

AGROMETEOROLOGICAL BULLETIN

April 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



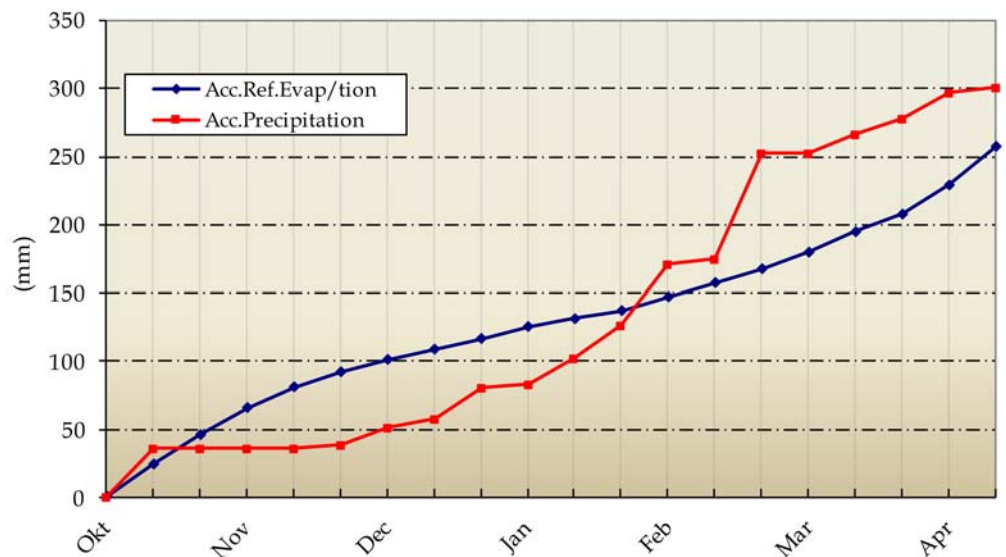
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1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	19.0	18.6	19.4	21.0	15.8	13.2	17.0	22.2	21.8	18.9	-	16.7
	Min	13.0	12.2	10.0	3.6	1.6	9.4	7.4	4.6	6.6	5.6	7.4	-	6.5
Relative Humidity	Max	89	75	79	77	86	90	89	94	94	94	87	-	-
	Min	48	46	33	18	18	42	57	58	29	31	38	-	-
Soil Temperature at 10 cm	06 UTC	14.2	14.2	13.6	11.6	11.6	13.6	11.2	10.4	11.8	12.8	12.5	-	10.4
	12 UTC	14.4	14.8	16.4	15.6	16.0	12.6	12.6	14.6	16.0	16.0	14.9	-	13.5
Sunshine Duration		4.1	4.1	11.6	10.2	9.7	0.1	0.4	10.4	10.0	10.9	7.2	-	6.1
Precipitation							0.9	2.3				3.2	-	11.5
Evaporation		4.0	6.5	4.8	8.2	8.4	1.1	0.6	2.7	5.7	4.2	46.2	-	34.0
Growing Degrees	5	12.1	10.6	9.3	6.5	6.3	7.6	5.3	5.8	9.4	8.7	81.6	-	66.0
	10	7.1	5.6	4.3	1.5	1.3	2.6	0.3	0.8	4.4	3.7	31.6	-	21.0

1st 10-day period (1-10/04/2009)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.5	24.4
Precipitation - Reference Evapotranspiration	-25.3	-12.9
Number of Rainy Days	2.0	2.6
Number of Dry Days	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

