



AGROMETEOROLOGICAL BULLETIN

June 2012
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



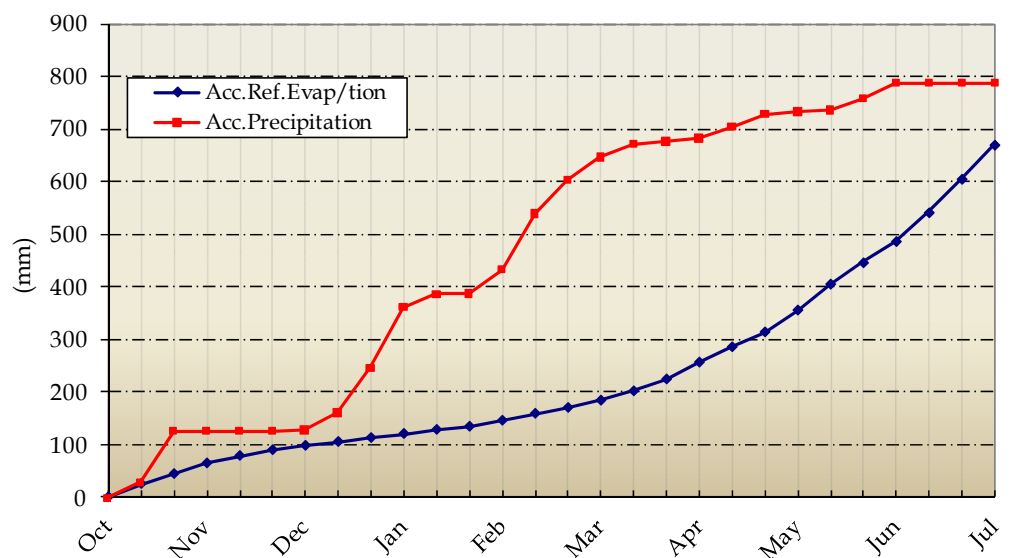
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3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.4	37.4	38.0	37.4	37.0	34.4	35.4	33.4	33.8	35.0	35.9	32.3	31.8
	Min	17.8	15.6	18.0	19.8	22.0	18.4	19.6	23.0	19.6	18.6	19.2	16.8	16.2
Relative Humidity	Max	59	57	50	62	62	70	66	50	72	64	61	89	-
	Min	18	19	23	23	27	40	34	30	38	29	28	32	-
Soil Temperature at 10 cm	06 UTC	29.8	29.6	30.6	31.2	32.0	31.2	31.4	32.0	31.2	31.4	31.0	27.1	25.7
	12 UTC	35.6	35.6	36.2	36.0	36.8	36.4	36.6	36.2	37.0	35.6	36.2	32.2	31.9
Sunshine Duration		14.0	13.8	13.6	13.4	13.6	13.8	13.8	12.8	13.0	13.3	13.5	13.2	11.8
Precipitation														3.5
Evaporation		10.7	10.8	11.8	11.2	9.8	9.7	12.4	10.2	9.4	10.5	106.5	95.4	86.4
Growing Degrees	5	22.6	21.5	23.0	23.6	24.5	21.4	22.5	23.2	21.7	21.8	225.8	195.9	189.7
	10	17.6	16.5	18.0	18.6	19.5	16.4	17.5	18.2	16.7	16.8	175.8	145.9	139.7

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	65.0	58.1	56.5
Precipitation - Reference Evapotranspiration	-65.0	-58.1	-53.0
Number of Rainy Days	0.0	0.0	0.6
Number of Dry Days	31.0	13.0	-

