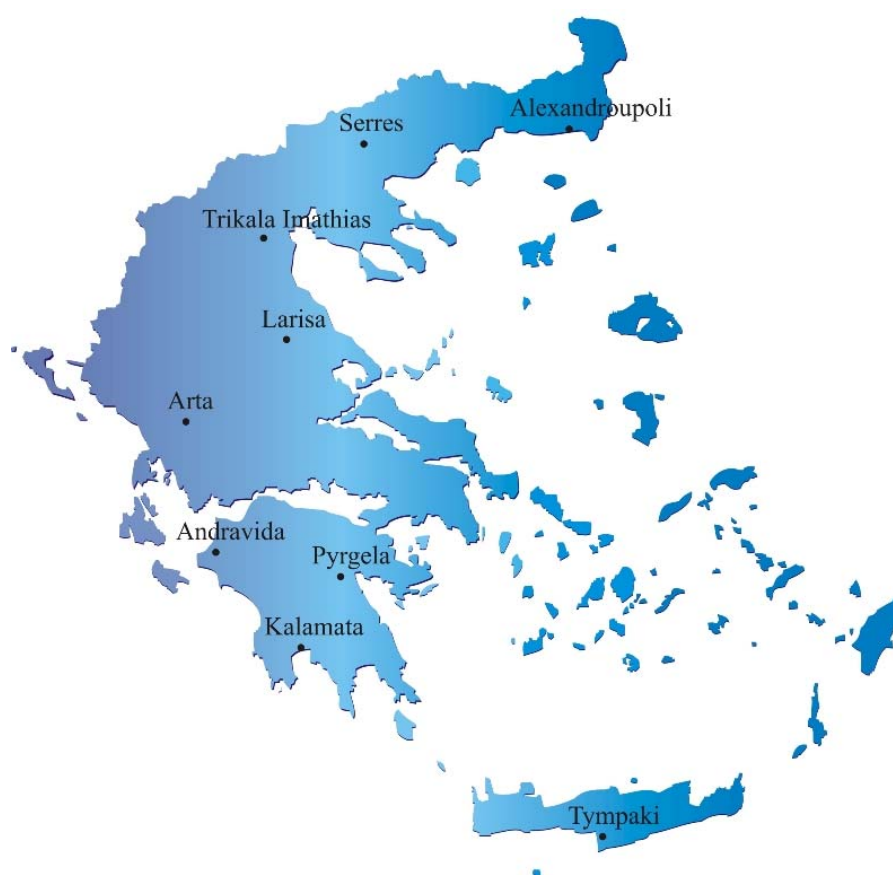


# AGROMETEOROLOGICAL BULLETIN

*April 2010*  
*2nd 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



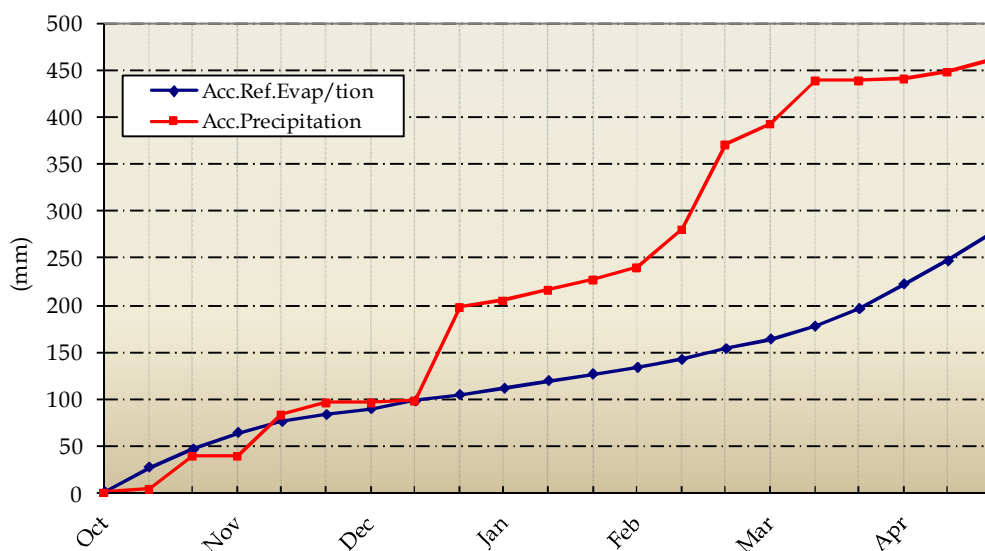
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2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	16.8	19.0	15.0	19.0	20.4	21.2	20.6	19.2	19.0	18.7	18.4	16.6
	Min	6.4	5.0	4.0	9.2	6.4	9.8	11.4	13.0	11.6	13.6	9.0	8.2	7.0
Relative Humidity	Max	81	86	87	94	94	81	86	82	98	98	89	88	-
	Min	40	39	31	55	46	53	51	42	53	61	47	51	-
Soil Temperature at 10 cm	06 UTC	11.6	11.6	12.0	13.6	11.5	13.4	14.6	15.0	15.0	17.4	13.6	13.6	11.5
	12 UTC	14.2	14.6	15.0	13.6	14.0	16.5	15.6	17.6	18.6	21.0	16.1	16.6	14.7
Sunshine Duration		9.5	10.3	11.4	1.1	7.1	6.6	6.6	9.8	6.7	10.7	8.0	7.0	5.9
Precipitation					0.7		0.0	0.0		0.7	10.7	12.1	8.2	15.2
Evaporation		6.0	5.7	5.2	2.3	2.9	3.1	5.2	7.0	3.3	3.1	43.8	49.1	38.8
Growing Degrees	5	6.6	5.9	6.5	7.1	7.7	10.1	11.3	11.8	10.4	11.3	88.7	82.9	67.9
	10	1.6	0.9	1.5	2.1	2.7	5.1	6.3	6.8	5.4	6.3	38.7	32.9	22.8

2nd 10-day period (11-20/04/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	30.2	29.2	26.7
Precipitation - Reference Evapotranspiration	-18.1	-21.0	-11.5
Number of Rainy Days	3.0	2.0	2.8
Number of Dry Days	5.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