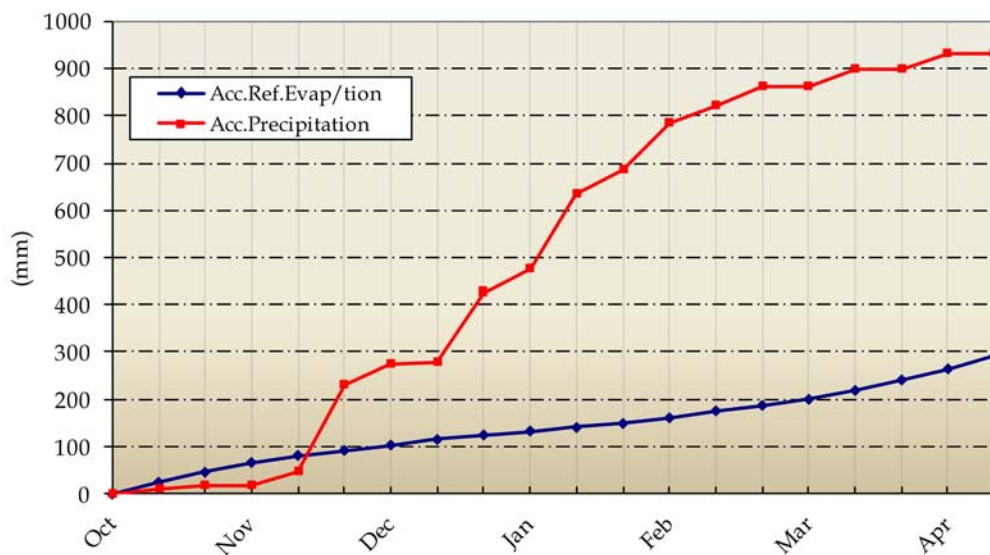


Andravida

1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.0	23.0	22.0	19.8	19.0	17.6	18.4	18.4	20.8	20.2	20.5	-	18.6
	Min	14.0	11.0	11.8	10.0	9.8	11.0	9.4	9.4	6.8	7.8	10.1	-	8.6
Relative Humidity	Max	93	95	98	100	100	95	97	98	100	94	97	-	-
	Min	43	54	60	49	40	49	45	59	43	48	49	-	-
Soil Temperature at 10 cm	06 UTC	15.8	15.6	15.8	16.0	15.8	15.8	15.2	15.8	15.2	15.0	15.6	-	12.9
	12 UTC	19.6	20.0	20.2	20.2	20.2	19.2	19.4	20.2	20.0	20.4	19.9	-	15.7
Sunshine Duration		3.6	8.3	5.6	9.3	4.7	3.0	10.4	10.2	9.3	9.3	7.4	-	6.9
Precipitation													-	14.7
Evaporation		3.5	2.0	3.0	12.6	7.0	2.0	5.0	0.8	6.2	4.0	46.1	-	34.4
Growing Degrees	5	15.0	12.0	11.9	9.9	9.4	9.3	8.9	8.9	8.8	9.0	103.1	-	86.1
	10	10.0	7.0	6.9	4.9	4.4	4.3	3.9	3.9	3.8	4.0	53.1	-	36.7

1st 10-day period (1-10/04/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	27.6	-	26.7
Precipitation - Reference Evapotranspiration	-27.6	-	-12.0
Number of Rainy Days	0.0	-	2.8
Number of Dry Days	14.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

