



# AGROMETEOROLOGICAL BULLETIN

*February 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



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Division of Climatology-Applications  
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Helliniko, Athens

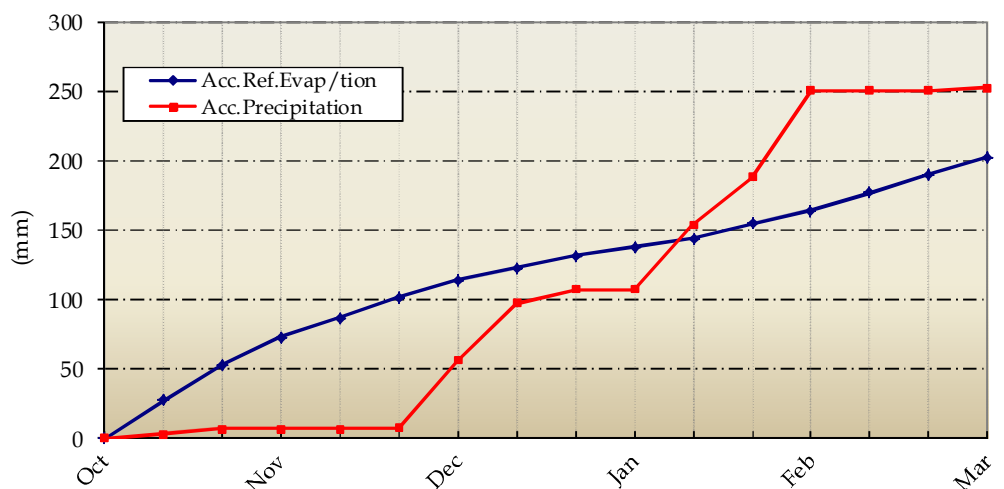
*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

Alexandroupoli

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.6	17.6	16.8	14.6	15.6	17.0	17.0	16.4	16.2	12.2	11.2
	Min	2.6	5.8	4.4	5.2	4.0	14.0	14.6	10.6	7.6	4.5	3.1
Relative Humidity	Max	90	92	100	85	97	89	83	92	91	89	91
	Min	70	68	60	52	73	68	69	63	65	57	61
Soil Temperature at 10 cm	06 UTC	9.2	9.5	10.4	9.1	9.6	11.6	12.6	13.4	10.7	8.0	6.7
	12 UTC	12.0	12.4	11.8	11.4	11.2	11.8	13.6	13.4	12.2	10.5	8.4
Sunshine Duration		8.5	9.4	5.3	8.7	0.3	1.5	1.2	0.0	4.4	4.2	4.1
Precipitation									2.1	2.1	22.1	16.3
Evaporation		1.0	1.6	1.4	3.8	1.2	1.4	4.5	1.4	16.3	9.1	10.7
Growing Degrees	5	3.6	6.7	5.6	4.9	4.8	10.5	10.8	8.5	55.4	27.0	21.8
	10	0.0	1.7	0.6	0.0	0.0	5.5	5.8	3.5	17.1	2.6	3.4

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.8	12.3	9.6
Precipitation - Reference Evapotranspiration	-10.7	9.8	6.7
Number of Rainy Days	1.0	3.0	2.0
Number of Dry Days	27.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



