



AGROMETEOROLOGICAL BULLETIN

*August 2021
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



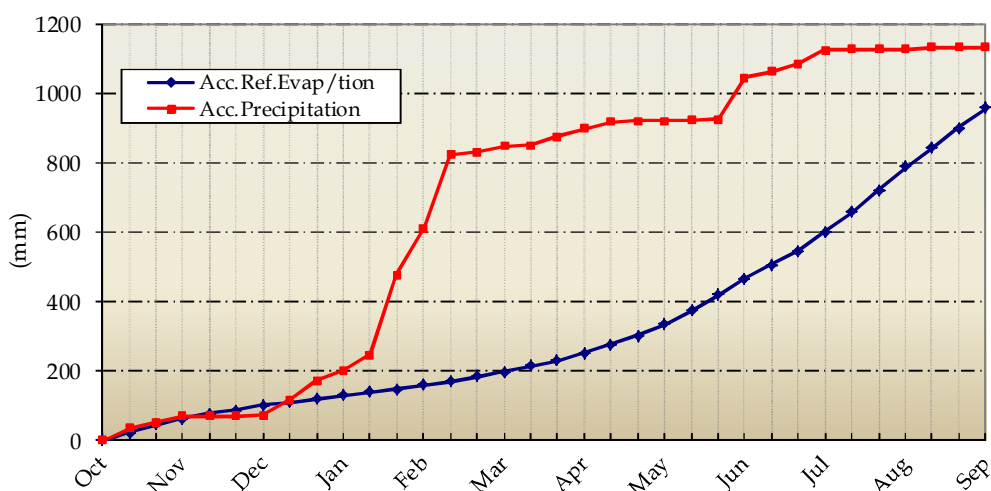
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

3rd 10-day period (21-31/08/2021)		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	32.2	32.4	33.0	32.0	31.0	31.4	35.0	31.6	31.8	31.0	32.2	33.7	29.1
	Min	20.6	22.6	20.2	20.0	20.4	19.0	18.0	19.0	23.0	18.6	21.8	20.3	19.1	16.6
Relative Humidity	Max	65	57	69	75	86	90	90	81	85	87	70	78	84	-
	Min	24	26	31	24	32	45	43	32	47	41	31	34	36	-
Soil Temperature at 10 cm	06 UTC	26.0	26.4	27.0	27.0	27.6	27.0	27.0	26.8	28.6	27.5	26.2	27.0	24.6	23.0
	12 UTC	30.4	30.6	30.8	30.4	31.2	31.6	32.0	31.4	32.2	29.6	30.2	30.9	29.0	27.1
Sunshine Duration		12.5	12.2	12.3	12.4	11.6	11.6	11.3	11.7	10.7	11.0	8.9	11.5	11.9	9.8
Precipitation								0.2					0.2		4.5
Evaporation		9.5	12.8	15.7	9.4	3.1	10.5	2.0	7.8	6.2	6.3	5.3	88.6	86.7	93.1
Growing Degrees	5	21.5	22.4	21.3	21.5	21.2	20.0	19.7	22.0	22.3	20.2	21.4	233.5	235.2	196.4
	10	16.5	17.4	16.3	16.5	16.2	15.0	14.7	17.0	17.3	15.2	16.4	178.5	180.2	141.4

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.3	57.6	54.2
Precipitation - Reference Evapotranspiration	-57.1	-57.6	-49.7
Number of Rainy Days	1.0	0.0	1.0
Number of Dry Days	20.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

