



AGROMETEOROLOGICAL BULLETIN

March 2020
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



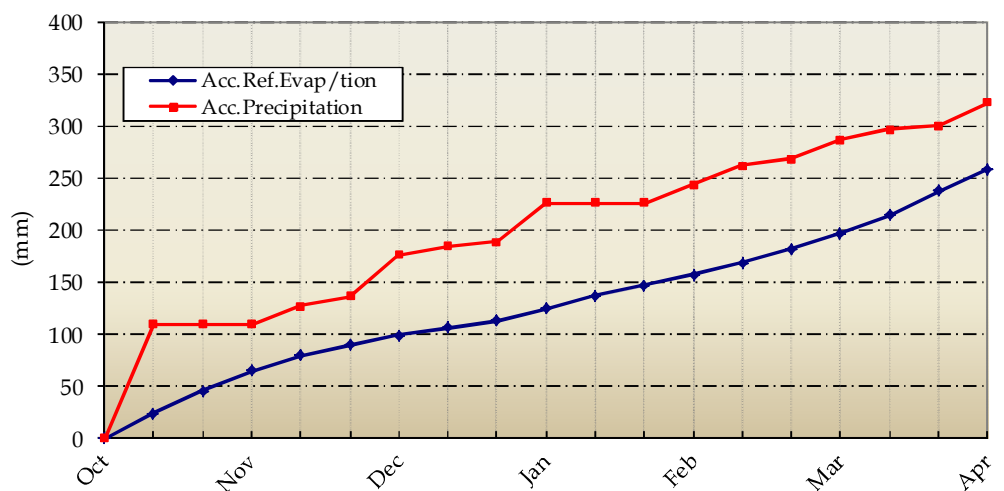
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	18.4	14.0	8.2	8.4	12.0	14.0	12.6	14.6	15.6	16.0	13.7	17.0	14.1
	Min	3.0	4.0	7.4	5.6	4.8	6.0	8.2	5.8	8.6	9.4	3.0	6.0	4.1	4.9
Relative Humidity	Max	90	91	91	91	79	87	83	91	92	90	66	86	76	-
	Min	37	58	71	83	63	66	57	66	71	58	44	61	28	-
Soil Temperature at 10 cm	06 UTC	8.8	9.8	10.6	8.6	7.4	7.6	8.4	8.6	9.8	7.4	9.4	8.8	10.2	8.3
	12 UTC	14.4	14.0	11.6	9.0	8.6	8.4	9.6	10.4	13.0	14.8	13.4	11.6	15.3	11.0
Sunshine Duration		9.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.3	9.6	3.0	9.3	5.5
Precipitation				0.8	5.8				0.5	15.0			22.1	0.6	15.2
Evaporation		3.5	3.5	2.0	3.7	2.4	1.4	0.8	1.5	0.6	4.1	3.5	27.0	44.6	32.3
Growing Degrees	5	5.0	6.2	5.7	1.9	1.6	4.0	6.1	4.2	6.6	7.5	4.5	53.3	61.1	51.2
	10	0.0	1.2	0.7	0.0	0.0	0.0	1.1	0.0	1.6	2.5	0.0	7.1	9.9	11.3

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.0	30.8	23.3
Precipitation - Reference Evapotranspiration	1.1	-30.2	-8.1
Number of Rainy Days	4.0	1.0	2.7
Number of Dry Days	7.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

