



AGROMETEOROLOGICAL BULLETIN

*August 2018
3rd 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



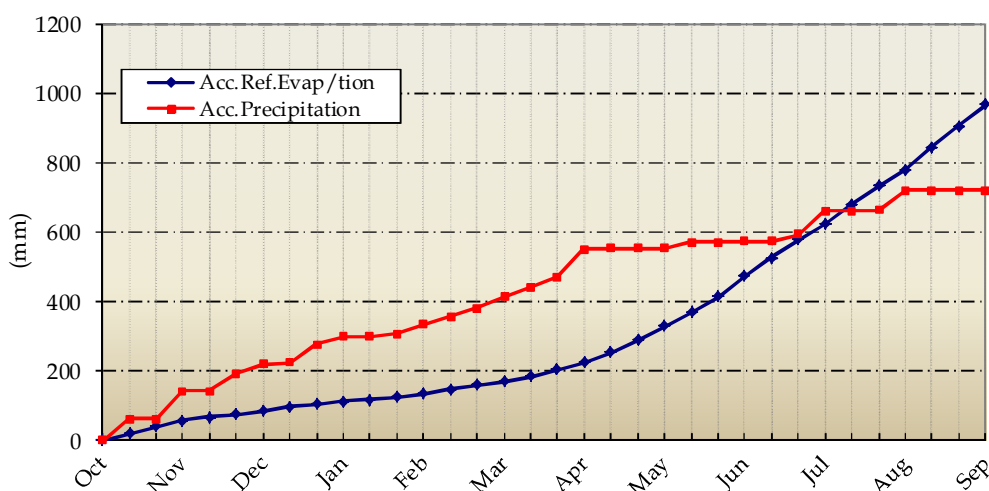
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3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	33.8	34.4	32.8	33.2	32.2	32.8	32.6	34.2	34.2	34.4	33.3	29.8	29.1
	Min	20.0	17.0	23.0	22.2	19.6	17.4	18.0	23.4	25.0	20.0	17.8	20.3	17.1	16.6
Relative Humidity	Max	67	67	78	72	82	84	80	65	48	62	70	70	88	-
	Min	28	26	26	30	34	34	30	30	20	32	23	28	41	-
Soil Temperature at 10 cm	06 UTC	27.0	26.4	26.6	27.6	27.6	27.0	26.8	28.0	27.8	27.6	26.8	27.2	23.1	23.0
	12 UTC	30.2	31.0	31.0	31.2	31.6	31.0	31.2	30.4	31.6	31.4	31.2	31.1	25.7	27.1
Sunshine Duration		12.1	13.3	12.0	11.4	11.9	11.9	12.0	8.8	11.6	12.1	11.9	11.7	10.3	9.8
Precipitation														8.9	4.5
Evaporation		10.8	9.6	10.1	9.7	6.4	9.0	10.7	10.1	10.2	8.1	11.4	106.1	74.4	93.1
Growing Degrees	5	20.8	20.4	23.7	22.5	21.4	19.8	20.4	23.0	24.6	22.1	21.1	239.8	202.7	196.4
	10	15.8	15.4	18.7	17.5	16.4	14.8	15.4	18.0	19.6	17.1	16.1	184.8	147.7	141.4

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	63.0	50.1	54.2
Precipitation - Reference Evapotranspiration	-63.0	-41.2	-49.7
Number of Rainy Days	0.0	1.0	1.0
Number of Dry Days	33.0	24.0	-

