



AGROMETEOROLOGICAL BULLETIN

September 2017
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



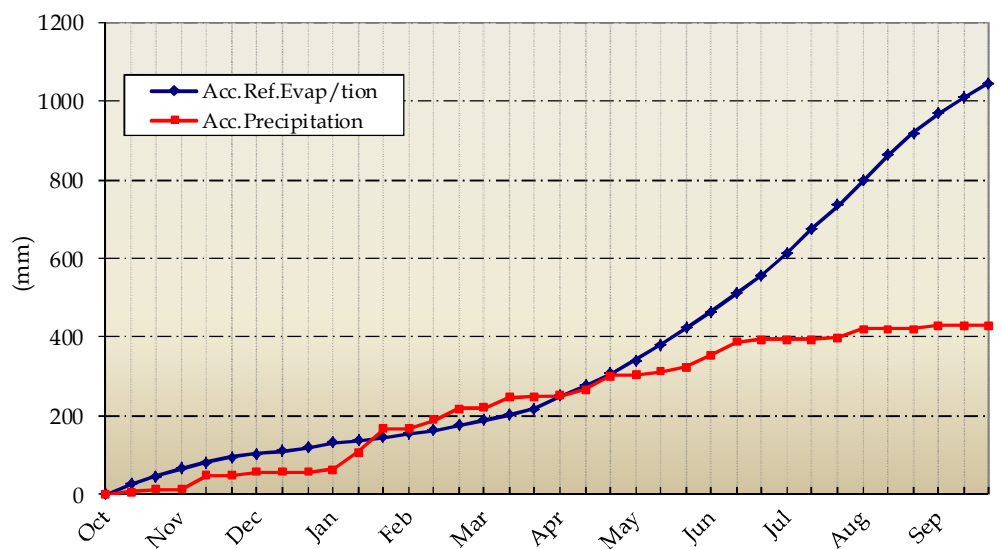
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2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.2	29.2	29.0	32.4	31.6	32.8	31.2	32.8	31.0	29.8	30.8	29.6	26.5
	Min	16.2	18.4	17.6	21.0	14.6	19.0	17.0	15.6	16.0	18.4	17.4	17.8	13.8
Relative Humidity	Max	100	87	90	78	80	85	96	92	92	96	90	80	-
	Min	66	60	61	29	38	39	53	46	52	31	48	39	-
Soil Temperature at 10 cm	06 UTC	24.0	25.2	24.8	25.2	24.4	24.4	24.4	24.4	24.4	24.2	24.5	24.4	19.9
	12 UTC	27.0	27.8	27.0	28.6	27.6	27.8	28.0	27.8	28.2	27.4	27.7	29.0	23.7
Sunshine Duration		10.3	10.9	11.2	11.0	11.2	11.0	10.5	10.8	10.6	10.1	10.8	8.7	8.5
Precipitation													1.9	5.2
Evaporation		6.7	5.3	8.2	6.2	4.7	5.9	4.4	7.1	2.5	6.5	57.5	68.8	66.6
Growing Degrees	5	17.2	18.8	18.3	21.7	18.1	20.9	19.1	19.2	18.5	19.1	190.9	187.3	151.3
	10	12.2	13.8	13.3	16.7	13.1	15.9	14.1	14.2	13.5	14.1	140.9	137.3	101.3

2nd 10-day period (11-20/09/2017)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	38.5	37.8	37.1
Precipitation - Reference Evapotranspiration	-38.5	-35.9	-31.9
Number of Rainy Days	0.0	2.0	0.9
Number of Dry Days	29.0	76.0	-

