AGROMETEOROLOGICAL BULLETIN

February 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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www.emy.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

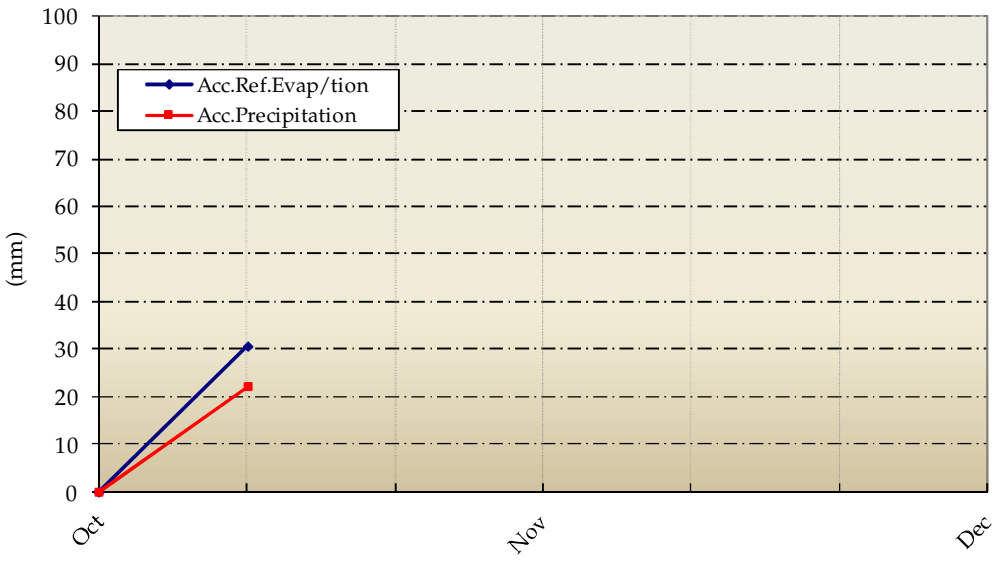
Agrometeorological Data — February 2014

Agrinio

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	14.0	15.4	-	-	-	14.0	15.2	16.6	16.6	15.3		14.2
	Min	-	2.0	7.0	6.0	6.0	5.2	4.0	4.8	4.0	4.2	4.8	4.6	2.8
Relative Humidity	Max	-	91	89	92	92	92	76	81	87	92	88	95	-
	Min	-	81	75	83	86	86	30	48	66	74	70	60	-
Soil Temperature at 10 cm	06 UTC	-	2.4	10.0	8.0	8.0	7.0	5.0	6.0	5.2	4.0	6.2	8.7	7.6
	12 UTC	-	12.0	11.0	10.0	12.0	12.0	12.0	13.4	12.0	11.0	11.7	9.7	9.8
Sunshine Duration		-	4.2	3.2	0.6	7.4	0.0	8.0	7.8	7.7	7.7	5.2	3.2	4.8
Precipitation							14.0	13.0				27.0	-	36.3
Evaporation		-	1.8	1.2	1.8	1.6	28.2	-	-	-	1.6	-	-	16.2
Growing Degrees	5	-	3.0	6.2	-	-	-	4.0	5.0	5.3	5.4	-	-	36.7
	10	-	0.0	1.2	-	-	-	0.0	0.0	0.3	0.4	-	-	4.3

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	12.1
Precipitation - Reference Evapotranspiration	-	-	24.2
Number of Rainy Days	2.0	2.0	3.7
Number of Dry Days	7.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



