



AGROMETEOROLOGICAL BULLETIN

September 2012
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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Helliniko, Athens

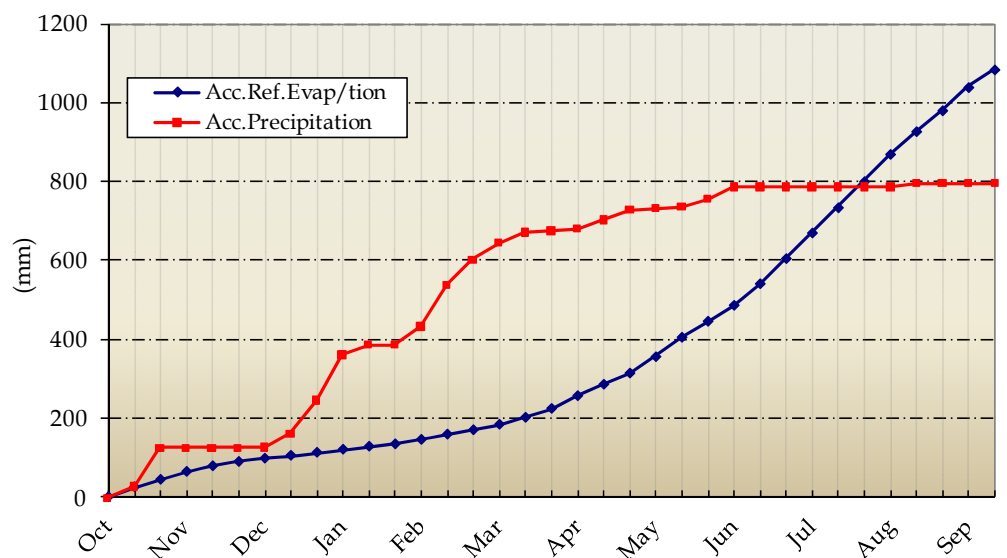
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www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

Agrinio

1st 10-day period (1-10/09/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.4	34.6	34.6	34.4	33.0	32.4	33.2	33.4	34.4	33.4	33.9	34.6	30.5
	Min	15.6	15.0	14.6	15.6	16.4	17.4	18.2	17.0	15.6	16.0	16.1	18.1	15.4
Relative Humidity	Max	67	52	65	70	73	82	79	81	79	71	72	90	-
	Min	20	23	19	26	26	39	36	30	53	26	30	31	-
Soil Temperature at 10 cm	06 UTC	29.0	28.8	28.4	28.4	28.6	28.6	29.0	28.6	28.0	28.0	28.5	28.6	23.6
	12 UTC	33.2	33.0	33.0	33.0	32.6	33.0	33.0	32.4	32.8	33.0	32.9	33.0	28.8
Sunshine Duration		12.3	12.4	12.1	11.4	11.4	11.4	7.8	7.9	11.0	9.2	10.7	10.7	9.3
Precipitation													8.8	11.4
Evaporation		6.4	9.0	7.8	6.4	5.6	7.1	6.3	6.2	7.0	7.7	69.5	62.1	59.7
Growing Degrees	5	20.5	19.8	19.6	20.0	19.7	19.9	20.7	20.2	20.0	19.7	200.1	213.4	179.7
	10	15.5	14.8	14.6	15.0	14.7	14.9	15.7	15.2	15.0	14.7	150.1	163.4	129.7

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.0	44.2	39.5
Precipitation - Reference Evapotranspiration	-45.0	-35.4	-28.1
Number of Rainy Days	0.0	1.0	1.2
Number of Dry Days	39.0	81.0	-

