



# AGROMETEOROLOGICAL BULLETIN

*August 2019*  
*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



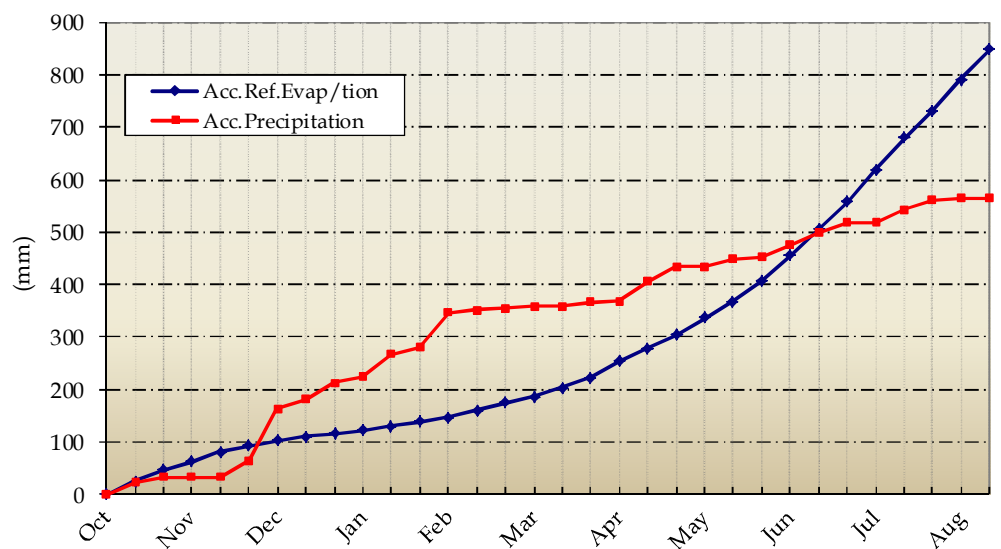
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1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	33.6	32.2	31.8	29.6	31.0	33.2	34.6	36.0	35.6	33.3	33.5	31.3
	Min	21.0	21.0	21.6	18.6	18.2	15.4	19.4	19.0	16.4	20.6	19.1	21.2	17.9
Relative Humidity	Max	91	93	95	94	77	81	63	88	78	75	84	72	-
	Min	42	34	49	28	28	26	28	27	22	22	31	31	-
Soil Temperature at 10 cm	06 UTC	28.0	28.0	28.6	27.6	26.8	25.6	26.0	26.6	27.0	28.0	27.2	26.7	24.7
	12 UTC	31.8	31.6	32.6	31.2	30.6	30.6	31.4	31.8	32.0	33.8	31.7	30.8	29.0
Sunshine Duration		10.0	12.3	11.8	10.7	10.8	12.7	13.0	13.1	12.3	12.4	11.9	12.6	10.7
Precipitation		0.5			0.4							0.9		4.0
Evaporation		6.5	19.0	10.1	8.9	6.6	6.8	8.0	13.5	9.0	3.5	91.9	97.5	96.8
Growing Degrees	5	23.0	22.3	21.9	20.2	18.9	18.2	21.3	21.8	21.2	23.1	211.9	223.2	195.9
	10	18.0	17.3	16.9	15.2	13.9	13.2	16.3	16.8	16.2	18.1	161.9	173.2	145.9

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.8	63.1	58.5
Precipitation - Reference Evapotranspiration	-55.9	-63.1	-54.5
Number of Rainy Days	2.0	0.0	0.7
Number of Dry Days	8.0	12.0	-

