



# AGROMETEOROLOGICAL BULLETIN

*May 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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*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
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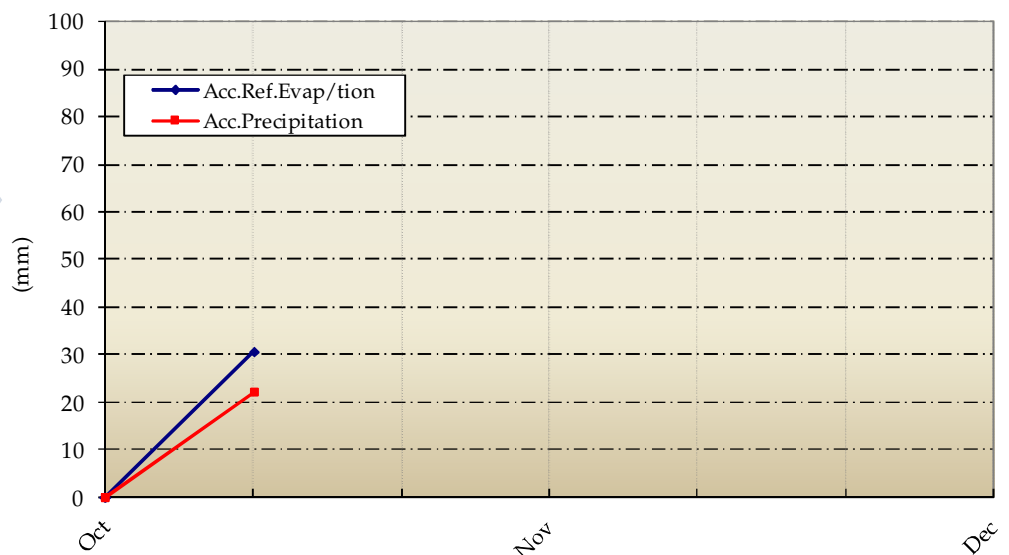
Agrinio

1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max													
	Min													
Relative Humidity	Max													
	Min													
Soil Temperature at 10 cm	06 UTC													
	12 UTC													
Sunshine Duration														
Precipitation														
Evaporation														
Growing Degrees	5													
	10													

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	49.3	38.7
Precipitation - Reference Evapotranspiration	-	-45.9	-21.6
Number of Rainy Days	0.0	1.0	2.8
Number of Dry Days	32.0	15.0	-

This station is not operated

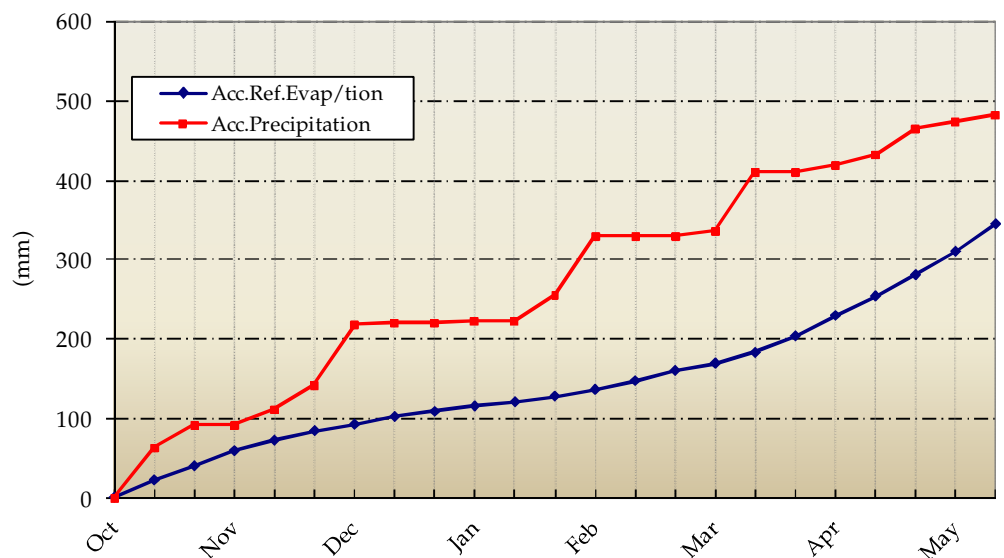
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	21.4	20.6	21.6	21.4	18.2	20.6	22.4	20.6	19.8	20.7	28.0	20.6
	Min	12.4	13.0	10.2	14.6	13.4	11.8	9.4	9.4	9.6	13.8	11.8	14.0	9.7
Relative Humidity	Max	89	88	92	93	93	88	79	87	88	93	89	83	-
	Min	57	56	55	56	57	50	32	36	40	57	50	34	-
Soil Temperature at 10 cm	06 UTC	17.4	17.6	17.6	18.6	18.4	16.4	15.6	16.4	17.4	17.6	17.3	20.5	15.1
	12 UTC	20.4	21.6	21.6	22.2	23.2	19.8	20.6	21.5	20.6	19.2	21.1	24.6	19.2
Sunshine Duration		5.0	11.0	8.5	10.4	7.3	3.6	13.0	13.0	4.9	1.9	7.9	10.6	8.0
Precipitation		0.1	0.2		0.4	6.2				0.3	2.1	9.3		9.3
Evaporation		1.9	8.5	3.8	3.1	14.4	4.6	5.8	12.2	3.9	10.6	68.8	67.1	55.4
Growing Degrees	5	11.4	12.2	10.4	13.1	12.4	10.0	10.0	10.9	10.1	11.8	112.3	160.0	101.5
	10	6.4	7.2	5.4	8.1	7.4	5.0	5.0	5.9	5.1	6.8	62.3	110.0	51.6

