



# AGROMETEOROLOGICAL BULLETIN

*April 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



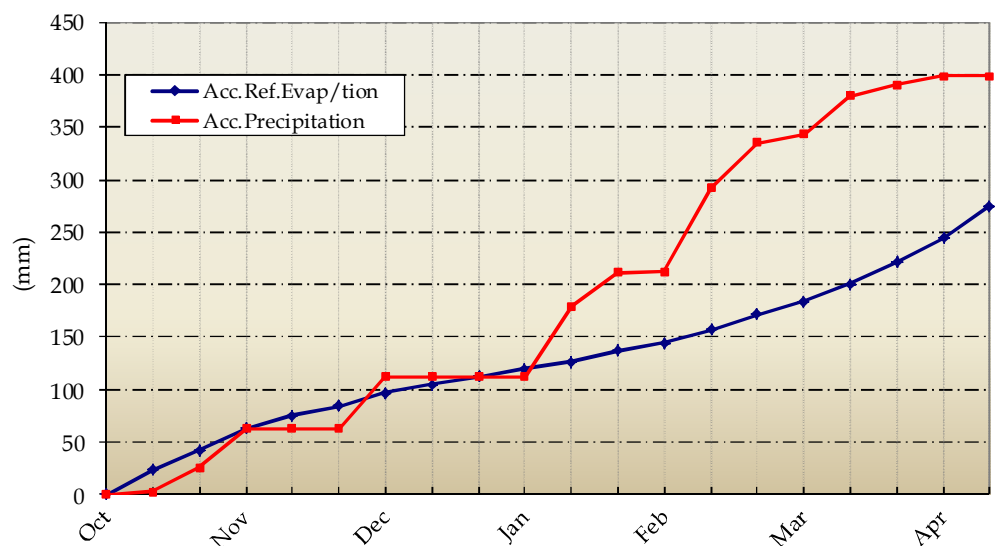
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	17.8	18.8	20.6	23.2	24.4	27.2	26.2	20.4	20.2	21.8	14.1	16.7
	Min	7.8	8.8	7.6	4.2	5.0	6.6	7.0	13.0	13.0	10.2	8.3	5.7	6.5
Relative Humidity	Max	94	95	86	90	94	91	83	91	93	96	91	83	-
	Min	69	64	30	41	36	34	26	25	72	64	46	42	-
Soil Temperature at 10 cm	06 UTC	12.4	13.6	11.8	11.6	12.6	13.6	14.2	16.8	17.0	16.4	14.0	9.6	10.4
	12 UTC	18.6	18.0	17.4	18.0	19.6	20.0	21.6	20.2	20.8	21.8	19.6	13.8	13.5
Sunshine Duration		9.0	3.0	11.1	10.7	10.9	9.6	11.0	6.2	7.7	9.5	8.9	5.6	6.1
Precipitation													41.8	11.5
Evaporation		3.1	4.1	8.7	1.6	2.2	8.1	2.8	3.6	4.4	5.6	44.2	33.6	34.0
Growing Degrees	5	8.5	8.3	8.2	7.4	9.1	10.5	12.1	14.6	11.7	10.2	100.6	48.7	66.0
	10	3.5	3.3	3.2	2.4	4.1	5.5	7.1	9.6	6.7	5.2	50.6	9.5	21.0

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.7	24.7	24.4
Precipitation - Reference Evapotranspiration	-30.7	17.1	-12.9
Number of Rainy Days	0.0	4.0	2.6
Number of Dry Days	15.0	1.0	-

