



# AGROMETEOROLOGICAL BULLETIN

*April 2020  
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



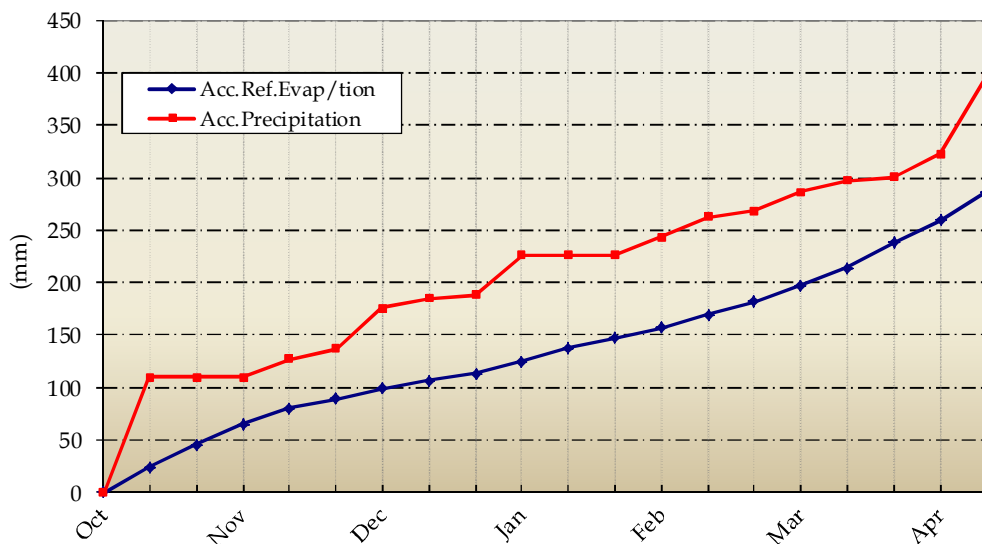
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web adresses of HNMS*  
[www.emy.gr](http://www.emy.gr)  
[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 (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.0	7.6	13.0	10.0	9.8	12.2	16.6	18.6	20.0	20.0	13.7	16.4	16.7
	Min	4.8	4.8	2.0	7.0	7.8	6.0	9.4	8.6	-1.0	7.4	5.7	6.5	6.5
Relative Humidity	Max	70	91	97	95	90	63	46	40	69	66	73	90	-
	Min	62	77	52	92	72	45	24	24	24	33	50	49	-
Soil Temperature at 10 cm	06 UTC	9.0	8.0	7.2	9.0	8.8	8.0	7.4	8.4	8.2	9.2	8.3	11.6	10.4
	12 UTC	9.6	8.6	11.6	9.2	9.4	9.6	11.4	13.2	14.0	15.8	11.2	15.5	13.5
Sunshine Duration		0.0	0.0	9.1	0.0	0.0	0.5	11.1	11.5	12.2	11.7	5.6	5.9	6.1
Precipitation			17.6		36.1	18.5	2.7					74.9	38.8	11.5
Evaporation		3.1	1.7	1.7	1.2	2.0	3.6	8.6	8.4	2.1	5.9	38.3	39.4	34.0
Growing Degrees	5	1.9	1.2	2.5	3.5	3.8	4.1	8.0	8.6	4.5	8.7	46.8	64.4	66.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.6	0.0	3.7	10.3	16.8	21.0

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.9	24.7	24.4
Precipitation - Reference Evapotranspiration	47.0	14.1	-12.9
Number of Rainy Days	4.0	4.0	2.6
Number of Dry Days	3.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