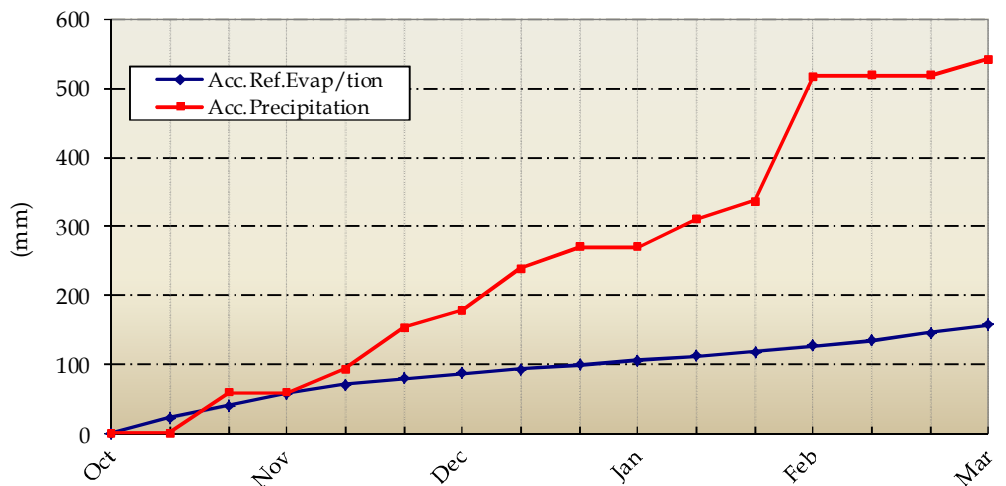
Andravida

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.3	16.5	16.8	16.8	17.6	20.2	18.6	23.4	18.5	16.0	15.2
	Min	5.6	5.2	7.6	7.8	7.4	10.2	11.3	9.7	8.1	6.5	6.2
Relative Humidity	Max	96	97	96	95	94	77	100	100	94	94	91
	Min	54	60	61	63	61	43	65	57	58	53	54
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	11.1	10.1
	12 UTC	-	-	-	-	-	-	-	-	-	12.2	12.3
Sunshine Duration		7.4	7.6	7.1	6.7	6.3	1.0	0.3	1.6	4.8	6.0	5.4
Precipitation											23.6	10.8
Evaporation		-	-	-	-	-	-	-	-	-	-	24.9
Growing Degrees	5	7.0	5.9	7.2	7.3	7.5	10.2	10.0	11.6	66.5	50.2	35.8
	10	2.0	0.9	2.2	2.3	2.5	5.2	5.0	6.6	26.5	11.7	9.0

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.0	11.1	8.4
Precipitation - Reference Evapotranspiration	-11.0	12.5	2.4
Number of Rainy Days	0.0	3.0	2.1
Number of Dry Days	23.0	8.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



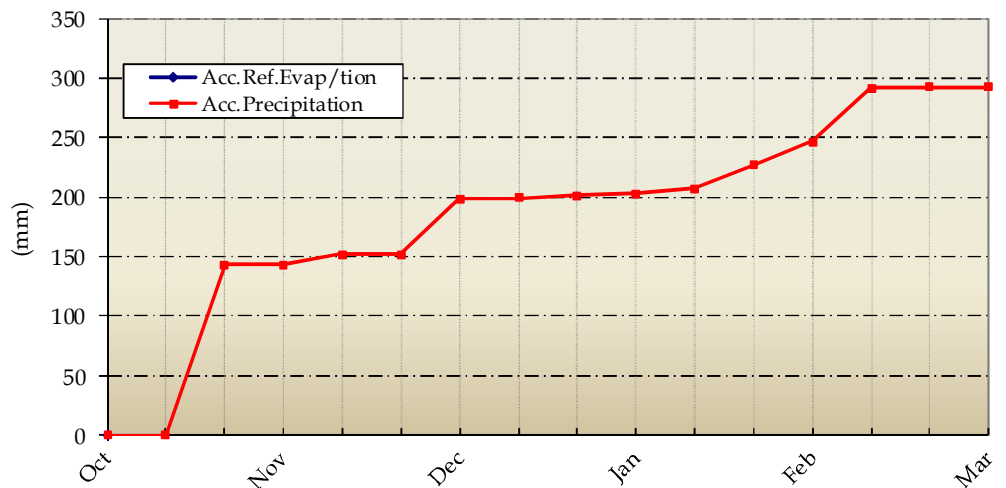
Iraklio

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	16.6	17.4	17.0	20.2	20.2	21.4	24.6	19.3	16.0	16.1
	Min	10.2	9.6	10.6	9.4	9.2	13.4	17.4	16.4	12.0	9.9	9.5
Relative Humidity	Max	95	95	93	96	92	78	62	67	85	89	86
	Min	77	69	67	75	57	42	46	28	58	56	57
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.4	8.7	8.3	8.4	9.4	6.3	1.2	3.6	6.9	4.3	5.6
Precipitation											41.1	16.4
Evaporation		1.7	0.2	2.8	1.0	3.7	6.1	5.2	4.4	25.1	12.2	22.2
Growing Degrees	5	8.5	8.1	9.0	8.2	9.7	11.8	14.4	15.5	85.2	63.7	56.4
	10	3.5	3.1	4.0	3.2	4.7	6.8	9.4	10.5	45.2	23.7	21.5

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	0.0	4.0	2.6
Number of Dry Days	17.0	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

