



AGROMETEOROLOGICAL BULLETIN

*August 2016
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



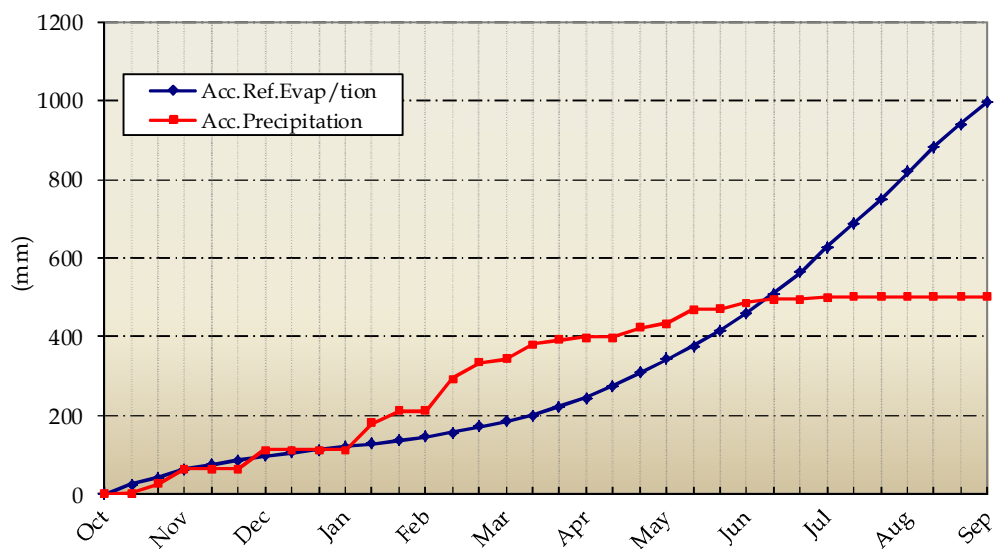
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www.emy.gov.gr
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3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.2	34.6	34.0	34.0	31.0	31.6	31.6	31.6	28.8	31.2	33.2	32.4	32.1	29.1
	Min	23.0	21.0	20.4	19.8	23.4	20.0	17.8	17.8	18.0	16.6	19.4	19.7	18.2	16.6
Relative Humidity	Max	85	74	76	77	58	60	85	74	79	86	85	76	85	-
	Min	30	34	30	32	28	20	21	26	36	39	30	30	34	-
Soil Temperature at 10 cm	06 UTC	29.0	27.4	28.4	28.6	29.0	27.2	26.4	26.6	26.6	25.4	26.8	27.4	26.5	23.0
	12 UTC	39.0	34.2	39.0	33.8	32.4	32.4	31.6	32.0	31.6	31.2	32.4	33.6	31.8	27.1
Sunshine Duration		10.6	11.7	11.2	11.6	11.5	12.4	11.8	10.2	8.5	11.8	10.1	11.0	11.7	9.8
Precipitation										0.0			0.0	0.4	4.5
Evaporation		8.1	10.5	9.4	9.1	14.2	10.8	10.8	6.5	5.4	7.7	10.2	102.7	112.0	93.1
Growing Degrees	5	24.1	22.8	22.2	21.9	22.2	20.8	19.7	19.7	18.4	18.9	21.3	232.0	221.4	196.4
	10	19.1	17.8	17.2	16.9	17.2	15.8	14.7	14.7	13.4	13.9	16.3	177.0	166.4	141.4

3rd 10-day period (21-31/08/2016)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.2	59.6
Precipitation - Reference Evapotranspiration	-58.2	-59.2
Number of Rainy Days	0.0	2.0
Number of Dry Days	58.0	14.0

