



# AGROMETEOROLOGICAL BULLETIN

*May 2018  
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



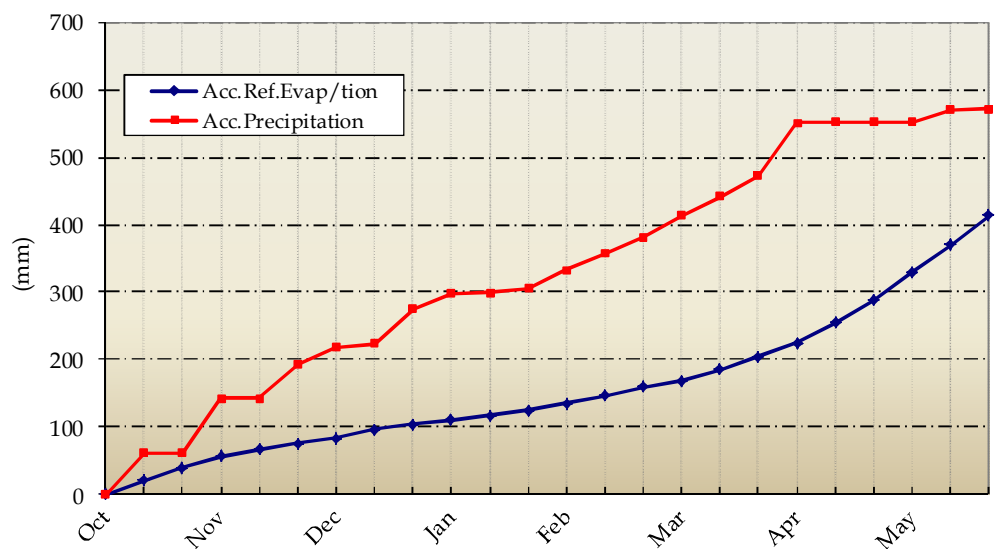
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2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.2	23.4	21.6	22.4	26.0	26.8	25.4	26.4	29.2	28.0	25.5	23.9	22.5
	Min	15.0	14.0	9.2	11.0	12.4	17.0	15.6	16.0	18.0	18.6	14.7	11.6	11.3
Relative Humidity	Max	93	96	84	97	91	96	93	82	86	93	91	90	-
	Min	45	25	39	51	52	47	39	48	43	36	42	42	-
Soil Temperature at 10 cm	06 UTC	18.2	17.0	17.4	17.6	19.4	20.8	21.6	21.2	22.0	22.6	19.8	18.2	17.0
	12 UTC	20.2	20.8	21.0	22.0	24.4	25.4	24.2	25.8	25.8	26.6	23.6	24.6	21.2
Sunshine Duration		4.1	12.7	9.9	12.4	12.3	11.6	7.4	12.4	7.4	10.9	10.1	8.6	8.2
Precipitation		0.0						0.0		1.0		1.0	12.6	10.7
Evaporation		3.5	8.3	9.1	3.9	4.0	7.5	5.0	6.8	7.1	10.0	65.2	56.8	57.1
Growing Degrees	5	15.6	13.7	10.4	11.7	14.2	16.9	15.5	16.2	18.6	18.3	151.1	127.5	118.8
	10	10.6	8.7	5.4	6.7	9.2	11.9	10.5	11.2	13.6	13.3	101.1	77.5	68.8

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.4	41.0	40.4
Precipitation - Reference Evapotranspiration	-43.4	-28.4	-29.7
Number of Rainy Days	1.0	2.0	2.3
Number of Dry Days	8.0	3.0	-

