



# AGROMETEOROLOGICAL BULLETIN

*August 2017  
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



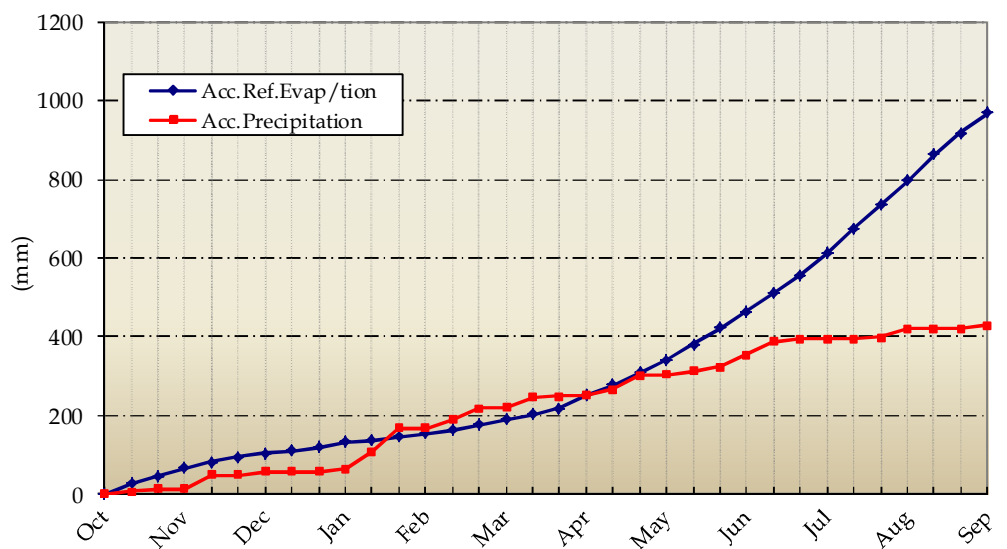
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS*  
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3rd 10-day period (21-31/08/2017)		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	25.6	27.2	31.0	31.0	31.0	31.6	32.8	29.4	27.8	28.4	29.8	32.4	29.1
	Min	21.2	17.2	13.4	15.0	17.0	17.2	19.4	14.4	19.8	18.6	14.8	17.1	19.7	16.6
Relative Humidity	Max	96	98	98	88	74	88	81	93	87	76	85	88	76	-
	Min	47	59	49	28	33	36	39	35	49	40	35	41	30	-
Soil Temperature at 10 cm	06 UTC	21.4	24.3	22.4	22.8	21.6	21.4	24.2	25.2	25.0	23.6	22.6	23.1	27.4	23.0
	12 UTC	29.0	23.8	24.2	26.4	23.4	23.2	27.2	27.0	27.4	25.6	26.0	25.7	33.6	27.1
Sunshine Duration		6.1	7.1	11.8	12.5	12.5	12.4	12.5	12.1	5.1	8.9	12.2	10.3	11.0	9.8
Precipitation			8.9							0.0			8.9	0.0	4.5
Evaporation		6.3	8.6	3.7	3.7	6.0	9.4	9.4	7.4	5.9	7.9	6.1	74.4	102.7	93.1
Growing Degrees	5	21.4	16.4	15.3	18.0	19.0	19.1	20.5	18.6	19.6	18.2	16.6	202.7	232.0	196.4
	10	16.4	11.4	10.3	13.0	14.0	14.1	15.5	13.6	14.6	13.2	11.6	147.7	177.0	141.4

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.1	58.2	54.2
Precipitation - Reference Evapotranspiration	-41.2	-58.2	-49.7
Number of Rainy Days	1.0	0.0	1.0
Number of Dry Days	24.0	58.0	-

