



AGROMETEOROLOGICAL BULLETIN

May 2016
1st 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



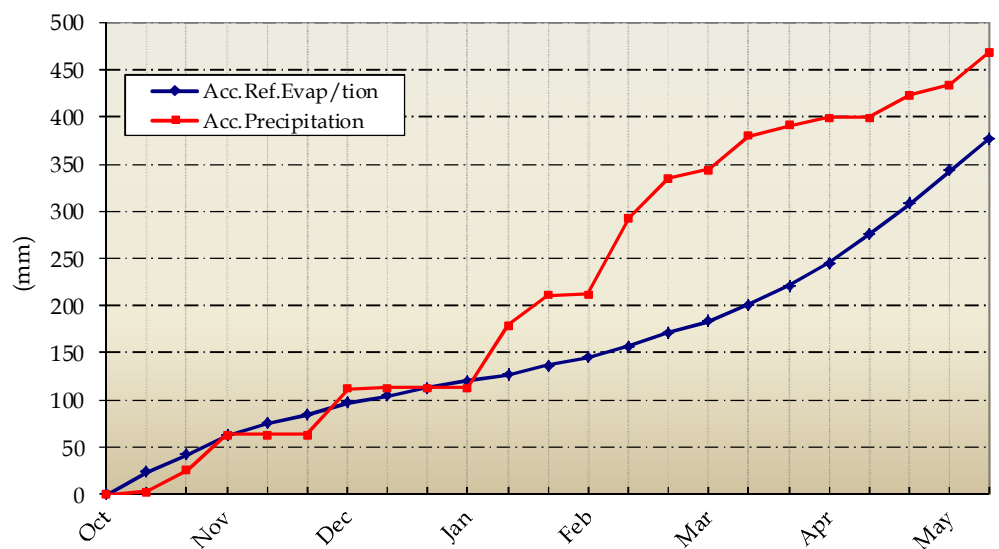
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	20.0	19.6	17.6	15.4	21.0	20.4	22.6	23.8	22.6	20.5	24.3	20.6
	Min	10.0	12.0	11.0	9.2	9.4	12.4	7.0	8.6	9.8	11.0	10.0	12.9	9.7
Relative Humidity	Max	85	91	95	93	92	89	94	95	95	91	92	90	-
	Min	36	51	50	58	74	47	55	39	45	45	50	45	-
Soil Temperature at 10 cm	06 UTC	16.4	17.2	15.6	14.6	14.2	14.3	13.0	14.6	17.0	18.0	15.5	18.9	15.1
	12 UTC	22.5	21.0	19.6	19.4	15.8	16.8	20.0	22.2	23.4	24.0	20.5	25.0	19.2
Sunshine Duration		11.7	3.5	8.9	4.6	0.4	2.7	11.9	12.6	11.5	10.2	7.8	10.2	8.0
Precipitation			0.8	20.3	7.7	2.4	4.0	0.3				35.5	2.2	9.3
Evaporation		8.2	3.0	3.6	2.9	1.5	3.3	5.3	6.5	3.9	5.5	43.7	58.0	55.4
Growing Degrees	5	10.8	11.0	10.3	8.4	7.4	11.7	8.7	10.6	11.8	11.8	102.5	135.9	101.5
	10	5.8	6.0	5.3	3.4	2.4	6.7	3.7	5.6	6.8	6.8	52.5	85.9	51.6

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.8	41.1	37.0
Precipitation - Reference Evapotranspiration	1.7	-38.9	-27.7
Number of Rainy Days	6.0	1.0	2.2
Number of Dry Days	5.0	11.0	-

