



# AGROMETEOROLOGICAL BULLETIN

*July 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



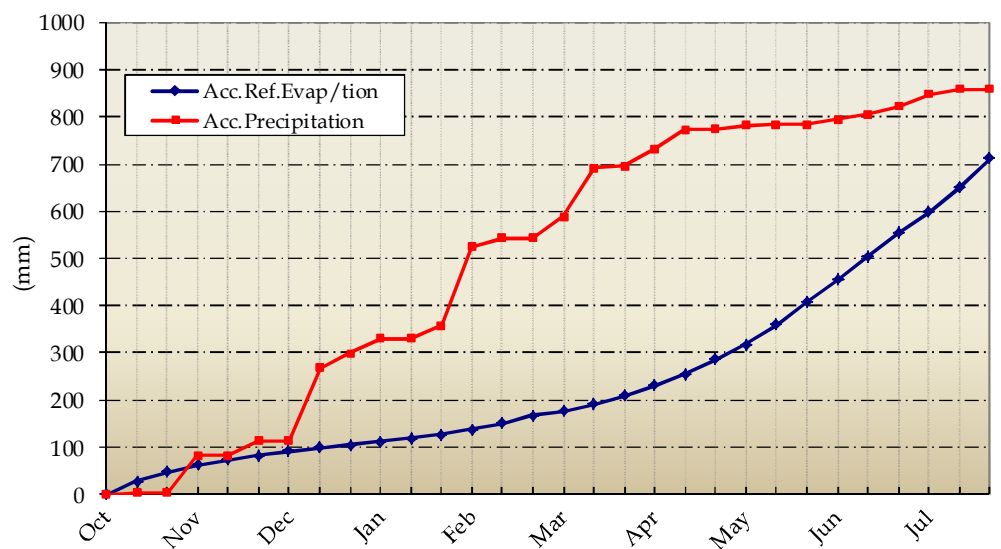
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2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	30.8	30.8	31.8	30.8	33.6	33.0	33.8	34.2	34.6	32.2	29.6	30.5
	Min	19.6	17.8	15.4	16.4	18.2	17.8	20.6	20.4	21.0	20.8	18.8	19.0	17.5
Relative Humidity	Max	85	81	78	85	80	84	73	69	58	64	76	88	-
	Min	38	26	29	36	43	32	29	24	23	21	30	44	-
Soil Temperature at 10 cm	06 UTC	23.6	23.4	24.2	25.0	25.6	25.8	26.6	26.4	26.8	26.6	25.4	26.1	24.2
	12 UTC	27.4	29.8	30.0	30.0	29.8	31.4	31.6	31.6	32.2	32.4	30.6	30.6	28.8
Sunshine Duration		12.0	13.5	13.0	10.9	12.9	12.7	13.6	13.6	13.5	13.4	12.9	10.1	11.2
Precipitation													16.1	5.1
Evaporation		9.6	9.0	10.8	9.9	10.6	10.2	13.0	17.9	15.1	15.9	122.0	78.5	98.7
Growing Degrees	5	19.2	19.3	18.1	19.1	19.5	20.7	21.8	22.1	22.6	22.7	205.1	192.8	190.1
	10	14.2	14.3	13.1	14.1	14.5	15.7	16.8	17.1	17.6	17.7	155.1	142.8	140.1

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	61.7	50.7	60.3
Precipitation - Reference Evapotranspiration	-61.7	-34.6	-55.2
Number of Rainy Days	0.0	2.0	0.9
Number of Dry Days	10.0	20.0	-

