



# AGROMETEOROLOGICAL BULLETIN

*April 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



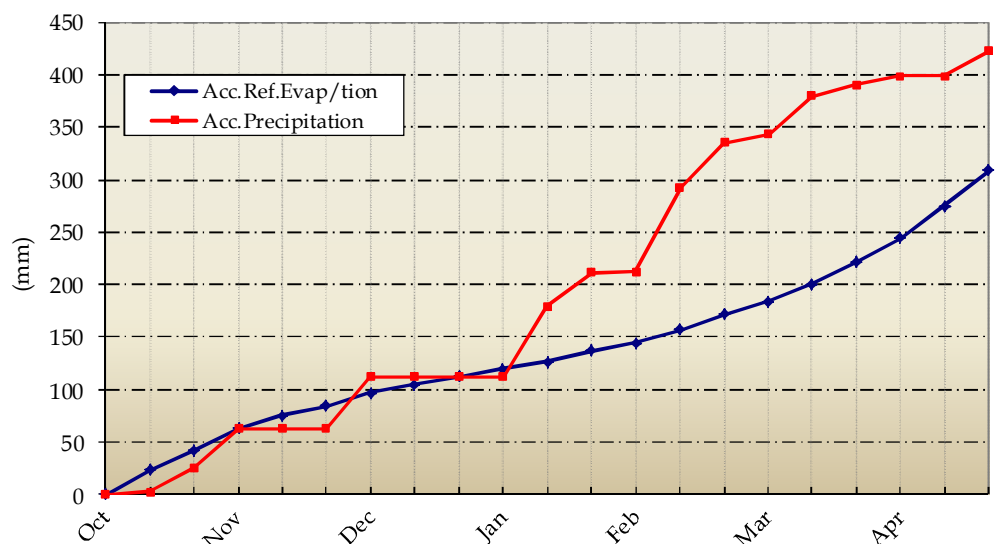
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2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.0	19.4	21.4	22.6	22.4	21.8	22.4	24.0	26.0	25.0	22.4	18.4	16.6
	Min	11.8	12.8	8.6	11.6	11.0	8.0	9.0	9.8	10.4	14.0	10.7	7.0	7.0
Relative Humidity	Max	98	95	95	88	91	88	87	92	95	75	90	87	-
	Min	67	63	53	60	47	42	56	56	33	30	51	47	-
Soil Temperature at 10 cm	06 UTC	16.4	15.8	14.0	15.2	15.6	15.6	16.0	16.8	17.4	19.0	16.2	12.5	11.5
	12 UTC	20.5	19.8	20.6	19.5	22.0	22.0	23.0	23.0	23.0	24.5	21.8	18.4	14.7
Sunshine Duration		3.5	7.2	11.4	5.8	11.9	12.2	12.0	10.1	9.0	10.4	9.4	9.6	5.9
Precipitation		23.0	0.4									23.4	0.3	15.2
Evaporation		1.7	3.7	2.3	5.4	4.1	5.3	4.9	6.5	5.0	5.0	43.9	35.2	38.8
Growing Degrees	5	10.4	11.1	10.0	12.1	11.7	9.9	10.7	11.9	13.2	14.5	115.5	77.0	67.9
	10	5.4	6.1	5.0	7.1	6.7	4.9	5.7	6.9	8.2	9.5	65.5	28.8	22.8

2nd 10-day period (11-20/04/2016)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	33.4	31.2	26.7
Precipitation - Reference Evapotranspiration	-10.0	-30.9	-11.5
Number of Rainy Days	2.0	2.0	2.8
Number of Dry Days	15.0	6.0	-

