



AGROMETEOROLOGICAL BULLETIN

*August 2023
3rd 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
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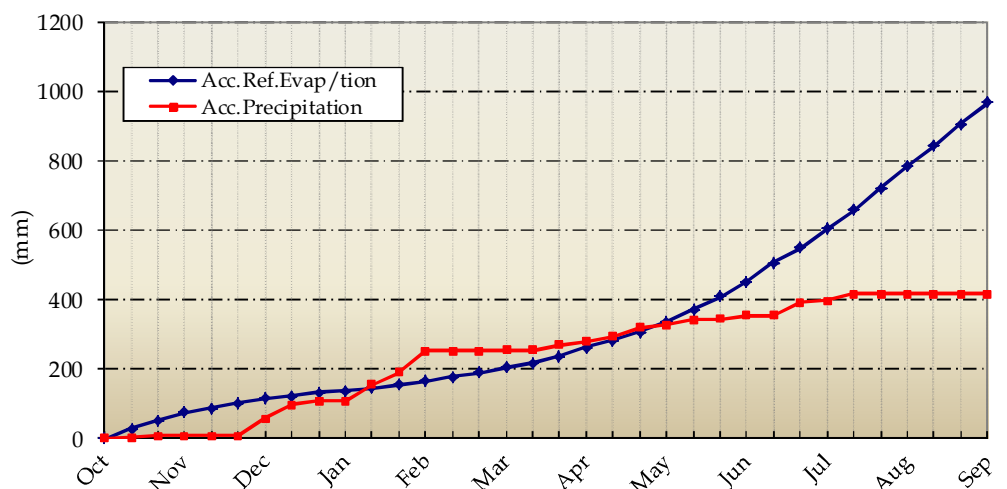
Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

Alexandroupoli

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	38.0	38.4	37.0	37.2	35.6	36.6	34.6	31.6	32.4	30.4	30.6	34.8	32.2	31.1
	Min	19.0	20.2	27.6	22.4	23.0	25.0	23.0	20.0	18.0	20.0	19.4	21.6	20.5	18.6
Relative Humidity	Max	84	63	48	68	73	68	68	76	79	79	91	72	90	77
	Min	19	17	23	27	29	22	32	36	34	56	58	32	43	34
Soil Temperature at 10 cm	06 UTC	29.0	28.4	30.2	29.6	29.2	30.0	29.6	28.8	28.2	28.6	28.4	29.1	26.3	25.7
	12 UTC	34.0	34.0	34.6	33.8	34.8	34.6	34.2	34.0	32.0	33.4	33.2	33.9	29.3	29.3
Sunshine Duration		8.0	9.2	10.8	9.6	10.7	11.9	11.3	12.1	11.8	11.4	10.9	10.7	8.7	11.5
Precipitation														89.0	2.8
Evaporation		13.0	12.4	11.2	8.0	14.0	13.0	9.7	7.7	8.6	6.5	6.5	110.6	89.4	99.8
Growing Degrees	5	23.5	24.3	27.3	24.8	24.3	25.8	23.8	20.8	20.2	20.2	20.0	255.0	234.8	202.4
	10	18.5	19.3	22.3	19.8	19.3	20.8	18.8	15.8	15.2	15.2	15.0	200.0	179.8	151.3

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.4	49.0	49.5
Precipitation - Reference Evapotranspiration	-62.4	40.0	-46.7
Number of Rainy Days	0.0	4.0	0.6
Number of Dry Days	54.0	58.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

