

AGROMETEOROLOGICAL BULLETIN

October 2010
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



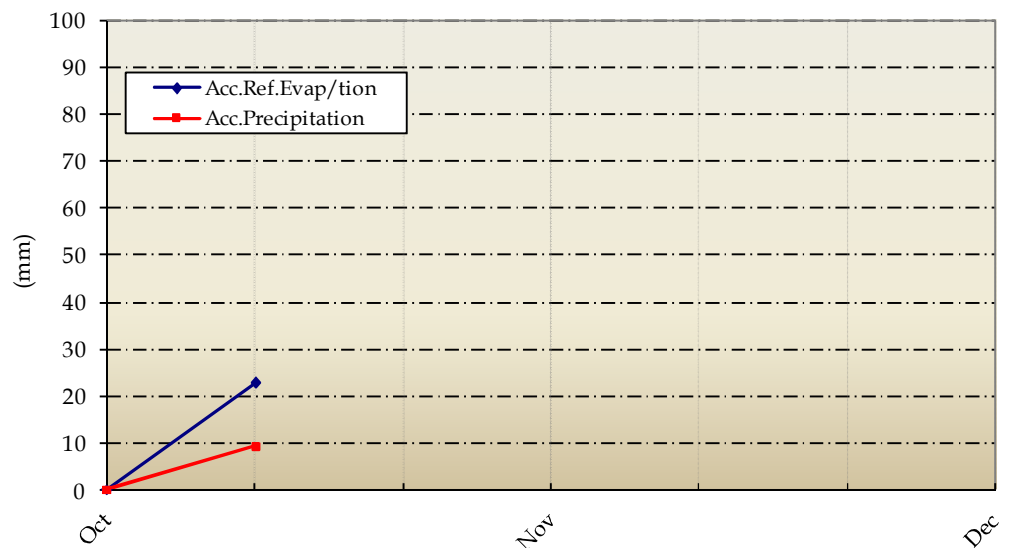
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1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	27.6	26.8	26.5	26.6	24.8	24.4	21.8	21.4	22.5	24.7	-	26.7
	Min	11.6	12.8	12.8	13.0	12.8	16.2	16.4	14.6	8.4	10.4	12.9	-	12.6
Relative Humidity	Max	98	98	98	98	98	98	96	85	83	91	94	-	-
	Min	39	35	44	45	48	66	56	46	33	49	46	-	-
Soil Temperature at 10 cm	06 UTC	20.4	20.4	20.4	20.4	18.0	22.2	21.2	20.4	19.0	19.2	20.2	-	19.3
	12 UTC	23.0	23.2	23.2	23.0	23.6	22.2	22.4	22.0	20.2	20.6	22.3	-	23.5
Sunshine Duration		5.2	10.3	8.0	7.4	8.6	2.5	7.0	8.2	9.1	5.3	7.2	-	7.4
Precipitation							5.1	2.9	0.3	0.4	0.5	9.2	-	23.3
Evaporation		3.1	3.3	3.0	4.2	3.2	0.9	5.5	3.2	1.2	2.0	29.6	-	41.8
Growing Degrees	5	13.2	15.2	14.8	14.8	14.7	15.5	15.4	13.2	9.9	11.5	138.1	-	146.6
	10	8.2	10.2	9.8	9.8	9.7	10.5	10.4	8.2	4.9	6.5	88.1	-	96.6

1st 10-day period (1-10/10/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	22.7	-	26.9
Precipitation - Reference Evapotranspiration	-13.5	-	-3.6
Number of Rainy Days	5.0	-	2.3
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

