

AGROMETEOROLOGICAL BULLETIN

May 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



Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

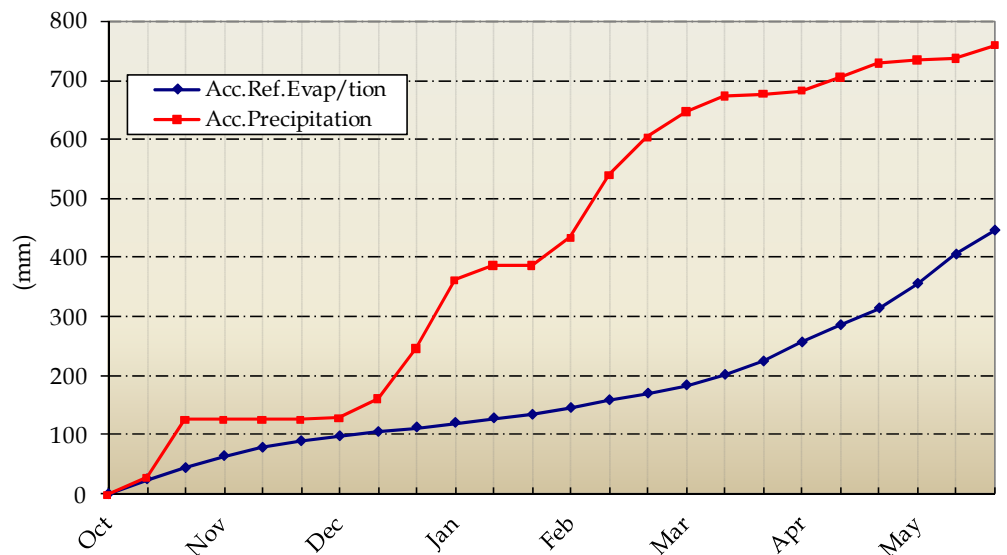
Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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Agrinio

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.0	28.8	30.2	27.4	20.0	21.8	19.4	22.4	26.0	26.2	25.0	24.1	25.9
	Min	15.2	16.0	12.4	14.6	12.6	13.4	11.0	11.0	9.4	0.8	11.6	9.7	12.3
Relative Humidity	Max	78	81	85	87	87	85	85	80	77	81	83	92	-
	Min	38	48	39	36	53	36	55	42	44	40	43	39	-
Soil Temperature at 10 cm	06 UTC	22.2	22.2	21.4	22.4	20.4	19.6	19.0	18.0	18.2	19.4	20.3	17.7	19.3
	12 UTC	26.2	24.0	26.0	25.0	21.8	23.0	19.8	20.0	21.6	22.6	23.0	20.8	25.1
Sunshine Duration		7.7	3.6	10.6	4.0	6.0	7.1	4.8	9.1	13.0	12.2	7.8	8.4	8.6
Precipitation				0.4	0.4	14.5		6.3				21.6	7.0	10.8
Evaporation		7.2	4.2	6.7	9.2	3.8	3.6	1.7	4.8	7.6	6.4	55.2	56.6	61.0
Growing Degrees	5	16.6	17.4	16.3	16.0	11.3	12.6	10.2	11.7	12.7	8.5	133.3	119.3	141.2
	10	11.6	12.4	11.3	11.0	6.3	7.6	5.2	6.7	7.7	3.5	83.3	69.3	91.2

2nd 10-day period (11-20/05/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	40.7	36.7	42.3
Precipitation - Reference Evapotranspiration	-19.1	-29.7	-31.5
Number of Rainy Days	4.0	4.0	2.4
Number of Dry Days	2.0	1.0	-