August 2023

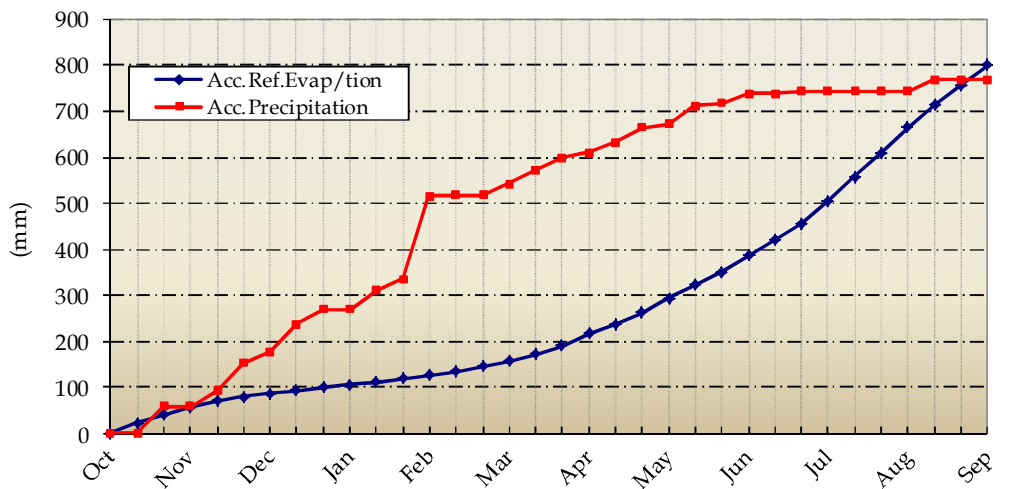
Andravida

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.2	39.9	36.0	35.5	33.5	33.6	33.2	33.4	32.0	31.2	29.3	34.1	30.1	31.5
	Min	20.0	19.0	18.8	19.4	19.4	19.0	18.5	21.0	20.7	19.7	19.5	19.5	20.7	19.2
Relative Humidity	Max	97	80	80	89	87	92	95	94	85	86	89	89	91	86
	Min	19	15	29	29	39	41	39	45	51	24	45	34	51	34
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	28.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	33.5
Sunshine Duration		11.0	11.1	11.3	7.9	6.6	6.1	11.0	11.2	10.8	9.4	9.9	9.7	10.9	11.0
Precipitation															3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	83.8
Growing Degrees	5	23.6	24.5	22.4	22.5	21.5	21.3	20.9	22.2	21.4	20.5	19.4	239.9	224.4	186.3
	10	18.6	19.5	17.4	17.5	16.5	16.3	15.9	17.2	16.4	15.5	14.4	184.9	169.4	140.7

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.5	46.1	37.0
Precipitation - Reference Evapotranspiration	-42.5	-46.1	-33.1
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	26.0	82.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



