



AGROMETEOROLOGICAL BULLETIN

March 2012
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
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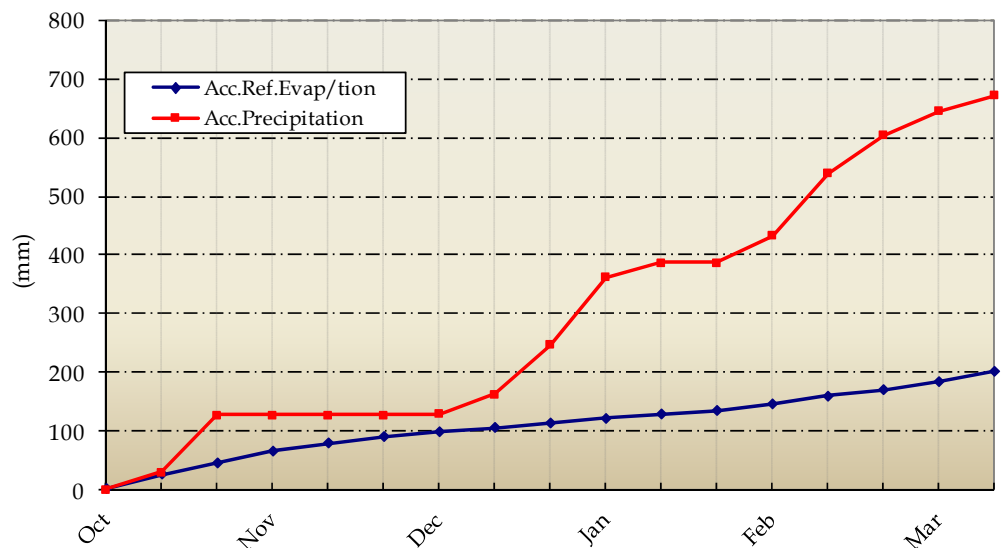
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www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

Agrinio

1st 10-day period (1-10/03/2012)		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	15.4	17.8	19.2	14.0	14.6	17.4	15.6	16.4	15.0	15.9	12.5	15.8
	Min	-1.0	-2.0	0.4	2.4	9.0	7.4	8.6	10.0	12.6	10.6	5.8	4.0	4.1
Relative Humidity	Max	92	92	96	97	95	97	90	95	88	70	91	87	-
	Min	24	45	56	45	75	69	55	71	70	56	57	51	-
Soil Temperature at 10 cm	06 UTC	6.4	6.2	6.2	8.6	10.6	10.0	10.6	11.0	11.6	11.6	9.3	8.5	8.5
	12 UTC	7.4	8.4	9.2	10.0	11.0	11.2	11.6	11.6	12.2	12.0	10.5	9.8	11.6
Sunshine Duration		9.0	8.9	9.4	9.6	0.2	2.3	5.3	2.2	0.4	2.0	4.9	4.9	5.6
Precipitation						19.5		1.8	4.6			25.9	77.3	25.5
Evaporation		3.7	1.9	1.7	1.0	0.4	1.9	0.3	0.5	1.7	3.3	16.4	20.5	24.4
Growing Degrees	5	1.3	1.7	4.1	5.8	6.5	6.0	8.0	7.8	9.5	7.8	58.5	33.2	50.4
	10	0.0	0.0	0.0	0.8	1.5	1.0	3.0	2.8	4.5	2.8	16.4	2.9	10.7

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.7	17.2	18.5
Precipitation - Reference Evapotranspiration	8.2	60.1	7.0
Number of Rainy Days	3.0	6.0	3.2
Number of Dry Days	6.0	7.0	-

