



AGROMETEOROLOGICAL BULLETIN

July 2012
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



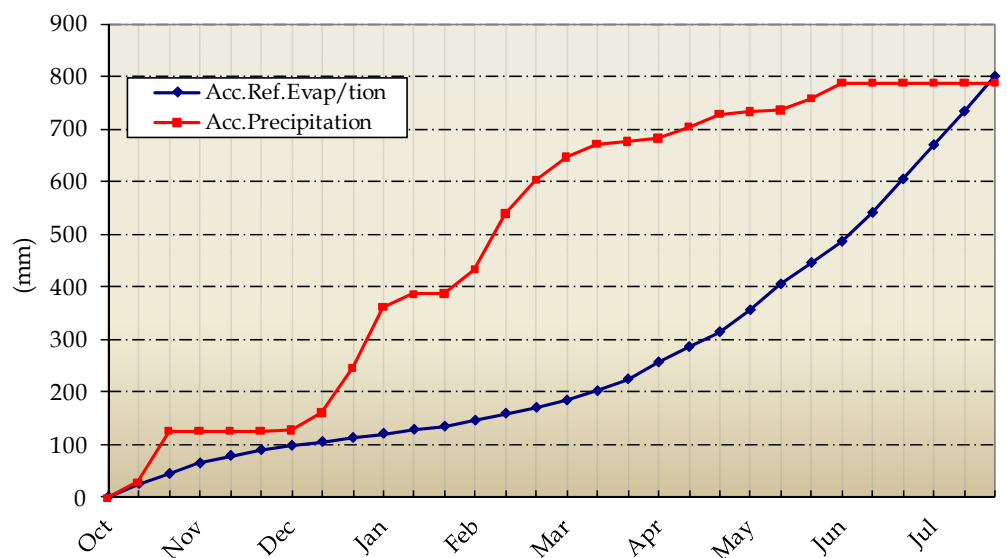
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2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	39.2	39.8	38.4	38.0	39.2	37.6	37.4	36.0	36.0	35.8	37.7	37.1	33.3
	Min	19.8	19.6	19.5	19.0	21.0	20.0	20.2	23.0	20.4	19.0	20.2	19.4	17.4
Relative Humidity	Max	69	62	57	61	58	60	73	57	61	60	62	85	-
	Min	23	16	24	31	26	31	30	29	26	29	26	30	-
Soil Temperature at 10 cm	06 UTC	33.0	32.6	33.0	32.8	33.6	33.2	33.0	33.4	33.4	33.0	33.1	31.6	27.6
	12 UTC	38.4	38.6	38.6	38.2	38.0	38.2	37.6	38.0	38.2	38.2	38.2	36.9	33.5
Sunshine Duration		13.5	13.2	13.4	13.5	13.4	13.4	13.4	12.0	13.2	13.4	13.2	13.1	11.8
Precipitation														3.6
Evaporation		11.0	11.7	11.8	10.2	10.8	9.8	13.6	9.5	10.5	13.2	112.1	101.3	85.2
Growing Degrees	5	24.5	24.7	24.0	23.5	25.1	23.8	23.8	24.5	23.2	22.4	239.5	232.5	203.8
	10	19.5	19.7	19.0	18.5	20.1	18.8	18.8	19.5	18.2	17.4	189.5	182.5	153.8

2nd 10-day period (11-20/07/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	66.4	63.2	56.6
Precipitation - Reference Evapotranspiration	-66.4	-63.2	-53.0
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	51.0	33.0	-

