



AGROMETEOROLOGICAL BULLETIN

*January 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



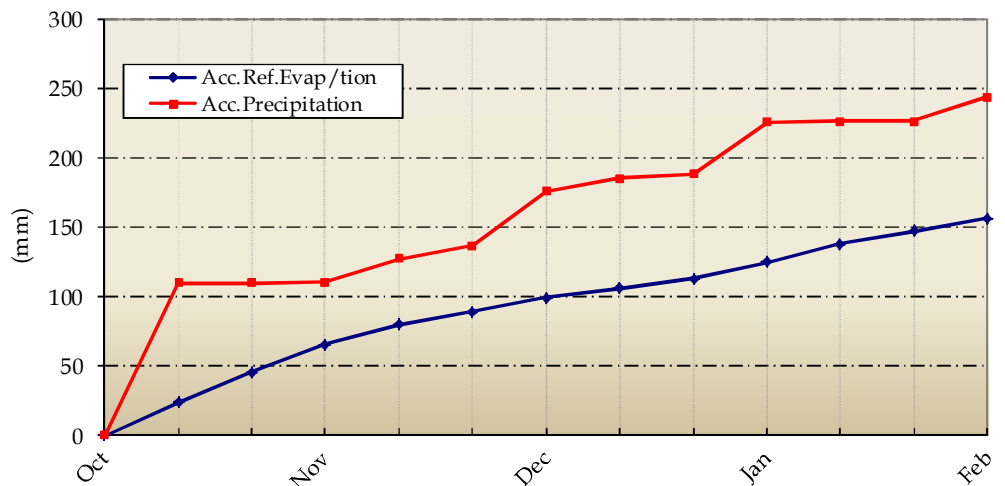
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3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.8	9.8	11.0	9.4	13.6	15.0	13.4	12.4	16.4	14.0	13.4	12.3	11.7	8.8
	Min	-5.8	-6.2	2.2	-5.8	6.8	3.0	8.4	6.4	7.4	4.8	-2.0	1.7	6.6	1.4
Relative Humidity	Max	85	90	76	90	82	92	98	97	95	91	92	90	93	-
	Min	37	42	29	40	52	60	79	70	78	21	58	51	75	-
Soil Temperature at 10 cm	06 UTC	3.2	2.2	4.2	2.6	6.2	7.0	9.6	9.6	7.4	7.8	5.6	5.9	7.9	4.6
	12 UTC	5.6	6.0	6.0	6.0	9.0	10.0	9.8	10.4	9.0	9.8	9.8	8.3	9.0	5.8
Sunshine Duration		7.5	7.4	8.1	7.8	6.3	6.4	0.1	4.8	4.0	4.7	7.6	5.9	0.6	3.3
Precipitation								8.5	2.1	1.5	5.3		17.4	66.2	16.6
Evaporation		0.0	0.0	0.0	0.0	1.5	1.6	0.8	5.2	0.8	0.0	0.0	9.9	15.8	10.0
Growing Degrees	5	0.0	0.0	1.6	0.0	5.2	4.0	5.9	4.4	6.9	4.4	0.7	33.1	45.7	16.7
	10	0.0	0.0	0.0	0.0	0.2	0.0	0.9	0.0	1.9	0.0	0.0	3.0	1.9	2.2

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.9	8.9	10.8
Precipitation - Reference Evapotranspiration	7.5	57.3	5.8
Number of Rainy Days	4.0	8.0	2.7
Number of Dry Days	25.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