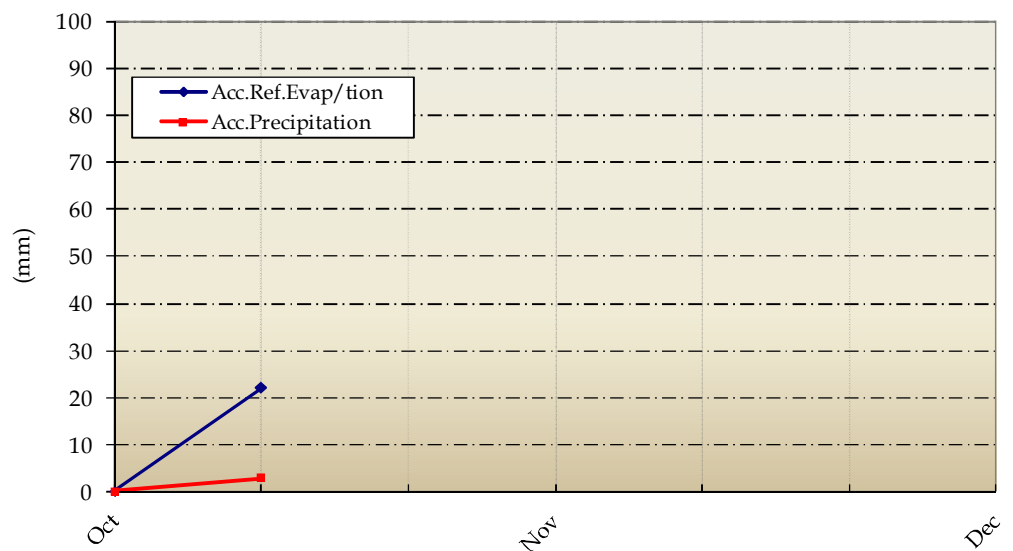


Alexandroupoli

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	22.2	20.6	20.0	21.2	17.6	16.8	15.2	15.6	16.8	18.8	25.3	22.8
	Min	14.4	12.8	10.0	13.8	13.6	13.2	12.4	7.4	3.0	8.0	10.9	13.1	11.7
Relative Humidity	Max	81	82	83	80	68	98	93	76	80	87	83	89	-
	Min	41	45	49	49	42	66	47	38	38	43	46	47	-
Soil Temperature at 10 cm	06 UTC	18.2	18.6	18.2	18.6	18.4	19.0	16.4	14.0	13.4	15.0	17.0	19.1	17.4
	12 UTC	21.2	20.6	20.4	20.4	20.6	18.4	16.0	16.6	16.2	16.4	18.7	21.9	20.5
Sunshine Duration		7.7	6.3	5.2	2.8	4.2	0.0	2.2	8.0	9.7	6.2	5.2	7.6	6.7
Precipitation							1.1	1.1			0.5	2.7	3.3	17.2
Evaporation		4.7	3.7	4.3	3.7	4.5	0.4	3.9	1.2	4.5	2.0	32.9	36.5	48.1
Growing Degrees	5	13.4	12.5	10.3	11.9	12.4	10.4	9.6	6.3	4.3	7.4	98.5	142.2	122.8
	10	8.4	7.5	5.3	6.9	7.4	5.4	4.6	1.3	0.0	2.4	49.2	92.2	73.0

1st 10-day period (1-10/10/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	21.9	26.3	27.4
Precipitation - Reference Evapotranspiration	-19.2	-23.0	-10.2
Number of Rainy Days	3.0	2.0	1.6
Number of Dry Days	5.0	20.0	-

