



AGROMETEOROLOGICAL BULLETIN

*October 2013
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



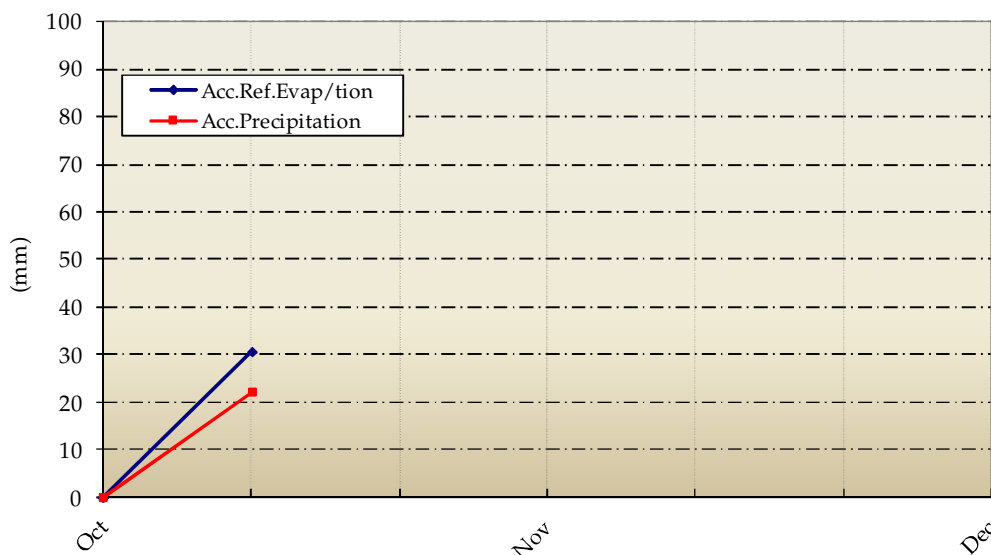
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1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	29.0	29.0	25.0	-	-	26.0	28.0	25.4	25.2	26.8	29.5	26.7
	Min	-	14.0	14.0	13.0	-	-	17.0	14.0	16.8	15.0	14.8	14.4	12.6
Relative Humidity	Max	88	80	89	79	-	88	80	76	89	89	84	90	-
	Min	25	41	43	40	-	30	49	40	66	55	43	41	-
Soil Temperature at 10 cm	06 UTC	-	22.0	21.0	20.0	-	-	22.0	20.0	20.0	19.0	20.6	22.6	19.3
	12 UTC	-	24.0	23.0	23.0	-	-	21.0	20.0	21.0	20.0	21.7	24.8	23.5
Sunshine Duration		10.5	9.8	7.4	-	-	10.6	-	0.8	0.0	4.7	6.3	8.8	7.4
Precipitation										7.0	15.0	22.0	0.8	23.3
Evaporation		2.6	3.2	2.8	0.9	-	3.3	-	-	0.0	4.0	-	48.0	41.8
Growing Degrees	5	-	16.5	16.5	14.0	-	-	16.5	16.0	16.1	15.1	-	169.2	146.6
	10	-	11.5	11.5	9.0	-	-	11.5	11.0	11.1	10.1	-	119.2	96.6

1st 10-day period (1-10/10/2013)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	30.6	26.3
Precipitation - Reference Evapotranspiration	-8.6	-25.5
Number of Rainy Days	2.0	2.0
Number of Dry Days	79.0	12.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