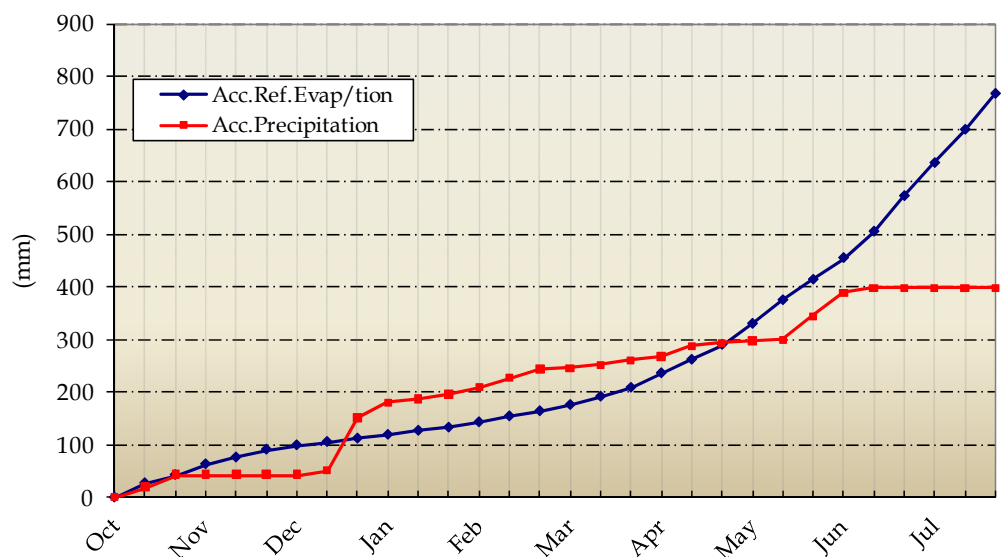
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.4	33.2	36.0	36.8	37.4	37.2	33.6	33.0	33.4	35.6	35.0	34.8	30.5
	Min	22.0	22.2	22.8	23.0	23.2	22.0	24.0	21.8	23.0	20.2	22.4	21.2	17.5
Relative Humidity	Max	66	71	70	67	74	68	66	70	59	68	68	75	-
	Min	38	43	22	27	27	27	30	21	26	20	28	29	-
Soil Temperature at 10 cm	06 UTC	29.6	30.0	30.4	30.2	30.6	30.4	31.6	30.2	30.0	29.2	30.2	27.5	24.2
	12 UTC	33.0	33.2	32.0	33.6	34.0	34.2	33.4	33.2	32.8	32.6	33.2	31.0	28.8
Sunshine Duration		12.2	12.7	9.3	12.8	12.8	12.7	11.4	12.9	12.9	12.9	12.3	11.3	11.2
Precipitation														5.1
Evaporation		9.4	4.5	14.0	11.9	10.6	10.5	13.0	7.0	17.2	12.6	110.7	115.5	98.7
Growing Degrees	5	22.7	22.7	24.4	24.9	25.3	24.6	23.8	22.4	23.2	22.9	236.9	230.0	190.1
	10	17.7	17.7	19.4	19.9	20.3	19.6	18.8	17.4	18.2	17.9	186.9	180.0	140.1

2nd 10-day period (11-20/07/2012)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	68.2	60.0
Precipitation - Reference Evapotranspiration	-68.2	-60.0
Number of Rainy Days	0.0	0.0
Number of Dry Days	44.0	16.0

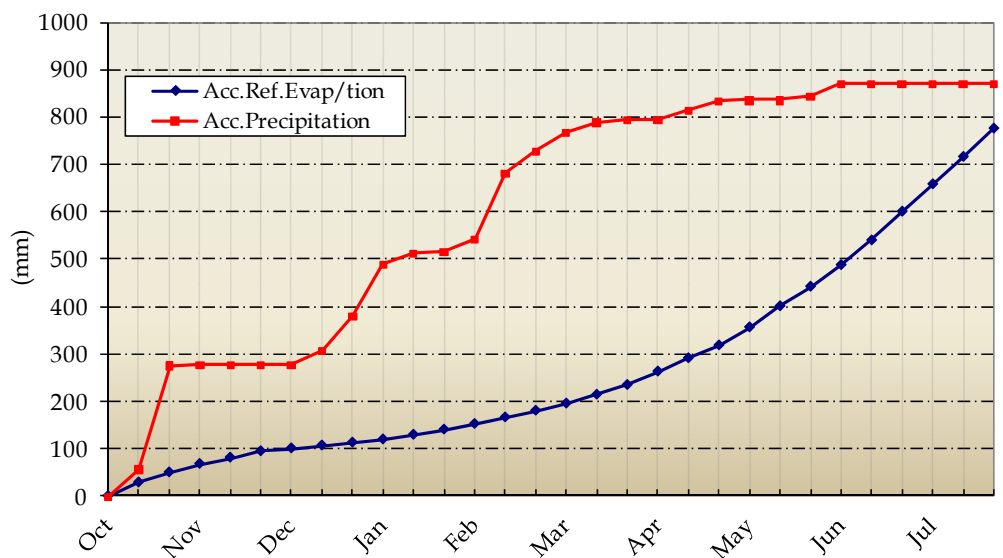
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/07/2012)		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	34.9	34.6	34.7	34.4	32.5	38.0	35.5	33.1	31.5	34.2	33.6	30.4
	Min	20.9	20.4	20.5	19.6	20.8	20.9	23.9	20.9	20.0	19.1	20.7	20.2	18.1
Relative Humidity	Max	79	80	81	88	77	82	86	87	88	88	84	86	-
	Min	41	27	35	35	32	38	22	28	27	41	33	37	-
Soil Temperature at 10 cm	06 UTC	29.6	29.4	29.6	29.4	30.0	29.8	30.4	30.6	30.0	29.4	29.8	28.3	27.1
	12 UTC	37.4	37.0	37.4	37.4	38.2	37.0	38.4	38.0	36.8	37.4	37.5	33.6	31.8
Sunshine Duration		12.6	12.6	12.7	12.3	11.4	12.4	12.2	11.9	11.9	12.4	12.2	12.2	12.3
Precipitation														0.8
Evaporation		9.5	9.6	9.1	6.5	11.7	7.3	8.6	13.5	10.0	7.1	92.9	105.5	77.4
Growing Degrees	5	22.1	22.7	22.6	22.2	22.6	21.7	26.0	23.2	21.6	20.3	224.7	218.9	192.4
	10	17.1	17.7	17.6	17.2	17.6	16.7	21.0	18.2	16.6	15.3	174.7	168.9	142.4

