



# AGROMETEOROLOGICAL BULLETIN

*June 2015*  
*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



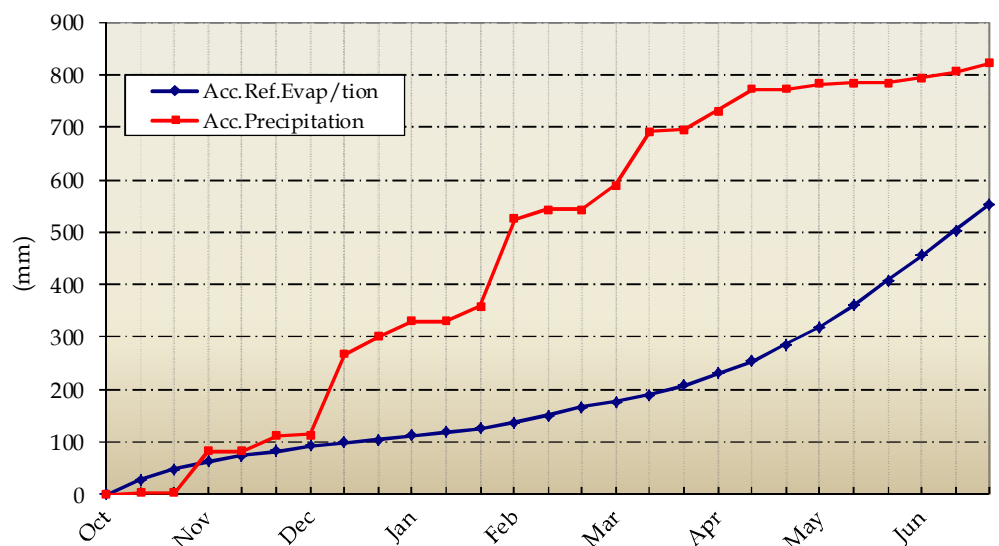
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2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	32.0	28.8	29.0	27.6	28.4	30.2	24.4	27.0	27.6	28.3	28.2	27.5
	Min	17.6	16.4	14.6	15.4	17.0	18.2	16.2	18.0	17.0	15.2	16.6	17.8	15.2
Relative Humidity	Max	96	96	90	88	84	92	92	87	82	87	89	90	-
	Min	48	31	37	40	37	55	36	64	36	41	42	49	-
Soil Temperature at 10 cm	06 UTC	21.5	21.2	22.2	23.4	24.2	24.5	22.4	22.6	22.0	22.6	22.7	24.1	22.6
	12 UTC	25.8	27.2	28.4	29.5	28.6	29.6	29.2	25.2	28.0	28.6	28.0	28.0	27.3
Sunshine Duration		8.4	12.9	13.7	11.5	11.3	8.1	11.6	6.3	11.0	12.3	10.7	10.5	10.3
Precipitation		3.4					2.9		9.8			16.1	24.2	11.6
Evaporation		4.4	3.1	7.9	6.2	8.8	5.8	10.9	5.4	7.9	6.8	67.2	76.0	79.3
Growing Degrees	5	18.0	19.2	16.7	17.2	17.3	18.3	18.2	16.2	17.0	16.4	174.5	180.1	163.4
	10	13.0	14.2	11.7	12.2	12.3	13.3	13.2	11.2	12.0	11.4	124.5	130.1	113.4

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.1	49.2	52.7
Precipitation - Reference Evapotranspiration	-34.0	-25.0	-41.1
Number of Rainy Days	3.0	3.0	1.6
Number of Dry Days	0.0	2.0	-

