



# AGROMETEOROLOGICAL BULLETIN

*October 2014  
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



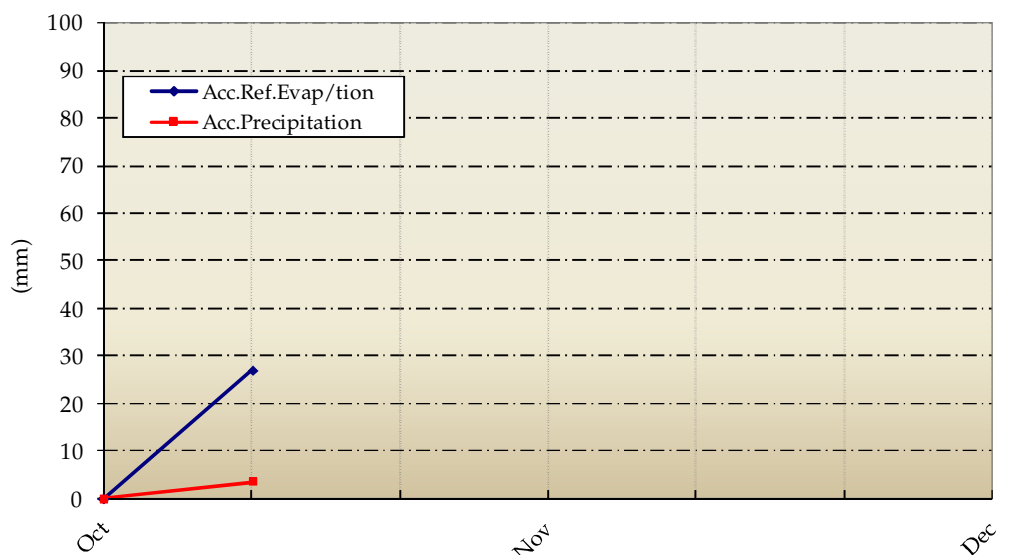
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[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)*

1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	22.4	19.6	20.4	21.8	22.6	23.4	22.4	23.2	23.6	22.6	17.9	22.8
	Min	7.6	13.8	14.0	13.0	14.0	14.4	14.0	15.2	13.8	11.8	13.2	7.2	11.7
Relative Humidity	Max	89	82	80	67	78	79	96	93	78	83	82	84	-
	Min	30	50	42	43	33	39	52	61	33	30	41	42	-
Soil Temperature at 10 cm	06 UTC	16.6	18.2	18.4	17.6	17.8	18.2	19.0	19.2	18.0	17.4	18.0	14.4	17.4
	12 UTC	21.4	21.6	20.6	20.2	21.0	22.2	21.0	21.0	21.8	21.4	21.2	17.6	20.5
Sunshine Duration		10.2	6.5	2.5	5.3	6.2	7.0	8.7	3.2	10.1	9.9	7.0	6.5	6.7
Precipitation								1.7	1.7			3.4	63.2	17.2
Evaporation		4.2	5.4	4.7	5.1	0.8	8.0	2.8	3.6	4.0	5.0	43.6	33.5	48.1
Growing Degrees	5	12.0	13.1	11.8	11.7	12.9	13.5	13.7	13.8	13.5	12.7	128.7	75.6	122.8
	10	7.0	8.1	6.8	6.7	7.9	8.5	8.7	8.8	8.5	7.7	78.7	28.9	73.0

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.0	21.8	27.4
Precipitation - Reference Evapotranspiration	-23.6	41.4	-10.2
Number of Rainy Days	2.0	2.0	1.6
Number of Dry Days	9.0	3.0	-