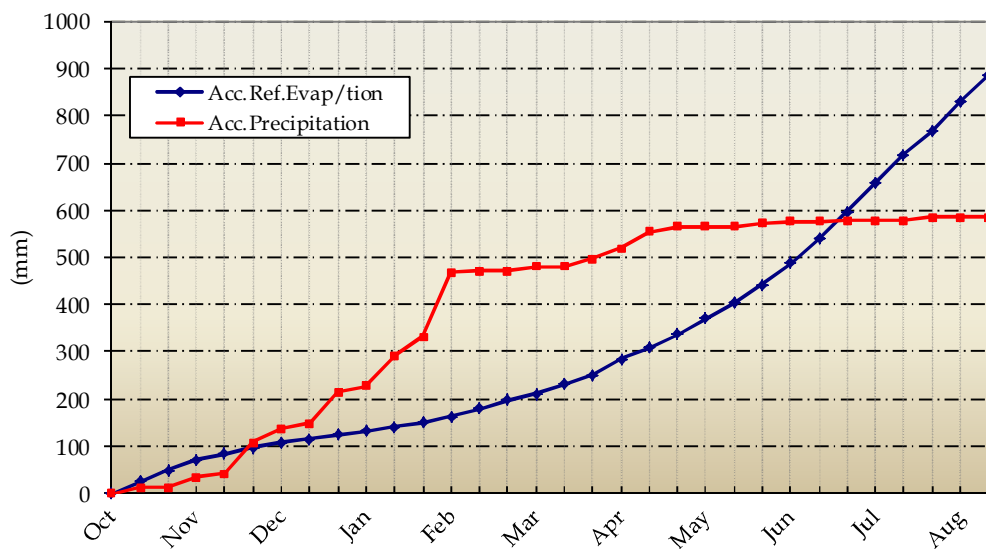
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.2	34.6	34.5	30.2	33.4	31.7	31.6	32.6	32.7	36.0	33.0	32.9	31.3
	Min	21.3	21.7	20.0	22.0	21.3	21.0	19.8	19.0	19.6	19.0	20.5	19.5	18.8
Relative Humidity	Max	100	92	100	100	95	93	82	85	95	82	92	85	-
	Min	43	33	31	48	32	31	34	28	31	25	34	32	-
Soil Temperature at 10 cm	06 UTC	29.8	30.0	30.0	30.2	29.8	30.0	29.2	29.3	29.4	29.2	29.7	28.8	27.8
	12 UTC	32.0	32.0	32.4	31.8	32.0	32.2	31.6	32.0	31.4	32.8	32.0	32.2	32.1
Sunshine Duration		12.8	12.6	11.7	12.6	11.4	12.4	12.4	12.5	12.0	12.1	12.2	12.4	11.6
Precipitation														0.2
Evaporation		10.5	8.9	8.4	9.0	8.8	11.2	10.0	10.7	10.5	10.8	98.8	88.0	74.9
Growing Degrees	5	22.3	23.2	22.3	21.1	22.4	21.4	20.7	20.8	21.2	22.5	217.6	212.1	200.3
	10	17.3	18.2	17.3	16.1	17.4	16.4	15.7	15.8	16.2	17.5	167.6	162.1	150.3

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.1	57.8	52.3
Precipitation - Reference Evapotranspiration	-55.1	-57.8	-52.1
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	25.0	42.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

