



# AGROMETEOROLOGICAL BULLETIN

*October 2017  
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



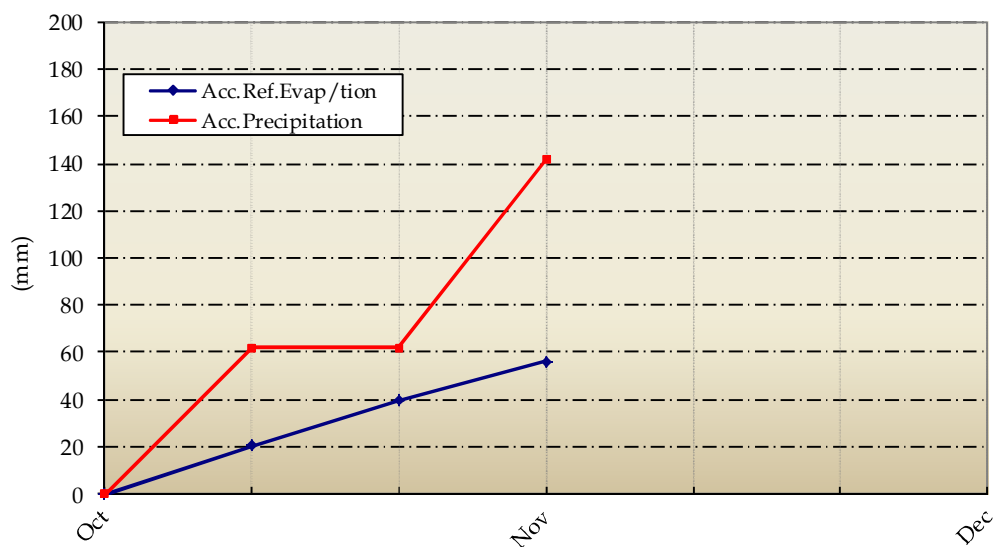
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3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	24.0	21.2	20.0	15.8	17.4	18.4	14.6	16.6	19.2	15.4	18.6	18.4	17.4
	Min	7.4	8.6	12.4	13.6	9.4	9.2	5.0	6.6	5.6	8.4	2.0	8.0	9.5	8.0
Relative Humidity	Max	97	95	96	98	97	97	100	100	97	67	89	94	82	-
	Min	56	50	62	78	79	41	50	71	60	25	32	55	49	-
Soil Temperature at 10 cm	06 UTC	15.2	15.2	17.4	16.8	15.4	12.4	11.4	13.2	10.2	13.2	9.0	13.6	15.3	12.7
	12 UTC	19.4	18.4	18.2	18.8	14.6	14.6	15.4	13.8	14.0	14.4	15.0	16.1	19.0	15.2
Sunshine Duration		9.3	7.9	1.9	6.2	0.0	7.1	8.7	0.0	7.5	9.3	9.5	6.1	5.9	5.2
Precipitation				1.6	52.0	13.2	1.5		9.9	1.7			79.9	0.1	22.3
Evaporation		1.5	1.9	5.5	1.8	4.7	5.5	2.5	1.5	0.6	5.0	3.4	33.9	43.4	41.1
Growing Degrees	5	9.9	11.3	11.8	11.8	7.6	8.3	6.7	5.6	6.1	8.8	3.7	91.6	98.7	85.3
	10	4.9	6.3	6.8	6.8	2.6	3.3	1.7	0.6	1.1	3.8	0.0	37.9	43.7	34.4

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.4	18.9	20.4
Precipitation - Reference Evapotranspiration	63.5	-18.8	1.9
Number of Rainy Days	6.0	1.0	2.2
Number of Dry Days	14.0	4.0	-