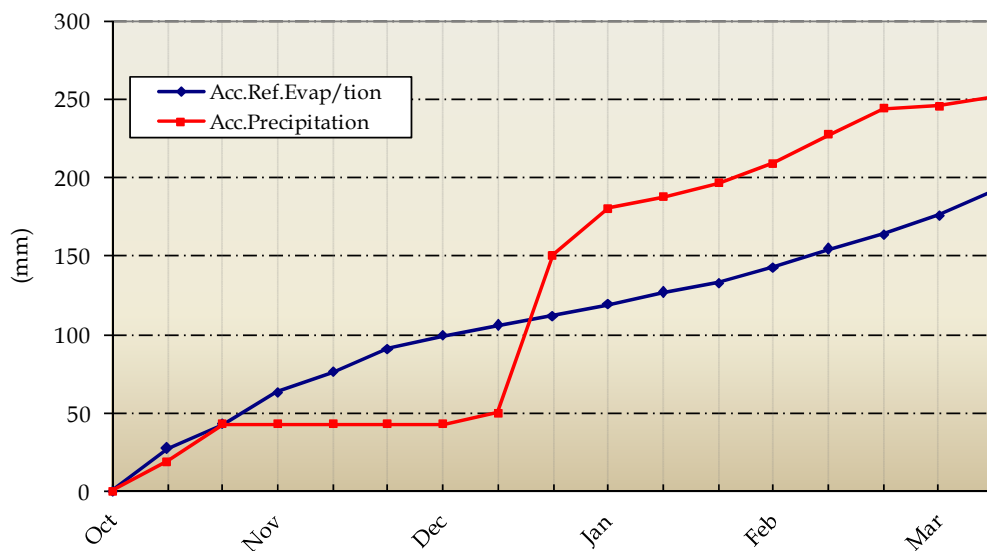
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/03/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.8	10.4	14.0	10.4	11.6	10.6	10.6	8.4	9.4	8.6	10.0	6.5	10.6
	Min	-1.0	-4.6	2.6	-0.8	0.0	3.0	-1.0	3.6	4.6	2.2	0.9	0.4	2.2
Relative Humidity	Max	89	92	93	74	89	89	93	97	94	75	88	82	-
	Min	39	57	40	44	48	40	36	64	63	51	48	48	-
Soil Temperature at 10 cm	06 UTC	2.8	2.6	5.0	5.8	5.8	6.6	5.6	6.4	6.6	5.2	5.2	4.1	5.9
	12 UTC	3.8	4.4	7.4	7.4	7.6	7.8	7.4	7.6	7.2	6.4	6.7	4.9	8.0
Sunshine Duration		3.4	7.6	9.4	12.2	7.8	10.1	5.3	0.5	1.0	1.7	5.9	3.2	4.8
Precipitation									4.0	1.6		5.6	1.4	16.7
Evaporation		0.0	0.0	6.8	2.0	1.5	2.1	2.1	0.2	1.0	0.3	16.0	6.2	18.5
Growing Degrees	5	0.0	0.0	3.3	0.0	0.8	1.8	0.0	1.0	2.0	0.4	9.3	1.8	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	0.0	2.2

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.8	15.1	16.2
Precipitation - Reference Evapotranspiration	-10.2	-13.7	0.5
Number of Rainy Days	2.0	1.0	2.2
Number of Dry Days	7.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

