



AGROMETEOROLOGICAL BULLETIN

July 2018
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



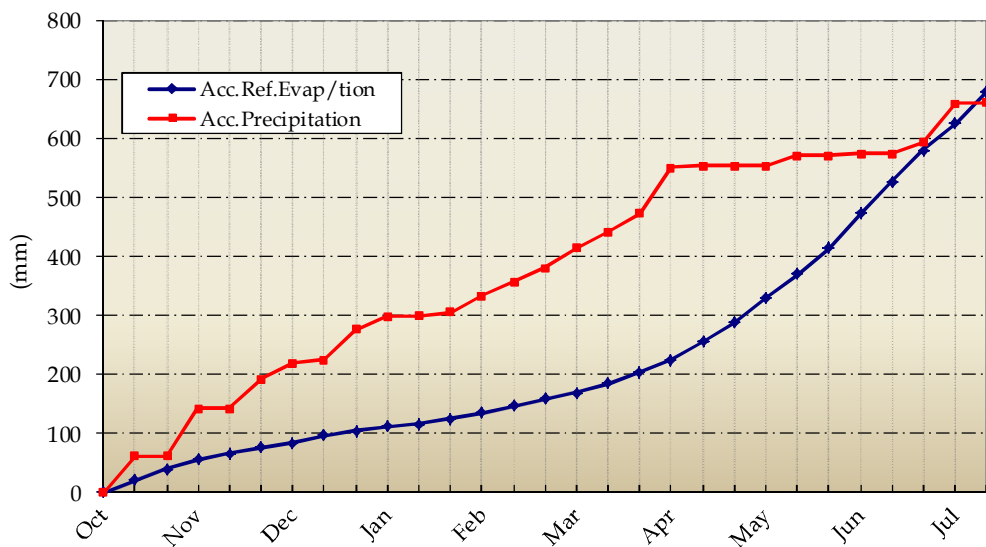
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.6	32.8	33.0	33.4	32.4	31.4	32.6	29.8	29.2	29.4	31.4	33.2	29.3
	Min	17.2	17.4	18.6	19.2	21.8	19.2	20.0	20.0	19.4	19.4	19.2	18.2	17.0
Relative Humidity	Max	91	88	81	77	86	97	86	73	99	87	86	78	-
	Min	40	34	31	37	40	38	32	48	47	57	40	33	-
Soil Temperature at 10 cm	06 UTC	23.0	23.4	24.8	26.0	27.0	27.4	27.2	27.0	25.6	26.6	25.8	-	23.7
	12 UTC	26.8	28.4	28.0	29.8	30.4	30.2	30.8	27.6	29.2	30.2	29.1	-	28.2
Sunshine Duration		13.3	11.5	13.5	13.3	11.9	12.5	9.4	7.3	11.8	12.8	11.7	13.0	10.3
Precipitation									0.6			0.6		12.1
Evaporation		7.2	12.2	9.8	9.2	9.7	8.9	8.8	2.8	8.0	11.0	87.6	104.9	85.9
Growing Degrees	5	18.4	20.1	20.8	21.3	22.1	20.3	21.3	19.9	19.3	19.4	202.9	207.1	181.3
	10	13.4	15.1	15.8	16.3	17.1	15.3	16.3	14.9	14.3	14.4	152.9	157.1	131.3

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.4	62.9	56.1
Precipitation - Reference Evapotranspiration	-54.8	-62.9	-44.0
Number of Rainy Days	1.0	0.0	2.2
Number of Dry Days	9.0	18.0	-

