



AGROMETEOROLOGICAL BULLETIN

December 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



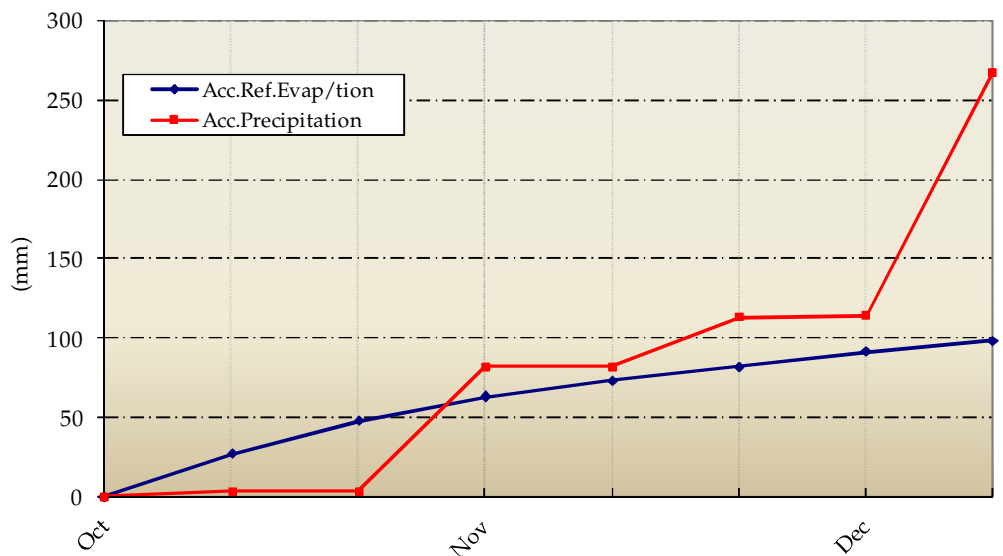
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1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.4	11.2	14.4	13.4	13.4	12.6	14.0	11.8	13.8	11.4	12.4	10.3	11.0
	Min	6.6	6.8	10.0	11.8	9.4	10.4	9.8	10.0	10.4	6.8	9.2	1.2	3.3
Relative Humidity	Max	91	87	98	98	95	95	100	95	95	94	95	83	-
	Min	77	79	84	88	84	86	78	88	75	78	82	47	-
Soil Temperature at 10 cm	06 UTC	9.0	9.0	10.2	11.6	11.0	11.0	11.0	11.0	11.0	10.2	10.5	6.0	7.1
	12 UTC	9.4	10.4	11.4	12.6	11.8	12.0	13.0	11.5	12.4	10.2	11.5	7.5	8.4
Sunshine Duration		0.0	0.0	0.0	0.0	0.7	0.0	0.9	0.0	1.3	0.0	0.3	4.3	2.7
Precipitation		0.0	0.3	40.7	74.1		13.0	4.3	18.9	1.0	0.8	153.1	1.9	30.2
Evaporation		0.2	1.0	0.9	1.9	0.2	0.6	1.0	0.8	0.3	0.3	7.2	8.5	14.9
Growing Degrees	5	2.5	4.0	7.2	7.6	6.4	6.5	6.9	5.9	7.1	4.1	58.2	10.9	28.2
	10	0.0	0.0	2.2	2.6	1.4	1.5	1.9	0.9	2.1	0.0	12.6	0.0	5.3

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.7	9.6	9.7
Precipitation - Reference Evapotranspiration	146.4	-7.7	20.5
Number of Rainy Days	8.0	3.0	3.2
Number of Dry Days	1.0	3.0	-

