



AGROMETEOROLOGICAL BULLETIN

*January 2017
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



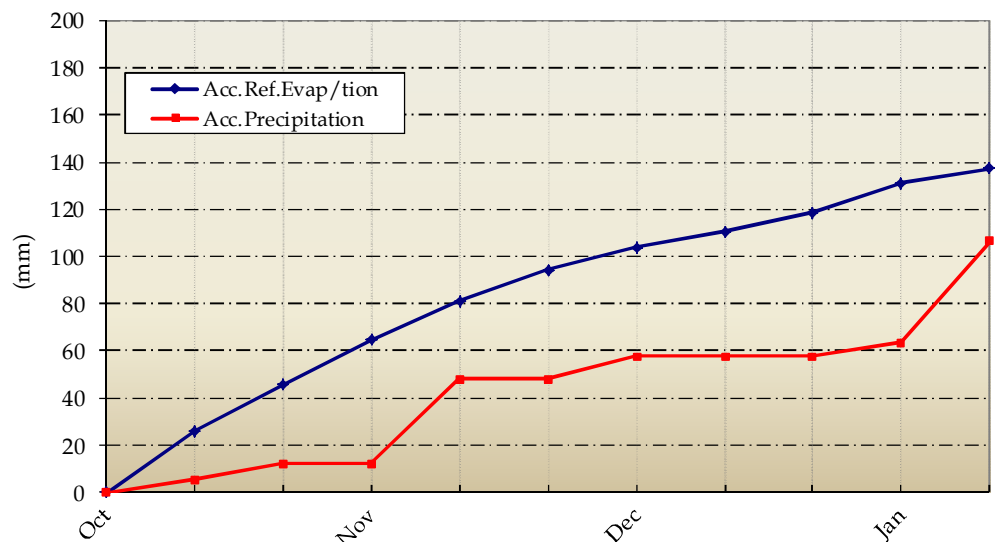
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.2	7.2	11.2	11.6	10.2	10.0	-2.4	-3.2	-4.0	2.0	5.0	8.9	8.9
	Min	-0.4	-3.6	-5.4	-4.6	4.0	-2.4	-6.0	-10.4	-8.4	-6.0	-4.3	0.5	1.5
Relative Humidity	Max	93	96	95	94	94	95	90	94	80	89	92	91	-
	Min	61	70	68	69	71	65	73	55	58	50	64	65	-
Soil Temperature at 10 cm	06 UTC	2.4	2.0	3.0	2.0	6.2	9.6	1.6	0.6	0.6	0.0	2.8	4.2	5.6
	12 UTC	5.6	4.4	4.0	2.8	8.3	7.0	1.6	1.0	0.4	0.4	3.6	5.3	6.6
Sunshine Duration		6.5	2.8	6.6	4.0	1.9	0.0	0.0	4.3	0.7	0.0	2.7	2.9	2.7
Precipitation		1.0			0.0	7.9	34.0	0.1		0.0	0.0	43.0	66.5	17.5
Evaporation		0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	6.6	8.4
Growing Degrees	5	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	2.1	22.1	17.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.8

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.0	6.7	7.7
Precipitation - Reference Evapotranspiration	37.0	59.8	9.8
Number of Rainy Days	4.0	7.0	2.8
Number of Dry Days	0.0	22.0	-