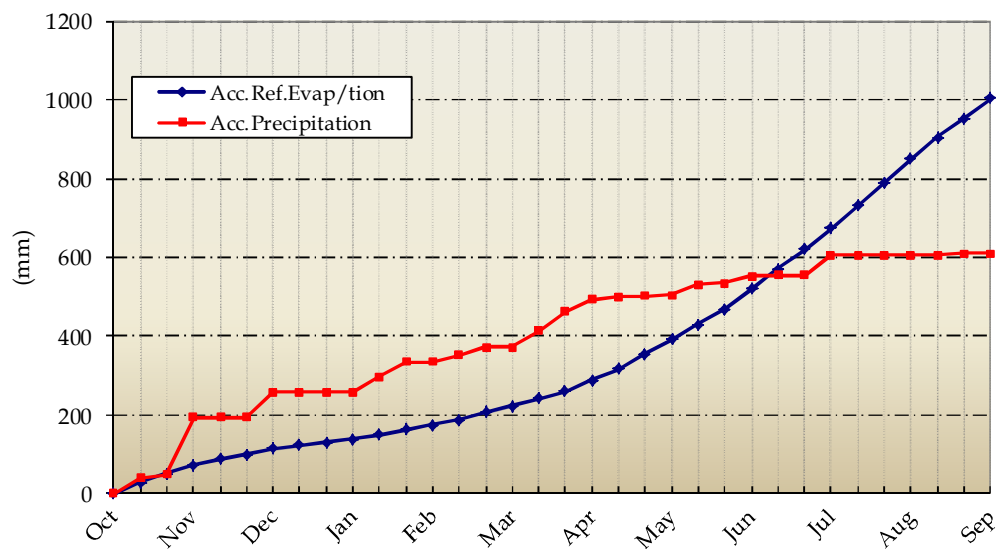
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2016)		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	32.3	30.4	32.0	33.1	33.2	31.8	30.4	30.2	29.6	31.1	31.5	32.8	30.0
	Min	17.9	21.2	19.4	19.4	20.9	19.1	16.1	15.0	18.3	19.0	19.7	18.7	18.4	18.5
Relative Humidity	Max	87	83	87	88	83	86	78	85	87	88	89	86	82	-
	Min	31	35	47	37	30	24	26	25	36	45	41	34	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	26.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	30.8
Sunshine Duration		10.7	10.6	10.8	3.3	2.7	11.3	10.5	12.7	10.5	10.5	10.3	9.4	11.6	10.6
Precipitation															3.8
Evaporation		9.0	2.0	9.0	3.0	0.0	35.0	6.0	2.0	17.0	2.0	8.2	93.2	104.0	74.7
Growing Degrees	5	20.2	21.8	19.9	20.7	22.0	21.2	19.0	17.7	19.3	19.3	20.4	221.3	226.3	211.8
	10	15.2	16.8	14.9	15.7	17.0	16.2	14.0	12.7	14.3	14.3	15.4	166.3	171.3	156.8

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.4	61.4	49.7
Precipitation - Reference Evapotranspiration	-50.4	-61.4	-45.9
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	17.0	25.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