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.8	48.8	37.0
Precipitation - Reference Evapotranspiration	-25.5	-48.8	-27.7
Number of Rainy Days	6.0	0.0	2.2
Number of Dry Days	0.0	19.0	-

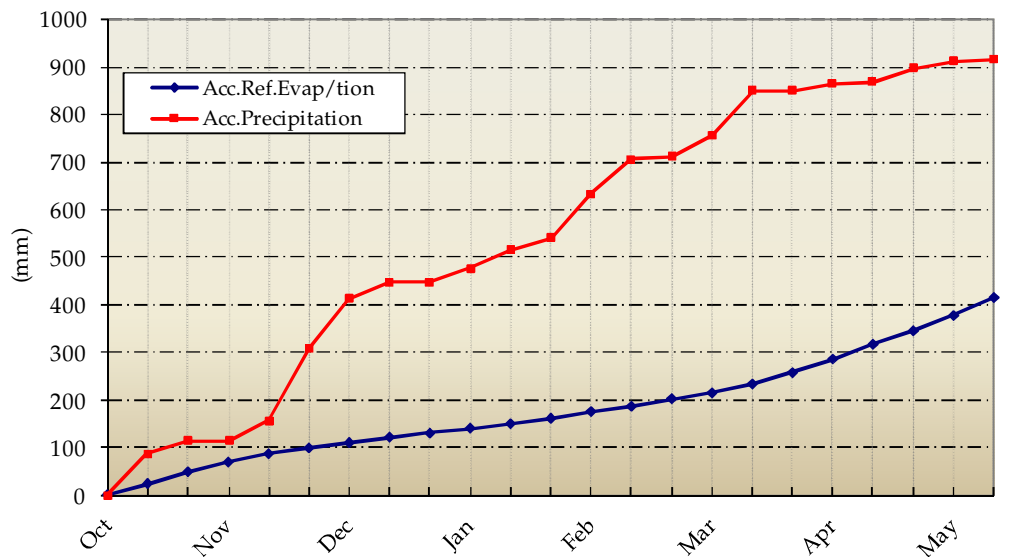
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	21.6	21.2	20.2	20.4	21.6	22.1	22.0	23.2	23.0	21.6	27.5	22.2
	Min	10.2	12.9	11.4	12.8	11.2	10.7	9.2	10.0	11.0	12.8	11.2	15.0	11.6
Relative Humidity	Max	89	90	88	89	90	91	92	91	90	89	90	86	-
	Min	54	50	44	58	54	53	43	40	36	48	48	36	-
Soil Temperature at 10 cm	06 UTC	16.4	16.6	17.2	16.8	16.4	17.0	16.8	17.0	16.2	18.2	16.9	21.1	17.3
	12 UTC	21.0	21.4	21.6	19.2	20.4	21.6	21.6	21.6	21.6	23.0	21.3	25.6	21.1
Sunshine Duration		11.3	11.2	2.9	5.6	11.9	8.2	12.0	11.1	11.3	12.0	9.8	8.8	8.8
Precipitation				2.1	1.7	0.0						3.8	3.9	8.6
Evaporation		6.0	3.3	4.5	1.7	3.0	4.8	3.2	0.7	12.0	5.3	44.5	65.4	49.3
Growing Degrees	5	10.3	12.3	11.3	11.5	10.8	11.2	10.7	11.0	12.1	12.9	114.0	162.4	119.0
	10	5.3	7.3	6.3	6.5	5.8	6.2	5.7	6.0	7.1	7.9	64.0	112.4	69.0

