

AGROMETEOROLOGICAL BULLETIN

August 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



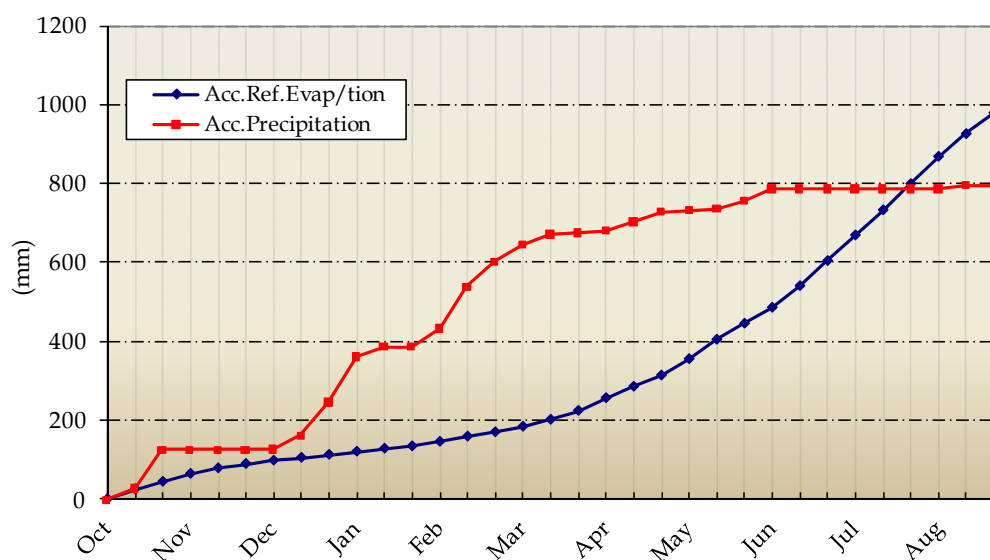
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www.hnms.gr
www.emy.gov.gr
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2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.4	32.0	33.0	34.0	34.0	35.0	37.2	36.0	34.8	34.4	34.5	35.5	33.5
	Min	20.0	18.8	18.0	17.5	18.0	18.0	23.2	19.6	19.6	23.0	19.6	18.1	17.4
Relative Humidity	Max	76	85	80	69	80	64	67	68	65	70	72	79	-
	Min	38	52	39	23	23	27	27	33	27	26	32	26	-
Soil Temperature at 10 cm	06 UTC	31.0	30.0	29.8	29.6	30.4	30.6	30.6	30.6	31.2	30.6	30.4	30.6	27.0
	12 UTC	34.6	34.4	34.0	34.4	35.0	35.0	35.2	35.0	35.2	34.4	34.7	35.5	33.0
Sunshine Duration		10.4	10.6	12.2	12.6	12.5	12.5	12.2	12.4	11.4	12.8	12.0	11.9	10.6
Precipitation														4.5
Evaporation		9.2	5.8	8.6	8.8	7.9	7.9	7.0	10.0	7.2	8.4	80.8	82.4	74.4
Growing Degrees	5	22.2	20.4	20.5	20.8	21.0	21.5	25.2	22.8	22.2	23.7	220.3	218.2	204.3
	10	17.2	15.4	15.5	15.8	16.0	16.5	20.2	17.8	17.2	18.7	170.3	168.2	154.3

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.1	53.8	49.8
Precipitation - Reference Evapotranspiration	-53.1	-53.8	-45.3
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	18.0	64.0	-

