



AGROMETEOROLOGICAL BULLETIN

May 2015
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



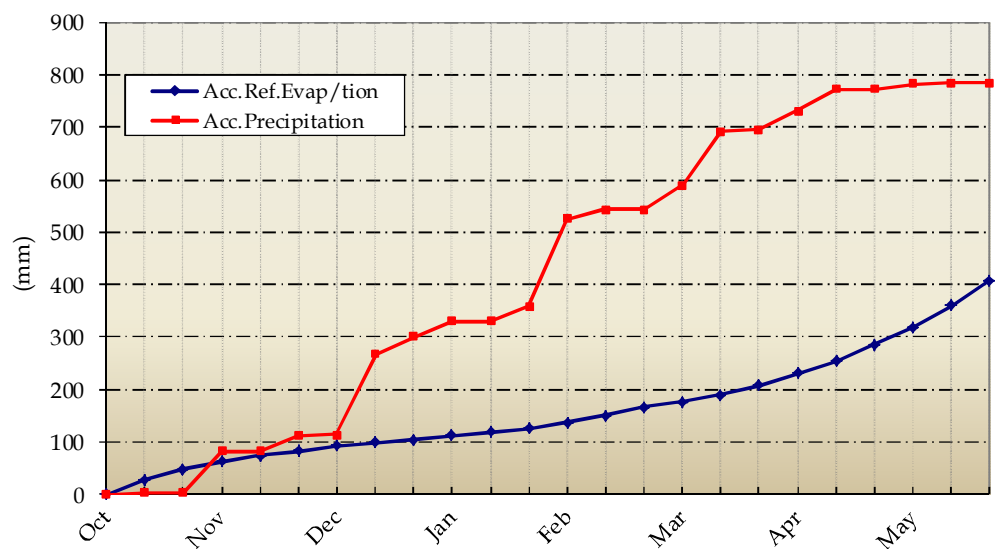
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	25.2	25.0	24.4	24.4	24.4	26.2	31.0	31.2	25.6	26.0	22.7	22.5
	Min	11.2	13.4	12.2	10.6	14.2	15.8	13.4	15.2	16.0	16.6	13.9	12.1	11.3
Relative Humidity	Max	76	76	88	93	80	89	89	89	79	91	85	91	-
	Min	39	25	34	43	51	51	41	32	31	55	40	45	-
Soil Temperature at 10 cm	06 UTC	19.4	18.8	19.2	19.2	20.8	21.6	21.4	22.2	22.8	23.3	20.9	19.0	17.0
	12 UTC	23.6	25.0	24.8	26.2	26.8	27.0	27.6	27.6	28.8	27.8	26.5	23.5	21.2
Sunshine Duration		10.6	12.5	13.0	11.9	12.4	8.5	11.0	12.3	13.1	9.5	11.5	10.4	8.2
Precipitation													3.0	10.7
Evaporation		6.9	11.1	4.4	6.3	5.1	6.8	4.4	9.7	10.3	3.7	68.7	59.8	57.1
Growing Degrees	5	11.8	14.3	13.6	12.5	14.3	15.1	14.8	18.1	18.6	16.1	149.2	123.9	118.8
	10	6.8	9.3	8.6	7.5	9.3	10.1	9.8	13.1	13.6	11.1	99.2	73.9	68.8

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.0	41.6	40.4
Precipitation - Reference Evapotranspiration	-49.0	-38.6	-29.7
Number of Rainy Days	0.0	1.0	2.3
Number of Dry Days	12.0	0.0	-

