



AGROMETEOROLOGICAL BULLETIN

February 2009
3rd 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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3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.0	4.8	5.4	8.0	7.4	6.8	8.2	10.6	7.3	-	9.7
	Min	2.2	-1.0	-0.2	-0.8	1.0	0.8	-3.8	-0.4	-0.3	-	1.6
Relative Humidity	Max	85	88	76	81	76	74	100	89	84	-	-
	Min	35	52	44	46	39	37	54	43	44	-	-
Soil Temperature at 10 cm	06 UTC	5.4	4.0	3.2	3.8	4.2	4.4	3.6	5.0	4.2	-	5.7
	12 UTC	7.0	5.4	5.0	5.6	6.0	5.8	6.0	7.0	6.0	-	7.3
Sunshine Duration		3.4	3.3	2.6	9.2	8.3	2.7	8.8	2.5	5.1	-	4.8
Precipitation											-	14.4
Evaporation		0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.7	-	9.4
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-	17.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	2.5

3rd 10-day period (21-28/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	12.2	-	12.0
Precipitation - Reference Evapotranspiration	-12.2	-	2.4
Number of Rainy Days	0.0	-	1.9
Number of Dry Days	8.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

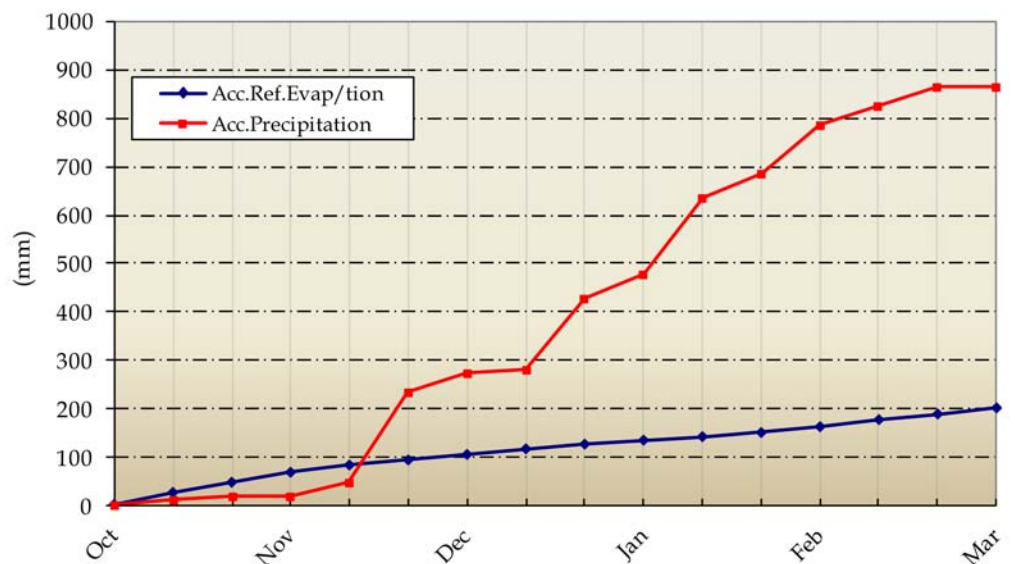


Andravida

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.4	9.4	9.8	11.4	12.8	11.0	11.6	13.4	11.2	-	14.1
	Min	0.6	-0.8	-0.6	-2.0	0.0	2.0	0.0	3.2	0.3	-	5.3
Relative Humidity	Max	92	96	93	89	92	82	78	90	89	-	-
	Min	35	48	48	30	38	32	50	42	40	-	-
Soil Temperature at 10 cm	06 UTC	6.8	6.8	6.6	5.4	6.2	6.4	6.0	8.4	6.6	-	9.0
	12 UTC	10.0	9.8	8.0	8.2	8.8	8.8	9.0	9.2	9.0	-	11.2
Sunshine Duration		9.2	2.2	7.7	6.2	8.6	9.5	7.3	9.7	7.6	-	5.7
Precipitation			0.2							0.2	-	22.1
Evaporation		11.0	3.7	6.4	1.1	1.0	1.0	2.0	1.0	27.2	-	19.2
Growing Degrees	5	0.5	0.0	0.0	0.0	1.4	1.5	0.8	3.3	7.5	-	39.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	8.3

