



AGROMETEOROLOGICAL BULLETIN

March 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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www.emy.gov.gr
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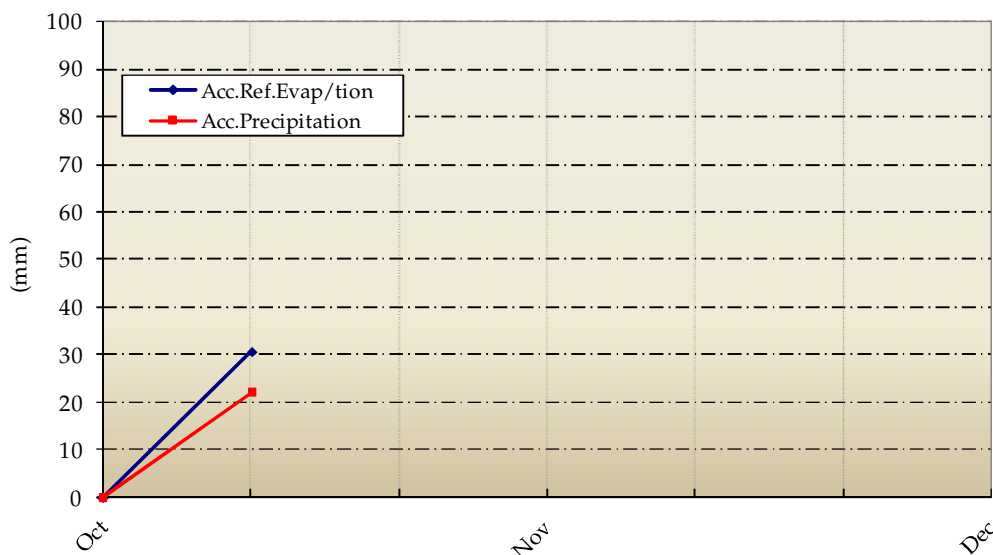
Agrinio

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	18.6	19.0	-	-	22.0	23.0	21.6	23.0	21.2		16.2
	Min	-	2.0	2.0	2.0	-	-	5.0	5.0	5.0	5.2	3.7	6.9	4.7
Relative Humidity	Max	93	93	93	-	-	94	94	94	94	94	94	93	-
	Min	56	60	41	-	-	60	46	45	53	38	50	63	-
Soil Temperature at 10 cm	06 UTC	-	10.4	10.4	10.4	-	-	11.4	12.0	12.4	11.6	11.2	11.7	9.3
	12 UTC	-	-	12.0	11.8	-	-	13.0	13.8	14.4	14.6	13.3	13.0	12.6
Sunshine Duration		8.8	10.0	10.0	-	-	10.0	10.2	10.6	10.6	10.2	10.0	4.7	5.6
Precipitation													25.7	28.1
Evaporation		0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	29.9
Growing Degrees	5	-	-	5.3	5.5	-	-	8.5	9.0	8.3	9.1	-	-	55.0
	10	-	-	0.3	0.5	-	-	3.5	4.0	3.3	4.1	-	-	12.7

2nd 10-day period (11-20/03/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	20.4
Precipitation - Reference Evapotranspiration	-	7.7
Number of Rainy Days	0.0	3.0
Number of Dry Days	13.0	4.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