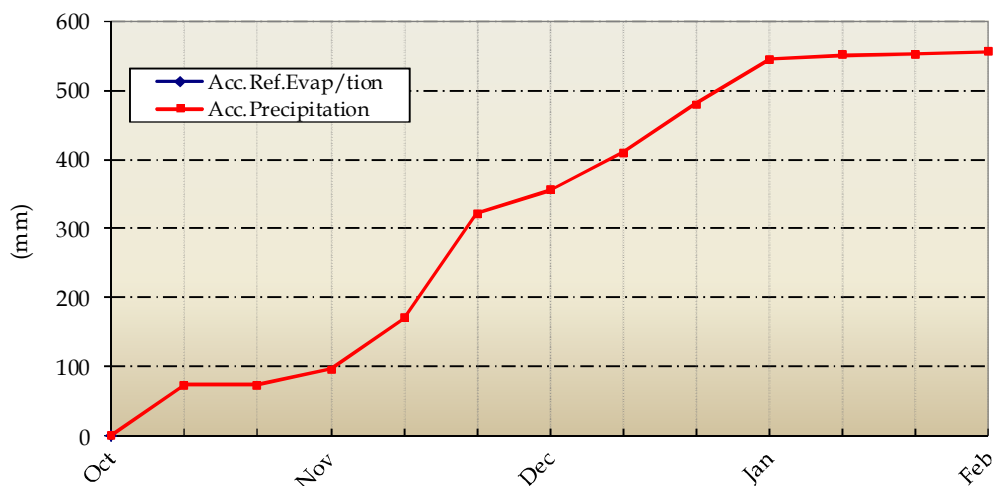


3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.6	14.0	14.6	14.8	16.8	15.0	14.9	16.4	17.8	17.2	17.0	15.6	14.5	14.0
	Min	-1.0	-1.5	2.8	4.1	9.8	8.4	9.0	6.3	7.6	11.2	5.5	5.7	7.4	5.3
Relative Humidity	Max	94	90	92	86	97	99	100	100	100	96	100	96	96	-
	Min	34	43	64	51	68	73	76	62	71	54	55	59	60	-
Soil Temperature at 10 cm	06 UTC	5.8	6.4	12.6	8.6	10.2	10.8	12.6	10.8	11.0	11.6	11.2	10.1	9.9	8.6
	12 UTC	9.2	8.2	13.8	9.4	11.2	11.0	13.6	11.8	11.6	13.2	13.2	11.5	11.9	10.2
Sunshine Duration		6.4	7.9	7.1	0.2	2.0	0.0	2.0	5.9	4.2	6.7	8.2	4.6	3.2	4.8
Precipitation						0.1	1.4	2.4	0.3				4.2	137.1	33.1
Evaporation		1.7	4.2	0.6	0.6	1.0	3.0	0.2	2.7	2.1	3.3	3.9	23.3	5.6	18.6
Growing Degrees	5	0.8	1.3	3.7	4.5	8.3	6.7	7.0	6.4	7.7	9.2	6.3	61.7	65.3	51.2
	10	0.0	0.0	0.0	0.0	3.3	1.7	2.0	1.4	2.7	4.2	1.3	16.5	11.2	9.9

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	12.0	11.9
Precipitation - Reference Evapotranspiration	-	125.1	21.2
Number of Rainy Days	4.0	11.0	4.6
Number of Dry Days	10.0	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