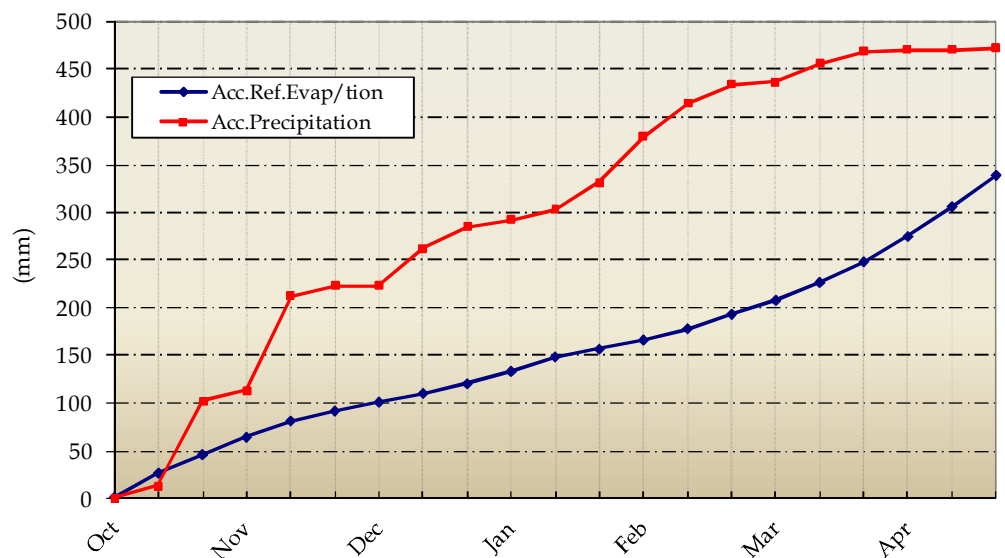


Andravida

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	20.0	20.0	22.0	24.8	26.8	22.2	24.4	21.4	18.4	21.9	20.6	18.4
	Min	6.0	8.2	8.6	10.6	9.6	10.2	12.0	11.6	13.6	14.4	10.5	10.3	9.1
Relative Humidity	Max	92	92	98	97	92	87	93	100	94	85	93	93	-
	Min	35	47	39	34	27	23	54	50	64	62	44	48	-
Soil Temperature at 10 cm	06 UTC	14.0	15.2	15.2	15.4	15.2	15.4	16.6	17.4	18.4	16.6	15.9	15.8	13.7
	12 UTC	19.0	19.2	17.6	19.4	21.0	22.4	23.4	24.4	21.2	24.4	21.2	19.9	16.7
Sunshine Duration		11.0	10.0	3.1	10.0	7.4	9.3	9.8	7.5	0.4	11.2	8.0	8.2	7.2
Precipitation				0.0	1.3					0.4		1.7	6.4	25.7
Evaporation		10.5	2.9	2.6	5.3	0.8	8.5	3.9	3.5	3.2	7.0	48.2	18.4	37.7
Growing Degrees	5	7.7	9.1	9.3	11.3	12.2	13.5	12.1	13.0	12.5	11.4	112.1	104.7	87.1
	10	2.7	4.1	4.3	6.3	7.2	8.5	7.1	8.0	7.5	6.4	62.1	54.7	37.4

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.0	32.6	28.0
Precipitation - Reference Evapotranspiration	-31.3	-26.2	-2.3
Number of Rainy Days	2.0	1.0	3.3
Number of Dry Days	19.0	17.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

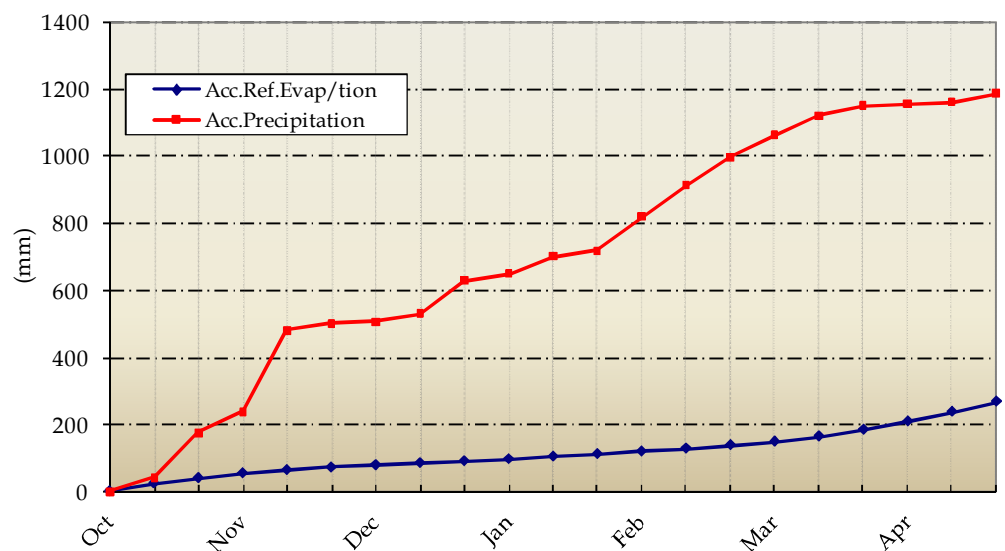


Arta

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.0	21.4	20.6	23.0	25.0	28.0	25.0	25.0	18.4	19.8	22.8	21.9	19.1
	Min	5.3	7.6	11.4	12.8	10.6	10.4	11.0	11.6	15.2	9.8	10.6	10.3	8.1
Relative Humidity	Max	85	100	86	98	100	99	85	100	98	100	95	96	-
	Min	35	30	47	38	33	27	30	30	90	45	40	32	-
Soil Temperature at 10 cm	06 UTC	14.8	15.0	16.2	16.4	16.2	16.2	16.8	17.2	18.4	16.8	16.4	14.9	13.5
	12 UTC	16.4	17.4	17.4	18.4	18.4	18.6	19.0	19.6	18.8	18.4	18.2	16.6	17.0
Sunshine Duration		10.5	10.3	0.0	7.5	6.3	10.3	8.2	8.8	0.0	9.3	7.1	6.3	6.2
Precipitation				0.3	0.4					26.4	0.4	27.5	56.2	37.4
Evaporation		3.3	4.0	3.1	3.9	3.5	5.4	4.0	2.6	1.7	3.5	35.0	36.2	-
Growing Degrees	5	8.7	9.5	11.0	12.9	12.8	14.2	13.0	13.3	11.8	9.8	117.0	-	85.4
	10	3.7	4.5	6.0	7.9	7.8	9.2	8.0	8.3	6.8	4.8	67.0	-	36.5