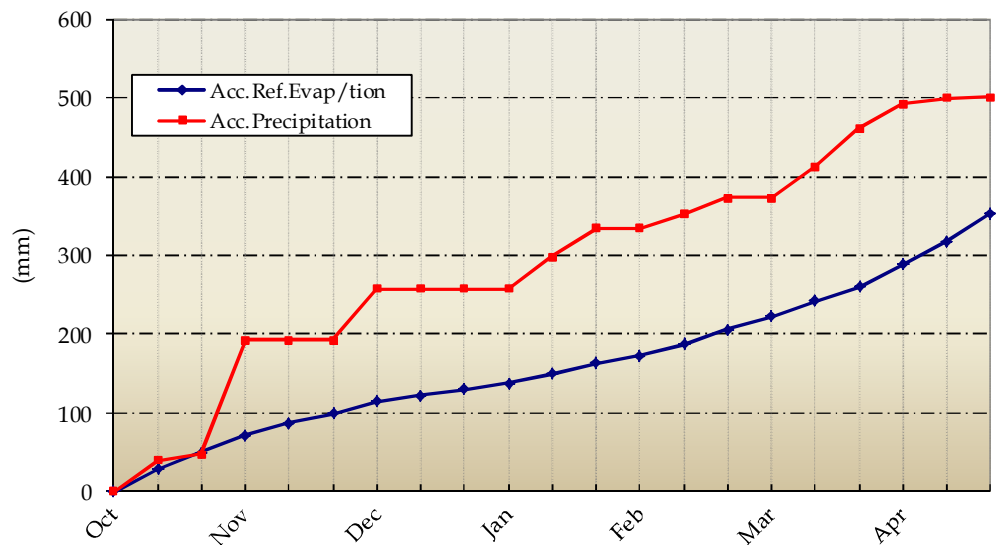
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	21.0	22.9	24.8	23.0	23.2	24.2	26.8	27.6	23.2	23.6	20.2	18.4
	Min	9.5	12.1	10.3	11.2	11.1	9.1	8.8	6.9	10.8	12.1	10.2	9.0	9.1
Relative Humidity	Max	90	87	91	87	86	87	88	89	84	89	88	87	-
	Min	60	47	42	33	45	37	39	26	20	55	40	46	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.7
Sunshine Duration		7.8	11.7	8.7	6.0	11.0	11.3	12.2	9.3	11.0	11.5	10.0	10.7	7.2
Precipitation		0.7										0.7		25.7
Evaporation		4.6	5.0	1.0	6.8	2.2	1.4	10.6	4.0	5.4	4.0	45.0	56.0	37.7
Growing Degrees	5	9.4	11.6	11.6	13.0	12.1	11.2	11.5	11.9	14.2	12.7	118.9	95.9	87.1
	10	4.4	6.6	6.6	8.0	7.1	6.2	6.5	6.9	9.2	7.7	68.9	45.9	37.4

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.6	34.5	28.0
Precipitation - Reference Evapotranspiration	-34.9	-34.5	-2.3
Number of Rainy Days	1.0	0.0	3.3
Number of Dry Days	0.0	13.0	-

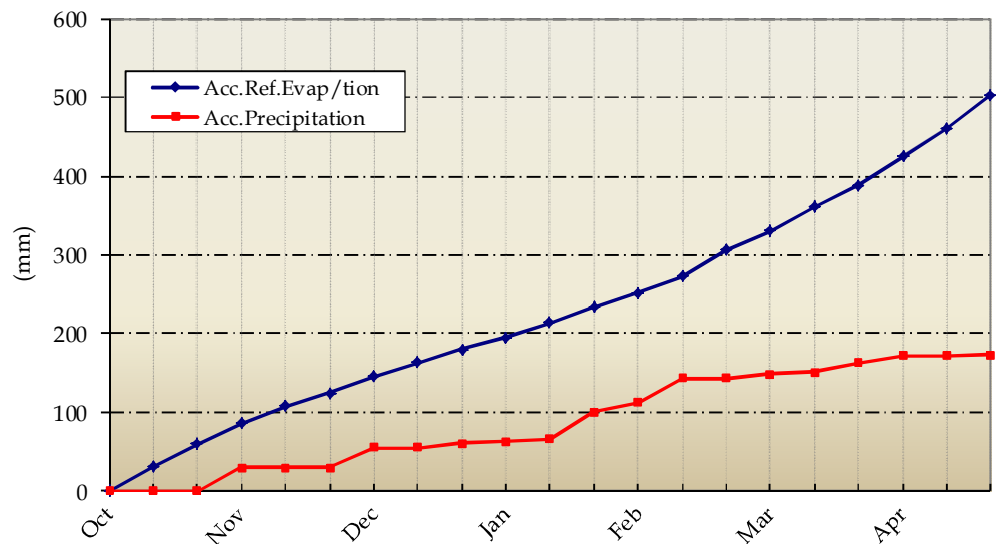
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	20.8	22.4	25.8	28.6	21.6	22.6	23.0	24.2	30.8	24.0	20.5	19.9
	Min	12.4	16.4	13.6	13.8	16.8	12.0	13.2	13.0	12.4	18.0	14.2	12.4	12.0
Relative Humidity	Max	75	73	81	91	89	89	86	84	84	82	83	87	-
	Min	53	58	43	34	23	60	55	34	27	10	40	46	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.2	10.9	10.8	9.8	9.9	11.4	11.1	11.5	11.7	4.4	10.2	10.0	7.4
Precipitation		0.4										0.4		11.4
Evaporation		5.2	3.2	3.6	7.8	6.0	1.4	1.4	4.9	6.3	9.7	49.5	38.9	52.7
Growing Degrees	5	11.4	13.6	13.0	14.8	17.7	11.8	12.9	13.0	13.3	19.4	140.9	114.3	109.6
	10	6.4	8.6	8.0	9.8	12.7	6.8	7.9	8.0	8.3	14.4	90.9	64.3	59.7