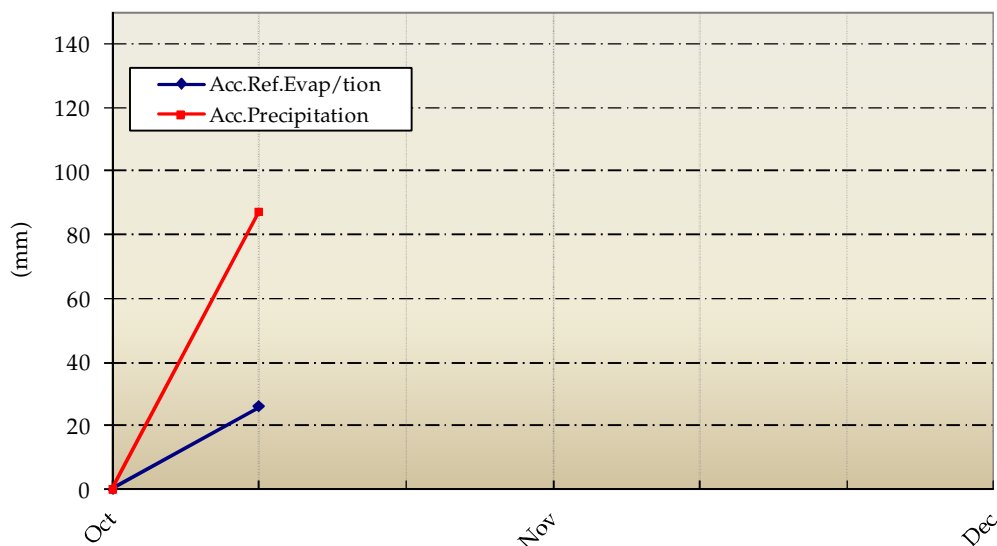
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	26.0	25.6	25.0	21.3	26.3	24.2	27.4	26.6	26.3	25.4	22.6	25.6
	Min	10.3	11.2	15.6	13.8	16.6	14.9	16.1	15.8	12.7	12.5	14.0	15.6	14.3
Relative Humidity	Max	87	90	88	91	92	87	93	93	92	92	90	88	-
	Min	39	28	37	37	57	51	70	42	46	42	45	53	-
Soil Temperature at 10 cm	06 UTC	18.6	18.8	20.4	20.0	21.0	18.8	19.0	18.4	17.0	19.0	19.1	19.2	20.5
	12 UTC	23.0	23.4	23.0	23.0	22.0	21.2	22.4	22.6	22.4	22.0	22.5	22.6	23.8
Sunshine Duration		10.2	10.2	4.8	4.3	0.0	3.3	0.9	8.5	9.5	9.6	6.1	5.5	7.7
Precipitation						25.6	2.0	42.0	17.8			87.4	86.3	23.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	42.9
Growing Degrees	5	12.6	13.6	15.6	14.4	14.0	15.6	15.2	16.6	14.7	14.4	146.5	141.3	149.6
	10	7.6	8.6	10.6	9.4	9.0	10.6	10.2	11.6	9.7	9.4	96.5	91.3	99.6

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.8	23.4	26.8
Precipitation - Reference Evapotranspiration	61.6	62.9	-3.6
Number of Rainy Days	4.0	5.0	2.2
Number of Dry Days	8.0	8.0	-

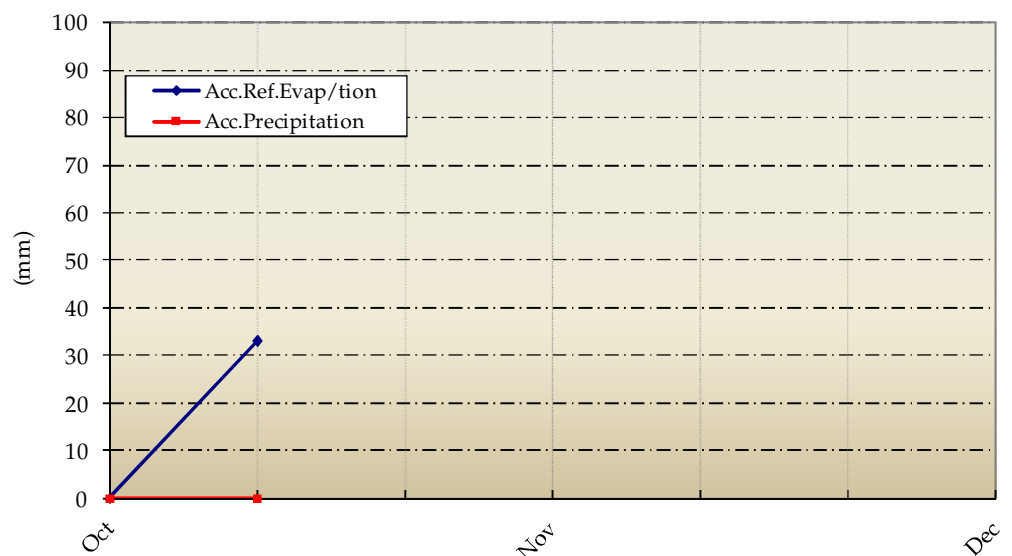
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	24.4	24.0	22.6	24.0	25.4	27.0	25.0	24.0	23.4	24.4	22.7	24.6
	Min	19.8	18.6	18.8	20.4	16.5	17.0	19.2	18.0	19.8	21.0	18.9	17.0	17.5
Relative Humidity	Max	75	78	78	73	80	87	90	90	82	75	81	74	-
	Min	53	53	59	54	52	60	54	60	63	58	57	49	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.5	8.5	7.2	6.8	8.3	10.1	8.4	4.8	7.1	6.6	7.7	6.6	7.9
Precipitation									0.0			0.0	15.0	6.0
Evaporation		3.7	5.7	5.0	3.4	4.3	2.2	5.8	1.5	6.7	2.0	40.3	29.0	53.7
Growing Degrees	5	16.9	16.5	16.4	16.5	15.3	16.2	18.1	16.5	16.9	17.2	166.5	148.4	160.1
	10	11.9	11.5	11.4	11.5	10.3	11.2	13.1	11.5	11.9	12.2	116.5	98.4	110.1