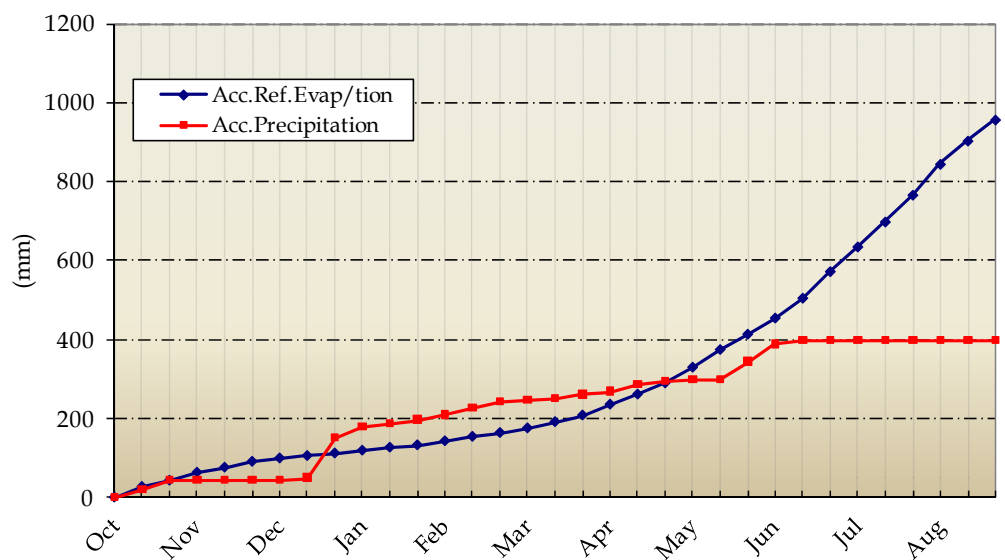
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2012)		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	29.0	29.0	30.2	31.0	32.8	34.2	32.6	32.8	32.6	31.7	31.8	30.5
	Min	23.4	23.0	19.4	17.4	16.8	17.8	19.4	20.6	20.0	20.0	19.8	18.5	17.7
Relative Humidity	Max	66	77	78	83	77	68	78	82	59	62	73	78	-
	Min	32	41	39	39	32	26	19	24	21	17	29	34	-
Soil Temperature at 10 cm	06 UTC	30.8	30.6	28.2	28.2	28.4	28.4	28.6	29.2	28.8	28.4	29.0	26.7	23.8
	12 UTC	33.2	30.4	31.2	31.4	31.8	31.4	31.4	31.6	31.4	32.0	31.6	29.0	27.9
Sunshine Duration		9.1	4.4	10.8	12.2	11.7	12.6	12.3	12.5	12.3	12.6	11.0	10.4	10.0
Precipitation			0.0									0.0	0.7	3.9
Evaporation		7.8	5.2	9.8	6.5	10.2	7.7	8.9	23.8	11.0	13.7	104.6	-	94.5
Growing Degrees	5	22.9	21.0	19.2	18.8	18.9	20.3	21.8	21.6	21.4	21.3	207.2	201.5	191.3
	10	17.9	16.0	14.2	13.8	13.9	15.3	16.8	16.6	16.4	16.3	157.2	151.5	141.3

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.5	50.2	55.4
Precipitation - Reference Evapotranspiration	-53.5	-49.5	-51.5
Number of Rainy Days	0.0	1.0	1.0
Number of Dry Days	75.0	8.0	-

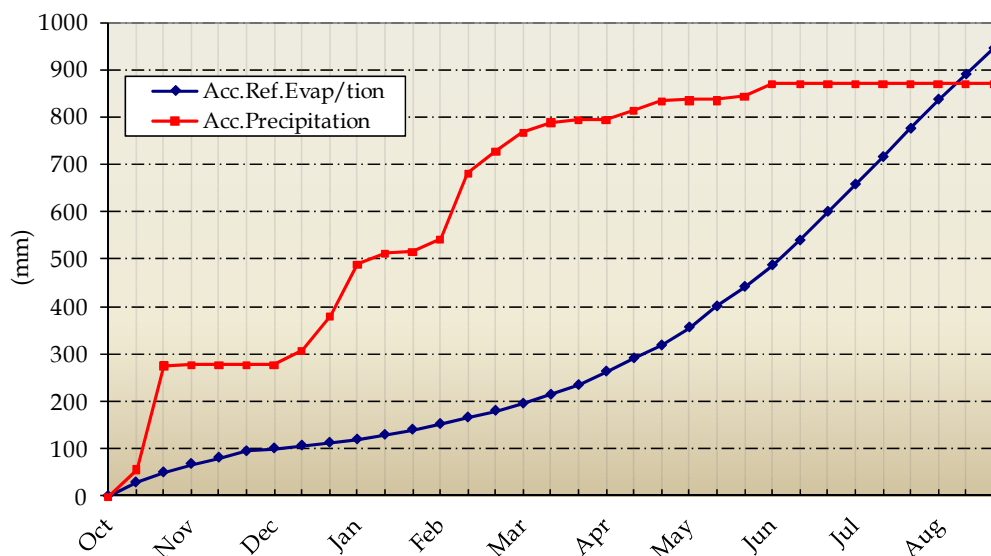
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.1	30.2	30.6	31.8	30.9	32.6	33.7	34.0	35.0	34.6	32.6	31.8	31.2
	Min	20.7	19.4	19.9	18.6	20.6	19.8	20.6	21.2	19.0	19.4	19.9	19.0	18.7
Relative Humidity	Max	89	82	83	88	90	89	80	80	84	59	82	87	-
	Min	30	44	29	32	50	38	30	29	22	20	32	34	-
Soil Temperature at 10 cm	06 UTC	30.0	29.2	29.2	28.6	29.6	29.4	29.4	29.8	29.4	28.8	29.3	28.2	27.4
	12 UTC	37.4	37.0	36.8	37.0	37.2	37.8	37.2	37.4	37.8	37.8	37.3	34.0	31.7
Sunshine Duration		12.2	11.7	11.4	12.0	12.2	11.5	11.3	11.9	12.5	11.4	11.8	11.2	11.2
Precipitation														4.0
Evaporation		9.6	7.7	7.8	6.1	7.5	7.4	7.2	8.2	13.5	12.3	87.3	80.9	73.5
Growing Degrees	5	21.9	19.8	20.3	20.2	20.8	21.2	22.2	22.6	22.0	22.0	212.9	203.7	199.2
	10	16.9	14.8	15.3	15.2	15.8	16.2	17.2	17.6	17.0	17.0	162.9	153.7	149.2

