



# AGROMETEOROLOGICAL BULLETIN

*January 2020  
1st 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



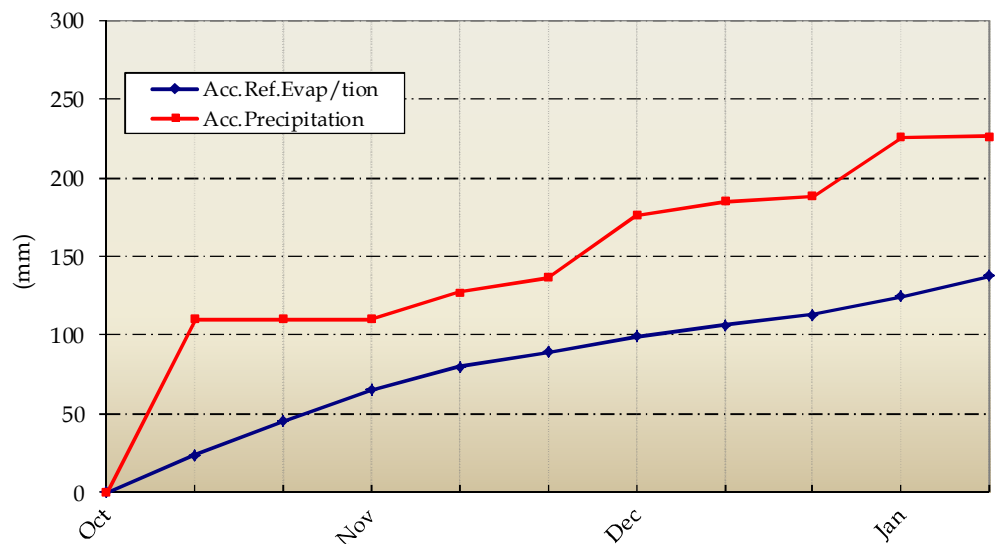
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1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	8.2	10.2	13.6	8.6	6.0	5.0	6.4	8.0	10.2	8.6	5.5	8.9
	Min	-2.4	3.0	-4.4	-3.8	-0.2	3.6	2.6	0.0	-3.0	-4.8	-0.9	-1.6	1.5
Relative Humidity	Max	89	52	90	96	74	56	51	52	85	89	73	87	-
	Min	34	35	44	48	44	39	31	24	38	46	38	58	-
Soil Temperature at 10 cm	06 UTC	4.8	4.6	3.0	3.6	5.2	5.0	4.4	2.6	2.2	2.2	3.8	3.3	5.6
	12 UTC	6.6	6.2	5.4	6.6	6.0	5.0	4.4	5.0	4.8	5.5	5.6	3.9	6.6
Sunshine Duration		5.1	8.0	7.7	8.1	0.0	0.0	0.0	8.0	7.7	8.0	5.3	2.8	2.7
Precipitation		0.4				0.0						0.4	43.0	17.5
Evaporation		0.0	0.0	0.0	0.0	2.4	2.9	0.0	0.0	0.0	0.0	5.3	1.2	8.4
Growing Degrees	5	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.2	17.3
	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	2.8

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.9	8.1	7.7
Precipitation - Reference Evapotranspiration	-12.5	34.9	9.8
Number of Rainy Days	1.0	5.0	2.8
Number of Dry Days	7.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

