



AGROMETEOROLOGICAL BULLETIN

*March 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



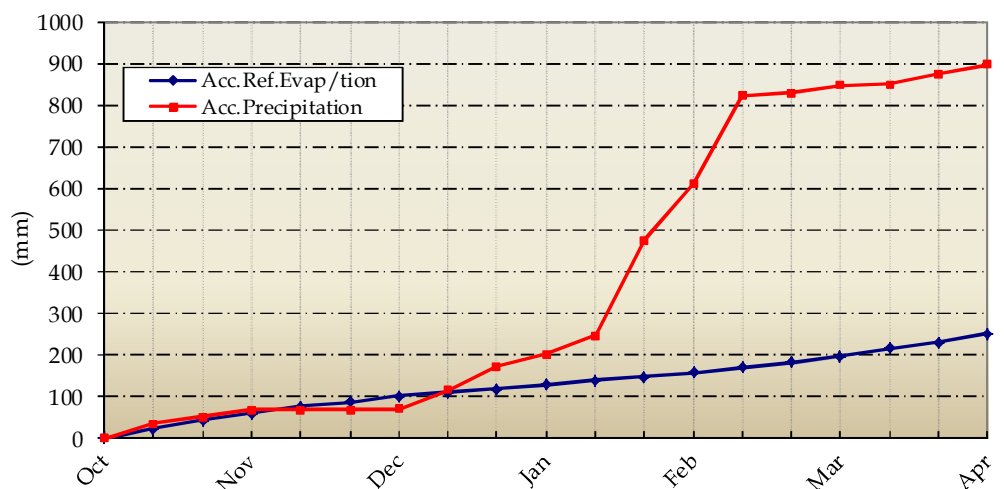
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.2	9.0	9.0	6.4	9.4	12.6	15.6	15.4	16.4	16.4	12.8	11.8	13.7	14.1
	Min	3.8	3.6	4.6	-1.4	-3.6	-2.2	0.2	2.4	10.0	1.2	6.8	2.3	6.0	4.9
Relative Humidity	Max	90	89	69	96	84	88	88	91	90	89	72	86	86	-
	Min	81	77	49	49	35	30	47	58	39	33	38	49	61	-
Soil Temperature at 10 cm	06 UTC	7.2	6.8	6.8	5.2	3.4	4.6	5.8	7.6	10.4	8.4	8.6	6.8	8.8	8.3
	12 UTC	6.8	7.6	7.6	6.6	7.2	9.4	10.4	12.2	11.6	12.0	10.4	9.3	11.6	11.0
Sunshine Duration		0.0	0.0	4.2	1.6	7.7	9.8	10.2	10.0	6.5	7.4	8.8	6.0	3.0	5.5
Precipitation		13.6	7.5	1.5								0.0	22.6	22.1	15.2
Evaporation		2.3	2.9	0.0	0.0	0.0	0.0	3.1	2.9	3.0	5.8	3.5	23.5	27.0	32.3
Growing Degrees	5	0.5	1.3	1.8	0.0	0.0	0.2	2.9	3.9	8.2	3.8	4.8	27.4	53.3	51.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.2	7.1	11.3

3rd 10-day period (21-31/03/2021)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	22.2	21.0	23.3
Precipitation - Reference Evapotranspiration	0.4	1.1	-8.1
Number of Rainy Days	3.0	4.0	2.7
Number of Dry Days	0.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