This station is not fully operated

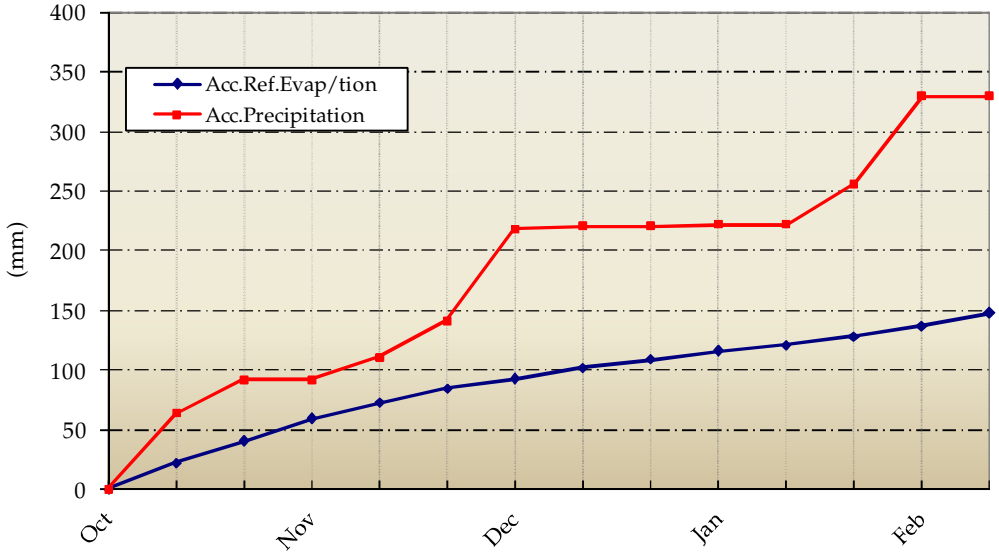
Agrometeorological Data — February 2014

Alexandroupoli

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.2	8.6	7.4	6.6	8.2	8.8	10.4	15.4	16.4	16.6	10.5	14.2	9.1
	Min	0.2	3.6	4.4	2.8	3.2	-1.8	4.8	8.8	11.0	9.2	4.6	5.3	0.8
Relative Humidity	Max	76	70	79	77	92	92	91	90	92	88	85	92	-
	Min	65	57	57	65	59	59	64	70	72	60	63	63	-
Soil Temperature at 10 cm	06 UTC	3.2	4.2	5.4	4.4	5.0	4.2	6.8	9.2	10.2	11.0	6.4	8.0	5.3
	12 UTC	5.2	6.6	6.6	5.4	7.4	7.2	8.2	11.6	13.2	13.2	8.5	9.6	6.6
Sunshine Duration		1.4	5.5	4.5	0.0	5.9	3.8	3.2	4.2	6.1	8.7	4.3	3.9	3.9
Precipitation		0.1										0.1	15.9	19.4
Evaporation		1.7	2.4	1.1	0.1	0.0	0.0	0.9	1.2	1.8	1.8	11.0	11.4	11.6
Growing Degrees	5	0.0	1.1	0.9	0.0	0.7	0.0	2.6	7.1	8.7	7.9	29.0	47.6	14.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.7	2.9	8.7	10.4	1.4

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.0	12.7	10.9
Precipitation - Reference Evapotranspiration	-10.9	3.2	8.5
Number of Rainy Days	1.0	4.0	2.5
Number of Dry Days	0.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