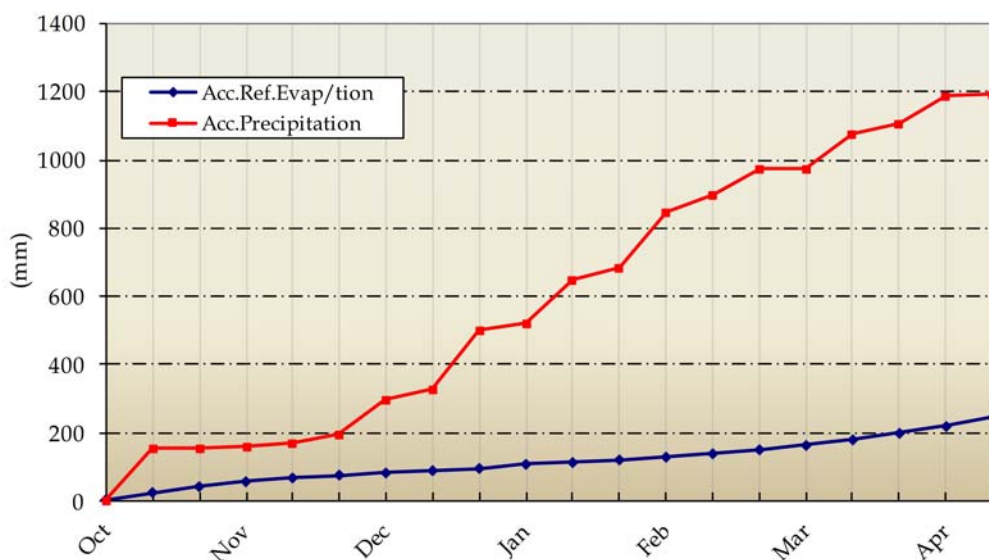


Arta

1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.4	25.4	24.0	24.0	20.0	18.6	20.4	22.0	25.0	25.6	23.4	-	19.5
	Min	14.0	13.8	15.4	9.4	6.0	9.4	6.0	7.0	7.6	8.0	9.7	-	7.8
Relative Humidity	Max	85	93	90	97	97	98	98	99	99	96	95	-	-
	Min	15	27	24	16	18	41	32	40	12	13	24	-	-
Soil Temperature at 10 cm	06 UTC	14.0	14.8	15.6	13.0	14.2	13.8	13.4	13.2	13.6	13.6	13.9	-	12.5
	12 UTC	15.4	-	16.4	16.2	15.0	14.8	14.2	14.6	15.0	15.0	15.2	-	15.8
Sunshine Duration		3.5	8.3	9.4	9.8	0.4	0.0	9.4	9.8	8.7	6.1	6.5	-	6.5
Precipitation							1.4		2.0			3.4	-	29.0
Evaporation		1.5	10.5	4.8	3.6	2.5	0.9	3.2	2.1	0.0	3.5	32.6	-	-
Growing Degrees	5	16.7	14.6	14.7	11.7	8.0	9.0	8.2	9.5	11.3	11.8	115.5	-	85.7
	10	11.7	9.6	9.7	6.7	3.0	4.0	3.2	4.5	6.3	6.8	65.5	-	37.4

1st 10-day period (1-10/04/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	27.8	-	25.8
Precipitation - Reference Evapotranspiration	-24.4	-	3.2
Number of Rainy Days	2.0	-	3.4
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