August 2021

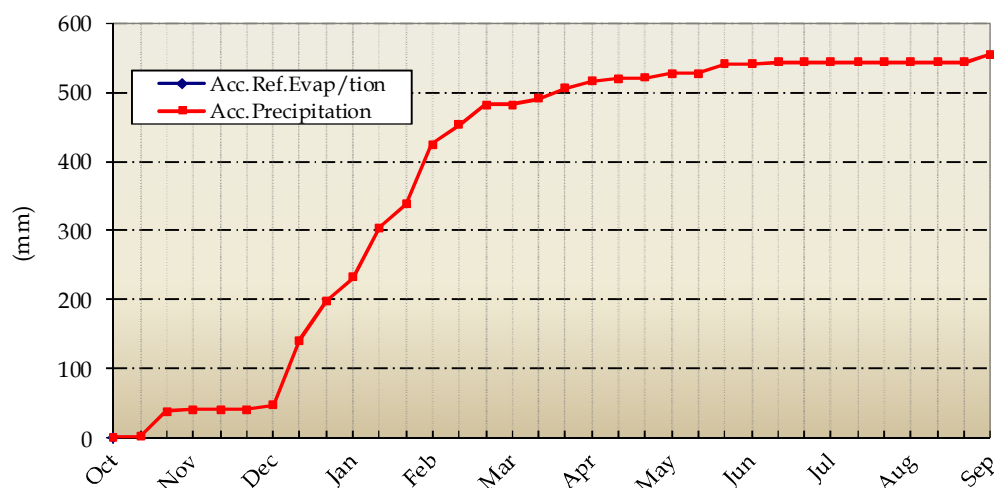
Andravida

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.7	33.2	33.5	33.9	33.2	31.8	32.6	31.4	31.4	31.1	30.6	32.3	32.9	30.0
	Min	22.0	19.3	17.9	16.4	21.1	21.0	22.7	20.4	20.7	19.9	19.4	20.1	20.1	18.5
Relative Humidity	Max	84	92	90	87	92	91	88	94	91	83	96	90	91	-
	Min	45	32	28	26	26	51	36	38	46	42	34	37	41	-
Soil Temperature at 10 cm	06 UTC	31.0	31.0	29.8	29.4	29.6	30.0	31.0	30.6	27.4	26.6	27.0	29.4	29.5	26.8
	12 UTC	33.0	32.6	31.8	31.8	32.0	32.2	32.4	32.0	29.8	30.0	30.0	31.6	33.7	30.8
Sunshine Duration		13.2	12.3	12.0	12.6	11.5	10.1	12.2	11.8	11.2	12.0	9.8	11.7	10.4	10.6
Precipitation								11.3					11.3		3.8
Evaporation		10.0	9.8	9.6	8.0	7.8	10.4	10.0	9.6	6.6	6.0	5.5	93.3	101.7	74.7
Growing Degrees	5	22.4	21.3	20.7	20.2	22.2	21.4	22.7	20.9	21.1	20.5	20.0	233.1	236.5	211.8
	10	17.4	16.3	15.7	15.2	17.2	16.4	17.7	15.9	16.1	15.5	15.0	178.1	181.5	156.8

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.7	-	49.7
Precipitation - Reference Evapotranspiration	-36.4	-	-45.9
Number of Rainy Days	1.0	0.0	0.7
Number of Dry Days	77.0	23.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

