



# AGROMETEOROLOGICAL BULLETIN

*March 2022*  
*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

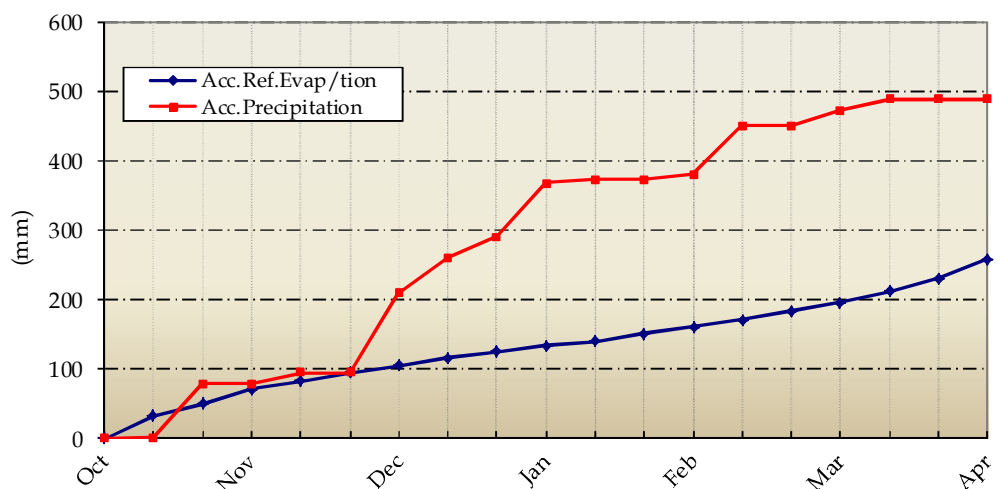
*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

Alexandroupoli

3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.2	14.6	13.6	13.8	17.4	14.4	15.2	16.4	17.4	17.6	15.8	15.1	11.8	14.5
	Min	0.6	-1.0	6.4	-3.4	0.4	2.4	3.4	3.0	8.2	6.6	10.4	3.4	2.3	5.4
Relative Humidity	Max	81	65	71	86	89	87	85	97	97	95	89	86	86	89
	Min	27	26	24	34	26	40	52	58	52	65	77	44	49	52
Soil Temperature at 10 cm	06 UTC	4.2	4.6	7.0	5.8	6.6	7.6	8.2	9.3	11.0	11.0	12.8	8.0	6.8	9.3
	12 UTC	6.6	8.4	9.8	10.8	11.6	11.8	12.8	13.2	14.6	13.2	14.2	11.5	9.3	11.9
Sunshine Duration		7.8	7.7	8.3	10.5	10.4	10.6	11.8	5.7	7.5	7.1	0.3	8.0	6.0	6.3
Precipitation												0.0	0.0	22.6	14.5
Evaporation		0.0	0.0	0.0	0.0	2.4	3.5	3.8	2.0	3.2	1.3	3.1	19.3	23.5	35.0
Growing Degrees	5	0.4	1.8	5.0	0.2	3.9	3.4	4.3	4.7	7.8	7.1	8.1	46.7	27.4	49.5
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.1	3.1	8.0	3.2	12.2

3rd 10-day period (21-31/03/2022)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	27.5	22.2	18.4
Precipitation - Reference Evapotranspiration	-27.5	0.4	-3.9
Number of Rainy Days	0.0	3.0	2.5
Number of Dry Days	14.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