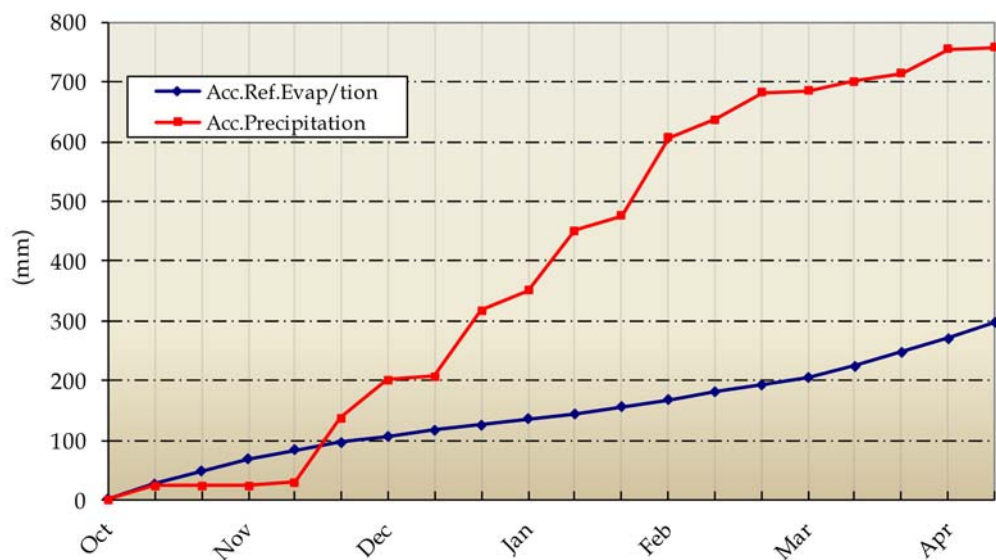


Kalamata

1st 10-day period (1-10/04/2009)		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	26.0	21.0	18.4	16.8	17.6	23.0	19.6	20.0	22.0	21.3	-	19.3
	Min	13.2	11.4	11.2	9.0	11.0	10.0	10.8	8.4	6.8	6.6	9.8	-	8.0
Relative Humidity	Max	95	93	95	95	98	97	97	97	97	92	96	-	-
	Min	33	44	56	69	70	61	38	53	49	30	50	-	-
Soil Temperature at 10 cm	06 UTC	14.4	14.8	15.2	15.0	14.8	14.4	15.0	14.8	14.6	14.4	14.7	-	12.9
	12 UTC	15.4	16.4	17.0	16.4	14.4	15.2	16.4	16.6	16.0	16.2	16.0	-	15.8
Sunshine Duration		4.1	9.3	5.4	7.4	0.0	5.2	10.7	10.6	9.7	10.1	7.2	-	6.7
Precipitation							4.0					4.0	-	16.3
Evaporation		2.0	5.0	18.0	3.0	0.0	2.0	6.0	5.0	3.0	4.0	48.0	-	37.8
Growing Degrees	5	15.7	13.7	11.1	8.7	8.9	8.8	11.9	9.0	8.4	9.3	105.5	-	86.4
	10	10.7	8.7	6.1	3.7	3.9	3.8	6.9	4.0	3.4	4.3	55.5	-	36.8

1st 10-day period (1-10/04/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.6	-	28.3
Precipitation - Reference Evapotranspiration	-23.6	-	-12.0
Number of Rainy Days	1.0	-	2.8
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

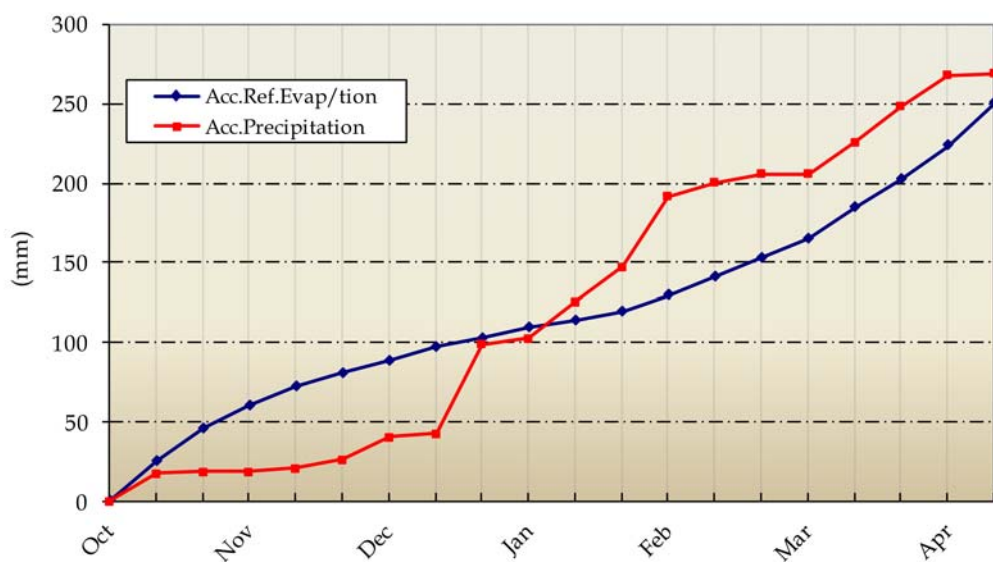


Larisa

1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.6	20.8	17.8	19.0	19.6	14.6	19.0	21.0	22.8	21.0	19.4	-	19.4
	Min	13.0	10.0	11.0	7.8	1.2	8.4	7.0	-	2.6	3.6	7.2	-	5.6
Relative Humidity	Max	95	95	92	95	89	94	95	94	93	90	93	-	-
	Min	74	60	58	49	41	65	48	36	33	24	49	-	-
Soil Temperature at 10 cm	06 UTC	14.2	13.4	14.4	12.4	11.8	13.0	12.0	12.2	12.4	12.8	12.9	-	11.7
	12 UTC	15.0	16.2	15.4	15.6	16.0	13.4	15.0	15.6	15.4	15.6	15.3	-	13.1
Sunshine Duration		0.0	8.3	2.4	8.2	6.6	0.1	7.7	8.8	9.8	9.3	6.1	-	6.6
Precipitation							0.8					0.8	-	12.2
Evaporation		2.6	3.9	3.6	1.9	2.3	2.3	2.8	5.7	1.6	5.1	31.8	-	32.3
Growing Degrees	5	10.8	10.4	9.4	8.4	5.4	6.5	8.0	-	7.7	7.3	-	-	75.0
	10	5.8	5.4	4.4	3.4	0.4	1.5	3.0	-	2.7	2.3	-	-	27.5

1st 10-day period (1-10/04/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	26.9	-	26.4
Precipitation - Reference Evapotranspiration	-26.1	-	-14.2
Number of Rainy Days	1.0	-	2.6
Number of Dry Days	11.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