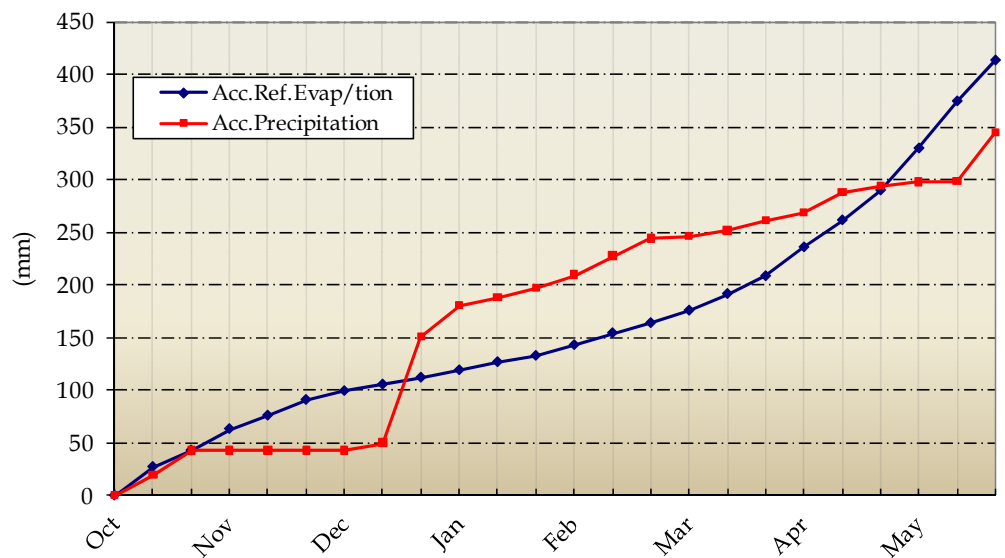
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	29.2	24.8	23.0	20.2	21.4	22.8	18.0	19.6	19.4	22.7	23.0	22.5
	Min	16.8	19.6	17.0	15.2	14.6	14.4	15.6	13.4	13.8	13.0	15.3	11.6	11.3
Relative Humidity	Max	82	92	94	83	98	93	83	95	93	95	91	90	-
	Min	33	30	58	51	66	47	52	73	66	67	54	46	-
Soil Temperature at 10 cm	06 UTC	20.4	21.4	20.2	19.6	19.2	18.8	19.6	19.6	16.4	17.6	19.3	16.2	17.0
	12 UTC	22.8	25.0	25.0	22.8	20.8	22.6	23.0	18.4	18.8	19.6	21.9	18.8	21.2
Sunshine Duration		6.9	10.5	11.1	11.6	7.5	11.5	11.3	0.1	3.2	6.4	8.0	9.3	8.2
Precipitation			3.1	11.7	0.1	7.2	0.8		15.4	6.0	1.4	45.7	14.7	10.7
Evaporation		7.5	3.9	-	4.7	1.3	7.7	4.7	0.4	0.6	0.0	-	39.4	57.1
Growing Degrees	5	17.7	19.4	15.9	14.1	12.4	12.9	14.2	10.7	11.7	11.2	140.2	122.6	118.8
	10	12.7	14.4	10.9	9.1	7.4	7.9	9.2	5.7	6.7	6.2	90.2	72.6	68.8

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.9	39.5	40.4
Precipitation - Reference Evapotranspiration	6.8	-24.8	-29.7
Number of Rainy Days	8.0	4.0	2.3
Number of Dry Days	1.0	5.0	-