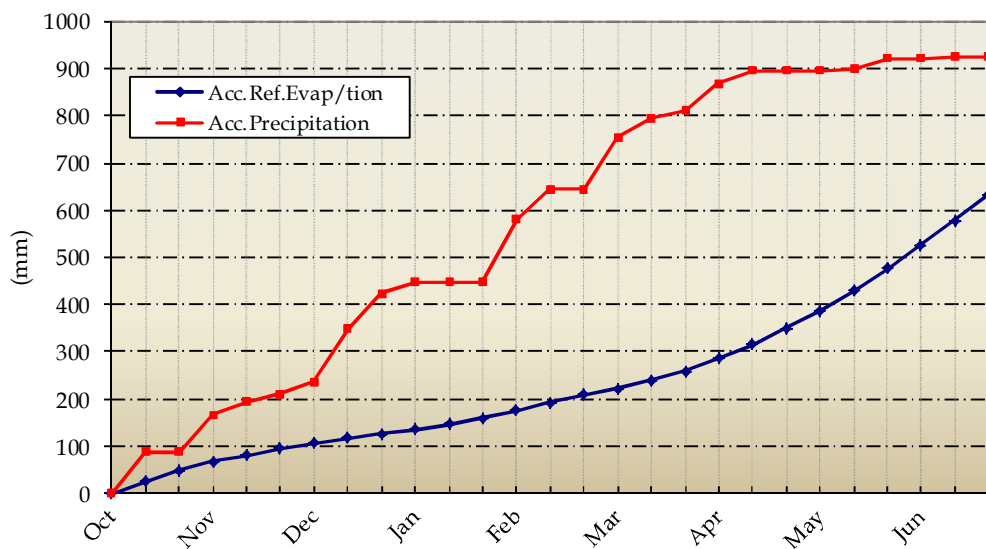
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.7	29.2	29.6	31.2	31.2	29.4	30.2	25.8	27.0	27.2	28.8	29.1	28.1
	Min	16.4	16.8	18.0	17.8	17.8	17.4	18.0	18.8	17.1	17.5	17.6	17.7	16.4
Relative Humidity	Max	88	90	85	85	82	84	86	87	86	87	86	88	-
	Min	44	37	37	31	27	47	40	51	42	43	40	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	25.3	24.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	30.7	29.7
Sunshine Duration		12.2	13.3	13.2	12.5	13.2	13.1	12.9	10.6	13.6	12.6	12.7	9.4	11.5
Precipitation									0.3			0.3		2.1
Evaporation		6.0	8.0	1.8	10.2	11.0	6.0	3.0	12.9	10.0	6.6	75.5	58.2	71.4
Growing Degrees	5	17.1	18.0	18.8	19.5	19.5	18.4	19.1	17.3	17.1	17.4	182.1	183.8	172.2
	10	12.1	13.0	13.8	14.5	14.5	13.4	14.1	12.3	12.1	12.4	132.1	133.8	122.2

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.7	48.3	50.2
Precipitation - Reference Evapotranspiration	-55.4	-48.3	-48.1
Number of Rainy Days	1.0	0.0	0.4
Number of Dry Days	11.0	11.0	-

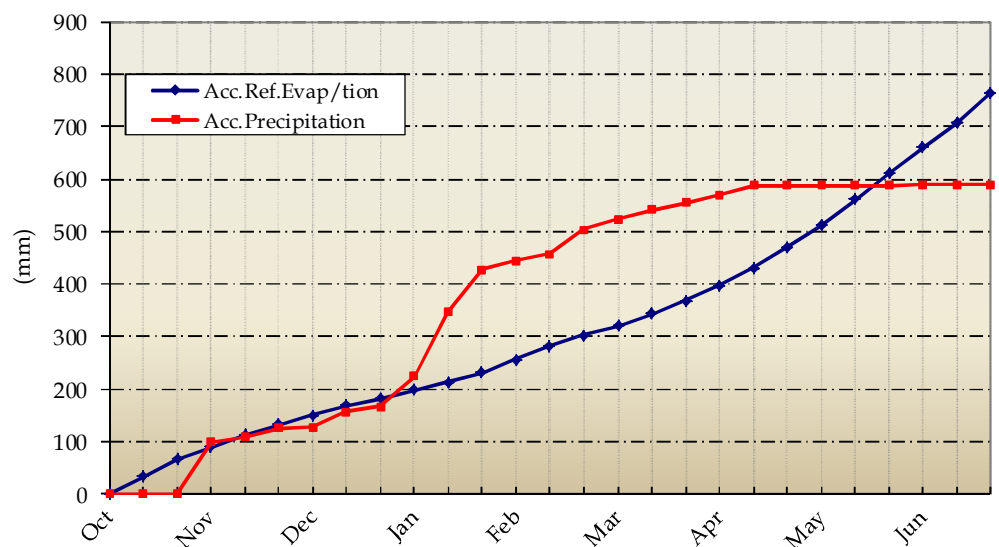
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/06/2015)		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	25.0	27.0	27.6	31.0	29.0	29.4	28.0	25.0	25.6	27.2	28.3	27.5
	Min	17.4	20.2	21.0	19.6	20.4	21.0	21.6	21.0	21.8	19.6	20.4	20.1	19.4
Relative Humidity	Max	91	82	74	70	67	72	76	70	83	83	77	79	-
	Min	62	62	49	28	36	34	40	40	58	54	46	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.7	12.4	12.7	13.0	12.7	13.0	12.6	11.1	10.7	13.0	12.4	12.2	12.0
Precipitation										0.0		0.0		0.2
Evaporation		6.1	7.1	6.4	5.7	4.6	8.2	3.6	11.2	3.5	6.2	62.6	60.8	83.8
Growing Degrees	5	15.8	17.6	19.0	18.6	20.7	20.0	20.5	19.5	18.4	17.6	187.7	192.0	184.4
	10	10.8	12.6	14.0	13.6	15.7	15.0	15.5	14.5	13.4	12.6	137.7	142.0	134.4