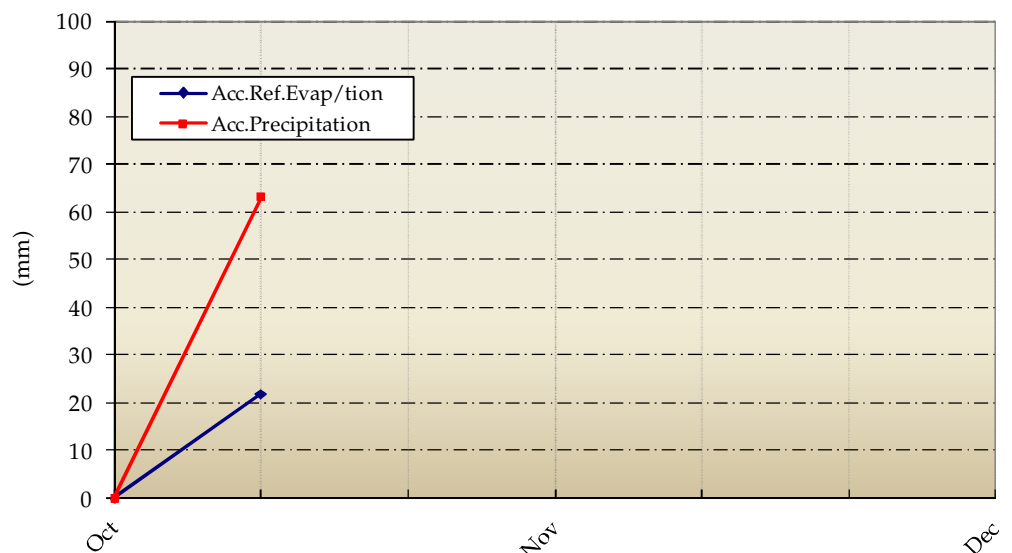


This station is not fully operated

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.2	15.4	13.8	12.8	14.0	17.2	18.4	20.0	21.2	22.0	17.9	26.6	22.8
	Min	15.4	10.6	7.0	6.0	1.4	2.0	3.2	8.0	8.6	10.0	7.2	14.3	11.7
Relative Humidity	Max	98	80	75	65	84	89	89	86	88	90	84	92	-
	Min	74	50	37	34	31	28	28	36	47	56	42	43	-
Soil Temperature at 10 cm	06 UTC	22.4	17.0	13.0	12.0	11.2	11.4	12.4	13.8	14.8	16.0	14.4	22.0	17.4
	12 UTC	23.0	17.2	14.4	15.4	15.6	16.4	20.0	17.4	18.2	18.6	17.6	24.4	20.5
Sunshine Duration		0.5	0.0	2.1	6.5	10.7	10.1	9.5	10.0	7.4	8.1	6.5	8.6	6.7
Precipitation		62.8	0.4									63.2	0.4	17.2
Evaporation		2.3	3.0	6.9	3.1	2.0	3.4	3.4	5.0	3.0	1.4	33.5	47.3	48.1
Growing Degrees	5	14.8	8.0	5.4	4.4	2.7	4.6	5.8	9.0	9.9	11.0	75.6	154.8	122.8
	10	9.8	3.0	0.4	0.0	0.0	0.0	0.8	4.0	4.9	6.0	28.9	104.8	73.0

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.8	26.6	27.4
Precipitation - Reference Evapotranspiration	41.4	-26.2	-10.2
Number of Rainy Days	2.0	1.0	1.6
Number of Dry Days	3.0	20.0	-

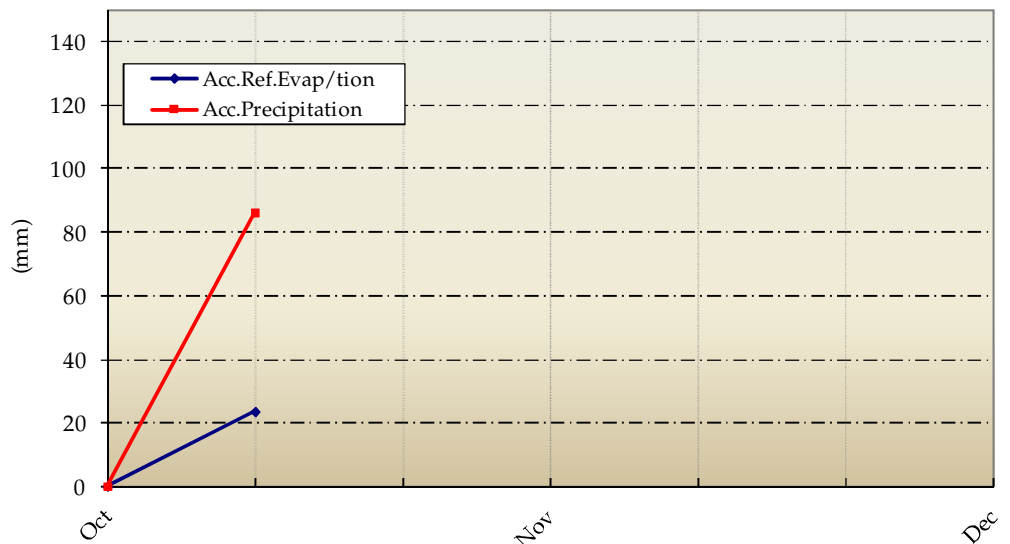
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.8	24.6	24.6	23.7	23.8	18.6	22.6	23.2	18.9	20.6	22.6	27.7	25.6
	Min	19.1	20.6	16.5	11.4	9.9	14.6	15.5	17.0	16.6	15.0	15.6	16.7	14.3
Relative Humidity	Max	91	67	82	86	88	90	96	96	93	93	88	89	-
	Min	51	49	38	33	29	71	52	58	73	72	53	42	-
Soil Temperature at 10 cm	06 UTC	23.2	20.8	19.4	17.6	16.8	19.2	18.4	19.2	19.8	17.8	19.2	22.3	20.5
	12 UTC	26.4	24.8	24.6	24.0	23.8	20.4	20.6	22.8	19.2	19.4	22.6	26.9	23.8
Sunshine Duration		5.9	10.0	10.1	9.2	9.6	0.0	0.0	10.0	0.0	0.4	5.5	8.2	7.7
Precipitation		16.7					8.2	0.1		19.0	42.3	86.3		23.2
Evaporation		4.4	1.0	9.0	11.4	0.1	2.8	1.8	2.8	-	-	-	46.8	42.9
Growing Degrees	5	17.5	17.6	15.6	12.6	11.9	11.6	14.1	15.1	12.8	12.8	141.3	171.8	149.6
	10	12.5	12.6	10.6	7.6	6.9	6.6	9.1	10.1	7.8	7.8	91.3	121.8	99.6