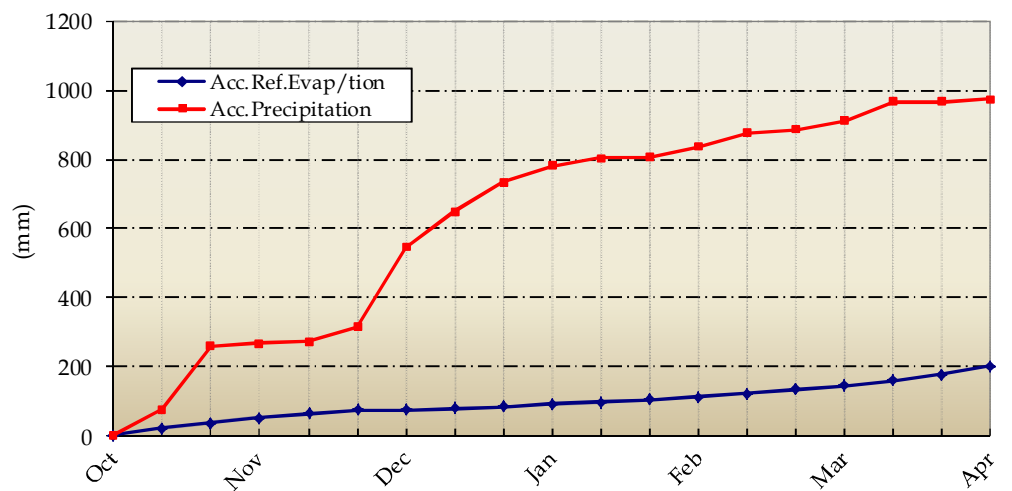


3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	14.6	14.8	17.0	18.5	18.3	19.2	19.4	19.6	19.5	18.2	17.3	17.0	17.5
	Min	1.2	1.0	4.7	1.6	4.8	5.5	6.4	9.9	10.3	8.6	11.6	6.0	6.3	7.9
Relative Humidity	Max	80	83	81	91	92	93	88	91	95	92	94	89	92	91
	Min	35	26	36	39	51	52	26	51	44	51	30	40	40	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.9	12.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.4	15.7
Sunshine Duration		10.9	10.5	10.0	10.9	11.0	10.3	10.3	5.2	7.6	7.2	3.7	8.9	8.9	7.0
Precipitation									4.2	4.1		0.0	8.3	10.7	15.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	38.4	41.6
Growing Degrees	5	1.2	2.8	4.8	4.3	6.7	6.9	7.8	9.7	10.0	9.1	9.9	73.0	73.0	69.2
	10	0.0	0.0	0.0	0.0	1.7	1.9	2.8	4.7	5.0	4.1	4.9	24.9	22.1	25.6

3rd 10-day period (21-31/03/2022)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.8	16.7
Precipitation - Reference Evapotranspiration	-16.5	-0.9
Number of Rainy Days	2.0	3.0
Number of Dry Days	18.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

