



AGROMETEOROLOGICAL BULLETIN

April 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



Hellenic National Meteorological Service
Division of Climatology-Applications
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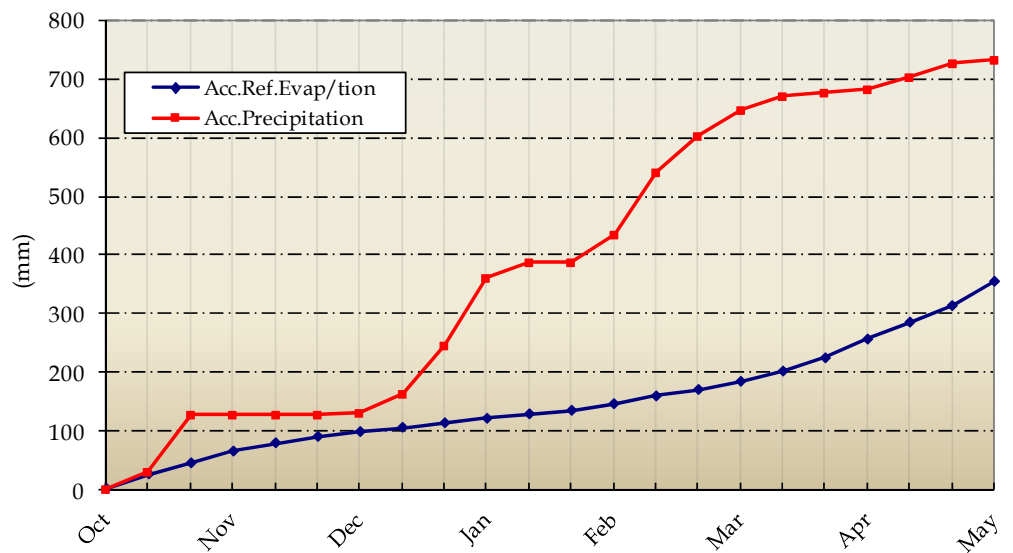
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www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

Agrinio

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	21.6	23.0	27.4	23.4	25.6	28.4	23.5	29.4	32.0	25.4	22.1	21.9
	Min	8.6	6.4	6.0	10.2	8.0	9.0	7.6	10.4	9.4	15.0	9.1	9.6	8.7
Relative Humidity	Max	91	95	81	91	76	88	79	91	83	65	84	91	-
	Min	51	54	33	34	58	27	23	42	26	23	37	46	-
Soil Temperature at 10 cm	06 UTC	15.2	14.6	15.0	16.6	16.6	16.8	16.6	18.2	17.4	18.4	16.5	15.9	14.6
	12 UTC	18.0	18.8	19.6	20.2	22.2	21.0	22.0	20.6	22.2	23.4	20.8	18.4	19.4
Sunshine Duration		11.4	12.0	10.1	9.6	10.3	12.8	12.5	4.7	12.1	12.3	10.8	7.4	7.7
Precipitation		4.3			0.4							4.7	32.1	13.1
Evaporation		4.2	5.8	4.5	5.7	4.0	8.4	7.0	4.0	9.3	8.6	61.5	52.9	47.7
Growing Degrees	5	9.0	9.0	9.5	13.8	10.7	12.3	13.0	12.0	14.4	18.5	122.2	108.6	103.2
	10	4.0	4.0	4.5	8.8	5.7	7.3	8.0	7.0	9.4	13.5	72.2	58.6	53.2

3rd 10-day period (21-30/04/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	41.6	33.0	33.8
Precipitation - Reference Evapotranspiration	-36.9	-0.9	-20.7
Number of Rainy Days	2.0	4.0	2.8
Number of Dry Days	2.0	8.0	-