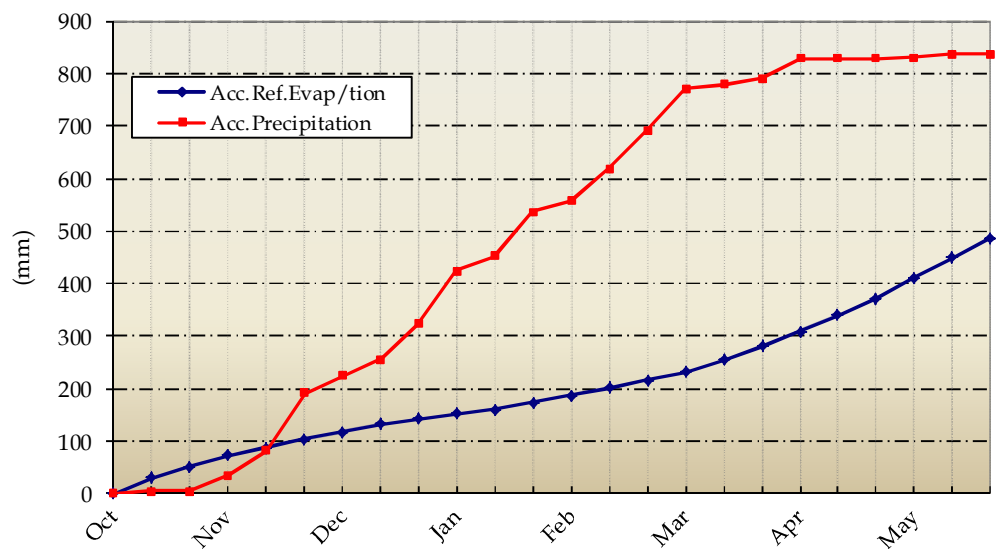
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	26.1	24.7	24.7	26.1	27.4	26.0	31.6	26.2	27.9	26.5	25.6	23.9
	Min	14.6	14.4	14.9	15.3	14.1	17.5	17.0	16.8	17.9	14.9	15.7	14.0	12.7
Relative Humidity	Max	92	90	88	93	90	90	92	79	93	95	90	85	-
	Min	52	34	47	52	30	31	44	26	55	42	41	34	-
Soil Temperature at 10 cm	06 UTC	20.6	21.3	21.0	22.2	22.1	21.8	21.6	21.8	22.0	22.2	21.7	20.7	19.3
	12 UTC	22.6	24.9	26.0	24.2	23.3	23.0	23.2	26.2	26.6	24.2	24.4	23.6	23.6
Sunshine Duration		10.0	10.4	11.6	10.4	3.7	3.4	4.4	3.3	8.9	1.3	6.7	6.8	9.4
Precipitation							0.0	0.6				0.6	6.3	8.3
Evaporation		4.0	5.0	7.0	5.0	4.0	2.6	3.0	4.0	5.0	3.0	42.6	56.8	54.3
Growing Degrees	5	14.5	15.3	14.8	15.0	15.1	17.5	16.5	19.2	17.1	16.4	161.3	147.7	133.2
	10	9.5	10.3	9.8	10.0	10.1	12.5	11.5	14.2	12.1	11.4	111.3	97.7	83.2

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.1	42.2	39.7
Precipitation - Reference Evapotranspiration	-38.5	-35.9	-31.4
Number of Rainy Days	1.0	2.0	1.6
Number of Dry Days	6.0	7.0	-

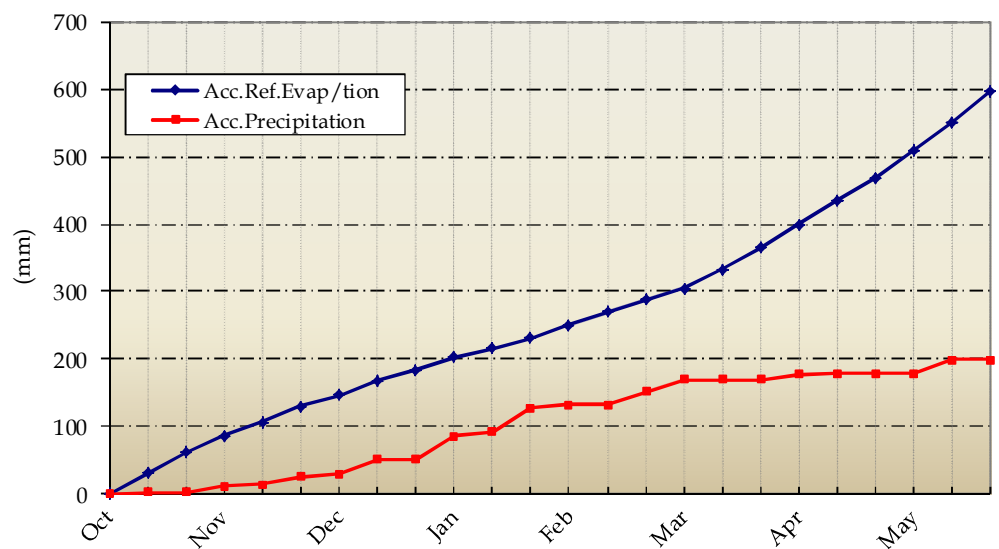
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2018)		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	22.0	22.8	24.0	27.0	26.2	28.2	27.8	36.0	26.0	26.3	24.5	23.1
	Min	15.2	19.2	19.0	14.8	15.6	17.6	18.8	18.6	24.8	21.0	18.5	17.3	15.3
Relative Humidity	Max	89	88	89	96	91	88	89	86	79	94	89	87	-
	Min	72	75	64	75	59	72	52	35	34	71	61	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.5	10.7	11.4	12.3	12.5	11.6	11.9	4.6	7.5	4.3	9.9	9.8	9.7
Precipitation													6.5	3.5
Evaporation		4.9	5.6	4.4	5.4	3.2	6.9	3.7	8.9	6.3	0.9	50.2	57.7	61.2
Growing Degrees	5	13.9	15.6	15.9	14.4	16.3	16.9	18.5	18.2	25.4	18.5	173.6	158.9	142.0
	10	8.9	10.6	10.9	9.4	11.3	11.9	13.5	13.2	20.4	13.5	123.6	108.9	92.0

