

AGROMETEOROLOGICAL BULLETIN

February 2009
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



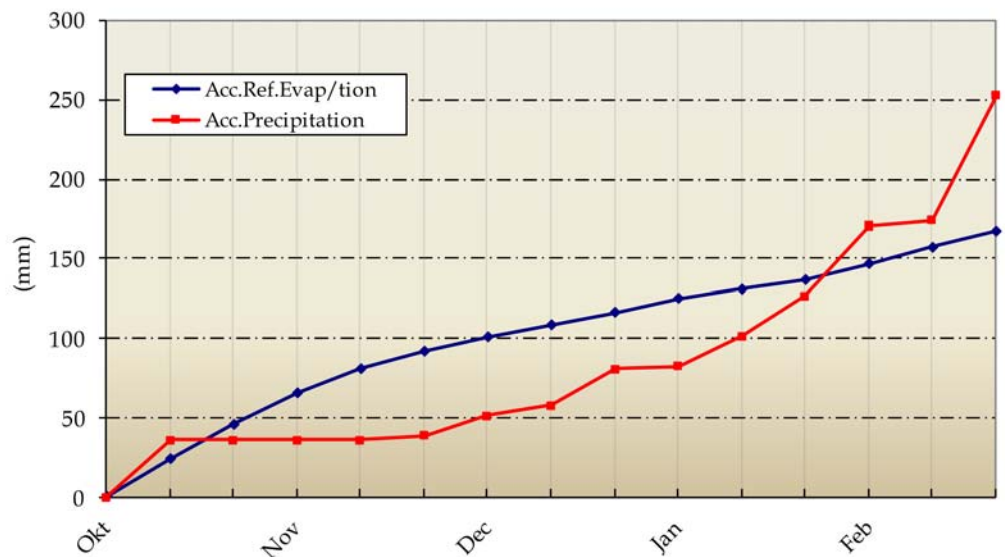
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2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	13.0	9.6	4.2	5.6	6.2	6.4	11.8	8.8	7.4	8.8	-	10.0
	Min	2.8	7.4	3.6	1.6	1.4	-1.0	1.0	-1.0	6.4	1.8	2.4	-	2.2
Relative Humidity	Max	98	94	94	92	82	92	83	97	97	100	93	-	-
	Min	54	61	57	66	56	58	66	65	89	49	62	-	-
Soil Temperature at 10 cm	06 UTC	7.6	10.0	8.4	6.2	5.0	4.0	5.0	4.2	7.2	5.6	6.3	-	4.8
	12 UTC	9.8	11.0	8.6	6.0	6.2	6.0	6.0	7.0	7.4	7.6	7.6	-	6.1
Sunshine Duration		2.7	4.5	1.2	0.0	4.1	3.0	3.9	8.4	0.0	2.1	3.0	-	3.7
Precipitation		0.8	22.6	5.8	1.8	0.0	0.0	0.0	0.0	45.0	2.6	78.6	-	18.4
Evaporation		0.9	0.0	2.3	0.4	1.3	0.3	0.5	0.1	0.9	2.4	9.1	-	10.5
Growing Degrees	5	3.8	5.2	1.6	0.0	0.0	0.0	0.0	0.4	2.6	0.0	13.6	-	23.6
	10	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	-	4.0

2nd 10-day period (11-20/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	10.2	-	12.3
Precipitation - Reference Evapotranspiration	68.4	-	6.1
Number of Rainy Days	6.0	-	2.7
Number of Dry Days	1.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

