AGROMETEOROLOGICAL BULLETIN

March 2011
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.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
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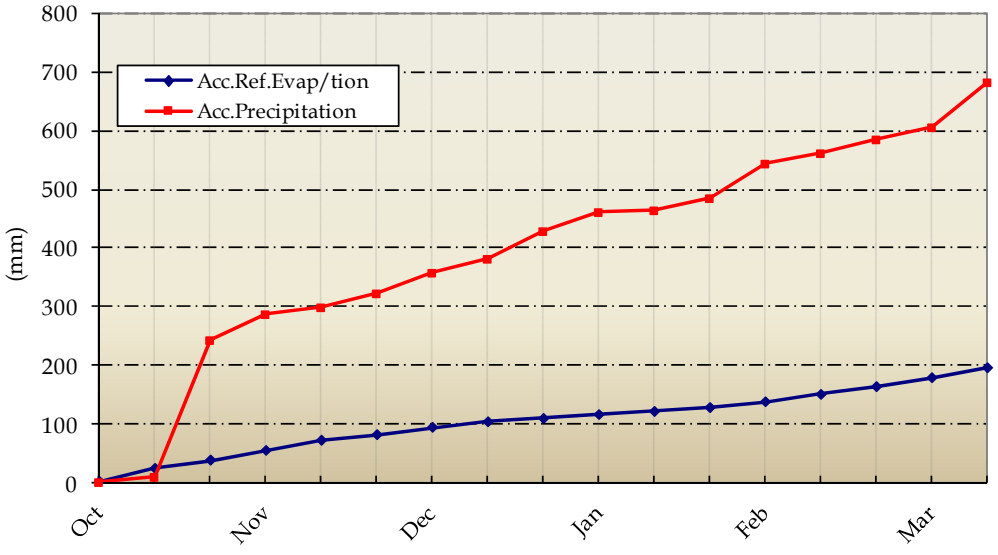
Agrimo

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.2	11.0	14.8	14.4	13.0	13.4	11.8	8.2	9.8	13.0	12.5	-	15.8
	Min	7.0	7.0	6.6	5.0	6.0	8.8	2.2	2.0	-0.8	-3.6	4.0	-	4.1
Relative Humidity	Max	94	94	97	84	85	98	93	60	65	96	87	-	-
	Min	47	58	62	49	60	88	64	30	26	27	51	-	-
Soil Temperature at 10 cm	06 UTC	10.0	10.2	8.0	8.8	9.0	10.0	10.6	7.6	5.6	5.6	8.5	-	8.5
	12 UTC	11.2	9.8	10.0	10.4	9.6	11.2	11.0	8.6	8.6	7.8	9.8	-	11.6
Sunshine Duration		8.3	0.0	5.6	1.8	0.7	0.1	2.2	9.5	10.7	9.9	4.9	-	5.6
Precipitation			18.4	19.6		4.2	18.3	15.5	1.3			77.3	-	25.5
Evaporation		6.0	0.7	1.8	1.1	1.0	0.1	0.6	2.6	4.0	2.6	20.5	-	24.4
Growing Degrees	5	6.1	4.0	5.7	4.7	4.5	6.1	2.0	0.1	0.0	0.0	33.2	-	50.4
	10	1.1	0.0	0.7	0.0	0.0	1.1	0.0	0.0	0.0	0.0	2.9	-	10.7

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.2	-	18.5
Precipitation - Reference Evapotranspiration	60.1	-	7.0
Number of Rainy Days	6.0	-	3.2
Number of Dry Days	7.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



