

AGROMETEOROLOGICAL BULLETIN

April 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



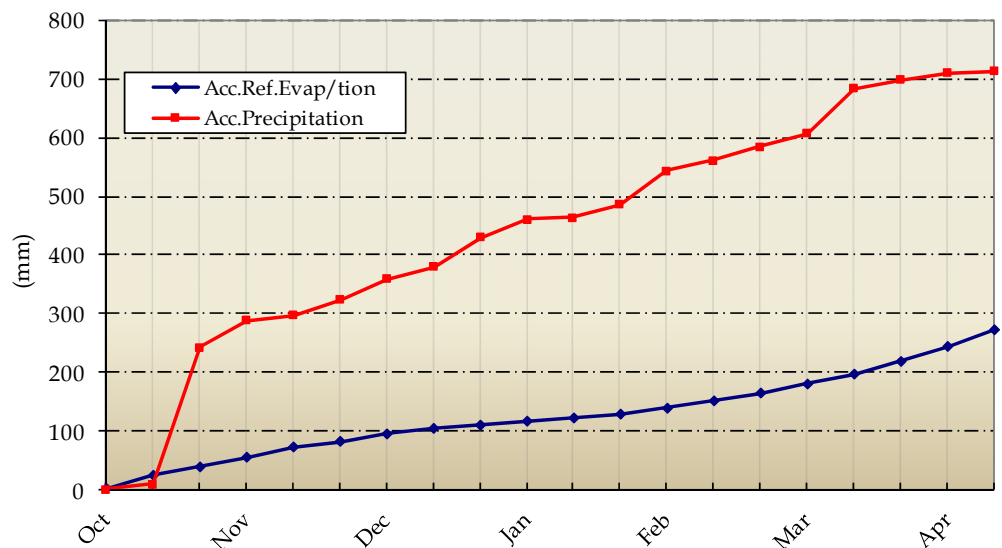
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1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	19.6	21.0	22.2	22.6	19.6	21.0	21.8	23.4	24.6	21.6	-	19.9
	Min	8.4	10.0	4.4	4.2	5.0	11.0	7.4	6.0	7.0	8.0	7.1	-	7.2
Relative Humidity	Max	97	87	97	97	97	88	86	94	97	97	94	-	-
	Min	48	37	40	40	45	49	30	49	54	38	43	-	-
Soil Temperature at 10 cm	06 UTC	12.8	13.0	12.2	12.4	12.4	14.4	12.8	13.6	13.6	14.6	13.2	-	11.8
	12 UTC	14.8	14.8	14.8	14.6	15.8	15.6	14.8	16.0	17.2	18.0	15.6	-	16.3
Sunshine Duration		6.0	5.8	8.5	10.6	9.2	0.1	10.0	9.7	11.1	10.7	8.2	-	6.3
Precipitation		1.5		0.5			0.7					2.7	-	20.5
Evaporation		3.6	3.2	3.1	3.1	3.5	2.5	3.6	4.0	3.6	5.0	35.2	-	35.8
Growing Degrees	5	9.4	9.8	7.7	8.2	8.8	10.3	9.2	8.9	10.2	11.3	93.8	-	85.7
	10	4.4	4.8	2.7	3.2	3.8	5.3	4.2	3.9	5.2	6.3	43.8	-	36.8

1st 10-day period (1-10/04/2011)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	28.6	-	26.6
Precipitation - Reference Evapotranspiration	-25.9	-	-6.1
Number of Rainy Days	3.0	-	3.3
Number of Dry Days	0.0	-	-