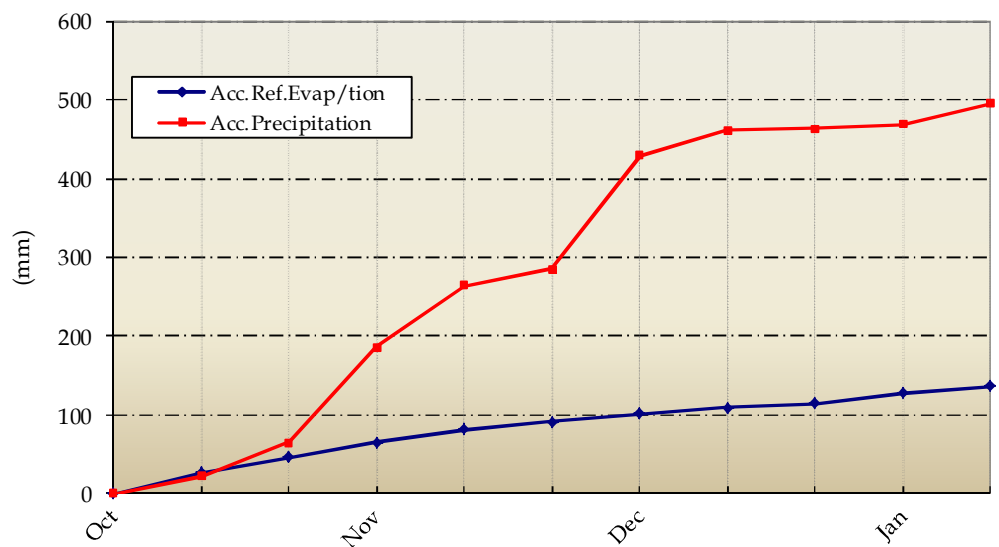
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	14.9	15.4	15.1	14.6	14.3	6.6	5.3	6.1	4.0	10.7	16.2	13.8
	Min	-1.8	2.6	4.0	7.6	7.9	5.0	0.6	-1.6	-0.1	-0.2	2.4	8.6	5.4
Relative Humidity	Max	82	86	89	90	90	73	91	89	86	89	86	88	-
	Min	42	44	50	59	57	46	67	46	41	70	52	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.3
Sunshine Duration		6.9	4.9	3.3	4.1	0.0	1.6	0.0	3.7	0.0	2.9	2.7	3.3	4.5
Precipitation			0.0		5.7	10.6	0.6	7.7			1.8	26.4	40.4	38.0
Evaporation		0.0	2.0	6.7	5.0	2.0	4.4	8.9	0.8	1.7	0.5	32.0	28.4	17.8
Growing Degrees	5	0.0	3.8	4.7	6.4	6.3	4.7	0.0	0.0	0.0	0.0	25.7	74.8	46.8
	10	0.0	0.0	0.0	1.4	1.3	0.0	0.0	0.0	0.0	0.0	2.6	30.2	10.2

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.3	12.0	9.2
Precipitation - Reference Evapotranspiration	17.1	28.4	28.8
Number of Rainy Days	5.0	7.0	4.0
Number of Dry Days	6.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