March 2021

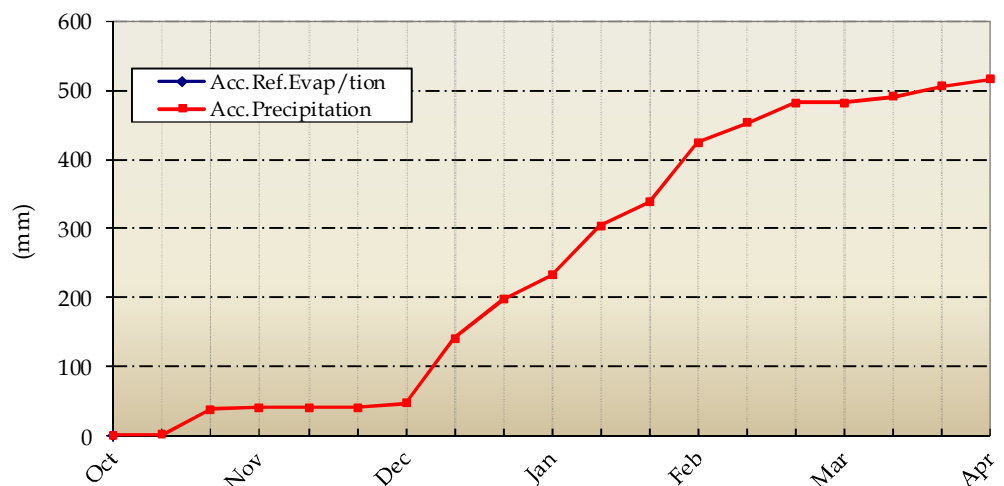
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3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	17.1	14.3	15.0	13.3	15.3	16.4	18.4	19.0	19.8	17.4	17.0	17.7	17.4
	Min	11.2	9.8	7.8	3.2	4.9	0.1	4.6	5.8	5.3	9.8	6.4	6.3	7.0	7.7
Relative Humidity	Max	94	94	96	86	87	91	86	97	98	95	88	92	95	-
	Min	51	50	44	31	28	26	34	46	61	39	30	40	48	-
Soil Temperature at 10 cm	06 UTC	13.6	15.0	14.0	12.4	12.2	10.0	12.0	12.6	13.4	13.4	12.8	12.9	13.5	11.5
	12 UTC	14.8	15.0	15.0	13.4	14.0	14.4	14.2	14.2	14.2	14.8	14.6	14.4	14.9	14.2
Sunshine Duration		3.4	3.7	4.9	10.5	10.5	11.4	11.1	11.0	11.1	8.5	11.7	8.9	6.1	6.8
Precipitation			10.0	0.7									10.7	32.6	19.5
Evaporation		2.0	0.5	2.8	5.0	2.8	6.8	4.6	3.3	3.4	3.0	4.2	38.4	40.8	33.3
Growing Degrees	5	11.1	8.5	6.1	4.1	4.1	2.7	5.5	7.1	7.2	9.8	6.9	73.0	80.9	83.1
	10	6.1	3.5	1.1	0.0	0.0	0.0	0.5	2.1	2.2	4.8	1.9	22.1	25.9	30.3

3rd 10-day period (21-31/03/2021)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	24.8	-	27.1
Precipitation - Reference Evapotranspiration	-14.1	-	-7.6
Number of Rainy Days	2.0	5.0	3.2
Number of Dry Days	1.0	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