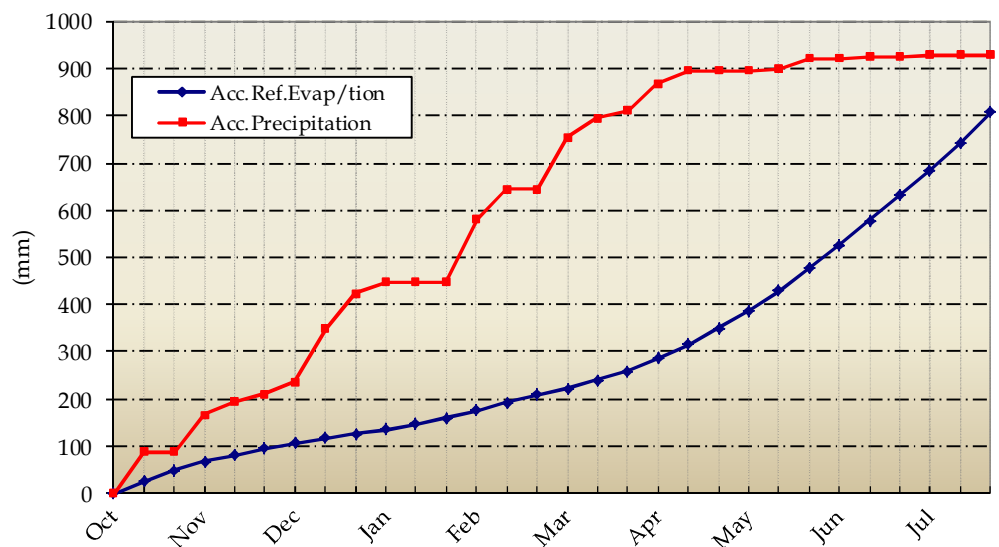
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.0	31.1	32.0	30.0	33.6	32.6	35.5	36.4	37.3	33.8	33.3	28.9	30.4
	Min	20.0	19.8	19.3	20.6	20.3	21.3	19.7	19.5	18.6	18.2	19.7	18.7	18.1
Relative Humidity	Max	83	86	88	88	82	82	71	73	57	79	79	88	-
	Min	42	48	37	44	32	33	21	20	14	27	32	42	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	27.5	27.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	32.4	31.8
Sunshine Duration		13.3	13.0	13.1	12.6	12.7	13.2	13.3	13.1	13.3	13.4	13.1	12.2	12.3
Precipitation													0.1	0.8
Evaporation		9.4	9.5	9.0	7.0	11.2	0.0	14.0	15.0	14.0	6.0	95.1	70.5	77.4
Growing Degrees	5	20.5	20.5	20.7	20.3	22.0	22.0	22.6	23.0	23.0	21.0	215.3	188.1	192.4
	10	15.5	15.5	15.7	15.3	17.0	17.0	17.6	18.0	18.0	16.0	165.3	138.1	142.4

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	64.6	54.3	55.3
Precipitation - Reference Evapotranspiration	-64.6	-54.2	-54.5
Number of Rainy Days	0.0	1.0	0.1
Number of Dry Days	23.0	35.0	-

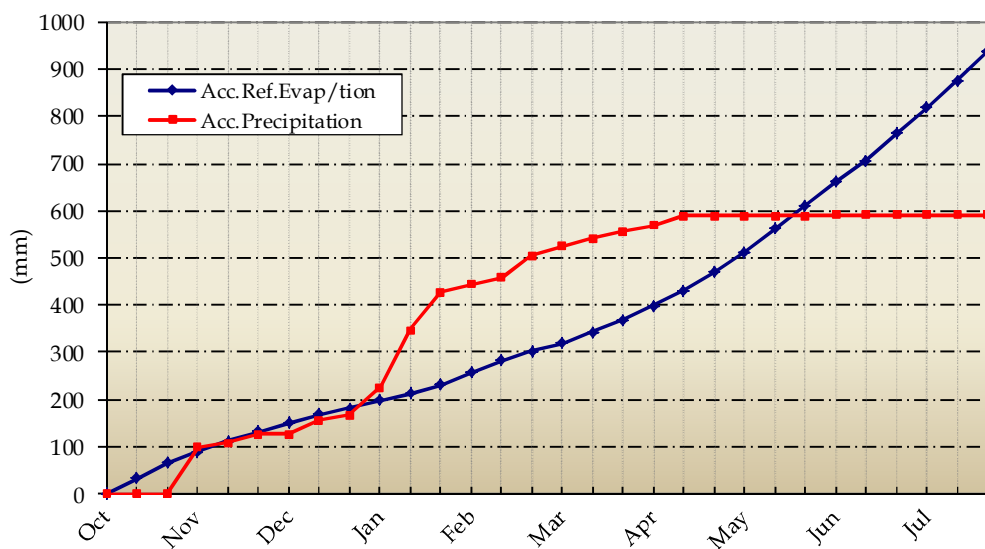
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.2	28.2	28.0	29.2	28.6	29.2	28.0	26.6	27.6	28.0	28.2	28.5	28.5
	Min	24.2	24.0	24.0	22.8	23.8	21.6	24.0	24.0	22.6	20.8	23.2	21.5	22.1
Relative Humidity	Max	78	70	68	66	65	100	74	75	68	76	74	82	-
	Min	62	47	50	43	53	49	61	57	56	54	53	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.3	12.6	12.8	12.9	13.0	12.6	12.7	12.8	12.7	12.8	12.7	12.1	12.1
Precipitation														0.0
Evaporation		9.7	8.5	10.6	5.4	10.0	8.5	6.2	7.7	5.0	2.9	74.5	64.3	93.8
Growing Degrees	5	21.2	21.1	21.0	21.0	21.2	20.4	21.0	20.3	20.1	19.4	206.7	200.3	203.0
	10	16.2	16.1	16.0	16.0	16.2	15.4	16.0	15.3	15.1	14.4	156.7	150.3	153.0