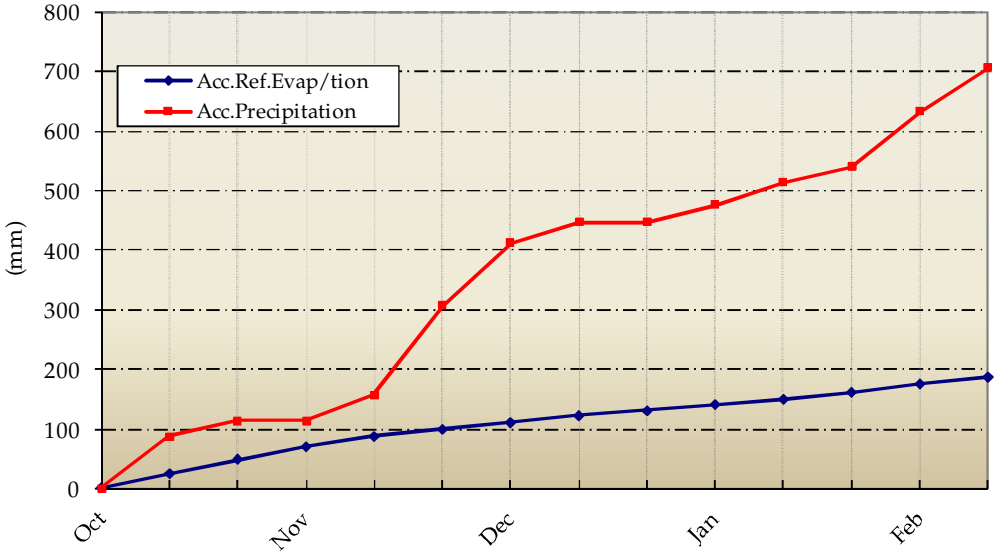
Agrometeorological Data — February 2014

Andravida

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.4	10.9	12.6	13.9	16.2	12.8	16.4	16.3	17.2	17.6	14.7	15.6	14.0
	Min	6.8	8.2	7.4	7.2	5.6	7.6	4.9	8.4	10.7	9.4	7.6	7.6	4.8
Relative Humidity	Max	87	90	91	91	90	92	93	90	86	90	90	90	-
	Min	57	66	69	59	53	70	60	56	52	62	60	56	-
Soil Temperature at 10 cm	06 UTC	10.6	10.6	10.2	10.3	10.2	10.8	9.6	11.2	12.2	12.0	10.8	10.7	9.2
	12 UTC	12.0	12.0	11.2	11.1	12.4	11.6	12.0	12.4	13.8	14.2	12.3	12.5	10.9
Sunshine Duration		0.0	0.0	0.0	1.6	5.6	0.0	9.4	6.6	4.8	8.5	3.6	4.4	5.2
Precipitation		0.1	23.8	5.4	6.5	3.7	27.8	0.4	0.6	4.8		73.1	43.9	28.0
Evaporation		-	-	4.6	0.0	-	-	1.5	3.4	0.7	3.0	-	15.6	19.1
Growing Degrees	5	5.1	4.6	5.0	5.6	5.9	5.2	5.7	7.4	9.0	8.5	61.8	66.1	44.7
	10	0.1	0.0	0.0	0.6	0.9	0.2	0.7	2.4	4.0	3.5	12.2	17.4	7.9

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.6	15.0	12.4
Precipitation - Reference Evapotranspiration	61.5	28.9	15.6
Number of Rainy Days	9.0	5.0	4.1
Number of Dry Days	2.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