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.9	33.0	-
Precipitation - Reference Evapotranspiration	-32.9	-18.0	6.0
Number of Rainy Days	0.0	3.0	0.9
Number of Dry Days	12.0	135.0	-

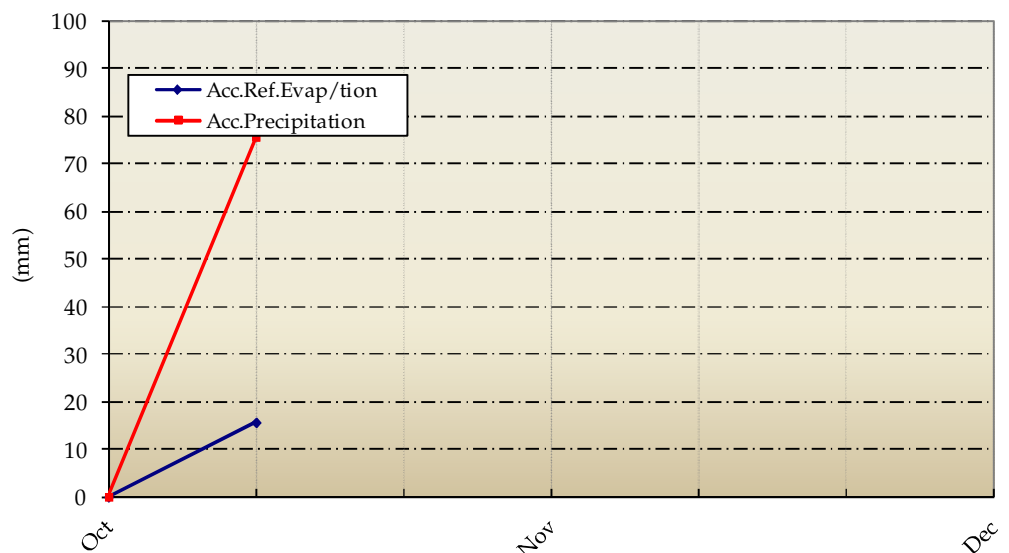
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	24.8	20.7	23.5	17.6	16.0	16.6	22.5	25.2	25.5	21.9	19.8	22.8
	Min	4.8	6.2	9.7	12.2	9.4	12.1	13.0	10.2	8.0	6.8	9.2	9.8	10.0
Relative Humidity	Max	100	99	88	77	100	100	100	100	100	100	96	93	-
	Min	22	28	47	38	66	88	84	41	39	30	48	49	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.3
Sunshine Duration		8.0	8.1	0.0	6.4	0.0	0.0	0.0	4.4	7.2	8.3	4.2	4.3	5.7
Precipitation				0.0		28.5	40.0	7.0				75.5	30.8	25.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	32.1
Growing Degrees	5	10.6	10.5	10.2	12.9	8.5	9.1	9.8	11.4	11.6	11.2	105.6	97.9	114.5
	10	5.6	5.5	5.2	7.9	3.5	4.1	4.8	6.4	6.6	6.2	55.6	47.9	64.7