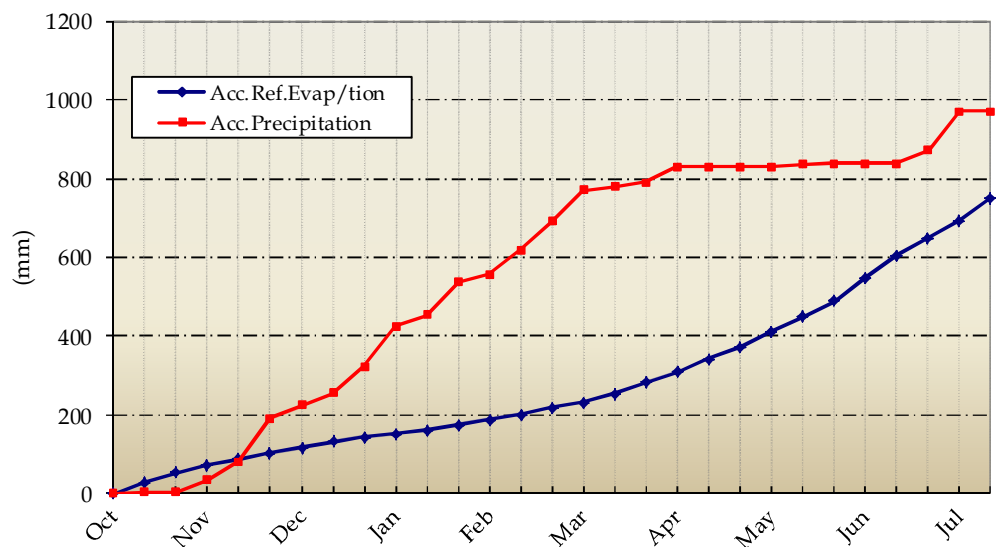
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	30.2	30.4	30.6	31.5	31.9	29.7	28.6	27.8	27.4	29.7	32.4	29.5
	Min	17.9	18.0	18.4	18.1	18.8	19.4	19.4	19.6	19.0	18.0	18.7	19.0	17.7
Relative Humidity	Max	92	92	90	93	93	91	91	88	90	89	91	83	-
	Min	51	41	37	42	42	35	53	48	52	42	44	31	-
Soil Temperature at 10 cm	06 UTC	25.2	25.8	26.0	26.0	26.5	26.0	27.0	27.0	27.0	27.0	26.4	29.7	26.9
	12 UTC	28.0	28.2	31.0	31.8	31.0	28.6	31.0	28.4	29.6	28.0	29.6	31.7	31.6
Sunshine Duration		13.1	12.6	13.5	12.5	12.5	12.5	12.9	12.9	13.5	12.9	12.9	13.1	12.0
Precipitation														0.7
Evaporation		3.0	6.0	6.0	7.0	6.0	7.0	6.0	7.0	8.0	7.0	63.0	93.0	75.0
Growing Degrees	5	18.5	19.1	19.4	19.4	20.2	20.7	19.6	19.1	18.4	17.7	191.9	206.6	186.1
	10	13.5	14.1	14.4	14.4	15.2	15.7	14.6	14.1	13.4	12.7	141.9	156.6	136.1

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.9	63.7	53.6
Precipitation - Reference Evapotranspiration	-55.9	-63.7	-52.9
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	11.0	22.0	-

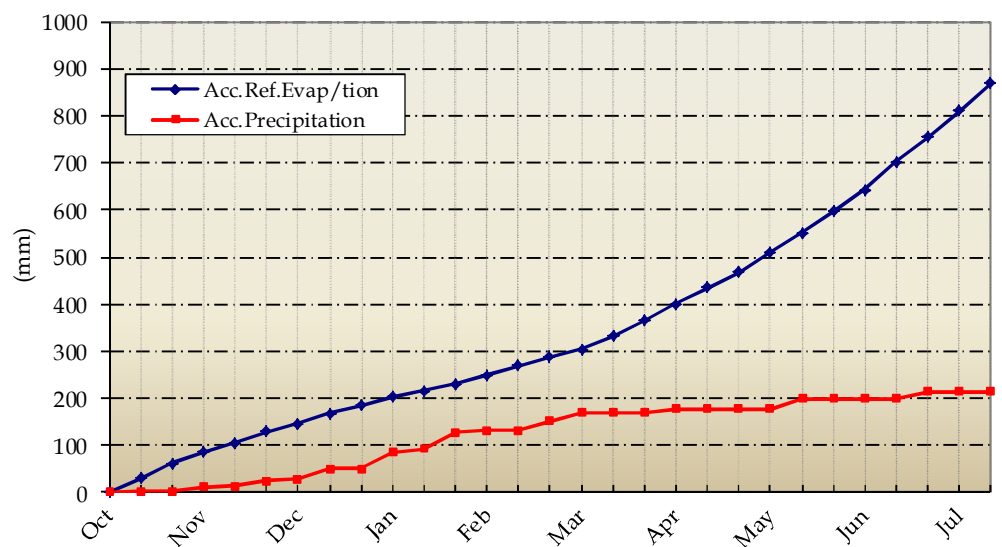
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	29.0	30.4	30.6	31.6	32.0	29.0	29.8	29.2	28.6	29.8	30.5	28.4
	Min	20.0	20.4	21.4	22.0	23.0	23.4	21.0	22.2	24.6	25.2	22.3	24.0	21.3
Relative Humidity	Max	90	88	75	80	76	91	88	86	88	91	85	68	-
	Min	64	49	45	45	43	50	72	62	63	65	56	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.8	12.5	12.9	12.7	12.8	12.8	12.1	12.6	11.3	11.5	12.4	12.6	12.1
Precipitation														0.7
Evaporation		7.2	6.4	8.7	7.7	7.4	7.0	6.2	7.1	5.6	6.5	69.8	95.7	92.1
Growing Degrees	5	18.7	19.7	20.9	21.3	22.3	22.7	20.0	21.0	21.9	21.9	210.4	222.5	198.6
	10	13.7	14.7	15.9	16.3	17.3	17.7	15.0	16.0	16.9	16.9	160.4	172.5	148.6