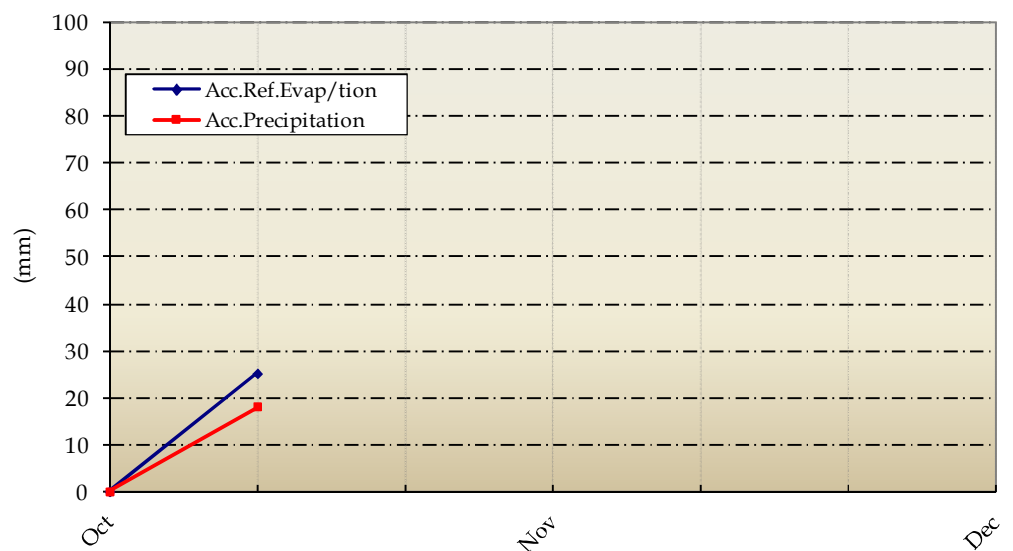
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.8	25.0	25.4	26.0	26.2	26.4	25.8	23.0	20.4	19.4	24.1	25.8	25.6
	Min	14.6	14.0	15.0	16.0	16.0	17.6	16.0	15.6	10.4	13.6	14.9	15.1	14.3
Relative Humidity	Max	93	89	87	89	90	94	94	91	89	93	91	95	-
	Min	36	41	51	49	50	60	45	40	47	70	49	48	-
Soil Temperature at 10 cm	06 UTC	19.4	19.4	19.6	20.0	20.4	21.2	20.8	19.4	17.0	17.4	19.5	20.0	20.5
	12 UTC	25.4	26.0	24.8	26.2	27.0	26.0	24.0	24.4	23.0	19.6	24.6	25.0	23.8
Sunshine Duration		6.6	9.7	8.2	9.3	8.4	4.6	6.5	8.5	6.8	0.3	6.9	8.0	7.7
Precipitation							3.3	12.2	0.2	0.1	2.1	17.9	13.4	23.2
Evaporation		2.6	4.4	0.7	5.5	3.7	2.8	2.5	6.7	0.5	1.7	31.1	30.6	42.9
Growing Degrees	5	14.2	14.5	15.2	16.0	16.1	17.0	15.9	14.3	10.4	11.5	145.1	154.6	149.6
	10	9.2	9.5	10.2	11.0	11.1	12.0	10.9	9.3	5.4	6.5	95.1	104.6	99.6

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.2	25.4	26.8
Precipitation - Reference Evapotranspiration	-7.3	-12.0	-3.6
Number of Rainy Days	5.0	2.0	2.2
Number of Dry Days	6.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

