



AGROMETEOROLOGICAL BULLETIN

*April 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



Hellenic National Meteorological Service
Division of Climatology-Applications
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Helliniko, Athens

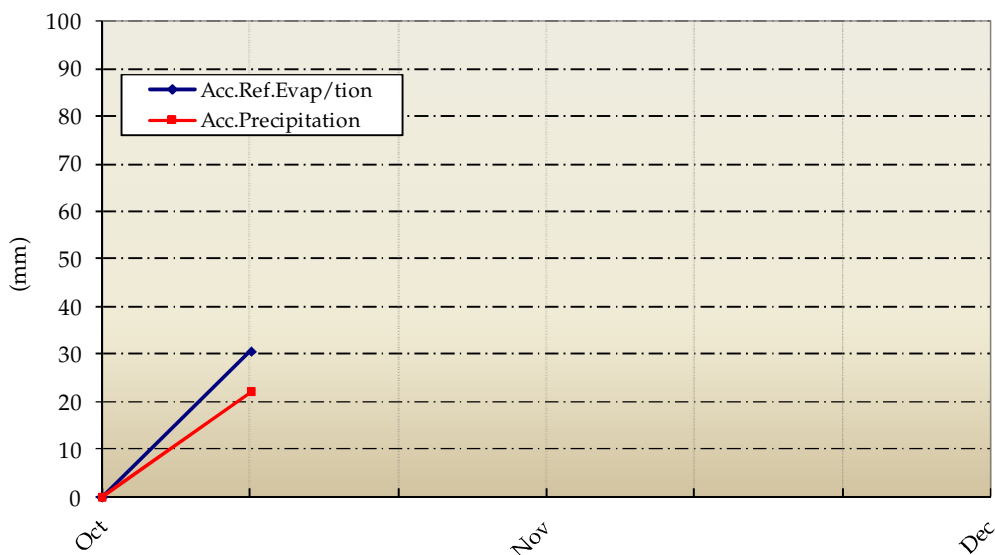
Web addresses of HNMS
www.emy.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

Agrinio

1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-			19.9
	Min	5.6	7.4	6.0	7.0	-	-	-	-	-	-	6.5	8.8	7.2
Relative Humidity	Max	97	97	94	-	-	-	-	-	-	-	96	96	-
	Min	75	75	67	-	-	-	-	-	-	-	72	65	-
Soil Temperature at 10 cm	06 UTC	13.4	14.0	13.2	13.6	-	-	-	-	-	-	13.6	13.9	11.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	15.1	16.3
Sunshine Duration		9.8	10.2	7.8	-	-	-	-	-	-	-	9.3	6.4	6.3
Precipitation													-	20.5
Evaporation		0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	35.8
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	85.7
	10	-	-	-	-	-	-	-	-	-	-	-	-	36.8

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	26.6
Precipitation - Reference Evapotranspiration	-	-	-6.1
Number of Rainy Days	0.0	3.0	3.3
Number of Dry Days	34.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