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.6	39.5	-
Precipitation - Reference Evapotranspiration	-43.2	-39.5	11.4
Number of Rainy Days	1.0	0.0	2.0
Number of Dry Days	13.0	10.0	-

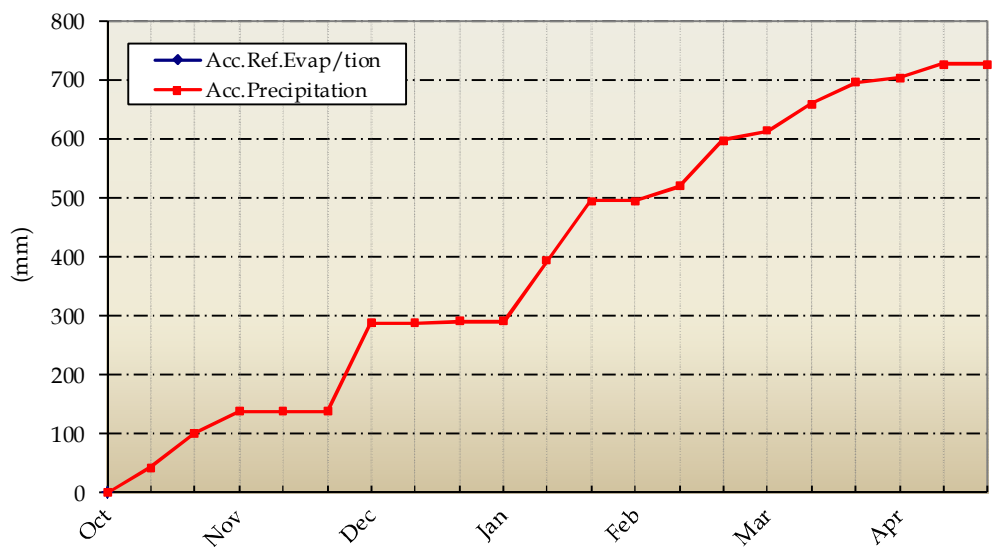
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.2	23.3	23.4	25.3	24.8	25.4	26.2	28.8	29.6	25.2	24.8	21.3	16.1
	Min	6.0	3.0	8.8	8.1	5.5	4.2	6.3	5.4	10.0	6.6	6.4	3.9	5.7
Relative Humidity	Max	98	100	92	100	99	100	90	100	82	100	96	100	-
	Min	71	44	37	21	26	15	30	17	20	13	29	29	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.9
Sunshine Duration		4.2	10.3	7.2	7.6	11.0	10.4	10.2	10.5	9.4	10.8	9.2	8.5	4.9
Precipitation		0.0										0.0	0.0	35.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	28.5
Growing Degrees	5	6.1	8.2	11.1	11.7	10.2	9.8	11.3	12.1	14.8	10.9	106.1	76.4	58.8
	10	1.1	3.2	6.1	6.7	5.2	4.8	6.3	7.1	9.8	5.9	56.1	27.1	15.8

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	24.2
Precipitation - Reference Evapotranspiration	-	-	10.9
Number of Rainy Days	0.0	0.0	4.7
Number of Dry Days	10.0	13.0	-