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	29.9	27.7	26.7
Precipitation - Reference Evapotranspiration	-2.4	28.5	10.7
Number of Rainy Days	4.0	3.0	3.7
Number of Dry Days	6.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

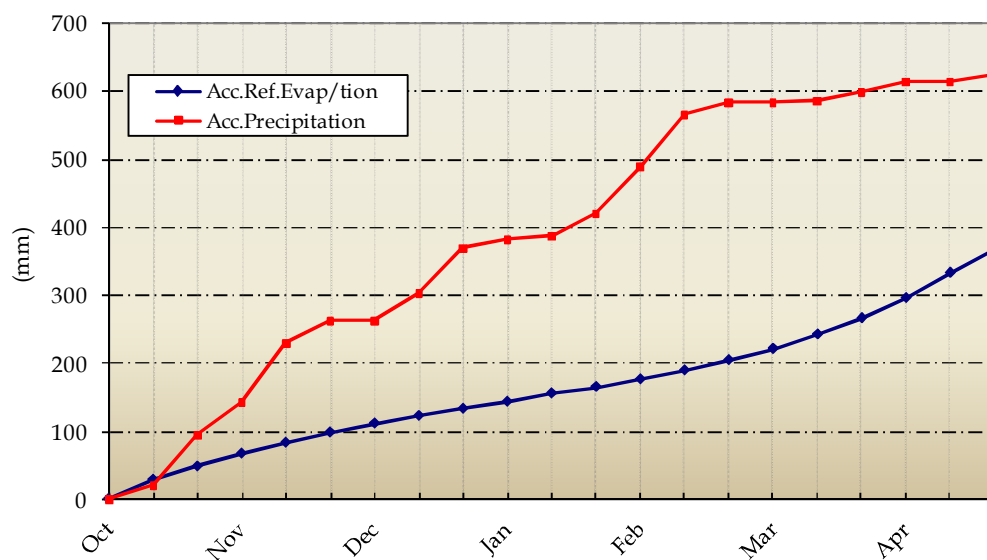


Kalamata

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.0	18.2	20.2	22.4	23.8	24.0	22.8	25.6	22.4	22.0	22.0	20.6	19.2
	Min	6.8	5.0	7.0	9.6	7.6	8.6	11.0	10.8	14.4	14.4	9.5	9.9	8.4
Relative Humidity	Max	91	97	97	95	91	92	95	98	96	89	94	92	-
	Min	33	50	52	34	29	41	51	49	63	36	44	49	-
Soil Temperature at 10 cm	06 UTC	14.2	14.0	14.4	15.2	15.0	15.6	16.0	16.4	17.4	17.4	15.6	15.3	13.9
	12 UTC	16.0	15.6	16.2	17.0	17.4	18.0	18.2	19.0	18.6	18.6	17.5	16.2	16.9
Sunshine Duration		9.5	6.5	5.9	9.9	12.2	8.5	12.2	9.9	3.6	11.2	8.9	7.7	7.1
Precipitation					1.7					7.8		9.5	12.3	25.5
Evaporation		4.3	2.9	5.5	7.4	7.2	5.8	6.2	4.2	3.7	7.9	55.1	39.3	41.0
Growing Degrees	5	7.9	6.6	8.6	11.0	10.7	11.3	11.9	13.2	13.4	13.2	107.8	102.1	88.0
	10	2.9	1.6	3.6	6.0	5.7	6.3	6.9	8.2	8.4	8.2	57.8	52.1	38.2

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.8	30.3	28.5
Precipitation - Reference Evapotranspiration	-26.3	-18.0	-3.0
Number of Rainy Days	2.0	3.0	4.1
Number of Dry Days	19.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