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.4	28.1	26.8
Precipitation - Reference Evapotranspiration	62.9	-28.1	-3.6
Number of Rainy Days	5.0	0.0	2.2
Number of Dry Days	8.0	25.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

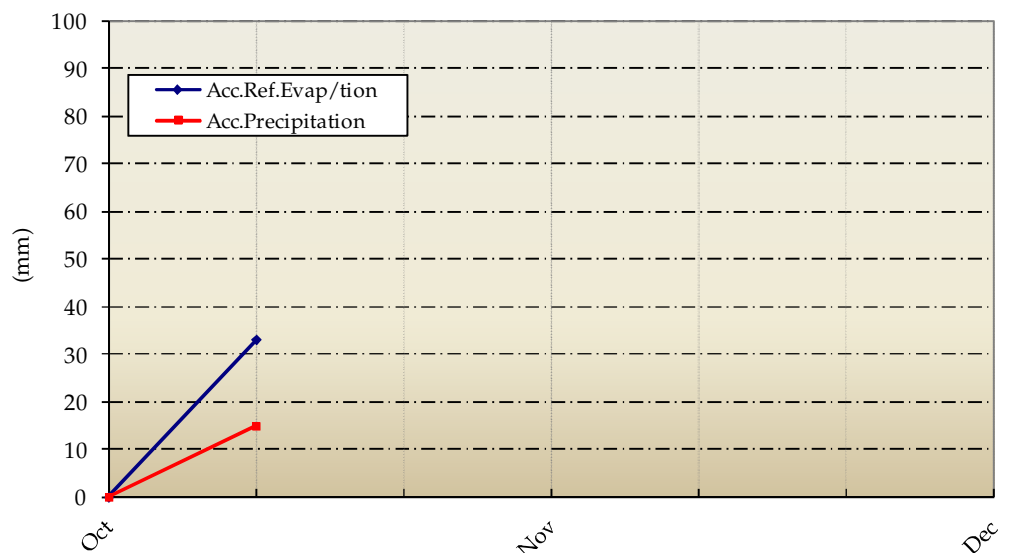


Iraklio

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.2	26.5	22.0	19.6	18.0	20.6	21.4	22.4	23.0	25.0	22.7	26.7	24.6
	Min	23.0	21.4	20.4	17.4	15.5	14.6	14.6	14.0	14.2	15.0	17.0	19.5	17.5
Relative Humidity	Max	86	91	73	69	64	64	64	78	82	69	74	89	-
	Min	44	58	56	49	48	41	41	49	56	46	49	65	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.9	9.2	1.5	4.3	3.2	9.4	8.9	9.4	9.2	9.3	6.6	8.0	7.9
Precipitation		3.8	5.6	5.6								15.0	11.1	6.0
Evaporation		2.6	3.1	2.5	4.4	6.5	2.3	2.3	0.7	2.2	2.4	29.0	27.3	53.7
Growing Degrees	5	20.6	19.0	16.2	13.5	11.8	12.6	13.0	13.2	13.6	15.0	148.4	181.0	160.1
	10	15.6	14.0	11.2	8.5	6.8	7.6	8.0	8.2	8.6	10.0	98.4	131.0	110.1