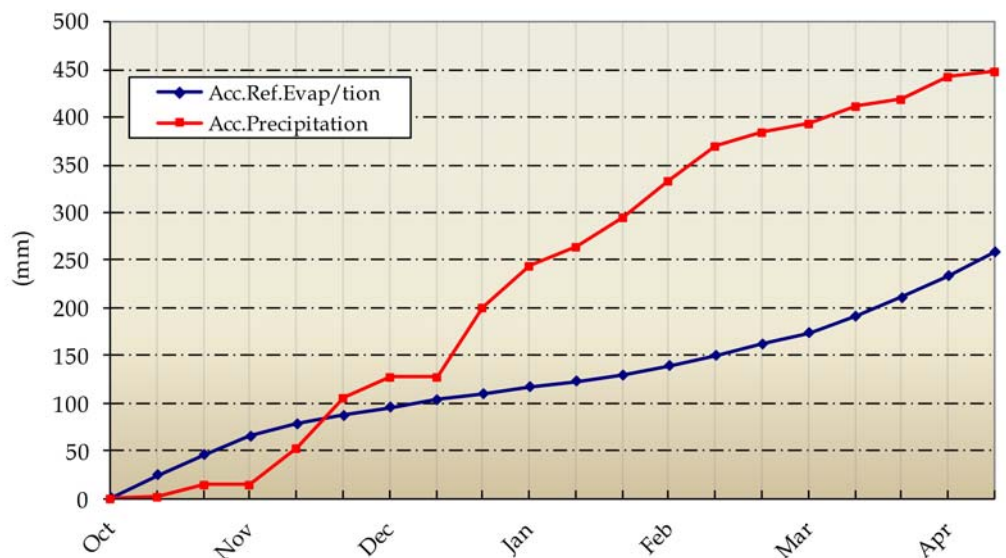


Pyrgela

1st 10-day period (1-10/04/2009)		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	24.6	21.2	23.0	19.2	18.0	19.8	23.0	25.8	24.4	22.3	-	20.4
	Min	11.6	8.4	10.8	11.0	6.4	8.8	9.8	4.6	5.2	5.0	8.2	-	5.2
Relative Humidity	Max	83	93	61	88	64	95	93	95	83	87	84	-	-
	Min	48	41	46	26	48	48	46	37	23	23	39	-	-
Soil Temperature at 10 cm	06 UTC	14.0	13.2	14.0	13.6	13.0	12.6	12.8	11.4	11.8	12.2	12.9	-	11.0
	12 UTC	16.6	19.6	18.8	19.0	16.0	-	-	18.4	18.6	19.8	18.4	-	17.9
Sunshine Duration		0.0	8.6	7.3	7.0	1.0	0.4	5.1	9.1	8.7	9.7	5.7	-	6.6
Precipitation		0.0				0.3	3.2	1.5				5.0	-	12.1
Evaporation		1.9	2.0	5.6	3.4	2.2	0.8	2.5	3.4	4.3	4.2	30.3	-	32.0
Growing Degrees	5	12.9	11.5	11.0	12.0	7.8	8.4	9.8	8.8	10.5	9.7	102.4	-	76.1
	10	7.9	6.5	6.0	7.0	2.8	3.4	4.8	3.8	5.5	4.7	52.4	-	28.7

1st 10-day period (1-10/04/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.0	-	25.6
Precipitation - Reference Evapotranspiration	-20.0	-	-13.5
Number of Rainy Days	3.0	-	2.5
Number of Dry Days	8.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

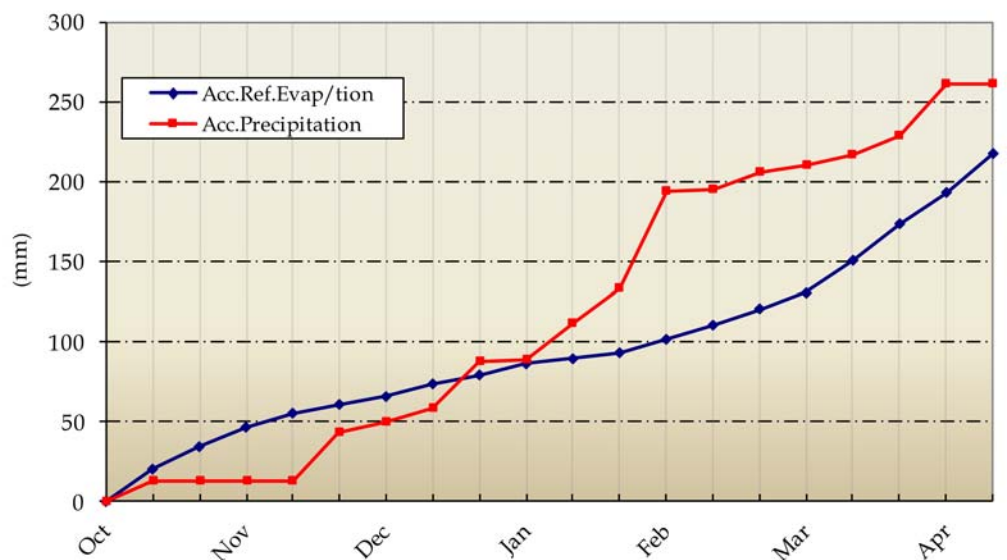


1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.8	-	20.2	-	-	17.0	21.2	24.4	25.8	25.0	22.2	-	19.3
	Min	13.2	13.4	11.0	6.0	4.2	8.0	4.8	5.6	-	8.2	8.3	-	7.0
Relative Humidity	Max	87	71	76	79	83	75	82	74	66	67	76	-	-
	Min	54	53	48	45	31	50	33	23	21	27	38	-	-
Soil Temperature at 10 cm	06 UTC	13.0	13.6	13.4	12.4	11.4	12.4	12.4	12.0	12.4	13.0	12.6	-	11.1
	12 UTC	13.8	-	15.0	13.8	-	13.2	13.2	14.4	14.8	14.0	14.0	-	13.8
Sunshine Duration		0.5	2.6	6.1	5.0	9.8	0.5	5.0	8.8	10.3	10.7	5.9	-	5.9
Precipitation				0.4								0.4	-	11.0
Evaporation		2.0	2.6	2.8	3.0	3.6	2.0	1.8	2.6	3.0	4.0	27.4	-	30.0
Growing Degrees	5	12.5	-	10.6	-	-	7.5	8.0	10.0	-	11.6	-	-	80.6
	10	7.5	-	5.6	-	-	2.5	3.0	5.0	-	6.6	-	-	32.7