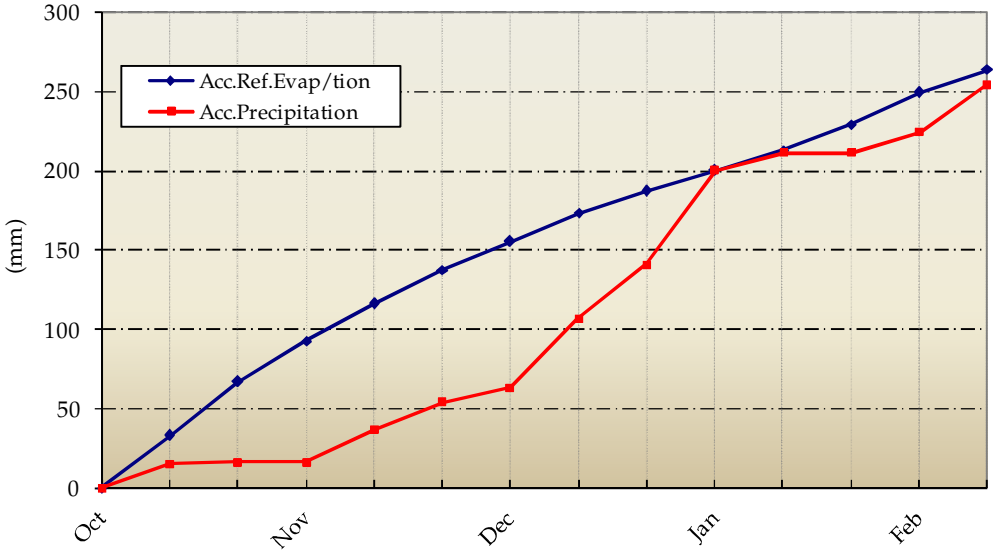
Agrometeorological Data — February 2014

Iraklio

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	13.2	15.0	13.6	14.0	15.0	16.4	19.0	19.6	18.6	15.9	17.4	14.6
	Min	10.8	11.6	9.5	11.4	11.0	10.4	10.0	9.0	13.0	11.6	10.8	11.7	8.7
Relative Humidity	Max	86	95	93	93	92	92	90	95	78	88	90	85	-
	Min	73	70	80	86	71	70	72	56	51	64	69	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.0	0.0	0.5	0.0	0.0	6.7	5.4	8.7	8.8	8.8	3.9	6.9	4.3
Precipitation			4.6	2.9	9.6	6.9	3.9	2.0				29.9	2.7	22.4
Evaporation		1.0	1.5	0.2	0.1	0.1	2.0	1.4	1.7	2.0	0.3	10.3	-	29.3
Growing Degrees	5	7.8	7.4	7.3	7.5	7.5	7.7	8.2	9.0	11.3	10.1	83.8	95.7	66.4
	10	2.8	2.4	2.3	2.5	2.5	2.7	3.2	4.0	6.3	5.1	33.8	45.7	19.8

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.6	21.5	-
Precipitation - Reference Evapotranspiration	15.3	-18.8	22.4
Number of Rainy Days	6.0	3.0	4.2
Number of Dry Days	3.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