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.7	-	12.9
Precipitation - Reference Evapotranspiration	-12.5	-	9.2
Number of Rainy Days	1.0	-	3.2
Number of Dry Days	1.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

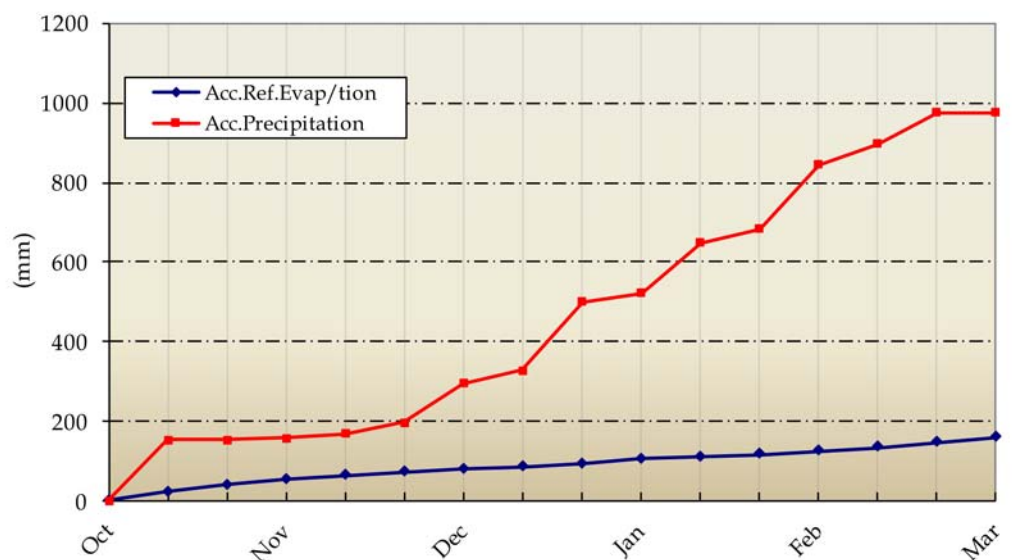


Arta

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	12.0	12.2	14.0	12.0	14.8	16.0	18.0	14.1	-	14.8
	Min	-2.4	-2.0	1.6	-2.2	4.0	2.2	-1.8	0.6	0.0	-	4.0
Relative Humidity	Max	92	90	82	89	52	72	90	89	82	-	-
	Min	10	20	18	22	13	17	18	13	16	-	-
Soil Temperature at 10 cm	06 UTC	-	5.8	6.2	5.4	6.4	6.4	5.8	-	6.0	-	7.8
	12 UTC	6.6	-	6.8	6.2	7.2	7.4	6.8	-	6.8	-	10.0
Sunshine Duration		9.1	2.5	8.8	8.7	9.8	9.7	8.7	9.9	8.4	-	5.3
Precipitation			1.4							1.4	-	28.8
Evaporation		-	-	-	-	2.8	-	-	1.2	-	-	-
Growing Degrees	5	0.6	0.0	1.9	0.9	3.0	3.5	2.1	4.3	16.3	-	36.9
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	7.3

3rd 10-day period (21-28/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	12.7	-	11.6
Precipitation - Reference Evapotranspiration	-11.3	-	17.2
Number of Rainy Days	1.0	-	2.6
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

