

# AGROMETEOROLOGICAL BULLETIN

*April 2015  
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



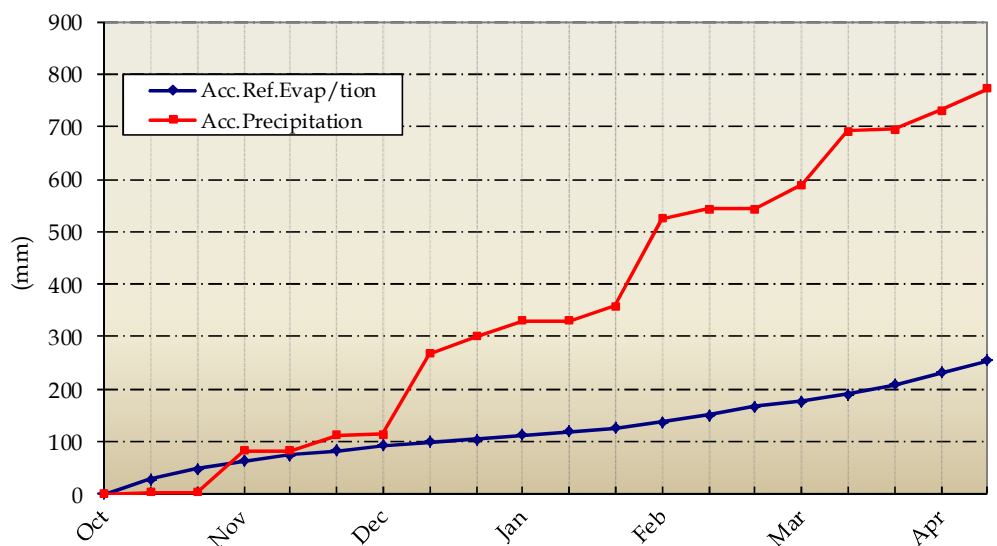
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1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.0	16.0	14.6	12.4	14.6	15.8	10.4	11.4	11.2	16.4	14.1	18.3	16.7
	Min	8.2	7.2	3.6	0.4	5.4	10.0	6.8	2.6	5.0	7.4	5.7	8.5	6.5
Relative Humidity	Max	92	91	94	75	79	98	88	86	70	57	83	93	-
	Min	56	24	47	28	33	71	52	46	43	20	42	57	-
Soil Temperature at 10 cm	06 UTC	11.6	11.8	9.8	7.0	10.4	13.0	10.0	7.4	8.0	6.6	9.6	13.4	10.4
	12 UTC	17.8	16.4	13.6	14.4	15.2	14.0	11.6	11.6	9.8	13.6	13.8	16.6	13.5
Sunshine Duration		9.9	10.2	2.9	11.2	5.0	0.1	0.0	5.1	0.0	12.0	5.6	6.6	6.1
Precipitation			8.8	0.3			31.2	1.5		0.0		41.8	13.9	11.5
Evaporation		4.9	4.2	2.0	2.6	1.2	6.6	1.7	2.4	2.5	5.5	33.6	32.1	34.0
Growing Degrees	5	8.1	6.6	4.1	1.4	5.0	7.9	3.6	2.0	3.1	6.9	48.7	84.1	66.0
	10	3.1	1.6	0.0	0.0	0.0	2.9	0.0	0.0	0.0	1.9	9.5	34.1	21.0

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.7	24.8	24.4
Precipitation - Reference Evapotranspiration	17.1	-10.9	-12.9
Number of Rainy Days	4.0	2.0	2.6
Number of Dry Days	1.0	11.0	-