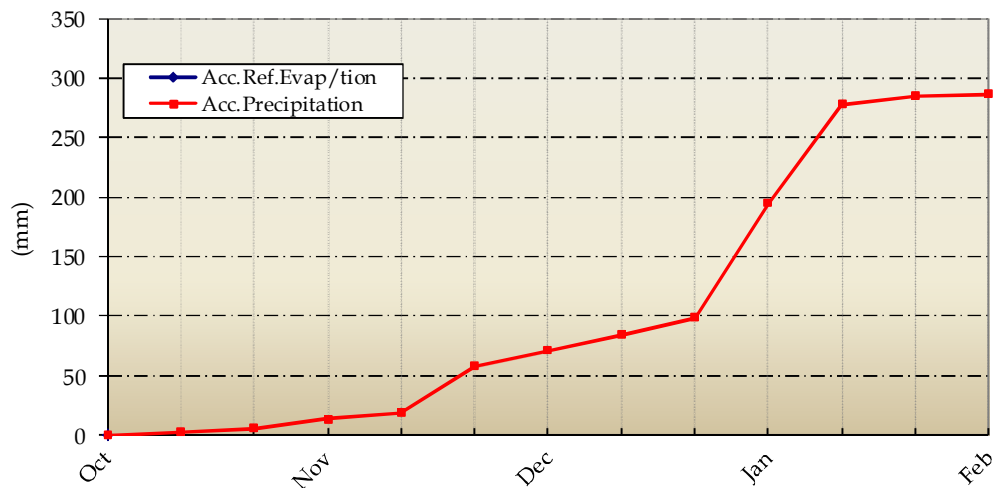
Iraklio

3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.8	13.4	15.8	12.6	13.8	18.6	18.2	16.6	17.8	19.0	15.8	15.7	16.3	15.0
	Min	9.6	10.6	6.0	9.8	4.6	4.0	13.2	10.4	10.6	11.4	9.0	9.0	10.6	8.9
Relative Humidity	Max	68	83	88	80	89	89	78	82	81	88	87	83	85	-
	Min	56	57	52	42	61	55	52	58	59	42	57	54	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.6	6.6	7.9	8.0	8.3	6.6	3.7	7.7	5.6	6.9	8.5	6.4	5.1	4.0
Precipitation		0.1										1.1	1.2	41.3	25.2
Evaporation		3.6	0.3	2.9	3.6	0.1	3.4	5.3	2.1	1.9	1.2	1.8	26.2	25.3	29.5
Growing Degrees	5	5.2	7.0	5.9	6.2	4.2	6.3	10.7	8.5	9.2	10.2	7.4	80.8	93.2	76.7
	10	0.2	2.0	0.9	1.2	0.0	1.3	5.7	3.5	4.2	5.2	2.4	26.6	38.2	23.4

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	21.3	-
Precipitation - Reference Evapotranspiration	-	20.0	25.2
Number of Rainy Days	2.0	7.0	4.4
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

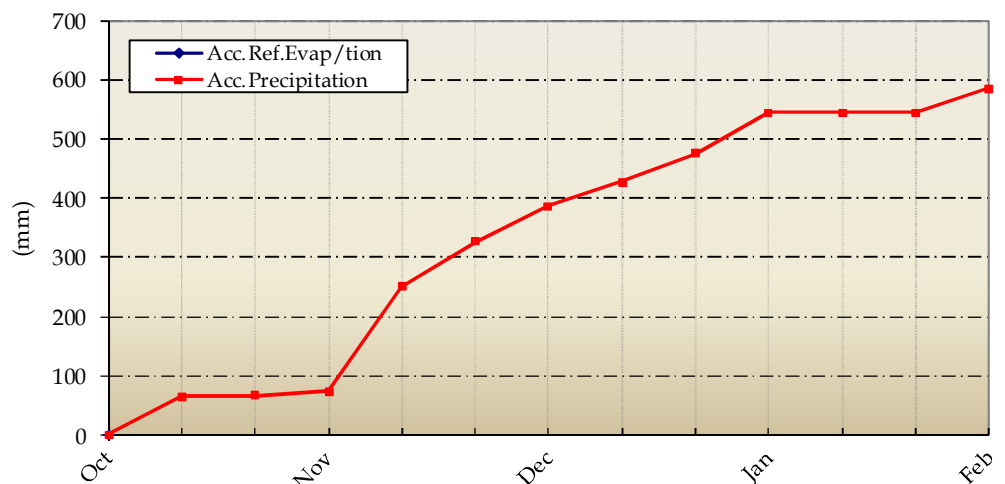


3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.8	11.0	13.0	12.6	10.5	13.6	10.0	10.1	10.6	11.6	11.2	11.3	7.8	9.3
	Min	-8.0	-8.0	-8.0	-7.0	6.0	4.4	6.8	2.0	6.6	1.4	-3.4	-0.7	2.4	0.7
Relative Humidity	Max	100	100	96	100	88	100	100	100	100	100	100	99	99	-
	Min	41	34	25	42	69	57	91	84	86	61	50	58	79	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
Sunshine Duration		5.4	5.2	6.4	6.7	0.0	4.6	0.0	0.0	0.0	2.6	4.2	3.2	1.8	3.1
Precipitation						0.0		15.0	0.2	21.1	5.1		41.4	83.1	37.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
Growing Degrees	5	0.0	0.0	0.0	0.0	3.3	4.0	3.4	1.1	3.6	1.5	0.0	16.8	6.9	13.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	8.6
Precipitation - Reference Evapotranspiration	-	-	28.6
Number of Rainy Days	4.0	8.0	4.3
Number of Dry Days	21.0	1.0	-