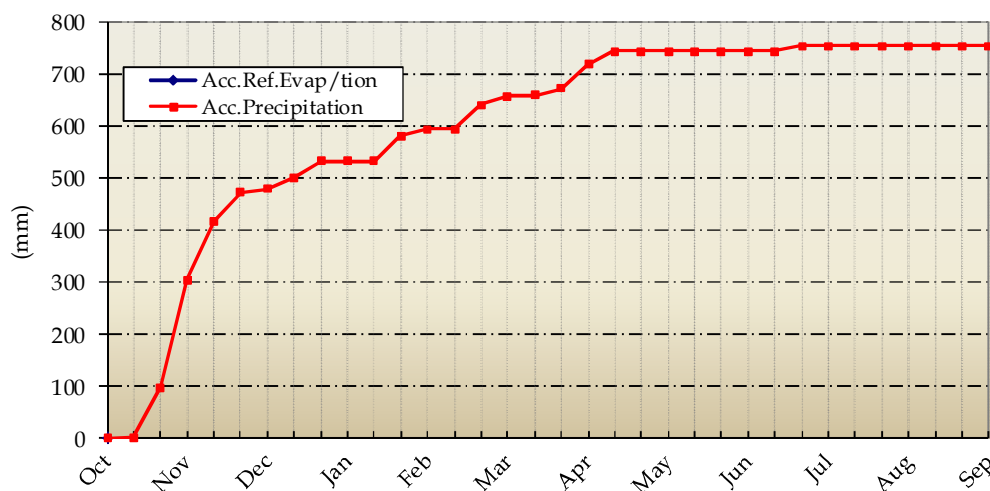


3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	28.6	28.0	28.6	28.6	31.0	33.0	30.2	29.8	30.2	29.0	29.7	29.2	27.8
	Min	25.2	25.2	24.4	22.2	20.4	20.0	23.8	23.6	22.6	24.2	21.0	23.0	22.6	21.3
Relative Humidity	Max	87	85	93	93	94	95	94	95	91	92	83	91	81	-
	Min	72	75	73	70	77	68	58	77	68	64	69	70	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.2	11.6	11.4	11.7	11.9	11.3	11.0	11.7	12.0	12.0	8.6	11.4	12.0	10.8
Precipitation															0.6
Evaporation		7.5	10.0	1.8	4.8	3.2	6.3	6.4	5.9	6.1	10.1	8.2	70.3	75.7	88.9
Growing Degrees	5	22.7	21.9	21.2	20.4	19.5	20.5	23.4	21.9	21.2	22.2	20.0	234.9	229.7	215.1
	10	17.7	16.9	16.2	15.4	14.5	15.5	18.4	16.9	16.2	17.2	15.0	179.9	174.7	160.1

3rd 10-day period (21-31/08/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-
Precipitation - Reference Evapotranspiration	-	0.6
Number of Rainy Days	0.0	0.1
Number of Dry Days	76.0	90.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

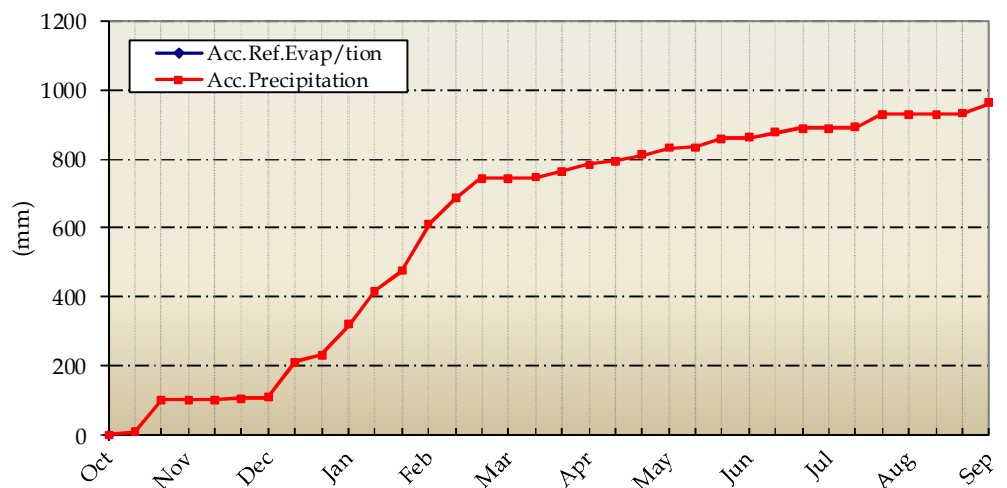


3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	33.9	34.4	34.5	33.9	29.7	30.3	31.3	29.7	29.4	30.1	31.9	34.3	29.2
	Min	13.8	16.0	14.9	15.2	14.5	14.5	17.0	15.4	15.8	12.4	9.6	14.5	14.4	14.3
Relative Humidity	Max	68	87	92	94	88	91	97	98	98	97	98	92	96	-
	Min	21	19	26	28	24	33	51	35	26	24	48	30	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Sunshine Duration		12.0	11.4	11.5	11.1	11.3	4.9	8.9	12.2	10.7	11.8	2.4	9.8	10.3	8.9
Precipitation							19.6	11.7		0.0			31.3		15.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
Growing Degrees	5	18.7	20.0	19.7	19.9	19.2	17.1	18.7	18.4	17.8	15.9	14.9	200.0	212.7	178.0
	10	13.7	15.0	14.7	14.9	14.2	12.1	13.7	13.4	12.8	10.9	9.9	145.0	157.7	124.8