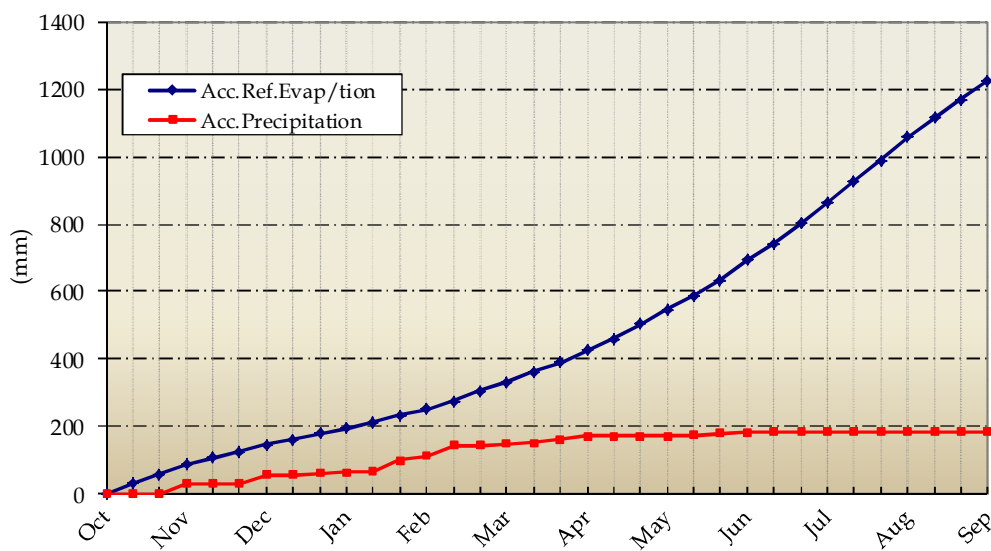


Iraklio

3rd 10-day period (21-31/08/2016)		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	29.0	30.8	30.2	28.8	27.6	27.2	27.6	28.0	29.0	29.6	28.8	28.5	27.8
	Min	24.0	21.8	22.0	23.0	22.0	23.0	23.2	22.6	22.8	20.6	23.6	22.6	23.3	21.3
Relative Humidity	Max	84	84	85	89	88	86	78	75	77	76	76	82	77	-
	Min	68	62	57	66	67	67	63	57	56	53	54	61	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.0	11.4	11.0	10.7	11.2	8.4	10.5	10.7	9.8	11.4	11.3	10.7	11.4	10.8
Precipitation															0.6
Evaporation		5.5	4.6	4.5	4.5	5.0	7.7	5.8	4.3	7.8	7.3	6.8	63.8	80.2	88.9
Growing Degrees	5	21.5	20.4	21.4	21.6	20.4	20.3	20.2	20.1	20.4	19.8	21.6	227.7	229.8	215.1
	10	16.5	15.4	16.4	16.6	15.4	15.3	15.2	15.1	15.4	14.8	16.6	172.7	174.8	160.1

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.5	58.6	-
Precipitation - Reference Evapotranspiration	-55.5	-58.6	0.6
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	84.0	16.0	-

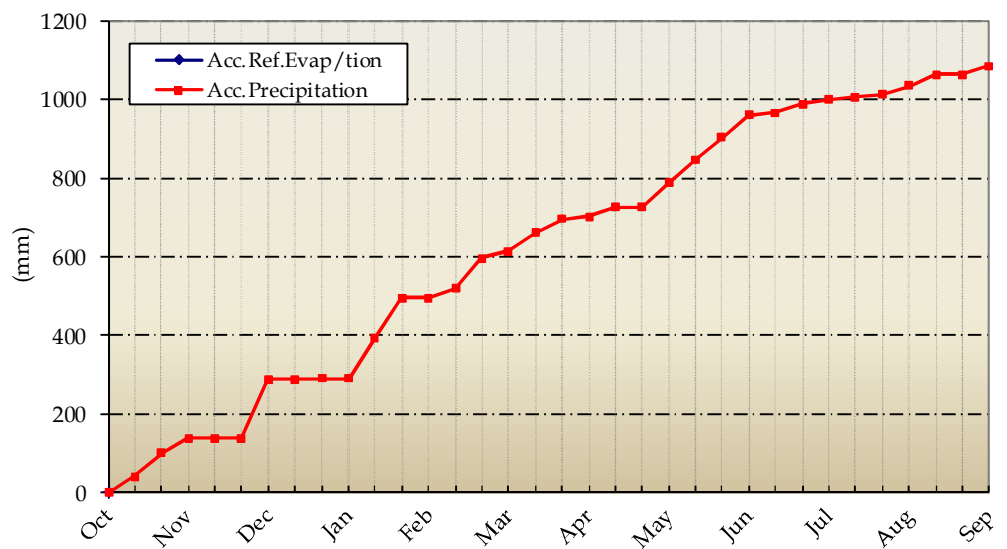
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	34.1	28.9	27.3	29.8	28.7	29.4	30.4	31.2	33.1	31.7	30.7	31.1	29.2
	Min	15.9	16.4	15.9	16.0	23.5	22.6	18.5	12.0	12.4	13.1	14.4	16.4	15.4	14.3
Relative Humidity	Max	100	90	100	100	58	61	95	100	100	100	100	91	89	-
	Min	28	26	20	47	30	29	28	26	27	20	27	28	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	31.4	21.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Sunshine Duration		9.0	10.1	5.4	6.4	6.3	10.4	9.7	9.6	10.0	9.5	7.4	8.5	10.3	8.9
Precipitation				14.7								5.9	20.6		15.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
Growing Degrees	5	19.8	20.3	17.4	16.7	21.7	20.7	19.0	16.2	16.8	18.1	18.1	204.5	201.0	178.0
	10	14.8	15.3	12.4	11.7	16.7	15.7	14.0	11.2	11.8	13.1	13.1	149.5	146.0	124.8

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	44.4
Precipitation - Reference Evapotranspiration	-	-	-28.5
Number of Rainy Days	2.0	0.0	2.1
Number of Dry Days	19.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