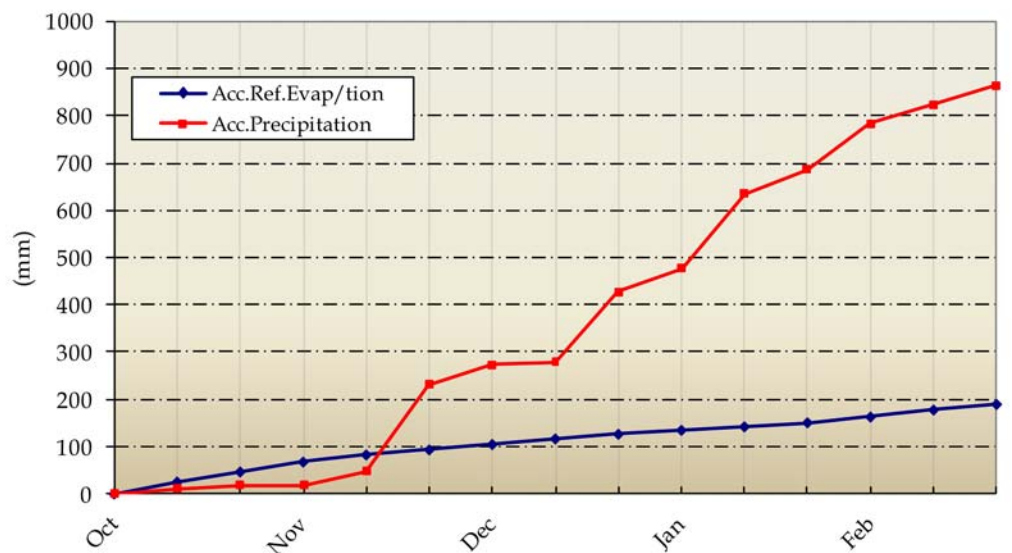


Andravida

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.8	-	10.6	9.2	9.0	9.2	10.8	12.4	9.0	8.4	10.5	-	14.5
	Min	8.6	7.6	5.2	5.2	2.0	0.4	-	5.8	5.8	3.6	4.9	-	6.2
Relative Humidity	Max	98	91	97	91	93	-	88	97	81	89	92	-	-
	Min	64	55	62	66	61	-	45	58	55	46	57	-	-
Soil Temperature at 10 cm	06 UTC	11.4	11.2	9.6	9.4	8.2	8.0	-	9.6	10.0	9.8	9.7	-	9.1
	12 UTC	13.4	12.0	10.4	10.8	10.2	10.2	11.2	-	-	8.4	10.8	-	11.0
Sunshine Duration		2.0	3.3	4.2	2.0	8.1	-	4.2	2.9	3.2	6.1	4.0	-	4.8
Precipitation		2.8	4.2	9.3	0.8	1.1			8.0	13.6	0.7	40.5	-	37.6
Evaporation		2.0	1.3	2.4	4.0	0.9	-	0.3	2.8	6.7	2.5	-	-	21.3
Growing Degrees	5	7.2	-	2.9	2.2	0.5	0.0	-	4.1	2.4	1.0	-	-	54.0
	10	2.2	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	13.3

2nd 10-day period (11-20/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	11.8	-	14.2
Precipitation - Reference Evapotranspiration	28.7	-	23.4
Number of Rainy Days	8.0	-	5.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