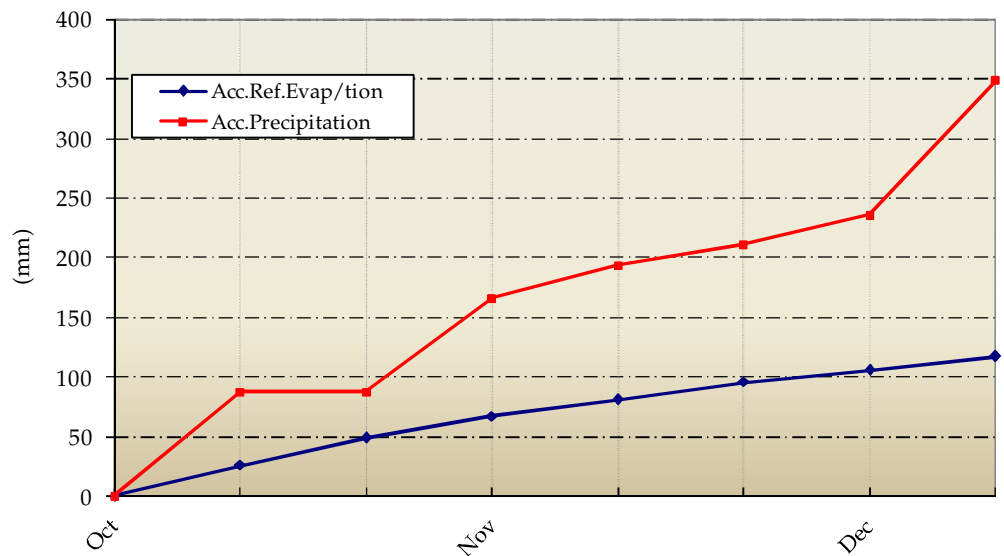
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.0	21.6	22.3	19.8	17.9	19.5	18.5	15.8	17.2	16.4	19.1	16.4	15.9
	Min	13.4	16.9	12.1	13.8	12.1	12.7	11.6	11.1	6.0	9.4	11.9	6.5	7.3
Relative Humidity	Max	86	91	93	88	91	90	92	91	92	91	90	88	-
	Min	50	52	55	64	71	59	63	69	51	58	59	49	-
Soil Temperature at 10 cm	06 UTC	14.6	15.0	14.6	15.2	14.8	15.2	14.4	14.4	12.6	12.0	14.3	11.0	10.4
	12 UTC	16.2	16.6	16.2	16.2	15.6	17.4	17.0	17.2	14.8	14.8	16.2	13.2	12.0
Sunshine Duration		4.0	2.5	2.8	3.4	0.2	6.9	2.7	0.9	7.2	0.0	3.1	5.5	4.3
Precipitation			0.2	39.4	20.6	6.8	14.1	4.2	19.0		8.4	112.7	34.2	41.8
Evaporation		1.6	2.4	5.0	1.6	-	7.1	-	0.0	3.5	-	-	13.9	19.4
Growing Degrees	5	12.7	14.3	12.2	11.8	10.0	11.1	10.1	8.5	6.6	7.9	105.1	64.8	66.0
	10	7.7	9.3	7.2	6.8	5.0	6.1	5.1	3.5	1.6	2.9	55.1	19.9	20.7

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.4	11.7	9.1
Precipitation - Reference Evapotranspiration	101.3	22.5	32.7
Number of Rainy Days	8.0	5.0	4.6
Number of Dry Days	4.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

