



AGROMETEOROLOGICAL BULLETIN

September 2019
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



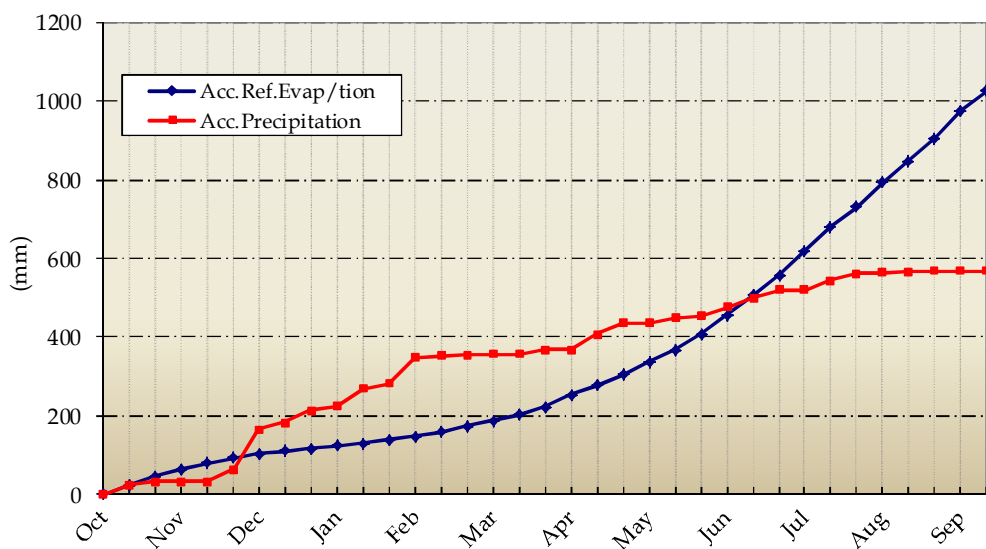
Hellenic National Meteorological Service
 Division of Climatology-Applications
 El. Venizelou Street 14, 16777
 Helliniko, Athens

Web adresses of HNMS
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1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	33.6	32.4	32.4	31.8	30.6	30.4	31.4	30.0	30.2	31.5	31.0	27.3
	Min	20.0	16.4	19.0	17.8	22.0	20.0	14.4	16.4	18.6	17.4	18.2	17.5	15.0
Relative Humidity	Max	81	74	64	66	82	91	90	80	72	83	78	81	-
	Min	28	21	24	24	34	30	29	36	31	31	29	37	-
Soil Temperature at 10 cm	06 UTC	26.0	26.4	26.8	26.4	27.0	25.6	25.4	25.6	24.8	25.2	25.9	25.9	21.2
	12 UTC	31.4	32.2	32.4	31.6	31.6	31.6	30.4	30.4	30.0	30.2	31.2	29.8	24.9
Sunshine Duration		11.1	11.9	11.7	10.5	11.3	11.3	10.3	10.4	11.0	9.7	10.9	10.2	8.8
Precipitation													0.9	6.6
Evaporation		11.4	8.1	9.9	8.6	8.0	10.6	10.1	5.5	6.8	5.8	84.8	70.3	73.7
Growing Degrees	5	21.2	20.0	20.7	20.1	21.9	20.3	17.4	18.9	19.3	18.8	198.6	192.6	161.8
	10	16.2	15.0	15.7	15.1	16.9	15.3	12.4	13.9	14.3	13.8	148.6	142.6	111.8

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.8	41.7	42.4
Precipitation - Reference Evapotranspiration	-51.8	-40.8	-35.8
Number of Rainy Days	0.0	1.0	1.1
Number of Dry Days	24.0	40.0	-

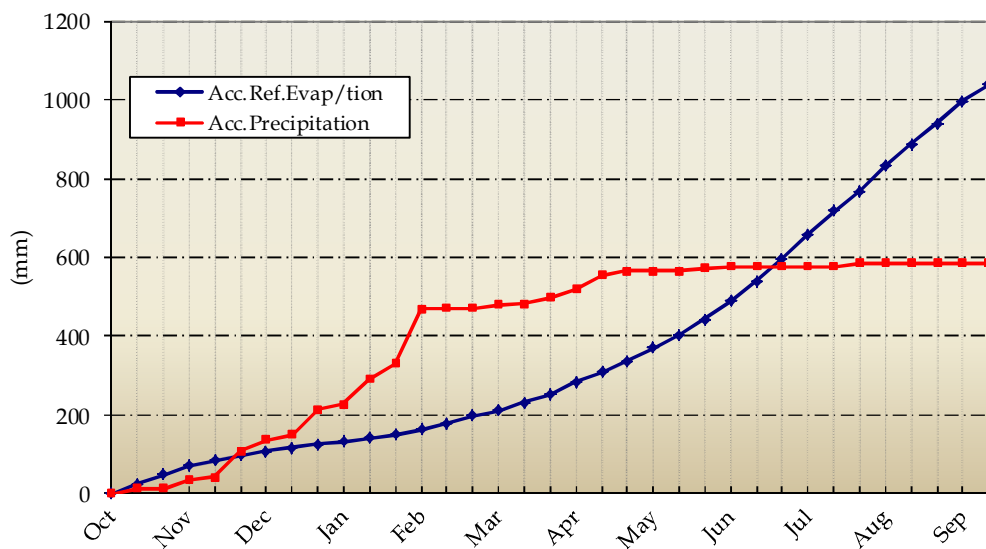
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.4	31.6	30.4	33.4	33.3	32.1	31.2	30.5	30.0	30.4	31.5	30.6	28.8
	Min	16.7	19.0	21.8	19.0	15.8	17.1	20.8	20.3	20.5	18.6	19.0	20.1	17.3
Relative Humidity	Max	85	93	91	99	98	94	96	99	96	97	95	85	-
	Min	24	40	49	29	20	30	45	39	45	36	36	38	-
Soil Temperature at 10 cm	06 UTC	26.4	28.4	28.4	28.2	26.2	28.0	28.2	27.6	28.2	27.4	27.7	26.4	24.8
	12 UTC	30.4	30.2	30.2	30.2	30.4	30.0	29.8	30.2	30.0	30.8	30.2	29.4	28.9
Sunshine Duration		10.9	8.4	6.1	10.8	10.3	10.4	8.7	9.6	10.2	9.8	9.5	11.2	9.7
Precipitation														5.8
Evaporation		8.4	8.0	10.0	9.0	8.4	9.0	8.0	8.2	7.0	3.4	79.4	66.6	62.5
Growing Degrees	5	19.6	20.3	21.1	21.2	19.6	19.6	21.0	20.4	20.3	19.5	202.5	203.2	180.3
	10	14.6	15.3	16.1	16.2	14.6	14.6	16.0	15.4	15.3	14.5	152.5	153.2	130.3

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.6	47.1	40.4
Precipitation - Reference Evapotranspiration	-40.6	-47.1	-34.6
Number of Rainy Days	0.0	0.0	1.2
Number of Dry Days	56.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

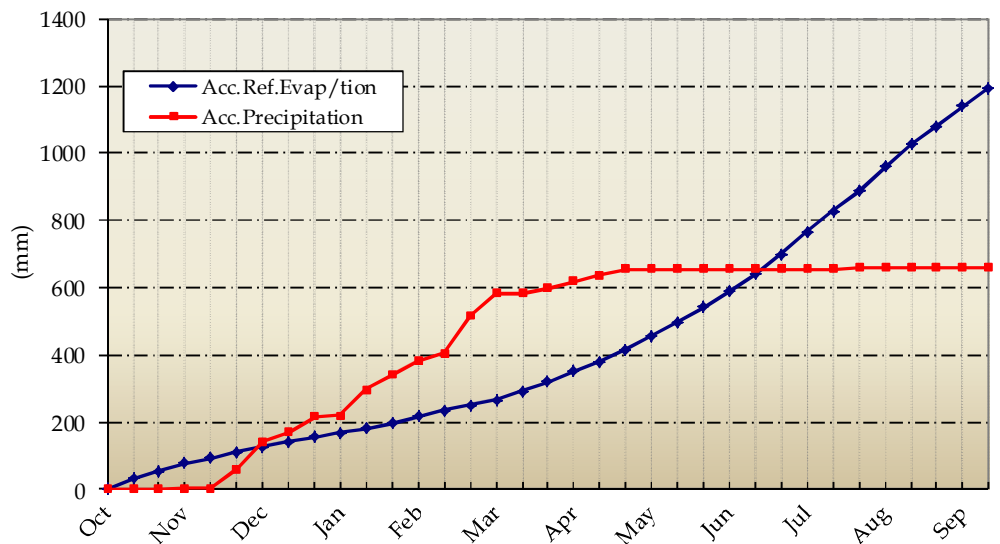


Iraklio

1st 10-day period (1-10/09/2019)		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	28.0	29.0	27.8	27.4	27.4	27.6	28.2	27.8	28.0	27.9	29.2	27.0
	Min	22.8	24.0	23.4	24.4	22.2	21.2	21.0	20.0	24.0	20.2	22.3	22.7	20.4
Relative Humidity	Max	69	65	65	70	83	85	87	72	71	71	74	85	-
	Min	52	49	42	49	58	68	41	50	47	49	50	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.5	11.2	11.3	11.5	9.8	10.9	11.2	10.8	11.3	11.2	11.1	11.0	9.9
Precipitation													0.0	1.6
Evaporation		7.1	8.7	7.6	6.8	4.8	5.5	2.3	13.1	5.3	7.9	69.1	54.4	74.3
Growing Degrees	5	20.1	21.0	21.2	21.1	19.8	19.3	19.3	19.1	20.9	19.1	200.9	209.5	187.3
	10	15.1	16.0	16.2	16.1	14.8	14.3	14.3	14.1	15.9	14.1	150.9	159.5	137.3

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.5	50.4	-
Precipitation - Reference Evapotranspiration	-52.5	-50.4	1.6
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	55.0	12.0	-

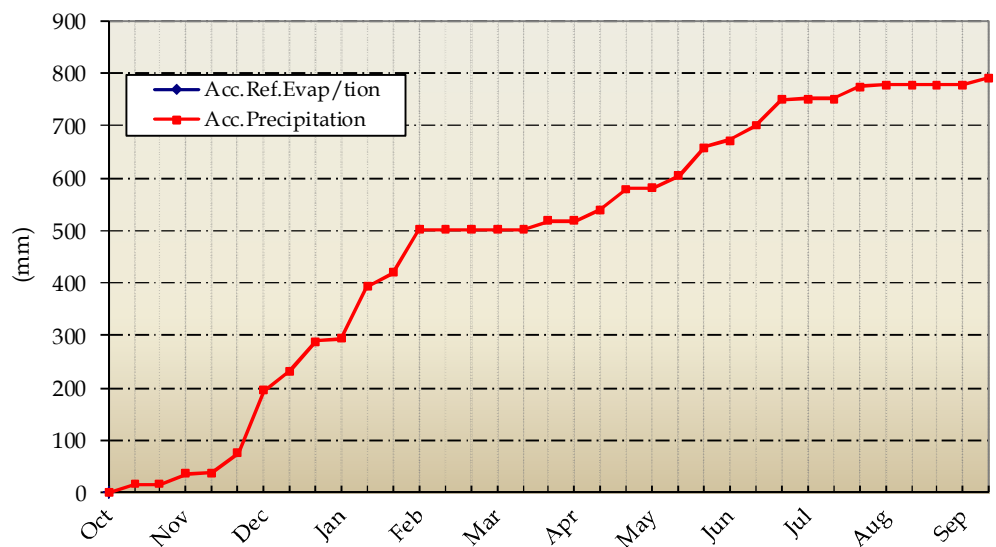
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2019)		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	31.5	30.6	31.6	32.0	32.0	28.6	29.8	29.0	30.0	30.7	29.5	27.0
	Min	14.0	16.0	15.0	17.0	12.2	13.8	14.2	16.0	15.6	14.6	14.8	13.9	13.0
Relative Humidity	Max	86	98	94	100	64	100	94	100	96	100	93	98	-
	Min	26	25	34	24	29	26	37	33	41	43	32	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.8
Sunshine Duration		8.2	5.3	7.1	8.8	9.3	8.0	7.8	7.7	6.2	4.7	7.3	8.9	7.5
Precipitation			5.7	6.0			0.1	1.4			0.0	13.2	18.0	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	44.5
Growing Degrees	5	18.1	18.8	17.8	19.3	17.1	17.9	16.4	17.9	17.3	17.3	177.9	167.1	150.0
	10	13.1	13.8	12.8	14.3	12.1	12.9	11.4	12.9	12.3	12.3	127.9	117.1	100.0

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.0
Precipitation - Reference Evapotranspiration	-	-	-16.6
Number of Rainy Days	4.0	1.0	2.1
Number of Dry Days	34.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

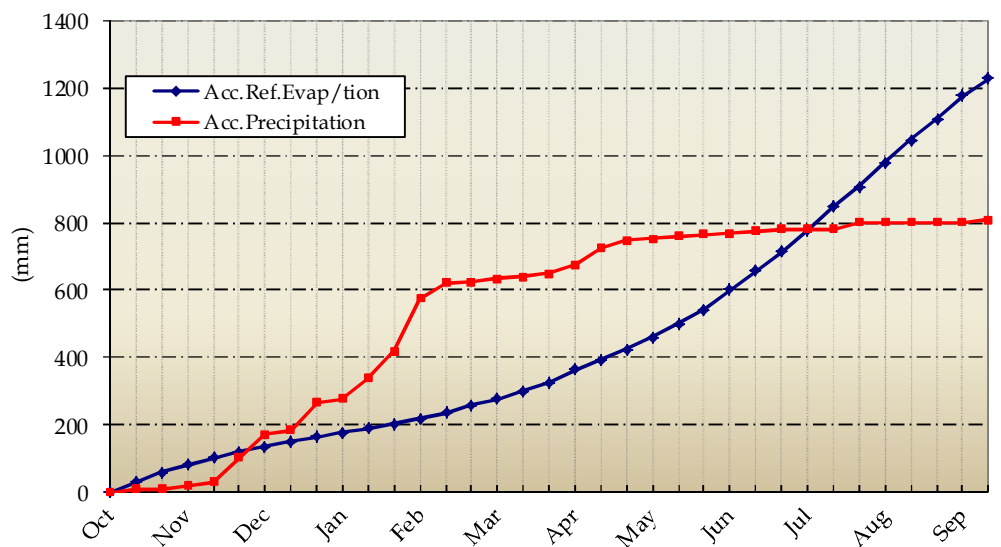


Kalamata

1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	31.1	31.8	31.6	30.9	30.4	29.2	29.9	30.0	29.8	30.6	32.9	29.3
	Min	17.8	18.1	23.0	21.4	17.6	18.5	19.4	18.4	19.1	19.1	19.2	18.8	16.6
Relative Humidity	Max	80	81	72	75	81	87	88	89	87	84	82	82	-
	Min	27	32	32	25	27	36	46	37	41	36	34	27	-
Soil Temperature at 10 cm	06 UTC	27.2	27.4	28.2	28.0	27.2	27.0	27.4	25.8	26.0	25.8	27.0	26.0	23.8
	12 UTC	29.2	30.0	31.2	30.2	29.4	29.6	29.0	28.0	28.4	29.8	29.5	28.8	27.2
Sunshine Duration		11.4	10.0	9.2	10.9	10.0	9.7	9.7	10.5	10.4	10.1	10.2	11.3	9.3
Precipitation								6.4				6.4		7.7
Evaporation		7.1	7.6	9.2	9.0	7.7	7.1	3.0	3.7	11.5	6.6	72.5	65.4	67.1
Growing Degrees	5	19.6	19.6	22.4	21.5	19.3	19.5	19.3	19.2	19.6	19.5	199.3	208.9	179.8
	10	14.6	14.6	17.4	16.5	14.3	14.5	14.3	14.2	14.6	14.5	149.3	158.9	129.8

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.6	57.1	43.1
Precipitation - Reference Evapotranspiration	-46.2	-57.1	-35.4
Number of Rainy Days	1.0	0.0	1.1
Number of Dry Days	52.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

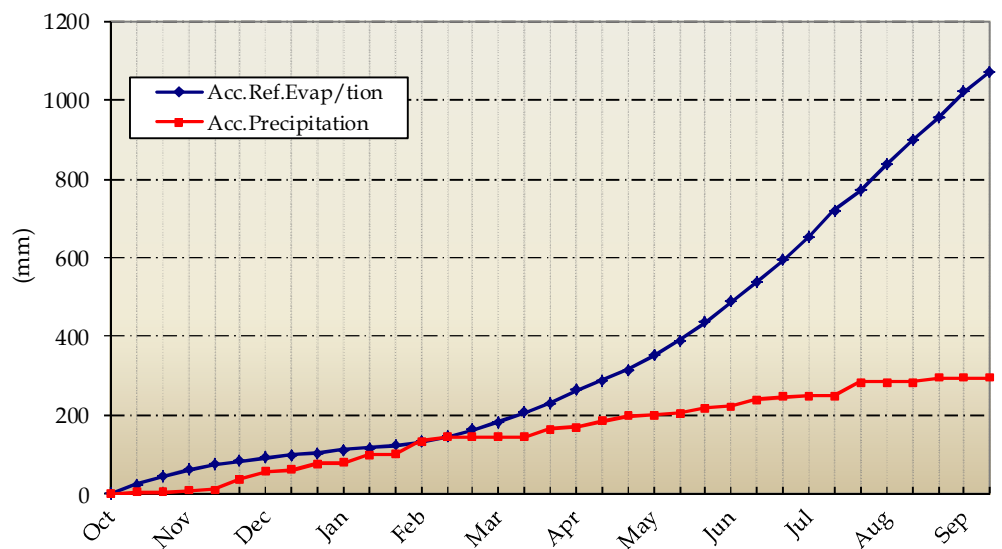


Larisa

1st 10-day period (1-10/09/2019)		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	33.2	33.2	32.6	30.4	31.4	31.2	31.2	30.0	30.0	31.5	32.4	29.4
	Min	15.0	15.2	16.6	16.8	17.0	17.0	17.0	16.6	15.6	16.0	16.3	17.1	14.9
Relative Humidity	Max	78	72	74	74	82	81	80	79	79	85	78	80	-
	Min	29	25	22	21	31	40	35	35	43	38	32	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.4
Sunshine Duration		10.5	9.0	10.0	10.3	9.8	9.1	9.0	9.0	9.2	7.3	9.3	9.5	8.7
Precipitation														5.6
Evaporation		11.7	10.7	12.4	10.7	9.9	6.7	10.0	8.9	9.8	9.4	100.2	71.2	63.7
Growing Degrees	5	18.6	19.2	19.9	19.7	18.7	19.2	19.1	18.9	17.8	18.0	189.1	197.4	171.4
	10	13.6	14.2	14.9	14.7	13.7	14.2	14.1	13.9	12.8	13.0	139.1	147.4	121.4

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.9	44.6	42.5
Precipitation - Reference Evapotranspiration	-49.9	-44.6	-36.9
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	24.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

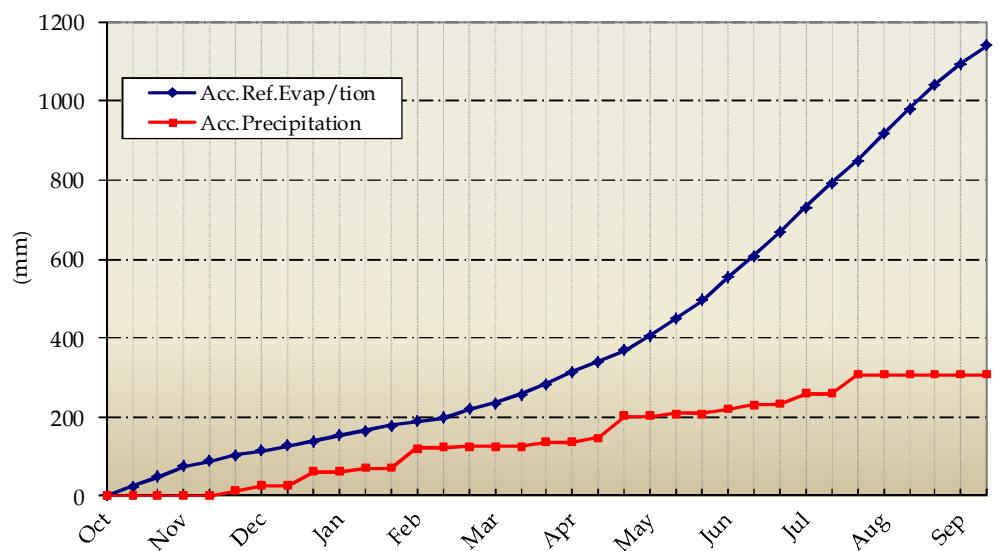


Mikra

1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.0	32.1	32.2	32.6	30.4	29.9	29.6	29.4	28.5	29.6	30.5	31.9	28.1
	Min	18.6	18.3	18.6	18.4	23.1	20.6	21.8	19.4	19.8	18.1	19.7	20.0	16.4
Relative Humidity	Max	70	77	74	77	76	78	81	81	81	86	78	66	-
	Min	36	32	28	24	44	48	43	49	46	46	40	26	-
Soil Temperature at 10 cm	06 UTC	27.6	27.4	27.4	26.0	27.5	28.0	28.0	26.8	27.0	26.6	27.2	26.5	22.6
	12 UTC	30.4	31.0	31.0	30.0	31.0	31.0	28.2	30.0	31.0	28.6	30.2	29.6	26.5
Sunshine Duration		11.5	11.2	10.2	11.3	9.4	9.1	7.7	10.0	9.6	9.1	9.9	9.9	8.4
Precipitation														7.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	86.8	68.9
Growing Degrees	5	19.8	20.2	20.4	20.5	21.8	20.3	20.7	19.4	19.2	18.9	201.0	209.4	172.3
	10	14.8	15.2	15.4	15.5	16.8	15.3	15.7	14.4	14.2	13.9	151.0	159.4	122.3

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.6	52.8	42.4
Precipitation - Reference Evapotranspiration	-45.6	-52.8	-35.2
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	26.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

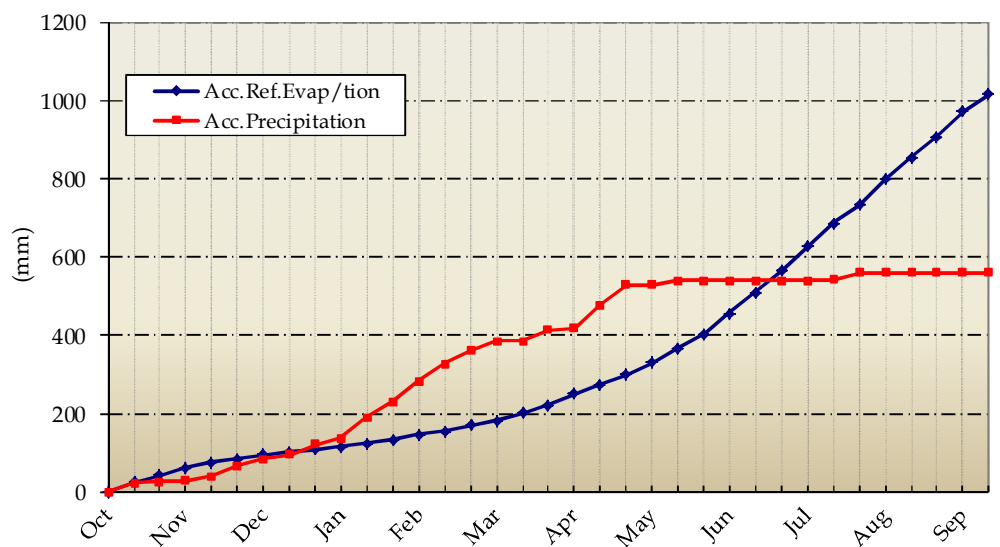


Tanagra

1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	30.6	30.2	29.7	29.0	29.6	28.7	29.6	29.0	29.2	29.5	31.5	28.9
	Min	18.4	18.1	17.0	18.4	18.8	18.8	17.6	17.0	17.3	15.2	17.7	19.2	16.1
Relative Humidity	Max	59	52	52	55	71	75	66	65	64	72	63	71	-
	Min	23	18	18	21	34	30	29	23	31	30	26	25	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.6	0.7	8.3	11.0	12.7	11.4	11.3	11.0	10.5	11.8	10.1	10.6	
Precipitation													0.9	8.1
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	19.1	19.4	18.6	19.1	18.9	19.2	18.2	18.3	18.2	17.2	186.0	203.6	
	10	14.1	14.4	13.6	14.1	13.9	14.2	13.2	13.3	13.2	12.2	136.0	153.6	