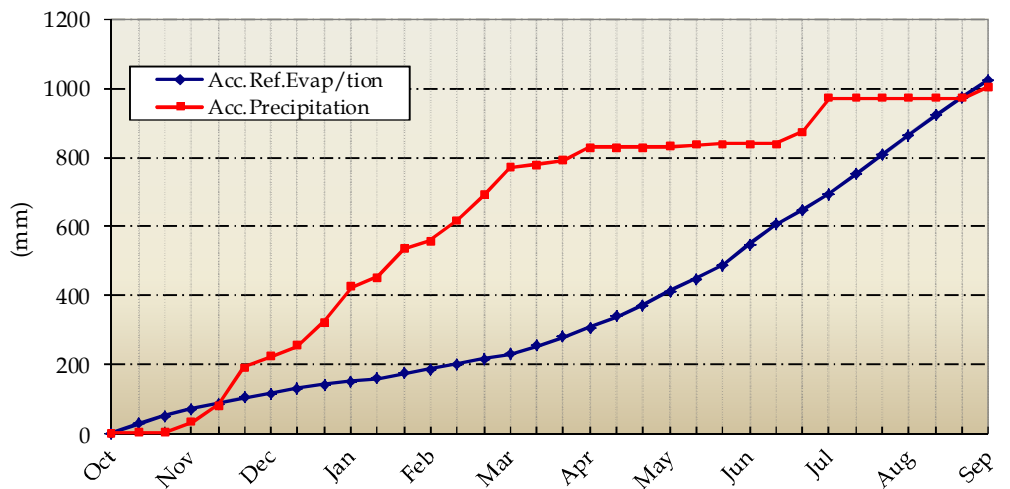
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	31.6	32.0	31.6	31.6	30.8	30.4	30.4	31.4	32.5	32.4	31.5	30.9	30.0
	Min	18.9	18.5	19.6	20.9	25.0	22.0	20.2	18.5	20.4	17.8	18.2	20.0	18.0	18.5
Relative Humidity	Max	78	84	83	82	84	84	97	100	85	87	86	86	84	-
	Min	26	30	31	39	47	49	43	47	37	29	32	37	32	-
Soil Temperature at 10 cm	06 UTC	28.0	28.4	28.0	27.8	28.0	29.0	28.6	27.2	26.0	25.6	26.0	27.5	27.6	26.8
	12 UTC	31.0	32.0	31.2	31.4	29.0	30.6	28.6	29.0	27.4	27.2	27.8	29.6	29.6	30.8
Sunshine Duration		11.7	11.9	11.3	11.6	12.4	11.1	7.2	11.6	11.5	11.8	10.9	11.2	10.4	10.6
Precipitation							0.3	32.0					32.3	14.6	3.8
Evaporation		8.7	9.0	8.0	9.0	7.5	7.0	8.3	5.0	6.8	6.0	7.0	82.3	71.6	74.7
Growing Degrees	5	20.4	20.1	20.8	21.3	23.3	21.4	20.3	19.5	20.9	20.2	20.3	228.3	214.2	211.8
	10	15.4	15.1	15.8	16.3	18.3	16.4	15.3	14.5	15.9	15.2	15.3	173.3	159.2	156.8

3rd 10-day period (21-31/08/2018)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	52.6	51.4	49.7
Precipitation - Reference Evapotranspiration	-20.3	-36.8	-45.9
Number of Rainy Days	2.0	1.0	0.7
Number of Dry Days	9.0	33.0	-