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	44.4
Precipitation - Reference Evapotranspiration	-	-	-28.5
Number of Rainy Days	2.0	0.0	2.1
Number of Dry Days	6.0	14.0	-

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 2021

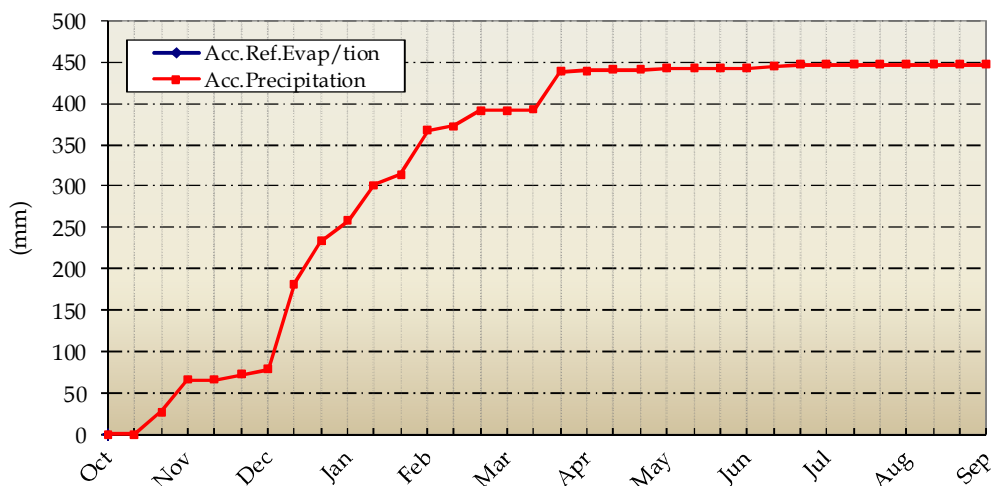
Kalamata

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	32.6	35.6	30.9	31.2	35.6	33.9	34.4	33.7	33.8	33.5	33.4	32.6	30.5
	Min	23.2	20.3	17.1	19.1	19.8	20.9	20.0	19.7	20.1	19.4	18.8	19.9	19.5	17.7
Relative Humidity	Max	92	73	77	86	94	85	90	93	91	88	82	86	83	-
	Min	48	41	24	50	42	32	46	25	31	25	41	37	33	-
Soil Temperature at 10 cm	06 UTC	29.2	29.2	27.8	27.6	28.4	28.2	29.0	28.5	28.5	28.4	28.0	28.4	28.2	25.4
	12 UTC	33.0	33.0	33.0	33.0	32.8	32.8	33.0	33.0	32.6	28.6	32.5	32.5	32.0	29.0
Sunshine Duration		9.6	11.6	11.8	11.8	11.6	11.1	11.4	12.6	11.5	12.5	6.1	11.1	7.3	10.0
Precipitation															3.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	98.6	81.7
Growing Degrees	5	22.5	21.5	21.4	20.0	20.5	23.3	22.0	22.1	21.9	21.6	21.2	237.7	231.5	210.0
	10	17.5	16.5	16.4	15.0	15.5	18.3	17.0	17.1	16.9	16.6	16.2	182.7	176.5	155.0

3rd 10-day period (21-31/08/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	52.5
Precipitation - Reference Evapotranspiration	-	-48.9
Number of Rainy Days	0.0	0.9
Number of Dry Days	77.0	29.0