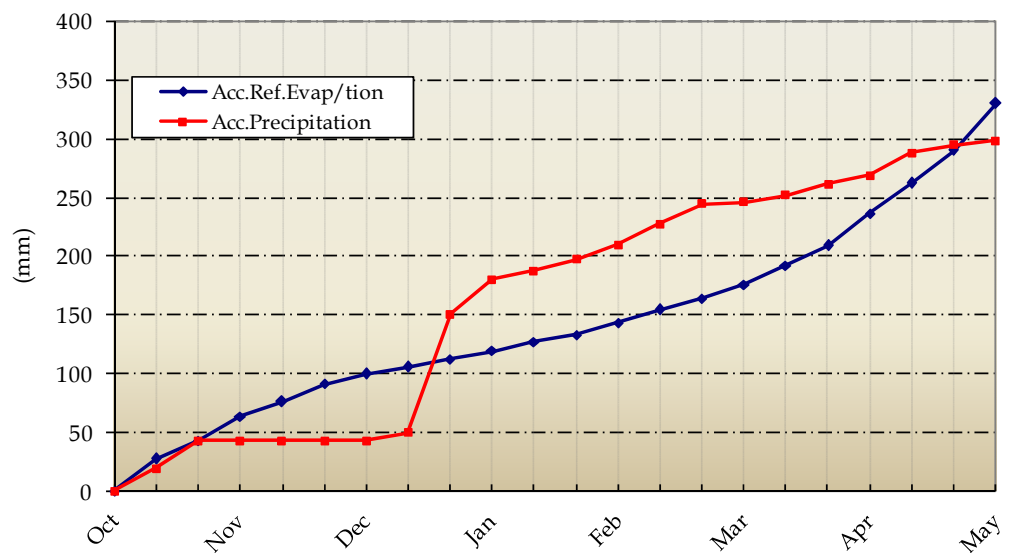
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.2	19.4	19.8	19.4	23.2	22.4	20.2	27.6	28.8	29.6	22.9	17.4	18.4
	Min	11.0	7.2	6.6	7.6	11.0	8.0	12.4	12.6	18.6	10.8	10.6	6.3	7.8
Relative Humidity	Max	97	95	95	97	88	91	81	93	73	78	89	86	-
	Min	55	35	51	60	31	33	53	16	18	21	37	46	-
Soil Temperature at 10 cm	06 UTC	14.2	15.0	15.2	16.0	15.8	15.8	17.2	16.0	17.4	17.4	16.0	11.6	12.7
	12 UTC	18.6	19.0	19.2	17.6	19.6	20.2	18.6	19.8	21.6	21.8	19.6	14.5	16.6
Sunshine Duration		10.7	12.6	12.8	5.2	12.6	12.8	7.0	12.4	12.8	12.8	11.2	7.8	7.4
Precipitation		0.0						2.2	1.7			3.9	0.3	11.6
Evaporation		6.4	3.0	5.0	7.0	6.5	3.5	-	8.2	10.0	8.6	-	40.9	46.0
Growing Degrees	5	9.6	8.3	8.2	8.5	12.1	10.2	11.3	15.1	18.7	15.2	117.2	68.5	80.8
	10	4.6	3.3	3.2	3.5	7.1	5.2	6.3	10.1	13.7	10.2	67.2	19.1	32.3

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.9	31.1	31.2
Precipitation - Reference Evapotranspiration	-36.0	-30.8	-19.6
Number of Rainy Days	2.0	1.0	2.2
Number of Dry Days	7.0	6.0	-

