



AGROMETEOROLOGICAL BULLETIN

February 2014
2nd 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.emy.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

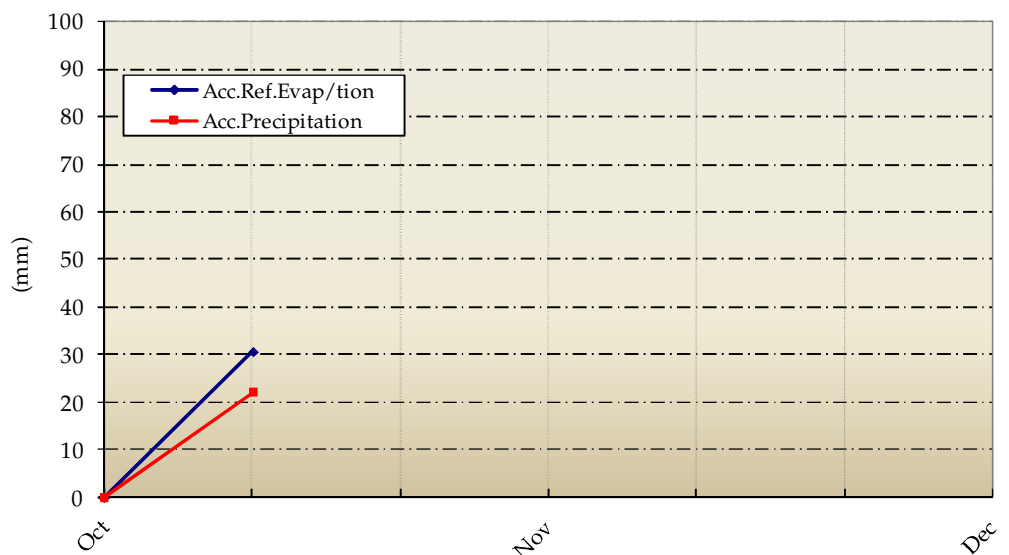
Agrinio

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	13.8	15.7	14.0	-	-	12.0	18.4	20.2	17.2	16.0		14.1
	Min	4.6	7.0	8.6	5.4	-	-	4.2	5.2	4.8	5.2	5.6	5.2	4.4
Relative Humidity	Max	91	90	90	94	-	91	87	90	84	83	89	94	-
	Min	82	77	83	89	-	78	79	77	74	68	79	64	-
Soil Temperature at 10 cm	06 UTC	9.0	11.0	11.0	10.0	-	-	7.2	8.6	8.0	14.4	9.9	8.8	7.5
	12 UTC	12.0	11.0	14.2	12.0	-	-	15.0	16.0	15.4	14.4	13.8	9.6	9.9
Sunshine Duration		8.2	0.8	5.8	-	-	10.2	9.0	9.6	9.4	3.2	7.0	3.3	4.3
Precipitation				6.0								6.0	-	44.0
Evaporation		2.4	6.6	1.2	-	-	1.6	2.2	0.8	-	-	-	-	16.7
Growing Degrees	5	5.7	5.4	7.2	4.7	-	-	3.1	6.8	7.5	6.2	-	-	43.7
	10	0.7	0.4	2.2	0.0	-	-	0.0	1.8	2.5	1.2	-	-	9.0

2nd 10-day period (11-20/02/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	13.8
Precipitation - Reference Evapotranspiration	-	30.2
Number of Rainy Days	1.0	5.0
Number of Dry Days	5.0	3.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

