



AGROMETEOROLOGICAL BULLETIN

January 2009
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



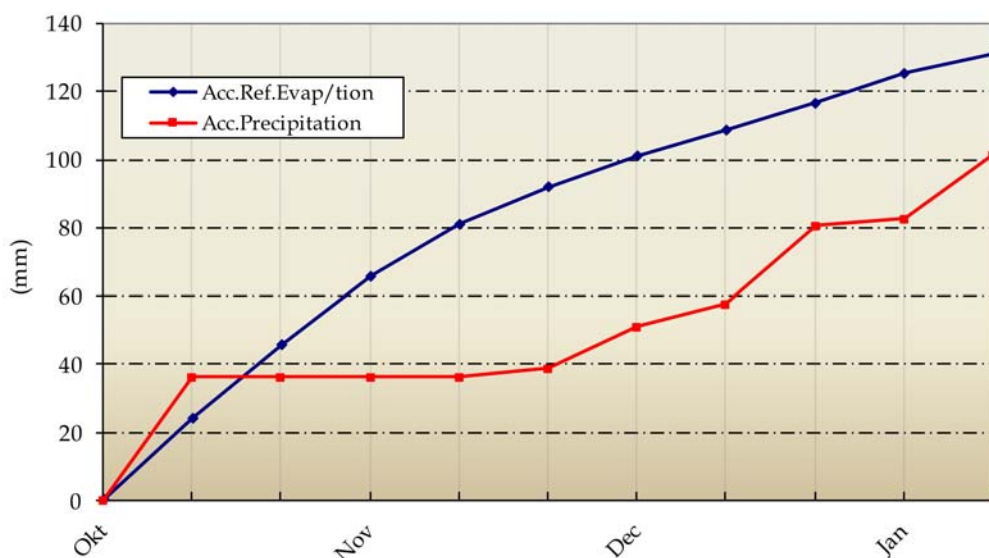
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www.emy.gov.gr
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1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.2	5.4	3.4	3.4	3.8	5.6	6.4	5.0	4.6	4.2	4.8	-	8.9
	Min	-6.4	2.0	-0.8	-1.0	1.4	2.6	0.2	0.2	-0.4	-5.0	-0.7	-	1.5
Relative Humidity	Max	95	100	96	97	93	97	93	97	92	100	96	-	-
	Min	63	74	81	79	73	69	67	81	49	60	70	-	-
Soil Temperature at 10 cm	06 UTC	-	4.4	3.6	2.8	3.4	3.6	4.0	4.0	4.0	2.4	3.6	-	5.6
	12 UTC	2.0	4.4	4.0	3.6	3.8	4.6	4.6	4.6	3.4	2.0	3.7	-	6.6
Sunshine Duration		5.6	0.0	0.0	0.0	0.0	0.2	4.1	0.0	3.3	7.4	2.1	-	2.7
Precipitation			6.1	0.2	2.7	5.0	1.0		0.8	3.3		19.1	-	17.5
Evaporation		0.0	0.1	0.0	0.0	0.0	1.8	0.8	0.0	0.0	0.0	2.7	-	8.4
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	17.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	2.8

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	5.7	-	7.7
Precipitation - Reference Evapotranspiration	13.4	-	9.8
Number of Rainy Days	7.0	-	2.8
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