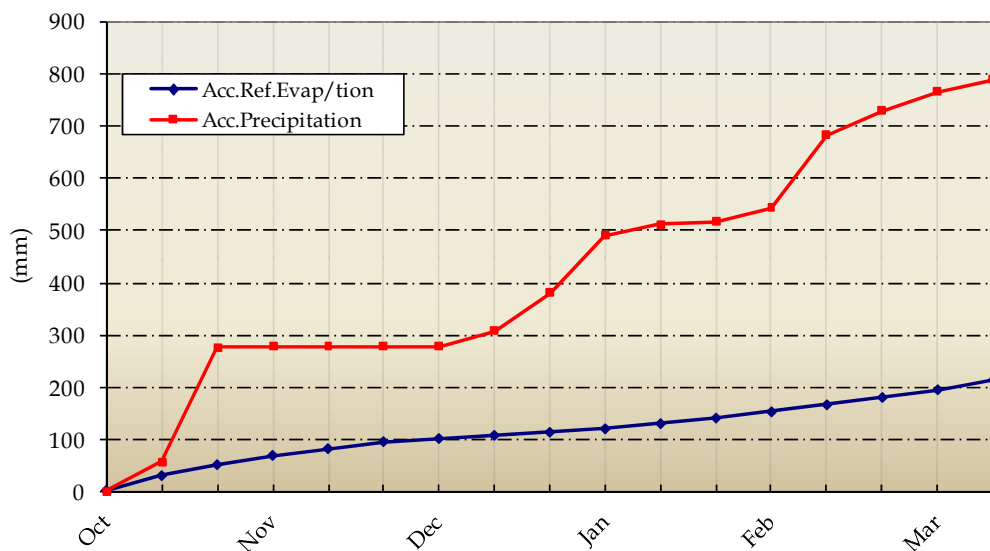


Andravida

1st 10-day period (1-10/03/2012)		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	15.0	17.0	17.1	15.5	15.8	16.8	17.5	17.4	17.7	16.3	14.4	15.2
	Min	2.8	0.6	5.2	6.8	8.2	8.4	8.5	8.4	9.9	10.1	6.9	5.0	5.8
Relative Humidity	Max	81	86	92	93	93	93	92	92	88	81	89	89	-
	Min	29	33	54	59	20	60	60	57	64	50	49	48	-
Soil Temperature at 10 cm	06 UTC	6.4	6.0	8.2	9.6	11.6	10.6	11.0	11.4	11.8	12.2	9.9	10.5	10.0
	12 UTC	9.6	10.4	10.6	13.6	11.6	13.0	13.2	13.2	13.6	13.4	12.2	12.0	12.2
Sunshine Duration		9.4	9.6	9.8	7.7	1.3	2.8	3.6	1.9	0.5	1.0	4.8	5.8	6.1
Precipitation						17.1	3.1	0.1	1.3	0.3		21.9	48.2	26.8
Evaporation		4.5	2.7	0.8	4.3	1.0	0.9	2.1	1.0	3.6	1.8	22.7	23.4	25.2
Growing Degrees	5	3.1	2.8	6.1	7.0	6.9	7.1	7.7	8.0	8.7	8.9	66.1	48.5	55.6
	10	0.0	0.0	1.1	2.0	1.9	2.1	2.7	3.0	3.7	3.9	20.2	12.5	13.0

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.8	19.4	18.0
Precipitation - Reference Evapotranspiration	3.1	28.8	8.8
Number of Rainy Days	5.0	6.0	3.2
Number of Dry Days	4.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

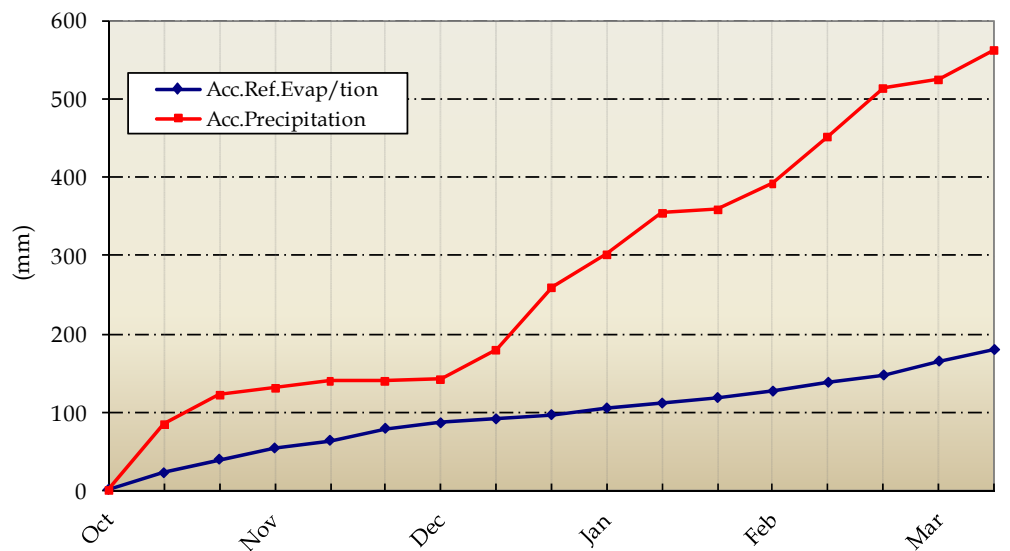


Ioannina

1st 10-day period (1-10/03/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.6	12.6	18.6	17.4	11.6	13.0	10.4	9.8	12.6	14.2	13.1	-	12.2
	Min	-3.0	-3.4	-0.6	-2.0	5.4	4.5	7.0	6.8	7.2	6.4	2.8	-	1.7
Relative Humidity	Max	70	83	100	100	94	97	94	92	100	89	92	-	-
	Min	17	35	37	35	83	54	72	73	78	43	53	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	7.3
Sunshine Duration		8.7	7.9	7.6	7.5	0.0	2.4	0.0	0.0	0.0	0.4	3.4	-	4.6
Precipitation						13.4	0.3	1.9	11.0	10.8		37.4	-	27.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	14.8
Growing Degrees	5	0.0	0.0	4.0	2.7	3.5	3.8	3.7	3.3	4.9	5.3	31.2	-	25.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	-	2.0