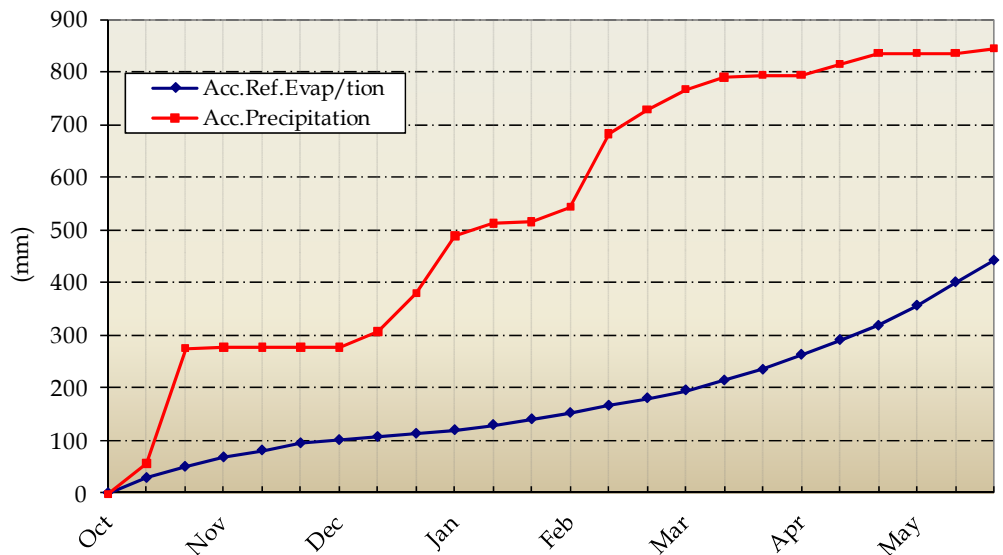
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.8	27.0	27.5	24.4	20.0	21.4	18.9	21.4	23.8	23.5	23.6	23.2	23.9
	Min	15.6	17.7	15.7	14.9	13.0	11.3	12.8	10.9	10.6	13.6	13.6	11.4	12.7
Relative Humidity	Max	80	85	90	89	90	89	89	88	90	90	88	90	-
	Min	36	41	34	60	52	43	57	41	38	42	44	40	-
Soil Temperature at 10 cm	06 UTC	21.6	22.0	21.8	22.4	19.6	18.0	19.0	16.2	17.6	20.6	19.9	17.6	19.3
	12 UTC	25.2	25.2	26.4	27.2	23.0	24.8	21.2	23.0	26.4	28.8	25.1	24.8	23.6
Sunshine Duration		8.4	8.2	11.6	3.6	5.3	10.7	4.8	11.3	12.2	10.4	8.6	10.5	9.4
Precipitation					1.0	3.3		3.9				8.2	2.7	8.3
Evaporation		4.0	10.5	7.5	12.3	8.6	4.2	5.0	5.1	2.0	11.0	70.2	60.2	54.3
Growing Degrees	5	16.7	17.4	16.6	14.7	11.5	11.4	10.9	11.2	12.2	13.6	135.9	122.9	133.2
	10	11.7	12.4	11.6	9.7	6.5	6.4	5.9	6.2	7.2	8.6	85.9	72.9	83.2

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.3	42.5	39.7
Precipitation - Reference Evapotranspiration	-33.1	-39.8	-31.4
Number of Rainy Days	3.0	1.0	1.6
Number of Dry Days	22.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