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.0	32.4	-
Precipitation - Reference Evapotranspiration	-18.0	-21.3	6.0
Number of Rainy Days	3.0	2.0	0.9
Number of Dry Days	135.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

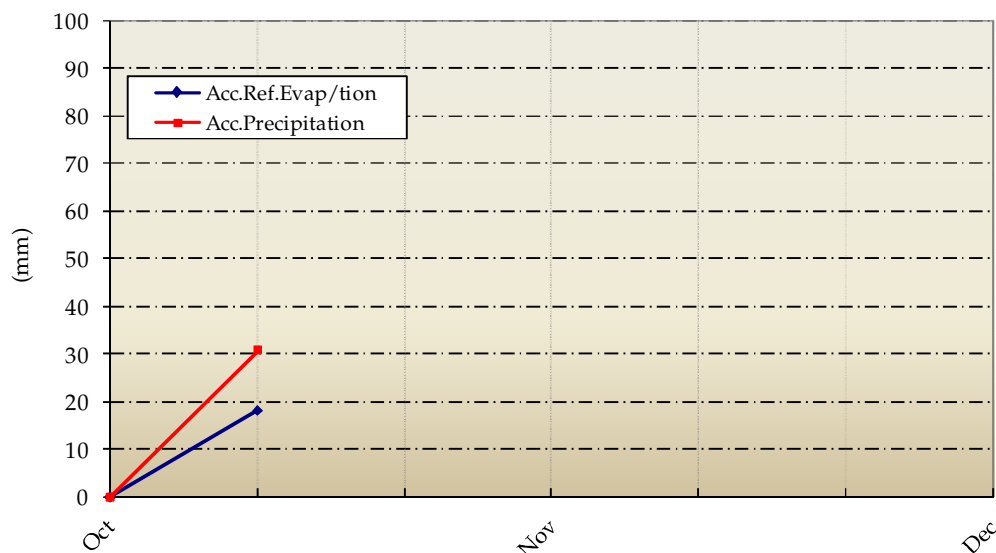


Ioannina

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	22.5	20.4	19.8	20.6	19.0	15.4	20.9	19.5	20.6	19.8	26.1	22.8
	Min	14.2	9.4	5.7	4.6	4.0	9.2	12.0	12.2	14.0	12.3	9.8	11.5	10.0
Relative Humidity	Max	97	95	90	87	96	92	92	95	93	97	93	89	-
	Min	74	44	23	38	28	32	68	55	64	64	49	37	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	15.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.3
Sunshine Duration		2.3	6.9	7.6	8.0	8.3	0.6	0.0	1.2	1.9	6.4	4.3	7.0	5.7
Precipitation		2.2						4.1	2.5	9.8	12.2	30.8	0.0	25.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	32.1
Growing Degrees	5	11.8	11.0	8.1	7.2	7.3	9.1	8.7	11.6	11.8	11.5	97.9	138.3	114.5
	10	6.8	6.0	3.1	2.2	2.3	4.1	3.7	6.6	6.8	6.5	47.9	88.3	64.7

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.2	23.1	21.0
Precipitation - Reference Evapotranspiration	12.6	-23.1	4.8
Number of Rainy Days	5.0	0.0	2.6
Number of Dry Days	0.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