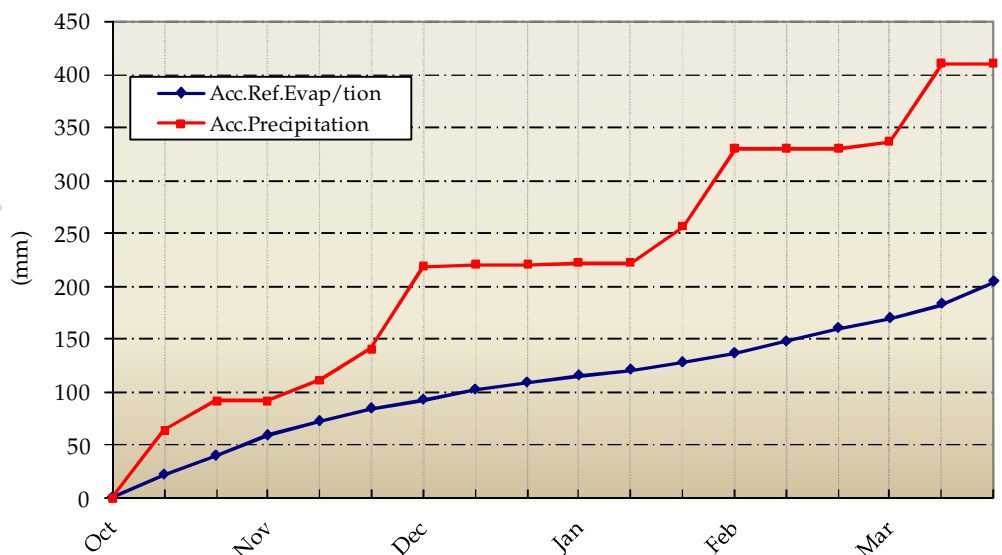
This station is not fully operated



2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	16.8	15.6	13.6	14.8	16.4	16.4	18.2	21.4	19.0	16.2	15.3	11.6
	Min	3.0	2.0	4.0	0.0	1.0	9.8	6.4	4.0	6.4	10.0	4.7	7.5	2.9
Relative Humidity	Max	93	84	77	93	93	90	94	94	94	91	90	90	-
	Min	38	23	25	50	64	47	64	61	39	46	46	54	-
Soil Temperature at 10 cm	06 UTC	6.2	6.2	7.2	7.4	8.2	10.8	10.8	10.2	10.4	11.6	8.9	10.4	6.6
	12 UTC	7.6	9.8	11.0	11.8	12.6	14.2	14.2	14.2	15.0	15.8	12.6	12.8	8.9
Sunshine Duration		0.0	10.0	10.0	10.2	9.8	7.9	4.4	10.7	10.9	11.0	8.5	5.7	4.9
Precipitation		0.1										0.1	20.7	14.4
Evaporation		2.0	3.0	4.5	2.2	2.2	1.6	0.5	3.7	3.9	2.2	25.8	31.4	21.8
Growing Degrees	5	1.3	4.4	4.8	1.8	2.9	8.1	6.4	6.1	8.9	9.5	54.2	63.6	27.0
	10	0.0	0.0	0.0	0.0	0.0	3.1	1.4	1.1	3.9	4.5	14.0	24.8	3.4

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.9	20.4	18.1
Precipitation - Reference Evapotranspiration	-20.8	0.3	-3.7
Number of Rainy Days	1.0	4.0	2.2
Number of Dry Days	0.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

