.8	26.9	27.6	29.8	29.0	27.1
	Min	14.1	12.6	13.7	11.5	10.7	12.7	12.9	17.6	6.3	7.4	12.0	12.6	11.3
Relative Humidity	Max	96	92	94	96	94	95	95	91	83	91	93	87	88
	Min	21	17	33	27	19	19	11	22	11	17	20	21	31
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.9
Sunshine Duration		10.4	9.9	6.6	10.2	10.5	10.4	10.5	10.7	10.6	9.4	9.9	8.1	8.5
Precipitation													0.2	7.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	38.1
Growing Degrees	5	18.0	16.1	15.1	15.1	16.5	18.3	18.0	17.7	11.6	12.5	158.7	158.0	107.3
	10	13.0	11.1	10.1	10.1	11.5	13.3	13.0	12.7	6.6	7.5	108.7	108.0	69.4

2nd 10-day period (11-20/09/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.1	35.6	17.2
Precipitation - Reference Evapotranspiration	-36.1	-35.4	-9.6
Number of Rainy Days	0.0	2.0	1.4
Number of Dry Days	21.0	2.0	-

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 $ET_0$ (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

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ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

anastasia.papakrivou@hnms.gr

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