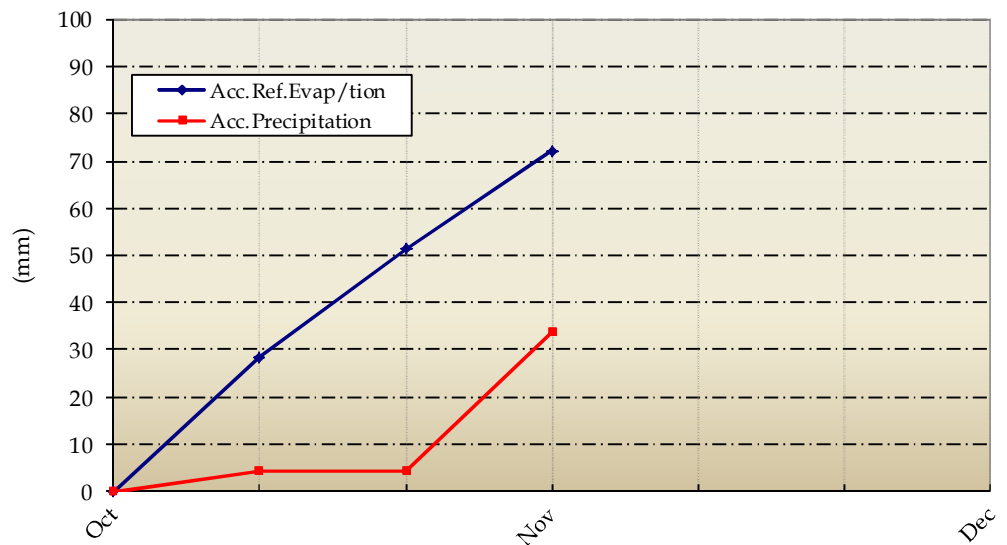
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.6	24.2	22.6	18.2	22.6	23.5	22.5	22.1	19.4	21.3	21.1	21.9	21.8	21.5
	Min	11.9	11.5	13.0	13.1	11.3	10.8	10.9	13.8	7.5	12.2	10.8	11.5	13.6	11.4
Relative Humidity	Max	90	90	91	78	83	79	88	88	87	88	91	87	90	-
	Min	53	51	63	50	33	33	32	58	40	58	47	47	60	-
Soil Temperature at 10 cm	06 UTC	20.0	19.9	20.0	20.0	17.0	16.0	16.6	17.5	15.5	16.4	16.2	17.7	-	16.1
	12 UTC	21.0	21.8	21.0	20.4	21.6	22.0	18.6	18.5	17.0	18.0	18.0	19.8	-	18.7
Sunshine Duration		8.8	8.3	4.0	4.4	8.3	9.6	9.3	4.3	8.3	2.8	8.6	7.0	4.2	6.3
Precipitation				20.6	1.3	0.1			5.9		1.4		29.3	121.2	50.1
Evaporation		2.0	3.0	3.0	2.0	6.0	3.0	6.0	7.9	2.4	2.0	2.0	39.3	43.6	31.6
Growing Degrees	5	12.8	12.9	12.8	10.7	12.0	12.2	11.7	13.0	8.5	11.8	11.0	129.0	139.4	126.2
	10	7.8	7.9	7.8	5.7	7.0	7.2	6.7	8.0	3.5	6.8	6.0	74.0	84.4	71.3

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.9	18.3	18.7
Precipitation - Reference Evapotranspiration	8.4	102.9	31.4
Number of Rainy Days	5.0	6.0	3.7
Number of Dry Days	15.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