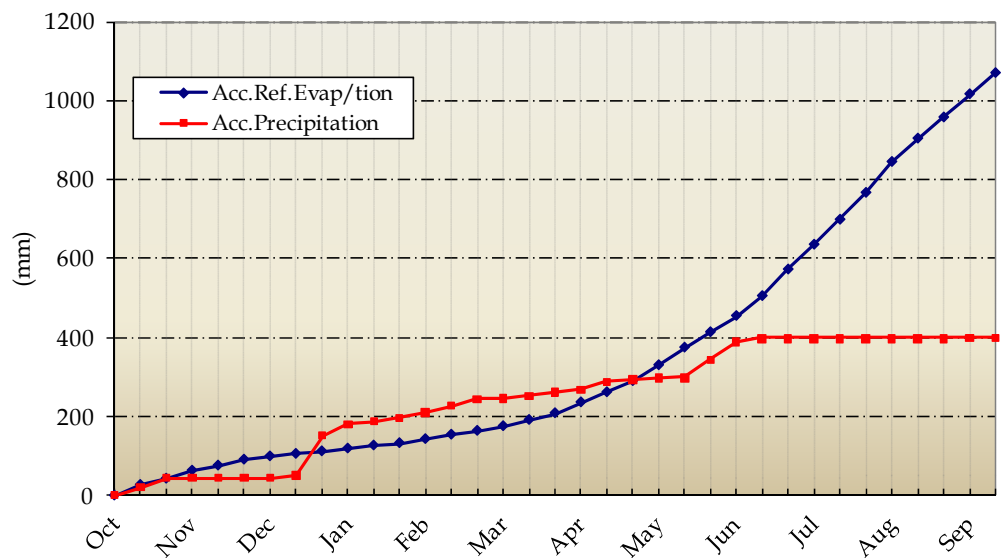
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2012)		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	30.8	30.8	31.6	32.0	30.2	30.4	30.2	31.2	30.0	30.8	31.2	27.3
	Min	17.6	19.2	17.0	17.0	18.4	20.0	19.0	19.6	17.8	18.4	18.4	18.3	15.0
Relative Humidity	Max	65	79	83	86	82	81	72	73	74	81	78	82	-
	Min	29	29	28	28	36	40	31	26	26	31	30	33	-
Soil Temperature at 10 cm	06 UTC	26.0	26.6	26.4	26.2	26.4	27.0	26.6	26.2	26.2	26.2	26.4	25.4	21.2
	12 UTC	28.8	28.8	28.8	28.6	29.0	29.6	28.8	29.0	28.6	28.4	28.8	28.4	24.9
Sunshine Duration		12.2	12.0	12.2	12.0	12.0	11.1	11.2	11.3	12.4	11.1	11.8	10.1	8.8
Precipitation														6.6
Evaporation		10.7	10.4	12.1	8.3	6.9	7.0	11.0	9.6	10.0	9.8	95.8	83.4	73.7
Growing Degrees	5	19.1	20.0	18.9	19.3	20.2	20.1	19.7	19.9	19.5	19.2	195.9	197.6	161.8
	10	14.1	15.0	13.9	14.3	15.2	15.1	14.7	14.9	14.5	14.2	145.9	147.6	111.8

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.8	45.1	42.4
Precipitation - Reference Evapotranspiration	-53.8	-45.1	-35.8
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	13.0	30.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

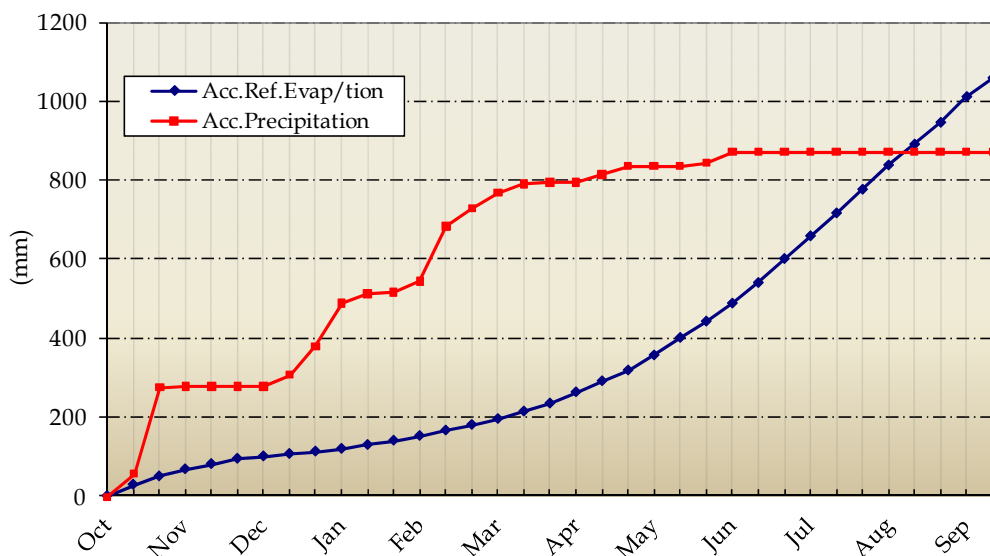


Andravida

1st 10-day period (1-10/09/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.0	33.2	32.2	31.7	30.6	29.6	30.8	33.0	31.1	33.2	31.9	31.8	28.8
	Min	18.2	18.9	18.0	17.5	20.4	19.2	21.1	17.9	17.2	17.4	18.6	19.5	17.3
Relative Humidity	Max	82	85	88	83	86	86	80	81	83	78	83	88	-
	Min	21	18	17	26	47	50	40	26	29	21	30	38	-
Soil Temperature at 10 cm	06 UTC	27.6	28.0	27.8	27.4	28.2	27.4	28.4	27.2	26.8	26.4	27.5	27.3	24.8
	12 UTC	35.8	36.4	35.2	36.4	34.6	33.6	34.2	33.6	33.2	33.0	34.6	34.0	28.9
Sunshine Duration		11.4	11.5	11.4	10.7	10.2	10.6	9.8	10.0	10.9	10.2	10.7	10.2	9.7
Precipitation														5.8
Evaporation		5.3	8.4	15.0	6.0	7.3	6.1	9.2	7.6	8.0	9.3	82.2	84.3	62.5
Growing Degrees	5	21.1	21.1	20.1	19.6	20.5	19.4	21.0	20.5	19.2	20.3	202.6	206.7	180.3
	10	16.1	16.1	15.1	14.6	15.5	14.4	16.0	15.5	14.2	15.3	152.6	156.7	130.3

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.6	44.5	40.4
Precipitation - Reference Evapotranspiration	-47.6	-44.5	-34.6
Number of Rainy Days	0.0	0.0	1.2
Number of Dry Days	104.0	87.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

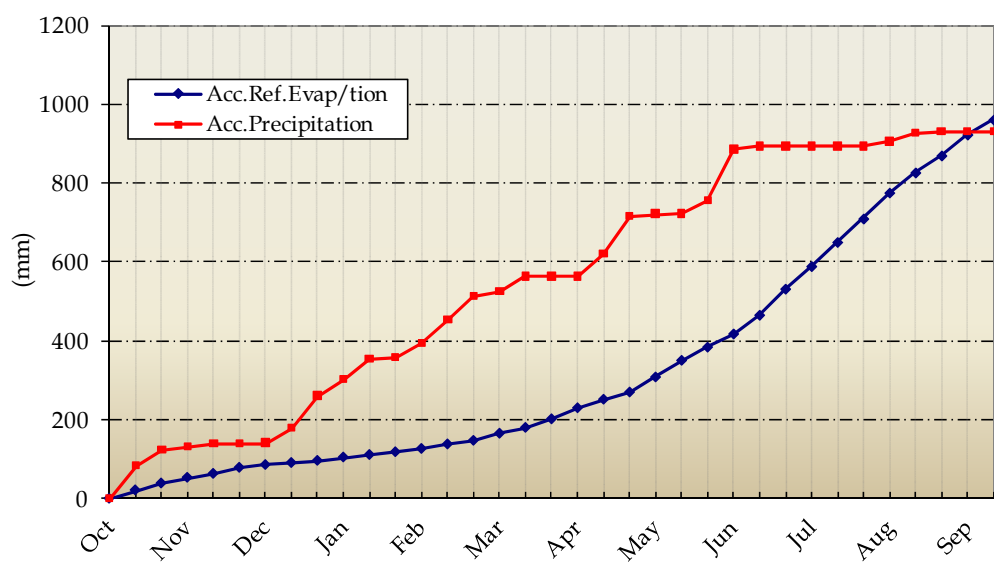


Ioannina

1st 10-day period (1-10/09/2012)		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	33.0	32.8	32.8	30.4	29.6	31.6	30.2	33.0	29.6	31.6	-	27.0
	Min	14.2	12.5	11.6	14.0	13.0	13.6	15.0	15.0	14.0	13.0	13.6	-	13.0
Relative Humidity	Max	77	66	75	89	88	82	87	89	85	63	80	-	-
	Min	19	13	17	26	26	37	31	34	20	28	25	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.8
Sunshine Duration		9.1	10.6	10.5	9.2	7.2	9.4	7.1	7.0	9.0	5.9	8.5	-	7.5
Precipitation													-	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	44.5
Growing Degrees	5	18.8	17.8	17.2	18.4	16.7	16.6	18.3	17.6	18.5	16.3	176.2	-	150.0
	10	13.8	12.8	12.2	13.4	11.7	11.6	13.3	12.6	13.5	11.3	126.2	-	100.0

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.2	-	33.0
Precipitation - Reference Evapotranspiration	-38.2	-	-16.6
Number of Rainy Days	0.0	-	2.1
Number of Dry Days	24.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

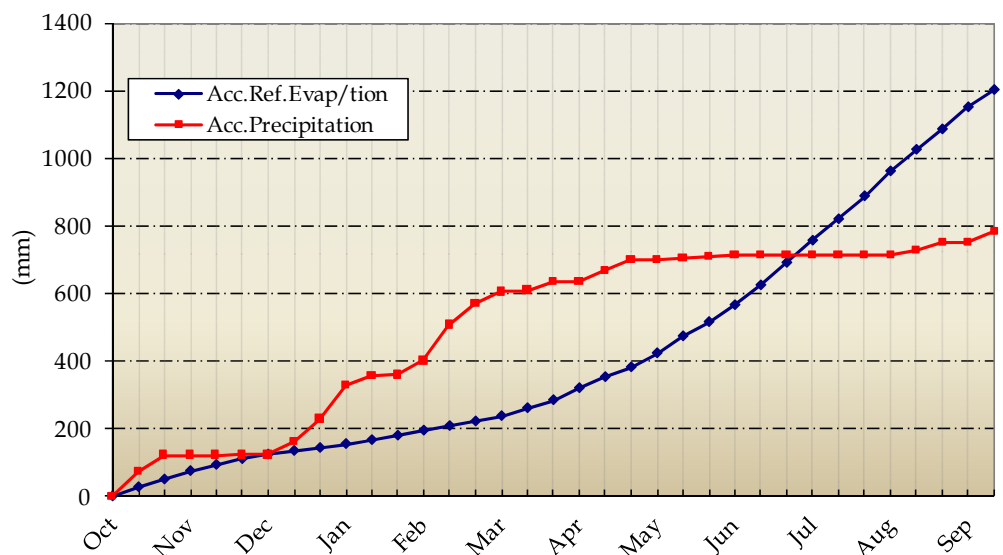


Kalamata

1st 10-day period (1-10/09/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	29.8	30.0	30.0	32.2	32.5	30.9	32.0	30.2	32.0	31.0	31.6	29.3
	Min	14.8	15.8	18.3	16.5	18.5	19.0	20.6	17.9	16.4	18.2	17.6	18.7	16.6
Relative Humidity	Max	84	88	88	86	84	88	95	89	89	71	86	89	-
	Min	39	46	37	47	37	31	35	32	33	25	36	38	-
Soil Temperature at 10 cm	06 UTC	25.0	25.0	25.6	25.0	26.0	25.6	25.6	24.6	24.0	24.4	25.1	25.4	23.8
	12 UTC	27.0	26.8	26.8	27.0	27.0	27.0	27.0	27.0	26.0	26.4	26.8	28.0	27.2
Sunshine Duration		12.0	11.7	11.7	11.2	10.4	11.6	8.6	9.8	11.5	10.3	10.9	11.0	9.3
Precipitation								25.1	6.5			31.6	25.8	7.7
Evaporation		6.8	5.6	4.4	8.8	9.2	8.4	3.5	4.0	7.4	5.4	63.5	69.7	67.1
Growing Degrees	5	17.8	17.8	19.2	18.3	20.4	20.8	20.8	20.0	18.3	20.1	193.2	201.1	179.8
	10	12.8	12.8	14.2	13.3	15.4	15.8	15.8	15.0	13.3	15.1	143.2	151.1	129.8

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.2	51.3	43.1
Precipitation - Reference Evapotranspiration	-19.6	-25.5	-35.4
Number of Rainy Days	2.0	1.0	1.1
Number of Dry Days	25.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

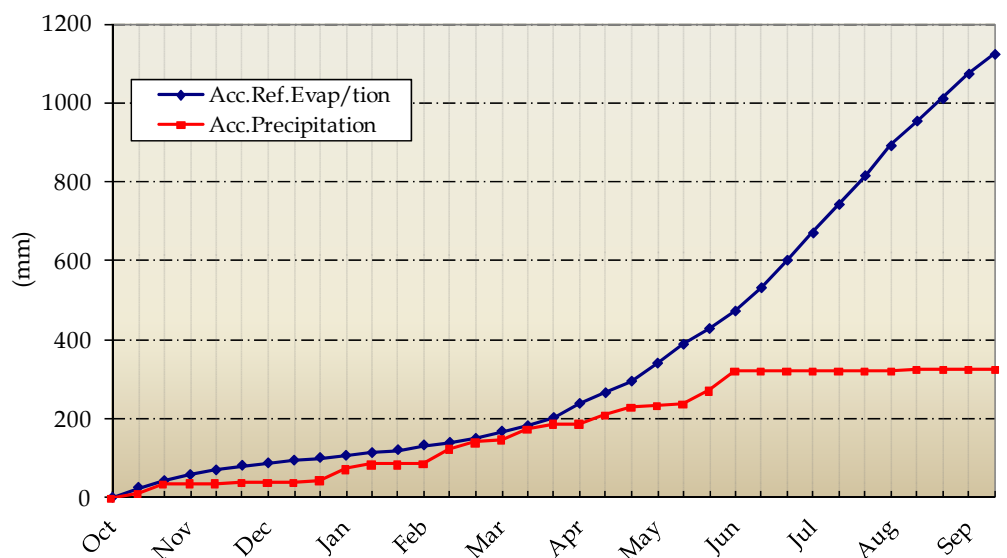


Larisa

1st 10-day period (1-10/09/2012)		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	30.6	31.2	32.6	32.6	33.8	32.6	29.8	33.4	29.0	31.7	32.5	29.4
	Min	14.0	15.0	14.0	13.8	8.1	16.0	22.4	19.4	14.2	16.0	15.3	18.2	14.9
Relative Humidity	Max	72	75	72	78	78	76	69	75	79	70	74	89	-
	Min	26	26	31	23	22	23	22	36	17	28	25	34	-
Soil Temperature at 10 cm	06 UTC	27.0	26.8	26.4	26.4	26.6	26.4	27.8	27.4	26.6	26.4	26.8	25.3	23.3
	12 UTC	29.0	28.4	28.4	28.2	28.2	28.4	29.4	29.0	28.4	27.8	28.5	27.4	25.4
Sunshine Duration		10.1	10.4	10.7	11.0	10.3	10.7	8.2	8.0	9.9	8.1	9.7	9.7	8.7
Precipitation													15.4	5.6
Evaporation		9.4	9.3	8.1	6.2	10.8	8.5	6.8	7.7	6.4	2.0	75.2	78.9	63.7
Growing Degrees	5	17.7	17.8	17.6	18.2	15.4	19.9	22.5	19.6	18.8	17.5	185.0	-	171.4
	10	12.7	12.8	12.6	13.2	10.4	14.9	17.5	14.6	13.8	12.5	135.0	-	121.4

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.8	45.8	42.5
Precipitation - Reference Evapotranspiration	-49.8	-30.4	-36.9
Number of Rainy Days	0.0	1.0	1.4
Number of Dry Days	30.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

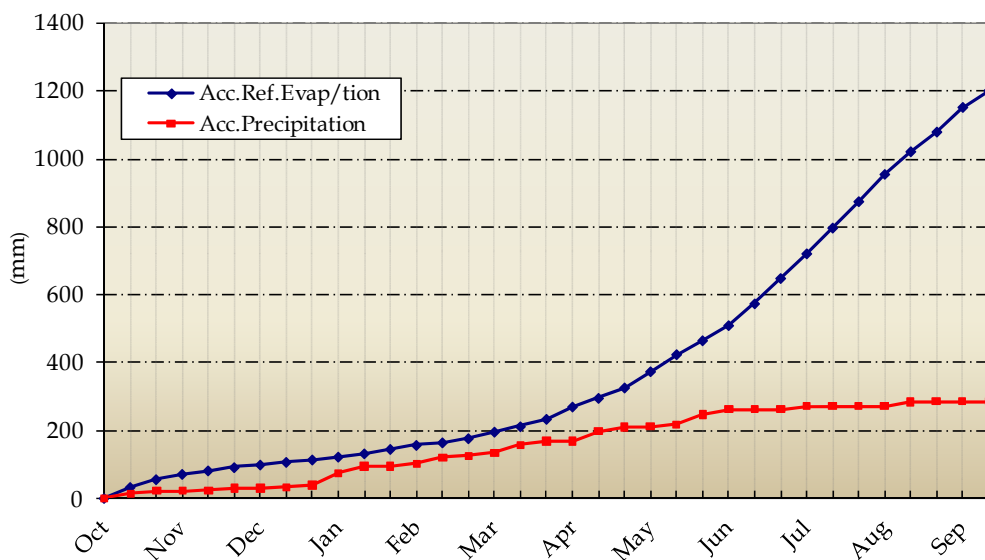


Mikra

1st 10-day period (1-10/09/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.4	29.2	28.9	29.8	30.2	30.6	31.3	30.5	31.6	29.0	30.2	-	28.1
	Min	17.2	18.2	17.4	16.2	17.0	18.4	22.9	21.0	15.8	19.0	18.3	-	16.4
Relative Humidity	Max	73	73	79	82	84	83	71	69	76	72	76	-	-
	Min	34	33	42	43	40	40	27	22	23	30	33	-	-
Soil Temperature at 10 cm	06 UTC	27.2	27.8	27.0	27.4	27.0	27.8	28.6	28.2	27.0	27.0	27.5	-	22.6
	12 UTC	31.6	31.6	31.8	31.2	31.4	32.0	31.8	31.0	31.0	31.2	31.5	-	26.5
Sunshine Duration		11.0	10.4	11.5	11.2	11.0	10.8	7.7	7.0	10.9	9.9	10.1	-	8.4
Precipitation								0.0				0.0	-	7.2
Evaporation		6.4	2.8	3.0	5.7	8.2	7.6	12.0	3.0	4.4	11.0	64.1	-	68.9
Growing Degrees	5	18.8	18.7	18.2	18.0	18.6	19.5	22.1	20.8	18.7	19.0	192.3	-	172.3
	10	13.8	13.7	13.2	13.0	13.6	14.5	17.1	15.8	13.7	14.0	142.3	-	122.3

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.6	-	42.4
Precipitation - Reference Evapotranspiration	-49.6	-	-35.2
Number of Rainy Days	0.0	-	1.4
Number of Dry Days	30.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

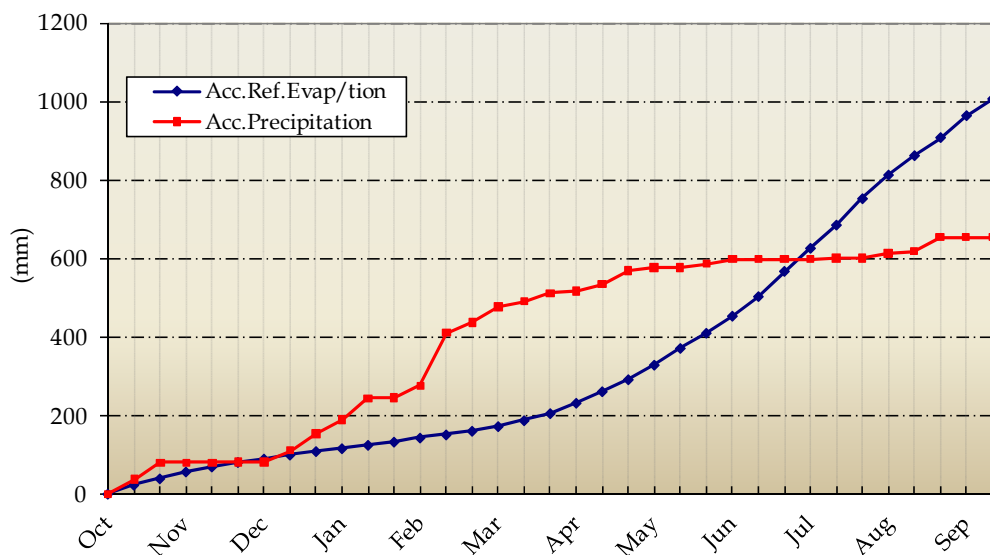


Tripoli

1st 10-day period (1-10/09/2012)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	29.4	29.4	33.4	32.2	30.8	30.4	28.6	30.3	28.3	30.4	31.0	27.4
	Min	10.4	10.1	10.6	11.6	12.9	13.0	13.4	13.0	11.9	10.8	11.8	14.1	12.2
Relative Humidity	Max	46	75	79	83	74	63	88	79	86	75	75	89	-
	Min	18	19	23	19	15	30	23	28	16	23	21	28	-
Soil Temperature at 10 cm	06 UTC	23.0	22.6	22.4	23.0	23.6	24.0	24.0	-	-	-	23.2	22.0	21.7
	12 UTC	28.6	28.2	28.4	28.6	29.2	29.2	28.4	-	-	-	28.7	27.8	24.2
Sunshine Duration		11.5	11.6	11.4	11.4	10.8	11.1	-	-	-	-	11.3	9.5	9.3
Precipitation													21.4	5.8
Evaporation		3.6	5.1	6.9	4.3	5.7	4.0	-	-	-	-	-	60.0	47.2
Growing Degrees	5	15.7	14.8	15.0	17.5	17.6	16.9	16.9	15.8	16.1	14.6	160.7	175.2	148.0
	10	10.7	9.8	10.0	12.5	12.6	11.9	11.9	10.8	11.1	9.6	110.7	125.2	98.0