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.8	-	15.2
Precipitation - Reference Evapotranspiration	22.6	-	12.1
Number of Rainy Days	5.0	-	3.5
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

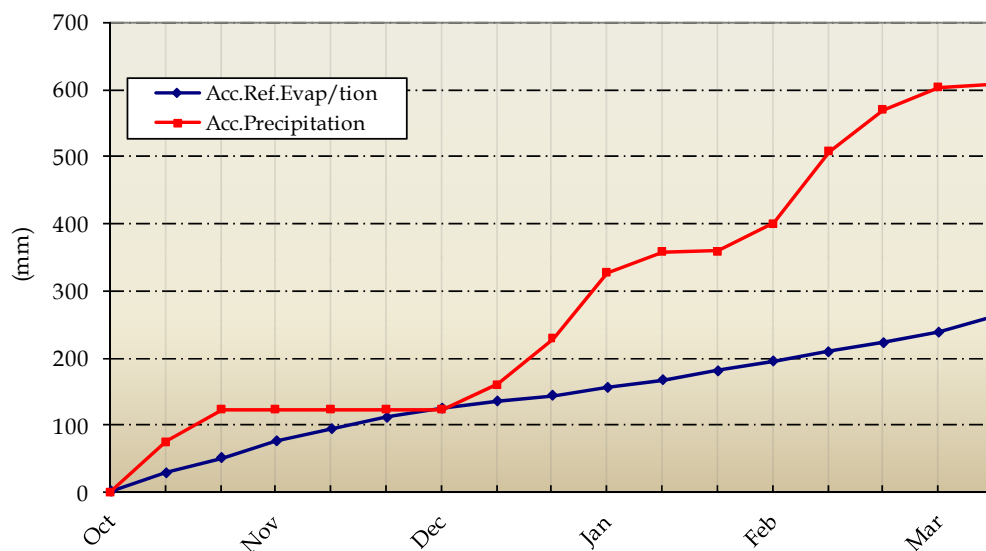


Kalamata

1st 10-day period (1-10/03/2012)		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	16.0	19.0	17.4	16.2	14.4	16.0	16.6	22.4	21.4	17.3	14.7	16.0
	Min	2.4	0.2	4.4	6.4	8.0	5.6	6.0	7.4	8.0	13.6	6.2	5.7	5.6
Relative Humidity	Max	89	91	90	94	92	97	97	94	100	58	90	88	-
	Min	29	39	38	49	74	65	63	60	30	27	47	48	-
Soil Temperature at 10 cm	06 UTC	8.0	7.4	8.8	10.2	11.4	10.8	10.6	10.6	11.0	12.0	10.1	11.5	10.3
	12 UTC	9.6	9.6	10.6	11.8	12.4	11.6	11.4	12.0	13.0	13.0	11.5	12.4	12.1
Sunshine Duration		12.5	10.3	10.4	5.7	3.2	4.1	3.7	7.4	7.8	4.3	6.9	6.4	5.8
Precipitation						2.1	2.0					4.1	12.7	26.1
Evaporation		4.2	2.4	2.6	2.5	2.3	0.4	0.6	2.0	3.0	7.1	27.1	21.2	29.9
Growing Degrees	5	2.9	3.1	6.7	6.9	7.1	5.0	6.0	7.0	10.2	12.5	67.4	51.9	58.2
	10	0.0	0.0	1.7	1.9	2.1	0.0	1.0	2.0	5.2	7.5	21.4	15.6	14.6

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.3	21.0	18.8
Precipitation - Reference Evapotranspiration	-19.2	-8.3	7.3
Number of Rainy Days	2.0	4.0	3.2
Number of Dry Days	6.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

