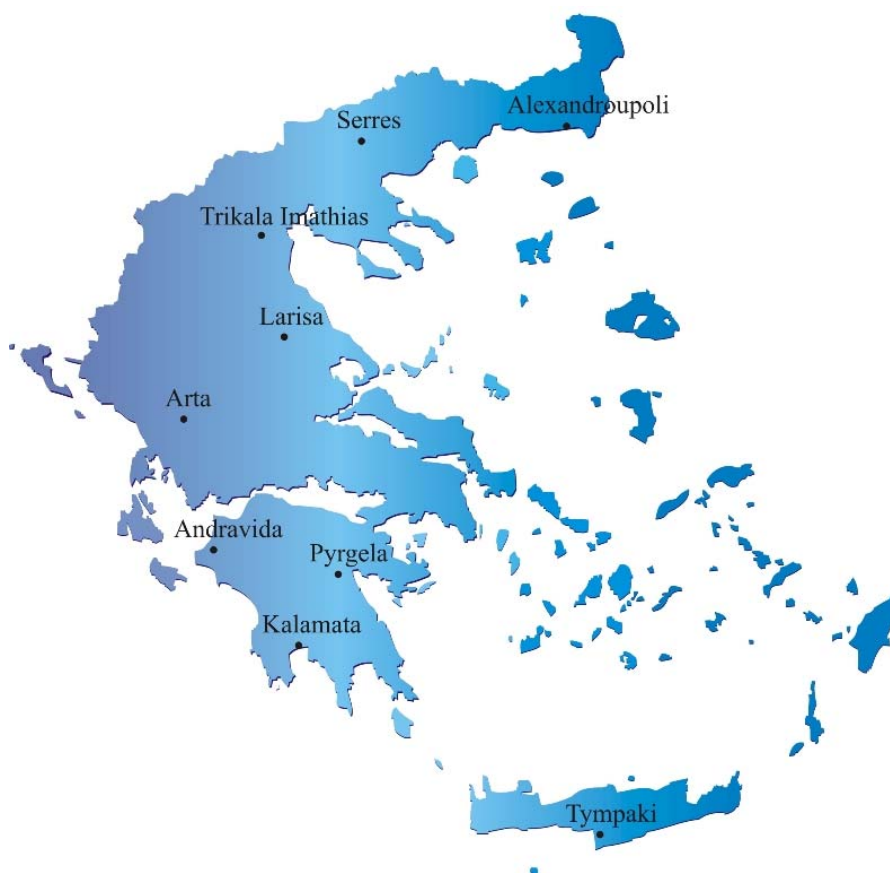


AGROMETEOROLOGICAL BULLETIN

February 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



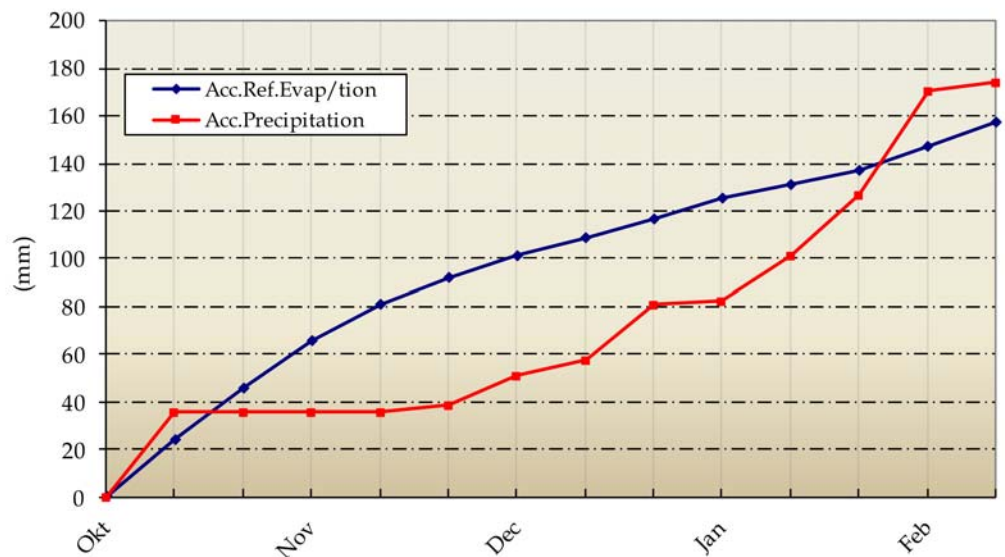
Hellenic National Meteorological Service
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El. Venizelou Street 14, 16777
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	9.6	11.8	15.8	15.6	16.0	15.6	15.8	13.0	11.4	13.4	-	9.1
	Min	2.6	3.0	5.6	4.6	8.4	5.2	9.8	11.2	8.8	4.8	6.4	-	0.8
Relative Humidity	Max	82	84	94	97	97	97	97	87	92	87	91	-	-
	Min	55	56	71	65	73	69	74	73	79	54	67	-	-
Soil Temperature at 10 cm	06 UTC	6.2	6.6	7.6	7.6	9.8	8.6	10.6	11.6	10.6	9.0	8.8	-	5.3
	12 UTC	7.4	7.6	8.5	9.0	11.2	10.6	11.4	12.6	10.6	10.0	9.9	-	6.6
Sunshine Duration		3.6	4.2	0.5	0.3	8.4	7.0	3.1	3.9	0.1	4.5	3.6	-	3.9
Precipitation				0.0	0.8			0.2	0.0	2.6		3.6	-	19.4
Evaporation		1.4	1.9	0.4	1.4	0.6	0.2	1.5	0.8	2.6	0.5	11.3	-	11.6
Growing Degrees	5	0.9	1.3	3.7	5.2	7.0	5.6	7.7	8.5	5.9	3.1	48.9	-	14.1
	10	0.0	0.0	0.0	0.2	2.0	0.6	2.7	3.5	0.9	0.0	9.9	-	1.4

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.2	-	10.9
Precipitation - Reference Evapotranspiration	-6.6	-	8.5
Number of Rainy Days	3.0	-	2.5
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