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.1	54.0	49.2
Precipitation - Reference Evapotranspiration	-55.1	-54.0	-45.2
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	83.0	66.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

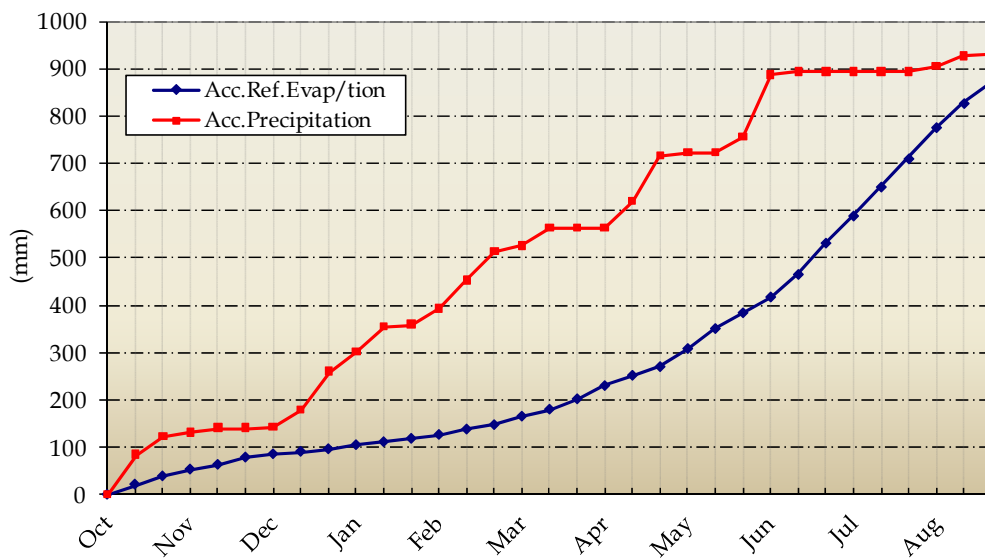


Ioannina

2nd 10-day period (11-20/08/2012)		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	30.0	30.4	31.0	32.0	34.6	33.4	33.0	33.0	32.4	31.8	-	30.9
	Min	16.6	15.0	13.0	18.4	17.0	15.0	16.0	16.6	17.0	17.4	16.2	-	15.4
Relative Humidity	Max	94	92	88	78	91	81	80	78	62	71	82	-	-
	Min	44	36	28	31	32	24	30	34	34	31	32	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.1
Sunshine Duration		5.9	9.7	11.0	6.3	10.5	11.0	5.8	11.0	10.5	11.6	9.3	-	9.5
Precipitation		2.8						1.3				4.1	-	11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	64.1
Growing Degrees	5	17.4	17.5	16.7	19.7	19.5	19.8	19.7	19.8	20.0	19.9	190.0	-	176.6
	10	12.4	12.5	11.7	14.7	14.5	14.8	14.7	14.8	15.0	14.9	140.0	-	127.8

