



AGROMETEOROLOGICAL BULLETIN

*August 2016
2nd 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

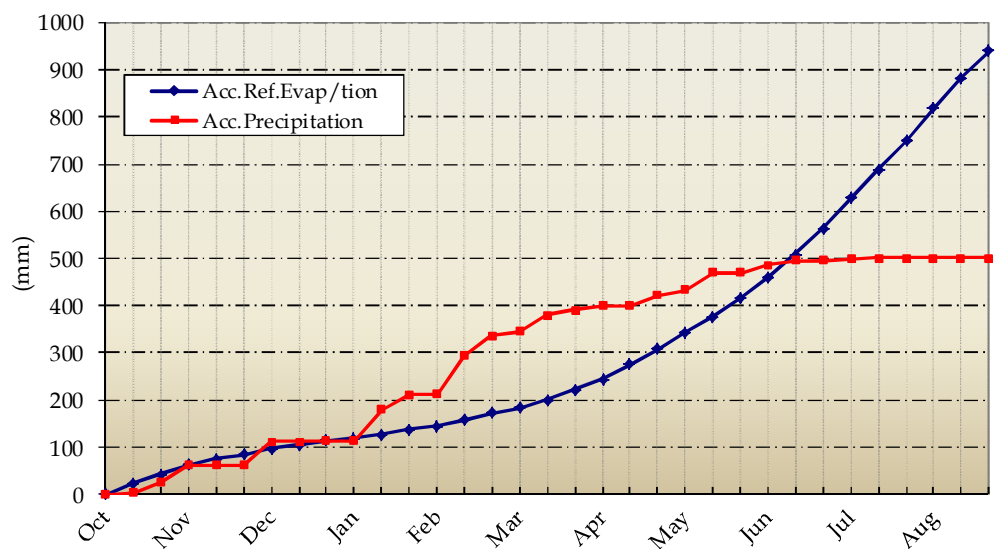
Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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Alexandroupoli

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.8	32.0	26.2	29.6	32.0	33.0	32.6	34.6	34.4	34.2	32.4	34.0	30.5
	Min	20.0	20.8	18.8	16.0	16.0	19.0	19.4	18.4	20.4	20.0	18.9	20.5	17.7
Relative Humidity	Max	72	76	76	67	75	80	74	79	73	75	75	87	-
	Min	30	44	42	25	50	36	49	32	27	32	37	40	-
Soil Temperature at 10 cm	06 UTC	29.4	29.7	27.6	24.8	25.4	26.6	27.3	27.2	27.8	28.2	27.4	28.5	23.8
	12 UTC	35.4	33.6	29.4	31.0	31.4	32.6	32.4	32.8	39.4	33.4	33.1	33.6	27.9
Sunshine Duration		12.7	9.7	8.4	13.0	12.9	12.9	12.8	12.7	12.4	12.1	12.0	12.0	10.0
Precipitation														3.9
Evaporation		10.5	11.0	11.0	13.3	8.9	12.8	7.9	10.3	16.6	11.7	114.0	89.2	94.5
Growing Degrees	5	22.9	21.4	17.5	17.8	19.0	21.0	21.0	21.5	22.4	22.1	206.6	222.6	191.3
	10	17.9	16.4	12.5	12.8	14.0	16.0	16.0	16.5	17.4	17.1	156.6	172.6	141.3

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.4	54.8	55.4
Precipitation - Reference Evapotranspiration	-56.4	-54.8	-51.5
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	47.0	13.0	-