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.6	18.2	21.0
Precipitation - Reference Evapotranspiration	59.9	12.6	4.8
Number of Rainy Days	3.0	5.0	2.6
Number of Dry Days	8.0	0.0	-

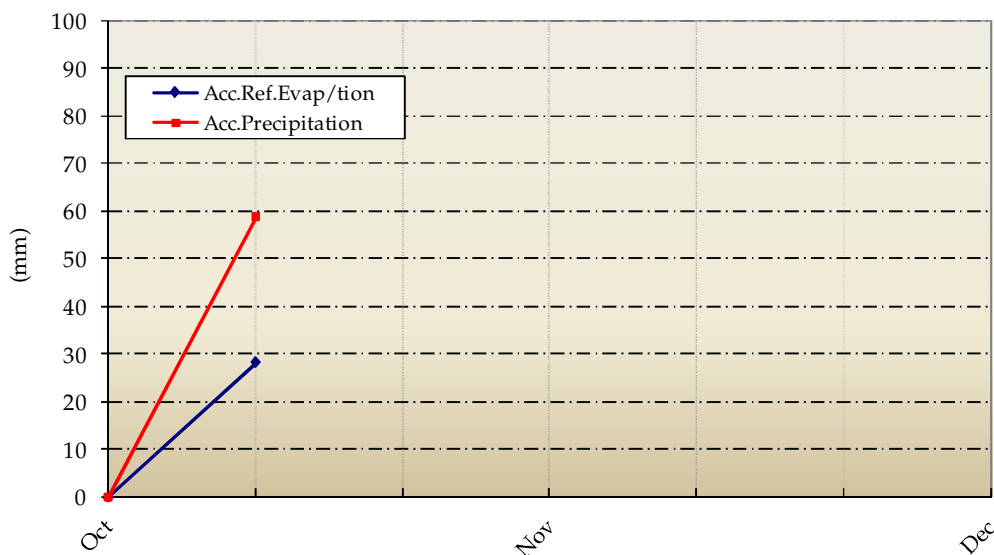
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	25.7	26.6	24.0	23.3	26.2	26.6	24.8	26.0	25.0	25.4	23.6	26.1
	Min	9.5	10.0	14.2	17.2	16.7	14.4	16.1	15.2	13.6	13.6	14.0	14.9	13.8
Relative Humidity	Max	85	88	88	81	94	91	94	94	90	91	90	88	-
	Min	30	36	37	44	48	59	58	38	40	52	44	46	-
Soil Temperature at 10 cm	06 UTC	20.4	20.0	20.6	21.6	21.4	20.4	21.0	19.4	19.6	20.0	20.4	-	20.0
	12 UTC	21.8	21.4	21.8	21.8	21.6	21.2	20.4	20.2	20.6	21.0	21.2	-	22.6
Sunshine Duration		10.7	10.3	5.2	1.3	1.9	6.4	2.8	4.8	10.3	9.8	6.4	4.7	7.4
Precipitation					0.1	14.2	1.2	31.0	12.3			58.8	26.3	17.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	27.0	46.9
Growing Degrees	5	12.5	12.9	15.4	15.6	15.0	15.3	16.4	15.0	14.8	14.3	147.1	142.7	149.4
	10	7.5	7.9	10.4	10.6	10.0	10.3	11.4	10.0	9.8	9.3	97.1	92.7	99.4

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.2	24.6	28.3
Precipitation - Reference Evapotranspiration	30.6	1.7	-10.5
Number of Rainy Days	5.0	5.0	2.3
Number of Dry Days	6.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