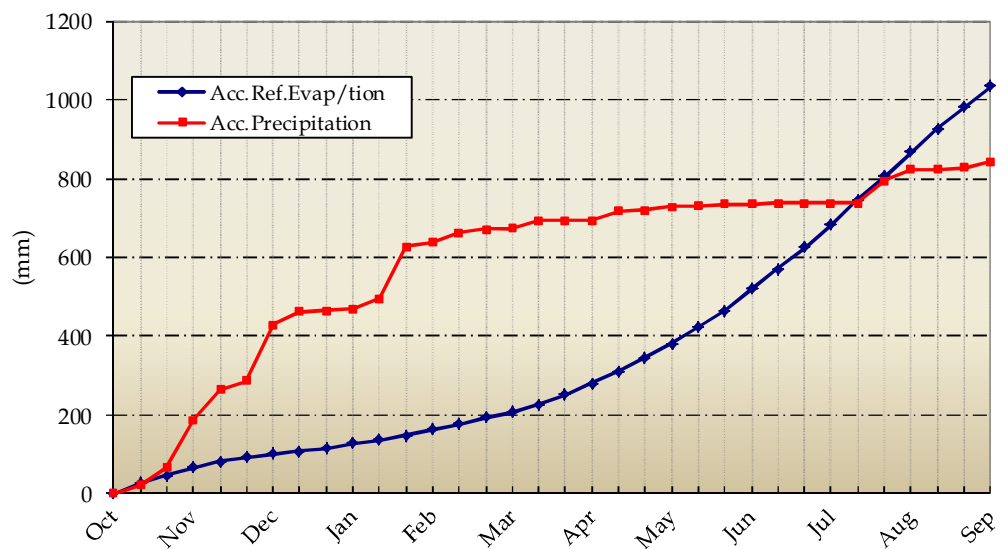
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	29.2	30.6	30.0	33.0	33.9	30.8	32.8	33.0	28.7	28.1	30.9	31.5	30.0
	Min	21.1	19.8	19.4	19.8	17.4	16.1	14.2	15.1	19.0	20.5	15.8	18.0	18.7	18.5
Relative Humidity	Max	81	83	84	85	87	80	85	79	82	90	87	84	86	-
	Min	44	46	35	38	19	18	31	23	28	39	35	32	34	-
Soil Temperature at 10 cm	06 UTC	29.0	28.6	28.0	28.4	28.2	27.0	27.2	27.2	27.5	27.0	25.5	27.6	-	26.8
	12 UTC	30.0	30.6	30.5	30.0	29.8	30.0	30.0	29.6	30.0	28.0	27.2	29.6	-	30.8
Sunshine Duration		7.1	11.2	9.9	11.2	11.7	12.0	12.6	11.5	8.6	7.1	11.6	10.4	9.4	10.6
Precipitation											14.6		14.6		3.8
Evaporation		9.0	7.0	7.0	2.0	8.0	6.0	7.0	6.0	4.0	7.6	8.0	71.6	93.2	74.7
Growing Degrees	5	20.6	19.5	20.0	19.9	20.2	20.0	17.5	19.0	21.0	19.6	17.0	214.2	221.3	211.8
	10	15.6	14.5	15.0	14.9	15.2	15.0	12.5	14.0	16.0	14.6	12.0	159.2	166.3	156.8

3rd 10-day period (21-31/08/2017)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.4	50.4
Precipitation - Reference Evapotranspiration	-36.8	-50.4
Number of Rainy Days	1.0	0.0
Number of Dry Days	33.0	17.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