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.8	61.1	55.3
Precipitation - Reference Evapotranspiration	-59.8	-61.1	-54.5
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	52.0	35.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

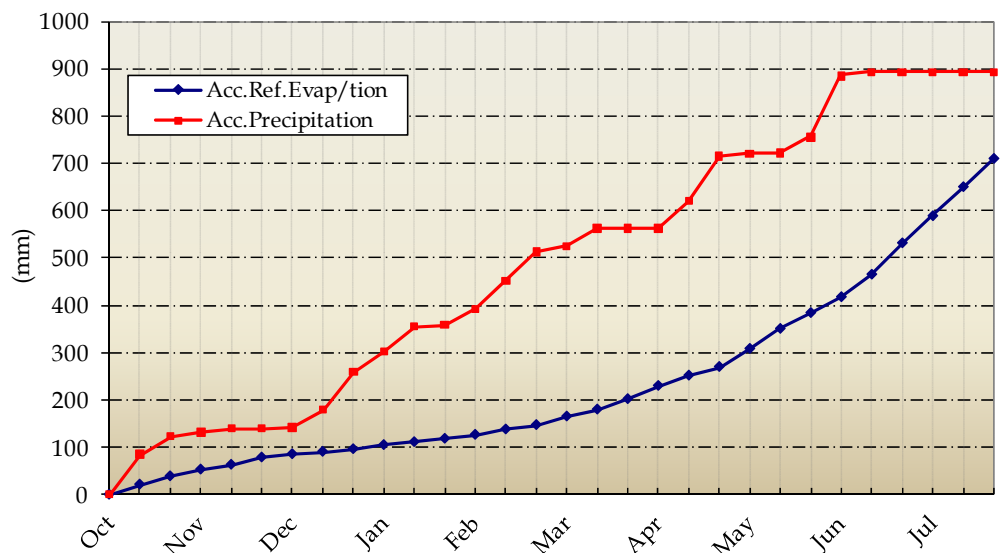


Ioannina

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.2	37.6	36.2	37.0	37.2	36.4	35.2	33.2	-	34.4	36.0	-	31.4
	Min	17.0	15.5	17.4	17.0	16.8	17.0	19.0	21.6	18.5	18.0	17.8	-	15.3
Relative Humidity	Max	58	72	70	59	63	80	58	59	74	63	66	-	-
	Min	16	16	22	19	23	22	27	30	27	27	23	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.8
Sunshine Duration		13.0	12.3	12.2	12.2	12.0	12.0	11.4	11.1	11.0	11.2	11.8	-	10.3
Precipitation													-	13.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	83.3
Growing Degrees	5	22.1	21.6	21.8	22.0	22.0	21.7	22.1	22.4	-	21.2	-	-	178.2
	10	17.1	16.6	16.8	17.0	17.0	16.7	17.1	17.4	-	16.2	-	-	129.5