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.2	42.9	35.8
Precipitation - Reference Evapotranspiration	-34.4	-39.0	-27.2
Number of Rainy Days	2.0	1.0	2.0
Number of Dry Days	4.0	29.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

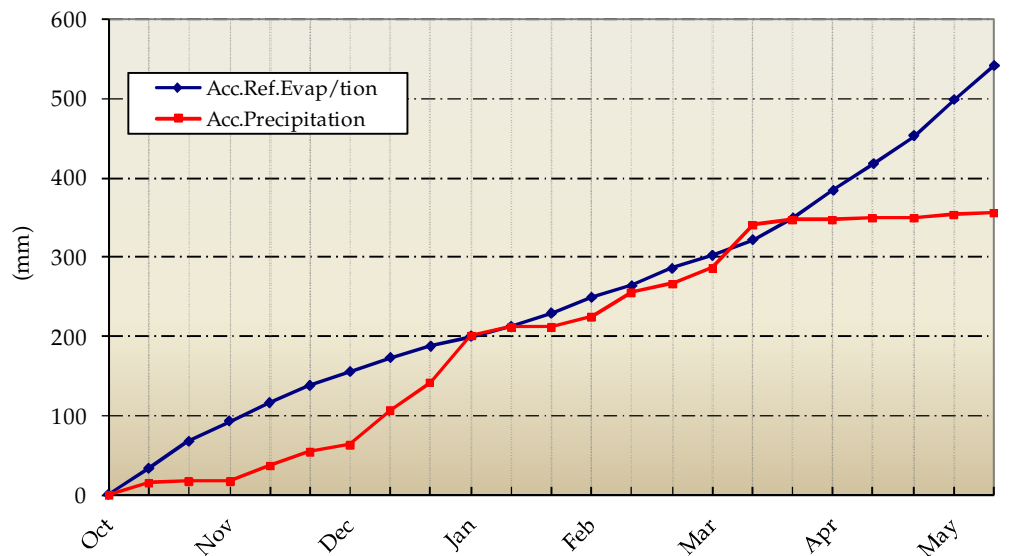


Iraklio

1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	27.2	26.0	21.5	22.0	21.0	19.5	20.2	21.0	22.0	22.1	24.5	22.0
	Min	12.2	14.6	12.5	18.2	15.8	13.0	16.4	15.8	12.6	11.0	14.2	16.1	14.0
Relative Humidity	Max	88	93	81	86	89	91	77	72	72	85	83	84	-
	Min	57	28	36	53	56	67	62	60	48	55	52	58	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.0	12.1	10.9	5.1	6.9	12.3	5.6	12.2	11.6	8.5	9.7	10.2	9.1
Precipitation					0.4	1.6						2.0	4.3	5.2
Evaporation		1.4	3.2	6.6	1.0	5.7	2.5	4.1	4.5	1.1	9.6	39.7	41.4	59.2
Growing Degrees	5	11.6	15.9	14.3	14.9	13.9	12.0	13.0	13.0	11.8	11.5	131.8	152.8	130.2
	10	6.6	10.9	9.3	9.9	8.9	7.0	8.0	8.0	6.8	6.5	81.8	102.8	80.2