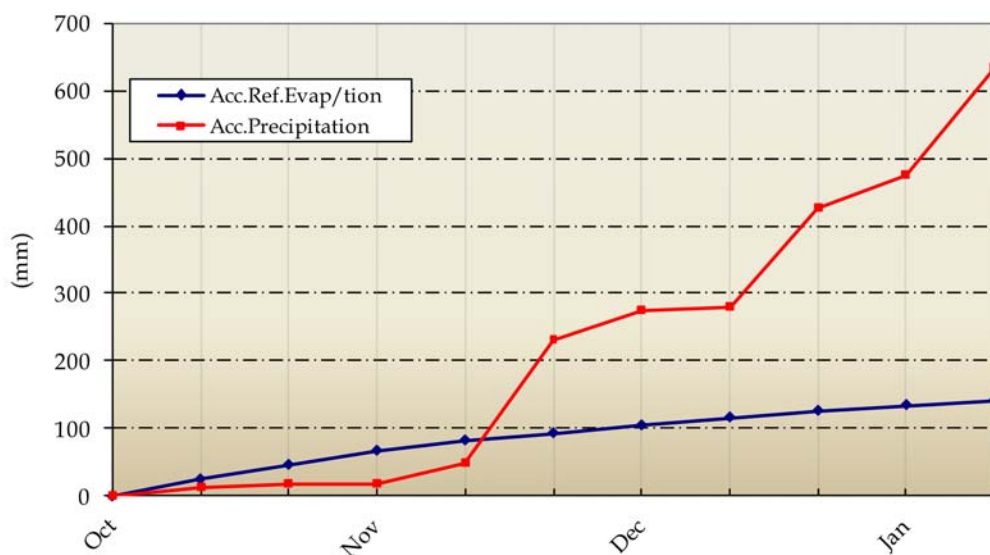


Andravida

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.4	13.2	12.0	14.0	13.0	13.2	15.2	12.6	15.6	13.6	13.5	-	13.8
	Min	-0.4	7.8	10.6	10.0	6.8	8.0	4.2	8.2	8.8	9.2	7.3	-	5.4
Relative Humidity	Max	92	95	100	98	97	97	97	97	100	94	97	-	-
	Min	54	75	95	73	87	61	49	93	66	69	72	-	-
Soil Temperature at 10 cm	06 UTC	5.4	8.8	10.6	10.4	9.6	9.8	8.8	10.2	10.4	11.0	9.5	-	8.9
	12 UTC	8.2	10.2	11.0	10.4	-	11.2	10.8	10.2	12.2	12.4	10.7	-	10.3
Sunshine Duration		5.8	0.0	0.0	0.0	0.0	6.3	7.9	0.3	3.8	2.4	2.6	-	4.5
Precipitation			9.0	32.5	44.2	6.5	0.5		56.4	8.5	0.5	158.1	-	38.0
Evaporation		4.0	1.0	3.0	2.7	2.2	1.3	2.0	0.9	1.5	1.0	19.6	-	17.8
Growing Degrees	5	1.0	5.5	6.3	7.0	4.9	5.6	4.7	5.4	7.2	6.4	54.0	-	46.8
	10	0.0	0.5	1.3	2.0	0.0	0.6	0.0	0.4	2.2	1.4	8.4	-	10.2

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.4	-	9.2
Precipitation - Reference Evapotranspiration	150.7	-	28.8
Number of Rainy Days	8.0	-	4.0
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