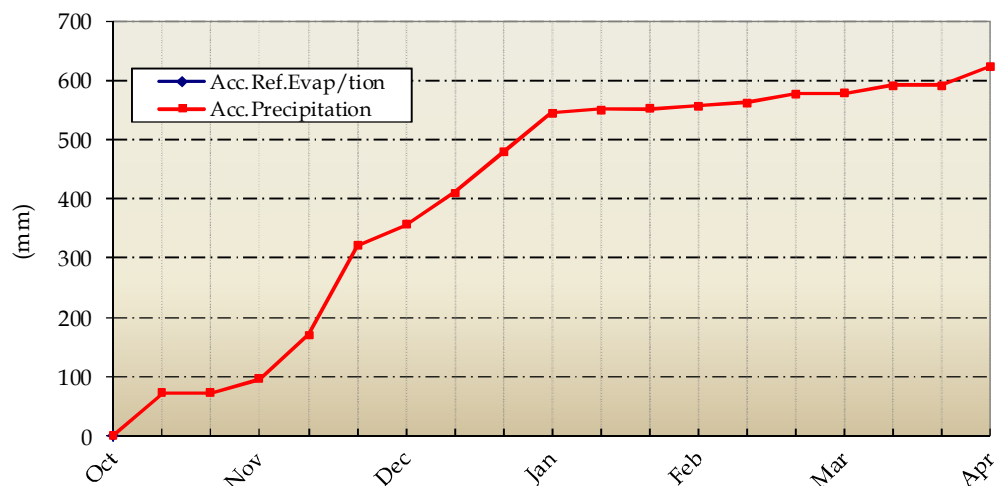


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	16.0	15.9	15.8	17.8	17.9	15.9	17.4	17.0	19.5	19.7	17.7	19.1	17.4
	Min	3.6	9.0	11.2	7.7	2.3	8.6	9.3	7.5	6.2	4.3	7.7	7.0	6.3	7.7
Relative Humidity	Max	94	94	97	87	96	96	97	95	97	97	97	95	88	-
	Min	32	63	67	31	37	54	50	56	57	47	33	48	34	-
Soil Temperature at 10 cm	06 UTC	13.4	14.2	14.6	13.8	12.8	13.2	13.0	12.8	13.6	13.6	14.0	13.5	12.9	11.5
	12 UTC	15.2	14.8	14.0	14.0	15.0	13.6	13.6	14.2	15.2	16.6	17.4	14.9	15.6	14.2
Sunshine Duration		9.8	0.0	0.0	10.8	3.5	0.0	7.2	6.0	10.1	9.5	10.3	6.1	8.8	6.8
Precipitation			0.0	3.9		0.0	11.9	9.3	6.6	0.9			32.6	21.0	19.5
Evaporation		4.7	3.4	0.5	6.1	0.6	3.1	0.5	3.6	6.1	5.0	7.2	40.8	59.8	33.3
Growing Degrees	5	7.5	7.5	8.6	6.8	5.1	8.3	7.6	7.5	6.6	6.9	8.7	80.9	84.6	83.1
	10	2.5	2.5	3.6	1.8	0.1	3.3	2.6	2.5	1.6	1.9	3.7	25.9	29.6	30.3

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	33.1	27.1
Precipitation - Reference Evapotranspiration	-	-12.1	-7.6
Number of Rainy Days	5.0	1.0	3.2
Number of Dry Days	6.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