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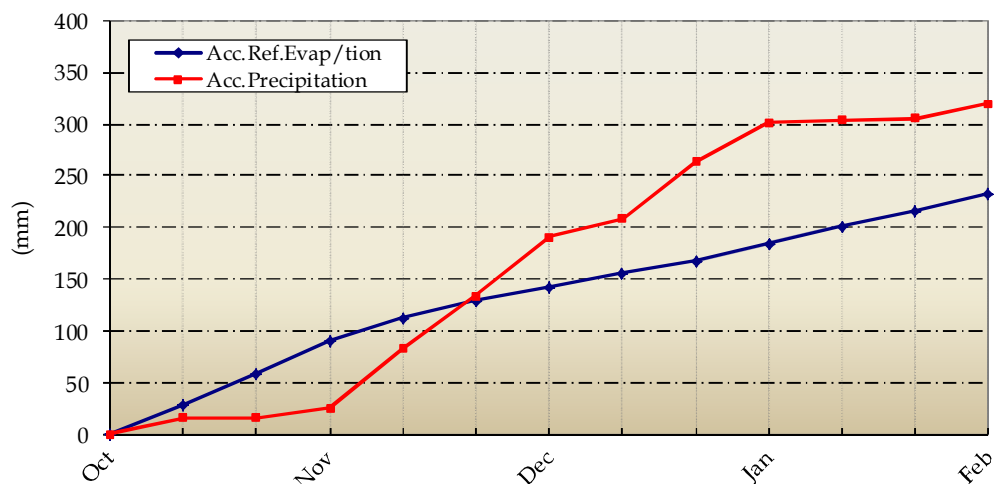
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.4	17.2	17.4	15.6	16.0	16.1	15.2	17.7	16.9	18.6	18.4	16.9	15.0	14.8
	Min	3.0	-1.3	4.3	6.6	2.7	4.1	9.0	5.9	4.8	7.5	3.1	4.5	7.4	5.3
Relative Humidity	Max	81	79	83	80	94	94	93	93	95	93	92	89	92	-
	Min	24	18	44	39	59	63	65	46	55	32	27	43	57	-
Soil Temperature at 10 cm	06 UTC	9.0	8.0	8.2	9.2	8.2	9.6	11.0	10.6	10.2	10.6	10.4	9.5	-	9.0
	12 UTC	10.0	9.6	9.6	9.2	10.0	10.4	11.6	11.6	11.2	12.0	11.0	10.6	-	10.3
Sunshine Duration		8.5	8.5	8.5	6.6	2.9	0.2	1.1	7.3	7.3	7.3	8.6	6.1	2.8	4.4
Precipitation								12.3	0.2	0.3	1.4		14.2	156.4	36.5
Evaporation		2.8	3.9	1.2	1.1	0.8	0.8	0.0	0.1	0.2	5.4	0.3	16.6	6.9	21.4
Growing Degrees	5	4.7	3.0	5.9	6.1	4.4	5.1	7.1	6.8	5.9	8.1	5.8	62.6	67.9	55.6
	10	0.0	0.0	0.9	1.1	0.0	0.1	2.1	1.8	0.9	3.1	0.8	10.6	13.5	9.3

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.2	15.6	13.4
Precipitation - Reference Evapotranspiration	-3.0	140.8	23.1
Number of Rainy Days	4.0	11.0	4.7
Number of Dry Days	14.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