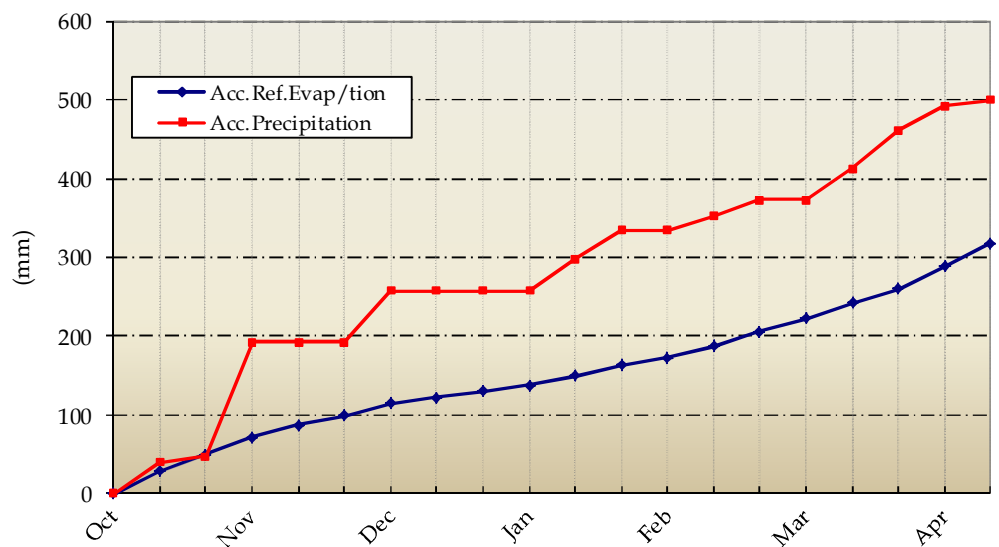
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	20.0	23.0	23.4	23.2	25.5	25.8	23.7	20.2	18.1	22.4	16.9	18.6
	Min	9.2	9.4	10.3	8.4	9.9	9.6	9.7	13.9	13.6	10.3	10.4	8.2	8.6
Relative Humidity	Max	90	91	91	91	92	91	91	89	90	90	91	87	-
	Min	51	66	46	41	47	43	23	52	62	53	48	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	14.0	12.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	17.6	15.7
Sunshine Duration		7.8	3.1	8.8	10.7	10.7	9.8	2.5	9.3	5.5	4.5	7.3	8.4	6.9
Precipitation											7.5	7.5	27.2	14.7
Evaporation		1.0	9.0	1.0	6.6	5.4	2.1	2.7	2.2	4.4	2.1	36.5	47.2	34.4
Growing Degrees	5	10.0	9.7	11.7	10.9	11.6	12.6	12.8	13.8	11.9	9.2	114.0	75.6	86.1
	10	5.0	4.7	6.7	5.9	6.6	7.6	7.8	8.8	6.9	4.2	64.0	26.1	36.7

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.6	29.7	26.7
Precipitation - Reference Evapotranspiration	-22.1	-2.5	-12.0
Number of Rainy Days	1.0	3.0	2.8
Number of Dry Days	11.0	4.0	-

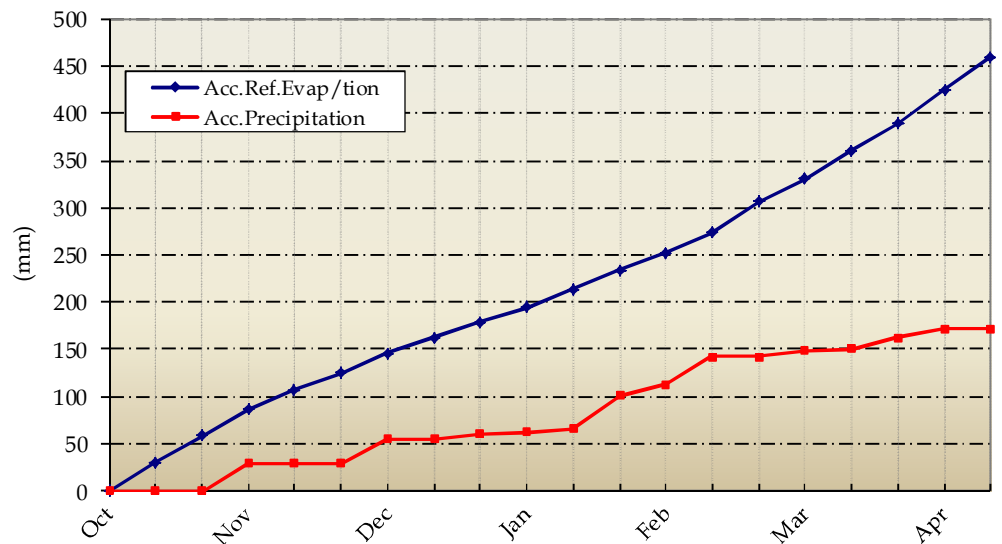
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	19.0	18.6	19.4	22.0	22.4	23.6	29.2	21.8	23.4	21.9	17.6	19.4
	Min	9.4	10.2	11.2	12.0	11.2	11.0	12.6	20.4	15.0	14.4	12.7	11.0	11.6
Relative Humidity	Max	90	97	95	95	90	84	84	87	89	74	88	82	-
	Min	54	50	71	71	44	47	12	16	61	42	47	51	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.0	8.8	5.1	8.2	10.0	10.0	4.8	6.8	8.9	10.5	8.3	5.6	7.0
Precipitation													19.5	8.6
Evaporation		4.9	2.8	1.0	0.9	2.0	5.3	3.4	2.1	3.9	3.7	30.0	36.2	45.2
Growing Degrees	5	9.6	9.6	9.9	10.7	11.6	11.7	13.1	19.8	13.4	13.9	123.3	93.1	105.0
	10	4.6	4.6	4.9	5.7	6.6	6.7	8.1	14.8	8.4	8.9	73.3	43.1	55.0