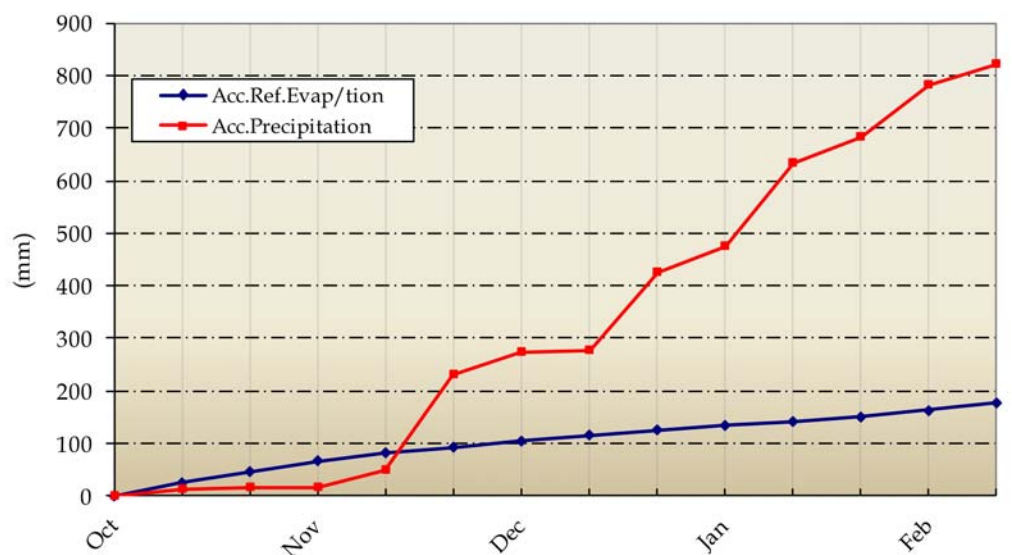


Andravida

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.4	16.8	22.8	18.4	16.6	17.0	17.4	16.8	12.0	13.8	16.6	-	14.0
	Min	5.6	8.8	7.4	13.4	8.2	8.2	13.0	10.2	7.8	8.6	9.1	-	4.8
Relative Humidity	Max	92	95	94	88	98	100	100	97	91	89	94	-	-
	Min	50	68	28	42	64	72	55	55	70	59	56	-	-
Soil Temperature at 10 cm	06 UTC	9.8	10.0	10.6	12.4	12.4	11.4	13.0	13.6	12.0	11.0	11.6	-	9.2
	12 UTC	11.6	12.0	12.4	14.2	14.6	12.4	14.2	14.4	12.6	12.6	13.1	-	10.9
Sunshine Duration		3.5	1.3	5.7	5.8	4.3	0.0	3.3	5.2	1.5	7.2	3.8	-	5.2
Precipitation		3.0	17.0						3.7	12.5	3.0	39.2	-	28.0
Evaporation		2.5	1.8	4.8	1.7	2.5	3.5	1.8	4.9	0.4	2.0	25.9	-	19.1
Growing Degrees	5	5.0	7.8	10.1	10.9	7.4	7.6	10.2	8.5	4.9	6.2	78.6	-	44.7
	10	0.0	2.8	5.1	5.9	2.4	2.6	5.2	3.5	0.0	1.2	28.7	-	7.9

1st 10-day period (1-10/02/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	14.7	-	12.4
Precipitation - Reference Evapotranspiration	24.5	-	15.6
Number of Rainy Days	5.0	-	4.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