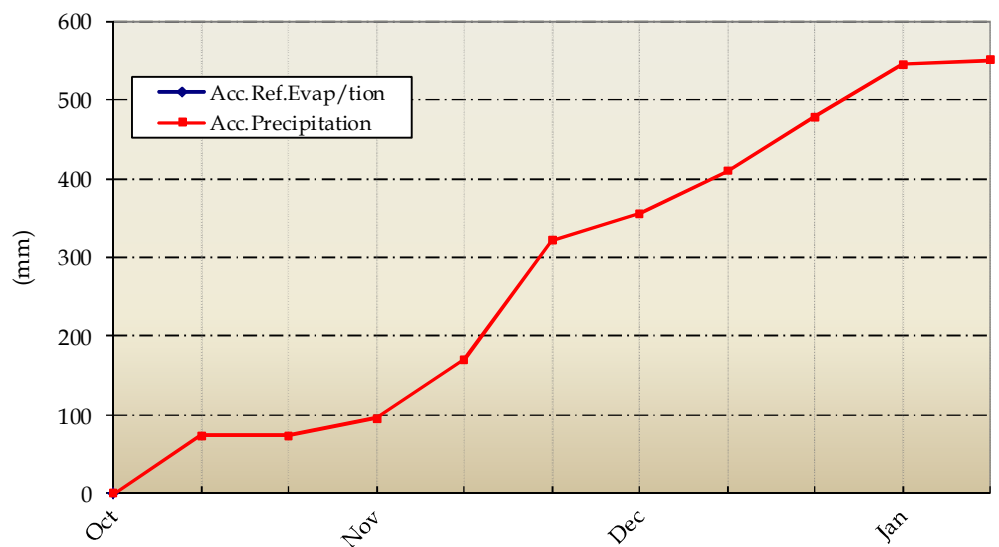


1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.1	11.0	13.3	15.6	13.4	10.3	11.7	11.9	12.4	14.5	12.8	10.5	13.8
	Min	1.4	1.8	-0.9	-0.4	5.4	6.0	-2.0	-3.6	-4.1	-1.9	0.2	2.0	5.4
Relative Humidity	Max	91	78	89	90	91	62	91	95	94	98	88	86	-
	Min	34	28	28	52	58	41	34	33	30	54	39	52	-
Soil Temperature at 10 cm	06 UTC	8.4	8.4	8.0	7.4	8.8	8.0	8.0	7.2	6.0	6.2	7.6	7.5	8.9
	12 UTC	9.4	9.6	10.0	8.8	9.8	8.8	7.8	8.0	7.6	7.2	8.7	8.2	10.3
Sunshine Duration		6.2	6.4	6.4	6.6	2.2	3.1	6.5	7.0	7.0	7.0	5.8	3.9	4.5
Precipitation						3.8	1.6					5.4	63.7	38.0
Evaporation		3.1	3.0	3.2	4.6	0.8	1.2	1.5	0.4	0.8	1.4	20.0	10.5	17.8
Growing Degrees	5	2.8	1.4	1.2	2.6	4.4	3.2	0.0	0.0	0.0	1.3	16.8	18.1	46.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	10.2

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	8.0	9.2
Precipitation - Reference Evapotranspiration	-	55.7	28.8
Number of Rainy Days	2.0	5.0	4.0
Number of Dry Days	8.0	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