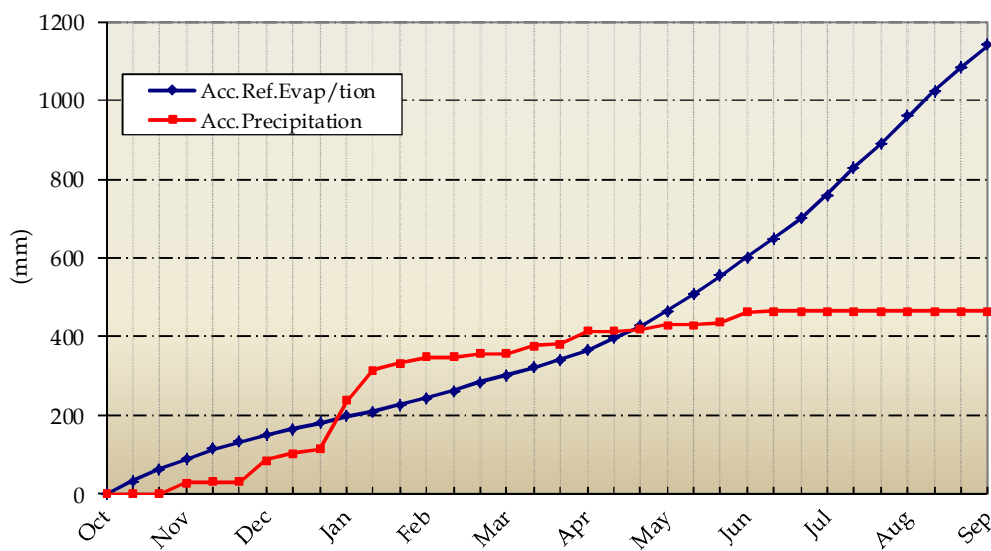


Iraklio

3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	28.4	27.2	28.0	27.0	27.0	26.4	28.2	28.4	26.4	25.0	27.6	28.8	27.8
	Min	22.8	20.2	22.4	23.0	24.0	23.0	22.6	23.0	20.6	24.0	23.0	22.6	22.6	21.3
Relative Humidity	Max	82	89	89	77	75	82	76	75	75	83	68	79	82	-
	Min	29	63	67	56	60	65	57	61	55	68	54	58	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.2	10.1	10.8	11.5	11.2	11.1	10.8	10.7	11.1	7.7	10.1	10.6	10.7	10.8
Precipitation															0.6
Evaporation		7.4	5.5	6.8	8.7	9.6	4.7	7.4	4.5	6.7	5.9	9.3	76.5	63.8	88.9
Growing Degrees	5	22.1	19.3	19.8	20.5	20.5	20.0	19.5	20.6	19.5	20.2	19.0	221.0	227.7	215.1
	10	17.1	14.3	14.8	15.5	15.5	15.0	14.5	15.6	14.5	15.2	14.0	166.0	172.7	160.1

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.9	55.5	-
Precipitation - Reference Evapotranspiration	-56.9	-55.5	0.6
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	44.0	84.0	-

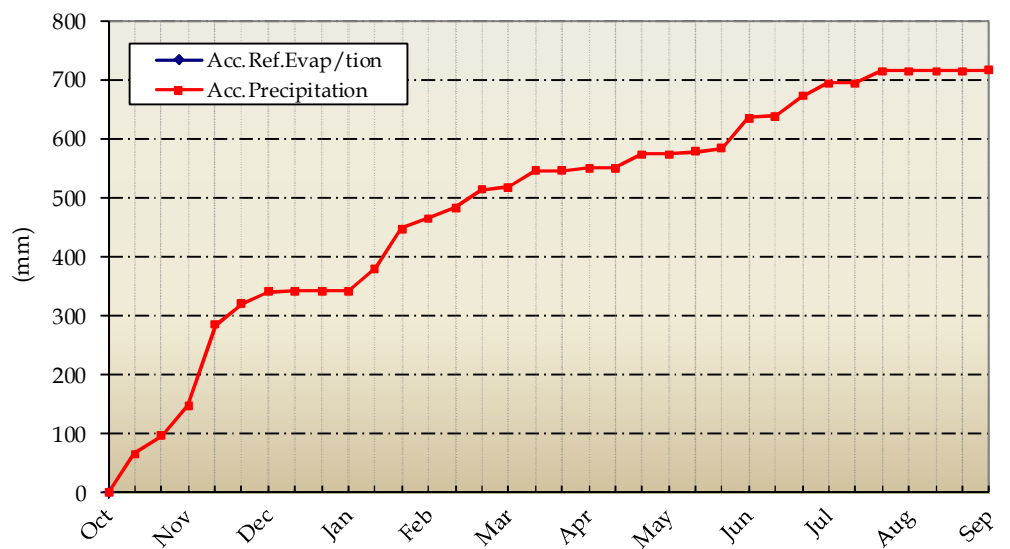
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	30.4	29.6	32.6	33.2	34.4	35.6	36.4	34.2	28.8	31.8	32.5	30.7	29.2
	Min	16.4	15.4	14.0	12.4	12.0	14.4	12.0	12.0	14.5	19.0	11.5	14.0	16.4	14.3
Relative Humidity	Max	98	98	92	92	96	94	86	98	91	98	100	95	91	-
	Min	29	32	30	24	25	11	11	13	17	26	24	22	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Sunshine Duration		7.6	9.8	9.6	10.4	10.3	10.4	10.3	9.6	5.9	9.1	10.1	9.4	8.5	8.9
Precipitation			1.0										1.0	20.6	15.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
Growing Degrees	5	18.6	17.9	16.8	17.5	17.6	19.4	18.8	19.2	19.4	18.9	16.7	200.7	204.5	178.0
	10	13.6	12.9	11.8	12.5	12.6	14.4	13.8	14.2	14.4	13.9	11.7	145.7	149.5	124.8

