



# AGROMETEOROLOGICAL BULLETIN

*May 2013  
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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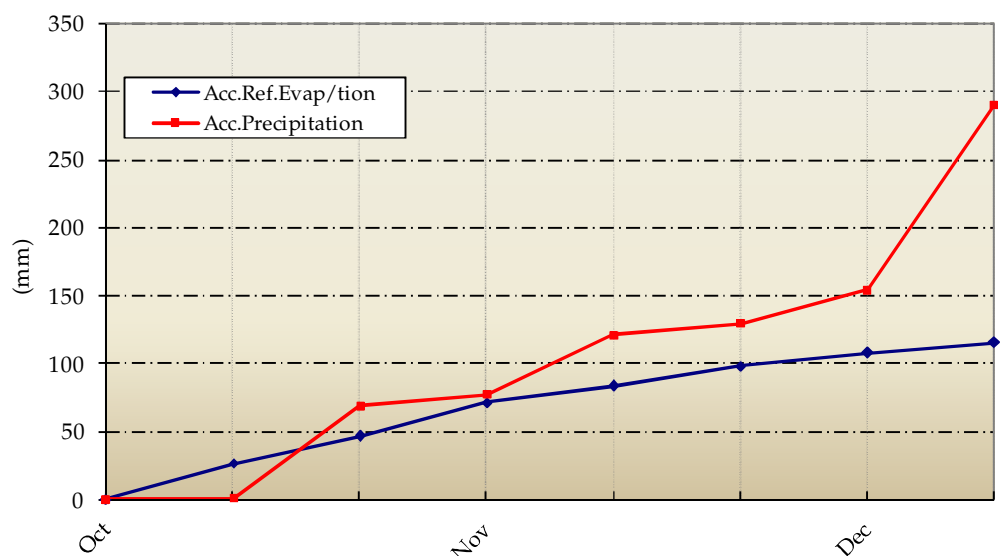
Agrinio

1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-		29.4	24.1
	Min	-	-	-	-	-	-	-	15.6	-	16.8	16.2	11.8	10.8
Relative Humidity	Max	-	-	-	-	-	-	89	-	89	-	89	76	-
	Min	-	-	-	-	-	-	36	-	42	-	39	29	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	23.0	-	21.4	22.2	21.0	16.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	25.4	21.9
Sunshine Duration		-	-	-	-	-	-	-	-	-	-		11.5	7.8
Precipitation		-	-	-	-	-	-	-	-	-	-		3.4	17.1
Evaporation		-	-	-	-	-	-	7.0	-	4.0	-	-	92.5	53.8
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	156.3	124.9
	10	-	-	-	-	-	-	-	-	-	-	-	106.3	74.9

1st 10-day period (1-10/05/2013)		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	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