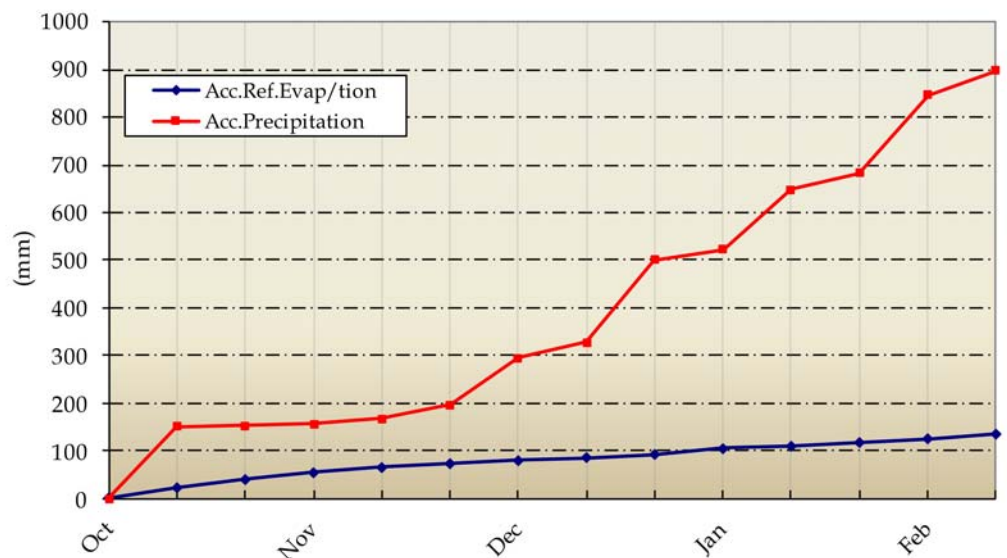


Arta

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.4	16.0	21.6	17.2	18.2	-	19.8	17.0	14.0	16.0	16.8	-	14.2
	Min	6.0	7.4	4.4	12.0	9.4	5.0	9.0	8.8	6.6	1.2	7.0	-	3.1
Relative Humidity	Max	94	94	95	91	92	92	92	89	91	92	92	-	-
	Min	52	50	18	58	31	29	36	26	35	20	36	-	-
Soil Temperature at 10 cm	06 UTC	9.4	9.2	9.6	10.8	11.0	10.2	10.8	11.8	11.0	9.4	10.3	-	7.5
	12 UTC	9.8	9.8	10.0	11.2	11.8	10.6	11.4	12.0	11.0	10.0	10.8	-	9.1
Sunshine Duration		0.3	1.1	2.3	1.3	5.3	2.7	4.9	3.9	4.6	6.9	3.3	-	5.1
Precipitation		1.2	17.0		2.7	1.4	8.0	0.3	9.4	11.4		51.4	-	48.5
Evaporation		1.7	1.2	1.2	1.0	1.2	0.6	1.4	1.2	0.7	1.9	12.1	-	-
Growing Degrees	5	3.7	6.7	8.0	9.6	8.8	-	9.4	7.9	5.3	3.6	-	-	38.6
	10	0.0	1.7	3.0	4.6	3.8	-	4.4	2.9	0.3	0.0	-	-	4.8

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.9	-	10.0
Precipitation - Reference Evapotranspiration	41.5	-	38.5
Number of Rainy Days	8.0	-	3.7
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