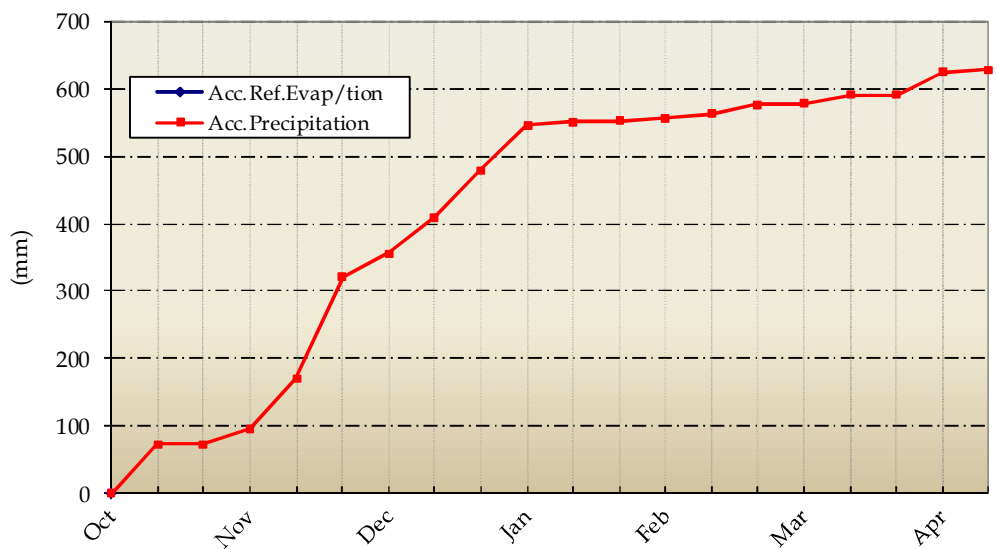


1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.5	15.0	17.4	14.6	17.0	18.7	16.9	20.6	20.7	21.2	18.1	19.1	18.6
	Min	8.5	8.0	6.7	11.0	10.4	11.1	6.2	5.2	3.6	6.0	7.7	9.8	8.6
Relative Humidity	Max	94	89	88	91	84	70	68	68	89	95	84	96	-
	Min	64	49	54	66	51	37	35	22	25	28	43	44	-
Soil Temperature at 10 cm	06 UTC	15.2	13.2	13.8	14.6	13.4	13.2	13.2	13.0	13.4	13.4	13.6	14.5	12.9
	12 UTC	15.6	15.0	14.6	14.2	14.2	14.4	14.4	14.8	15.4	16.6	14.9	16.6	15.7
Sunshine Duration		4.7	8.1	1.7	0.0	0.0	4.4	10.0	11.0	12.6	11.4	6.4	5.2	6.9
Precipitation		2.1		0.2	1.1	0.6						4.0	35.1	14.7
Evaporation		4.5	5.8	1.6	0.2	3.6	4.2	4.4	5.3	4.4	8.8	42.8	42.0	34.4
Growing Degrees	5	8.5	6.5	7.1	7.8	8.7	9.9	6.6	7.9	7.2	8.6	78.7	94.6	86.1
	10	3.5	1.5	2.1	2.8	3.7	4.9	1.6	2.9	2.2	3.6	28.7	44.6	36.7

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	23.8	26.7
Precipitation - Reference Evapotranspiration	-	11.3	-12.0
Number of Rainy Days	4.0	6.0	2.8
Number of Dry Days	2.0	7.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