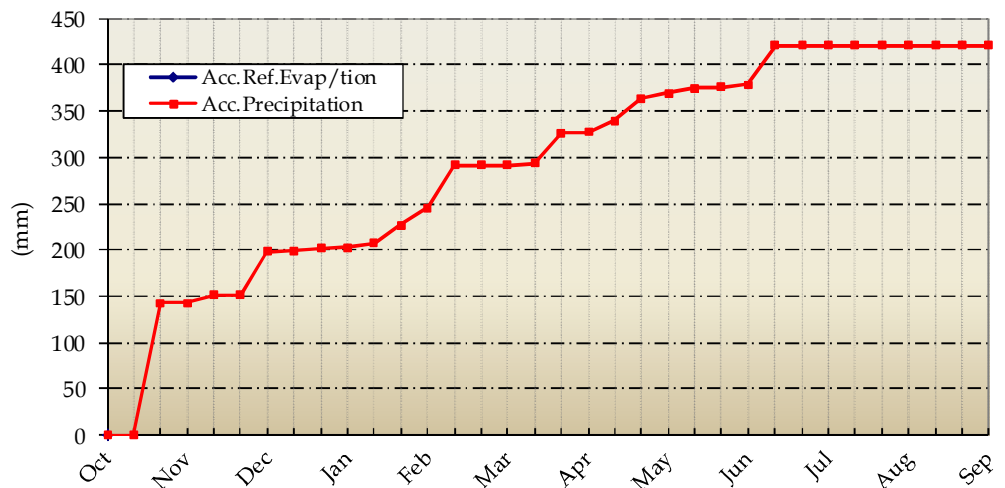
Iraklio

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	30.8	30.4	30.0	31.6	31.4	31.0	30.8	32.0	30.0	29.6	30.7	29.2	29.1
	Min	23.8	22.2	20.6	21.6	24.0	23.0	23.6	23.0	23.0	23.0	24.0	22.9	21.8	22.4
Relative Humidity	Max	89	83	93	81	83	73	74	80	71	76	75	80	89	79
	Min	48	48	46	52	44	39	39	45	48	42	49	45	64	55
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		13.1	11.8	12.3	11.6	12.2	11.7	11.7	11.8	11.6	11.1	12.2	11.9	10.3	11.3
Precipitation														0.0	0.8
Evaporation		5.7	5.8	2.8	13.2	1.9	8.6	7.8	5.4	4.8	17.3	6.0	79.3	47.4	70.3
Growing Degrees	5	21.8	21.5	20.5	20.8	22.8	22.2	22.3	21.9	22.5	21.5	21.8	239.6	225.3	220.9
	10	16.8	16.5	15.5	15.8	17.8	17.2	17.3	16.9	17.5	16.5	16.8	184.6	170.3	167.8

3rd 10-day period (21-31/08/2023)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	-
Number of Rainy Days	0.0	0.0
Number of Dry Days	73.0	80.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

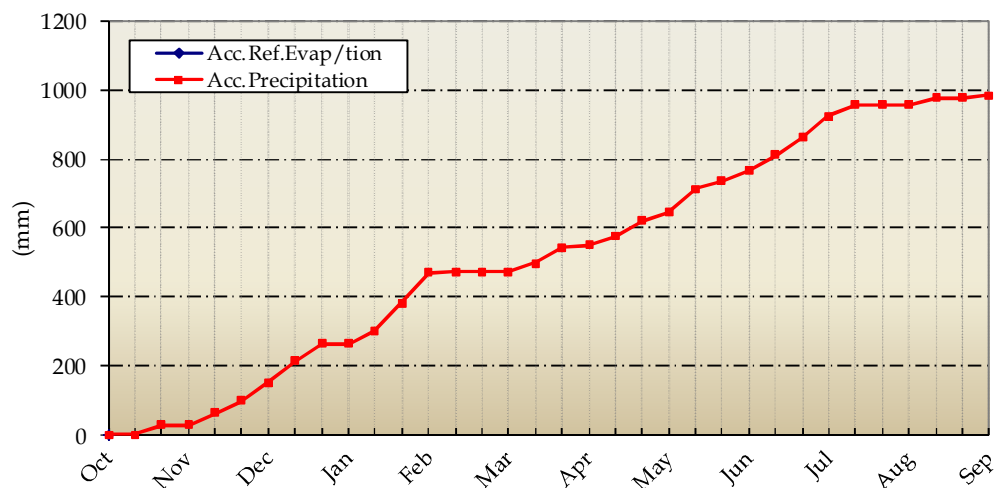


3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.2	34.0	35.4	36.0	30.9	32.8	34.5	35.2	30.1	27.9	27.4	32.7	30.4	31.1
	Min	22.8	21.1	25.5	15.2	14.8	15.6	13.7	16.5	16.9	12.4	14.9	17.2	15.3	15.4
Relative Humidity	Max	57	54	77	100	100	100	100	100	100	100	98	90	99	87
	Min	22	19	23	24	42	36	27	25	42	42	32	30	39	31
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	22.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	23.8
Sunshine Duration		12.0	11.2	8.4	4.7	7.0	8.6	9.5	11.5	9.1	10.0	10.5	9.3	7.4	9.3
Precipitation					5.6	0.2		0.2		1.5			7.5	113.1	9.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	24.0	22.6	25.5	20.6	17.9	19.2	19.1	20.9	18.5	15.2	16.2	219.4	196.5	150.5
	10	19.0	17.6	20.5	15.6	12.9	14.2	14.1	15.9	13.5	10.2	11.2	164.4	141.5	109.5