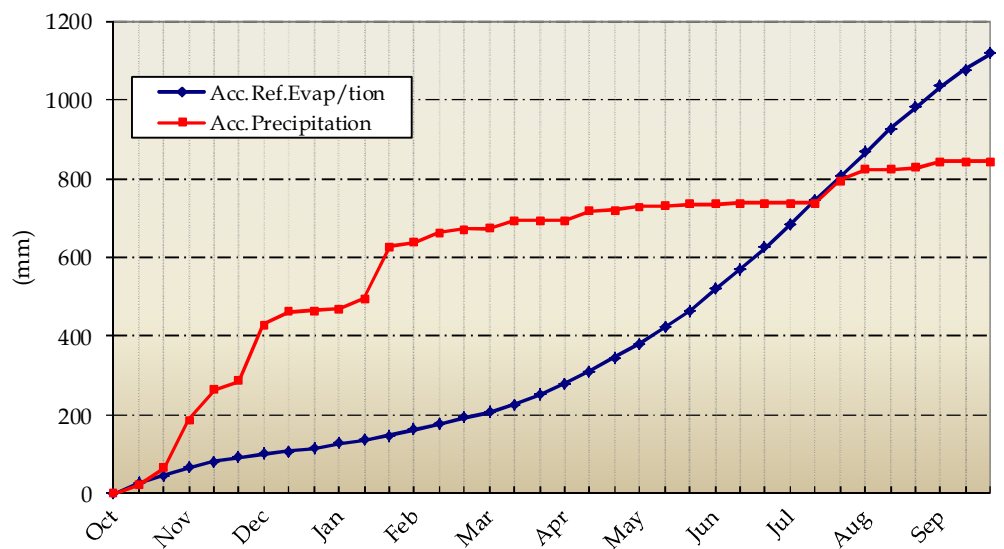
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.2	28.9	28.8	28.8	28.6	29.0	29.5	31.4	29.4	28.5	29.9	28.1	28.2
	Min	19.0	18.8	18.2	18.0	16.3	16.5	16.7	16.2	17.0	18.0	17.5	18.3	16.5
Relative Humidity	Max	89	84	85	86	87	87	88	88	88	86	87	89	-
	Min	13	41	43	32	30	37	41	34	33	47	35	49	-
Soil Temperature at 10 cm	06 UTC	26.0	26.2	26.0	26.4	25.6	26.6	25.8	25.5	25.8	26.0	26.0	-	23.4
	12 UTC	28.4	28.4	28.0	28.2	28.0	28.2	28.0	28.0	28.5	28.2	28.2	-	26.9
Sunshine Duration		8.3	10.4	10.7	10.8	10.9	10.8	10.4	10.1	9.1	7.0	9.8	7.9	9.1
Precipitation											0.6	0.6	18.1	7.0
Evaporation		4.0	4.0	5.0	7.0	4.0	7.0	5.0	3.0	4.0	10.6	53.6	42.1	56.3
Growing Degrees	5	22.6	18.9	18.5	18.4	17.5	17.8	18.1	18.8	18.2	18.3	186.9	182.0	173.6
	10	17.6	13.9	13.5	13.4	12.5	12.8	13.1	13.8	13.2	13.3	136.9	132.0	123.6

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.1	33.1	36.2
Precipitation - Reference Evapotranspiration	-40.5	-15.0	-29.2
Number of Rainy Days	1.0	1.0	1.1
Number of Dry Days	20.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