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.5	45.2	-
Precipitation - Reference Evapotranspiration	-46.5	-38.7	3.5
Number of Rainy Days	0.0	2.0	0.9
Number of Dry Days	12.0	24.0	-

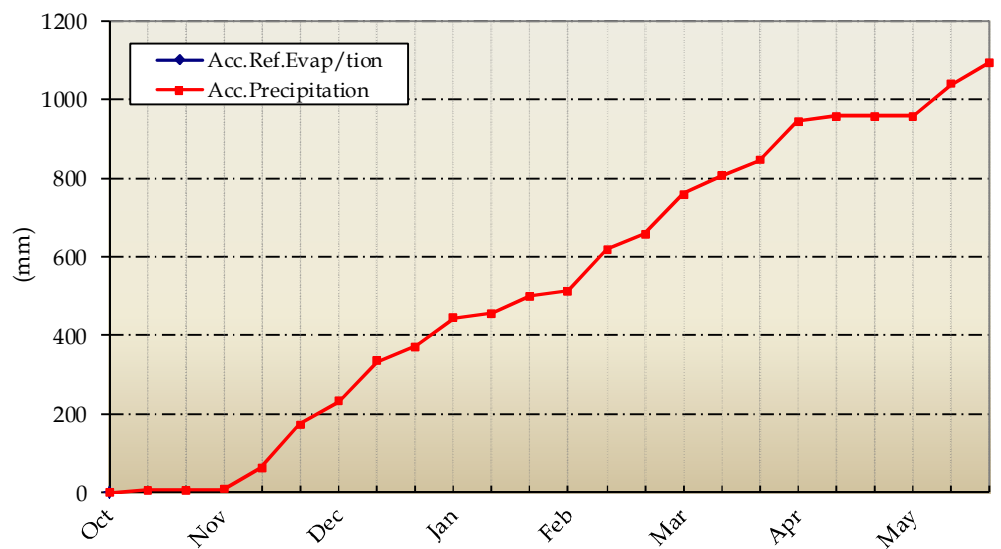
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	24.6	25.2	23.4	21.6	24.0	26.6	25.0	26.0	28.4	24.7	24.5	22.8
	Min	12.6	12.6	13.0	12.6	14.0	14.0	12.4	15.4	11.5	13.2	13.1	12.1	10.0
Relative Humidity	Max	100	100	98	98	100	96	97	100	91	100	98	89	-
	Min	56	45	51	52	62	54	41	51	46	35	49	32	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.5
Sunshine Duration		2.3	7.5	10.5	5.9	2.4	6.0	10.2	5.1	10.2	8.0	6.8	8.7	7.2
Precipitation		13.4	35.9		0.1	3.3	3.1	0.0	0.0	0.0		55.8	6.3	19.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.9
Growing Degrees	5	12.5	13.6	14.1	13.0	12.8	14.0	14.5	15.2	13.8	15.8	139.3	-	113.3
	10	7.5	8.6	9.1	8.0	7.8	9.0	9.5	10.2	8.8	10.8	89.3	-	63.4