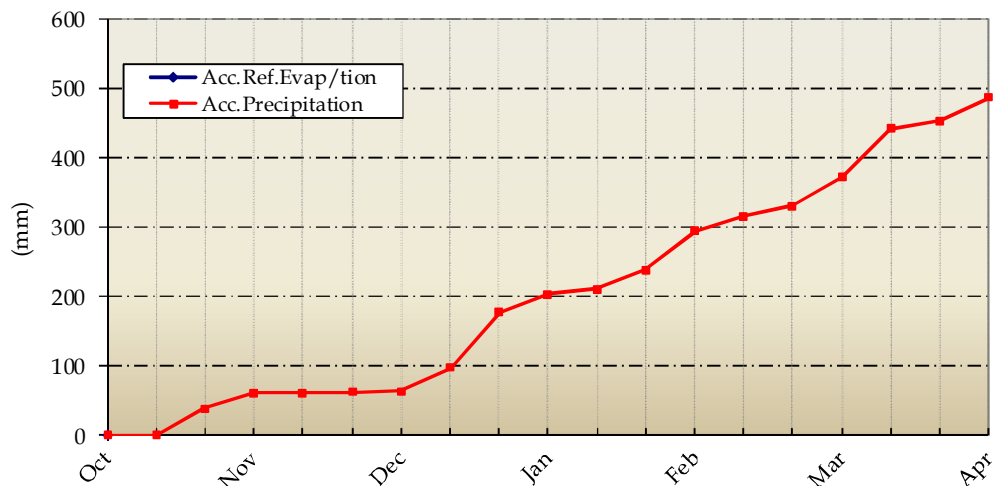


3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	11.0	12.2	13.2	19.0	18.0	17.2	19.2	19.4	18.0	21.6	16.2	16.0	18.2
	Min	6.6	6.8	6.0	8.6	6.4	8.6	8.0	9.0	14.8	11.0	12.0	8.9	9.8	10.8
Relative Humidity	Max	77	88	91	66	77	86	80	73	79	86	83	81	88	85
	Min	46	50	47	44	35	52	42	22	19	59	21	40	56	54
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.6	1.5	2.3	8.5	11.2	9.8	10.1	1.9	6.8	5.4	3.3	5.6	7.1	7.0
Precipitation		0.3	2.5	24.1	6.4								33.3	46.8	15.0
Evaporation		3.1	0.0	0.1	2.2	3.4	2.4	1.5	4.7	3.3	1.1	6.1	27.9	31.9	38.5
Growing Degrees	5	3.1	3.9	4.1	5.9	7.7	8.3	7.6	9.1	12.1	9.5	11.8	83.1	86.9	92.8
	10	0.0	0.0	0.0	0.9	2.7	3.3	2.6	4.1	7.1	4.5	6.8	32.0	33.6	44.1

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	4.0	4.0	2.9
Number of Dry Days	2.0	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



# Agrometeorological Data

March 2022

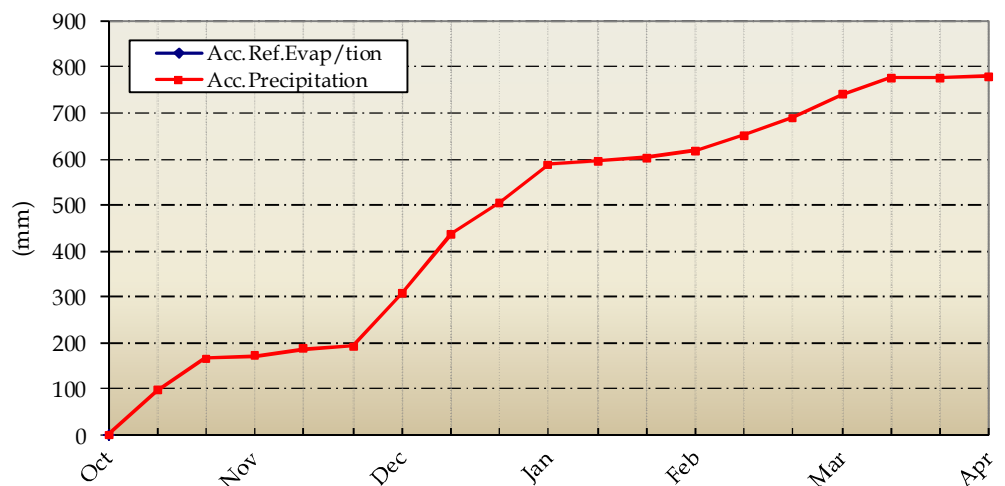
Ioannina

3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.0	14.5	15.8	18.9	20.3	20.4	19.4	16.8	20.1	17.0	15.1	16.9	14.7	15.5
	Min	2.2	-0.6	6.2	-1.2	-3.0	-2.1	1.0	4.1	2.8	0.6	10.4	1.9	2.1	4.2
Relative Humidity	Max	35	41	45	94	100	95	98	87	95	100	100	81	87	93
	Min	27	23	14	18	19	16	23	42	28	43	46	27	37	48
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	8.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	9.0
Sunshine Duration		9.0	10.3	10.2	10.4	10.2	10.3	5.3	0.3	9.0	0.1	0.0	6.8	7.0	4.9
Precipitation											0.0	3.1	3.1	19.0	27.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	0.1	2.0	6.0	3.9	3.7	4.2	5.2	5.5	6.5	3.8	7.8	48.4	38.2	44.4
	10	0.0	0.0	1.0	0.0	0.0	0.0	0.2	0.5	1.5	0.0	2.8	5.9	4.3	10.6