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.7	-	50.5
Precipitation - Reference Evapotranspiration	-59.7	-	-37.2
Number of Rainy Days	0.0	-	1.6
Number of Dry Days	45.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

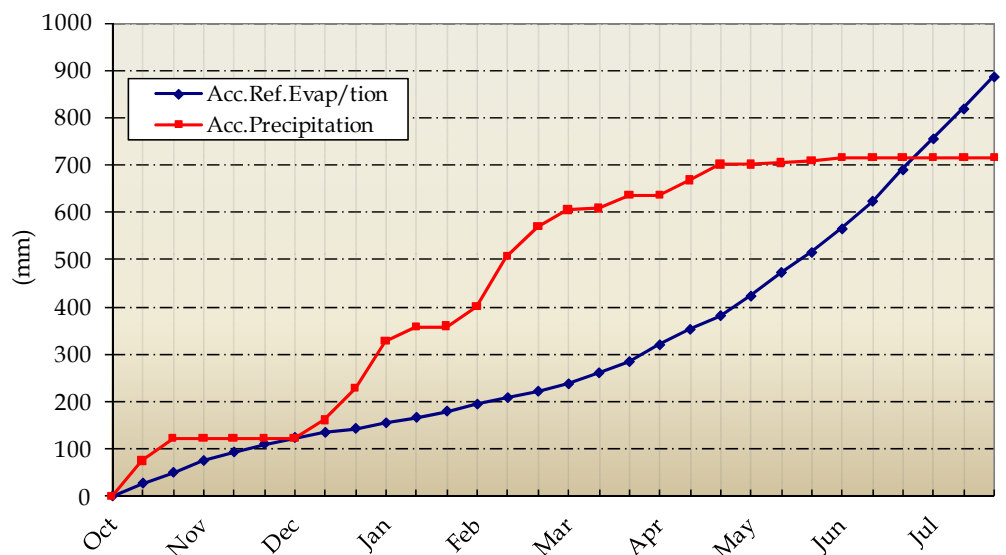


Kalamata

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.6	36.9	37.4	34.6	34.9	40.5	34.4	32.2	32.6	31.0	34.9	34.5	31.2
	Min	17.8	18.8	19.4	21.2	21.4	23.6	20.1	21.0	20.8	18.2	20.2	19.8	17.8
Relative Humidity	Max	88	87	72	75	72	63	85	87	86	84	80	88	-
	Min	28	25	22	28	27	19	29	49	28	36	29	32	-
Soil Temperature at 10 cm	06 UTC	27.2	27.0	30.0	27.4	26.8	27.6	27.6	27.8	27.6	27.0	27.6	25.6	25.6
	12 UTC	29.4	29.4	29.6	30.0	30.8	30.4	30.0	30.6	29.6	29.6	29.9	28.5	30.0
Sunshine Duration		12.2	12.6	11.8	12.1	12.6	12.5	11.4	11.0	12.2	12.2	12.1	12.1	11.5
Precipitation														3.4
Evaporation		-	8.4	14.0	6.8	8.8	10.5	5.6	4.3	11.9	5.4	-	92.2	87.7
Growing Degrees	5	21.2	22.9	23.4	22.9	23.2	27.1	22.3	21.6	21.7	19.6	225.7	221.5	195.0
	10	16.2	17.9	18.4	17.9	18.2	22.1	17.3	16.6	16.7	14.6	175.7	171.5	145.0

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	67.9	66.7	57.1
Precipitation - Reference Evapotranspiration	-67.9	-66.7	-53.7
Number of Rainy Days	0.0	0.0	0.4
Number of Dry Days	57.0	35.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