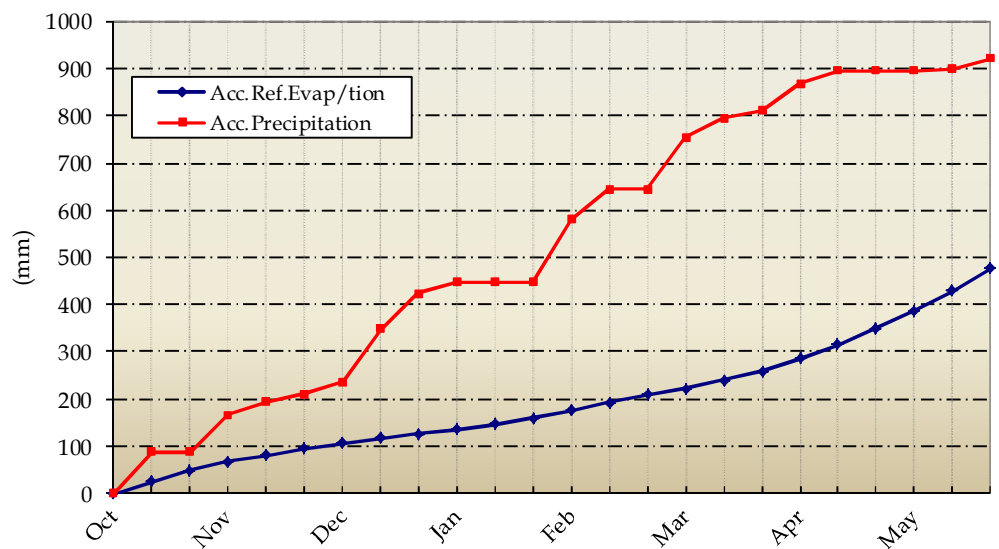
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.2	24.6	24.8	25.2	24.7	27.6	27.0	27.0	23.9	24.2	25.4	22.2	23.9
	Min	13.1	13.4	11.8	12.8	13.1	13.1	11.4	14.8	16.6	14.7	13.5	13.0	12.7
Relative Humidity	Max	89	79	81	89	89	91	85	88	86	90	87	86	-
	Min	35	26	30	42	46	20	31	33	53	56	37	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	18.5	19.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	22.9	23.6
Sunshine Duration		12.7	12.2	12.5	12.5	11.4	11.8	13.1	10.6	7.7	11.3	11.6	8.2	9.4
Precipitation		19.3								2.7	0.3	22.3	4.1	8.3
Evaporation		16.8	2.0	1.9	10.1	5.0	7.0	6.0	0.0	7.4	3.2	59.4	-	54.3
Growing Degrees	5	14.2	14.0	13.3	14.0	13.9	15.4	14.2	15.9	15.3	14.5	144.5	126.1	133.2
	10	9.2	9.0	8.3	9.0	8.9	10.4	9.2	10.9	10.3	9.5	94.5	76.1	83.2

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.4	39.2	39.7
Precipitation - Reference Evapotranspiration	-25.1	-35.1	-31.4
Number of Rainy Days	3.0	2.0	1.6
Number of Dry Days	33.0	11.0	-

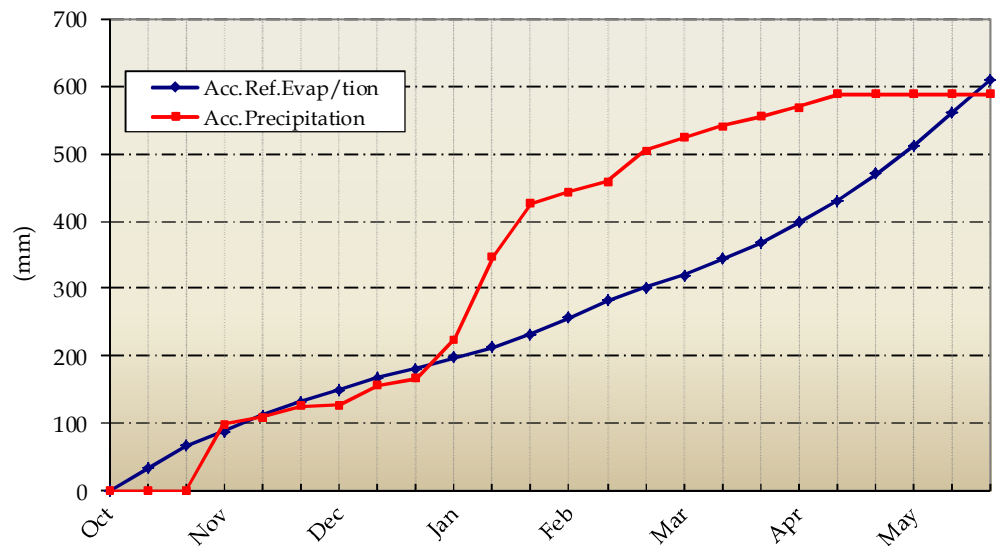
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	20.6	21.4	24.6	24.4	25.2	23.2	23.8	27.0	23.0	23.5	24.0	23.1
	Min	17.6	17.2	16.0	12.6	16.4	16.0	15.8	14.0	15.6	16.2	15.7	15.4	15.3
Relative Humidity	Max	74	89	85	81	87	90	92	86	84	83	85	84	-
	Min	45	62	49	31	48	43	59	32	24	49	44	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.7	5.6	11.7	12.9	12.4	11.5	11.5	12.3	12.7	12.8	11.5	9.8	9.7
Precipitation			0.0	0.0								0.0	0.0	3.5
Evaporation		4.7	3.1	7.4	3.2	4.9	3.7	3.3	2.2	9.4	3.3	45.2	44.0	61.2
Growing Degrees	5	14.6	13.9	13.7	13.6	15.4	15.6	14.5	13.9	16.3	14.6	146.1	147.1	142.0
	10	9.6	8.9	8.7	8.6	10.4	10.6	9.5	8.9	11.3	9.6	96.1	97.1	92.0