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.1	43.8	-
Precipitation - Reference Evapotranspiration	-41.1	-39.5	5.2
Number of Rainy Days	2.0	3.0	1.4
Number of Dry Days	6.0	16.0	-

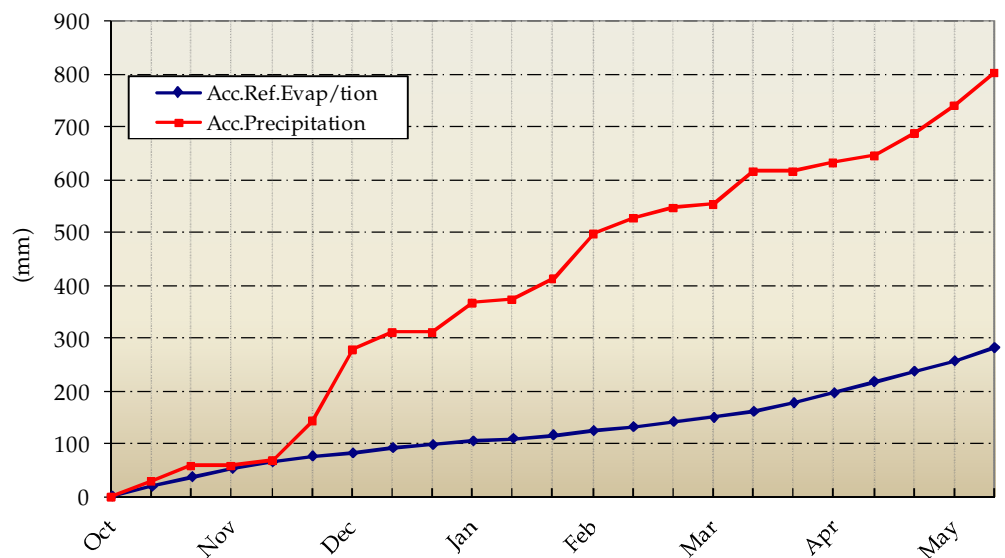
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.3	16.6	20.8	14.1	16.7	21.0	20.6	20.0	21.6	24.4	19.0	26.8	21.2
	Min	8.6	4.5	8.3	9.0	9.5	4.4	4.7	5.0	7.3	9.2	7.0	13.3	8.6
Relative Humidity	Max	99	99	99	99	96	98	98	91	88	100	97	79	-
	Min	63	61	57	44	59	29	35	46	42	40	48	36	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		0.4	2.7	1.2	0.1	4.6	11.8	10.0	6.4	6.7	7.5	5.1	7.9	6.7
Precipitation		22.4			27.4	6.4	0.5				4.4	61.1	5.5	22.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.0
Growing Degrees	5	6.5	5.6	9.6	6.6	8.1	7.7	7.7	7.5	9.5	11.8	80.3	150.5	99.4
	10	1.5	0.6	4.6	1.6	3.1	2.7	2.7	2.5	4.5	6.8	30.3	100.5	49.6

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.0	39.0	33.0
Precipitation - Reference Evapotranspiration	36.1	-33.5	-10.8
Number of Rainy Days	5.0	2.0	3.9
Number of Dry Days	0.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