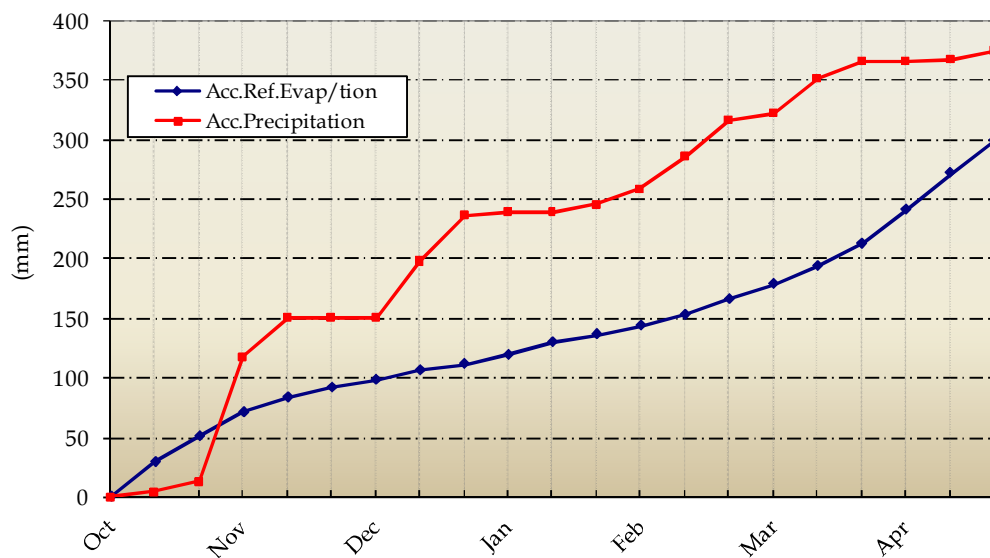


Larisa

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.6	17.2	17.4	19.4	22.0	21.6	23.0	18.8	16.8	21.4	19.7	20.1	19.0
	Min	3.4	7.4	8.0	9.6	9.8	10.2	10.0	14.8	11.4	10.0	9.5	7.7	6.4
Relative Humidity	Max	93	94	95	97	95	95	95	88	98	98	95	93	-
	Min	41	56	52	51	45	60	48	61	80	35	53	49	-
Soil Temperature at 10 cm	06 UTC	13.2	13.8	14.0	14.4	15.0	15.2	15.4	16.4	16.0	15.4	14.9	13.3	12.8
	12 UTC	15.0	15.4	15.2	15.8	16.6	16.8	17.2	17.0	16.2	16.6	16.2	15.8	14.4
Sunshine Duration		8.8	5.5	1.3	7.0	3.3	5.8	8.4	1.8	0.7	0.7	4.3	6.1	6.4
Precipitation				0.0	1.3	0.2				5.1	0.9	7.5	4.1	13.6
Evaporation		4.0	0.8	5.3	5.2	-	4.3	5.9	3.2	0.0	4.6	-	38.9	36.9
Growing Degrees	5	6.5	7.3	7.7	9.5	10.9	10.9	11.5	11.8	9.1	10.7	95.9	89.1	77.0
	10	1.5	2.3	2.7	4.5	5.9	5.9	6.5	6.8	4.1	5.7	45.9	39.1	28.8

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	27.2	30.1	28.6
Precipitation - Reference Evapotranspiration	-19.7	-26.0	-15.0
Number of Rainy Days	4.0	3.0	3.4
Number of Dry Days	11.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