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.4	57.8	-
Precipitation - Reference Evapotranspiration	-62.4	-57.8	0.0
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	52.0	45.0	-

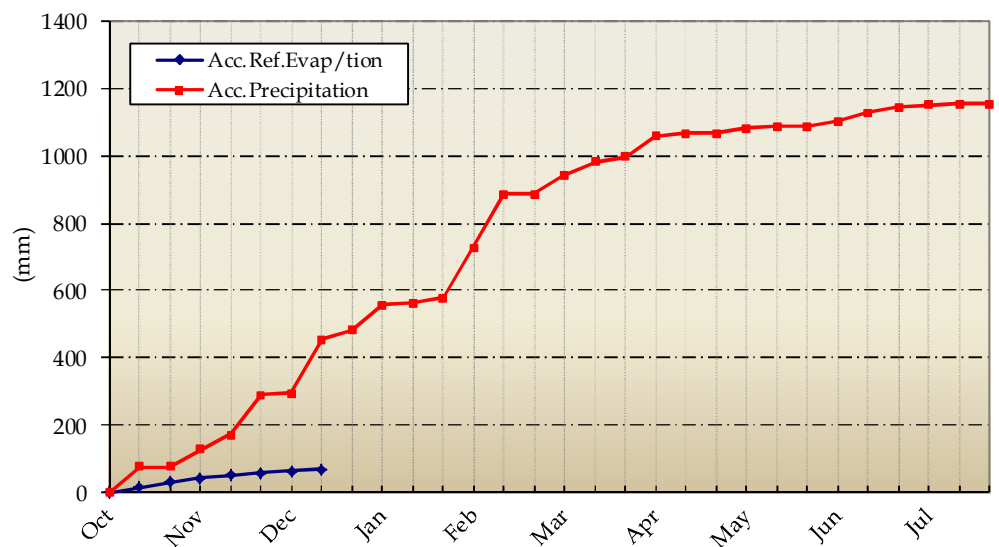
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.9	33.8	32.4	35.1	34.0	34.9	35.2	35.3	34.6	38.3	34.6	28.2	31.4
	Min	15.4	14.8	17.2	13.8	17.3	15.9	18.7	15.8	22.1	14.9	16.6	15.0	15.3
Relative Humidity	Max	100	83	99	98	87	89	88	90	75	91	90	92	-
	Min	27	32	28	22	27	14	23	23	15	17	23	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.8
Sunshine Duration		11.2	12.8	8.9	12.8	11.5	12.9	12.7	12.5	12.6	11.4	11.9	8.7	10.3
Precipitation				0.0								0.0	17.8	13.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	83.3
Growing Degrees	5	19.2	19.3	19.8	19.5	20.7	20.4	22.0	20.6	23.4	21.6	206.2	166.1	178.2
	10	14.2	14.3	14.8	14.5	15.7	15.4	17.0	15.6	18.4	16.6	156.2	116.1	129.5

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	39.0	50.5
Precipitation - Reference Evapotranspiration	-	-21.2	-37.2
Number of Rainy Days	0.0	5.0	1.6
Number of Dry Days	10.0	20.0	-