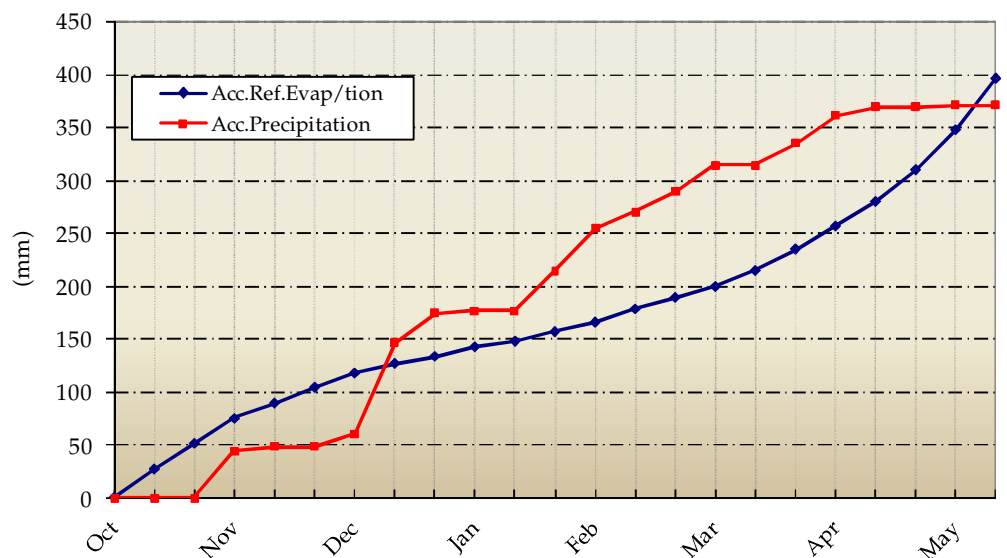
This station is not fully operated



1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	29.4	29.6	28.6	29.0	27.4	28.2	25.6	24.0	26.8	28.0	26.8	20.6
	Min	12.0	11.5	13.6	13.8	13.5	16.0	14.0	15.4	15.4	14.6	14.0	12.3	9.7
Relative Humidity	Max	77	76	80	84	89	84	83	89	85	80	83	88	-
	Min	21	28	21	42	37	32	38	35	45	38	34	38	-
Soil Temperature at 10 cm	06 UTC	19.6	20.0	20.2	20.6	20.8	21.0	21.2	21.2	20.4	19.6	20.5	19.9	15.1
	12 UTC	23.6	23.8	24.2	25.6	25.4	25.4	24.2	28.2	21.8	23.6	24.6	23.6	19.2
Sunshine Duration		12.7	13.1	12.8	8.4	12.3	12.5	12.5	6.5	2.1	12.7	10.6	10.5	8.0
Precipitation													0.9	9.3
Evaporation		5.6	7.0	5.0	7.2	5.8	10.1	9.3	6.6	5.5	5.0	67.1	62.1	55.4
Growing Degrees	5	16.8	15.5	16.6	16.2	16.3	16.7	16.1	15.5	14.7	15.7	160.0	145.3	101.5
	10	11.8	10.5	11.6	11.2	11.3	11.7	11.1	10.5	9.7	10.7	110.0	95.3	51.6

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.8	44.8	37.0
Precipitation - Reference Evapotranspiration	-48.8	-43.9	-27.7
Number of Rainy Days	0.0	1.0	2.2
Number of Dry Days	19.0	11.0	-

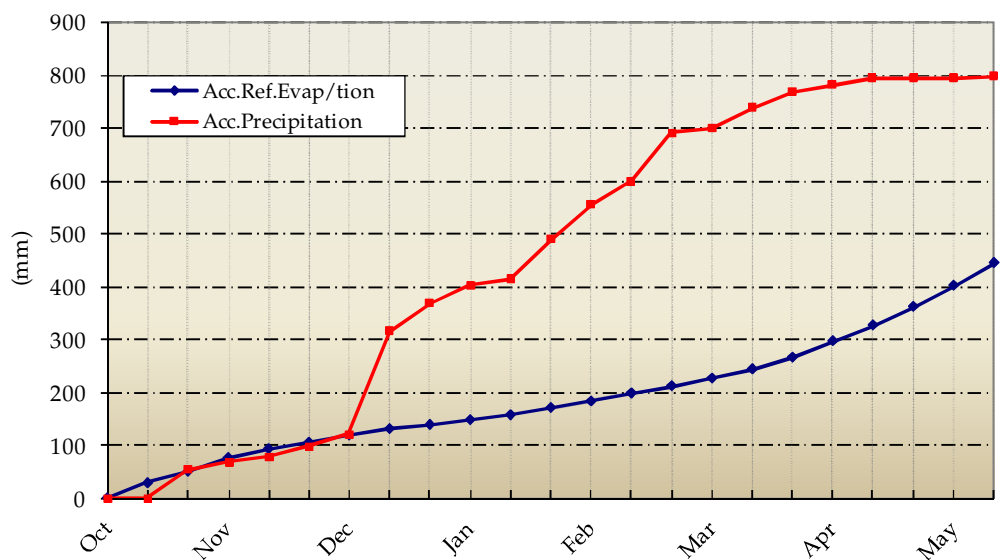
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	30.2	27.4	28.6	31.2	29.2	26.2	25.0	23.7	24.3	27.5	25.4	22.2
	Min	13.3	13.5	15.9	14.2	14.1	18.2	17.3	13.7	13.8	16.1	15.0	12.3	11.6
Relative Humidity	Max	85	86	83	87	83	81	88	89	90	86	86	89	-
	Min	28	32	36	27	30	34	34	48	51	41	36	39	-
Soil Temperature at 10 cm	06 UTC	19.8	20.6	21.6	21.0	21.2	22.2	21.8	21.4	20.4	20.8	21.1	19.7	17.3
	12 UTC	25.2	26.0	26.2	26.2	26.2	26.0	26.4	25.2	24.2	24.0	25.6	24.3	21.1
Sunshine Duration		12.0	11.8	9.7	12.2	7.3	4.7	11.9	6.2	7.1	4.7	8.8	10.8	8.8
Precipitation									3.9			3.9		8.6
Evaporation		7.0	16.5	4.9	7.6	4.5	4.2	7.5	3.7	4.0	5.5	65.4	84.5	49.3
Growing Degrees	5	16.1	16.9	16.7	16.4	17.7	18.7	16.8	14.4	13.8	15.2	162.4	138.6	119.0
	10	11.1	11.9	11.7	11.4	12.7	13.7	11.8	9.4	8.8	10.2	112.4	88.6	69.0