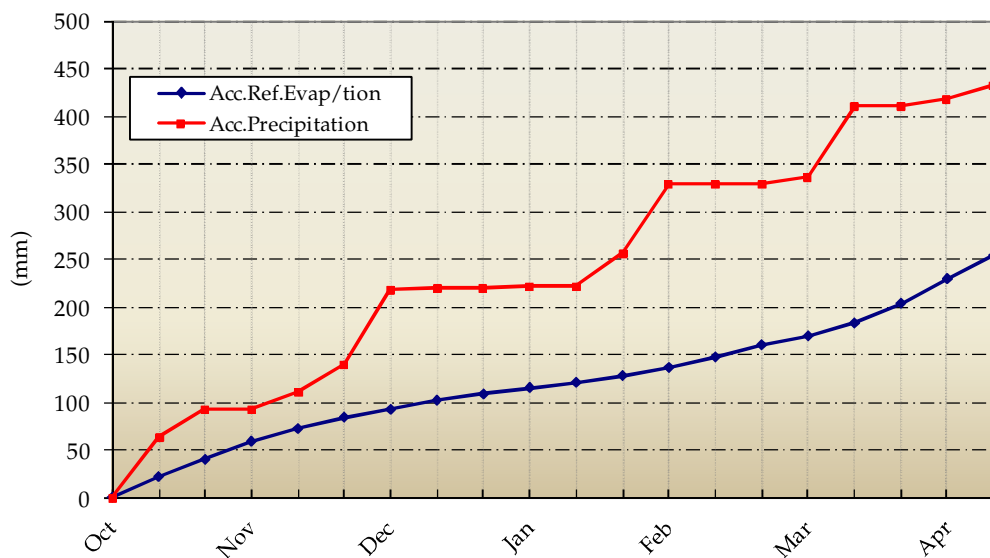


This station is not fully operated

1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.4	19.2	18.6	17.2	18.6	22.6	17.8	19.0	19.0	14.4	18.3	17.2	16.7
	Min	4.2	6.4	8.6	6.2	12.6	13.0	10.2	9.8	6.6	7.8	8.5	9.6	6.5
Relative Humidity	Max	93	94	92	95	91	89	90	92	94	97	93	91	-
	Min	69	55	50	70	66	41	46	52	45	78	57	58	-
Soil Temperature at 10 cm	06 UTC	11.4	12.2	13.0	12.8	14.5	14.4	14.8	14.6	12.8	14.0	13.4	13.0	10.4
	12 UTC	14.6	16.8	16.6	16.8	15.8	18.0	17.2	18.2	17.8	14.0	16.6	15.7	13.5
Sunshine Duration		9.6	8.9	9.8	6.3	0.0	8.2	4.8	5.7	11.5	1.2	6.6	5.3	6.1
Precipitation								0.0	2.0		11.9	13.9	8.2	11.5
Evaporation		3.1	3.6	3.9	3.7	0.9	7.5	4.4	2.2	2.5	0.3	32.1	26.9	34.0
Growing Degrees	5	5.3	7.8	8.6	6.7	10.6	12.8	9.0	9.4	7.8	6.1	84.1	84.3	66.0
	10	0.3	2.8	3.6	1.7	5.6	7.8	4.0	4.4	2.8	1.1	34.1	34.7	21.0

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.8	23.3	24.4
Precipitation - Reference Evapotranspiration	-10.9	-15.1	-12.9
Number of Rainy Days	2.0	2.0	2.6
Number of Dry Days	11.0	6.0	-

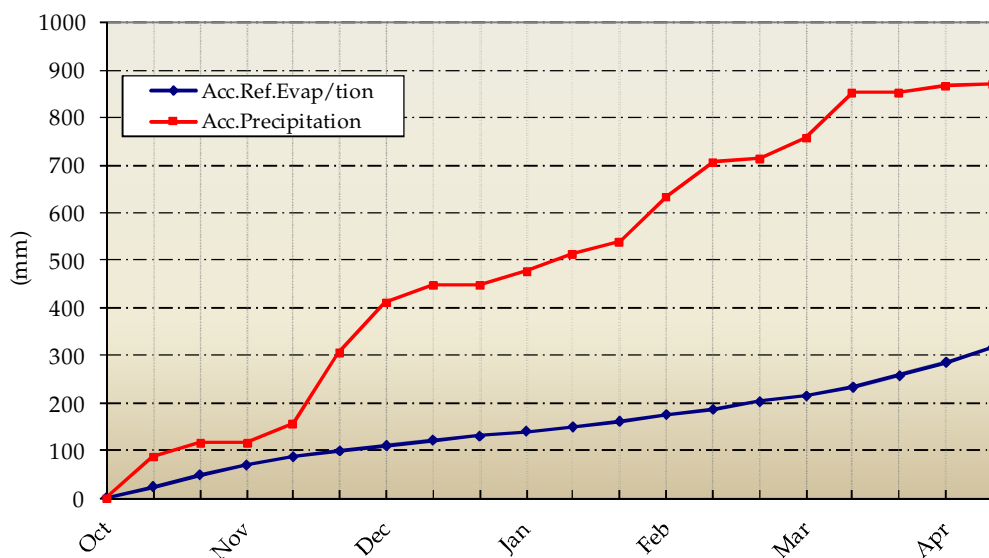
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.3	20.6	19.8	23.6	22.0	19.9	20.8	21.1	21.0	17.8	20.6	20.1	18.6
	Min	8.4	8.9	7.8	8.8	14.2	12.2	9.3	8.8	11.5	13.1	10.3	10.5	8.6
Relative Humidity	Max	92	91	89	88	89	91	92	91	90	90	90	89	-
	Min	54	46	42	26	56	56	45	43	49	45	46	50	-
Soil Temperature at 10 cm	06 UTC	14.0	14.2	14.4	14.6	16.0	16.2	15.8	15.2	16.6	17.0	15.4	15.2	12.9
	12 UTC	17.2	18.4	18.6	17.4	19.2	19.0	19.6	19.2	20.6	20.6	19.0	18.3	15.7
Sunshine Duration		10.4	9.8	8.0	5.9	9.0	5.9	7.9	8.2	9.6	8.4	8.3	6.6	6.9
Precipitation							4.9					4.9	13.5	14.7
Evaporation		3.9	4.9	2.0	7.5	3.6	1.4	4.3	5.8	3.2	7.2	43.8	-	34.4
Growing Degrees	5	8.9	9.8	8.8	11.2	13.1	11.1	10.1	10.0	11.3	10.5	104.5	103.2	86.1
	10	3.9	4.8	3.8	6.2	8.1	6.1	5.1	5.0	6.3	5.5	54.5	53.2	36.7