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.3	-	45.3
Precipitation - Reference Evapotranspiration	-39.2	-	-34.0
Number of Rainy Days	2.0	-	1.8
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

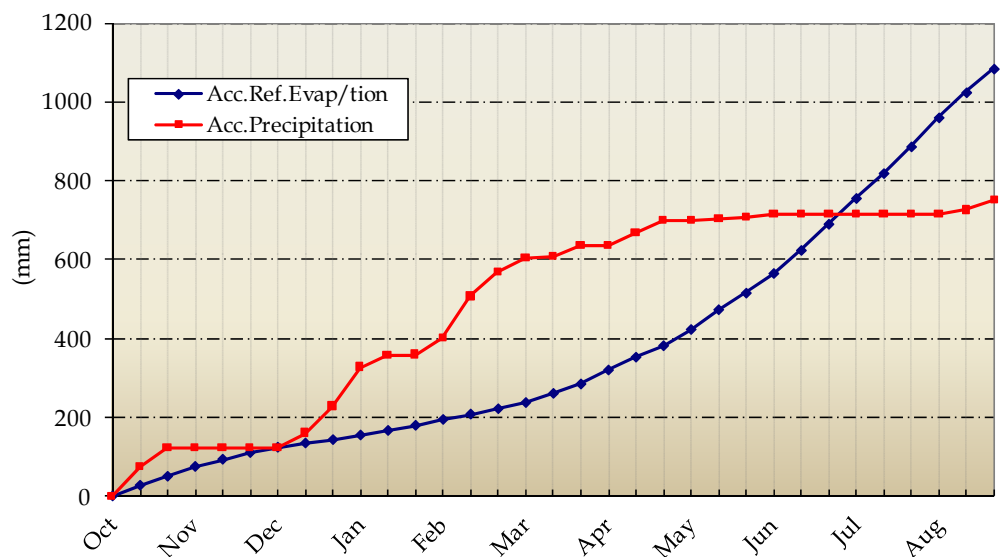


Kalamata

2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.7	32.3	30.8	35.3	31.4	33.4	33.8	33.2	34.7	34.5	33.1	32.1	31.4
	Min	20.6	19.0	19.5	18.8	19.6	19.6	20.0	20.3	22.1	20.8	20.0	19.4	18.2
Relative Humidity	Max	86	84	88	83	87	86	80	77	55	51	78	88	-
	Min	45	31	30	18	39	32	31	24	21	21	29	36	-
Soil Temperature at 10 cm	06 UTC	27.6	27.4	25.0	25.8	26.0	26.2	26.4	26.6	26.6	26.2	26.4	26.4	25.7
	12 UTC	30.0	26.0	28.2	27.8	28.2	28.6	28.8	28.8	28.4	28.4	28.3	29.1	29.6
Sunshine Duration		11.3	11.0	11.9	12.3	12.2	12.1	9.6	10.6	9.6	12.2	11.3	10.7	10.6
Precipitation			24.5									24.5	0.0	3.9
Evaporation		4.6	1.9	9.8	7.8	3.2	9.8	10.2	-	8.4	4.6	-	51.0	78.6
Growing Degrees	5	21.2	20.7	20.2	22.1	20.5	21.5	21.9	21.8	23.4	22.7	215.7	207.6	198.2
	10	16.2	15.7	15.2	17.1	15.5	16.5	16.9	16.8	18.4	17.7	165.7	157.6	148.2

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.2	57.0	50.7
Precipitation - Reference Evapotranspiration	-35.7	-57.0	-46.8
Number of Rainy Days	1.0	0.0	0.7
Number of Dry Days	10.0	66.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