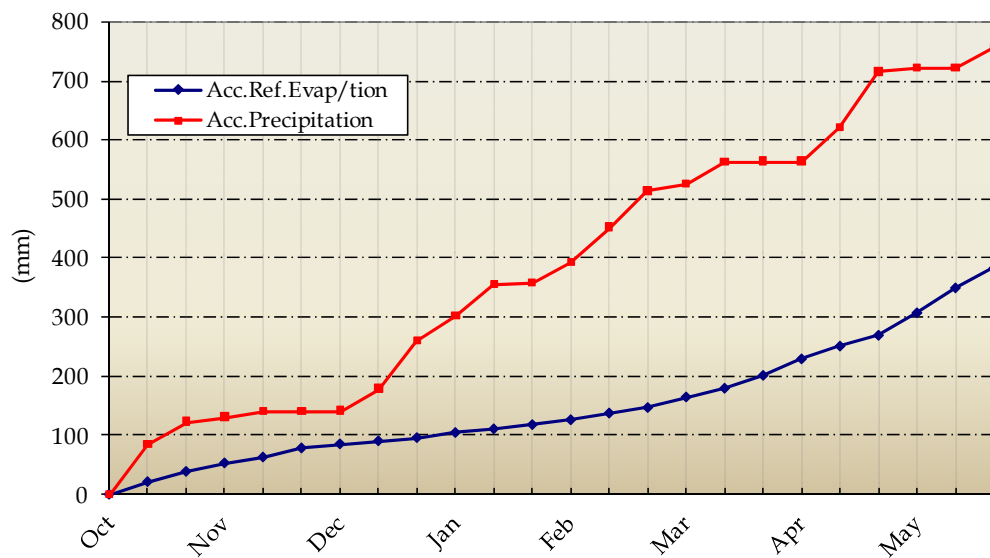


Ioannina

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.4	28.0	26.0	21.6	15.4	18.0	14.6	20.0	24.0	25.0	21.6	-	22.8
	Min	14.5	16.8	10.4	14.0	8.5	10.2	8.4	7.5	7.0	15.4	11.3	-	10.0
Relative Humidity	Max	70	91	96	91	95	90	95	78	89	83	88	-	-
	Min	36	33	41	53	73	61	74	40	34	39	48	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.5
Sunshine Duration		5.5	7.6	4.6	1.4	0.6	6.5	0.2	10.2	12.9	11.6	6.1	-	7.2
Precipitation		0.0	2.8	2.0	6.1	5.1	0.3	17.5				33.8	-	19.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.9
Growing Degrees	5	14.0	17.4	13.2	12.8	7.0	9.1	6.5	8.8	10.5	15.2	114.4	-	113.3
	10	9.0	12.4	8.2	7.8	2.0	4.1	1.5	3.8	5.5	10.2	64.4	-	63.4

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.5	-	34.9
Precipitation - Reference Evapotranspiration	0.3	-	-15.3
Number of Rainy Days	6.0	-	3.4
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