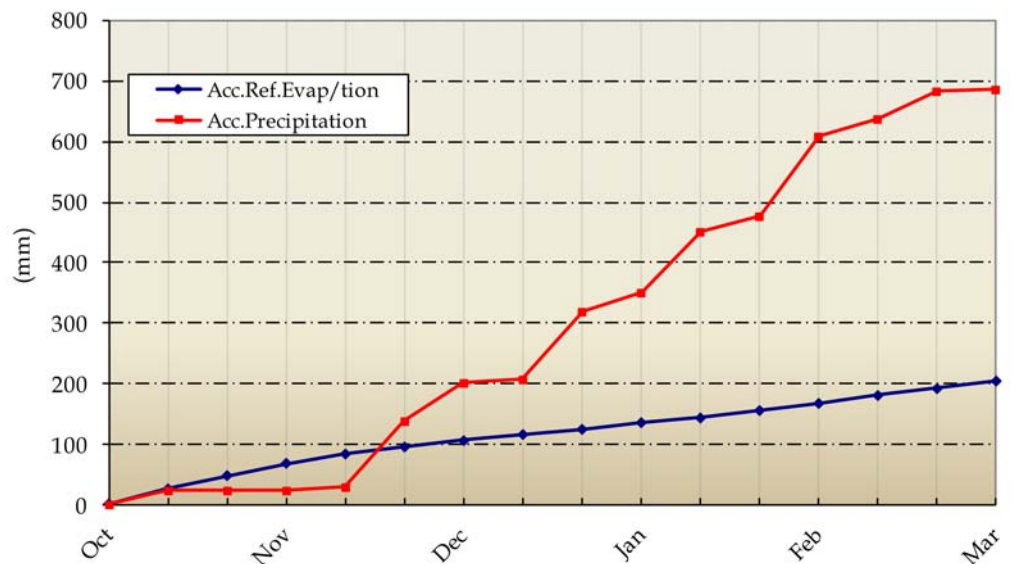


Kalamata

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.8	11.4	11.0	11.6	14.0	12.6	15.0	16.2	13.2	-	14.8
	Min	-0.8	0.0	0.4	-0.6	7.0	5.4	-	3.4	2.1	-	5.1
Relative Humidity	Max	92	97	96	89	62	-	92	94	89	-	-
	Min	32	45	44	36	34	-	38	34	38	-	-
Soil Temperature at 10 cm	06 UTC	7.6	8.0	8.0	7.2	8.6	8.4	-	8.2	8.0	-	9.6
	12 UTC	8.6	8.6	-	8.4	9.4	9.6	8.8	10.0	9.1	-	11.1
Sunshine Duration		3.4	0.5	1.9	0.9	1.1	-	1.1	1.1	1.4	-	5.3
Precipitation			2.3						0.0	2.3	-	28.6
Evaporation		0.0	0.0	0.0	0.0	5.0	-	2.0	5.0	-	-	20.1
Growing Degrees	5	1.5	0.7	0.7	0.5	5.5	4.0	-	4.8	-	-	40.8
	10	0.0	0.0	0.0	0.0	0.5	0.0	-	0.0	-	-	8.0

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.6	-	13.5
Precipitation - Reference Evapotranspiration	-10.3	-	15.1
Number of Rainy Days	1.0	-	3.3
Number of Dry Days	1.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

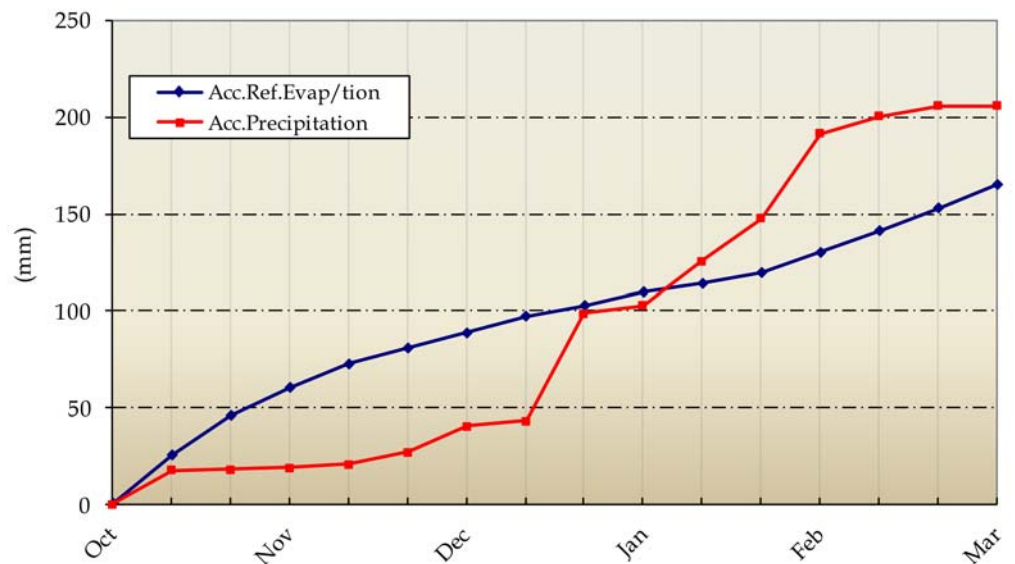


Larisa

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.6	5.0	8.4	10.0	9.2	9.4	11.8	14.8	9.8	-	11.9
	Min	-2.0	-2.4	0.2	-5.4	-1.0	0.2	-5.4	-1.4	-2.2	-	1.7
Relative Humidity	Max	84	92	92	100	93	88	95	96	92	-	-
	Min	36	56	38	44	42	34	36	29	39	-	-
Soil Temperature at 10 cm	06 UTC	6.0	5.4	5.4	3.4	5.4	5.6	3.2	6.0	5.0	-	7.0
	12 UTC	6.2	5.8	6.0	5.4	6.4	6.2	5.6	6.8	6.0	-	7.7
Sunshine Duration		8.6	0.0	6.0	7.5	4.9	7.5	8.0	8.8	6.4	-	4.6
Precipitation				0.0						0.0	-	13.4
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	9.6
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	-	20.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	2.5

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.1	-	11.5
Precipitation - Reference Evapotranspiration	-12.1	-	1.9
Number of Rainy Days	0.0	-	2.6
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

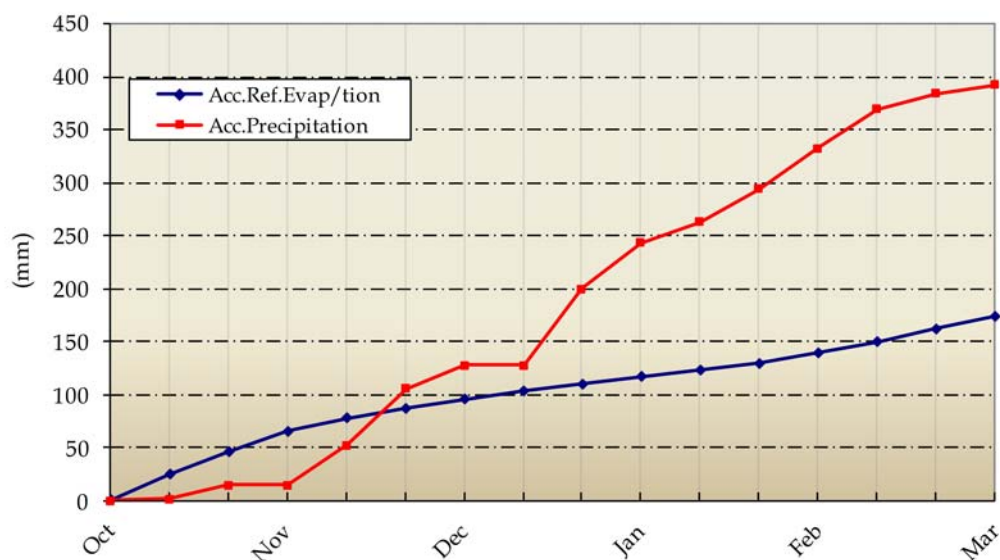


Pyrgela

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.0	12.0	9.0	12.0	12.2	12.0	14.4	15.4	12.6	-	15.1
	Min	-2.4	0.0	2.0	-2.0	3.2	3.0	-3.8	1.0	0.1	-	2.9
Relative Humidity	Max	85	93	90	96	71	79	92	93	87	-	-
	Min	35	38	51	38	52	43	31	28	40	-	-
Soil Temperature at 10 cm	06 UTC	6.4	6.0	6.0	2.6	6.0	5.4	3.2	6.2	5.2	-	6.9
	12 UTC	9.0	9.0	7.0	8.2	8.4	8.6	9.0	10.0	8.6	-	12.4
Sunshine Duration		8.2	1.7	3.4	4.0	4.9	5.7	8.0	8.0	5.5	-	5.4
Precipitation			5.2	0.8					1.4	7.4	-	14.3
Evaporation		1.6	1.0	2.8	1.6	1.4	0.2	1.7	2.0	12.3	-	16.7
Growing Degrees	5	0.8	1.0	0.5	0.0	2.7	2.5	0.3	3.2	11.0	-	34.1
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	6.0

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.0	-	12.3
Precipitation - Reference Evapotranspiration	-4.6	-	2.0
Number of Rainy Days	3.0	-	2.8
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

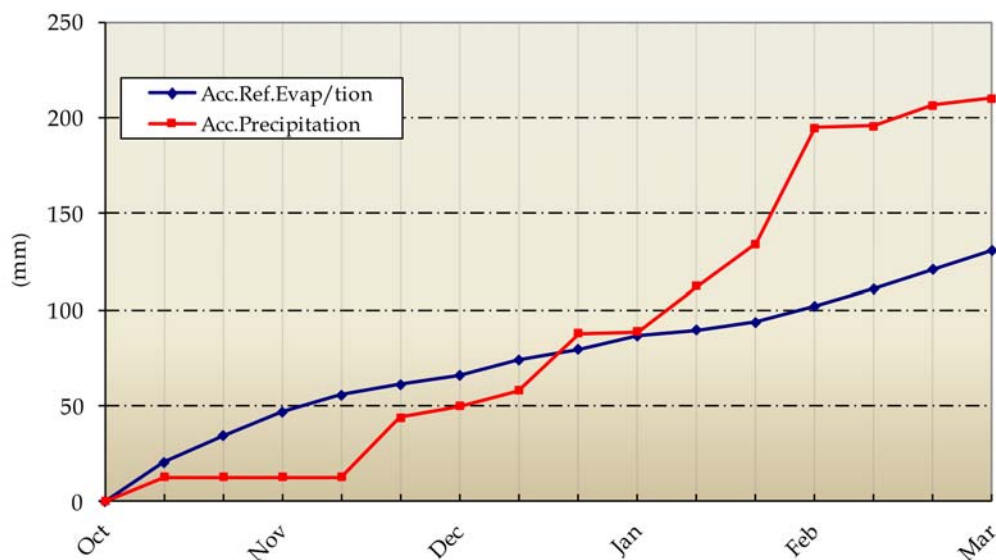


3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.4	4.6	8.6	10.4	10.6	10.8	11.6	13.0	9.8	-	11.3
	Min	-2.0	0.4	-3.4	-4.0	-4.0	-3.0	-3.0	2.0	-2.1	-	1.7
Relative Humidity	Max	65	92	-	-	-	72	69	-	74	-	-
	Min	38	72	-	-	-	29	33	-	43	-	-
Soil Temperature at 10 cm	06 UTC	4.4	5.6	4.6	-	-	-	4.4	5.2	4.8	-	6.0
	12 UTC	5.2	5.6	5.2	4.8	5.0	5.0	5.0	6.2	5.2	-	7.4
Sunshine Duration		7.2	0.6	6.6	7.1	7.2	9.2	7.4	3.1	6.0	-	4.9
Precipitation			3.7							3.7	-	11.2
Evaporation		0.4	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.8	-	8.7
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.5	-	20.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	2.6

Series

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.8	-	9.5
Precipitation - Reference Evapotranspiration	-6.1	-	1.7
Number of Rainy Days	1.0	-	2.1
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