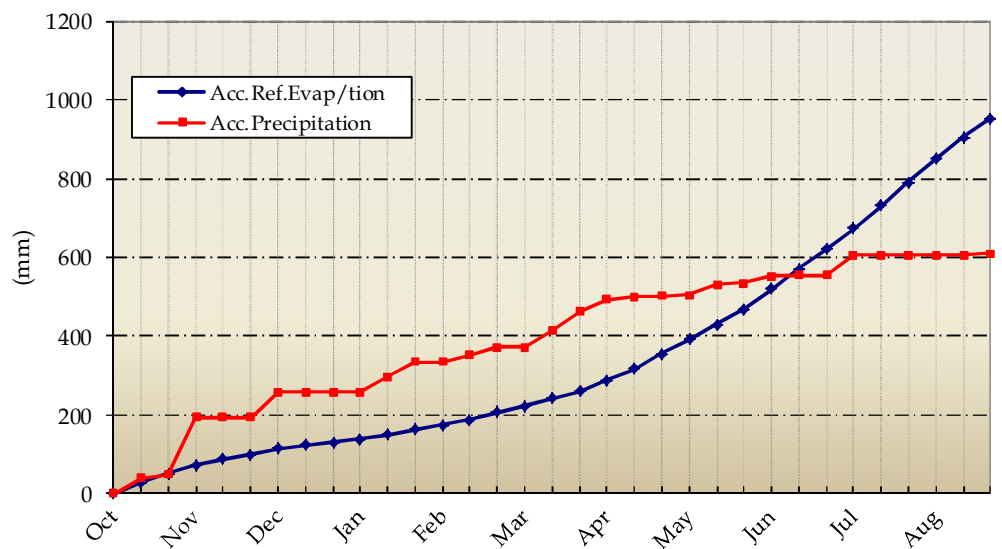
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.0	30.0	31.1	30.2	29.2	30.1	30.2	30.0	30.2	31.2	30.3	31.6	31.2
	Min	21.0	21.0	21.1	18.7	14.8	16.0	17.6	18.2	19.1	18.6	18.6	20.9	18.7
Relative Humidity	Max	84	87	87	90	85	88	88	87	86	88	87	84	-
	Min	41	47	33	28	29	35	38	33	45	43	37	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	31.7
Sunshine Duration		12.3	12.3	7.4	7.4	12.1	11.1	11.1	11.3	10.9	10.5	10.6	10.1	11.2
Precipitation					3.7							3.7		4.0
Evaporation		6.0	7.0	15.5	7.2	6.0	5.4	12.6	9.0	6.0	7.0	81.7	78.5	73.5
Growing Degrees	5	21.0	20.5	21.1	19.5	17.0	18.1	18.9	19.1	19.7	19.9	194.7	212.5	199.2
	10	16.0	15.5	16.1	14.5	12.0	13.1	13.9	14.1	14.7	14.9	144.7	162.5	149.2

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.6	51.3	49.2
Precipitation - Reference Evapotranspiration	-44.9	-51.3	-45.2
Number of Rainy Days	1.0	0.0	0.3
Number of Dry Days	48.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