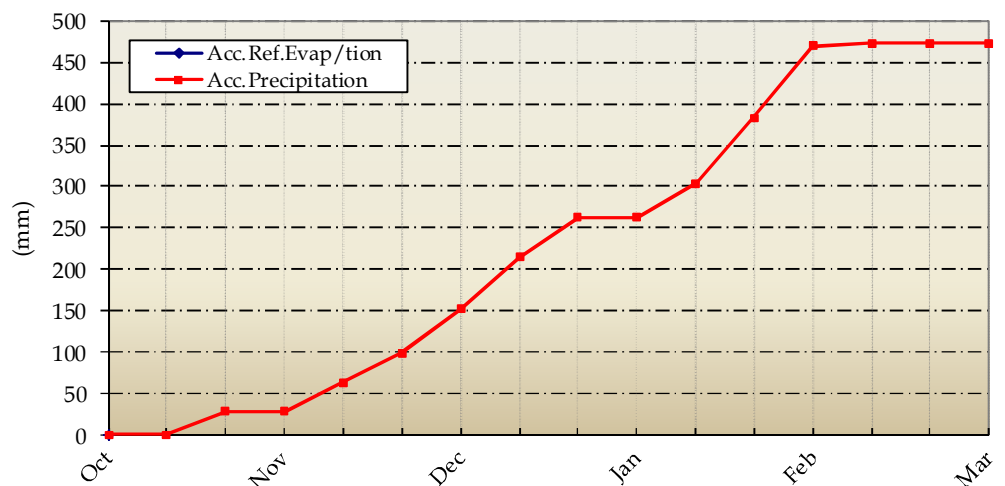


3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	17.8	13.9	16.4	14.5	16.7	16.2	16.4	16.2	12.3	11.9
	Min	-1.0	-0.9	3.9	4.2	0.3	10.0	9.5	0.9	3.4	2.3	1.6
Relative Humidity	Max	100	100	100	100	100	91	100	100	99	95	93
	Min	33	41	64	50	54	35	46	46	46	48	53
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	5.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	5.6
Sunshine Duration		9.0	7.0	3.1	8.2	3.5	0.0	3.1	0.0	4.2	4.8	3.5
Precipitation							0.0	0.2		0.2	50.5	24.2
Evaporation		-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	3.4	3.5	3.9	5.3	2.4	8.4	7.9	3.7	38.3	19.1	14.3
	10	0.0	0.0	0.0	0.3	0.0	3.4	2.9	0.0	6.5	0.0	0.6

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	7.0
Precipitation - Reference Evapotranspiration	-	-	17.2
Number of Rainy Days	1.0	4.0	2.5
Number of Dry Days	21.0	3.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