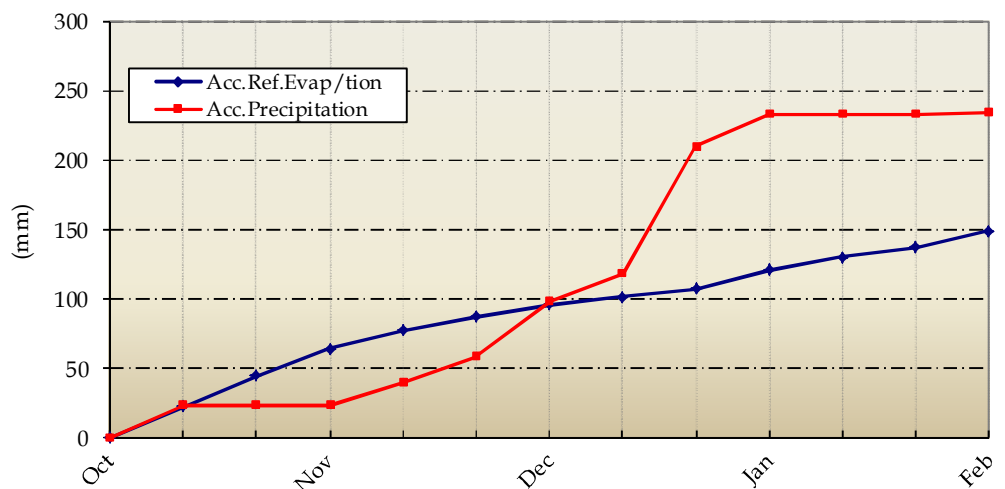


3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	11.2	15.0	12.1	12.1	14.6	11.8	17.0	18.0	17.2	16.0	14.0	12.4	10.7
	Min	-3.0	-6.4	-5.0	-4.6	-4.8	0.8	5.2	-0.6	3.1	5.4	-2.4	-1.1	3.7	1.2
Relative Humidity	Max	84	95	88	95	100	90	100	100	93	86	85	92	93	-
	Min	36	39	36	48	52	52	86	41	49	30	35	46	68	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	6.2
Sunshine Duration		6.8	6.5	6.3	6.2	6.0	3.9	0.8	6.6	6.3	7.5	7.3	5.8	3.8	3.5
Precipitation								1.0					1.0	33.6	10.7
Evaporation		0.0	0.0	0.0	0.0	0.0	2.6	1.3	0.0	1.2	4.8	2.1	12.0	11.0	7.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	2.7	3.5	3.2	5.6	6.3	1.8	23.1	33.6	18.5
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.3	0.0	1.9	1.1	1.5

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.6	9.1	8.6
Precipitation - Reference Evapotranspiration	-10.6	24.5	2.1
Number of Rainy Days	1.0	9.0	3.0
Number of Dry Days	34.0	9.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