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	18.1
Precipitation - Reference Evapotranspiration	-	-	9.6
Number of Rainy Days	1.0	2.0	3.4
Number of Dry Days	21.0	0.0	-

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

## March 2022

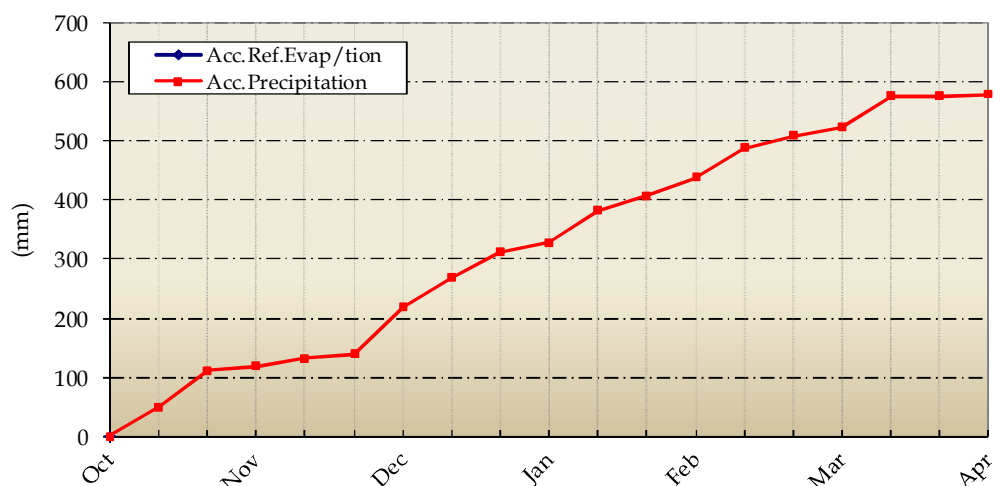
Kalamata

3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.9	15.4	14.9	19.1	21.7	18.9	19.8	19.5	18.4	18.5	17.8	17.9	18.1	18.1
	Min	6.2	1.2	4.9	-1.1	3.7	6.9	4.6	10.9	8.1	8.3	11.2	5.9	6.5	7.4
Relative Humidity	Max	67	75	81	92	86	92	93	92	95	97	97	88	85	92
	Min	27	26	31	15	28	42	28	33	54	66	53	37	34	48
Soil Temperature at 10 cm	06 UTC	9.2	9.0	9.6	9.4	9.6	12.0	11.2	13.8	13.0	13.2	14.6	11.3	12.2	12.5
	12 UTC	10.2	10.4	11.2	11.0	13.8	13.6	13.8	13.8	14.0	15.0	15.0	12.9	14.5	14.3
Sunshine Duration		10.5	9.9	10.6	10.6	10.8	10.5	8.5	3.1	4.7	6.0	0.1	7.8	8.5	7.1
Precipitation				0.1					1.5	0.1	0.1		1.8	1.7	21.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	43.9	41.1
Growing Degrees	5	4.6	3.3	4.9	4.0	7.7	7.9	7.2	10.2	8.3	8.4	9.5	75.9	80.5	75.0
	10	0.0	0.0	0.0	0.0	2.7	2.9	2.2	5.2	3.3	3.4	4.5	24.2	27.9	28.2

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	25.8
Precipitation - Reference Evapotranspiration	-	-	-4.1
Number of Rainy Days	4.0	3.0	3.6
Number of Dry Days	8.0	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