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



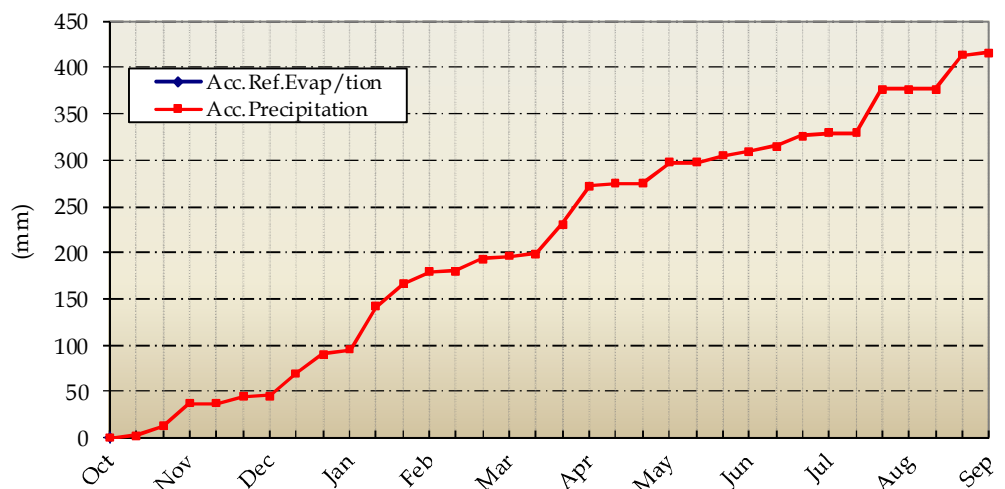
Larisa

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	32.0	32.0	32.4	34.8	37.0	34.2	33.2	35.2	34.0	32.8	33.5	34.9	31.3
	Min	21.2	16.6	16.8	15.6	16.0	17.8	17.8	17.0	18.0	17.0	16.8	17.3	17.2	16.4
Relative Humidity	Max	84	89	77	76	85	98	97	96	95	65	94	87	81	-
	Min	43	31	31	36	24	23	31	37	24	20	57	32	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	27.7
Sunshine Duration		5.3	10.9	11.4	10.9	10.2	7.3	11.4	11.2	11.8	10.9	0.3	9.2	10.2	9.7
Precipitation							3.5						3.5	1.0	8.3
Evaporation		5.8	9.6	11.8	9.4	5.8	8.9	8.5	8.1	13.0	8.1	0.0	89.0	105.1	85.2
Growing Degrees	5	20.9	19.3	19.4	19.0	20.4	22.4	21.0	20.1	21.6	20.5	19.8	224.4	231.7	207.5
	10	15.9	14.3	14.4	14.0	15.4	17.4	16.0	15.1	16.6	15.5	14.8	169.4	176.7	152.5

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.5	57.8	54.4
Precipitation - Reference Evapotranspiration	-51.0	-56.8	-46.1
Number of Rainy Days	1.0	1.0	1.6
Number of Dry Days	6.0	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