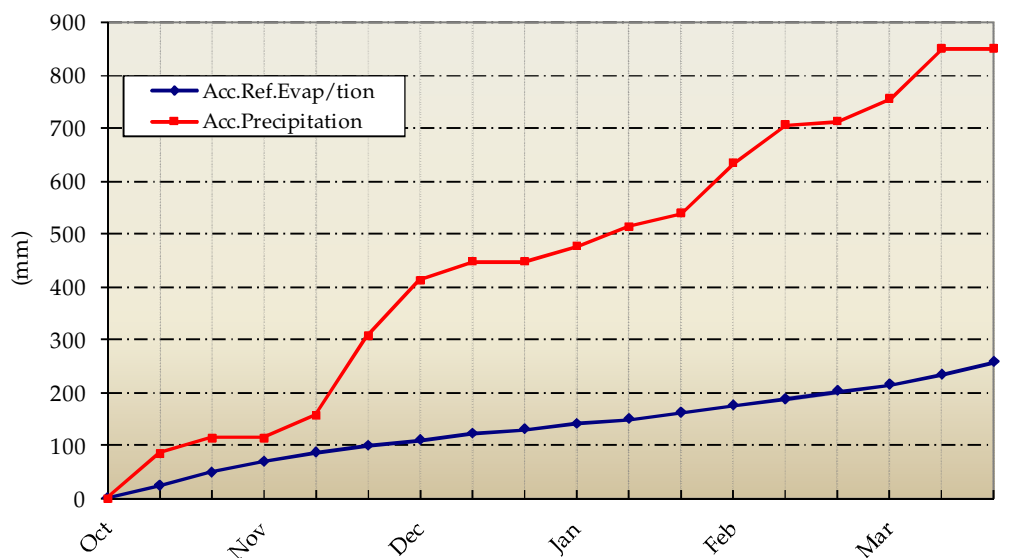


Andravida

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.0	15.4	19.3	18.1	17.8	17.2	19.7	20.4	21.5	21.5	18.6	16.6	15.7
	Min	3.1	6.4	4.0	3.4	5.0	7.9	5.4	8.3	7.3	8.6	5.9	8.1	6.3
Relative Humidity	Max	89	91	85	88	90	91	92	91	91	92	90	87	-
	Min	45	47	29	42	45	55	46	55	44	52	46	48	-
Soil Temperature at 10 cm	06 UTC	11.2	11.4	10.5	11.2	11.8	12.2	12.6	13.4	14.2	14.4	12.3	12.4	10.6
	12 UTC	14.4	14.2	14.4	14.8	14.4	16.0	17.2	17.0	17.8	18.6	15.9	14.8	12.8
Sunshine Duration		7.5	10.6	10.5	8.8	6.1	9.2	11.1	9.0	8.7	8.8	9.0	4.9	6.4
Precipitation													29.2	25.8
Evaporation		2.0	-	0.1	0.0	4.3	4.3	2.5	2.0	4.4	0.1	-	-	26.9
Growing Degrees	5	4.1	5.9	6.7	5.8	6.4	7.6	7.6	9.4	9.4	10.1	72.7	73.7	60.4
	10	0.0	0.9	1.7	0.8	1.4	2.6	2.6	4.4	4.4	5.1	23.6	26.7	15.6

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.2	22.0	21.0
Precipitation - Reference Evapotranspiration	-24.2	7.2	4.8
Number of Rainy Days	0.0	6.0	3.7
Number of Dry Days	12.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

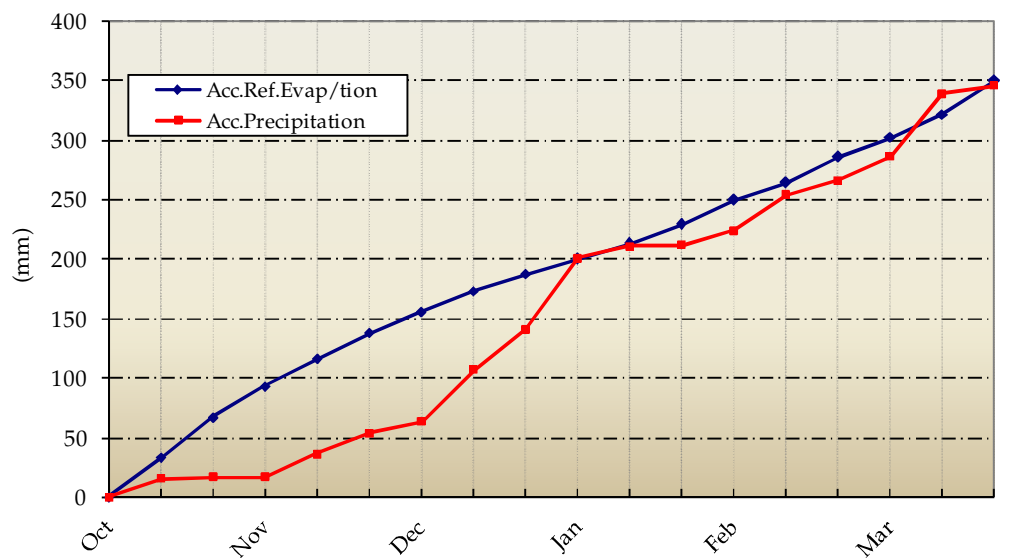


Iraklio

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.5	13.4	15.5	15.5	17.0	19.5	17.0	19.0	22.8	18.6	17.2	20.0	15.9
	Min	9.5	10.0	12.0	12.0	6.8	13.0	12.0	9.8	9.8	11.6	10.6	11.6	9.4
Relative Humidity	Max	90	79	64	83	86	88	91	83	75	80	82	81	-
	Min	61	49	50	55	57	57	75	55	40	62	56	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		2.4	2.1	8.8	9.6	8.9	3.1	1.5	9.5	9.8	9.1	6.5	6.7	5.5
Precipitation		2.5	1.0					3.4				6.9	1.5	23.2
Evaporation		3.0	2.7	5.7	3.4	1.8	1.8	1.7	1.5	2.4	3.6	27.6	43.1	33.8
Growing Degrees	5	6.5	6.7	8.8	8.8	6.9	11.3	9.5	9.4	11.3	10.1	89.2	107.9	76.5
	10	1.5	1.7	3.8	3.8	1.9	6.3	4.5	4.4	6.3	5.1	39.2	57.9	28.0