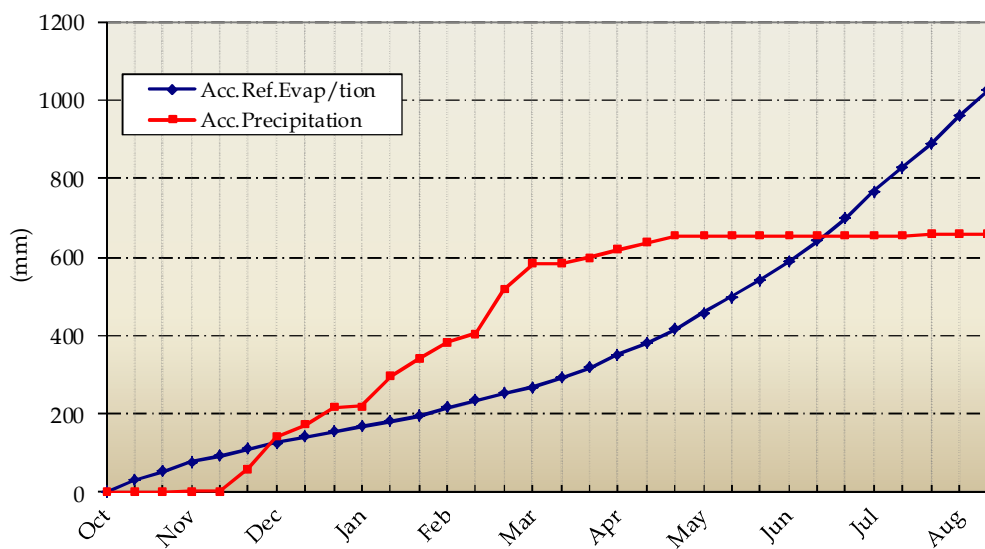


Iraklio

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	32.0	32.0	31.8	28.8	28.6	28.6	29.0	29.6	29.8	30.2	29.8	28.6
	Min	25.4	28.2	24.8	24.0	26.0	25.2	24.6	20.4	20.8	24.0	24.3	25.5	22.4
Relative Humidity	Max	79	69	76	81	76	65	70	77	69	69	73	80	-
	Min	44	43	43	43	49	39	48	46	40	49	44	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.6	12.8	12.0	12.7	12.6	13.0	12.7	12.7	13.0	12.9	12.7	11.5	11.6
Precipitation														0.0
Evaporation		8.9	7.5	6.1	7.4	9.4	8.1	11.6	0.3	11.0	10.2	80.5	84.0	88.8
Growing Degrees	5	23.6	25.1	23.4	22.9	22.4	21.9	21.6	19.7	20.2	21.9	222.7	226.6	205.0
	10	18.6	20.1	18.4	17.9	17.4	16.9	16.6	14.7	15.2	16.9	172.7	176.6	155.0

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	66.2	60.7	-
Precipitation - Reference Evapotranspiration	-66.2	-60.7	0.0
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	24.0	11.0	-

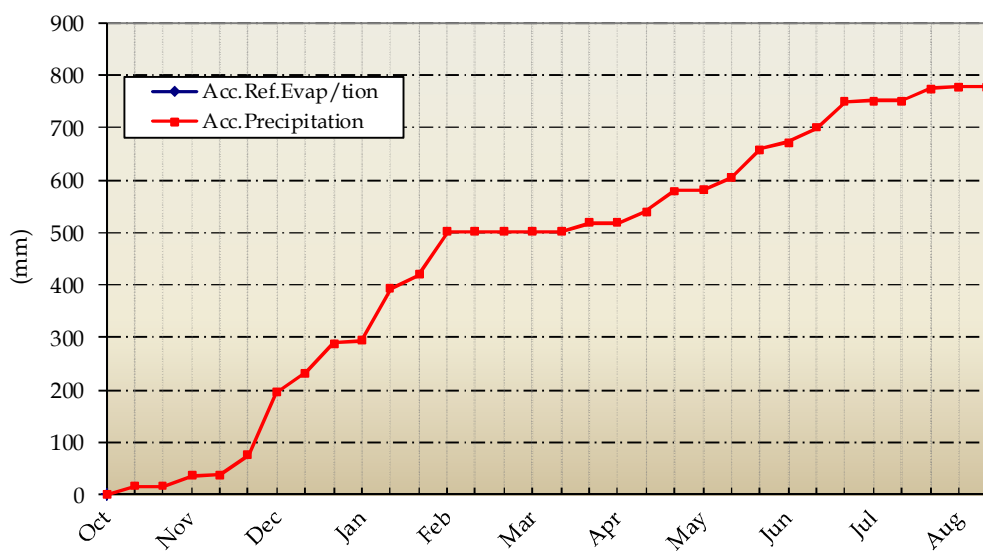
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.8	35.4	33.4	32.4	30.2	33.0	32.4	35.6	35.6	37.2	33.9	31.9	31.8
	Min	22.0	18.4	23.0	16.6	21.2	15.4	21.2	19.0	19.4	20.6	19.7	17.2	15.9
Relative Humidity	Max	81	68	68	71	70	70	80	71	70	80	73	92	-
	Min	38	29	31	29	36	30	34	27	26	26	31	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	24.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.0
Sunshine Duration		12.1	12.1	11.9	12.3	10.7	11.6	12.0	11.7	8.6	11.5	11.4	10.4	10.1
Precipitation													3.0	5.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	79.9
Growing Degrees	5	22.9	21.9	23.2	19.5	20.7	19.2	21.8	22.3	22.5	23.9	217.9	195.4	183.5
	10	17.9	16.9	18.2	14.5	15.7	14.2	16.8	17.3	17.5	18.9	167.9	145.4	134.7