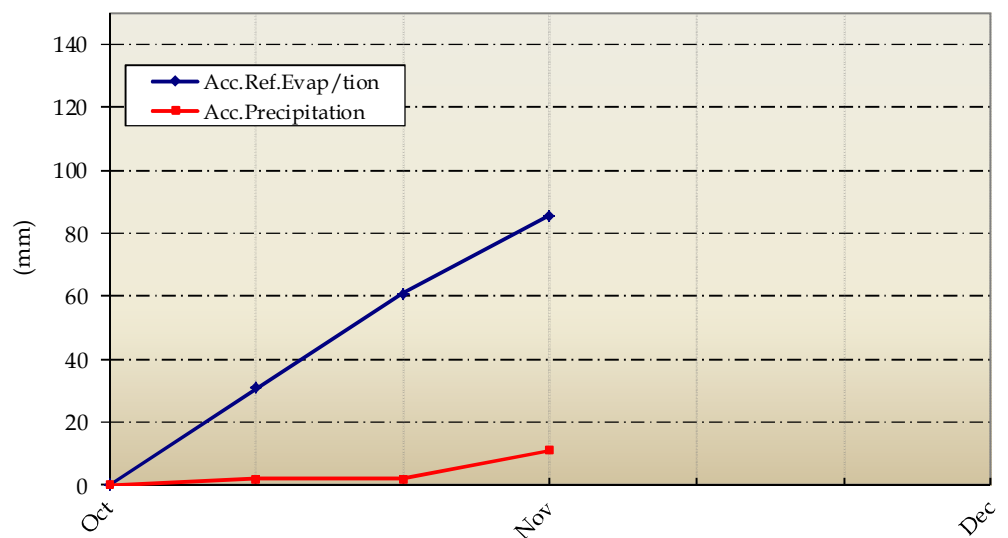


Iraklio

3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	23.4	23.0	22.0	25.0	22.8	19.8	24.4	19.0	22.6	21.2	22.5	22.0	21.6
	Min	15.2	16.0	14.8	18.4	16.0	14.8	17.6	13.2	16.4	14.0	15.0	15.6	18.3	15.6
Relative Humidity	Max	93	93	84	81	79	82	84	86	89	84	89	86	85	-
	Min	62	65	62	61	44	63	65	42	67	56	63	59	62	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.5	8.1	8.6	4.5	7.3	5.9	2.0	8.5	3.0	4.5	1.6	5.5	4.7	5.7
Precipitation					1.0		0.0			8.1			9.1	28.0	29.2
Evaporation		2.6	0.8	2.7	5.1	2.1	3.8	2.0	3.8	0.1	2.3	2.5	27.8	29.4	48.8
Growing Degrees	5	14.6	14.7	13.9	15.2	15.5	13.8	13.7	13.8	12.7	13.3	13.1	154.3	166.3	149.6
	10	9.6	9.7	8.9	10.2	10.5	8.8	8.7	8.8	7.7	8.3	8.1	99.3	111.3	94.6

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.8	24.9	-
Precipitation - Reference Evapotranspiration	-15.7	3.1	29.2
Number of Rainy Days	2.0	2.0	3.0
Number of Dry Days	17.0	35.0	-

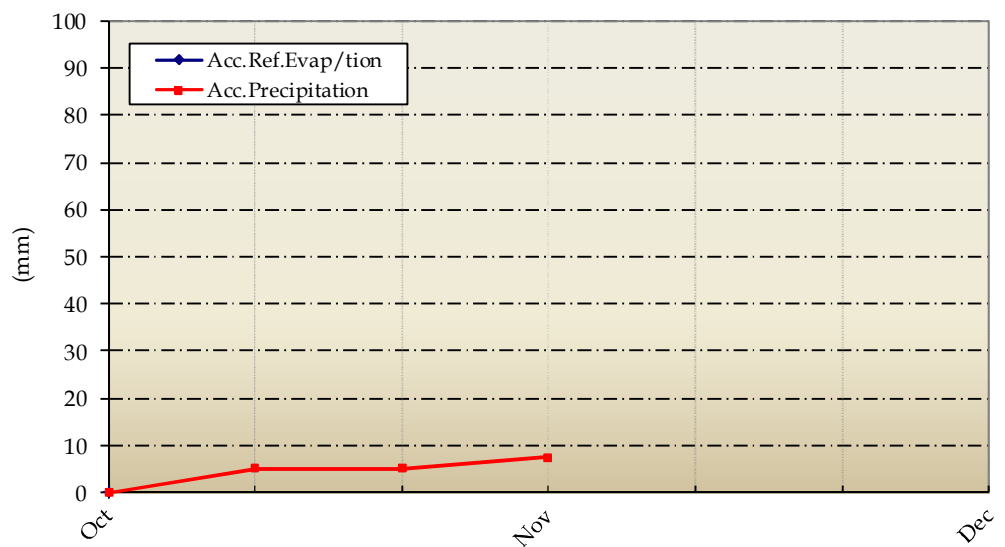
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	23.6	19.0	14.6	19.8	22.8	22.0	15.6	16.2	18.8	18.0	19.5	19.7	17.6
	Min	6.2	5.0	9.0	6.6	8.5	9.0	1.8	8.6	0.8	3.0	2.2	5.5	10.4	7.0
Relative Humidity	Max	100	100	100	100	82	100	100	100	100	100	97	98	98	-
	Min	37	38	88	57	38	32	30	39	35	46	32	43	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	11.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	13.8
Sunshine Duration		4.7	4.4	0.0	3.7	4.3	7.5	7.4	3.0	7.2	6.2	6.8	5.0	3.9	4.6
Precipitation				0.1	0.0				2.4				2.5	52.2	37.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	18.9
Growing Degrees	5	10.2	9.3	9.0	5.6	9.2	10.9	6.9	7.1	3.5	5.9	5.1	82.7	110.5	81.3
	10	5.2	4.3	4.0	0.6	4.2	5.9	1.9	2.1	0.0	0.9	0.1	29.2	55.5	30.0