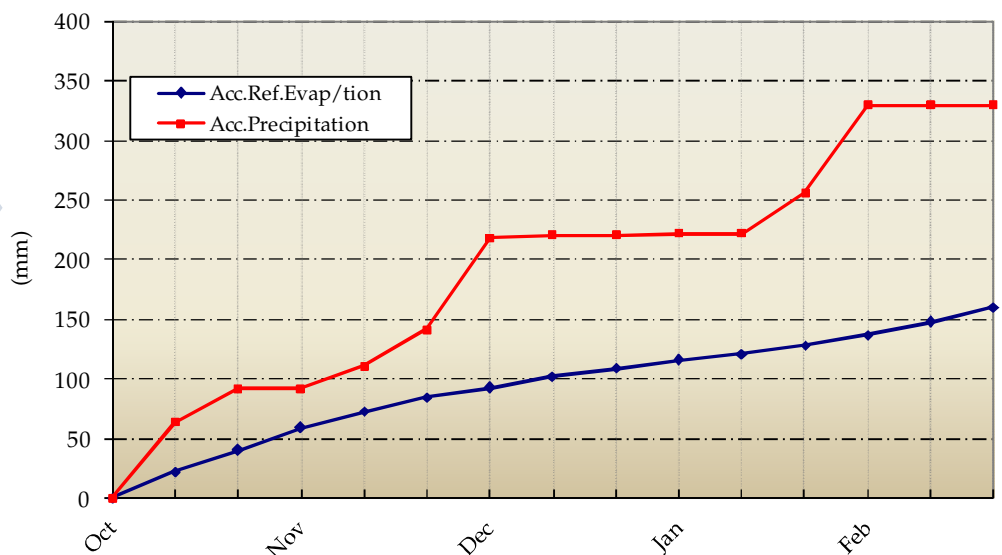
This station is not fully operated



2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	17.6	16.4	16.0	16.6	13.8	17.6	16.2	16.4	16.4	16.4	9.5	10.0
	Min	6.4	11.4	12.4	6.8	7.2	5.6	7.8	8.2	9.4	10.2	8.5	3.1	2.2
Relative Humidity	Max	90	93	93	97	80	94	95	95	92	93	92	90	-
	Min	77	68	68	66	30	69	63	77	75	64	66	59	-
Soil Temperature at 10 cm	06 UTC	10.0	11.2	12.6	10.8	10.6	10.6	10.4	11.8	11.8	12.8	11.3	6.4	4.8
	12 UTC	12.4	14.6	14.4	13.8	13.8	13.6	14.0	13.6	13.6	14.6	13.8	7.7	6.1
Sunshine Duration		3.1	7.1	5.7	8.2	7.7	8.8	8.9	3.8	1.6	3.2	5.8	3.0	3.7
Precipitation													19.3	18.4
Evaporation		0.9	1.8	2.4	1.9	2.9	0.4	0.8	2.5	1.3	0.2	15.1	14.3	10.5
Growing Degrees	5	6.6	9.5	9.4	6.4	6.9	4.7	7.7	7.2	7.9	8.3	74.6	14.5	23.6
	10	1.6	4.5	4.4	1.4	1.9	0.0	2.7	2.2	2.9	3.3	24.9	0.0	4.0

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.9	10.8	12.3
Precipitation - Reference Evapotranspiration	-12.9	8.5	6.1
Number of Rainy Days	0.0	4.0	2.7
Number of Dry Days	19.0	2.0	-