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	50.7
Precipitation - Reference Evapotranspiration	-	-	-44.9
Number of Rainy Days	0.0	3.0	1.3
Number of Dry Days	12.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

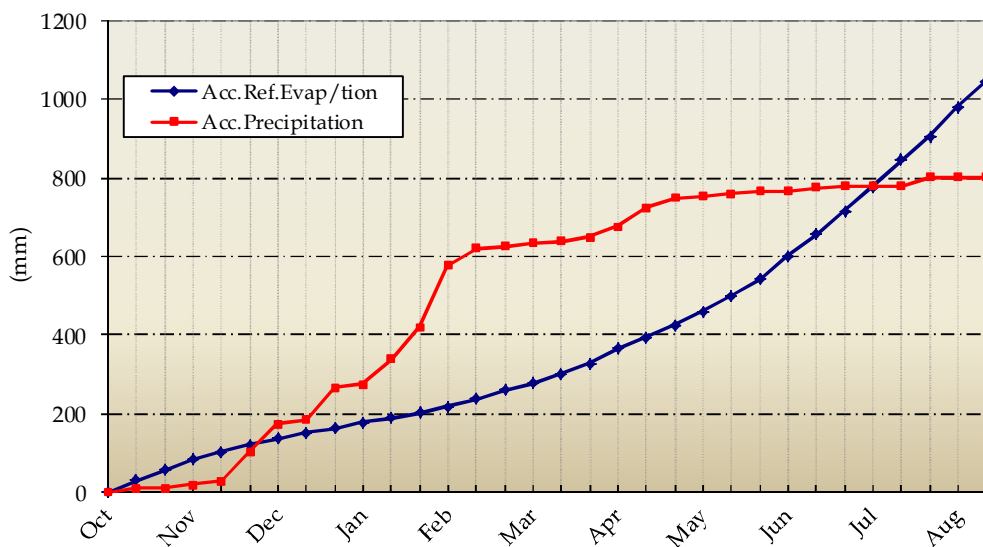


Kalamata

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.0	34.0	36.6	35.0	30.8	30.9	33.0	31.2	34.2	38.8	33.8	33.4	31.8
	Min	21.9	22.2	21.0	21.2	21.4	19.2	18.6	16.6	20.4	22.2	20.5	19.4	18.3
Relative Humidity	Max	83	86	86	87	79	83	81	80	76	53	79	80	-
	Min	31	31	22	19	44	37	25	34	27	13	28	31	-
Soil Temperature at 10 cm	06 UTC	27.8	28.5	27.5	31.2	28.6	28.0	28.0	27.8	28.0	28.2	28.4	26.8	26.3
	12 UTC	30.8	32.0	33.8	31.6	32.2	31.6	30.8	31.3	31.6	31.6	31.7	30.4	30.4
Sunshine Duration		11.7	12.2	11.9	12.1	10.4	12.0	12.2	12.4	12.0	12.3	11.9	11.2	11.0
Precipitation													12.0	3.9
Evaporation		9.6	10.6	6.0	9.2	9.4	7.2	8.7	8.3	7.8	11.0	87.8	73.5	84.1
Growing Degrees	5	23.0	23.1	23.8	23.1	21.1	20.1	20.8	18.9	22.3	25.5	221.6	214.0	200.7
	10	18.0	18.1	18.8	18.1	16.1	15.1	15.8	13.9	17.3	20.5	171.6	164.0	150.7

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	66.0	61.9	56.0
Precipitation - Reference Evapotranspiration	-66.0	-49.9	-52.1
Number of Rainy Days	0.0	1.0	0.5
Number of Dry Days	25.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