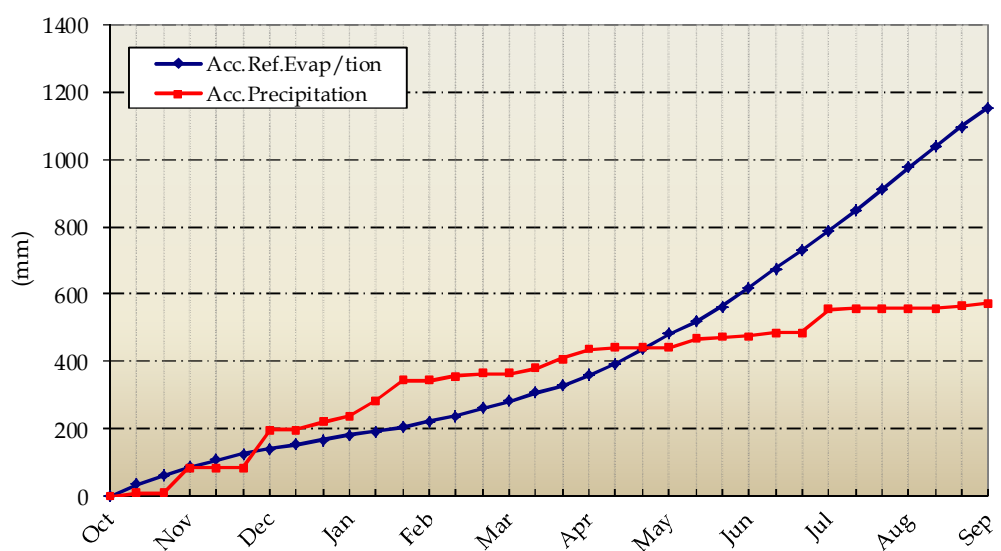


Kalamata

3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.5	31.0	32.4	32.4	33.5	33.3	31.0	31.4	32.4	29.8	32.9	32.0	32.6	30.5
	Min	19.0	18.8	20.8	18.8	18.8	22.9	17.5	16.6	17.9	19.4	19.2	19.1	17.8	17.7
Relative Humidity	Max	82	91	86	87	91	78	71	77	87	87	82	84	82	-
	Min	35	47	34	38	33	21	24	24	25	40	32	32	27	-
Soil Temperature at 10 cm	06 UTC	25.8	25.6	26.0	26.0	25.8	25.2	24.8	24.6	24.0	25.0	25.4	25.3	25.4	25.4
	12 UTC	27.6	27.6	27.6	27.6	27.2	26.8	26.8	25.6	27.4	26.6	26.8	27.1	28.0	29.0
Sunshine Duration		10.7	11.9	11.5	6.3	7.7	11.2	11.6	9.1	9.2	8.0	9.2	9.7	11.6	10.0
Precipitation					0.8	8.5							9.3		3.6
Evaporation		5.4	4.6	5.4	5.8	5.5	9.6	7.6	8.2	8.8	7.2	10.8	78.9	-	81.7
Growing Degrees	5	20.3	19.9	21.6	20.6	21.2	23.1	19.3	19.0	20.2	19.6	21.1	225.7	222.5	210.0
	10	15.3	14.9	16.6	15.6	16.2	18.1	14.3	14.0	15.2	14.6	16.1	170.7	167.5	155.0

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.3	63.1	52.5
Precipitation - Reference Evapotranspiration	-48.0	-63.1	-48.9
Number of Rainy Days	2.0	0.0	0.9
Number of Dry Days	10.0	17.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