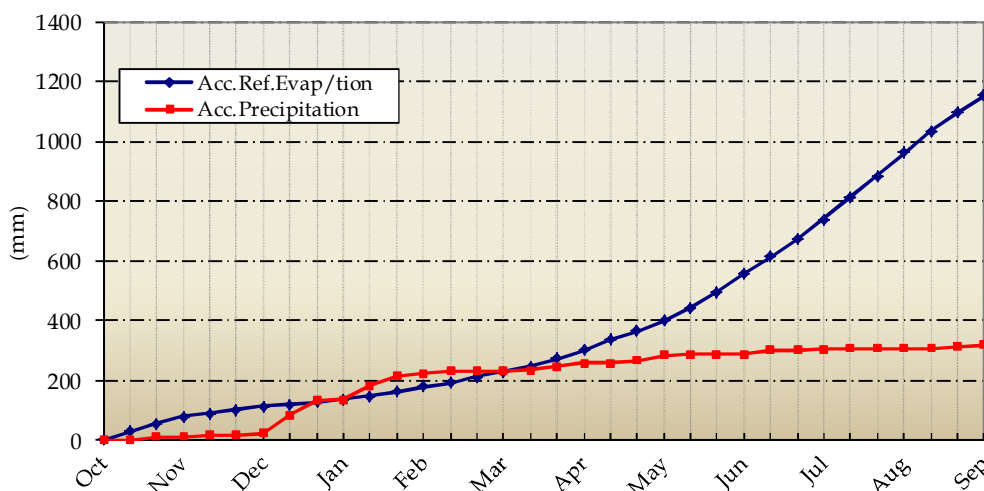
Mikra

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.7	31.7	32.2	31.8	33.2	29.0	33.4	33.9	33.0	31.6	30.8	31.8	33.0	29.9
	Min	20.1	20.0	20.4	19.6	19.2	19.4	19.7	20.9	21.3	24.2	18.0	20.3	19.3	17.9
Relative Humidity	Max	90	92	73	78	81	80	85	81	84	57	84	80	79	-
	Min	47	44	35	42	38	45	37	43	37	23	55	41	35	-
Soil Temperature at 10 cm	06 UTC	26.8	26.2	26.2	26.4	26.4	26.8	26.4	27.6	27.8	27.8	26.8	26.8	25.6	25.1
	12 UTC	28.8	29.6	28.6	28.8	28.8	28.2	29.0	30.0	31.0	27.8	29.2	29.1	28.0	29.4
Sunshine Duration		5.9	11.5	12.2	11.5	9.0	6.2	11.5	11.7	11.4	11.8	0.0	9.3	11.4	9.2
Precipitation		5.8				0.1	0.1						6.0	20.8	10.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	84.9
Growing Degrees	5	19.9	20.9	21.3	20.7	21.2	19.2	21.6	22.4	22.2	22.9	19.4	231.6	232.3	208.0
	10	14.9	15.9	16.3	15.7	16.2	14.2	16.6	17.4	17.2	17.9	14.4	176.6	177.3	153.0

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.0	56.1	53.4
Precipitation - Reference Evapotranspiration	-52.0	-35.3	-42.9
Number of Rainy Days	3.0	2.0	1.6
Number of Dry Days	1.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