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	44.4
Precipitation - Reference Evapotranspiration	-	-	-28.5
Number of Rainy Days	1.0	2.0	2.1
Number of Dry Days	13.0	19.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

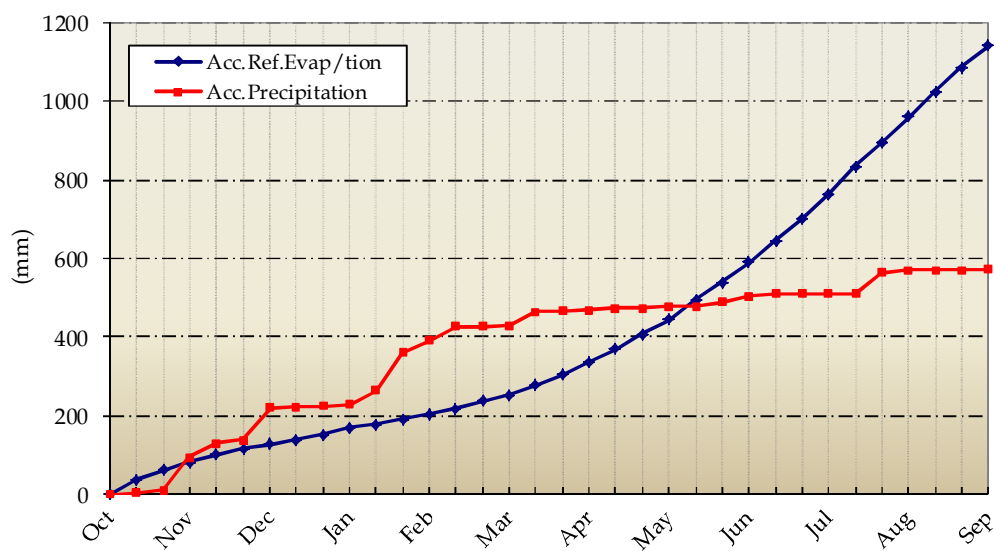
## August 2017

Kalamata

3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.5	31.3	31.4	29.9	30.9	30.4	29.5	30.6	35.1	29.9	31.5	31.3	32.0	30.5
	Min	18.8	19.0	20.3	18.2	16.9	12.8	15.9	14.0	17.0	20.2	16.0	17.2	19.1	17.7
Relative Humidity	Max	87	86	87	89	85	82	87	89	85	87	87	86	84	-
	Min	30	41	44	40	29	33	34	31	24	41	26	34	32	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.3	25.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.1	29.0
Sunshine Duration		9.0	10.9	6.9	8.4	7.7	7.4	6.2	11.6	11.2	3.3	11.2	8.5	9.7	10.0
Precipitation											2.1		2.1	9.3	3.6
Evaporation		7.6	6.4	3.5	7.1	7.7	7.7	8.3	3.8	8.3	1.7	7.1	69.2	78.9	81.7
Growing Degrees	5	21.2	20.2	20.9	19.1	18.9	16.6	17.7	17.3	21.1	20.1	18.8	211.6	225.7	210.0
	10	16.2	15.2	15.9	14.1	13.9	11.6	12.7	12.3	16.1	15.1	13.8	156.6	170.7	155.0

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.2	57.3	52.5
Precipitation - Reference Evapotranspiration	-51.1	-48.0	-48.9
Number of Rainy Days	1.0	2.0	0.9
Number of Dry Days	33.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