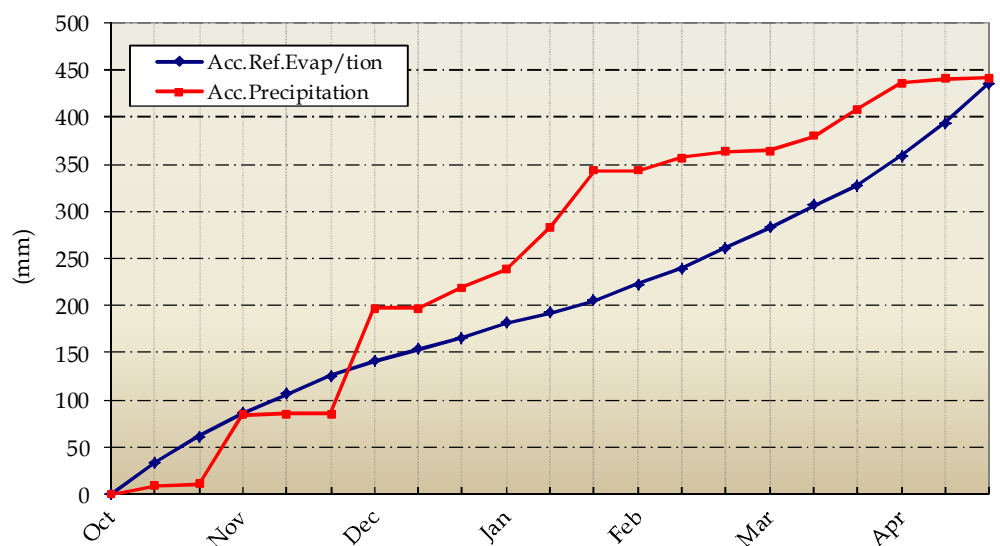
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.1	24.1	23.4	24.4	25.0	25.2	24.8	25.6	26.4	24.6	24.5	22.0	19.2
	Min	8.4	11.2	10.2	9.3	9.6	8.5	7.4	6.4	9.8	9.0	9.0	7.5	8.4
Relative Humidity	Max	93	85	87	91	91	91	91	86	84	92	89	93	-
	Min	46	32	36	36	37	37	33	25	28	35	34	38	-
Soil Temperature at 10 cm	06 UTC	16.4	15.8	16.0	16.4	16.4	17.0	17.0	17.0	17.4	17.4	16.7	14.8	13.9
	12 UTC	17.2	18.0	18.4	18.2	19.0	19.2	19.6	19.0	19.0	19.6	18.7	16.1	16.9
Sunshine Duration		7.7	10.8	10.9	8.9	10.7	11.4	11.8	11.6	11.0	11.0	10.6	10.1	7.1
Precipitation		1.0										1.0	0.0	25.5
Evaporation		1.9	9.0	7.8	3.0	5.2	5.6	4.2	6.5	5.0	4.5	52.7	-	41.0
Growing Degrees	5	9.8	12.7	11.8	11.9	12.3	11.9	11.1	11.0	13.1	11.8	117.2	97.4	88.0
	10	4.8	7.7	6.8	6.9	7.3	6.9	6.1	6.0	8.1	6.8	67.2	47.4	38.2

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.8	38.8	28.5
Precipitation - Reference Evapotranspiration	-41.8	-38.8	-3.0
Number of Rainy Days	1.0	0.0	4.1
Number of Dry Days	0.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

