



AGROMETEOROLOGICAL BULLETIN

September 2014
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



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

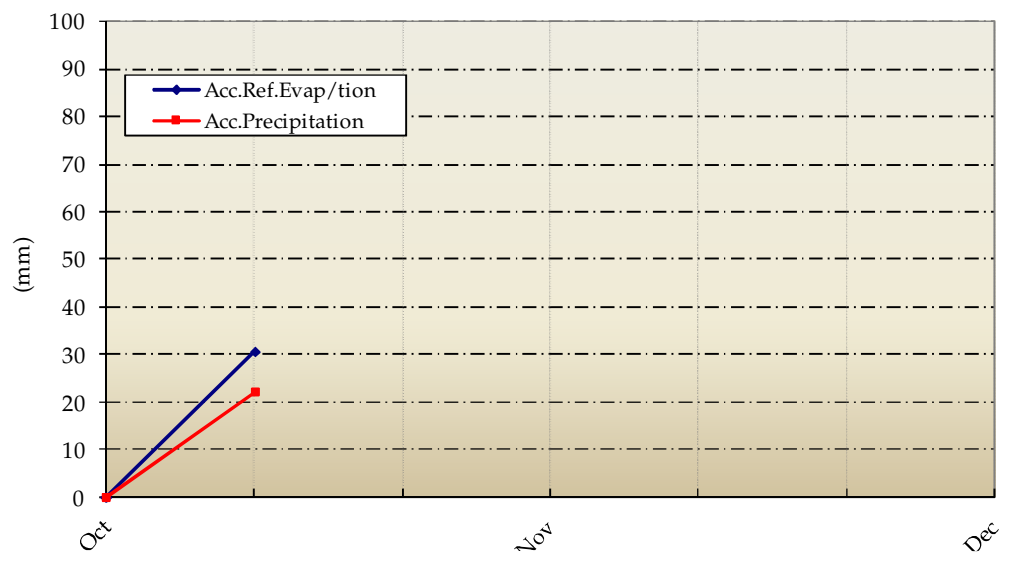
Agrinio

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max													
	Min													
Relative Humidity	Max													
	Min													
Soil Temperature at 10 cm	06 UTC													
	12 UTC													
Sunshine Duration														
Precipitation														
Evaporation														
Growing Degrees	5													
	10													

1st 10-day period (1-10/09/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration		
Precipitation - Reference Evapotranspiration		
Number of Rainy Days		
Number of Dry Days		