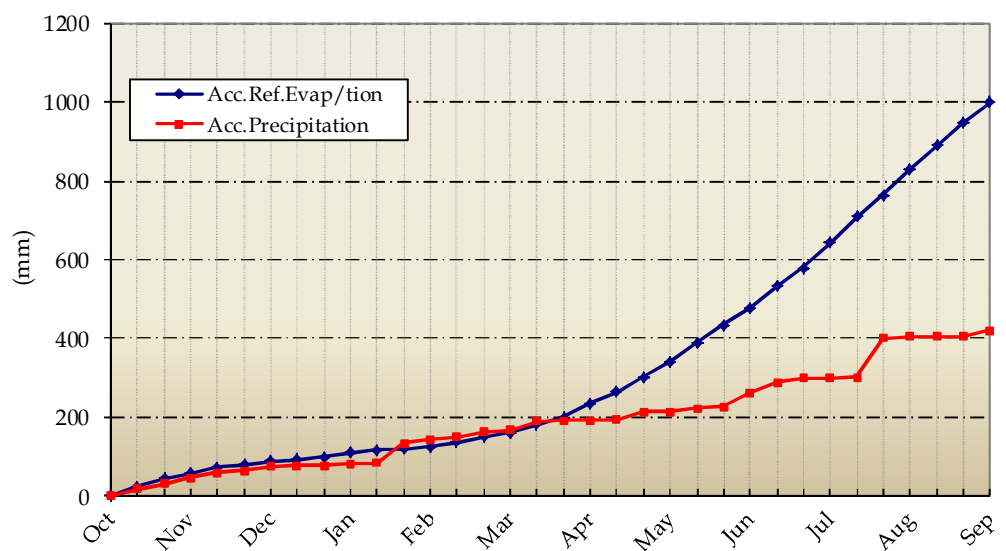


Larisa

3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	29.6	30.8	30.5	30.6	31.4	33.5	35.0	32.4	25.8	28.6	30.7	32.8	31.3
	Min	21.0	20.0	13.8	17.9	13.0	13.5	14.0	15.1	17.2	17.2	14.2	16.1	18.5	16.4
Relative Humidity	Max	87	68	79	76	82	79	81	82	96	98	94	84	77	-
	Min	47	30	27	23	24	21	23	20	30	39	37	29	25	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.0	25.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.3	27.7
Sunshine Duration		3.7	8.0	10.8	10.2	11.3	10.9	10.8	10.7	7.2	9.0	11.9	9.5	8.9	9.7
Precipitation		3.4								2.1	9.8		15.3	3.5	8.3
Evaporation		2.2	6.6	8.3	14.3	13.2	7.6	10.4	0.0	22.0	4.9	6.9	96.4	106.2	85.2
Growing Degrees	5	20.4	19.8	17.3	19.2	16.8	17.5	18.8	20.1	19.8	16.5	16.4	202.5	227.1	207.5
	10	15.4	14.8	12.3	14.2	11.8	12.5	13.8	15.1	14.8	11.5	11.4	147.5	172.1	152.5

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.5	56.7	54.4
Precipitation - Reference Evapotranspiration	-36.2	-53.2	-46.1
Number of Rainy Days	3.0	2.0	1.6
Number of Dry Days	24.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