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.9	70.6	-
Precipitation - Reference Evapotranspiration	-57.9	-70.6	0.7
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	23.0	32.0	-

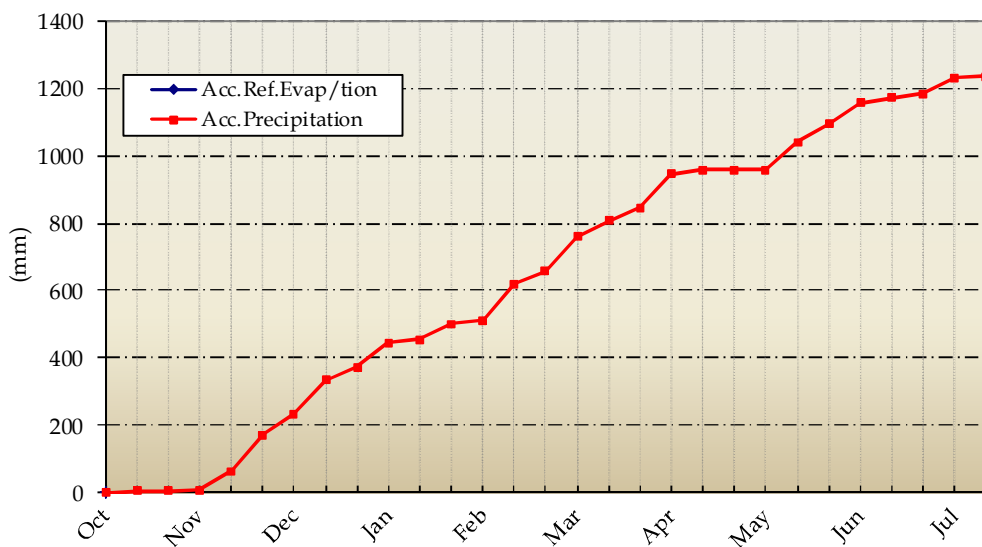
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	30.6	32.4	33.4	33.0	34.0	33.0	31.2	28.2	28.0	31.4	34.7	30.4
	Min	14.6	16.0	16.4	16.0	16.0	16.0	17.4	17.0	15.0	13.0	15.7	15.9	14.5
Relative Humidity	Max	100	96	100	90	100	94	100	92	100	91	96	80	-
	Min	40	38	41	39	34	36	43	42	49	44	41	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.2
Sunshine Duration		11.2	12.6	12.8	13.1	12.6	12.8	12.8	10.7	9.7	12.2	12.0	12.4	10.5
Precipitation									1.4	1.4		2.8		6.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	72.0
Growing Degrees	5	17.6	18.3	19.4	19.7	19.5	20.0	20.2	19.1	16.6	15.5	185.9	203.1	168.8
	10	12.6	13.3	14.4	14.7	14.5	15.0	15.2	14.1	11.6	10.5	135.9	153.1	120.3