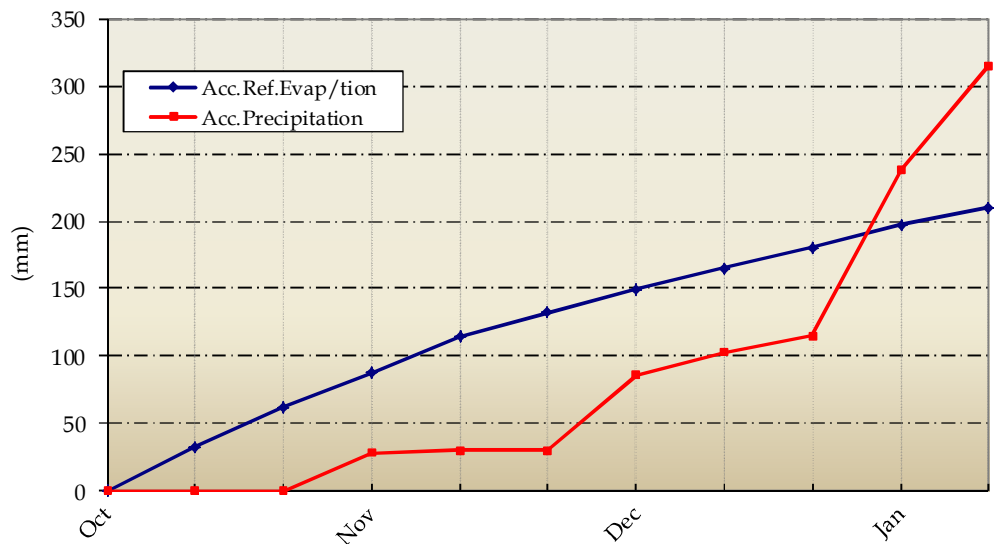


Iraklio

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.6	13.4	16.0	17.2	16.2	14.4	10.4	3.6	9.4	10.2	11.9	17.4	15.3
	Min	3.0	4.6	8.4	9.0	13.2	14.0	6.0	2.8	0.0	3.4	6.4	11.5	9.3
Relative Humidity	Max	93	87	78	76	81	91	94	96	92	93	88	82	-
	Min	77	55	57	53	62	60	52	69	48	62	60	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.0	7.3	5.6	6.8	0.0	2.9	3.9	0.0	7.2	4.0	3.8	4.0	4.0
Precipitation		3.2	0.4			4.1		2.0	51.6	1.6	15.1	78.0	3.4	27.8
Evaporation		0.3	2.5	0.2	0.9	1.7	1.0	0.3	0.0	0.0	0.8	7.7	25.0	23.8
Growing Degrees	5	0.8	4.0	7.2	8.1	9.7	9.2	3.2	0.0	0.0	1.8	44.0	94.7	73.0
	10	0.0	0.0	2.2	3.1	4.7	4.2	0.0	0.0	0.0	0.0	14.2	50.9	25.4

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.5	19.6	-
Precipitation - Reference Evapotranspiration	65.5	-16.2	27.8
Number of Rainy Days	7.0	4.0	4.3
Number of Dry Days	0.0	0.0	-

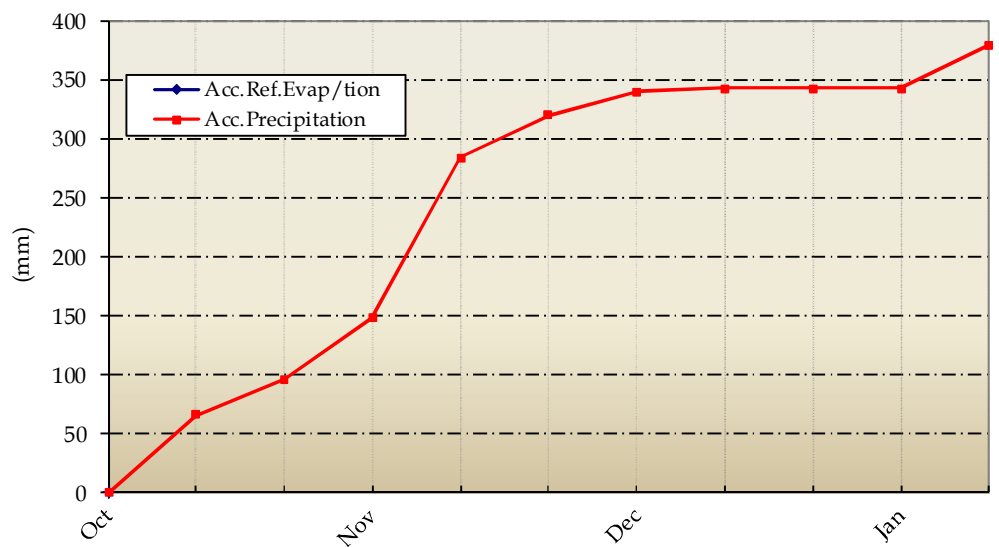
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.1	7.4	9.3	8.0	8.2	5.0	-1.4	0.4	1.2	-0.9	4.6	10.6	8.6
	Min	-8.4	-7.0	-3.0	3.7	2.8	-1.6	-5.4	-11.4	-12.0	-5.7	-4.8	2.0	0.3
Relative Humidity	Max	100	100	100	100	100	82	-	95	93	93	96	97	-
	Min	46	65	58	86	80	51	47	38	37	62	57	70	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	3.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.3
Sunshine Duration		6.1	3.4	2.0	0.1	-	3.8	-	6.2	5.9	0.0	3.4	1.5	2.9
Precipitation				0.0	19.0	14.3	3.5	0.2			0.2	37.2	103.2	36.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	0.6
Growing Degrees	5	0.0	0.0	0.0	0.9	0.5	0.0	0.0	0.0	0.0	0.0	1.4	23.4	11.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.3