3rd 10-day period (21-31/10/2017)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	14.7
Precipitation - Reference Evapotranspiration	-	22.9
Number of Rainy Days	2.0	3.8
Number of Dry Days	15.0	-

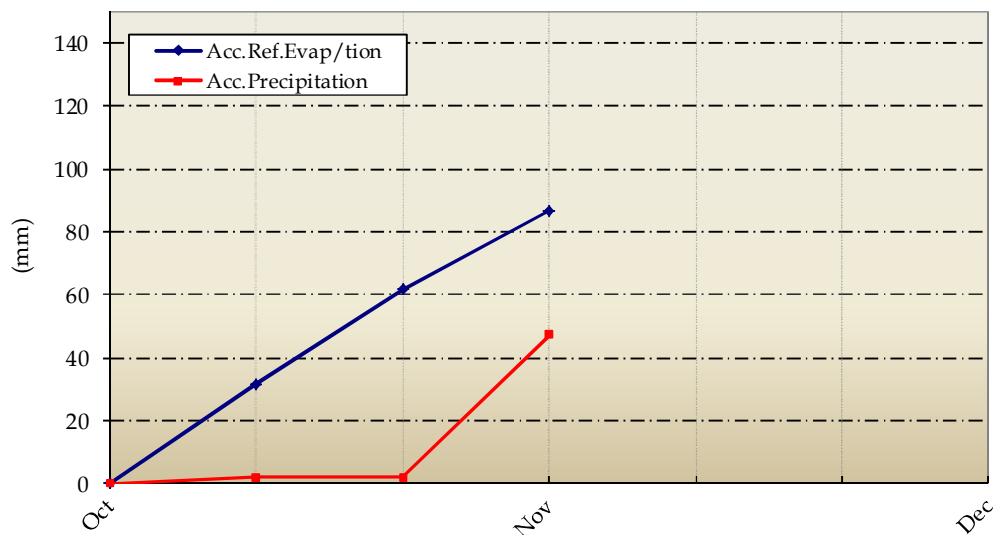
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.2	27.8	23.0	20.2	22.5	24.6	22.0	22.0	21.4	22.5	23.4	23.3	23.3	22.3
	Min	13.9	14.4	10.9	11.6	10.6	14.6	10.1	9.6	8.3	8.4	12.2	11.3	14.4	11.5
Relative Humidity	Max	87	87	93	92	90	72	90	90	90	89	92	88	91	-
	Min	33	35	48	54	40	32	35	54	33	42	49	41	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	18.5
Sunshine Duration		8.4	9.8	5.6	5.5	3.7	9.4	9.6	2.9	10.0	6.0	4.1	6.8	4.3	5.9
Precipitation				20.2	10.6	0.5						14.2	45.5	83.7	43.6
Evaporation		3.2	3.0	1.6	3.1	3.6	4.1	3.3	1.4	2.8	2.8	0.5	29.4	31.3	36.3
Growing Degrees	5	15.6	16.1	12.0	10.9	11.6	14.6	11.1	10.8	9.9	10.5	12.8	135.6	152.0	130.7
	10	10.6	11.1	7.0	5.9	6.6	9.6	6.1	5.8	4.9	5.5	7.8	80.6	97.0	75.7

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.9	21.0	21.6
Precipitation - Reference Evapotranspiration	20.6	62.7	22.0
Number of Rainy Days	4.0	8.0	3.7
Number of Dry Days	15.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