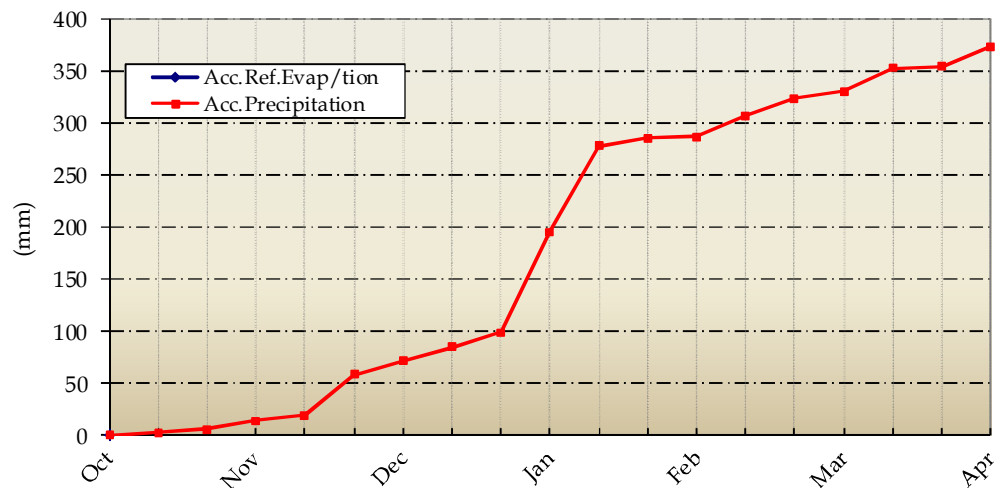


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	18.4	19.2	17.8	16.4	16.6	17.0	18.4	18.0	17.6	17.4	17.7	16.0	17.7
	Min	13.4	10.0	11.0	10.4	10.8	12.2	13.2	10.4	10.0	12.4	12.8	11.5	12.4	10.5
Relative Humidity	Max	87	81	93	95	93	93	95	85	87	88	89	90	83	-
	Min	55	51	55	71	69	83	52	46	58	65	76	62	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.0	3.5	9.5	7.1	1.6	0.2	7.3	10.7	6.4	1.6	1.8	5.4	6.0	6.6
Precipitation							8.7	5.2				5.2	19.1	19.3	15.8
Evaporation		1.3	1.0	6.6	2.7	0.5	3.1	4.9	2.3	2.7	2.4	2.8	30.3	30.7	48.5
Growing Degrees	5	10.5	9.2	10.1	9.1	8.6	9.4	10.1	9.4	9.0	10.0	10.1	105.5	100.9	100.1
	10	5.5	4.2	5.1	4.1	3.6	4.4	5.1	4.4	4.0	5.0	5.1	50.5	45.9	45.5

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	32.0	-
Precipitation - Reference Evapotranspiration	-	-12.7	15.8
Number of Rainy Days	3.0	4.0	3.0
Number of Dry Days	9.0	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

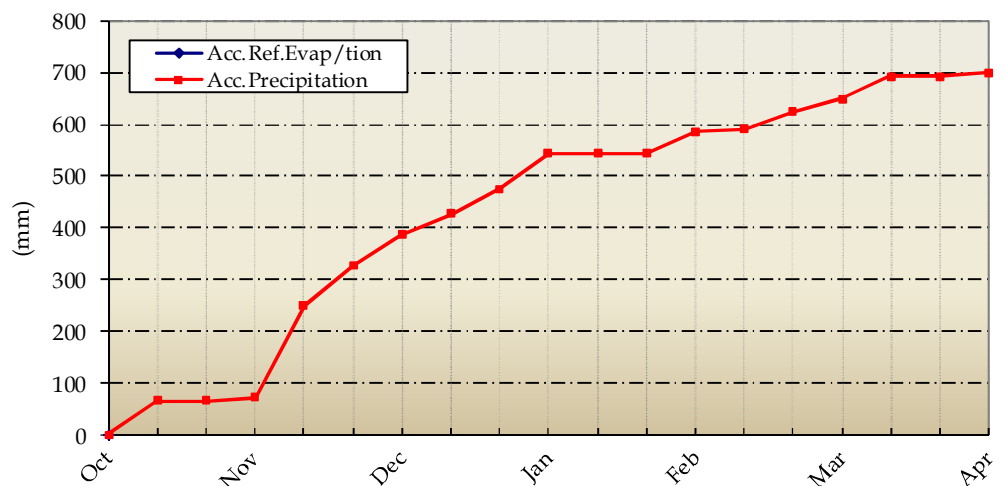


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.5	17.0	11.7	10.7	15.5	16.0	12.4	13.7	15.0	19.2	19.3	15.6	17.9	15.1
	Min	3.2	2.5	8.0	1.0	-0.3	7.3	7.0	1.6	3.9	3.0	2.3	3.6	7.4	4.4
Relative Humidity	Max	98	100	99	95	93	77	100	99	100	100	98	96	73	-
	Min	30	50	76	27	35	35	75	45	59	33	27	45	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5
Sunshine Duration		8.6	0.0	0.0	0.0	0.0	0.0	0.0	1.2	3.9	5.0	7.5	2.4	7.8	4.7
Precipitation			1.7	3.6	0.3		0.1	0.6	0.0	0.0		0.0	6.3	0.0	32.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	28.9
Growing Degrees	5	7.4	4.8	4.9	0.9	2.6	6.7	4.7	2.7	4.5	6.1	5.8	50.8	84.4	50.7
	10	2.4	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	1.1	0.8	5.9	31.7	11.1