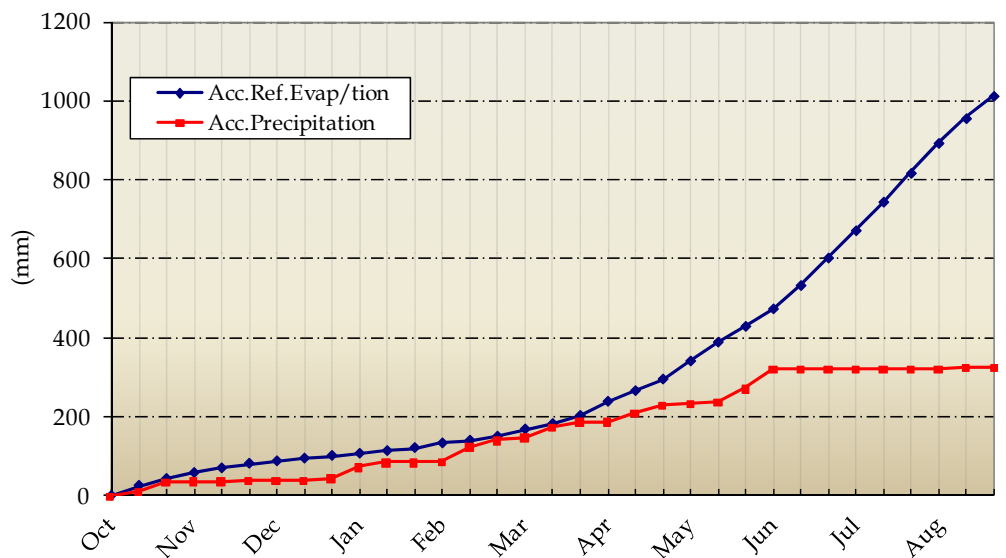


Larisa

2nd 10-day period (11-20/08/2012)		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	32.4	34.6	34.6	34.8	37.3	34.0	32.6	31.6	32.5	33.6	33.1	32.3
	Min	18.0	17.2	17.4	17.3	19.4	19.4	20.1	18.4	18.9	19.2	18.5	18.7	17.5
Relative Humidity	Max	94	93	74	76	74	69	78	75	76	63	77	78	-
	Min	31	26	19	21	24	17	27	33	30	23	25	30	-
Soil Temperature at 10 cm	06 UTC	29.0	28.0	28.0	28.0	28.8	28.6	29.0	28.4	28.4	28.0	28.4	26.7	26.4
	12 UTC	30.2	29.6	29.6	30.0	30.8	30.0	29.8	30.0	30.6	29.6	30.0	28.7	28.7
Sunshine Duration		6.5	11.4	11.2	10.2	12.2	12.2	8.1	12.0	9.8	12.5	10.6	12.0	9.9
Precipitation		0.2										0.2		6.2
Evaporation		7.7	3.9	12.4	10.4	4.6	11.0	13.5	6.9	8.6	10.0	89.0	82.0	84.1
Growing Degrees	5	19.7	19.8	21.0	21.0	22.1	23.4	22.1	20.5	20.3	20.9	210.6	209.3	199.1
	10	14.7	14.8	16.0	16.0	17.1	18.4	17.1	15.5	15.3	15.9	160.6	159.3	149.1

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.9	56.3	53.3
Precipitation - Reference Evapotranspiration	-56.7	-56.3	-47.1
Number of Rainy Days	1.0	0.0	1.4
Number of Dry Days	0.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