1st 10-day period (1-10/09/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.8	38.7	39.2
Precipitation - Reference Evapotranspiration	-42.8	-17.3	-33.4
Number of Rainy Days	0.0	2.0	1.6
Number of Dry Days	26.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

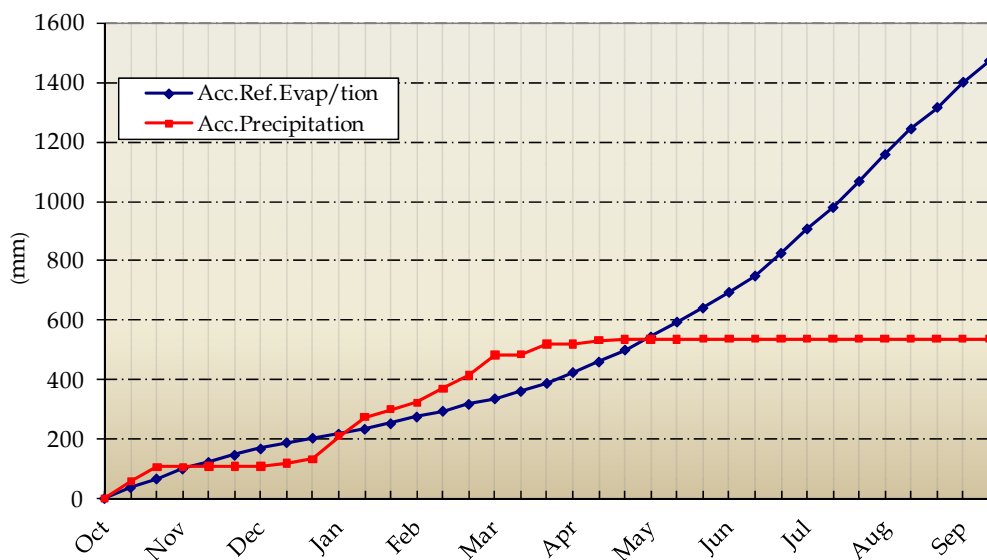


Tympaki

1st 10-day period (1-10/09/2012)		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	33.4	32.6	31.8	31.6	31.0	32.6	30.8	31.4	30.8	31.9	32.7	29.6
	Min	18.6	19.6	16.6	17.6	18.2	19.4	20.2	22.0	19.6	19.2	19.1	20.3	19.0
Relative Humidity	Max	80	91	96	96	97	96	62	53	53	55	78	66	-
	Min	23	33	27	16	24	33	31	20	18	21	25	24	-
Soil Temperature at 10 cm	06 UTC	27.8	28.4	28.0	28.0	28.0	29.0	29.2	29.4	27.4	27.6	28.3	28.9	28.3
	12 UTC	33.4	33.6	33.0	33.2	33.8	33.8	33.6	-	-	31.6	33.2	33.4	32.2
Sunshine Duration		11.9	11.5	12.0	11.8	11.5	11.6	11.6	10.4	11.0	11.2	11.4	11.5	10.4
Precipitation														1.5
Evaporation		11.8	13.8	11.2	13.7	6.4	9.7	9.1	15.5	10.0	13.7	114.9	119.9	88.0
Growing Degrees	5	20.8	21.5	19.6	19.7	19.9	20.2	21.4	21.4	20.5	20.0	205.0	215.2	193.1
	10	15.8	16.5	14.6	14.7	14.9	15.2	16.4	16.4	15.5	15.0	155.0	165.2	143.1

1st 10-day period (1-10/09/2012)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	71.9	69.0
Precipitation - Reference Evapotranspiration	-71.9	-69.0
Number of Rainy Days	0.0	0.0
Number of Dry Days	116.0	105.0

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.

Mesurements 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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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