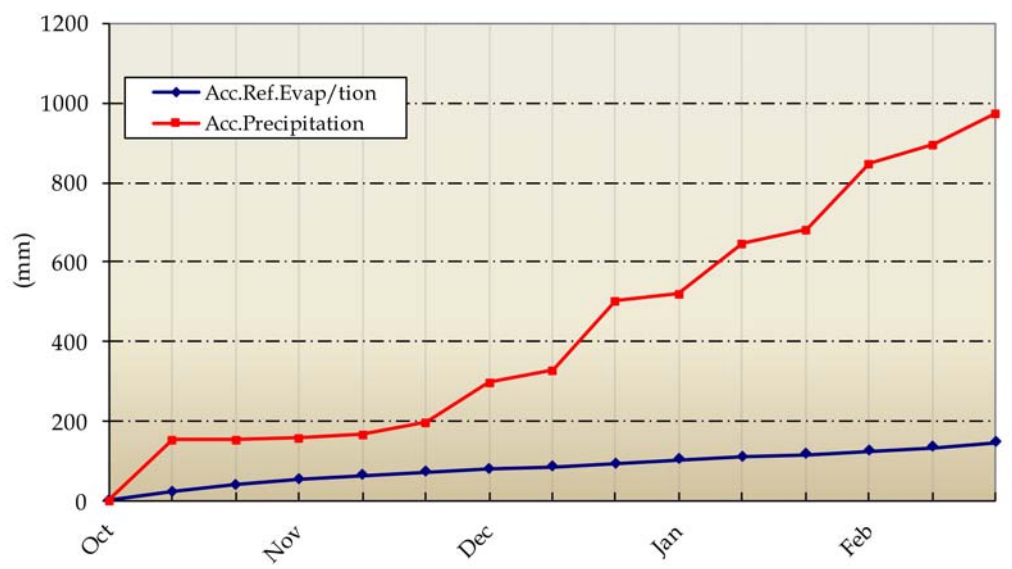


Arta

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.0	9.6	-	9.6	10.2	12.2	11.2	7.4	10.6	12.0	10.9	-	14.3
	Min	7.8	4.8	1.8	5.4	1.0	0.0	-1.6	2.0	3.0	0.0	2.4	-	4.7
Relative Humidity	Max	95	94	93	88	91	87	92	95	91	93	92	-	-
	Min	71	91	35	22	23	10	21	90	29	15	41	-	-
Soil Temperature at 10 cm	06 UTC	10.6	10.2	8.2	9.6	8.4	7.3	6.4	7.2	7.2	6.4	8.2	-	7.5
	12 UTC	10.8	9.4	8.8	10.0	8.8	7.8	7.0	7.6	7.6	7.0	8.5	-	9.4
Sunshine Duration		0.0	0.0	4.4	6.8	5.0	8.7	5.6	0.0	3.6	8.2	4.2	-	4.5
Precipitation		12.1	23.1	1.1					16.5	24.3		77.1	-	47.4
Evaporation		0.9	1.0	1.2	2.2	1.1	-	2.2	1.3	-	-	-	-	-
Growing Degrees	5	6.4	2.2	-	2.5	0.6	1.1	0.0	0.0	1.8	1.0	-	-	45.6
	10	1.4	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	9.7

2nd 10-day period (11-20/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	11.8	-	12.2
Precipitation - Reference Evapotranspiration	65.3	-	35.2
Number of Rainy Days	5.0	-	4.6
Number of Dry Days	1.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

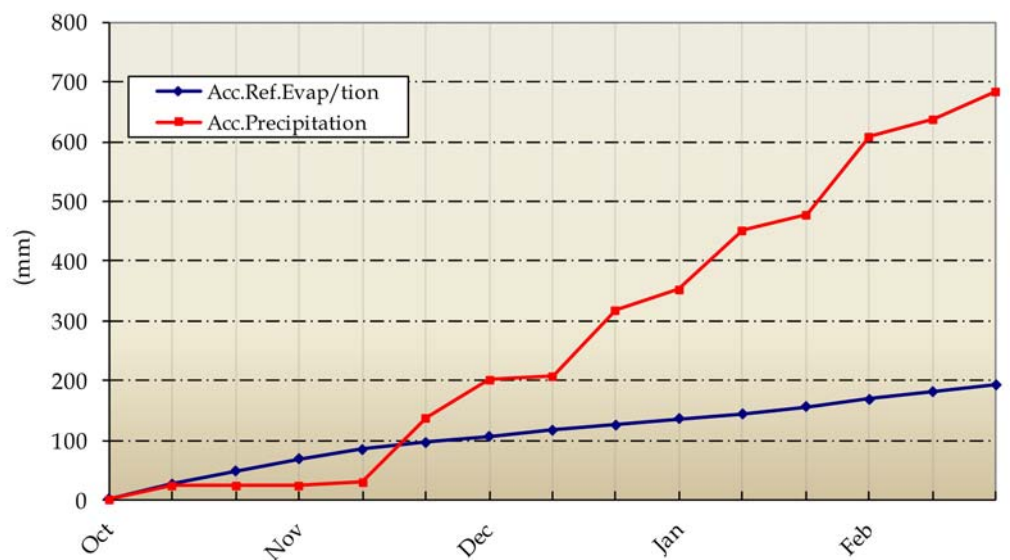


Kalamata

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.0	13.4	11.2	11.2	12.0	14.0	12.8	13.6	11.4	10.2	12.6	-	15.1
	Min	7.4	7.6	5.4	4.4	1.0	0.4	2.4	4.2	5.2	3.2	4.1	-	5.9
Relative Humidity	Max	97	90	100	100	96	96	93	97	94	97	96	-	-
	Min	75	55	60	66	48	39	43	59	48	46	54	-	-
Soil Temperature at 10 cm	06 UTC	11.4	11.4	10.4	10.0	9.0	7.8	8.2	9.0	9.6	9.0	9.6	-	9.6
	12 UTC	12.0	11.6	11.0	10.4	9.8	9.6	9.0	10.0	9.6	9.4	10.2	-	10.9
Sunshine Duration		1.8	1.3	2.4	1.3	4.3	3.5	1.6	0.8	2.1	2.3	2.1	-	4.5
Precipitation		2.2	11.1	1.7	6.6				2.7	13.7	7.9	45.9	-	43.8
Evaporation		1.1	0.3	1.2	0.5	0.0	3.0	2.9	0.0	0.0	0.0	9.0	-	26.5
Growing Degrees	5	6.7	5.5	3.3	2.8	1.5	2.2	2.6	3.9	3.3	1.7	33.5	-	55.5
	10	1.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	-	12.8