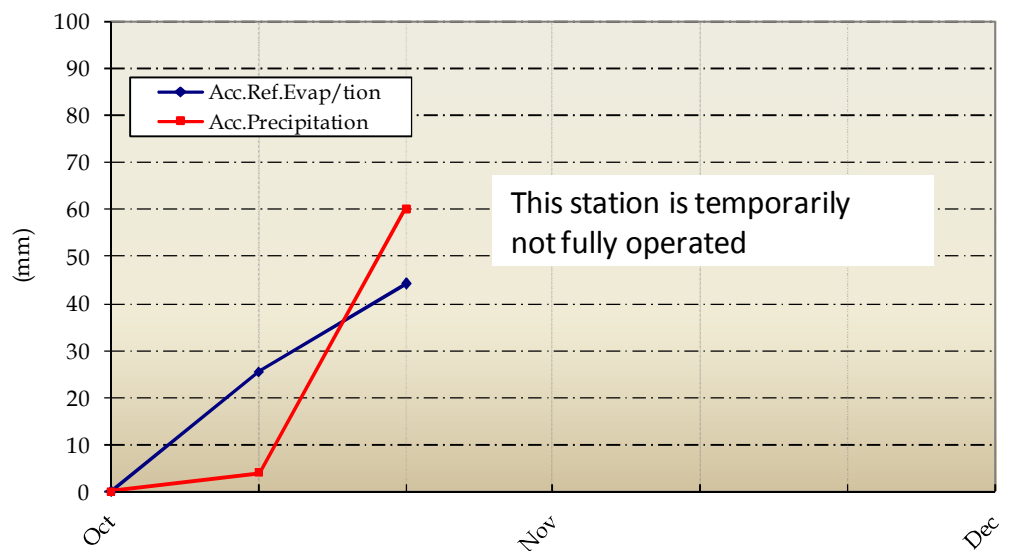


Pyrgela

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	22.1	20.8
	Min	1.8	5.0	6.0	11.2	9.0	10.0	10.4	-	-	-	7.6	7.9	6.6
Relative Humidity	Max	69	76	90	91	91	91	-	-	-	-	85	91	-
	Min	29	45	52	38	48	56	-	-	-	-	45	42	-
Soil Temperature at 10 cm	06 UTC	12.0	13.4	13.4	16.0	16.0	16.2	17.0	-	-	-	14.9	13.9	12.7
	12 UTC	19.6	20.0	21.0	24.0	22.4	22.6	24.0	-	-	-	21.9	19.8	19.7
Sunshine Duration		9.8	8.7	6.8	9.6	8.4	8.1	-	-	-	-	8.6	7.5	6.7
Precipitation					0.7							-	11.9	12.7
Evaporation		2.4	5.6	4.0	4.4	4.0	4.0	-	-	-	-	-	-	35.0
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	87.0
	10	-	-	-	-	-	-	-	-	-	-	-	-	38.0

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	31.7	28.0
Precipitation - Reference Evapotranspiration	-	-19.8	-15.3
Number of Rainy Days	-	4.0	3.4
Number of Dry Days	-	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