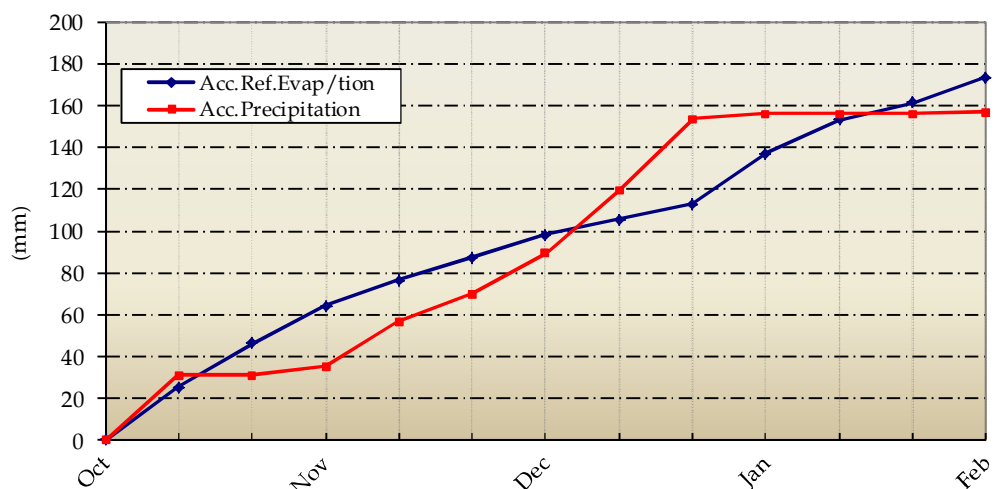
Mikra

3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.8	10.4	12.7	10.2	11.1	11.4	12.6	16.5	19.3	13.4	12.0	12.5	11.9	9.8
	Min	-3.3	-3.2	-3.0	0.8	-0.5	1.4	7.1	2.5	6.3	6.6	-0.7	1.3	5.1	1.9
Relative Humidity	Max	79	83	81	89	95	94	98	99	89	91	82	89	95	-
	Min	45	37	36	59	58	67	77	37	42	36	44	49	69	-
Soil Temperature at 10 cm	06 UTC	5.5	4.6	4.6	5.6	5.6	6.0	8.2	6.2	8.2	9.1	7.2	6.4	6.9	5.1
	12 UTC	7.8	8.0	6.8	7.0	7.0	7.0	7.2	9.0	10.2	10.2	8.8	8.1	7.9	6.5
Sunshine Duration		8.0	8.3	7.6	7.4	6.3	3.9	0.5	8.2	5.0	7.6	8.7	6.5	2.3	3.5
Precipitation								0.6					0.6	51.6	11.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	12.5	12.6
Growing Degrees	5	0.0	0.0	0.0	0.5	0.3	1.4	4.9	4.5	7.8	5.0	0.7	25.0	38.3	18.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.8	2.7	1.5

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.9	9.9	9.9
Precipitation - Reference Evapotranspiration	-11.3	41.7	1.9
Number of Rainy Days	1.0	8.0	3.3
Number of Dry Days	14.0	11.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



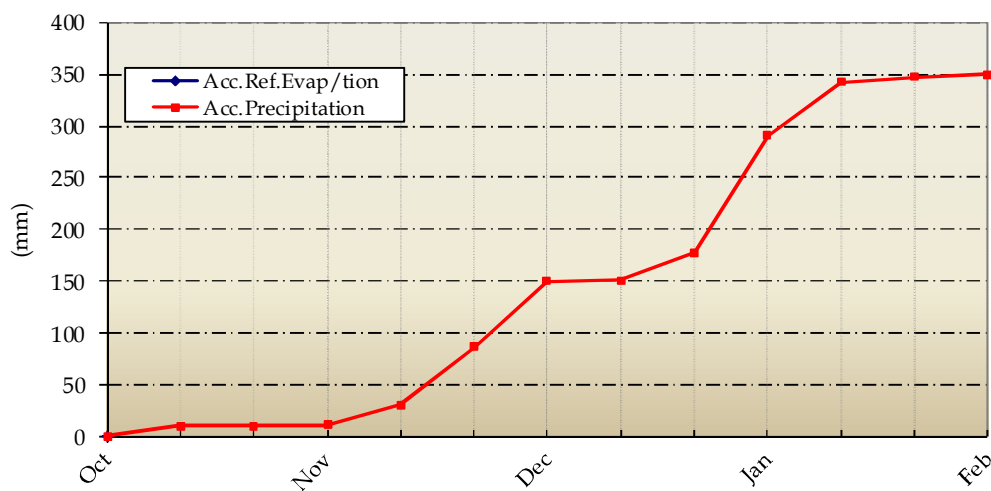
Tanagra

3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	13.3	14.5	11.6	14.7	14.0	12.9	17.0	17.4	15.8	16.4	14.1	14.2	11.7
	Min	6.0	-1.7	-1.4	-0.4	-2.1	3.1	7.8	2.7	5.0	9.1	0.8	2.6	6.4	3.1
Relative Humidity	Max	85	85	100	98	100	100	98	97	80	86	96	93	92	-
	Min	57	29	25	43	55	60	66	35	42	33	29	43	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.3	7.6	7.7	7.7	7.4	0.3	0.0	1.8	5.5	7.3	8.1	4.9	4.7	
Precipitation		0.0						2.7					2.7	53.3	24.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	1.8	0.8	1.6	0.6	1.3	3.6	5.4	4.9	6.2	7.5	3.6	37.1	58.0	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	1.2	2.5	0.0	4.0	9.5	

