



# AGROMETEOROLOGICAL BULLETIN

*May 2016  
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



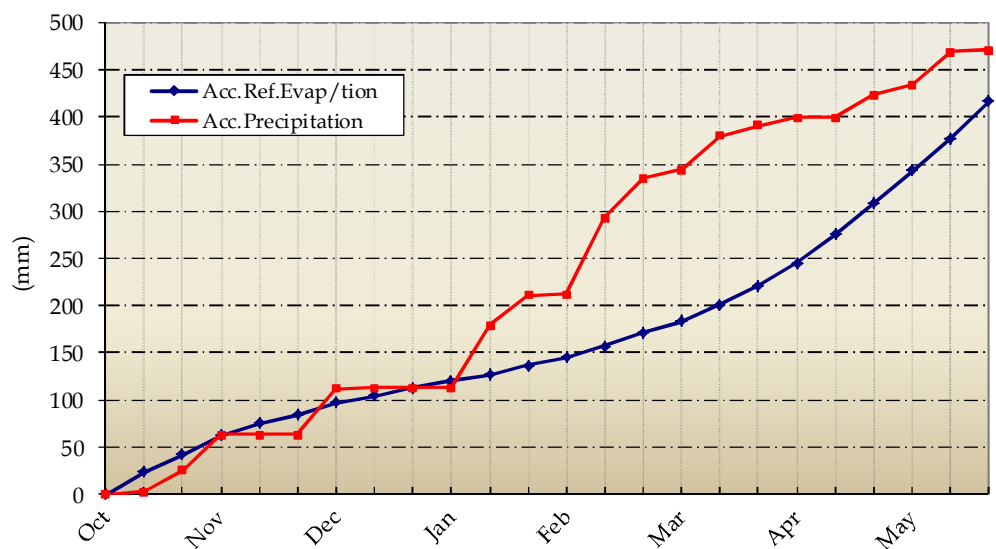
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2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.0	24.6	24.6	24.2	23.8	22.4	21.0	24.4	22.4	23.2	26.0	22.5
	Min	13.8	14.6	12.4	13.6	13.8	12.4	14.0	12.0	8.0	9.4	12.4	13.9	11.3
Relative Humidity	Max	93	93	92	96	95	96	78	98	87	92	92	85	-
	Min	60	69	64	46	51	56	34	40	48	47	52	40	-
Soil Temperature at 10 cm	06 UTC	18.6	19.6	20.5	20.5	20.7	20.5	20.6	19.6	18.0	18.6	19.7	20.9	17.0
	12 UTC	25.0	23.5	25.5	26.5	26.7	26.5	25.0	23.4	24.6	23.8	25.0	26.5	21.2
Sunshine Duration		9.9	3.5	11.4	12.4	12.4	12.8	9.0	6.6	12.8	6.6	9.7	11.5	8.2
Precipitation		0.0		0.1					1.0		0.0	1.1		10.7
Evaporation		3.9	4.0	6.0	7.0	5.1	3.4	11.9	4.0	3.9	4.8	54.0	68.7	57.1
Growing Degrees	5	13.0	13.3	13.5	14.1	14.0	13.1	13.2	11.5	11.2	10.9	127.8	149.2	118.8
	10	8.0	8.3	8.5	9.1	9.0	8.1	8.2	6.5	6.2	5.9	77.8	99.2	68.8

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.0	49.0	40.4
Precipitation - Reference Evapotranspiration	-38.9	-49.0	-29.7
Number of Rainy Days	2.0	0.0	2.3
Number of Dry Days	5.0	12.0	-