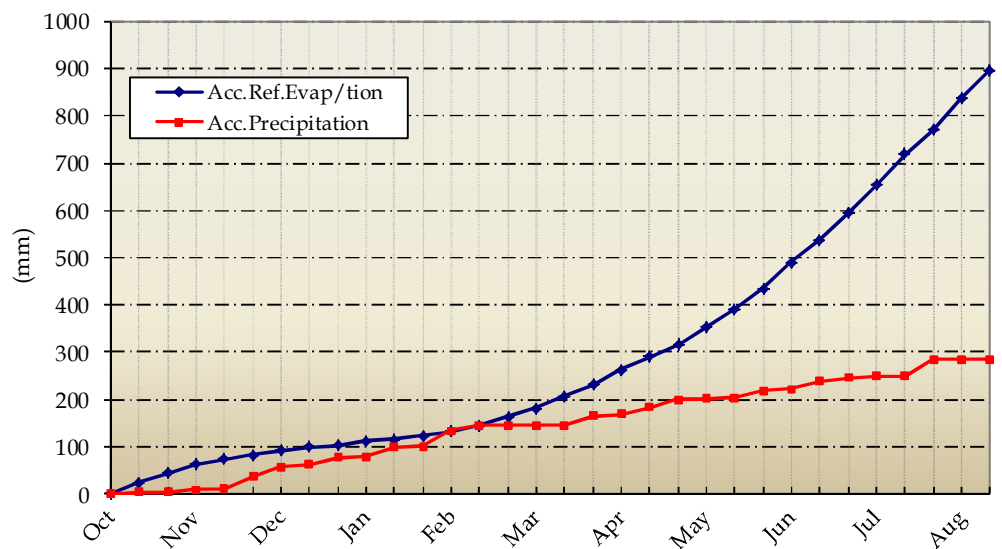


Larisa

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.2	35.6	39.6	34.0	31.8	33.0	33.6	36.8	37.0	36.7	35.5	32.4	33.2
	Min	20.2	22.0	21.2	24.6	23.2	17.4	17.2	18.2	19.6	19.6	20.3	19.6	18.0
Relative Humidity	Max	80	81	87	62	76	80	81	81	78	72	78	82	-
	Min	29	38	20	26	25	26	27	26	23	27	27	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.4
Sunshine Duration		10.9	10.8	11.0	11.0	10.8	11.1	11.1	11.1	9.4	10.7	10.8	9.5	10.5
Precipitation													0.8	4.2
Evaporation		11.3	14.1	13.0	14.7	10.9	11.8	11.0	9.5	10.5	11.2	118.0	89.0	91.8
Growing Degrees	5	23.7	23.8	25.4	24.3	22.5	20.2	20.4	22.5	23.3	23.2	229.3	209.8	206.1
	10	18.7	18.8	20.4	19.3	17.5	15.2	15.4	17.5	18.3	18.2	179.3	159.8	156.1

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	61.9	53.6	58.6
Precipitation - Reference Evapotranspiration	-61.9	-52.8	-54.4
Number of Rainy Days	0.0	1.0	1.1
Number of Dry Days	24.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