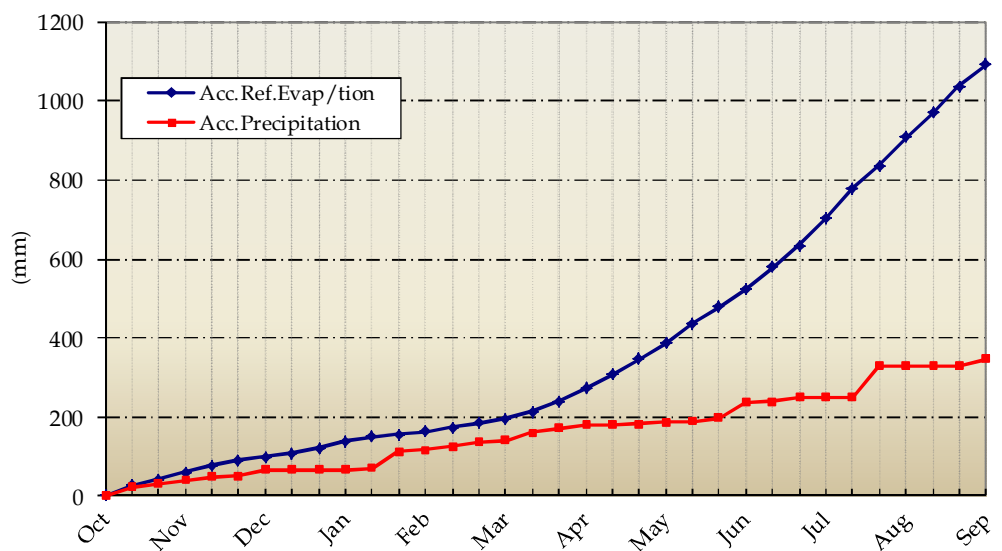


Mikra

3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	28.7	29.0	30.4	30.2	31.3	31.4	32.0	28.8	26.4	27.4	29.5	31.7	29.9
	Min	21.7	20.6	16.2	14.7	15.1	16.0	16.6	17.9	19.8	18.8	16.5	17.6	21.1	17.9
Relative Humidity	Max	76	68	77	73	70	63	75	76	94	92	81	77	66	-
	Min	39	23	22	21	21	25	29	24	35	32	41	28	30	-
Soil Temperature at 10 cm	06 UTC	29.2	25.2	25.4	25.6	26.2	26.2	25.8	29.3	28.4	25.0	24.0	26.4	27.6	25.1
	12 UTC	29.8	28.0	28.0	29.0	29.2	30.0	30.6	31.4	29.8	28.0	28.0	29.3	30.7	29.4
Sunshine Duration		6.0	10.9	11.5	11.9	11.6	11.7	11.5	11.5	3.9	10.2	10.8	10.1	9.3	9.2
Precipitation		4.0								0.2	12.7		16.9	0.0	10.5
Evaporation		2.8	9.8	7.5	5.3	11.1	5.5	7.8	6.9	24.8	5.0	7.2	93.7	94.4	84.9
Growing Degrees	5	20.1	19.7	17.6	17.6	17.7	18.7	19.0	20.0	19.3	17.6	17.0	204.0	235.6	208.0
	10	15.1	14.7	12.6	12.6	12.7	13.7	14.0	15.0	14.3	12.6	12.0	149.0	180.6	153.0

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.8	62.7	53.4
Precipitation - Reference Evapotranspiration	-37.9	-62.7	-42.9
Number of Rainy Days	3.0	0.0	1.6
Number of Dry Days	34.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



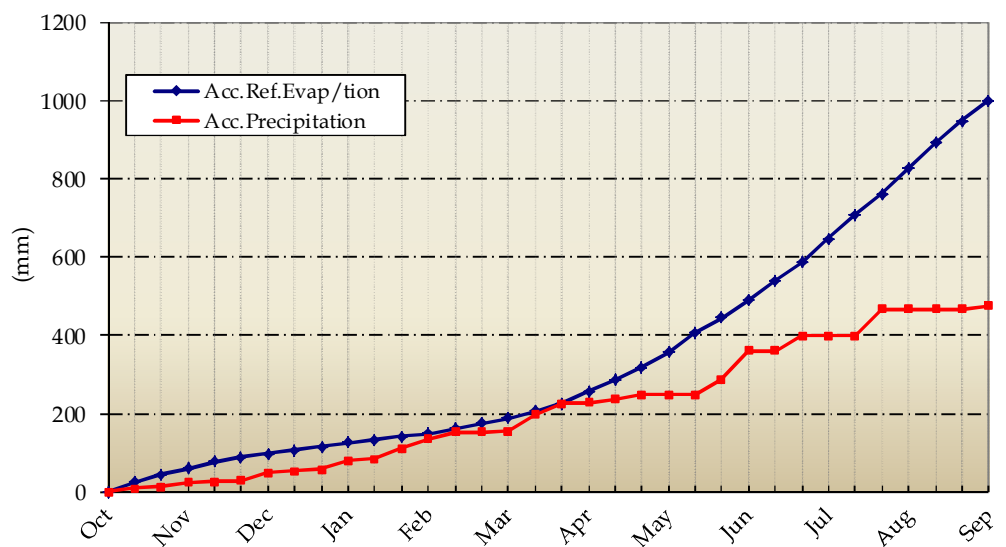


Tanagra

3rd 10-day period (21-31/08/2017)		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	27.6	29.7	28.7	24.6	28.4	28.8	31.8	33.0	26.2	26.7	28.8	30.8	30.9
	Min	18.4	18.1	15.6	15.8	15.3	17.3	17.7	19.0	17.5	20.9	15.9	17.4	20.2	17.4
Relative Humidity	Max	100	100	77	74	75	73	61	67	68	69	72	76	65	-
	Min	27	35	28	31	34	28	28	21	22	34	30	29	31	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.0	7.3	11.6	12.9	12.1	12.1	12.2	12.1	11.1	9.4	12.0	10.8	10.2	
Precipitation		8.7											8.7		5.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	20.1	17.9	17.7	17.3	15.0	17.9	18.3	20.4	20.3	18.6	16.3	199.4	225.7	
	10	15.1	12.9	12.7	12.3	10.0	12.9	13.3	15.4	15.3	13.6	11.3	144.4	170.7	