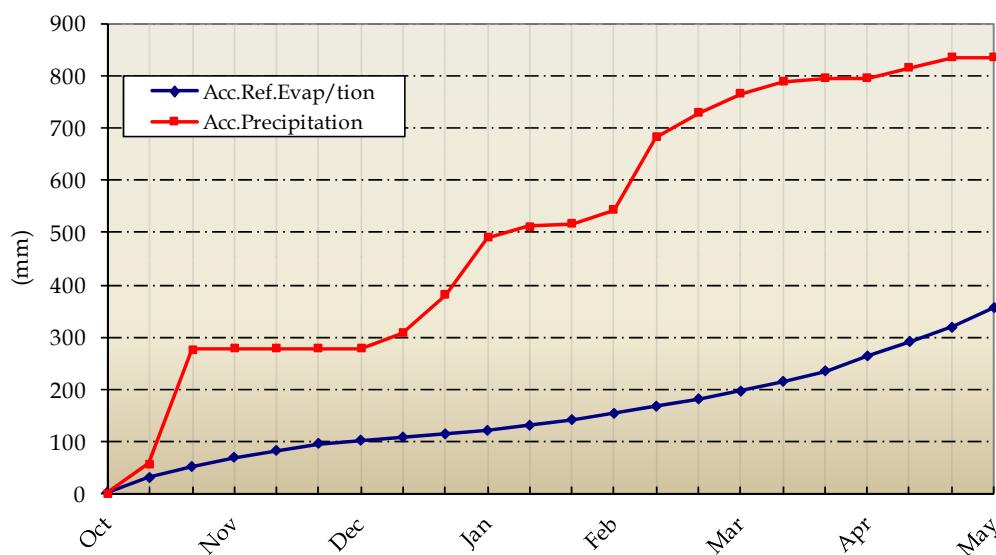
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.4	20.4	21.0	23.8	23.6	21.1	23.9	22.7	24.4	27.1	22.6	20.6	20.2
	Min	11.6	9.6	9.2	11.2	10.1	10.0	9.1	11.7	11.6	10.2	10.4	10.7	9.8
Relative Humidity	Max	98	91	90	86	92	93	87	89	90	91	91	94	-
	Min	55	39	44	45	56	44	44	40	34	32	43	52	-
Soil Temperature at 10 cm	06 UTC	15.4	15.2	15.8	16.4	16.2	16.2	16.2	17.6	16.4	17.8	16.3	16.2	15.0
	12 UTC	19.8	20.4	21.4	20.4	20.4	21.8	22.2	20.8	22.4	23.6	21.3	20.3	18.4
Sunshine Duration		10.9	12.0	10.5	4.6	10.3	11.9	11.7	7.0	11.9	11.6	10.2	7.4	8.8
Precipitation		0.5			0.0							0.5	23.3	8.8
Evaporation		4.6	5.9	3.3	2.6	3.8	5.4	4.5	3.7	4.5	4.7	43.0	35.5	43.9
Growing Degrees	5	10.0	10.0	10.1	12.5	11.9	10.6	11.5	12.2	13.0	13.7	115.4	106.3	100.1
	10	5.0	5.0	5.1	7.5	6.9	5.6	6.5	7.2	8.0	8.7	65.4	56.3	50.1

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.1	31.5	33.2
Precipitation - Reference Evapotranspiration	-37.6	-8.2	-24.4
Number of Rainy Days	1.0	2.0	1.8
Number of Dry Days	2.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

