



AGROMETEOROLOGICAL BULLETIN

June 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
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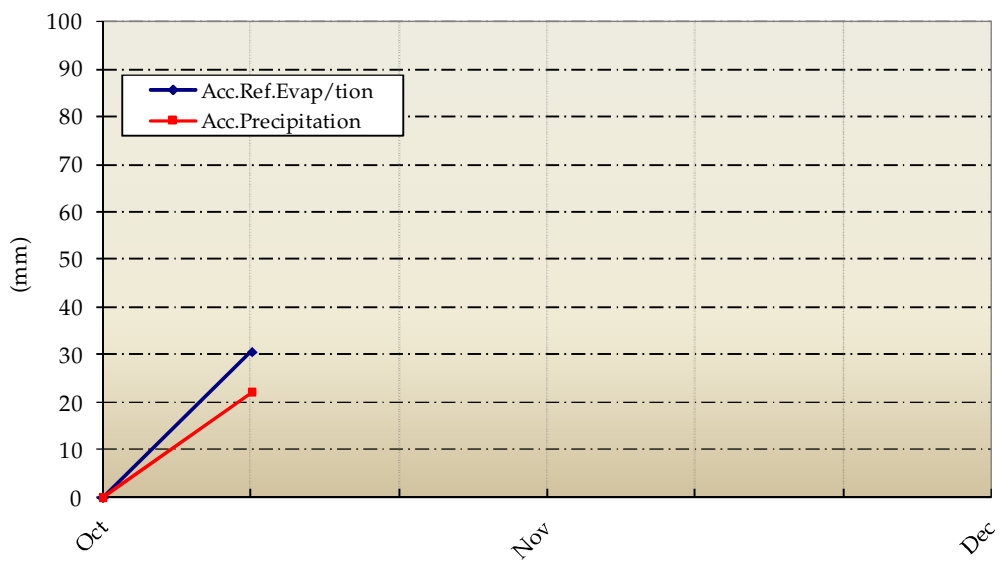
Agrinio

1st 10-day period (1-10/06/2014)		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 (1-10/06/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration		
Precipitation - Reference Evapotranspiration		
Number of Rainy Days		
Number of Dry Days		

This station is not operated

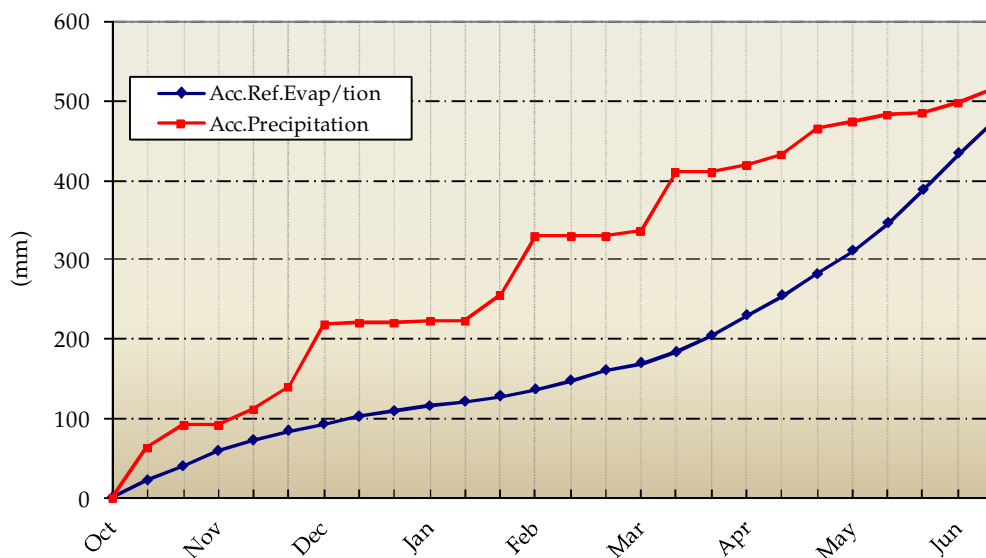
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/06/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	19.4	22.6	19.4	21.8	25.0	31.4	28.8	31.8	31.0	25.2	25.4	25.8
	Min	15.0	13.0	11.8	15.4	14.6	16.4	14.8	18.4	20.8	21.4	16.2	14.8	14.0
Relative Humidity	Max	93	95	95	96	96	92	92	85	62	77	88	87	-
	Min	51	65	54	79	60	54	29	30	29	32	48	46	-
Soil Temperature at 10 cm	06 UTC	20.0	20.0	17.4	19.2	18.0	18.6	19.4	22.8	22.4	24.4	20.2	21.7	20.6
	12 UTC	22.2	19.4	22.6	19.6	20.6	21.8	26.2	27.0	28.0	29.4	23.7	25.8	25.3
Sunshine Duration		5.2	4.6	7.4	0.0	1.2	5.9	11.5	11.2	13.2	13.2	7.3	9.0	9.7
Precipitation		0.4	1.6		10.8	0.5	2.8		2.0			18.1	7.4	10.6
Evaporation		3.5	4.2	3.2	0.5	2.1	3.9	10.0	7.9	12.7	9.2	57.2	58.8	72.8
Growing Degrees	5	12.9	11.2	12.2	12.4	13.2	15.7	18.1	18.6	21.3	21.2	156.8	150.9	148.7
	10	7.9	6.2	7.2	7.4	8.2	10.7	13.1	13.6	16.3	16.2	106.8	100.9	98.7