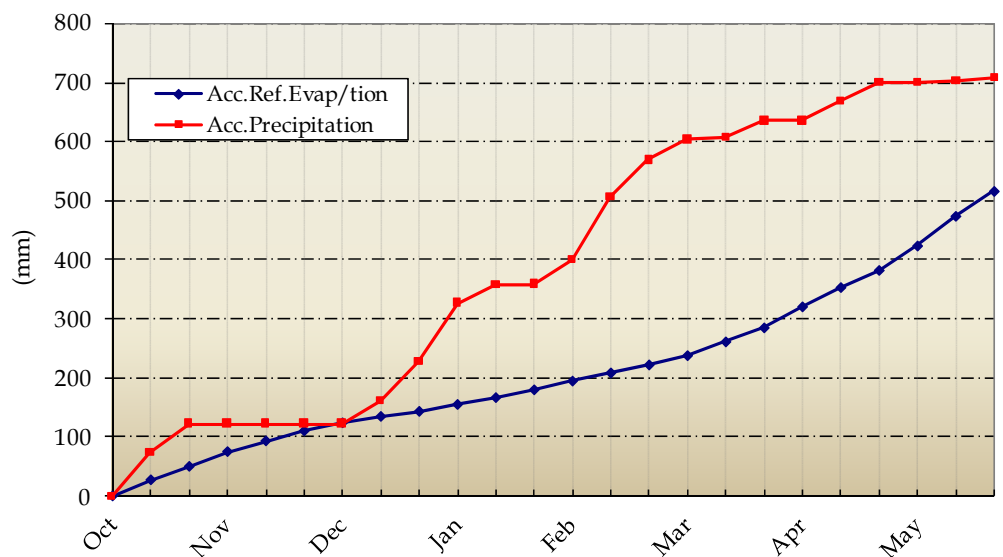


Kalamata

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	25.0	26.6	23.8	22.6	23.9	20.1	23.2	23.6	23.8	23.7	22.8	24.3
	Min	13.3	15.0	13.1	13.8	14.2	11.4	9.0	8.2	9.6	10.2	11.8	9.5	12.1
Relative Humidity	Max	95	92	94	94	94	90	94	93	93	94	93	95	-
	Min	56	52	45	54	41	33	48	38	40	41	45	43	-
Soil Temperature at 10 cm	06 UTC	18.0	19.6	19.0	20.0	20.0	19.0	18.4	17.0	17.6	18.6	18.7	17.1	18.7
	12 UTC	21.4	22.0	23.4	25.2	22.4	22.0	20.2	20.0	22.0	20.6	21.9	20.8	22.5
Sunshine Duration		9.2	6.0	9.6	7.7	10.7	10.6	6.5	7.8	12.4	11.0	9.2	9.9	9.1
Precipitation		0.6	2.4		0.2	0.0		0.4	0.4			4.0	9.7	9.5
Evaporation		5.0	3.4	3.2	6.0	4.8	8.0	2.0	4.0	6.2	7.6	50.2	57.1	57.5
Growing Degrees	5	13.9	15.0	14.9	13.8	13.4	12.7	9.6	10.7	11.6	12.0	127.4	111.6	132.1
	10	8.9	10.0	9.9	8.8	8.4	7.7	4.6	5.7	6.6	7.0	77.4	61.6	82.1

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.2	42.1	39.6
Precipitation - Reference Evapotranspiration	-38.2	-32.4	-30.1
Number of Rainy Days	5.0	4.0	1.8
Number of Dry Days	0.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