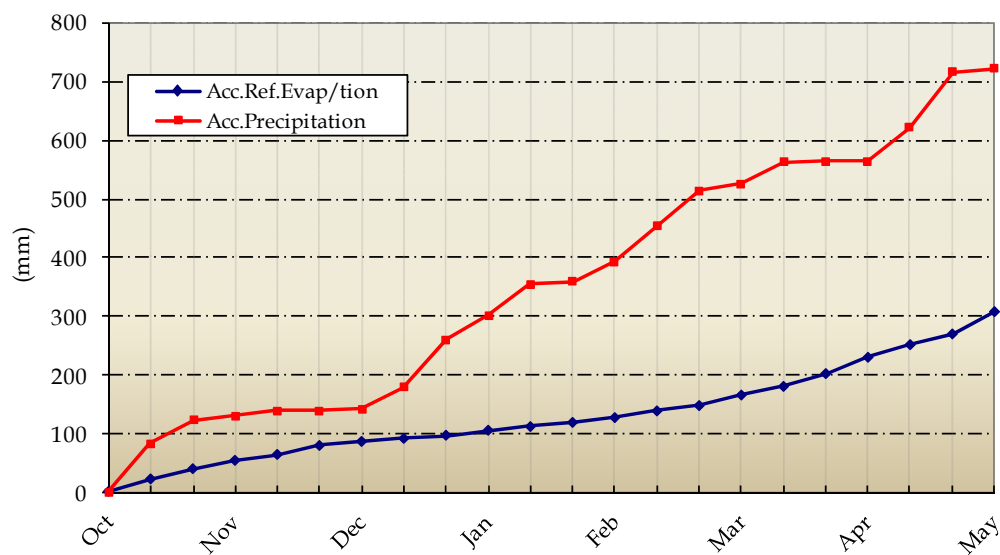


Ioannina

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.2	18.4	20.8	23.2	21.0	22.8	27.2	21.2	26.2	28.2	22.4	-	18.6
	Min	6.5	8.0	3.6	9.5	8.8	4.2	5.0	15.0	15.2	12.8	8.9	-	6.5
Relative Humidity	Max	94	86	88	90	87	81	85	66	43	79	80	-	-
	Min	50	43	32	37	49	27	21	37	23	26	34	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.9
Sunshine Duration		9.2	9.0	7.5	8.5	9.8	11.4	11.4	3.8	10.8	11.3	9.3	-	6.6
Precipitation		5.6			0.1							5.7	-	15.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.5
Growing Degrees	5	5.9	8.2	7.2	11.4	9.9	8.5	11.1	13.1	15.7	15.5	106.4	-	75.1
	10	0.9	3.2	2.2	6.4	4.9	3.5	6.1	8.1	10.7	10.5	56.4	-	27.7

3rd 10-day period (21-30/04/2012)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.2	29.4
Precipitation - Reference Evapotranspiration	-32.5	-14.2
Number of Rainy Days	2.0	3.6
Number of Dry Days	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