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.4	32.4	-
Precipitation - Reference Evapotranspiration	-34.4	-12.9	8.6
Number of Rainy Days	0.0	4.0	1.8
Number of Dry Days	13.0	5.0	-

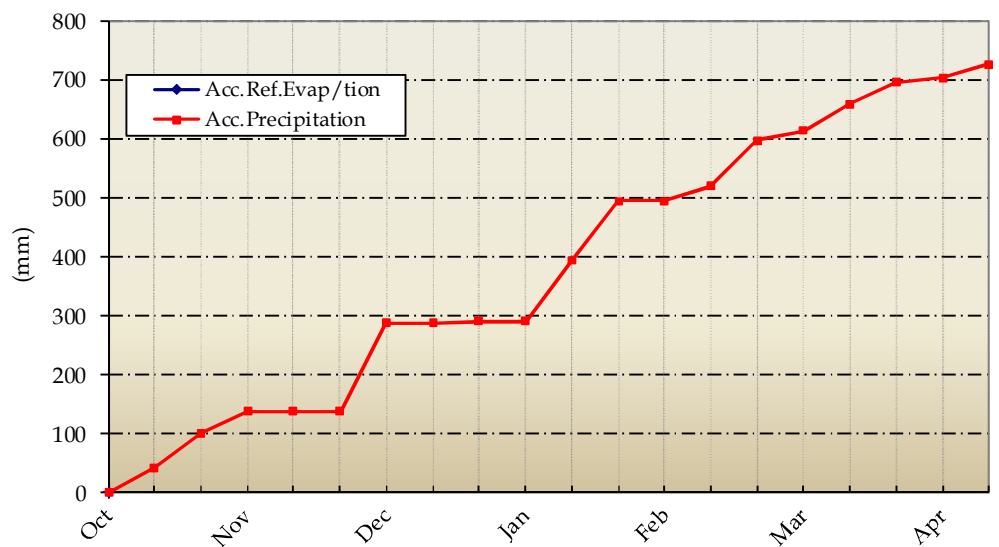
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2016)		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	22.2	25.4	23.6	25.5	25.6	25.5	27.0	15.2	13.0	22.6	13.9	16.8
	Min	3.4	7.0	4.9	5.0	8.8	5.9	5.9	10.8	12.1	8.4	7.2	3.4	5.4
Relative Humidity	Max	100	100	100	100	100	93	100	99	99	100	99	94	-
	Min	52	46	21	38	30	27	24	39	88	73	44	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.3
Sunshine Duration		6.7	3.1	7.6	9.1	9.2	9.5	6.8	3.4	0.0	0.0	5.5	6.4	5.1
Precipitation				0.1					2.7	8.9	12.6	24.3	8.8	25.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	24.5
Growing Degrees	5	8.3	9.6	10.2	9.3	12.2	10.8	10.7	13.9	8.7	5.7	99.2	36.8	60.9
	10	3.3	4.6	5.2	4.3	7.2	5.8	5.7	8.9	3.7	0.7	49.2	2.9	17.6

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	22.5
Precipitation - Reference Evapotranspiration	-	-	3.2
Number of Rainy Days	4.0	3.0	4.1
Number of Dry Days	3.0	4.0	-