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.9	44.5	35.8
Precipitation - Reference Evapotranspiration	-39.0	-44.5	-27.2
Number of Rainy Days	1.0	0.0	2.0
Number of Dry Days	29.0	19.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

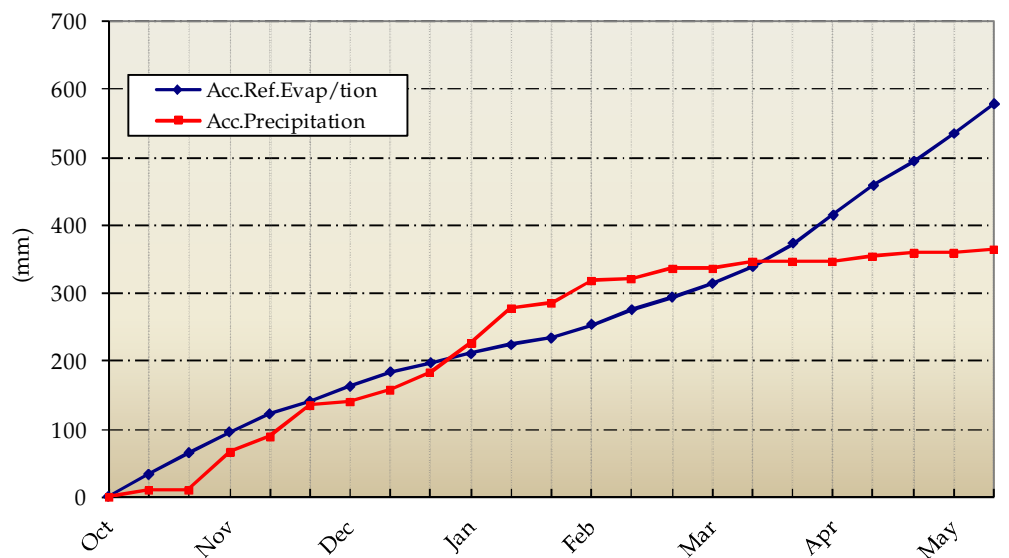


Iraklio

1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	24.2	24.8	27.4	26.8	26.0	24.8	22.4	22.6	21.8	24.5	-	22.0
	Min	16.0	16.2	15.6	15.0	16.0	17.6	18.0	17.6	13.6	15.0	16.1	-	14.0
Relative Humidity	Max	77	82	80	85	79	82	86	87	90	89	84	-	-
	Min	63	58	63	49	58	50	61	54	62	65	58	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.6	12.0	12.0	12.4	12.0	12.1	9.7	0.8	7.4	11.2	10.2	-	9.1
Precipitation									1.8	1.4	1.1	4.3	-	5.2
Evaporation		6.4	3.3	3.2	6.4	5.6	5.6	3.8	2.7	2.6	1.8	41.4	-	59.2
Growing Degrees	5	15.1	15.2	15.2	16.2	16.4	16.8	16.4	15.0	13.1	13.4	152.8	-	130.2
	10	10.1	10.2	10.2	11.2	11.4	11.8	11.4	10.0	8.1	8.4	102.8	-	80.2