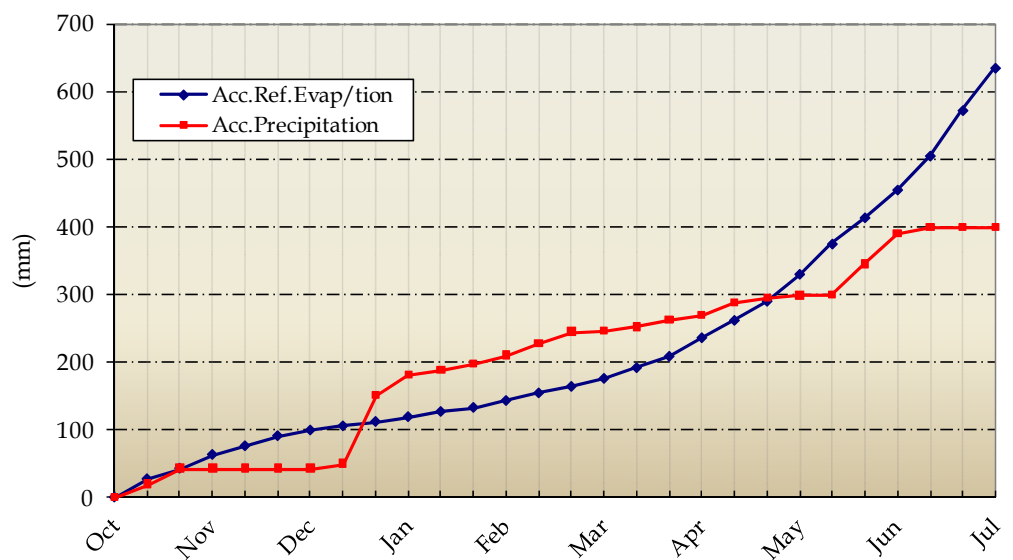
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	36.0	36.4	34.8	33.0	32.4	29.2	28.4	32.2	33.6	33.1	29.0	28.7
	Min	19.6	20.0	22.0	21.6	22.0	20.4	21.2	18.8	18.8	21.4	20.6	17.0	16.0
Relative Humidity	Max	69	67	69	71	75	84	73	87	84	74	75	77	-
	Min	19	24	26	29	37	46	32	37	24	28	30	29	-
Soil Temperature at 10 cm	06 UTC	26.4	26.6	27.2	28.0	28.4	28.6	27.8	26.6	26.0	26.8	27.2	23.5	23.1
	12 UTC	29.8	31.4	30.6	30.6	31.6	32.0	29.0	28.8	29.2	30.0	30.3	27.3	27.7
Sunshine Duration		13.3	13.2	13.0	10.8	13.0	9.2	8.2	11.6	12.9	12.6	11.8	11.5	10.9
Precipitation							0.0	0.0				0.0	1.4	4.4
Evaporation		9.5	15.5	11.8	9.4	9.1	7.7	8.6	5.1	9.6	11.3	97.6	85.5	85.9
Growing Degrees	5	22.3	23.0	24.2	23.2	22.5	21.4	20.2	18.6	20.5	22.5	218.4	179.9	173.3
	10	17.3	18.0	19.2	18.2	17.5	16.4	15.2	13.6	15.5	17.5	168.4	129.9	123.3

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.8	57.2	55.0
Precipitation - Reference Evapotranspiration	-62.8	-55.8	-50.6
Number of Rainy Days	0.0	2.0	1.3
Number of Dry Days	24.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

