



# AGROMETEOROLOGICAL BULLETIN

*September 2016*  
*2nd 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



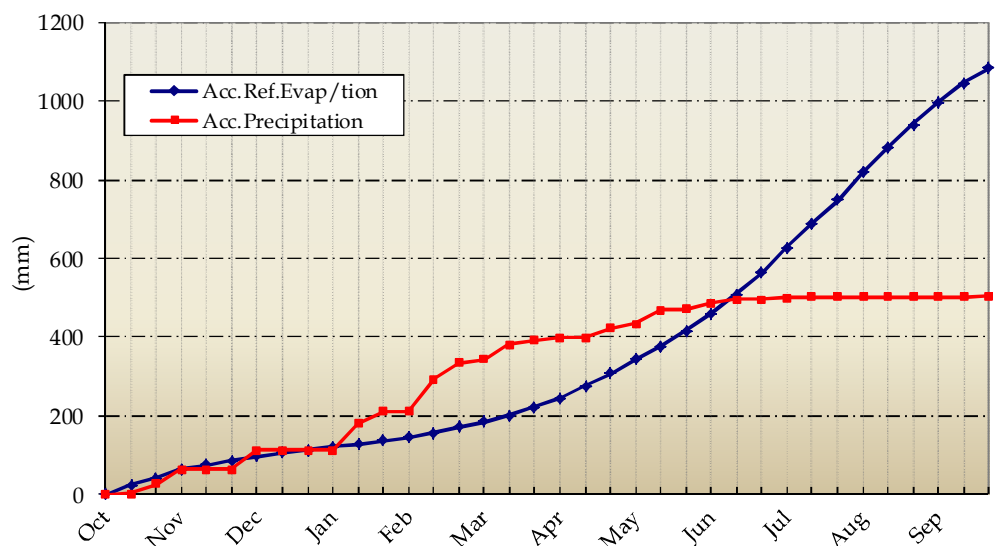
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2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	29.4	29.8	30.2	31.4	29.4	29.4	29.6	28.4	28.0	29.6	29.4	26.5
	Min	21.6	19.0	19.6	14.4	16.2	17.2	16.2	16.6	19.4	18.0	17.8	18.1	13.8
Relative Humidity	Max	69	79	72	76	77	83	88	76	91	91	80	85	-
	Min	36	32	35	33	28	40	35	51	59	39	39	36	-
Soil Temperature at 10 cm	06 UTC	25.0	25.0	25.0	23.5	24.6	24.2	24.0	24.0	25.0	23.4	24.4	23.4	19.9
	12 UTC	28.4	28.6	29.4	28.7	29.4	29.4	29.4	29.8	28.2	28.4	29.0	28.5	23.7
Sunshine Duration		7.4	7.2	9.6	10.7	7.4	9.7	10.5	10.4	6.2	8.1	8.7	10.5	8.5
Precipitation										0.9	1.0	1.9	23.6	5.2
Evaporation		7.0	8.7	8.5	7.6	6.7	5.4	5.4	8.5	3.7	7.3	68.8	82.5	66.6
Growing Degrees	5	21.2	19.2	19.7	17.3	18.8	18.3	17.8	18.1	18.9	18.0	187.3	187.5	151.3
	10	16.2	14.2	14.7	12.3	13.8	13.3	12.8	13.1	13.9	13.0	137.3	137.5	101.3

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.8	42.8	37.1
Precipitation - Reference Evapotranspiration	-35.9	-19.2	-31.9
Number of Rainy Days	2.0	1.0	0.9
Number of Dry Days	76.0	19.0	-