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.4	43.7	48.0
Precipitation - Reference Evapotranspiration	-23.3	-36.3	-37.4
Number of Rainy Days	6.0	4.0	2.2
Number of Dry Days	0.0	19.0	-

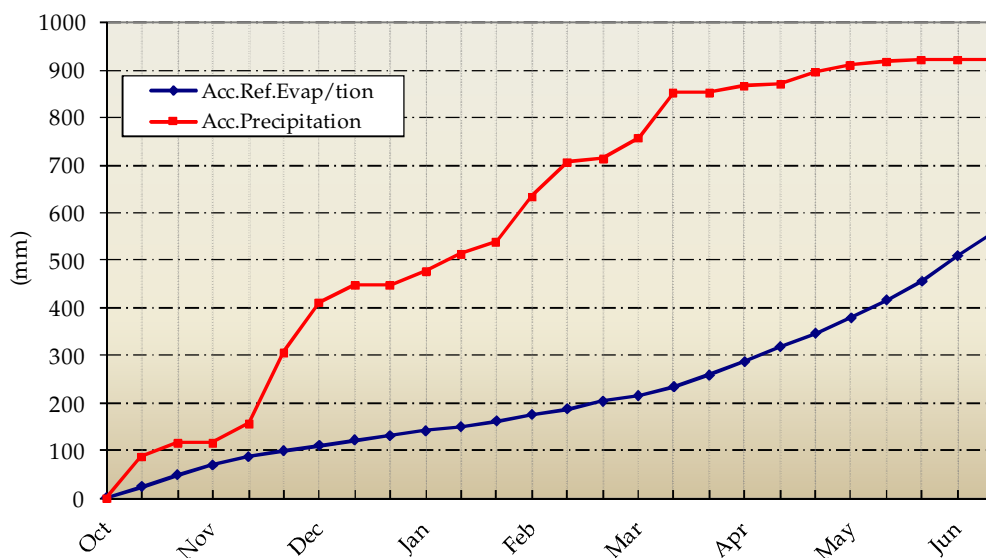
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/06/2014)		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	22.5	25.5	24.2	25.5	27.2	29.0	29.6	29.6	32.0	26.9	25.5	26.9
	Min	14.0	13.1	13.4	18.3	14.8	14.1	14.6	15.2	18.0	17.6	15.3	14.3	15.3
Relative Humidity	Max	88	86	83	88	89	86	89	90	81	87	87	87	-
	Min	44	34	42	41	38	35	35	34	34	29	37	41	-
Soil Temperature at 10 cm	06 UTC	22.2	22.2	21.0	22.2	22.2	22.2	23.0	23.2	23.0	23.6	22.5	22.8	23.0
	12 UTC	29.6	28.0	24.8	24.0	28.4	19.0	28.0	28.4	27.0	29.6	26.7	29.2	27.7
Sunshine Duration		11.3	9.2	2.1	4.6	12.0	13.2	13.2	8.4	8.2	9.8	9.2	10.8	11.1
Precipitation				0.3					0.5	0.5		1.3	4.1	2.3
Evaporation		8.7	7.2	1.1	4.1	7.9	8.0	4.0	10.0	1.0	8.3	60.3	66.6	67.5
Growing Degrees	5	13.8	12.8	14.5	16.3	15.2	15.7	16.8	17.4	18.8	19.8	160.9	149.0	160.7
	10	8.8	7.8	9.5	11.3	10.2	10.7	11.8	12.4	13.8	14.8	110.9	99.0	110.7