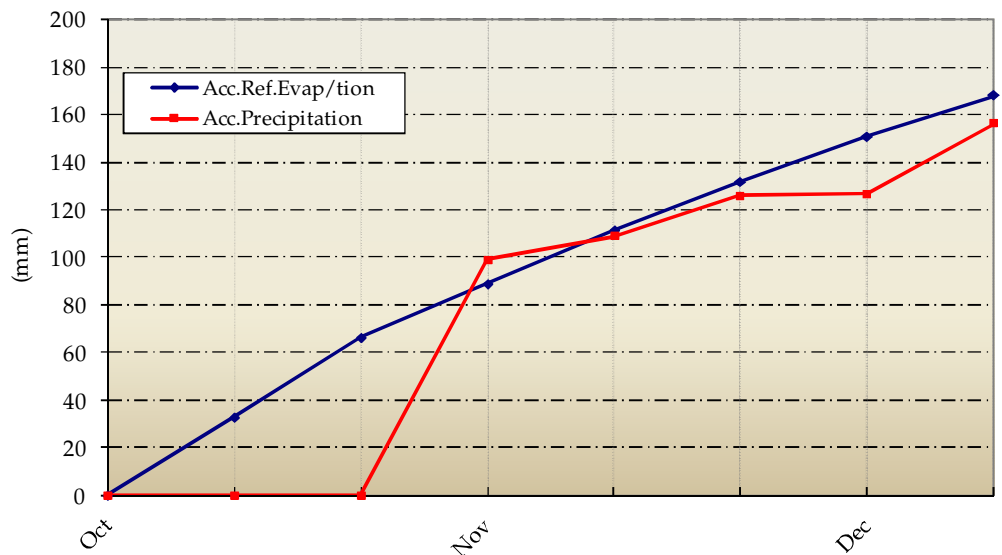


Iraklio

1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	21.5	22.8	22.6	22.0	20.4	20.4	19.4	17.0	18.6	21.0	17.3	17.3
	Min	15.8	19.0	19.6	15.6	12.8	13.4	13.0	14.4	11.4	11.2	14.6	12.3	11.5
Relative Humidity	Max	81	75	86	94	91	91	83	90	93	85	87	84	-
	Min	37	47	58	53	63	64	55	52	68	66	56	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.2	0.0	1.2	7.5	6.6	6.9	3.0	1.6	3.0	2.8	4.0	3.1	3.5
Precipitation			0.2						11.1	17.0	1.1	29.4	43.9	24.2
Evaporation		3.2	3.7	0.9	4.2	0.2	0.5	0.2	0.2	0.9	0.1	14.1	44.1	28.3
Growing Degrees	5	15.4	15.3	16.2	14.1	12.4	11.9	11.7	11.9	9.2	9.9	128.0	98.1	94.2
	10	10.4	10.3	11.2	9.1	7.4	6.9	6.7	6.9	4.2	4.9	78.0	48.1	44.6

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.3	17.7	-
Precipitation - Reference Evapotranspiration	12.1	26.2	24.2
Number of Rainy Days	4.0	5.0	3.7
Number of Dry Days	6.0	4.0	-

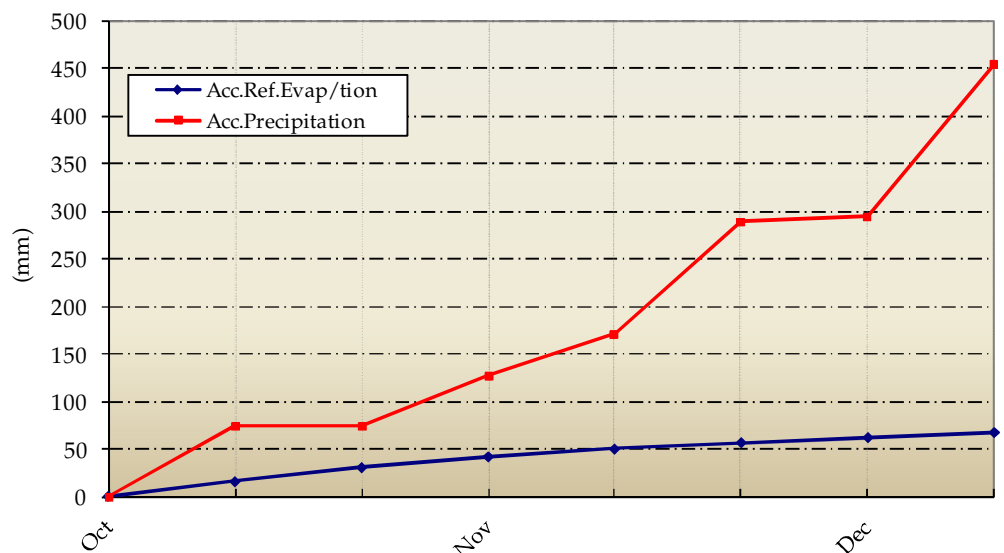
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	15.0	17.9	15.2	12.2	14.2	11.5	12.6	14.4	13.3	14.4	10.5	10.3
	Min	9.3	10.7	4.8	10.0	10.1	9.4	6.5	4.3	0.5	0.2	6.6	-0.3	1.9
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	87	-
	Min	69	83	65	79	86	75	82	60	58	55	71	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.5
Sunshine Duration		6.2	0.0	0.0	3.8	0.0	4.4	0.0	0.0	5.7	4.2	2.4	3.9	2.5
Precipitation			60.6	20.8	6.0	41.0	14.9	16.1	0.2			159.6	32.8	51.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	10.5
Growing Degrees	5	8.5	7.9	6.4	7.6	6.2	6.8	4.0	3.5	2.5	1.8	54.9	18.4	17.8
	10	3.5	2.9	1.4	2.6	1.2	1.8	0.0	0.0	0.0	0.0	13.2	1.1	0.9