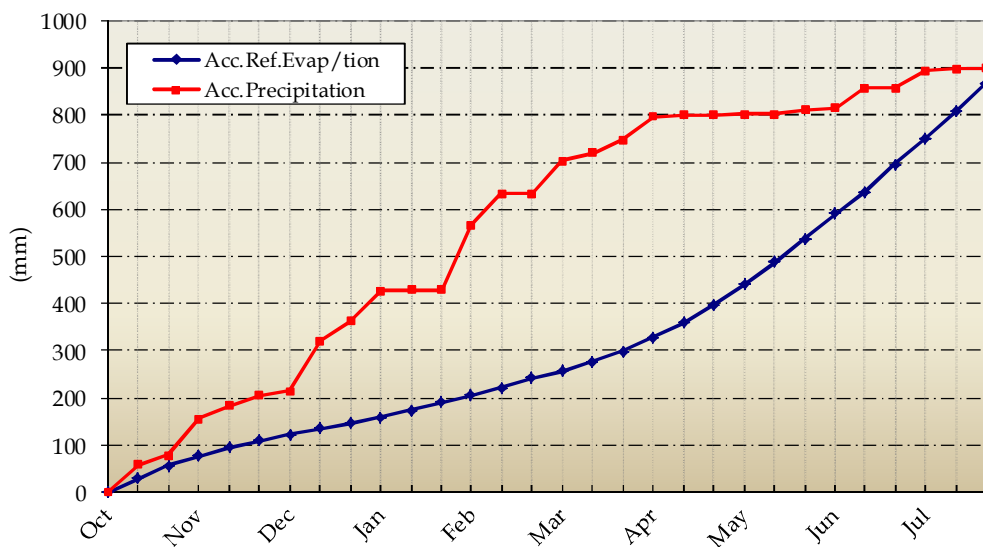
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.5	29.6	29.6	31.9	32.4	35.0	35.7	35.5	33.0	32.9	32.7	30.4	31.2
	Min	20.5	18.6	19.9	19.3	19.6	20.8	21.6	19.0	15.7	16.1	19.1	17.9	17.8
Relative Humidity	Max	91	93	92	88	92	72	80	93	92	90	88	89	-
	Min	36	50	49	41	38	22	22	15	23	31	33	34	-
Soil Temperature at 10 cm	06 UTC	24.6	24.6	25.0	25.0	25.4	25.4	25.4	25.0	25.2	25.0	25.1	25.6	25.6
	12 UTC	26.0	26.2	26.4	26.4	26.6	26.8	26.2	26.8	26.4	26.0	26.4	27.8	30.0
Sunshine Duration		12.9	12.3	12.7	12.9	11.5	12.8	12.9	12.9	12.8	12.7	12.6	11.8	11.5
Precipitation		0.7										0.7	6.0	3.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	87.7
Growing Degrees	5	21.0	19.1	19.8	20.6	21.0	22.9	23.7	22.3	19.4	19.5	209.1	191.5	195.0
	10	16.0	14.1	14.8	15.6	16.0	17.9	18.7	17.3	14.4	14.5	159.1	141.5	145.0

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.1	58.5	57.1
Precipitation - Reference Evapotranspiration	-61.4	-52.5	-53.7
Number of Rainy Days	1.0	2.0	0.4
Number of Dry Days	0.0	28.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