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	6.1
Precipitation - Reference Evapotranspiration	-	-	30.1
Number of Rainy Days	5.0	7.0	4.0
Number of Dry Days	28.0	14.0	-

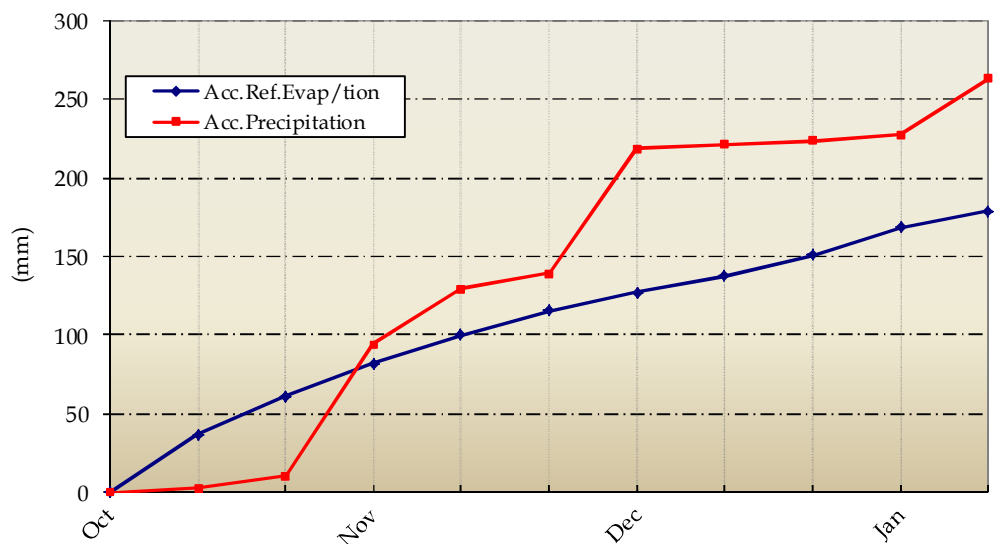
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.8	15.8	16.2	13.3	15.7	10.8	8.3	7.8	8.3	7.4	11.6	17.3	14.7
	Min	-0.9	-1.2	3.6	4.6	6.0	7.9	0.6	-1.2	-3.0	0.2	1.7	7.0	5.3
Relative Humidity	Max	87	90	92	93	94	92	94	90	93	94	92	93	-
	Min	31	37	42	76	64	50	51	31	40	46	47	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	11.1	9.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	12.0	10.4
Sunshine Duration		7.9	7.4	5.2	1.4	0.0	0.7	5.0	8.5	1.1	6.9	4.4	3.4	4.5
Precipitation					9.0	9.7	9.2	1.6			6.1	35.6	45.4	30.6
Evaporation		1.8	2.4	0.8	0.5	0.2	0.0	1.3	2.0	0.5	3.2	12.7	11.8	22.0
Growing Degrees	5	1.0	2.3	4.9	4.0	5.9	4.4	0.0	0.0	0.0	0.0	22.3	71.7	49.2
	10	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.9	25.4	10.6

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.6	11.2	11.0
Precipitation - Reference Evapotranspiration	25.0	34.2	19.6
Number of Rainy Days	5.0	6.0	4.0
Number of Dry Days	3.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

