



AGROMETEOROLOGICAL BULLETIN

*March 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

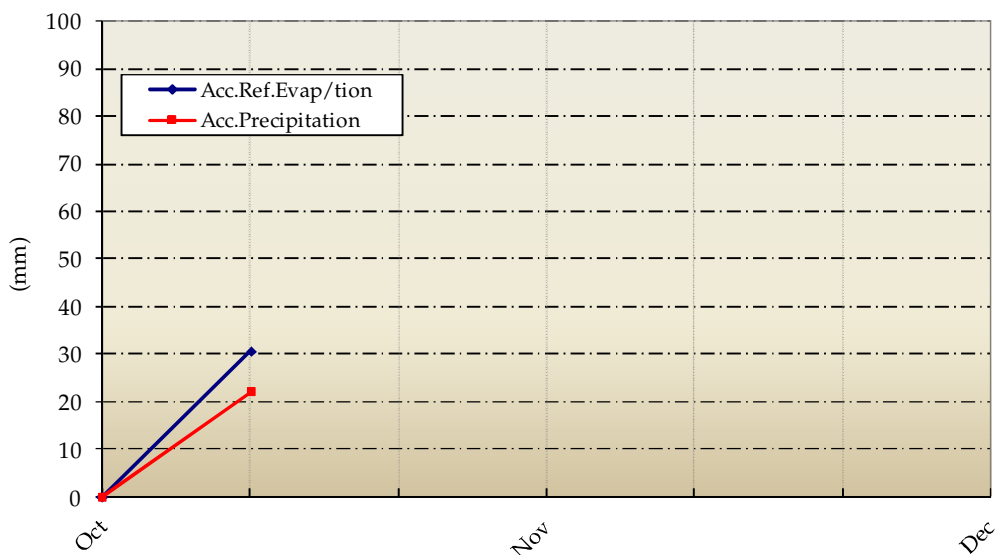
Web addresses of HNMS
www.emy.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

Agrinio

1st 10-day period (1-10/03/2014)		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
	Min	-	-	-	-	-	6.0	8.0	-	-	3.0	5.7	6.2	4.1
Relative Humidity	Max	-	-	-	-	97	97	-	-	90	-	95	89	-
	Min	-	-	-	-	70	83	-	-	70	-	74	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	10.2	10.0	-	-	10.2	10.1	10.1	8.5
	12 UTC	-	-	-	-	-	11.4	14.0	-	-	11.6	12.3	11.0	11.6
Sunshine Duration		-	-	-	-	0.0	0.0	-	-	8.2	-	2.7	4.9	5.6
Precipitation								20.5				20.5	8.2	25.5
Evaporation		-	-	-	-	0.0	-	-	-	0.0	-	-	-	24.4
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	50.4
	10	-	-	-	-	-	-	-	-	-	-	-	-	10.7

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	18.5
Precipitation - Reference Evapotranspiration	-	-	7.0
Number of Rainy Days	1.0	2.0	3.2
Number of Dry Days	21.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