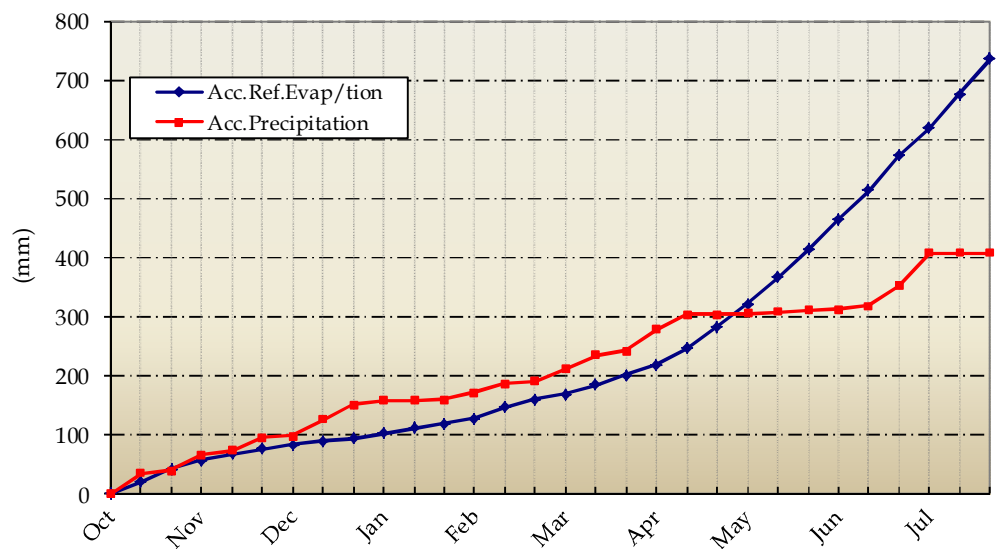


Larisa

2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	33.0	34.0	22.2	33.4	35.4	33.0	34.1	34.2	36.8	32.8	32.2	33.3
	Min	18.2	16.9	18.6	20.0	22.9	18.8	19.0	18.5	17.8	18.0	18.9	18.7	17.9
Relative Humidity	Max	99	89	87	85	71	82	71	74	73	70	80	78	-
	Min	27	28	65	26	25	19	26	20	21	22	28	31	-
Soil Temperature at 10 cm	06 UTC	27.2	27.2	27.2	27.4	28.0	28.2	28.2	28.2	28.2	28.2	27.8	-	26.6
	12 UTC	27.2	27.0	27.9	27.6	28.0	28.0	28.2	28.0	28.0	28.4	27.8	-	29.2
Sunshine Duration		9.8	12.3	0.2	10.9	10.4	12.3	12.2	12.2	12.3	11.8	10.4	8.3	11.0
Precipitation													14.6	9.9
Evaporation		7.0	12.3	10.7	11.2	11.3	11.8	10.6	12.8	12.3	15.0	115.0	-	96.3
Growing Degrees	5	20.2	20.0	21.3	16.1	23.2	22.1	21.0	21.3	21.0	22.4	208.5	204.5	205.9
	10	15.2	15.0	16.3	11.1	18.2	17.1	16.0	16.3	16.0	17.4	158.5	154.5	155.9

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.2	53.3	62.2
Precipitation - Reference Evapotranspiration	-60.2	-38.7	-52.3
Number of Rainy Days	0.0	1.0	1.2
Number of Dry Days	20.0	30.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