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.7	34.2	-
Precipitation - Reference Evapotranspiration	-20.8	-32.7	23.2
Number of Rainy Days	3.0	2.0	3.5
Number of Dry Days	0.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

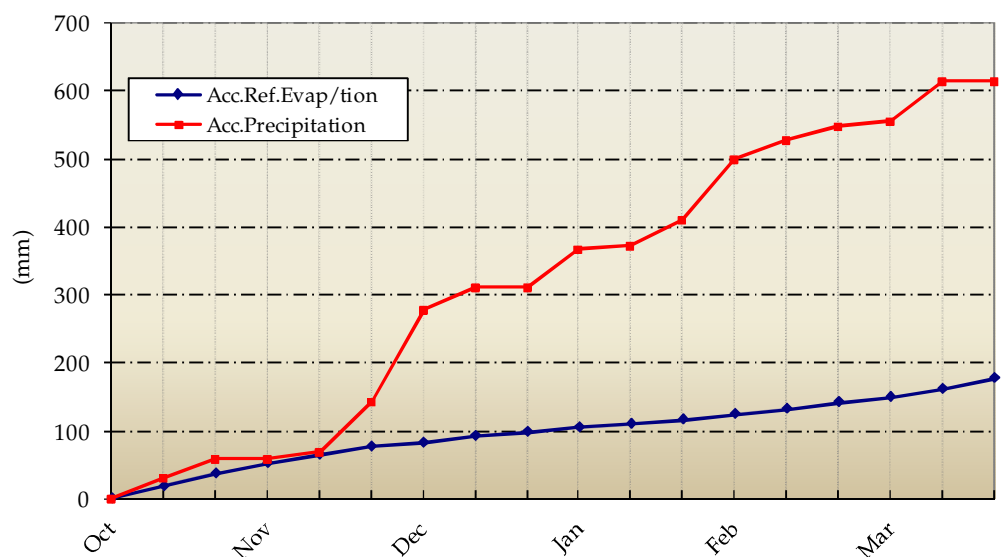


Ioannina

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	16.8	17.6	18.6	17.9	18.8	21.4	23.2	22.6	21.8	19.0	11.8	12.6
	Min	5.2	1.2	-1.5	-1.0	-0.6	2.4	0.9	1.1	1.8	1.5	1.1	4.5	2.7
Relative Humidity	Max	82	87	94	96	96	94	91	93	96	95	92	96	-
	Min	44	23	21	22	27	14	21	18	18	13	22	46	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.8
Sunshine Duration		2.0	8.4	8.6	8.5	7.6	7.6	7.3	9.0	8.4	7.4	7.5	2.2	4.5
Precipitation		0.0	0.0									0.0	70.8	29.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	18.6
Growing Degrees	5	3.1	4.0	3.1	3.8	3.7	5.6	6.2	7.2	7.2	6.7	50.4	34.1	28.8
	10	0.0	0.0	0.0	0.0	0.0	0.6	1.2	2.2	2.2	1.7	7.8	4.4	3.0

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.2	15.3	16.8
Precipitation - Reference Evapotranspiration	-16.2	55.5	12.7
Number of Rainy Days	0.0	7.0	3.4
Number of Dry Days	15.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