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	22.4
Precipitation - Reference Evapotranspiration	-	-	9.9
Number of Rainy Days	5.0	0.0	3.9
Number of Dry Days	6.0	16.0	-

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

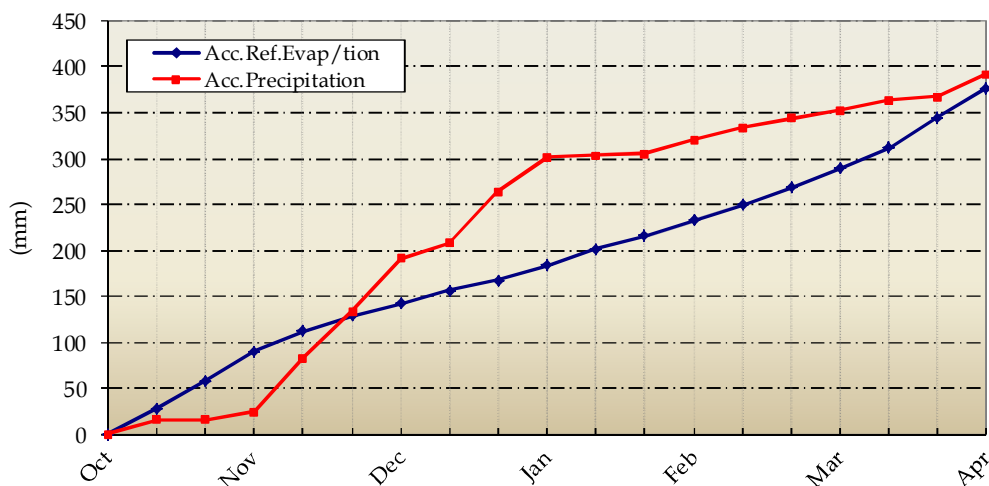
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	18.2	19.6	18.6	18.0	18.9	17.8	18.4	19.3	19.9	20.0	19.0	19.2	17.8
	Min	3.7	8.4	9.6	9.7	5.0	11.0	9.2	7.3	8.2	7.1	8.7	8.0	6.9	6.9
Relative Humidity	Max	85	85	82	79	80	79	96	95	100	93	77	86	80	-
	Min	35	56	44	25	38	48	42	47	43	39	34	41	33	-
Soil Temperature at 10 cm	06 UTC	12.5	13.5	13.4	13.8	12.5	12.8	13.2	12.8	13.0	13.2	14.0	13.2	13.0	11.8
	12 UTC	15.5	14.5	16.0	17.0	14.5	14.2	15.6	15.5	14.0	16.5	17.0	15.5	14.9	14.2
Sunshine Duration		9.5	3.0	4.0	10.7	2.6	0.9	8.4	7.6	7.6	8.0	10.1	6.6	8.7	6.5
Precipitation			0.6	0.3		1.5	6.9	12.1	3.6	0.3			25.3	25.9	20.1
Evaporation		1.0	0.1	3.8	5.4	0.2	0.9	12.6	2.5	4.0	3.2	6.4	40.1	50.7	37.4
Growing Degrees	5	7.0	8.3	9.6	9.2	6.5	10.0	8.5	7.9	8.8	8.5	9.4	93.4	88.6	81.3
	10	2.0	3.3	4.6	4.2	1.5	5.0	3.5	2.9	3.8	3.5	4.4	38.4	33.6	28.3

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.6	38.1	27.8
Precipitation - Reference Evapotranspiration	-6.3	-12.2	-7.7
Number of Rainy Days	7.0	2.0	3.3
Number of Dry Days	5.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