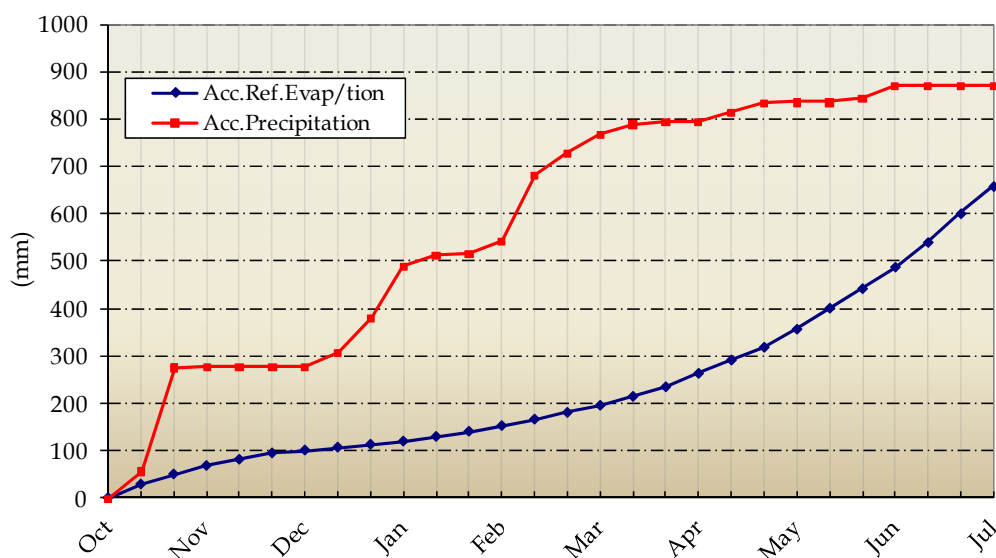


Andravida

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.2	33.1	32.2	33.0	32.8	31.6	30.7	30.3	29.6	31.9	31.8	29.6	28.9
	Min	18.0	14.2	16.4	18.6	19.8	19.2	19.0	20.8	19.2	17.6	18.3	17.3	17.0
Relative Humidity	Max	73	77	85	87	90	90	90	84	85	90	85	89	-
	Min	25	25	32	31	33	39	45	45	48	34	36	36	-
Soil Temperature at 10 cm	06 UTC	26.4	25.8	26.4	27.6	28.4	28.0	28.2	28.8	28.0	28.0	27.6	26.1	25.9
	12 UTC	33.0	33.8	34.2	34.8	34.6	35.6	35.6	34.0	35.0	34.4	34.5	32.3	30.7
Sunshine Duration		13.3	13.3	12.9	12.7	12.5	12.8	12.7	9.8	12.6	12.9	12.6	12.6	12.3
Precipitation														1.3
Evaporation		9.2	10.1	6.7	10.0	6.0	9.0	9.3	5.9	8.1	11.3	85.6	82.4	74.3
Growing Degrees	5	20.6	18.7	19.3	20.8	21.3	20.4	19.9	20.6	19.4	19.8	200.6	184.7	179.7
	10	15.6	13.7	14.3	15.8	16.3	15.4	14.9	15.6	14.4	14.8	150.6	134.7	129.7

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.6	57.2	53.3
Precipitation - Reference Evapotranspiration	-57.6	-57.2	-52.0
Number of Rainy Days	0.0	0.0	0.2
Number of Dry Days	32.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

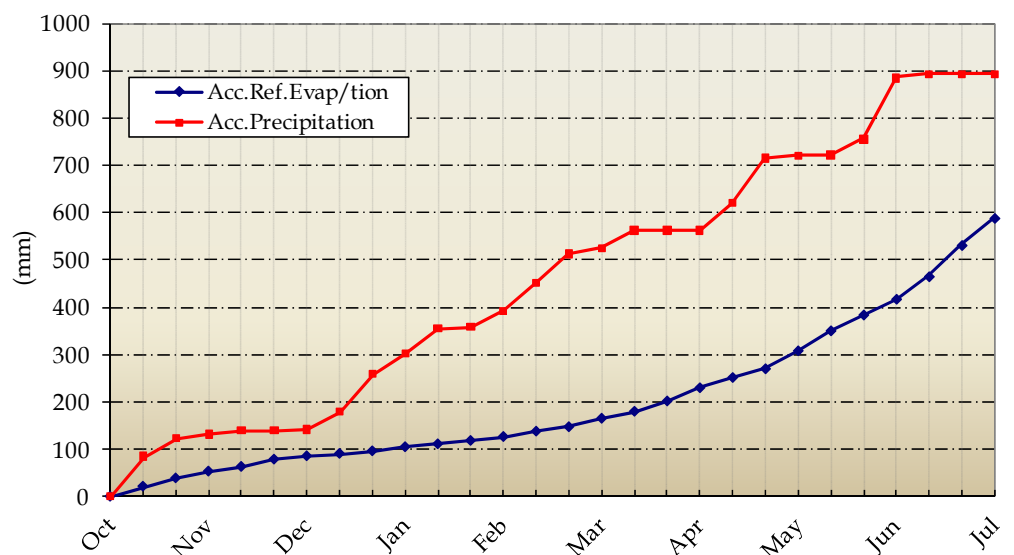


Ioannina

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	34.4	35.0	34.4	32.2	33.0	32.4	31.0	32.4	33.4	33.2	-	29.4
	Min	14.6	16.0	23.0	23.0	23.0	15.6	18.0	18.6	17.0	16.0	18.5	-	13.7
Relative Humidity	Max	75	79	72	77	70	82	66	65	80	84	75	-	-
	Min	23	27	29	36	37	21	29	38	38	30	31	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.9
Sunshine Duration		13.1	12.3	8.0	10.9	11.6	13.1	12.7	12.4	11.7	12.6	11.8	-	10.8
Precipitation													-	6.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	67.3
Growing Degrees	5	19.1	20.2	24.0	23.7	22.6	19.3	20.2	19.8	19.7	19.7	208.3	-	166.2
	10	14.1	15.2	19.0	18.7	17.6	14.3	15.2	14.8	14.7	14.7	158.3	-	116.2