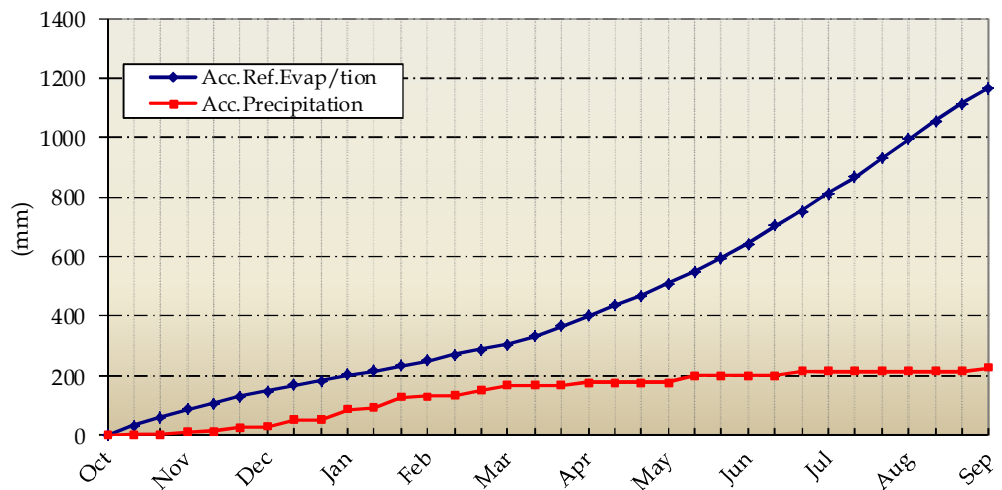
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	28.6	28.4	29.4	30.0	30.0	30.0	28.6	28.0	28.4	29.0	29.0	27.6	27.8
	Min	23.6	21.4	22.4	21.2	21.4	24.2	23.4	22.4	21.6	24.0	22.0	22.5	22.6	21.3
Relative Humidity	Max	78	78	79	82	88	84	89	91	94	75	84	84	79	-
	Min	63	59	60	52	60	63	54	66	67	58	55	60	58	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.5	11.4	11.3	11.4	10.1	11.0	10.2	4.9	8.9	10.9	11.1	10.2	10.6	10.8
Precipitation									0.5	10.6			11.1		0.6
Evaporation		8.4	6.0	6.1	7.0	5.0	5.3	7.4	0.1	6.4	7.1	6.2	65.0	76.5	88.9
Growing Degrees	5	21.3	20.0	20.4	20.3	20.7	22.1	21.7	20.5	19.8	21.2	20.5	228.5	221.0	215.1
	10	16.3	15.0	15.4	15.3	15.7	17.1	16.7	15.5	14.8	16.2	15.5	173.5	166.0	160.1

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.4	56.9	-
Precipitation - Reference Evapotranspiration	-43.3	-56.9	0.6
Number of Rainy Days	2.0	0.0	0.1
Number of Dry Days	28.0	44.0	-

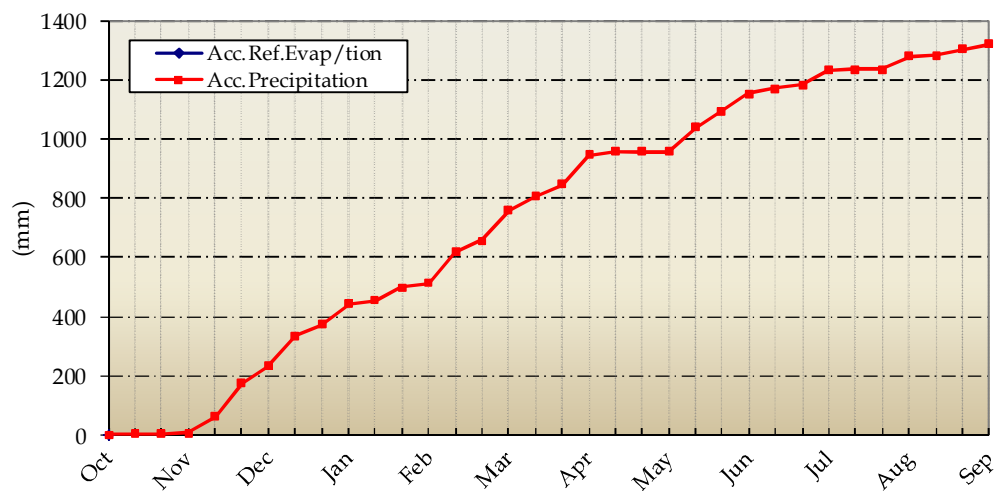
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	32.0	31.4	31.2	29.4	29.6	27.2	31.0	30.6	31.4	32.0	30.5	32.5	29.2
	Min	15.2	14.0	13.2	13.8	16.0	15.8	11.0	15.0	14.4	16.2	15.0	14.5	14.0	14.3
Relative Humidity	Max	100	100	91	100	100	100	100	100	89	100	100	98	95	-
	Min	40	28	29	31	33	54	51	42	30	34	32	37	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Sunshine Duration		8.4	10.6	10.5	5.6	6.0	4.3	4.1	8.6	9.5	9.5	8.6	7.8	9.4	8.9
Precipitation					0.6	15.0	0.3	0.2					16.1	1.0	15.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
Growing Degrees	5	17.7	18.0	17.3	17.5	17.7	17.7	14.1	18.0	17.5	18.8	18.5	192.8	200.7	178.0
	10	12.7	13.0	12.3	12.5	12.7	12.7	9.1	13.0	12.5	13.8	13.5	137.8	145.7	124.8