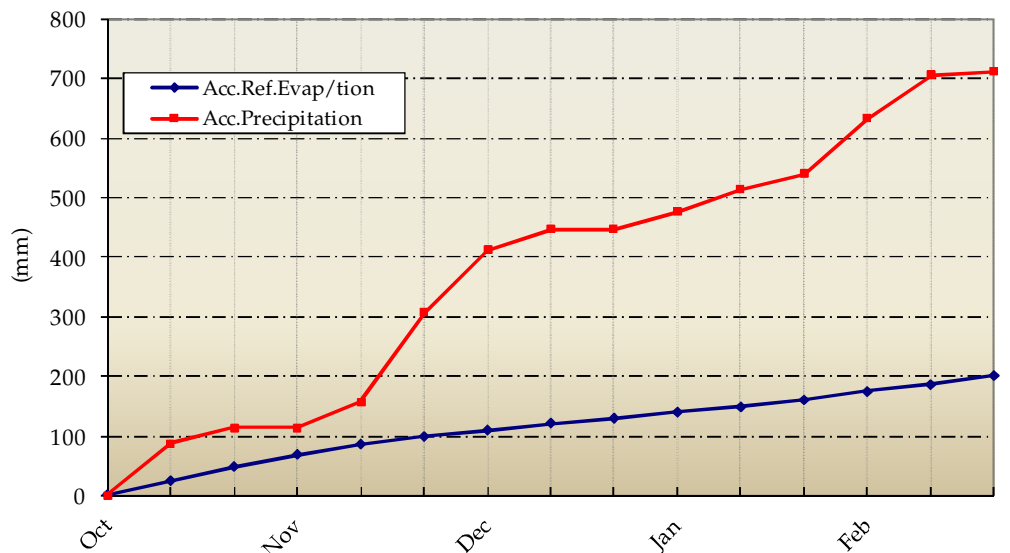
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	16.4	15.6	16.2	16.4	17.5	19.2	18.7	19.1	18.7	18.0	13.6	14.5
	Min	7.9	9.8	8.2	6.8	4.3	6.2	6.4	8.4	6.8	6.4	7.1	6.5	6.2
Relative Humidity	Max	90	89	90	92	92	90	92	92	89	88	90	90	-
	Min	28	60	55	50	49	56	54	70	40	50	51	57	-
Soil Temperature at 10 cm	06 UTC	11.8	12.2	11.4	11.0	10.8	10.6	11.4	12.2	12.0	11.8	11.5	10.0	9.1
	12 UTC	14.4	12.6	13.6	13.4	13.6	14.0	14.4	14.6	15.0	14.4	14.0	11.9	11.0
Sunshine Duration		9.1	2.0	1.9	4.8	9.7	9.6	9.5	6.5	9.5	7.4	7.0	3.8	4.8
Precipitation			5.4		0.3							5.7	91.4	37.6
Evaporation		4.6	0.8	1.0	0.8	1.8	0.4	0.6	1.3	2.1	4.0	17.4	-	21.3
Growing Degrees	5	10.2	8.1	6.9	6.5	5.4	6.9	7.8	8.6	8.0	7.6	75.7	50.8	54.0
	10	5.2	3.1	1.9	1.5	0.4	1.9	2.8	3.6	3.0	2.6	25.7	5.1	13.3

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.8	13.6	14.2
Precipitation - Reference Evapotranspiration	-10.1	77.8	23.4
Number of Rainy Days	2.0	10.0	5.1
Number of Dry Days	2.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

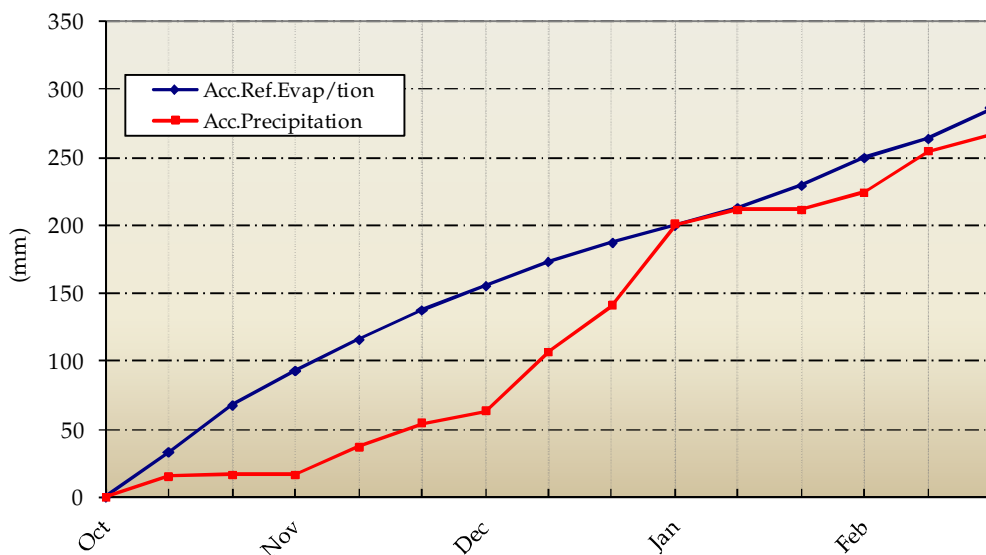


Iraklio

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.4	22.2	17.4	17.0	16.4	16.5	17.0	20.0	18.4	21.4	18.5	15.5	15.9
	Min	10.4	12.5	11.8	8.2	11.8	13.4	8.0	7.0	10.6	10.5	10.4	8.9	9.3
Relative Humidity	Max	93	88	95	86	81	90	89	95	93	93	90	88	-
	Min	47	43	67	58	63	60	50	62	68	51	57	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.1	9.0	5.0	7.9	8.3	8.6	9.1	9.1	8.7	8.0	8.3	6.1	4.8
Precipitation				10.6		1.4						12.0	14.9	20.7
Evaporation		2.3	2.7	1.8	3.5	1.1	1.1	0.9	0.3	2.4	3.2	19.3	17.5	30.3
Growing Degrees	5	9.4	12.4	9.6	7.6	9.1	10.0	7.5	8.5	9.5	11.0	94.5	71.7	75.8
	10	4.4	7.4	4.6	2.6	4.1	5.0	2.5	3.5	4.5	6.0	44.5	21.7	27.6