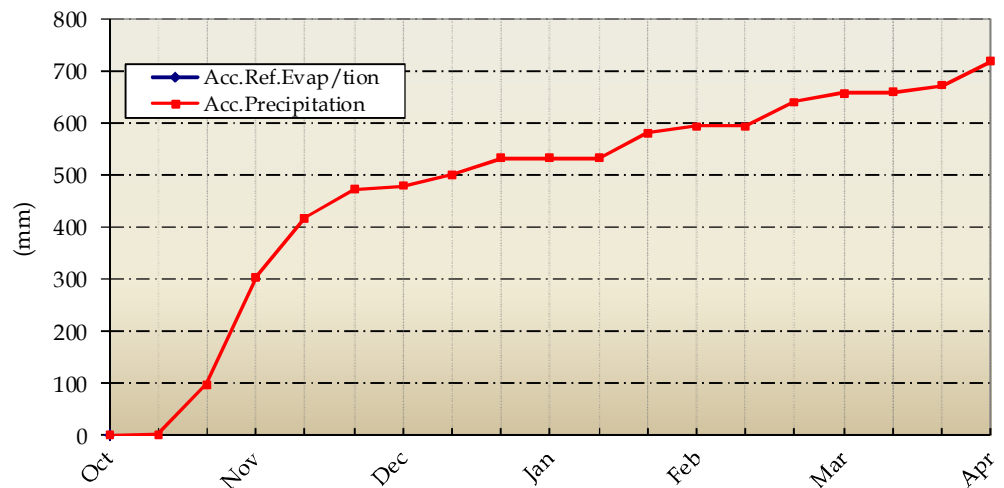


3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.6	19.4	17.0	11.6	9.8	13.8	16.6	16.8	17.4	15.6	13.8	16.0	17.7	17.7
	Min	14.8	14.4	12.2	9.2	7.0	6.0	7.0	6.8	8.2	9.2	12.6	9.8	11.5	10.5
Relative Humidity	Max	85	87	95	88	89	73	81	94	94	86	94	88	90	-
	Min	35	55	61	64	60	55	58	58	68	52	55	56	62	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.5	7.0	4.7	2.4	1.8	10.5	8.1	11.0	10.6	7.7	4.7	7.1	5.4	6.6
Precipitation				13.6	16.5	7.1						9.6	46.8	19.1	15.8
Evaporation		4.2	1.0	3.4	1.2	2.4	2.8	4.3	0.3	5.1	4.8	2.4	31.9	30.3	48.5
Growing Degrees	5	14.7	11.9	9.6	5.4	3.4	4.9	6.8	6.8	7.8	7.4	8.2	86.9	105.5	100.1
	10	9.7	6.9	4.6	0.4	0.0	0.0	1.8	1.8	2.8	2.4	3.2	33.6	50.5	45.5

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	15.8
Number of Rainy Days	4.0	3.0	3.0
Number of Dry Days	2.0	9.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

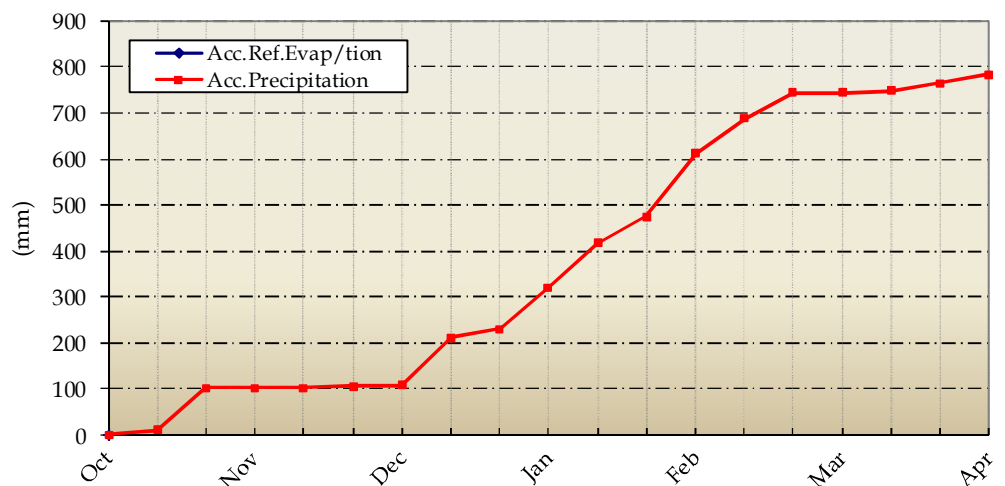


3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.0	12.9	8.9	12.2	10.3	13.2	16.8	18.5	19.0	16.4	17.5	14.7	15.6	15.1
	Min	6.6	7.2	4.0	-1.0	-0.8	-4.1	-2.5	1.0	1.2	7.0	4.7	2.1	3.6	4.4
Relative Humidity	Max	100	100	100	85	43	94	93	97	100	59	88	87	96	-
	Min	59	67	48	31	26	28	35	36	26	30	20	37	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5
Sunshine Duration		0.0	0.9	0.0	9.8	10.4	10.3	9.8	8.0	-	10.3	10.9	7.0	2.4	4.7
Precipitation		8.5	10.5								0.0		19.0	6.3	32.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	28.9
Growing Degrees	5	6.3	5.1	1.5	0.6	0.0	0.0	2.2	4.8	5.1	6.7	6.1	38.2	50.8	50.7
	10	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	1.1	4.3	5.9	11.1