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	51.3
Precipitation - Reference Evapotranspiration	-	-	-44.7
Number of Rainy Days	2.0	0.0	1.5
Number of Dry Days	9.0	15.0	-

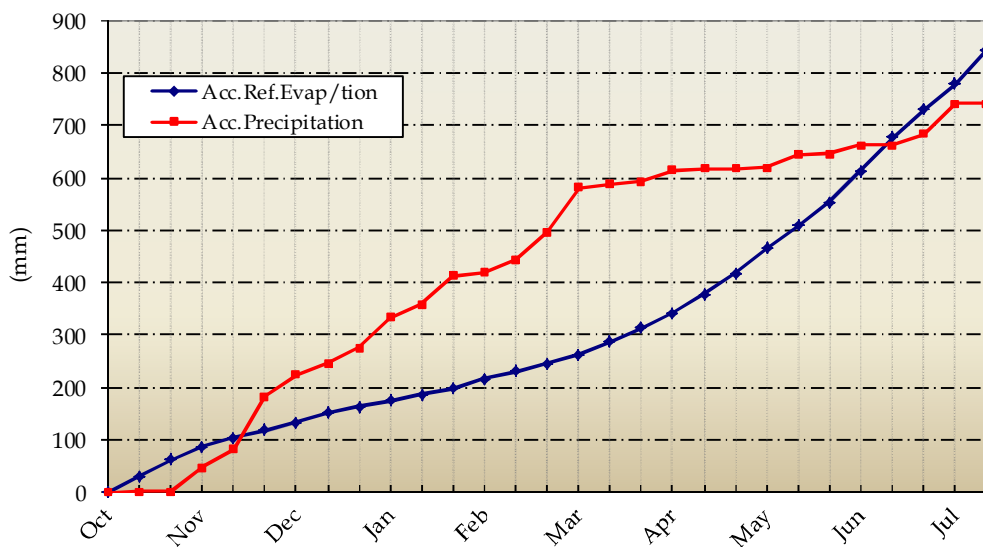
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.4	31.9	34.2	32.2	37.4	33.2	31.8	31.6	29.8	31.4	32.3	33.9	30.8
	Min	18.2	18.4	18.3	18.6	20.2	19.8	20.0	22.4	19.2	18.4	19.4	19.4	17.6
Relative Humidity	Max	87	87	83	83	83	85	85	82	87	89	85	77	-
	Min	42	42	25	27	34	36	38	39	44	25	35	26	-
Soil Temperature at 10 cm	06 UTC	23.6	23.6	25.0	25.0	25.4	25.6	26.0	26.0	26.4	26.4	25.3	-	25.3
	12 UTC	26.6	27.2	27.4	27.6	28.0	27.0	27.0	28.6	28.4	28.0	27.6	-	29.5
Sunshine Duration		12.7	12.6	12.9	13.0	12.8	12.6	12.9	12.8	12.4	12.8	12.8	12.5	11.4
Precipitation														1.0
Evaporation		5.7	7.6	10.4	7.8	8.0	11.0	13.0	7.0	9.0	10.6	90.1	82.0	89.7
Growing Degrees	5	18.8	20.2	21.3	20.4	23.8	21.5	20.9	22.0	19.5	19.9	208.2	216.3	191.7
	10	13.8	15.2	16.3	15.4	18.8	16.5	15.9	17.0	14.5	14.9	158.2	166.3	141.7

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	65.3	69.7	56.4
Precipitation - Reference Evapotranspiration	-65.3	-69.7	-55.4
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	12.0	21.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