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.3	44.7	
Precipitation - Reference Evapotranspiration	-44.3	-43.8	8.1
Number of Rainy Days	0.0	1.0	1.4
Number of Dry Days	55.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

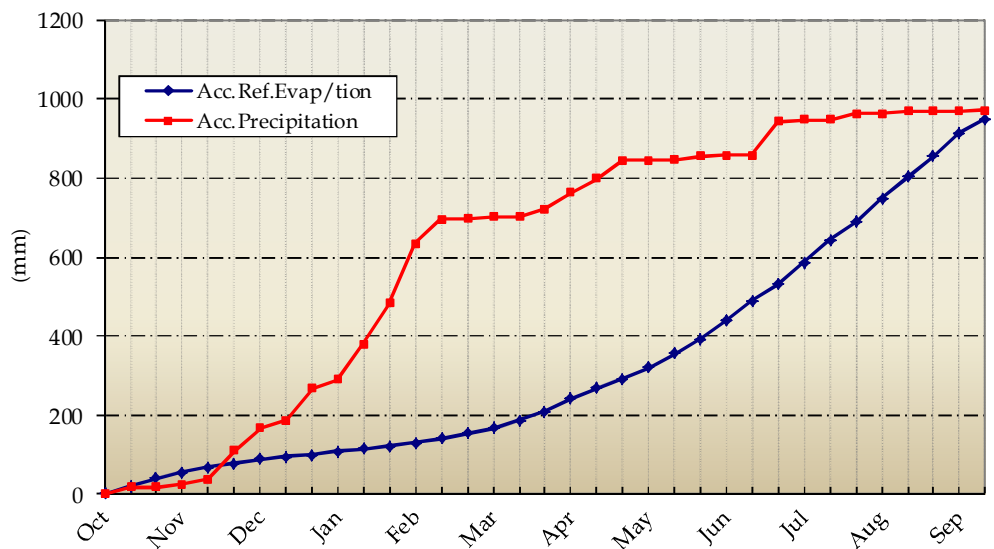


Tripoli

1st 10-day period (1-10/09/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.5	30.8	31.2	28.9	28.5	28.7	29.1	29.0	28.1	27.6	29.1	29.9	27.4
	Min	11.3	11.2	12.8	11.7	12.1	11.8	12.9	12.6	13.3	13.0	12.3	11.7	12.2
Relative Humidity	Max	81	87	85	87	97	100	96	98	97	100	93	92	-
	Min	23	18	18	20	25	27	28	30	34	33	26	23	-
Soil Temperature at 10 cm	06 UTC	-	23.8	24.2	23.8	23.6	-	-	-	23.2	22.8	23.6	23.2	21.7
	12 UTC	-	31.2	30.8	30.8	30.4	-	-	-	28.4	28.0	29.9	28.5	24.2
Sunshine Duration		9.5	8.2	8.6	10.4	9.6	-	7.7	7.6	8.4	5.6	8.4	10.2	9.3
Precipitation						0.6	0.1	0.2	0.3	0.2		1.4	1.6	5.8
Evaporation		-	6.2	6.2	7.4	-	-	-	-	4.1	3.5	-	-	47.2
Growing Degrees	5	15.4	16.0	17.0	15.3	15.3	15.3	16.0	15.8	15.7	15.3	157.1	157.8	148.0
	10	10.4	11.0	12.0	10.3	10.3	10.3	11.0	10.8	10.7	10.3	107.1	107.8	98.0

1st 10-day period (1-10/09/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.0	38.8	39.2
Precipitation - Reference Evapotranspiration	-34.6	-37.2	-33.4
Number of Rainy Days	5.0	2.0	1.6
Number of Dry Days	30.0	21.0	-

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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El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



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Issue Editors :

Papakrivou Anastasia

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