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.5	29.7	26.7
Precipitation - Reference Evapotranspiration	-26.6	-16.2	-12.0
Number of Rainy Days	1.0	4.0	2.8
Number of Dry Days	10.0	1.0	-

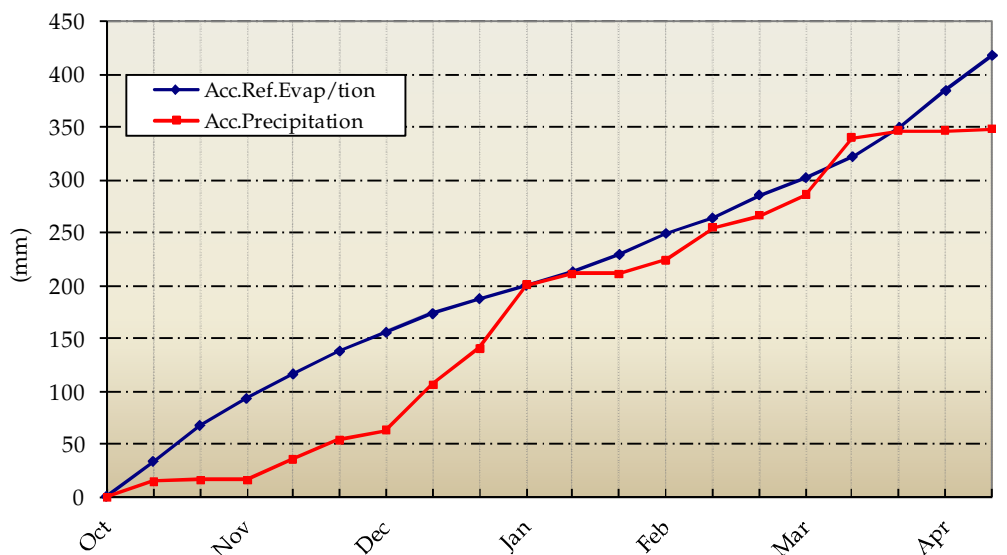
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2014)		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	20.0	20.0	24.0	23.8	20.2	19.2	18.2	19.6	22.2	20.5	22.5	19.4
	Min	9.0	9.0	11.2	9.2	16.6	13.2	12.8	11.0	11.4	13.0	11.6	14.6	11.6
Relative Humidity	Max	89	89	88	92	78	88	93	95	90	87	89	77	-
	Min	61	53	53	32	34	35	60	65	60	45	50	40	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.2	10.2	10.3	9.1	1.4	2.9	1.5	8.8	11.0	11.6	7.6	8.0	7.0
Precipitation								1.9	0.1			2.0	5.4	8.6
Evaporation		1.6	1.7	5.0	5.1	2.1	8.0	-	2.0	3.6	2.6	-	56.4	45.2
Growing Degrees	5	8.3	9.5	10.6	11.6	15.2	11.7	11.0	9.6	10.5	12.6	110.6	135.4	105.0
	10	3.3	4.5	5.6	6.6	10.2	6.7	6.0	4.6	5.5	7.6	60.6	85.4	55.0