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	5.2	9.8	6.1
Precipitation - Reference Evapotranspiration	154.4	23.0	45.4
Number of Rainy Days	7.0	4.0	4.2
Number of Dry Days	1.0	0.0	-

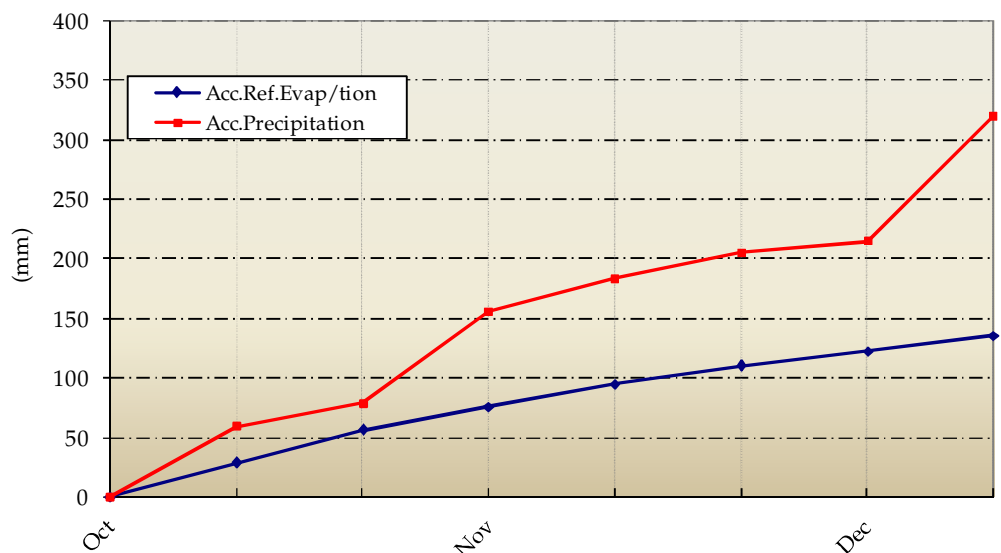
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.1	21.0	21.9	19.6	21.4	20.3	16.2	15.6	18.4	15.8	19.2	18.2	16.9
	Min	9.4	13.8	18.2	10.5	8.6	11.6	10.2	10.0	7.4	7.3	10.7	6.3	7.2
Relative Humidity	Max	96	76	95	95	95	95	96	96	95	94	93	91	-
	Min	52	43	61	63	61	57	79	73	39	67	60	46	-
Soil Temperature at 10 cm	06 UTC	15.0	15.4	15.6	15.6	14.6	16.0	15.2	15.0	13.2	12.8	14.8	-	11.5
	12 UTC	15.6	15.8	16.6	15.6	15.0	16.0	14.8	14.6	-	13.0	15.2	-	12.5
Sunshine Duration		7.0	0.7	2.1	3.7	4.6	6.4	0.7	2.4	7.8	0.6	3.6	5.0	4.0
Precipitation			0.3	0.2	60.2		7.2	8.4	24.0		4.7	105.0	61.5	45.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	26.7
Growing Degrees	5	10.8	12.4	15.1	10.1	10.0	11.0	8.2	7.8	7.9	6.6	99.7	72.5	70.4
	10	5.8	7.4	10.1	5.1	5.0	6.0	3.2	2.8	2.9	1.6	49.7	23.3	22.7

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.1	14.3	10.9
Precipitation - Reference Evapotranspiration	91.9	47.2	34.9
Number of Rainy Days	7.0	3.0	4.7
Number of Dry Days	3.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