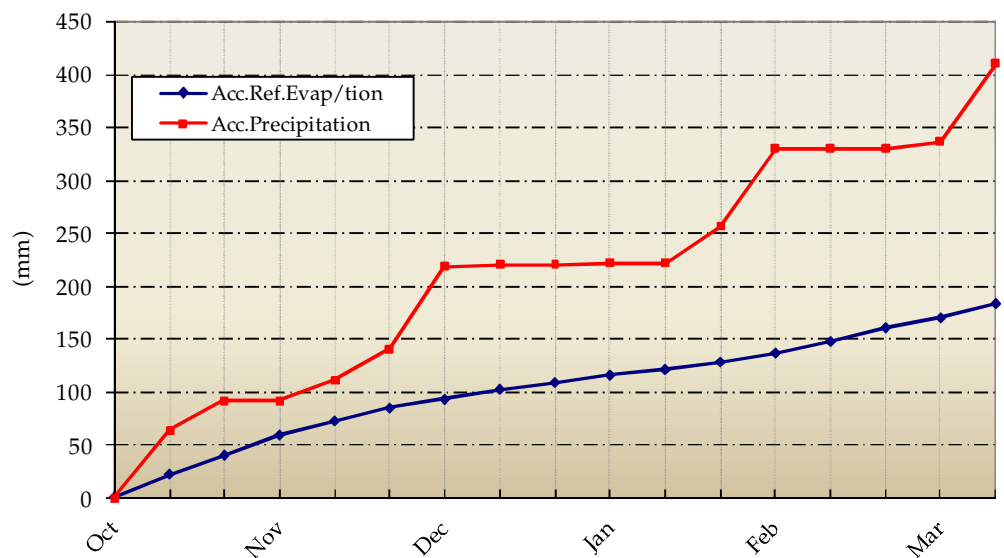


This station is not fully operated

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.0	11.2	13.4	13.8	14.2	15.4	15.4	12.0	9.8	6.2	12.3	13.0	10.6
	Min	7.8	9.6	8.0	9.0	8.0	5.4	10.2	8.8	4.6	3.4	7.5	4.2	2.2
Relative Humidity	Max	97	97	95	95	97	97	86	81	75	93	91	91	-
	Min	86	81	83	79	72	63	55	58	44	66	69	55	-
Soil Temperature at 10 cm	06 UTC	10.2	10.6	9.0	10.6	10.6	9.6	11.4	10.2	9.6	8.6	10.0	7.8	5.9
	12 UTC	11.4	10.8	11.0	11.4	12.6	13.2	12.2	11.8	10.0	7.8	11.2	10.0	8.0
Sunshine Duration		0.0	1.1	0.0	2.3	0.5	6.1	3.1	0.5	0.0	0.0	1.4	5.4	4.8
Precipitation		13.6	11.0	6.3	2.9	19.8	9.1	0.7	0.0		10.8	74.2	0.0	16.7
Evaporation		0.7	1.3	0.5	3.5	1.7	2.7	3.6	2.3	2.7	1.4	20.4	-	18.5
Growing Degrees	5	4.9	5.4	5.7	6.4	6.1	5.4	7.8	5.4	2.2	0.0	49.3	35.6	22.8
	10	0.0	0.4	0.7	1.4	1.1	0.4	2.8	0.4	0.0	0.0	7.2	7.8	2.2

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.6	15.1	16.2
Precipitation - Reference Evapotranspiration	60.6	-15.1	0.5
Number of Rainy Days	8.0	0.0	2.2
Number of Dry Days	0.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