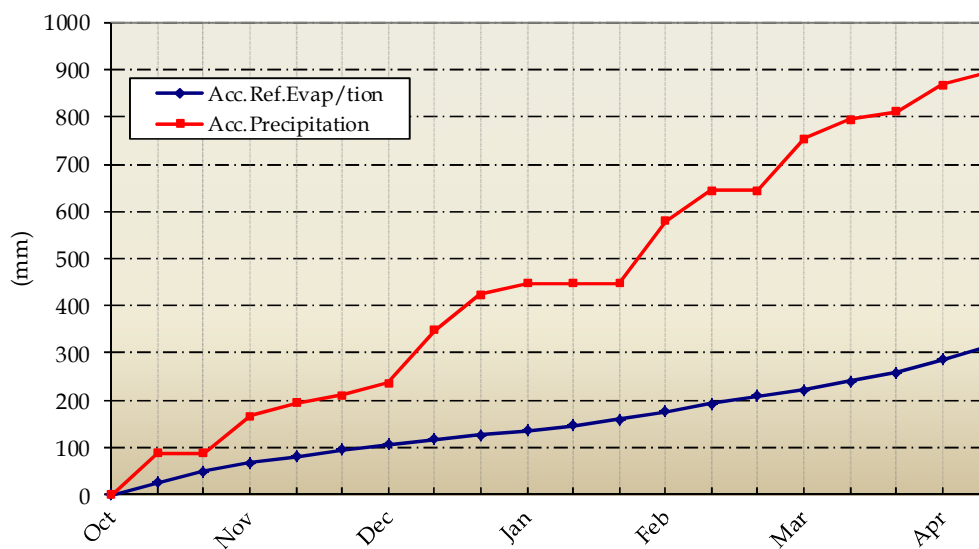
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.5	18.8	18.1	17.7	16.3	19.0	14.2	13.4	15.4	17.9	16.9	20.6	18.6
	Min	9.0	10.0	7.2	8.5	9.8	12.2	10.5	5.9	4.3	4.5	8.2	10.3	8.6
Relative Humidity	Max	91	91	88	92	92	86	77	86	82	83	87	90	-
	Min	64	52	31	39	70	51	41	44	31	30	45	46	-
Soil Temperature at 10 cm	06 UTC	14.2	15.0	14.0	14.6	14.0	14.4	14.4	12.0	13.0	-	14.0	15.4	12.9
	12 UTC	17.6	18.4	18.0	17.8	16.8	17.8	16.0	18.5	-	-	17.6	19.0	15.7
Sunshine Duration		9.4	10.5	11.1	9.7	1.4	8.9	8.1	6.3	7.2	11.6	8.4	8.3	6.9
Precipitation						23.8	1.9	1.5				27.2	4.9	14.7
Evaporation		2.3	2.7	4.0	4.0	0.7	5.5	9.1	3.9	6.0	9.0	47.2	43.8	34.4
Growing Degrees	5	8.8	9.4	7.7	8.1	8.1	10.6	7.4	4.7	4.9	6.2	75.6	104.5	86.1
	10	3.8	4.4	2.7	3.1	3.1	5.6	2.4	0.0	0.0	1.2	26.1	54.5	36.7

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.7	31.5	26.7
Precipitation - Reference Evapotranspiration	-2.5	-26.6	-12.0
Number of Rainy Days	3.0	1.0	2.8
Number of Dry Days	4.0	10.0	-

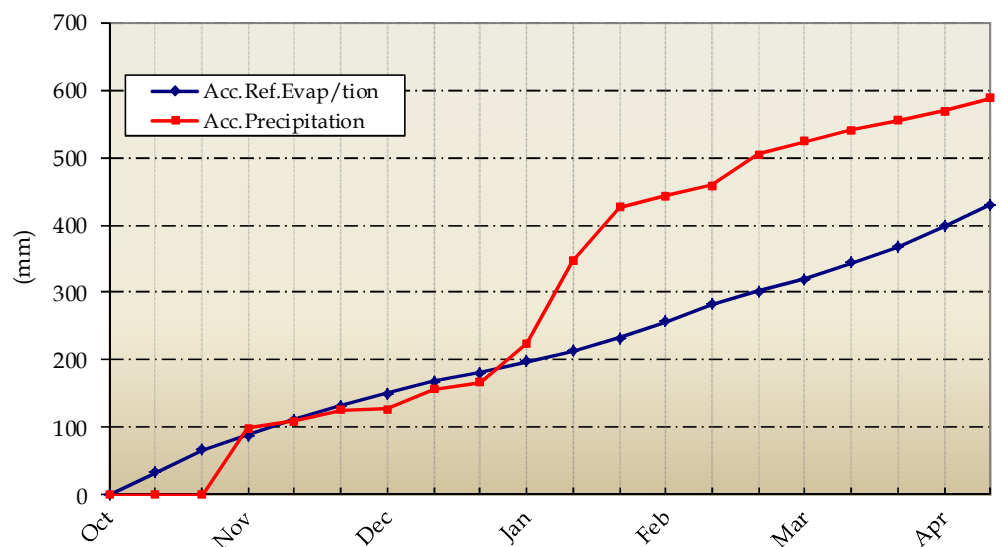
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	18.6	18.2	17.2	20.8	22.2	17.2	14.4	12.2	13.4	17.6	20.5	19.4
	Min	9.8	12.4	9.6	10.0	9.0	15.4	11.6	12.8	9.0	10.2	11.0	11.6	11.6
Relative Humidity	Max	86	86	90	83	82	85	73	90	82	66	82	89	-
	Min	40	63	58	52	49	45	56	59	51	41	51	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.4	5.7	10.4	4.9	7.6	1.1	7.8	0.0	4.4	4.2	5.6	7.6	7.0
Precipitation			0.0				0.2		6.7	9.4	3.2	19.5	2.0	8.6
Evaporation		4.8	2.6	0.9	6.7	0.4	2.6	5.8	0.7	6.6	5.1	36.2	-	45.2
Growing Degrees	5	11.0	10.5	8.9	8.6	9.9	13.8	9.4	8.6	5.6	6.8	93.1	110.6	105.0
	10	6.0	5.5	3.9	3.6	4.9	8.8	4.4	3.6	0.6	1.8	43.1	60.6	55.0