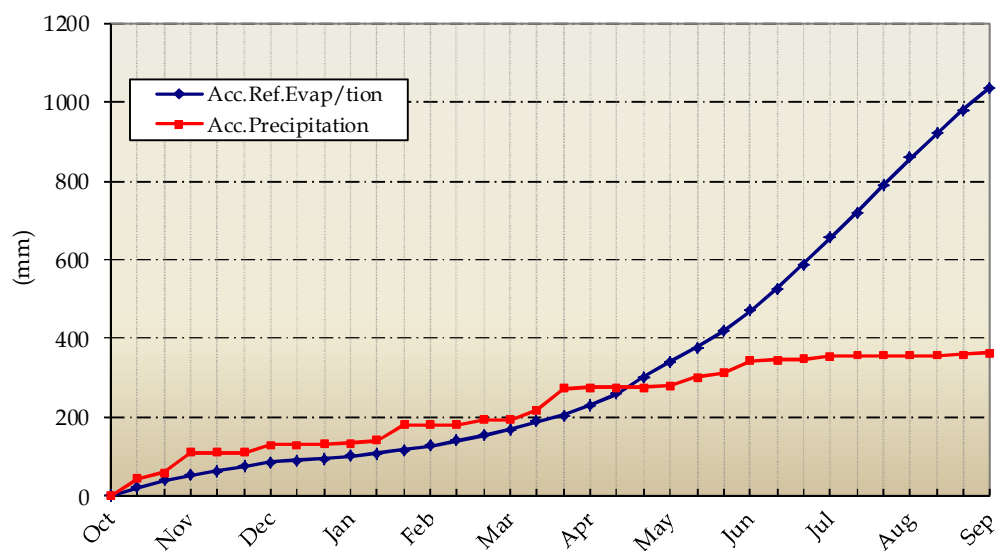


Larisa

3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.8	38.2	31.0	31.2	30.0	30.4	30.0	31.8	34.4	35.5	34.4	32.8	31.9	31.3
	Min	18.6	18.2	23.2	17.7	22.4	18.8	17.6	15.0	15.3	18.0	18.7	18.5	17.1	16.4
Relative Humidity	Max	67	72	100	100	83	86	67	65	70	68	68	77	86	-
	Min	25	14	32	37	40	20	21	23	17	19	22	25	27	-
Soil Temperature at 10 cm	06 UTC	28.6	28.6	29.0	28.4	28.2	27.8	27.4	27.2	27.2	27.6	28.2	28.0	27.0	25.5
	12 UTC	27.6	31.6	28.8	28.2	28.0	29.4	28.8	27.0	27.0	27.4	27.6	28.3	26.9	27.7
Sunshine Duration		10.4	7.9	6.2	9.2	7.4	10.9	7.2	8.2	10.9	10.1	9.4	8.9	10.2	9.7
Precipitation				1.4	2.1								3.5	15.6	8.3
Evaporation		11.6	10.0	6.5	5.3	8.3	11.8	10.0	11.3	9.8	8.8	12.8	106.2	95.3	85.2
Growing Degrees	5	21.2	23.2	22.1	19.5	21.2	19.6	18.8	18.4	19.9	21.8	21.6	227.1	214.9	207.5
	10	16.2	18.2	17.1	14.5	16.2	14.6	13.8	13.4	14.9	16.8	16.6	172.1	159.9	152.5

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.7	55.4	54.4
Precipitation - Reference Evapotranspiration	-53.2	-39.8	-46.1
Number of Rainy Days	2.0	2.0	1.6
Number of Dry Days	10.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