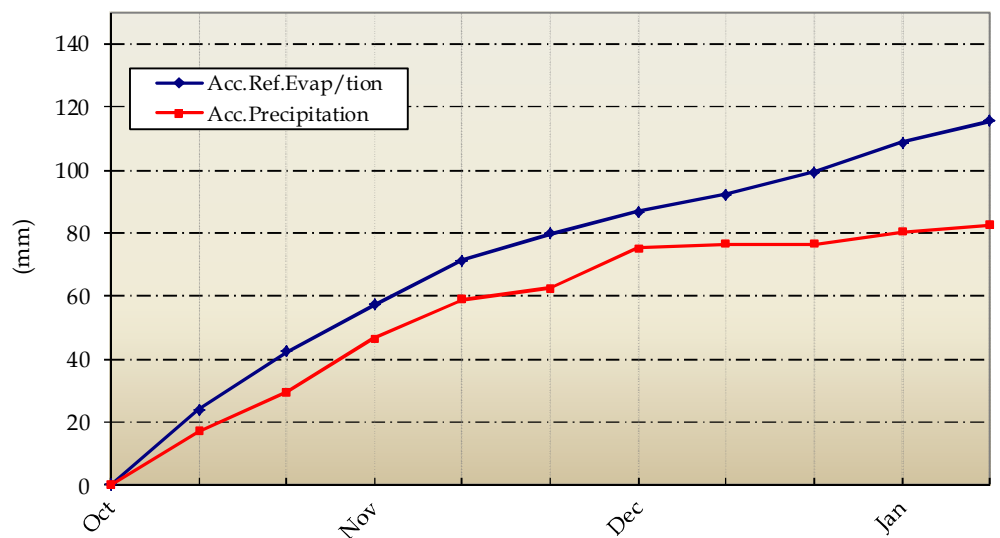


Larisa

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.8	9.6	13.2	13.2	13.0	7.4	0.6	-3.0	-1.4	-2.0	5.9	9.7	9.7
	Min	-2.1	-6.8	-6.3	-2.7	-2.0	0.6	-7.2	-7.2	-10.4	-12.8	-5.7	1.5	0.5
Relative Humidity	Max	85	97	97	96	100	100	100	84	94	100	95	100	-
	Min	35	41	38	45	55	48	68	46	34	79	49	62	-
Soil Temperature at 10 cm	06 UTC	4.2	4.2	3.2	3.4	5.4	6.6	5.0	5.0	3.2	6.0	4.6	6.7	5.3
	12 UTC	4.0	3.4	2.8	3.4	5.6	6.6	5.6	4.2	3.0	6.0	4.5	6.8	5.9
Sunshine Duration		6.8	6.5	7.5	1.8	0.8	0.8	0.8	6.8	2.1	1.4	3.5	3.0	3.9
Precipitation						0.1		0.0			2.2	2.3	7.4	11.6
Evaporation		0.0	0.0	0.0	1.4	0.9	0.1	0.0	0.0	0.0	0.0	2.4	5.1	5.2
Growing Degrees	5	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.8	25.4	13.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	1.0

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.9	5.5	6.2
Precipitation - Reference Evapotranspiration	-4.6	1.9	5.4
Number of Rainy Days	2.0	3.0	2.5
Number of Dry Days	7.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