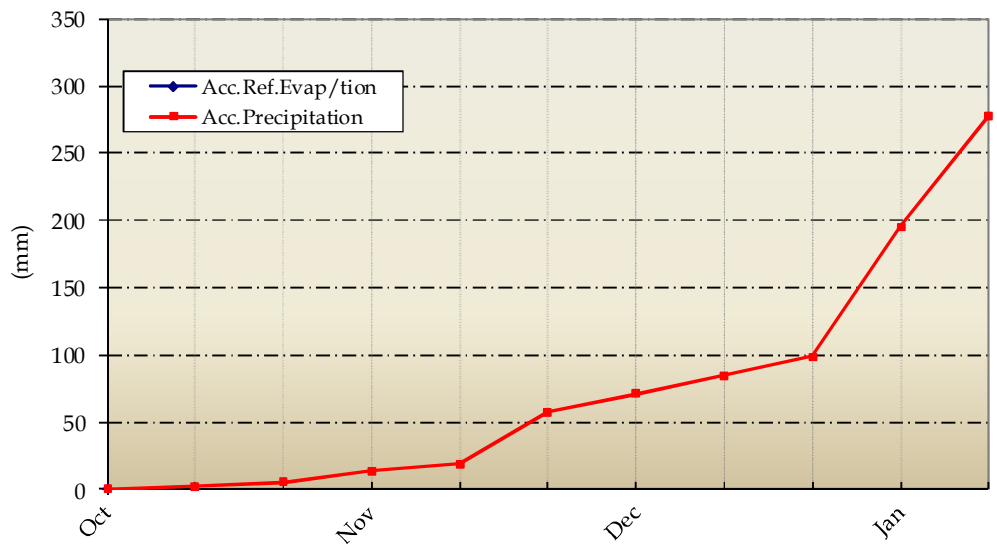
Iraklio

1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	10.4	12.6	14.8	18.0	10.8	10.2	11.0	11.0	14.0	12.6	12.9	15.3
	Min	9.8	8.6	8.0	11.2	7.0	7.2	9.4	9.4	9.6	10.4	9.1	7.0	9.3
Relative Humidity	Max	95	94	77	80	95	94	87	87	77	91	88	92	-
	Min	59	54	54	50	48	63	74	60	58	62	58	67	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.7	1.2	0.2	6.1	5.8	0.1	0.2	0.0	0.0	6.7	2.1	4.0	4.0
Precipitation		9.8	12.3	6.2		0.5	30.8	16.1	7.1			82.8	77.4	27.8
Evaporation		2.6	1.0	4.6	1.1	2.2	4.6	4.2	1.0	2.3	0.7	24.3	27.4	23.8
Growing Degrees	5	6.4	4.5	5.3	8.0	7.5	4.0	4.8	5.2	5.3	7.2	58.2	49.1	73.0
	10	1.4	0.0	0.3	3.0	2.5	0.0	0.0	0.2	0.3	2.2	9.9	9.2	25.4

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	11.8	-
Precipitation - Reference Evapotranspiration	-	65.6	27.8
Number of Rainy Days	7.0	8.0	4.3
Number of Dry Days	0.0	0.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

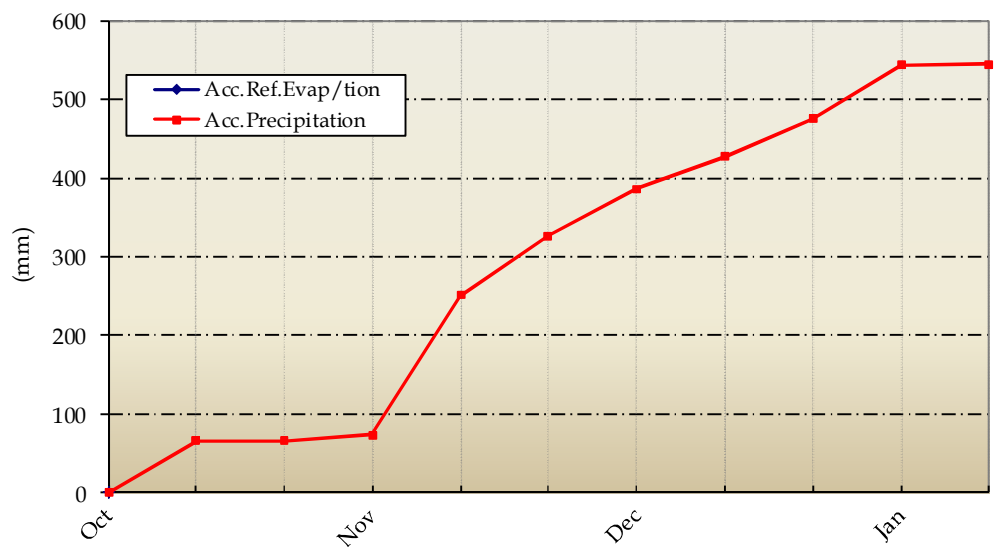


1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.4	9.4	10.0	10.4	9.4	6.2	9.1	9.8	7.6	11.0	9.5	3.5	8.6
	Min	-4.2	-5.6	-7.0	-7.2	-3.2	2.4	-8.2	-3.0	-9.0	-8.0	-5.3	-5.5	0.3
Relative Humidity	Max	90	86	91	96	92	58	73	39	97	96	82	97	-
	Min	31	23	27	46	41	26	27	27	27	38	31	66	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	3.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.3
Sunshine Duration		6.1	6.3	5.3	6.2	1.2	6.3	6.4	6.5	6.4	6.1	5.7	2.5	2.9
Precipitation						0.4						0.4	98.7	36.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	0.6
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	11.8
	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	0.3