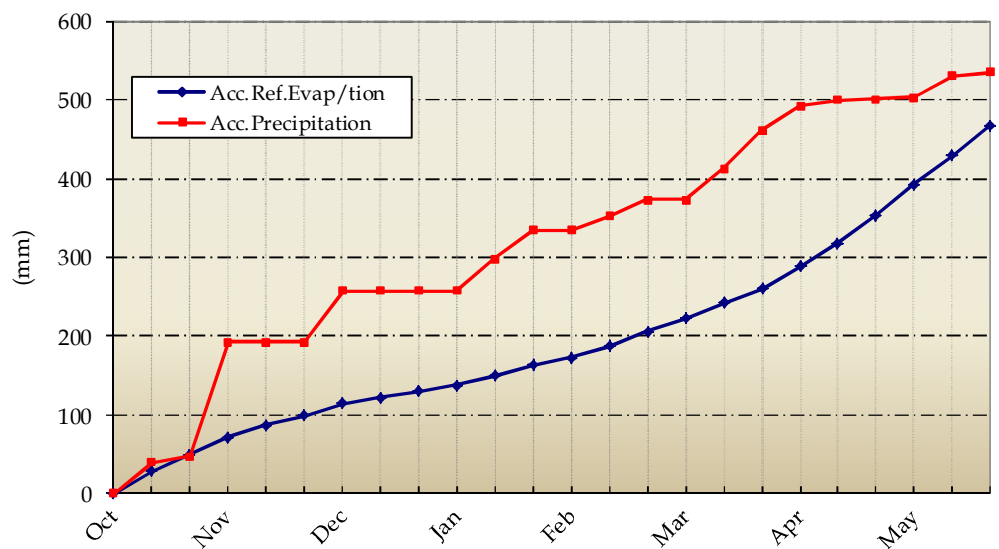
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.7	28.3	23.9	25.6	24.0	23.8	23.1	22.4	21.8	22.0	24.1	25.4	23.9
	Min	12.4	15.5	17.5	11.0	12.6	13.4	12.0	12.8	12.2	12.6	13.2	13.5	12.7
Relative Humidity	Max	81	80	88	89	88	88	89	88	87	86	86	87	-
	Min	44	41	38	25	37	43	39	45	40	47	40	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.6
Sunshine Duration		4.3	0.0	12.1	10.0	11.4	12.2	12.0	12.0	1.7	0.4	7.6	11.6	9.4
Precipitation		0.7									3.3	4.0	22.3	8.3
Evaporation		4.9	4.0	2.0	8.2	2.8	2.0	18.7	8.0	1.6	5.0	57.2	59.4	54.3
Growing Degrees	5	14.1	16.9	15.7	13.3	13.3	13.6	12.6	12.6	12.0	12.3	136.3	144.5	133.2
	10	9.1	11.9	10.7	8.3	8.3	8.6	7.6	7.6	7.0	7.3	86.3	94.5	83.2

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.7	47.4	39.7
Precipitation - Reference Evapotranspiration	-34.7	-25.1	-31.4
Number of Rainy Days	2.0	3.0	1.6
Number of Dry Days	5.0	33.0	-

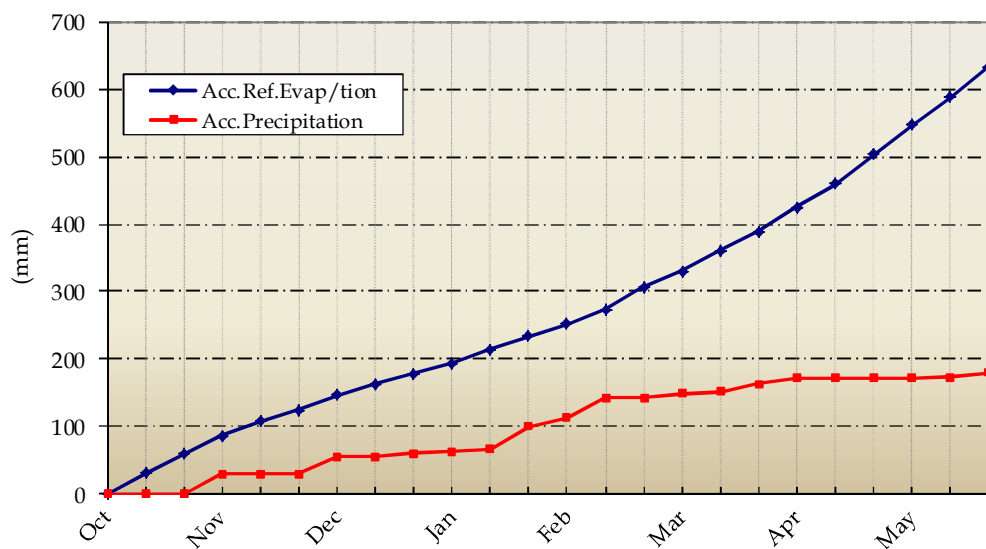
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	35.0	30.4	25.6	25.4	22.0	22.4	22.0	22.8	23.2	25.4	23.5	23.1
	Min	13.6	19.8	26.0	19.2	19.4	13.4	13.6	14.0	14.6	15.0	16.9	15.7	15.3
Relative Humidity	Max	79	62	85	79	95	84	86	85	89	86	83	85	-
	Min	34	22	39	45	51	59	46	49	60	43	45	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.8	6.7	2.8	0.1	0.2	12.6	12.8	12.7	12.0	5.9	7.7	11.5	9.7
Precipitation				0.0	0.5	5.7						6.2	0.0	3.5
Evaporation		5.7	6.6	6.7	2.4	0.3	5.2	7.4	3.7	4.6	4.6	47.2	45.2	61.2
Growing Degrees	5	14.3	22.4	23.2	17.4	17.4	12.7	13.0	13.0	13.7	14.1	161.2	146.1	142.0
	10	9.3	17.4	18.2	12.4	12.4	7.7	8.0	8.0	8.7	9.1	111.2	96.1	92.0