2nd 10-day period (11-20/05/2018)		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	0.0	5.0	-

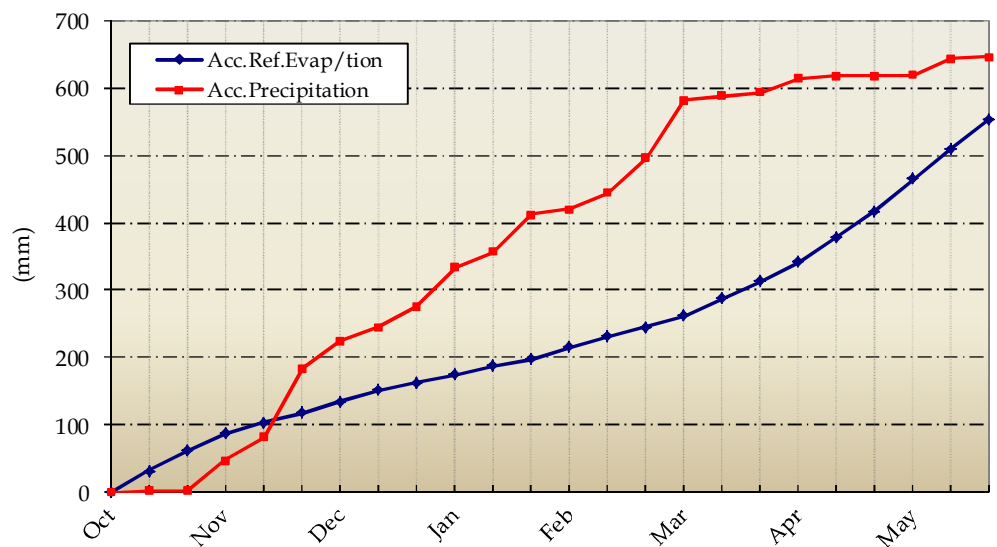
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2018)		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	24.2	25.0	27.6	28.1	25.8	29.4	32.2	25.4	28.2	27.1	25.9	24.3
	Min	14.0	13.2	13.5	14.2	13.2	15.0	15.0	16.8	13.6	14.9	14.3	13.2	12.1
Relative Humidity	Max	90	91	92	91	92	82	86	79	92	92	89	86	-
	Min	44	51	49	39	26	32	27	21	54	40	38	32	-
Soil Temperature at 10 cm	06 UTC	20.6	20.6	21.0	21.2	22.2	22.4	21.8	21.6	21.4	22.4	21.5	-	18.7
	12 UTC	23.4	23.4	23.4	24.4	24.8	23.6	23.6	22.4	24.6	23.8	23.7	-	22.5
Sunshine Duration		10.8	7.8	10.1	11.8	11.0	2.8	3.1	3.6	11.0	4.8	7.7	7.4	9.1
Precipitation		1.5						0.7	0.1		0.0	2.3	10.9	9.5
Evaporation		5.1	5.5	4.5	6.0	7.0	4.0	3.8	4.0	6.0	3.4	49.3	52.4	57.5
Growing Degrees	5	14.6	13.7	14.3	15.9	15.7	15.4	17.2	19.5	14.5	16.6	157.3	145.5	132.1
	10	9.6	8.7	9.3	10.9	10.7	10.4	12.2	14.5	9.5	11.6	107.3	95.5	82.1

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.8	43.9	39.6
Precipitation - Reference Evapotranspiration	-41.5	-33.0	-30.1
Number of Rainy Days	3.0	2.0	1.8
Number of Dry Days	2.0	23.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