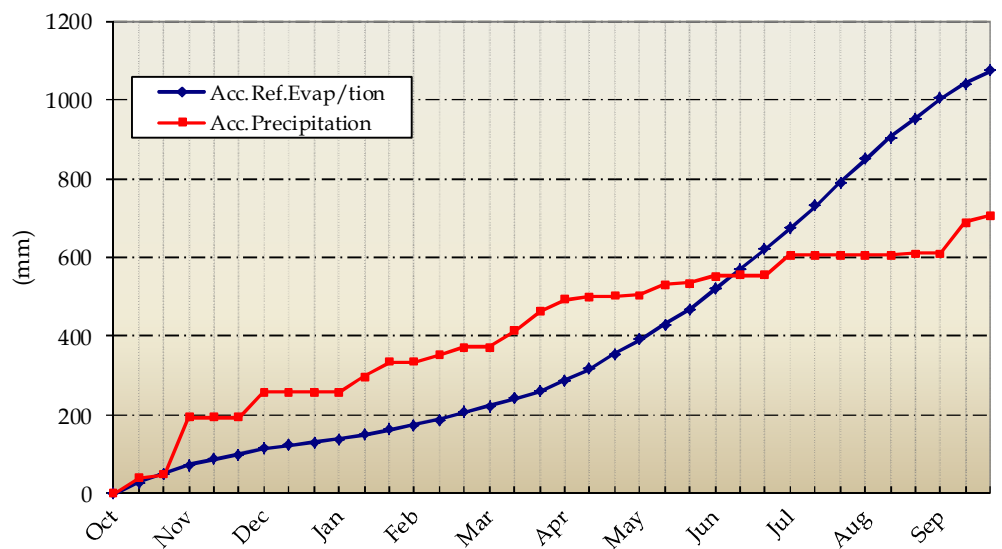
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	27.8	28.6	28.6	28.0	28.8	30.1	29.8	25.6	26.2	28.1	30.8	28.2
	Min	19.1	19.2	17.0	18.0	16.3	18.1	18.8	20.0	17.9	18.6	18.3	18.3	16.5
Relative Humidity	Max	87	89	89	87	90	89	89	90	92	87	89	85	-
	Min	53	55	38	42	45	51	42	56	62	44	49	34	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.9
Sunshine Duration		9.1	4.0	9.4	9.5	10.6	9.3	8.9	7.5	2.4	8.6	7.9	10.2	9.1
Precipitation										18.1		18.1	0.6	7.0
Evaporation		7.0	4.0	6.0	3.0	3.0	3.4	8.6	5.5	0.6	1.0	42.1	65.9	56.3
Growing Degrees	5	18.3	18.5	17.8	18.3	17.2	18.5	19.5	19.9	16.8	17.4	182.0	195.3	173.6
	10	13.3	13.5	12.8	13.3	12.2	13.5	14.5	14.9	11.8	12.4	132.0	145.3	123.6

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.1	43.6	36.2
Precipitation - Reference Evapotranspiration	-15.0	-43.0	-29.2
Number of Rainy Days	1.0	1.0	1.1
Number of Dry Days	10.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