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.0	18.8	-
Precipitation - Reference Evapotranspiration	-10.0	-3.9	20.7
Number of Rainy Days	2.0	6.0	4.0
Number of Dry Days	5.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

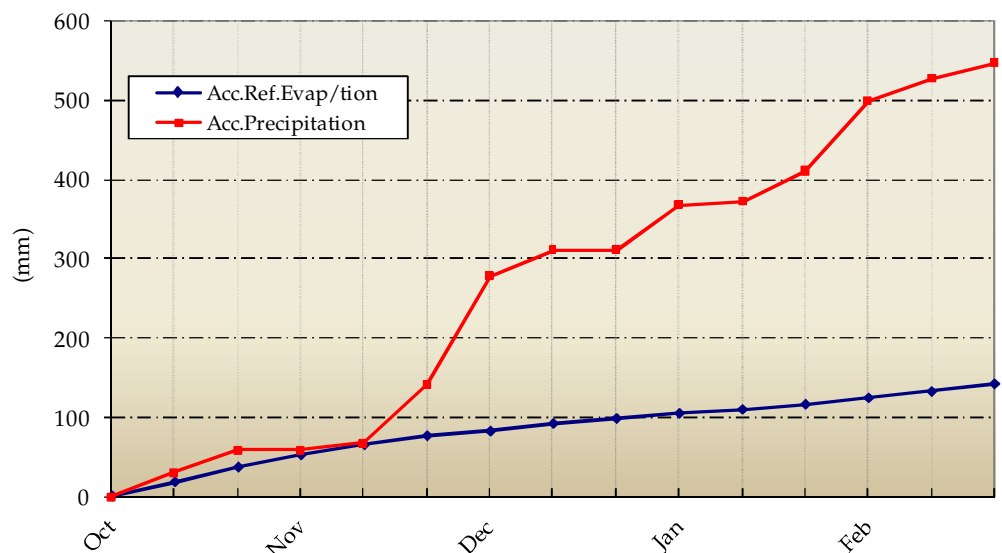


Ioannina

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	14.4	14.0	9.2	15.2	18.8	18.6	20.4	19.7	17.6	16.2	9.0	10.3
	Min	4.8	9.4	4.1	0.4	0.4	-1.0	-0.7	-1.4	-0.9	-0.7	1.4	1.6	1.8
Relative Humidity	Max	92	98	97	99	99	99	99	99	99	99	98	96	-
	Min	37	49	49	72	41	26	36	29	26	24	39	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.4
Sunshine Duration		5.6	1.0	5.2	0.6	4.8	6.2	6.9	7.3	7.0	6.1	5.1	1.9	3.3
Precipitation			16.0	2.8	1.7	0.1						20.6	70.7	46.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	11.3
Growing Degrees	5	4.5	6.9	4.1	0.0	2.8	3.9	4.0	4.5	4.4	3.5	38.5	6.9	18.2
	10	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.8

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.7	10.0	11.4
Precipitation - Reference Evapotranspiration	10.9	60.7	35.0
Number of Rainy Days	4.0	9.0	5.0
Number of Dry Days	2.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