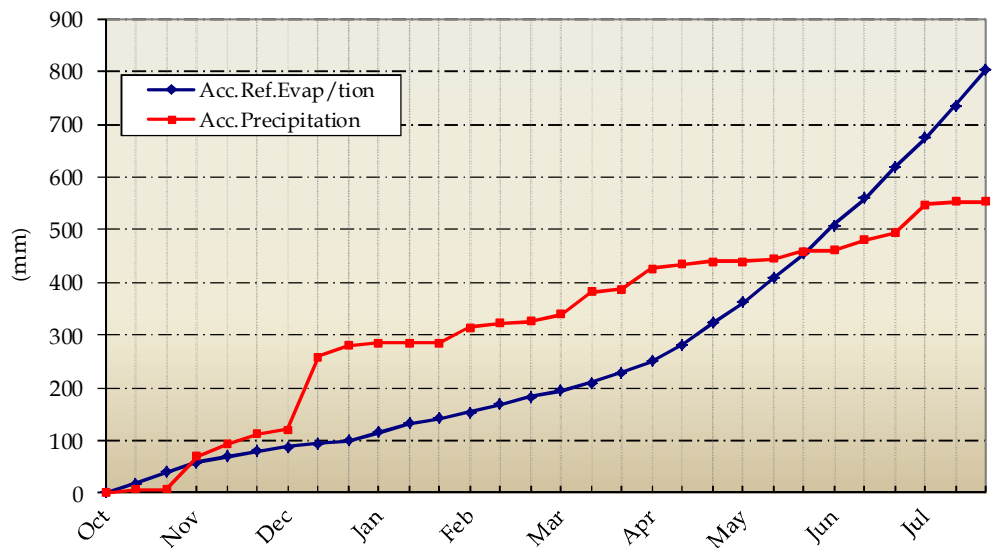


Mikra

2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	31.0	32.1	36.0	33.5	34.4	33.2	33.7	35.4	35.0	33.6	30.8	31.7
	Min	22.1	16.6	18.4	19.6	20.8	19.8	20.8	21.0	19.8	20.3	19.9	19.6	18.9
Relative Humidity	Max	72	76	83	79	77	78	75	75	65	66	75	76	-
	Min	22	33	31	34	32	23	29	27	21	27	28	35	-
Soil Temperature at 10 cm	06 UTC	26.9	26.4	27.2	27.6	28.4	28.3	28.8	29.0	28.8	29.3	28.1	26.6	26.6
	12 UTC	31.4	31.1	31.8	32.2	32.6	33.0	33.2	33.2	33.8	33.8	32.6	31.3	31.5
Sunshine Duration		13.6	14.0	13.5	12.9	13.9	13.6	13.7	13.3	13.4	12.9	13.5	10.3	10.8
Precipitation													61.5	4.3
Evaporation		10.5	8.5	7.7	10.4	9.1	8.0	12.1	7.2	7.4	4.0	84.9	99.2	94.9
Growing Degrees	5	21.9	18.8	20.3	22.8	22.2	22.1	22.0	22.4	22.6	22.7	217.6	201.8	203.4
	10	16.9	13.8	15.3	17.8	17.2	17.1	17.0	17.4	17.6	17.7	167.6	151.8	153.4

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	68.4	59.6	60.5
Precipitation - Reference Evapotranspiration	-68.4	1.9	-56.2
Number of Rainy Days	0.0	2.0	1.4
Number of Dry Days	10.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



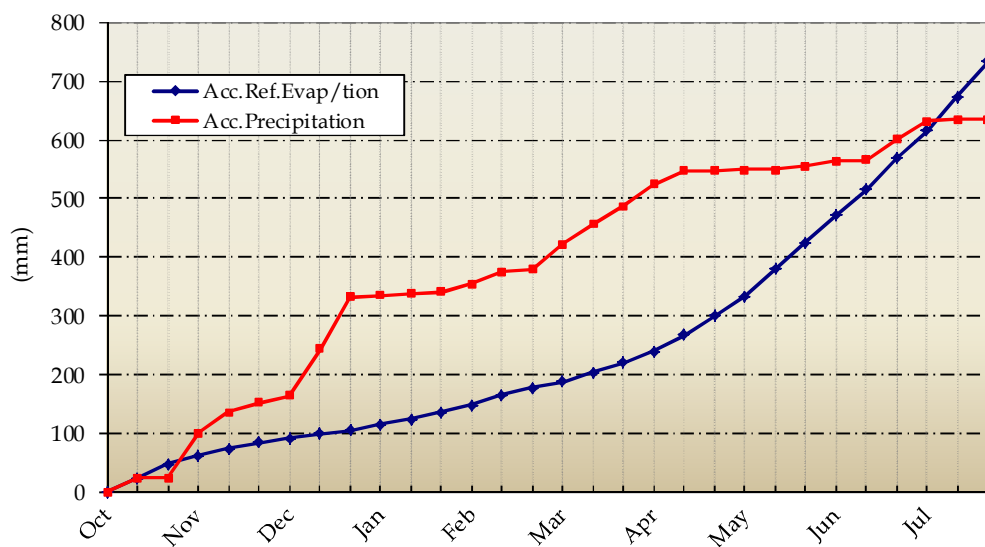


Tanagra

2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	29.8	31.4	33.2	30.8	31.6	30.8	30.6	31.9	33.1	31.2	30.7	32.1
	Min	20.2	17.2	16.4	18.2	21.0	18.4	23.0	20.4	22.2	19.6	19.7	19.1	18.3
Relative Humidity	Max	73	79	72	64	67	72	61	66	50	62	67	68	
	Min	40	26	25	27	28	32	26	23	21	17	26	29	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.9	13.2	13.2	12.7	12.7	13.2	13.2	13.4	13.3	13.2	12.8	-	
Precipitation													0.0	2.0
Evaporation		6.0	6.0	9.5	10.0	10.5	9.5	8.5	12.0	13.0	11.5	96.5	0.0	0.0
Growing Degrees	5	19.6	18.5	18.9	20.7	20.9	20.0	21.9	20.5	22.1	21.4	204.4	-	
	10	14.6	13.5	13.9	15.7	15.9	15.0	16.9	15.5	17.1	16.4	154.4	-	