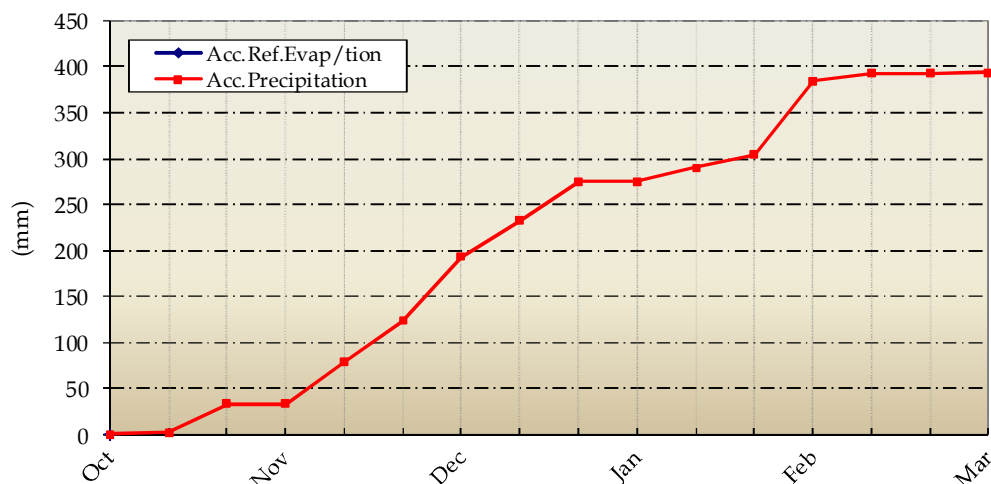
Kalamata

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.3	19.1	18.5	18.7	17.3	20.0	19.8	24.3	19.8	16.9	15.9
	Min	5.1	5.6	5.4	5.6	4.8	7.8	14.3	13.1	7.7	6.2	5.8
Relative Humidity	Max	96	95	95	98	98	97	93	92	96	94	92
	Min	41	38	49	49	60	49	73	36	49	49	50
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	11.2	10.4
	12 UTC	-	-	-	-	-	-	-	-	-	11.9	11.7
Sunshine Duration		8.8	8.9	8.8	8.4	7.8	2.5	2.2	3.4	6.4	5.8	4.8
Precipitation							0.0		0.3	0.3	13.8	20.5
Evaporation		-	-	-	-	-	-	-	-	-	-	20.5
Growing Degrees	5	7.7	7.4	7.0	7.2	6.1	8.9	12.1	13.7	69.9	52.6	42.6
	10	2.7	2.4	2.0	2.2	1.1	3.9	7.1	8.7	29.9	15.3	10.7

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	12.2
Precipitation - Reference Evapotranspiration	-	-	8.3
Number of Rainy Days	1.0	5.0	3.0
Number of Dry Days	22.0	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



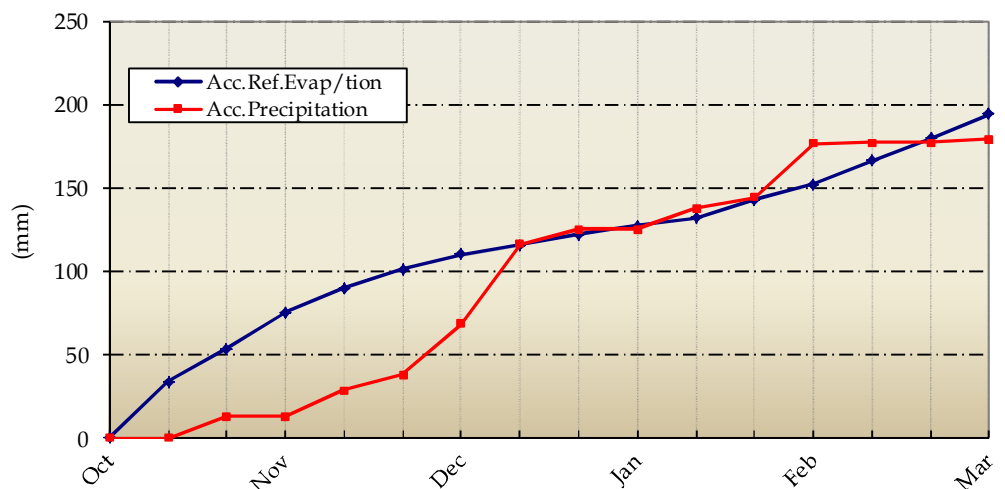
Larisa

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	20.0	18.0	17.8	20.2	20.6	21.4	15.2	19.4	14.2	13.9
	Min	0.0	1.2	1.4	9.4	3.4	7.3	6.4	7.0	4.5	3.4	2.7
Relative Humidity	Max	93	100	100	100	100	92	96	100	98	93	94
	Min	33	41	57	59	41	44	38	83	50	46	52
Soil Temperature at 10 cm	06 UTC	8.8	9.4	9.8	10.8	11.0	11.2	11.8	12.0	10.6	8.8	7.8
	12 UTC	9.2	9.6	10.0	11.2	11.4	11.4	11.6	11.4	10.7	9.3	8.6
Sunshine Duration		9.2	8.2	6.9	4.3	5.8	2.8	3.9	0.0	5.1	5.6	4.3
Precipitation					0.0				2.1	2.1	34.4	6.2
Evaporation		3.8	3.3	3.4	2.2	4.9	4.5	4.3	0.2	26.6	8.2	18.4
Growing Degrees	5	5.8	5.6	4.7	8.6	6.8	9.0	8.9	6.1	55.5	30.2	25.8
	10	0.8	0.6	0.0	3.6	1.8	4.0	3.9	1.1	15.8	4.1	3.7

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.4	14.6	12.4
Precipitation - Reference Evapotranspiration	-12.3	19.8	-6.2
Number of Rainy Days	1.0	3.0	2.2
Number of Dry Days	22.0	4.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