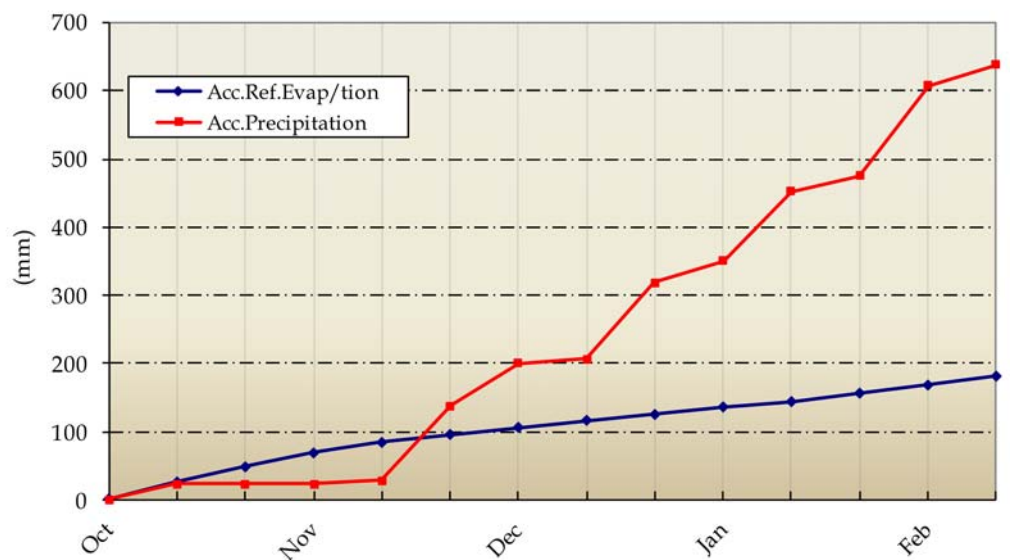


Kalamata

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	18.0	18.8	20.4	18.0	16.8	17.0	16.8	13.0	15.6	16.9	-	14.9
	Min	5.0	9.8	7.8	9.4	8.2	5.6	10.0	12.6	8.2	6.2	8.3	-	4.8
Relative Humidity	Max	97	95	95	92	97	97	100	93	97	94	96	-	-
	Min	52	62	42	42	53	73	75	50	66	46	56	-	-
Soil Temperature at 10 cm	06 UTC	10.0	11.0	10.2	12.0	12.0	11.4	12.0	13.2	12.0	11.0	11.5	-	9.7
	12 UTC	10.6	12.0	11.8	12.4	12.8	12.0	12.6	13.4	12.6	11.8	12.2	-	11.0
Sunshine Duration		5.4	2.5	5.9	5.4	7.1	0.9	0.3	5.5	2.3	7.3	4.3	-	5.1
Precipitation		0.6	7.4			0.5	0.5	0.0	8.2	13.1	0.0	30.3	-	28.3
Evaporation		15.0	1.0	4.0	0.5	4.0	2.5	0.2	4.5	1.6	4.5	37.8	-	24.5
Growing Degrees	5	4.9	8.9	8.3	9.9	8.1	6.2	8.5	9.7	5.6	5.9	76.0	-	48.9
	10	0.0	3.9	3.3	4.9	3.1	1.2	3.5	4.7	0.6	0.9	26.1	-	8.7

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.1	-	14.4