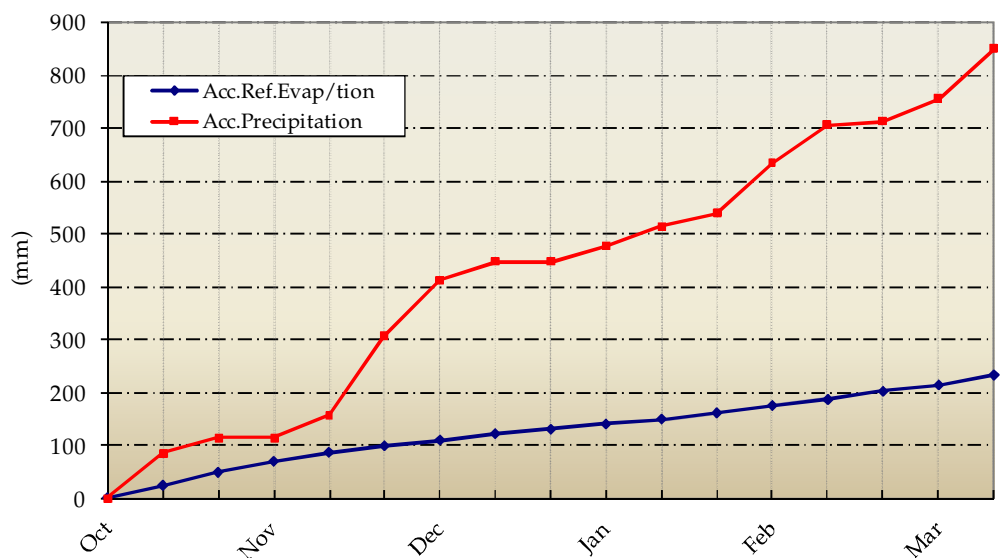


Andravida

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.0	15.1	16.6	15.0	13.9	15.6	16.8	17.2	16.0	15.2	15.3	16.4	15.2
	Min	8.9	8.9	9.7	7.5	7.6	8.8	9.2	8.1	6.0	3.5	7.8	7.7	5.8
Relative Humidity	Max	92	92	90	88	90	86	91	92	84	87	89	90	-
	Min	83	49	54	69	63	57	52	44	45	37	55	56	-
Soil Temperature at 10 cm	06 UTC	11.6	11.6	12.2	12.0	11.2	11.4	11.5	12.1	11.6	10.6	11.6	12.1	10.0
	12 UTC	12.0	12.2	13.2	13.6	12.0	12.0	13.4	13.6	14.2	14.2	13.0	14.4	12.2
Sunshine Duration		0.0	0.0	4.2	2.0	4.3	0.0	7.0	6.3	9.0	10.4	4.3	5.6	6.1
Precipitation		14.9	20.0	25.6	12.9	5.4	6.7	6.1	3.1			94.7	39.7	26.8
Evaporation		0.6	0.0	2.4	0.0	13.9	0.1	3.2	1.9	0.0	13.8	35.9	18.8	25.2
Growing Degrees	5	5.5	7.0	8.2	6.3	5.8	7.2	8.0	7.7	6.0	4.4	65.8	70.7	55.6
	10	0.5	2.0	3.2	1.3	0.8	2.2	3.0	2.7	1.0	0.0	16.5	21.1	13.0

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.7	17.7	18.0
Precipitation - Reference Evapotranspiration	76.0	22.0	8.8
Number of Rainy Days	8.0	4.0	3.2
Number of Dry Days	0.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

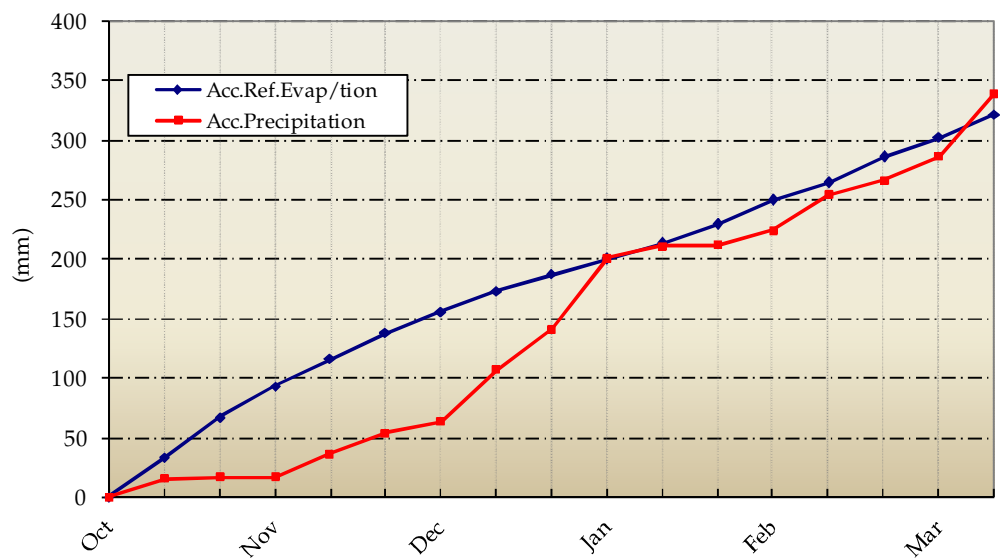


Iraklio

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.5	17.2	17.4	19.6	16.0	19.0	15.2	16.0	13.5	13.5	16.4	17.1	15.6
	Min	12.5	11.0	13.2	10.0	9.4	9.4	10.8	10.6	10.0	12.0	10.9	10.7	8.9
Relative Humidity	Max	86	93	90	95	92	81	88	95	95	92	91	83	-
	Min	68	64	56	48	69	53	68	73	72	68	64	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.0	5.2	2.5	7.3	3.6	6.0	0.0	5.0	0.5	2.5	3.4	7.0	5.3
Precipitation		0.0	2.5	5.5	1.0	18.8		1.3	1.8	20.7	1.8	53.4	9.6	20.8
Evaporation		3.1	1.0	2.6	2.1	0.7	2.3	0.5	1.9	3.3	1.4	18.9	-	33.2
Growing Degrees	5	9.5	9.1	10.3	9.8	7.7	9.2	8.0	8.3	6.8	7.8	86.4	88.8	72.7
	10	4.5	4.1	5.3	4.8	2.7	4.2	3.0	3.3	1.8	2.8	36.4	38.8	25.3