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.7	49.7	-
Precipitation - Reference Evapotranspiration	-38.5	-49.7	3.5
Number of Rainy Days	2.0	0.0	0.9
Number of Dry Days	8.0	40.0	-

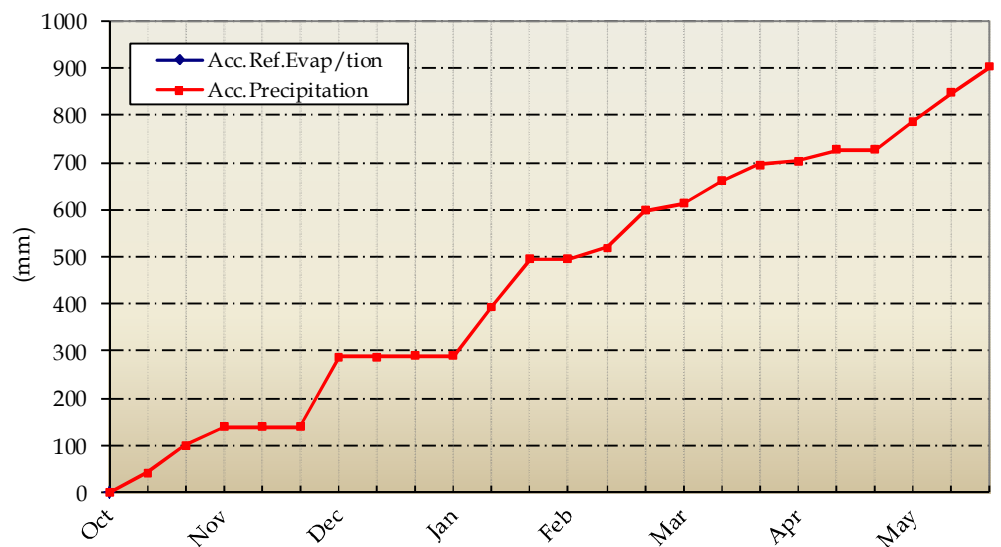
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	19.2	22.6	21.3	16.2	20.1	20.4	21.6	18.4	14.8	19.7	25.9	22.8
	Min	11.8	12.0	13.6	7.6	11.8	11.4	4.3	8.0	13.0	10.0	10.4	9.9	10.0
Relative Humidity	Max	100	100	87	100	100	100	100	100	99	100	99	94	-
	Min	51	34	46	30	76	50	44	37	56	95	52	24	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.5
Sunshine Duration		2.6	0.0	10.8	10.9	2.1	8.4	10.2	12.2	0.9	0.0	5.8	9.5	7.2
Precipitation			16.3	0.7		22.3	0.8			0.0	16.4	56.5	1.8	19.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.9
Growing Degrees	5	12.2	10.6	13.1	9.5	9.0	10.8	7.4	9.8	10.7	7.4	100.4	128.9	113.3
	10	7.2	5.6	8.1	4.5	4.0	5.8	2.4	4.8	5.7	2.4	50.4	78.9	63.4

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	34.9
Precipitation - Reference Evapotranspiration	-	-	-15.3
Number of Rainy Days	5.0	3.0	3.4
Number of Dry Days	4.0	0.0	-