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.8	-	-
Precipitation - Reference Evapotranspiration	-39.5	-	5.2
Number of Rainy Days	3.0	-	1.4
Number of Dry Days	16.0	-	-

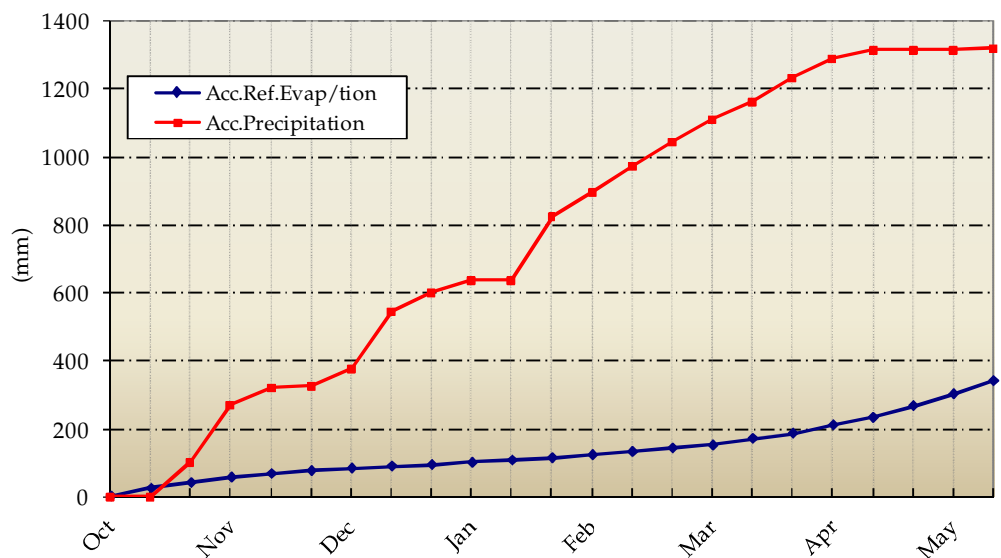
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	30.0	28.0	25.2	30.2	27.4	27.0	22.8	21.4	26.2	26.8	26.0	21.2
	Min	10.2	16.2	12.2	10.2	10.2	19.2	15.5	14.0	10.0	15.0	13.3	9.8	8.6
Relative Humidity	Max	73	79	81	77	68	75	79	82	80	100	79	83	-
	Min	31	25	35	34	28	35	32	70	41	29	36	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		10.4	8.6	6.8	11.6	8.1	5.8	8.6	5.1	3.7	10.2	7.9	9.6	6.7
Precipitation									4.8	0.7		5.5	0.7	22.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.0
Growing Degrees	5	15.1	18.1	15.1	12.7	15.2	18.3	16.3	13.4	10.7	15.6	150.5	129.3	99.4
	10	10.1	13.1	10.1	7.7	10.2	13.3	11.3	8.4	5.7	10.6	100.5	79.3	49.6

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.0	42.3	33.0
Precipitation - Reference Evapotranspiration	-33.5	-41.6	-10.8
Number of Rainy Days	2.0	2.0	3.9
Number of Dry Days	15.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