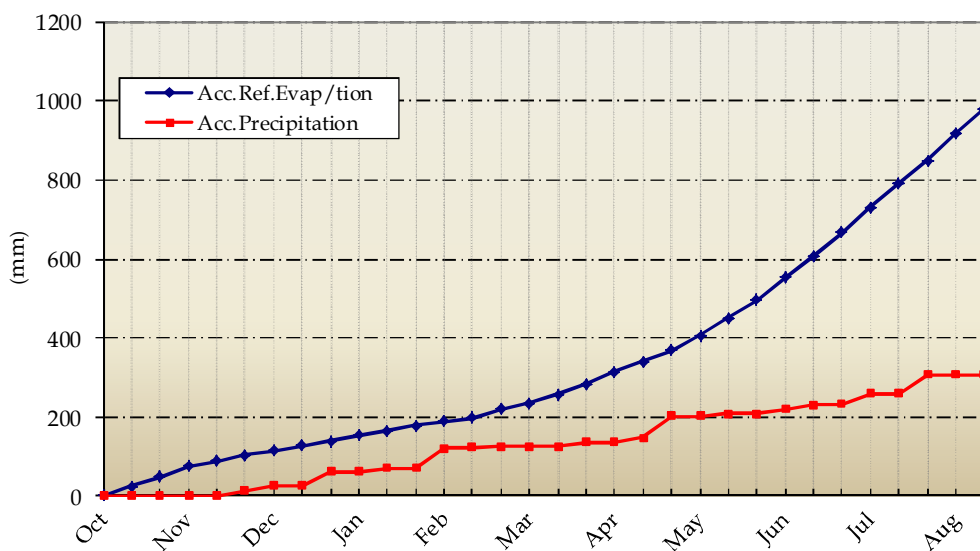


Mikra

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.2	33.4	35.0	32.3	31.1	32.0	32.8	33.8	34.8	36.3	33.8	31.9	31.9
	Min	24.3	23.5	22.6	24.4	23.0	19.6	19.6	20.2	22.0	22.2	22.1	21.3	19.4
Relative Humidity	Max	74	77	78	69	76	78	80	77	79	65	75	78	-
	Min	37	44	41	33	33	35	30	33	29	29	34	34	-
Soil Temperature at 10 cm	06 UTC	29.2	29.8	29.4	29.0	28.6	28.4	28.4	28.6	29.0	29.0	28.9	26.2	26.9
	12 UTC	34.0	33.0	32.5	31.4	27.8	32.4	31.8	31.8	32.0	33.5	32.0	29.7	31.6
Sunshine Duration		12.2	11.9	10.8	12.4	12.2	12.3	12.2	12.1	9.2	11.8	11.7	11.0	10.2
Precipitation													17.7	5.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	80.3	88.0
Growing Degrees	5	25.3	23.5	23.8	23.4	22.1	20.8	21.2	22.0	23.4	24.3	229.6	216.1	206.4
	10	20.3	18.5	18.8	18.4	17.1	15.8	16.2	17.0	18.4	19.3	179.6	166.1	156.4

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	63.6	54.2	56.6
Precipitation - Reference Evapotranspiration	-63.6	-36.5	-51.3
Number of Rainy Days	0.0	2.0	1.3
Number of Dry Days	18.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



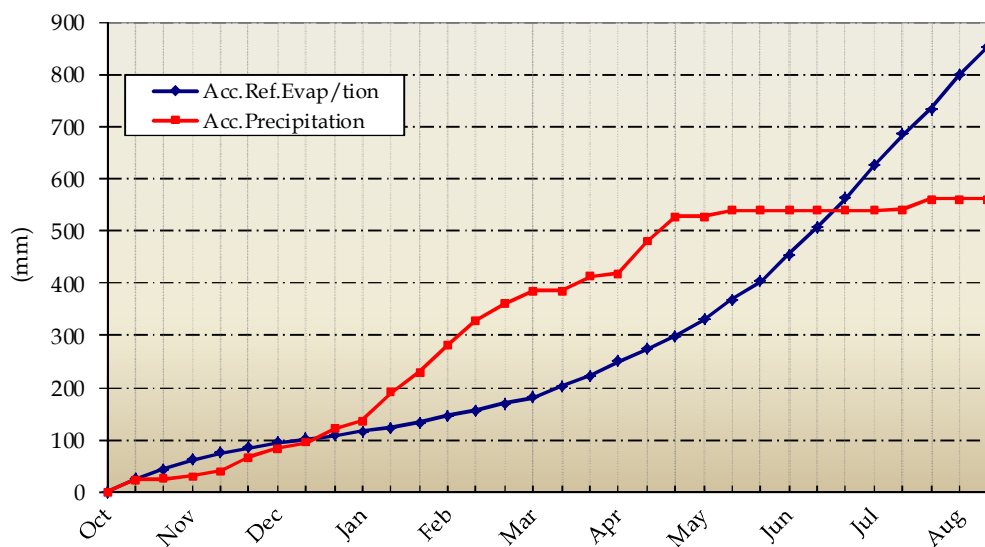


Tanagra

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.4	35.0	40.2	31.4	30.8	30.5	32.0	33.9	34.7	34.5	33.8	31.6	32.1
	Min	21.1	21.8	23.1	24.2	19.1	17.2	17.7	17.6	19.6	20.2	20.2	21.4	18.7
Relative Humidity	Max	68	63	63	68	73	66	67	59	60	58	64	67	-
	Min	25	30	12	24	29	26	23	19	20	23	23	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.6	12.3	13.1	12.2	10.8	12.6	12.8	12.5	12.3	12.4	12.4	12.1	
Precipitation														0.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	23.3	23.4	26.7	22.8	20.0	18.9	19.9	20.8	22.2	22.4	220.0	215.3	
	10	18.3	18.4	21.7	17.8	15.0	13.9	14.9	15.8	17.2	17.4	170.0	165.3	