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	26.4
Precipitation - Reference Evapotranspiration	-	-	-16.8
Number of Rainy Days	4.0	8.0	1.4
Number of Dry Days	8.0	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



Agrometeorological Data

August 2023

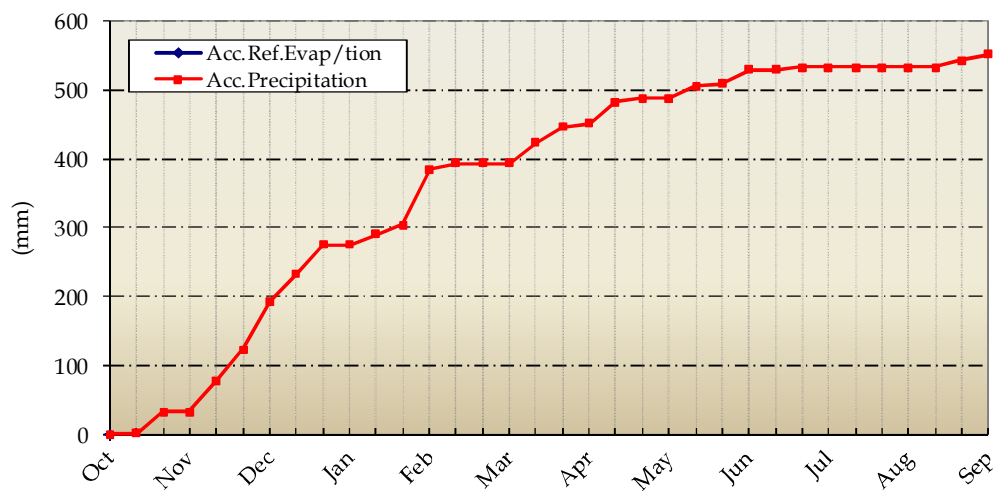
Kalamata

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.5	38.7	33.5	34.4	33.1	33.7	36.1	35.3	33.0	33.2	32.8	34.7	31.0	31.9
	Min	20.3	22.4	17.8	19.0	20.6	19.8	18.3	19.6	17.7	19.0	18.0	19.3	19.6	18.8
Relative Humidity	Max	91	75	89	90	74	91	91	91	76	88	91	86	93	84
	Min	24	20	37	33	40	36	27	32	32	31	28	31	44	32
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	28.7
Sunshine Duration		11.8	11.2	11.0	11.0	6.7	7.7	10.8	11.7	11.3	10.2	11.3	10.4	10.1	10.6
Precipitation						0.2	6.0	1.3	1.3				8.8	0.3	3.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	81.0
Growing Degrees	5	23.9	25.6	20.7	21.7	21.9	21.8	22.2	22.5	20.4	21.1	20.4	241.9	223.2	201.6
	10	18.9	20.6	15.7	16.7	16.9	16.8	17.2	17.5	15.4	16.1	15.4	186.9	168.2	152.1

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	43.9
Precipitation - Reference Evapotranspiration	-	-	-40.4
Number of Rainy Days	4.0	1.0	0.7
Number of Dry Days	12.0	10.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