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	22.4
Precipitation - Reference Evapotranspiration	-	-	9.9
Number of Rainy Days	2.0	5.0	3.9
Number of Dry Days	0.0	6.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



Agrometeorological Data

March 2021

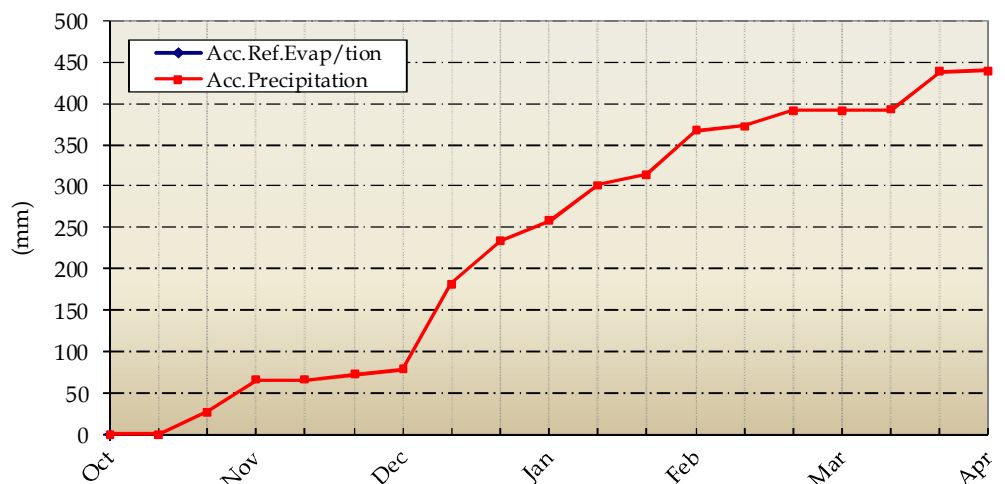
Kalamata

3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	18.0	16.0	16.1	15.2	14.2	17.5	20.9	21.0	20.6	17.8	18.1	19.0	17.8
	Min	11.9	11.2	7.7	5.1	5.1	1.5	1.9	3.6	7.8	11.4	4.8	6.5	8.0	6.9
Relative Humidity	Max	92	97	98	84	63	78	90	89	87	85	76	85	86	-
	Min	51	41	45	17	29	43	27	29	45	23	24	34	41	-
Soil Temperature at 10 cm	06 UTC	13.8	14.0	13.0	11.6	11.6	10.0	10.6	10.2	12.6	14.2	12.8	12.2	13.2	11.8
	12 UTC	15.4	15.2	15.0	14.2	13.4	13.0	13.6	14.2	15.5	16.0	14.2	14.5	15.5	14.2
Sunshine Duration		2.5	8.6	7.0	11.0	7.7	7.8	11.0	10.6	10.3	5.8	11.1	8.5	6.6	6.5
Precipitation			1.1	0.5							0.0	0.1	1.7	25.3	20.1
Evaporation		2.2	3.2	3.8	4.6	3.6	3.6	4.0	4.6	4.8	3.5	6.0	43.9	40.1	37.4
Growing Degrees	5	11.8	9.6	6.9	5.6	5.2	2.9	4.7	7.3	9.4	11.0	6.3	80.5	93.4	81.3
	10	6.8	4.6	1.9	0.6	0.2	0.0	0.0	2.3	4.4	6.0	1.3	27.9	38.4	28.3