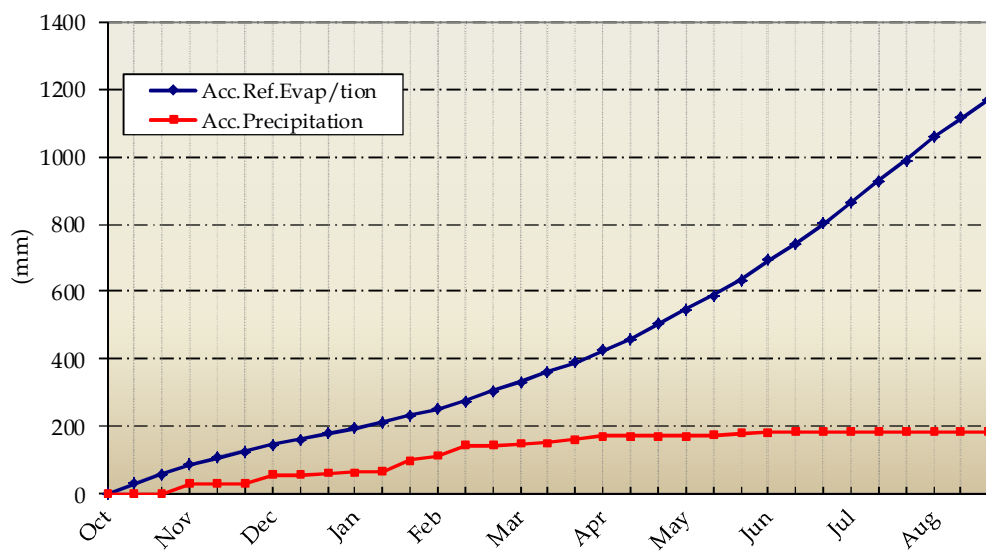


Iraklio

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	31.2	28.0	26.6	26.8	27.6	28.6	31.0	28.8	29.0	28.8	30.4	28.2
	Min	23.0	22.6	24.4	24.0	23.4	23.6	20.2	20.0	20.4	21.2	22.3	22.6	22.2
Relative Humidity	Max	84	90	90	75	78	85	85	82	94	92	86	86	-
	Min	63	48	74	61	62	69	63	52	55	48	60	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.9	11.7	10.4	11.7	12.0	12.0	12.1	11.9	11.9	11.0	11.7	10.7	11.0
Precipitation													25.2	0.0
Evaporation		5.9	6.4	7.4	6.8	9.7	4.9	8.2	5.9	3.5	7.0	65.7	66.8	81.3
Growing Degrees	5	21.6	21.9	21.2	20.3	20.1	20.6	19.4	20.5	19.6	20.1	205.3	215.4	202.0
	10	16.6	16.9	16.2	15.3	15.1	15.6	14.4	15.5	14.6	15.1	155.3	165.4	152.0

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.0	50.3	-
Precipitation - Reference Evapotranspiration	-54.0	-25.1	0.0
Number of Rainy Days	0.0	1.0	0.1
Number of Dry Days	73.0	77.0	-

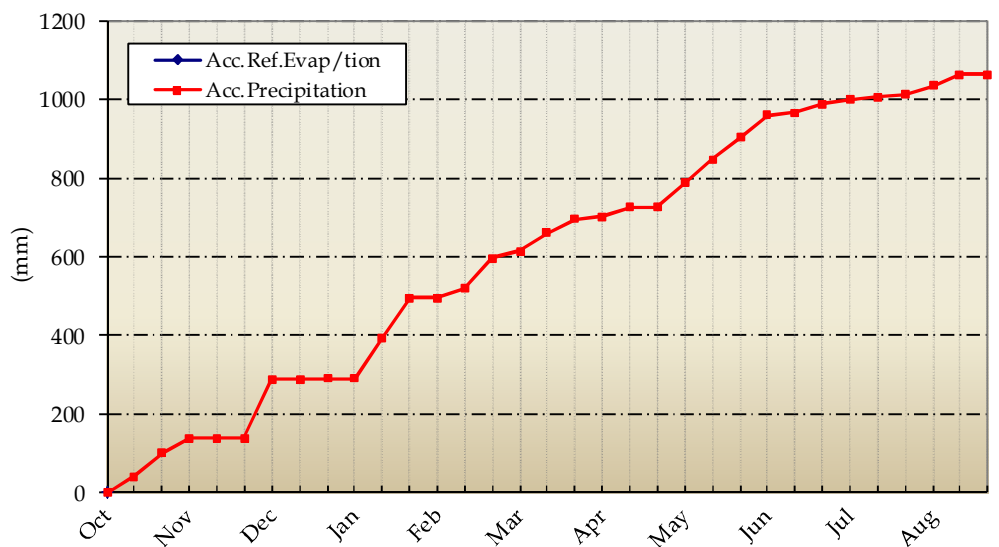
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	31.2	27.8	28.8	32.6	33.2	32.2	31.0	32.6	33.4	31.5	30.9	30.9
	Min	16.0	15.6	18.0	-	12.8	11.8	13.4	12.8	15.6	15.0	14.6	15.2	15.4
Relative Humidity	Max	97	77	-	59	96	85	100	86	95	76	86	99	-
	Min	33	32	-	28	24	25	26	23	28	27	27	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	31.2	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	31.2	27.1
Sunshine Duration		11.4	10.3	-	11.0	10.9	10.6	10.1	9.9	9.6	8.2	10.2	8.5	9.5
Precipitation										0.0		0.0	45.9	11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	64.1
Growing Degrees	5	19.1	18.4	17.9	-	17.7	17.5	17.8	16.9	19.1	19.2	-	180.2	176.6
	10	14.1	13.4	12.9	-	12.7	12.5	12.8	11.9	14.1	14.2	-	130.2	127.8

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	45.3
Precipitation - Reference Evapotranspiration	-	-	-34.0
Number of Rainy Days	0.0	5.0	1.8
Number of Dry Days	17.0	1.0	-