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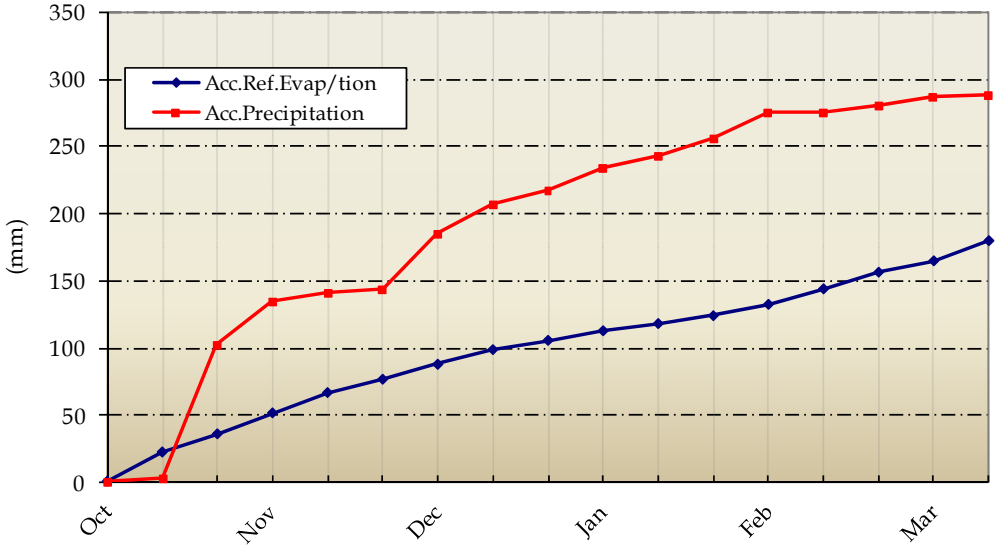
Alexandroupoli

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	4.8	3.6	6.4	7.6	9.2	10.0	6.0	5.2	5.2	6.8	6.5	10.6	10.6
	Min	0.4	-0.4	3.0	-0.4	-1.0	3.6	1.4	0.4	-1.4	-2.0	0.4	4.7	2.2
Relative Humidity	Max	82	82	84	85	89	91	89	69	69	76	82	92	-
	Min	54	52	60	55	48	67	47	34	27	37	48	60	-
Soil Temperature at 10 cm	06 UTC	3.4	3.4	3.6	3.8	6.8	5.6	5.2	3.4	2.8	3.0	4.1	7.2	5.9
	12 UTC	4.0	3.4	4.8	5.0	6.0	6.2	5.4	3.6	5.6	5.0	4.9	8.0	8.0
Sunshine Duration		0.2	0.0	1.5	1.1	6.7	0.3	1.1	10.1	5.3	5.3	3.2	3.2	4.8
Precipitation			0.0	0.0			1.4	0.0				1.4	46.6	16.7
Evaporation		0.0	0.0	4.1	0.0	0.0	2.1	0.0	0.0	0.0	0.0	6.2	17.4	18.5
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.8	34.1	22.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	2.2

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration		15.1	13.8	16.2
Precipitation - Reference Evapotranspiration		-13.7	32.8	0.5
Number of Rainy Days		1.0	5.0	2.2
Number of Dry Days		11.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