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.7	25.2	-
Precipitation - Reference Evapotranspiration	33.7	-15.6	20.8
Number of Rainy Days	8.0	1.0	3.3
Number of Dry Days	4.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

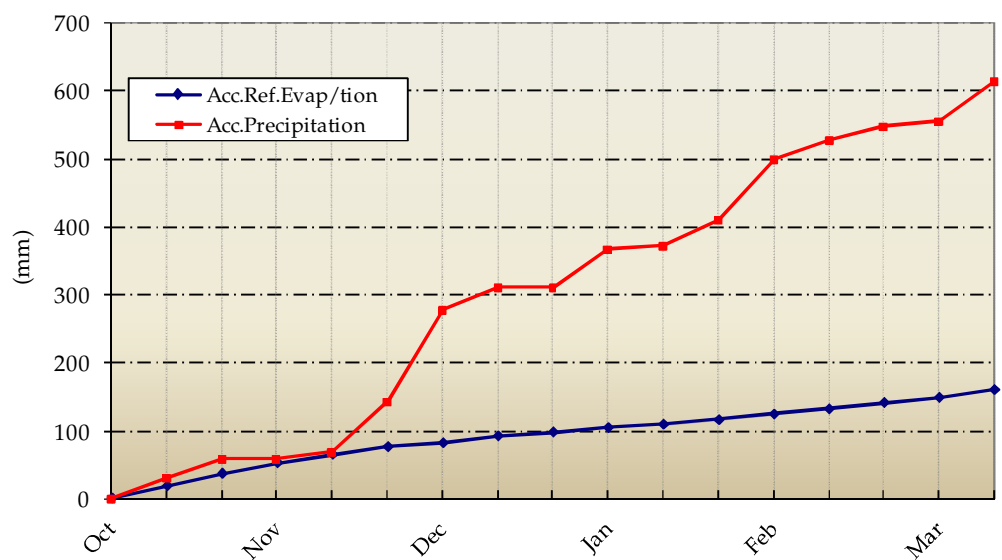


Ioannina

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	7.0	10.0	10.0	10.1	11.8	12.8	15.2	11.3	12.8	11.2	13.7	12.2
	Min	4.8	4.4	3.5	2.1	4.5	-0.1	6.4	9.4	8.2	6.0	4.9	3.4	1.7
Relative Humidity	Max	99	98	88	99	92	100	82	55	53	67	83	97	-
	Min	65	70	59	64	62	52	39	32	34	30	51	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	7.3
Sunshine Duration		0.0	0.4	0.1	0.0	0.9	2.8	1.6	8.2	0.2	6.8	2.1	4.0	4.6
Precipitation		4.1	22.2	0.5	17.8	14.9	0.0	0.0	0.0	0.0	0.0	59.5	50.5	27.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	14.8
Growing Degrees	5	2.9	0.7	1.8	1.1	2.3	0.9	4.6	7.3	4.8	4.4	30.6	35.6	25.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.3	4.9	2.0

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.8	19.6	15.2
Precipitation - Reference Evapotranspiration	47.7	30.9	12.1
Number of Rainy Days	5.0	4.0	3.5
Number of Dry Days	0.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