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	12.9	
Precipitation - Reference Evapotranspiration	-	40.4	24.3
Number of Rainy Days	1.0	7.0	5.1
Number of Dry Days	7.0	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



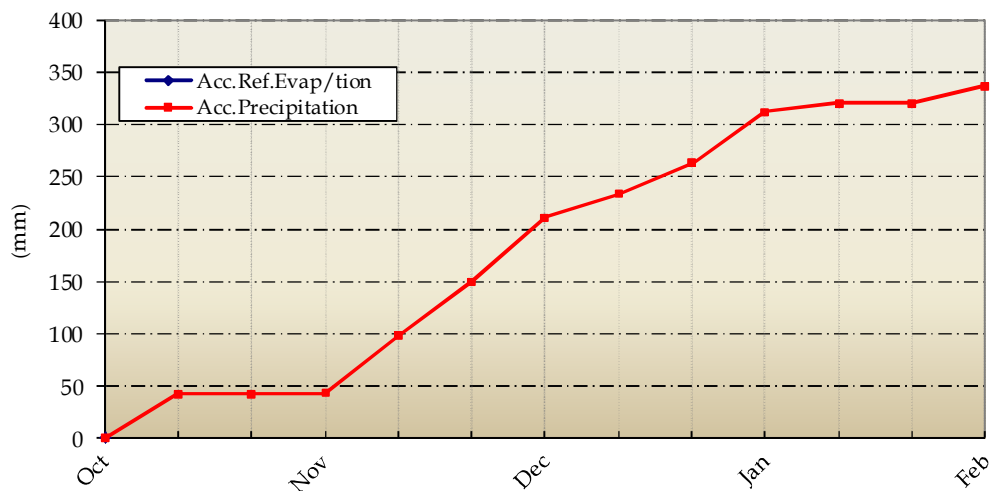
Tripoli

3rd 10-day period (21-31/01/2020)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.4	14.5	16.5	-	14.4	12.0	10.9	13.5	11.3	14.1	14.6	12.9	10.1	9.8
	Min	-0.2	-7.7	-7.0	-1.6	-4.3	-1.7	5.8	0.0	7.0	7.5	-3.6	-0.5	1.9	0.9
Relative Humidity	Max	95	100	93	-	-	100	100	98	88	81	98	95	99	-
	Min	48	23	28	43	50	62	62	38	55	31	23	42	59	-
Soil Temperature at 10 cm	06 UTC	3.2	1.4	1.2	-	-	-	-	4.4	6.2	6.8	-	3.9	4.7	4.6
	12 UTC	4.8	3.8	3.8	-	-	-	7.2	-	7.2	8.8	-	5.9	6.8	5.4
Sunshine Duration		7.8	7.4	8.3	7.9	6.6	0.5	0.7	8.1	0.0	6.7	7.5	5.6	2.9	4.0
Precipitation							0.0	11.6		0.0	4.5		16.1	152.9	32.5
Evaporation		0.0	0.0	-	-	-	-	0.1	1.3	0.8	-	-	-	-	8.6
Growing Degrees	5	0.0	0.0	0.0	-	0.1	0.2	3.4	1.8	4.2	5.8	0.5	-	12.4	14.3
	10	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.8	0.0	-	0.0	0.9

3rd 10-day period (21-31/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	8.7	11.0
Precipitation - Reference Evapotranspiration	-	144.2	21.5
Number of Rainy Days	2.0	10.0	4.6
Number of Dry Days	20.0	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





◆ **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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