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.7	44.9	-
Precipitation - Reference Evapotranspiration	-49.7	-44.9	3.5
Number of Rainy Days	0.0	0.0	0.9
Number of Dry Days	40.0	15.0	-

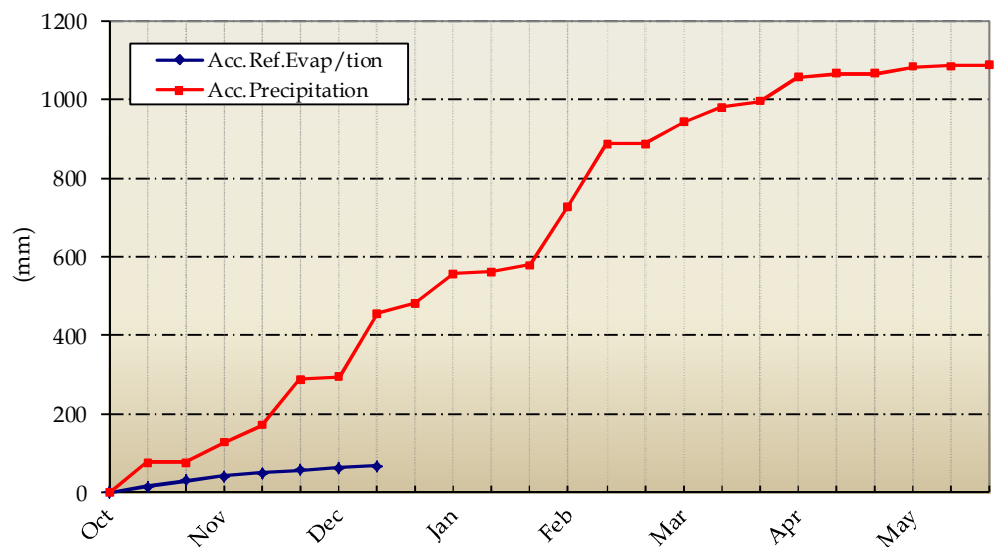
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	22.7	25.8	24.1	27.3	29.2	31.1	29.9	21.8	25.6	25.9	19.5	22.8
	Min	11.4	13.2	5.9	6.3	6.7	11.0	8.7	11.7	14.7	9.3	9.9	9.8	10.0
Relative Humidity	Max	81	86	97	100	100	98	96	85	100	100	94	93	-
	Min	28	23	25	29	24	17	16	24	26	26	24	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.5
Sunshine Duration		5.5	10.8	12.1	12.1	11.9	10.3	12.5	10.1	1.6	7.7	9.5	5.4	7.2
Precipitation		0.1								1.2	0.5	1.8	49.8	19.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.9
Growing Degrees	5	11.4	13.0	10.9	10.2	12.0	15.1	14.9	15.8	13.3	12.5	128.9	96.7	113.3
	10	6.4	8.0	5.9	5.2	7.0	10.1	9.9	10.8	8.3	7.5	78.9	46.7	63.4