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.4	-	50.2
Precipitation - Reference Evapotranspiration	-57.4	-	-43.7
Number of Rainy Days	0.0	-	1.3
Number of Dry Days	25.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

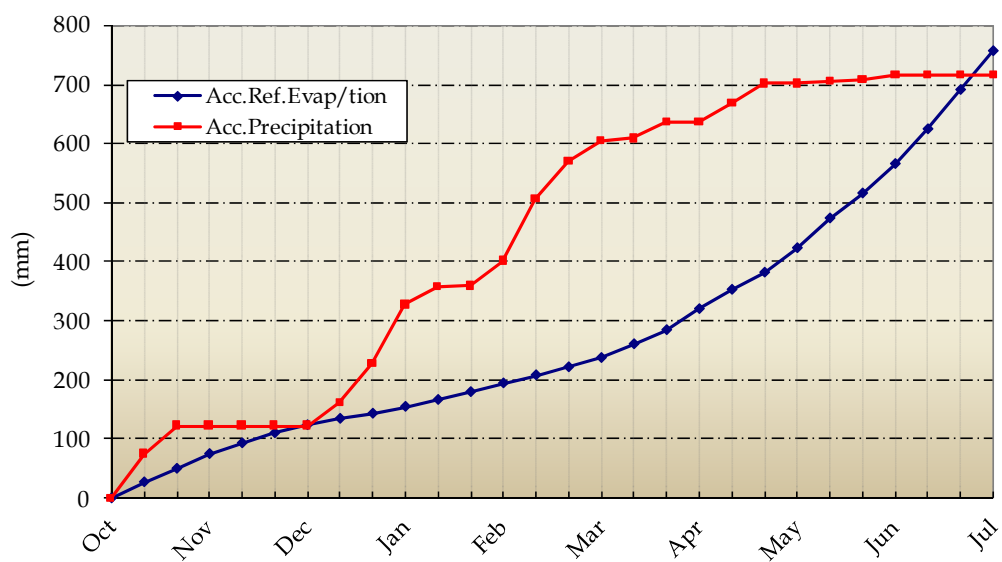


Kalamata

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	33.1	36.7	35.2	32.2	35.7	31.4	30.3	30.6	33.8	33.4	29.4	30.4
	Min	16.8	17.2	18.0	18.4	18.4	17.7	19.0	20.4	19.8	19.0	18.5	16.6	16.7
Relative Humidity	Max	88	94	87	86	88	91	91	92	89	84	89	92	-
	Min	21	28	20	26	35	21	41	48	33	22	30	46	-
Soil Temperature at 10 cm	06 UTC	24.6	25.0	25.0	25.0	26.0	26.0	26.2	26.6	25.8	25.8	25.6	23.4	24.2
	12 UTC	27.6	28.0	28.0	28.4	28.6	28.6	29.0	29.4	28.6	28.6	28.5	26.0	28.7
Sunshine Duration		13.2	11.9	13.1	12.1	12.4	12.2	12.2	9.6	11.6	12.6	12.1	11.2	11.8
Precipitation														0.4
Evaporation		7.6	9.8	7.4	-	9.0	10.4	9.6	4.4	2.8	16.2	-	65.6	88.4
Growing Degrees	5	20.9	20.2	22.4	21.8	20.3	21.7	20.2	20.4	20.2	21.4	209.4	180.1	185.7
	10	15.9	15.2	17.4	16.8	15.3	16.7	15.2	15.4	15.2	16.4	159.4	130.1	135.7

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	65.6	54.6	58.1
Precipitation - Reference Evapotranspiration	-65.6	-54.6	-57.7
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	37.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

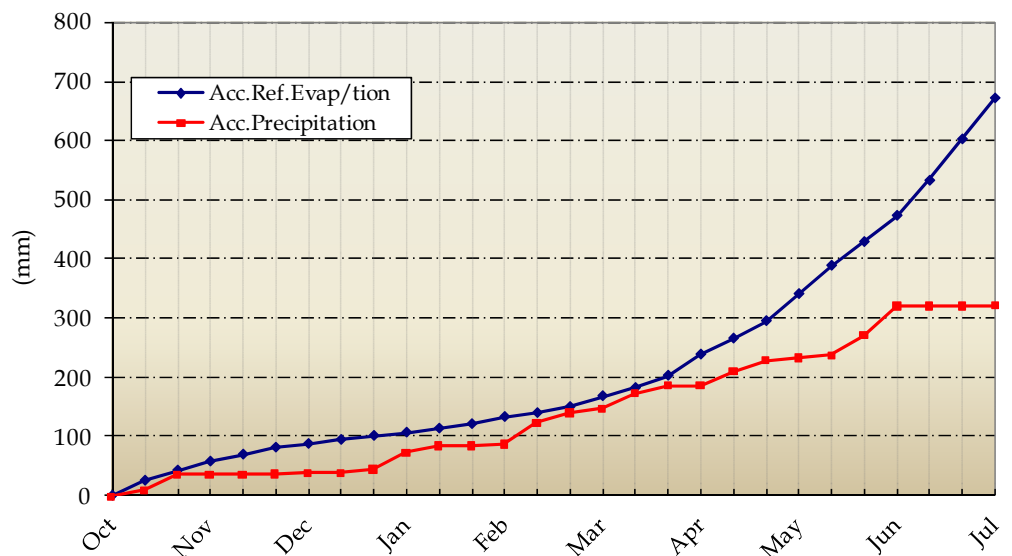


Larisa

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.8	36.2	37.0	36.8	35.2	36.2	30.0	32.2	32.6	32.8	34.4	31.5	32.8
	Min	18.0	16.4	18.2	20.6	18.6	20.0	25.6	20.6	16.8	18.0	19.3	17.4	16.5
Relative Humidity	Max	64	54	58	89	92	71	55	68	80	72	70	69	-
	Min	14	11	19	22	26	19	28	23	24	26	21	27	-
Soil Temperature at 10 cm	06 UTC	25.2	25.0	25.6	26.4	26.4	27.0	27.2	26.4	26.2	26.4	26.2	25.1	25.0
	12 UTC	27.0	27.4	27.8	28.2	27.6	28.8	27.8	28.2	28.4	28.4	28.0	28.2	27.7
Sunshine Duration		13.2	13.3	12.1	9.6	13.0	13.0	5.6	13.1	12.5	13.1	11.8	11.4	11.1
Precipitation						0.6						0.6	0.0	6.4
Evaporation		10.0	15.1	22.0	13.6	11.2	11.8	8.8	9.5	8.7	12.0	122.7	95.8	93.9
Growing Degrees	5	21.4	21.3	22.6	23.7	21.9	23.1	22.8	21.4	19.7	20.4	218.3	194.3	196.6
	10	16.4	16.3	17.6	18.7	16.9	18.1	17.8	16.4	14.7	15.4	168.3	144.3	146.6

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	69.3	61.7	61.9
Precipitation - Reference Evapotranspiration	-68.7	-61.7	-55.5
Number of Rainy Days	1.0	0.0	0.9
Number of Dry Days	25.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