Series

1st 10-day period (1-10/04/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	24.4	-	23.5
Precipitation - Reference Evapotranspiration	-24.0	-	-12.5
Number of Rainy Days	1.0	-	2.6
Number of Dry Days	7.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

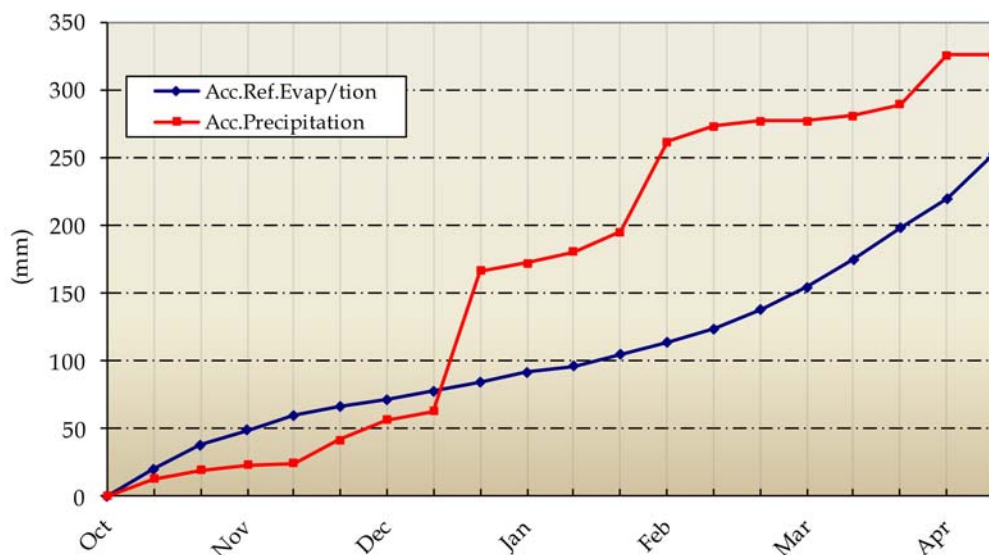


Trikala Imathias

1st 10-day period (1-10/04/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	21.6	20.6	21.4	24.6	18.0	22.4	23.6	27.8	23.0	22.4	-	19.3
	Min	13.0	10.8	12.6	7.4	4.6	10.0	7.2	6.4	6.4	8.0	8.6	-	7.6
Relative Humidity	Max	93	96	95	94	94	75	94	94	96	87	92	-	-
	Min	45	46	40	16	19	36	22	17	14	19	27	-	-
Soil Temperature at 10 cm	06 UTC	12.8	12.4	13.8	12.6	12.0	13.6	12.2	13.0	13.2	14.0	13.0	-	12.0
	12 UTC	14.0	14.8	15.2	15.2	16.0	14.0	15.8	16.2	15.6	17.0	15.4	-	12.9
Sunshine Duration		0.1	6.0	5.6	8.8	10.8	0.0	9.0	10.3	10.9	9.7	7.1	-	6.1
Precipitation													-	11.2
Evaporation		1.2	4.0	1.2	4.4	4.0	0.8	2.8	9.6	11.2	8.4	47.6	-	29.2
Growing Degrees	5	12.0	11.2	11.6	9.4	9.6	9.0	9.8	10.0	12.1	10.5	105.2	-	83.5
	10	7.0	6.2	6.6	4.4	4.6	4.0	4.8	5.0	7.1	5.5	55.2	-	36.0