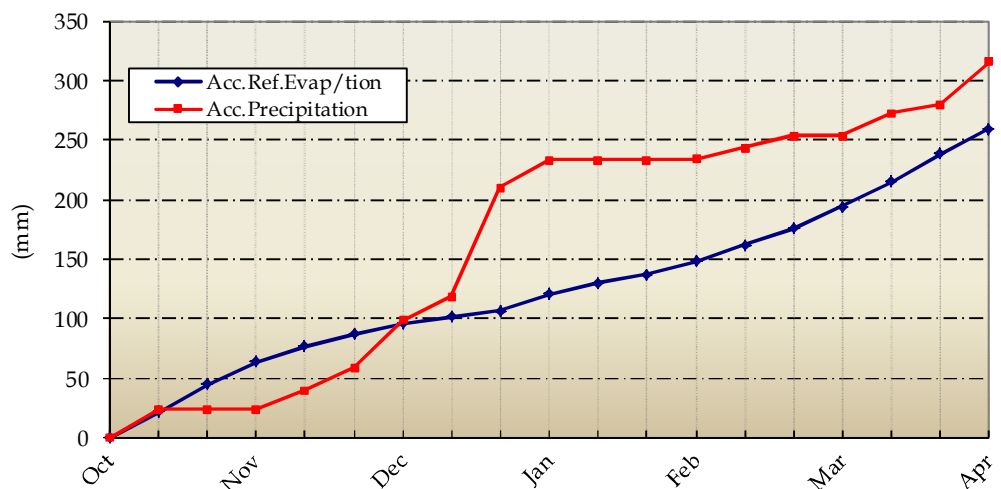


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	18.6	13.4	12.4	10.2	11.0	10.4	14.4	17.0	19.2	18.2	15.1	17.9	16.9
	Min	2.6	4.0	6.2	4.4	7.6	7.8	8.0	6.4	8.0	2.5	2.6	5.5	5.1	4.2
Relative Humidity	Max	90	95	98	97	91	94	98	98	95	98	96	95	86	-
	Min	36	60	75	70	71	70	73	59	50	45	48	60	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	11.4
Sunshine Duration		9.6	1.7	0.0	3.8	0.0	0.0	0.0	3.1	4.9	9.4	8.2	3.7	8.6	6.0
Precipitation				14.8	10.8	0.7	3.6	4.6	0.8				35.3	4.6	11.3
Evaporation		3.6	3.2	1.3	0.2	1.8	1.2	2.6	0.6	3.2	5.2	4.3	27.2	43.9	32.5
Growing Degrees	5	6.9	6.3	4.8	3.4	3.9	4.4	4.2	5.4	7.5	5.9	5.4	58.1	71.1	61.7
	10	1.9	1.3	0.0	0.0	0.0	0.0	0.0	0.4	2.5	0.9	0.4	7.4	18.0	16.3

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.9	31.2	25.6
Precipitation - Reference Evapotranspiration	14.4	-26.6	-14.3
Number of Rainy Days	6.0	2.0	3.1
Number of Dry Days	6.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