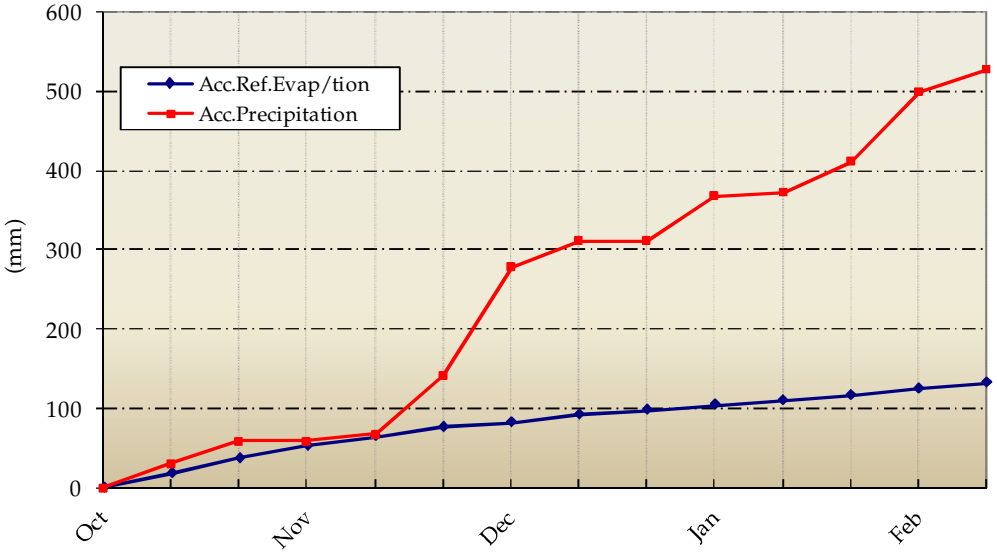
Agrometeorological Data — February 2014

Ioannina

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.1	9.0	10.1	7.3	11.0	8.1	14.7	11.9	11.0	14.8	10.6	10.0	10.0
	Min	2.8	4.6	6.6	2.8	3.3	3.4	-0.3	2.0	7.1	4.8	3.7	1.3	0.6
Relative Humidity	Max	95	79	52	93	93	98	98	98	97	98	90	95	-
	Min	52	42	37	46	57	72	52	61	71	48	54	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.1
Sunshine Duration		0.0	0.8	1.6	1.6	0.0	1.4	5.0	2.6	3.3	5.1	2.1	1.7	3.6
Precipitation		0.8	0.2		1.6	0.5	20.6		3.1	1.3		28.1	76.7	35.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	5.0
Growing Degrees	5	0.5	1.8	3.4	0.1	2.2	0.8	2.2	2.0	4.1	4.8	21.6	12.9	13.4
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.3

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.7	9.6	9.3
Precipitation - Reference Evapotranspiration	20.4	67.1	26.5
Number of Rainy Days	7.0	8.0	3.5
Number of Dry Days	2.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



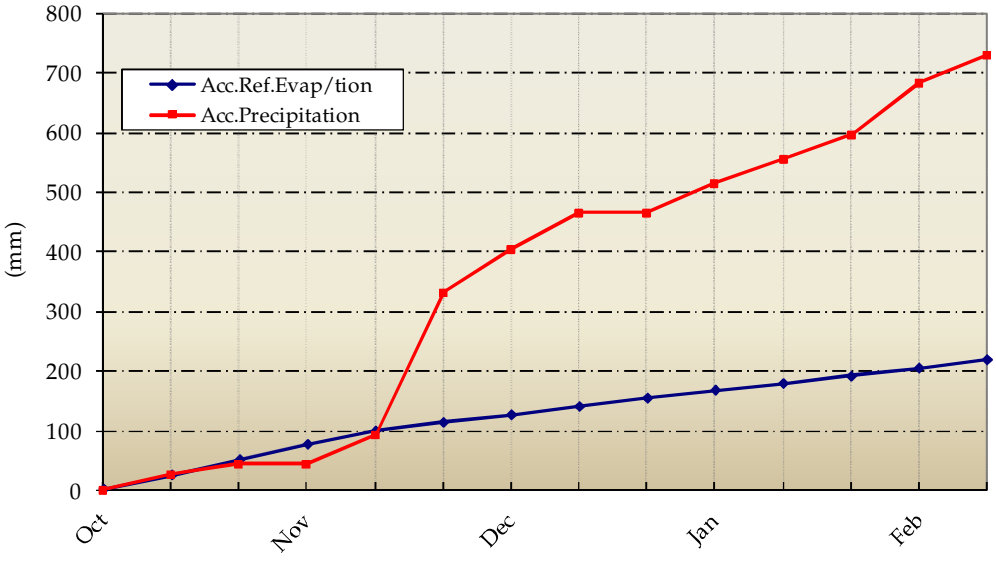
Agrometeorological Data — February 2014

Kalamata

1st 10-day period (1-10/02/2014)		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	13.0	17.0	12.0	15.4	12.6	17.1	17.1	17.9	18.0	15.4	16.2	14.9
	Min	9.7	8.1	8.3	7.3	8.4	7.2	5.8	7.2	9.8	6.9	7.9	7.6	4.8
Relative Humidity	Max	67	90	85	92	91	95	93	94	94	95	90	93	-
	Min	54	52	44	68	58	81	57	58	57	58	59	57	-
Soil Temperature at 10 cm	06 UTC	11.0	10.4	10.2	10.0	10.0	10.6	10.4	11.2	12.4	12.4	10.9	11.4	9.7
	12 UTC	10.6	10.6	10.4	10.0	10.6	10.8	12.2	12.0	12.2	13.2	11.3	12.1	11.0
Sunshine Duration		0.0	0.0	1.6	0.0	1.7	0.0	9.0	5.3	6.8	7.1	3.2	4.2	5.1
Precipitation			8.9	10.3	1.3	2.0	2.0	14.4	0.2	7.0		46.1	34.3	28.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	24.5
Growing Degrees	5	6.7	5.6	7.7	4.7	6.9	4.9	6.5	7.2	8.9	7.5	66.2	69.1	48.9
	10	1.7	0.6	2.7	0.0	1.9	0.0	1.5	2.2	3.9	2.5	16.7	22.4	8.7