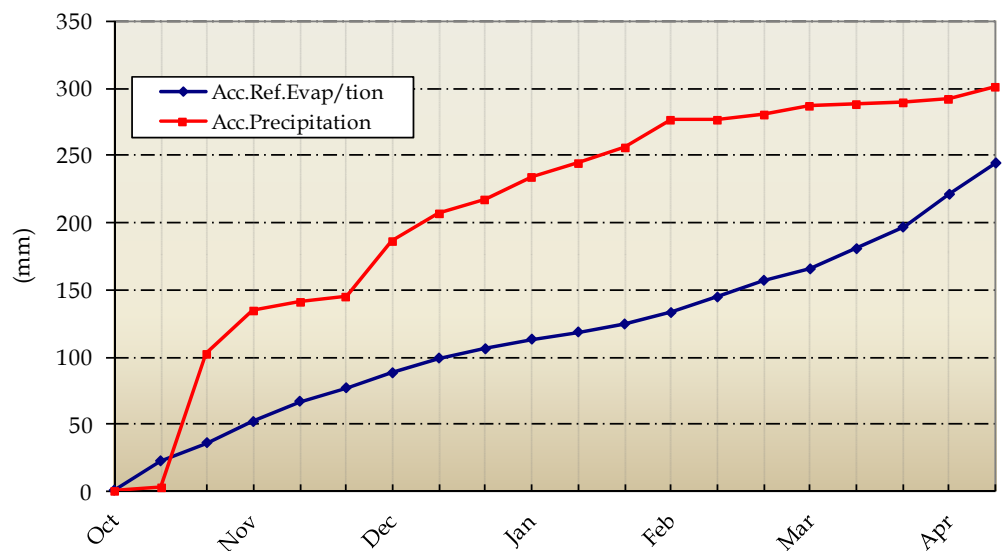
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2011)		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	12.4	13.2	15.4	14.2	15.2	18.6	17.6	17.6	18.8	15.7	17.7	16.7
	Min	9.0	8.4	8.8	7.0	4.0	6.8	5.8	7.8	6.2	5.8	7.0	7.6	6.5
Relative Humidity	Max	95	84	87	89	93	94	88	85	83	79	88	90	-
	Min	65	65	57	49	59	55	46	55	61	24	54	51	-
Soil Temperature at 10 cm	06 UTC	11.4	10.4	10.0	9.6	9.6	10.6	10.0	11.2	10.6	12.8	10.6	11.9	10.4
	12 UTC	12.4	10.6	11.2	11.0	12.0	11.6	13.6	14.2	15.2	16.0	12.8	15.2	13.5
Sunshine Duration		3.4	0.0	0.1	6.7	5.6	0.3	10.7	4.3	9.5	11.7	5.2	6.8	6.1
Precipitation		7.6	0.1	1.6								9.3	7.9	11.5
Evaporation		3.5	0.3	1.5	2.5	3.8	1.0	4.9	3.8	2.6	5.7	29.6	27.6	34.0
Growing Degrees	5	6.3	5.4	6.0	6.2	4.1	6.0	7.2	7.7	6.9	7.3	63.1	76.8	66.0
	10	1.3	0.4	1.0	1.2	0.0	1.0	2.2	2.7	1.9	2.3	14.0	27.0	21.0

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.3	24.6	24.4
Precipitation - Reference Evapotranspiration	-14.0	-16.7	-12.9
Number of Rainy Days	3.0	3.0	2.6
Number of Dry Days	1.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