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.7	58.2	-
Precipitation - Reference Evapotranspiration	-57.7	-58.2	0.2
Number of Rainy Days	0.0	0.0	0.2
Number of Dry Days	22.0	15.0	-

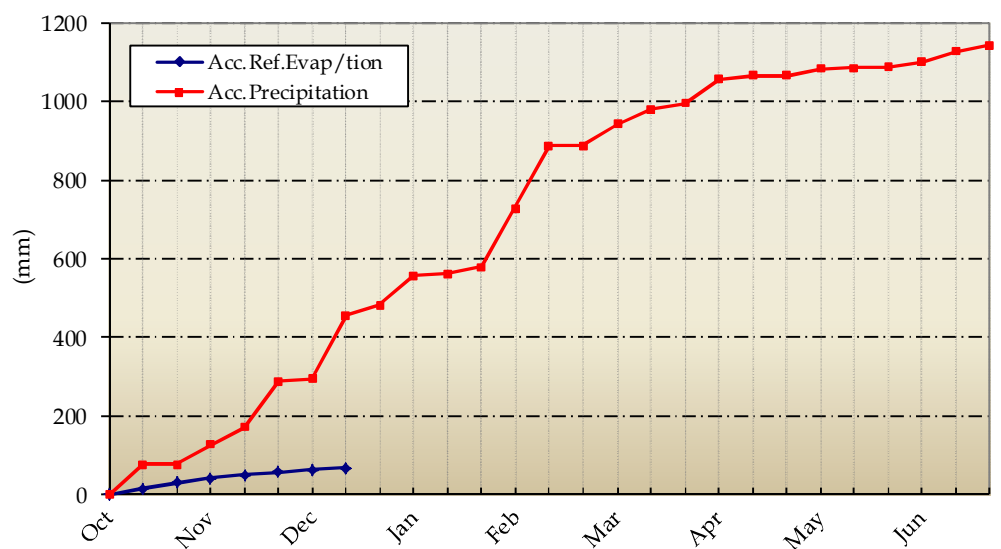
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.5	30.6	30.9	30.7	29.8	30.3	30.9	25.3	26.4	26.3	29.0	27.5	28.0
	Min	14.1	11.9	13.8	15.4	11.5	12.7	12.4	15.9	12.1	14.3	13.4	14.4	13.0
Relative Humidity	Max	100	100	98	100	100	100	100	100	100	100	100	91	-
	Min	36	26	38	28	25	32	19	41	35	44	32	40	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.0
Sunshine Duration		7.6	10.5	11.2	11.7	12.3	12.7	9.9	4.7	8.9	7.9	9.7	6.0	9.8
Precipitation		0.0	0.0	15.3					0.2	0.0	0.2	15.7	5.2	14.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	70.5
Growing Degrees	5	16.3	16.3	17.4	18.1	15.7	16.5	16.7	15.6	14.3	15.3	161.9	159.3	155.2
	10	11.3	11.3	12.4	13.1	10.7	11.5	11.7	10.6	9.3	10.3	111.9	109.3	105.2