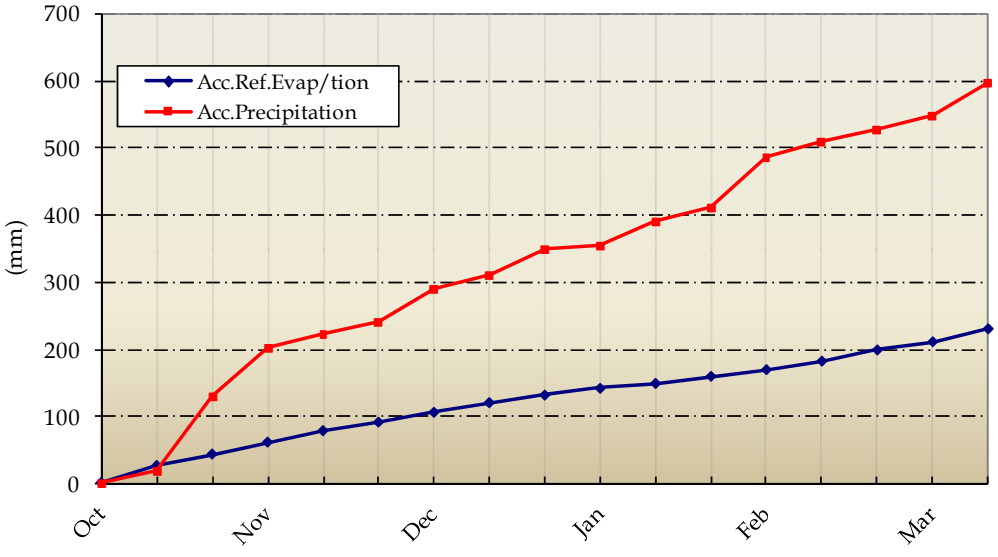
Agrometeorological Data March 2011

Andravida

1st 10-day period (1-10/03/2011)		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	14.2	16.6	16.6	17.8	16.0	14.8	8.8	9.0	12.4	14.4	17.3	15.2
	Min	6.0	7.8	9.8	6.2	6.2	8.6	6.8	3.0	-2.0	-2.2	5.0	8.6	5.8
Relative Humidity	Max	91	97	97	91	95	97	95	69	72	88	89	95	-
	Min	41	69	66	52	55	68	38	30	25	36	48	54	-
Soil Temperature at 10 cm	06 UTC	11.6	11.8	11.6	11.0	10.8	12.2	12.4	9.6	7.0	7.0	10.5	12.3	10.0
	12 UTC	13.8	12.4	12.2	12.2	12.2	14.0	13.8	10.2	8.8	10.0	12.0	14.2	12.2
Sunshine Duration		9.3	0.0	2.6	3.3	5.4	3.7	7.2	7.1	10.2	9.2	5.8	3.3	6.1
Precipitation		0.0	14.8	16.3		1.8	12.7	2.3	0.3			48.2	19.6	26.8
Evaporation		2.6	0.5	4.0	2.1	1.2	3.5	2.1	4.8	2.1	0.5	23.4	21.6	25.2
Growing Degrees	5	6.8	6.0	8.2	6.4	7.0	7.3	5.8	0.9	0.0	0.1	48.5	79.5	55.6
	10	1.8	1.0	3.2	1.4	2.0	2.3	0.8	0.0	0.0	0.0	12.5	30.3	13.0

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.4	18.8	18.0
Precipitation - Reference Evapotranspiration	28.8	0.8	8.8
Number of Rainy Days	6.0	5.0	3.2
Number of Dry Days	3.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