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	44.4
Precipitation - Reference Evapotranspiration	-	-	-28.5
Number of Rainy Days	4.0	1.0	2.1
Number of Dry Days	5.0	13.0	-

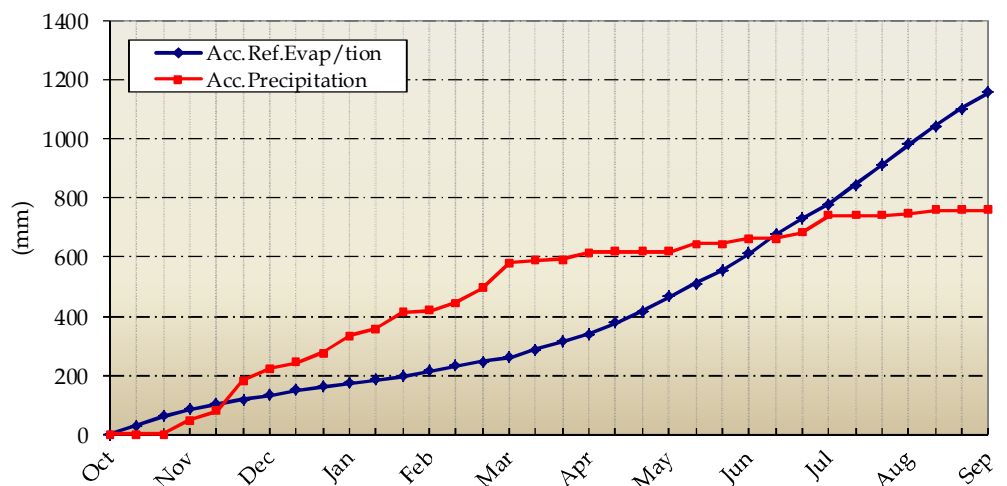
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.5	30.4	31.5	31.2	29.7	32.6	31.8	30.6	34.2	35.0	33.3	32.1	31.3	30.5
	Min	19.9	18.8	18.9	19.4	19.7	20.2	19.6	19.9	19.2	18.7	17.2	19.2	17.2	17.7
Relative Humidity	Max	81	85	86	90	90	90	89	86	83	73	73	84	86	-
	Min	23	36	40	34	51	42	44	42	25	24	21	35	34	-
Soil Temperature at 10 cm	06 UTC	27.2	27.0	26.8	27.2	27.2	27.0	26.6	26.4	25.6	31.0	26.0	27.1	-	25.4
	12 UTC	30.2	30.2	30.2	30.2	29.6	29.4	29.4	28.4	29.0	29.2	29.4	29.6	-	29.0
Sunshine Duration		10.9	10.7	12.0	10.3	7.1	8.2	5.2	3.1	6.1	11.7	11.9	8.8	8.5	10.0
Precipitation			0.0		0.1	0.0		0.1	0.0				0.2	2.1	3.6
Evaporation		10.4	6.2	7.8	5.5	4.0	6.1	5.7	4.7	7.5	7.5	8.0	73.4	69.2	81.7
Growing Degrees	5	21.2	19.6	20.2	20.3	19.7	21.4	20.7	20.3	21.7	21.9	20.3	227.2	211.6	210.0
	10	16.2	14.6	15.2	15.3	14.7	16.4	15.7	15.3	16.7	16.9	15.3	172.2	156.6	155.0

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.5	53.2	52.5
Precipitation - Reference Evapotranspiration	-55.3	-51.1	-48.9
Number of Rainy Days	2.0	1.0	0.9
Number of Dry Days	20.0	33.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