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.0	15.1	14.4
Precipitation - Reference Evapotranspiration	32.1	19.2	13.9
Number of Rainy Days	8.0	5.0	4.1
Number of Dry Days	3.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

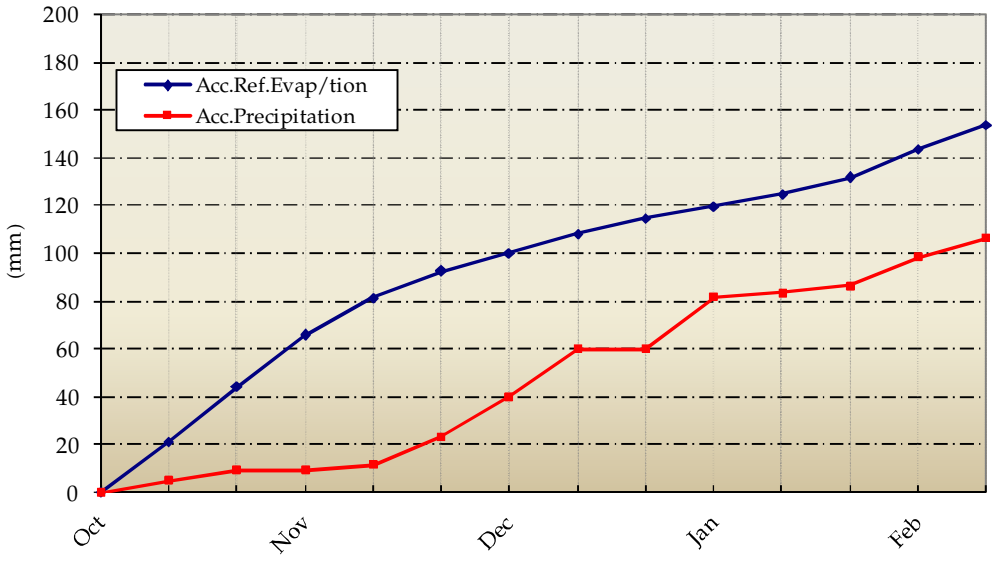


Larisa

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.2	7.4	8.0	8.1	9.4	9.1	13.9	15.7	17.2	21.0	11.7	14.6	11.2
	Min	5.6	5.0	5.8	5.9	5.0	3.0	7.0	2.0	4.3	5.6	4.9	1.8	0.4
Relative Humidity	Max	82	86	89	80	97	100	100	100	100	96	93	95	-
	Min	70	57	56	59	66	78	63	55	47	27	58	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	6.9	6.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	8.3	6.8
Sunshine Duration		0.0	0.0	0.0	0.0	0.0	0.0	3.0	5.7	3.8	8.2	2.1	4.6	4.3
Precipitation			0.4	0.0	0.0	0.0	6.6	1.0		0.0		8.0	7.9	9.7
Evaporation		0.4	2.2	0.9	0.7	0.5	0.0	1.0	0.5	2.8	2.0	11.0	14.0	6.9
Growing Degrees	5	1.4	1.2	1.9	2.0	2.2	1.1	5.5	3.9	5.8	8.3	33.1	31.9	16.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.8	3.3	4.5	3.8	0.7

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.0	11.6	9.6
Precipitation - Reference Evapotranspiration	-2.0	-3.7	0.1
Number of Rainy Days	3.0	1.0	2.8
Number of Dry Days	4.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