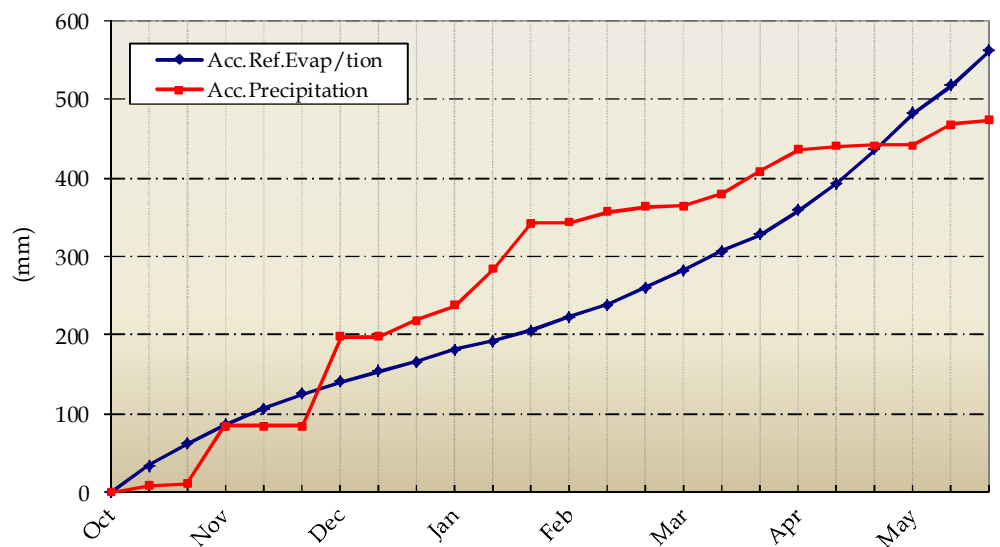
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.2	24.6	27.0	23.8	26.3	26.0	26.0	24.8	23.5	23.0	24.8	26.2	24.3
	Min	10.2	13.0	15.0	12.4	11.7	11.8	10.3	11.0	9.9	10.2	11.6	12.3	12.1
Relative Humidity	Max	90	92	94	78	88	91	92	91	90	89	90	90	-
	Min	46	59	18	33	20	40	28	36	40	41	36	36	-
Soil Temperature at 10 cm	06 UTC	18.0	18.4	19.4	18.8	18.8	19.0	18.6	18.8	19.0	18.4	18.7	18.9	18.7
	12 UTC	19.4	19.6	18.6	20.0	20.0	20.0	20.2	20.4	19.0	18.6	19.6	20.7	22.5
Sunshine Duration		7.4	5.8	10.6	8.3	11.7	12.2	12.7	12.5	4.3	1.2	8.7	10.7	9.1
Precipitation		1.3	0.2	0.2							4.0	5.7	10.1	9.5
Evaporation		3.5	3.2	7.2	3.0	7.1	4.8	6.1	2.0	2.9	2.7	42.5	-	57.5
Growing Degrees	5	11.7	13.8	16.0	13.1	14.0	13.9	13.2	12.9	11.7	11.6	131.9	142.5	132.1
	10	6.7	8.8	11.0	8.1	9.0	8.9	8.2	7.9	6.7	6.6	81.9	92.5	82.1

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.8	48.7	39.6
Precipitation - Reference Evapotranspiration	-39.1	-38.6	-30.1
Number of Rainy Days	4.0	2.0	1.8
Number of Dry Days	4.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