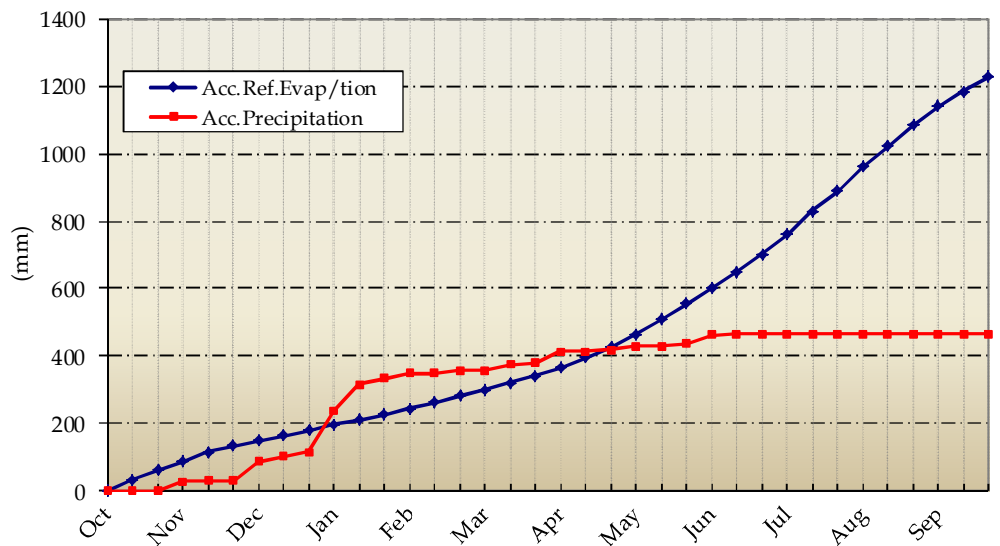


Iraklio

2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.2	28.2	27.6	28.0	27.4	28.4	28.8	30.4	33.2	29.2	29.0	28.1	26.4
	Min	19.2	24.6	19.6	20.2	19.0	19.4	18.8	19.4	23.6	22.0	20.6	22.0	19.5
Relative Humidity	Max	85	84	89	87	88	90	86	72	71	87	84	85	-
	Min	29	32	62	57	64	61	49	39	31	35	46	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.0	8.1	10.0	9.7	10.5	9.4	9.4	9.6	9.2	7.6	9.2	8.6	9.4
Precipitation													11.0	6.0
Evaporation		6.9	5.7	4.0	4.8	5.1	4.9	3.9	4.2	4.2	3.9	47.6	51.7	64.4
Growing Degrees	5	19.2	21.4	18.6	19.1	18.2	18.9	18.8	19.9	23.4	20.6	198.1	200.9	179.8
	10	14.2	16.4	13.6	14.1	13.2	13.9	13.8	14.9	18.4	15.6	148.1	150.9	129.8

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.9	41.5	-
Precipitation - Reference Evapotranspiration	-42.9	-30.5	6.0
Number of Rainy Days	0.0	1.0	0.5
Number of Dry Days	64.0	103.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

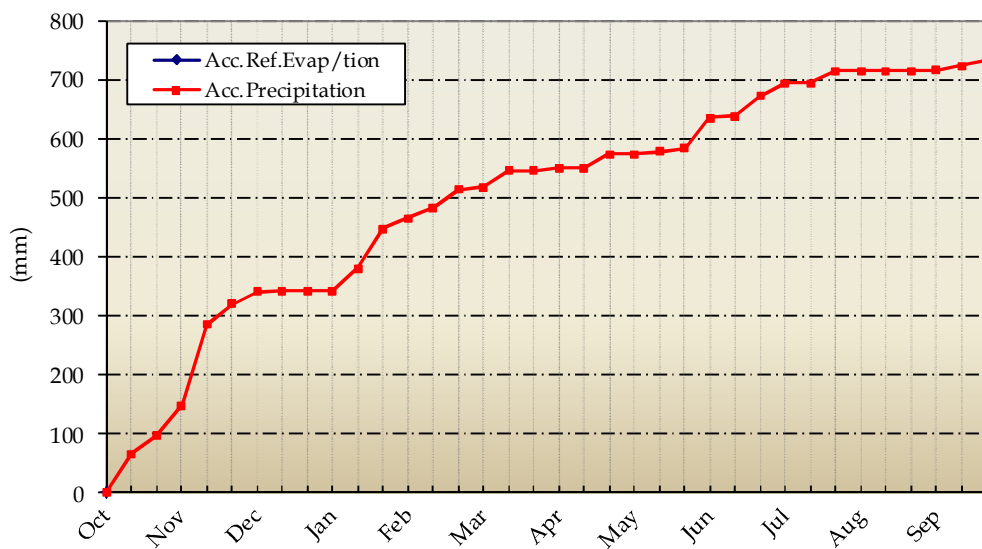


Ioannina

2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	26.6	28.2	28.6	29.4	34.0	34.2	31.4	28.6	24.8	29.8	26.5	26.5
	Min	11.0	15.0	12.0	10.0	8.4	9.8	12.2	12.0	10.6	14.0	11.5	13.3	12.2
Relative Humidity	Max	100	100	98	84	97	98	89	95	100	100	96	100	-
	Min	14	49	40	25	26	16	13	26	26	40	28	47	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.1
Sunshine Duration		9.1	6.3	10.0	9.5	10.0	9.8	8.8	8.8	8.7	5.2	8.6	5.1	6.9
Precipitation		0.4	5.9	0.0						0.0	2.2	8.5	75.2	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	43.6
Growing Degrees	5	16.7	15.8	15.1	14.3	13.9	16.9	18.2	16.7	14.6	14.4	156.6	149.0	143.6
	10	11.7	10.8	10.1	9.3	8.9	11.9	13.2	11.7	9.6	9.4	106.6	99.0	93.6