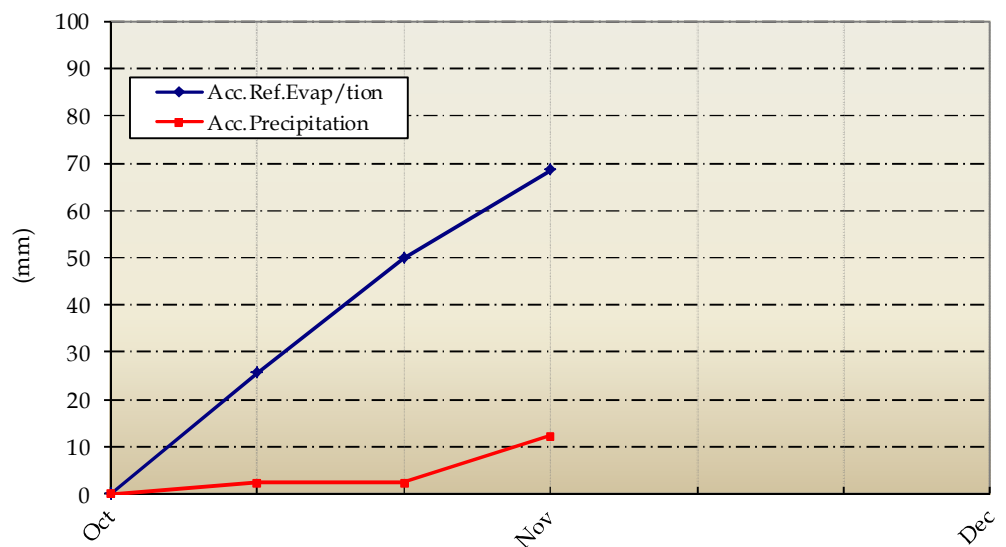


Larisa

3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.9	28.1	18.6	19.2	14.4	19.6	22.6	15.0	19.1	19.4	17.2	20.1	18.6	18.9
	Min	7.6	8.1	9.8	7.2	10.0	11.4	3.6	8.1	1.0	9.6	7.6	7.6	12.9	8.3
Relative Humidity	Max	86	87	96	97	95	97	99	94	97	64	56	88	96	-
	Min	25	19	59	38	76	49	38	15	27	28	24	36	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4	14.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.3	15.6
Sunshine Duration		7.0	7.0	0.0	6.1	0.0	6.1	6.6	1.0	6.2	4.8	4.4	4.5	2.5	4.4
Precipitation				2.9	0.3	6.0	0.7		0.0				9.9	17.1	23.9
Evaporation		1.6	8.6	0.1	6.0	0.1	2.8	4.3	0.6	2.5	4.7	3.5	34.8	21.0	24.8
Growing Degrees	5	12.8	13.1	9.2	8.2	7.2	10.5	8.1	6.6	5.1	9.5	7.4	97.6	118.6	94.1
	10	7.8	8.1	4.2	3.2	2.2	5.5	3.1	1.6	0.1	4.5	2.4	42.6	63.6	41.5

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.7	14.8	16.4
Precipitation - Reference Evapotranspiration	-8.8	2.3	7.5
Number of Rainy Days	4.0	2.0	3.5
Number of Dry Days	15.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