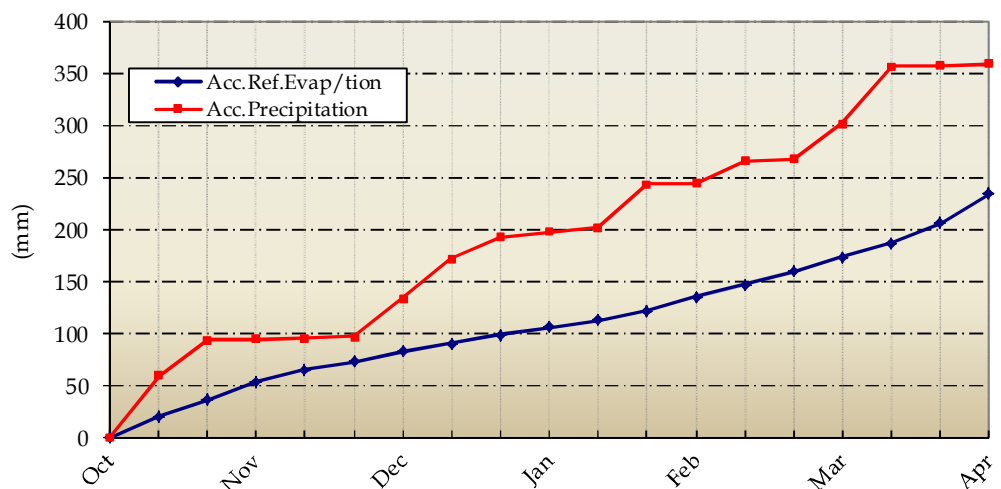
Larisa

3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	16.2	15.6	19.6	23.7	18.6	21.4	15.0	19.6	19.8	18.2	17.9	14.1	17.4
	Min	-3.8	-3.8	6.1	-2.6	-0.6	4.4	1.8	5.7	2.0	3.0	9.4	2.0	2.6	5.0
Relative Humidity	Max	84	84	81	91	83	88	95	97	99	97	93	90	92	93
	Min	31	23	20	25	13	33	32	61	44	46	59	35	43	46
Soil Temperature at 10 cm	06 UTC	6.6	5.8	8.4	8.2	9.0	10.0	9.6	11.4	10.4	11.4	12.6	9.4	-	10.6
	12 UTC	6.8	8.2	8.4	9.2	10.0	11.0	11.2	11.6	12.0	11.8	13.0	10.3	-	11.7
Sunshine Duration		6.3	8.4	10.0	10.4	10.9	9.9	7.6	0.0	6.9	3.4	0.0	6.7	6.6	5.7
Precipitation									0.0			2.0	2.0	40.7	10.7
Evaporation		0.0	0.0	4.6	5.5	7.2	4.3	4.2	0.2	4.6	2.0	0.4	33.0	28.8	41.9
Growing Degrees	5	0.0	1.2	5.9	3.5	6.6	6.5	6.6	5.4	5.8	6.4	8.8	56.6	37.3	61.6
	10	0.0	0.0	0.9	0.0	1.6	1.5	1.6	0.4	0.8	1.4	3.8	11.9	5.4	19.2

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.4	24.5	27.9
Precipitation - Reference Evapotranspiration	-26.4	16.2	-17.2
Number of Rainy Days	1.0	4.0	3.2
Number of Dry Days	12.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