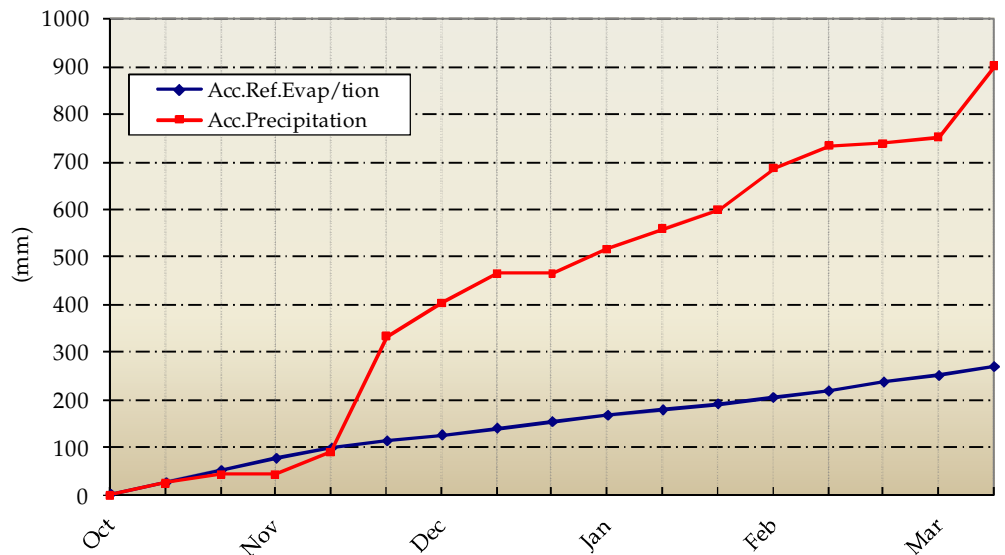


Kalamata

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	16.6	16.9	14.2	15.0	14.9	16.9	17.6	16.3	15.9	15.8	17.5	16.0
	Min	10.5	8.6	9.8	7.8	5.1	7.6	8.4	6.8	7.7	5.4	7.8	7.4	5.6
Relative Humidity	Max	95	95	93	95	95	94	94	92	76	88	92	92	-
	Min	80	47	54	71	49	63	51	43	39	34	53	50	-
Soil Temperature at 10 cm	06 UTC	12.2	12.0	12.2	12.6	-	-	-	-	-	-	12.2	11.8	10.3
	12 UTC	12.2	12.0	12.6	12.6	-	-	-	-	-	-	12.4	12.7	12.1
Sunshine Duration		0.0	3.9	3.4	6.8	4.7	3.3	4.3	3.3	7.1	8.7	4.6	5.1	5.8
Precipitation		26.1	12.3	67.0	21.8	1.0	9.8	11.6				149.6	48.3	26.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	24.4	29.9
Growing Degrees	5	7.1	7.6	8.4	6.0	5.1	6.3	7.7	7.2	7.0	5.7	67.8	74.5	58.2
	10	2.1	2.6	3.4	1.0	0.1	1.3	2.7	2.2	2.0	0.7	17.8	24.5	14.6

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.8	20.3	18.8
Precipitation - Reference Evapotranspiration	130.8	28.0	7.3
Number of Rainy Days	7.0	5.0	3.2
Number of Dry Days	0.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