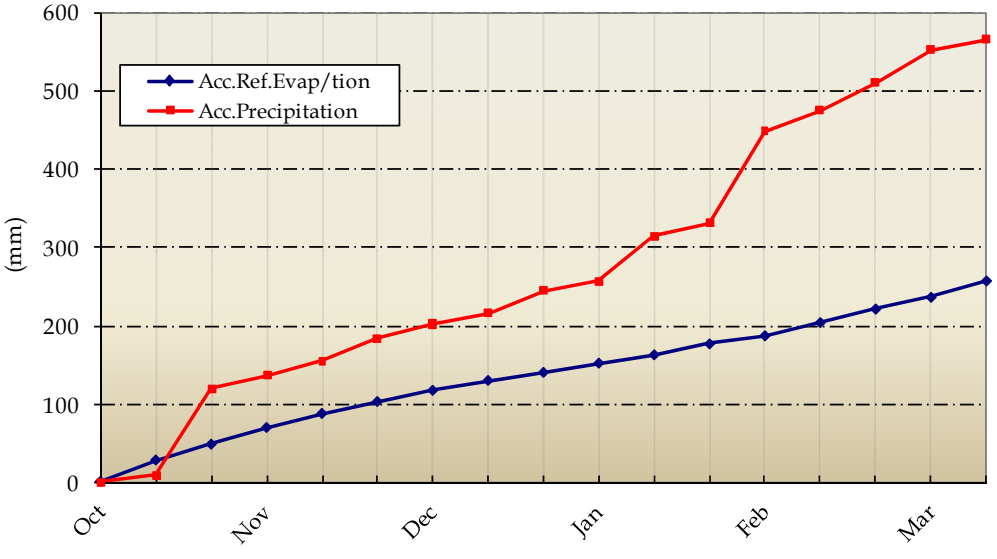
Agrometeorological Data March 2011

Kalamata

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.4	11.2	17.0	17.4	20.0	16.4	14.8	8.8	10.0	13.6	14.7	18.2	16.0
	Min	6.4	8.0	8.8	7.4	8.4	9.6	7.6	4.0	-0.4	-3.0	5.7	8.7	5.6
Relative Humidity	Max	90	97	92	89	90	97	97	66	77	87	88	92	-
	Min	43	74	61	49	53	63	52	30	26	25	48	52	-
Soil Temperature at 10 cm	06 UTC	11.8	12.2	11.6	11.8	12.0	13.0	13.4	11.4	9.2	8.4	11.5	12.5	10.3
	12 UTC	13.0	12.2	13.0	13.0	13.6	14.4	13.6	11.0	10.2	10.0	12.4	13.1	12.1
Sunshine Duration		10.0	0.0	2.7	8.0	5.7	6.9	4.2	5.6	10.5	10.1	6.4	4.7	5.8
Precipitation		0.0	2.7			0.8	4.6	4.6				12.7	2.2	26.1
Evaporation		3.8	0.1	1.3	3.5	1.4	3.5	2.3	5.3	0.0	0.0	21.2	24.9	29.9
Growing Degrees	5	6.9	4.6	7.9	7.4	9.2	8.0	6.2	1.4	0.0	0.3	51.9	84.3	58.2
	10	1.9	0.0	2.9	2.4	4.2	3.0	1.2	0.0	0.0	0.0	15.6	34.3	14.6

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.0	21.3	18.8
Precipitation - Reference Evapotranspiration	-8.3	-19.1	7.3
Number of Rainy Days	4.0	4.0	3.2
Number of Dry Days	3.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