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.4	33.2	-
Precipitation - Reference Evapotranspiration	-12.9	-31.2	8.6
Number of Rainy Days	4.0	2.0	1.8
Number of Dry Days	5.0	20.0	-

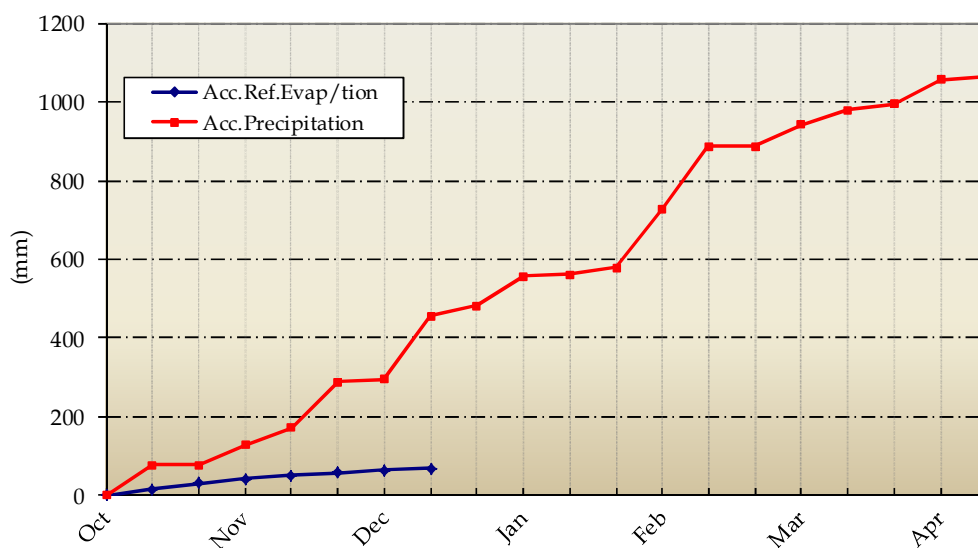
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2015)		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	18.5	15.6	14.5	11.0	13.3	10.4	10.6	15.5	15.3	13.9	19.1	16.8
	Min	3.8	6.0	-0.6	-0.7	8.2	7.2	0.9	2.2	5.2	2.3	3.4	5.6	5.4
Relative Humidity	Max	100	100	100	94	100	100	100	90	60	95	94	97	-
	Min	70	26	28	37	66	59	48	32	22	23	41	35	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.3
Sunshine Duration		1.5	9.1	9.1	7.0	0.1	3.1	5.4	7.6	10.2	10.8	6.4	5.9	5.1
Precipitation		0.0				4.8	3.5	0.5				8.8	13.7	25.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	24.5
Growing Degrees	5	4.1	7.3	2.5	1.9	4.6	5.3	0.7	1.4	5.4	3.8	36.8	73.2	60.9
	10	0.0	2.3	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0	2.9	23.4	17.6