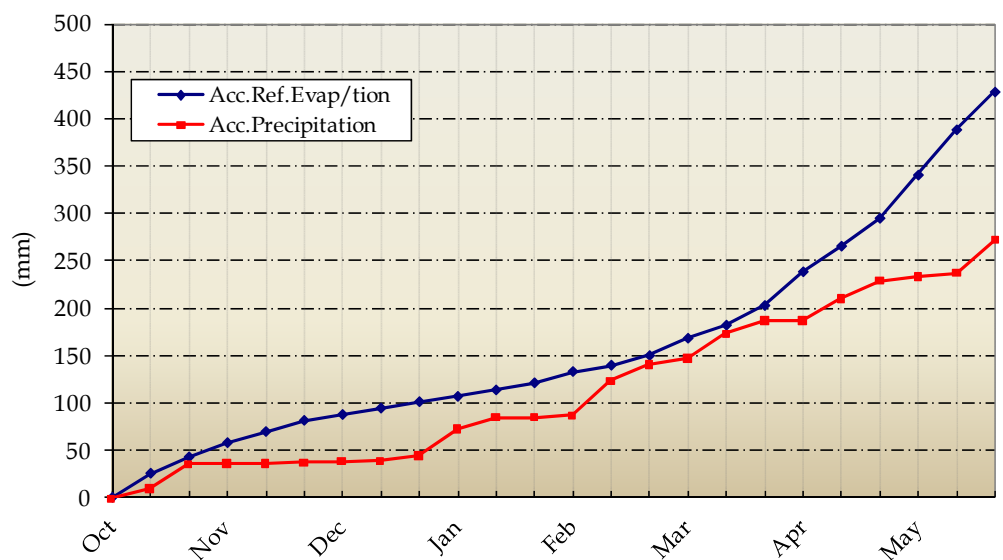


Larisa

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.0	29.8	29.4	24.0	22.6	25.7	20.6	15.6	24.8	27.2	24.7	24.8	25.6
	Min	16.5	15.8	12.2	16.0	9.6	12.8	8.0	11.0	11.0	11.6	12.4	10.0	11.0
Relative Humidity	Max	93	93	96	96	97	77	96	91	94	97	93	90	-
	Min	36	26	30	50	31	27	41	63	42	39	38	36	-
Soil Temperature at 10 cm	06 UTC	17.6	19.2	18.8	19.4	17.6	17.8	17.2	17.0	16.6	17.4	17.9	16.4	18.1
	12 UTC	19.6	20.2	20.0	18.8	18.0	19.2	18.0	16.6	17.5	19.0	18.7	19.0	20.4
Sunshine Duration		6.4	7.2	9.3	4.9	7.1	13.0	2.4	0.0	11.0	12.3	7.4	8.5	8.3
Precipitation		0.9	0.7	0.7	4.2	5.0		8.0	14.6			34.1	0.0	11.8
Evaporation		4.2	5.3	5.2	4.2	10.0	5.2	-	4.4	5.6	9.0	-	46.6	55.6
Growing Degrees	5	16.8	17.8	15.8	15.0	11.1	14.3	9.3	8.3	12.9	14.4	135.6	124.2	133.1
	10	11.8	12.8	10.8	10.0	6.1	9.3	4.3	3.3	7.9	9.4	85.6	74.2	83.1

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.0	41.5	42.0
Precipitation - Reference Evapotranspiration	-5.9	-41.5	-30.2
Number of Rainy Days	7.0	0.0	2.4
Number of Dry Days	1.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

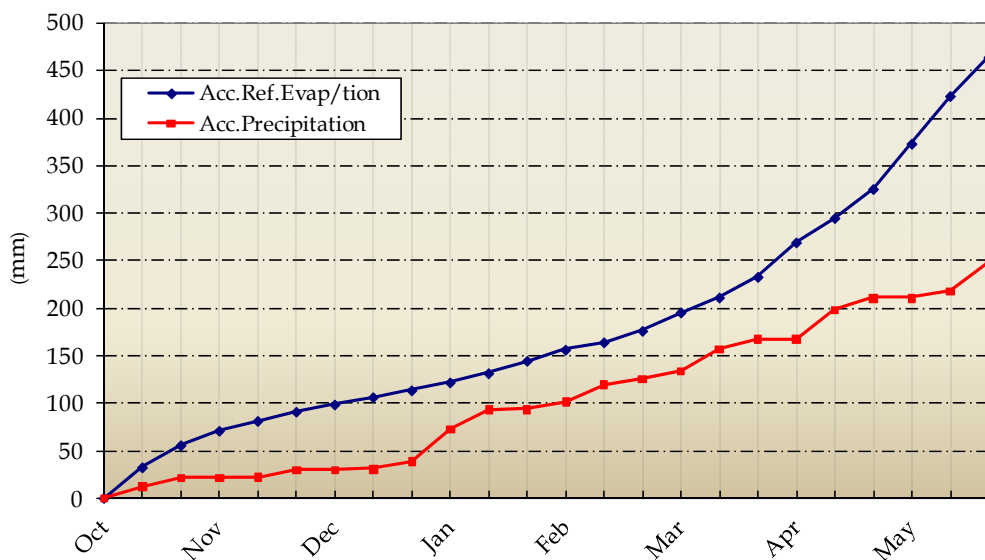


Mikra

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.0	28.2	26.8	23.6	18.4	23.4	20.4	18.1	24.0	24.4	23.5	-	24.3
	Min	17.8	17.3	12.8	16.8	12.8	11.0	13.4	12.8	15.0	12.2	14.2	-	12.4
Relative Humidity	Max	83	87	89	93	93	89	84	66	89	91	86	-	-
	Min	40	31	47	36	56	34	46	54	39	45	43	-	-
Soil Temperature at 10 cm	06 UTC	21.0	21.4	20.4	21.6	17.2	17.8	19.0	17.2	16.8	18.0	19.0	-	18.8
	12 UTC	25.0	26.2	25.4	22.4	20.8	23.0	21.2	22.0	22.2	23.8	23.2	-	23.5
Sunshine Duration		5.8	5.3	11.1	0.4	3.3	11.0	3.7	0.0	10.1	12.5	6.3	-	8.1
Precipitation		1.4	0.3		8.0	18.0	0.2	0.8	0.8			29.5	-	11.8
Evaporation		6.8	5.1	6.9	0.7	2.0	4.4	5.3	3.3	6.4	4.3	45.2	-	56.4
Growing Degrees	5	17.9	17.8	14.8	15.2	10.6	12.2	11.9	10.5	14.5	13.3	138.6	-	133.6
	10	12.9	12.8	9.8	10.2	5.6	7.2	6.9	5.5	9.5	8.3	88.6	-	83.6