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	27.6	34.9
Precipitation - Reference Evapotranspiration	-	22.2	-15.3
Number of Rainy Days	3.0	6.0	3.4
Number of Dry Days	0.0	2.0	-

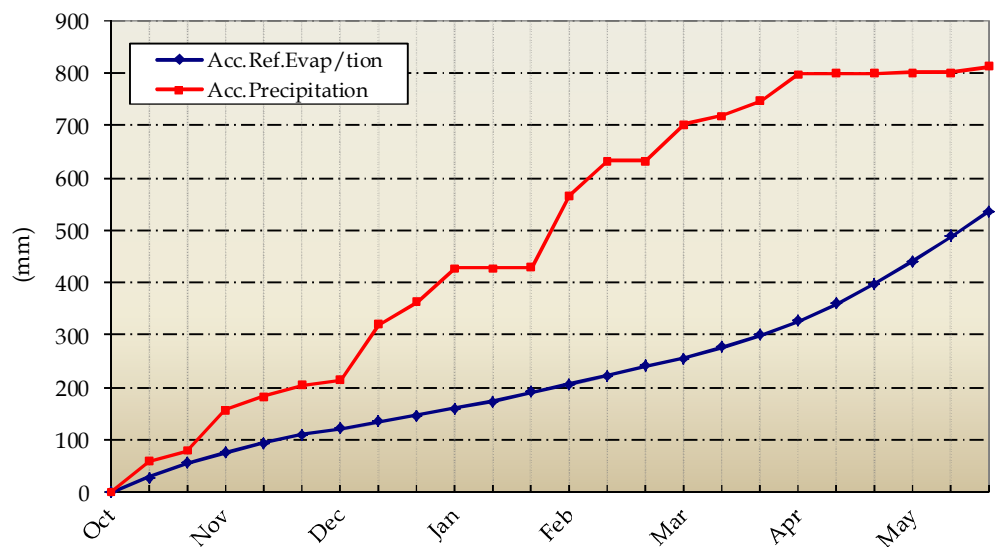
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.1	23.8	27.6	27.7	24.1	25.4	26.3	28.6	25.9	26.4	26.2	23.7	24.3
	Min	10.6	12.2	13.8	11.8	10.2	14.4	9.8	12.2	14.2	13.9	12.3	11.2	12.1
Relative Humidity	Max	92	66	96	89	95	90	91	92	93	94	90	93	-
	Min	31	28	22	25	42	80	26	33	37	41	36	41	-
Soil Temperature at 10 cm	06 UTC	18.4	18.0	17.4	18.2	18.6	19.6	19.2	19.4	20.0	19.8	18.9	18.9	18.7
	12 UTC	20.2	19.4	19.6	20.4	20.6	21.4	21.0	21.4	21.8	21.6	20.7	20.8	22.5
Sunshine Duration		7.3	8.3	12.6	12.4	12.3	10.4	12.9	11.7	7.9	10.8	10.7	8.8	9.1
Precipitation		7.4								0.0	2.7	10.1	1.4	9.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	57.5
Growing Degrees	5	13.4	13.0	15.7	14.8	12.2	14.9	13.1	15.4	15.1	15.2	142.5	124.8	132.1
	10	8.4	8.0	10.7	9.8	7.2	9.9	8.1	10.4	10.1	10.2	92.5	74.8	82.1

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.7	41.8	39.6
Precipitation - Reference Evapotranspiration	-38.6	-40.4	-30.1
Number of Rainy Days	2.0	2.0	1.8
Number of Dry Days	15.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