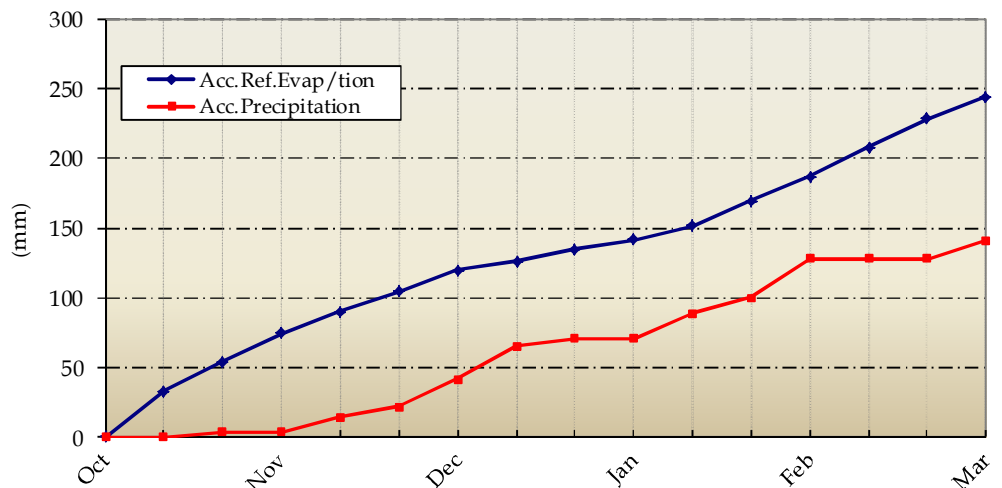
Mikra

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	19.0	15.0	16.4	19.4	18.7	20.0	16.4	18.0	13.0	12.7
	Min	2.9	3.0	5.8	8.1	8.2	11.0	11.4	9.3	7.5	4.6	4.2
Relative Humidity	Max	77	96	99	100	100	78	100	100	94	92	88
	Min	29	36	71	67	43	49	41	96	54	52	53
Soil Temperature at 10 cm	06 UTC	8.6	8.6	10.0	10.8	11.2	12.0	12.4	12.6	10.8	8.7	7.7
	12 UTC	10.2	10.0	11.0	11.8	12.4	12.7	13.6	13.0	11.8	9.6	9.9
Sunshine Duration		10.1	9.7	5.6	4.0	4.7	0.4	6.2	0.0	5.1	5.0	4.3
Precipitation									12.7	12.7	14.1	8.2
Evaporation		-	-	-	-	-	-	-	-	-	-	16.9
Growing Degrees	5	6.1	6.0	5.4	7.3	8.8	9.9	10.7	7.9	61.9	30.3	26.7
	10	1.1	1.0	0.4	2.3	3.8	4.9	5.7	2.9	21.9	2.3	3.8

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.7	15.1	10.4
Precipitation - Reference Evapotranspiration	-3.0	-1.0	-2.2
Number of Rainy Days	1.0	3.0	2.3
Number of Dry Days	24.0	5.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