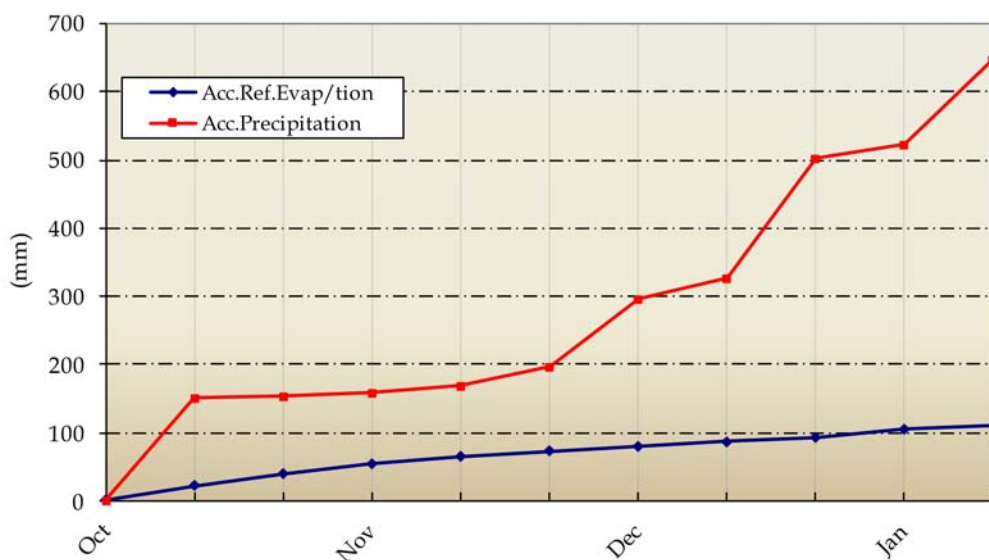


Arta

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	14.6	-	12.6	9.0	15.4	14.2	14.0	12.6	14.6	13.1	-	13.4
	Min	-1.6	7.0	8.8	8.0	3.0	6.8	6.4	6.0	7.6	8.8	6.1	-	3.0
Relative Humidity	Max	94	95	94	92	98	93	84	88	68	-	90	-	-
	Min	26	80	92	87	88	27	25	59	25	-	57	-	-
Soil Temperature at 10 cm	06 UTC	4.6	7.2	8.4	9.0	8.2	8.0	8.6	8.8	9.4	9.4	8.2	-	7.2
	12 UTC	5.6	-	8.8	9.2	8.2	8.8	9.0	9.0	9.8	10.0	8.7	-	8.4
Sunshine Duration		2.5	1.1	0.0	0.1	0.0	5.3	4.6	1.0	0.5	6.0	2.1	-	4.1
Precipitation			41.1	31.3	45.7	3.6			1.7	2.6		126.0	-	41.0
Evaporation		3.0	0.5	0.7	0.7	0.3	-	-	-	-	-	-	-	-
Growing Degrees	5	0.0	5.8	-	5.3	1.0	6.1	5.3	5.0	5.1	6.7	-	-	34.8
	10	0.0	0.8	-	0.3	0.0	1.1	0.3	0.0	0.1	1.7	-	-	5.2

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	5.2	-	6.3
Precipitation - Reference Evapotranspiration	120.8	-	34.7
Number of Rainy Days	6.0	-	3.6
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

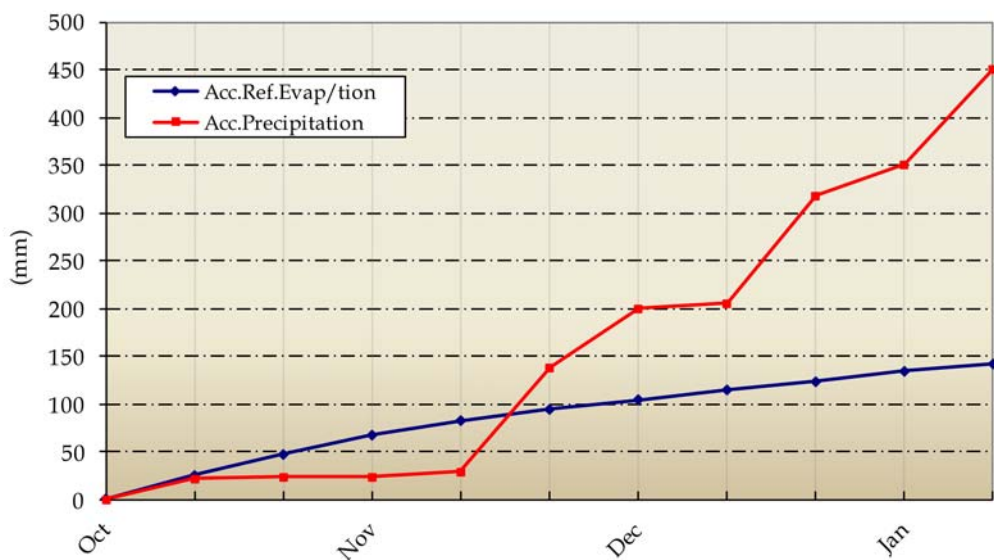


Kalamata

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.4	12.0	12.8	14.2	13.2	15.0	14.4	15.4	20.8	15.0	14.6	-	14.7
	Min	-0.2	4.6	10.8	9.6	8.2	8.6	4.6	8.6	9.0	9.6	7.3	-	5.3
Relative Humidity	Max	94	98	98	97	97	100	97	97	92	85	96	-	-
	Min	49	78	95	78	86	67	64	66	53	64	70	-	-
Soil Temperature at 10 cm	06 UTC	7.2	8.2	10.6	10.8	10.8	11.0	10.4	10.8	11.0	11.2	10.2	-	9.3
	12 UTC	8.4	8.8	10.6	11.2	-	11.6	10.6	11.0	12.0	11.8	10.7	-	10.4
Sunshine Duration		8.1	0.0	0.0	2.5	0.1	5.2	3.1	2.7	7.3	0.1	2.9	-	4.5
Precipitation			15.9	42.6	17.8	12.7	11.8		0.0			100.8	-	30.6
Evaporation		2.0	1.3	1.6	1.0	1.3	2.0	0.0	3.0	3.0	0.9	16.1	-	22.0
Growing Degrees	5	1.6	3.3	6.8	6.9	5.7	6.8	4.5	7.0	9.9	7.3	59.8	-	49.2
	10	0.0	0.0	1.8	1.9	0.7	1.8	0.0	2.0	4.9	2.3	15.4	-	10.6