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	34.0	46.5
Precipitation - Reference Evapotranspiration	-	-28.8	-32.4
Number of Rainy Days	3.0	5.0	2.0
Number of Dry Days	2.0	2.0	-

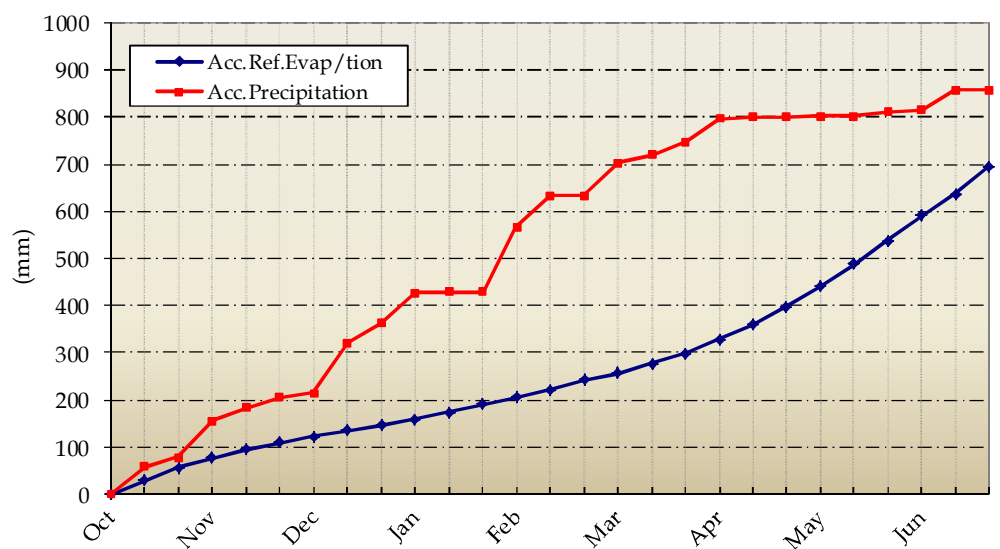
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	28.6	32.4	30.3	34.1	35.0	30.3	28.8	26.2	28.2	30.1	29.1	29.3
	Min	16.2	16.2	16.8	17.0	17.2	18.6	18.1	17.0	16.7	15.8	17.0	16.5	15.9
Relative Humidity	Max	89	88	85	85	80	82	88	91	88	93	87	93	-
	Min	49	42	27	36	21	23	38	37	45	44	36	38	-
Soil Temperature at 10 cm	06 UTC	21.4	21.4	22.0	22.4	22.6	22.0	22.6	23.4	23.2	22.6	22.4	22.6	23.0
	12 UTC	23.0	23.0	23.4	24.0	24.2	24.2	24.6	24.6	24.8	24.4	24.0	24.2	27.4
Sunshine Duration		9.1	12.0	12.6	12.2	12.9	12.8	12.8	11.1	11.1	10.8	11.7	10.1	11.0
Precipitation		0.2										0.2	10.8	3.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	80.7
Growing Degrees	5	16.8	17.4	19.6	18.7	20.7	21.8	19.2	17.9	16.5	17.0	185.5	178.0	175.9
	10	11.8	12.4	14.6	13.7	15.7	16.8	14.2	12.9	11.5	12.0	135.5	128.0	125.9

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.1	51.7	54.6
Precipitation - Reference Evapotranspiration	-58.9	-40.9	-51.5
Number of Rainy Days	1.0	3.0	0.9
Number of Dry Days	1.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