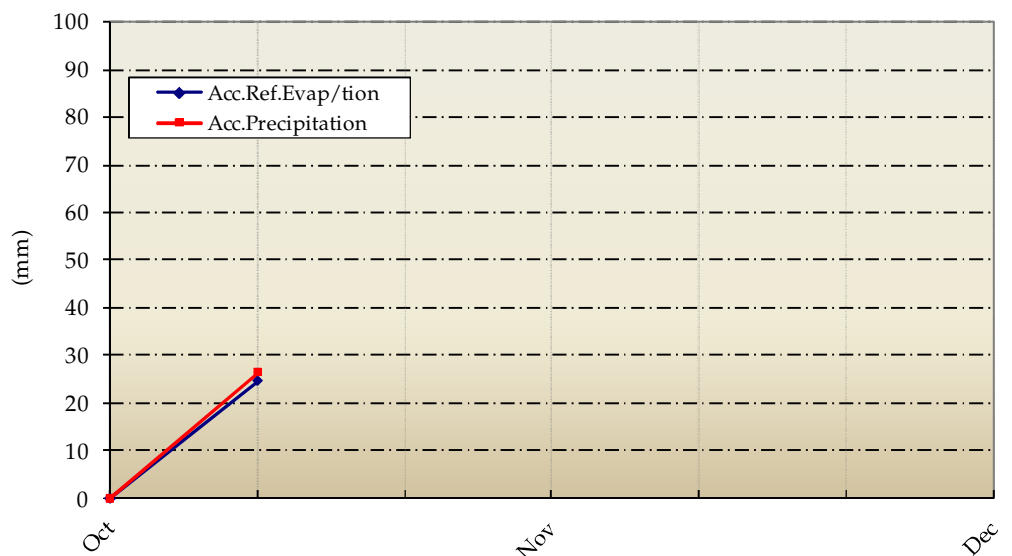


Kalamata

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.7	27.2	24.8	22.4	22.4	20.5	23.1	24.4	24.9	18.6	23.6	28.3	26.1
	Min	19.0	15.2	13.2	14.4	14.4	14.0	13.8	16.0	15.0	14.3	14.9	15.4	13.8
Relative Humidity	Max	92	91	90	84	88	88	81	74	93	94	88	91	-
	Min	40	39	37	48	43	54	36	35	42	83	46	39	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	21.8	20.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	23.3	22.6
Sunshine Duration		8.0	10.2	9.4	6.7	4.8	0.0	3.0	2.1	2.9	0.0	4.7	9.0	7.4
Precipitation		4.9			0.0	0.2	0.6			3.0	17.6	26.3	3.5	17.8
Evaporation		5.6	1.8	6.2	4.6	2.4	0.6	0.0	2.4	1.7	1.7	27.0	46.2	46.9
Growing Degrees	5	18.4	16.2	14.0	13.4	13.4	12.3	13.5	15.2	15.0	11.5	142.7	168.5	149.4
	10	13.4	11.2	9.0	8.4	8.4	7.3	8.5	10.2	10.0	6.5	92.7	118.5	99.4

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.6	34.0	28.3
Precipitation - Reference Evapotranspiration	1.7	-30.5	-10.5
Number of Rainy Days	5.0	1.0	2.3
Number of Dry Days	7.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