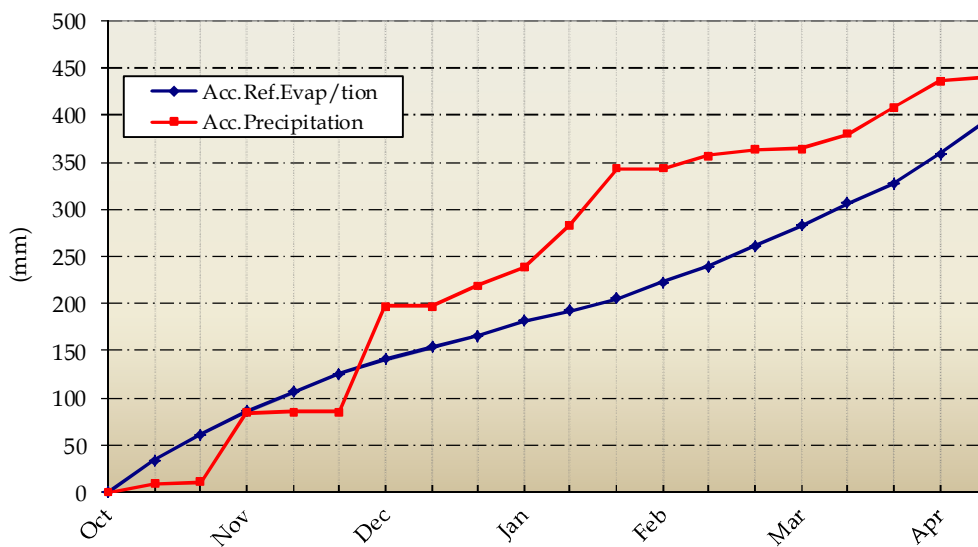
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	19.8	22.6	23.8	22.6	24.6	28.7	23.2	22.2	20.9	22.8	18.8	19.3
	Min	7.7	8.5	7.7	8.0	9.4	10.4	9.3	14.8	11.6	11.1	9.8	7.5	8.0
Relative Humidity	Max	94	94	91	93	93	92	90	84	92	92	92	88	-
	Min	67	45	39	40	43	31	18	42	53	42	42	40	-
Soil Temperature at 10 cm	06 UTC	14.0	15.0	14.6	14.6	15.2	15.4	15.4	16.8	17.2	17.0	15.5	13.9	12.9
	12 UTC	15.6	15.8	15.6	16.0	16.4	17.0	17.8	18.4	18.8	14.0	16.5	14.7	15.8
Sunshine Duration		8.7	6.1	7.0	10.4	10.7	10.4	4.3	10.7	7.0	8.9	8.4	8.0	6.7
Precipitation											4.6	4.6	2.9	16.3
Evaporation		2.9	6.2	1.8	4.2	1.5	5.0	2.7	3.4	3.9	2.2	33.8	-	37.8
Growing Degrees	5	8.6	9.2	10.2	10.9	11.0	12.5	14.0	14.0	11.9	11.0	113.2	81.3	86.4
	10	3.6	4.2	5.2	5.9	6.0	7.5	9.0	9.0	6.9	6.0	63.2	31.6	36.8

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.2	32.4	28.3
Precipitation - Reference Evapotranspiration	-29.6	-29.5	-12.0
Number of Rainy Days	1.0	3.0	2.8
Number of Dry Days	13.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