This station is not operated

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

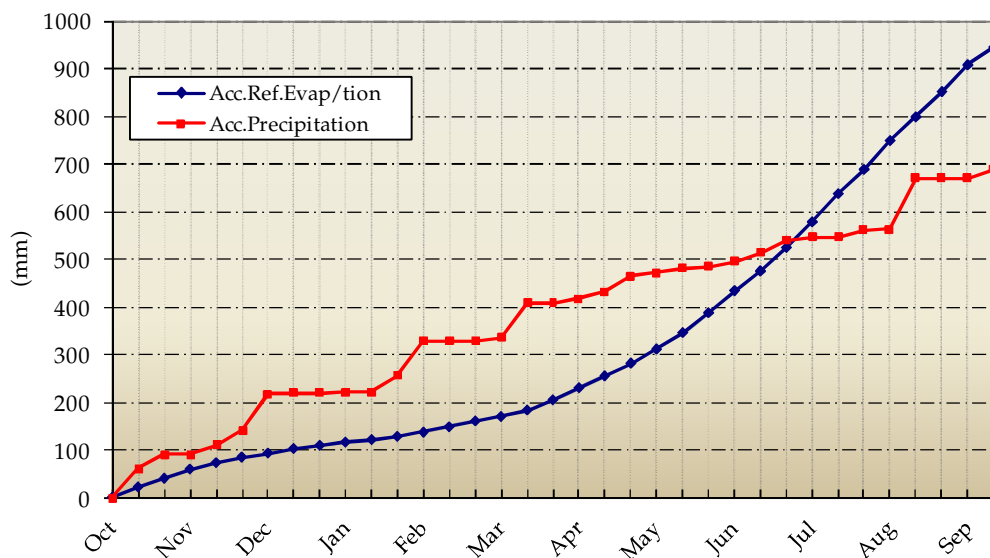


Alexandroupoli

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	29.8	27.2	28.6	31.4	26.4	26.0	28.4	28.4	29.0	28.5	28.5	27.3
	Min	18.6	18.8	22.0	19.8	20.6	20.4	19.8	18.2	16.6	16.0	19.1	16.2	15.0
Relative Humidity	Max	91	92	91	94	89	93	91	92	84	83	90	76	-
	Min	38	41	63	53	45	61	51	44	44	32	47	31	-
Soil Temperature at 10 cm	06 UTC	25.0	25.4	26.6	24.0	25.2	24.0	22.8	22.4	22.4	21.6	23.9	25.6	21.2
	12 UTC	30.0	30.2	28.6	28.8	29.6	25.2	25.0	26.4	26.8	26.8	27.7	28.7	24.9
Sunshine Duration		11.8	12.5	4.9	9.2	8.0	3.2	3.2	10.0	11.0	10.2	8.4	10.8	8.8
Precipitation				1.9	2.5	10.3	1.5	0.7				16.9	0.0	6.6
Evaporation		8.1	0.8	5.0	6.3	3.5	3.0	3.3	5.2	6.1	5.4	46.7	74.7	73.7
Growing Degrees	5	19.3	19.3	19.6	19.2	21.0	18.4	17.9	18.3	17.5	17.5	188.0	173.6	161.8
	10	14.3	14.3	14.6	14.2	16.0	13.4	12.9	13.3	12.5	12.5	138.0	123.6	111.8

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.3	41.4	42.4
Precipitation - Reference Evapotranspiration	-20.4	-41.4	-35.8
Number of Rainy Days	5.0	0.0	1.1
Number of Dry Days	16.0	71.0	-

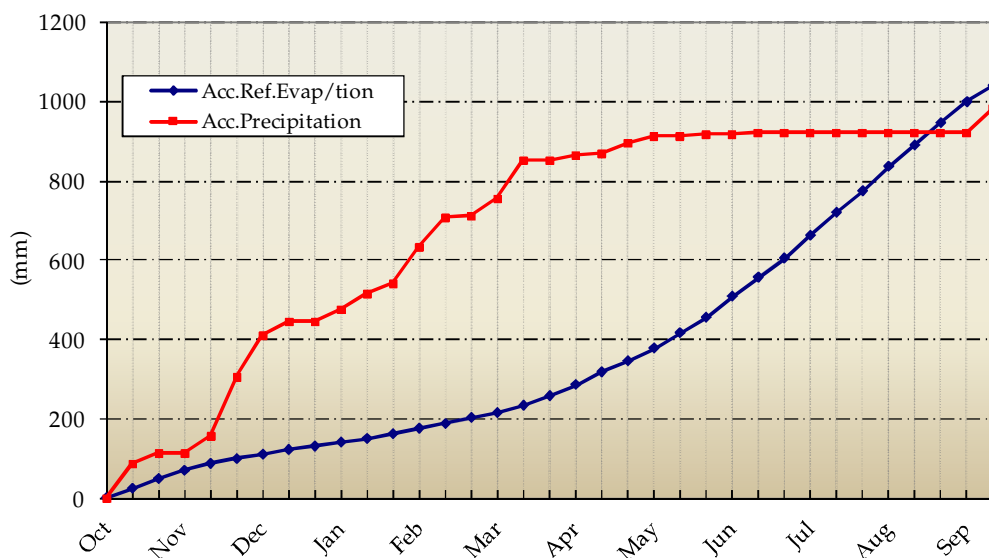
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.5	29.1	27.0	28.4	28.0	28.0	27.5	28.0	27.8	27.7	28.2	30.4	28.8
	Min	20.4	19.2	18.8	18.8	18.9	18.6	18.8	18.7	19.9	18.8	19.1	19.3	17.3
Relative Humidity	Max	86	92	91	90	89	90	92	89	87	88	89	83	-
	Min	48	42	51	44	45	49	51	53	53	45	48	33	-
Soil Temperature at 10 cm	06 UTC	29.2	26.4	24.2	24.6	25.0	24.4	25.0	24.4	25.2	25.2	25.4	27.2	24.8
	12 UTC	34.4	30.0	27.8	28.2	29.0	29.0	27.5	26.8	26.6	27.0	28.6	33.1	28.9
Sunshine Duration		11.3	8.1	6.7	8.3	11.3	10.1	9.4	10.3	10.9	10.9	9.7	10.4	9.7
Precipitation			48.1	8.1				5.6				61.8		5.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	83.0	62.5
Growing Degrees	5	20.5	19.2	17.9	18.6	18.5	18.3	18.2	18.4	18.9	18.3	186.5	198.3	180.3
	10	15.5	14.2	12.9	13.6	13.5	13.3	13.2	13.4	13.9	13.3	136.5	148.3	130.3