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.2	43.9	-
Precipitation - Reference Evapotranspiration	-31.2	-38.5	8.6
Number of Rainy Days	2.0	2.0	1.8
Number of Dry Days	20.0	16.0	-

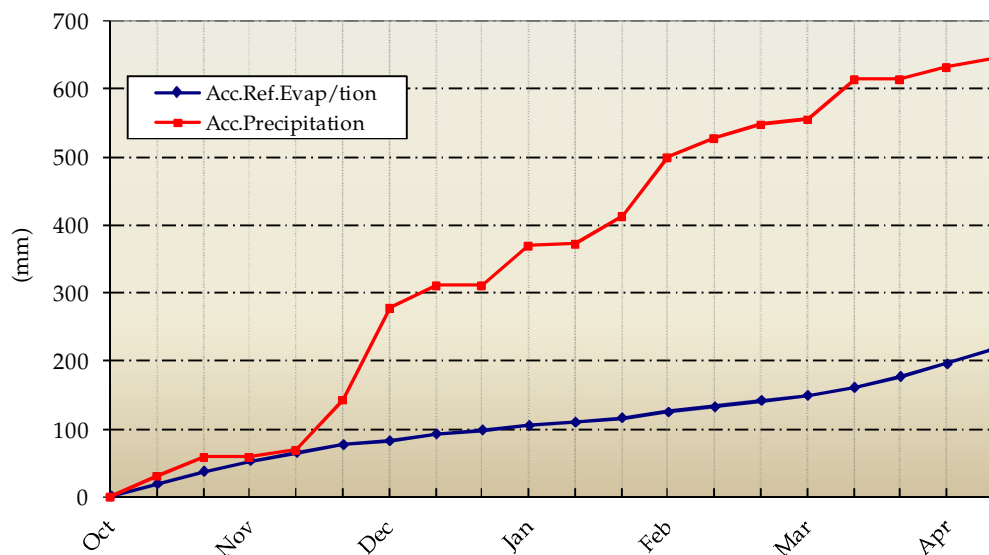
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	20.2	17.6	19.7	20.3	18.6	18.7	21.5	18.5	15.4	19.1	16.2	16.8
	Min	2.2	2.3	2.1	1.9	12.4	6.4	9.5	4.3	5.3	9.3	5.6	9.0	5.4
Relative Humidity	Max	99	98	99	95	91	95	99	99	98	97	97	87	-
	Min	32	23	45	29	25	40	39	31	49	34	35	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.3
Sunshine Duration		5.8	8.7	5.4	4.5	8.6	5.0	2.4	8.2	4.0	6.7	5.9	2.8	5.1
Precipitation		0.0				0.0	4.5	2.3	0.0		6.9	13.7	24.9	25.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	24.5
Growing Degrees	5	6.2	6.3	4.9	5.8	11.4	7.5	9.1	7.9	6.9	7.4	73.2	76.1	60.9
	10	1.2	1.3	0.0	0.8	6.4	2.5	4.1	2.9	1.9	2.4	23.4	27.4	17.6

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.4	21.9	22.5
Precipitation - Reference Evapotranspiration	-7.7	3.0	3.2
Number of Rainy Days	3.0	4.0	4.1
Number of Dry Days	7.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