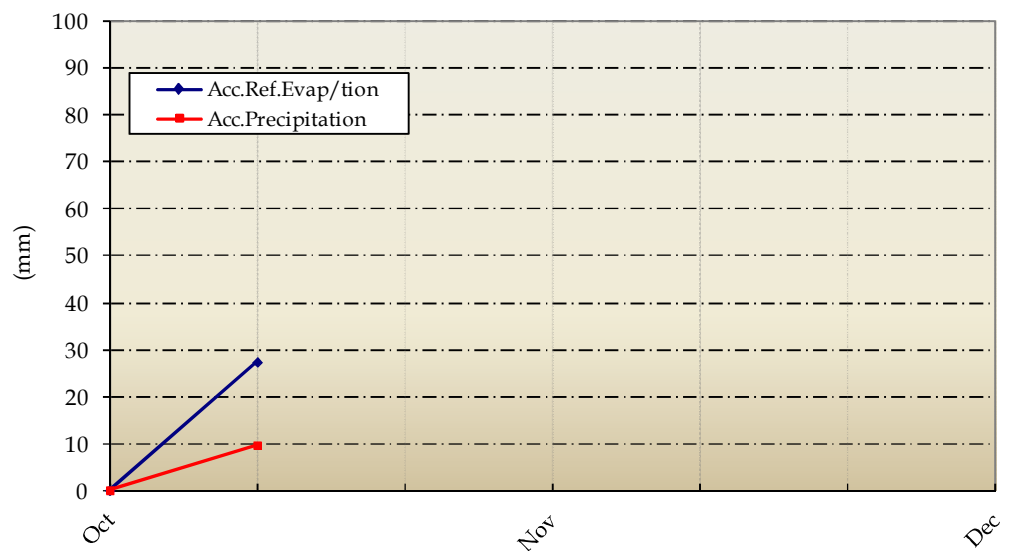


Kalamata

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.6	27.4	24.6	24.8	27.0	27.6	27.0	23.0	17.8	21.6	24.8	26.1	26.1
	Min	12.2	15.6	15.6	15.0	13.6	16.0	18.0	15.4	12.0	12.0	14.5	14.0	13.8
Relative Humidity	Max	88	80	98	98	95	96	94	91	95	96	93	95	-
	Min	30	36	52	58	49	49	37	47	60	60	48	48	-
Soil Temperature at 10 cm	06 UTC	21.0	21.2	21.4	21.2	20.6	21.2	21.4	20.8	20.0	19.0	20.8	20.8	20.0
	12 UTC	22.6	22.6	22.2	22.2	22.4	22.6	22.6	21.6	20.0	20.0	21.9	22.2	22.6
Sunshine Duration		10.6	10.4	4.2	5.5	10.0	6.1	4.4	4.4	0.0	3.4	5.9	9.2	7.4
Precipitation				5.9				2.4	0.1	0.6	0.6	9.6	20.4	17.8
Evaporation		8.0	4.8	0.7	2.6	3.1	4.7	3.6	0.5	2.4	4.3	34.7	57.4	46.9
Growing Degrees	5	14.9	16.5	15.1	14.9	15.3	16.8	17.5	14.2	9.9	11.8	146.9	150.5	149.4
	10	9.9	11.5	10.1	9.9	10.3	11.8	12.5	9.2	4.9	6.8	96.9	100.5	99.4

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.4	28.5	28.3
Precipitation - Reference Evapotranspiration	-17.8	-8.1	-10.5
Number of Rainy Days	5.0	1.0	2.3
Number of Dry Days	3.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