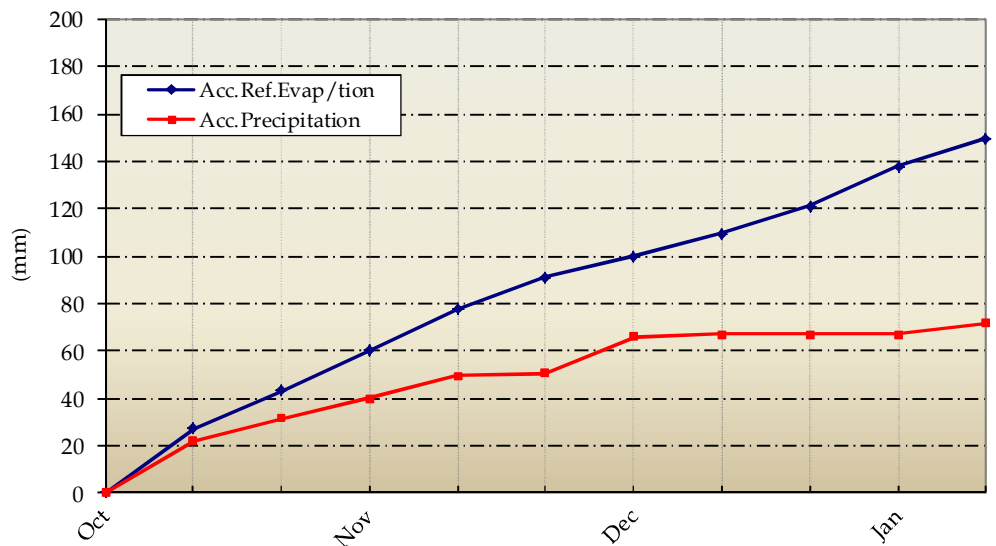


Mikra

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.2	9.7	10.6	11.0	9.0	8.0	-3.2	-3.4	-3.5	-3.1	4.3	9.7	9.2
	Min	-0.7	-5.1	-4.8	1.8	-8.0	-3.2	-6.0	-8.4	-5.5	-4.6	-4.4	2.7	1.5
Relative Humidity	Max	70	76	83	95	96	79	70	53	72	96	79	91	-
	Min	25	33	37	49	72	55	51	34	36	69	46	60	-
Soil Temperature at 10 cm	06 UTC	4.0	2.6	2.3	4.2	4.5	4.9	2.4	-1.0	7.0	-1.4	3.0	5.9	4.9
	12 UTC	5.2	4.2	4.2	6.0	5.8	4.0	0.6	3.0	-1.0	-1.0	3.1	7.1	6.2
Sunshine Duration		7.7	7.8	7.7	3.2	0.6	5.9	0.0	9.6	0.0	0.0	4.2	2.9	3.7
Precipitation						0.6	4.1	0.0			0.0	4.7	9.6	14.1
Evaporation		0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	13.4	8.7
Growing Degrees	5	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	27.0	16.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.6

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.8	7.6	8.8
Precipitation - Reference Evapotranspiration	-7.1	2.0	5.3
Number of Rainy Days	2.0	5.0	2.6
Number of Dry Days	31.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