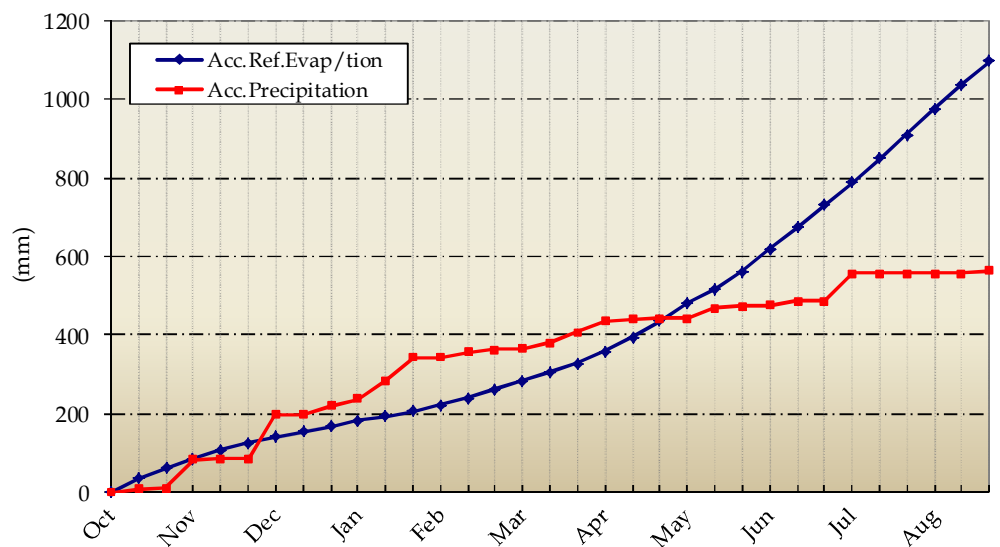
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.3	36.2	30.0	32.3	30.0	32.4	31.9	33.7	30.7	31.6	32.5	32.7	31.4
	Min	22.0	21.4	20.2	19.6	16.7	14.7	16.7	18.6	18.1	19.8	18.8	19.5	18.2
Relative Humidity	Max	79	77	91	76	79	81	79	84	84	81	81	87	-
	Min	33	16	48	23	24	24	28	25	36	40	30	35	-
Soil Temperature at 10 cm	06 UTC	27.4	27.4	27.2	25.6	25.0	24.8	25.0	25.4	25.4	26.0	25.9	25.1	25.7
	12 UTC	29.0	32.6	28.2	27.2	27.6	27.0	27.0	27.2	27.0	27.2	28.0	26.1	29.6
Sunshine Duration		12.0	12.0	4.2	12.0	12.3	12.2	12.1	12.0	11.9	11.5	11.2	10.0	10.6
Precipitation				7.3								7.3	1.8	3.9
Evaporation		14.0	10.7	7.3	11.0	8.0	10.0	0.0	13.6	6.0	8.6	89.2	-	78.6
Growing Degrees	5	24.2	23.8	20.1	21.0	18.4	18.6	19.3	21.2	19.4	20.7	206.5	211.1	198.2
	10	19.2	18.8	15.1	16.0	13.4	13.6	14.3	16.2	14.4	15.7	156.5	161.1	148.2

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.9	52.8	50.7
Precipitation - Reference Evapotranspiration	-52.6	-51.0	-46.8
Number of Rainy Days	1.0	3.0	0.7
Number of Dry Days	36.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