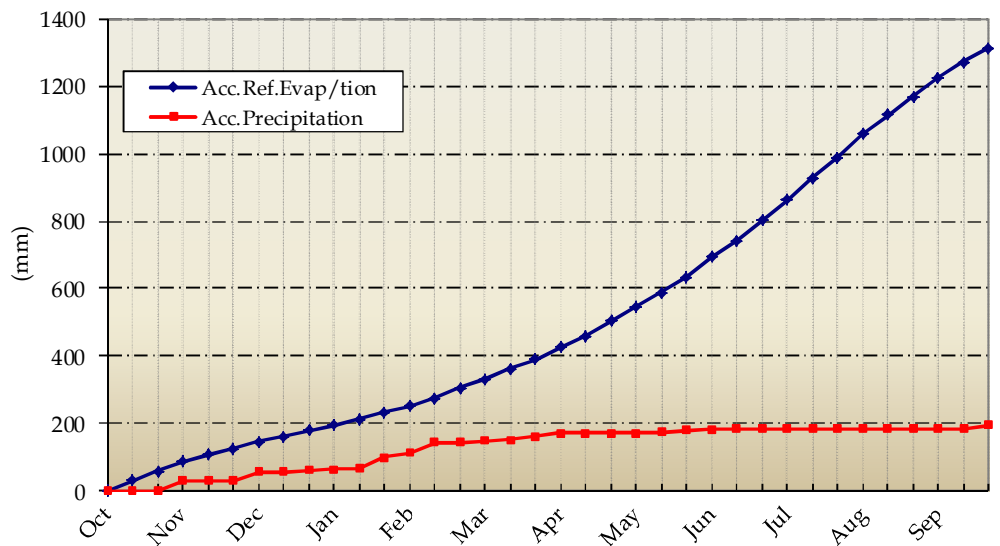


Iraklio

2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	27.0	26.8	27.0	28.0	28.2	28.2	31.2	29.6	28.0	28.1	27.7	26.4
	Min	21.0	20.2	21.4	23.0	20.2	23.8	22.0	21.4	23.4	24.0	22.0	22.8	19.5
Relative Humidity	Max	91	88	82	82	84	81	81	85	85	87	85	82	-
	Min	65	69	65	61	55	59	41	39	53	58	56	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.9	9.5	9.5	9.0	9.3	9.7	9.7	8.9	6.8	3.5	8.6	8.4	9.4
Precipitation											11.0	11.0		6.0
Evaporation		1.8	5.7	6.1	6.3	5.2	9.5	3.5	4.6	4.7	4.3	51.7	48.1	64.4
Growing Degrees	5	19.2	18.6	19.1	20.0	19.1	21.0	20.1	21.3	21.5	21.0	200.9	202.6	179.8
	10	14.2	13.6	14.1	15.0	14.1	16.0	15.1	16.3	16.5	16.0	150.9	152.6	129.8

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.5	41.3	-
Precipitation - Reference Evapotranspiration	-30.5	-41.3	6.0
Number of Rainy Days	1.0	0.0	0.5
Number of Dry Days	103.0	36.0	-

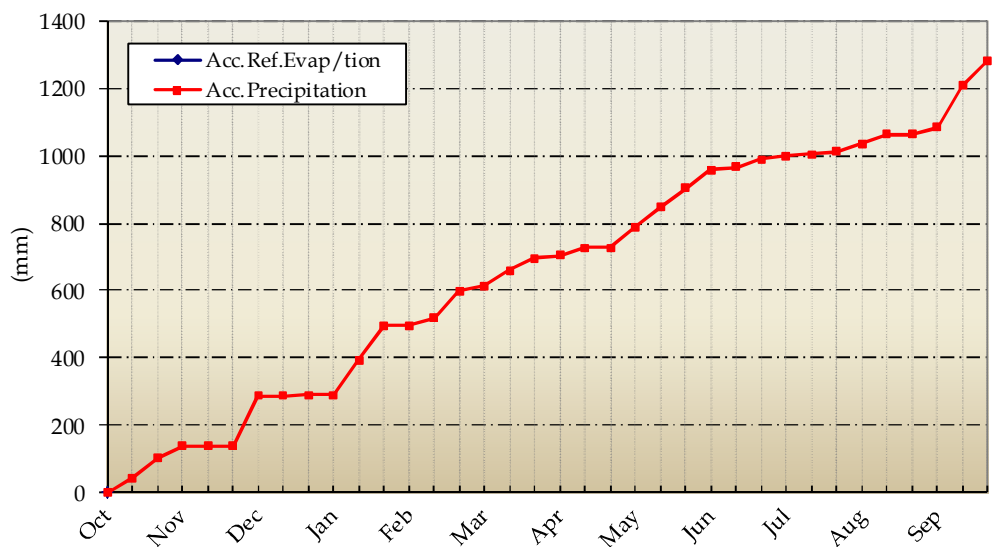
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.6	28.3	28.1	27.3	27.7	28.8	29.5	24.8	21.6	22.6	26.5	30.0	26.5
	Min	15.5	16.0	11.8	12.2	11.3	11.5	12.4	16.0	15.2	10.8	13.3	14.4	12.2
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	99	-
	Min	51	33	36	39	31	51	40	57	83	52	47	35	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	31.4	18.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.1
Sunshine Duration		3.0	4.2	6.1	5.6	6.3	7.0	7.9	3.7	2.0	5.6	5.1	8.5	6.9
Precipitation		4.6	1.6	1.8	6.3		0.0		2.8	41.7	16.4	75.2	0.0	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	43.6
Growing Degrees	5	16.1	17.2	15.0	14.8	14.5	15.2	16.0	15.4	13.4	11.7	149.0	172.1	143.6
	10	11.1	12.2	10.0	9.8	9.5	10.2	11.0	10.4	8.4	6.7	99.0	122.1	93.6