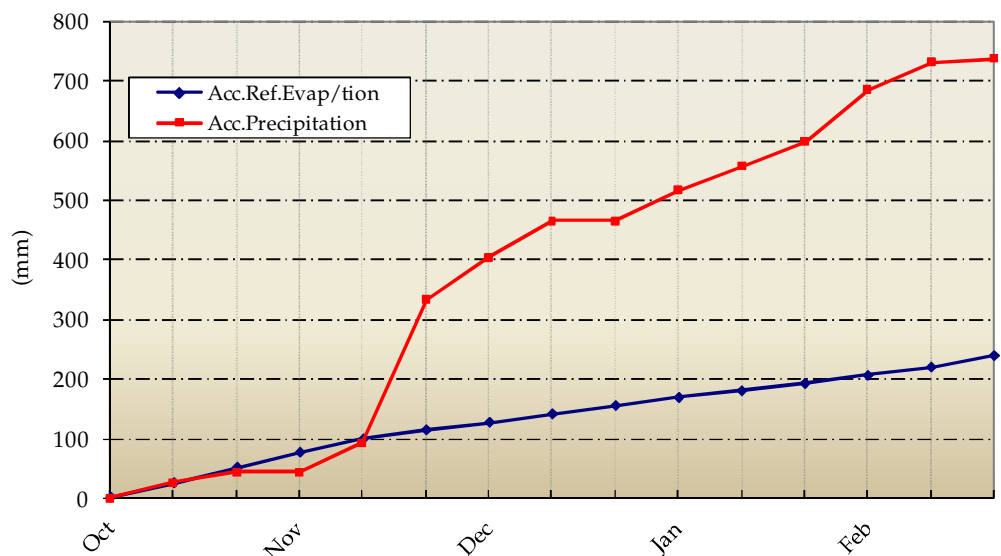


Kalamata

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.7	18.6	17.4	17.2	19.5	20.0	21.9	19.0	18.5	18.5	18.9	14.0	15.1
	Min	5.8	7.4	6.3	5.2	6.1	4.7	6.8	5.4	4.7	9.2	6.2	5.8	5.9
Relative Humidity	Max	95	94	95	95	92	93	94	93	95	93	94	94	-
	Min	66	56	53	45	36	34	34	45	60	57	49	58	-
Soil Temperature at 10 cm	06 UTC	11.4	11.8	11.6	11.0	11.4	11.0	11.4	11.8	11.6	12.4	11.5	10.6	9.6
	12 UTC	12.4	12.4	12.0	11.4	11.6	11.6	12.0	12.2	12.6	13.0	12.1	11.1	10.9
Sunshine Duration		9.0	3.1	4.0	5.3	9.3	9.4	9.4	9.4	9.4	6.1	7.4	3.2	4.5
Precipitation				6.1	0.3	0.2						6.6	68.9	43.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	29.6	26.5
Growing Degrees	5	7.3	8.0	6.9	6.2	7.8	7.4	9.4	7.2	6.6	8.9	75.5	49.3	55.5
	10	2.3	3.0	1.9	1.2	2.8	2.4	4.4	2.2	1.6	3.9	25.5	5.8	12.8

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.0	13.9	15.6
Precipitation - Reference Evapotranspiration	-12.4	55.0	28.2
Number of Rainy Days	3.0	9.0	5.2
Number of Dry Days	3.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