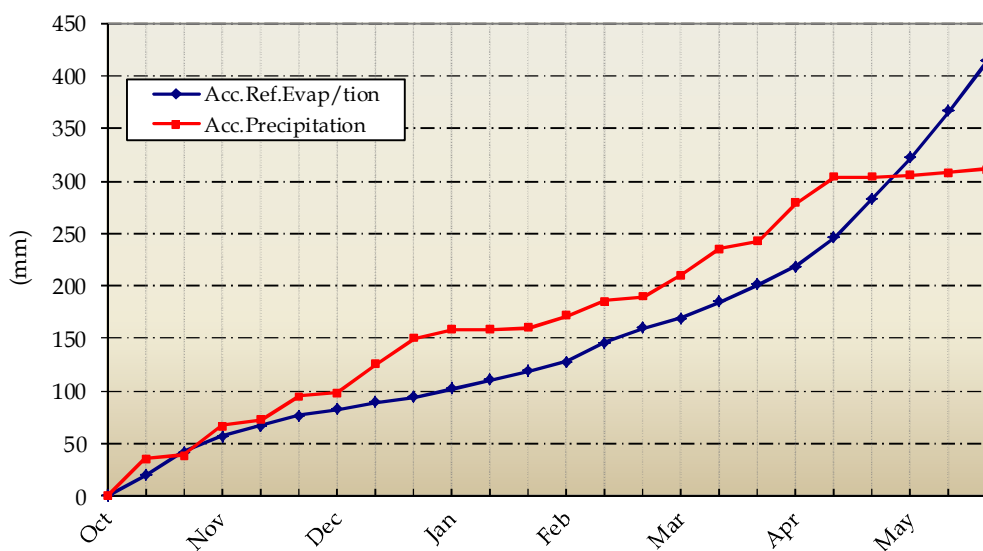


Larisa

2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	24.2	26.8	30.8	32.5	30.0	29.0	29.5	26.3	29.8	27.9	26.9	25.6
	Min	14.4	15.0	8.1	16.8	12.4	14.4	15.2	12.9	16.0	11.6	13.7	10.0	11.0
Relative Humidity	Max	91	76	90	99	100	100	100	100	89	100	94	88	-
	Min	38	23	84	17	17	33	37	24	42	20	34	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	19.2	20.2	20.8	21.4	-	22.0	21.4	20.8	-	18.1
	12 UTC	-	-	-	19.8	20.4	-	21.6	21.8	22.0	21.6	21.2	-	20.4
Sunshine Duration		1.7	10.6	0.0	11.5	11.7	9.7	12.0	10.8	6.3	11.9	8.6	7.7	8.3
Precipitation		1.8	0.4								1.0	3.2	2.0	11.8
Evaporation		5.9	6.9	6.7	7.7	8.3	8.3	8.2	10.0	8.8	7.0	77.8	75.4	55.6
Growing Degrees	5	12.3	14.6	12.5	18.8	17.5	17.2	17.1	16.2	16.2	15.7	158.0	134.6	133.1
	10	7.3	9.6	7.5	13.8	12.5	12.2	12.1	11.2	11.2	10.7	108.0	84.6	83.1

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.6	45.6	42.0
Precipitation - Reference Evapotranspiration	-44.4	-43.6	-30.2
Number of Rainy Days	3.0	2.0	2.4
Number of Dry Days	0.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