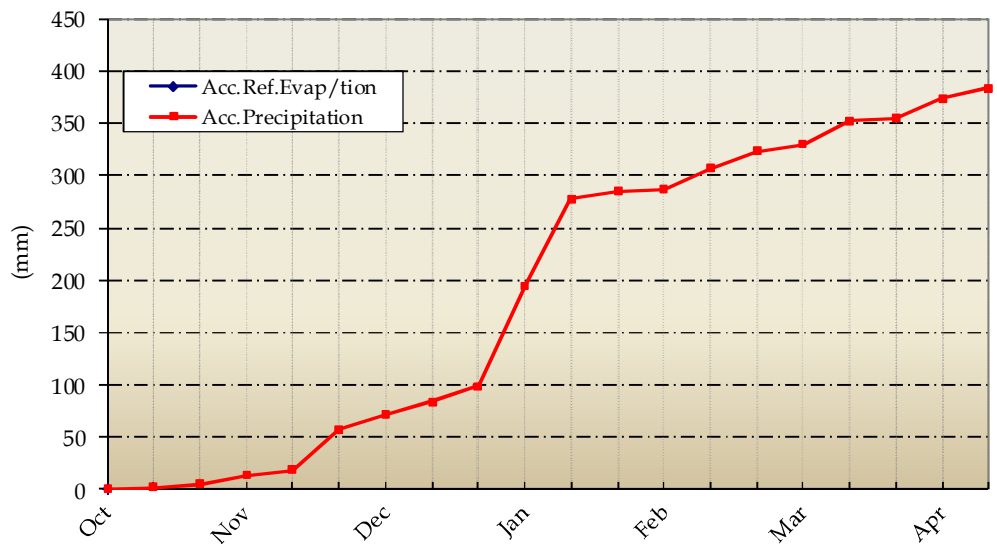


1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	17.0	15.4	24.4	18.4	15.8	13.2	13.4	16.0	18.6	17.0	18.1	19.4
	Min	9.8	12.4	10.4	15.0	14.4	10.5	12.4	11.8	11.6	10.6	11.9	11.6	11.6
Relative Humidity	Max	88	88	90	68	85	87	93	90	81	80	85	87	-
	Min	65	60	53	25	62	69	75	69	57	41	58	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.4	7.8	2.3	0.6	7.3	2.3	0.0	0.0	9.5	11.4	5.0	6.0	7.0
Precipitation				2.0				6.7	1.3			10.0	18.9	8.6
Evaporation		2.2	2.5	13.2	3.3	3.8	3.1	0.8	1.4	3.4	5.2	38.9	23.1	45.2
Growing Degrees	5	8.8	9.7	7.9	14.7	11.4	8.2	7.8	7.6	8.8	9.6	94.5	98.6	105.0
	10	3.8	4.7	2.9	9.7	6.4	3.2	2.8	2.6	3.8	4.6	44.5	48.6	55.0

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	28.3	-
Precipitation - Reference Evapotranspiration	-	-9.4	8.6
Number of Rainy Days	3.0	3.0	1.8
Number of Dry Days	2.0	5.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

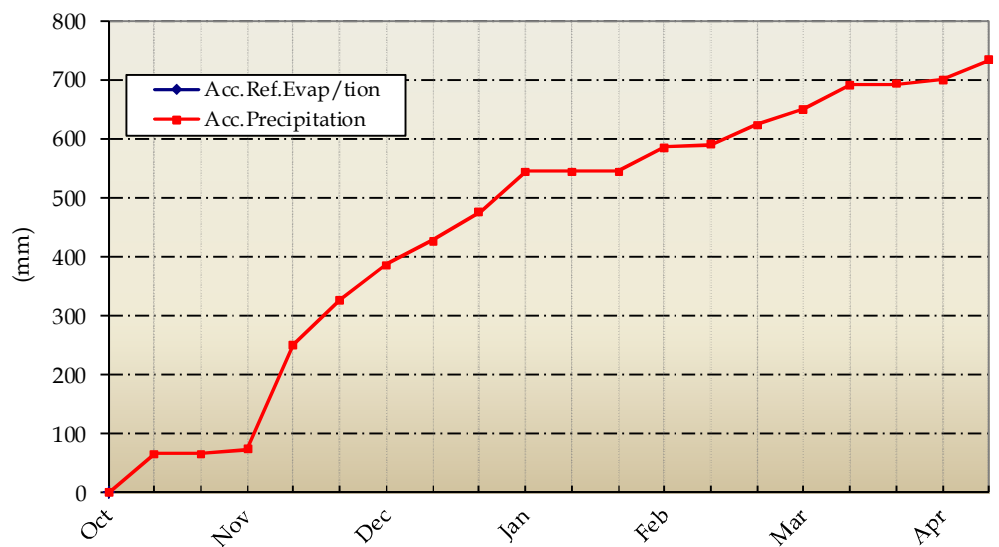


1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	13.3	12.2	12.9	12.2	12.1	14.8	16.6	20.0	23.2	14.7	16.9	16.8
	Min	4.0	-0.8	-1.1	5.8	9.3	9.8	9.8	6.4	-0.6	-0.2	4.2	6.6	5.4
Relative Humidity	Max	100	100	100	97	61	54	38	38	90	96	77	94	-
	Min	85	44	56	54	50	43	21	19	21	23	42	46	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.3
Sunshine Duration		0.0	8.5	0.0	1.7	0.0	1.0	4.3	11.0	10.3	10.1	4.7	4.7	5.1
Precipitation		14.5		5.1	14.2		0.0					33.8	21.3	25.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	24.5
Growing Degrees	5	2.0	1.3	0.6	4.4	5.8	6.0	7.3	6.5	4.7	6.5	44.9	67.7	60.9
	10	0.0	0.0	0.0	0.0	0.8	1.0	2.3	1.5	0.0	1.5	7.0	17.7	17.6

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	22.5
Precipitation - Reference Evapotranspiration	-	-	3.2
Number of Rainy Days	3.0	6.0	4.1
Number of Dry Days	4.0	20.0	-

The missing info in the tables and the graph are due to the absence of data.