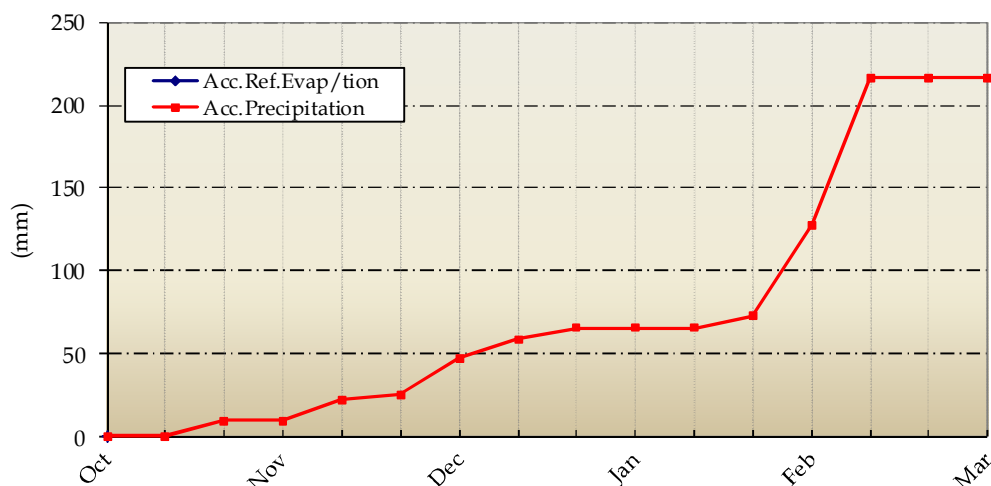
Tanagra

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	18.6	17.3	17.1	20.6	18.8	19.9	15.2	18.4	14.2	13.7
	Min	4.4	5.0	3.2	7.1	4.3	11.2	13.4	11.6	7.5	6.8	4.3
Relative Humidity	Max	78	98	99	97	98	68	95	99	92	93	95
	Min	31	42	54	57	40	43	46	84	50	48	52
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		-	-	-	-	-	-	-	-	-	4.7	4.7
Precipitation		-	-	-	-	-	-	-	0.1	0.1	8.2	15.6
Evaporation		-	-	-	-	-	-	-	-	-	-	19.9
Growing Degrees	5	7.2	6.8	5.3	7.1	7.5	10.0	11.7	8.4	63.9	44.0	29.3
	10	2.2	1.8	0.3	2.1	2.5	5.0	6.7	3.4	23.9	10.1	6.0

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	-
Precipitation - Reference Evapotranspiration	-	-	-
Number of Rainy Days	1.0	4.0	2.7
Number of Dry Days	17.0	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



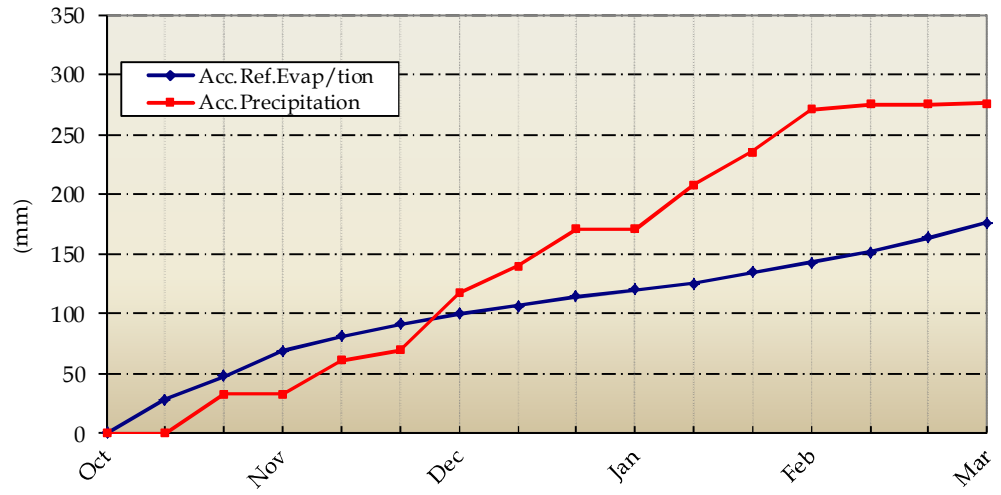
Tripoli

3rd 10-day period (21-28/02/2023)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	17.0	18.0	16.4	18.0	17.2	18.4	16.2	17.4	11.7	11.9
	Min	-2.2	-1.2	0.0	1.4	-0.6	7.4	8.2	9.4	2.8	2.5	1.3
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	95	94
	Min	40	33	50	44	29	33	36	52	40	48	51
Soil Temperature at 10 cm	06 UTC	3.6	3.8	5.2	6.4	5.8	7.8	8.2	9.8	6.3	-	5.8
	12 UTC	8.4	8.8	10.0	10.6	10.4	11.4	12.0	11.8	10.4	-	7.5
Sunshine Duration		9.1	9.2	5.1	6.4	7.9	6.4	5.3	2.6	6.5	5.8	5.2
Precipitation									0.6	0.6	12.8	18.2
Evaporation		1.4	0.2	0.0	1.2	2.1	1.6	3.6	1.2	11.3	-	22.0
Growing Degrees	5	2.8	2.9	4.0	3.9	3.7	7.3	8.3	7.8	40.7	18.1	15.9
	10	0.0	0.0	0.0	0.0	0.0	2.3	3.3	2.8	8.4	0.8	1.3

3rd 10-day period (21-28/02/2023)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.3	12.4	6.3
Precipitation - Reference Evapotranspiration	-11.7	0.4	11.9
Number of Rainy Days	1.0	5.0	2.6
Number of Dry Days	20.0	4.0	-

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<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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