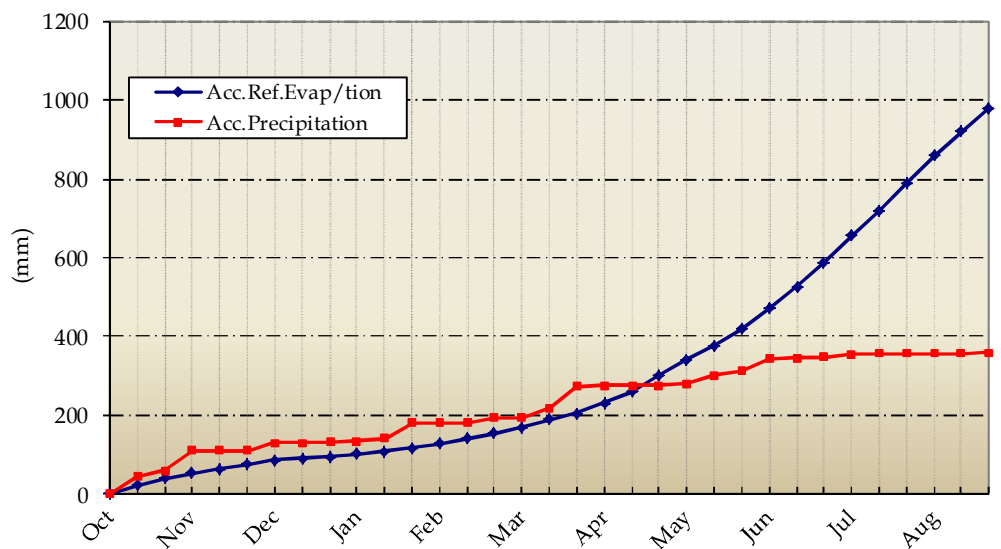


Larisa

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.3	33.0	27.2	28.7	31.6	34.1	35.9	35.0	33.6	33.8	33.0	35.1	32.3
	Min	19.2	21.0	21.0	16.8	14.2	13.9	15.7	17.5	18.0	18.6	17.6	18.9	17.5
Relative Humidity	Max	72	82	77	80	74	75	70	69	69	73	74	83	-
	Min	21	26	28	26	21	19	14	23	22	26	23	23	-
Soil Temperature at 10 cm	06 UTC	29.4	29.4	28.8	27.0	27.2	27.6	28.0	28.4	28.2	28.4	28.2	28.0	26.4
	12 UTC	29.2	29.2	28.4	29.4	27.2	27.4	27.6	28.2	27.6	28.4	28.3	28.0	28.7
Sunshine Duration		11.3	10.1	4.8	9.8	11.8	11.4	11.2	11.0	8.7	11.4	10.2	11.0	9.9
Precipitation			2.0									2.0		6.2
Evaporation		11.4	21.2	7.0	5.5	10.6	11.3	15.7	6.3	9.2	11.2	109.4	88.9	84.1
Growing Degrees	5	23.3	22.0	19.1	17.8	17.9	19.0	20.8	21.3	20.8	21.2	203.1	220.1	199.1
	10	18.3	17.0	14.1	12.8	12.9	14.0	15.8	16.3	15.8	16.2	153.1	170.1	149.1

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.8	56.5	53.3
Precipitation - Reference Evapotranspiration	-57.8	-56.5	-47.1
Number of Rainy Days	1.0	0.0	1.4
Number of Dry Days	2.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