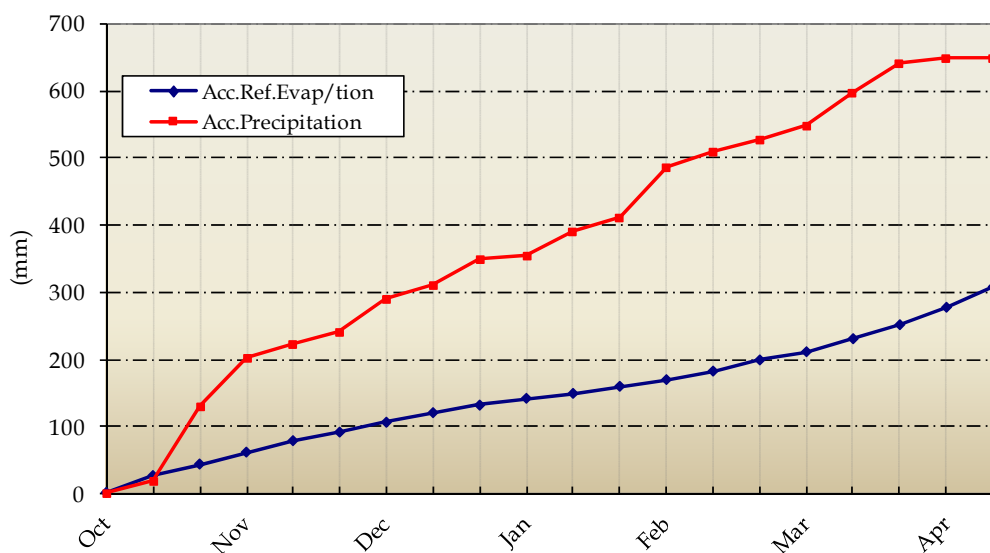


Andravida

1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	19.4	18.8	19.4	22.0	18.4	20.0	20.8	22.0	20.6	20.1	19.6	18.6
	Min	10.8	11.0	9.8	8.6	9.8	10.2	8.4	8.6	10.6	10.0	9.8	8.3	8.6
Relative Humidity	Max	90	87	92	92	92	90	84	95	95	92	91	92	-
	Min	48	45	51	46	48	52	35	48	60	49	48	46	-
Soil Temperature at 10 cm	06 UTC	13.8	13.4	13.8	14.8	15.4	15.8	13.2	13.6	15.0	15.4	14.4	14.6	12.9
	12 UTC	16.0	17.2	17.4	19.2	20.8	18.0	18.0	19.6	19.8	22.6	18.9	18.8	15.7
Sunshine Duration		2.7	8.1	10.1	10.4	10.5	0.4	10.8	10.2	10.3	10.3	8.4	9.6	6.9
Precipitation		1.0					0.1					1.1	0.0	14.7
Evaporation		5.0	4.9	3.8	3.6	3.9	1.1	5.9	1.5	2.5	5.0	37.2	35.9	34.4
Growing Degrees	5	10.4	10.2	9.3	9.0	10.9	9.3	9.2	9.7	11.3	10.3	99.6	89.8	86.1
	10	5.4	5.2	4.3	4.0	5.9	4.3	4.2	4.7	6.3	5.3	49.6	39.8	36.7

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.6	31.2	26.7
Precipitation - Reference Evapotranspiration	-29.5	-31.2	-12.0
Number of Rainy Days	2.0	0.0	2.8
Number of Dry Days	0.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

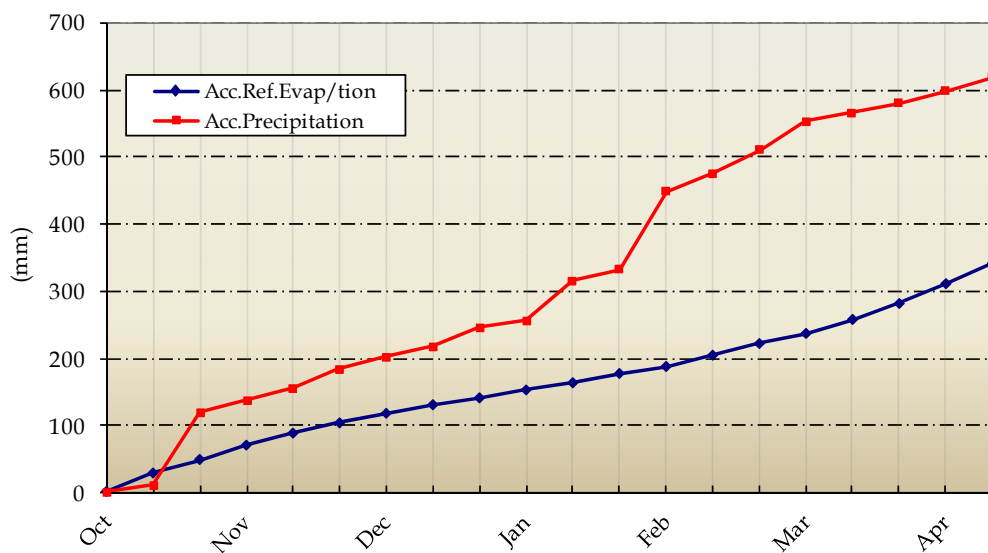


Kalamata

1st 10-day period (1-10/04/2011)		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	18.4	18.4	17.6	19.4	22.4	20.2	20.2	22.6	20.8	19.8	21.2	19.3
	Min	11.2	7.8	7.0	5.8	8.0	9.8	13.0	6.4	10.0	11.0	9.0	8.0	8.0
Relative Humidity	Max	97	97	97	97	97	97	92	91	97	100	96	92	-
	Min	65	64	59	70	56	35	35	46	45	48	52	40	-
Soil Temperature at 10 cm	06 UTC	14.0	13.6	13.6	13.0	13.6	14.8	14.8	14.0	14.8	15.6	14.2	14.8	12.9
	12 UTC	14.6	15.0	15.0	16.0	16.6	16.4	17.4	17.0	18.4	18.6	16.5	16.4	15.8
Sunshine Duration		0.5	5.9	8.8	9.9	10.9	4.0	9.8	11.2	10.9	10.3	8.2	10.2	6.7
Precipitation		16.0	0.0	3.5	0.0							19.5		16.3
Evaporation		2.5	1.8	4.9	3.8	3.6	4.6	5.4	3.8	5.8	1.8	38.0	48.7	37.8
Growing Degrees	5	9.4	8.1	7.7	6.7	8.7	11.1	11.6	8.3	11.3	10.9	93.8	96.2	86.4
	10	4.4	3.1	2.7	1.7	3.7	6.1	6.6	3.3	6.3	5.9	43.8	46.2	36.8

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.6	37.1	28.3
Precipitation - Reference Evapotranspiration	-11.1	-37.1	-12.0
Number of Rainy Days	2.0	0.0	2.8
Number of Dry Days	0.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

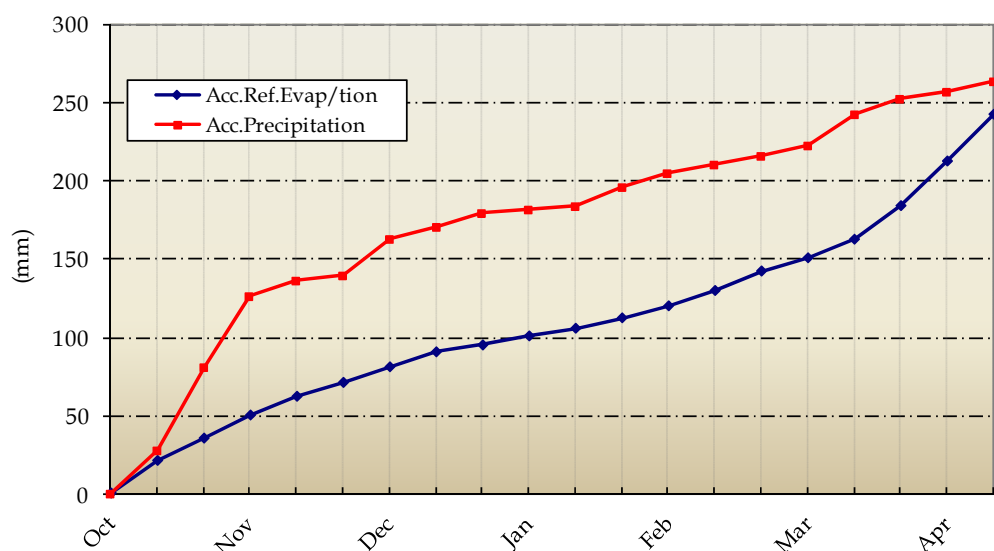


Larisa

1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.4	18.4	20.0	19.8	19.6	16.6	19.8	24.4	27.6	22.6	20.3	20.4	19.4
	Min	11.4	9.0	4.6	9.0	6.0	12.0	10.0	5.6	10.0	12.4	9.0	5.9	5.6
Relative Humidity	Max	93	95	97	92	97	88	92	94	87	58	89	90	-
	Min	70	46	43	40	53	46	41	47	28	25	44	38	-
Soil Temperature at 10 cm	06 UTC	12.0	11.4	11.6	12.0	11.0	13.0	12.0	11.0	14.4	14.0	12.2	13.4	11.7
	12 UTC	12.8	13.8	13.0	13.8	14.0	14.0	14.0	13.8	15.4	15.2	14.0	15.1	13.1
Sunshine Duration		0.0	6.0	8.2	9.7	5.4	2.1	8.7	8.6	10.8	11.4	7.1	9.5	6.6
Precipitation		6.2	0.8	0.0			0.0					7.0	0.6	12.2
Evaporation		0.0	3.1	2.7	4.2	3.3	2.8	3.3	2.7	6.5	6.5	35.1	-	32.3
Growing Degrees	5	7.9	8.7	7.3	9.4	7.8	9.3	9.9	10.0	13.8	12.5	96.6	81.2	75.0
	10	2.9	3.7	2.3	4.4	2.8	4.3	4.9	5.0	8.8	7.5	46.6	31.2	27.5

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.0	30.9	26.4
Precipitation - Reference Evapotranspiration	-23.0	-30.3	-14.2
Number of Rainy Days	2.0	1.0	2.6
Number of Dry Days	0.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

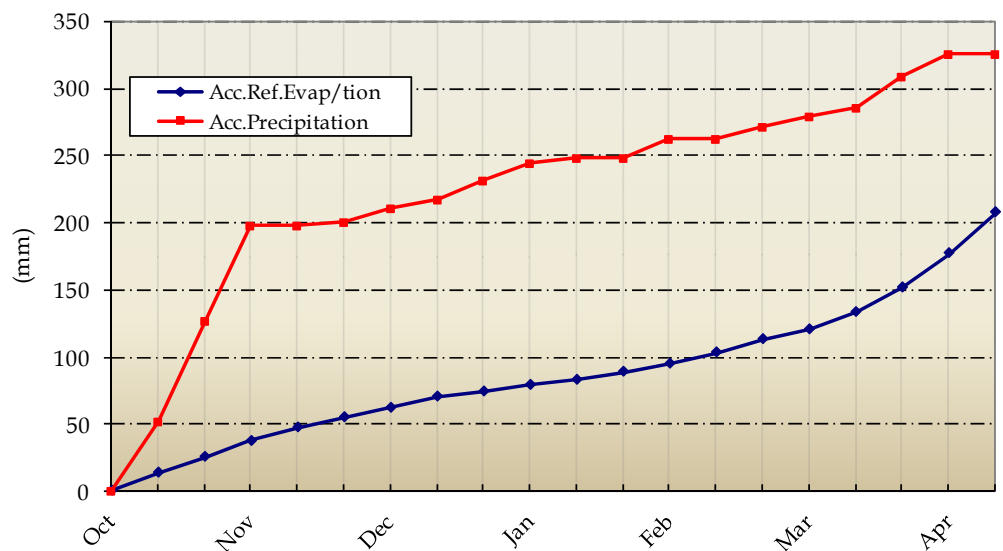


1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.2	22.6	21.8	21.8	18.0	17.2	22.6	23.8	25.6	21.2	21.3	21.2	19.3
	Min	11.6	6.8	4.8	6.8	6.8	9.8	8.8	10.8	13.6	13.2	9.3	7.1	7.0
Relative Humidity	Max	94	94	88	84	90	94	92	78	45	29	79	78	-
	Min	56	25	26	31	61	61	28	25	18	18	35	36	-
Soil Temperature at 10 cm	06 UTC	14.2	13.8	13.0	13.2	13.6	13.6	13.4	14.0	14.4	15.2	13.8	13.0	11.1
	12 UTC	15.2	14.8	14.4	14.8	14.0	14.2	15.0	14.6	15.4	16.8	14.9	14.7	13.8
Sunshine Duration		1.5	7.8	10.5	8.9	1.5	0.9	8.3	1.1	11.1	11.2	6.3	6.9	5.9
Precipitation							0.1					0.1	13.1	11.0
Evaporation		1.0	5.0	3.3	4.2	1.5	0.8	3.5	4.9	9.3	8.3	41.8	33.6	30.0
Growing Degrees	5	9.9	9.7	8.3	9.3	7.4	8.5	10.7	12.3	14.6	12.2	102.9	91.5	80.6
	10	4.9	4.7	3.3	4.3	2.4	3.5	5.7	7.3	9.6	7.2	52.9	41.5	32.7

Series

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.5	28.8	23.5
Precipitation - Reference Evapotranspiration	-30.4	-15.7	-12.5
Number of Rainy Days	1.0	1.0	2.6
Number of Dry Days	7.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

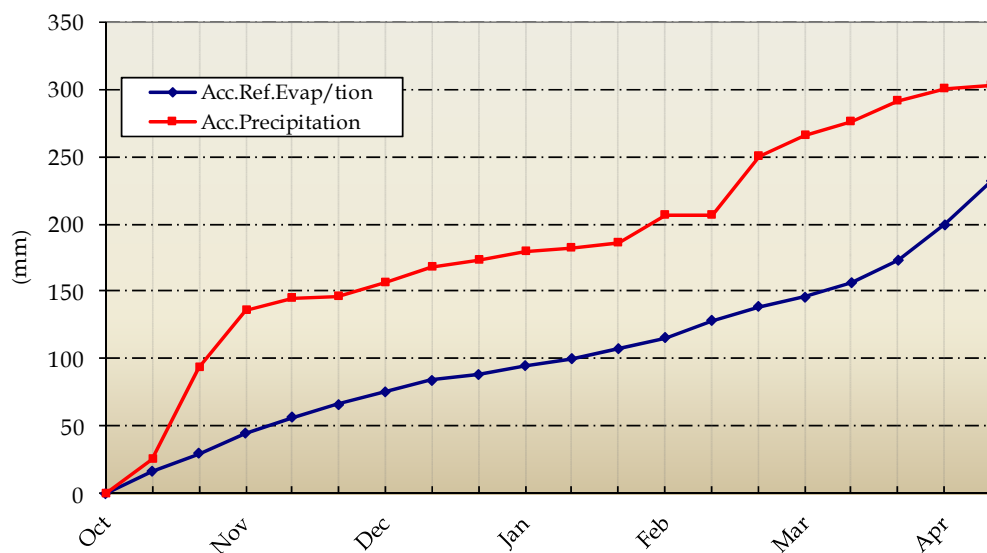


Trikala Imathias

1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	23.0	21.6	22.4	18.0	17.6	24.0	29.8	27.4	23.0	22.4	21.6	19.3
	Min	11.6	8.0	6.0	8.4	10.0	11.0	10.4	9.6	10.0	12.4	9.7	7.5	7.6
Relative Humidity	Max	98	95	97	98	95	76	96	96	81	40	87	91	-
	Min	55	17	18	28	50	35	21	25	21	18	29	35	-
Soil Temperature at 10 cm	06 UTC	13.6	13.4	13.0	13.2	14.0	13.8	13.2	13.2	14.6	15.0	13.7	13.6	12.0
	12 UTC	14.6	15.4	15.0	15.2	15.4	13.8	15.0	15.8	17.0	16.2	15.3	16.1	12.9
Sunshine Duration		0.3	8.6	9.0	8.0	1.6	0.0	10.1	7.2	10.7	11.6	6.7	8.8	6.1
Precipitation		3.0					0.1					3.1		11.2
Evaporation		1.3	2.8	3.0	2.4	1.8	1.1	3.7	3.9	4.6	2.6	27.2	-	29.2
Growing Degrees	5	9.3	10.5	8.8	10.4	9.0	9.3	12.2	14.7	13.7	12.7	110.6	-	83.5
	10	4.3	5.5	3.8	5.4	4.0	4.3	7.2	9.7	8.7	7.7	60.6	-	36.0

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.7	32.8	25.5
Precipitation - Reference Evapotranspiration	-29.6	-32.8	-14.3
Number of Rainy Days	2.0	0.0	2.3
Number of Dry Days	1.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

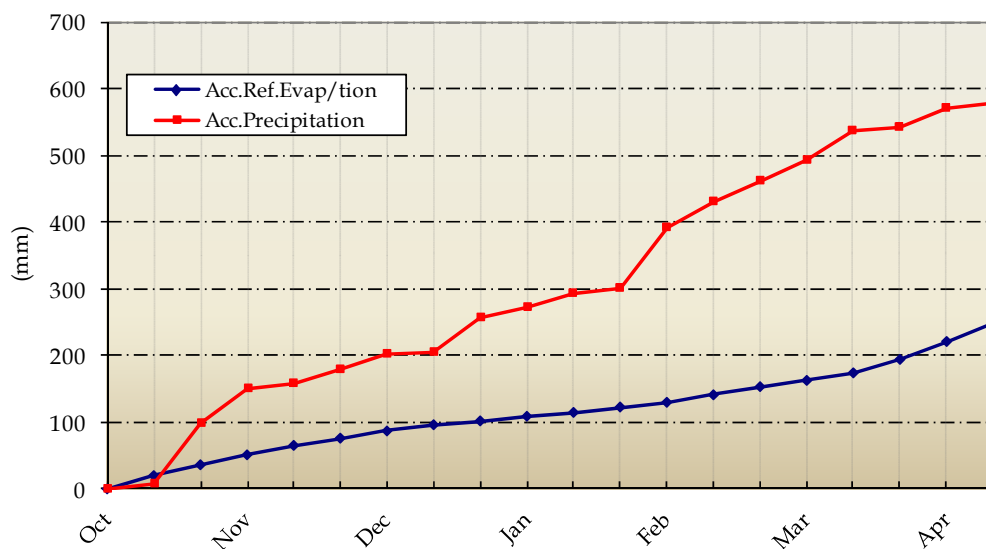


Tripoli

1st 10-day period (1-10/04/2011)		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	11.4	16.0	16.0	20.4	14.4	14.4	21.2	23.8	23.2	17.4	-	17.1
	Min	8.4	7.2	0.6	1.6	1.4	6.6	8.8	1.0	5.6	5.4	4.7	-	4.3
Relative Humidity	Max	85	80	96	97	97	94	69	92	94	91	90	-	-
	Min	69	61	43	43	32	47	44	35	27	35	44	-	-
Soil Temperature at 10 cm	06 UTC	10.0	9.0	7.0	7.8	8.8	11.2	11.0	9.0	11.4	12.4	9.8	-	9.5
	12 UTC	12.2	11.2	13.4	14.2	16.2	15.0	15.6	17.0	19.0	19.6	15.3	-	11.3
Sunshine Duration		3.1	0.5	6.7	5.4	7.6	5.1	10.5	11.0	11.0	10.9	7.2	-	6.6
Precipitation		7.3		0.4		0.4						8.1	-	17.3
Evaporation		3.0	2.0	0.4	2.0	2.4	0.6	7.4	2.0	5.0	4.0	28.8	-	26.4
Growing Degrees	5	6.0	4.3	3.3	3.8	5.9	5.5	6.6	6.1	9.7	9.3	60.5	-	57.4
	10	1.0	0.0	0.0	0.0	0.9	0.5	1.6	1.1	4.7	4.3	14.1	-	16.1

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.5	-	26.6
Precipitation - Reference Evapotranspiration	-19.4	-	-9.3
Number of Rainy Days	3.0	-	3.3
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

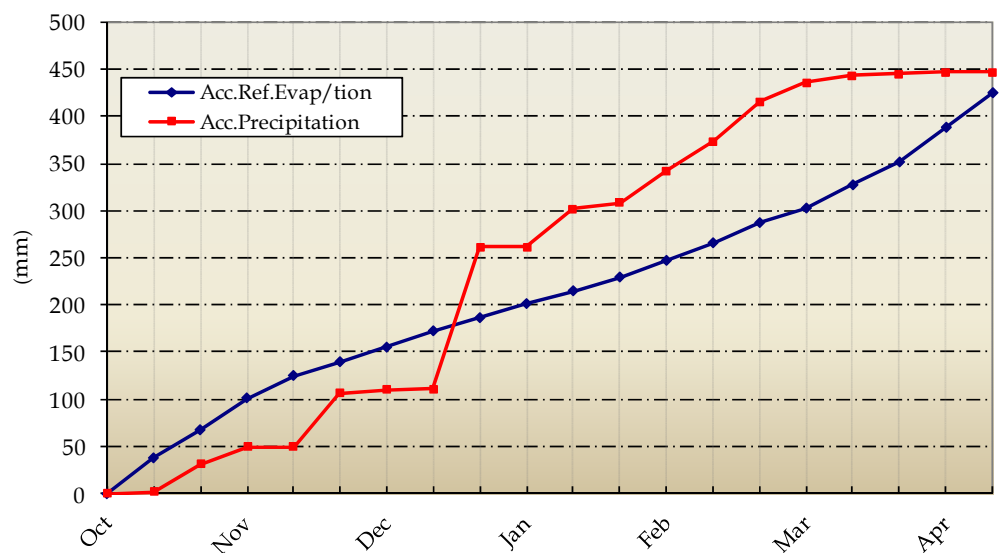


Tympaki

1st 10-day period (1-10/04/2011)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	18.6	18.6	19.0	20.6	21.4	18.0	19.4	19.4	24.2	19.9	20.5	19.9
	Min	13.6	12.6	13.4	7.6	7.4	10.6	12.0	9.2	12.6	13.0	11.2	9.6	9.8
Relative Humidity	Max	99	100	75	76	84	96	90	99	99	100	92	93	-
	Min	64	55	32	36	37	36	50	49	71	37	47	37	-
Soil Temperature at 10 cm	06 UTC	17.2	18.2	17.2	16.2	16.0	17.2	17.8	17.0	18.4	19.4	17.5	18.1	15.3
	12 UTC	21.6	20.4	21.0	20.8	21.6	22.0	21.6	22.8	23.6	24.4	22.0	23.2	19.1
Sunshine Duration		8.7	6.7	9.9	10.5	11.2	7.6	10.3	10.7	11.2	10.0	9.7	6.0	7.5
Precipitation														5.8
Evaporation		1.5	6.1	7.2	7.0	4.7	6.1	6.9	6.1	4.8	7.2	57.6	53.3	46.4
Growing Degrees	5	11.5	10.6	11.0	8.3	9.0	11.0	10.0	9.3	11.0	13.6	105.3	100.7	95.6
	10	6.5	5.6	6.0	3.3	4.0	6.0	5.0	4.3	6.0	8.6	55.3	50.7	47.0

1st 10-day period (1-10/04/2011)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.7	30.8	30.2
Precipitation - Reference Evapotranspiration	-36.7	-30.8	-24.4
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	10.0	16.0	-

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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