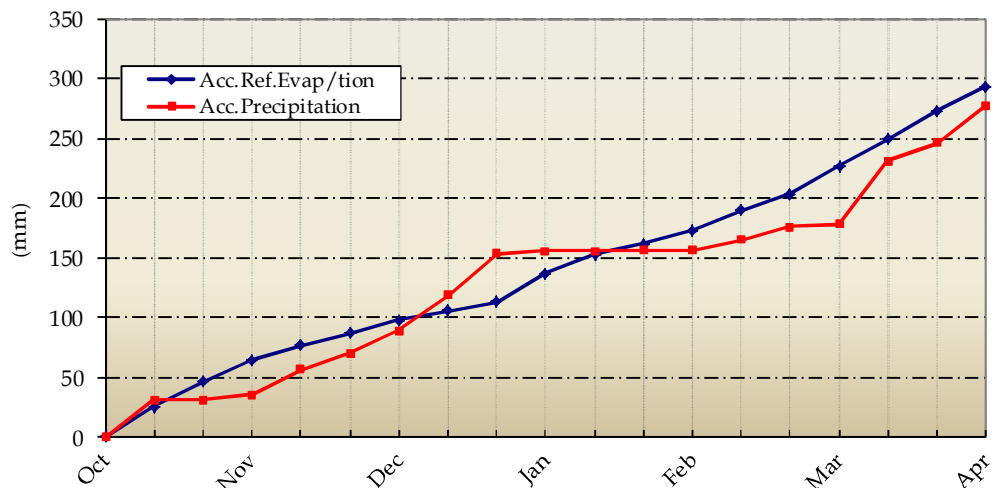


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	15.9	15.2	7.5	11.1	10.3	9.5	10.5	16.0	19.4	17.8	13.9	17.5	16.0
	Min	4.7	6.2	5.3	4.2	8.6	7.8	8.4	8.0	8.4	4.9	5.6	6.6	7.2	5.7
Relative Humidity	Max	87	90	91	95	86	92	93	97	94	94	98	92	84	-
	Min	41	65	78	85	58	65	85	82	59	42	48	64	38	-
Soil Temperature at 10 cm	06 UTC	11.2	11.6	12.0	9.0	9.6	10.0	10.0	9.8	10.4	10.8	11.6	10.5	12.1	9.6
	12 UTC	13.2	13.0	11.8	9.4	10.4	9.8	10.2	10.5	12.4	12.8	13.0	11.5	14.8	12.9
Sunshine Duration		10.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	8.6	10.4	8.7	3.5	7.8	5.4
Precipitation				6.2	3.2	0.2	1.1	10.9	8.7	0.6			30.9	0.0	11.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	35.2
Growing Degrees	5	7.5	6.1	5.3	0.9	4.9	4.1	4.0	4.3	7.2	7.2	6.7	57.8	80.7	64.3
	10	2.5	1.1	0.3	0.0	0.0	0.0	0.0	0.0	2.2	2.2	1.7	9.8	25.7	17.2

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.4	31.4	25.7
Precipitation - Reference Evapotranspiration	10.5	-31.4	-14.5
Number of Rainy Days	7.0	0.0	2.7
Number of Dry Days	6.0	18.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



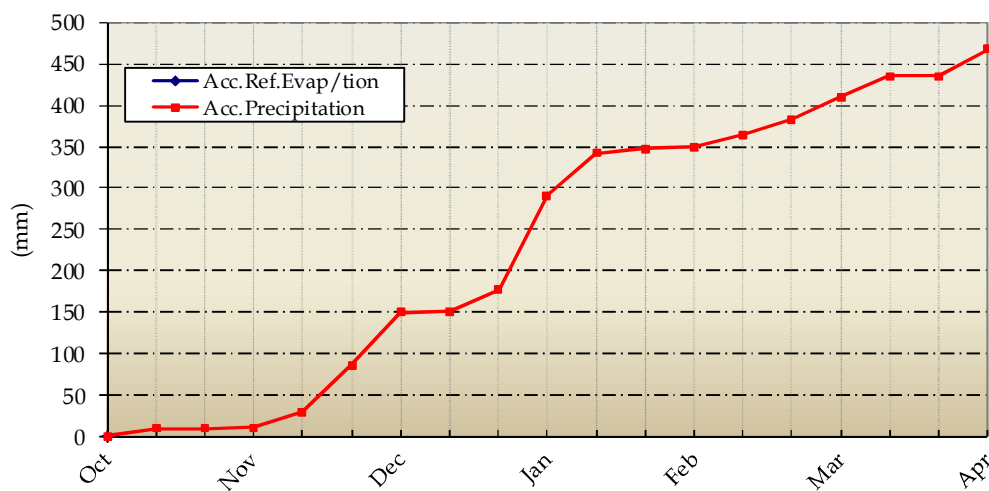
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3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.5	17.6	15.1	13.4	11.5	11.3	10.9	14.1	15.9	17.8	17.6	15.1	15.0	16.7
	Min	3.0	5.0	11.1	8.6	6.0	8.6	9.5	4.4	6.1	3.0	5.1	6.4	6.2	5.4
Relative Humidity	Max	91	87	99	99	99	100	100	100	100	100	97	97	83	-
	Min	31	46	71	65	65	92	92	57	51	36	38	59	42	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.0	1.2	0.0	4.1	0.2	0.0	0.0	5.3	6.4	9.4	10.2	4.3	7.7	
Precipitation				5.5	2.3	0.3	10.6	11.6	2.0				32.3	4.0	12.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	6.8	6.3	8.1	6.0	3.8	5.0	5.2	4.3	6.0	5.4	6.4	63.1	61.8	
	10	1.8	1.3	3.1	1.0	0.0	0.0	0.2	0.0	1.0	0.4	1.4	10.1	7.2	