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	28.7
Precipitation - Reference Evapotranspiration	-	-	-12.3
Number of Rainy Days	7.0	0.0	2.1
Number of Dry Days	0.0	10.0	-

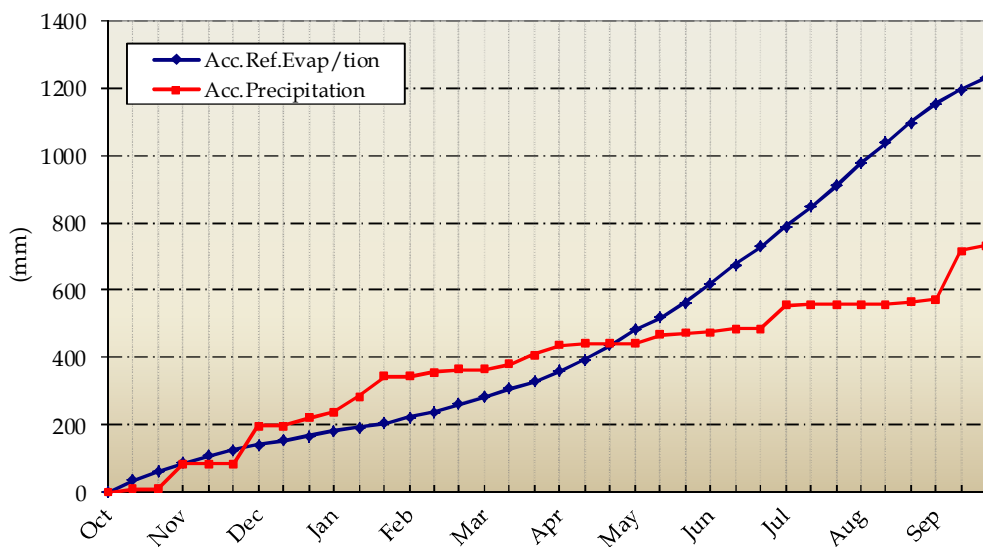
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.7	27.2	29.7	27.4	30.1	30.1	31.2	30.0	28.2	28.1	29.0	29.7	28.6
	Min	17.6	18.0	16.9	17.6	17.7	17.7	17.6	18.9	19.8	16.4	17.8	16.4	15.9
Relative Humidity	Max	89	91	90	90	86	88	88	91	93	94	90	89	-
	Min	49	51	40	41	32	33	36	46	62	44	43	40	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	24.8	22.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	26.5	25.8
Sunshine Duration		-	4.4	4.4	10.4	10.8	11.8	9.9	10.5	2.7	8.1	8.1	10.4	8.7
Precipitation			0.0							10.1	5.0	15.1		6.3
Evaporation		-	5.6	5.3	5.7	6.2	5.5	5.9	3.9	2.0	1.2	-	51.8	60.4
Growing Degrees	5	17.7	17.6	18.3	17.5	18.9	18.9	19.4	19.5	19.0	17.3	184.0	180.3	172.4
	10	12.7	12.6	13.3	12.5	13.9	13.9	14.4	14.5	14.0	12.3	134.0	130.3	122.4

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.8	43.3	38.1
Precipitation - Reference Evapotranspiration	-21.7	-43.3	-31.8
Number of Rainy Days	2.0	0.0	1.0
Number of Dry Days	10.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