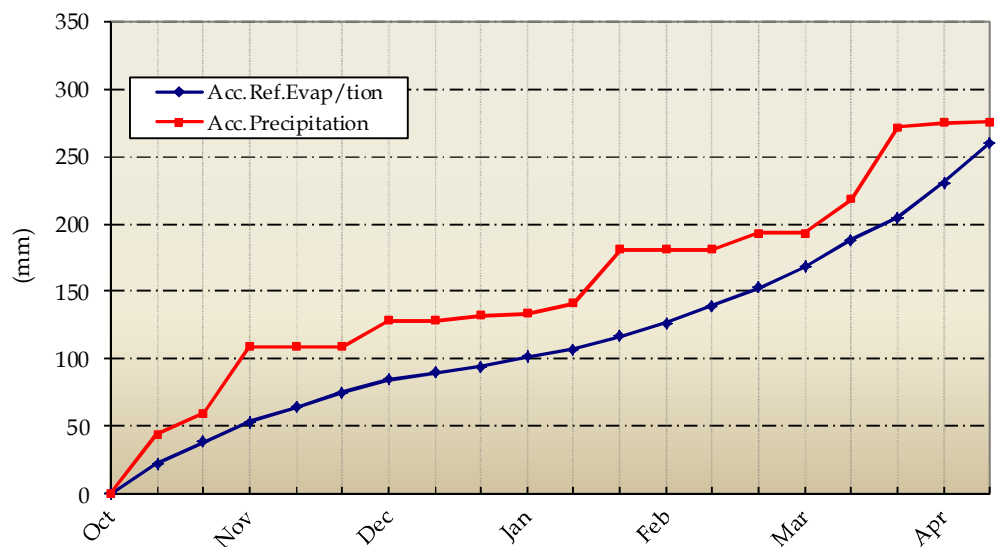




1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.3	21.7	20.6	24.3	25.2	27.0	25.4	23.4	21.8	18.6	23.2	16.4	19.4
	Min	6.0	7.6	10.0	6.0	6.6	7.0	6.6	10.6	10.0	7.5	7.8	5.1	5.6
Relative Humidity	Max	100	100	100	100	100	100	100	99	96	100	100	92	-
	Min	46	62	53	39	47	36	32	37	48	54	45	37	-
Soil Temperature at 10 cm	06 UTC	13.4	13.6	14.2	14.2	14.4	14.8	15.2	15.2	15.6	15.6	14.6	-	11.7
	12 UTC	15.0	14.0	14.0	14.2	14.4	15.0	15.0	15.2	15.4	15.2	14.7	-	13.1
Sunshine Duration		10.2	2.2	3.9	10.1	10.3	11.2	8.1	6.2	3.6	2.9	6.9	7.0	6.6
Precipitation											0.4	0.4	24.4	12.2
Evaporation		6.3	2.3	1.5	5.6	6.7	3.7	4.1	3.3	2.1	2.2	37.8	39.1	32.3
Growing Degrees	5	10.2	9.7	10.3	10.2	10.9	12.0	11.0	12.0	10.9	8.1	105.1	57.8	75.0
	10	5.2	4.7	5.3	5.2	5.9	7.0	6.0	7.0	5.9	3.1	55.1	11.7	27.5

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.2	27.3	26.4
Precipitation - Reference Evapotranspiration	-28.8	-2.9	-14.2
Number of Rainy Days	1.0	4.0	2.6
Number of Dry Days	15.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