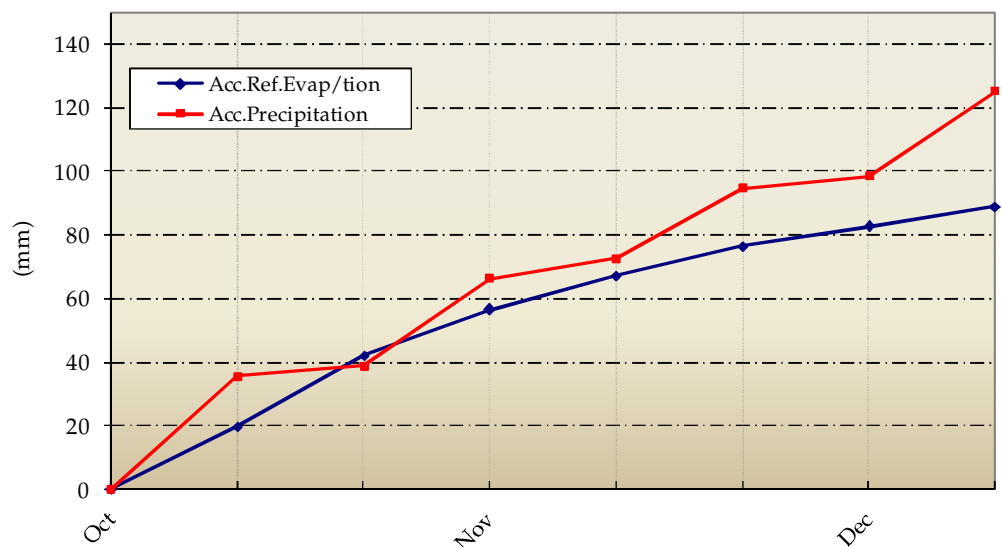


Larisa

1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.7	17.4	15.4	17.0	16.4	19.0	16.0	12.3	11.6	13.0	15.2	11.7	11.5
	Min	10.2	13.0	11.0	10.6	12.6	12.6	8.4	9.0	8.8	7.2	10.3	0.8	2.7
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	94	-
	Min	96	83	98	80	92	66	74	89	80	68	83	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.8
Sunshine Duration		0.0	2.3	0.0	0.6	0.2	4.4	1.8	0.0	0.0	0.7	1.0	4.7	2.9
Precipitation		0.3		7.4	0.3	0.6	6.1	0.6	10.8	0.6		26.7	19.7	18.5
Evaporation		2.8	0.5	0.7	0.2	0.3	0.7	1.0	1.1	1.5	1.2	10.0	-	7.8
Growing Degrees	5	7.0	10.2	8.2	8.8	9.5	10.8	7.2	5.7	5.2	5.1	77.6	17.2	25.6
	10	2.0	5.2	3.2	3.8	4.5	5.8	2.2	0.7	0.2	0.1	27.6	0.8	2.3

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.4	8.2	6.7
Precipitation - Reference Evapotranspiration	20.3	11.5	11.8
Number of Rainy Days	8.0	4.0	3.6
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