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.4	-	
Precipitation - Reference Evapotranspiration	-60.4	-	0.0
Number of Rainy Days	0.0	-	
Number of Dry Days	19.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

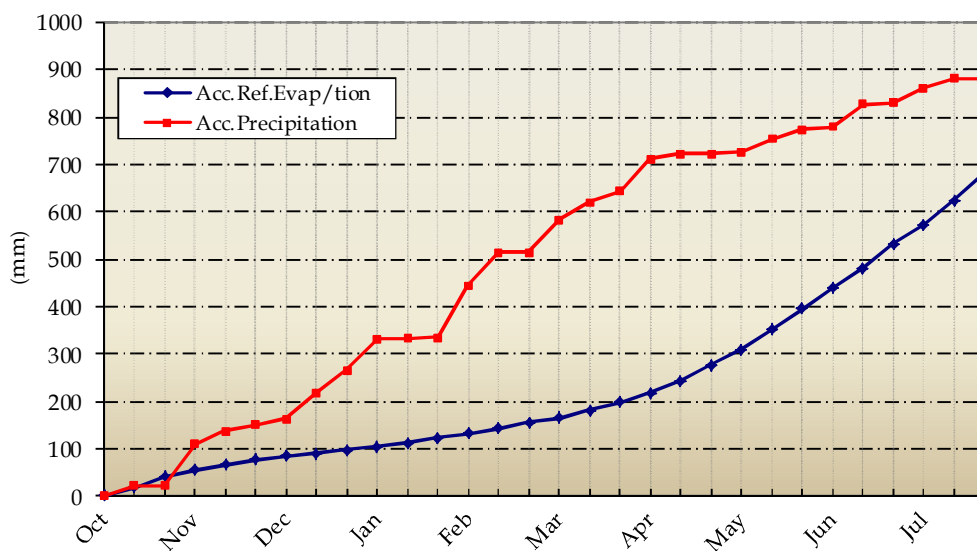


Tripoli

2nd 10-day period (11-20/07/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.1	30.1	32.9	32.1	31.1	31.4	30.5	31.4	32.6	34.9	31.7	29.4	30.6
	Min	16.5	14.6	13.6	14.9	15.7	15.8	21.4	20.4	20.9	18.6	17.2	12.8	14.1
Relative Humidity	Max	93	99	95	97	95	87	53	55	39	68	78	90	-
	Min	38	25	20	27	33	23	23	22	18	18	25	29	-
Soil Temperature at 10 cm	06 UTC	25.4	24.6	25.6	25.8	25.4	25.2	26.2	26.0	26.2	26.0	25.6	25.0	25.3
	12 UTC	27.4	27.4	31.4	31.2	30.2	-	30.4	28.8	29.6	31.6	29.8	31.5	28.3
Sunshine Duration		12.2	12.7	11.8	8.0	9.5	13.3	13.3	12.8	13.2	13.2	12.0	9.4	10.5
Precipitation													6.9	9.1
Evaporation		7.7	10.0	8.5	3.6	7.5	12.3	9.4	13.3	12.0	11.8	96.1	59.5	63.7
Growing Degrees	5	18.3	17.4	18.3	18.5	18.4	18.6	21.0	20.9	21.8	21.8	194.8	160.5	173.2
	10	13.3	12.4	13.3	13.5	13.4	13.6	16.0	15.9	16.8	16.8	144.8	110.5	123.2

2nd 10-day period (11-20/07/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.5	47.1	53.3
Precipitation - Reference Evapotranspiration	-60.5	-40.2	-44.2
Number of Rainy Days	0.0	3.0	1.4
Number of Dry Days	19.0	37.0	-

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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