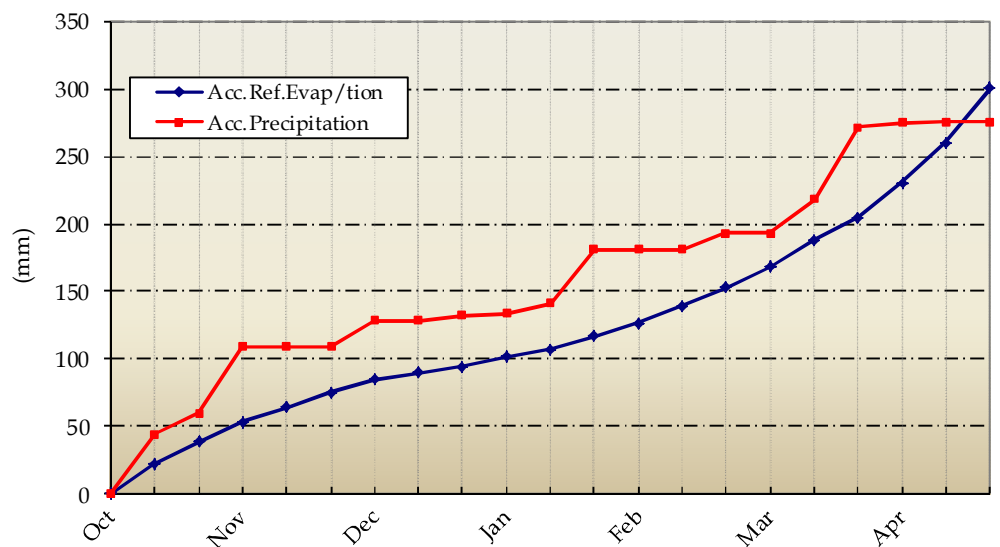




2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	25.6	26.4	29.4	26.1	27.0	29.4	30.8	31.0	26.2	27.4	22.6	19.0
	Min	8.1	6.6	5.8	10.2	15.6	7.4	8.4	7.4	10.8	9.5	9.0	5.8	6.4
Relative Humidity	Max	100	100	100	100	57	98	100	100	100	92	95	97	-
	Min	40	33	39	15	21	25	23	23	25	26	27	31	-
Soil Temperature at 10 cm	06 UTC	15.4	16.0	16.4	17.2	17.6	8.2	18.0	18.2	18.8	19.2	16.5	-	12.8
	12 UTC	15.6	16.0	16.2	17.0	17.0	15.0	18.0	18.2	19.0	19.2	17.1	-	14.4
Sunshine Duration		10.0	11.7	7.6	7.5	11.8	11.7	10.5	9.9	6.3	11.3	9.8	9.2	6.4
Precipitation													0.0	13.6
Evaporation		7.0	5.0	4.6	5.2	11.7	4.9	5.9	5.1	5.2	8.7	63.3	54.1	36.9
Growing Degrees	5	10.4	11.1	11.1	14.8	15.9	12.2	13.9	14.1	15.9	12.9	132.2	92.2	77.0
	10	5.4	6.1	6.1	9.8	10.9	7.2	8.9	9.1	10.9	7.9	82.2	42.2	28.8

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.1	36.8	28.6
Precipitation - Reference Evapotranspiration	-41.1	-36.8	-15.0
Number of Rainy Days	0.0	0.0	3.4
Number of Dry Days	10.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