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.5	-	15.6
Precipitation - Reference Evapotranspiration	34.4	-	28.2
Number of Rainy Days	7.0	-	5.2
Number of Dry Days	1.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

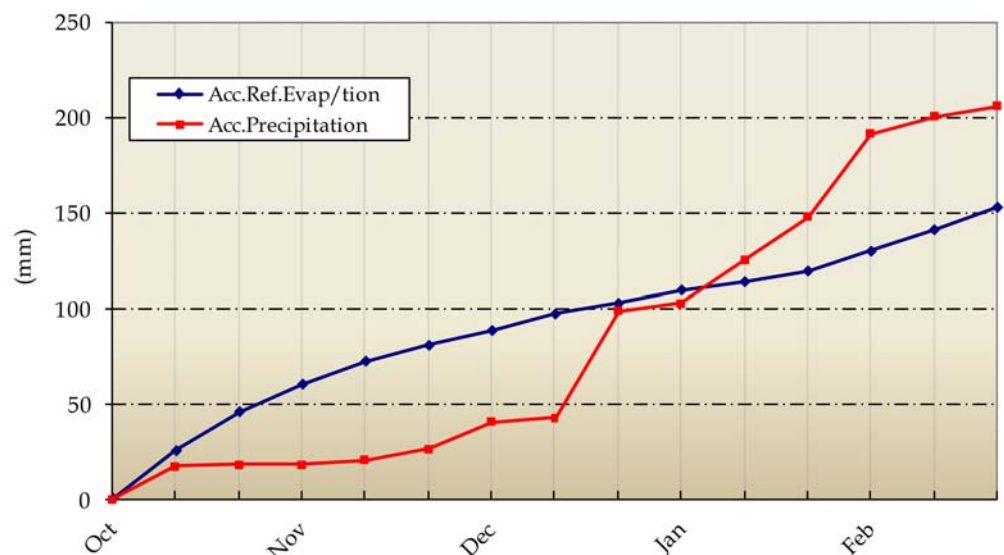


Larisa

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.0	11.4	9.6	6.6	7.0	7.8	10.0	11.6	11.2	9.0	9.9	-	12.1
	Min	5.2	5.0	0.6	1.4	1.4	-2.0	-5.0	-2.4	1.2	1.0	0.6	-	1.9
Relative Humidity	Max	91	96	97	89	85	88	92	92	100	82	91	-	-
	Min	52	61	51	51	42	40	42	54	35	38	47	-	-
Soil Temperature at 10 cm	06 UTC	8.8	9.4	8.2	7.6	7.4	5.6	1.6	5.2	7.2	6.4	6.7	-	6.7
	12 UTC	9.8	9.6	8.8	7.4	7.6	6.8	5.8	6.6	7.6	6.6	7.7	-	7.2
Sunshine Duration		3.2	0.9	3.8	1.7	2.6	8.4	5.5	4.4	5.5	6.4	4.2	-	4.0
Precipitation		0.5	4.8		0.0					0.5		5.8	-	12.7
Evaporation		0.6	0.0	1.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	3.8	-	10.0
Growing Degrees	5	5.1	3.2	0.1	0.0	0.0	0.0	0.0	0.0	1.2	0.0	9.6	-	25.9
	10	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-	3.3

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.8	-	12.0
Precipitation - Reference Evapotranspiration	-6.0	-	0.7
Number of Rainy Days	3.0	-	3.6
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