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	28.7
Precipitation - Reference Evapotranspiration	-	-	-12.3
Number of Rainy Days	3.0	7.0	2.1
Number of Dry Days	1.0	0.0	-

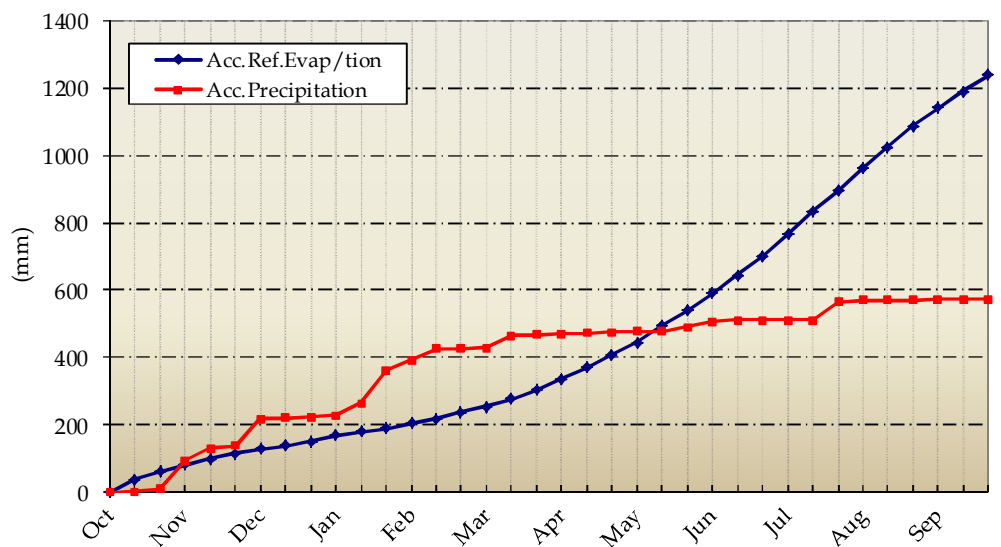
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	30.8	32.6	33.5	31.6	30.7	32.0	37.4	32.3	29.6	32.2	29.0	28.6
	Min	16.4	15.9	16.8	20.0	15.9	13.9	15.6	17.5	18.9	15.1	16.6	17.8	15.9
Relative Humidity	Max	92	87	89	83	83	92	84	76	78	84	85	90	-
	Min	37	33	30	25	23	30	33	13	26	46	30	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.8
Sunshine Duration		9.7	10.8	10.7	10.9	11.1	11.4	11.0	10.6	9.8	10.4	10.6	8.1	8.7
Precipitation													15.1	6.3
Evaporation		5.6	6.8	8.0	5.2	7.6	6.4	8.8	10.4	9.2	4.1	72.1	-	60.4
Growing Degrees	5	18.9	18.4	19.7	21.8	18.8	17.3	18.8	22.5	20.6	17.4	194.0	184.0	172.4
	10	13.9	13.4	14.7	16.8	13.8	12.3	13.8	17.5	15.6	12.4	144.0	134.0	122.4

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.2	36.8	38.1
Precipitation - Reference Evapotranspiration	-49.2	-21.7	-31.8
Number of Rainy Days	0.0	2.0	1.0
Number of Dry Days	21.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