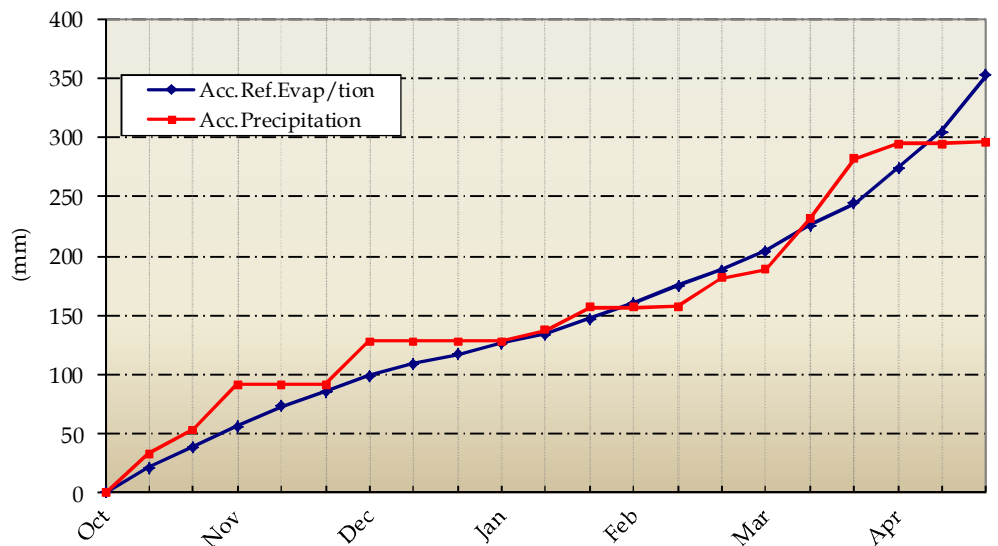


Mikra

2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	24.8	24.8	27.6	25.0	25.4	26.2	25.0	26.8	20.8	24.7	21.5	18.2
	Min	10.6	14.9	8.7	11.2	9.4	8.6	9.0	10.4	12.3	12.4	10.8	8.6	7.7
Relative Humidity	Max	64	75	87	86	72	76	82	87	91	91	81	82	-
	Min	40	29	41	24	21	31	30	46	37	33	33	29	-
Soil Temperature at 10 cm	06 UTC	16.0	15.4	14.9	15.8	16.8	16.2	15.3	17.4	18.4	18.4	16.5	13.3	12.6
	12 UTC	17.0	19.4	21.2	26.4	20.8	24.0	21.8	21.4	23.1	21.2	21.6	18.6	16.4
Sunshine Duration		5.9	11.5	10.3	7.6	11.9	11.4	10.2	10.0	6.8	12.8	9.8	10.0	6.1
Precipitation		1.1										1.1	5.2	14.5
Evaporation		2.3	10.1	5.3	6.9	9.8	2.7	12.3	5.6	5.4	11.6	72.0	56.3	39.8
Growing Degrees	5	10.8	14.9	11.8	14.4	12.2	12.0	12.6	12.7	14.6	11.6	127.5	100.7	79.5
	10	5.8	9.9	6.8	9.4	7.2	7.0	7.6	7.7	9.6	6.6	77.5	50.7	31.0

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.3	41.0	29.0
Precipitation - Reference Evapotranspiration	-46.2	-35.8	-14.5
Number of Rainy Days	1.0	2.0	3.4
Number of Dry Days	14.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



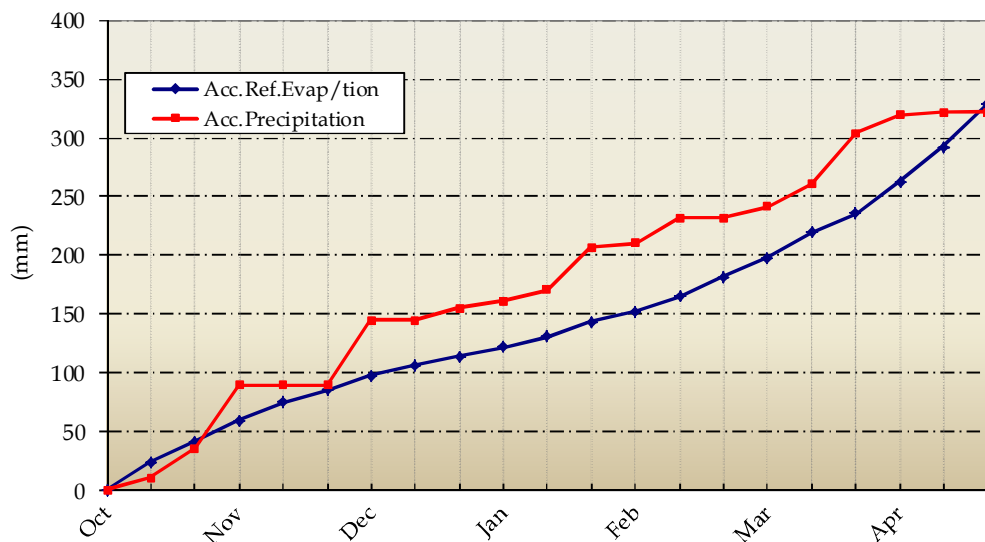


Tanagra

2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	24.1	27.2	27.6	25.8	26.0	26.9	29.4	31.5	26.4	26.6	21.4	18.6
	Min	7.8	9.8	8.2	10.6	12.6	8.5	8.2	8.3	10.6	12.0	9.7	7.2	7.2
Relative Humidity	Max	89	94	95	78	74	78	82	76	72	95	83	92	-
	Min	41	30	26	18	19	29	25	13	12	28	24	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.6	11.3	9.8	1.8	11.5	12.0	11.2	11.7	9.6	11.2	9.5	8.9	
Precipitation													0.5	10.8
Evaporation		4.5	3.5	4.0	6.0	6.5	6.5	5.0	7.0	7.5	7.2	57.7	47.5	
Growing Degrees	5	9.2	12.0	12.7	14.1	14.2	12.3	12.6	13.9	16.1	14.2	131.1	93.1	
	10	4.2	7.0	7.7	9.1	9.2	7.3	7.6	8.9	11.1	9.2	81.1	43.1	