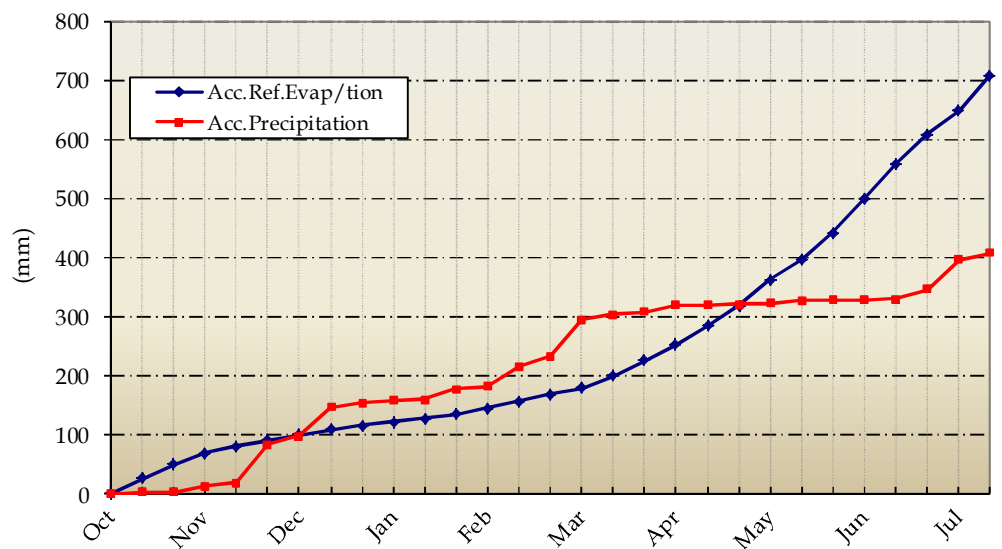


Larisa

1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.4	33.2	34.2	35.0	35.8	34.8	32.4	31.2	30.0	29.0	32.9	36.9	32.9
	Min	19.2	16.6	20.0	20.2	21.8	20.2	22.1	19.8	16.6	15.4	19.2	19.9	17.5
Relative Humidity	Max	85	90	91	86	84	83	87	95	96	97	89	72	-
	Min	25	33	34	32	28	31	36	33	39	35	33	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.7
Sunshine Duration		11.8	11.7	11.7	11.6	11.8	11.7	8.6	5.3	7.8	11.8	10.4	11.6	10.7
Precipitation								0.7	1.5	9.1		11.3	2.5	5.5
Evaporation		11.5	10.5	9.6	12.3	10.2	11.0	9.1	4.9	1.6	9.3	90.0	113.7	95.9
Growing Degrees	5	21.3	19.9	22.1	22.6	23.8	22.5	22.3	20.5	18.3	17.2	210.5	233.9	202.1
	10	16.3	14.9	17.1	17.6	18.8	17.5	17.3	15.5	13.3	12.2	160.5	183.9	152.1

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.0	67.7	62.4
Precipitation - Reference Evapotranspiration	-47.7	-65.2	-56.9
Number of Rainy Days	3.0	1.0	1.4
Number of Dry Days	7.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