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	31.6	27.8
Precipitation - Reference Evapotranspiration	-	-6.3	-7.7
Number of Rainy Days	3.0	7.0	3.3
Number of Dry Days	1.0	5.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

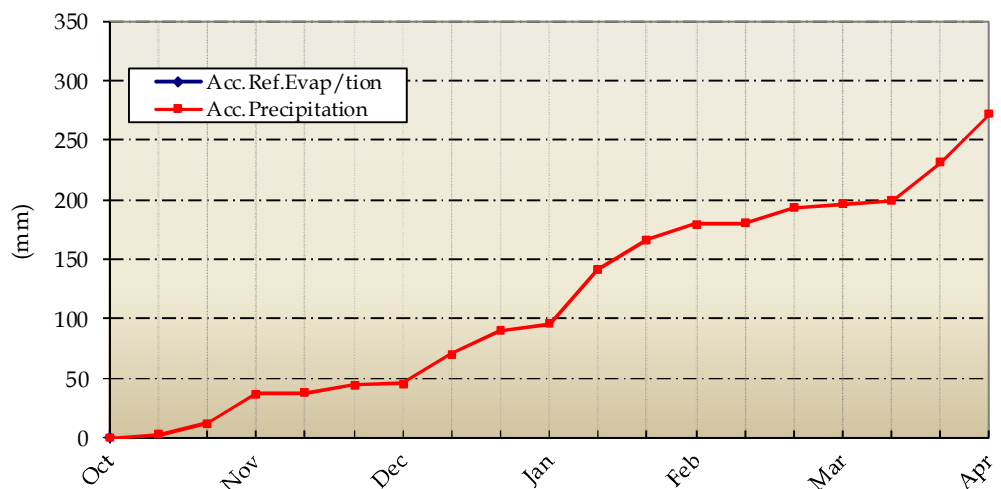


3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	12.0	7.6	12.8	10.2	13.8	17.2	20.1	20.0	17.6	16.4	14.1	15.1	16.9
	Min	6.0	6.6	5.2	0.0	-1.0	-3.4	-1.6	1.6	2.2	7.2	5.6	2.6	5.5	4.2
Relative Humidity	Max	100	98	85	86	81	93	92	95	93	94	92	92	95	-
	Min	84	67	53	29	29	30	30	36	41	38	31	43	60	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	11.4
Sunshine Duration		0.0	3.0	0.0	5.8	7.8	9.1	10.0	10.4	7.4	8.5	10.5	6.6	3.7	6.0
Precipitation		28.6	10.8	1.0							0.3		40.7	35.3	11.3
Evaporation		0.0	0.0	0.9	1.1	5.2	3.6	3.3	2.2	4.7	3.4	4.4	28.8	27.2	32.5
Growing Degrees	5	1.8	4.3	1.4	1.4	0.0	0.2	2.8	5.9	6.1	7.4	6.0	37.3	58.1	61.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.1	2.4	1.0	5.4	7.4	16.3

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.5	20.9	25.6
Precipitation - Reference Evapotranspiration	16.2	14.4	-14.3
Number of Rainy Days	4.0	6.0	3.1
Number of Dry Days	0.0	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