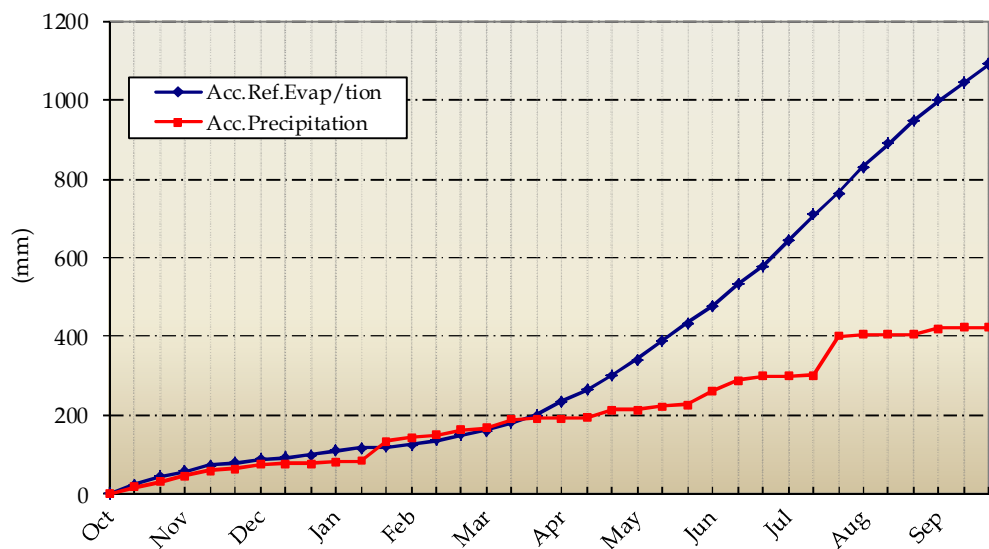


Larisa

2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	32.2	33.6	32.2	33.6	34.5	36.6	38.6	36.4	31.0	34.0	30.0	29.0
	Min	16.5	17.4	14.9	15.2	14.4	15.2	15.2	15.5	16.4	16.8	15.8	16.5	14.0
Relative Humidity	Max	91	63	73	78	84	78	73	74	61	59	73	97	-
	Min	44	29	20	23	25	22	20	11	11	26	23	34	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	24.6	22.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	25.2	24.1
Sunshine Duration		9.6	9.6	9.6	8.8	9.0	9.1	8.9	8.5	8.7	7.1	8.9	6.9	8.3
Precipitation													15.2	12.0
Evaporation		8.9	9.1	10.0	7.3	7.0	7.1	7.6	15.7	5.5	8.7	86.9	57.8	61.4
Growing Degrees	5	19.2	19.8	19.3	18.7	19.0	19.9	20.9	22.1	21.4	18.9	199.0	182.2	165.0
	10	14.2	14.8	14.3	13.7	14.0	14.9	15.9	17.1	16.4	13.9	149.0	132.2	115.0

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.4	34.7	38.0
Precipitation - Reference Evapotranspiration	-47.4	-19.5	-26.0
Number of Rainy Days	0.0	2.0	1.2
Number of Dry Days	14.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