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	6.1
Precipitation - Reference Evapotranspiration	-	-	30.1
Number of Rainy Days	1.0	5.0	4.0
Number of Dry Days	12.0	8.0	-

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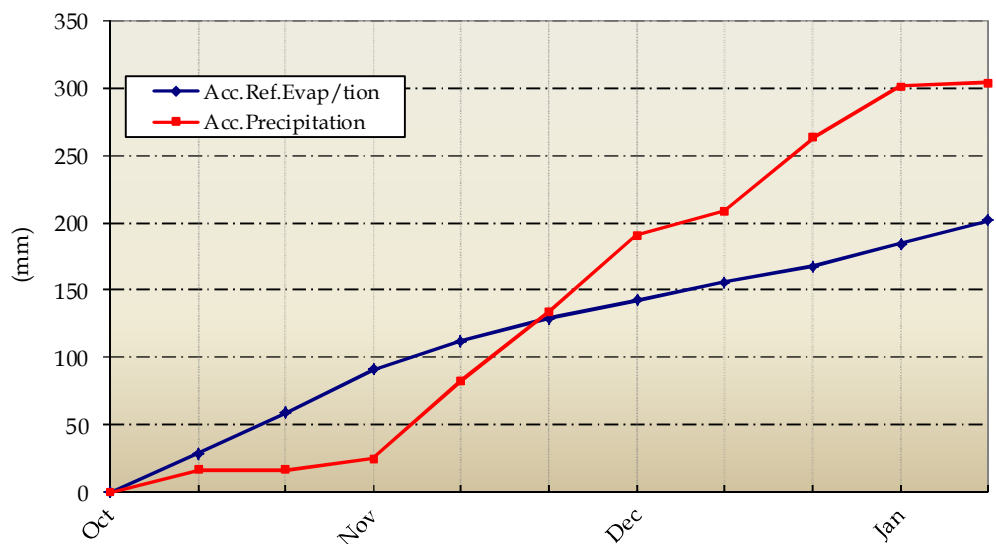
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.4	12.2	14.1	18.2	13.9	12.3	14.9	13.1	15.0	16.0	14.5	11.4	14.7
	Min	1.3	6.2	2.6	-0.4	4.8	6.4	3.0	2.7	0.8	-0.9	2.6	2.4	5.3
Relative Humidity	Max	85	61	70	82	91	51	69	70	75	84	74	85	-
	Min	26	29	27	26	29	30	25	25	21	28	27	48	-
Soil Temperature at 10 cm	06 UTC	8.5	9.5	8.0	7.0	7.0	8.4	8.2	8.0	7.5	7.0	7.9	8.1	9.3
	12 UTC	9.5	10.0	9.5	9.2	10.4	9.4	9.5	9.0	8.5	8.0	9.3	8.6	10.4
Sunshine Duration		6.9	7.6	9.7	9.5	0.4	5.6	8.0	8.2	8.2	8.5	7.3	4.1	4.5
Precipitation						2.0						2.0	63.9	30.6
Evaporation		3.2	1.1	0.7	1.2	0.0	2.0	4.2	2.4	3.2	-	-	10.0	22.0
Growing Degrees	5	3.4	4.2	3.4	3.9	4.4	4.4	4.0	2.9	2.9	2.6	35.8	22.2	49.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	10.6

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.3	12.0	11.0
Precipitation - Reference Evapotranspiration	-15.3	51.9	19.6
Number of Rainy Days	1.0	7.0	4.0
Number of Dry Days	12.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