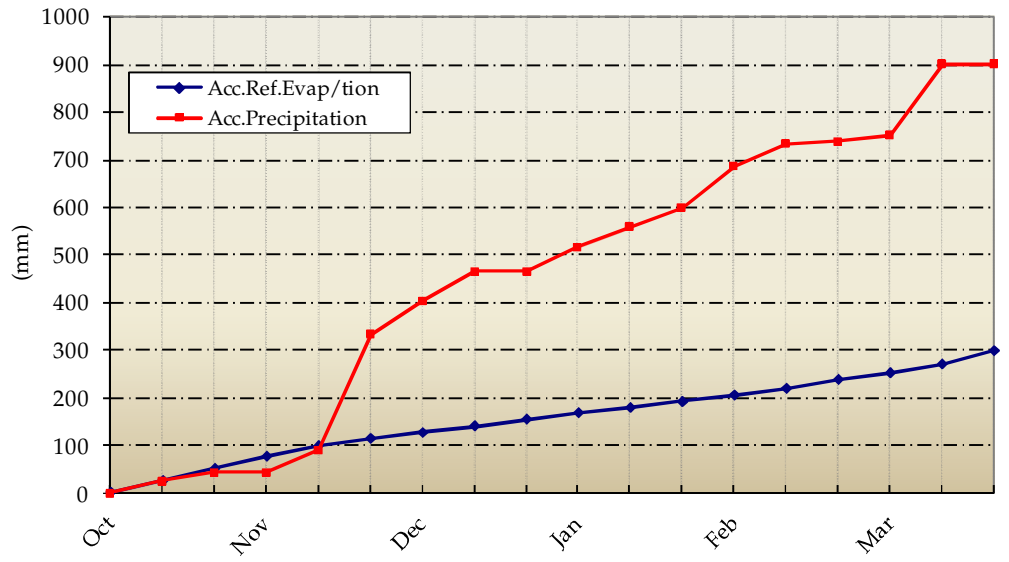


Kalamata

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.5	16.1	19.0	17.5	18.7	19.9	21.9	20.1	23.7	20.8	19.4	17.5	16.3
	Min	6.8	5.9	3.8	3.4	4.6	6.3	7.0	6.8	6.4	8.2	5.9	7.4	5.8
Relative Humidity	Max	90	90	91	91	94	94	92	92	92	91	92	91	-
	Min	39	42	27	44	54	43	48	54	32	43	43	50	-
Soil Temperature at 10 cm	06 UTC	-	12.0	12.0	11.6	12.0	11.4	12.0	13.2	13.6	13.6	12.4	12.9	10.9
	12 UTC	-	12.4	12.0	12.6	13.0	13.6	14.0	14.4	14.6	15.2	13.5	13.8	13.0
Sunshine Duration		6.8	9.3	10.0	9.8	7.2	8.8	10.2	10.5	10.6	10.5	9.4	5.8	6.1
Precipitation													11.5	22.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	27.5	33.5
Growing Degrees	5	6.7	6.0	6.4	5.5	6.7	8.1	9.5	8.5	10.1	9.5	76.7	74.7	60.5
	10	1.7	1.0	1.4	0.5	1.7	3.1	4.5	3.5	5.1	4.5	26.7	28.9	15.1

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.8	24.3	21.7
Precipitation - Reference Evapotranspiration	-27.8	-12.8	1.0
Number of Rainy Days	0.0	4.0	3.8
Number of Dry Days	13.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