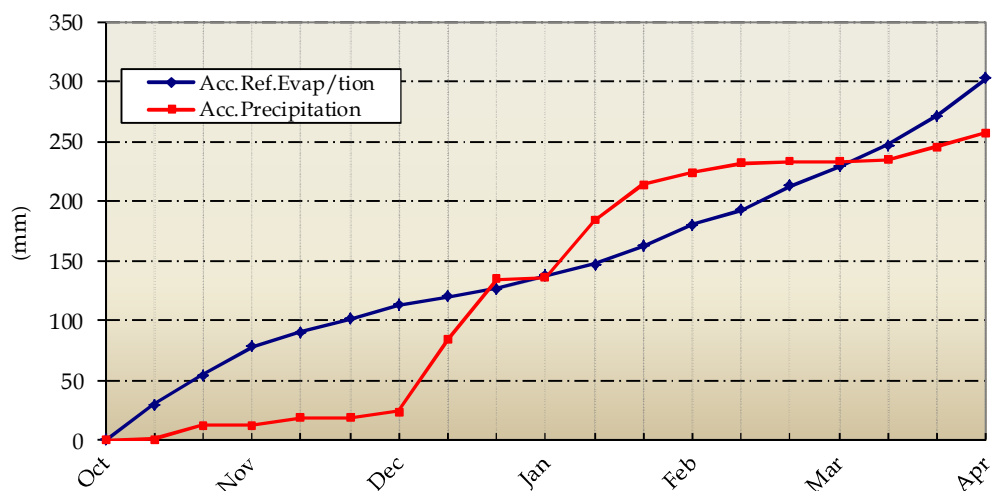


3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.4	9.9	10.4	11.2	11.0	14.4	17.4	19.6	19.6	19.0	17.1	14.4	13.9	16.0
	Min	6.9	6.9	5.7	5.4	-2.0	-1.1	2.5	4.0	6.0	7.6	5.6	4.3	6.6	5.7
Relative Humidity	Max	95	96	72	80	84	85	86	87	90	88	87	86	92	-
	Min	76	64	51	31	26	30	27	39	32	29	24	39	64	-
Soil Temperature at 10 cm	06 UTC	10.2	9.8	8.4	7.6	6.4	6.5	8.6	9.4	11.0	11.8	12.0	9.2	10.5	9.6
	12 UTC	10.4	10.2	9.6	9.2	9.8	11.5	11.2	11.6	13.2	14.4	14.2	11.4	11.5	12.9
Sunshine Duration		0.0	0.0	0.1	9.6	10.8	10.6	11.1	8.6	7.3	9.2	10.6	7.1	3.5	5.4
Precipitation		8.4	2.8	0.0									11.2	30.9	11.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	35.2
Growing Degrees	5	2.7	3.4	3.1	3.3	0.0	1.7	5.0	6.8	7.8	8.3	6.4	48.3	57.8	64.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.8	3.3	1.4	9.3	9.8	17.2

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.8	20.4	25.7
Precipitation - Reference Evapotranspiration	-19.6	10.5	-14.5
Number of Rainy Days	2.0	7.0	2.7
Number of Dry Days	0.0	6.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