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.8	46.8	48.5
Precipitation - Reference Evapotranspiration	-46.5	-42.7	-46.2
Number of Rainy Days	3.0	3.0	0.7
Number of Dry Days	14.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

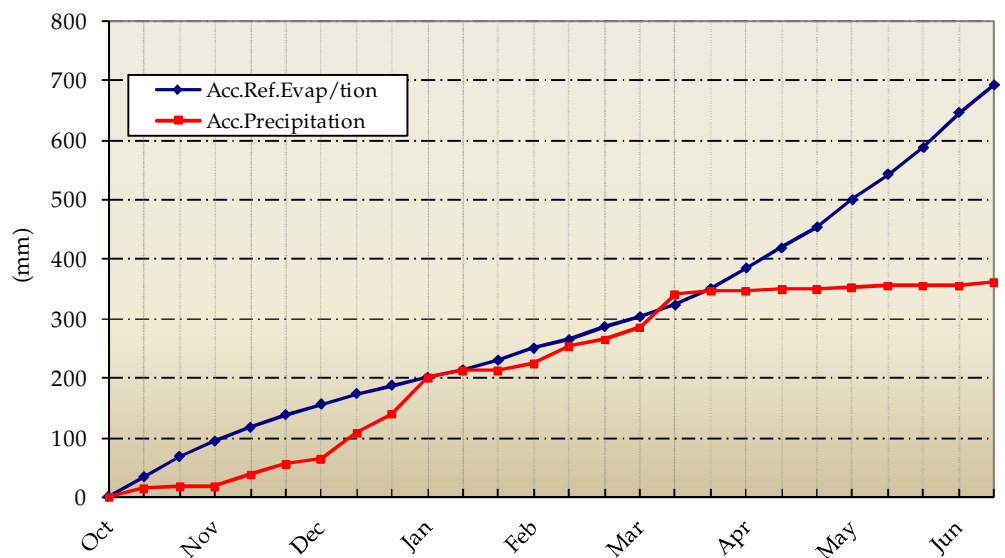


Iraklio

1st 10-day period (1-10/06/2014)		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	23.8	28.4	22.6	23.8	24.2	26.0	26.5	24.4	25.0	25.0	26.5	25.7
	Min	18.4	16.0	18.4	20.8	18.0	16.0	19.0	18.6	18.6	17.6	18.1	17.9	17.9
Relative Humidity	Max	83	83	86	88	90	87	87	81	88	86	86	80	-
	Min	51	48	33	61	67	60	56	52	71	68	57	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.9	2.4	0.7	6.3	10.9	12.6	12.7	12.4	8.9	11.5	9.1	11.5	11.2
Precipitation				0.2		4.5						4.7	0.0	3.5
Evaporation		7.4	4.9	4.8	4.8	3.4	5.4	8.4	3.4	4.2	5.1	51.8	60.5	76.6
Growing Degrees	5	16.6	14.9	18.4	16.7	15.9	15.1	17.5	17.6	16.5	16.3	165.5	172.0	167.8
	10	11.6	9.9	13.4	11.7	10.9	10.1	12.5	12.6	11.5	11.3	115.5	122.0	117.8

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.7	54.0	-
Precipitation - Reference Evapotranspiration	-42.0	-54.0	3.5
Number of Rainy Days	2.0	0.0	0.5
Number of Dry Days	4.0	23.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