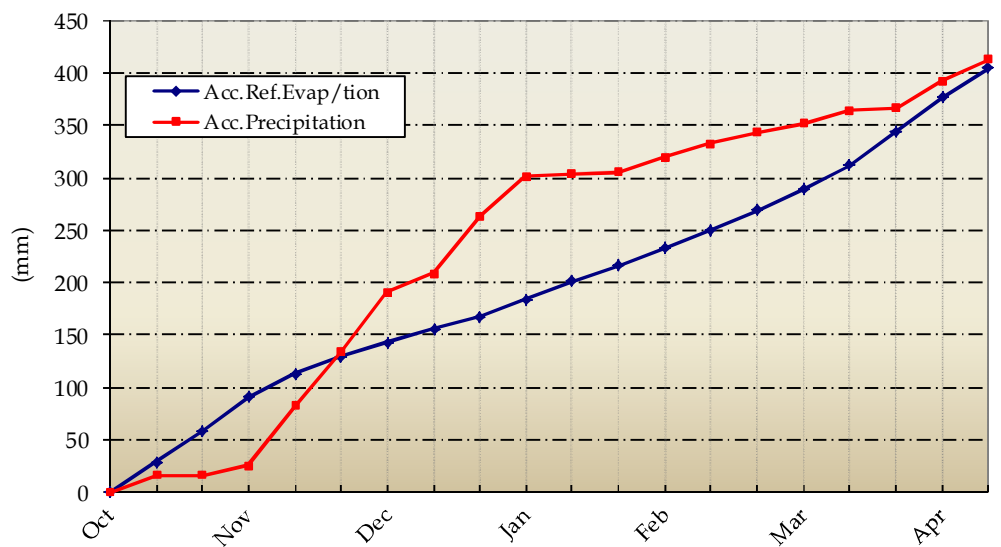
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.6	16.0	19.4	16.2	17.2	16.4	17.3	17.4	18.2	23.2	18.0	19.0	19.3
	Min	5.8	6.0	9.2	12.0	11.0	10.6	6.4	5.8	2.9	3.6	7.3	8.1	8.0
Relative Humidity	Max	92	88	84	91	92	76	78	80	79	93	85	91	-
	Min	49	42	51	69	59	42	37	29	35	21	43	47	-
Soil Temperature at 10 cm	06 UTC	13.8	13.2	13.2	14.5	14.0	14.0	12.6	12.2	12.0	12.8	13.2	13.9	12.9
	12 UTC	15.5	15.5	15.5	14.0	15.2	15.0	15.5	14.8	16.0	16.5	15.4	15.5	15.8
Sunshine Duration		6.0	6.7	0.3	0.0	1.0	0.0	5.0	6.5	10.9	11.5	4.8	6.0	6.7
Precipitation		8.5	0.6	0.4	3.5	7.7	0.3					21.0	48.7	16.3
Evaporation		0.1	1.8	4.9	5.6	0.4	2.2	3.4	2.4	3.2	0.8	24.8	24.7	37.8
Growing Degrees	5	7.2	6.0	9.3	9.1	9.1	8.5	6.9	6.6	5.6	8.4	76.6	85.6	86.4
	10	2.2	1.0	4.3	4.1	4.1	3.5	1.9	1.6	0.6	3.4	26.6	35.6	36.8

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.1	27.9	28.3
Precipitation - Reference Evapotranspiration	-7.1	20.8	-12.0
Number of Rainy Days	6.0	6.0	2.8
Number of Dry Days	2.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