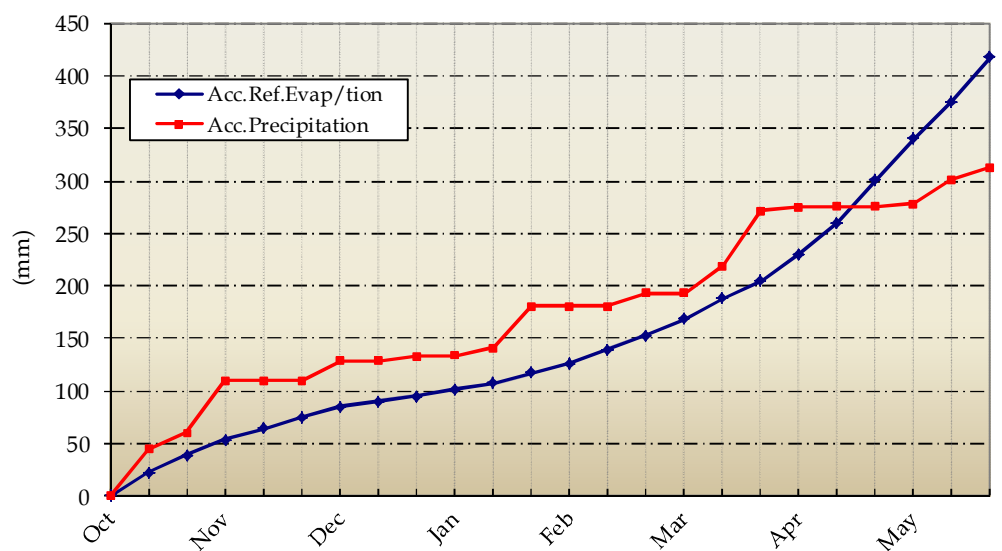


Larisa

2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	22.6	29.7	29.6	26.6	27.2	25.6	24.4	26.5	21.0	25.7	27.9	25.6
	Min	12.3	13.2	13.8	8.7	8.0	9.4	12.0	12.3	9.7	10.8	11.0	13.7	11.0
Relative Humidity	Max	100	100	100	87	86	98	100	100	99	100	97	94	-
	Min	44	66	22	15	20	22	25	25	20	58	32	34	-
Soil Temperature at 10 cm	06 UTC	19.2	19.2	19.2	17.8	19.6	19.8	20.2	20.6	20.2	20.0	19.6	20.8	18.1
	12 UTC	18.8	19.2	24.4	19.8	19.4	19.8	19.8	20.2	20.2	20.0	20.2	21.2	20.4
Sunshine Duration		3.6	0.4	11.7	12.1	8.0	12.1	10.4	10.9	7.5	0.4	7.7	8.6	8.3
Precipitation			3.0						1.9		6.3	11.2	3.2	11.8
Evaporation		4.7	4.7	5.0	10.9	10.0	10.5	8.7	7.7	6.5	0.0	68.7	77.8	55.6
Growing Degrees	5	13.3	12.9	16.8	14.2	12.3	13.3	13.8	13.4	13.1	10.9	133.8	158.0	133.1
	10	8.3	7.9	11.8	9.2	7.3	8.3	8.8	8.4	8.1	5.9	83.8	108.0	83.1

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.2	47.6	42.0
Precipitation - Reference Evapotranspiration	-31.0	-44.4	-30.2
Number of Rainy Days	3.0	3.0	2.4
Number of Dry Days	4.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