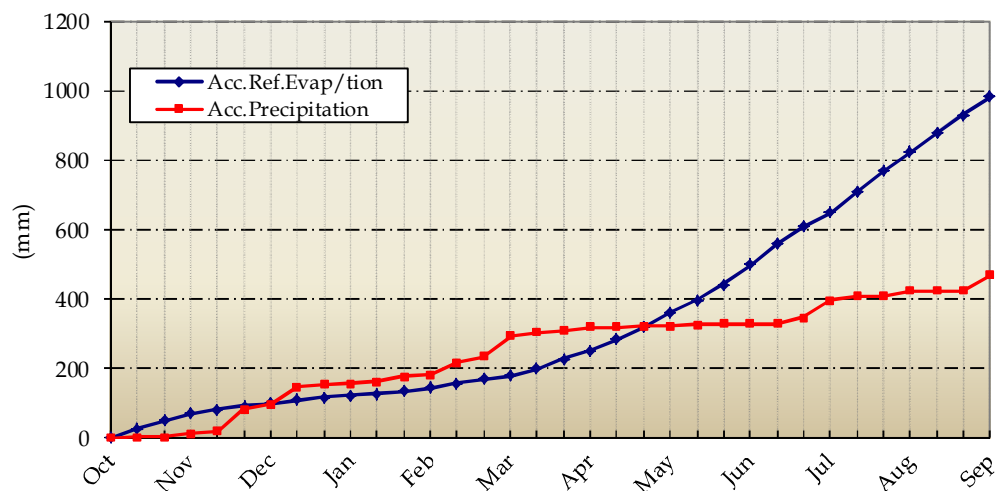


Larisa

3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.6	33.6	31.6	32.2	32.8	33.4	27.2	30.0	31.8	32.4	32.8	31.9	30.7	31.3
	Min	17.0	16.4	15.4	17.6	17.0	20.4	19.2	19.3	21.5	17.2	18.1	18.1	16.1	16.4
Relative Humidity	Max	76	78	67	74	81	83	99	98	83	89	92	84	84	-
	Min	21	22	21	30	36	35	61	42	30	34	32	33	29	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	27.7
Sunshine Duration		11.1	11.7	10.6	10.8	9.5	10.1	2.3	6.9	10.8	9.2	9.9	9.4	9.5	9.7
Precipitation								38.8	4.6				43.4	15.3	8.3
Evaporation		12.5	9.6	15.3	9.6	8.4	8.6	1.6	8.1	6.1	7.4	6.0	93.2	96.4	85.2
Growing Degrees	5	19.8	20.0	18.5	19.9	19.9	21.9	18.2	19.7	21.7	19.8	20.5	219.8	202.5	207.5
	10	14.8	15.0	13.5	14.9	14.9	16.9	13.2	14.7	16.7	14.8	15.5	164.8	147.5	152.5

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.7	51.5	54.4
Precipitation - Reference Evapotranspiration	-9.3	-36.2	-46.1
Number of Rainy Days	2.0	3.0	1.6
Number of Dry Days	23.0	24.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