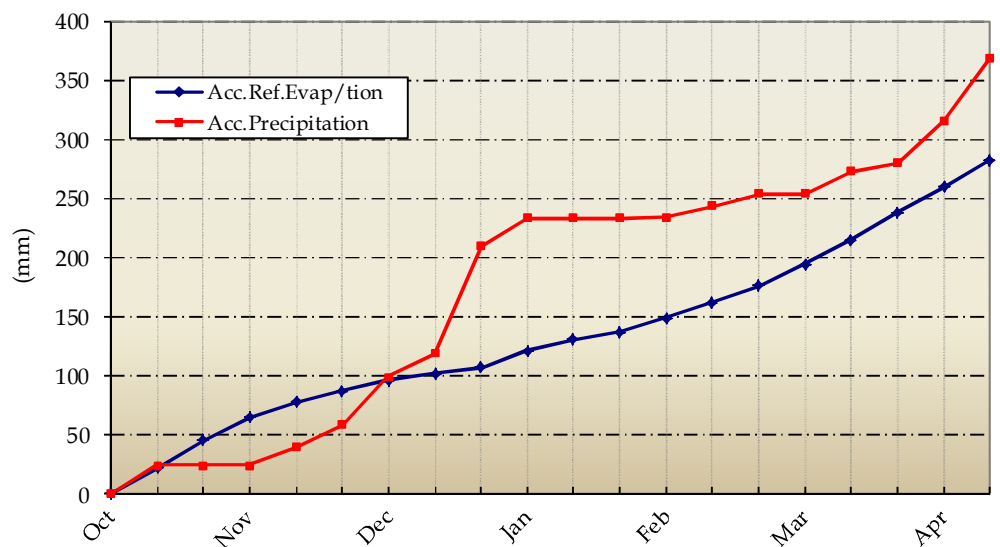


1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.4	12.8	12.4	8.6	11.4	11.6	16.0	17.4	19.8	23.2	14.6	18.2	19.4
	Min	8.6	2.6	2.0	7.6	8.0	7.8	6.6	3.6	2.0	1.4	5.0	7.4	5.6
Relative Humidity	Max	95	93	97	98	95	78	85	92	90	93	92	93	-
	Min	82	51	65	88	70	48	35	29	30	30	53	47	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.1
Sunshine Duration		0.0	9.3	2.2	0.0	0.0	0.0	8.7	11.4	11.6	11.4	5.5	5.2	6.6
Precipitation		15.0	2.5	4.2	26.6	4.6	0.8					53.7	14.9	12.2
Evaporation		0.9	6.7	0.2	0.1	1.2	1.7	1.8	5.8	2.2	7.0	27.6	36.9	32.3
Growing Degrees	5	5.5	2.7	2.2	3.1	4.7	4.7	6.3	5.5	5.9	7.3	47.9	78.4	75.0
	10	0.5	0.0	0.0	0.0	0.0	0.0	1.3	0.5	0.9	2.3	5.5	28.4	27.5

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.0	26.2	26.4
Precipitation - Reference Evapotranspiration	30.7	-11.3	-14.2
Number of Rainy Days	6.0	4.0	2.6
Number of Dry Days	3.0	8.0	-

The missing info in the tables are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