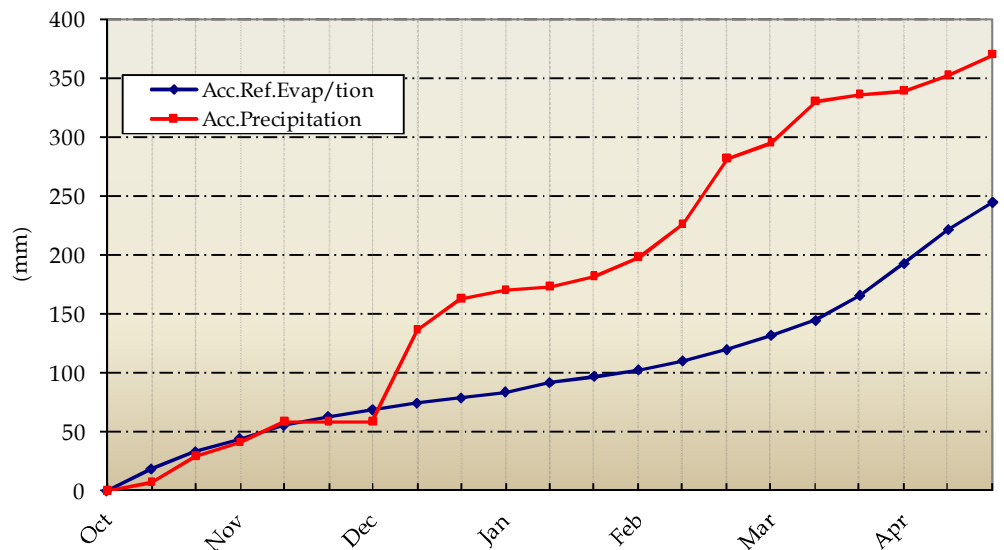


Series

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	16.6	19.8	16.2	20.4	21.6	23.0	20.6	16.2	21.4	19.6	20.1	19.0
	Min	5.4	10.8	8.4	9.8	10.2	10.2	11.6	12.2	12.6	12.0	10.3	8.0	7.6
Relative Humidity	Max	87	76	72	95	93	95	87	91	88	95	88	85	-
	Min	40	56	40	60	40	58	46	57	70	39	51	48	-
Soil Temperature at 10 cm	06 UTC	13.8	14.8	14.0	14.4	14.4	15.0	15.2	16.4	15.8	15.0	14.9	13.4	12.3
	12 UTC	15.4	14.2	16.4	15.0	15.4	16.0	16.2	17.8	16.0	16.4	15.9	14.9	15.2
Sunshine Duration		6.2	1.8	3.7	0.0	2.0	4.1	3.7	3.5	0.2	8.6	3.4	6.3	5.9
Precipitation		0.3			11.3	0.6			4.6	1.5		18.3	15.7	15.0
Evaporation		2.3	3.7	0.9	1.8	2.8	3.1	1.0	1.8	0.2	2.6	20.2	25.7	31.1
Growing Degrees	5	7.9	8.7	9.1	8.0	10.3	10.9	12.3	11.4	9.4	11.7	99.7	-	82.9
	10	2.9	3.7	4.1	3.0	5.3	5.9	7.3	6.4	4.4	6.7	49.7	-	34.2

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	23.3	25.7	25.7
Precipitation - Reference Evapotranspiration	-5.0	-10.0	-10.7
Number of Rainy Days	5.0	2.0	3.4
Number of Dry Days	8.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



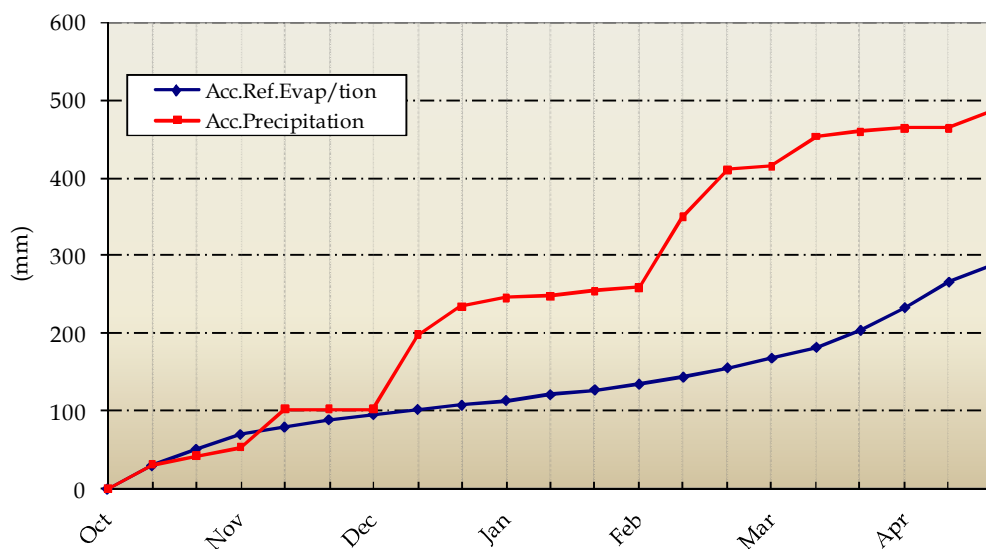


Trikala Imathias

2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	21.4	16.4	15.6	18.6	23.2	21.8	18.6	15.8	22.4	19.3	20.6	19.3
	Min	-	10.2	10.8	10.4	11.6	11.8	14.0	13.8	11.4	9.2	11.5	9.4	8.0
Relative Humidity	Max	98	94	100	100	100	95	100	98	100	95	98	92	-
	Min	61	58	58	78	68	46	41	70	87	30	60	44	-
Soil Temperature at 10 cm	06 UTC	-	14.8	14.8	14.4	14.2	14.4	15.6	15.6	15.4	14.0	14.8	14.2	13.1
	12 UTC	-	16.2	15.6	15.0	15.4	16.8	17.8	16.2	15.6	17.8	16.3	16.6	14.0
Sunshine Duration		8.4	4.4	0.0	0.0	0.9	5.9	3.5	0.3	0.0	7.6	3.1	5.5	5.8
Precipitation			0.4	0.7	6.2	0.2			2.5	9.7	3.2	22.9	6.6	13.7
Evaporation		2.6	3.0	1.3	0.5	1.9	3.4	2.8	1.5	0.4	3.4	20.8	-	31.0
Growing Degrees	5	-	10.8	8.6	8.0	10.1	12.5	12.9	11.2	8.6	10.8	-	-	85.7
	10	-	5.8	3.6	3.0	5.1	7.5	7.9	6.2	3.6	5.8	-	-	37.9