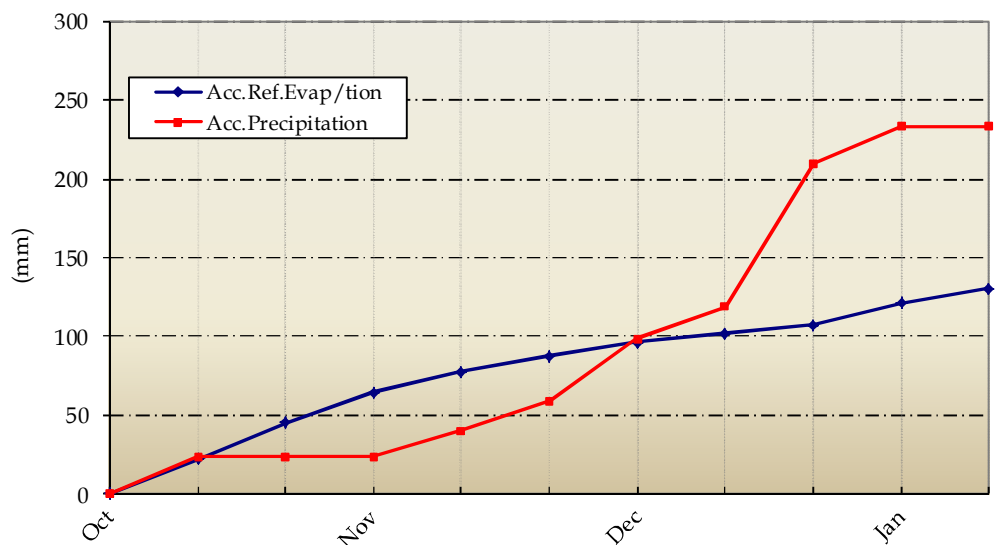
Larisa

1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	9.0	9.0	11.3	9.2	8.0	8.6	9.0	8.0	10.8	9.4	3.3	9.7
	Min	-3.0	1.0	-5.4	-4.4	-1.0	3.0	-0.9	-6.3	-7.4	-5.9	-3.0	-3.8	0.5
Relative Humidity	Max	92	84	88	91	90	55	76	90	85	86	84	95	-
	Min	40	34	40	41	37	30	31	24	38	36	35	65	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.9
Sunshine Duration		4.1	6.4	6.6	6.4	0.0	2.3	7.0	7.2	7.4	6.6	5.4	1.9	3.9
Precipitation													20.0	11.6
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5	1.0	13.7
	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	1.0

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.4	5.0	6.2
Precipitation - Reference Evapotranspiration	-9.4	15.0	5.4
Number of Rainy Days	0.0	6.0	2.5
Number of Dry Days	18.0	0.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