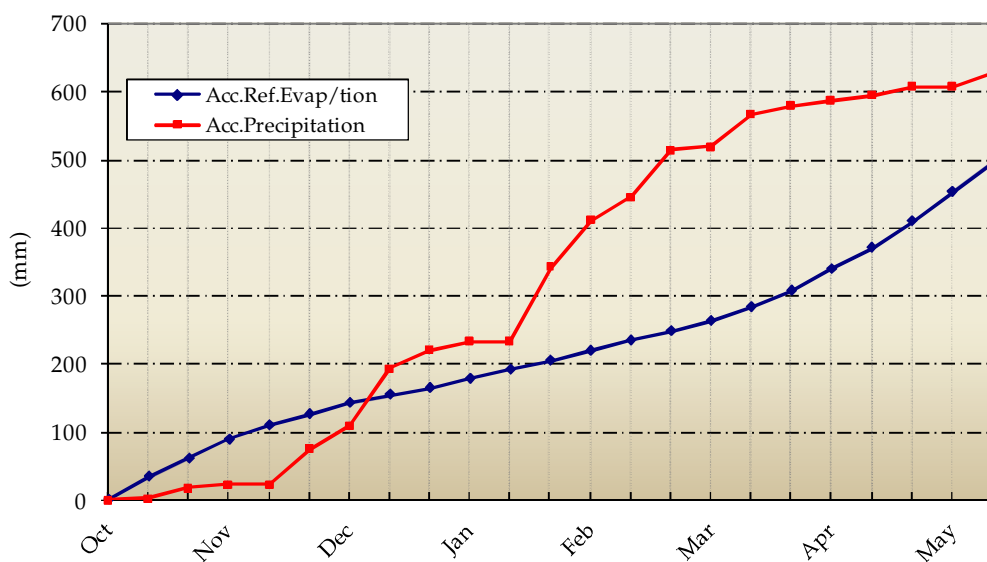


Kalamata

1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.9	29.4	26.2	28.5	29.6	31.3	27.6	24.6	22.2	22.3	27.1	26.6	22.8
	Min	12.4	13.8	13.1	14.6	14.0	17.5	15.5	15.7	14.2	13.6	14.4	12.1	11.0
Relative Humidity	Max	82	89	89	91	77	87	91	91	93	94	88	89	-
	Min	30	27	38	36	30	33	47	52	64	60	42	34	-
Soil Temperature at 10 cm	06 UTC	18.4	18.6	19.0	19.4	19.2	20.4	20.4	20.6	19.4	18.6	19.4	18.1	16.9
	12 UTC	21.6	22.0	22.2	22.6	23.0	23.2	22.6	23.0	20.8	20.0	22.1	20.5	20.6
Sunshine Duration		12.3	11.9	10.5	12.1	9.3	8.7	7.6	8.3	1.5	2.9	8.5	11.3	8.6
Precipitation									15.1	6.4		21.5	3.7	9.1
Evaporation		5.8	6.6	6.2	7.4	5.0	11.2	3.8	0.0	2.3	1.2	49.5	53.6	52.2
Growing Degrees	5	15.7	16.6	14.7	16.6	16.8	19.4	16.6	15.2	13.2	13.0	157.5	143.8	119.0
	10	10.7	11.6	9.7	11.6	11.8	14.4	11.6	10.2	8.2	8.0	107.5	93.8	69.0

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.4	50.3	36.5
Precipitation - Reference Evapotranspiration	-21.9	-46.6	-27.4
Number of Rainy Days	2.0	1.0	2.3
Number of Dry Days	18.0	21.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