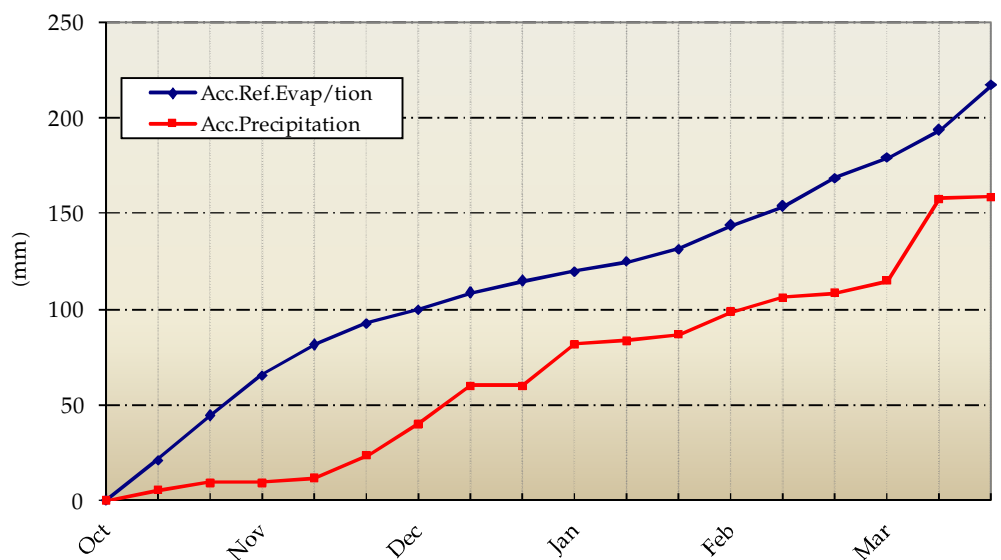


Larisa

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	17.0	17.0	18.4	19.3	20.8	22.9	24.4	25.6	20.2	19.5	15.9	14.0
	Min	4.6	5.6	0.8	0.8	1.4	5.0	2.0	2.6	5.4	10.6	3.9	4.0	2.8
Relative Humidity	Max	100	96	100	100	100	95	98	93	88	82	95	94	-
	Min	55	30	37	42	44	27	28	28	28	25	34	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	10.1	8.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	11.7	9.5
Sunshine Duration		1.7	8.8	8.1	8.6	6.7	8.4	8.9	8.6	8.5	8.7	7.7	4.8	5.1
Precipitation		0.7										0.7	9.3	13.9
Evaporation		3.0	2.4	1.9	3.3	1.8	5.4	3.4	3.5	2.3	4.0	31.0	26.1	20.7
Growing Degrees	5	2.1	6.3	3.9	4.6	5.4	7.9	7.5	8.5	10.5	10.4	67.0	49.4	36.4
	10	0.0	1.3	0.0	0.0	0.4	2.9	2.5	3.5	5.5	5.4	21.4	10.7	5.5

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.7	20.2	18.5
Precipitation - Reference Evapotranspiration	-23.0	-10.9	-4.6
Number of Rainy Days	1.0	4.0	3.1
Number of Dry Days	0.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

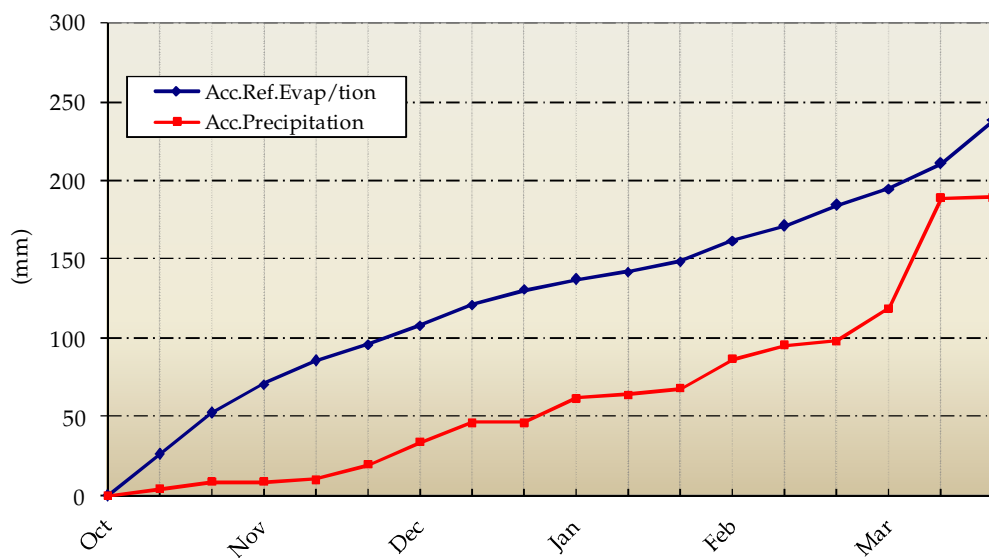


Mikra

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	17.2	16.4	16.1	17.4	18.0	19.5	23.7	21.6	19.4	17.9	16.0	13.4
	Min	5.7	6.7	3.1	3.2	3.3	6.0	5.4	4.8	6.0	11.6	5.6	6.3	4.2
Relative Humidity	Max	81	80	82	89	89	85	79	81	81	75	82	82	-
	Min	53	39	41	49	41	30	36	25	37	19	37	41	-
Soil Temperature at 10 cm	06 UTC	8.2	9.0	9.0	9.8	10.0	10.8	10.8	10.6	12.0	12.2	10.2	10.3	8.1
	12 UTC	9.0	10.8	11.6	12.0	12.2	12.4	12.4	13.8	14.6	14.4	12.3	12.0	10.7
Sunshine Duration		0.2	10.1	10.1	10.0	9.7	10.2	7.5	10.4	10.4	10.7	8.9	5.7	4.9
Precipitation		0.7										0.7	11.1	13.5
Evaporation		3.0	2.5	3.1	3.9	3.5	3.4	3.8	4.2	6.2	5.0	38.6	20.6	27.0
Growing Degrees	5	2.7	7.0	4.8	4.7	5.4	7.0	7.5	9.3	8.8	10.5	67.4	61.6	38.9
	10	0.0	2.0	0.0	0.0	0.4	2.0	2.5	4.3	3.8	5.5	20.3	22.8	5.9