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.3	45.5	40.4
Precipitation - Reference Evapotranspiration	21.5	-45.5	-34.6
Number of Rainy Days	3.0	0.0	1.2
Number of Dry Days	39.0	92.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

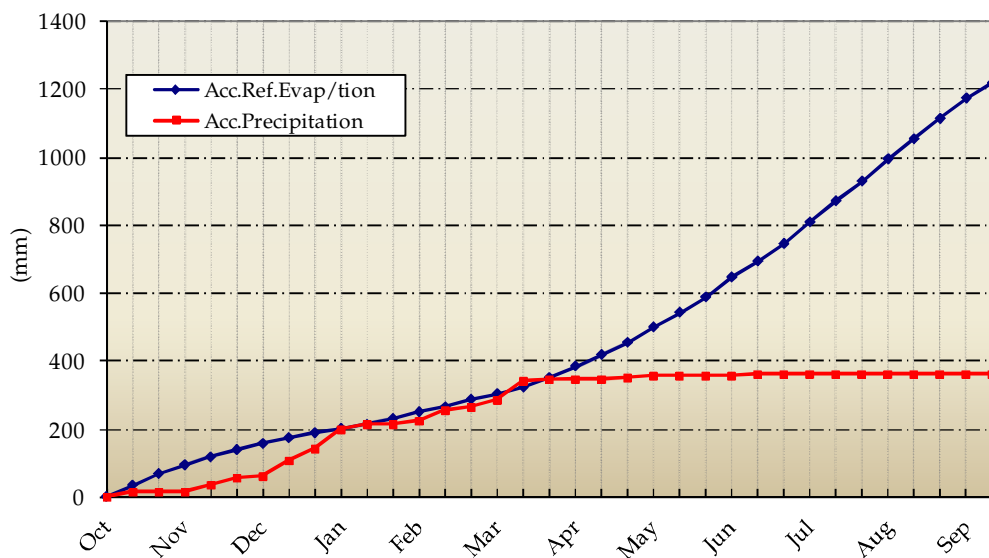


Iraklio

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	30.0	29.4	28.6	28.4	28.6	28.4	28.6	27.6	27.8	28.6	27.8	27.0
	Min	24.4	20.4	24.4	22.4	20.2	20.0	20.4	21.0	21.0	22.2	21.6	21.3	20.4
Relative Humidity	Max	82	84	83	86	85	84	88	86	83	88	85	76	-
	Min	68	57	57	62	64	61	55	63	66	60	61	49	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.3	11.0	7.0	11.6	11.3	9.3	6.9	8.6	9.6	8.4	9.5	10.2	9.9
Precipitation								0.0			0.0	0.0		1.6
Evaporation		7.2	4.6	2.5	5.8	5.6	6.9	1.7	4.5	4.9	4.4	48.1	62.4	74.3
Growing Degrees	5	21.5	20.2	21.9	20.5	19.3	19.3	19.4	19.8	19.3	20.0	201.2	195.8	187.3
	10	16.5	15.2	16.9	15.5	14.3	14.3	14.4	14.8	14.3	15.0	151.2	145.8	137.3

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.9	49.7	-
Precipitation - Reference Evapotranspiration	-43.9	-49.7	1.6
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	97.0	115.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