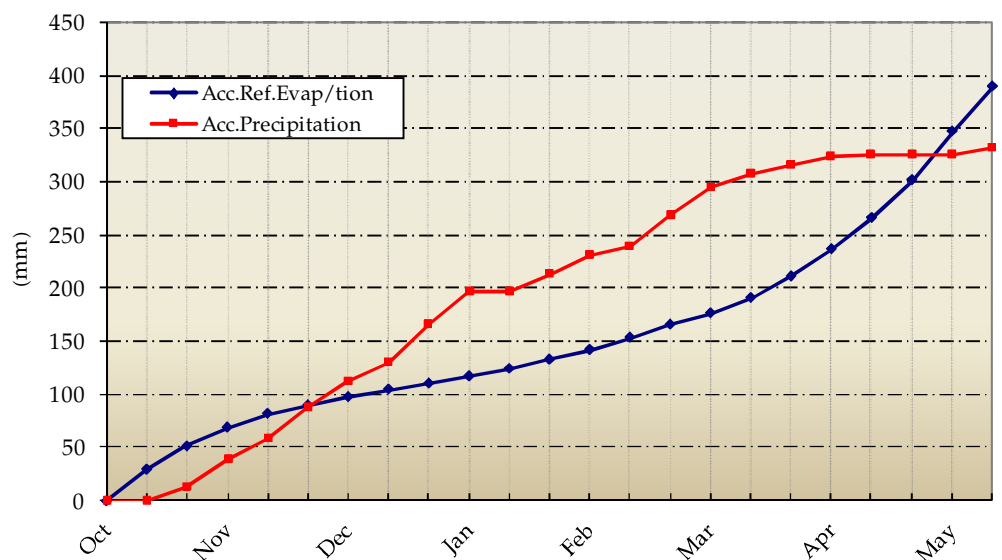


Larisa

1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.3	30.4	30.8	31.6	31.1	28.6	27.2	22.6	19.1	25.6	27.9	28.3	23.7
	Min	11.6	13.2	10.5	11.9	13.8	15.0	14.6	11.5	14.6	14.0	13.1	11.1	9.3
Relative Humidity	Max	91	86	82	86	79	86	82	93	100	100	88	86	-
	Min	20	19	22	25	26	34	26	53	70	33	33	24	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	17.2	16.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	18.8	18.4
Sunshine Duration		11.7	8.8	4.2	6.5	9.7	5.7	5.5	0.0	0.4	7.8	6.0	10.8	8.0
Precipitation										6.3	0.5	6.8	4.4	10.2
Evaporation		9.2	11.2	7.1	7.1	9.9	9.0	5.0	3.8	0.4	3.9	66.6	60.1	50.6
Growing Degrees	5	17.0	16.8	15.7	16.8	17.5	16.8	15.9	12.1	11.9	14.8	155.0	146.8	115.4
	10	12.0	11.8	10.7	11.8	12.5	11.8	10.9	7.1	6.9	9.8	105.0	96.8	65.4

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.2	47.9	38.0
Precipitation - Reference Evapotranspiration	-35.4	-43.5	-27.8
Number of Rainy Days	2.0	2.0	2.5
Number of Dry Days	29.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



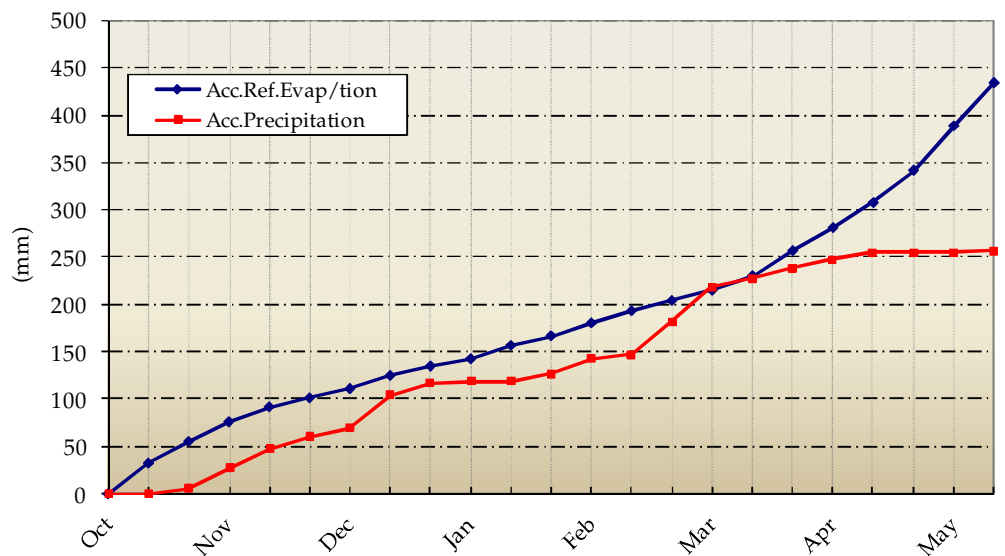


Mikra

1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.1	28.8	29.0	30.1	30.6	27.8	26.0	23.0	20.4	26.0	27.2	28.3	22.7
	Min	15.1	14.3	13.3	14.4	14.5	16.6	16.6	14.6	17.6	13.0	15.0	13.1	10.7
Relative Humidity	Max	75	83	74	76	77	82	83	85	82	94	81	75	-
	Min	23	27	28	25	28	43	39	47	50	37	35	26	-
Soil Temperature at 10 cm	06 UTC	22.0	22.4	22.0	22.6	22.8	23.8	23.2	22.6	21.4	23.2	22.6	20.0	16.9
	12 UTC	28.2	28.2	28.6	28.8	29.0	28.4	28.4	25.4	22.0	26.0	27.3	25.2	21.5
Sunshine Duration		12.1	12.1	9.8	11.5	11.1	6.9	4.6	0.0	0.0	12.4	8.0	10.2	7.9
Precipitation									0.1	1.0		1.1	7.1	12.9
Evaporation		5.6	10.7	6.1	9.6	5.8	6.8	6.6	1.9	5.2	5.9	64.2	75.5	53.6
Growing Degrees	5	17.6	16.6	16.2	17.3	17.6	17.2	16.3	13.8	14.0	14.5	160.9	157.0	116.7
	10	12.6	11.6	11.2	12.3	12.6	12.2	11.3	8.8	9.0	9.5	110.9	107.0	66.7