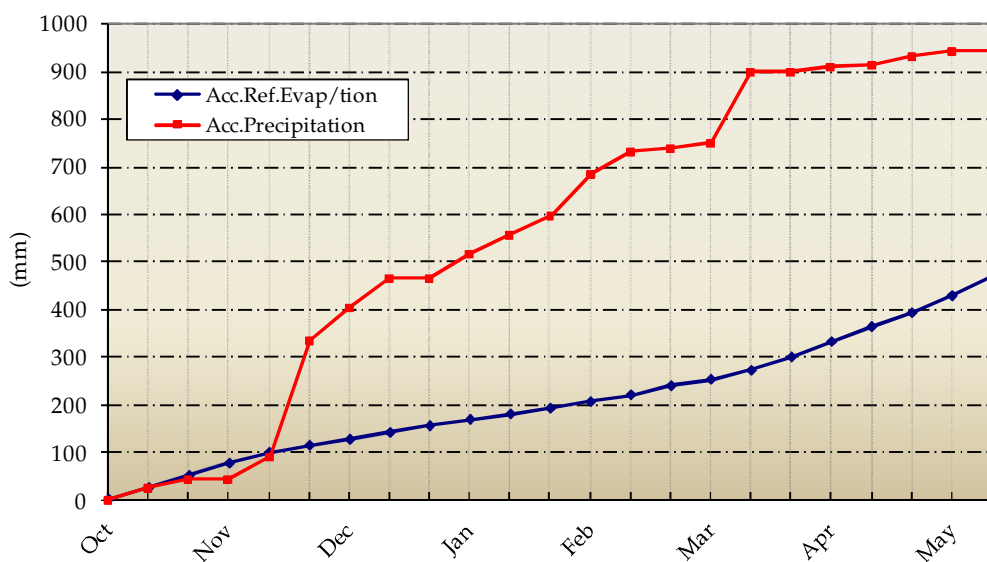


Kalamata

1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.9	22.4	22.0	23.0	21.5	21.8	22.3	23.5	22.9	23.2	22.6	27.1	22.8
	Min	8.7	8.6	8.7	9.9	10.5	9.5	9.8	9.5	12.6	10.4	9.8	14.4	11.0
Relative Humidity	Max	93	94	94	92	93	93	93	93	92	93	93	88	-
	Min	45	48	40	45	41	48	51	46	29	43	44	42	-
Soil Temperature at 10 cm	06 UTC	16.4	16.8	17.6	17.0	17.6	17.2	17.4	17.4	18.4	18.6	17.4	19.4	16.9
	12 UTC	18.0	19.2	19.4	19.0	19.0	19.4	20.0	20.2	20.8	21.8	19.7	22.1	20.6
Sunshine Duration		11.5	11.5	7.1	9.3	6.4	8.3	11.9	11.6	12.4	9.9	10.0	8.5	8.6
Precipitation					0.1							0.1	21.5	9.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	49.5	52.2
Growing Degrees	5	10.8	10.5	10.4	11.5	11.0	10.7	11.1	11.5	12.8	11.8	111.9	157.5	119.0
	10	5.8	5.5	5.4	6.5	6.0	5.7	6.1	6.5	7.8	6.8	61.9	107.5	69.0

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.0	43.4	36.5
Precipitation - Reference Evapotranspiration	-40.9	-21.9	-27.4
Number of Rainy Days	1.0	2.0	2.3
Number of Dry Days	3.0	18.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