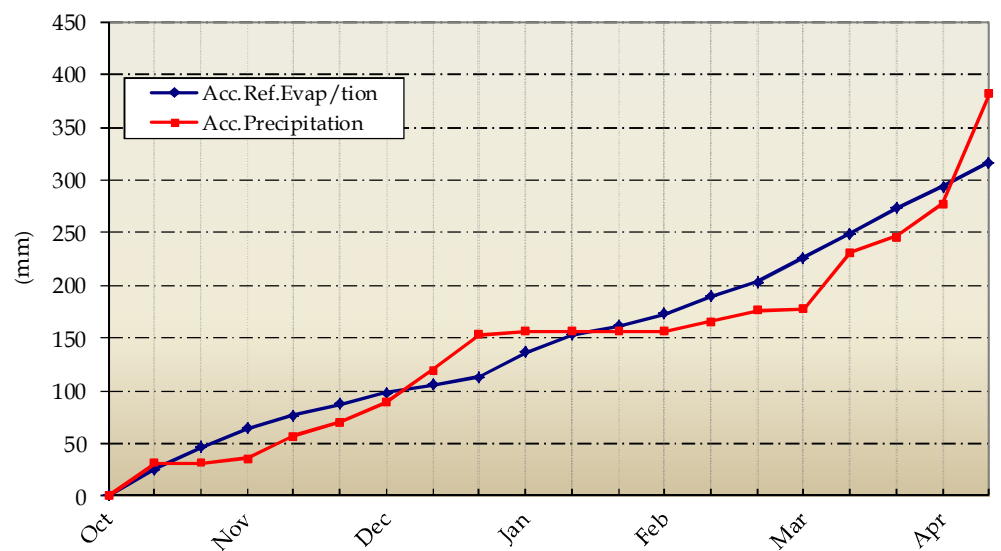
Mikra

1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.5	12.4	11.7	10.6	11.3	13.4	18.0	17.8	20.6	23.3	15.3	17.4	18.4
	Min	7.4	4.0	2.7	8.2	9.8	8.8	6.5	3.2	4.0	5.0	6.0	8.6	7.0
Relative Humidity	Max	95	91	97	98	92	94	91	81	86	84	91	85	-
	Min	72	56	69	78	80	59	24	44	25	27	53	49	-
Soil Temperature at 10 cm	06 UTC	11.6	8.4	8.8	10.0	10.0	9.8	10.2	10.4	10.8	11.0	10.1	13.0	11.4
	12 UTC	12.8	9.2	9.0	10.2	10.2	10.6	10.4	12.6	13.4	15.0	11.3	15.4	15.3
Sunshine Duration		0.0	3.7	0.0	0.0	0.0	0.3	10.0	11.2	11.5	11.4	4.8	5.1	6.4
Precipitation		26.2	26.7	0.0	21.4	28.1	1.8					104.2	10.2	12.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	39.9
Growing Degrees	5	5.5	3.2	2.2	4.4	5.6	6.1	7.3	5.5	7.3	9.2	56.1	80.0	77.2
	10	0.5	0.0	0.0	0.0	0.6	1.1	2.3	0.5	2.3	4.2	11.3	30.0	28.9

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.8	25.7	26.8
Precipitation - Reference Evapotranspiration	80.4	-15.5	-14.1
Number of Rainy Days	5.0	4.0	2.5
Number of Dry Days	2.0	23.0	-

The missing info in the tables are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