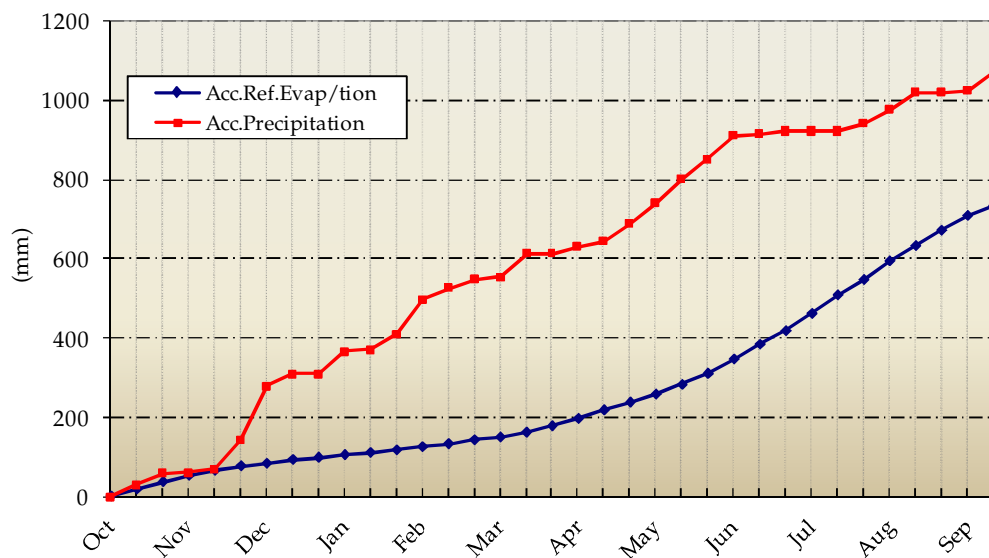


Ioannina

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.3	24.6	23.9	25.2	25.7	23.2	25.0	26.6	26.9	28.0	25.8	29.7	27.0
	Min	13.9	15.8	13.2	15.9	12.4	15.4	14.7	14.4	13.6	13.0	14.2	13.6	13.0
Relative Humidity	Max	88	100	100	98	100	100	99	100	99	100	98	81	-
	Min	45	47	53	53	48	59	58	46	44	54	51	26	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.8
Sunshine Duration		7.6	3.0	6.4	2.5	3.6	2.4	2.4	5.9	6.6	6.9	4.7	8.1	7.5
Precipitation			20.6	18.3	1.6	7.7	0.8	0.1		0.0		49.1	0.4	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	44.5
Growing Degrees	5	16.6	15.2	13.6	15.6	14.1	14.3	14.9	15.5	15.3	15.5	150.4	166.5	150.0
	10	11.6	10.2	8.6	10.6	9.1	9.3	9.9	10.5	10.3	10.5	100.4	116.5	100.0

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.3	34.4	33.0
Precipitation - Reference Evapotranspiration	24.8	-34.0	-16.6
Number of Rainy Days	6.0	1.0	2.1
Number of Dry Days	3.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