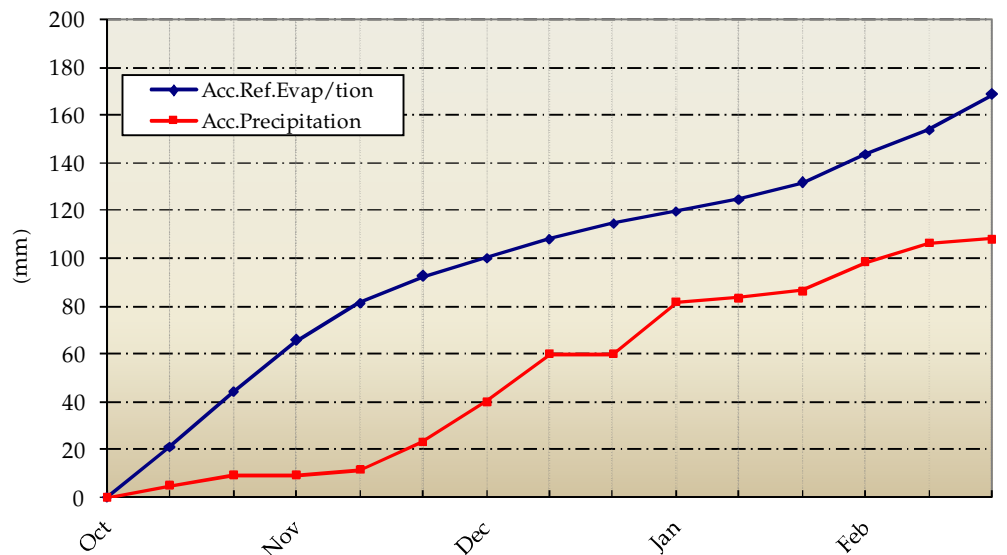


Larisa

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.8	17.6	16.8	17.5	16.8	18.6	22.0	22.6	18.0	14.2	18.3	11.8	12.1
	Min	4.8	4.0	2.4	1.6	0.4	0.0	1.4	1.8	3.5	4.4	2.4	3.8	1.9
Relative Humidity	Max	100	100	100	100	99	100	100	100	100	100	100	95	-
	Min	41	58	49	27	34	40	40	30	61	71	45	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	7.8	6.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	8.9	7.2
Sunshine Duration		3.7	4.0	7.0	5.6	7.9	8.3	8.5	8.6	4.5	2.3	6.0	2.8	4.0
Precipitation			2.0									2.0	29.2	12.7
Evaporation		1.2	0.0	2.0	1.1	1.3	4.2	1.6	2.2	1.4	0.6	15.6	13.0	10.0
Growing Degrees	5	6.8	5.8	4.6	4.6	3.6	4.3	6.7	7.2	5.8	4.3	53.6	28.2	25.9
	10	1.8	0.8	0.0	0.0	0.0	0.0	1.7	2.2	0.8	0.0	7.3	0.9	3.3

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.0	12.2	12.0
Precipitation - Reference Evapotranspiration	-13.0	17.0	0.7
Number of Rainy Days	1.0	4.0	3.6
Number of Dry Days	4.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

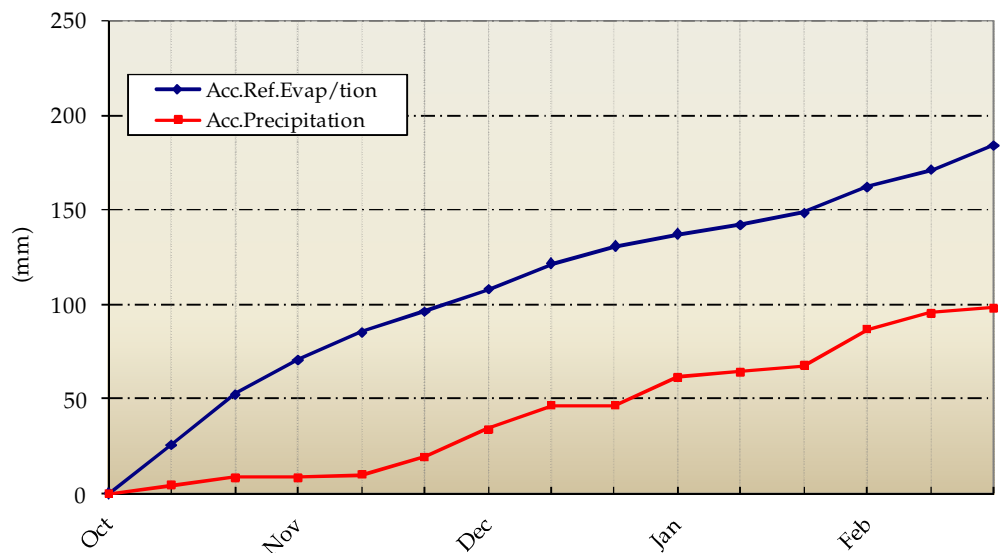


Mikra

2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.4	17.3	16.0	14.8	15.8	14.7	13.1	16.2	12.2	13.9	14.8	10.7	11.2
	Min	4.9	8.6	6.2	3.5	5.0	2.9	3.6	4.1	9.9	10.5	5.9	4.7	2.9
Relative Humidity	Max	91	93	94	90	82	90	94	94	92	89	91	88	-
	Min	51	55	57	54	37	56	72	71	73	62	59	59	-
Soil Temperature at 10 cm	06 UTC	9.2	10.6	10.8	9.6	9.4	8.8	9.0	9.0	11.6	11.8	10.0	7.9	5.9
	12 UTC	11.2	12.4	12.2	11.2	11.0	10.8	10.6	11.2	12.0	13.0	11.6	9.2	7.7
Sunshine Duration		5.4	2.7	7.3	6.8	9.2	9.1	4.7	7.4	0.1	5.2	5.8	2.5	3.8
Precipitation			1.9	0.7								2.6	34.2	15.0
Evaporation		1.2	2.5	1.0	3.3	2.6	3.0	0.1	1.7	1.1	2.1	18.6	-	14.7
Growing Degrees	5	4.7	8.0	6.1	4.2	5.4	3.8	3.4	5.2	6.1	7.2	53.8	26.9	26.4
	10	0.0	3.0	1.1	0.0	0.4	0.0	0.0	0.2	1.1	2.2	7.9	0.2	3.8