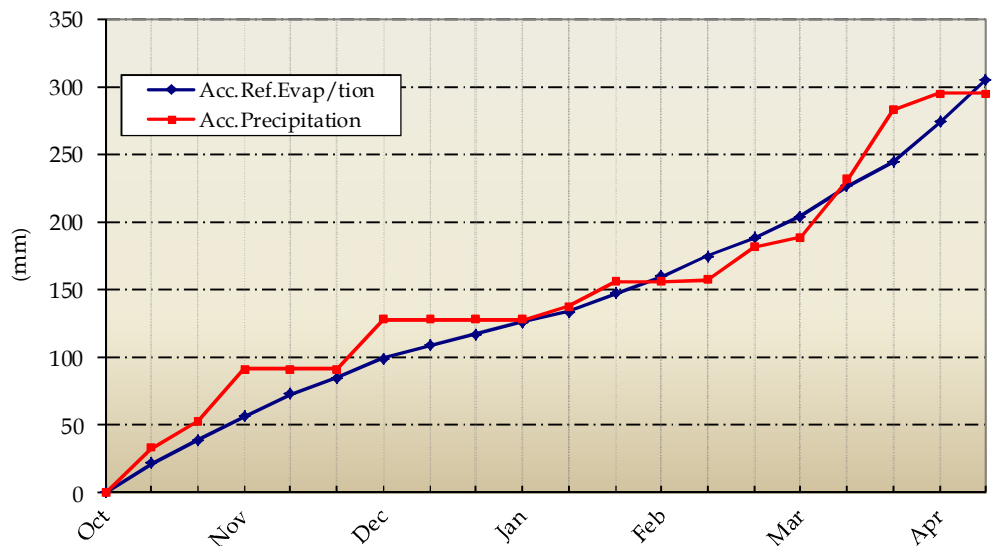


Mikra

1st 10-day period (1-10/04/2016)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	16.8	19.0	21.2	23.2	25.6	25.6	29.5	21.2	22.4	22.4	15.0	18.4
	Min	9.6	12.0	14.4	8.0	7.8	9.4	9.0	12.7	12.0	8.8	10.4	6.2	7.0
Relative Humidity	Max	96	95	92	94	94	93	76	89	92	90	91	79	-
	Min	69	83	57	50	42	29	35	41	51	37	49	36	-
Soil Temperature at 10 cm	06 UTC	14.4	15.2	15.4	14.2	14.4	14.1	13.4	16.6	16.8	15.4	15.0	10.5	11.4
	12 UTC	16.2	16.2	17.2	16.4	19.2	19.2	19.0	17.4	20.2	20.0	18.1	13.8	15.3
Sunshine Duration		6.0	0.0	5.3	10.3	10.4	10.6	8.6	6.9	4.1	7.4	7.0	7.1	6.4
Precipitation													7.9	12.7
Evaporation		3.3	0.9	3.4	3.5	5.4	3.9	4.3	4.8	3.0	6.5	39.0	42.0	39.9
Growing Degrees	5	9.7	9.4	11.7	9.6	10.5	12.5	12.3	16.1	11.6	10.6	114.0	56.2	77.2
	10	4.7	4.4	6.7	4.6	5.5	7.5	7.3	11.1	6.6	5.6	64.0	11.3	28.9

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.0	32.4	26.8
Precipitation - Reference Evapotranspiration	-31.0	-24.5	-14.1
Number of Rainy Days	0.0	3.0	2.5
Number of Dry Days	14.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



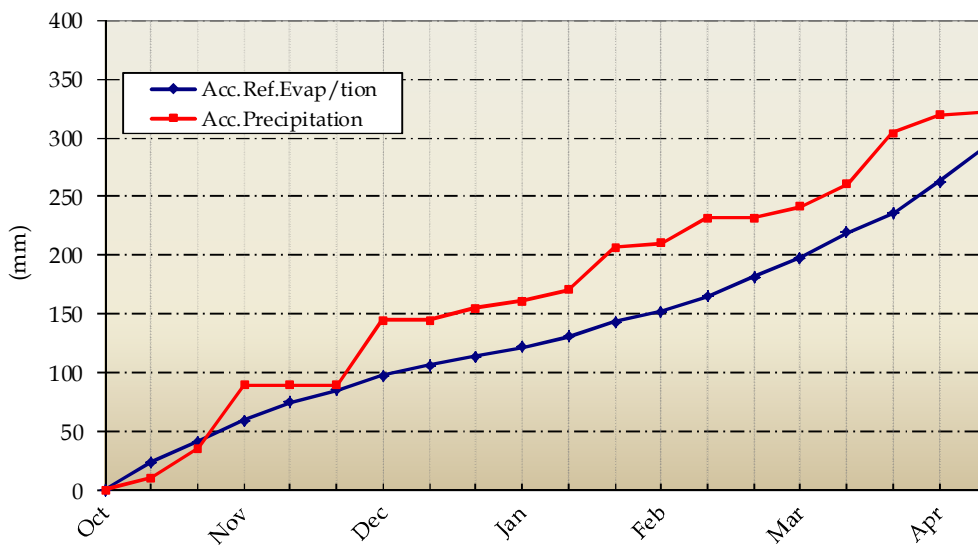


Tanagra

1st 10-day period (1-10/04/2016)		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	20.4	19.8	22.4	23.9	26.1	24.2	25.6	23.6	20.9	22.9	16.0	18.6
	Min	8.3	7.2	10.3	7.0	8.2	4.0	6.8	10.5	13.8	10.8	8.7	7.6	6.4
Relative Humidity	Max	97	100	99	99	97	94	94	85	75	81	92	88	-
	Min	51	54	48	43	39	28	33	32	38	38	40	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		9.5	2.9	5.6	9.6	9.7	10.1	5.7	7.6	7.6	7.3	7.6	7.2	-
Precipitation											1.9	1.9	23.9	8.6
Evaporation		2.6	2.4	1.8	2.7	3.5	3.7	5.5	4.3	5.0	4.5	36.0	40.0	-
Growing Degrees	5	10.2	8.8	10.1	9.7	11.1	10.1	10.5	13.1	13.7	10.9	107.9	67.6	-
	10	5.2	3.8	5.1	4.7	6.1	5.1	5.5	8.1	8.7	5.9	57.9	21.7	-