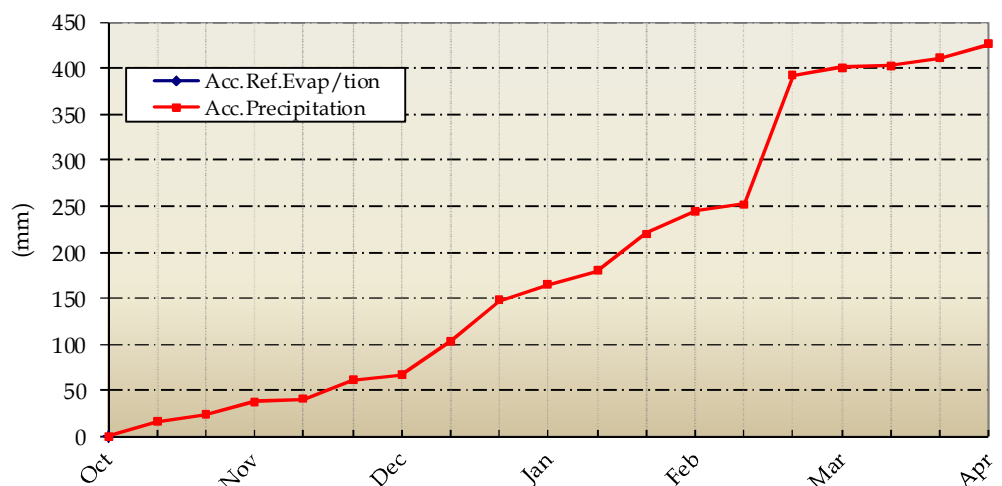


3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	18.0	7.6	11.5	8.5	13.4	16.8	19.1	19.2	16.0	10.5	13.8	15.1	16.7
	Min	8.8	6.6	7.5	4.6	1.9	-3.0	0.0	1.1	3.2	7.2	6.0	4.0	6.4	5.4
Relative Humidity	Max	100	100	96	89	96	84	83	97	96	98	98	94	97	-
	Min	94	40	65	31	28	26	26	30	32	28	51	41	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.1	8.3	0.0	9.3	7.9	10.5	10.6	10.0	9.9	9.3	1.1	7.0	4.3	
Precipitation		0.2		2.7	0.9	1.1						10.2	15.1	32.3	12.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	5.0	7.3	2.6	3.1	0.2	0.2	3.4	5.1	6.2	6.6	3.3	42.9	63.1	
	10	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.1	1.2	1.6	0.0	5.2	10.1	

3rd 10-day period (21-31/03/2021)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	12.3
Number of Rainy Days	5.0	6.0	3.6
Number of Dry Days	0.0	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



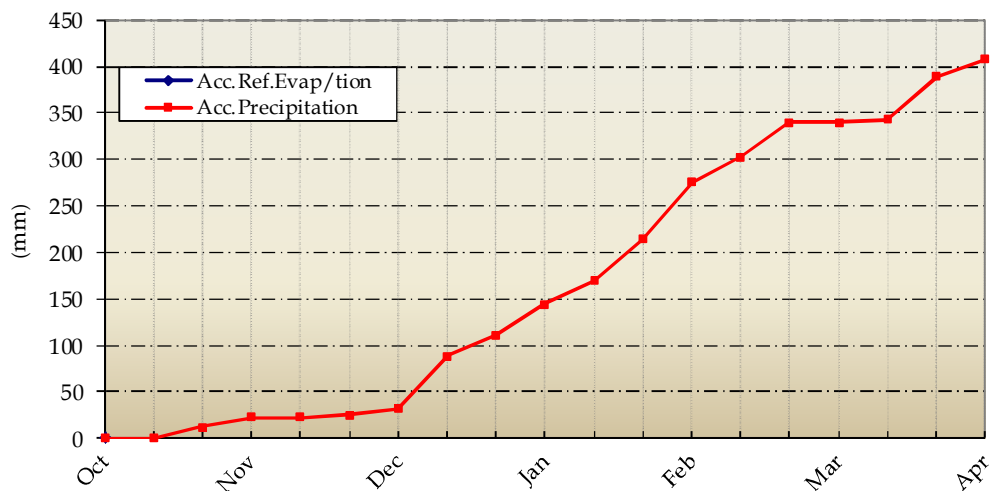
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3rd 10-day period (21-31/03/2021)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.1	10.8	9.5	10.8	7.1	11.2	14.4	17.4	18.1	12.8	9.7	12.3	13.8	14.8
	Min	7.7	7.6	2.1	0.8	0.1	-4.0	-2.8	-1.5	-0.2	4.3	0.6	1.3	3.7	3.1
Relative Humidity	Max	97	91	97	96	86	92	96	98	99	91	92	94	95	-
	Min	73	51	61	23	38	27	27	18	18	32	37	37	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	9.5
Sunshine Duration		1.6	3.8	1.6	6.9	2.5	8.9	8.8	8.9	6.3	5.8	8.2	5.8	5.1	6.3
Precipitation		0.0	13.3	3.8	0.0	0.0			0.0	0.2		1.4	18.7	25.5	22.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	26.8
Growing Degrees	5	5.4	4.2	0.8	0.8	0.0	0.0	0.8	3.0	4.0	3.6	0.2	22.6	40.9	45.6
	10	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	7.9

3rd 10-day period (21-31/03/2021)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	25.6
Precipitation - Reference Evapotranspiration	-	-2.7
Number of Rainy Days	4.0	3.9
Number of Dry Days	1.0	-

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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