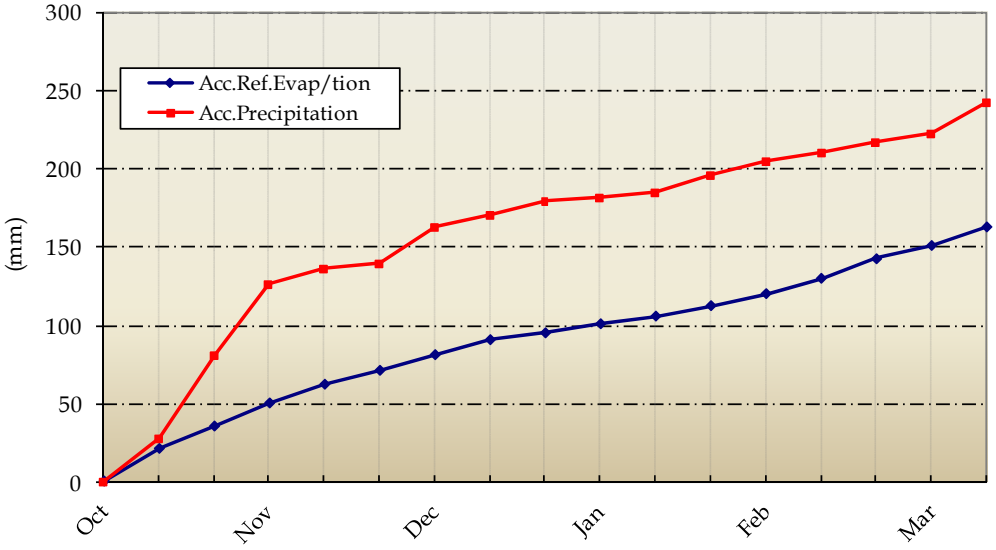


Larisa

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.0	7.2	7.4	7.8	6.8	11.2	8.4	5.6	7.6	11.0	8.2	12.8	13.6
	Min	5.6	5.0	4.2	5.0	5.6	5.8	0.4	0.4	-2.6	-5.6	2.4	4.1	2.4
Relative Humidity	Max	97	94	97	97	94	97	100	88	80	90	93	94	-
	Min	76	87	79	85	91	53	49	32	28	30	61	55	-
Soil Temperature at 10 cm	06 UTC	7.6	7.0	6.8	8.0	8.2	8.2	2.6	2.4	3.0	0.0	5.4	9.6	7.8
	12 UTC	8.8	7.8	6.4	6.6	8.2	9.0	8.0	6.0	6.0	6.4	7.3	10.1	8.9
Sunshine Duration		0.0	0.0	0.0	0.0	0.0	0.1	0.0	8.0	8.9	8.9	2.6	2.7	4.9
Precipitation		1.3	7.6	2.9	0.0	4.9	1.0	0.3	2.3			20.3	29.7	10.9
Evaporation		0.1	0.2	0.0	0.4	0.1	1.8	0.0	0.0	0.0	0.0	2.6	18.7	18.9
Growing Degrees	5	2.3	1.1	0.8	1.4	1.2	3.5	0.0	0.0	0.0	0.0	10.3	39.2	34.4
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	4.1

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.9	15.0	17.1
Precipitation - Reference Evapotranspiration	8.4	14.7	-6.2
Number of Rainy Days	7.0	4.0	3.2
Number of Dry Days	6.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