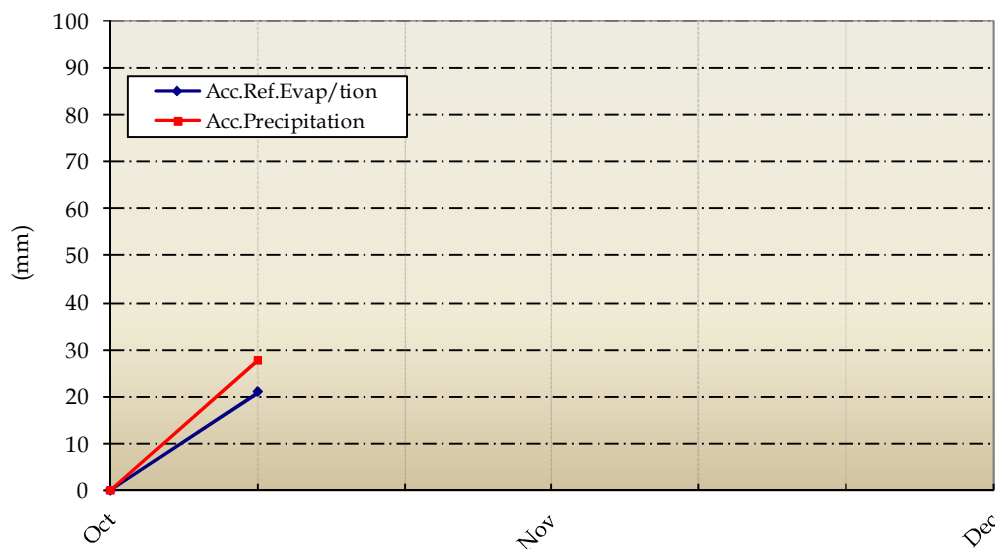


Larisa

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	23.6	23.8	21.6	24.0	18.8	16.8	13.6	16.0	18.6	20.1	28.0	25.0
	Min	11.8	15.6	12.4	16.6	16.8	14.4	13.4	10.8	5.0	6.0	12.3	11.8	11.6
Relative Humidity	Max	86	86	91	88	86	98	96	93	94	94	91	90	-
	Min	37	48	46	56	51	83	74	79	43	38	56	33	-
Soil Temperature at 10 cm	06 UTC	21.2	20.4	19.6	20.2	19.2	20.0	19.2	15.0	14.0	15.0	18.4	20.0	19.3
	12 UTC	22.0	21.4	21.8	21.2	21.8	17.0	17.2	17.6	17.0	17.0	19.4	22.2	20.9
Sunshine Duration		6.2	4.8	7.3	3.7	5.7	0.1	0.0	0.0	8.0	8.3	4.4	7.7	6.2
Precipitation			0.0				10.6	9.3	7.8			27.7	4.9	10.5
Evaporation		8.8	3.1	3.7	3.0	2.1	10.0	0.1	-	0.0	1.7	-	49.8	41.2
Growing Degrees	5	13.1	14.6	13.1	14.1	15.4	11.6	10.1	7.2	5.5	7.3	112.0	148.9	133.0
	10	8.1	9.6	8.1	9.1	10.4	6.6	5.1	2.2	0.5	2.3	62.0	98.9	83.0

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.9	29.1	26.4
Precipitation - Reference Evapotranspiration	6.8	-24.2	-15.9
Number of Rainy Days	3.0	2.0	2.1
Number of Dry Days	6.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