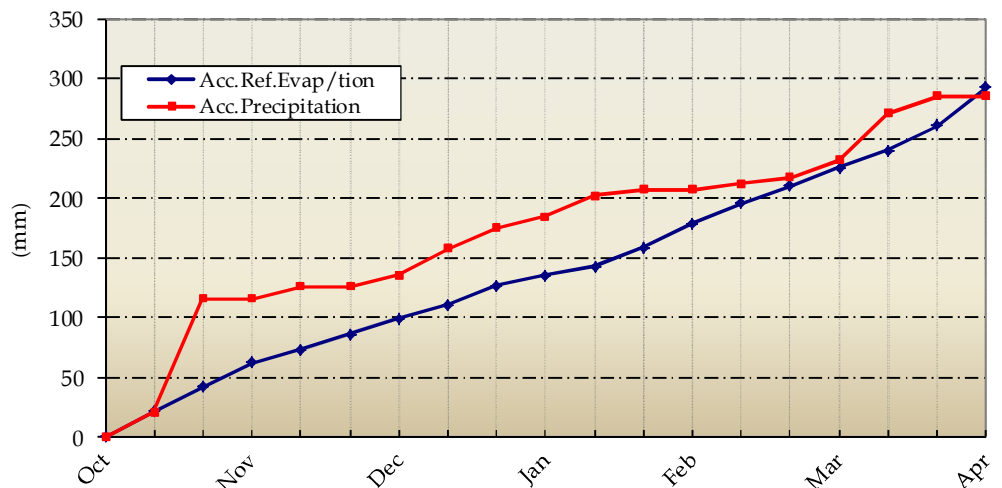


3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.4	16.9	17.0	20.0	21.0	16.2	20.9	15.0	18.0	19.2	17.0	17.5	14.4	16.1
	Min	-1.6	0.4	2.5	0.0	2.8	4.5	3.1	4.8	6.4	5.0	12.0	3.6	4.3	6.4
Relative Humidity	Max	80	81	83	91	76	92	93	100	100	100	100	91	86	88
	Min	30	31	18	29	24	38	39	64	51	48	62	39	39	48
Soil Temperature at 10 cm	06 UTC	5.4	6.4	7.2	7.4	8.4	9.6	9.5	10.4	10.8	11.2	12.6	9.0	9.2	10.6
	12 UTC	7.2	8.2	9.4	9.8	10.2	11.6	12.0	12.0	13.0	12.8	13.2	10.9	11.4	13.5
Sunshine Duration		10.2	9.4	11.0	10.7	10.7	10.3	10.2	0.5	5.6	5.6	0.0	7.7	7.1	6.0
Precipitation												0.1	0.1	11.2	10.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	35.3
Growing Degrees	5	0.0	3.7	4.8	5.0	6.9	5.4	7.0	4.9	7.2	7.1	9.5	61.4	48.3	59.3
	10	0.0	0.0	0.0	0.0	1.9	0.4	2.0	0.0	2.2	2.1	4.5	13.1	9.3	18.2

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.1	30.8	21.9
Precipitation - Reference Evapotranspiration	-32.0	-19.6	-11.6
Number of Rainy Days	1.0	2.0	2.9
Number of Dry Days	12.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