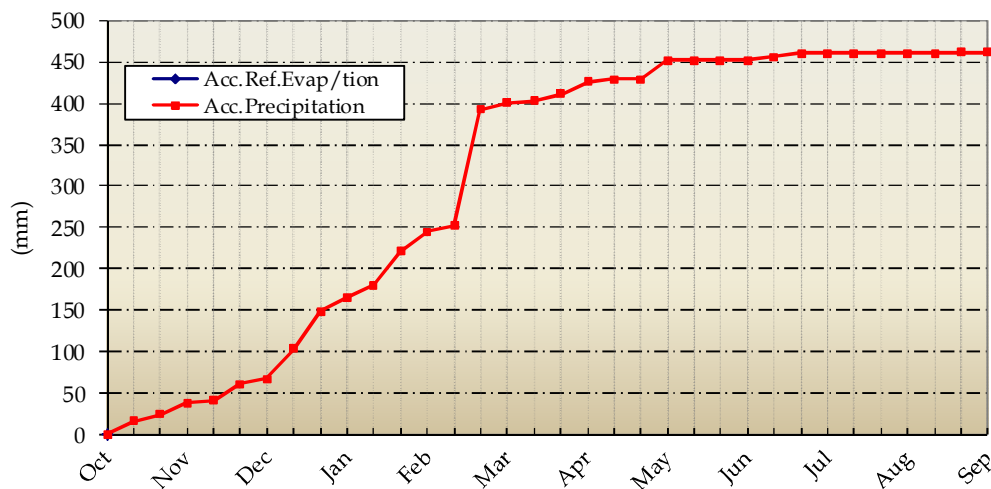
Tanagra

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	30.0	30.2	31.3	34.6	36.2	36.1	33.2	34.5	32.7	32.0	32.9	33.0	30.9
	Min	19.4	20.3	19.6	18.9	15.7	20.7	20.7	20.1	21.6	21.0	19.7	19.8	18.8	17.4
Relative Humidity	Max	60	63	65	60	57	66	70	59	67	63	69	64	64	-
	Min	27	24	28	18	20	18	20	23	22	21	35	23	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.4	12.0	12.0	12.1	11.7	11.0	11.6	11.5	12.3	11.9	9.5	11.5	12.1	
Precipitation															5.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	20.0	20.2	19.9	20.1	20.2	23.5	23.4	21.7	23.1	21.9	20.9	234.6	229.8	
	10	15.0	15.2	14.9	15.1	15.2	18.5	18.4	16.7	18.1	16.9	15.9	179.6	174.8	

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	5.9
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	19.0	22.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



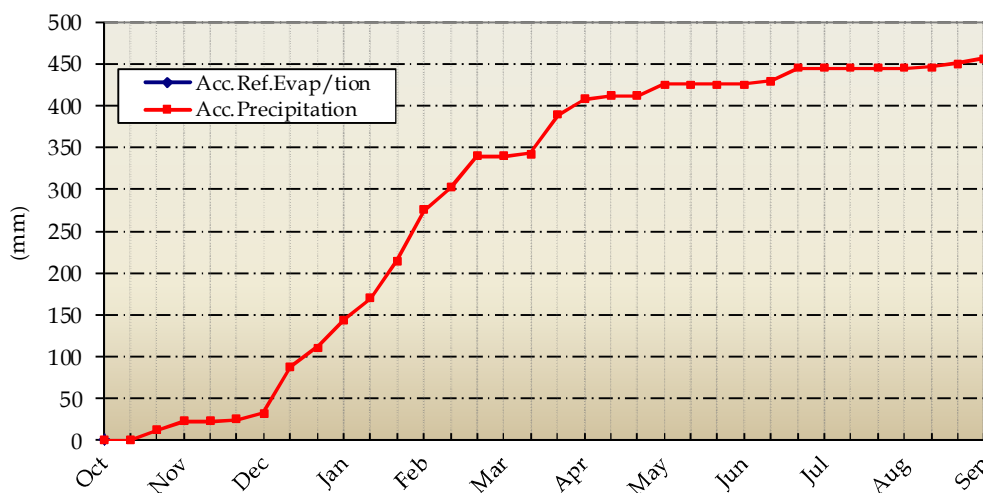
Tripoli

3rd 10-day period (21-31/08/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.4	29.7	30.6	31.2	33.0	32.7	31.5	31.7	31.0	30.2	30.5	31.0	32.1	29.3
	Min	17.2	13.7	13.5	11.1	13.4	14.7	16.0	12.8	14.8	13.4	12.9	14.0	14.2	13.3
Relative Humidity	Max	99	99	86	91	93	86	79	87	90	86	94	90	81	-
	Min	38	28	20	18	18	18	21	17	19	14	40	23	21	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	26.2
Sunshine Duration		7.3	4.4	11.6	10.8	9.6	10.9	11.2	11.6	11.4	11.4	7.4	9.8	10.2	9.5
Precipitation		6.4											6.4	0.4	5.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	54.7
Growing Degrees	5	18.3	16.7	17.1	16.2	18.2	18.7	18.8	17.3	17.9	16.8	16.7	192.5	199.8	179.5
	10	13.3	11.7	12.1	11.2	13.2	13.7	13.8	12.3	12.9	11.8	11.7	137.5	144.8	124.5

3rd 10-day period (21-31/08/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.4	47.7	47.4
Precipitation - Reference Evapotranspiration	-40.0	-47.3	-42.1
Number of Rainy Days	1.0	1.0	1.2
Number of Dry Days	0.0	4.0	-

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

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