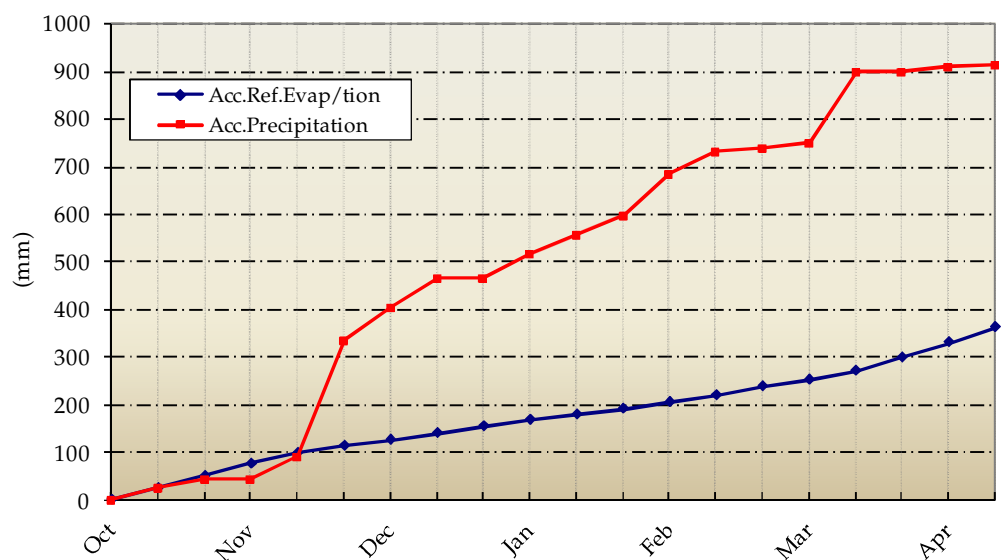


Kalamata

1st 10-day period (1-10/04/2014)		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	23.8	21.2	19.2	20.1	19.2	20.5	20.8	22.5	21.9	21.0	20.8	19.3
	Min	7.4	9.2	7.4	7.6	12.6	9.1	8.9	8.1	9.2	8.2	8.8	9.8	8.0
Relative Humidity	Max	94	92	92	94	94	94	95	94	93	94	94	92	-
	Min	56	24	42	57	64	60	60	52	38	41	49	43	-
Soil Temperature at 10 cm	06 UTC	14.0	15.0	15.0	14.8	14.0	15.2	15.2	15.0	15.2	15.8	14.9	14.7	12.9
	12 UTC	15.2	16.0	16.0	16.0	16.0	16.0	15.8	16.4	16.6	16.6	16.1	16.7	15.8
Sunshine Duration		10.9	10.7	8.8	8.6	3.4	5.2	4.1	8.6	10.2	7.9	7.8	6.5	6.7
Precipitation							0.1	2.9	0.0			3.0	7.6	16.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	34.0	37.8
Growing Degrees	5	9.1	11.5	9.3	8.4	11.4	9.2	9.7	9.5	10.9	10.1	98.9	103.2	86.4
	10	4.1	6.5	4.3	3.4	6.4	4.2	4.7	4.5	5.9	5.1	48.9	53.2	36.8

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.6	31.6	28.3
Precipitation - Reference Evapotranspiration	-28.6	-24.0	-12.0
Number of Rainy Days	2.0	3.0	2.8
Number of Dry Days	7.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