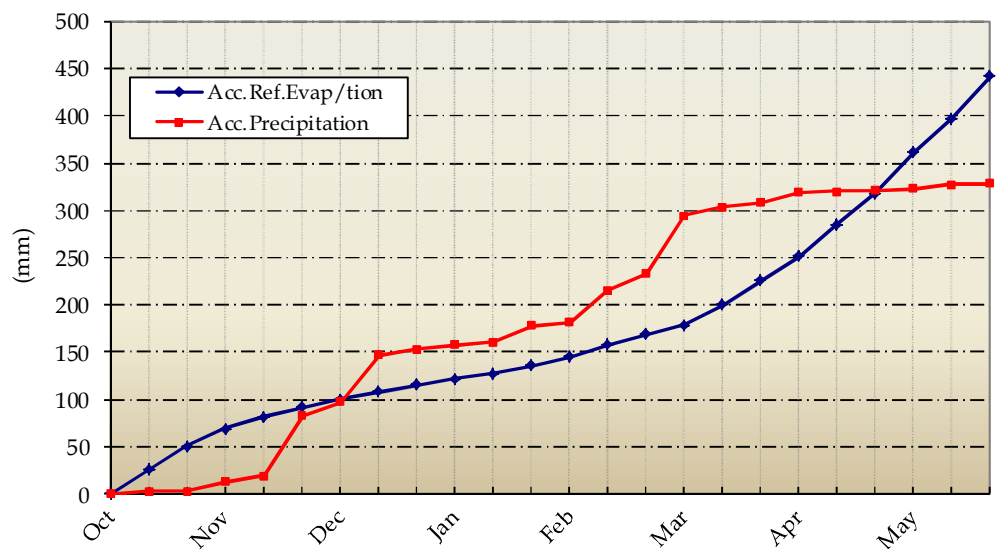


Larisa

2nd 10-day period (11-20/05/2018)		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	26.7	26.2	30.0	30.2	30.8	31.2	29.6	27.8	27.6	28.4	27.4	25.6
	Min	11.2	14.0	13.4	11.1	14.2	15.2	16.0	14.9	14.2	16.7	14.1	12.7	11.0
Relative Humidity	Max	96	93	93	96	87	75	81	87	89	91	89	95	-
	Min	48	31	39	27	26	29	25	29	39	42	34	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.4
Sunshine Duration		5.6	10.4	7.5	9.6	6.3	5.7	8.2	5.4	8.2	8.3	7.5	6.4	8.3
Precipitation		0.2	0.1	0.4	0.2			0.0	0.0	0.1	0.0	1.0	4.5	11.8
Evaporation		5.9	6.8	6.1	2.6	10.6	6.5	6.0	8.2	7.0	6.9	66.6	69.0	55.6
Growing Degrees	5	12.7	15.4	14.8	15.6	17.2	18.0	18.6	17.3	16.0	17.2	162.6	150.8	133.1
	10	7.7	10.4	9.8	10.6	12.2	13.0	13.6	12.3	11.0	12.2	112.6	100.8	83.1

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.4	42.8	42.0
Precipitation - Reference Evapotranspiration	-44.4	-38.3	-30.2
Number of Rainy Days	5.0	3.0	2.4
Number of Dry Days	0.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