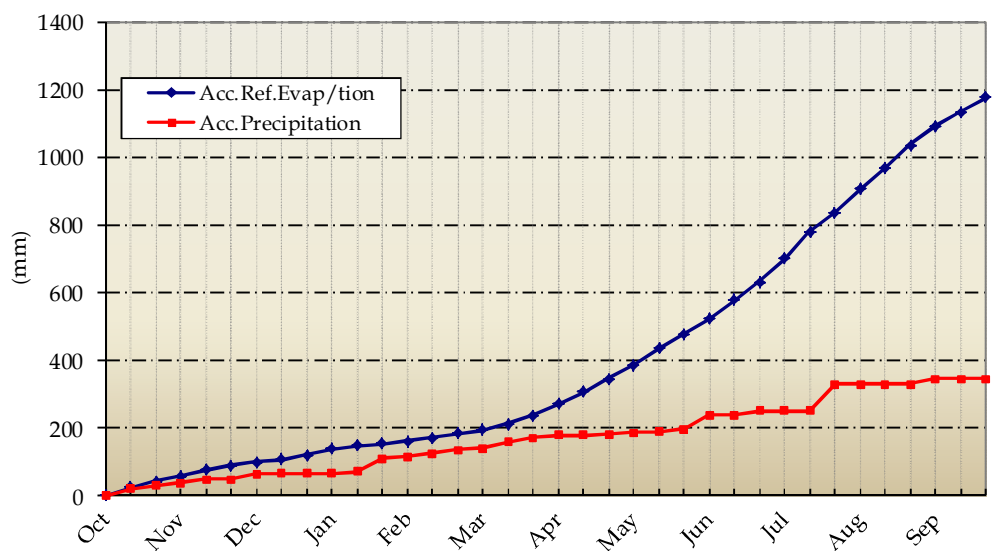


Mikra

2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	32.2	31.8	30.4	31.3	32.2	32.8	35.2	32.6	32.0	32.1	28.7	27.5
	Min	17.4	19.9	17.7	16.8	16.3	16.0	16.8	16.5	16.6	18.3	17.2	17.3	15.2
Relative Humidity	Max	80	75	76	78	80	72	68	72	76	74	75	89	-
	Min	39	26	23	34	26	23	24	16	19	20	25	39	-
Soil Temperature at 10 cm	06 UTC	24.0	24.8	25.2	24.8	25.0	25.0	25.4	24.6	20.2	25.4	24.4	23.3	21.4
	12 UTC	28.8	27.0	27.0	27.0	28.0	28.8	26.4	25.6	27.2	27.6	27.3	26.3	25.2
Sunshine Duration		9.5	11.8	10.9	10.3	10.8	11.8	10.3	10.5	10.4	8.7	10.5	9.2	8.1
Precipitation											0.0	0.0	11.6	7.6
Evaporation		6.0	6.5	7.6	4.5	9.7	6.8	6.5	5.4	6.4	9.2	68.6	52.7	62.1
Growing Degrees	5	19.0	21.1	19.8	18.6	18.8	19.1	19.8	20.9	19.6	20.2	196.7	179.7	163.4
	10	14.0	16.1	14.8	13.6	13.8	14.1	14.8	15.9	14.6	15.2	146.7	129.7	113.4

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.5	38.9	37.4
Precipitation - Reference Evapotranspiration	-41.5	-27.3	-29.8
Number of Rainy Days	0.0	2.0	1.4
Number of Dry Days	21.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

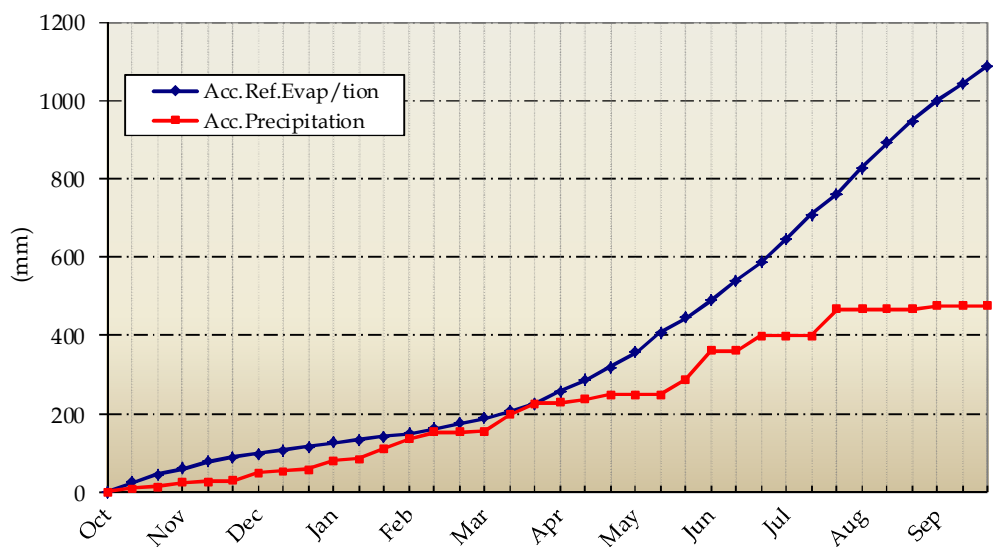


Tanagra

2nd 10-day period (11-20/09/2017)		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	32.3	32.6	32.4	32.6	32.4	35.0	39.8	36.4	32.4	33.9	30.2	28.3
	Min	18.1	23.2	17.4	11.1	17.0	17.0	16.3	18.5	20.8	18.7	17.8	18.3	15.0
Relative Humidity	Max	100	62	70	60	76	74	67	64	70	62	70	72	-
	Min	27	23	17	17	21	20	12	9	11	20	18	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.8	11.3	11.1	6.4	11.4	11.5	11.4	11.5	9.7	10.3	10.4	8.4	
Precipitation													0.1	3.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	20.5	22.8	20.0	16.8	19.8	19.7	20.7	24.2	23.6	20.6	208.5	192.3	
	10	15.5	17.8	15.0	11.8	14.8	14.7	15.7	19.2	18.6	15.6	158.5	142.3	