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.8	26.4	20.0
Precipitation - Reference Evapotranspiration	-27.1	-15.3	-6.5
Number of Rainy Days	1.0	5.0	3.0
Number of Dry Days	0.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

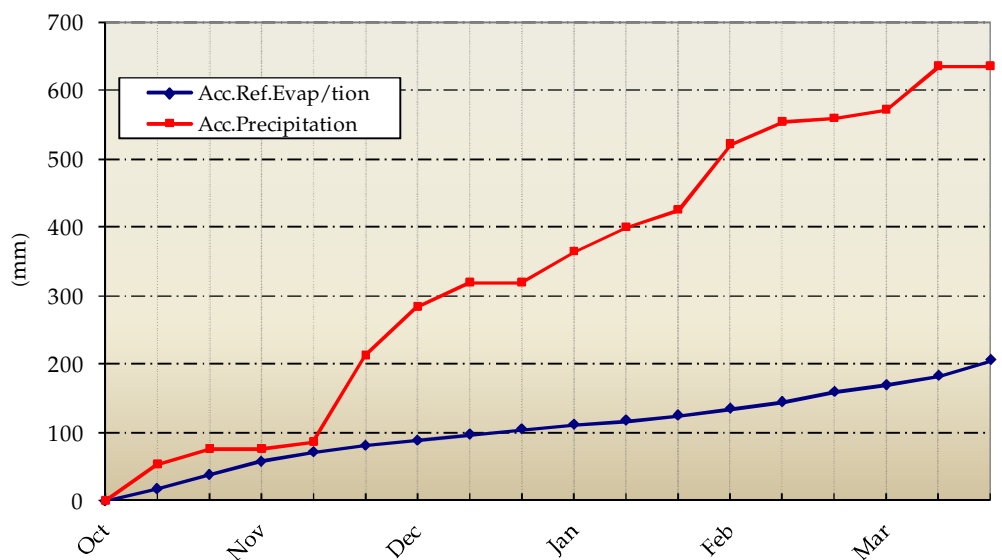


Tripoli

2nd 10-day period (11-20/03/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	13.6	14.4	15.7	17.1	17.2	19.5	21.7	21.5	18.5	16.8	14.3	12.2
	Min	-0.1	3.3	-2.3	-1.9	-1.3	0.4	1.1	1.9	2.0	1.6	0.5	2.5	1.7
Relative Humidity	Max	100	78	97	87	93	100	98	99	100	75	93	84	-
	Min	58	30	30	35	30	64	31	26	19	36	36	43	-
Soil Temperature at 10 cm	06 UTC	6.6	7.8	6.2	6.0	6.8	7.8	8.6	9.2	9.6	10.0	7.9	7.7	6.6
	12 UTC	9.8	10.8	10.4	10.8	11.2	-	13.2	14.0	14.8	14.6	12.2	11.4	8.1
Sunshine Duration		3.9	10.3	9.4	9.9	8.8	9.1	8.7	9.3	9.9	10.7	9.0	6.3	5.7
Precipitation		0.1										0.1	24.0	22.3
Evaporation		1.1	2.5	1.8	3.6	2.0	2.9	3.2	1.3	5.9	3.6	27.9	20.6	20.1
Growing Degrees	5	0.0	3.5	1.1	1.9	2.9	3.8	5.3	6.8	6.8	5.1	37.0	35.8	24.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.8	1.8	0.1	3.9	6.2	2.5

2nd 10-day period (11-20/03/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.9	20.4	19.5
Precipitation - Reference Evapotranspiration	-22.8	3.6	2.8
Number of Rainy Days	1.0	4.0	4.1
Number of Dry Days	1.0	2.0	-

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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