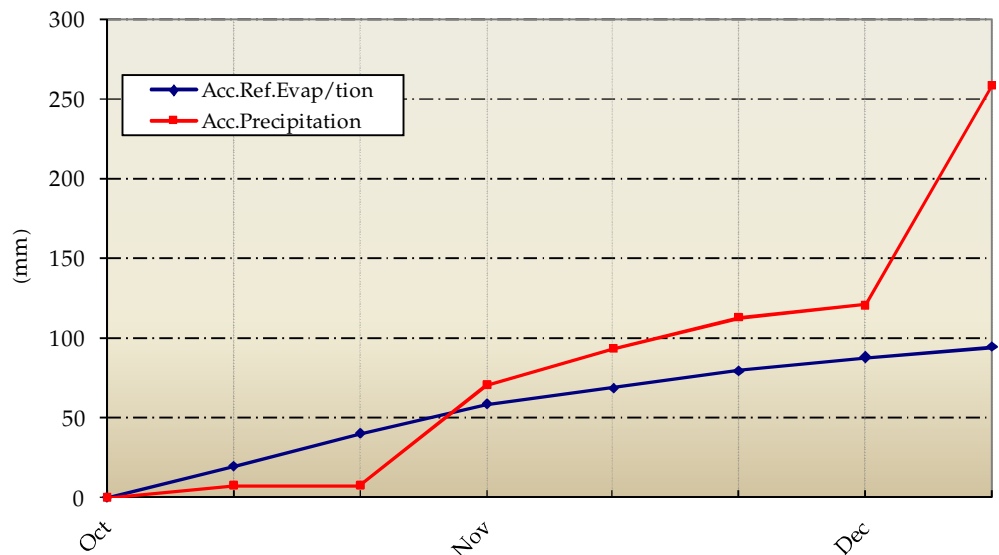


Mikra

1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	13.3	14.7	16.6	16.3	15.4	14.8	12.4	10.6	9.5	13.8	11.6	11.5
	Min	12.3	11.2	12.1	12.5	12.8	11.8	11.4	10.2	7.2	6.8	10.8	2.2	3.4
Relative Humidity	Max	94	94	94	94	93	96	95	95	90	93	94	83	-
	Min	80	84	89	77	67	81	85	84	82	73	80	46	-
Soil Temperature at 10 cm	06 UTC	13.4	12.8	13.0	13.6	14.2	13.4	13.6	13.0	11.0	8.8	12.7	7.0	7.3
	12 UTC	14.1	13.5	14.0	15.0	15.0	15.0	14.6	13.0	10.6	9.6	13.4	8.6	8.9
Sunshine Duration		0.0	0.0	0.0	2.3	0.0	3.0	1.4	0.0	0.0	0.0	0.7	5.4	3.1
Precipitation		1.0	2.1	11.2	3.6	1.3	51.4	0.4	25.6	27.1	14.2	137.9	12.4	19.0
Evaporation		0.4	0.6	1.4	0.2	0.0	0.3	0.4	0.0	0.0	0.9	4.2	20.8	13.0
Growing Degrees	5	8.3	7.3	8.4	9.6	9.6	8.6	8.1	6.3	3.9	3.2	73.1	19.8	28.1
	10	3.3	2.3	3.4	4.6	4.6	3.6	3.1	1.3	0.0	0.0	26.0	1.4	3.2

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.0	13.5	8.7
Precipitation - Reference Evapotranspiration	130.9	-1.1	10.3
Number of Rainy Days	10.0	3.0	3.0
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

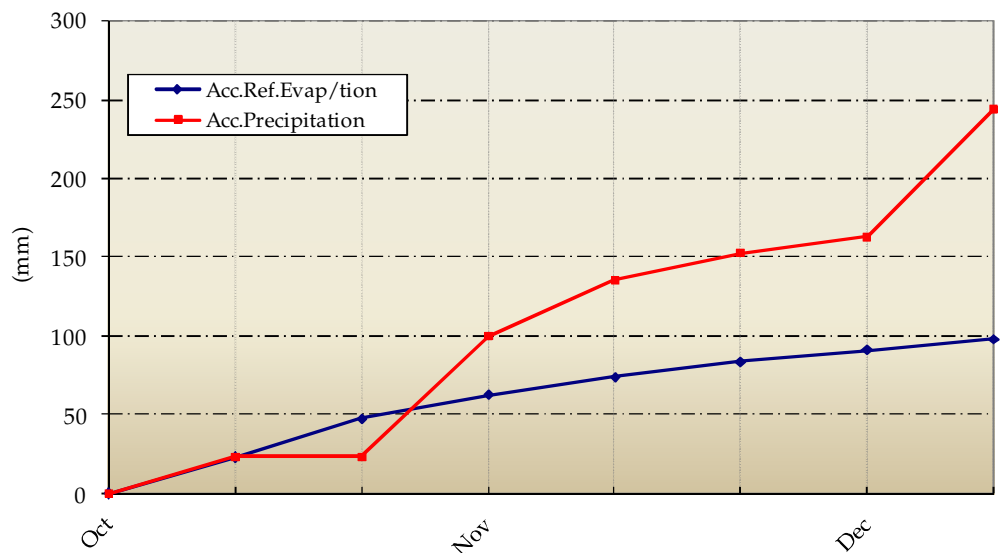


Tanagra

1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.8	19.6	21.6	19.2	16.6	19.2	19.2	13.4	13.2	12.4	17.0	12.6	14.0
	Min	9.2	12.0	14.3	11.6	9.7	10.9	8.4	11.3	9.3	4.6	10.1	4.6	5.7
Relative Humidity	Max	100	100	99	100	100	100	100	100	100	100	100	88	-
	Min	93	56	56	64	80	52	53	87	66	73	68	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.0	1.2	3.1	6.2	0.8	6.1	2.7	0.6	0.8	0.3	2.2	-	-
Precipitation				0.2	12.2		13.4		43.8	11.4	0.1	81.1	24.9	28.6
Evaporation		1.5	2.8	1.7	2.5	0.2	0.8	2.1	0.4	0.5	0.5	13.0	-	-
Growing Degrees	5	7.5	10.8	13.0	10.4	8.2	10.1	8.8	7.4	6.3	3.5	85.8	-	-
	10	2.5	5.8	8.0	5.4	3.2	5.1	3.8	2.4	1.3	0.0	37.3	-	-