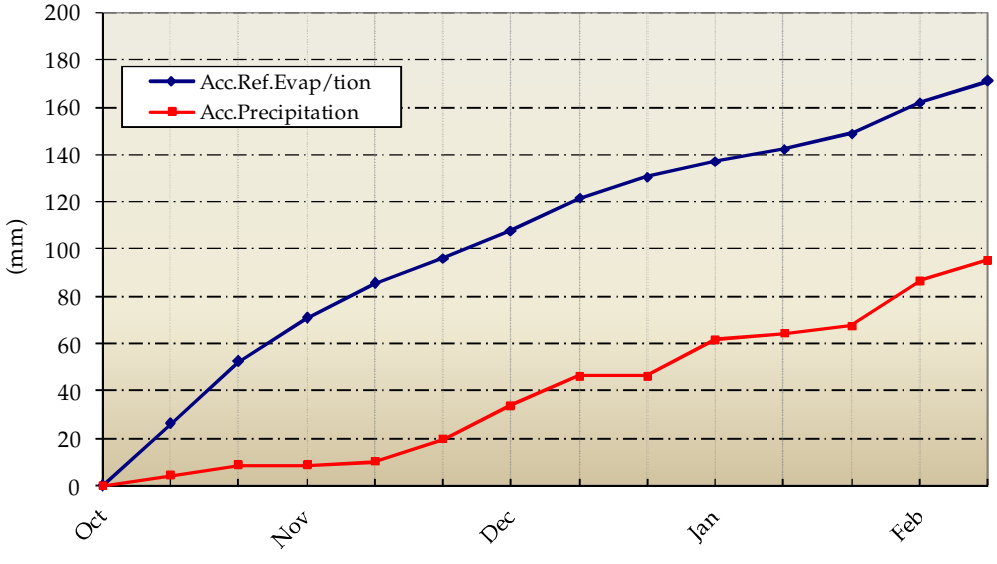
Agrometeorological Data — February 2014

Mikra

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.0	7.3	9.9	9.2	8.2	8.7	13.0	12.4	12.2	17.0	10.5	13.6	10.3
	Min	4.4	4.1	-1.1	2.4	5.0	6.6	7.6	8.0	6.4	4.8	4.8	3.1	1.6
Relative Humidity	Max	77	90	91	76	77	92	93	93	93	90	87	88	-
	Min	54	60	42	49	59	78	69	72	72	36	59	47	-
Soil Temperature at 10 cm	06 UTC	6.8	6.2	4.6	5.4	6.8	7.4	8.2	9.0	9.4	9.2	7.3	7.5	5.6
	12 UTC	7.2	6.0	7.4	7.2	7.2	8.0	10.0	11.0	11.2	11.2	8.6	8.7	7.1
Sunshine Duration		0.0	0.0	8.4	2.7	0.0	0.0	3.3	3.0	3.2	8.6	2.9	4.4	4.3
Precipitation		0.0					6.2	1.4	0.1	1.2		8.9	4.9	10.5
Evaporation		0.4	0.0	0.8	1.0	0.4	1.0	1.0	0.8	0.7	0.8	6.9	15.7	12.4
Growing Degrees	5	0.7	0.7	0.0	0.8	1.6	2.7	5.3	5.2	4.3	5.9	27.2	33.6	17.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.9	1.4	3.7	0.8

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.0	12.9	11.4
Precipitation - Reference Evapotranspiration	-0.1	-8.0	-0.9
Number of Rainy Days	4.0	1.0	2.6
Number of Dry Days	5.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