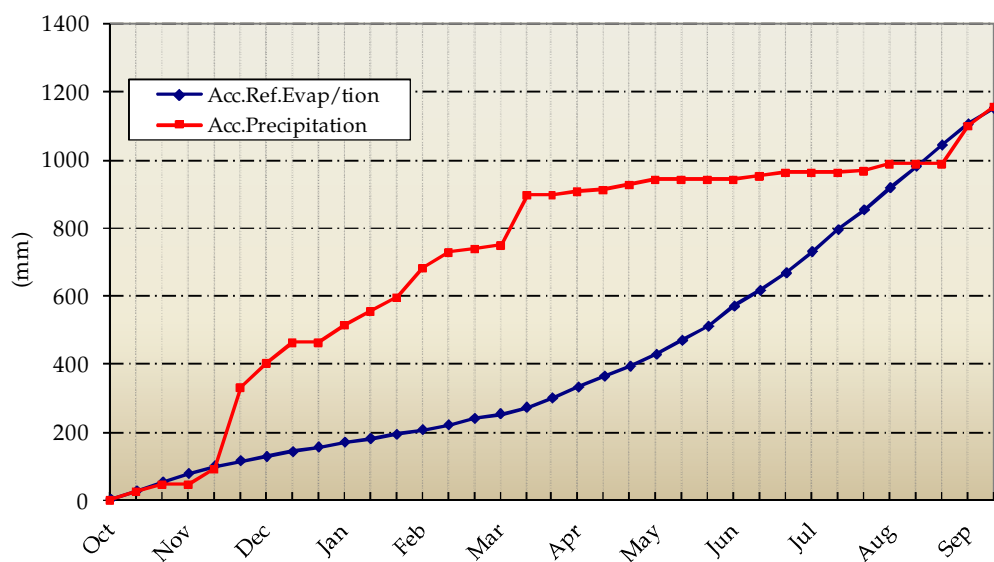


Kalamata

1st 10-day period (1-10/09/2014)		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	29.1	28.8	31.4	30.5	30.6	30.2	30.1	29.1	27.9	29.9	30.4	29.3
	Min	19.2	20.6	19.9	17.4	17.6	17.8	17.5	17.9	17.5	17.3	18.3	18.9	16.6
Relative Humidity	Max	92	94	94	92	92	90	93	90	89	88	91	84	-
	Min	45	45	42	31	27	37	39	38	45	37	39	36	-
Soil Temperature at 10 cm	06 UTC	25.4	23.2	24.4	24.2	24.4	24.4	24.6	24.2	24.6	24.2	24.4	25.6	23.8
	12 UTC	27.0	24.8	26.2	26.2	25.6	25.8	25.6	25.8	25.6	25.6	25.8	28.3	27.2
Sunshine Duration		11.3	7.1	11.0	11.4	11.5	11.4	10.5	11.5	10.6	10.7	10.7	9.4	9.3
Precipitation			52.5	6.1								58.6	0.2	7.7
Evaporation		-	-	-	-	-	-	-	-	-	-	-	54.5	67.1
Growing Degrees	5	20.3	19.9	19.4	19.4	19.1	19.2	18.9	19.0	18.3	17.6	190.9	196.5	179.8
	10	15.3	14.9	14.4	14.4	14.1	14.2	13.9	14.0	13.3	12.6	140.9	146.5	129.8

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.2	47.6	43.1
Precipitation - Reference Evapotranspiration	12.4	-47.4	-35.4
Number of Rainy Days	2.0	2.0	1.1
Number of Dry Days	1.0	15.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