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.8	-	11.0
Precipitation - Reference Evapotranspiration	93.0	-	19.6
Number of Rainy Days	5.0	-	4.0
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

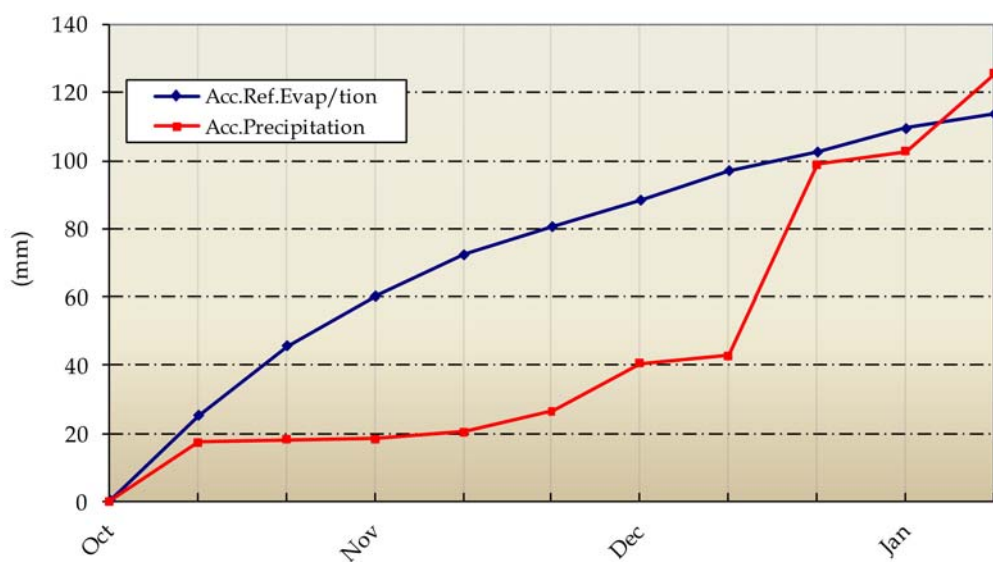


Larisa

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	4.8	5.4	5.0	4.4	5.6	6.8	7.4	9.2	7.4	6.8	6.3	-	9.7
	Min	-6.6	-2.2	-0.2	2.4	2.0	1.8	3.2	2.2	4.6	4.2	1.1	-	0.5
Relative Humidity	Max	100	100	100	100	100	100	97	97	94	94	98	-	-
	Min	62	84	87	93	84	79	80	78	71	82	80	-	-
Soil Temperature at 10 cm	06 UTC	4.2	3.8	4.6	5.0	5.4	5.4	6.0	6.2	6.6	6.6	5.4	-	5.3
	12 UTC	3.2	4.2	5.0	5.4	6.0	5.8	6.4	6.2	6.8	7.0	5.6	-	5.9
Sunshine Duration		3.9	1.7	0.0	0.0	0.0	0.0	0.8	1.1	0.0	0.0	0.8	-	3.9
Precipitation			0.8	5.4	5.8	5.8	2.7	0.1	0.4	1.8		22.8	-	11.6
Evaporation		0.0	0.0	1.9	0.9	0.8	0.0	0.1	2.1	0.7	0.8	7.3	-	5.2
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	1.0	0.5	2.5	-	13.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	1.0

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	4.3	-	6.2
Precipitation - Reference Evapotranspiration	18.5	-	5.4
Number of Rainy Days	8.0	-	2.5
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