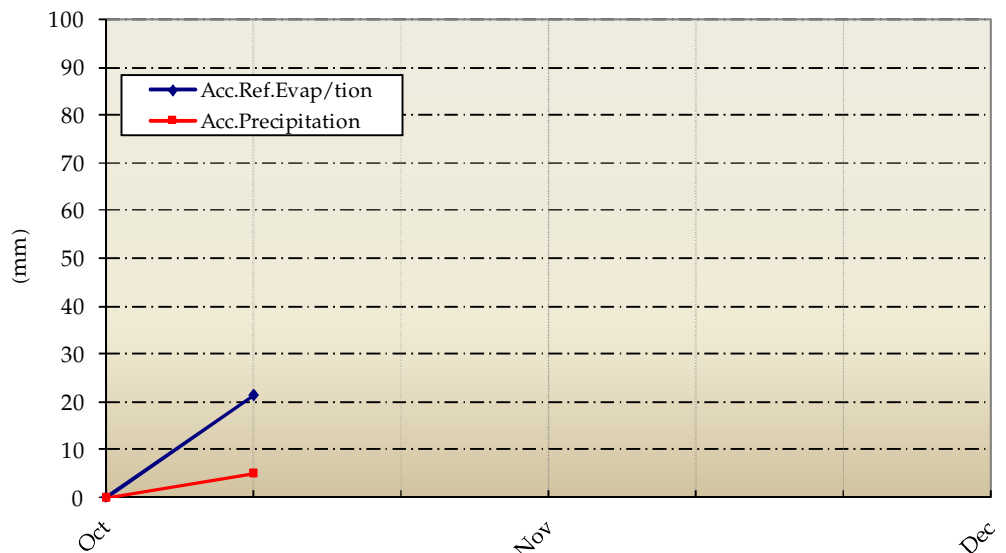


Larisa

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.1	22.6	18.5	17.0	19.5	18.2	19.6	21.7	19.0	25.6	20.9	29.0	25.0
	Min	15.4	13.4	11.8	10.0	6.6	8.5	8.0	14.4	14.0	10.3	11.2	13.5	11.6
Relative Humidity	Max	98	91	88	77	85	85	92	81	92	96	88	78	-
	Min	43	38	39	32	28	46	42	45	57	41	41	24	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	21.7	19.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	23.3	20.9
Sunshine Duration		5.3	5.4	5.0	5.7	6.8	0.0	2.4	0.9	0.0	7.0	3.8	6.4	6.2
Precipitation		2.1	0.3	2.5				0.0		0.2		5.1	0.8	10.5
Evaporation		4.4	3.5	7.1	3.2	4.2	0.2	2.3	5.4	1.4	1.2	32.9	47.4	41.2
Growing Degrees	5	16.3	13.0	10.2	8.5	8.1	8.4	8.8	13.1	11.5	13.0	110.6	162.8	133.0
	10	11.3	8.0	5.2	3.5	3.1	3.4	3.8	8.1	6.5	8.0	60.6	112.8	83.0

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	21.3	29.7	26.4
Precipitation - Reference Evapotranspiration	-16.2	-28.9	-15.9
Number of Rainy Days	4.0	1.0	2.1
Number of Dry Days	0.0	22.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

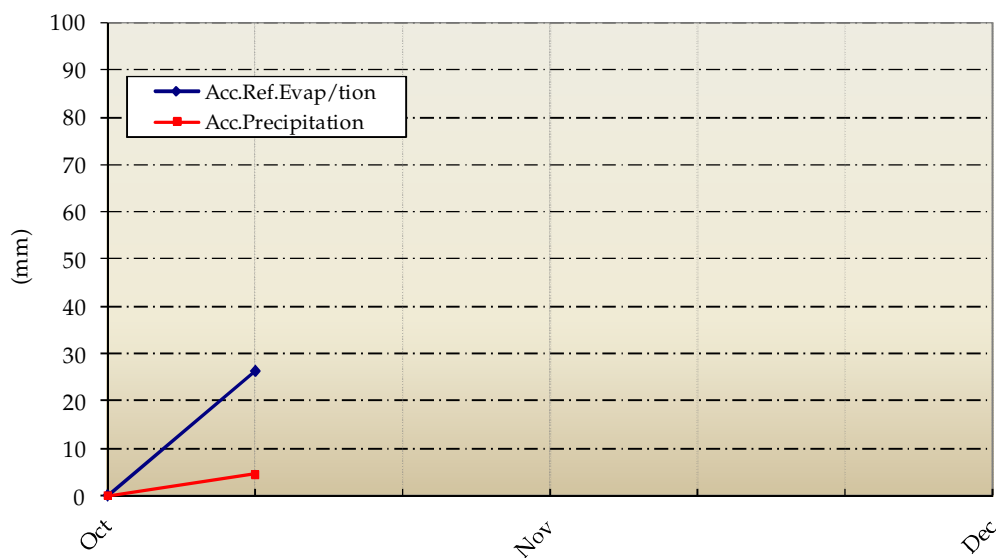


Mikra

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.6	20.4	18.6	16.4	17.0	19.5	20.7	20.2	20.1	22.2	20.1	26.9	23.5
	Min	16.2	14.7	13.0	9.5	4.7	9.8	10.2	14.9	12.9	16.4	12.2	15.2	12.8
Relative Humidity	Max	90	83	55	82	84	73	73	76	76	85	78	80	-
	Min	47	44	25	26	33	45	45	49	52	62	43	32	-
Soil Temperature at 10 cm	06 UTC	21.4	19.2	17.6	15.4	14.2	16.8	16.6	18.4	18.4	19.0	17.7	22.0	18.4
	12 UTC	25.4	22.6	21.0	17.6	17.6	20.2	20.6	22.2	20.2	20.4	20.8	25.2	21.9
Sunshine Duration		7.5	7.5	9.1	9.0	10.0	5.1	3.8	3.6	0.0	2.8	5.8	7.8	6.2
Precipitation		2.0	0.2	2.4								4.6	0.0	9.7
Evaporation		9.1	4.7	9.0	5.0	2.0	4.0	4.8	4.6	2.8	1.0	47.0	48.2	40.2
Growing Degrees	5	15.9	12.6	10.8	8.0	5.9	9.7	10.5	12.6	11.5	14.3	111.5	160.5	131.6
	10	10.9	7.6	5.8	3.0	0.9	4.7	5.5	7.6	6.5	9.3	61.5	110.5	81.6