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.2	-	
Precipitation - Reference Evapotranspiration	73.9	-	28.6
Number of Rainy Days	6.0	-	4.4
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

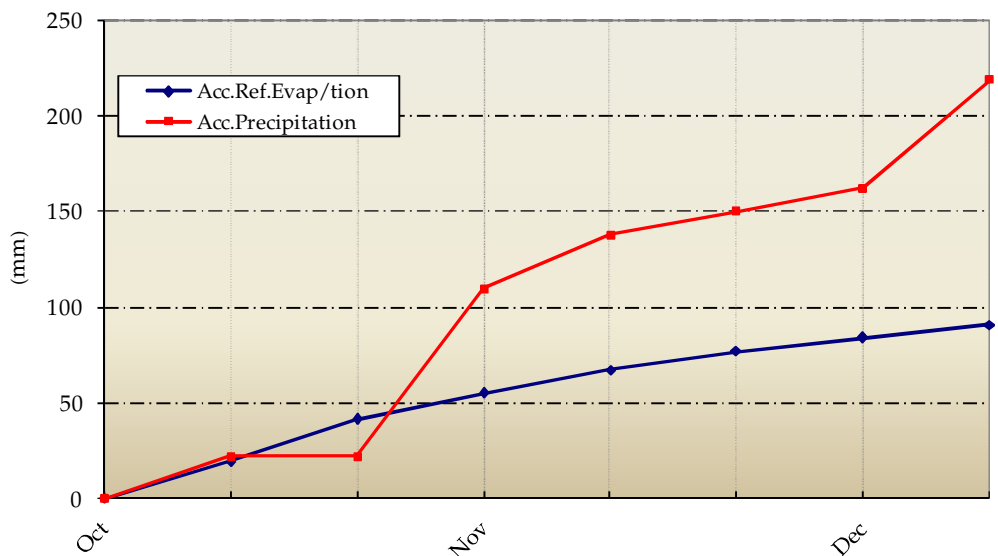


Tripoli

1st 10-day period (1-10/12/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	17.2	17.0	16.7	15.0	15.5	13.7	11.7	14.0	9.4	15.0	12.8	11.6
	Min	4.0	8.9	7.9	6.1	4.8	7.9	6.4	6.7	4.7	0.3	5.8	1.2	2.8
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	94	-
	Min	29	59	69	58	71	55	70	76	54	91	63	56	-
Soil Temperature at 10 cm	06 UTC	9.6	10.2	10.8	10.6	10.4	11.2	10.0	9.8	9.0	7.2	9.9	6.3	7.1
	12 UTC	11.6	11.8	12.6	13.0	11.8	-	-	11.4	11.0	8.4	11.4	7.8	7.9
Sunshine Duration		6.4	2.3	1.1	3.8	1.6	7.0	0.8	2.8	5.7	0.0	3.2	4.5	3.7
Precipitation			6.7	0.6	16.0		4.9	4.1	16.7		7.2	56.2	35.6	38.8
Evaporation		0.9	0.0	0.2	0.6	0.1	0.7	2.6	0.1	1.9	0.1	7.2	8.0	9.1
Growing Degrees	5	6.9	8.1	7.5	6.4	4.9	6.7	5.1	4.2	4.4	0.0	54.0	23.1	26.1
	10	1.9	3.1	2.5	1.4	0.0	1.7	0.1	0.0	0.0	0.0	10.6	3.9	2.6

1st 10-day period (1-10/12/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.8	8.8	8.4
Precipitation - Reference Evapotranspiration	49.4	26.8	30.4
Number of Rainy Days	7.0	5.0	4.3
Number of Dry Days	3.0	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_n 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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