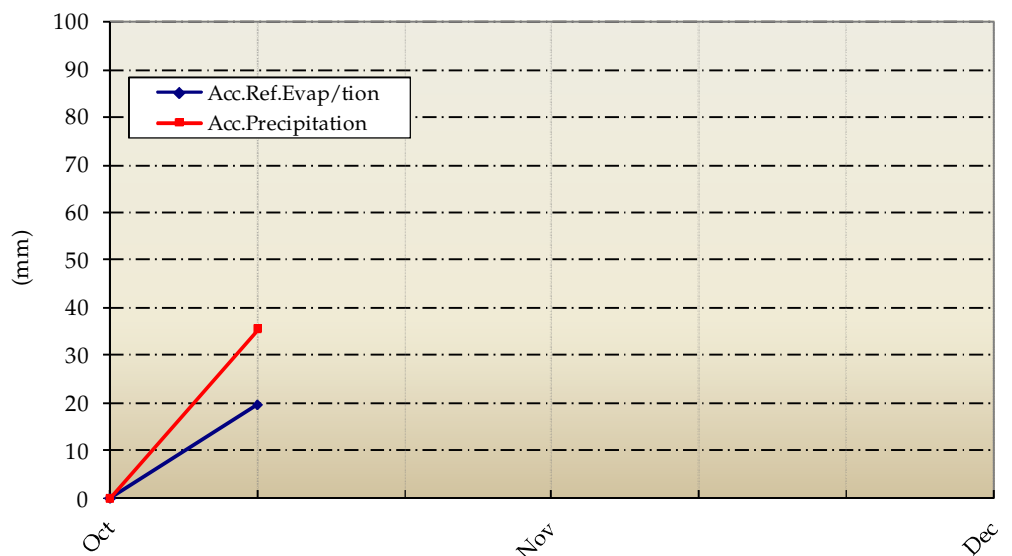


Larisa

1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.7	25.8	20.8	18.6	16.6	20.0	20.8	22.7	23.6	24.0	22.0	20.9	25.0
	Min	8.2	10.0	13.3	15.0	8.2	13.8	15.6	12.2	13.6	11.0	12.1	11.2	11.6
Relative Humidity	Max	95	91	91	87	100	100	100	100	100	100	96	88	-
	Min	29	36	42	46	64	70	64	60	50	48	51	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.9
Sunshine Duration		8.5	7.8	0.0	0.0	0.0	0.0	0.3	3.4	5.5	6.8	3.2	3.8	6.2
Precipitation						4.7	13.7	17.0				35.4	5.1	10.5
Evaporation		5.4	6.6	2.3	2.2	0.1	0.1	0.1	0.4	4.4	2.8	24.4	32.9	41.2
Growing Degrees	5	12.5	12.9	12.1	11.8	7.4	11.9	13.2	12.5	13.6	12.5	120.3	110.6	133.0
	10	7.5	7.9	7.1	6.8	2.4	6.9	8.2	7.5	8.6	7.5	70.3	60.6	83.0

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.6	21.3	26.4
Precipitation - Reference Evapotranspiration	15.8	-16.2	-15.9
Number of Rainy Days	3.0	4.0	2.1
Number of Dry Days	5.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