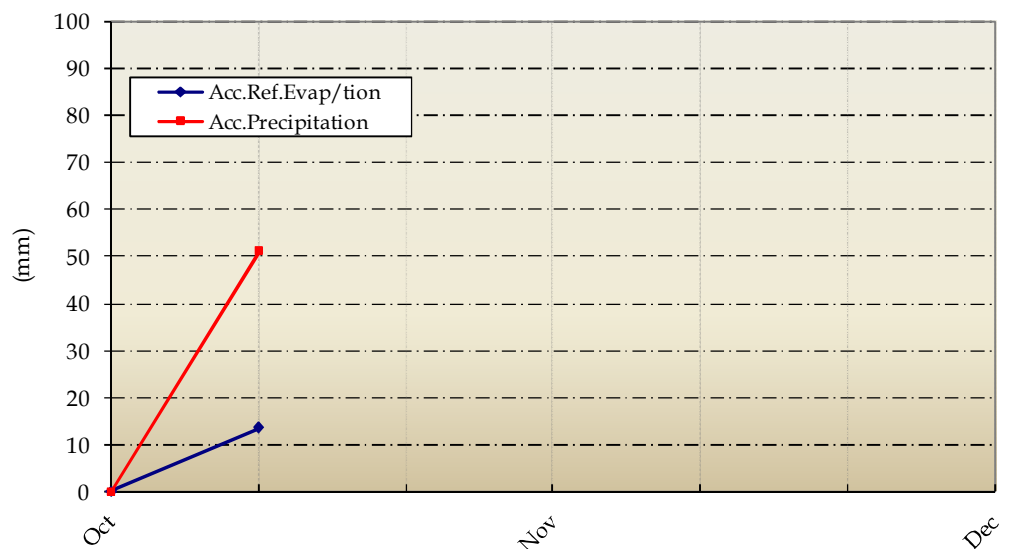


Series

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.8	24.0	19.8	16.2	16.0	15.0	15.2	13.4	17.6	19.8	18.0	26.5	24.2
	Min	12.0	10.2	11.2	12.4	12.8	13.0	12.6	10.6	1.8	6.0	10.3	12.6	11.6
Relative Humidity	Max	73	76	95	95	95	95	95	92	95	70	88	88	-
	Min	37	38	63	91	85	93	83	41	30	30	59	42	-
Soil Temperature at 10 cm	06 UTC	19.4	18.8	19.0	18.4	17.8	17.4	16.8	16.4	12.8	-	17.4	19.0	17.5
	12 UTC	20.2	20.6	20.2	18.2	18.4	18.2	18.0	16.8	-	-	18.8	21.0	20.0
Sunshine Duration		5.5	5.3	0.8	0.0	0.0	0.0	0.0	1.0	-	8.7	2.4	6.4	6.4
Precipitation				1.6	16.8	3.4	22.2	4.4	2.7			51.1	7.1	10.5
Evaporation		3.0	2.3	0.0	0.0	0.0	0.0	0.0	0.4	-	2.6	-	27.9	30.9
Growing Degrees	5	12.4	12.1	10.5	9.3	9.4	9.0	8.9	7.0	4.7	7.9	91.2	145.2	128.0
	10	7.4	7.1	5.5	4.3	4.4	4.0	3.9	2.0	0.0	2.9	41.5	95.2	78.4

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.4	18.7	19.8
Precipitation - Reference Evapotranspiration	37.7	-11.6	-9.3
Number of Rainy Days	6.0	1.0	1.6
Number of Dry Days	3.0	13.0	-

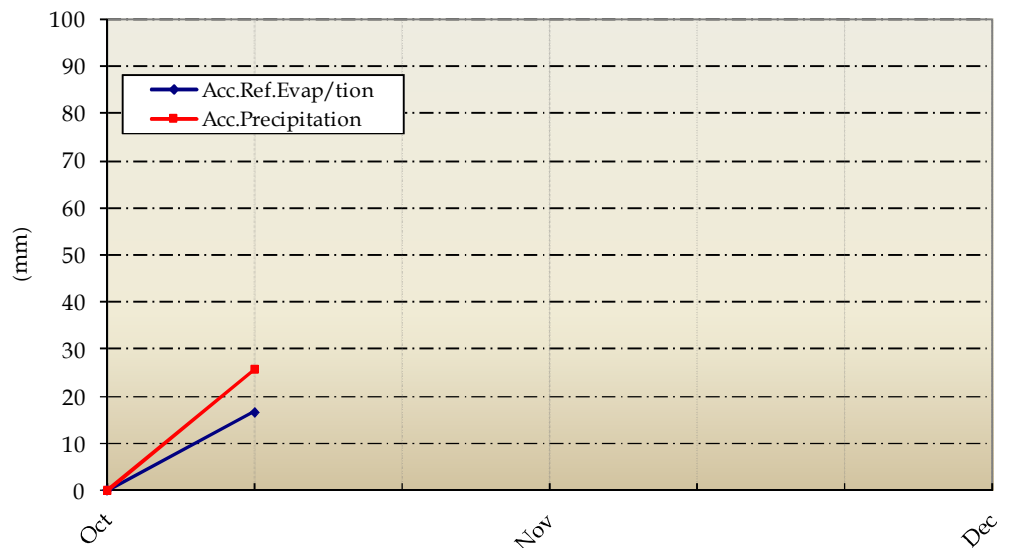
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	25.6	24.0	17.8	17.8	17.2	15.0	14.8	17.8	19.4	19.5	28.1	24.3
	Min	11.8	14.0	14.0	12.6	13.2	15.0	12.6	9.8	2.0	3.6	10.9	12.9	12.0
Relative Humidity	Max	88	96	100	95	99	96	97	93	100	97	96	96	-
	Min	35	41	51	93	83	92	93	38	25	34	58	41	-
Soil Temperature at 10 cm	06 UTC	18.6	20.0	20.0	20.0	18.4	18.2	18.0	16.4	14.2	13.8	17.8	19.5	19.1
	12 UTC	20.4	21.4	21.6	19.4	19.0	18.6	17.8	17.4	16.0	15.6	18.7	22.5	20.2
Sunshine Duration		7.2	7.3	5.4	0.0	0.0	0.0	0.0	2.6	10.2	9.7	4.2	7.5	6.0
Precipitation			0.9	0.2	3.2	1.5	8.3	11.3	0.3			25.7	31.2	22.2
Evaporation		2.5	3.1	1.7	0.3	0.5	1.6	2.0	1.1	4.3	3.5	20.6	35.3	27.7
Growing Degrees	5	13.6	14.8	14.0	10.2	10.5	11.1	8.8	7.3	4.9	6.5	101.7	155.0	130.4
	10	8.6	9.8	9.0	5.2	5.5	6.1	3.8	2.3	0.0	1.5	51.8	105.0	80.7