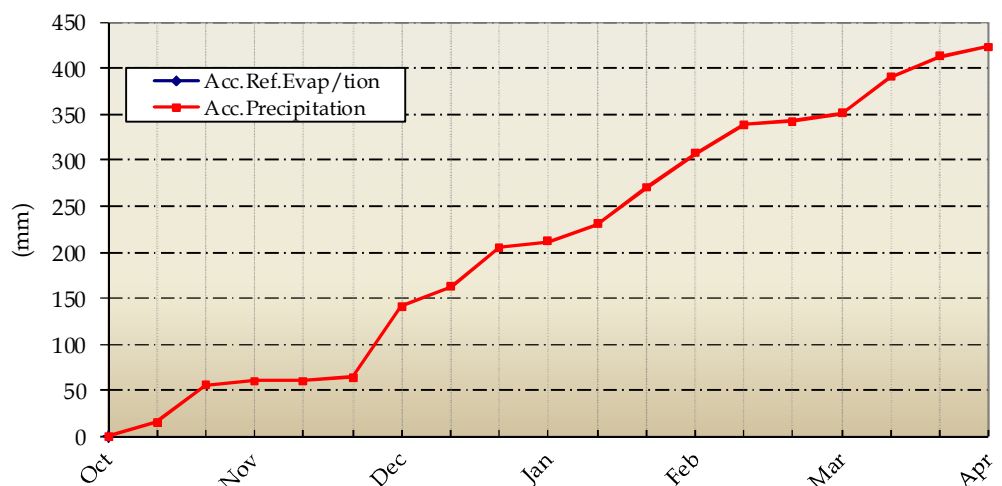


3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.7	11.5	10.0	16.8	21.5	16.8	19.6	17.3	17.8	19.2	17.5	15.8	13.8	16.5
	Min	4.6	4.1	5.0	1.2	1.0	3.4	4.8	7.2	6.2	4.6	12.2	4.9	4.0	6.2
Relative Humidity	Max	82	95	82	78	93	83	96	98	100	96	93	91	94	90
	Min	41	30	37	21	17	35	36	49	39	39	54	36	41	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.8	4.6	2.7	11.0	10.4	10.4	7.6	1.7	6.3	8.0	0.4	5.8	7.0	6.4
Precipitation		1.4		9.1					0.1				10.6	15.1	20.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	33.9
Growing Degrees	5	0.2	2.8	2.5	4.0	6.3	5.1	7.2	7.3	7.0	6.9	9.9	59.0	42.9	59.9
	10	0.0	0.0	0.0	0.0	1.3	0.1	2.2	2.3	2.0	1.9	4.9	14.6	5.2	19.0

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	
Precipitation - Reference Evapotranspiration	-	-	
Number of Rainy Days	3.0	5.0	2.9
Number of Dry Days	0.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

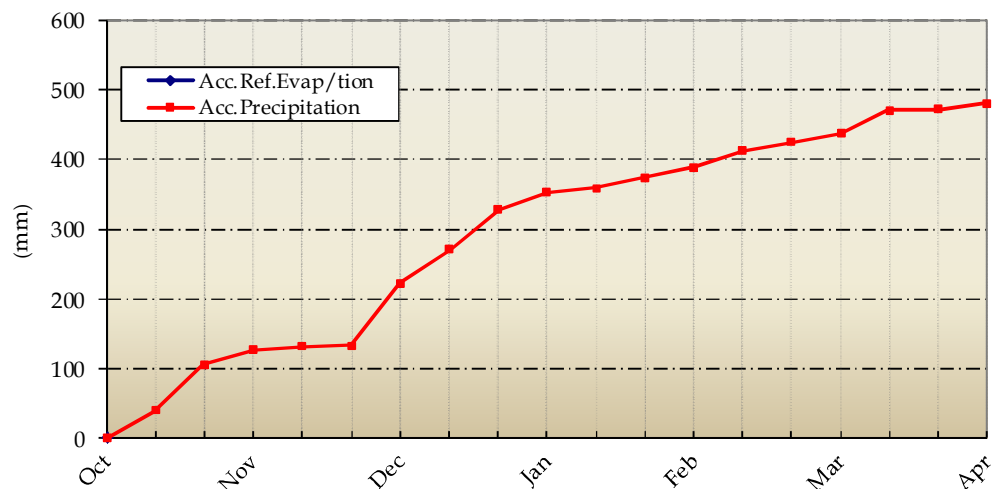


3rd 10-day period (21-31/03/2022)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.0	9.5	7.2	15.3	19.1	17.8	18.5	14.9	14.7	18.3	16.8	14.3	12.3	15.1
	Min	0.7	0.2	0.3	-4.2	-3.4	-1.5	-0.2	6.2	3.7	1.9	6.2	0.9	1.3	3.2
Relative Humidity	Max	93	97	98	91	93	92	97	95	97	99	97	95	94	90
	Min	41	32	40	16	10	23	13	37	49	32	45	31	37	44
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.8
Sunshine Duration		6.7	9.1	6.1	10.6	10.5	9.6	8.4	2.7	4.7	7.9	0.1	6.9	5.8	6.3
Precipitation		0.0		7.6		0.0			1.9	0.1			9.6	18.7	28.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	35.0
Growing Degrees	5	0.0	0.0	0.0	0.6	2.9	3.2	4.2	5.6	4.2	5.1	6.5	32.1	22.6	42.6
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.1	1.5	2.2	0.4	9.8

3rd 10-day period (21-31/03/2022)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.5	-	25.0
Precipitation - Reference Evapotranspiration	-15.9	-	3.1
Number of Rainy Days	3.0	4.0	3.8
Number of Dry Days	11.0	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<sub>n</sub> 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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ**

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Issue Editors :

Papakrivou Anastasia

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