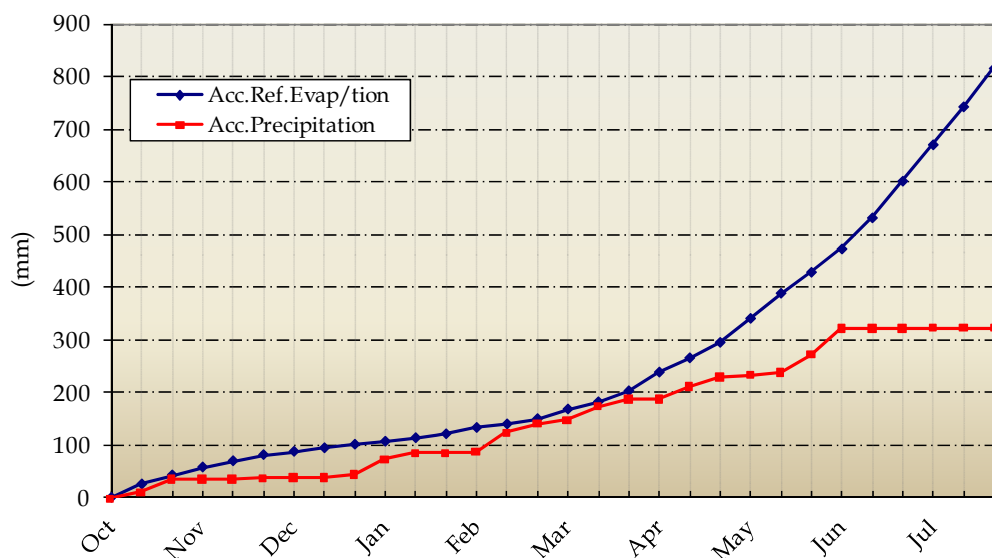


Larisa

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	38.8	41.0	36.4	38.0	40.0	41.0	33.8	32.4	32.8	35.6	37.0	36.8	33.3
	Min	24.8	20.4	22.6	21.0	21.5	21.2	26.6	22.2	19.0	18.0	21.7	20.6	17.9
Relative Humidity	Max	71	64	53	63	68	63	60	63	67	63	64	70	-
	Min	17	10	18	20	17	20	26	22	23	21	19	26	-
Soil Temperature at 10 cm	06 UTC	29.4	28.6	29.0	29.2	29.2	29.6	30.4	29.6	28.4	27.8	29.1	28.4	26.6
	12 UTC	31.4	31.0	31.6	31.4	31.2	32.0	31.6	31.4	30.6	30.6	31.3	32.5	29.2
Sunshine Duration		13.2	12.8	12.9	13.2	12.7	12.8	9.1	12.0	12.7	13.1	12.4	12.5	11.0
Precipitation														9.9
Evaporation		16.5	14.6	11.0	12.4	10.6	19.0	10.4	12.2	10.1	7.9	124.7	110.0	96.3
Growing Degrees	5	26.8	25.7	24.5	24.5	25.8	26.1	25.2	22.3	20.9	21.8	243.6	236.9	205.9
	10	21.8	20.7	19.5	19.5	20.8	21.1	20.2	17.3	15.9	16.8	193.6	186.9	155.9

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	73.1	72.4	62.2
Precipitation - Reference Evapotranspiration	-73.1	-72.4	-52.3
Number of Rainy Days	0.0	0.0	1.2
Number of Dry Days	25.0	34.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