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.6	28.5	-
Precipitation - Reference Evapotranspiration	-27.7	-4.6	-
Number of Rainy Days	1.0	4.0	-
Number of Dry Days	13.0	5.0	-

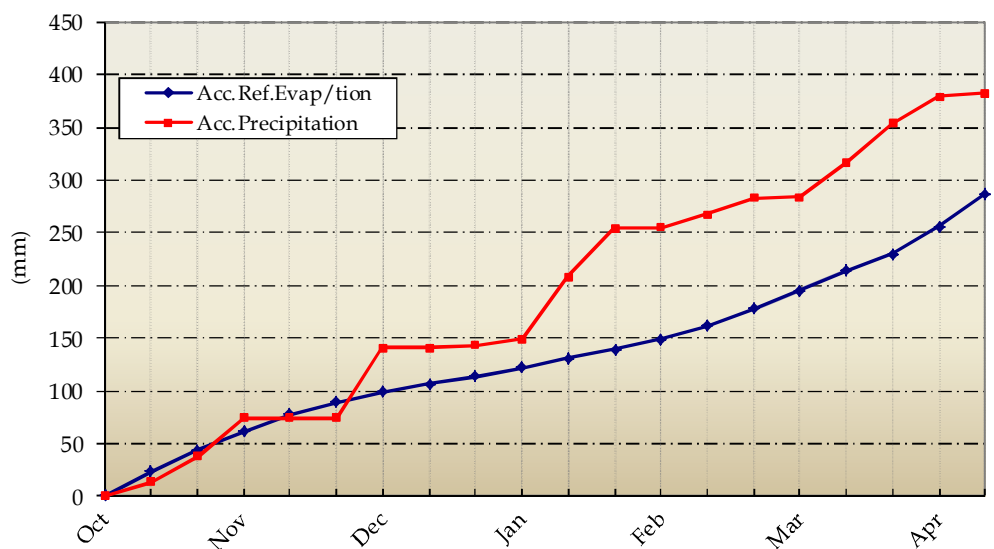
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2016)		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	21.5	20.1	23.0	23.7	26.2	21.8	21.6	18.0	15.6	21.4	13.6	17.1
	Min	3.2	4.9	6.5	4.5	4.8	4.6	3.9	7.7	11.1	6.7	5.8	3.4	4.3
Relative Humidity	Max	100	100	100	100	100	100	99	84	89	95	97	95	-
	Min	12	32	36	29	23	13	21	29	50	43	29	43	-
Soil Temperature at 10 cm	06 UTC	10.6	11.4	12.2	11.8	12.6	12.8	13.0	13.8	15.4	14.4	12.8	9.4	9.5
	12 UTC	16.2	-	-	17.8	18.4	19.4	18.6	19.6	-	-	18.3	12.7	11.3
Sunshine Duration		9.2	5.8	9.5	10.2	8.5	9.4	6.2	10.8	7.6	6.6	8.4	7.3	6.6
Precipitation											3.8	3.8	10.8	17.3
Evaporation		3.3	2.7	4.0	4.9	2.6	6.1	4.8	3.8	3.3	3.8	39.3	28.7	26.4
Growing Degrees	5	7.7	8.2	8.3	8.8	9.3	10.4	7.9	9.7	9.6	6.2	85.8	37.3	57.4
	10	2.7	3.2	3.3	3.8	4.3	5.4	2.9	4.7	4.6	1.2	35.8	4.3	16.1

1st 10-day period (1-10/04/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.8	25.2	26.6
Precipitation - Reference Evapotranspiration	-28.0	-14.4	-9.3
Number of Rainy Days	1.0	4.0	3.3
Number of Dry Days	12.0	4.0	-

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<sub>n</sub> 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

© HELLENIC NATIONAL METEOROLOGICAL SERVICE

Reproduction is prohibited without written permission

El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



ΕΘΝΙΚΗ  
ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens