



AGROMETEOROLOGICAL BULLETIN

September 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
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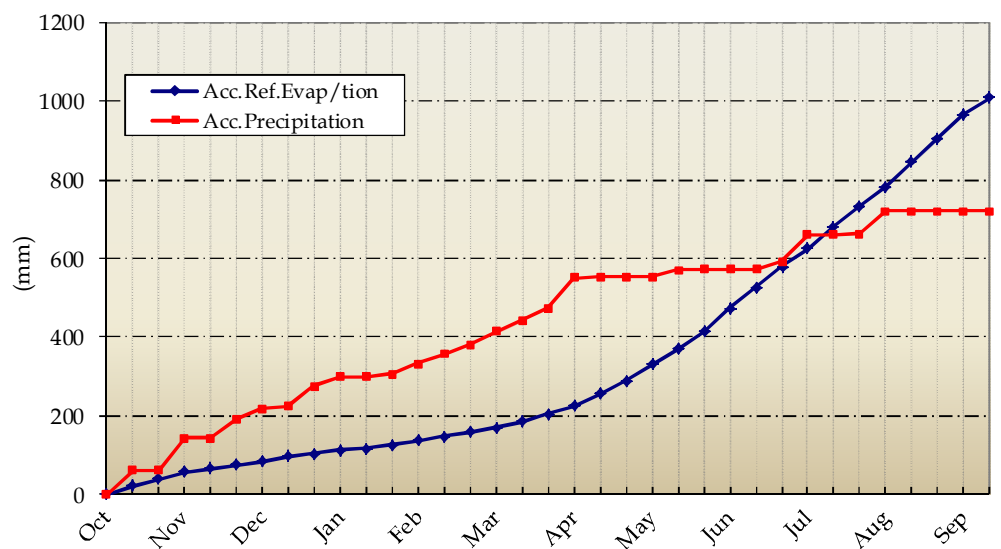
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Alexandroupoli

1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.6	36.2	33.6	30.4	30.0	26.8	29.4	31.6	29.2	27.2	31.0	28.5	27.3
	Min	17.8	15.4	19.0	21.0	17.8	15.0	16.2	19.0	14.4	19.6	17.5	14.1	15.0
Relative Humidity	Max	64	77	72	82	90	83	91	91	85	76	81	86	-
	Min	21	18	29	45	42	45	58	32	45	35	37	39	-
Soil Temperature at 10 cm	06 UTC	27.0	26.8	26.6	26.6	26.6	25.6	24.8	26.4	24.0	25.0	25.9	23.2	21.2
	12 UTC	28.8	31.0	31.6	31.0	31.6	29.4	29.2	30.0	28.0	27.8	29.8	26.5	24.9
Sunshine Duration		12.0	12.6	12.2	11.0	9.3	7.9	11.5	8.1	10.1	7.1	10.2	11.1	8.8
Precipitation									0.9			0.9		6.6
Evaporation		13.5	13.6	2.7	7.2	8.0	4.6	5.8	4.9	5.4	4.6	70.3	68.1	73.7
Growing Degrees	5	21.7	20.8	21.3	20.7	18.9	15.9	17.8	20.3	16.8	18.4	192.6	162.9	161.8
	10	16.7	15.8	16.3	15.7	13.9	10.9	12.8	15.3	11.8	13.4	142.6	112.9	111.8

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.7	38.9	42.4
Precipitation - Reference Evapotranspiration	-40.8	-38.9	-35.8
Number of Rainy Days	1.0	0.0	1.1
Number of Dry Days	40.0	19.0	-

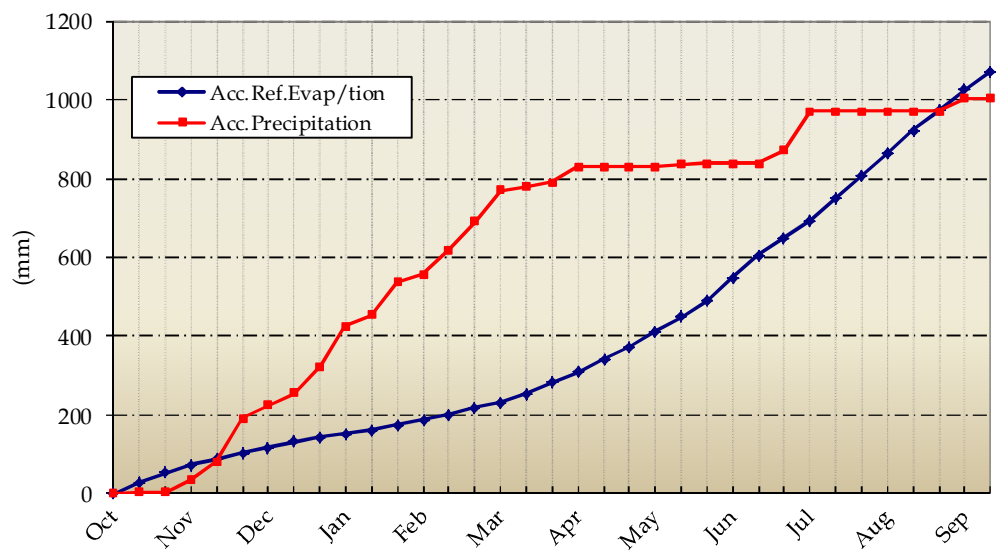
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	31.8	32.0	30.0	30.8	28.8	29.6	30.1	30.2	30.6	30.6	29.0	28.8
	Min	19.3	19.0	18.7	20.4	24.6	22.9	19.4	20.2	18.0	18.4	20.1	18.5	17.3
Relative Humidity	Max	85	86	87	85	65	82	86	90	94	88	85	86	-
	Min	33	31	35	37	44	48	43	44	34	31	38	41	-
Soil Temperature at 10 cm	06 UTC	26.4	26.5	26.0	26.5	26.8	26.6	26.4	26.2	26.4	26.0	26.4	25.7	24.8
	12 UTC	30.8	28.0	30.4	30.5	29.8	29.9	28.4	28.0	29.4	29.0	29.4	28.6	28.9
Sunshine Duration		11.7	11.6	11.7	11.6	11.9	11.6	11.1	11.4	10.5	8.6	11.2	10.3	9.7
Precipitation														5.8
Evaporation		7.0	7.2	7.0	7.4	8.0	7.0	7.0	8.0	3.6	4.4	66.6	56.0	62.5
Growing Degrees	5	20.5	20.4	20.4	20.2	22.7	20.9	19.5	20.2	19.1	19.5	203.2	187.7	180.3
	10	15.5	15.4	15.4	15.2	17.7	15.9	14.5	15.2	14.1	14.5	153.2	137.7	130.3

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.1	42.7	40.4
Precipitation - Reference Evapotranspiration	-47.1	-42.7	-34.6
Number of Rainy Days	0.0	0.0	1.2
Number of Dry Days	14.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

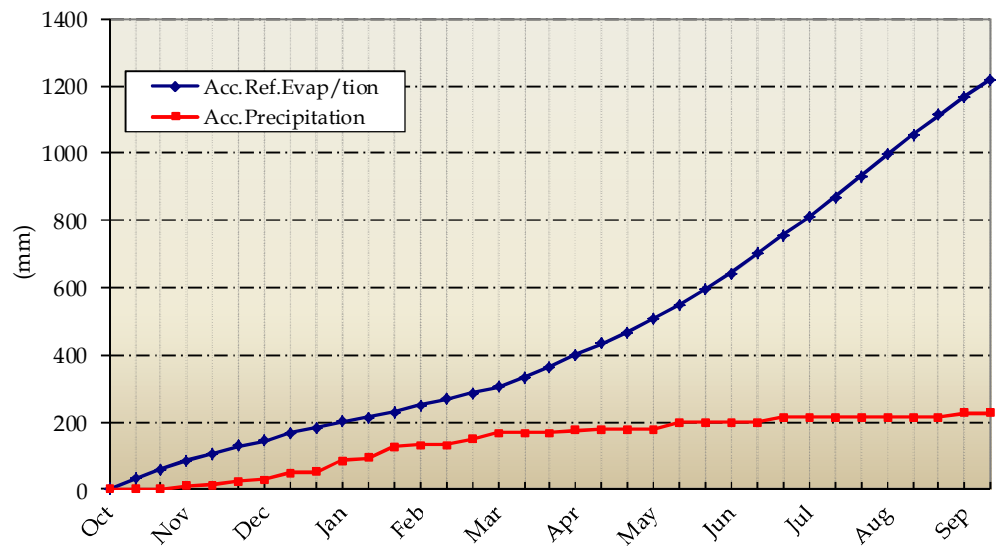


Iraklio

1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.2	29.8	29.8	31.0	29.0	29.0	28.6	28.6	28.4	28.4	29.2	28.4	27.0
	Min	22.4	20.6	24.0	21.6	21.8	24.4	21.0	21.4	25.0	25.0	22.7	19.9	20.4
Relative Humidity	Max	84	84	85	89	85	83	87	86	83	83	85	83	-
	Min	53	52	51	46	58	59	58	61	63	57	56	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.3	11.2	11.0	10.7	11.4	11.5	11.1	11.0	10.2	10.5	11.0	10.0	9.9
Precipitation										0.0		0.0		1.6
Evaporation		6.0	4.0	2.8	4.4	8.0	5.7	4.6	6.3	4.7	7.9	54.4	49.7	74.3
Growing Degrees	5	20.8	20.2	21.9	21.3	20.4	21.7	19.8	20.0	21.7	21.7	209.5	191.7	187.3
	10	15.8	15.2	16.9	16.3	15.4	16.7	14.8	15.0	16.7	16.7	159.5	141.7	137.3

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.4	45.0	-
Precipitation - Reference Evapotranspiration	-50.4	-45.0	1.6
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	12.0	54.0	-

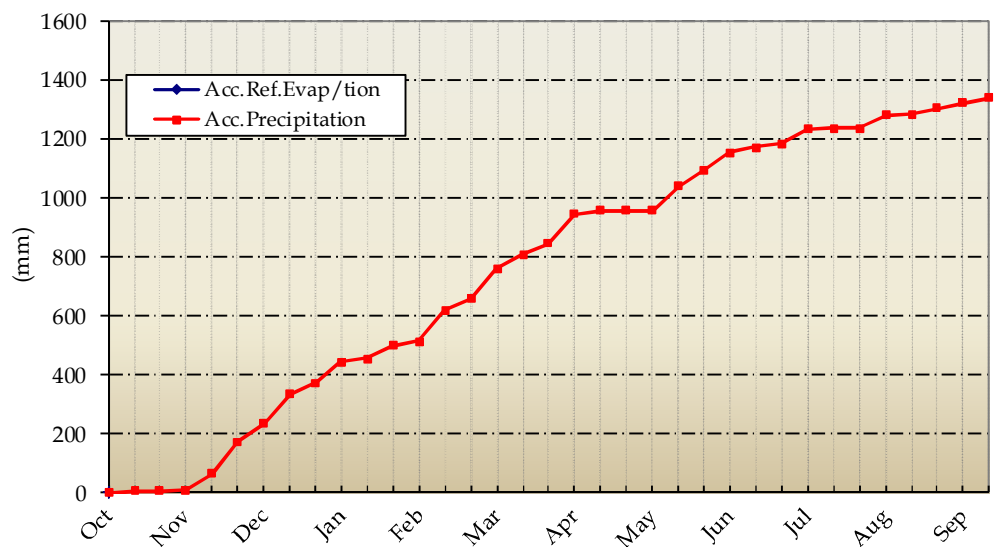
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	31.0	31.6	29.0	27.2	27.0	30.0	28.0	28.0	30.8	29.5	28.8	27.0
	Min	15.4	15.6	14.6	13.4	13.0	13.0	13.0	15.0	13.0	13.4	13.9	12.4	13.0
Relative Humidity	Max	98	100	98	100	83	100	100	100	100	100	98	93	-
	Min	31	33	40	38	38	39	34	47	33	33	37	33	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.8
Sunshine Duration		9.9	9.3	9.7	9.5	9.6	9.0	8.3	7.2	7.0	9.2	8.9	8.1	7.5
Precipitation									18.0			18.0	7.9	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	44.5
Growing Degrees	5	18.8	18.3	18.1	16.2	15.1	15.0	16.5	16.5	15.5	17.1	167.1	155.7	150.0
	10	13.8	13.3	13.1	11.2	10.1	10.0	11.5	11.5	10.5	12.1	117.1	105.7	100.0

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.0
Precipitation - Reference Evapotranspiration	-	-	-16.6
Number of Rainy Days	1.0	2.0	2.1
Number of Dry Days	11.0	16.0	-

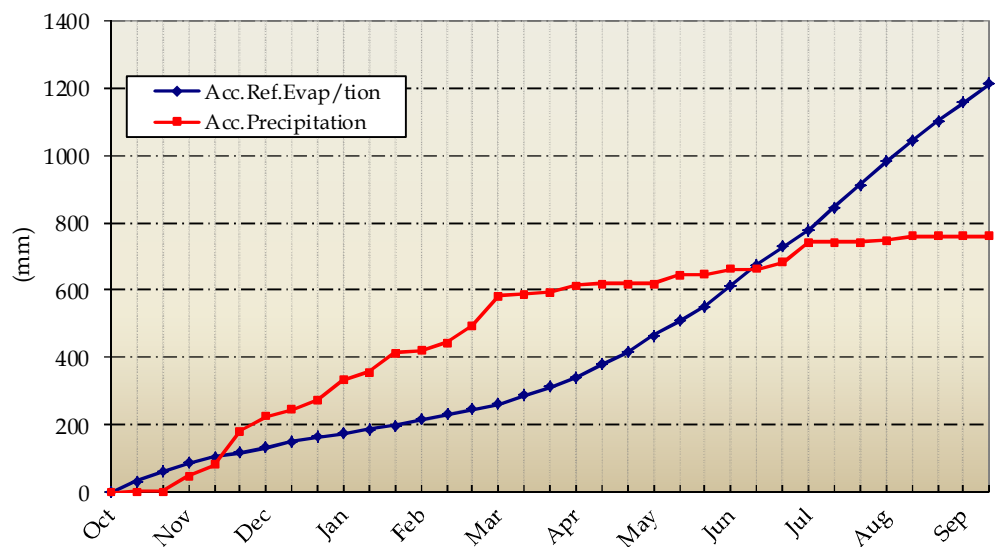
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.4	34.7	35.4	32.4	32.6	32.1	32.8	32.3	30.7	31.8	32.9	30.6	29.3
	Min	18.0	18.2	18.7	18.9	20.2	21.1	16.9	19.0	20.4	17.1	18.8	17.3	16.6
Relative Humidity	Max	78	73	84	89	76	81	85	87	81	86	82	83	-
	Min	19	20	18	27	30	31	24	30	38	29	27	36	-
Soil Temperature at 10 cm	06 UTC	26.0	26.2	26.2	26.4	26.0	26.2	26.0	26.2	26.2	24.8	26.0	-	23.8
	12 UTC	29.2	29.4	29.4	29.0	28.8	28.6	28.6	28.6	28.0	28.6	28.8	-	27.2
Sunshine Duration		11.8	11.9	11.6	11.3	11.6	11.5	11.5	10.8	11.2	9.4	11.3	10.9	9.3
Precipitation														7.7
Evaporation		10.0	7.4	7.4	5.0	4.0	7.0	8.0	9.8	0.2	6.6	65.4	74.4	67.1
Growing Degrees	5	21.2	21.5	22.1	20.7	21.4	21.6	19.9	20.7	20.6	19.5	208.9	189.9	179.8
	10	16.2	16.5	17.1	15.7	16.4	16.6	14.9	15.7	15.6	14.5	158.9	139.9	129.8

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.1	50.1	43.1
Precipitation - Reference Evapotranspiration	-57.1	-50.1	-35.4
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	14.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

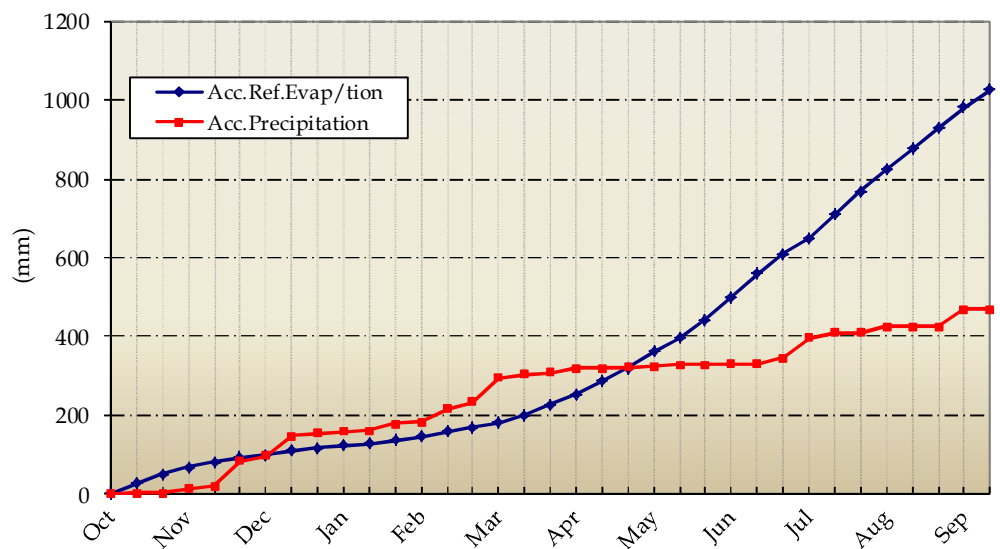


Larisa

1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.9	34.0	33.8	34.1	32.4	31.0	32.3	31.0	31.2	30.8	32.4	31.3	29.4
	Min	17.4	16.2	16.2	16.8	17.8	20.0	17.8	17.8	15.5	15.7	17.1	15.7	14.9
Relative Humidity	Max	87	79	83	83	70	72	80	85	91	75	80	89	-
	Min	24	28	31	21	25	31	26	31	27	27	27	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.4
Sunshine Duration		10.1	10.6	10.3	10.3	10.5	10.0	9.0	4.8	9.5	10.1	9.5	9.4	8.7
Precipitation													1.0	5.6
Evaporation		5.2	8.0	7.0	9.1	8.5	6.8	10.4	5.0	5.4	5.8	71.2	75.9	63.7
Growing Degrees	5	20.2	20.1	20.0	20.5	20.1	20.5	20.1	19.4	18.4	18.3	197.4	185.0	171.4
	10	15.2	15.1	15.0	15.5	15.1	15.5	15.1	14.4	13.4	13.3	147.4	135.0	121.4

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.6	44.9	42.5
Precipitation - Reference Evapotranspiration	-44.6	-43.9	-36.9
Number of Rainy Days	0.0	1.0	1.4
Number of Dry Days	13.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

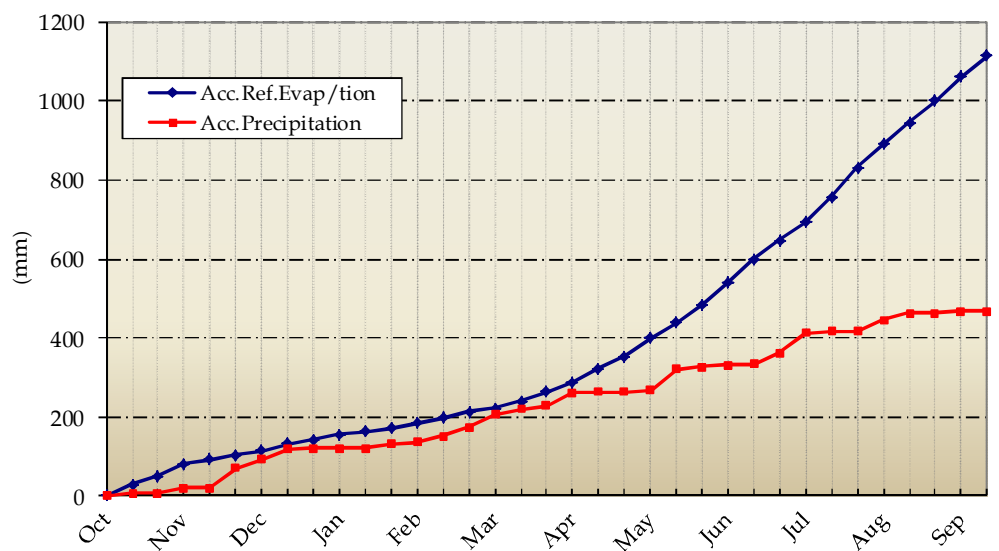


Mikra

1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.0	34.4	33.7	32.5	30.9	30.4	31.4	31.0	31.2	30.2	31.9	29.1	28.1
	Min	20.4	18.9	19.6	19.4	19.4	22.6	17.6	21.8	17.6	22.8	20.0	16.8	16.4
Relative Humidity	Max	62	59	64	72	65	62	78	69	69	58	66	78	-
	Min	18	19	24	23	30	28	26	34	30	29	26	30	-
Soil Temperature at 10 cm	06 UTC	26.8	26.4	27.0	27.2	27.0	25.6	26.0	27.1	25.8	26.2	26.5	23.5	22.6
	12 UTC	29.8	30.0	30.6	30.2	29.2	29.2	30.0	28.8	29.2	28.6	29.6	25.8	26.5
Sunshine Duration		9.9	9.9	10.5	11.0	9.2	11.4	10.7	4.9	11.0	10.5	9.9	9.7	8.4
Precipitation													0.0	7.2
Evaporation		11.7	5.0	7.0	11.6	9.5	6.8	8.7	5.2	10.8	10.5	86.8	65.1	68.9
Growing Degrees	5	21.7	21.7	21.7	21.0	20.2	21.5	19.5	21.4	19.4	21.5	209.4	179.8	172.3
	10	16.7	16.7	16.7	16.0	15.2	16.5	14.5	16.4	14.4	16.5	159.4	129.8	122.3

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.8	42.7	42.4
Precipitation - Reference Evapotranspiration	-52.8	-42.7	-35.2
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	13.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

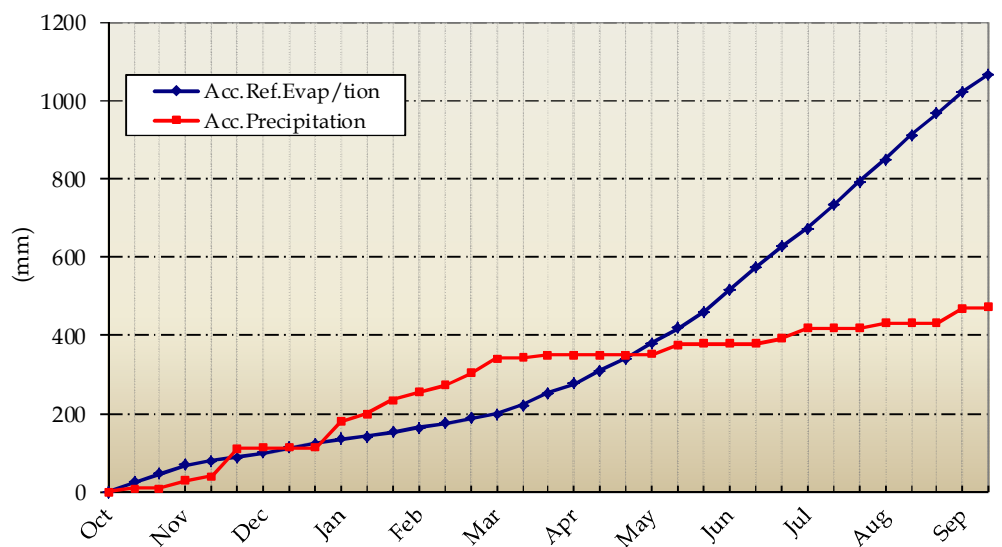


Tanagra

1st 10-day period (1-10/09/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	33.0	33.3	33.0	31.5	30.4	31.6	31.2	29.3	29.2	31.5	31.2	28.9
	Min	19.5	19.0	19.0	19.6	19.6	20.3	19.0	19.7	18.9	17.8	19.2	16.6	16.1
Relative Humidity	Max	65	61	60	73	72	76	80	78	79	68	71	83	-
	Min	22	19	21	22	18	29	29	31	31	28	25	24	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.5	11.7	10.5	11.3	12.4	10.1	10.1	6.7	10.7	10.9	10.6	10.8	
Precipitation									0.9			0.9	0.0	8.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	20.9	21.0	21.2	21.3	20.6	20.4	20.3	20.5	19.1	18.5	203.6	188.9	
	10	15.9	16.0	16.2	16.3	15.6	15.4	15.3	15.5	14.1	13.5	153.6	138.9	

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.7	43.0	
Precipitation - Reference Evapotranspiration	-43.8	-43.0	8.1
Number of Rainy Days	1.0	0.0	1.4
Number of Dry Days	9.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

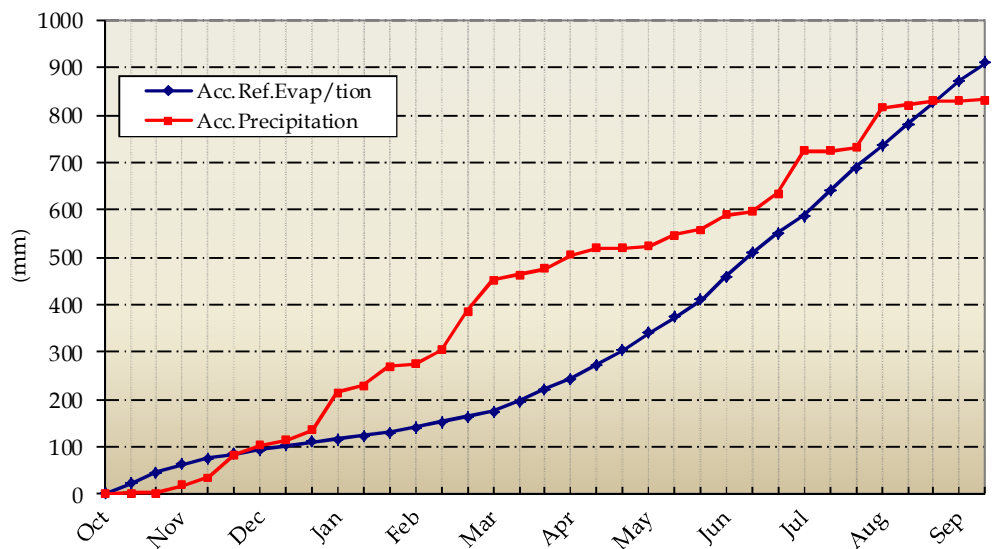


Tripoli

1st 10-day period (1-10/09/2018)		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	31.9	33.2	31.1	28.2	28.7	29.5	29.3	27.6	28.2	29.9	30.1	27.4
	Min	11.3	11.9	10.7	12.5	11.9	12.1	10.7	12.9	11.9	10.7	11.7	11.2	12.2
Relative Humidity	Max	87	91	86	89	91	92	92	97	100	100	92	90	-
	Min	18	20	17	14	24	24	24	30	33	27	23	22	-
Soil Temperature at 10 cm	06 UTC	-	-	23.6	23.8	23.4	23.6	23.0	23.4	-	21.8	23.2	24.1	21.7
	12 UTC	-	-	29.2	29.2	28.6	28.8	28.8	-	-	26.4	28.5	27.8	24.2
Sunshine Duration		11.1	11.4	11.4	11.3	11.3	11.1	11.2	7.9	7.5	7.6	10.2	10.8	9.3
Precipitation									1.2	0.4		1.6		5.8
Evaporation		-	-	6.7	6.6	5.9	5.3	5.4	2.5	3.0	4.7	-	-	47.2
Growing Degrees	5	16.3	16.9	17.0	16.8	15.1	15.4	15.1	16.1	14.8	14.5	157.8	156.7	148.0
	10	11.3	11.9	12.0	11.8	10.1	10.4	10.1	11.1	9.8	9.5	107.8	106.7	98.0

1st 10-day period (1-10/09/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.8	40.9	39.2
Precipitation - Reference Evapotranspiration	-37.2	-40.9	-33.4
Number of Rainy Days	2.0	0.0	1.6
Number of Dry Days	21.0	11.0	-

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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