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.0	39.5	
Precipitation - Reference Evapotranspiration	-45.0	-39.4	3.2
Number of Rainy Days	0.0	1.0	1.0
Number of Dry Days	30.0	11.0	-

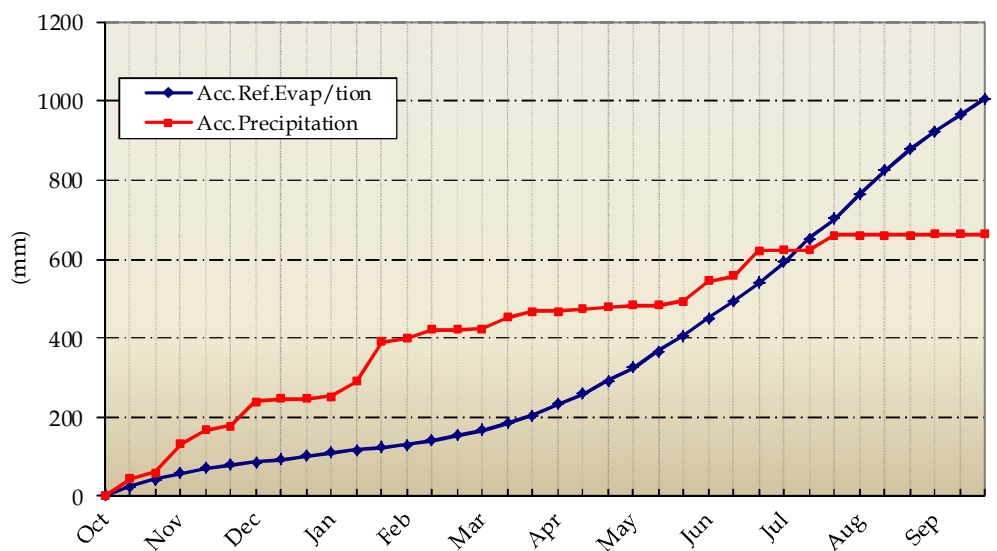
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/09/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.2	27.4	33.3	30.8	32.2	32.9	34.9	37.0	34.9	27.4	32.4	27.0	26.9
	Min	12.5	17.5	10.9	12.1	8.5	10.3	10.5	12.3	11.6	14.2	12.0	12.6	11.2
Relative Humidity	Max	100	89	96	85	93	94	86	80	66	70	86	100	-
	Min	16	33	12	20	12	15	14	8	11	27	17	36	-
Soil Temperature at 10 cm	06 UTC	25.0	25.4	24.2	24.2	23.6	23.8	23.8	24.4	24.2	24.4	24.3	19.9	20.2
	12 UTC	28.2	28.2	27.8	27.8	27.6	-	-	28.2	28.2	27.8	28.0	23.7	22.5
Sunshine Duration		9.9	10.5	10.7	10.7	10.6	10.5	10.6	10.5	10.3	10.5	10.5	7.4	8.5
Precipitation													33.2	5.9
Evaporation		7.6	6.2	5.3	5.1	5.7	4.5	6.3	7.1	6.6	5.7	60.1	-	40.3
Growing Degrees	5	17.9	17.5	17.1	16.5	15.4	16.6	17.7	19.7	18.3	15.8	172.2	148.0	140.2
	10	12.9	12.5	12.1	11.5	10.4	11.6	12.7	14.7	13.3	10.8	122.2	98.0	90.2

2nd 10-day period (11-20/09/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.4	30.1	34.4
Precipitation - Reference Evapotranspiration	-40.4	3.1	-28.5
Number of Rainy Days	0.0	5.0	1.0
Number of Dry Days	21.0	2.0	-

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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