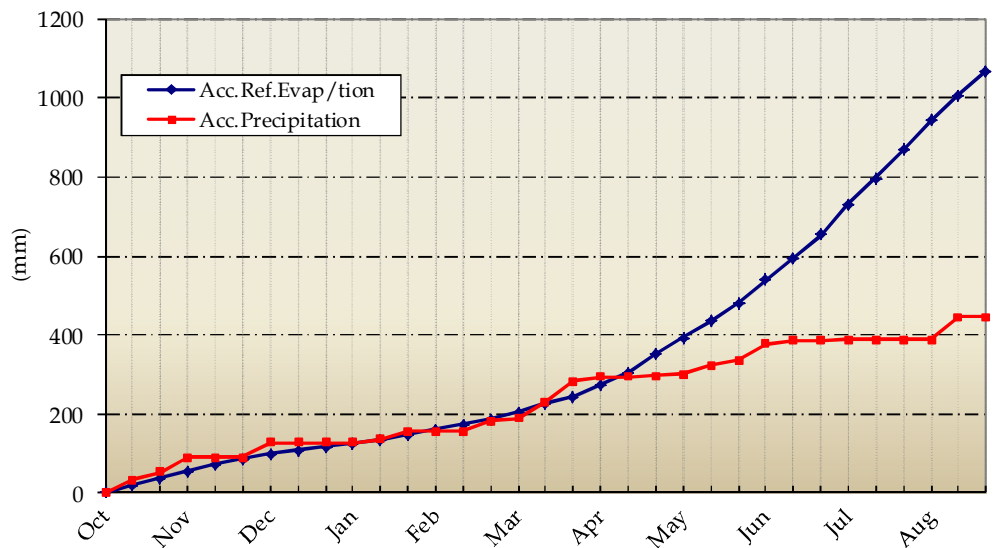


Mikra

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	31.0	27.0	28.0	31.0	32.2	32.8	33.4	32.1	32.2	31.3	33.8	31.3
	Min	20.7	21.6	20.3	17.0	15.8	17.2	17.8	19.0	22.2	20.9	19.2	20.5	18.9
Relative Humidity	Max	77	56	73	77	75	69	74	76	77	82	74	75	-
	Min	30	33	29	33	24	23	26	22	29	33	28	28	-
Soil Temperature at 10 cm	06 UTC	26.8	26.4	25.4	25.4	25.4	26.0	26.5	27.2	28.0	38.0	27.5	28.8	26.0
	12 UTC	36.2	29.0	29.0	29.0	29.2	29.0	29.2	29.2	32.0	31.8	30.4	32.7	30.5
Sunshine Duration		12.3	12.1	6.7	11.9	12.1	12.2	12.8	12.4	8.6	11.6	11.3	11.5	10.0
Precipitation														6.6
Evaporation		12.3	12.6	13.8	12.0	0.1	7.8	4.0	6.7	11.3	8.3	88.9	87.3	83.0
Growing Degrees	5	22.2	21.3	18.7	17.5	18.4	19.7	20.3	21.2	22.2	21.6	202.9	221.8	201.0
	10	17.2	16.3	13.7	12.5	13.4	14.7	15.3	16.2	17.2	16.6	152.9	171.8	151.0

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.5	58.2	52.4
Precipitation - Reference Evapotranspiration	-60.5	-58.2	-45.8
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	11.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

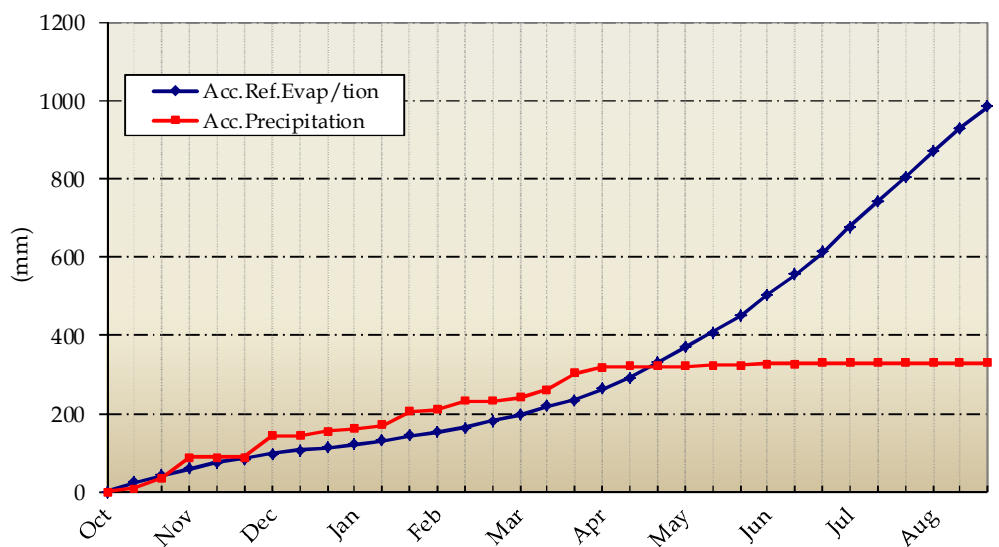


Tanagra

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.2	31.8	25.6	26.8	28.0	32.1	34.8	35.0	33.6	31.8	31.6	34.4	31.8
	Min	19.2	22.5	20.4	17.3	18.0	18.2	15.6	19.0	19.6	16.9	18.7	20.9	18.4
Relative Humidity	Max	62	66	77	63	53	57	56	54	59	61	61	71	-
	Min	18	32	44	25	27	17	17	16	24	30	25	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.4	11.6	8.4	12.4	12.7	12.7	12.5	12.2	10.4	12.1	11.7	10.7	
Precipitation				0.0								0.0		3.4
Evaporation		10.8	8.5	6.0	10.3	9.7	0.0	11.6	14.3	8.0	9.4	88.6	103.6	
Growing Degrees	5	22.7	22.2	18.0	17.1	18.0	20.2	20.2	22.0	21.6	19.4	201.2	226.3	
	10	17.7	17.2	13.0	12.1	13.0	15.2	15.2	17.0	16.6	14.4	151.2	176.3	