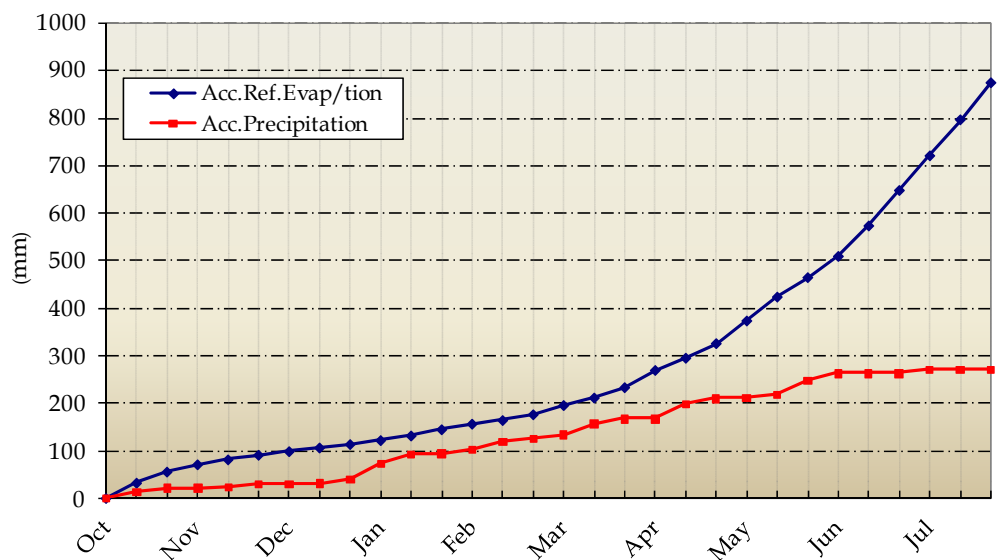


Mikra

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.0	38.2	34.5	35.4	37.7	38.6	34.4	31.4	32.6	33.0	35.3	-	31.7
	Min	23.4	22.1	27.9	22.8	23.4	22.8	24.3	23.5	19.6	20.6	23.0	-	18.9
Relative Humidity	Max	68	62	61	69	69	65	56	62	61	61	63	-	-
	Min	24	20	27	30	19	23	34	26	25	27	26	-	-
Soil Temperature at 10 cm	06 UTC	31.6	31.2	32.0	31.6	31.8	31.8	30.8	30.4	29.4	30.2	31.1	-	26.6
	12 UTC	35.2	35.2	35.4	35.6	35.8	35.4	35.4	33.4	34.0	35.0	35.0	-	31.5
Sunshine Duration		13.3	13.3	12.4	12.3	13.0	12.8	5.0	13.7	12.7	12.5	12.1	-	10.8
Precipitation													-	4.3
Evaporation		10.9	15.8	13.6	7.4	13.0	19.8	9.2	11.9	17.9	8.2	127.7	-	94.9
Growing Degrees	5	25.2	25.2	26.2	24.1	25.6	25.7	24.4	22.5	21.1	21.8	241.6	-	203.4
	10	20.2	20.2	21.2	19.1	20.6	20.7	19.4	17.5	16.1	16.8	191.6	-	153.4

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	77.8	-	60.5
Precipitation - Reference Evapotranspiration	-77.8	-	-56.2
Number of Rainy Days	0.0	-	1.4
Number of Dry Days	25.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