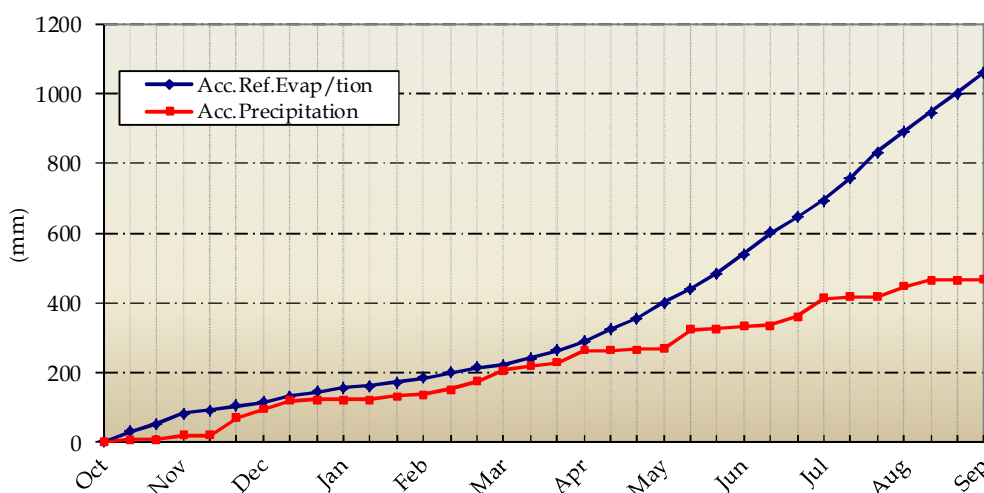


Mikra

3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	33.3	34.0	31.7	32.6	32.5	26.8	30.4	32.2	33.2	33.5	32.1	29.5	29.9
	Min	19.0	18.9	21.9	21.1	18.8	20.9	20.6	21.4	21.0	19.4	21.2	20.4	17.6	17.9
Relative Humidity	Max	73	68	59	65	75	76	77	68	73	63	72	70	77	-
	Min	26	22	15	28	30	32	54	41	30	25	23	30	28	-
Soil Temperature at 10 cm	06 UTC	28.0	27.4	28.0	27.0	27.4	28.0	28.0	24.2	25.4	26.0	26.4	26.9	26.4	25.1
	12 UTC	31.6	32.6	32.6	32.2	32.4	32.4	28.0	27.2	29.0	29.4	30.0	30.7	29.3	29.4
Sunshine Duration		11.8	11.8	11.7	11.7	11.3	9.6	1.4	8.9	11.4	10.9	11.0	10.1	10.1	9.2
Precipitation								0.2	2.9				3.1	16.9	10.5
Evaporation		10.2	9.8	8.2	9.0	7.6	7.0	9.0	7.6	9.1	7.2	4.8	89.5	93.7	84.9
Growing Degrees	5	20.7	21.1	23.0	21.4	20.7	21.7	18.7	20.9	21.6	21.3	22.4	233.4	204.0	208.0
	10	15.7	16.1	18.0	16.4	15.7	16.7	13.7	15.9	16.6	16.3	17.4	178.4	149.0	153.0

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.4	54.8	53.4
Precipitation - Reference Evapotranspiration	-56.3	-37.9	-42.9
Number of Rainy Days	2.0	3.0	1.6
Number of Dry Days	23.0	34.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

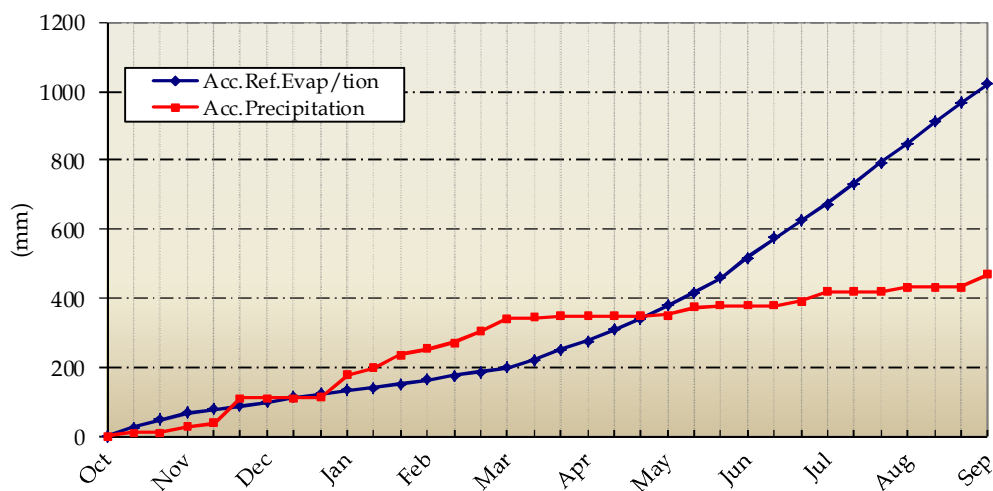


Tanagra

3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.6	30.6	30.3	31.5	32.4	32.0	30.8	23.9	29.6	31.6	31.8	30.4	28.8	30.9
	Min	19.8	19.0	19.8	20.3	17.6	20.2	19.4	18.2	18.6	19.1	18.2	19.1	17.4	17.4
Relative Humidity	Max	62	61	58	62	79	81	97	100	95	71	78	77	76	-
	Min	28	21	24	24	29	33	40	67	34	27	28	32	29	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	12.1	12.9	12.0	10.4	6.1	6.1	0.5	11.3	11.6	11.7	9.7	10.8	
Precipitation							0.4	6.6	29.3	1.6			37.9	8.7	5.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	19.7	19.8	20.1	20.9	20.0	21.1	20.1	16.1	19.1	20.4	20.0	217.2	199.4	
	10	14.7	14.8	15.1	15.9	15.0	16.1	15.1	11.1	14.1	15.4	15.0	162.2	144.4	