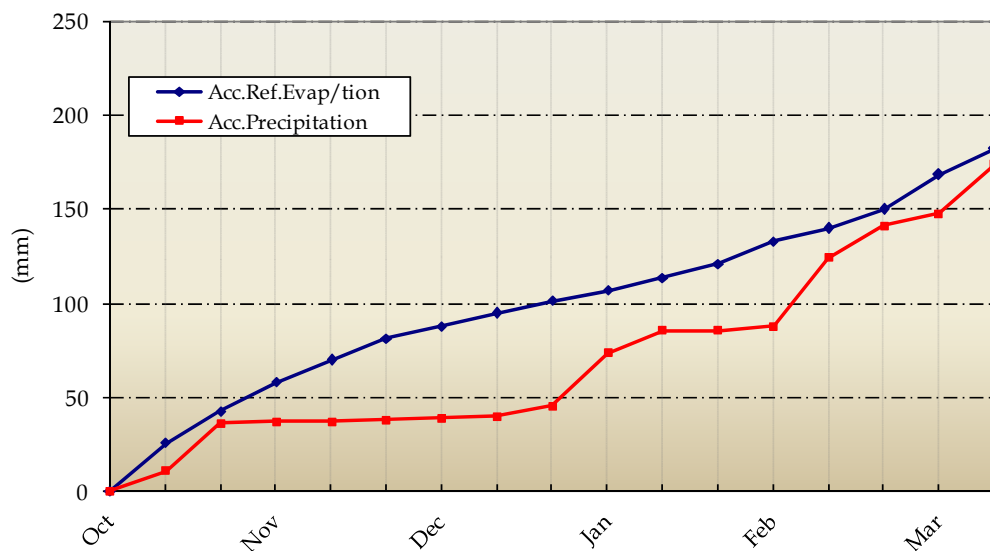


Larisa

1st 10-day period (1-10/03/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.6	-	23.0	16.8	10.0	9.4	11.0	9.6	8.6	8.4	11.9	8.2	13.6
	Min	1.8	-4.0	-1.0	2.8	2.8	7.6	6.6	6.2	6.6	7.0	3.6	2.4	2.4
Relative Humidity	Max	92	93	85	75	94	94	91	94	94	94	91	93	-
	Min	34	28	30	22	53	82	73	87	89	72	57	61	-
Soil Temperature at 10 cm	06 UTC	6.0	4.6	6.2	7.8	6.4	6.6	6.4	7.0	8.4	8.4	6.8	5.4	7.8
	12 UTC	7.4	6.2	8.0	9.0	7.0	7.6	7.6	8.6	8.4	7.6	7.7	7.3	8.9
Sunshine Duration		4.1	7.2	8.8	8.3	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.6	4.9
Precipitation						4.0	5.8		4.5	11.3	0.5	26.1	20.3	10.9
Evaporation		1.2	4.0	4.9	3.6	8.9	1.5	2.3	3.8	0.0	0.6	30.8	2.6	18.9
Growing Degrees	5	1.2	-	6.0	4.8	1.4	3.5	3.8	2.9	2.6	2.7	-	10.3	34.4
	10	0.0	-	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	4.1

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.8	11.9	17.1
Precipitation - Reference Evapotranspiration	12.3	8.4	-6.2
Number of Rainy Days	5.0	7.0	3.2
Number of Dry Days	6.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