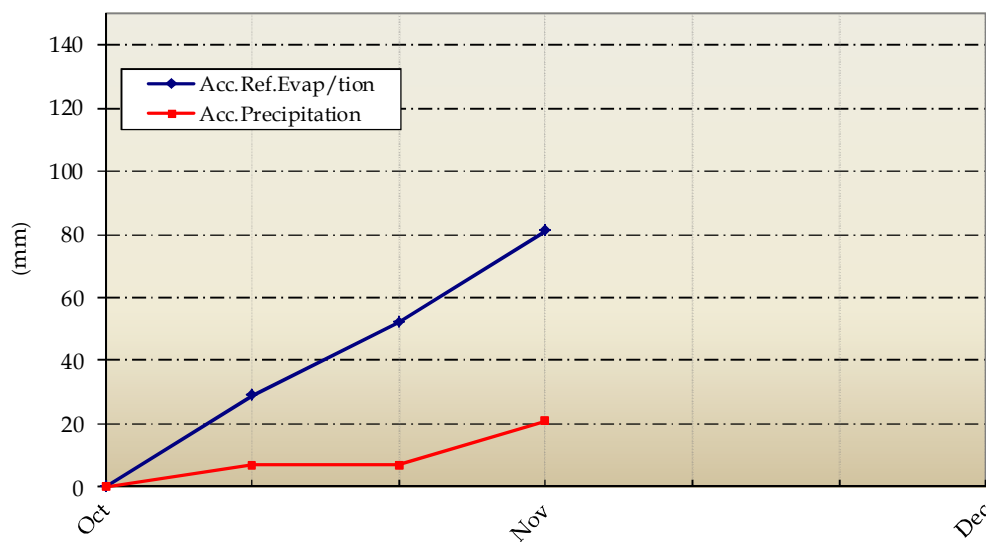


Mikra

3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.9	26.3	19.7	17.8	19.0	19.8	20.2	16.4	17.1	17.2	15.3	19.5	18.3	18.1
	Min	8.8	9.2	12.7	11.5	12.8	12.6	7.1	11.2	11.6	7.4	10.7	10.5	12.2	9.2
Relative Humidity	Max	78	79	90	69	78	82	89	83	70	46	36	73	86	-
	Min	28	24	62	48	43	35	44	40	26	22	24	36	54	-
Soil Temperature at 10 cm	06 UTC	17.6	17.8	18.8	15.9	15.0	15.3	14.4	15.4	13.4	14.0	13.4	15.5	15.7	13.8
	12 UTC	20.8	20.3	19.0	16.7	16.4	16.8	16.2	15.0	15.4	15.2	13.8	16.9	16.8	16.0
Sunshine Duration		8.9	9.4	0.0	8.4	3.7	8.9	8.9	3.5	8.0	7.9	8.9	7.0	3.6	4.6
Precipitation				3.8	9.2	0.8			0.3				14.1	8.7	21.1
Evaporation		4.2	5.8	3.0	3.5	3.2	3.4	2.3	5.4	2.8	5.8	5.6	45.0	24.7	29.7
Growing Degrees	5	12.4	12.8	11.2	9.7	10.9	11.2	8.7	8.8	9.4	7.3	8.0	110.2	112.9	95.5
	10	7.4	7.8	6.2	4.7	5.9	6.2	3.7	3.8	4.4	2.3	3.0	55.2	57.9	42.9

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.9	16.8	17.3
Precipitation - Reference Evapotranspiration	-14.8	-8.1	3.8
Number of Rainy Days	4.0	2.0	3.2
Number of Dry Days	15.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

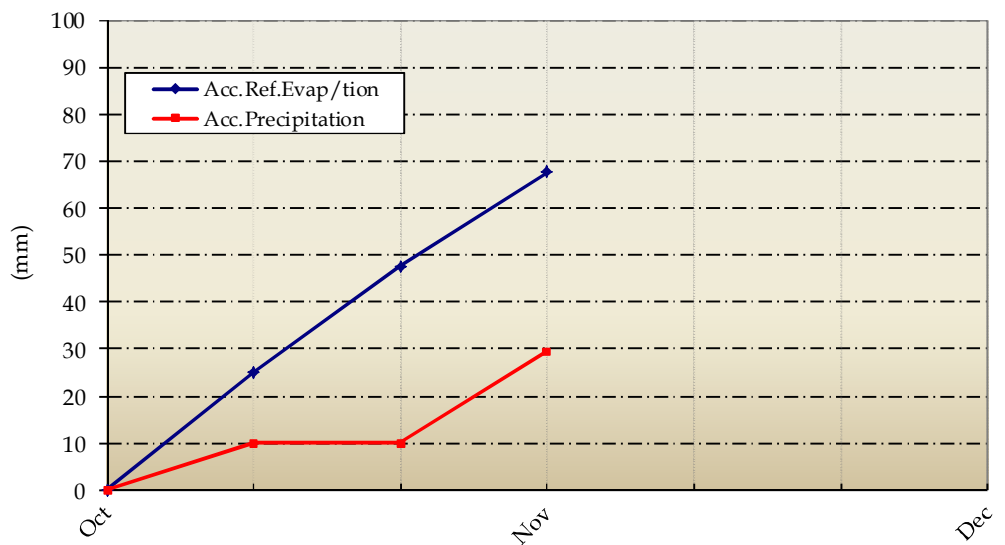




3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.6	28.2	26.4	20.0	17.4	16.3	22.4	18.4	18.8	18.1	16.2	20.8	18.9	19.8
	Min	10.9	12.1	12.7	12.8	11.7	12.4	8.7	8.9	9.1	8.6	13.0	11.0	13.1	10.1
Relative Humidity	Max	99	99	94	96	100	98	97	99	80	76	63	91	90	-
	Min	24	20	27	35	33	62	34	52	27	38	31	35	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.6	8.6	5.3	6.7	2.0	0.6	8.3	4.5	8.2	9.8	4.1	6.1	2.9	
Precipitation				3.7		13.7			2.0	0.1			19.5	11.8	27.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	13.8	15.2	14.6	11.4	9.6	9.4	10.6	8.7	9.0	8.4	9.6	119.9	121.0	
	10	8.8	10.2	9.6	6.4	4.6	4.4	5.6	3.7	4.0	3.4	4.6	64.9	66.0	