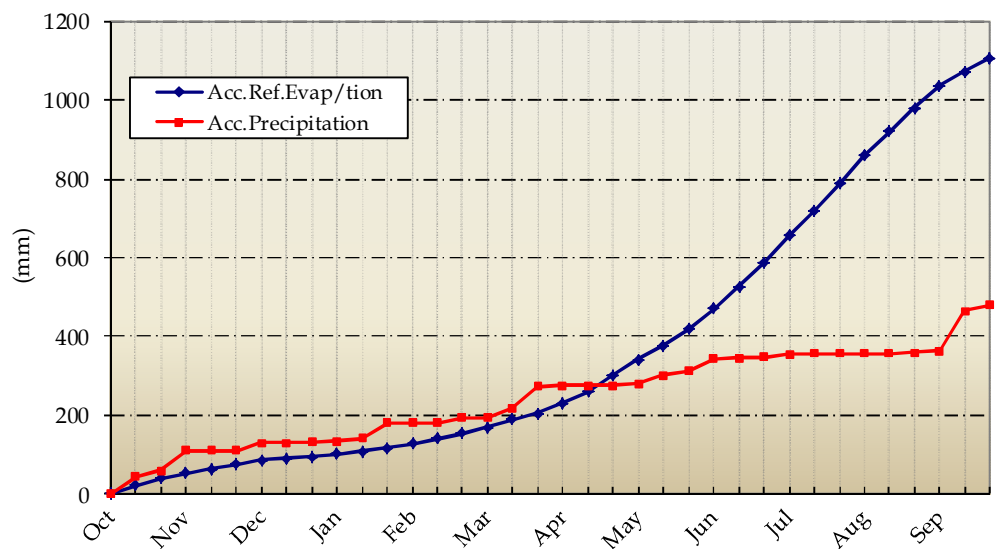


Larisa

2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	28.6	28.6	31.0	32.0	32.2	33.6	31.4	26.0	27.7	30.0	32.2	29.0
	Min	18.0	19.0	15.1	15.8	14.6	14.8	16.1	19.3	17.2	14.8	16.5	16.8	14.0
Relative Humidity	Max	99	100	100	100	100	99	100	76	100	100	97	97	-
	Min	37	38	32	28	21	22	24	34	72	31	34	34	-
Soil Temperature at 10 cm	06 UTC	24.4	24.4	24.2	24.2	24.2	24.6	24.8	25.2	26.0	24.0	24.6	25.7	22.0
	12 UTC	24.2	24.8	24.4	28.8	24.2	24.6	25.0	27.6	24.4	24.0	25.2	25.7	24.1
Sunshine Duration		7.2	3.8	8.7	7.2	9.0	8.8	8.5	5.4	1.7	8.4	6.9	7.7	8.3
Precipitation										14.6	0.6	15.2	0.0	12.0
Evaporation		6.8	4.4	6.8	4.8	5.3	5.8	6.7	11.6	0.2	5.4	57.8	69.1	61.4
Growing Degrees	5	18.3	18.8	16.9	18.4	18.3	18.5	19.9	20.4	16.6	16.3	182.2	194.9	165.0
	10	13.3	13.8	11.9	13.4	13.3	13.5	14.9	15.4	11.6	11.3	132.2	144.9	115.0

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.7	40.3	38.0
Precipitation - Reference Evapotranspiration	-19.5	-40.3	-26.0
Number of Rainy Days	2.0	0.0	1.2
Number of Dry Days	9.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