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.5	52.5	
Precipitation - Reference Evapotranspiration	-17.6	-43.8	5.9
Number of Rainy Days	4.0	1.0	1.0
Number of Dry Days	25.0	24.0	-

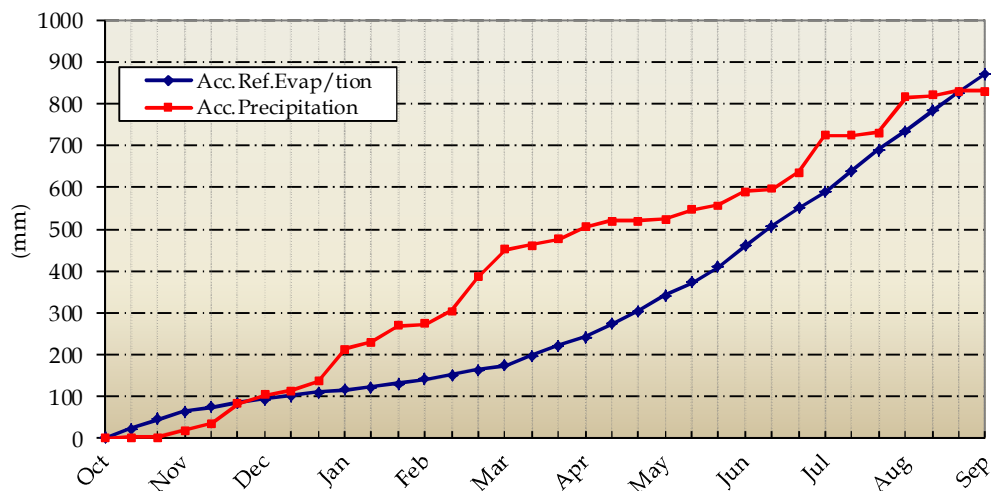
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.5	30.0	30.0	30.6	28.8	28.7	28.6	26.0	29.4	29.8	30.9	29.3	30.3	29.3
	Min	12.6	11.9	12.3	12.6	14.5	16.3	14.6	16.6	18.8	13.4	11.6	14.1	13.1	13.3
Relative Humidity	Max	88	94	91	94	98	96	96	83	70	82	89	89	83	-
	Min	27	23	24	27	36	37	27	41	29	25	20	29	25	-
Soil Temperature at 10 cm	06 UTC	23.4	23.2	23.4	23.8	-	-	24.2	24.8	24.0	23.8	23.4	23.8	25.5	23.4
	12 UTC	29.4	29.8	29.8	29.8	-	-	30.0	27.0	29.0	29.4	29.2	29.3	28.5	26.2
Sunshine Duration		10.4	9.1	9.9	11.2	9.1	6.2	9.6	4.8	11.5	11.5	11.4	9.5	9.1	9.5
Precipitation							0.0						0.0	1.7	5.3
Evaporation		5.5	5.6	3.9	-	-	-	6.8	5.2	6.6	6.8	-	-	-	54.7
Growing Degrees	5	16.1	16.0	16.2	16.6	16.7	17.5	16.6	16.3	19.1	16.6	16.3	183.8	183.8	179.5
	10	11.1	11.0	11.2	11.6	11.7	12.5	11.6	11.3	14.1	11.6	11.3	128.8	128.8	124.5

3rd 10-day period (21-31/08/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.7	47.0	47.4
Precipitation - Reference Evapotranspiration	-45.7	-45.3	-42.1
Number of Rainy Days	0.0	2.0	1.2
Number of Dry Days	14.0	32.0	-

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_n 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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