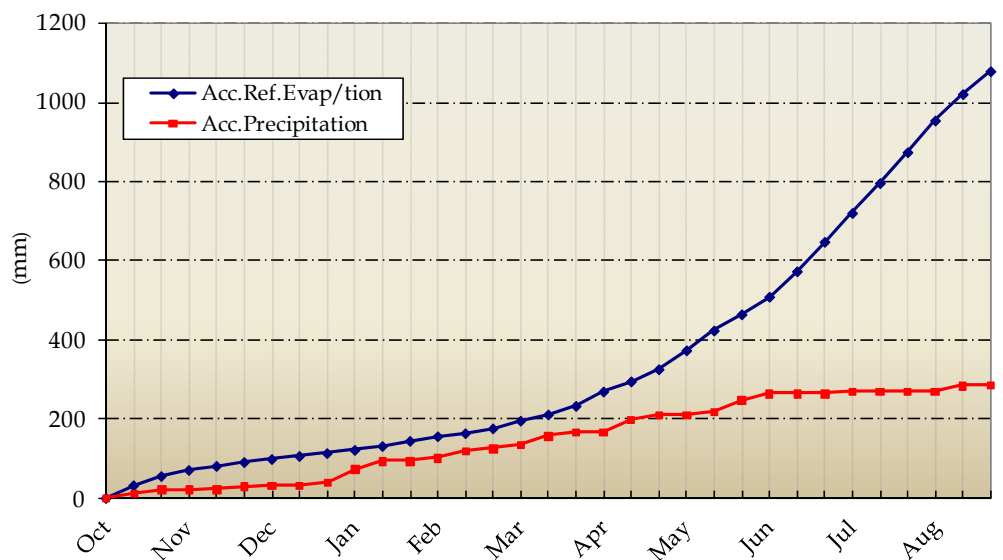


Mikra

2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.4	31.0	31.2	30.8	32.8	34.0	32.2	31.2	30.6	32.2	31.6	-	31.3
	Min	20.0	22.1	19.4	19.0	20.2	18.8	21.1	21.0	21.6	22.4	20.6	-	18.9
Relative Humidity	Max	84	67	81	84	80	70	69	73	75	68	75	-	-
	Min	34	28	25	37	30	24	27	36	40	26	31	-	-
Soil Temperature at 10 cm	06 UTC	27.0	27.0	27.2	27.6	28.2	28.2	29.2	28.6	29.2	29.0	28.1	-	26.0
	12 UTC	33.2	30.8	32.2	34.2	33.4	33.4	32.2	32.0	32.6	33.2	32.7	-	30.5
Sunshine Duration		6.9	11.6	11.7	11.5	12.1	12.1	8.6	12.1	6.9	10.5	10.4	-	10.0
Precipitation		0.9	0.0									0.9	-	6.6
Evaporation		8.3	9.5	10.8	6.4	12.8	16.4	12.6	8.8	7.0	11.2	103.8	-	83.0
Growing Degrees	5	20.2	21.6	20.3	19.9	21.5	21.4	21.7	21.1	21.1	22.3	211.0	-	201.0
	10	15.2	16.6	15.3	14.9	16.5	16.4	16.7	16.1	16.1	17.3	161.0	-	151.0

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.7	-	52.4
Precipitation - Reference Evapotranspiration	-56.8	-	-45.8
Number of Rainy Days	1.0	-	1.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

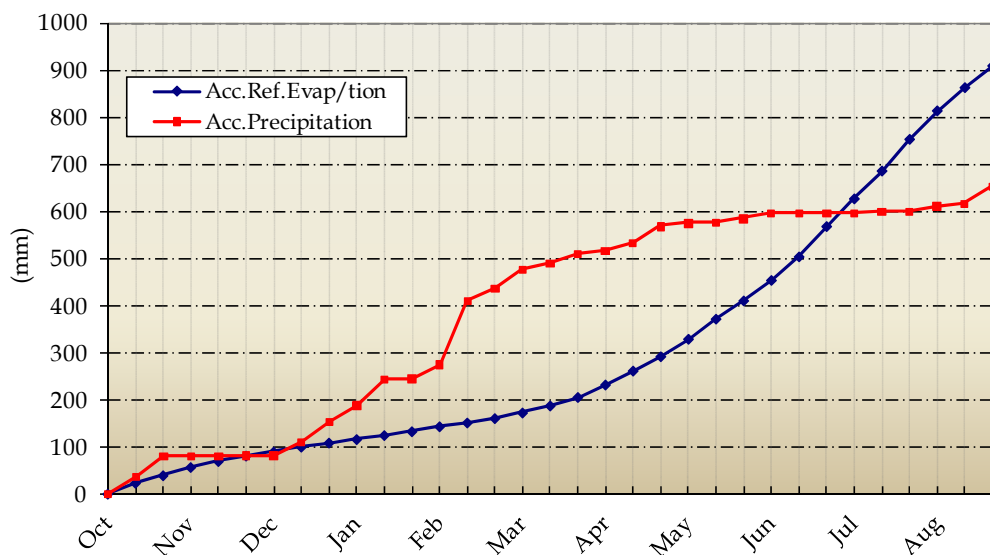


Tripoli

2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.5	29.3	29.9	31.4	32.4	32.7	32.3	31.4	29.6	28.2	30.7	30.7	29.9
	Min	15.5	14.8	16.2	13.2	14.4	16.2	16.0	16.0	19.2	19.4	16.1	15.0	14.5
Relative Humidity	Max	95	95	95	57	87	95	65	50	42	42	72	80	-
	Min	32	37	25	19	24	26	24	25	29	27	27	30	-
Soil Temperature at 10 cm	06 UTC	26.6	22.4	23.0	21.6	23.2	23.2	23.6	23.8	24.2	24.2	23.6	24.6	24.7
	12 UTC	32.6	28.0	28.2	29.4	30.2	30.0	30.4	30.2	29.8	29.2	29.8	30.6	27.4
Sunshine Duration		6.2	8.0	9.4	11.7	9.0	7.9	9.0	10.9	11.3	12.0	9.5	10.2	9.7
Precipitation		30.0	2.5			3.2						35.7	3.0	13.8
Evaporation		4.0	4.3	6.2	6.8	4.0	6.2	5.7	8.1	9.0	9.7	64.0	71.1	56.3
Growing Degrees	5	17.5	17.1	18.1	17.3	18.4	19.5	19.2	18.7	19.4	18.8	183.8	178.6	172.3
	10	12.5	12.1	13.1	12.3	13.4	14.5	14.2	13.7	14.4	13.8	133.8	128.6	122.3