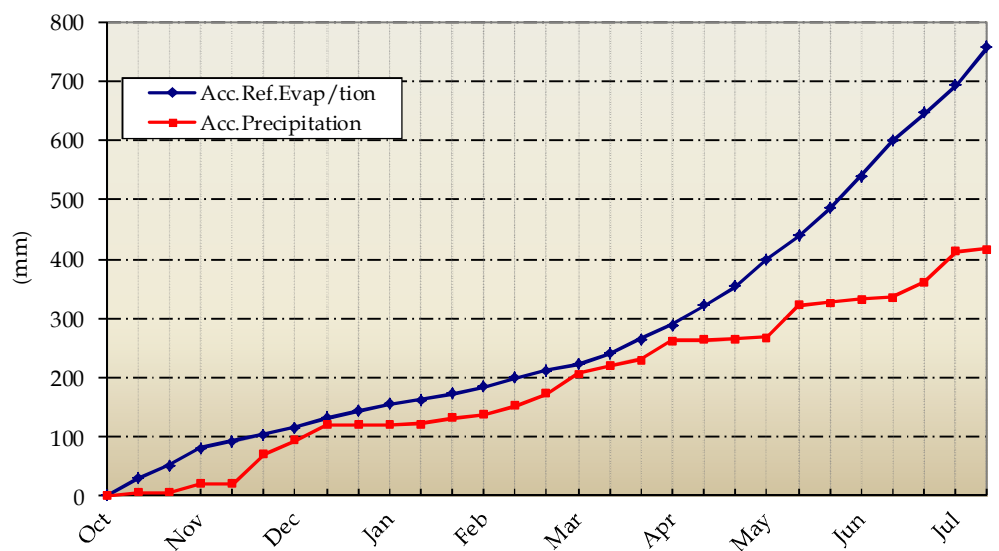


Mikra

1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.3	30.9	32.6	34.2	33.7	34.1	32.1	31.0	30.3	29.2	31.9	34.7	31.1
	Min	23.6	19.4	20.2	20.8	21.2	21.4	23.6	21.8	19.3	17.5	20.9	21.2	18.5
Relative Humidity	Max	68	78	82	79	81	70	80	57	79	76	75	65	-
	Min	26	37	28	28	31	35	34	33	32	33	32	26	-
Soil Temperature at 10 cm	06 UTC	23.6	24.4	24.6	26.0	26.4	27.1	27.0	27.0	26.2	24.0	25.6	30.4	26.2
	12 UTC	27.4	28.4	29.0	29.2	30.3	30.5	31.0	31.0	29.3	28.0	29.4	35.0	30.9
Sunshine Duration		13.6	13.2	12.6	13.0	13.6	13.1	10.4	9.2	9.6	13.7	12.2	12.8	10.7
Precipitation						0.2		0.2	0.1	4.4		4.9		8.7
Evaporation		8.7	9.2	8.7	8.6	8.2	11.4	7.5	9.1	6.4	15.3	93.1	125.1	95.7
Growing Degrees	5	22.5	20.2	21.4	22.5	22.5	22.8	22.9	21.4	19.8	18.4	214.1	229.4	198.0
	10	17.5	15.2	16.4	17.5	17.5	17.8	17.9	16.4	14.8	13.4	164.1	179.4	148.0

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	64.2	77.4	61.2
Precipitation - Reference Evapotranspiration	-59.3	-77.4	-52.5
Number of Rainy Days	4.0	0.0	1.7
Number of Dry Days	6.0	25.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

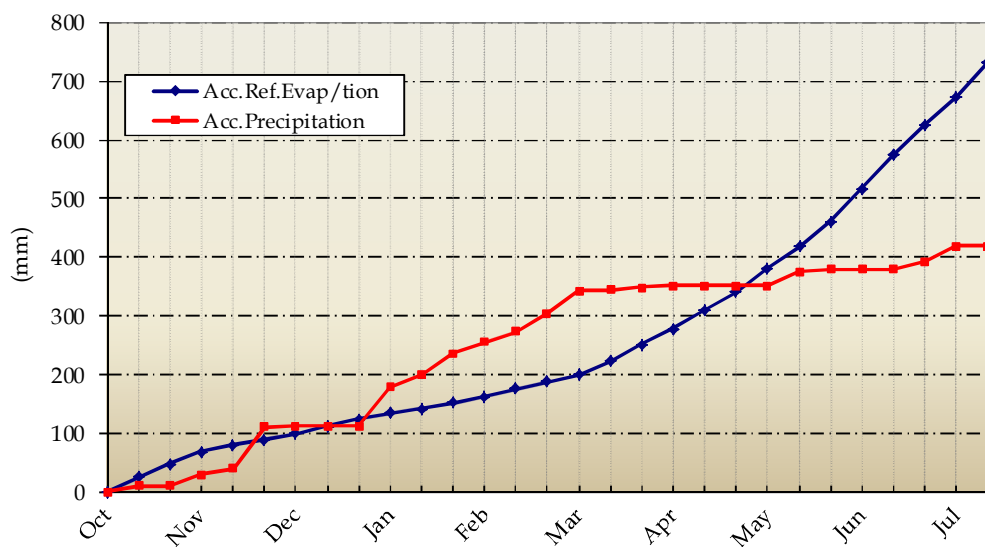


Tanagra

1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.8	33.6	34.7	35.4	35.9	35.0	33.5	31.4	31.2	30.4	33.4	33.7	31.6
	Min	19.2	18.6	20.0	19.9	21.6	20.4	20.4	20.6	17.6	19.4	19.8	20.0	17.5
Relative Humidity	Max	80	80	70	74	70	77	76	92	92	80	79	62	-
	Min	23	24	24	23	19	16	29	31	32	32	25	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		13.2	13.4	12.6	13.2	13.1	12.8	12.2	9.3	10.5	11.9	12.2	13.1	
Precipitation									0.0		0.0	0.0		3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	21.0	21.1	22.4	22.7	23.8	22.7	22.0	21.0	19.4	19.9	215.8	218.6	
	10	16.0	16.1	17.4	17.7	18.8	17.7	17.0	16.0	14.4	14.9	165.8	168.6	