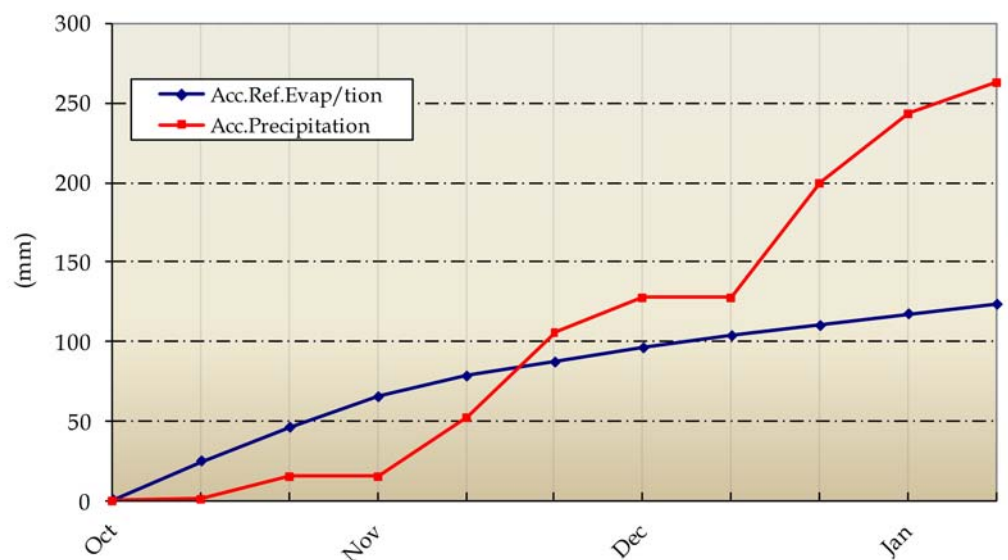


Pyrgela

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.0	12.8	14.8	10.8	14.8	9.4	13.8	15.6	11.6	10.8	12.6	-	14.9
	Min	-2.2	-0.4	7.6	7.6	3.8	7.4	3.8	3.0	0.9	7.6	3.9	-	3.1
Relative Humidity	Max	96	96	95	94	95	86	93	93	94	94	94	-	-
	Min	42	75	76	66	83	75	55	92	82	80	73	-	-
Soil Temperature at 10 cm	06 UTC	4.0	4.2	7.6	8.6	8.6	8.4	7.4	8.2	10.2	9.4	7.7	-	6.8
	12 UTC	6.0	6.4	9.4	11.0	9.2	8.8	9.4	10.2	10.0	9.6	9.0	-	9.9
Sunshine Duration		7.0	0.6	0.0	3.3	0.0	0.0	5.5	4.7	0.0	0.0	2.1	-	4.5
Precipitation				0.9	1.8	14.0	2.2			1.0	0.0	19.9	-	22.6
Evaporation		0.6	0.4	0.3	1.0	0.4	0.5	0.8	0.8	0.2	0.2	5.2	-	10.1
Growing Degrees	5	0.0	1.2	6.2	4.2	4.3	3.4	3.8	4.3	1.3	4.2	32.9	-	41.8
	10	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	-	7.2

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.0	-	7.5
Precipitation - Reference Evapotranspiration	13.9	-	15.1
Number of Rainy Days	5.0	-	3.2
Number of Dry Days	5.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