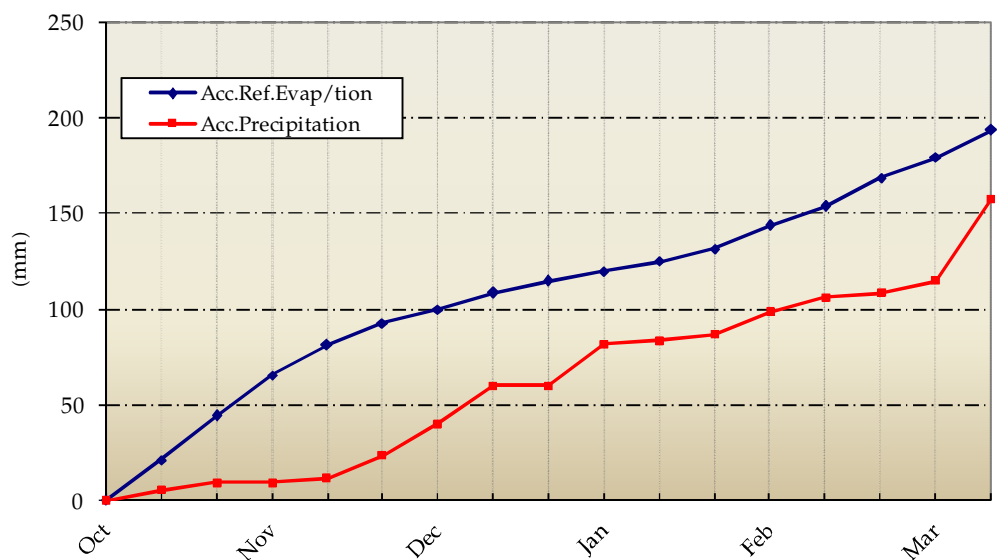


Larisa

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	15.6	11.2	16.6	16.4	15.4	14.0	15.8	10.2	9.8	13.6	14.2	13.6
	Min	5.6	9.0	7.2	1.6	2.4	1.8	9.2	8.4	6.6	6.0	5.8	2.9	2.4
Relative Humidity	Max	100	100	100	100	100	100	100	100	99	100	100	98	-
	Min	89	45	79	36	43	53	66	49	65	61	59	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	8.7	7.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	10.1	8.9
Sunshine Duration		0.0	5.7	0.0	4.9	7.1	5.5	0.3	6.1	0.0	0.2	3.0	3.8	4.9
Precipitation		2.1	11.5	8.1	1.0	3.4		10.4	3.8	2.0	0.5	42.8	13.2	10.9
Evaporation		0.0	1.4	4.8	0.2	0.8	1.0	0.2	1.3	1.2	0.3	11.2	17.0	18.9
Growing Degrees	5	3.4	7.3	4.2	4.1	4.4	3.6	6.6	7.1	3.4	2.9	47.0	35.5	34.4
	10	0.0	2.3	0.0	0.0	0.0	0.0	1.6	2.1	0.0	0.0	6.0	6.9	4.1

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.2	14.5	17.1
Precipitation - Reference Evapotranspiration	28.6	-1.3	-6.2
Number of Rainy Days	9.0	4.0	3.2
Number of Dry Days	0.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

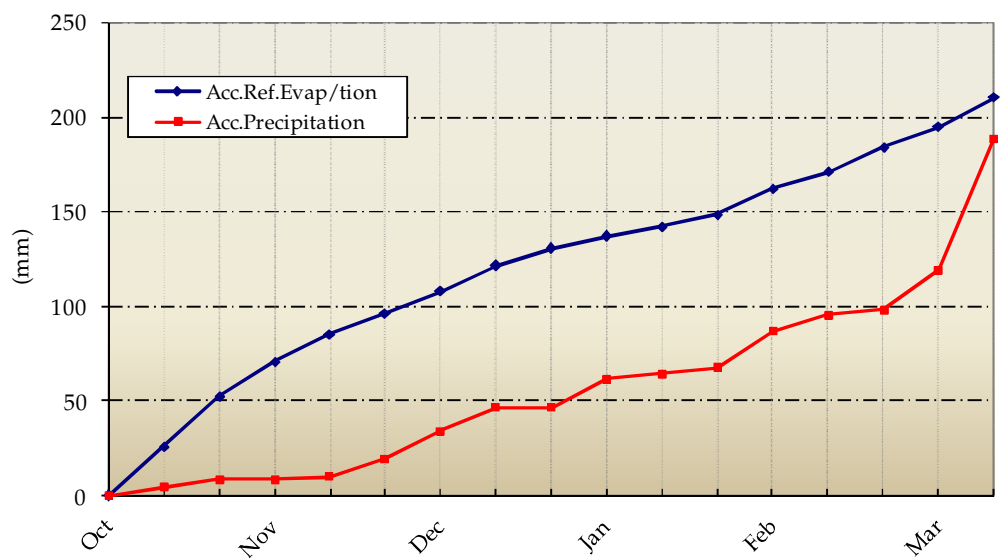


Mikra

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.2	13.4	10.2	16.2	15.6	16.0	14.0	15.0	13.4	9.8	13.6	13.3	12.6
	Min	7.2	7.9	6.6	9.0	6.1	3.7	9.4	8.4	5.6	7.1	7.1	4.9	3.4
Relative Humidity	Max	92	91	92	93	94	94	92	91	91	80	91	90	-
	Min	77	65	79	43	57	55	60	50	38	51	58	56	-
Soil Temperature at 10 cm	06 UTC	10.8	11.0	10.2	9.6	10.8	10.2	11.8	11.2	10.8	10.4	10.7	9.4	7.2
	12 UTC	11.6	11.4	11.4	11.6	12.4	11.8	12.4	12.8	11.2	10.4	11.7	10.8	9.8
Sunshine Duration		0.0	1.9	0.0	6.3	6.7	8.5	0.0	3.5	1.0	0.0	2.8	4.2	4.9
Precipitation		0.8	15.0	16.3	1.5	31.4	2.8	0.3	0.0	0.0	1.2	69.3	10.1	13.0
Evaporation		0.8	3.6	0.0	0.3	0.0	1.4	0.2	1.9	2.4	1.0	11.6	15.1	22.1
Growing Degrees	5	4.7	5.7	3.4	7.6	5.9	4.9	6.7	6.7	4.5	3.5	53.4	41.1	33.9
	10	0.0	0.7	0.0	2.6	0.9	0.0	1.7	1.7	0.0	0.0	7.5	6.0	4.3