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	21.4	22.5
Precipitation - Reference Evapotranspiration	-	-7.7	3.2
Number of Rainy Days	3.0	3.0	4.1
Number of Dry Days	4.0	7.0	-

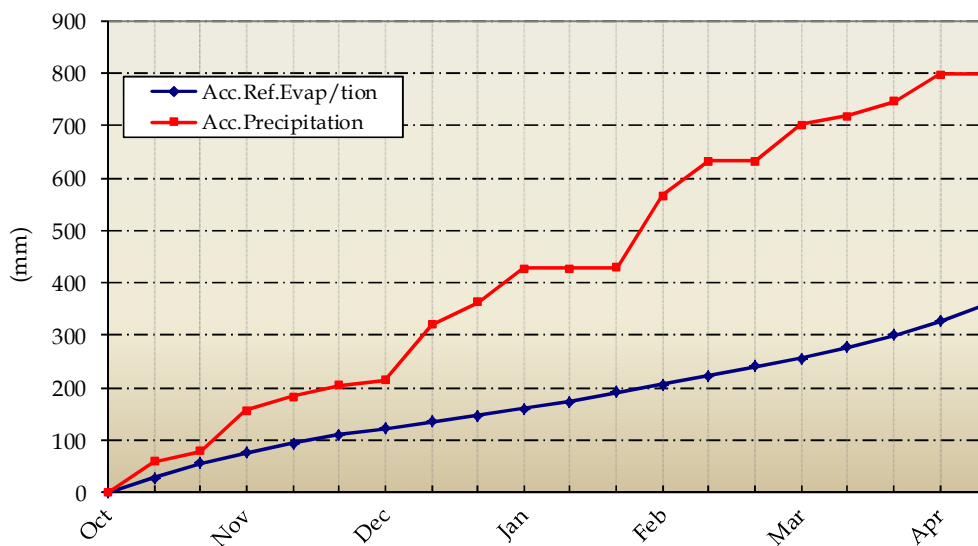
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.4	22.8	21.1	17.5	16.8	20.4	17.3	15.6	17.4	20.3	18.8	21.0	19.3
	Min	6.7	10.2	8.0	8.1	7.8	11.4	7.9	3.8	3.7	7.3	7.5	8.8	8.0
Relative Humidity	Max	94	94	95	92	93	82	89	89	83	74	88	94	-
	Min	62	30	30	53	70	47	37	33	27	14	40	49	-
Soil Temperature at 10 cm	06 UTC	14.6	14.8	14.4	14.6	14.0	14.4	14.2	13.2	12.4	12.6	13.9	14.9	12.9
	12 UTC	15.0	15.4	15.8	15.2	14.4	15.4	15.0	14.0	13.2	13.6	14.7	16.1	15.8
Sunshine Duration		7.1	11.0	10.9	5.5	3.3	7.6	10.2	7.0	8.0	9.7	8.0	7.8	6.7
Precipitation						0.7	0.3		1.9			2.9	3.0	16.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	37.8
Growing Degrees	5	7.6	11.5	9.6	7.8	7.3	10.9	7.6	4.7	5.6	8.8	81.3	98.9	86.4
	10	2.6	6.5	4.6	2.8	2.3	5.9	2.6	0.0	0.6	3.8	31.6	48.9	36.8

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.4	31.6	28.3
Precipitation - Reference Evapotranspiration	-29.5	-28.6	-12.0
Number of Rainy Days	3.0	2.0	2.8
Number of Dry Days	4.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