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.8	61.7	
Precipitation - Reference Evapotranspiration	-55.8	-61.7	0.7
Number of Rainy Days	0.0	0.0	0.4
Number of Dry Days	24.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

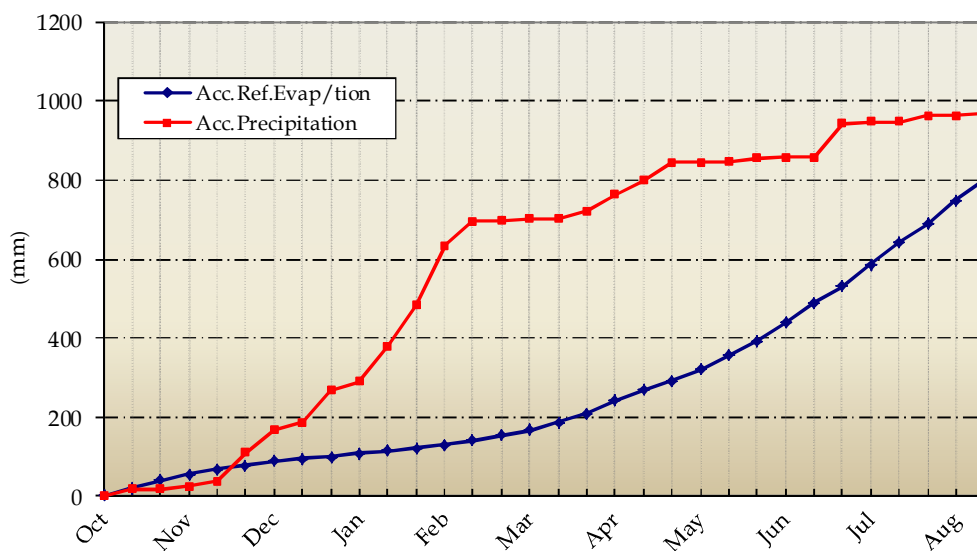


Tripoli

1st 10-day period (1-10/08/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.4	34.2	36.9	31.9	27.9	29.0	30.3	32.8	33.7	32.7	32.3	29.5	30.8
	Min	16.3	16.6	15.9	14.7	17.1	15.9	13.3	12.9	14.1	22.2	15.9	15.6	14.8
Relative Humidity	Max	96	91	92	83	99	100	91	87	90	42	87	89	-
	Min	26	25	14	15	33	25	18	20	14	22	21	32	-
Soil Temperature at 10 cm	06 UTC	25.8	26.8	25.6	25.8	27.2	24.4	23.8	24.4	25.2	-	25.4	23.2	25.8
	12 UTC	32.8	33.6	33.8	-	31.8	30.2	31.2	32.8	33.2	-	32.4	28.8	28.5
Sunshine Duration		10.9	10.3	12.7	12.6	6.2	12.2	12.6	12.6	12.6	12.6	11.5	10.4	10.5
Precipitation			0.9	0.9		4.1						5.9	4.1	6.7
Evaporation		5.8	5.9	8.7	10.6	3.7	7.7	9.0	12.8	-	-	-	61.4	66.4
Growing Degrees	5	19.9	20.4	21.4	18.3	17.5	17.5	16.8	17.9	18.9	22.5	190.9	175.5	178.4
	10	14.9	15.4	16.4	13.3	12.5	12.5	11.8	12.9	13.9	17.5	140.9	125.5	128.4

1st 10-day period (1-10/08/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.4	47.1	53.5
Precipitation - Reference Evapotranspiration	-48.5	-43.0	-46.8
Number of Rainy Days	3.0	3.0	1.1
Number of Dry Days	1.0	0.0	-

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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