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.3	61.5	
Precipitation - Reference Evapotranspiration	-59.3	-61.5	3.9
Number of Rainy Days	0.0	0.0	1.2
Number of Dry Days	13.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

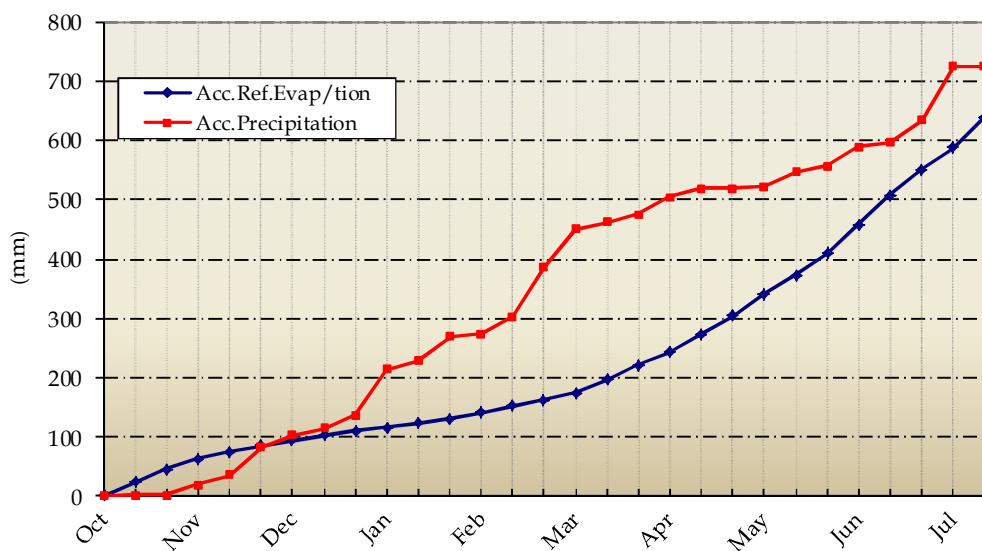


Tripoli

1st 10-day period (1-10/07/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.4	32.1	32.5	33.9	33.7	33.8	31.9	28.5	27.8	27.6	30.5	34.0	30.2
	Min	13.3	14.5	15.1	14.4	13.3	15.7	14.2	15.1	14.9	13.1	14.4	15.0	13.4
Relative Humidity	Max	100	99	98	92	90	92	85	94	99	97	95	77	-
	Min	31	27	15	21	16	17	31	41	38	30	27	18	-
Soil Temperature at 10 cm	06 UTC	21.4	22.8	24.0	25.2	25.8	27.0	-	-	26.2	25.4	24.7	27.1	25.0
	12 UTC	-	31.2	32.2	32.6	33.2	33.6	-	-	32.2	32.6	32.5	33.2	28.1
Sunshine Duration		9.8	11.2	13.0	12.9	13.0	12.5	-	12.8	10.8	12.5	12.1	12.5	10.6
Precipitation									0.0			0.0		7.1
Evaporation		6.0	6.4	8.7	11.7	8.8	-	-	-	7.1	7.9	-	-	64.6
Growing Degrees	5	13.4	18.3	18.8	19.2	18.5	19.8	18.1	16.8	16.4	15.4	174.4	195.2	167.9
	10	8.4	13.3	13.8	14.2	13.5	14.8	13.1	11.8	11.4	10.4	124.4	145.2	117.9

1st 10-day period (1-10/07/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.6	59.8	53.2
Precipitation - Reference Evapotranspiration	-51.6	-59.8	-46.1
Number of Rainy Days	0.0	0.0	1.3
Number of Dry Days	11.0	13.0	-

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