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.7	30.1	21.1
Precipitation - Reference Evapotranspiration	9.0	1.1	1.1
Number of Rainy Days	7.0	1.0	2.4
Number of Dry Days	2.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

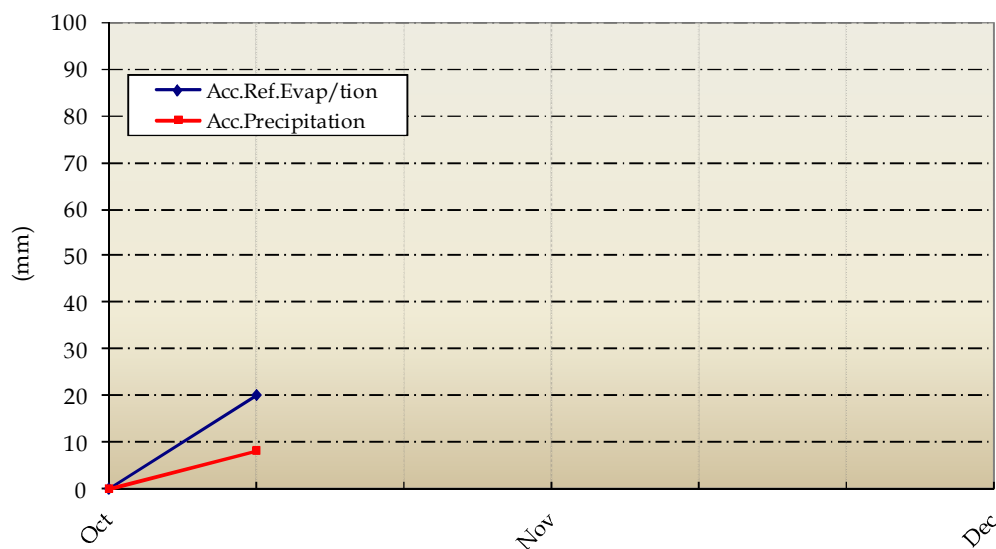


Tripoli

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.8	23.2	21.8	21.8	24.4	25.0	18.8	13.4	13.0	17.0	20.1	-	23.3
	Min	8.2	11.2	9.0	12.8	10.4	10.4	13.4	10.0	8.2	7.2	10.1	-	9.0
Relative Humidity	Max	87	91	97	93	93	93	89	97	78	97	92	-	-
	Min	47	47	46	50	31	36	67	78	59	61	52	-	-
Soil Temperature at 10 cm	06 UTC	17.2	18.0	16.4	18.0	17.0	17.8	18.6	16.8	14.0	14.0	16.8	-	17.3
	12 UTC	21.4	22.8	21.6	22.0	22.0	22.6	20.8	16.6	16.6	17.6	20.4	-	19.3
Sunshine Duration		7.8	6.9	7.1	6.0	9.3	6.4	2.0	0.0	3.1	2.4	5.1	-	7.4
Precipitation			4.6					0.4	1.9	0.0	1.3	8.2	-	9.7
Evaporation		4.0	0.6	3.0	3.0	2.0	3.6	0.9	1.0	4.3	0.2	22.6	-	32.6
Growing Degrees	5	10.5	12.2	10.4	12.3	12.4	12.7	11.1	6.7	5.6	7.1	101.0	-	111.8
	10	5.5	7.2	5.4	7.3	7.4	7.7	6.1	1.7	0.6	2.1	51.0	-	62.0