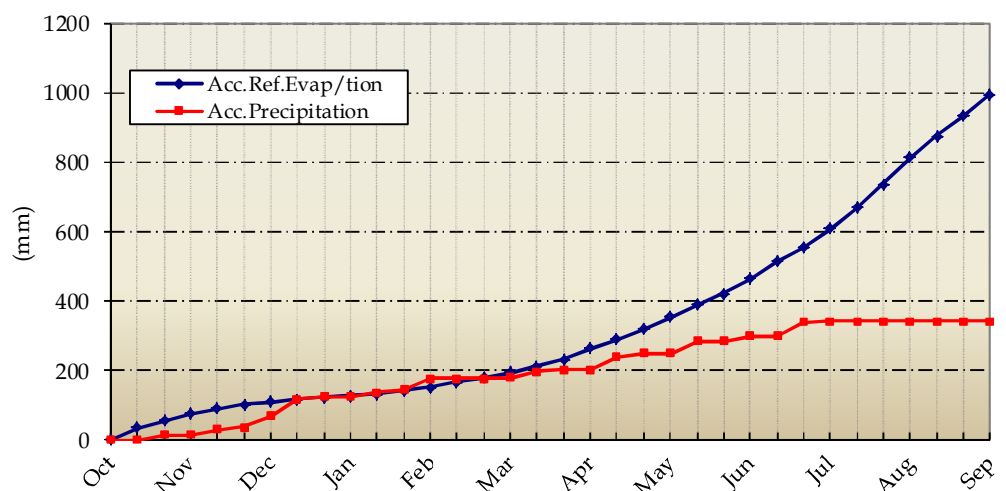


Larisa

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.8	36.6	35.6	37.2	35.6	35.6	35.8	36.0	33.6	34.2	33.6	35.5	31.7	32.8
	Min	18.8	20.6	19.6	18.2	21.2	19.8	19.0	19.4	19.8	20.2	18.0	19.5	18.7	18.0
Relative Humidity	Max	65	55	57	61	64	69	71	80	85	61	60	66	96	78
	Min	17	15	21	24	29	26	27	27	32	23	21	24	40	28
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.6	26.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.0	28.8
Sunshine Duration		10.9	6.5	8.8	9.6	9.3	10.8	9.8	10.8	6.5	10.6	9.4	9.4	7.2	10.5
Precipitation														21.3	3.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	68.7	106.3
Growing Degrees	5	22.8	23.6	22.6	22.7	23.4	22.7	22.4	22.7	21.7	22.2	20.8	247.6	222.1	202.3
	10	17.8	18.6	17.6	17.7	18.4	17.7	17.4	17.7	16.7	17.2	15.8	192.6	167.1	152.8

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	64.1	44.8	59.6
Precipitation - Reference Evapotranspiration	-64.1	-23.5	-56.5
Number of Rainy Days	0.0	4.0	1.2
Number of Dry Days	66.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