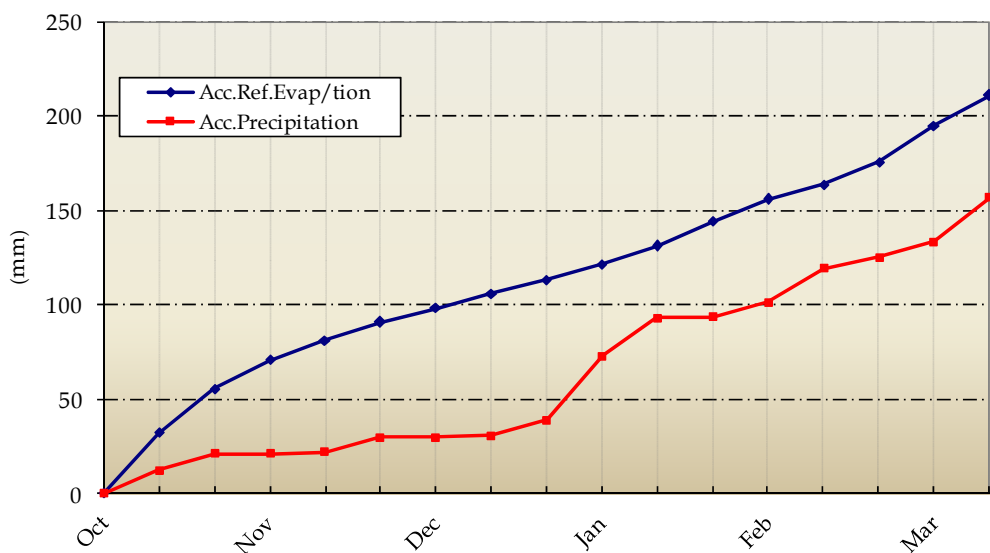


Mikra

1st 10-day period (1-10/03/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	11.2	18.4	15.2	11.6	10.0	9.2	7.2	8.8	8.6	11.0	-	12.6
	Min	-0.8	-2.0	8.0	3.0	2.6	5.0	6.0	5.8	6.0	6.6	4.0	-	3.4
Relative Humidity	Max	89	92	58	70	85	83	94	94	94	94	85	-	-
	Min	39	38	21	24	56	69	77	85	86	64	56	-	-
Soil Temperature at 10 cm	06 UTC	5.0	2.8	8.2	7.6	7.2	8.2	8.2	7.0	7.8	8.2	7.0	-	7.2
	12 UTC	4.0	7.4	9.8	-	8.6	8.8	8.4	8.0	8.4	8.4	8.0	-	9.8
Sunshine Duration		5.1	5.2	9.8	9.3	0.8	0.0	0.0	0.0	0.0	0.0	3.0	-	4.9
Precipitation							0.2	2.8	7.0	12.0	1.3	23.3	-	13.0
Evaporation		2.8	3.8	9.2	3.5	0.2	0.2	2.5	2.8	1.7	0.5	27.2	-	22.1
Growing Degrees	5	0.0	0.0	8.2	4.1	2.1	2.5	2.6	1.5	2.4	2.6	26.0	-	33.9
	10	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	-	4.3

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.7	-	17.6
Precipitation - Reference Evapotranspiration	7.6	-	-4.6
Number of Rainy Days	5.0	-	3.2
Number of Dry Days	7.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

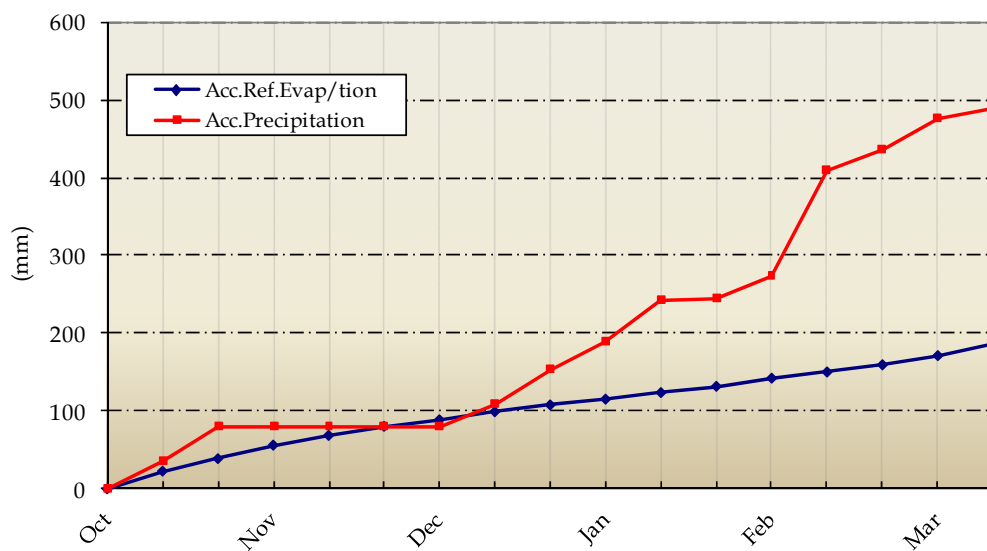


Tripoli

1st 10-day period (1-10/03/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.1	12.2	17.4	14.2	12.3	10.2	12.0	14.4	16.6	12.1	12.8	7.2	11.8
	Min	-1.6	-5.6	-2.4	0.2	5.6	1.4	3.1	3.9	1.9	5.8	1.2	1.4	1.3
Relative Humidity	Max	94	94	94	95	87	96	95	95	95	77	92	94	-
	Min	48	31	29	51	62	68	65	73	68	57	55	70	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	5.8	6.8	7.2	6.4	8.6	7.0	5.3	6.2
	12 UTC	-	-	-	-	-	8.4	10.2	-	-	-	9.3	6.7	7.4
Sunshine Duration		-	-	-	-	3.3	1.6	4.6	4.8	7.4	1.1	3.8	3.1	5.4
Precipitation		4.3			0.0	7.2	1.1	0.4	0.3			13.3	43.8	26.7
Evaporation		-	-	-	-	0.0	-	0.2	0.8	2.8	2.4	-	3.2	15.8
Growing Degrees	5	0.0	0.0	2.5	2.2	4.0	0.8	2.6	4.2	4.3	4.0	24.4	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	0.0	1.9