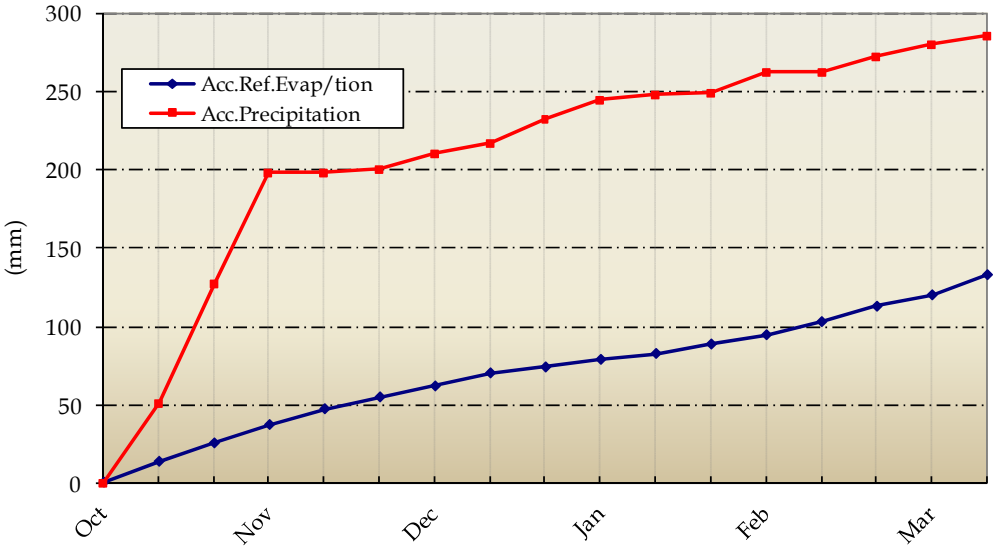
Agrometeorological Data — March 2011

Serres

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.0	6.2	6.6	8.8	9.0	11.8	9.6	7.0	8.2	12.0	8.8	11.4	13.1
	Min	4.4	1.8	2.4	2.4	4.6	4.6	1.2	-0.2	-2.6	-4.6	1.4	3.5	2.6
Relative Humidity	Max	82	93	93	93	92	94	90	55	64	84	84	87	-
	Min	52	63	73	59	59	39	28	22	19	13	43	56	-
Soil Temperature at 10 cm	06 UTC	7.8	7.6	6.8	6.8	7.4	7.8	7.8	5.6	4.8	4.6	6.7	8.1	6.6
	12 UTC	7.8	7.4	7.0	7.8	8.2	8.6	7.8	6.2	6.4	6.0	7.3	9.0	8.2
Sunshine Duration		0.0	0.0	0.1	2.1	0.0	0.6	0.0	9.5	9.4	9.3	3.1	2.6	4.9
Precipitation			1.1	1.9			0.6	2.3				5.9	35.1	8.6
Evaporation		2.2	0.0	1.9	0.8	0.6	1.2	0.0	0.0	0.0	0.0	6.7	10.9	12.9
Growing Degrees	5	1.7	0.0	0.0	0.6	1.8	3.2	0.4	0.0	0.0	0.0	7.7	-	33.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	4.4

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.9	12.4	14.1
Precipitation - Reference Evapotranspiration	-7.0	22.7	-5.5
Number of Rainy Days	4.0	5.0	2.7
Number of Dry Days	3.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



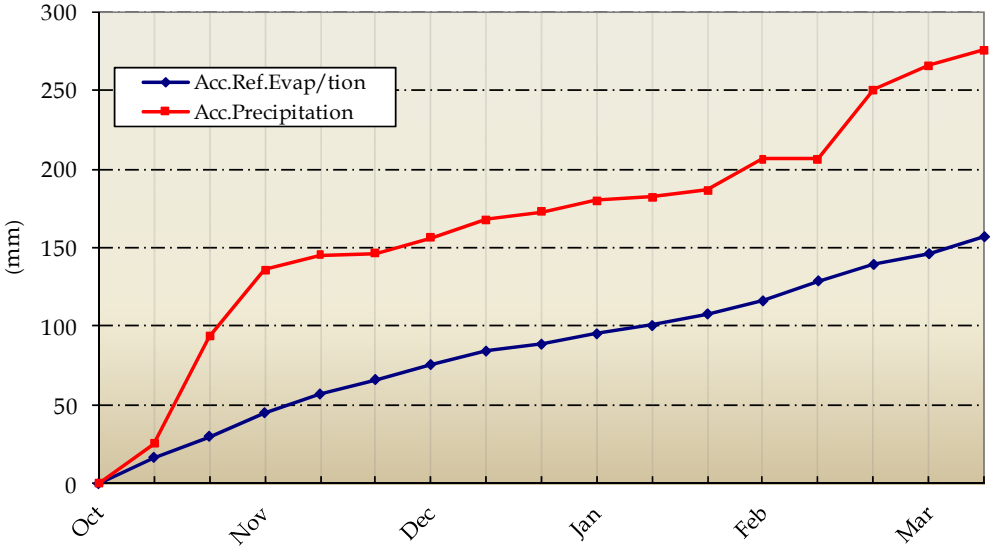
Agrometeorological Data March 2011

Trikala Imathias

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	6.2	5.0	8.4	8.4	-	7.4	7.2	-	14.2	8.0	11.6	13.2
	Min	5.4	3.4	0.0	0.8	5.4	-	0.8	-1.2	-	-5.0	1.2	3.6	3.0
Relative Humidity	Max	94	100	100	100	-	70	96	-	95	97	94	95	-
	Min	80	90	88	70	-	50	35	-	25	18	57	57	-
Soil Temperature at 10 cm	06 UTC	7.2	7.2	6.8	5.6	6.4	-	6.2	5.4	-	5.2	6.2	8.2	7.7
	12 UTC	7.4	7.4	5.4	6.6	6.8	-	7.4	6.2	-	5.8	6.6	9.2	8.2
Sunshine Duration		0.0	0.0	0.0	0.0	-	0.0	2.5	-	10.3	10.4	2.9	3.5	4.7
Precipitation		0.2	1.8	2.8		0.2	1.8	3.0				9.8	38.8	18.0
Evaporation		0.2	0.3	0.5	0.9	-	-	0.0	-	-	0.0	-	8.6	14.5
Growing Degrees	5	1.5	0.0	0.0	0.0	1.9	-	0.0	0.0	-	0.0	-	33.5	36.2
	10	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	8.5	5.5