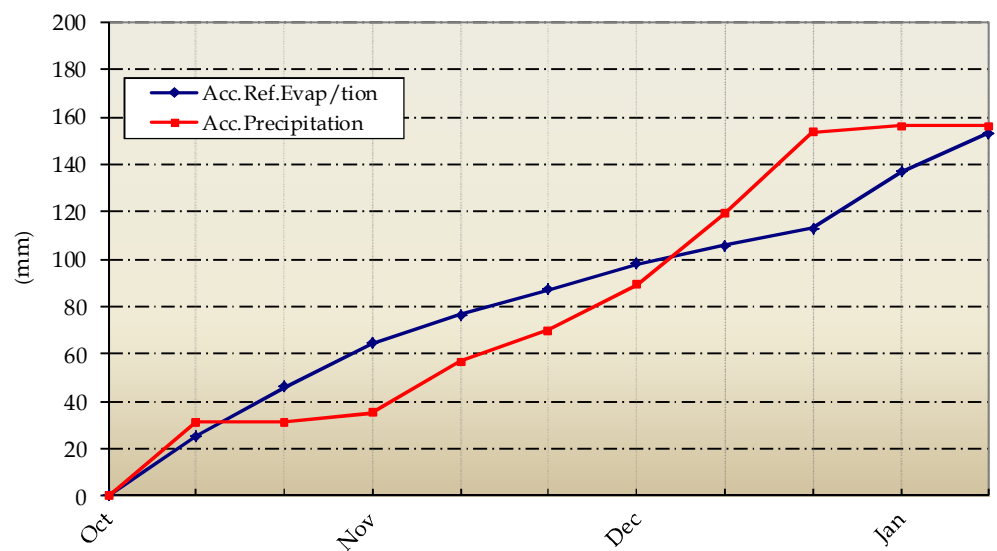
Mikra

1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	9.0	9.5	13.8	11.8	8.0	8.0	9.0	9.3	10.5	10.0	4.4	9.2
	Min	0.4	-1.8	-3.1	-2.7	9.7	4.2	1.9	-5.3	-4.6	-2.6	-0.4	-1.7	1.5
Relative Humidity	Max	69	79	83	84	73	58	75	77	77	80	76	83	-
	Min	41	44	43	32	46	46	40	31	29	44	40	56	-
Soil Temperature at 10 cm	06 UTC	5.6	5.4	5.0	4.6	7.2	6.2	4.8	3.8	3.4	3.6	5.0	2.8	4.9
	12 UTC	6.2	6.6	5.8	6.8	7.4	7.2	5.8	5.2	4.8	5.0	6.1	4.0	6.2
Sunshine Duration		6.4	7.1	7.0	7.2	0.0	5.7	8.1	8.2	8.0	7.7	6.5	3.2	3.7
Precipitation						0.0						0.0	9.0	14.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	0.0	8.7
Growing Degrees	5	0.7	0.0	0.0	0.6	5.8	1.1	0.0	0.0	0.0	0.0	8.1	1.9	16.0
	10	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	1.6

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.3	11.0	8.8
Precipitation - Reference Evapotranspiration	-16.3	-2.0	5.3
Number of Rainy Days	0.0	5.0	2.6
Number of Dry Days	18.0	8.0	-