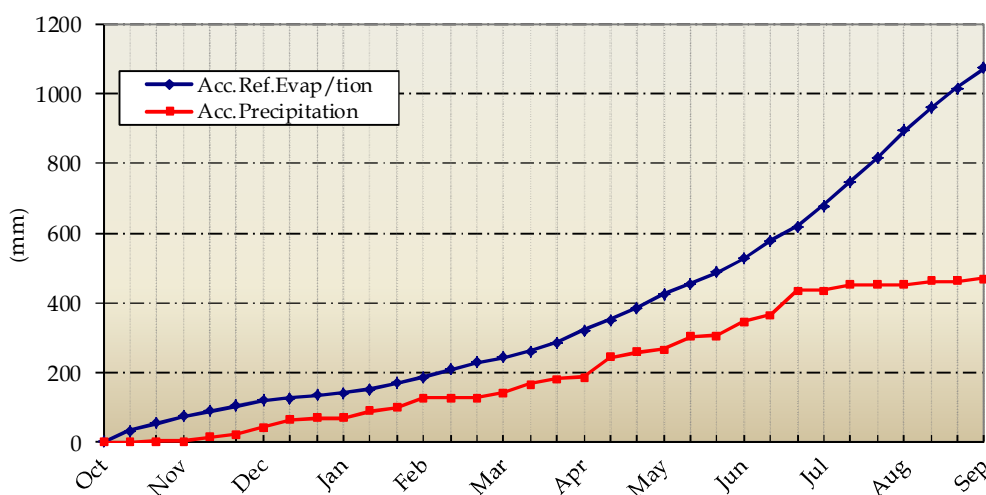
Mikra

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.4	36.6	34.1	33.8	34.8	34.8	33.7	31.6	31.7	32.3	32.3	33.8	30.4	31.7
	Min	22.0	21.4	22.2	22.7	21.0	22.6	21.0	21.6	20.9	21.1	18.7	21.4	20.2	20.1
Relative Humidity	Max	75	61	63	87	91	92	89	87	89	91	71	81	97	72
	Min	24	22	32	47	33	34	34	49	45	26	26	34	46	32
Soil Temperature at 10 cm	06 UTC	25.5	27.0	27.0	27.4	25.2	26.4	24.8	26.0	26.0	26.0	25.0	26.0	26.0	27.2
	12 UTC	26.8	31.2	29.0	29.2	28.0	28.4	27.6	28.5	27.6	27.4	27.6	28.3	27.2	31.7
Sunshine Duration		11.6	10.0	8.2	7.5	11.7	11.0	11.5	11.5	8.1	12.1	11.9	10.5	8.0	10.7
Precipitation					6.0		2.0						8.0	28.5	4.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	97.8
Growing Degrees	5	24.2	24.0	23.2	23.3	22.9	23.7	22.4	21.6	21.3	21.7	20.5	248.7	223.7	212.7
	10	19.2	19.0	18.2	18.3	17.9	18.7	17.4	16.6	16.3	16.7	15.5	193.7	168.7	161.9

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.1	47.4	47.5
Precipitation - Reference Evapotranspiration	-49.1	-18.9	-43.0
Number of Rainy Days	2.0	5.0	0.9
Number of Dry Days	13.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



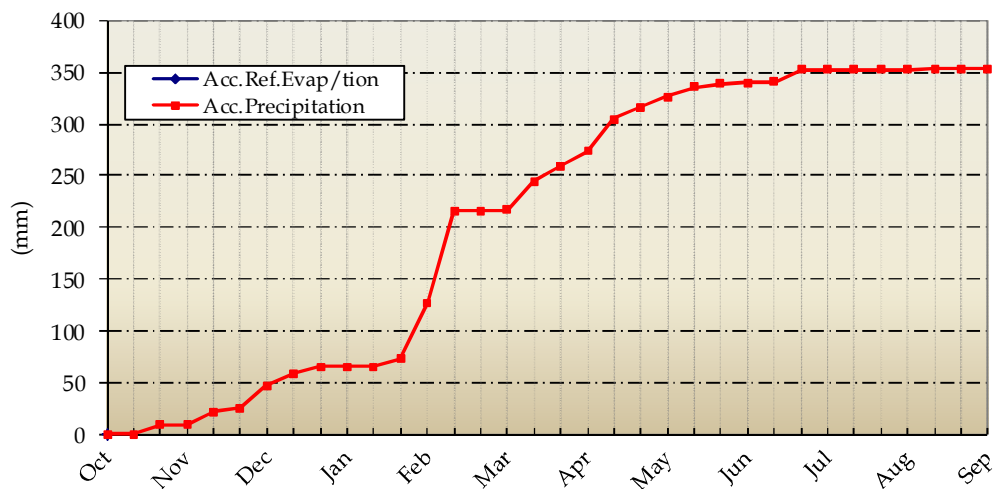
Tanagra

3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.9	35.0	34.5	34.6	34.2	31.4	33.2	33.9	34.0	34.7	33.6	34.0	31.0	31.6
	Min	22.0	21.4	24.6	22.7	23.0	23.1	21.1	19.9	19.8	20.4	18.4	21.5	19.7	19.2
Relative Humidity	Max	52	46	47	56	51	54	56	58	69	59	52	55	87	69
	Min	13	15	21	20	26	24	21	25	22	15	16	20	35	29
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.3	12.0	9.6	11.2	11.9	0.4	10.7	11.7	11.5	12.0	10.8	10.3	8.6	11.4
Precipitation				0.2									0.2	27.9	2.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	97.9
Growing Degrees	5	23.5	23.2	24.6	23.7	23.6	22.3	22.2	21.9	21.9	22.6	21.0	250.2	223.7	191.5
	10	18.5	18.2	19.6	18.7	18.6	17.3	17.2	16.9	16.9	17.6	16.0	195.2	168.7	144.7