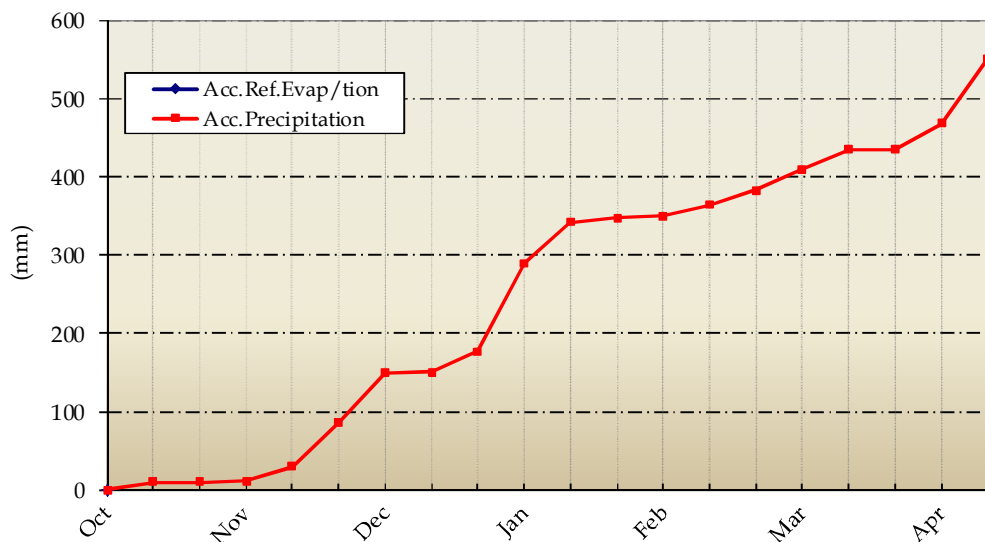
Tanagra

1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.0	13.1	11.8	9.3	11.6	9.4	11.6	14.6	16.4	20.8	13.3	16.5	18.6
	Min	3.9	3.0	1.6	7.9	7.0	7.4	6.4	9.3	7.0	4.8	5.8	7.3	6.4
Relative Humidity	Max	100	97	98	100	100	88	86	67	64	75	88	92	-
	Min	54	42	64	99	87	66	33	36	30	24	54	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.4	11.1	0.0	0.0	0.0	0.0	0.0	9.8	9.8	11.6	4.7	5.4	
Precipitation		0.1		0.5	41.9	31.3	7.4	2.3				83.5	61.0	8.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	4.0	3.1	1.7	3.6	4.3	3.4	4.0	7.0	6.7	7.8	45.5	69.1	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.7	2.8	6.5	19.6	

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	23.7	
Precipitation - Reference Evapotranspiration	-	37.3	8.6
Number of Rainy Days	6.0	3.0	2.9
Number of Dry Days	3.0	8.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

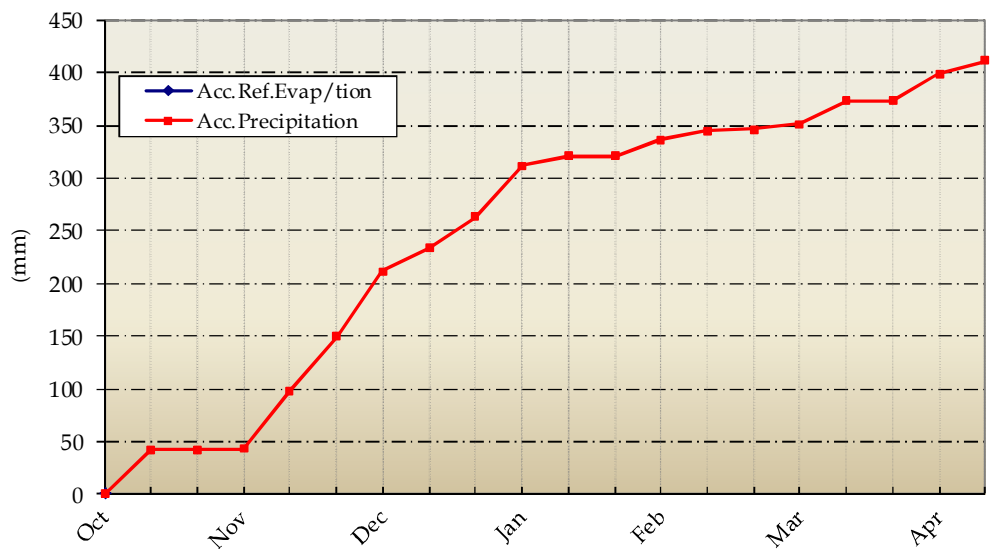


1st 10-day period (1-10/04/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.5	12.6	7.5	9.8	-	8.5	-	13.5	16.3	19.8	12.8	14.8	17.1
	Min	0.8	3.7	6.2	7.0	-	5.7	4.8	5.3	4.4	2.8	4.5	5.9	4.3
Relative Humidity	Max	98	74	97	-	94	81	79	49	59	75	78	90	-
	Min	52	42	91	-	70	59	40	32	21	24	48	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	8.2	-	-	-	8.2	10.3	9.5
	12 UTC	-	-	-	-	-	-	-	11.6	-	-	11.6	13.3	11.3
Sunshine Duration		6.5	10.4	0.0	0.0	0.7	0.3	2.3	10.5	11.1	11.4	5.3	6.0	6.6
Precipitation		0.8	0.8	0.7	9.6		0.0					11.9	36.1	17.3
Evaporation		-	-	-	-	-	2.8	-	-	-	-	-	23.6	26.4
Growing Degrees	5	2.7	3.2	1.9	3.4	-	2.1	-	4.4	5.4	6.3	-	53.8	57.4
	10	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.4	1.3	-	6.7	16.1

1st 10-day period (1-10/04/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.1	24.7	26.6
Precipitation - Reference Evapotranspiration	-12.2	11.4	-9.3
Number of Rainy Days	4.0	7.0	3.3
Number of Dry Days	0.0	5.0	-

The missing info in the tables and the graph are due to the absence of data.

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