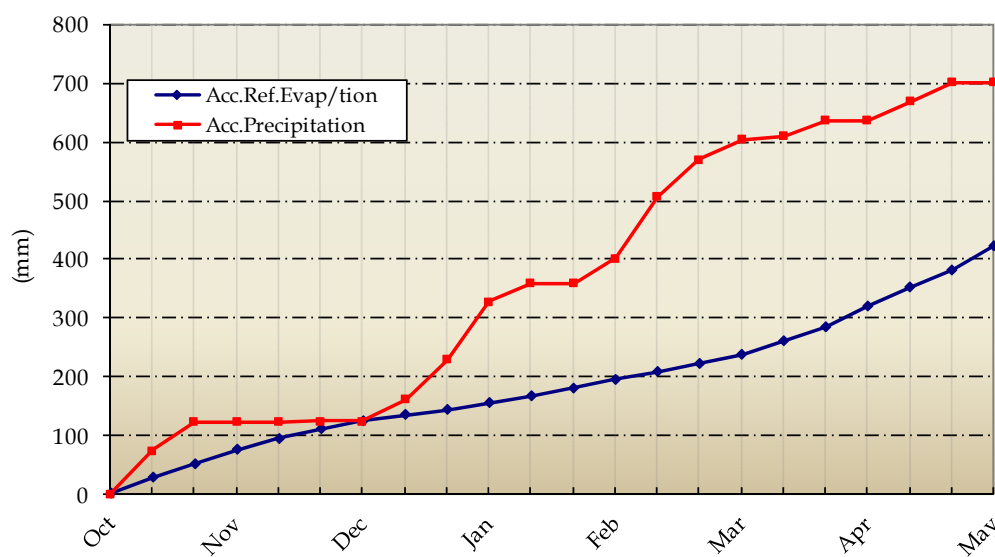


Kalamata

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	23.0	22.2	21.1	21.5	23.0	24.1	23.6	23.1	23.7	22.6	20.7	20.8
	Min	8.6	8.0	8.1	10.5	7.6	14.0	8.6	11.0	9.2	9.5	9.5	9.6	9.1
Relative Humidity	Max	94	94	90	91	92	84	89	91	93	92	91	96	-
	Min	39	32	40	47	57	37	39	45	44	44	42	53	-
Soil Temperature at 10 cm	06 UTC	14.6	14.8	15.2	15.6	15.0	16.2	16.0	16.4	16.0	16.4	15.6	14.7	15.1
	12 UTC	16.4	16.4	17.4	16.4	17.4	18.4	18.6	17.4	17.8	19.6	17.6	17.7	18.5
Sunshine Duration		12.3	12.4	12.4	3.0	12.2	12.7	12.6	5.6	12.6	12.1	10.8	8.0	8.3
Precipitation													3.0	12.2
Evaporation		3.6	4.4	8.4	2.5	6.3	6.4	6.8	4.0	3.2	6.8	52.4	39.6	46.5
Growing Degrees	5	9.7	10.5	10.2	10.8	9.6	13.5	11.4	12.3	11.2	11.6	110.6	101.9	99.4
	10	4.7	5.5	5.2	5.8	4.6	8.5	6.4	7.3	6.2	6.6	60.6	51.9	49.4

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.4	33.6	34.1
Precipitation - Reference Evapotranspiration	-41.4	-30.6	-21.9
Number of Rainy Days	0.0	2.0	2.6
Number of Dry Days	12.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