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	1.0	3.0	0.5
Number of Dry Days	12.0	42.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

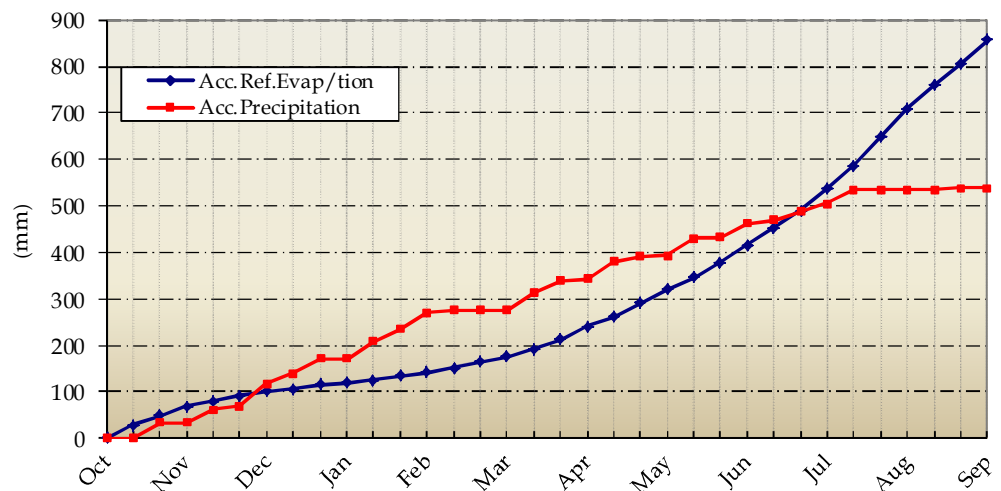


3rd 10-day period (21-31/08/2023)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	34.1	35.2	34.0	33.2	31.3	34.2	34.5	32.4	28.0	29.1	32.6	28.9	30.8
	Min	20.4	25.2	19.6	14.4	14.5	15.0	14.5	15.2	14.3	14.6	13.1	16.4	14.6	14.3
Relative Humidity	Max	46	33	72	81	89	90	85	89	87	81	86	76	97	73
	Min	15	13	15	17	22	21	20	24	15	25	21	19	35	24
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	24.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	28.4
Sunshine Duration		11.9	11.8	10.3	10.3	8.0	3.9	8.9	9.9	10.5	11.3	10.7	9.8	6.6	10.4
Precipitation														27.8	5.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	64.9
Growing Degrees	5	21.4	24.7	22.4	19.2	18.9	18.2	19.4	19.9	18.4	16.3	16.1	214.6	184.4	159.1
	10	16.4	19.7	17.4	14.2	13.9	13.2	14.4	14.9	13.4	11.3	11.1	159.6	129.4	113.8

3rd 10-day period (21-31/08/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.8	36.3	35.4
Precipitation - Reference Evapotranspiration	-52.8	-8.5	-30.2
Number of Rainy Days	0.0	7.0	1.1
Number of Dry Days	16.0	40.0	

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 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)

UTC (Universal Time coordinates) in Greece

- ◆ Winter : Time(UTC) = Local time - 2
- ◆ Summer : Time(UTC) = Local time - 3

Mesurements Units

- ◆ Temperature : °C
- ◆ Relative Humidity : %
- ◆ Soil Temperature : °C
- ◆ Sunshine Duration : Hours
- ◆ Precipitation : mm
- ◆ Evaporation (Pan) : mm
- ◆ Growing Degrees : °C

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ΥΠΗΡΕΣΙΑ**

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