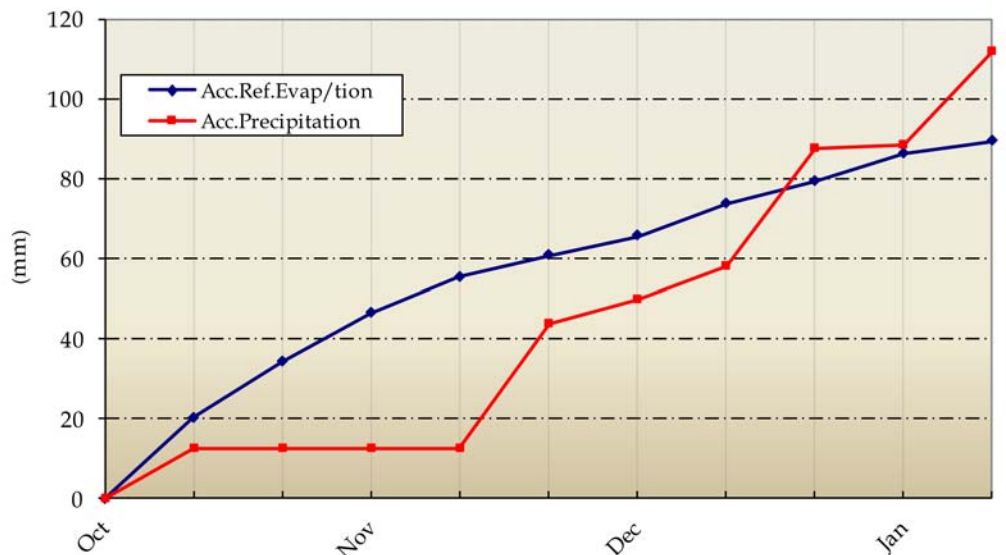


Series

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.6	4.0	1.0	1.0	1.4	2.0	2.6	5.4	3.4	5.0	3.1	-	7.6
	Min	-6.8	-3.0	-1.0	-1.4	-3.0	-1.4	-1.0	-1.0	1.0	-1.8	-1.9	-	-0.4
Relative Humidity	Max	95	96	96	100	92	96	92	92	85	94	94	-	-
	Min	44	81	93	85	74	70	79	74	76	69	74	-	-
Soil Temperature at 10 cm	06 UTC	-	1.8	2.4	2.2	2.2	3.2	3.4	4.2	4.8	3.8	3.1	-	3.6
	12 UTC	2.2	2.4	2.4	2.8	3.2	3.2	3.8	4.2	4.6	4.4	3.3	-	4.1
Sunshine Duration		3.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.8	-	3.4
Precipitation			0.6	8.4	6.2	5.2			0.7	2.2		23.3	-	10.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	5.2
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	7.5
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.3

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	3.2	-	4.2
Precipitation - Reference Evapotranspiration	20.1	-	6.4
Number of Rainy Days	6.0	-	2.4
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

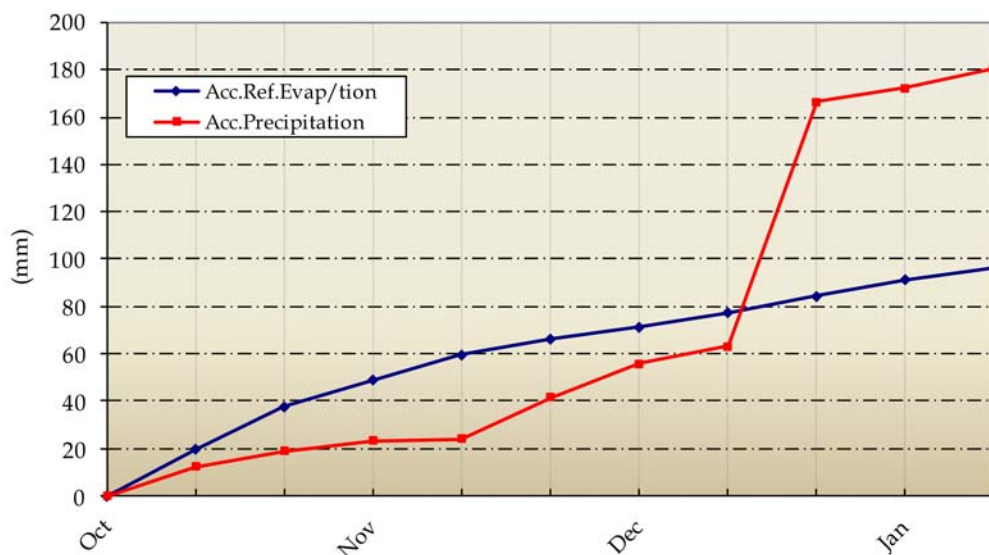


Trikala Imathias

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	5.0	8.8	-	-	1.2	-	-	6.8	5.0	5.6	5.4	-	9.1
	Min	-4.2	0.4	0.4	-	-3.2	-	0.0	1.6	-1.0	1.6	-0.6	-	0.5
Relative Humidity	Max	96	96	-	98	-	96	98	98	96	96	97	-	-
	Min	57	60	-	88	-	72	85	85	92	73	76	-	-
Soil Temperature at 10 cm	06 UTC	-	3.4	3.8	-	3.0	-	3.2	4.0	4.4	4.0	3.7	-	5.6
	12 UTC	2.8	3.8	3.2	-	3.0	-	3.8	4.4	4.0	4.2	3.6	-	5.7
Sunshine Duration		6.0	4.3	-	0.0	-	0.0	0.0	0.1	0.0	0.0	1.3	-	3.9
Precipitation				0.5		3.0			1.3	3.5		8.3	-	14.0
Evaporation		0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	-	4.4
Growing Degrees	5	0.0	0.0	-	-	0.0	-	-	0.0	0.0	0.0	-	-	14.2
	10	0.0	0.0	-	-	0.0	-	-	0.0	0.0	0.0	-	-	0.8