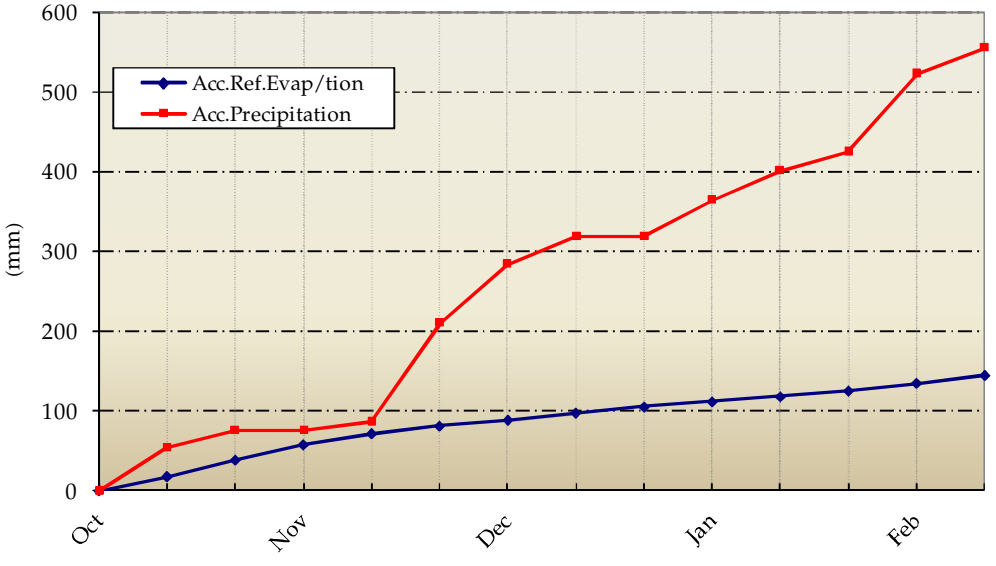


Tripoli

1st 10-day period (1-10/02/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.4	5.3	5.6	6.8	8.9	7.9	11.9	13.2	13.3	16.1	9.6	12.1	10.0
	Min	4.4	3.8	3.3	2.4	3.4	3.1	4.8	3.0	7.5	7.2	4.3	3.1	0.4
Relative Humidity	Max	77	81	84	96	100	100	94	76	91	85	88	91	-
	Min	66	75	67	69	71	83	68	54	67	43	66	62	-
Soil Temperature at 10 cm	06 UTC	6.8	5.8	5.4	4.8	5.8	6.4	6.8	6.4	8.4	7.6	6.4	5.8	5.0
	12 UTC	7.2	-	5.6	6.4	7.0	7.4	8.4	8.6	-	10.8	7.7	8.2	5.8
Sunshine Duration		0.0	0.0	0.0	0.0	0.3	0.0	2.6	3.4	6.0	9.3	2.2	4.2	4.9
Precipitation		0.3	2.2	1.7	6.8	3.3	4.4	8.2		6.4		33.3	40.4	26.5
Evaporation		1.0	0.1	0.2	0.1	0.9	0.9	0.8	0.0	2.8	1.5	8.3	7.3	8.6
Growing Degrees	5	0.9	0.0	0.0	0.0	1.2	0.5	3.4	3.1	5.4	6.7	21.1	27.2	13.4
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7	2.1	3.2	0.4

1st 10-day period (1-10/02/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.7	10.5	11.6
Precipitation - Reference Evapotranspiration	23.6	29.9	14.9
Number of Rainy Days	8.0	4.0	4.1
Number of Dry Days	2.0	10.0	-

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 ^{o}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.

Mesurements Units

- Temperature : ^{o}C
- Relative Humidity : %
- Soil Temperature : ^{o}C
- Sunshine Duration : Hours
- Precipitation : mm
- Evaporation (Pan) : mm
- Growing Degrees : ^{o}C

UTC (Universal Time coordinates) in Greece

- Winter : Time(UTC) = Local time - 2
- Summer : Time(UTC) = Local time - 3

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ΕΘΝΙΚΗ ΜΕΤΕΩΡΟΛΟΓΙΚΗ ΥΠΗΡΕΣΙΑ
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