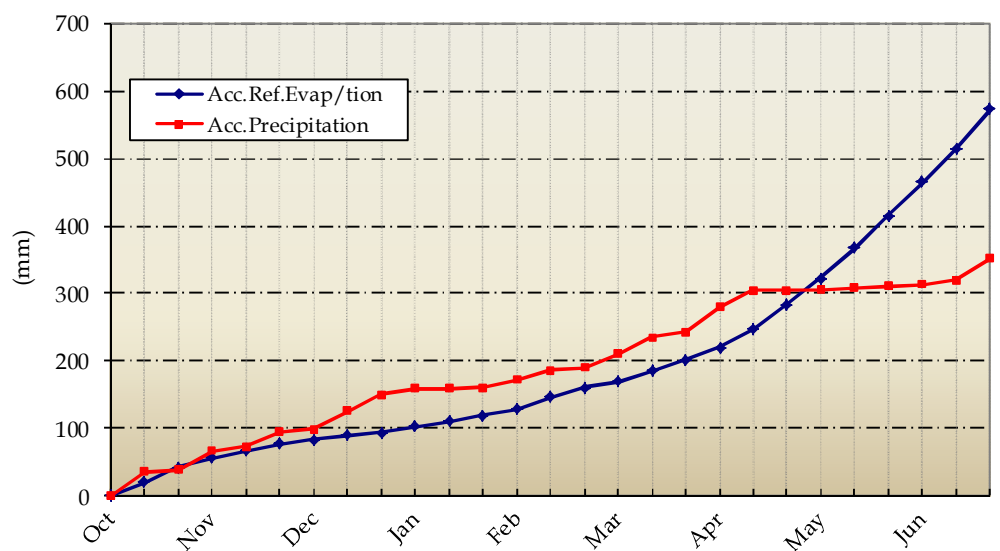


Larisa

2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.3	32.2	34.5	36.8	38.1	37.6	34.5	25.6	27.8	30.2	32.9	32.6	31.7
	Min	17.0	18.0	15.4	16.5	18.2	18.2	19.2	16.2	16.8	16.8	17.2	18.0	15.7
Relative Humidity	Max	80	71	80	74	76	65	100	100	100	100	85	81	-
	Min	23	23	19	16	9	13	21	40	31	30	22	24	-
Soil Temperature at 10 cm	06 UTC	23.0	24.6	25.2	25.6	26.4	27.0	27.2	26.8	24.6	24.8	25.5	-	23.9
	12 UTC	23.8	24.8	25.2	25.8	26.6	27.0	27.2	25.4	25.8	25.0	25.7	-	26.6
Sunshine Duration		10.6	12.2	10.7	11.5	12.0	12.0	10.4	3.7	11.1	8.7	10.3	9.5	10.5
Precipitation								4.7	26.7	1.6	0.2	33.2	0.6	6.2
Evaporation		10.2	11.3	12.2	12.2	12.2	12.3	16.1	2.3	9.0	7.5	105.3	91.5	85.8
Growing Degrees	5	19.2	20.1	20.0	21.7	23.2	22.9	21.9	15.9	17.3	18.5	200.5	203.1	186.8
	10	14.2	15.1	15.0	16.7	18.2	17.9	16.9	10.9	12.3	13.5	150.5	153.1	136.8

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.4	58.2	58.5
Precipitation - Reference Evapotranspiration	-25.2	-57.6	-52.3
Number of Rainy Days	4.0	1.0	1.7
Number of Dry Days	8.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