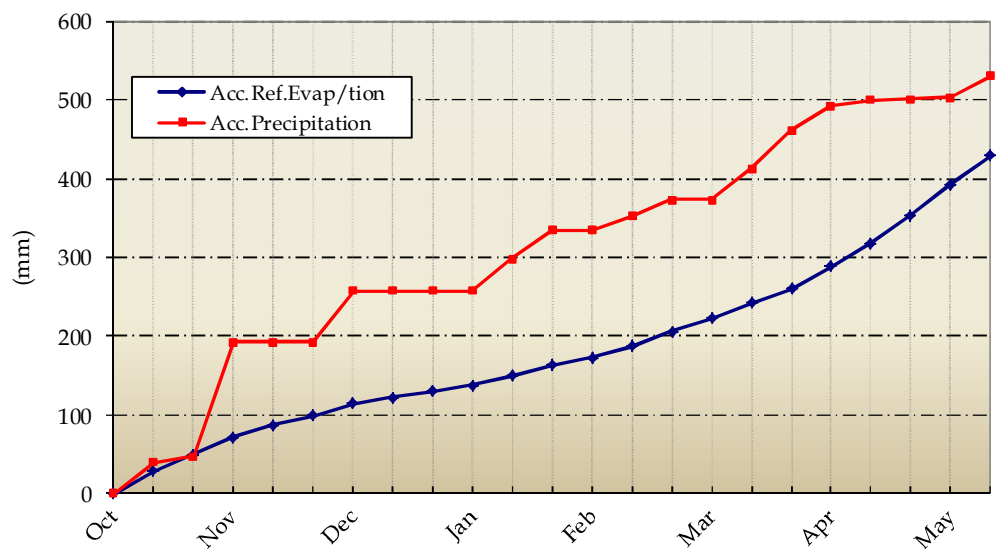
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	24.8	17.3	19.0	20.9	21.7	23.0	23.8	24.7	24.0	22.2	25.6	22.2
	Min	11.0	12.8	11.1	11.6	11.8	11.2	10.8	10.0	10.2	10.8	11.1	13.3	11.6
Relative Humidity	Max	91	90	90	90	87	88	85	88	88	89	89	89	-
	Min	48	32	59	55	42	34	42	31	32	20	40	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.1
Sunshine Duration		4.2	8.6	8.2	5.3	10.7	10.5	12.6	4.9	11.7	12.3	8.9	10.8	8.8
Precipitation				14.9	12.4	0.1						27.4		8.6
Evaporation		2.0	1.2	12.1	2.1	2.0	3.0	4.0	2.0	2.0	9.1	39.5	61.0	49.3
Growing Degrees	5	11.8	13.8	9.2	10.3	11.4	11.5	11.9	11.9	12.5	12.4	116.6	144.6	119.0
	10	6.8	8.8	4.2	5.3	6.4	6.5	6.9	6.9	7.5	7.4	66.6	94.6	69.0

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.7	43.0	35.8
Precipitation - Reference Evapotranspiration	-9.3	-43.0	-27.2
Number of Rainy Days	3.0	0.0	2.0
Number of Dry Days	6.0	33.0	-

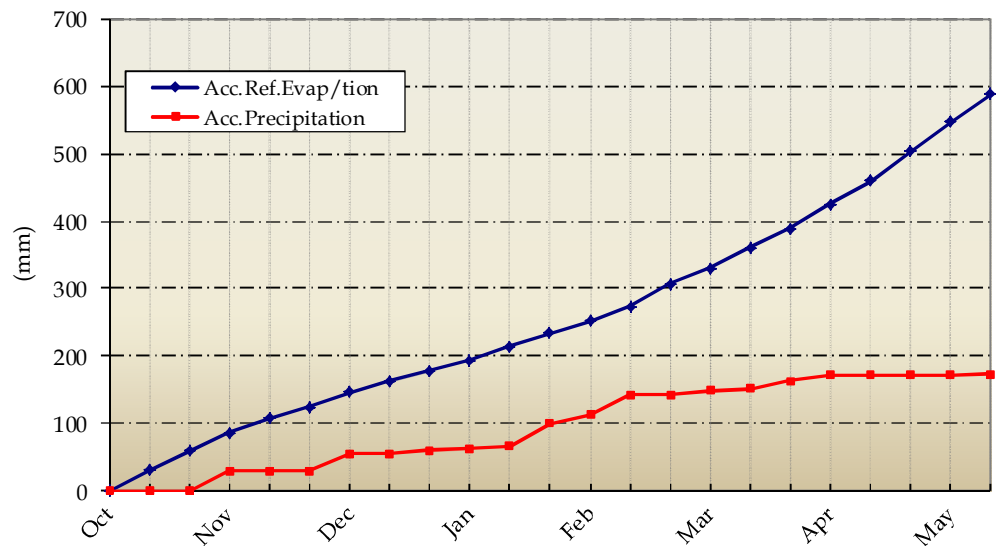
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	25.6	22.2	21.2	19.0	20.4	20.2	24.4	21.2	22.2	21.8	23.5	22.0
	Min	14.2	14.4	17.4	15.6	13.6	12.0	13.6	13.8	14.8	14.8	14.4	15.9	14.0
Relative Humidity	Max	89	79	83	86	81	78	84	81	93	95	85	80	-
	Min	57	45	49	51	63	51	57	36	65	57	53	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.0	1.0	8.9	10.7	7.7	12.5	11.5	6.7	9.7	12.0	9.0	12.1	9.1
Precipitation				0.0		1.6						1.6		5.2
Evaporation		3.4	5.7	3.5	6.9	2.2	5.0	4.7	1.7	1.5	6.7	41.3	51.2	59.2
Growing Degrees	5	12.8	15.0	14.8	13.4	11.3	11.2	11.9	14.1	13.0	13.5	131.0	147.1	130.2
	10	7.8	10.0	9.8	8.4	6.3	6.2	6.9	9.1	8.0	8.5	81.0	97.1	80.2