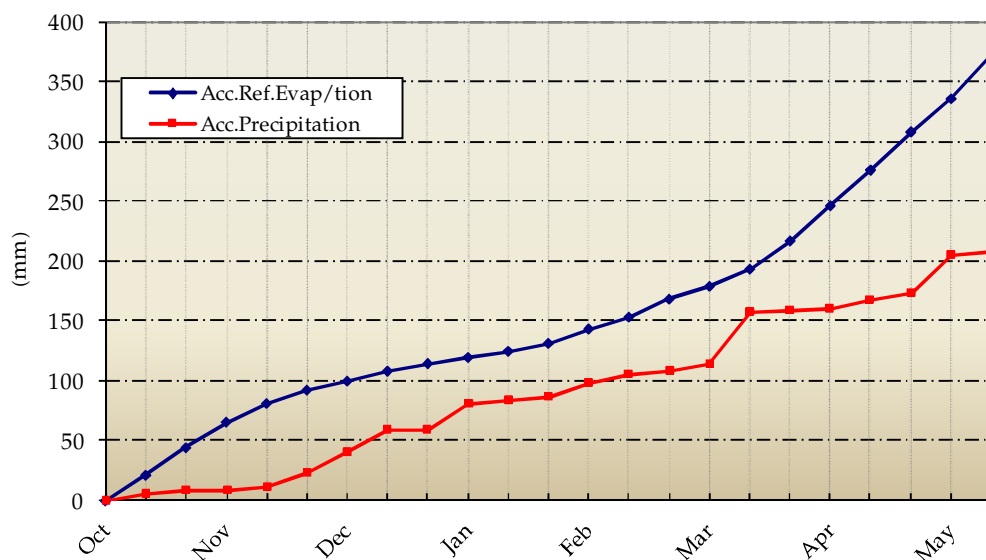


Larisa

1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.6	24.2	22.2	21.2	23.1	20.0	21.8	24.0	25.1	26.8	23.2	27.9	23.7
	Min	7.4	7.0	10.9	9.0	9.0	11.0	10.2	6.0	9.8	9.8	9.0	13.1	9.3
Relative Humidity	Max	98	100	100	100	97	98	99	100	97	97	99	88	-
	Min	31	29	53	43	31	42	38	35	29	22	35	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4
Sunshine Duration		7.4	10.8	3.0	7.2	8.4	5.8	8.6	8.7	9.0	9.0	7.8	6.0	8.0
Precipitation		0.2		2.6								2.8	6.8	10.2
Evaporation		5.9	4.1	4.3	3.8	5.8	6.1	4.7	6.1	6.5	1.1	48.4	66.6	50.6
Growing Degrees	5	10.5	10.6	11.6	10.1	11.1	10.5	11.0	10.0	12.5	13.3	111.1	155.0	115.4
	10	5.5	5.6	6.6	5.1	6.1	5.5	6.0	5.0	7.5	8.3	61.1	105.0	65.4

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.7	42.2	38.0
Precipitation - Reference Evapotranspiration	-33.9	-35.4	-27.8
Number of Rainy Days	2.0	2.0	2.5
Number of Dry Days	2.0	29.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



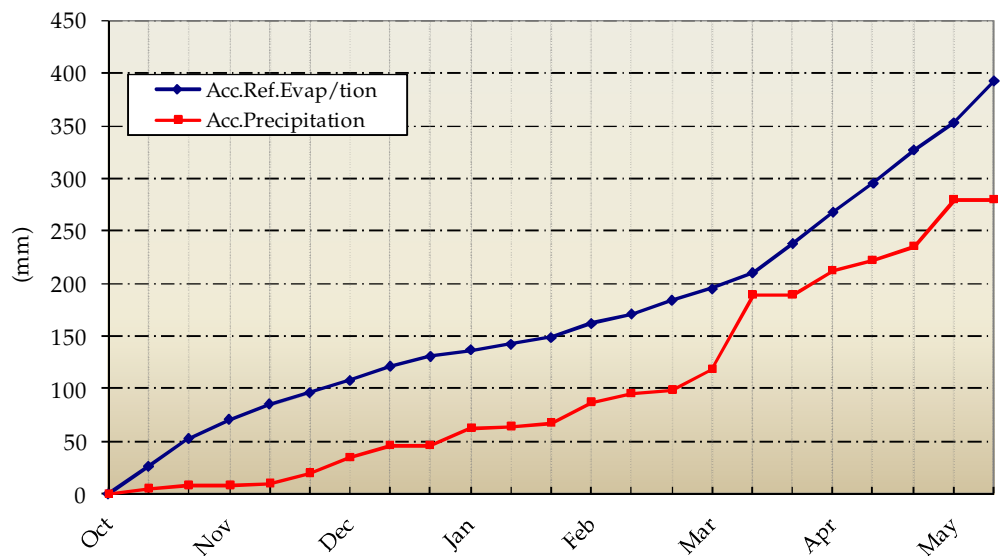


Mikra

1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.3	22.3	21.0	22.4	19.6	18.0	21.0	21.2	24.6	25.6	21.8	27.2	22.7
	Min	10.2	9.3	11.0	12.0	13.4	11.6	11.9	9.1	12.6	13.0	11.4	15.0	10.7
Relative Humidity	Max	90	91	87	88	70	88	88	87	88	85	86	81	-
	Min	45	35	57	38	42	61	44	46	39	36	44	35	-
Soil Temperature at 10 cm	06 UTC	16.0	16.8	18.0	17.4	17.6	17.4	17.0	17.8	18.0	19.2	17.5	22.6	16.9
	12 UTC	21.2	24.4	21.8	21.0	23.6	19.0	25.0	26.0	25.2	25.0	23.2	27.3	21.5
Sunshine Duration		5.8	12.0	3.2	11.1	12.5	0.9	9.8	10.6	11.9	9.7	8.8	8.0	7.9
Precipitation							0.7					0.7	1.1	12.9
Evaporation		6.0	3.9	4.6	6.2	6.3	1.1	4.1	6.4	4.2	7.4	50.2	64.2	53.6
Growing Degrees	5	11.3	10.8	11.0	12.2	11.5	9.8	11.5	10.2	13.6	14.3	116.1	160.9	116.7
	10	6.3	5.8	6.0	7.2	6.5	4.8	6.5	5.2	8.6	9.3	66.1	110.9	66.7