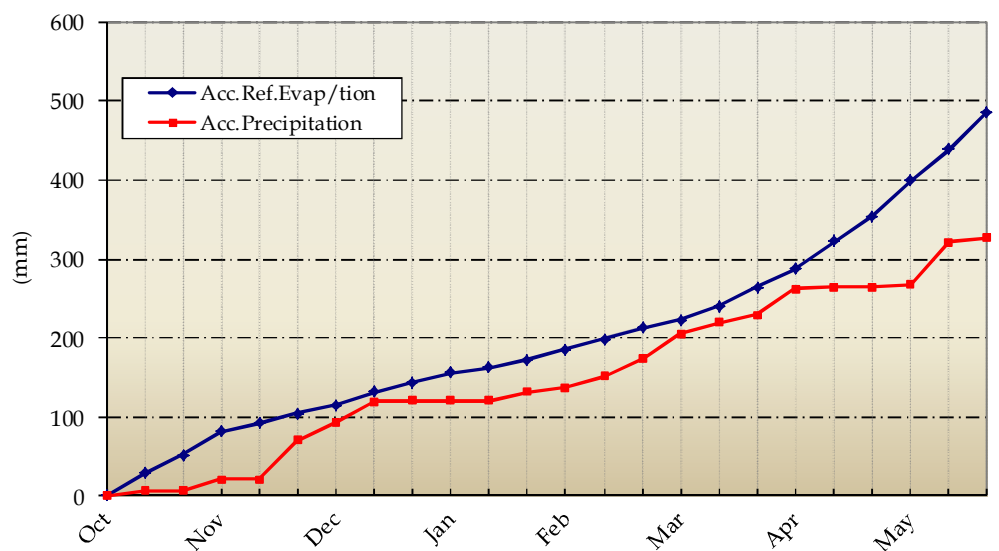


Mikra

2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.8	25.0	25.0	23.8	27.8	27.8	27.9	27.6	26.0	27.0	26.2	24.8	24.3
	Min	14.2	13.6	12.8	13.2	14.2	18.4	18.6	15.6	16.5	16.4	15.4	14.5	12.4
Relative Humidity	Max	91	88	92	92	89	62	73	79	88	85	84	84	-
	Min	41	41	47	55	30	33	30	32	46	41	40	39	-
Soil Temperature at 10 cm	06 UTC	18.5	19.0	19.5	19.0	20.0	21.0	21.2	21.6	21.8	22.5	20.4	20.8	18.8
	12 UTC	22.0	23.6	22.6	24.0	24.2	24.2	26.5	26.2	25.8	26.0	24.5	25.4	23.5
Sunshine Duration		7.8	12.8	9.3	10.7	7.2	9.0	11.5	8.4	11.0	9.1	9.7	7.9	8.1
Precipitation				0.6	3.4				0.1	0.6		4.7	8.4	11.8
Evaporation		6.0	8.6	6.4	3.4	7.2	6.8	4.6	8.3	5.4	4.7	61.4	63.5	56.4
Growing Degrees	5	14.0	14.3	13.9	13.5	16.0	18.1	18.3	16.6	16.3	16.7	157.6	146.3	133.6
	10	9.0	9.3	8.9	8.5	11.0	13.1	13.3	11.6	11.3	11.7	107.6	96.3	83.6

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.5	43.2	40.9
Precipitation - Reference Evapotranspiration	-41.8	-34.8	-29.1
Number of Rainy Days	4.0	3.0	3.0
Number of Dry Days	2.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

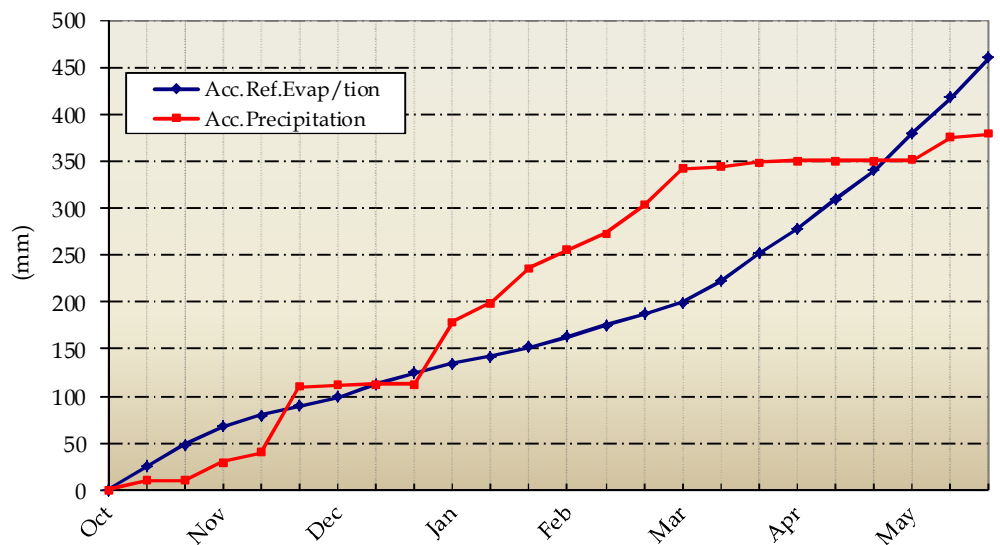




2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.6	23.9	25.4	29.1	29.8	28.5	29.7	29.9	29.4	27.3	27.7	24.9	24.8
	Min	12.4	13.8	10.0	12.9	16.0	17.2	15.7	14.6	16.0	16.2	14.5	13.6	11.2
Relative Humidity	Max	86	94	94	98	77	76	76	78	93	100	87	78	-
	Min	46	30	32	22	29	26	27	23	32	40	31	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.1	12.5	11.1	11.5	9.1	2.3	3.8	4.3	8.5	7.3	7.8	6.0	
Precipitation									0.1		4.0	4.1	40.3	8.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	13.0	13.9	12.7	16.0	17.9	17.9	17.7	17.3	17.7	16.8	160.7	142.7	
	10	8.0	8.9	7.7	11.0	12.9	12.9	12.7	12.3	12.7	11.8	110.7	92.7	