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.8	13.6	15.4
Precipitation - Reference Evapotranspiration	-1.0	25.2	2.6
Number of Rainy Days	6.0	7.0	3.0
Number of Dry Days	2.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



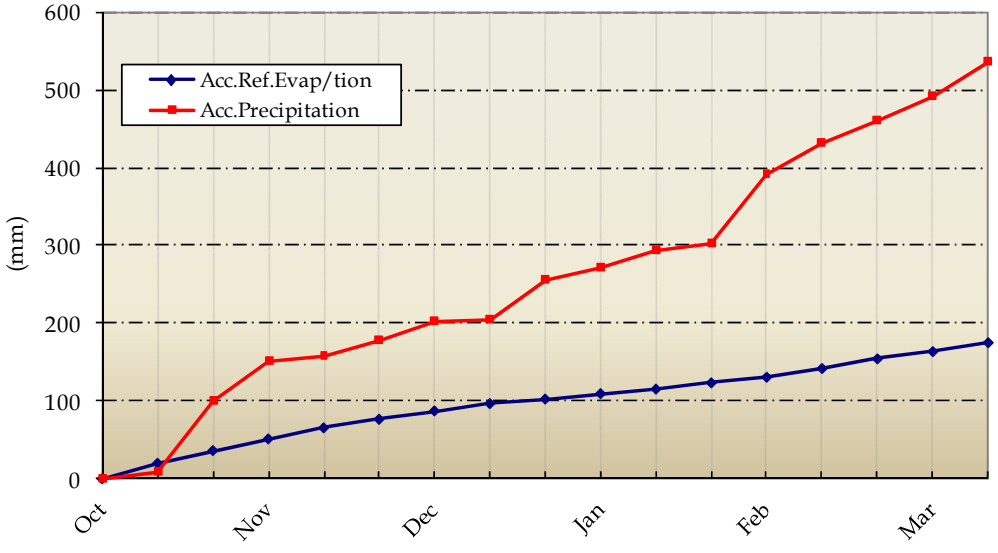
Agrometeorological Data — March 2011

Tripoli

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.6	5.4	7.2	7.4	9.2	13.2	9.2	2.6	3.0	9.0	7.2	-	11.8
	Min	4.4	3.8	5.4	5.2	2.6	4.6	2.2	-2.4	-4.0	-8.0	1.4	-	1.3
Relative Humidity	Max	85	97	97	91	96	97	96	92	91	95	94	-	-
	Min	78	90	91	74	69	64	83	77	41	33	70	-	-
Soil Temperature at 10 cm	06 UTC	6.4	6.0	6.0	6.6	4.4	7.0	8.2	4.4	2.4	1.6	5.3	-	6.2
	12 UTC	6.6	5.8	6.6	7.4	8.6	9.6	7.8	4.2	4.8	5.8	6.7	-	7.4
Sunshine Duration		0.0	0.0	0.0	0.3	3.4	5.2	0.2	4.1	9.7	8.4	3.1	-	5.4
Precipitation			19.1	0.9		5.5	5.3	7.9	5.0	0.1		43.8	-	26.7
Evaporation		1.0	0.4	0.6	0.5	0.4	0.3	0.0	0.0	0.0	0.0	3.2	-	15.8
Growing Degrees	5	0.0	0.0	1.3	1.3	0.9	3.9	0.7	0.0	0.0	0.0	8.1	-	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	-	1.9