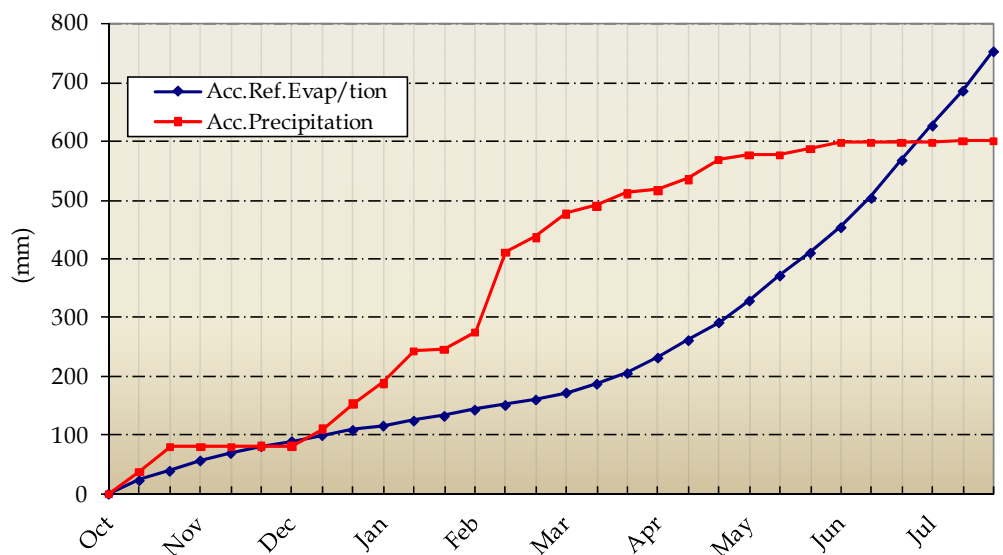


Tripoli

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.7	39.7	37.3	35.1	38.4	42.1	40.6	31.9	32.0	34.2	36.7	34.6	30.6
	Min	15.8	16.6	16.9	16.1	16.9	17.2	16.2	17.9	14.9	12.7	16.1	15.9	14.1
Relative Humidity	Max	89	79	64	65	68	69	66	74	67	55	70	73	-
	Min	18	6	12	17	10	7	27	27	20	15	16	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	29.4	29.4	28.2	27.4	28.6	27.9	25.3
	12 UTC	-	-	-	-	-	-	35.6	34.8	34.4	34.6	34.8	34.6	28.3
Sunshine Duration		-	-	-	-	-	13.2	12.8	12.8	12.9	13.1	13.0	12.8	10.5
Precipitation														9.1
Evaporation		-	-	-	-	-	-	8.4	9.9	9.4	8.3	-	94.0	63.7
Growing Degrees	5	20.8	23.2	22.1	20.6	22.7	24.7	23.4	19.9	18.5	18.5	214.1	202.5	173.2
	10	15.8	18.2	17.1	15.6	17.7	19.7	18.4	14.9	13.5	13.5	164.1	152.5	123.2

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	67.2	60.7	53.3
Precipitation - Reference Evapotranspiration	-67.2	-60.7	-44.2
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	10.0	34.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

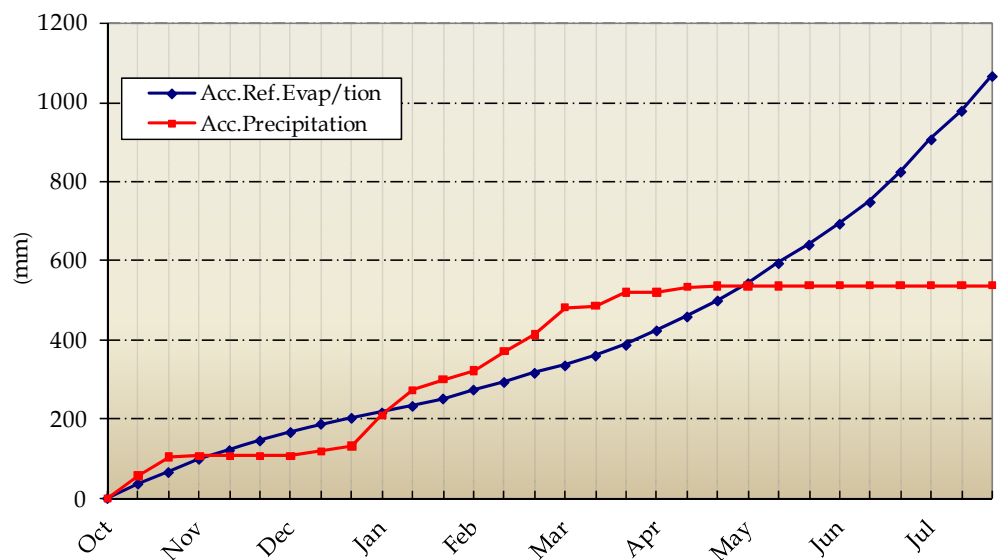


Tympani

2nd 10-day period (11-20/07/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	39.8	35.0	37.4	39.6	36.6	39.4	33.8	32.4	33.2	36.2	34.8	32.0
	Min	23.6	23.2	22.4	24.0	24.4	23.0	25.0	26.8	25.0	21.0	23.8	21.5	20.5
Relative Humidity	Max	100	70	97	75	58	61	90	76	76	58	76	63	-
	Min	34	14	17	15	17	21	22	36	35	24	24	20	-
Soil Temperature at 10 cm	06 UTC	31.8	32.2	32.6	32.8	33.4	33.0	33.6	33.6	32.0	30.8	32.6	31.3	31.2
	12 UTC	38.2	38.6	38.4	39.2	39.4	39.6	38.8	37.0	35.2	34.8	37.9	36.5	35.7
Sunshine Duration		12.8	13.4	12.8	12.8	13.2	13.2	13.0	13.1	13.4	13.4	13.1	13.2	12.4
Precipitation														
Evaporation		16.9	14.7	8.8	14.9	14.6	13.7	14.5	17.9	18.1	14.8	148.9	135.7	121.3
Growing Degrees	5	24.3	26.5	23.7	25.7	27.0	24.8	27.2	25.3	23.7	22.1	250.3	231.4	211.0
	10	19.3	21.5	18.7	20.7	22.0	19.8	22.2	20.3	18.7	17.1	200.3	181.4	161.4

2nd 10-day period (11-20/07/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	87.8	85.4	67.8
Precipitation - Reference Evapotranspiration	-87.8	-85.4	-67.8
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	64.0	53.0	-

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.

Mesurements 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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