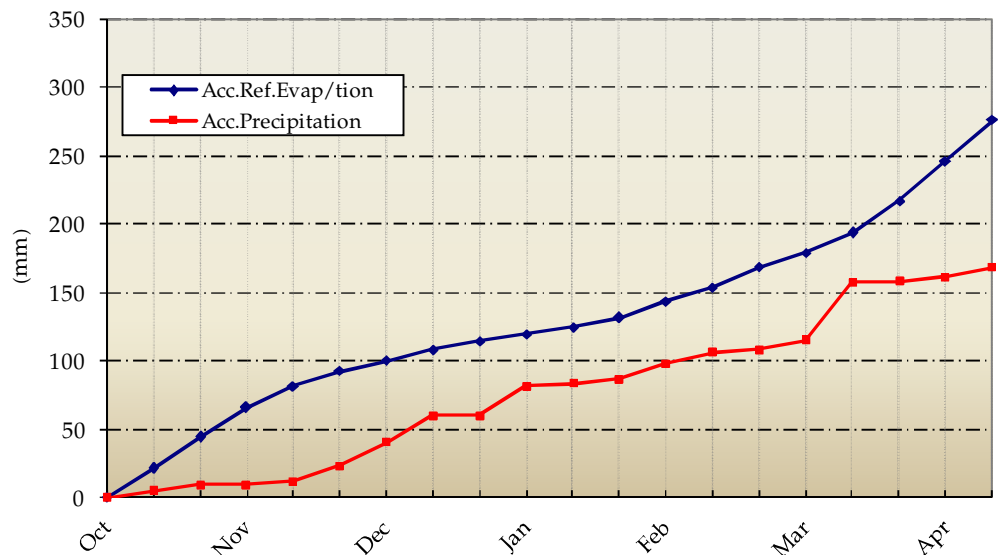


Larisa

1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	25.0	20.4	20.4	21.2	21.4	19.4	21.4	25.2	19.4	21.8	20.3	19.4
	Min	3.6	6.2	7.0	5.8	8.4	11.9	11.0	10.8	6.4	9.0	8.0	8.5	5.6
Relative Humidity	Max	100	98	100	100	99	100	100	100	100	100	100	94	-
	Min	30	30	52	49	47	48	55	44	25	68	45	42	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	13.2	11.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	14.4	13.1
Sunshine Duration		9.2	9.0	7.6	4.5	8.2	4.0	2.2	9.2	7.5	1.2	6.3	5.5	6.6
Precipitation							0.5	4.3			2.2	7.0	2.1	12.2
Evaporation		3.7	6.3	3.7	5.3	3.4	2.4	3.0	4.2	5.6	0.5	38.1	37.6	32.3
Growing Degrees	5	9.0	10.6	8.7	8.1	9.8	11.7	10.2	11.1	10.8	9.2	99.2	93.8	75.0
	10	4.0	5.6	3.7	3.1	4.8	6.7	5.2	6.1	5.8	4.2	49.2	43.8	27.5

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.8	29.4	26.4
Precipitation - Reference Evapotranspiration	-22.8	-27.3	-14.2
Number of Rainy Days	3.0	5.0	2.6
Number of Dry Days	7.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

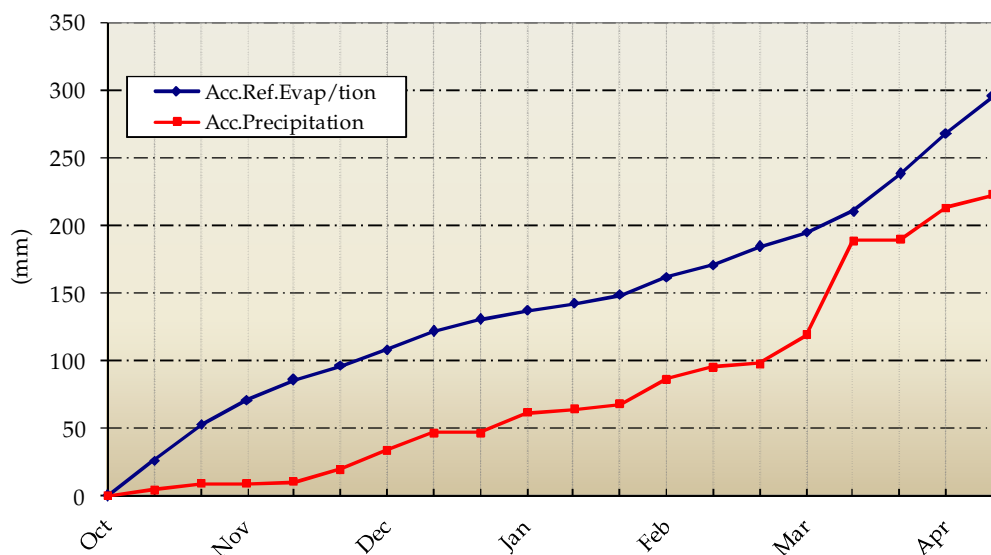


Mikra

1st 10-day period (1-10/04/2014)		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	22.0	17.4	15.9	19.4	17.4	19.7	20.0	20.8	16.4	19.0	18.6	18.4
	Min	5.6	8.0	10.5	7.4	11.2	13.5	12.8	9.6	7.4	10.0	9.6	8.9	7.0
Relative Humidity	Max	90	89	90	92	90	89	90	92	90	71	88	90	-
	Min	49	37	65	68	59	65	54	54	54	37	54	50	-
Soil Temperature at 10 cm	06 UTC	12.8	13.8	14.8	14.0	14.8	15.6	15.2	14.9	15.0	14.6	14.6	13.1	11.4
	12 UTC	15.0	16.0	15.8	15.4	16.6	16.2	16.4	17.2	17.2	15.0	16.1	15.0	15.3
Sunshine Duration		7.5	9.1	2.8	0.4	6.8	2.6	3.2	9.5	8.5	6.6	5.7	5.4	6.4
Precipitation							0.7	7.2	0.2		0.9	9.0	6.5	12.7
Evaporation		4.8	2.6	1.4	2.7	3.0	0.1	1.1	5.4	5.2	4.3	30.6	27.0	39.9
Growing Degrees	5	8.2	10.0	9.0	6.7	10.3	10.5	11.3	9.8	9.1	8.2	92.9	87.7	77.2
	10	3.2	5.0	4.0	1.7	5.3	5.5	6.3	4.8	4.1	3.2	42.9	37.7	28.9