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	27.7	
Precipitation - Reference Evapotranspiration	-	-23.7	12.3
Number of Rainy Days	6.0	1.0	3.6
Number of Dry Days	6.0	12.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

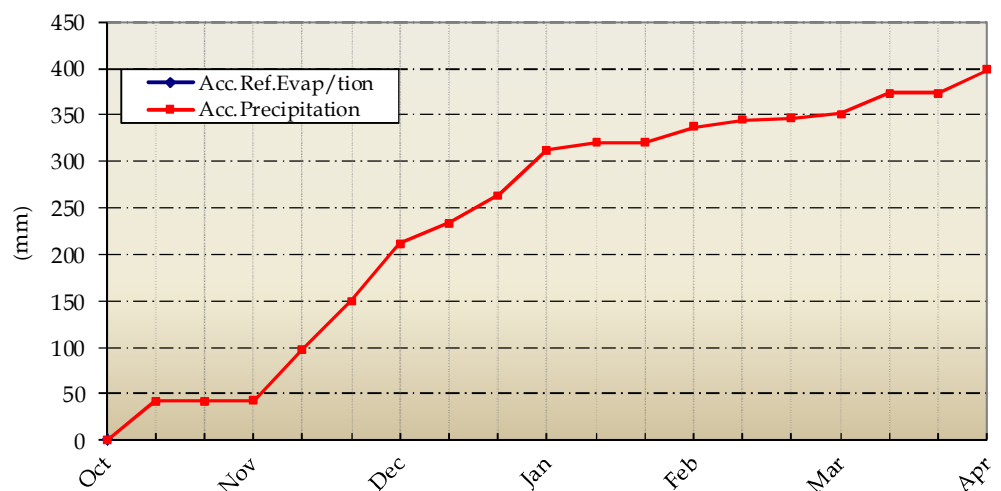


3rd 10-day period (21-31/03/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.9	12.7	14.8	14.3	10.5	9.2	12.0	13.9	14.1	15.0	16.2	13.8	14.2	14.8
	Min	-0.2	3.5	6.1	5.9	0.6	6.8	6.0	0.7	6.3	0.1	4.4	3.7	4.3	3.1
Relative Humidity	Max	88	94	97	97	97	91	98	94	97	100	94	95	79	-
	Min	30	57	51	31	56	79	42	42	42	37	33	45	35	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.6	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.4	9.5
Sunshine Duration		9.9	0.0	3.7	6.2	3.0	0.0	5.5	7.7	6.3	7.8	5.6	5.1	7.7	6.3
Precipitation			1.0	2.1		0.0	12.4	8.0	0.8	0.9		0.3	25.5	41.4	22.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	26.8
Growing Degrees	5	4.4	3.1	5.5	5.1	0.6	3.0	4.0	2.3	5.2	2.6	5.3	40.9	46.7	45.6
	10	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.3	1.1	3.9	7.9

3rd 10-day period (21-31/03/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	32.8	25.6
Precipitation - Reference Evapotranspiration	-	8.6	-2.7
Number of Rainy Days	7.0	3.0	3.9
Number of Dry Days	12.0	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





◆ **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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Issue Editors :

Papakrivou Anastasia

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