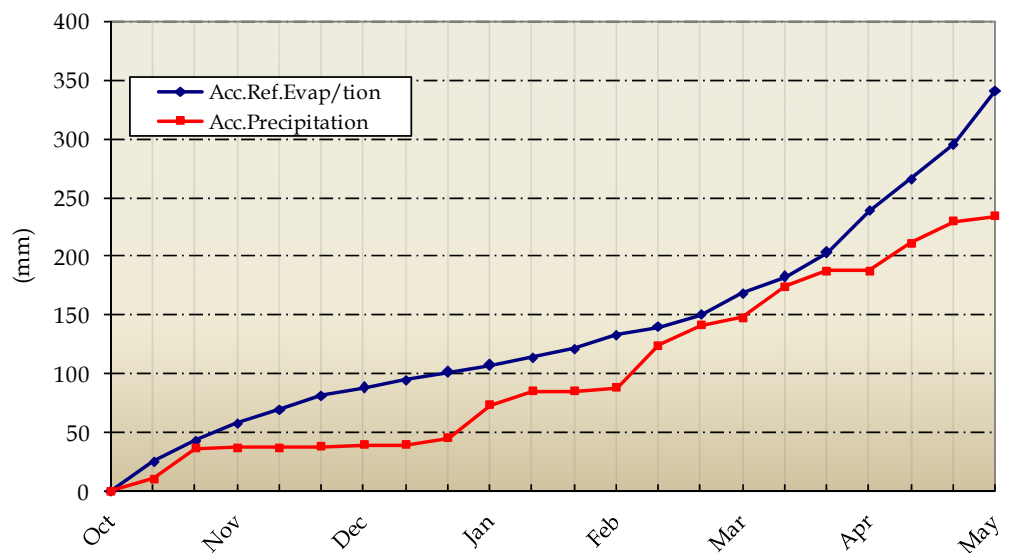


Larisa

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	24.2	25.0	26.0	26.8	26.5	25.8	21.6	28.4	27.9	25.3	18.6	21.1
	Min	10.0	5.8	6.6	11.0	9.9	7.2	9.8	10.4	9.6	9.6	9.0	7.0	7.3
Relative Humidity	Max	81	82	86	81	90	77	92	96	93	88	87	91	-
	Min	26	28	25	34	25	16	24	51	23	23	28	51	-
Soil Temperature at 10 cm	06 UTC	13.4	13.4	14.4	15.0	15.0	15.0	15.0	16.0	15.0	16.0	14.8	13.5	14.2
	12 UTC	15.2	14.8	15.4	16.2	17.0	16.6	17.0	16.4	17.6	17.6	16.4	14.9	16.2
Sunshine Duration		12.3	9.9	11.8	9.7	12.4	12.5	12.0	1.8	12.2	12.0	10.7	8.0	7.9
Precipitation									4.2			4.2	4.4	10.7
Evaporation		9.6	4.2	4.4	5.6	6.0	12.3	7.6	5.3	5.3	7.2	67.5	32.7	43.9
Growing Degrees	5	10.6	10.0	10.8	13.5	13.4	11.9	12.8	11.0	14.0	13.8	121.7	77.8	91.9
	10	5.6	5.0	5.8	8.5	8.4	6.9	7.8	6.0	9.0	8.8	71.7	27.8	42.7

3rd 10-day period (21-30/04/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	45.7	31.4	34.0
Precipitation - Reference Evapotranspiration	-41.5	-27.0	-23.3
Number of Rainy Days	1.0	4.0	2.7
Number of Dry Days	9.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

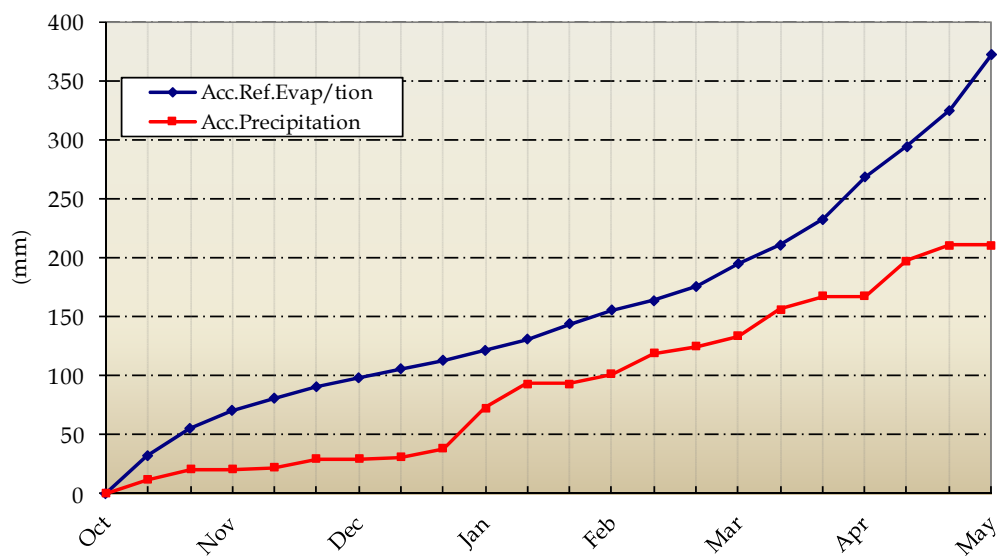


Mikra

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.2	24.0	25.0	25.7	25.6	24.8	22.2	28.6	28.0	24.8	-	20.2
	Min	10.0	5.4	7.2	11.7	10.5	13.2	8.2	14.4	14.6	11.8	10.7	-	8.4
Relative Humidity	Max	86	83	78	88	89	69	87	86	81	85	83	-	-
	Min	32	25	28	30	35	21	24	43	27	21	29	-	-
Soil Temperature at 10 cm	06 UTC	14.0	14.0	14.0	16.2	16.2	16.4	16.0	17.8	17.8	18.2	16.1	-	14.2
	12 UTC	19.0	19.4	16.0	22.0	20.6	21.6	21.4	21.2	22.6	23.0	20.7	-	18.8
Sunshine Duration		11.9	11.5	11.9	8.1	12.2	12.3	11.3	4.2	11.7	12.3	10.7	-	7.6
Precipitation								0.3	0.0			0.3	-	11.2
Evaporation		6.1	5.1	3.5	6.7	4.7	0.2	10.0	2.5	8.2	9.1	56.1	-	45.8
Growing Degrees	5	11.1	8.8	10.6	13.4	13.1	14.4	11.5	13.3	16.6	14.9	127.7	-	93.3
	10	6.1	3.8	5.6	8.4	8.1	9.4	6.5	8.3	11.6	9.9	77.7	-	43.8