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.9	-	40.9
Precipitation - Reference Evapotranspiration	-11.4	-	-29.1
Number of Rainy Days	7.0	-	3.0
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

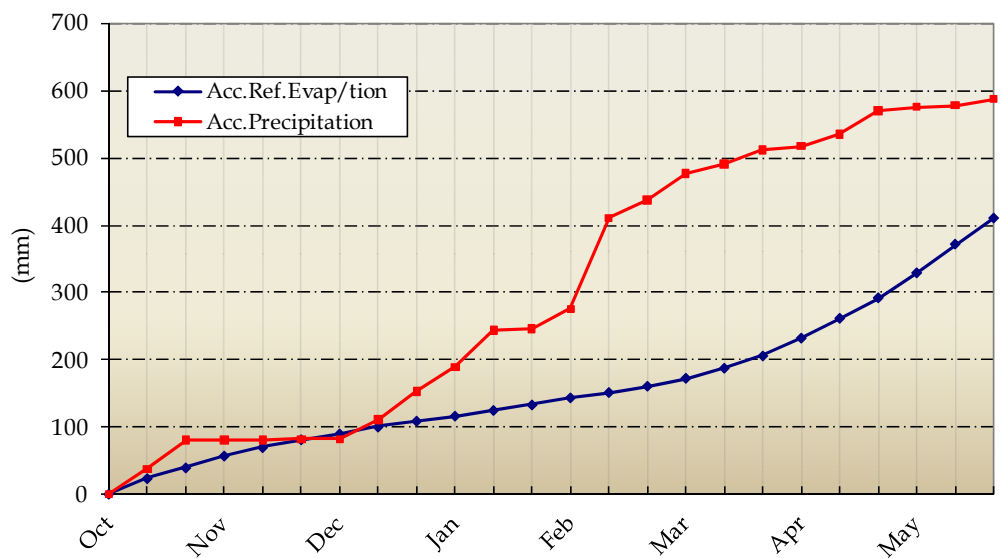


Tripoli

2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.8	25.6	25.1	24.1	16.9	20.3	17.0	18.7	21.0	24.4	21.7	20.2	22.9
	Min	12.6	14.4	9.5	9.1	12.6	11.4	6.8	3.9	6.0	7.0	9.3	6.7	8.3
Relative Humidity	Max	68	60	89	95	66	64	81	76	88	95	78	91	-
	Min	44	33	30	36	52	40	55	43	37	31	40	42	-
Soil Temperature at 10 cm	06 UTC	18.8	19.6	18.6	17.4	16.8	16.0	16.8	15.2	14.8	15.4	16.9	14.7	16.7
	12 UTC	23.4	23.8	25.0	24.2	20.8	23.2	23.2	19.0	22.0	24.4	22.9	21.2	19.4
Sunshine Duration		9.8	8.2	7.2	6.9	10.8	12.7	9.5	3.5	6.9	11.3	8.7	8.8	8.4
Precipitation				5.1	3.0			0.1	0.0	1.3		9.5	23.0	15.5
Evaporation		5.8	4.6	3.0	2.7	6.4	6.2	3.0	4.0	2.3	7.4	45.4	36.0	41.0
Growing Degrees	5	13.2	15.0	12.3	11.6	9.8	10.9	6.9	6.3	8.5	10.7	105.1	84.3	106.0
	10	8.2	10.0	7.3	6.6	4.8	5.9	1.9	1.3	3.5	5.7	55.1	34.3	56.0