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.1	48.8	-
Precipitation - Reference Evapotranspiration	-39.5	-48.8	5.2
Number of Rainy Days	1.0	0.0	1.4
Number of Dry Days	23.0	30.0	-

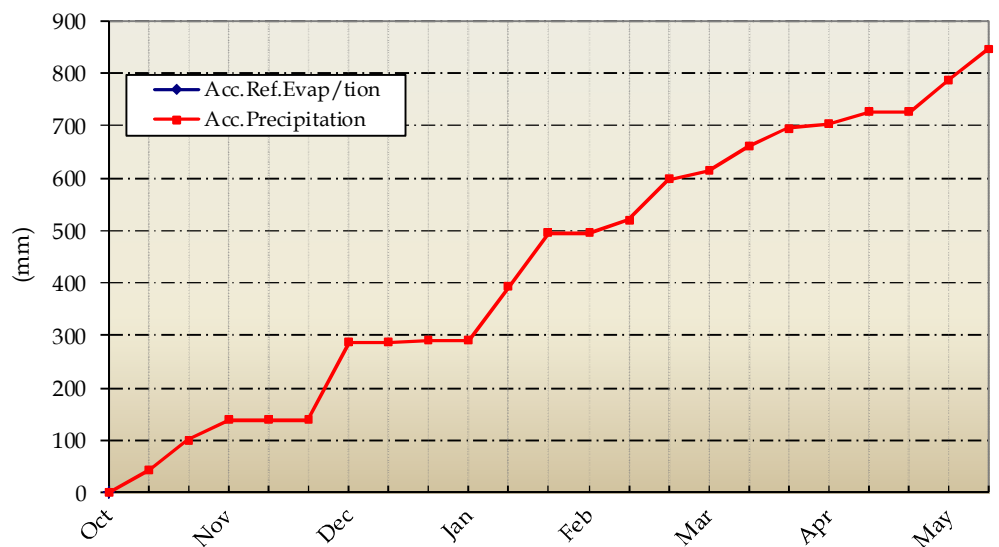
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.9	20.9	14.1	15.9	20.5	21.4	20.0	20.8	22.4	23.9	20.1	27.3	21.2
	Min	7.0	9.5	6.6	5.9	4.9	5.2	9.0	5.0	9.1	6.6	6.9	10.1	8.6
Relative Humidity	Max	100	100	100	100	90	100	100	100	94	100	98	98	-
	Min	26	52	55	57	40	29	45	35	50	41	43	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		4.7	1.7	1.6	4.0	10.1	7.3	7.3	5.2	8.1	10.7	6.1	8.7	6.7
Precipitation		1.8	21.3	12.8	2.9		10.9	9.8	0.0			59.5	3.1	22.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.0
Growing Degrees	5	9.0	10.2	5.4	5.9	7.7	8.3	9.5	7.9	10.8	10.3	84.8	137.1	99.4
	10	4.0	5.2	0.4	0.9	2.7	3.3	4.5	2.9	5.8	5.3	34.8	87.1	49.6

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.0
Precipitation - Reference Evapotranspiration	-	-	-10.8
Number of Rainy Days	6.0	2.0	3.9
Number of Dry Days	1.0	8.0	-