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.6	-	33.7
Precipitation - Reference Evapotranspiration	-47.3	-	-22.5
Number of Rainy Days	1.0	-	3.0
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

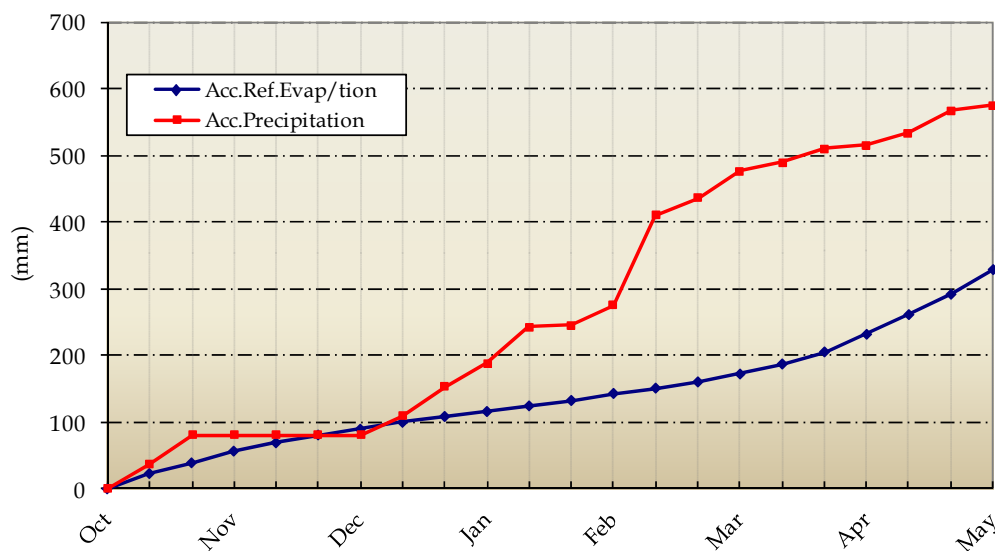


Tripoli

3rd 10-day period (21-30/04/2012)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.7	20.4	21.8	23.1	22.4	24.2	25.6	18.3	23.0	26.7	22.1	17.3	18.7
	Min	9.0	2.8	3.4	7.8	7.7	5.2	4.8	8.1	5.6	9.5	6.4	4.9	5.4
Relative Humidity	Max	53	94	93	85	59	91	92	92	92	57	81	96	-
	Min	52	66	31	42	36	45	23	58	56	32	44	47	-
Soil Temperature at 10 cm	06 UTC	11.4	10.2	11.8	14.2	13.4	14.4	14.6	16.6	13.4	15.0	13.5	11.4	12.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	17.4	14.3
Sunshine Duration		11.3	11.6	12.1	5.2	12.3	11.7	10.8	5.0	11.9	12.5	10.4	7.8	8.0
Precipitation		1.2			0.0				5.6			6.8	14.4	14.5
Evaporation		4.0	2.5	5.8	2.8	4.6	3.4	6.9	0.5	8.8	2.6	41.9	31.7	35.0
Growing Degrees	5	7.4	6.6	7.6	10.5	10.1	9.7	10.2	8.2	9.3	13.1	92.6	61.1	70.7
	10	2.4	1.6	2.6	5.5	5.1	4.7	5.2	3.2	4.3	8.1	42.6	12.1	24.2