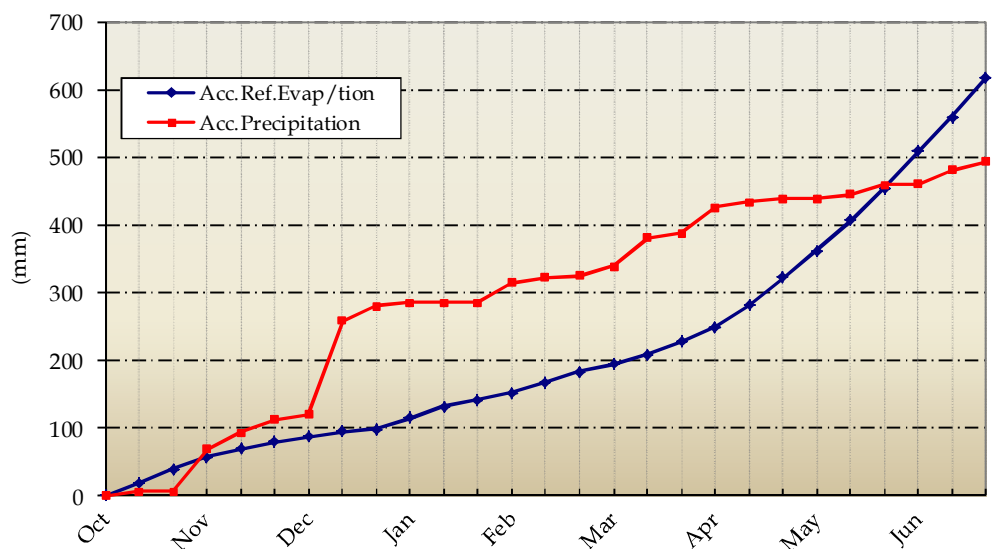


Mikra

2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.4	31.3	32.0	33.3	34.3	34.0	32.4	23.1	28.2	28.7	30.7	30.3	29.7
	Min	21.0	17.2	19.0	17.8	19.0	19.4	20.0	17.6	17.9	16.8	18.6	18.6	17.0
Relative Humidity	Max	77	88	72	77	75	74	86	91	78	87	80	79	-
	Min	33	25	24	25	26	24	34	63	25	28	31	32	-
Soil Temperature at 10 cm	06 UTC	23.3	24.3	25.5	25.8	26.7	27.6	27.8	25.3	22.2	23.8	25.2	25.0	24.4
	12 UTC	29.4	30.6	31.6	32.0	32.8	33.7	33.9	26.1	28.4	30.4	30.9	30.6	29.1
Sunshine Duration		12.4	13.8	12.9	11.2	13.4	13.3	9.9	0.2	11.7	9.8	10.9	10.4	10.3
Precipitation		0.0						2.5	10.7	0.0	0.0	13.2	15.1	11.5
Evaporation		8.1	10.0	5.0	9.9	9.4	11.6	6.5	1.9	8.5	7.0	77.9	89.7	85.4
Growing Degrees	5	20.2	19.3	20.5	20.6	21.7	21.7	21.2	15.4	18.1	17.8	196.2	194.3	183.4
	10	15.2	14.3	15.5	15.6	16.7	16.7	16.2	10.4	13.1	12.8	146.2	144.3	133.4

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.6	59.1	57.4
Precipitation - Reference Evapotranspiration	-45.4	-44.0	-45.9
Number of Rainy Days	2.0	2.0	1.8
Number of Dry Days	6.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



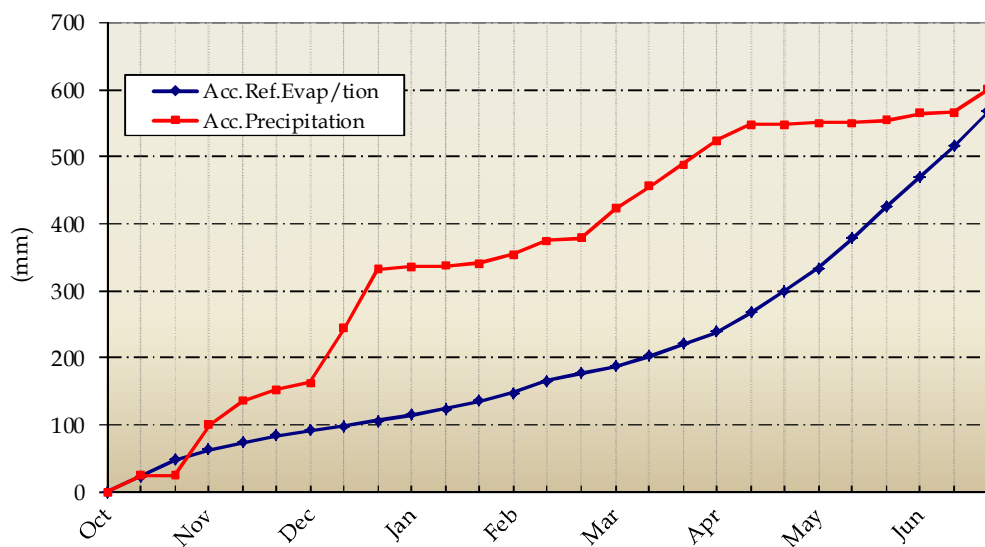


Tanagra

2nd 10-day period (11-20/06/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.5	29.4	31.1	33.5	34.1	35.2	33.3	25.8	25.6	29.0	30.4	30.9	30.3
	Min	14.8	16.4	14.8	15.6	19.4	20.5	19.2	18.0	16.2	13.2	16.8	17.4	15.8
Relative Humidity	Max	82	74	81	64	63	55	75	100	100	93	79	82	
	Min	38	32	21	22	24	15	23	46	32	29	28	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.7	13.1	12.3	12.9	13.0	13.0	12.7	8.6	8.3	11.1	11.1	-	
Precipitation									23.2	11.4		34.6	7.9	2.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	15.7	17.9	18.0	19.6	21.8	22.9	21.3	16.9	15.9	16.1	185.8	-	
	10	10.7	12.9	13.0	14.6	16.8	17.9	16.3	11.9	10.9	11.1	135.8	-	