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.5	-	17.7
Precipitation - Reference Evapotranspiration	32.3	-	9.0
Number of Rainy Days	7.0	-	3.4
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



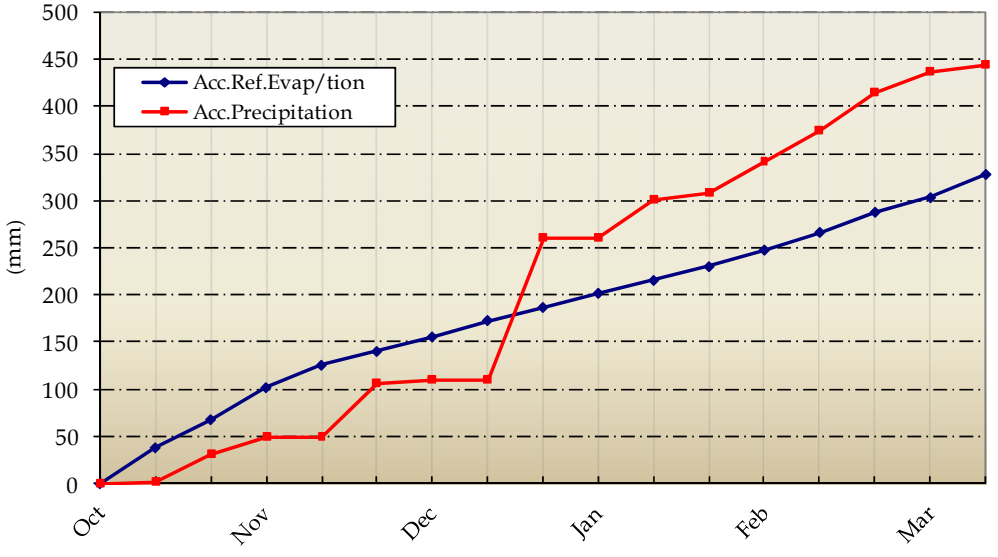
Agrometeorological Data — March 2011

Tympaki

1st 10-day period (1-10/03/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.2	17.8	17.8	19.0	21.8	18.6	16.6	12.2	7.6	11.8	16.0	19.6	16.5
	Min	7.0	8.8	9.6	10.4	10.0	10.0	12.2	5.8	3.0	5.0	8.2	11.4	7.4
Relative Humidity	Max	80	94	97	92	93	92	83	85	90	74	88	98	-
	Min	32	46	60	46	30	51	39	46	37	26	41	47	-
Soil Temperature at 10 cm	06 UTC	12.4	13.0	13.6	14.4	13.6	14.6	14.6	13.4	9.0	7.8	12.6	15.5	12.5
	12 UTC	15.2	15.4	17.0	17.4	17.0	18.0	15.6	14.4	10.4	11.2	15.2	19.1	15.2
Sunshine Duration		5.5	3.7	8.4	7.2	7.5	6.2	4.4	4.7	4.2	9.7	6.2	4.6	6.1
Precipitation								0.7	1.9	5.4		8.0		16.7
Evaporation		3.8	1.4	3.3	3.6	3.3	4.1	4.2	0.9	0.6	4.6	29.8	42.3	35.1
Growing Degrees	5	7.1	8.3	8.7	9.7	10.9	9.3	9.4	4.0	0.3	3.4	71.1	105.0	69.0
	10	2.1	3.3	3.7	4.7	5.9	4.3	4.4	0.0	0.0	0.0	28.4	55.0	21.8

1st 10-day period (1-10/03/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.6	23.2	21.5
Precipitation - Reference Evapotranspiration	-16.6	-23.2	-4.8
Number of Rainy Days	3.0	0.0	2.7
Number of Dry Days	6.0	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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