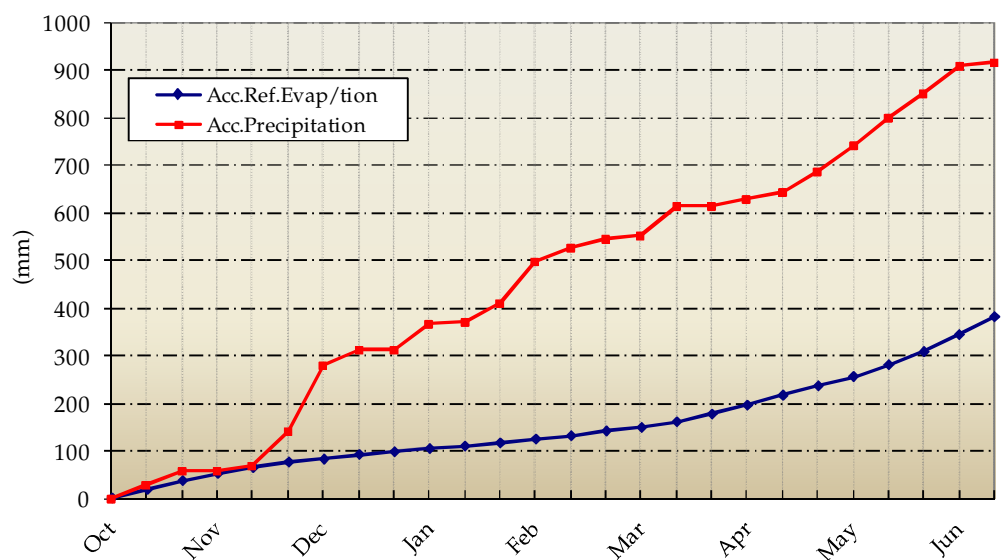


Ioannina

1st 10-day period (1-10/06/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	21.5	22.4	23.0	25.5	27.0	28.5	29.4	25.8	28.9	25.1	23.9	26.3
	Min	9.4	10.6	13.7	10.9	16.2	9.0	15.2	17.7	13.9	15.9	13.2	10.3	12.0
Relative Humidity	Max	86	81	97	78	100	69	83	97	73	90	85	86	-
	Min	55	45	32	46	37	33	30	24	35	27	36	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.9
Sunshine Duration		6.0	11.6	4.9	5.2	12.6	11.2	12.6	6.9	4.8	12.6	8.8	9.5	9.1
Precipitation		0.3		3.4	2.4				0.5	0.4		7.0	17.8	14.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	46.7
Growing Degrees	5	9.4	11.1	13.1	12.0	15.9	13.0	16.9	18.6	14.9	17.4	142.0	121.1	141.5
	10	4.4	6.1	8.1	7.0	10.9	8.0	11.9	13.6	9.9	12.4	92.0	71.1	91.5

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.8	41.0	43.4
Precipitation - Reference Evapotranspiration	-30.8	-23.2	-29.0
Number of Rainy Days	5.0	4.0	2.5
Number of Dry Days	0.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