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.0	29.6	32.9
Precipitation - Reference Evapotranspiration	-30.2	-15.2	-18.4
Number of Rainy Days	2.0	4.0	2.7
Number of Dry Days	1.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

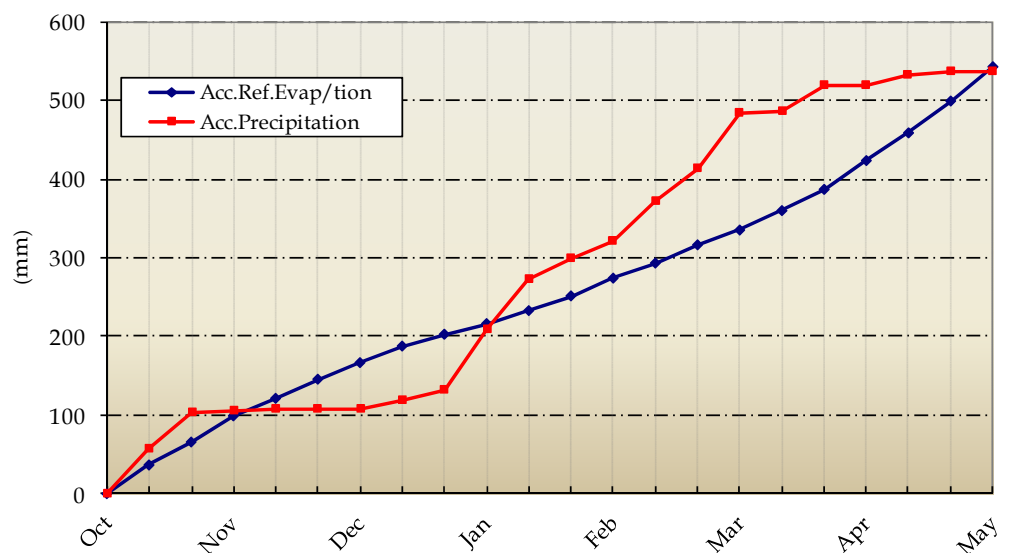


Tympaki

2nd 10-day period (11-20/04/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	20.0	20.6	20.0	22.0	24.2	22.6	22.8	25.6	25.2	22.3	21.1	21.4
	Min	9.4	8.4	8.8	8.0	9.6	9.6	10.6	11.8	12.6	12.0	10.1	11.4	11.1
Relative Humidity	Max	90	81	84	88	96	92	82	99	99	99	91	90	-
	Min	30	36	33	44	25	20	27	24	36	32	31	37	-
Soil Temperature at 10 cm	06 UTC	19.8	19.0	19.4	19.8	20.4	22.0	21.6	22.0	22.6	23.0	21.0	18.5	19.4
	12 UTC	23.2	26.2	26.0	26.2	27.8	29.0	29.4	29.0	29.4	29.8	27.6	23.5	24.1
Sunshine Duration		11.6	12.2	12.1	8.0	11.6	11.8	12.6	12.2	12.0	12.2	11.6	10.1	9.0
Precipitation													4.4	2.6
Evaporation		6.7	5.3	4.2	10.9	2.0	5.7	5.3	8.8	7.3	7.8	64.0	70.9	56.5
Growing Degrees	5	9.7	9.2	9.7	9.0	10.8	11.9	11.6	12.3	14.1	13.6	111.9	112.6	112.4
	10	4.7	4.2	4.7	4.0	5.8	6.9	6.6	7.3	9.1	8.6	61.9	62.6	62.4

3rd 10-day period (21-30/04/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.6	40.1	36.3
Precipitation - Reference Evapotranspiration	-43.6	-35.7	-33.7
Number of Rainy Days	0.0	3.0	0.6
Number of Dry Days	11.0	1.0	-

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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**ΕΘΝΙΚΗ
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ΥΠΗΡΕΣΙΑ**

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