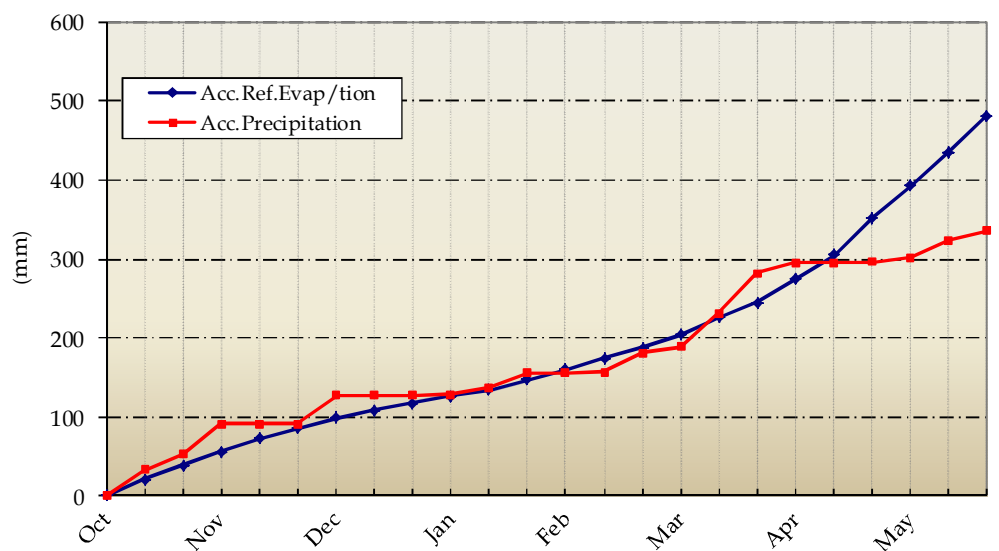


Mikra

2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.3	22.2	29.4	28.4	25.8	27.0	23.6	22.8	24.3	20.3	24.7	26.3	24.3
	Min	12.2	14.2	16.3	11.2	11.8	11.2	15.1	13.0	11.0	12.0	12.8	13.8	12.4
Relative Humidity	Max	95	92	87	74	89	90	78	83	85	94	87	88	-
	Min	47	55	41	17	23	26	27	32	30	52	35	37	-
Soil Temperature at 10 cm	06 UTC	19.2	19.7	19.4	15.8	20.4	20.2	20.0	20.1	20.2	20.2	19.5	20.4	18.8
	12 UTC	24.0	22.0	26.0	25.0	26.6	26.2	26.0	25.8	25.6	19.2	24.6	24.3	23.5
Sunshine Duration		8.5	2.6	7.6	12.8	9.5	11.1	11.1	11.0	7.8	0.9	8.3	9.8	8.1
Precipitation		5.2	0.3			0.5					6.3	12.3	13.8	11.8
Evaporation		3.5	6.2	5.3	5.2	9.1	9.4	8.9	5.8	6.3	0.2	59.9	57.5	56.4
Growing Degrees	5	12.8	13.2	17.9	14.8	13.8	14.1	14.4	12.9	12.7	11.2	137.6	150.1	133.6
	10	7.8	8.2	12.9	9.8	8.8	9.1	9.4	7.9	7.7	6.2	87.6	100.1	83.6

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.1	46.9	40.9
Precipitation - Reference Evapotranspiration	-33.8	-33.1	-29.1
Number of Rainy Days	4.0	1.0	3.0
Number of Dry Days	7.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

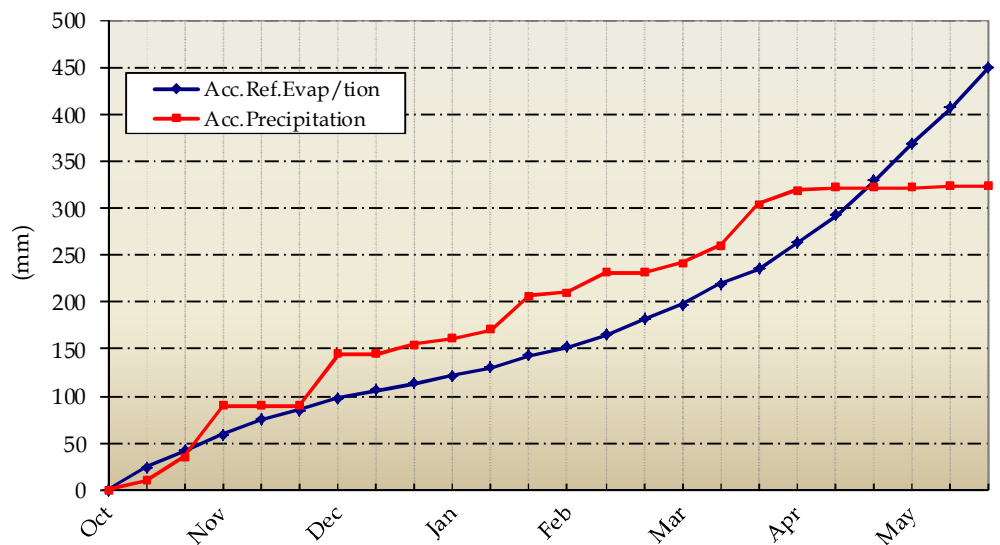




2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.2	26.8	29.8	30.4	28.2	27.9	25.0	22.8	25.6	23.2	26.5	25.7	24.8
	Min	12.2	13.4	15.8	13.4	14.1	12.8	12.2	11.6	10.3	10.8	12.7	11.7	11.2
Relative Humidity	Max	77	92	94	65	64	70	85	94	84	95	82	89	-
	Min	38	40	19	11	16	20	24	32	24	39	26	32	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.6	4.1	12.0	8.5	12.1	12.9	13.0	9.2	6.4	2.2	8.2	10.5	
Precipitation			0.0								0.0	0.0	4.6	8.2
Evaporation		6.0	5.6	10.7	8.8	9.8	8.2	8.0	5.4	6.6	5.0	74.1	72.0	
Growing Degrees	5	13.7	15.1	17.8	16.9	16.2	15.4	13.6	12.2	13.0	12.0	145.8	136.7	
	10	8.7	10.1	12.8	11.9	11.2	10.4	8.6	7.2	8.0	7.0	95.8	86.7	