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.6	-	
Precipitation - Reference Evapotranspiration	-18.0	-	
Number of Rainy Days	2.0	-	1.0
Number of Dry Days	12.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

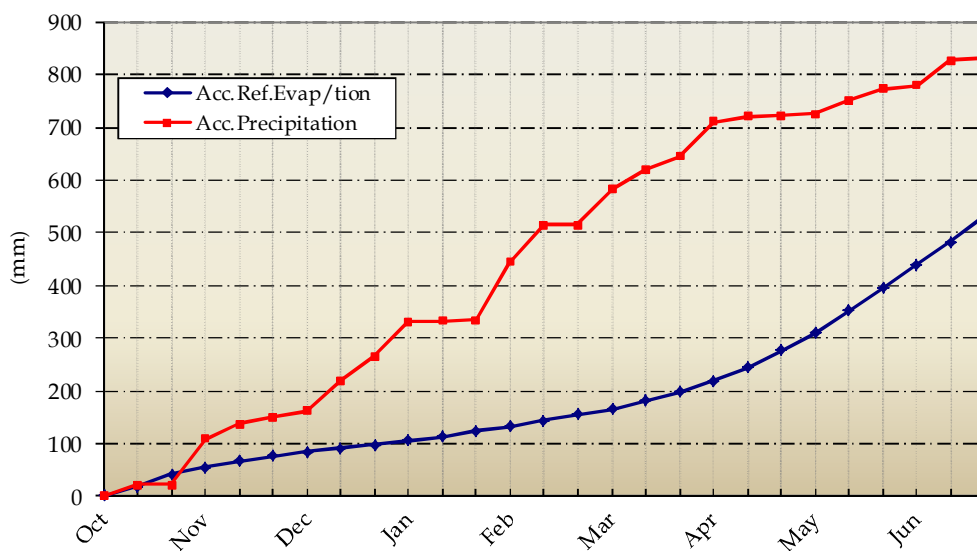


Tripoli

2nd 10-day period (11-20/06/2015)		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	27.5	29.6	30.0	31.1	33.1	31.3	24.6	22.4	25.8	28.0	28.7	28.6
	Min	10.1	10.6	10.7	12.5	13.1	12.2	12.7	11.8	10.5	13.8	11.8	12.4	11.6
Relative Humidity	Max	100	100	100	100	99	90	92	92	100	100	97	91	-
	Min	42	30	26	29	18	15	14	39	11	37	26	24	-
Soil Temperature at 10 cm	06 UTC	18.0	18.4	19.4	21.2	22.8	23.4	24.4	24.6	22.2	-	21.6	22.6	22.7
	12 UTC	23.8	24.4	-	-	30.4	31.2	31.8	27.8	25.4	-	27.8	29.2	25.9
Sunshine Duration		6.6	13.2	12.1	12.2	13.3	13.3	13.1	8.8	-	-	11.6	9.0	10.8
Precipitation		2.5								0.5	0.2	3.2		5.7
Evaporation		2.2	7.5	6.6	8.1	8.6	10.4	8.7	4.8	-	-	-	68.5	62.0
Growing Degrees	5	12.3	14.1	15.2	16.3	17.1	17.7	17.0	13.2	11.5	14.8	148.9	155.4	151.2
	10	7.3	9.1	10.2	11.3	12.1	12.7	12.0	8.2	6.5	9.8	98.9	105.4	101.2

2nd 10-day period (11-20/06/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.7	47.2	52.3
Precipitation - Reference Evapotranspiration	-46.5	-47.2	-46.6
Number of Rainy Days	3.0	0.0	1.4
Number of Dry Days	0.0	11.0	-

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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