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.4	31.9	
Precipitation - Reference Evapotranspiration	-36.4	-31.4	10.8
Number of Rainy Days	0.0	1.0	3.9
Number of Dry Days	10.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

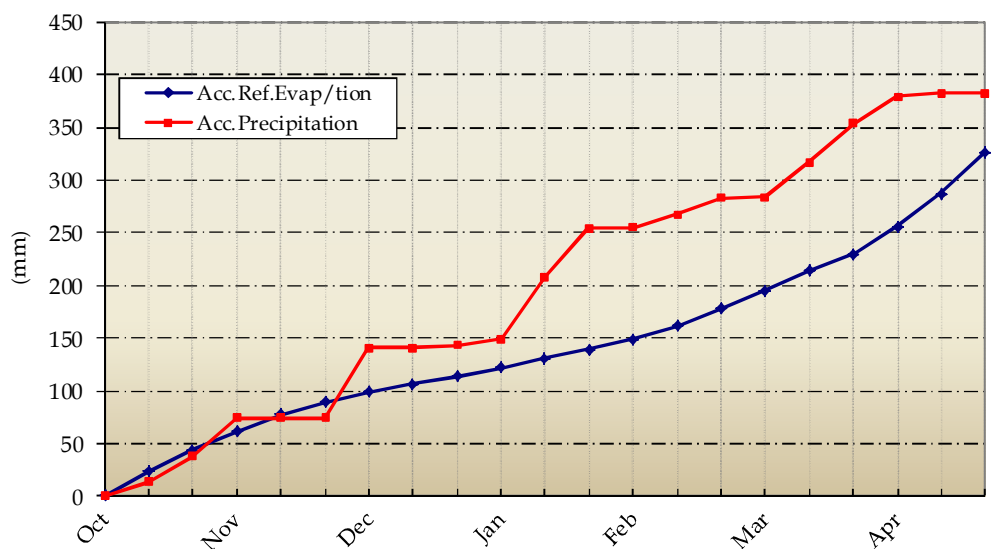


Tripoli

2nd 10-day period (11-20/04/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.9	23.7	28.8	25.8	25.5	25.6	28.4	29.3	29.4	26.2	26.1	20.1	16.3
	Min	5.9	3.9	3.2	6.1	7.7	3.4	2.5	2.4	7.4	11.0	5.4	3.0	4.8
Relative Humidity	Max	99	100	100	100	87	100	98	92	86	81	94	99	-
	Min	48	19	15	16	16	11	11	12	12	22	18	25	-
Soil Temperature at 10 cm	06 UTC	12.4	12.2	13.2	15.2	15.0	15.4	15.6	16.0	17.6	18.4	15.1	10.9	10.9
	12 UTC	16.6	19.6	20.6	20.6	22.8	-	-	23.8	24.8	24.8	21.7	15.7	12.7
Sunshine Duration		9.8	11.6	10.3	6.0	11.6	11.2	11.6	11.7	10.7	10.7	10.5	9.1	6.7
Precipitation													1.6	30.8
Evaporation		3.6	4.6	3.8	4.7	6.1	6.0	5.9	7.0	7.2	5.6	54.5	40.0	29.8
Growing Degrees	5	6.9	8.8	11.0	11.0	11.6	9.5	10.5	10.9	13.4	13.6	107.1	65.3	55.6
	10	1.9	3.8	6.0	6.0	6.6	4.5	5.5	5.9	8.4	8.6	57.1	17.8	14.5

2nd 10-day period (11-20/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.2	32.4	28.5
Precipitation - Reference Evapotranspiration	-39.2	-30.8	2.3
Number of Rainy Days	0.0	3.0	4.5
Number of Dry Days	10.0	5.0	-

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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