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.0	45.9	
Precipitation - Reference Evapotranspiration	-44.0	-41.3	8.2
Number of Rainy Days	0.0	1.0	2.2
Number of Dry Days	15.0	10.0	-

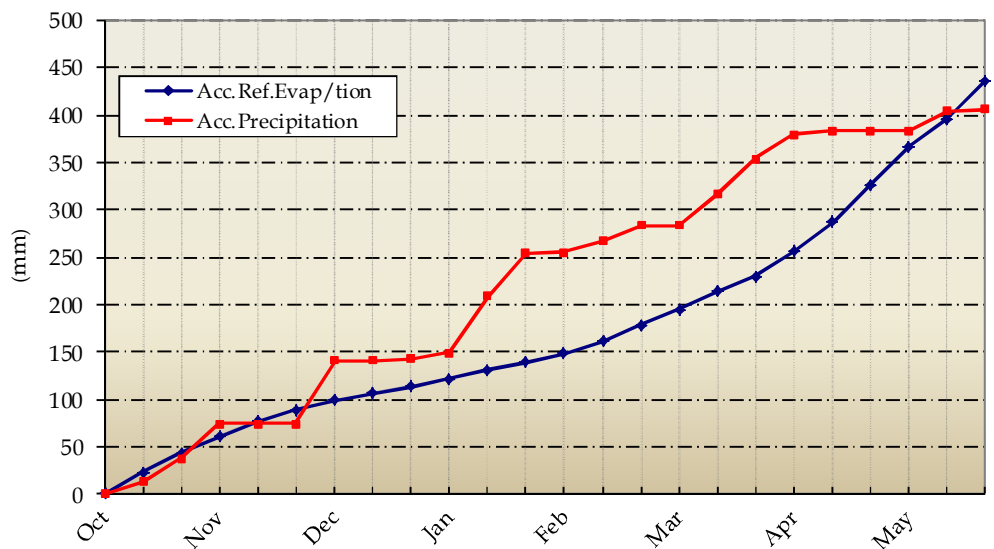
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	27.4	24.3	24.5	22.4	22.1	22.9	21.7	20.1	21.0	23.3	23.9	22.9
	Min	6.2	14.2	14.7	6.5	7.5	5.7	5.7	5.1	5.4	6.6	7.8	8.6	8.3
Relative Humidity	Max	100	97	95	84	86	96	97	100	100	100	96	98	-
	Min	16	39	13	19	18	29	22	24	37	39	26	29	-
Soil Temperature at 10 cm	06 UTC	15.8	17.8	19.0	18.2	18.0	17.8	18.2	18.2	17.2	-	17.8	17.2	16.7
	12 UTC	23.4	23.2	25.0	-	-	26.0	26.2	26.0	22.2	-	24.6	22.3	19.4
Sunshine Duration		7.4	7.9	12.0	9.3	12.4	12.9	11.9	8.4	5.9	0.3	8.8	10.2	8.4
Precipitation		0.2	0.6						1.0		0.3	2.1	21.5	15.5
Evaporation		5.1	5.2	8.3	6.7	7.3	8.3	6.3	3.1	-	-	-	53.2	41.0
Growing Degrees	5	11.3	15.8	14.5	10.5	10.0	8.9	9.3	8.4	7.8	8.8	105.2	112.3	106.0
	10	6.3	10.8	9.5	5.5	5.0	3.9	4.3	3.4	2.8	3.8	55.2	62.3	56.0

2nd 10-day period (11-20/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.5	43.2	39.8
Precipitation - Reference Evapotranspiration	-38.4	-21.7	-24.3
Number of Rainy Days	4.0	3.0	2.8
Number of Dry Days	2.0	1.0	-

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<sub>n</sub> 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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