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.7	35.6	39.8
Precipitation - Reference Evapotranspiration	-29.2	-12.6	-24.3
Number of Rainy Days	4.0	3.0	2.8
Number of Dry Days	4.0	6.0	-

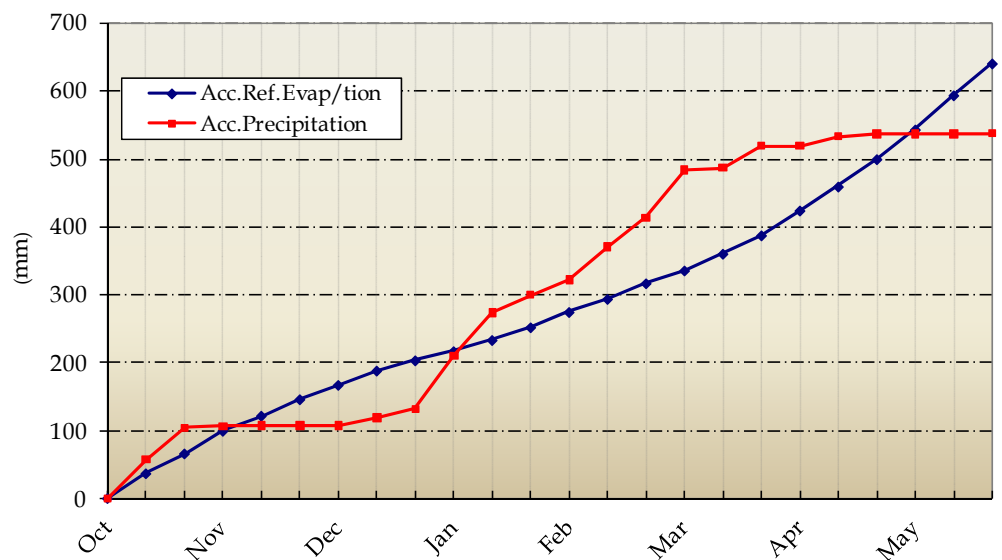
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2012)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	25.2	28.4	23.6	23.2	21.8	21.8	20.6	22.2	22.2	23.4	23.1	24.2
	Min	14.0	14.8	14.0	13.0	15.4	14.6	12.2	12.6	14.2	10.8	13.6	12.9	13.9
Relative Humidity	Max	97	97	97	98	97	97	98	84	93	94	95	84	-
	Min	45	51	33	58	67	58	59	44	44	58	52	33	-
Soil Temperature at 10 cm	06 UTC	25.2	24.8	24.4	24.4	25.6	25.0	23.8	22.4	22.2	22.6	24.0	22.1	23.3
	12 UTC	31.0	28.4	29.6	31.0	31.2	30.4	29.0	27.8	28.4	29.4	29.6	27.5	28.5
Sunshine Duration		12.6	7.2	11.6	12.3	11.6	12.9	8.9	8.0	12.7	12.2	11.0	11.4	9.8
Precipitation								0.7				0.7	1.2	3.2
Evaporation		7.8	8.8	10.5	6.9	6.7	9.3	6.0	8.6	8.4	6.8	79.8	81.0	70.3
Growing Degrees	5	14.5	15.0	16.2	13.3	14.3	13.2	12.0	11.6	13.2	11.5	134.8	130.0	140.1
	10	9.5	10.0	11.2	8.3	9.3	8.2	7.0	6.6	8.2	6.5	84.8	80.0	90.3

2nd 10-day period (11-20/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.8	52.2	42.8
Precipitation - Reference Evapotranspiration	-46.1	-51.0	-39.6
Number of Rainy Days	1.0	1.0	0.5
Number of Dry Days	27.0	11.0	-

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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ΥΠΗΡΕΣΙΑ

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The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens (Professor A. Liakatas)