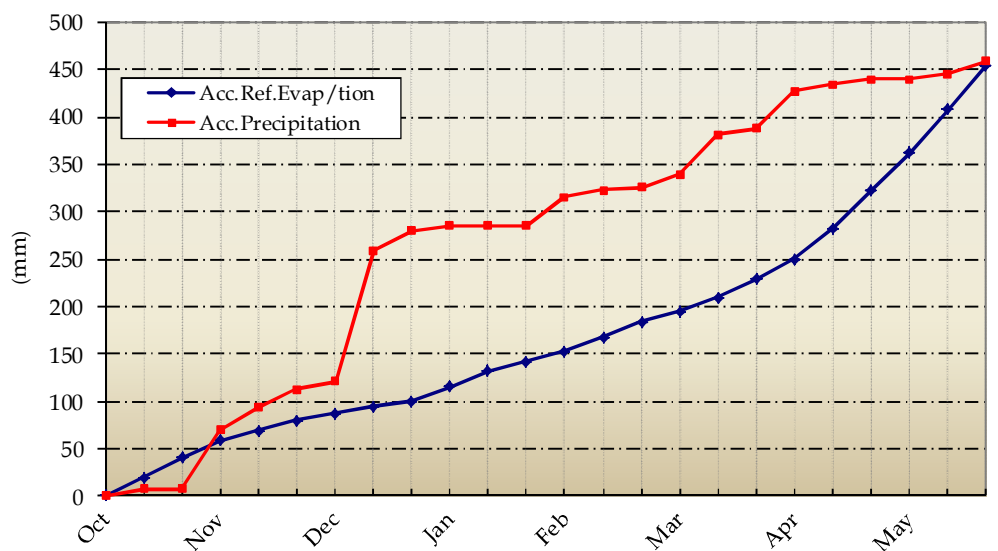


Mikra

2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	24.2	25.2	27.0	27.6	26.4	27.0	28.4	27.6	28.8	26.3	24.6	24.3
	Min	13.6	12.4	10.1	11.8	13.0	15.6	15.2	13.4	15.6	16.8	13.8	11.7	12.4
Relative Humidity	Max	89	89	85	80	87	91	93	92	83	87	88	83	-
	Min	46	32	28	30	35	51	48	33	36	27	37	32	-
Soil Temperature at 10 cm	06 UTC	19.2	16.8	17.2	18.2	20.0	21.6	22.0	22.2	23.0	23.6	20.4	19.8	18.8
	12 UTC	19.4	20.6	22.9	23.6	25.0	25.8	26.5	27.2	27.2	25.2	24.3	25.4	23.5
Sunshine Duration		0.8	9.5	9.9	12.5	12.7	10.1	11.3	12.5	11.7	7.1	9.8	9.2	8.1
Precipitation		13.8	0.0								0.0	13.8	0.0	11.8
Evaporation		1.2	4.9	7.5	5.6	5.7	6.7	6.5	7.2	5.2	7.0	57.5	63.0	56.4
Growing Degrees	5	12.0	13.3	12.7	14.4	15.3	16.0	16.1	15.9	16.6	17.8	150.1	131.6	133.6
	10	7.0	8.3	7.7	9.4	10.3	11.0	11.1	10.9	11.6	12.8	100.1	81.6	83.6

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.9	46.0	40.9
Precipitation - Reference Evapotranspiration	-33.1	-46.0	-29.1
Number of Rainy Days	1.0	0.0	3.0
Number of Dry Days	0.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

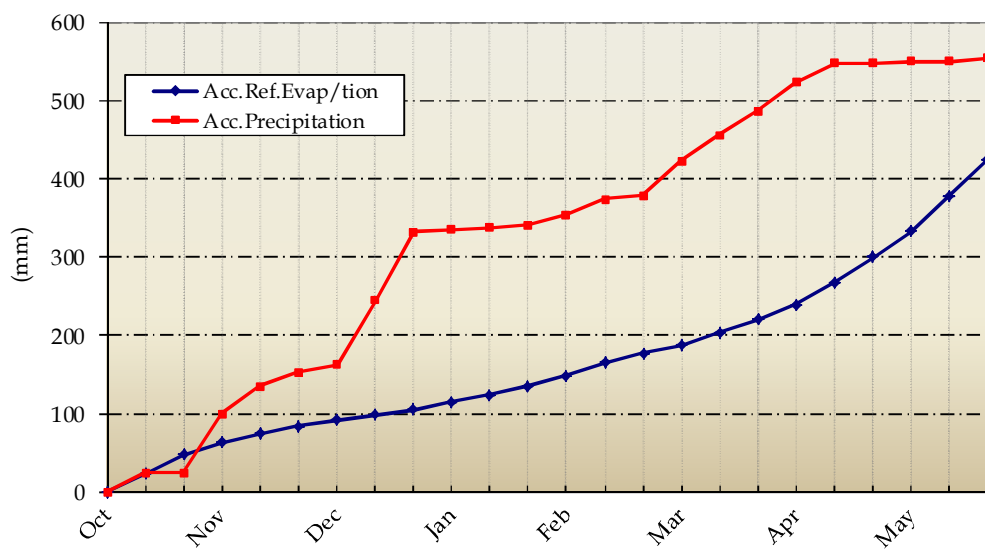


Tanagra

2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.7	21.4	23.5	28.0	28.8	26.6	28.0	28.2	26.6	25.8	25.7	24.9	24.8
	Min	12.4	11.2	11.4	8.1	14.1	11.6	11.6	10.6	10.7	15.0	11.7	12.0	11.2
Relative Humidity	Max	96	78	79	86	95	100	97	97	83	79	89	79	-
	Min	48	34	27	21	26	47	32	22	24	35	32	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.6	9.1	12.5	12.1	11.8	10.8	11.7	13.0	12.6	9.4	10.5	-	-
Precipitation		4.6										4.6	0.4	8.2
Evaporation		2.0	6.0	5.5	11.0	7.0	5.5	10.5	7.6	8.4	8.5	72.0	-	-
Growing Degrees	5	11.1	11.3	12.5	13.1	16.5	14.1	14.8	14.4	13.7	15.4	136.7	-	-
	10	6.1	6.3	7.5	8.1	11.5	9.1	9.8	9.4	8.7	10.4	86.7	-	-