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

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





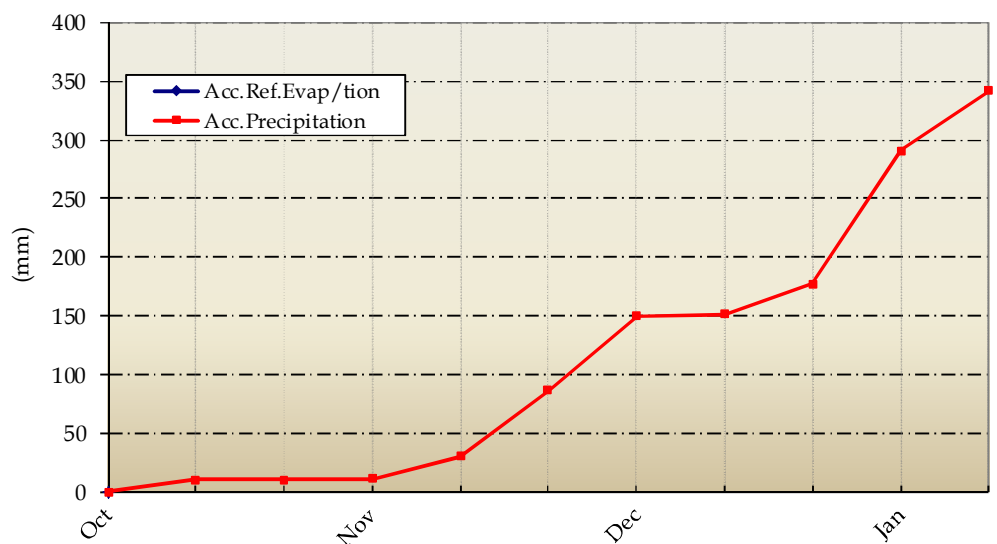
Tanagra

1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.7	7.3	9.8	15.4	9.9	5.1	5.6	7.7	9.5	12.4	9.3	6.9	12.2
	Min	-1.2	3.3	5.1	1.3	1.9	3.8	3.2	2.5	2.4	-1.8	2.0	0.6	3.9
Relative Humidity	Max	79	83	63	96	97	94	83	75	81	89	84	93	-
	Min	51	44	44	20	63	65	56	41	46	34	46	62	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.6	0.9	5.4	7.4	0.0	0.0	0.0	4.3	1.9	8.5	2.9	2.2	
Precipitation		0.0	0.9			3.7	39.5	7.4				51.5	54.7	18.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	0.0	0.3	2.5	3.4	0.9	0.0	0.0	0.1	1.0	0.3	8.4	11.3	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	6.9	
Precipitation - Reference Evapotranspiration	-	47.8	18.0
Number of Rainy Days	4.0	6.0	4.4
Number of Dry Days	1.0	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



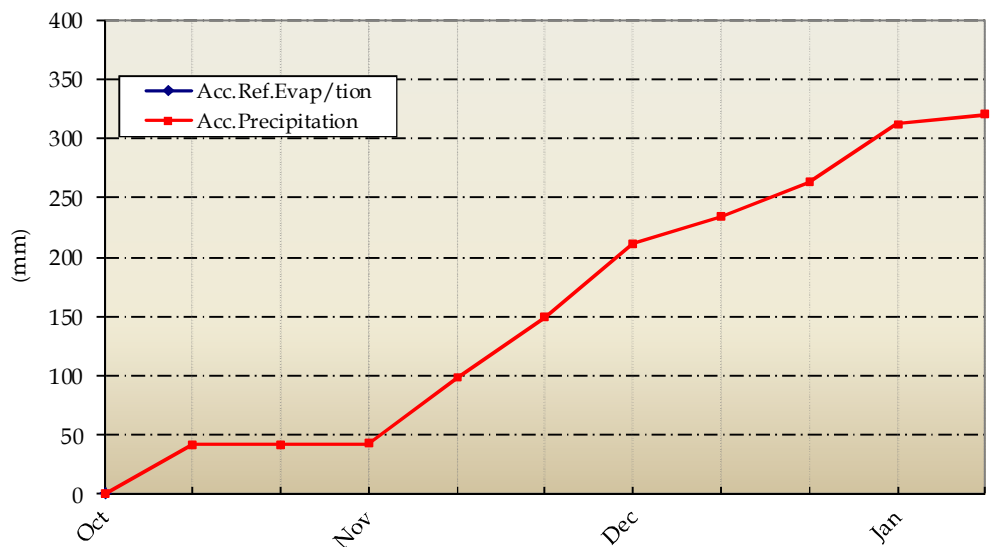
Tripoli

1st 10-day period (1-10/01/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.9	3.6	8.3	14.2	8.3	5.1	6.6	4.3	8.7	14.5	8.2	5.8	12.2
	Min	-4.3	0.2	-1.7	-4.9	-2.1	0.6	-0.8	-4.7	-5.6	-6.3	-3.0	-2.9	3.9
Relative Humidity	Max	99	98	-	93	96	90	75	82	-	96	91	98	-
	Min	36	51	31	21	-	47	43	51	29	15	36	58	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	2.6	1.6	1.2	-	1.8	2.4	
	12 UTC	-	-	-	-	-	-	4.2	2.6	2.4	-	3.1	3.3	
Sunshine Duration		-	3.6	7.3	7.4	0.1	4.9	7.3	6.7	7.7	6.7	5.7	3.7	
Precipitation		0.0	3.1			4.6	1.0					8.7	89.4	18.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	
	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	

1st 10-day period (1-10/01/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	6.4	
Precipitation - Reference Evapotranspiration	-	83.0	18.0
Number of Rainy Days	3.0	6.0	4.4
Number of Dry Days	3.0	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<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.

**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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