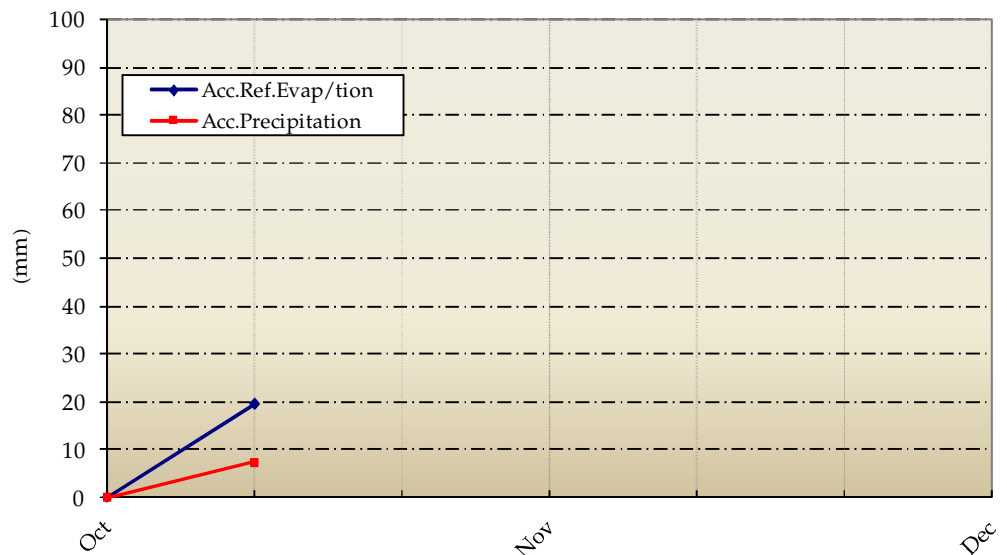


Mikra

1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.2	25.0	21.9	19.0	19.4	16.6	21.7	23.5	22.6	23.7	21.9	20.1	23.5
	Min	11.0	12.1	15.4	13.0	10.5	13.4	15.6	16.9	16.0	15.3	13.9	12.2	12.8
Relative Humidity	Max	90	83	70	83	92	93	92	93	90	90	88	78	-
	Min	35	35	45	49	47	71	69	60	61	56	53	43	-
Soil Temperature at 10 cm	06 UTC	17.8	18.4	19.4	19.2	17.0	17.8	18.0	19.2	19.2	19.2	18.5	17.7	18.4
	12 UTC	22.0	21.3	21.0	19.6	19.2	18.6	21.0	22.0	21.4	22.4	20.8	20.8	21.9
Sunshine Duration		10.2	9.9	1.6	0.6	2.9	0.0	0.2	3.6	5.3	8.4	4.3	5.8	6.2
Precipitation						1.8	4.3	1.2	0.1			7.4	4.6	9.7
Evaporation		4.0	3.8	3.4	4.3	0.2	0.6	1.0	1.1	0.0	2.9	21.3	47.0	40.2
Growing Degrees	5	13.1	13.6	13.7	11.0	10.0	10.0	13.7	15.2	14.3	14.5	128.9	111.5	131.6
	10	8.1	8.6	8.7	6.0	5.0	5.0	8.7	10.2	9.3	9.5	78.9	61.5	81.6

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.5	26.4	25.5
Precipitation - Reference Evapotranspiration	-12.1	-21.8	-15.8
Number of Rainy Days	4.0	3.0	1.7
Number of Dry Days	8.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



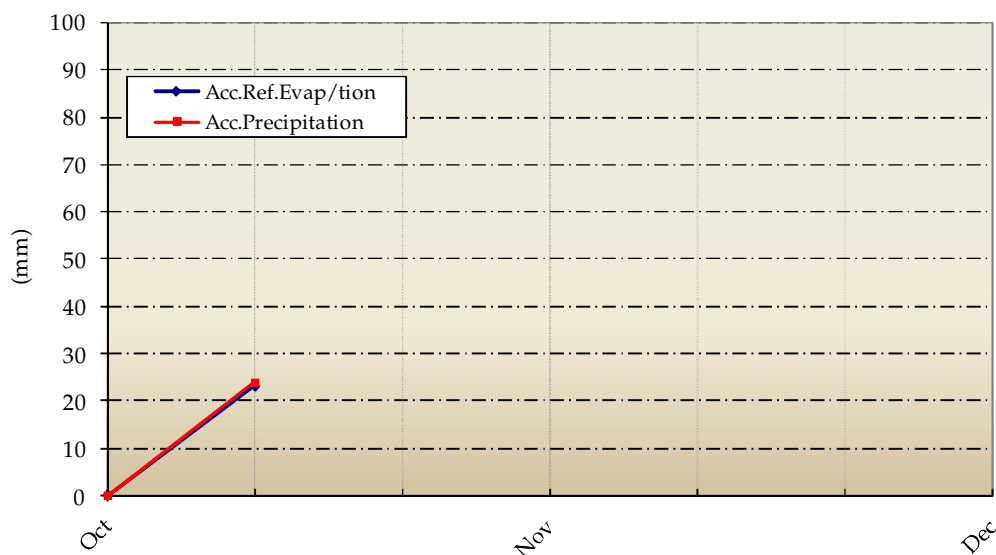


Tanagra

1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.6	24.4	22.0	20.2	20.0	23.8	24.8	23.6	22.6	22.4	22.9	-	24.7
	Min	11.0	11.8	13.9	13.9	11.8	11.2	14.0	12.9	15.4	13.0	12.9	-	12.9
Relative Humidity	Max	85	85	92	78	94	96	100	100	98	96	92	-	-
	Min	27	37	46	42	47	50	55	53	46	43	45	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.1	9.8	7.3	4.2	0.0	3.9	3.4	4.9	9.1	9.1	6.2	-	-
Precipitation						0.1		23.9				24.0	-	9.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	13.3	13.1	13.0	12.1	10.9	12.5	14.4	13.3	14.0	12.7	129.2	-	-
	10	8.3	8.1	8.0	7.1	5.9	7.5	9.4	8.3	9.0	7.7	79.2	-	-