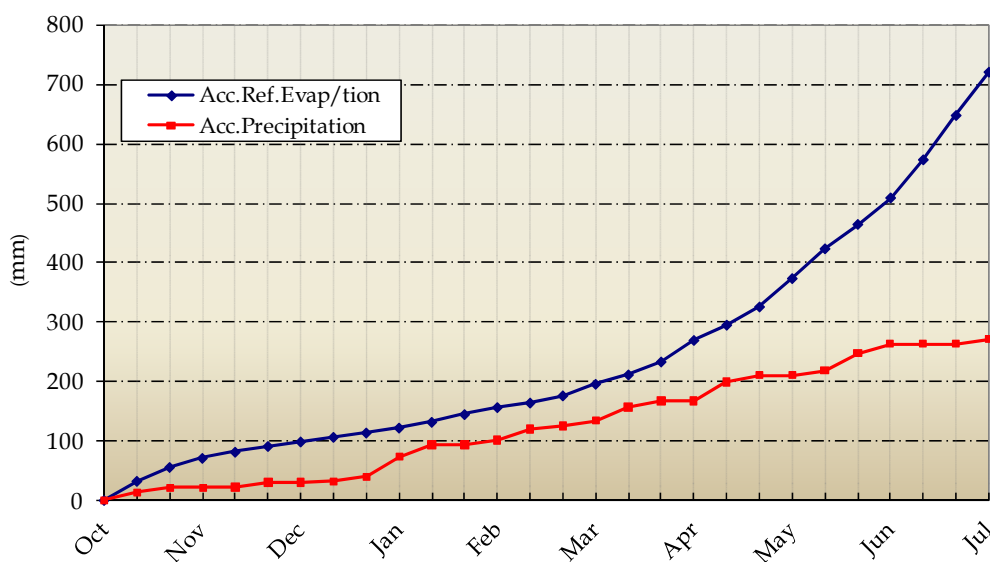


Mikra

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.2	35.6	37.0	35.4	32.6	33.0	31.4	29.3	31.2	31.8	33.2	-	30.8
	Min	23.6	20.0	20.8	23.2	20.8	20.8	24.0	17.6	18.0	19.7	20.8	-	17.9
Relative Humidity	Max	68	56	64	82	86	78	56	80	84	79	73	-	-
	Min	14	17	20	25	36	33	29	39	30	32	28	-	-
Soil Temperature at 10 cm	06 UTC	28.0	27.4	29.4	30.4	24.0	27.6	27.8	27.6	27.8	28.2	27.8	-	25.3
	12 UTC	33.3	33.2	33.6	34.0	34.0	34.2	32.6	32.4	32.8	32.0	33.2	-	30.2
Sunshine Duration		13.3	13.8	11.1	9.2	13.6	13.3	11.1	13.4	12.6	13.5	12.5	-	11.0
Precipitation					5.8	1.6						7.4	-	4.8
Evaporation		11.2	12.0	15.0	10.0	11.6	13.6	12.2	12.4	13.2	12.4	123.6	-	93.3
Growing Degrees	5	24.4	22.8	23.9	24.3	21.7	21.9	22.7	18.5	19.6	20.8	220.5	-	193.2
	10	19.4	17.8	18.9	19.3	16.7	16.9	17.7	13.5	14.6	15.8	170.5	-	143.2

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	72.7	-	61.4
Precipitation - Reference Evapotranspiration	-65.3	-	-56.6
Number of Rainy Days	2.0	-	1.1
Number of Dry Days	24.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