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.7	50.1	38.0
Precipitation - Reference Evapotranspiration	-44.6	-43.0	-25.1
Number of Rainy Days	2.0	1.0	2.6
Number of Dry Days	19.0	12.0	-

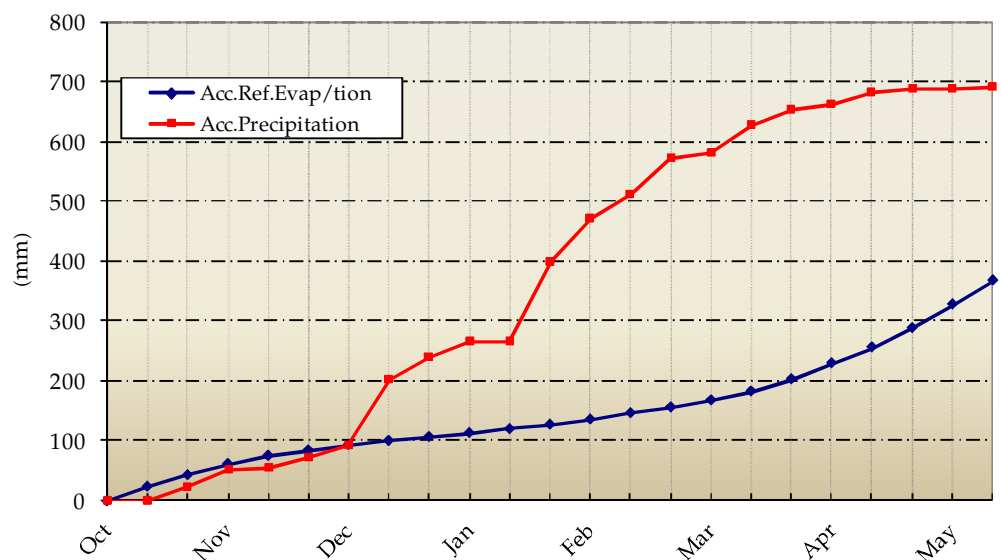
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.7	29.4	28.8	29.9	28.0	27.1	25.8	21.4	21.1	21.7	26.2	26.0	21.0
	Min	6.9	7.6	7.4	9.7	8.8	11.4	12.4	12.0	9.3	11.8	9.7	7.1	7.0
Relative Humidity	Max	69	74	51	59	62	51	61	75	92	94	69	80	-
	Min	19	18	18	15	42	26	28	54	47	55	32	26	-
Soil Temperature at 10 cm	06 UTC	19.2	19.6	19.8	20.4	20.6	21.6	21.8	21.4	19.6	17.8	20.2	17.2	14.6
	12 UTC	26.6	27.4	27.2	28.6	-	28.4	28.2	23.4	23.0	19.6	25.8	24.4	17.1
Sunshine Duration		12.4	12.2	9.0	12.1	10.7	10.1	6.5	1.5	5.1	4.3	8.4	10.7	8.1
Precipitation										3.3	0.6	3.9	1.1	10.2
Evaporation		7.7	6.7	5.7	6.8	6.6	6.4	6.2	3.0	1.9	2.1	53.1	53.5	39.1
Growing Degrees	5	12.8	13.5	13.1	14.8	13.4	14.3	14.1	11.7	10.2	11.8	129.6	115.9	89.7
	10	7.8	8.5	8.1	9.8	8.4	9.3	9.1	6.7	5.2	6.8	79.6	65.9	40.9

1st 10-day period (1-10/05/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.9	42.7	36.7
Precipitation - Reference Evapotranspiration	-36.0	-41.6	-26.5
Number of Rainy Days	2.0	2.0	2.8
Number of Dry Days	23.0	4.0	-

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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ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

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