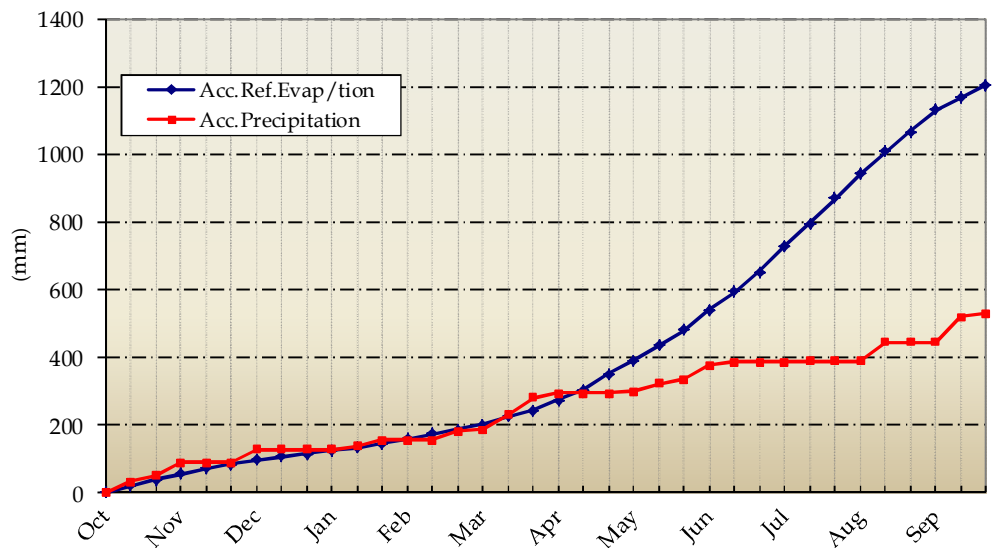


Mikra

2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	27.7	28.7	29.2	30.3	29.2	28.4	31.4	26.4	27.0	28.7	29.5	27.5
	Min	20.1	18.5	16.7	17.1	15.6	15.7	16.8	17.9	18.8	15.5	17.3	18.7	15.2
Relative Humidity	Max	85	89	85	91	84	83	89	91	94	95	89	89	-
	Min	38	40	38	31	27	39	53	32	60	35	39	42	-
Soil Temperature at 10 cm	06 UTC	23.8	23.6	23.0	23.0	22.6	23.0	23.2	24.0	24.8	21.6	23.3	24.8	21.4
	12 UTC	26.2	26.0	27.0	27.0	27.2	25.8	25.6	27.0	25.2	26.4	26.3	28.3	25.2
Sunshine Duration		9.3	5.3	10.0	10.3	10.5	10.5	10.0	7.8	8.2	10.6	9.2	10.4	8.1
Precipitation										10.8	0.8	11.6		7.6
Evaporation		3.3	4.8	7.0	6.0	4.6	6.4	3.9	5.7	6.4	4.6	52.7	69.1	62.1
Growing Degrees	5	19.3	18.1	17.7	18.2	18.0	17.5	17.6	19.7	17.6	16.3	179.7	190.7	163.4
	10	14.3	13.1	12.7	13.2	13.0	12.5	12.6	14.7	12.6	11.3	129.7	140.7	113.4

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.9	42.9	37.4
Precipitation - Reference Evapotranspiration	-27.3	-42.9	-29.8
Number of Rainy Days	2.0	0.0	1.4
Number of Dry Days	8.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



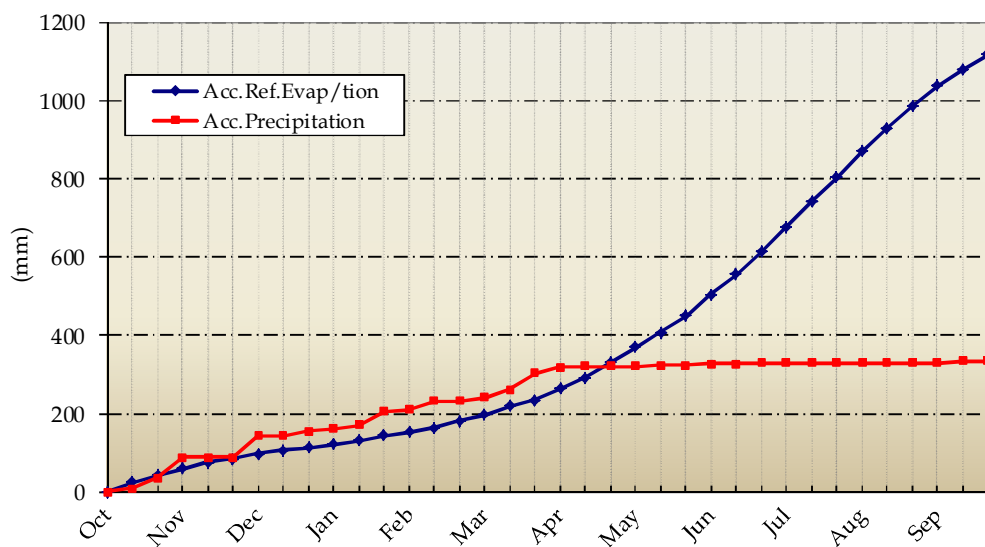


Tanagra

2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.3	27.8	27.2	29.3	30.8	31.2	32.6	34.4	30.0	29.0	30.2	29.9	28.3
	Min	19.1	18.7	17.4	16.3	16.4	15.4	16.0	22.8	21.7	19.1	18.3	16.9	15.0
Relative Humidity	Max	79	76	69	75	68	65	75	71	69	70	72	81	-
	Min	35	34	35	24	21	27	24	21	26	23	27	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.1	8.8	8.8	10.2	9.7	9.6	9.4	7.6	3.6	8.7	8.4	10.3	
Precipitation										0.1		0.1		3.2
Evaporation		5.0	6.5	6.0	7.5	7.5	7.5	8.7	8.3	7.0	8.0	72.0	91.0	
Growing Degrees	5	19.2	18.3	17.3	17.8	18.6	18.3	19.3	23.6	20.9	19.1	192.3	183.9	
	10	14.2	13.3	12.3	12.8	13.6	13.3	14.3	18.6	15.9	14.1	142.3	133.9	