1st 10-day period (1-10/04/2009)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.3	- 25.5
Precipitation - Reference Evapotranspiration	-33.3	- -14.3
Number of Rainy Days	0.0	- 2.3
Number of Dry Days	19.0	- -

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

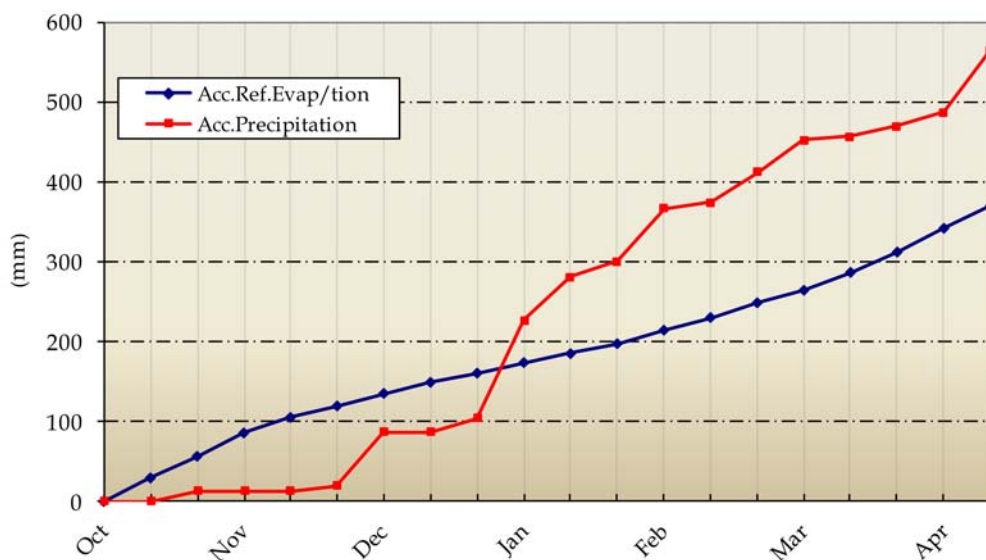


Tympaki

1st 10-day period (1-10/04/2009)		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	21.2	23.6	21.4	17.8	17.0	17.8	20.6	20.0	20.2	20.5	-	19.9
	Min	17.4	-	14.4	13.2	11.4	13.6	12.6	7.4	7.6	8.6	11.8	-	9.8
Relative Humidity	Max	92	95	94	98	98	96	99	94	92	97	96	-	-
	Min	36	57	51	53	70	64	50	33	39	30	48	-	-
Soil Temperature at 10 cm	06 UTC	18.4	19.6	19.0	18.2	17.0	15.4	15.6	12.6	13.4	14.6	16.4	-	15.3
	12 UTC	21.0	23.0	22.4	22.0	17.0	17.4	18.2	18.8	19.6	20.8	20.0	-	19.1
Sunshine Duration		0.3	8.8	1.7	1.3	2.0	3.2	3.1	10.2	9.8	8.9	4.9	-	7.5
Precipitation					0.9	30.7	1.4	45.7				78.7	-	5.8
Evaporation		4.0	5.0	4.0	1.6	5.0	2.4	5.2	5.0	6.0	5.0	43.2	-	46.4
Growing Degrees	5	16.6	-	14.0	12.3	9.6	10.3	10.2	9.0	8.8	9.4	-	-	95.6
	10	11.6	-	9.0	7.3	4.6	5.3	5.2	4.0	3.8	4.4	-	-	47.0

1st 10-day period (1-10/04/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	28.2	-	30.2
Precipitation - Reference Evapotranspiration	50.5	-	-24.4
Number of Rainy Days	4.0	-	1.4
Number of Dry Days	7.0	-	-

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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