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.0	11.5	17.7
Precipitation - Reference Evapotranspiration	-1.7	32.3	9.0
Number of Rainy Days	5.0	7.0	3.4
Number of Dry Days	1.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

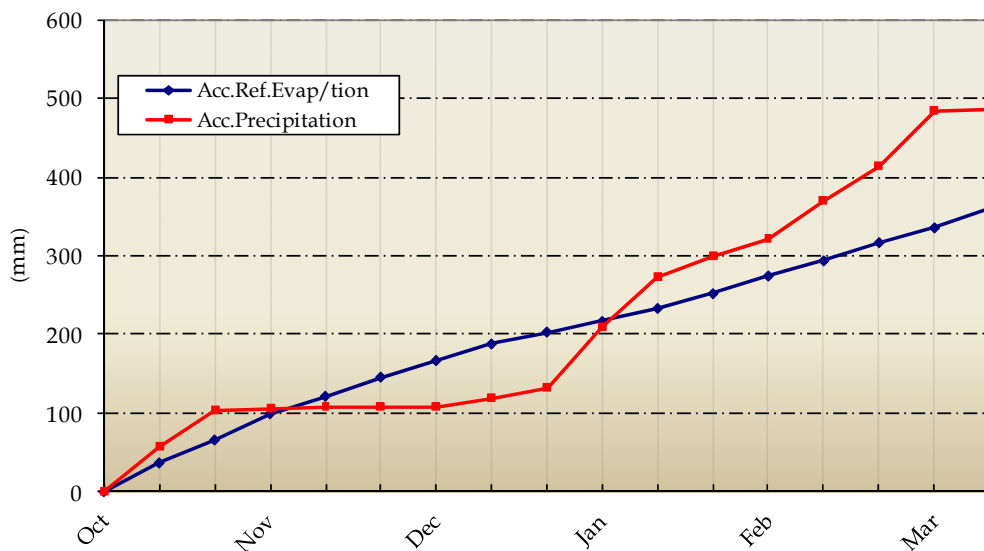


Tympaki

1st 10-day period (1-10/03/2012)		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	13.2	16.4	19.4	17.0	16.8	17.2	17.4	19.0	21.0	16.8	16.0	16.5
	Min	5.2	1.6	2.4	6.0	9.6	10.6	6.2	5.6	5.2	7.4	6.0	8.2	7.4
Relative Humidity	Max	94	95	94	93	95	93	93	95	94	91	94	88	-
	Min	33	32	51	47	68	69	51	62	32	19	46	41	-
Soil Temperature at 10 cm	06 UTC	8.0	6.6	7.2	10.2	13.0	13.6	11.6	12.0	12.0	12.8	10.7	12.6	12.5
	12 UTC	10.4	10.6	12.8	15.0	15.4	17.4	15.6	16.4	16.8	16.4	14.7	15.2	15.2
Sunshine Duration		4.9	10.6	10.6	7.9	6.3	6.1	9.1	9.9	10.1	2.7	7.8	6.2	6.1
Precipitation		0.8	0.6				1.6					3.0	8.0	16.7
Evaporation		3.2	3.1	3.9	2.0	3.6	1.5	3.5	2.3	3.6	4.7	31.4	29.8	35.1
Growing Degrees	5	3.1	2.4	4.4	7.7	8.3	8.7	6.7	6.5	7.1	9.2	64.1	71.1	69.0
	10	0.0	0.0	0.0	2.7	3.3	3.7	1.7	1.5	2.1	4.2	19.2	28.4	21.8

1st 10-day period (1-10/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.7	24.6	21.5
Precipitation - Reference Evapotranspiration	-21.7	-16.6	-4.8
Number of Rainy Days	3.0	3.0	2.7
Number of Dry Days	0.0	6.0	-

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.

Mesurements 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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