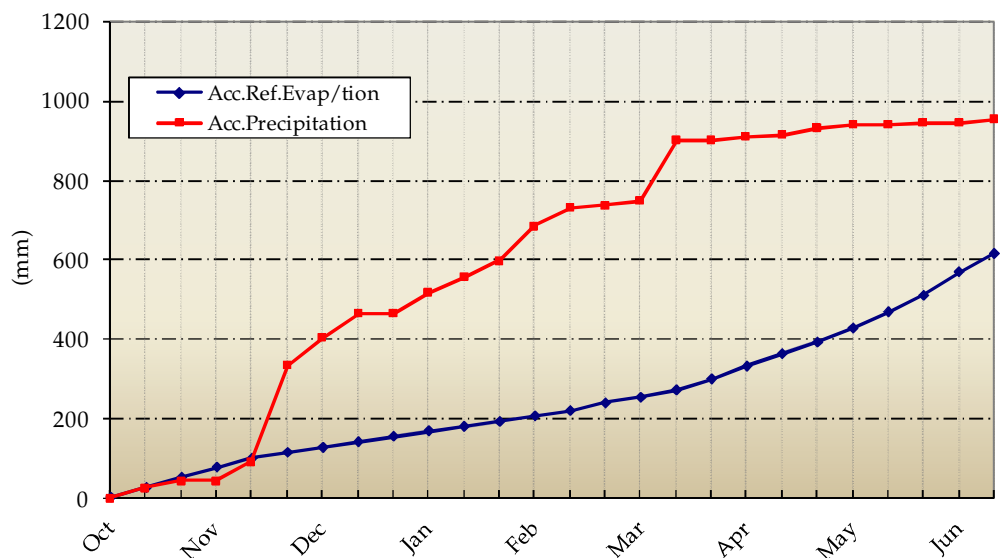


Kalamata

1st 10-day period (1-10/06/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.0	25.3	30.2	23.8	29.0	28.1	29.3	29.9	28.6	27.6	27.8	26.9	27.6
	Min	14.4	13.0	14.8	18.8	14.5	14.9	12.7	16.1	17.5	16.6	15.3	14.1	14.5
Relative Humidity	Max	89	92	80	92	93	92	91	93	93	92	91	88	-
	Min	31	33	27	47	19	31	33	33	49	50	35	35	-
Soil Temperature at 10 cm	06 UTC	21.2	21.4	20.6	21.4	21.2	21.4	21.2	22.2	21.4	21.2	21.3	20.3	21.6
	12 UTC	22.6	22.6	22.2	22.0	22.0	22.0	24.4	23.0	23.2	22.2	22.6	22.7	25.8
Sunshine Duration		12.1	6.4	3.5	0.9	12.5	12.7	10.5	5.7	5.1	3.6	7.3	10.8	10.5
Precipitation			0.1	1.4					6.3	2.5		10.3	0.7	2.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	73.0	75.1
Growing Degrees	5	15.2	14.2	17.5	16.3	16.8	16.5	16.0	18.0	18.1	17.1	165.6	155.1	160.6
	10	10.2	9.2	12.5	11.3	11.8	11.5	11.0	13.0	13.1	12.1	115.6	105.1	110.6

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.4	52.9	50.2
Precipitation - Reference Evapotranspiration	-36.1	-52.2	-47.5
Number of Rainy Days	4.0	1.0	0.9
Number of Dry Days	13.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