Precipitation - Reference Evapotranspiration	17.2	-	13.9
Number of Rainy Days	6.0	-	4.1
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

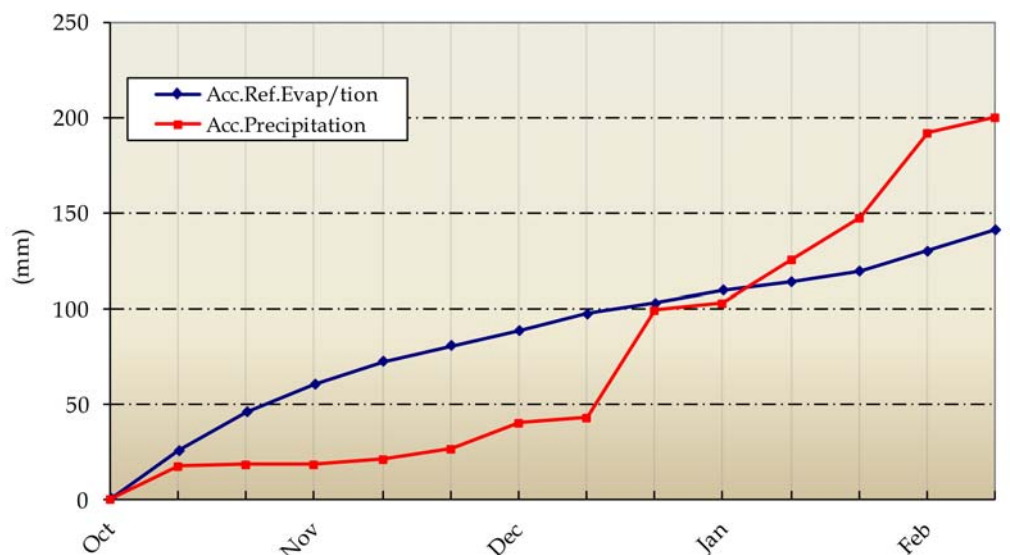


Larisa

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	9.8	11.8	14.8	18.4	15.0	15.2	16.4	13.8	15.0	14.0	-	11.2
	Min	4.8	8.0	7.8	5.6	4.6	2.4	3.6	6.8	3.6	4.2	5.1	-	0.4
Relative Humidity	Max	100	95	97	100	100	97	100	100	97	81	97	-	-
	Min	74	86	85	80	44	60	74	47	49	40	64	-	-
Soil Temperature at 10 cm	06 UTC	8.2	9.0	8.6	9.2	9.2	8.4	8.8	9.6	9.4	8.8	8.9	-	6.1
	12 UTC	8.6	9.0	9.4	9.8	9.8	9.2	9.4	10.6	9.2	-	9.4	-	6.8
Sunshine Duration		0.3	0.0	0.0	3.0	8.3	2.9	3.8	8.5	3.3	6.3	3.6	-	4.3
Precipitation			3.9				2.1	1.6	1.0			8.6	-	9.7
Evaporation		0.0	1.2	0.1	0.0	0.4	0.0	4.6	2.7	3.0	4.0	16.0	-	6.9
Growing Degrees	5	2.4	3.9	4.8	5.2	6.5	3.7	4.4	6.6	3.7	4.6	45.8	-	16.7
	10	0.0	0.0	0.0	0.2	1.5	0.0	0.0	1.6	0.0	0.0	3.3	-	0.7