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.9	-	
Precipitation - Reference Evapotranspiration	-41.3	-	
Number of Rainy Days	1.0	2.2	
Number of Dry Days	10.0	-	-

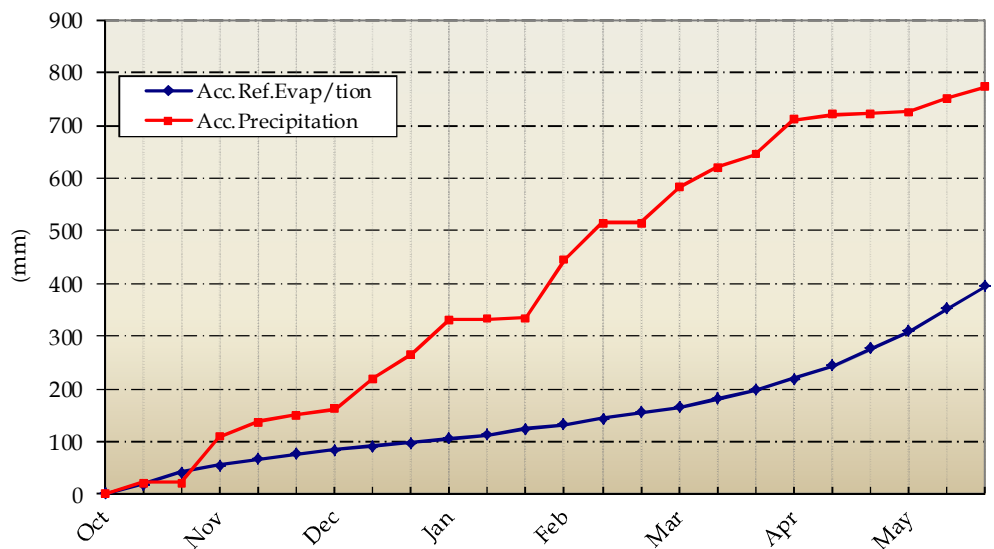
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.9	18.0	22.5	24.1	26.8	27.2	27.5	24.7	23.4	24.9	23.9	20.9	22.9
	Min	7.8	9.2	11.4	5.7	7.5	9.6	7.9	7.5	9.6	9.3	8.6	7.4	8.3
Relative Humidity	Max	100	85	97	100	99	100	100	98	100	100	98	92	-
	Min	47	40	27	26	28	22	22	22	28	29	29	39	-
Soil Temperature at 10 cm	06 UTC	15.8	14.0	13.6	15.2	16.6	18.8	19.4	19.8	20.4	18.4	17.2	15.9	16.7
	12 UTC	18.6	16.6	20.0	22.6	24.6	-	-	25.2	26.8	24.2	22.3	21.0	19.4
Sunshine Duration		3.4	6.6	12.5	12.3	13.0	12.1	12.8	12.6	6.4	10.5	10.2	8.1	8.4
Precipitation		14.9	3.5							3.1		21.5	9.6	15.5
Evaporation		1.2	5.5	5.3	7.0	6.0	6.6	6.9	7.9	2.7	4.1	53.2	44.3	41.0
Growing Degrees	5	8.9	8.6	12.0	9.9	12.2	13.4	12.7	11.1	11.5	12.1	112.3	91.4	106.0
	10	3.9	3.6	7.0	4.9	7.2	8.4	7.7	6.1	6.5	7.1	62.3	41.4	56.0

2nd 10-day period (11-20/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.2	36.2	39.8
Precipitation - Reference Evapotranspiration	-21.7	-26.6	-24.3
Number of Rainy Days	3.0	3.0	2.8
Number of Dry Days	1.0	5.0	-

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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