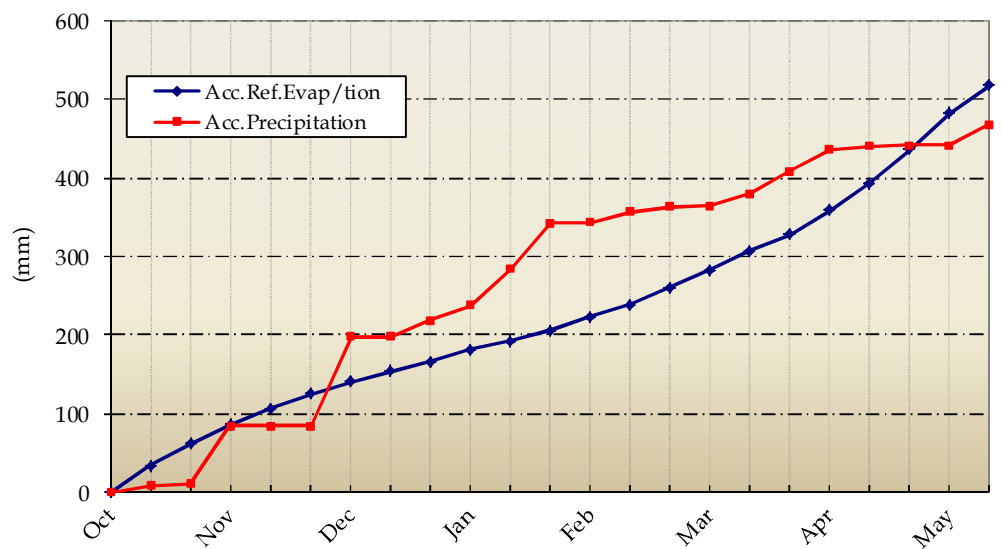
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	24.2	18.4	17.8	19.0	22.0	22.3	23.4	24.2	23.5	22.0	26.2	22.8
	Min	9.4	11.2	10.5	10.5	9.6	8.4	8.1	11.5	10.2	11.0	10.0	12.6	11.0
Relative Humidity	Max	92	89	88	93	94	93	91	90	87	89	91	91	-
	Min	40	48	54	65	46	37	37	35	34	46	44	36	-
Soil Temperature at 10 cm	06 UTC	17.2	18.2	17.4	17.0	16.4	16.6	16.4	17.4	17.0	17.4	17.1	18.7	16.9
	12 UTC	18.0	16.4	18.0	15.6	16.0	17.6	18.0	17.8	18.4	19.2	17.5	20.5	20.6
Sunshine Duration		6.0	4.3	2.7	2.4	6.9	7.0	11.3	3.5	11.9	12.4	6.8	11.3	8.6
Precipitation			0.9	9.9	6.0	9.1	0.4		0.0			26.3	0.0	9.1
Evaporation		4.2	1.2	2.5	2.5	2.2	7.9	1.7	6.4	5.8	5.8	40.2	-	52.2
Growing Degrees	5	12.4	12.7	9.5	9.2	9.3	10.2	10.2	12.5	12.2	12.3	110.3	144.1	119.0
	10	7.4	7.7	4.5	4.2	4.3	5.2	5.2	7.5	7.2	7.3	60.3	94.1	69.0

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.4	48.1	36.5
Precipitation - Reference Evapotranspiration	-9.1	-48.1	-27.4
Number of Rainy Days	5.0	0.0	2.3
Number of Dry Days	20.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