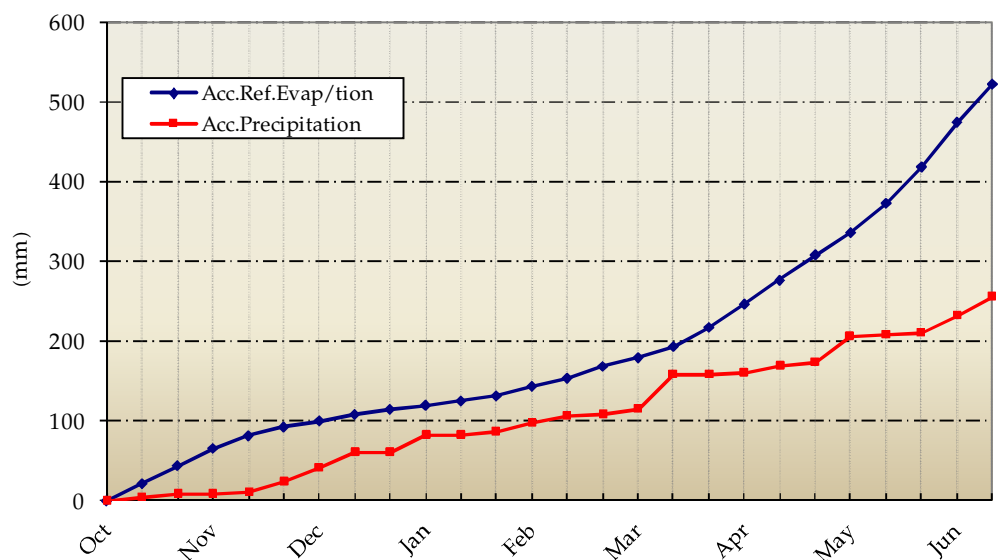


Larisa

1st 10-day period (1-10/06/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.0	26.8	22.8	23.0	30.2	31.4	32.6	31.6	29.8	32.6	28.8	29.2	29.7
	Min	11.6	15.0	12.0	13.8	12.6	12.8	16.0	19.0	17.8	16.8	14.7	13.2	14.1
Relative Humidity	Max	100	70	100	100	100	96	76	74	81	81	88	88	-
	Min	24	22	41	47	21	19	21	24	29	20	27	25	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	24.3
Sunshine Duration		9.2	11.8	0.5	2.8	11.9	12.5	11.2	4.9	5.3	12.0	8.2	11.1	10.4
Precipitation		0.0		12.8	11.1				0.0	0.1		24.0	13.2	9.2
Evaporation		9.1	6.5	2.2	3.2	7.7	8.7	7.4	7.2	0.5	17.6	70.1	91.4	79.0
Growing Degrees	5	14.3	15.9	12.4	13.4	16.4	17.1	19.3	20.3	18.8	19.7	167.6	161.9	169.0
	10	9.3	10.9	7.4	8.4	11.4	12.1	14.3	15.3	13.8	14.7	117.6	111.9	119.0

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.7	57.1	54.0
Precipitation - Reference Evapotranspiration	-23.7	-43.9	-44.8
Number of Rainy Days	3.0	2.0	2.3
Number of Dry Days	2.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

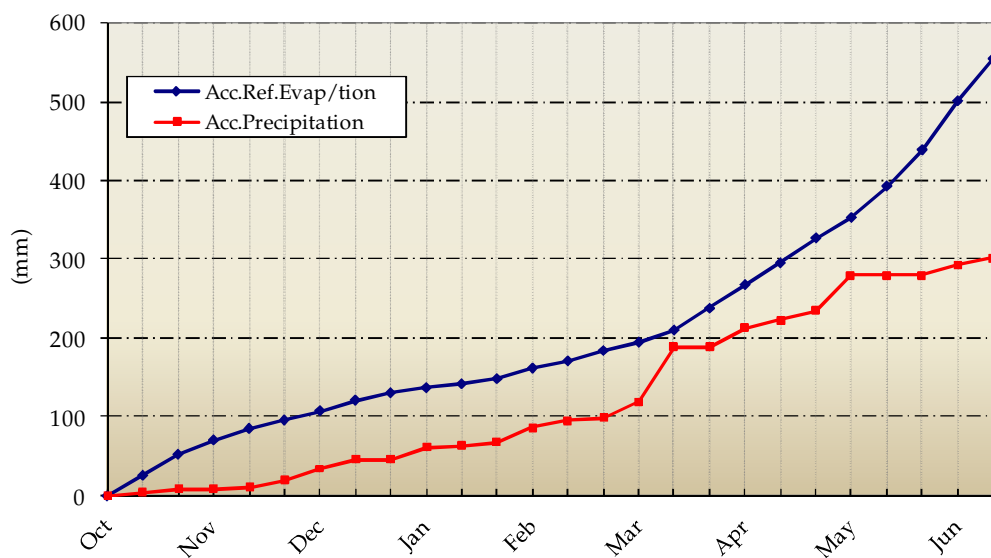


Mikra

1st 10-day period (1-10/06/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.9	24.0	21.9	21.8	27.5	29.0	31.0	31.2	32.0	31.9	27.5	27.4	27.9
	Min	16.4	16.7	13.0	16.0	18.0	14.2	17.4	22.9	15.0	17.7	16.7	15.2	15.4
Relative Humidity	Max	55	80	90	90	85	82	76	75	87	81	80	76	-
	Min	30	36	47	55	54	30	27	31	30	24	36	30	-
Soil Temperature at 10 cm	06 UTC	19.7	20.6	21.2	19.8	19.4	22.4	22.2	24.0	22.2	23.0	21.4	25.8	22.3
	12 UTC	26.2	26.4	23.8	20.8	24.4	28.0	29.0	27.2	27.0	29.0	26.2	32.1	27.3
Sunshine Duration		13.0	13.4	2.2	0.6	12.7	11.0	10.6	6.4	9.0	12.5	9.1	10.6	10.0
Precipitation			0.1	2.1	5.4			0.0	0.3	0.0		7.9	3.9	11.2
Evaporation		9.0	2.8	5.3	4.2	0.2	5.7	8.4	4.9	7.6	8.6	56.7	87.3	74.4
Growing Degrees	5	15.7	15.4	12.5	13.9	17.8	16.6	19.2	22.1	18.5	19.8	171.3	162.9	166.4
	10	10.7	10.4	7.5	8.9	12.8	11.6	14.2	17.1	13.5	14.8	121.3	112.9	116.4