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.8	39.3	
Precipitation - Reference Evapotranspiration	-38.7	1.0	8.2
Number of Rainy Days	2.0	2.0	2.2
Number of Dry Days	7.0	15.0	-

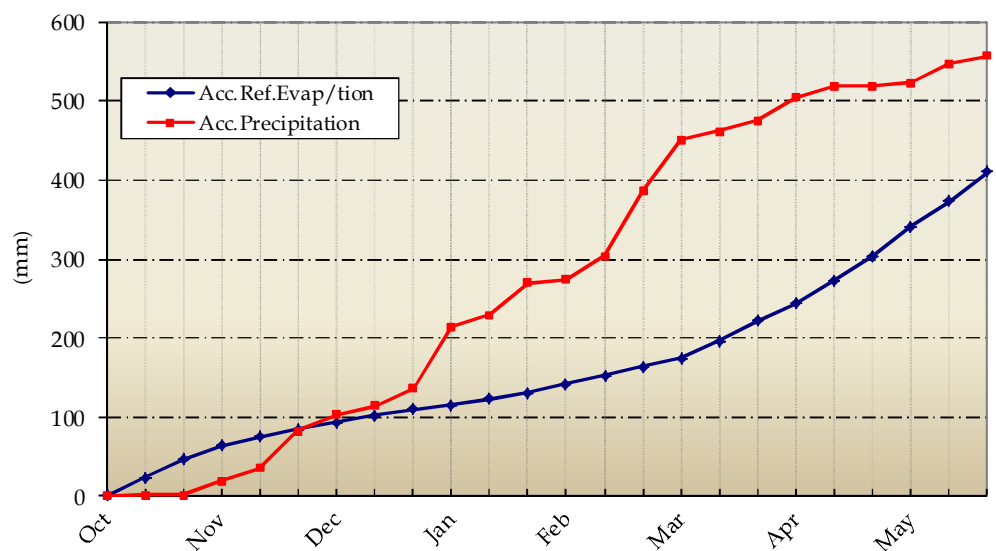
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2018)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.9	21.0	21.6	25.4	25.7	23.4	26.2	26.9	26.7	23.7	24.2	24.1	22.9
	Min	6.8	8.9	7.8	6.9	9.2	12.8	10.7	12.3	13.5	10.5	9.9	10.3	8.3
Relative Humidity	Max	100	100	100	100	100	84	92	96	90	99	96	88	-
	Min	41	41	46	30	29	24	25	27	28	52	34	32	-
Soil Temperature at 10 cm	06 UTC	15.6	-	-	15.8	17.8	19.2	18.2	18.4	18.4	20.0	17.9	18.3	16.7
	12 UTC	21.0	-	-	22.6	23.2	22.2	23.6	22.2	-	-	22.5	22.0	19.4
Sunshine Duration		10.1	10.1	10.1	12.0	11.2	2.1	5.3	4.5	11.1	5.1	8.2	7.4	8.4
Precipitation		4.6	0.1	4.7				1.3	0.0			10.7	10.6	15.5
Evaporation		-	-	-	6.5	5.3	4.2	3.3	3.6	5.7	3.9	-	55.1	41.0
Growing Degrees	5	9.4	10.0	9.7	11.2	12.5	13.1	13.5	14.6	15.1	12.1	121.0	121.9	106.0
	10	4.4	5.0	4.7	6.2	7.5	8.1	8.5	9.6	10.1	7.1	71.0	71.9	56.0

2nd 10-day period (11-20/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.4	40.0	39.8
Precipitation - Reference Evapotranspiration	-26.7	-29.4	-24.3
Number of Rainy Days	4.0	3.0	2.8
Number of Dry Days	0.0	23.0	-

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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