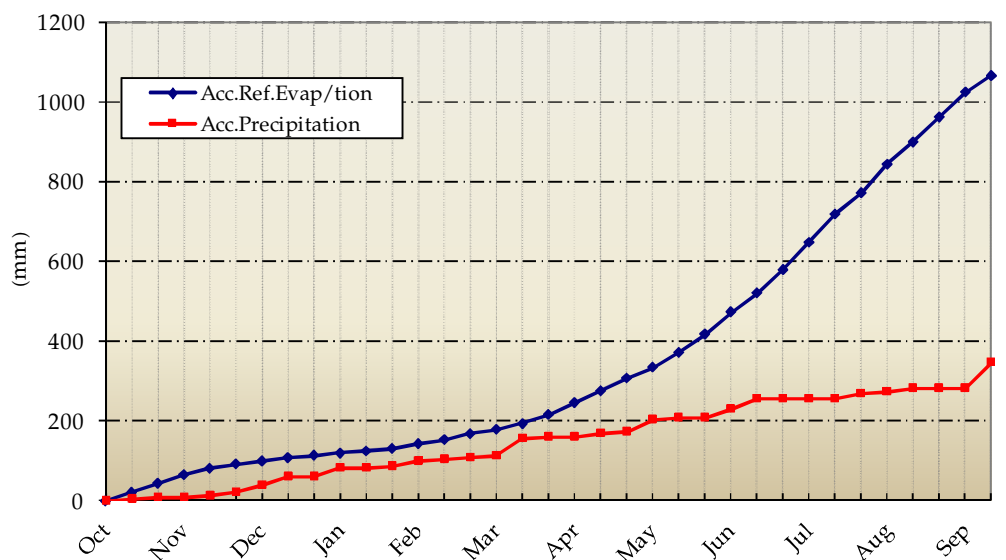


Larisa

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.0	27.5	30.0	31.0	30.4	28.0	25.8	29.2	28.0	29.6	29.2	31.4	29.4
	Min	17.6	20.0	16.7	16.0	17.0	19.6	17.2	17.1	16.2	16.5	17.4	17.0	14.9
Relative Humidity	Max	77	95	99	99	99	100	100	100	100	100	97	72	-
	Min	29	49	27	31	32	43	51	36	41	31	37	25	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	25.4
Sunshine Duration		10.4	2.9	10.5	10.1	9.5	6.6	5.1	9.5	7.9	9.7	8.2	8.9	8.7
Precipitation			0.3	1.0		8.4		52.3	0.1	3.4		65.5		5.6
Evaporation		7.0	5.0	5.5	6.4	8.6	8.8	10.4	6.1	5.4	7.2	70.4	81.2	63.7
Growing Degrees	5	19.8	18.8	18.4	18.5	18.7	18.8	16.5	18.2	17.1	18.1	182.7	191.8	171.4
	10	14.8	13.8	13.4	13.5	13.7	13.8	11.5	13.2	12.1	13.1	132.7	141.8	121.4

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.4	48.0	42.5
Precipitation - Reference Evapotranspiration	24.1	-48.0	-36.9
Number of Rainy Days	6.0	0.0	1.4
Number of Dry Days	2.0	50.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

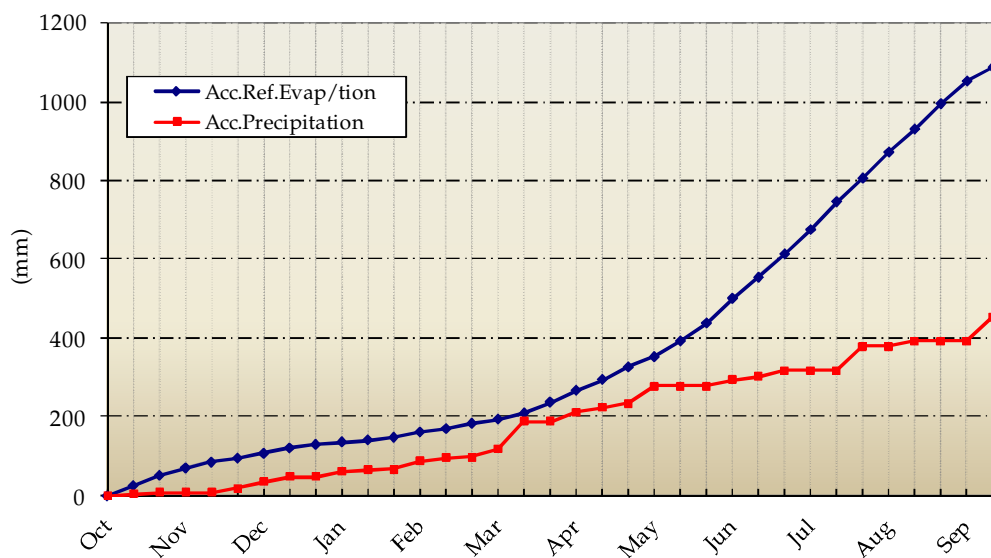


Mikra

1st 10-day period (1-10/09/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.3	27.7	26.3	28.8	28.4	27.9	23.8	28.6	27.4	28.7	27.8	29.4	28.1
	Min	18.4	18.4	18.5	17.5	18.6	19.5	19.7	18.1	19.4	16.1	18.4	17.4	16.4
Relative Humidity	Max	73	92	93	89	92	92	93	91	92	92	90	79	-
	Min	35	80	56	39	43	49	71	42	43	30	49	31	-
Soil Temperature at 10 cm	06 UTC	26.4	27.4	23.4	28.2	24.4	25.8	23.8	22.4	23.6	22.4	24.8	25.2	22.6
	12 UTC	31.6	27.4	26.8	28.4	29.4	29.4	23.8	26.8	26.8	27.2	27.8	29.7	26.5
Sunshine Duration		9.4	1.5	5.8	9.7	8.4	4.5	0.0	9.3	6.7	11.0	6.6	10.3	8.4
Precipitation			15.2	11.7		0.6	7.7	19.6	0.3	4.6		59.7	1.4	7.2
Evaporation		9.3	11.0	11.4	6.4	4.8	5.2	1.3	9.6	4.1	1.4	64.5	72.5	68.9
Growing Degrees	5	19.4	18.1	17.4	18.2	18.5	18.7	16.8	18.4	18.4	17.4	181.1	184.2	172.3
	10	14.4	13.1	12.4	13.2	13.5	13.7	11.8	13.4	13.4	12.4	131.1	134.2	122.3