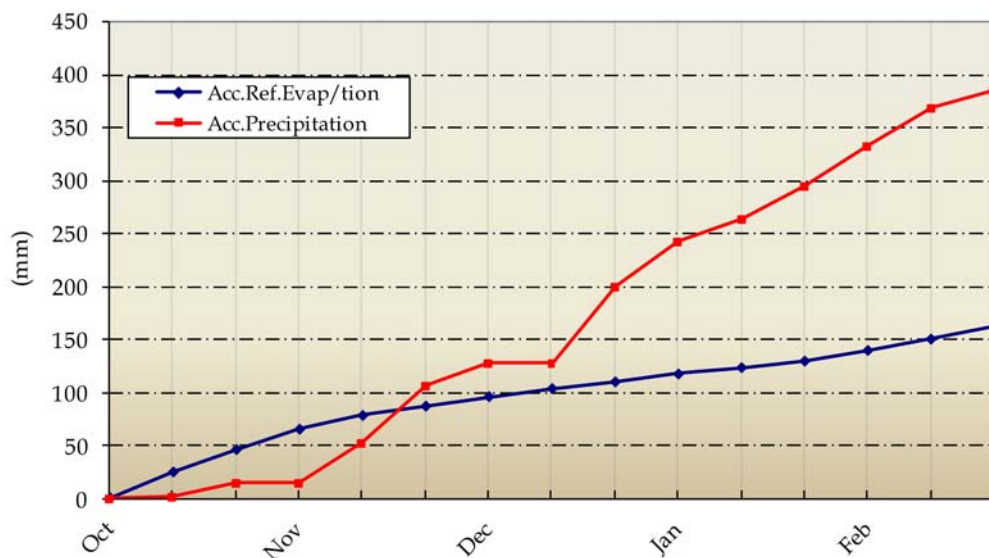


Pyrgela

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	14.2	13.4	11.2	12.2	11.0	14.6	15.2	14.4	12.2	13.2	-	14.7
	Min	3.0	4.6	1.0	4.0	-2.0	-1.4	-2.4	0.0	3.0	-0.6	0.9	-	3.4
Relative Humidity	Max	86	94	93	93	96	93	92	93	93	92	93	-	-
	Min	51	69	45	52	30	38	35	52	35	34	44	-	-
Soil Temperature at 10 cm	06 UTC	10.8	8.8	6.8	8.4	5.4	5.2	4.6	5.4	8.0	5.0	6.8	-	6.9
	12 UTC	11.0	11.0	10.6	11.0	9.8	8.8	8.2	9.0	10.4	8.8	9.9	-	11.1
Sunshine Duration		4.7	2.7	5.2	5.8	6.1	6.8	5.0	7.3	8.3	7.8	6.0	-	4.5
Precipitation		0.2	6.1	0.2	5.2					4.3		16.0	-	24.8
Evaporation		1.3	0.0	1.4	0.4	1.2	2.4	2.0	2.3	2.0	2.0	15.0	-	15.1
Growing Degrees	5	-	4.4	2.2	2.6	0.1	0.0	1.1	2.6	3.7	0.8	-	-	40.8
	10	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	7.3

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.9	-	12.4
Precipitation - Reference Evapotranspiration	4.1	-	12.4
Number of Rainy Days	5.0	-	4.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