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.1	-	25.4
Precipitation - Reference Evapotranspiration	-11.9	-	-15.7
Number of Rainy Days	4.0	-	2.0
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

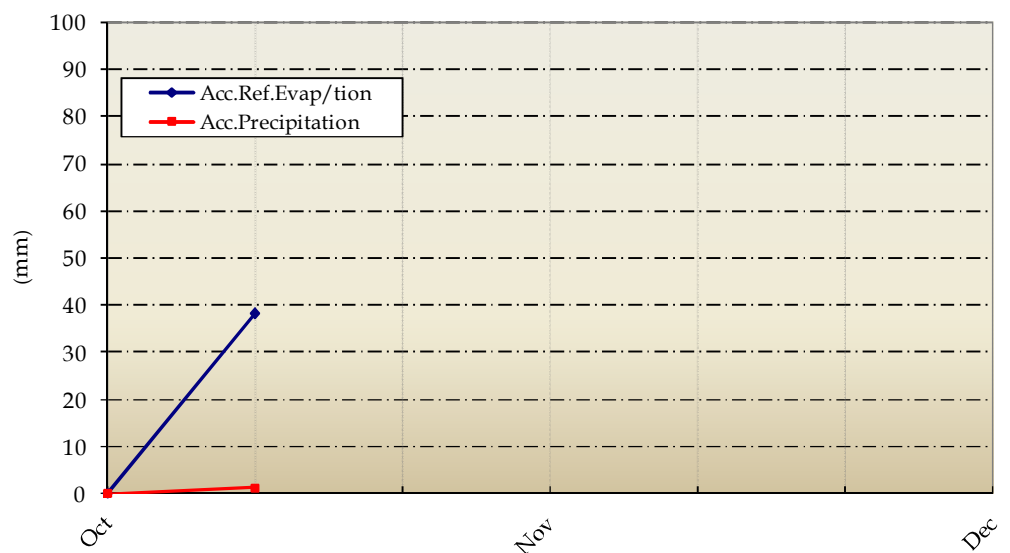


Tympaki

1st 10-day period (1-10/10/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.6	27.8	27.6	28.0	27.6	27.0	26.6	24.8	23.0	22.8	26.3	27.0	26.4
	Min	19.0	17.6	17.8	15.4	16.4	17.8	19.4	17.6	15.0	14.2	17.0	16.7	15.7
Relative Humidity	Max	94	96	85	69	72	87	100	67	56	81	81	93	-
	Min	52	39	31	22	34	42	47	23	28	40	36	44	-
Soil Temperature at 10 cm	06 UTC	24.6	24.2	24.8	23.8	24.0	24.2	25.2	23.0	22.2	22.0	23.8	23.5	23.6
	12 UTC	28.0	29.4	29.6	29.0	28.8	29.0	29.4	26.8	25.0	25.0	28.0	28.0	27.5
Sunshine Duration		2.1	8.5	10.7	10.1	10.5	9.7	4.7	9.5	9.5	2.9	7.8	8.1	8.6
Precipitation								1.2				1.2		7.2
Evaporation		3.8	7.7	8.0	7.3	7.5	5.5	4.4	8.7	7.2	2.5	62.6	65.3	61.4
Growing Degrees	5	18.3	17.7	17.7	16.7	17.0	17.4	18.0	16.2	14.0	13.5	166.5	168.4	159.8
	10	13.3	12.7	12.7	11.7	12.0	12.4	13.0	11.2	9.0	8.5	116.5	118.4	110.0

1st 10-day period (1-10/10/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.1	32.0	34.5
Precipitation - Reference Evapotranspiration	-36.9	-32.0	-27.3
Number of Rainy Days	1.0	0.0	0.7
Number of Dry Days	6.0	15.0	-

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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The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens (Professor A. Liakatas)