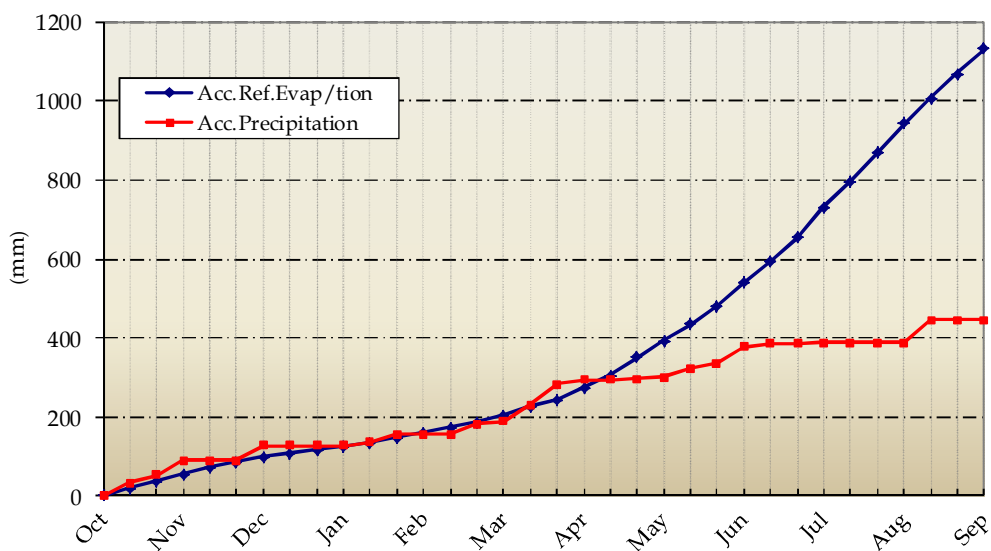


Mikra

3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.1	35.7	29.0	31.0	29.7	29.9	29.4	30.4	33.0	33.2	33.2	31.7	31.2	29.9
	Min	21.6	20.2	23.0	22.6	23.3	23.0	21.1	19.3	18.4	18.8	21.2	21.1	18.7	17.9
Relative Humidity	Max	78	70	66	65	71	50	52	61	67	73	78	66	76	-
	Min	24	22	38	41	40	25	26	27	25	31	29	30	32	-
Soil Temperature at 10 cm	06 UTC	28.4	28.2	28.2	27.0	28.4	26.0	27.2	26.8	27.2	27.7	28.0	27.6	26.9	25.1
	12 UTC	29.2	29.2	29.1	31.0	30.0	31.2	31.2	31.2	31.8	32.0	32.2	30.7	30.6	29.4
Sunshine Duration		11.4	9.6	4.7	10.3	2.9	11.4	9.0	10.3	12.1	10.3	10.3	9.3	10.5	9.2
Precipitation				0.0		0.0							0.0	2.1	10.5
Evaporation		8.0	12.4	8.6	8.4	4.6	10.1	9.7	8.1	8.4	8.7	7.4	94.4	87.7	84.9
Growing Degrees	5	22.9	23.0	21.0	21.8	21.5	21.5	20.3	19.9	20.7	21.0	22.2	235.6	219.0	208.0
	10	17.9	18.0	16.0	16.8	16.5	16.5	15.3	14.9	15.7	16.0	17.2	180.6	164.0	153.0

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.7	57.1	53.4
Precipitation - Reference Evapotranspiration	-62.7	-55.0	-42.9
Number of Rainy Days	0.0	2.0	1.6
Number of Dry Days	22.0	13.0	-

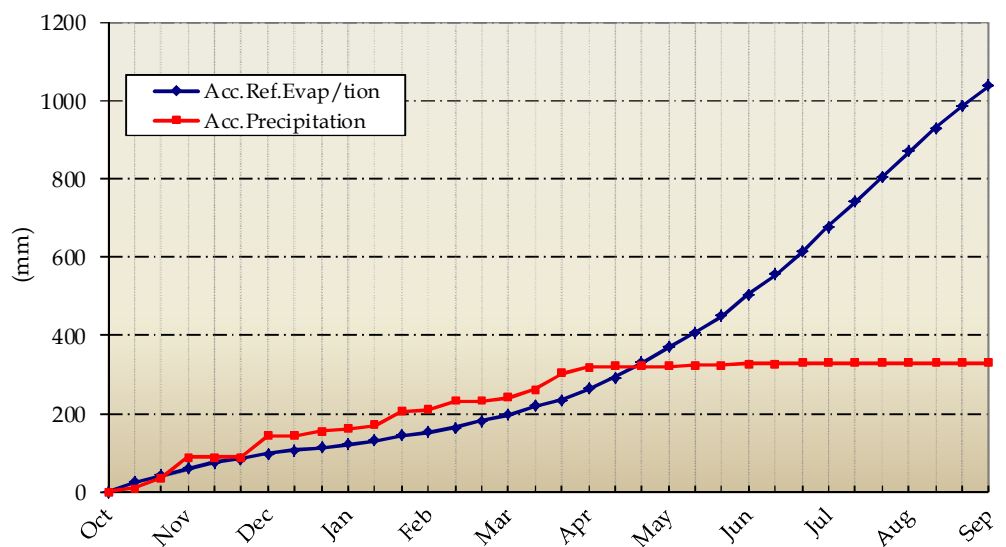
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/08/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	36.0	32.2	29.4	27.6	28.7	27.9	28.8	32.3	32.8	32.0	30.8	30.2	30.9
	Min	22.0	20.2	21.2	21.3	24.0	22.7	19.0	18.2	16.3	18.6	19.2	20.2	19.6	17.4
Relative Humidity	Max	62	69	71	72	60	59	59	57	70	70	62	65	67	-
	Min	37	21	37	44	44	26	26	31	21	23	29	31	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.0	11.8	8.6	7.5	4.8	12.0	12.0	11.9	11.7	11.6	7.9	10.2	11.1	
Precipitation														1.2	5.9
Evaporation		7.1	9.7	6.6	8.0	7.4	9.5	9.0	7.5	0.0	7.5	6.5	78.8	108.5	
Growing Degrees	5	21.5	23.1	21.7	20.4	20.8	20.7	18.5	18.5	19.3	20.7	20.6	225.7	218.6	
	10	16.5	18.1	16.7	15.4	15.8	15.7	13.5	13.5	14.3	15.7	15.6	170.7	163.6	