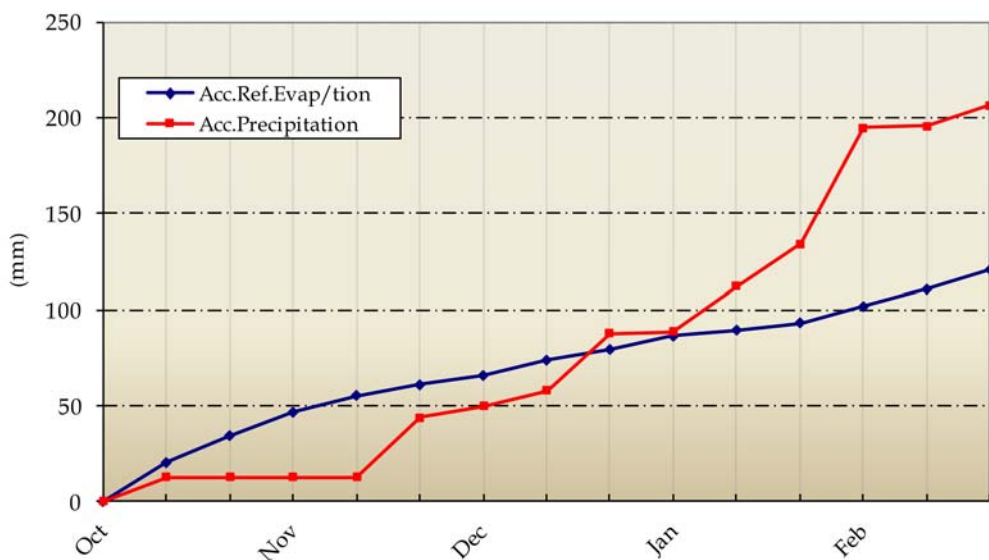


Series

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.6	13.4	9.8	5.2	4.4	8.2	8.4	5.6	8.0	5.8	8.0	-	10.9
	Min	3.2	4.0	1.8	-1.4	-1.0	-1.2	-3.4	-2.2	-1.8	0.4	-0.2	-	1.9
Relative Humidity	Max	91	79	82	81	92	92	72	81	94	54	82	-	-
	Min	52	41	39	49	69	31	28	44	54	41	45	-	-
Soil Temperature at 10 cm	06 UTC	8.0	8.2	7.8	4.6	6.2	5.8	5.0	4.8	5.6	5.6	6.2	-	5.4
	12 UTC	8.6	8.6	8.2	6.2	6.4	6.2	5.2	4.8	6.0	5.6	6.6	-	6.5
Sunshine Duration		0.0	5.1	6.0	0.4	0.0	6.1	4.5	0.0	1.1	0.7	2.4	-	3.6
Precipitation		4.7	0.9	0.2		0.1				5.0		10.9	-	18.8
Evaporation		0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.7	0.2	2.1	-	8.8
Growing Degrees	5	2.4	3.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	-	23.5
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	3.3

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.2	-	9.5
Precipitation - Reference Evapotranspiration	0.7	-	9.3
Number of Rainy Days	5.0	-	3.5
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

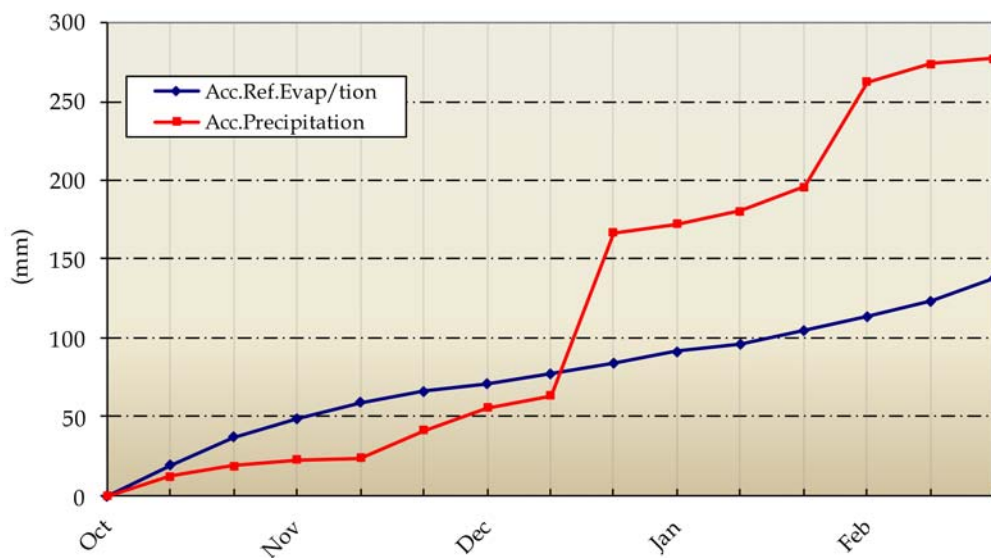


Trikala Imathias

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	10.4	10.2	-	6.6	7.8	10.0	-	-	8.6	8.9	-	10.6
	Min	3.2	4.2	1.8	0.4	-0.8	-2.0	-3.6	-1.0	4.0	-0.4	0.6	-	1.4
Relative Humidity	Max	98	90	66	55	90	90	96	95	95	60	84	-	-
	Min	65	39	35	36	43	30	30	55	45	36	41	-	-
Soil Temperature at 10 cm	06 UTC	8.0	8.0	6.8	6.0	5.4	5.2	4.4	4.6	6.2	5.0	6.0	-	6.4
	12 UTC	9.0	9.0	7.8	6.2	6.2	6.4	6.0	5.4	6.4	6.2	6.9	-	6.5
Sunshine Duration		1.4	3.5	4.5	0.0	1.9	9.4	9.0	1.4	3.1	5.0	3.9	-	4.1
Precipitation		1.2	0.8							1.0		3.0	-	15.6
Evaporation		0.9	0.7	1.8	-	0.0	0.0	0.0	0.0	1.6	0.0	-	-	7.2
Growing Degrees	5	-	2.3	1.0	-	0.0	0.0	0.0	-	-	0.0	-	-	21.6
	10	-	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	-	-	2.6