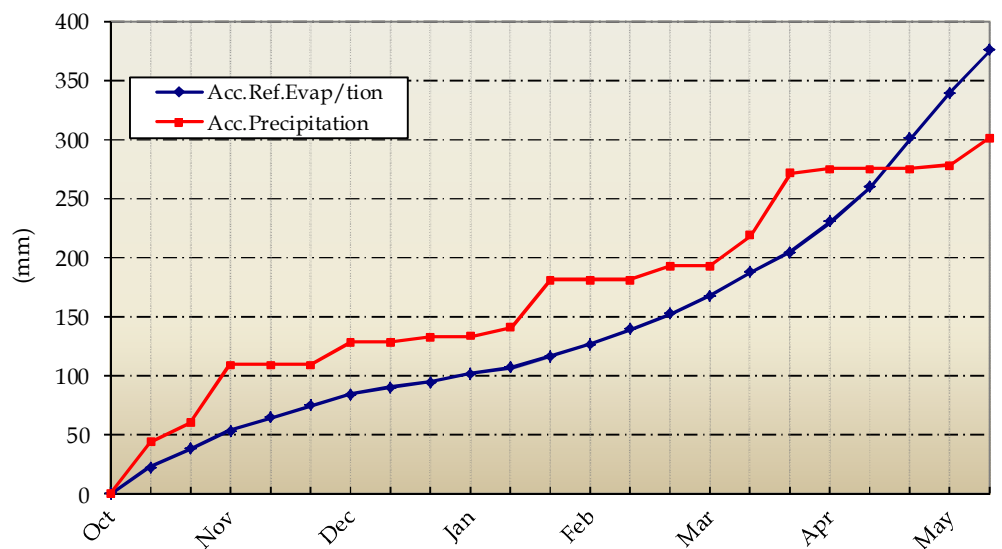


Larisa

1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.2	19.2	19.9	20.2	23.3	22.8	24.4	23.4	26.0	26.6	22.9	27.9	23.7
	Min	7.2	12.0	7.9	7.4	10.8	10.8	6.2	7.8	8.6	9.6	8.8	12.5	9.3
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	98	-
	Min	38	60	34	37	29	29	31	46	32	28	36	29	-
Soil Temperature at 10 cm	06 UTC	18.0	18.0	17.2	17.0	17.8	17.0	17.2	14.8	18.2	18.2	17.3	-	16.2
	12 UTC	18.2	17.5	17.2	17.2	17.4	18.0	18.0	17.8	18.6	18.4	17.8	-	18.4
Sunshine Duration		5.7	0.0	8.5	3.3	9.4	7.9	7.9	10.0	10.0	11.2	7.4	8.8	8.0
Precipitation			5.6	1.4		4.4	1.6	10.2				23.2	2.1	10.2
Evaporation		5.0	8.7	4.9	3.6	5.4	1.3	14.9	2.8	7.2	6.9	60.7	70.8	50.6
Growing Degrees	5	10.2	10.6	8.9	8.8	12.1	11.8	10.3	10.6	12.3	13.1	108.7	151.7	115.4
	10	5.2	5.6	3.9	3.8	7.1	6.8	5.3	5.6	7.3	8.1	58.7	101.7	65.4

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.2	45.0	38.0
Precipitation - Reference Evapotranspiration	-13.0	-42.9	-27.8
Number of Rainy Days	5.0	2.0	2.5
Number of Dry Days	2.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