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	26.4	32.5	25.5
Precipitation - Reference Evapotranspiration	-21.8	-32.5	-15.8
Number of Rainy Days	3.0	0.0	1.7
Number of Dry Days	0.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

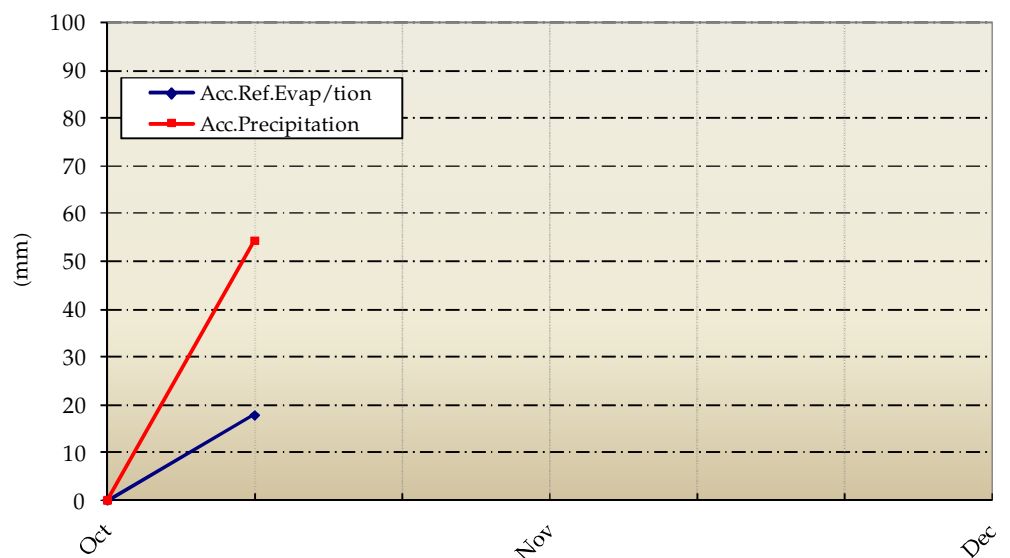


Tripoli

1st 10-day period (1-10/10/2013)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.9	24.0	17.3	15.1	15.9	14.6	16.1	21.4	21.5	16.2	18.6	26.1	23.3
	Min	14.6	11.5	10.2	10.3	9.2	5.3	9.6	9.7	9.7	9.1	9.9	9.6	9.0
Relative Humidity	Max	97	83	96	81	77	89	94	82	93	96	89	90	-
	Min	41	32	55	61	53	76	81	29	55	81	56	31	-
Soil Temperature at 10 cm	06 UTC	19.4	16.4	17.0	16.4	15.6	13.6	14.2	14.2	15.4	15.0	15.7	18.6	17.3
	12 UTC	23.2	22.0	19.2	18.6	17.2	-	17.2	19.4	19.0	14.8	19.0	23.3	19.3
Sunshine Duration		5.0	7.5	4.1	5.5	3.8	0.0	0.1	5.5	3.3	0.0	3.5	7.7	7.4
Precipitation		25.2					0.4	0.1		2.9	25.6	54.2	0.2	9.7
Evaporation		1.1	3.8	1.0	2.9	2.7	0.5	-	3.1	0.8	0.8	-	34.1	32.6
Growing Degrees	5	14.3	12.8	8.8	7.7	7.6	5.0	7.9	10.6	10.6	7.7	92.6	128.5	111.8
	10	9.3	7.8	3.8	2.7	2.6	0.0	2.9	5.6	5.6	2.7	42.7	78.5	62.0

1st 10-day period (1-10/10/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.8	24.5	25.4
Precipitation - Reference Evapotranspiration	36.4	-24.3	-15.7
Number of Rainy Days	5.0	1.0	2.0
Number of Dry Days	7.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



This station is not fully operated



◆ **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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