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.1	15.8	
Precipitation - Reference Evapotranspiration	-0.6	-4.0	27.5
Number of Rainy Days	4.0	3.0	3.7
Number of Dry Days	21.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

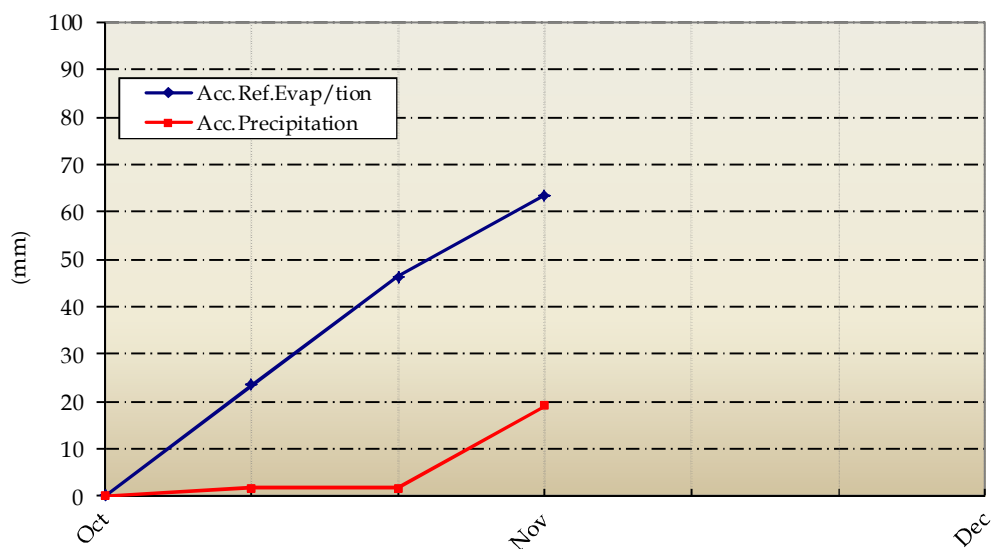


Tripoli

3rd 10-day period (21-31/10/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	25.5	21.4	14.8	14.2	15.0	21.9	18.4	16.4	15.4	14.0	18.3	17.4	17.6
	Min	5.1	4.6	5.1	8.3	4.5	10.7	4.4	4.2	6.9	8.3	10.1	6.6	9.8	6.5
Relative Humidity	Max	100	100	96	99	100	95	92	96	91	100	100	97	100	-
	Min	18	21	30	52	59	58	21	55	28	61	66	43	68	-
Soil Temperature at 10 cm	06 UTC	15.4	15.2	14.8	14.2	12.8	13.2	11.6	-	-	11.8	13.8	13.6	14.1	12.8
	12 UTC	-	-	17.2	16.2	14.2	14.0	13.4	-	-	13.8	14.8	14.8	16.4	14.2
Sunshine Duration		8.9	8.9	5.5	6.8	1.3	2.5	9.3	0.0	9.3	1.7	0.8	5.0	3.5	5.3
Precipitation				6.1	8.3				1.5	0.0	0.0	1.4	17.3	70.7	39.1
Evaporation		2.3	2.0	2.1	1.1	1.2	1.8	-	-	-	1.7	1.3	-	-	23.9
Growing Degrees	5	9.7	10.1	8.3	6.6	4.4	7.9	8.2	6.3	6.7	6.9	7.1	81.7	94.8	77.8
	10	4.7	5.1	3.3	1.6	0.0	2.9	3.2	1.3	1.7	1.9	2.1	27.4	39.8	27.7

3rd 10-day period (21-31/10/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.2	14.4	18.0
Precipitation - Reference Evapotranspiration	0.1	56.3	21.1
Number of Rainy Days	4.0	6.0	3.8
Number of Dry Days	15.0	8.0	-

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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