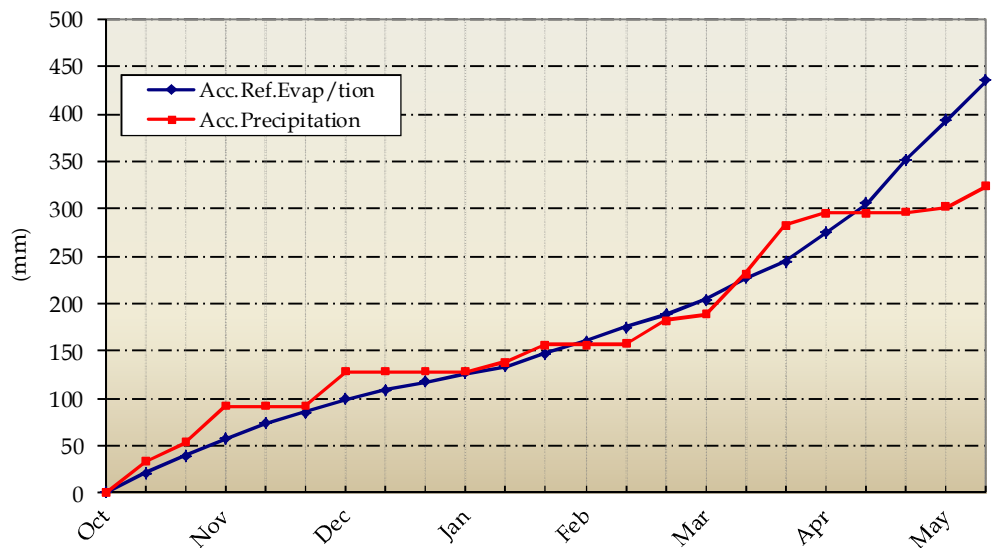


Mikra

1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.0	19.0	19.3	19.6	21.9	22.8	22.9	22.6	24.0	24.6	21.9	26.0	22.7
	Min	9.6	13.6	12.2	14.0	12.0	12.2	8.8	12.6	10.9	10.0	11.6	13.8	10.7
Relative Humidity	Max	88	95	95	67	72	80	84	82	82	95	84	84	-
	Min	41	55	37	48	38	32	35	49	26	31	39	33	-
Soil Temperature at 10 cm	06 UTC	16.8	17.0	16.4	16.0	16.2	17.4	17.2	18.6	18.8	18.8	17.3	19.6	16.9
	12 UTC	22.0	20.2	20.4	19.4	20.6	22.4	22.4	23.8	23.8	24.4	21.9	23.6	21.5
Sunshine Duration		7.9	3.8	7.0	7.3	8.3	11.9	12.1	10.9	9.4	11.7	9.0	9.2	7.9
Precipitation			4.1	18.0		0.0						22.1	5.6	12.9
Evaporation		3.9	5.4	1.7	5.6	5.4	4.0	9.1	3.3	6.2	10.8	55.4	54.2	53.6
Growing Degrees	5	10.8	11.3	10.8	11.8	12.0	12.5	10.9	12.6	12.5	12.3	117.3	149.0	116.7
	10	5.8	6.3	5.8	6.8	7.0	7.5	5.9	7.6	7.5	7.3	67.3	99.0	66.7

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.8	46.0	38.0
Precipitation - Reference Evapotranspiration	-20.7	-40.4	-25.1
Number of Rainy Days	2.0	4.0	2.6
Number of Dry Days	2.0	11.0	-

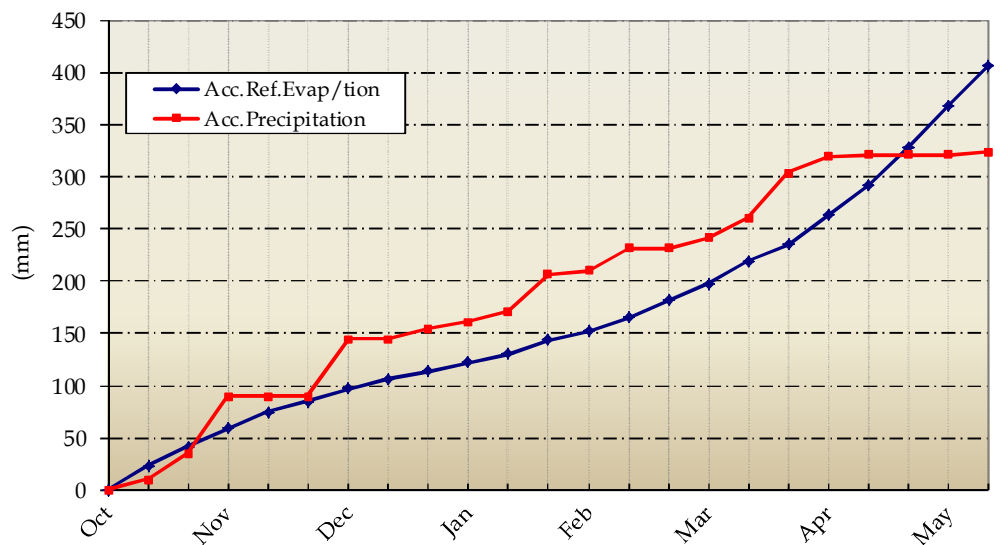
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.2	21.1	20.6	19.6	18.6	20.8	23.8	23.1	24.3	25.6	22.1	26.6	22.9
	Min	8.0	10.3	8.4	8.7	11.0	10.6	8.6	8.0	7.8	10.1	9.2	12.5	9.6
Relative Humidity	Max	83	85	76	97	97	82	78	83	96	80	86	89	-
	Min	32	42	31	37	40	33	24	32	30	29	33	31	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.9	6.5	8.4	3.5	5.3	10.2	11.5	10.7	11.1	12.8	8.8	11.3	
Precipitation			0.1		0.3	1.9						2.3		8.5
Evaporation		5.5	8.8	5.5	2.7	3.3	4.8	7.3	7.8	6.2	6.4	58.3	60.9	
Growing Degrees	5	10.6	10.7	9.5	9.2	9.8	10.7	11.2	10.6	11.1	12.9	106.1	145.1	
	10	5.6	5.7	4.5	4.2	4.8	5.7	6.2	5.6	6.1	7.9	56.1	95.1	