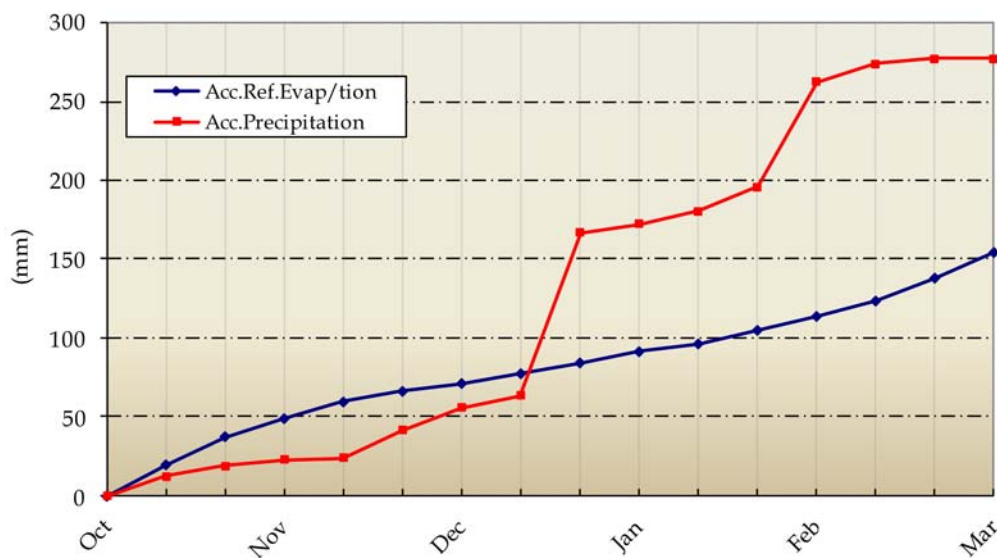


Trikala Imathias

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.4	-	-	-	11.2	11.8	13.4	15.0	11.8	-	11.9
	Min	-4.0	-	-2.0	-3.6	-2.6	-3.6	-3.0	4.0	-2.1	-	2.1
Relative Humidity	Max	-	96	80	95	97	95	80	56	86	-	-
	Min	-	52	26	35	26	24	27	21	30	-	-
Soil Temperature at 10 cm	06 UTC	-	-	4.2	4.0	4.8	5.0	4.8	6.2	4.8	-	7.2
	12 UTC	5.0	-	5.8	5.4	6.2	6.8	7.0	9.4	6.5	-	7.5
Sunshine Duration		5.0	0.0	9.4	9.0	9.3	9.4	7.3	9.9	7.4	-	4.8
Precipitation											-	17.2
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.2	-	7.8
Growing Degrees	5	0.0	-	-	-	0.0	0.0	0.2	4.5	-	-	23.6
	10	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	3.8

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.2	-	11.1
Precipitation - Reference Evapotranspiration	-16.2	-	6.1
Number of Rainy Days	0.0	-	2.7
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

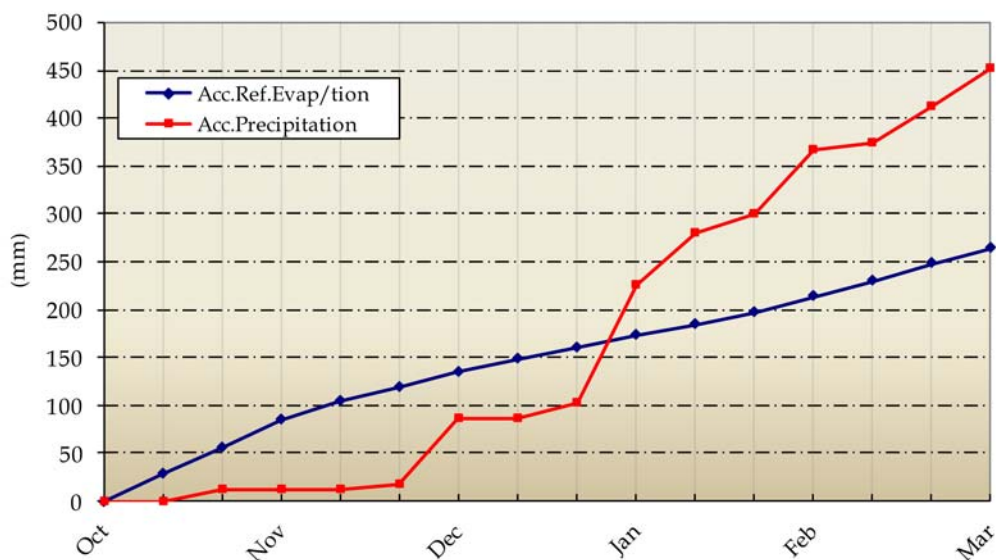


Tympaki

3rd 10-day period (21-28/02/2009)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	14.2	11.2	14.0	12.0	13.4	13.2	14.0	13.1	-	15.4
	Min	6.0	5.0	5.0	3.6	7.2	8.6	6.8	5.2	5.9	-	7.2
Relative Humidity	Max	92	96	93	96	98	67	76	90	88	-	-
	Min	37	37	65	44	58	40	31	42	44	-	-
Soil Temperature at 10 cm	06 UTC	8.6	8.4	9.2	8.0	10.0	9.0	8.6	9.0	8.8	-	11.0
	12 UTC	11.4	12.6	11.0	12.0	11.2	11.8	11.4	12.2	11.7	-	13.5
Sunshine Duration		2.1	7.0	3.8	4.9	0.0	7.6	7.5	5.3	4.8	-	6.1
Precipitation			0.2	1.6	1.4	37.0				40.2	-	18.3
Evaporation		3.0	2.2	1.6	2.6	2.8	5.0	6.0	3.0	26.2	-	25.3
Growing Degrees	5	4.5	4.6	3.1	3.8	4.6	6.0	5.0	4.6	36.2	-	52.1
	10	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	-	14.4

3rd 10-day period (21-28/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.7	-	16.3
Precipitation - Reference Evapotranspiration	24.5	-	2.0
Number of Rainy Days	4.0	-	2.7
Number of Dry Days	1.0	-	-

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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ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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