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.5	26.3	26.8
Precipitation - Reference Evapotranspiration	-18.5	-19.8	-14.1
Number of Rainy Days	4.0	5.0	2.5
Number of Dry Days	7.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

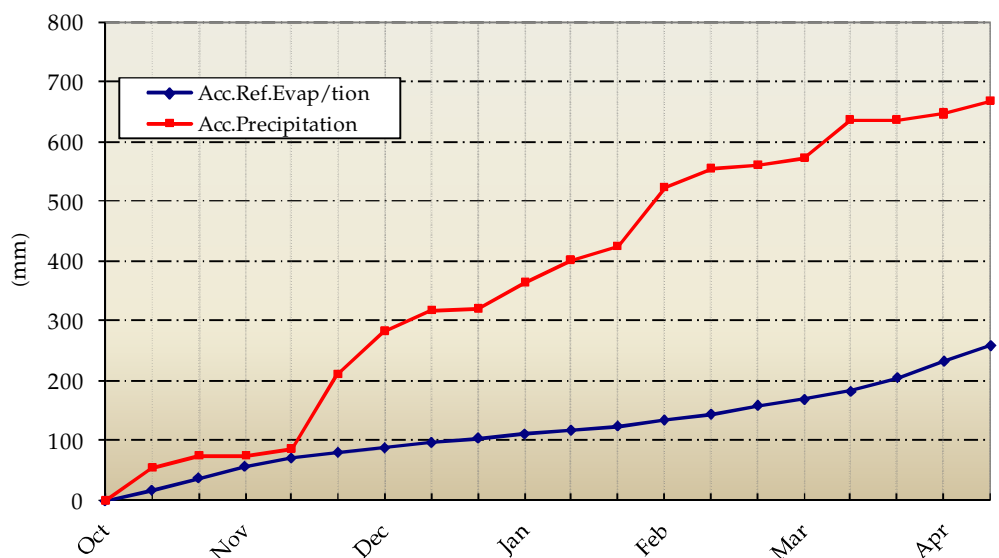


Tripoli

1st 10-day period (1-10/04/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	21.1	20.3	19.4	18.0	16.5	13.4	16.9	19.9	15.7	18.2	17.4	17.1
	Min	0.6	1.2	0.3	2.7	8.8	3.0	7.4	2.2	2.2	6.3	3.5	5.5	4.3
Relative Humidity	Max	100	100	83	100	79	99	100	100	100	94	96	88	-
	Min	29	22	15	27	47	92	70	52	36	54	44	40	-
Soil Temperature at 10 cm	06 UTC	9.4	10.6	10.4	11.8	13.4	12.0	12.0	9.4	10.0	11.4	11.0	10.9	9.5
	12 UTC	16.4	17.4	17.6	17.6	17.2	-	13.2	15.6	16.4	14.8	16.2	14.7	11.3
Sunshine Duration		10.3	10.1	9.4	7.9	7.4	4.0	0.0	6.5	7.7	9.1	7.2	6.4	6.6
Precipitation							13.6	5.4	2.3		0.4	21.7	20.6	17.3
Evaporation		2.2	4.9	3.5	3.3	2.3	0.1	1.5	0.1	3.4	3.3	24.6	27.1	26.4
Growing Degrees	5	5.6	6.2	5.3	6.1	8.4	4.8	5.4	4.6	6.1	6.0	58.3	64.3	57.4
	10	0.6	1.2	0.3	1.1	3.4	0.0	0.4	0.0	1.1	1.0	9.0	14.6	16.1

1st 10-day period (1-10/04/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.8	26.3	26.6
Precipitation - Reference Evapotranspiration	-4.1	-5.7	-9.3
Number of Rainy Days	4.0	4.0	3.3
Number of Dry Days	7.0	6.0	-

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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