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.6	29.3	27.0
Precipitation - Reference Evapotranspiration	0.3	-22.7	-13.3
Number of Rainy Days	7.0	1.0	3.0
Number of Dry Days	17.0	22.0	-

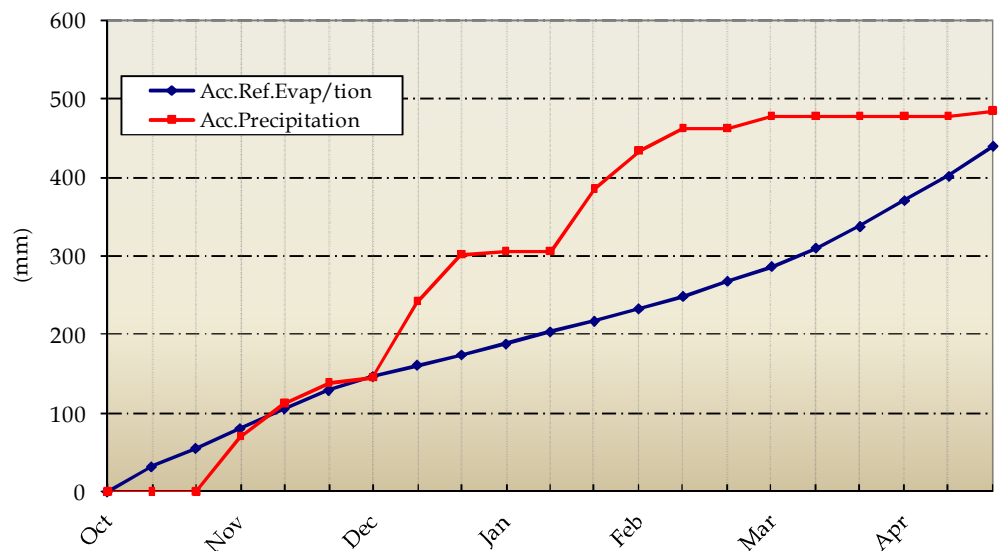
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/04/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	22.4	20.2	23.6	22.2	23.0	29.0	26.8	24.8	21.0	23.3	22.4	20.2
	Min	13.6	8.4	9.6	11.6	10.0	9.0	12.4	12.0	15.0	13.6	11.5	11.2	10.4
Relative Humidity	Max	87	94	82	95	90	94	96	98	100	98	93	88	-
	Min	36	28	33	27	44	27	19	32	40	63	35	33	-
Soil Temperature at 10 cm	06 UTC	18.6	17.6	18.0	19.4	19.6	19.6	20.6	21.4	22.8	20.6	19.8	17.6	17.9
	12 UTC	22.4	23.4	24.4	25.4	25.6	26.0	27.4	27.4	23.6	26.2	25.2	23.2	22.0
Sunshine Duration		4.2	9.4	6.3	9.3	9.2	9.7	8.1	6.9	3.5	10.3	7.7	8.6	7.9
Precipitation										5.6		5.6		8.6
Evaporation		9.1	7.0	4.8	6.0	6.9	7.7	7.4	6.1	3.1	7.4	65.5	55.0	48.6
Growing Degrees	5	11.8	10.4	9.9	12.6	11.1	11.0	15.7	14.4	14.9	12.3	124.1	117.9	102.2
	10	6.8	5.4	4.9	7.6	6.1	6.0	10.7	9.4	9.9	7.3	74.1	67.9	52.5

2nd 10-day period (11-20/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.4	38.0	32.4
Precipitation - Reference Evapotranspiration	-32.8	-38.0	-23.8
Number of Rainy Days	1.0	0.0	1.8
Number of Dry Days	24.0	13.0	-

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<sub>n</sub> 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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ

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