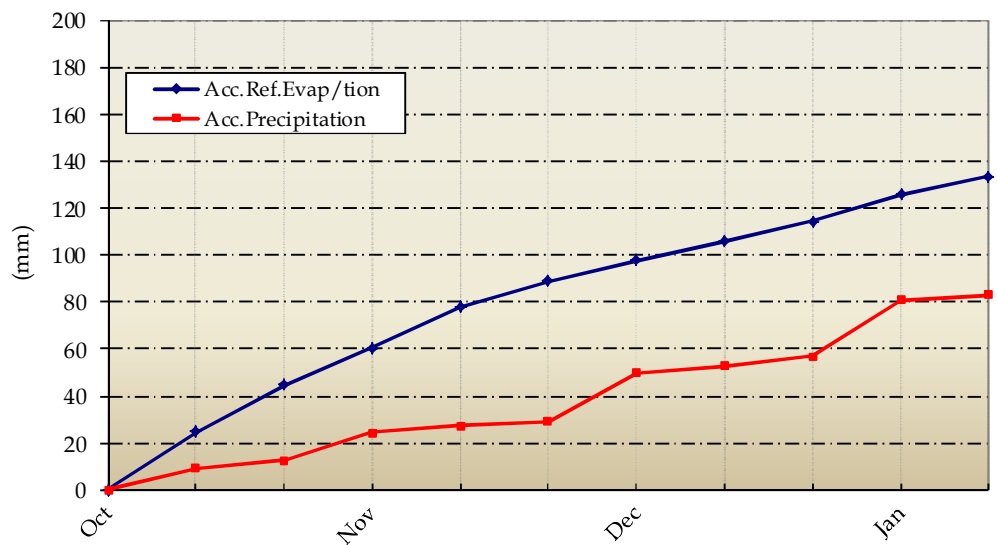


Tanagra

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	12.0	13.2	15.8	16.4	10.6	0.0	-2.1	1.0	-0.5	7.4	14.8	12.2
	Min	1.4	-1.6	-1.2	1.0	6.8	9.0	-2.0	-6.0	-7.1	-9.0	-0.9	4.6	3.9
Relative Humidity	Max	96	96	96	100	80	100	99	82	100	100	95	94	-
	Min	56	54	54	43	41	54	81	66	50	72	57	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.0	6.8	9.2	5.7	4.3	0.4	0.0	0.4	4.9	0.8	3.6	3.9	
Precipitation		2.0					0.1	0.2			0.0	2.3	9.7	18.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	21.3	
Growing Degrees	5	0.0	0.2	1.0	3.4	6.6	4.8	0.0	0.0	0.0	0.0	16.0	52.0	
	10	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6	16.8	

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.8	8.9	
Precipitation - Reference Evapotranspiration	-5.5	0.8	18.0
Number of Rainy Days	3.0	4.0	4.4
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

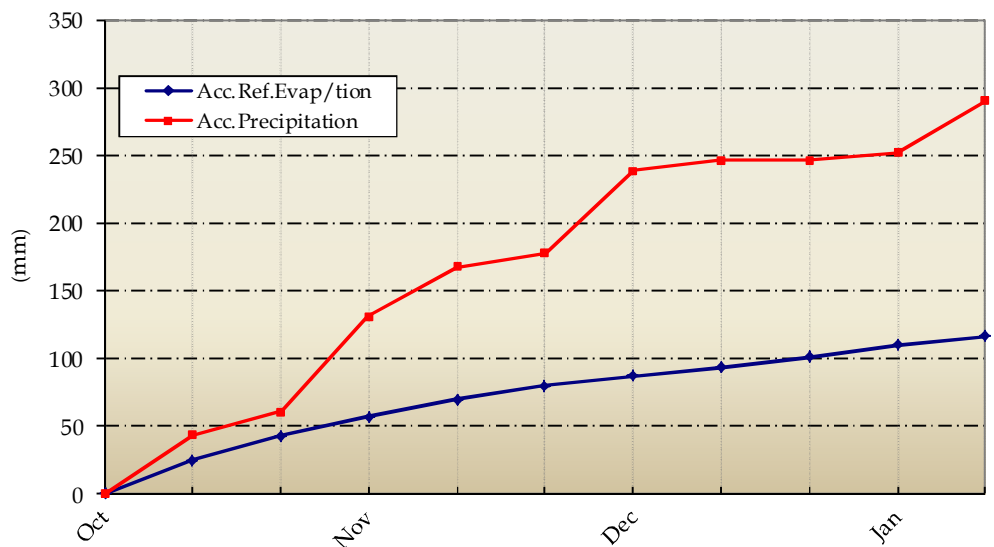


Tripoli

1st 10-day period (1-10/01/2017)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.5	10.6	11.8	10.2	9.9	8.6	2.8	0.2	-0.4	1.6	6.3	12.4	12.2
	Min	-9.1	-7.0	-1.3	-0.5	5.7	2.7	-3.7	-4.3	-8.8	-8.5	-3.5	3.7	3.9
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	98	-
	Min	44	39	42	71	71	53	54	57	69	53	55	58	-
Soil Temperature at 10 cm	06 UTC	0.8	0.8	1.2	2.4	4.8	5.8	3.6	2.4	1.4	1.6	2.5	5.7	
	12 UTC	1.2	1.2	3.2	4.8	6.2	-	-	-	1.2	1.8	2.8	8.8	
Sunshine Duration		5.8	6.4	6.6	2.7	2.4	1.6	4.4	2.8	0.0	4.5	3.7	3.8	
Precipitation					3.9	15.2	14.2	0.8		0.0	4.2	38.3	59.0	18.0
Evaporation		0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.9	7.9	
Growing Degrees	5	0.0	0.0	0.3	0.0	2.8	0.7	0.0	0.0	0.0	0.0	3.7	37.5	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	

1st 10-day period (1-10/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.3	8.9	
Precipitation - Reference Evapotranspiration	32.0	50.1	18.0
Number of Rainy Days	5.0	7.0	4.4
Number of Dry Days	4.0	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

© 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