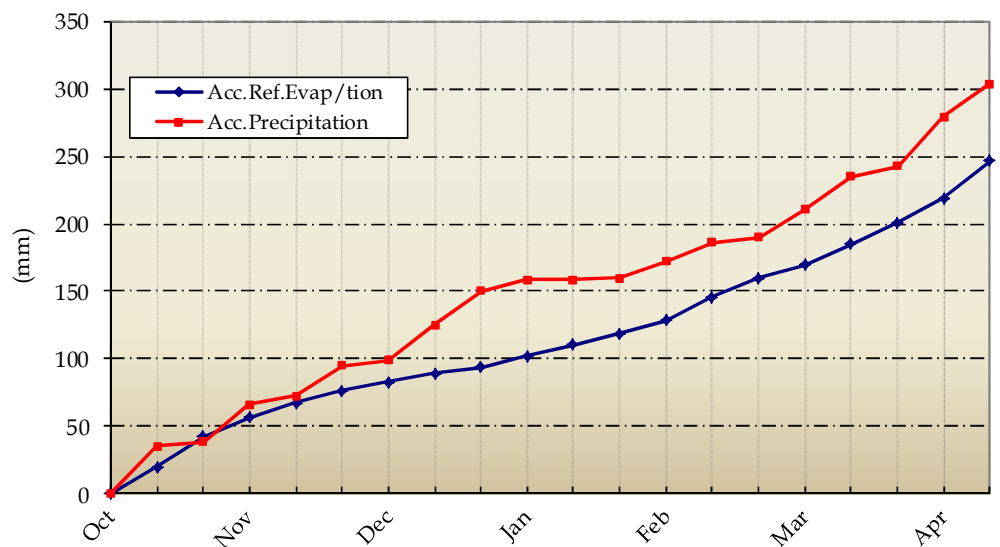


Larisa

1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	19.0	16.6	13.8	14.2	17.5	14.0	13.0	16.0	17.4	16.4	21.8	19.4
	Min	4.8	7.9	1.4	3.0	5.3	8.2	6.2	4.8	4.0	5.4	5.1	8.0	5.6
Relative Humidity	Max	100	75	93	70	100	100	97	100	100	81	92	100	-
	Min	31	25	30	29	57	64	40	38	30	25	37	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.1
Sunshine Duration		8.9	10.8	8.6	8.4	0.7	7.1	2.5	5.1	6.7	10.8	7.0	6.3	6.6
Precipitation				0.0		0.0	11.3	2.2	10.3	0.6		24.4	7.0	12.2
Evaporation		6.2	6.3	0.9	6.2	1.8	3.8	1.3	4.4	3.3	4.9	39.1	38.1	32.3
Growing Degrees	5	8.9	8.5	4.0	3.4	4.8	7.9	5.1	3.9	5.0	6.4	57.8	99.2	75.0
	10	3.9	3.5	0.0	0.0	0.0	2.9	0.1	0.0	0.0	1.4	11.7	49.2	27.5

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.3	29.8	26.4
Precipitation - Reference Evapotranspiration	-2.9	-22.8	-14.2
Number of Rainy Days	4.0	3.0	2.6
Number of Dry Days	5.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

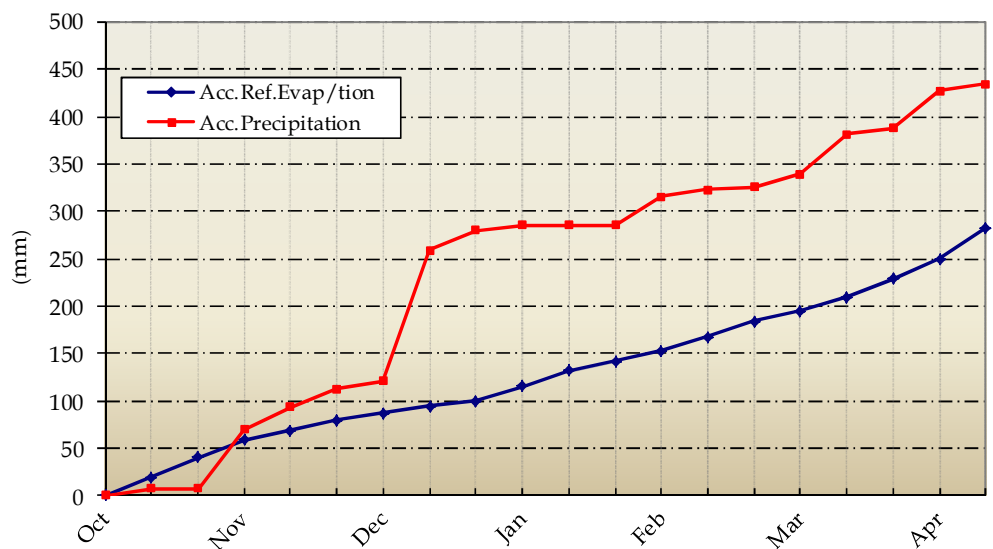


Mikra

1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.1	16.0	12.2	13.8	14.2	15.0	11.8	12.6	16.0	17.6	15.0	19.0	18.4
	Min	6.8	9.3	4.0	2.8	6.8	9.1	7.6	5.0	4.9	5.7	6.2	9.6	7.0
Relative Humidity	Max	83	65	74	63	93	94	77	90	82	72	79	88	-
	Min	35	19	33	17	54	58	49	38	29	25	36	54	-
Soil Temperature at 10 cm	06 UTC	11.8	12.0	10.2	8.6	11.2	11.4	9.6	10.0	10.0	10.4	10.5	14.6	11.4
	12 UTC	16.2	14.8	13.3	13.4	13.2	14.2	12.0	12.0	13.8	15.5	13.8	16.1	15.3
Sunshine Duration		9.6	11.5	6.5	9.3	1.4	3.4	5.9	5.0	8.0	10.8	7.1	5.7	6.4
Precipitation				0.0		0.4	6.9	0.0	0.6	0.0		7.9	9.0	12.7
Evaporation		6.1	3.4	6.2	3.0	3.9	0.8	1.2	4.4	6.8	6.2	42.0	30.6	39.9
Growing Degrees	5	9.0	7.7	3.1	3.3	5.5	7.1	4.7	3.8	5.5	6.7	56.2	92.9	77.2
	10	4.0	2.7	0.0	0.0	0.5	2.1	0.0	0.0	0.5	1.7	11.3	42.9	28.9

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	32.4	27.5	26.8
Precipitation - Reference Evapotranspiration	-24.5	-18.5	-14.1
Number of Rainy Days	3.0	4.0	2.5
Number of Dry Days	4.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

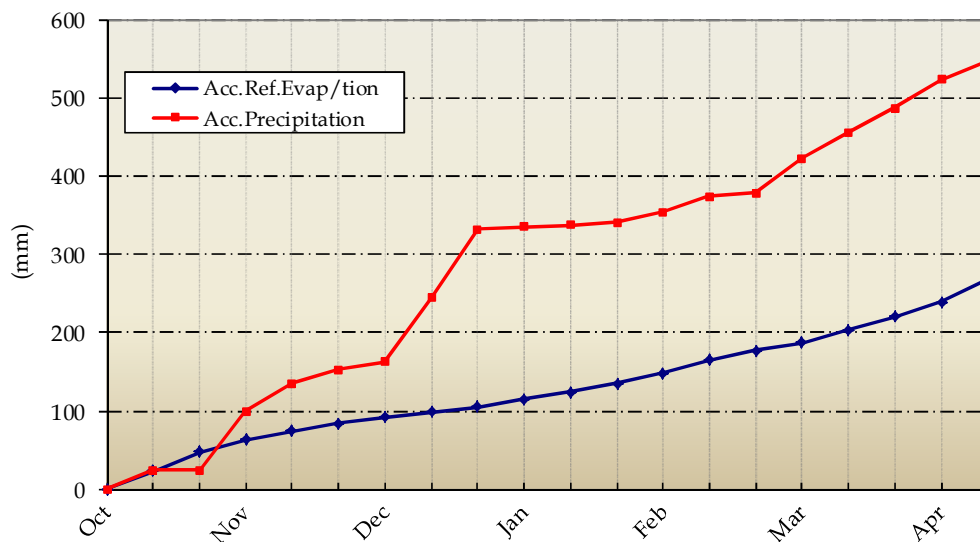




1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	15.4	18.5	14.0	17.6	20.4	14.6	10.9	12.1	13.6	16.0	20.3	18.6
	Min	9.9	8.1	3.6	8.3	7.3	13.3	8.9	6.1	2.7	7.5	7.6	8.4	6.4
Relative Humidity	Max	81	97	98	63	87	90	97	98	98	70	88	97	-
	Min	32	33	28	27	49	49	49	50	40	26	38	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.3	10.0	9.6	7.5	4.1	7.1	7.3	0.7	2.7	11.2	7.2	-	-
Precipitation						0.0	5.8	0.1	3.3	14.7		23.9	1.8	8.6
Evaporation		5.0	4.1	5.4	4.5	2.0	4.0	3.0	2.0	5.0	5.0	40.0	-	-
Growing Degrees	5	11.2	6.8	6.1	6.2	7.5	11.9	6.8	3.5	2.4	5.6	67.6	-	-
	10	6.2	1.8	1.1	1.2	2.5	6.9	1.8	0.0	0.0	0.6	21.7	-	-

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.5	-	-
Precipitation - Reference Evapotranspiration	-4.6	-	-
Number of Rainy Days	4.0	-	-
Number of Dry Days	5.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

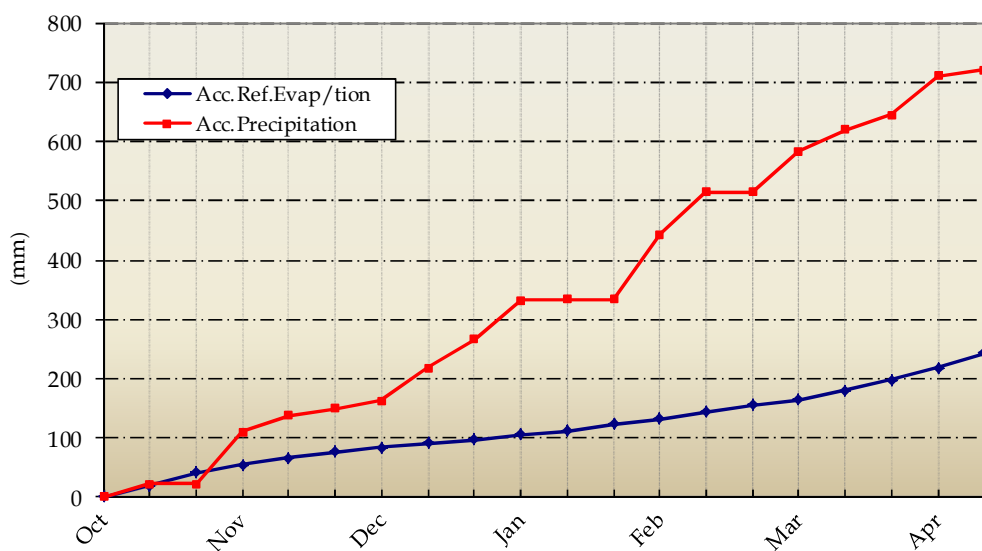


Tripoli

1st 10-day period (1-10/04/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.6	19.4	17.2	12.1	12.3	16.8	11.4	7.4	10.5	13.1	13.6	18.2	17.1
	Min	3.3	3.2	3.3	5.9	2.7	8.7	3.9	-1.7	1.0	4.2	3.4	3.5	4.3
Relative Humidity	Max	100	100	91	98	100	99	89	100	100	69	95	96	-
	Min	51	23	26	57	64	40	39	60	45	21	43	44	-
Soil Temperature at 10 cm	06 UTC	10.0	10.0	10.6	11.2	9.4	10.8	9.6	7.6	6.4	8.4	9.4	11.0	9.5
	12 UTC	13.8	14.6	15.4	-	-	14.6	12.4	8.4	10.0	-	12.7	16.2	11.3
Sunshine Duration		10.1	9.0	11.3	1.8	2.4	8.7	8.0	3.6	7.8	10.1	7.3	7.2	6.6
Precipitation						1.3	2.8	1.4	5.3			10.8	21.7	17.3
Evaporation		3.4	3.5	4.3	1.7	0.9	3.7	3.0	0.4	3.1	4.7	28.7	24.6	26.4
Growing Degrees	5	4.5	6.3	5.3	4.0	2.5	7.8	2.7	0.0	0.8	3.7	37.3	58.3	57.4
	10	0.0	1.3	0.3	0.0	0.0	2.8	0.0	0.0	0.0	0.0	4.3	9.0	16.1

1st 10-day period (1-10/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.2	25.8	26.6
Precipitation - Reference Evapotranspiration	-14.4	-4.1	-9.3
Number of Rainy Days	4.0	4.0	3.3
Number of Dry Days	4.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





## ◆ List of Symbols and Abbreviations

### Reference Evapotranspiration $ET_0$ (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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