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.2	48.1	47.6
Precipitation - Reference Evapotranspiration	-10.5	-45.1	-33.8
Number of Rainy Days	3.0	1.0	1.4
Number of Dry Days	8.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

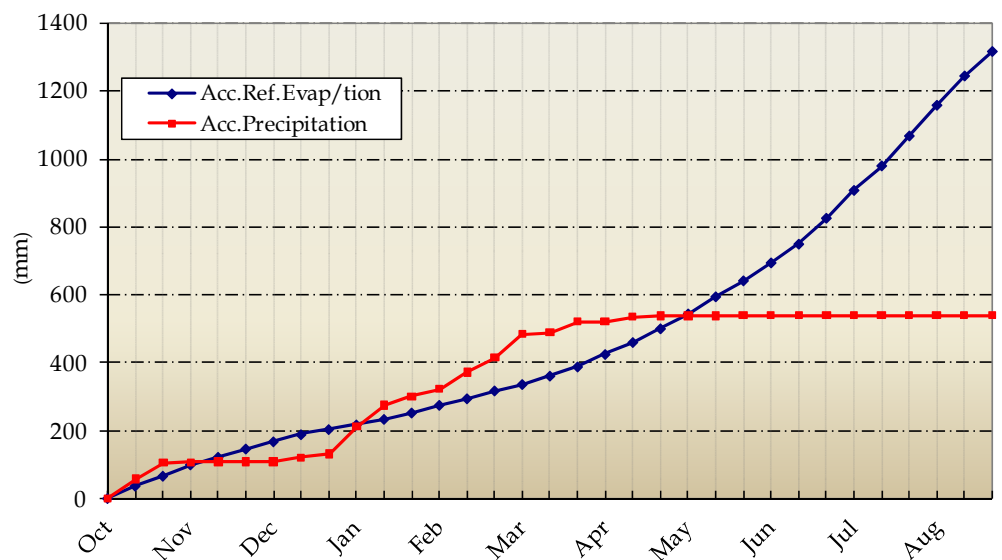


Tympaki

2nd 10-day period (11-20/08/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	30.6	30.8	31.0	32.0	37.2	37.4	33.0	31.4	30.6	32.6	32.5	31.8
	Min	24.4	22.0	21.6	20.6	24.4	22.4	20.6	22.4	21.2	21.0	22.1	21.2	20.7
Relative Humidity	Max	84	90	92	91	91	48	35	65	77	78	75	59	-
	Min	38	38	46	30	16	8	7	21	32	25	26	27	-
Soil Temperature at 10 cm	06 UTC	32.6	32.8	32.2	31.4	32.0	31.8	31.2	31.2	30.6	29.6	31.5	29.8	30.5
	12 UTC	37.8	38.0	37.2	36.8	36.8	37.4	37.0	35.4	34.4	33.6	36.4	34.4	34.5
Sunshine Duration		11.8	11.9	11.6	12.2	12.1	12.5	12.5	12.2	12.4	12.3	12.2	12.4	11.4
Precipitation														0.0
Evaporation		7.3	9.4	7.4	8.2	9.1	16.1	13.5	14.4	13.0	11.5	109.9	133.6	112.9
Growing Degrees	5	23.3	21.3	21.2	20.8	23.2	24.8	24.0	22.7	21.3	20.8	223.4	218.3	211.9
	10	18.3	16.3	16.2	15.8	18.2	19.8	19.0	17.7	16.3	15.8	173.4	168.3	162.0

2nd 10-day period (11-20/08/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	72.1	78.2	61.8
Precipitation - Reference Evapotranspiration	-72.1	-78.2	-61.8
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	95.0	84.0	-

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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