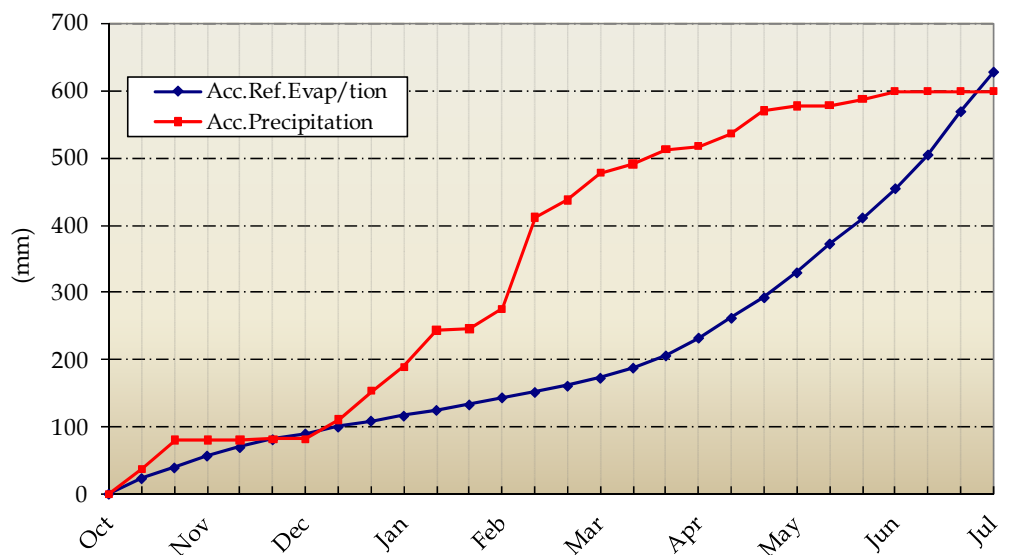


Tripoli

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.6	-	33.2	34.8	31.6	32.7	31.5	29.5	31.1	30.0	32.1	27.9	29.8
	Min	14.5	10.3	14.5	15.2	15.4	15.7	16.0	18.4	13.1	18.8	15.2	11.7	12.5
Relative Humidity	Max	40	48	40	57	58	79	77	67	85	48	60	87	-
	Min	10	14	16	17	24	18	30	25	19	21	19	35	-
Soil Temperature at 10 cm	06 UTC	26.6	25.6	26.4	26.8	27.2	27.0	28.0	27.4	26.4	-	26.8	23.3	24.0
	12 UTC	32.4	32.0	32.4	33.0	32.6	34.2	34.2	33.8	32.6	-	33.0	29.8	27.2
Sunshine Duration		13.0	13.6	12.5	10.7	10.2	13.2	8.6	11.0	-	-	11.6	10.7	11.1
Precipitation														5.4
Evaporation		16.8	7.2	10.0	12.4	7.4	8.6	6.1	8.4	-	-	-	69.0	65.6
Growing Degrees	5	19.6	-	18.9	20.0	18.5	19.2	18.8	19.0	17.1	19.4	-	148.2	161.5
	10	14.6	-	13.9	15.0	13.5	14.2	13.8	14.0	12.1	14.4	-	98.2	111.5

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.7	48.6	53.9
Precipitation - Reference Evapotranspiration	-58.7	-48.6	-48.5
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	29.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

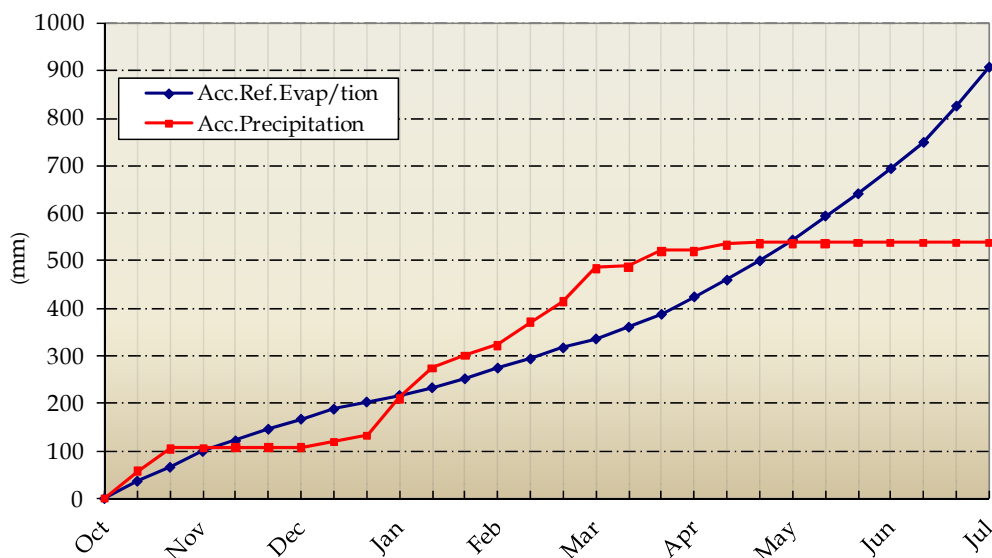


Tympaki

3rd 10-day period (21-30/06/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	35.0	33.0	35.8	35.0	30.6	36.0	32.4	31.6	32.4	33.7	30.7	30.0
	Min	23.0	18.2	20.2	21.0	20.6	22.2	20.6	23.6	18.2	17.2	20.5	18.9	18.5
Relative Humidity	Max	69	62	80	68	87	94	88	66	94	98	81	64	-
	Min	19	13	22	14	28	45	26	22	23	35	25	29	-
Soil Temperature at 10 cm	06 UTC	30.0	29.4	29.6	30.2	30.2	31.0	30.8	31.6	29.4	28.6	30.1	28.7	29.2
	12 UTC	34.6	35.0	36.0	36.8	35.8	37.2	37.4	36.2	34.2	34.4	35.8	34.1	34.1
Sunshine Duration		13.4	13.5	13.3	13.3	13.7	13.1	13.4	13.5	13.5	13.6	13.4	13.5	12.5
Precipitation														
Evaporation		14.0	16.2	12.2	16.3	13.9	9.3	12.9	14.9	9.5	15.4	134.6	130.7	97.7
Growing Degrees	5	24.0	21.6	21.6	23.4	22.8	21.4	23.3	23.0	19.9	19.8	220.8	198.2	192.5
	10	19.0	16.6	16.6	18.4	17.8	16.4	18.3	18.0	14.9	14.8	170.8	148.2	142.5

3rd 10-day period (21-30/06/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	81.7	78.6	58.6
Precipitation - Reference Evapotranspiration	-81.7	-78.6	-58.6
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	44.0	33.0	-

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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