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.9	45.7	38.0
Precipitation - Reference Evapotranspiration	-39.2	-44.6	-25.1
Number of Rainy Days	1.0	2.0	2.6
Number of Dry Days	5.0	19.0	-

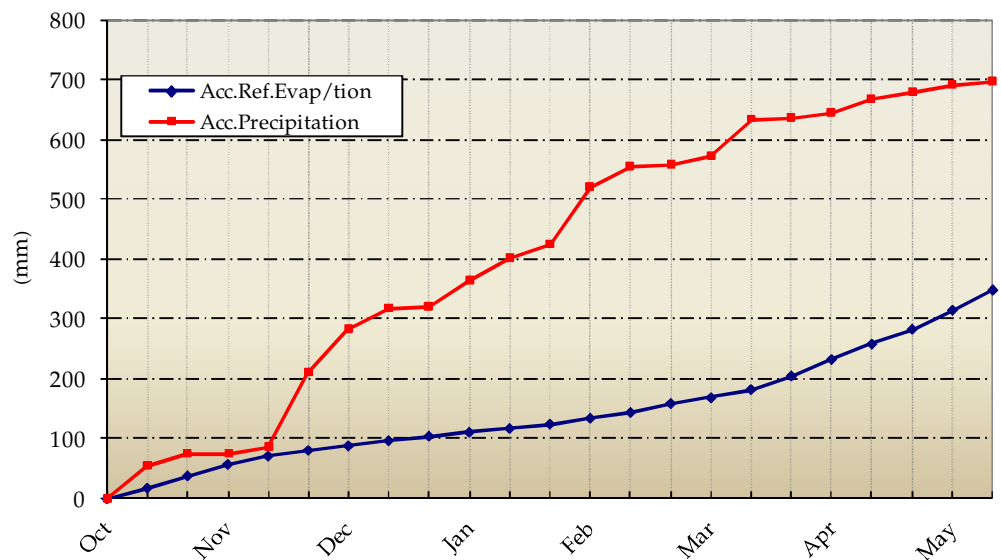
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.7	20.4	20.1	17.7	16.9	18.8	19.6	22.5	22.7	22.0	19.9	26.2	21.0
	Min	3.1	5.1	3.4	6.3	7.3	4.6	3.0	2.3	3.7	5.5	4.4	9.7	7.0
Relative Humidity	Max	95	96	98	67	83	98	98	97	94	99	92	69	-
	Min	37	35	43	60	53	41	34	25	26	34	39	32	-
Soil Temperature at 10 cm	06 UTC	11.8	13.6	14.4	14.4	14.6	13.4	13.0	13.4	14.8	16.0	13.9	20.2	14.6
	12 UTC	-	-	-	-	18.8	19.0	20.2	20.2	22.6	22.4	20.5	25.8	17.1
Sunshine Duration		12.5	11.7	7.4	9.1	5.9	4.2	9.0	10.2	9.3	6.9	8.6	8.4	8.1
Precipitation				0.0	1.2	0.6	0.1			0.0	3.8	5.7	3.9	10.2
Evaporation		3.5	6.1	2.9	5.5	1.1	2.1	3.1	3.7	5.1	1.8	34.9	53.1	39.1
Growing Degrees	5	5.9	7.8	6.8	7.0	7.1	6.7	6.3	7.4	8.2	8.8	71.9	129.6	89.7
	10	0.9	2.8	1.8	2.0	2.1	1.7	1.3	2.4	3.2	3.8	21.9	79.6	40.9

1st 10-day period (1-10/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.8	39.9	36.7
Precipitation - Reference Evapotranspiration	-28.1	-36.0	-26.5
Number of Rainy Days	4.0	2.0	2.8
Number of Dry Days	4.0	23.0	-

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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