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.5	-	10.8
Precipitation - Reference Evapotranspiration	-11.5	-	4.8
Number of Rainy Days	3.0	-	3.6
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

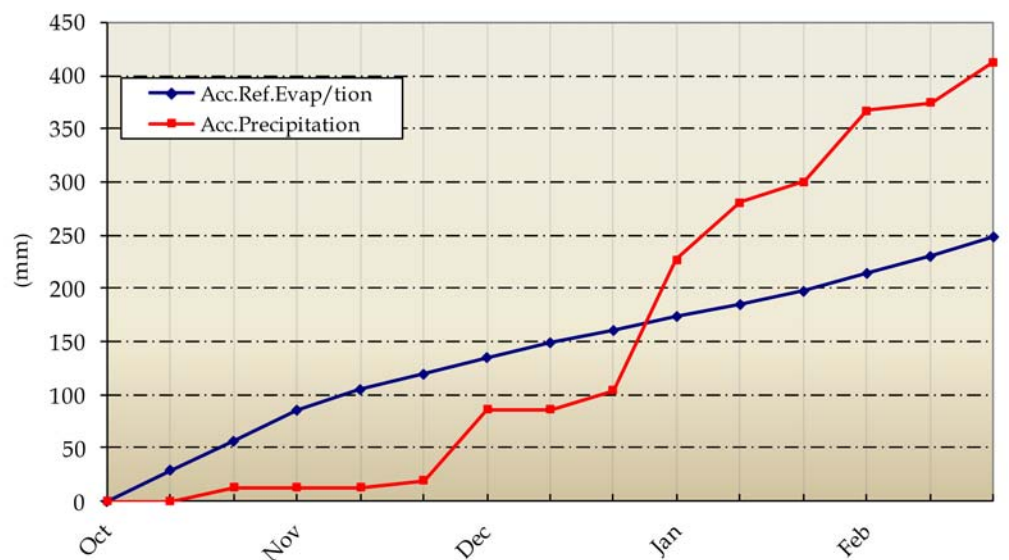


Tympaki

2nd 10-day period (11-20/02/2009)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	16.4	15.6	13.2	12.2	13.6	13.6	14.6	16.0	12.6	14.5	-	16.2
	Min	7.6	13.4	9.6	9.0	5.4	4.4	2.4	6.4	7.6	7.6	7.3	-	7.6
Relative Humidity	Max	95	96	96	94	93	85	93	98	97	86	93	-	-
	Min	74	49	50	55	47	35	33	65	42	44	49	-	-
Soil Temperature at 10 cm	06 UTC	12.4	13.4	13.0	11.8	9.2	8.6	8.0	9.8	10.6	9.8	10.7	-	11.1
	12 UTC	14.8	15.2	15.0	12.6	11.4	12.0	11.0	12.4	12.6	11.6	12.9	-	13.3
Sunshine Duration		1.3	6.5	7.2	2.7	3.3	9.1	6.3	1.4	5.7	3.3	4.7	-	5.5
Precipitation			2.6	19.9	8.4	2.3			3.8	0.8	0.4	38.2	-	28.6
Evaporation		3.6	5.8	5.0	2.8	2.0	4.0	1.4	1.4	2.2	3.4	31.6	-	30.1
Growing Degrees	5	7.6	9.9	7.6	6.1	3.8	4.0	3.0	5.5	6.8	5.1	59.4	-	69.2
	10	2.6	4.9	2.6	1.1	0.0	0.0	0.0	0.5	1.8	0.1	13.6	-	21.2

2nd 10-day period (11-20/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.4	-	17.9
Precipitation - Reference Evapotranspiration	19.8	-	10.7
Number of Rainy Days	7.0	-	3.8
Number of Dry Days	1.0	-	-

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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