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.2	-	-
Precipitation - Reference Evapotranspiration	0.8	-	9.2
Number of Rainy Days	2.0	-	2.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

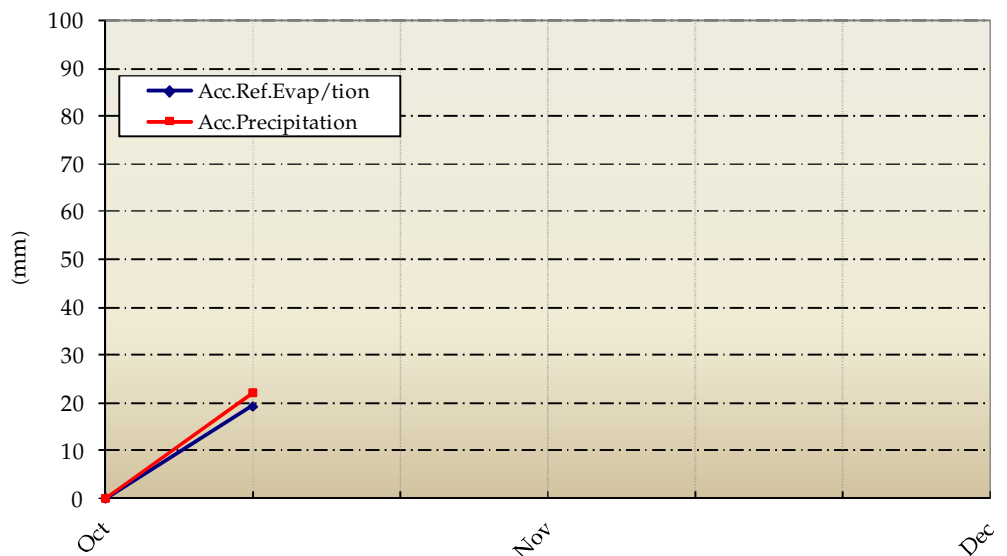


Tripoli

1st 10-day period (1-10/10/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.5	23.9	21.0	19.2	15.2	19.8	21.0	21.0	22.6	22.5	21.2	18.6	23.3
	Min	3.3	3.8	7.0	8.8	13.3	9.9	10.0	11.6	9.3	6.6	8.4	9.9	9.0
Relative Humidity	Max	95	92	91	89	96	100	100	100	100	100	96	89	-
	Min	15	18	44	46	60	68	71	57	47	41	47	56	-
Soil Temperature at 10 cm	06 UTC	15.6	15.8	16.6	17.4	18.4	15.6	15.6	14.8	15.2	14.4	15.9	15.7	17.3
	12 UTC	21.8	22.0	21.4	-	-	18.0	18.6	17.6	19.0	19.8	19.8	19.0	19.3
Sunshine Duration		9.5	9.7	4.8	4.7	0.0	0.5	1.6	3.9	8.6	8.7	5.2	3.5	7.4
Precipitation						6.2	1.2	8.7	5.9			22.0	54.2	9.7
Evaporation		5.6	4.7	2.1	2.5	0.1	0.2	0.2	0.4	2.1	2.7	20.6	-	32.6
Growing Degrees	5	9.4	8.9	9.0	9.0	9.3	9.9	10.5	11.3	11.0	9.6	97.7	92.6	111.8
	10	4.4	3.9	4.0	4.0	4.3	4.9	5.5	6.3	6.0	4.6	47.7	42.7	62.0

1st 10-day period (1-10/10/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.4	17.8	25.4
Precipitation - Reference Evapotranspiration	2.6	36.4	-15.7
Number of Rainy Days	4.0	5.0	2.0
Number of Dry Days	8.0	7.0	-

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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