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.8	55.1	
Precipitation - Reference Evapotranspiration	-52.8	-53.9	5.9
Number of Rainy Days	0.0	2.0	1.0
Number of Dry Days	64.0	51.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

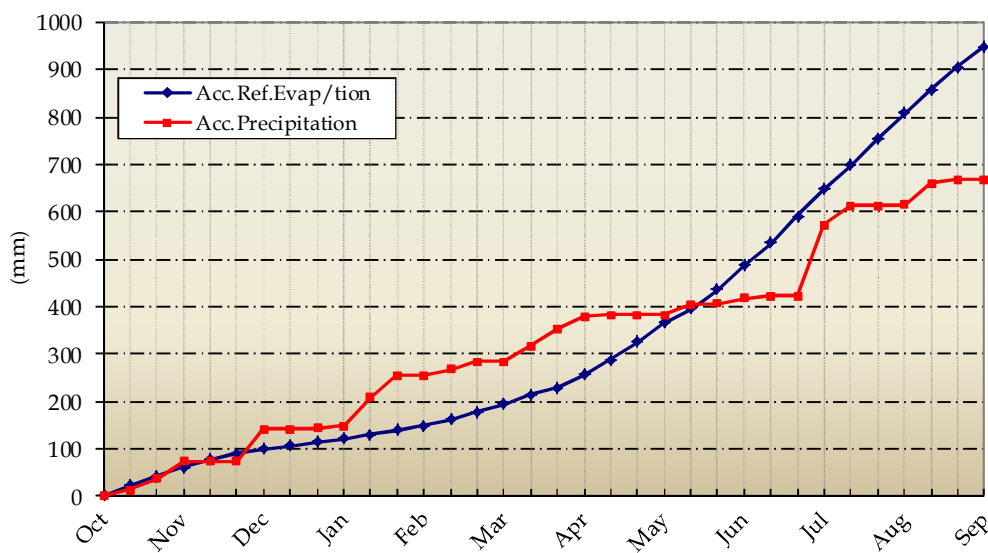


Tripoli

3rd 10-day period (21-31/08/2016)		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	32.0	30.2	29.2	28.7	28.9	28.1	29.9	29.4	30.3	31.4	30.0	31.2	29.3
	Min	14.4	14.0	14.9	14.9	20.2	19.0	16.3	12.2	11.5	13.1	13.3	14.9	15.5	13.3
Relative Humidity	Max	98	100	100	100	71	66	65	83	96	100	100	89	78	-
	Min	27	25	33	40	43	29	30	23	26	27	26	30	22	-
Soil Temperature at 10 cm	06 UTC	-	23.2	23.8	23.2	24.0	23.8	23.4	-	23.0	23.6	23.6	23.5	24.6	23.4
	12 UTC	-	29.2	28.8	27.4	26.8	27.0	-	-	28.0	28.4	28.4	28.0	28.9	26.2
Sunshine Duration		0.0	8.5	8.4	5.5	6.4	11.4	10.8	0.0	10.4	6.3	7.1	6.8	11.2	9.5
Precipitation			0.1	0.6									0.7		5.3
Evaporation		-	4.1	3.8	5.9	6.5	8.2	-	-	4.7	4.4	4.7	-	-	54.7
Growing Degrees	5	18.1	18.0	17.6	17.1	19.5	19.0	17.2	16.1	15.5	16.7	17.4	191.9	201.6	179.5
	10	13.1	13.0	12.6	12.1	14.5	14.0	12.2	11.1	10.5	11.7	12.4	136.9	146.6	124.5

3rd 10-day period (21-31/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.2	58.7	47.4
Precipitation - Reference Evapotranspiration	-43.5	-58.7	-42.1
Number of Rainy Days	2.0	0.0	1.2
Number of Dry Days	2.0	16.0	-

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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