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.6	45.5	
Precipitation - Reference Evapotranspiration	-35.3	-45.5	8.5
Number of Rainy Days	3.0	0.0	2.7
Number of Dry Days	21.0	10.0	-

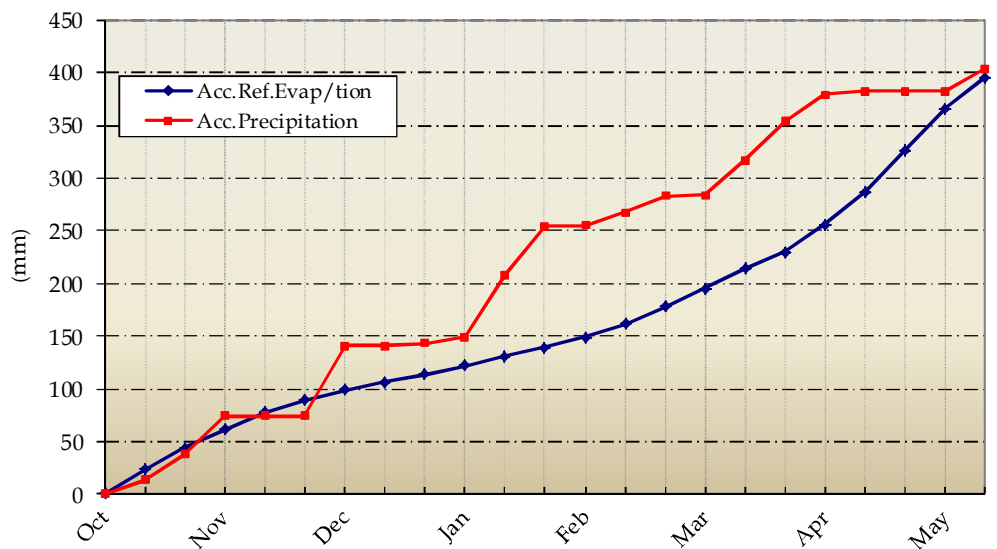
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	18.3	12.1	15.7	16.2	18.0	20.4	19.1	22.4	24.5	18.9	26.2	21.0
	Min	5.4	7.6	6.7	4.5	6.1	3.4	2.1	5.6	4.1	5.7	5.1	8.2	7.0
Relative Humidity	Max	99	100	100	100	100	100	100	100	100	100	100	99	-
	Min	27	43	58	53	50	50	-	34	30	31	42	30	-
Soil Temperature at 10 cm	06 UTC	18.0	18.4	15.2	13.2	13.4	12.6	-	-	13.8	15.0	15.0	19.9	14.6
	12 UTC	-	-	-	16.2	17.8	17.8	-	-	21.0	22.6	19.1	27.0	17.1
Sunshine Duration		6.9	3.8	1.9	5.1	5.4	6.7	8.2	6.9	7.9	8.3	6.1	10.0	8.1
Precipitation			4.2	11.5	1.7	2.1	0.1	1.6	0.2			21.4	27.6	10.2
Evaporation		4.2	3.6	1.6	1.5	1.7	-	-	-	4.1	4.7	-	-	39.1
Growing Degrees	5	8.8	8.0	4.4	5.1	6.2	5.7	6.3	7.4	8.3	10.1	70.1	122.2	89.7
	10	3.8	3.0	0.0	0.1	1.2	0.7	1.3	2.4	3.3	5.1	20.7	72.2	40.9

1st 10-day period (1-10/05/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.4	42.4	36.7
Precipitation - Reference Evapotranspiration	-8.0	-14.8	-26.5
Number of Rainy Days	7.0	2.0	2.8
Number of Dry Days	21.0	15.0	-

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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