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.0	49.7	42.4
Precipitation - Reference Evapotranspiration	24.7	-48.3	-35.2
Number of Rainy Days	7.0	1.0	1.4
Number of Dry Days	3.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

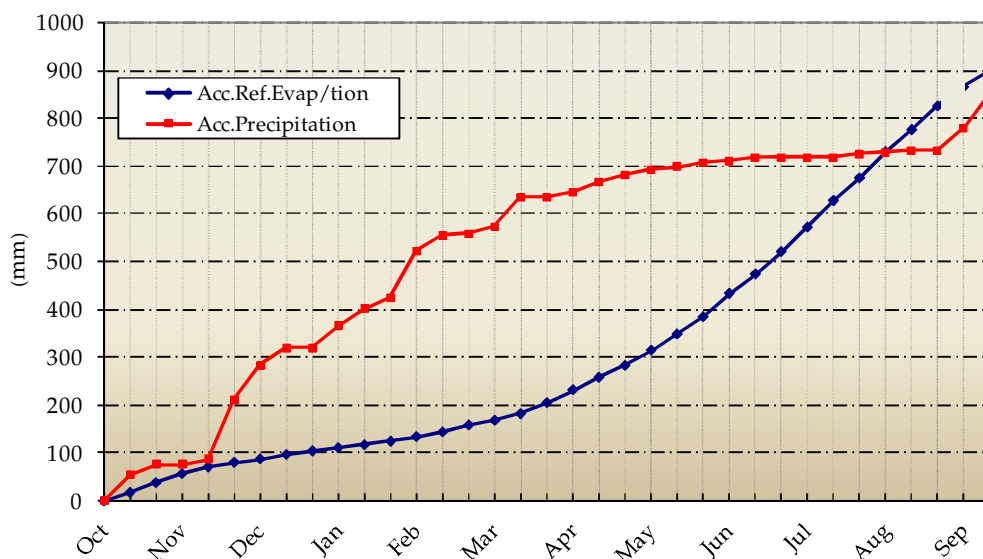


Tripoli

1st 10-day period (1-10/09/2014)		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	25.2	25.9	28.1	27.5	27.9	26.5	26.4	25.9	26.5	26.9	28.3	27.4
	Min	14.0	14.4	15.7	13.1	11.8	12.9	13.6	12.5	14.0	12.2	13.4	12.6	12.2
Relative Humidity	Max	100	95	98	96	97	98	96	99	99	98	98	82	-
	Min	33	47	32	32	29	29	37	38	41	34	35	35	-
Soil Temperature at 10 cm	06 UTC	22.4	22.6	21.8	21.0	20.8	21.0	22.0	21.2	20.8	19.6	21.3	22.5	21.7
	12 UTC	28.2	25.2	25.6	26.4	25.8	-	-	25.6	24.6	24.6	25.8	28.1	24.2
Sunshine Duration		10.1	5.1	10.2	10.3	8.7	9.5	8.0	7.2	4.3	6.2	8.0	9.0	9.3
Precipitation			11.3	4.0					8.1	38.7	10.9	73.0	31.1	5.8
Evaporation		5.7	1.8	5.7	5.6	2.8	7.1	3.3	6.6	4.9	3.0	46.5	45.9	47.2
Growing Degrees	5	16.6	14.8	15.8	15.6	14.7	15.4	15.1	14.5	15.0	14.4	151.7	154.6	148.0
	10	11.6	9.8	10.8	10.6	9.7	10.4	10.1	9.5	10.0	9.4	101.7	104.6	98.0

1st 10-day period (1-10/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.8	36.4	39.2
Precipitation - Reference Evapotranspiration	39.2	-5.3	-33.4
Number of Rainy Days	5.0	1.0	1.6
Number of Dry Days	1.0	6.0	-

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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