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.4	55.6	52.1
Precipitation - Reference Evapotranspiration	-45.5	-51.7	-40.9
Number of Rainy Days	4.0	2.0	2.7
Number of Dry Days	2.0	25.0	-

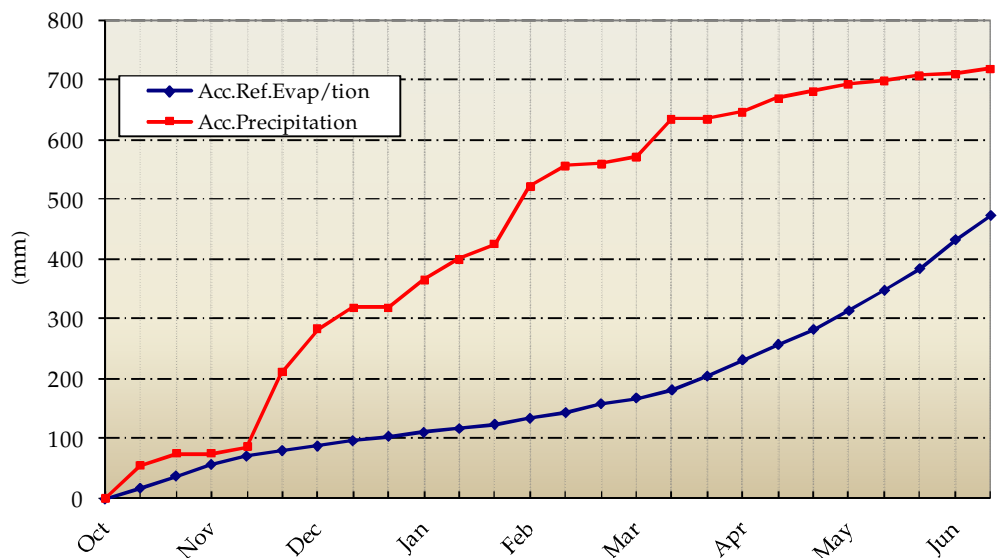
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/06/2014)		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	22.7	18.4	20.2	25.3	26.5	27.4	27.3	26.5	27.1	24.2	25.6	26.4
	Min	7.0	5.8	12.1	11.8	8.2	7.9	8.7	9.3	16.0	18.5	10.5	9.1	10.7
Relative Humidity	Max	97	95	95	99	100	94	98	99	73	65	92	81	-
	Min	35	24	50	50	23	29	28	29	32	31	33	29	-
Soil Temperature at 10 cm	06 UTC	18.0	18.4	19.4	17.8	16.8	17.2	18.8	18.0	19.2	20.0	18.4	21.0	20.3
	12 UTC	-	25.0	20.6	21.2	20.4	24.6	-	-	-	23.4	22.5	28.0	23.4
Sunshine Duration		11.4	7.5	1.2	0.5	10.5	8.5	6.3	7.2	5.5	7.7	6.6	10.3	10.2
Precipitation		0.1		0.6	3.1	0.1		3.8	0.2	0.3		8.2	21.1	6.1
Evaporation		6.9	6.1	1.5	1.2	0.4	4.4	2.9	4.2	6.9	6.5	41.0	62.6	55.4
Growing Degrees	5	9.0	9.3	10.3	11.0	11.8	12.2	13.1	13.3	16.3	17.8	123.9	123.1	135.3
	10	4.0	4.3	5.3	6.0	6.8	7.2	8.1	8.3	11.3	12.8	73.9	73.1	85.3

1st 10-day period (1-10/06/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.3	44.9	48.9
Precipitation - Reference Evapotranspiration	-32.1	-23.8	-42.8
Number of Rainy Days	7.0	3.0	1.6
Number of Dry Days	2.0	14.0	-

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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