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.6	50.5	
Precipitation - Reference Evapotranspiration	-54.6	-50.5	3.4
Number of Rainy Days	0.0	0.0	0.8
Number of Dry Days	53.0	50.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

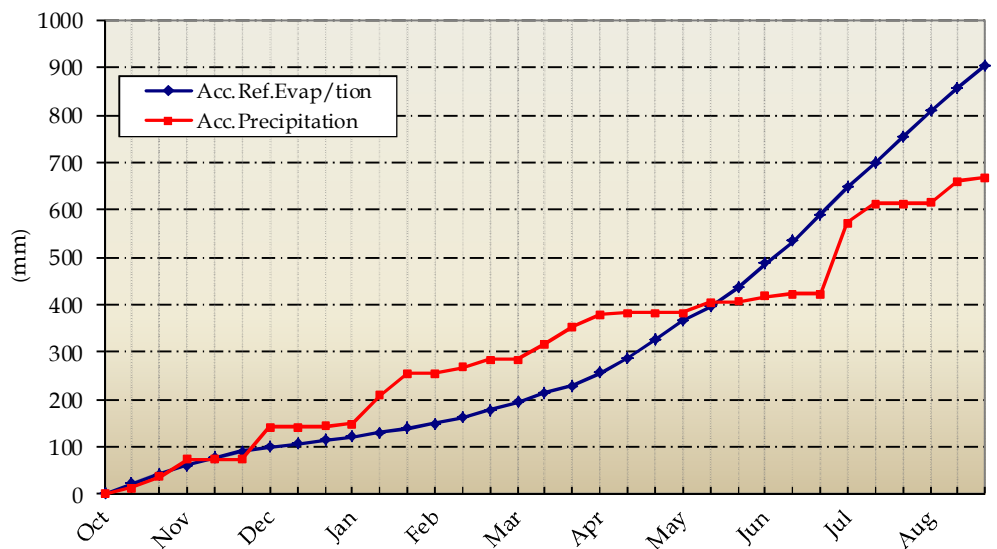


Tripoli

2nd 10-day period (11-20/08/2016)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.1	30.5	27.5	27.1	29.6	33.4	33.0	32.3	32.0	31.2	30.9	30.6	29.9
	Min	15.8	14.6	19.3	15.0	11.0	10.2	11.5	12.7	13.5	14.8	13.8	14.5	14.5
Relative Humidity	Max	100	97	86	81	78	89	89	94	100	100	91	99	-
	Min	33	26	41	27	19	14	13	10	18	29	23	29	-
Soil Temperature at 10 cm	06 UTC	24.0	24.0	24.6	23.0	22.6	22.8	23.8	24.8	25.2	23.4	23.8	23.3	24.7
	12 UTC	30.4	30.6	-	-	-	29.6	30.9	30.2	-	-	30.3	28.0	27.4
Sunshine Duration		12.1	12.2	4.8	10.9	12.1	12.1	11.9	11.7	9.3	-	10.8	8.9	9.7
Precipitation										7.0		7.0	0.8	13.8
Evaporation		6.3	8.2	5.7	6.3	7.7	9.0	6.9	7.1	6.5	-	-	-	56.3
Growing Degrees	5	19.0	17.6	18.4	16.1	15.3	16.8	17.3	17.5	17.8	18.0	173.6	175.9	172.3
	10	14.0	12.6	13.4	11.1	10.3	11.8	12.3	12.5	12.8	13.0	123.6	125.9	122.3

2nd 10-day period (11-20/08/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.4	42.9	47.6
Precipitation - Reference Evapotranspiration	-40.4	-42.1	-33.8
Number of Rainy Days	1.0	1.0	1.4
Number of Dry Days	9.0	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_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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Issue Editors :

Papakrivou Anastasia

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