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.1	10.8	13.1
Precipitation - Reference Evapotranspiration	-10.5	23.4	1.9
Number of Rainy Days	2.0	5.0	3.4
Number of Dry Days	2.0	5.0	-

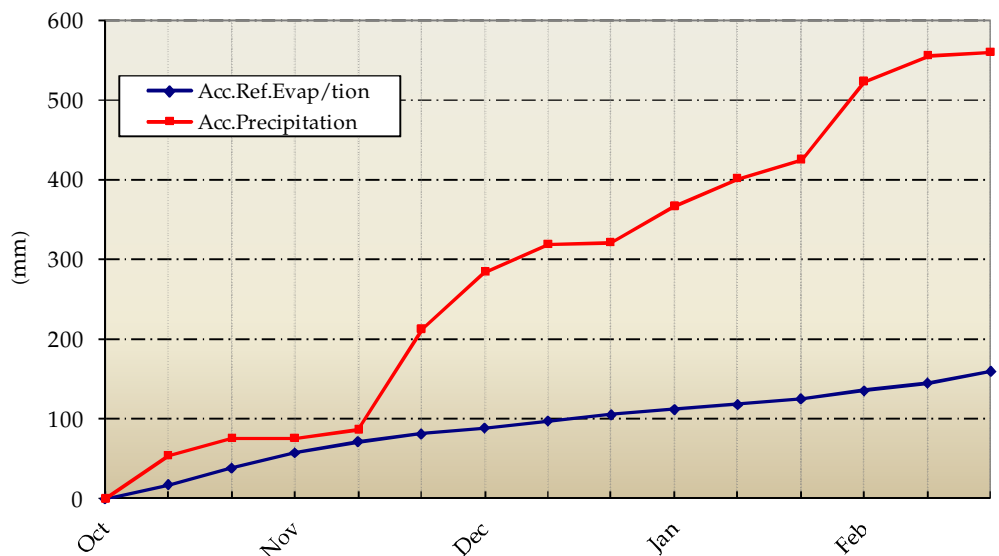
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/02/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.5	15.9	13.8	13.0	15.2	18.2	22.1	21.4	20.7	16.3	17.9	8.8	10.2
	Min	1.2	0.5	5.0	-1.2	-1.4	-1.1	-0.6	0.0	0.2	-1.6	0.1	1.4	1.7
Relative Humidity	Max	98	100	91	100	100	100	100	89	100	97	98	93	-
	Min	33	53	52	47	39	76	26	23	17	38	40	67	-
Soil Temperature at 10 cm	06 UTC	6.6	7.0	7.6	5.8	4.6	5.6	6.2	6.2	6.4	6.2	6.2	4.7	4.8
	12 UTC	9.6	10.2	10.6	8.6	9.4	-	10.4	10.2	10.6	9.8	9.9	6.6	5.7
Sunshine Duration		6.6	5.4	4.1	6.3	7.9	9.1	9.1	9.4	9.4	7.7	7.5	2.7	4.3
Precipitation			0.9	0.6	0.0	2.3						3.8	61.7	39.0
Evaporation		0.9	0.4	1.3	0.9	1.4	1.3	1.2	2.7	1.5	2.5	14.1	-	11.0
Growing Degrees	5	6.9	3.2	4.4	0.9	1.9	3.6	5.8	5.7	5.5	2.4	40.1	6.3	17.8
	10	1.9	0.0	0.0	0.0	0.0	0.0	0.8	0.7	0.5	0.0	3.8	0.0	1.6

2nd 10-day period (11-20/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.7	9.5	12.8
Precipitation - Reference Evapotranspiration	-10.9	52.2	26.2
Number of Rainy Days	3.0	8.0	4.9
Number of Dry Days	2.0	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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