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.5	15.6	17.6
Precipitation - Reference Evapotranspiration	53.8	-5.5	-4.6
Number of Rainy Days	8.0	5.0	3.2
Number of Dry Days	3.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

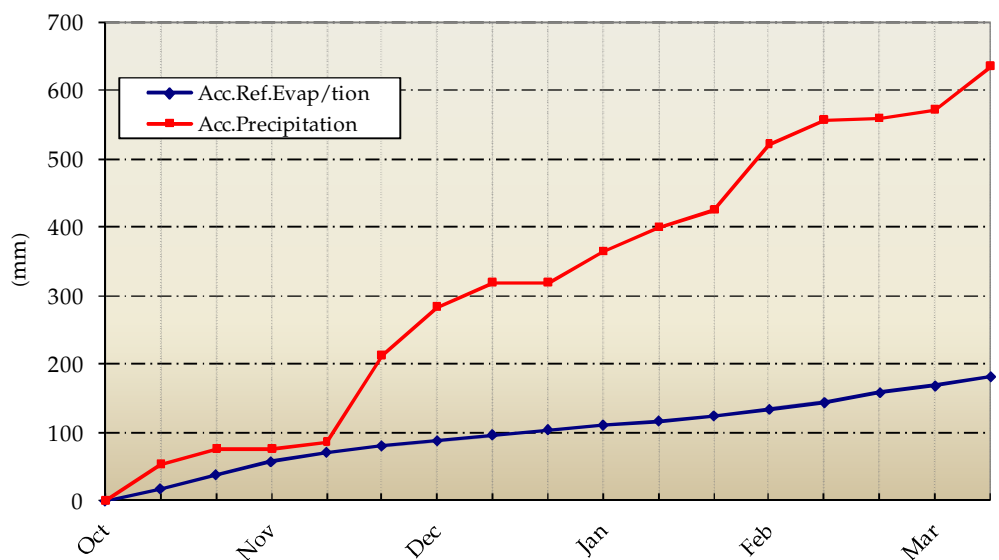


Tripoli

1st 10-day period (1-10/03/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	10.8	10.0	9.9	11.6	12.6	11.2	11.3	8.1	9.2	10.4	13.0	11.8
	Min	6.6	5.2	5.0	4.9	3.7	2.9	4.5	6.0	4.9	2.2	4.6	2.4	1.3
Relative Humidity	Max	100	100	100	95	87	100	100	97	74	76	93	97	-
	Min	83	52	56	63	48	53	64	75	64	51	61	53	-
Soil Temperature at 10 cm	06 UTC	7.6	8.0	8.0	7.4	7.4	7.8	8.8	9.0	8.0	6.8	7.9	6.9	6.2
	12 UTC	-	-	-	9.2	9.8	11.4	11.0	-	-	9.2	10.1	9.9	7.4
Sunshine Duration		0.0	6.7	1.6	0.9	7.1	4.7	1.4	2.7	1.3	3.1	3.0	4.2	5.4
Precipitation		12.8	8.5	26.8	6.1	0.4	3.1	5.0	0.6	0.3		63.6	46.5	26.7
Evaporation		0.2	0.1	0.9	0.9	2.2	1.5	0.1	0.3	3.0	1.0	10.2	13.6	15.8
Growing Degrees	5	2.9	3.0	2.5	2.4	2.7	2.8	2.9	3.7	1.5	0.7	24.9	27.5	22.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	1.9

1st 10-day period (1-10/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.6	14.9	17.7
Precipitation - Reference Evapotranspiration	50.0	31.6	9.0
Number of Rainy Days	9.0	6.0	3.4
Number of Dry Days	0.0	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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