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.5	39.3	
Precipitation - Reference Evapotranspiration	-39.4	-39.3	3.2
Number of Rainy Days	1.0	0.0	1.0
Number of Dry Days	11.0	28.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

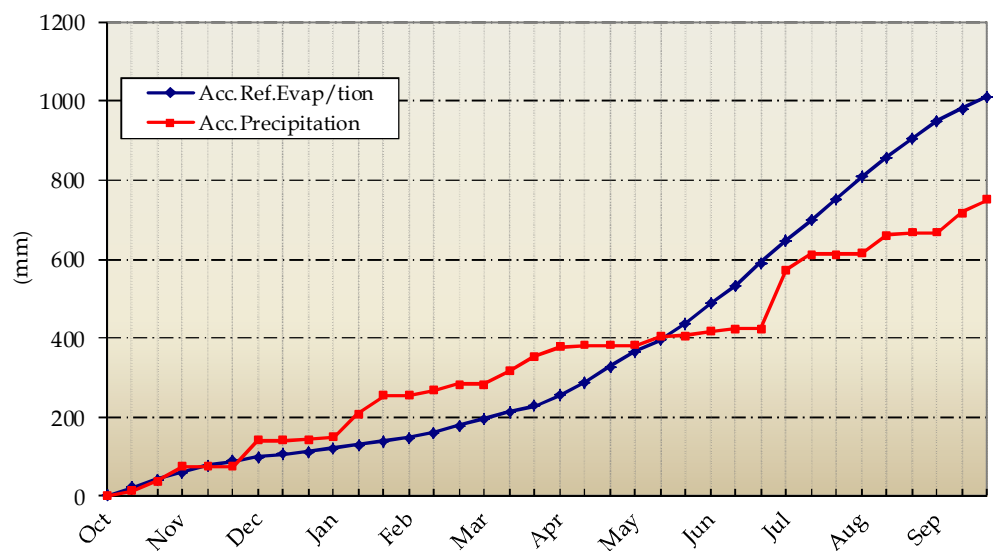


Tripoli

2nd 10-day period (11-20/09/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	25.8	26.5	26.1	28.3	29.2	29.5	29.4	25.0	22.4	27.0	30.5	26.9
	Min	13.0	13.7	11.0	11.2	10.8	11.0	12.2	13.8	15.2	14.4	12.6	11.8	11.2
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	93	-
	Min	39	48	36	33	25	30	30	32	41	42	36	22	-
Soil Temperature at 10 cm	06 UTC	-	20.2	19.2	19.8	19.6	19.4	19.8	-	21.6	19.6	19.9	23.2	20.2
	12 UTC	-	24.0	24.0	24.2	24.6	24.6	-	-	22.6	22.2	23.7	27.4	22.5
Sunshine Duration		6.8	3.0	7.8	9.0	9.6	9.1	9.0	10.0	2.5	7.5	7.4	9.3	8.5
Precipitation		27.6	2.0		1.0			0.0		1.9	0.7	33.2	0.0	5.9
Evaporation		-	1.9	3.1	3.0	4.1	0.0	-	-	1.3	3.1	-	-	40.3
Growing Degrees	5	15.2	14.8	13.8	13.7	14.6	15.1	15.9	16.6	15.1	13.4	148.0	161.6	140.2
	10	10.2	9.8	8.8	8.7	9.6	10.1	10.9	11.6	10.1	8.4	98.0	111.6	90.2

2nd 10-day period (11-20/09/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.1	38.4	34.4
Precipitation - Reference Evapotranspiration	3.1	-38.4	-28.5
Number of Rainy Days	5.0	0.0	1.0
Number of Dry Days	2.0	10.0	-

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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