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	4.9	-	5.7
Precipitation - Reference Evapotranspiration	3.4	-	8.3
Number of Rainy Days	4.0	-	2.3
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

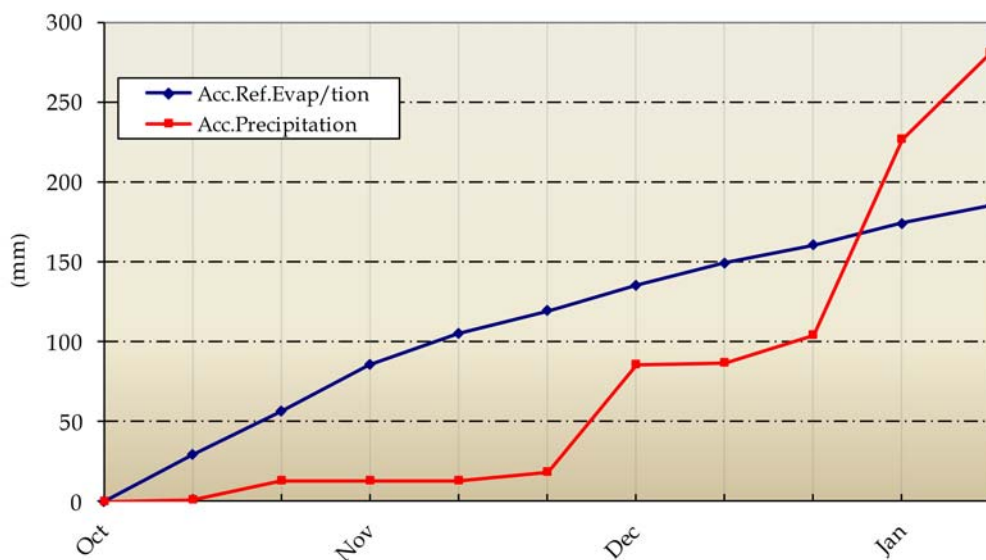


Tympaki

1st 10-day period (1-10/01/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	16.2	15.2	18.0	17.6	18.8	15.6	17.4	18.4	13.0	16.3	-	15.8
	Min	3.6	3.6	11.0	9.0	12.0	10.4	8.0	5.6	6.4	10.4	8.0	-	7.6
Relative Humidity	Max	86	94	96	93	95	96	87	94	94	97	93	-	-
	Min	41	49	65	51	68	64	36	46	51	85	56	-	-
Soil Temperature at 10 cm	06 UTC	7.0	7.2	12.0	11.0	13.0	13.0	10.6	9.4	10.2	11.8	10.5	-	11.5
	12 UTC	10.4	10.6	12.4	13.2	14.6	14.4	12.6	12.6	13.8	12.2	12.7	-	13.0
Sunshine Duration		7.9	3.0	0.0	0.0	0.8	2.4	6.5	7.3	5.5	0.0	3.3	-	4.5
Precipitation				38.5		5.2	7.8				3.1	54.6	-	35.1
Evaporation		3.0	2.0	2.5	1.6	1.6	1.8	2.0	2.0	2.1	0.0	18.6	-	26.2
Growing Degrees	5	3.3	4.9	8.1	8.5	9.8	9.6	6.8	6.5	7.4	6.7	71.6	-	67.0
	10	0.0	0.0	3.1	3.5	4.8	4.6	1.8	1.5	2.4	1.7	23.4	-	20.7

1st 10-day period (1-10/01/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.2	-	14.4
Precipitation - Reference Evapotranspiration	43.4	-	20.7
Number of Rainy Days	4.0	-	3.9
Number of Dry Days	5.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration





◆ List of Symbols and Abbreviations

Reference Evapotranspiration E_{To} (mm):

Calculated by the FAO Penman-Montieth equation

$$E_{T_0} = \frac{0.408 * \Delta * (R_n - G) + \gamma * \frac{900}{T + 273} * u_2 * (e_s - e_a)}{\Delta + \gamma * (1 + 0.34 * u_2)}$$

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
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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)