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.5	52.8	
Precipitation - Reference Evapotranspiration	-43.8	-52.8	5.9
Number of Rainy Days	1.0	0.0	1.0
Number of Dry Days	24.0	64.0	-

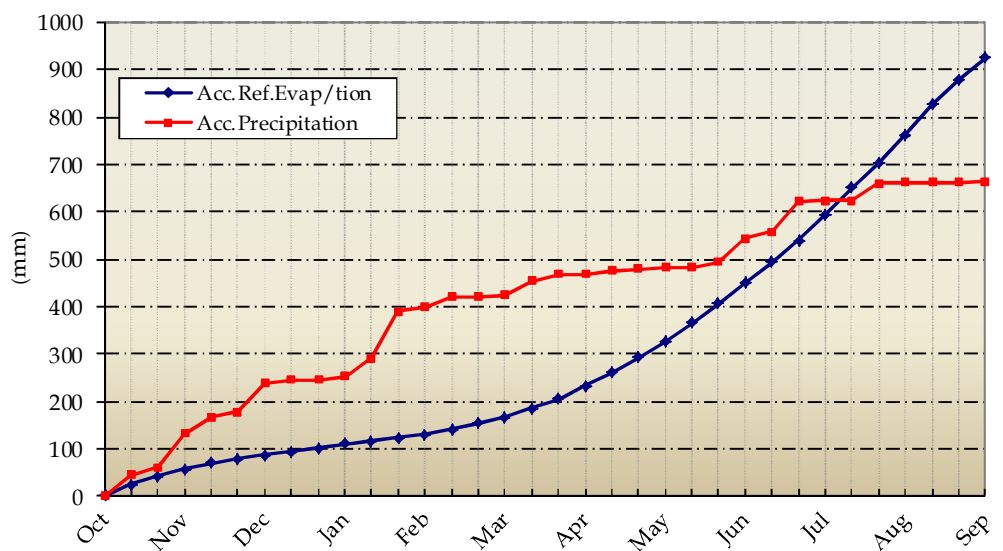
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.7	27.6	27.9	29.9	30.9	31.7	32.8	34.1	33.5	24.8	29.5	30.3	30.0	29.3
	Min	14.4	13.3	16.4	12.4	13.8	11.1	10.1	12.7	13.1	17.4	9.4	13.1	14.9	13.3
Relative Humidity	Max	86	92	88	94	83	71	78	64	70	91	94	83	89	-
	Min	20	37	33	26	18	17	14	14	17	51	24	25	30	-
Soil Temperature at 10 cm	06 UTC	26.8	25.8	26.6	25.6	25.8	-	-	25.4	25.8	26.0	21.8	25.5	23.5	23.4
	12 UTC	28.8	28.8	29.6	29.0	29.2	-	-	29.6	29.8	26.0	25.8	28.5	28.0	26.2
Sunshine Duration		4.1	7.9	8.0	10.7	11.7	11.7	11.6	11.6	9.7	1.4	11.4	9.1	6.8	9.5
Precipitation				0.0						0.7	1.0		1.7	0.7	5.3
Evaporation		4.4	4.3	4.8	6.5	-	-	-	8.6	6.5	2.4	5.3	-	-	54.7
Growing Degrees	5	17.6	15.5	17.2	16.2	17.4	16.4	16.5	18.4	18.3	16.1	14.5	183.8	191.9	179.5
	10	12.6	10.5	12.2	11.2	12.4	11.4	11.5	13.4	13.3	11.1	9.5	128.8	136.9	124.5

3rd 10-day period (21-31/08/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.0	44.2	47.4
Precipitation - Reference Evapotranspiration	-45.3	-43.5	-42.1
Number of Rainy Days	2.0	2.0	1.2
Number of Dry Days	32.0	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<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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