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.3	-	9.6
Precipitation - Reference Evapotranspiration	-2.7	-	0.1
Number of Rainy Days	4.0	-	2.8
Number of Dry Days	1.0	-	-

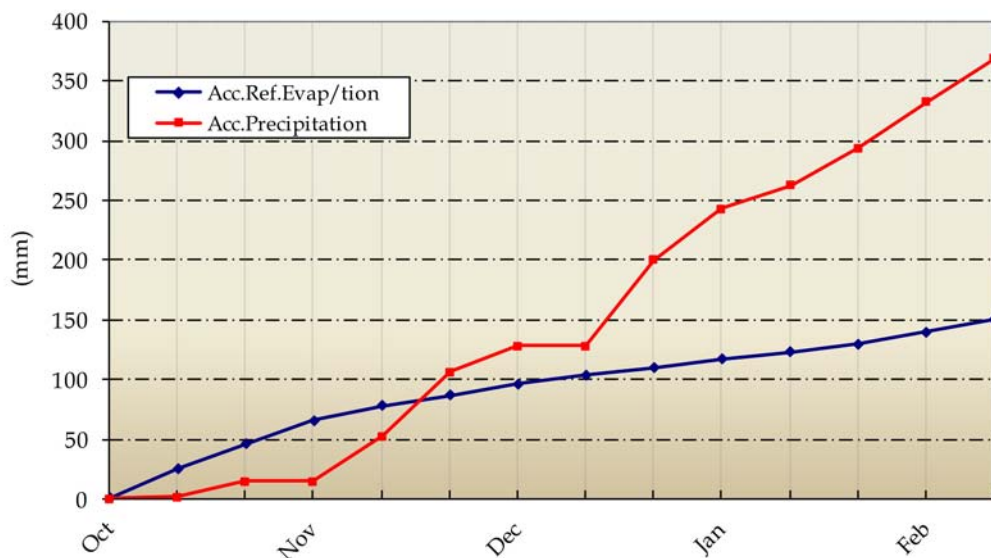
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.2	15.4	17.6	21.4	20.6	15.6	18.4	19.4	16.0	20.2	17.8	-	14.3
	Min	0.0	9.0	9.4	8.4	6.0	3.4	5.6	9.0	7.2	0.4	5.8	-	2.2
Relative Humidity	Max	96	95	95	94	91	93	94	95	94	92	94	-	-
	Min	64	80	65	57	37	68	72	40	44	29	56	-	-
Soil Temperature at 10 cm	06 UTC	7.4	9.4	10.6	11.2	10.8	9.4	9.4	11.4	10.4	10.0	10.0	-	6.7
	12 UTC	9.6	10.8	12.8	13.4	12.8	11.4	12.2	14.0	11.2	11.6	12.0	-	10.9
Sunshine Duration		1.9	0.5	5.1	6.6	8.1	1.6	4.1	5.6	6.2	8.4	4.8	-	4.8
Precipitation		2.7	21.3				0.2	0.2	10.4	1.5	0.2	36.5	-	14.9
Evaporation		0.6	0.7	1.0	2.4	1.9	0.2	0.8	2.5	0.8	2.6	13.5	-	14.0
Growing Degrees	5	1.6	7.2	8.5	9.9	8.3	4.5	7.0	9.2	6.6	5.3	68.1	-	34.6
	10	0.0	2.2	3.5	4.9	3.3	0.0	2.0	4.2	1.6	0.3	22.0	-	3.9

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.7	-	10.8
Precipitation - Reference Evapotranspiration	25.8	-	4.1
Number of Rainy Days	7.0	-	3.3
Number of Dry Days	0.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

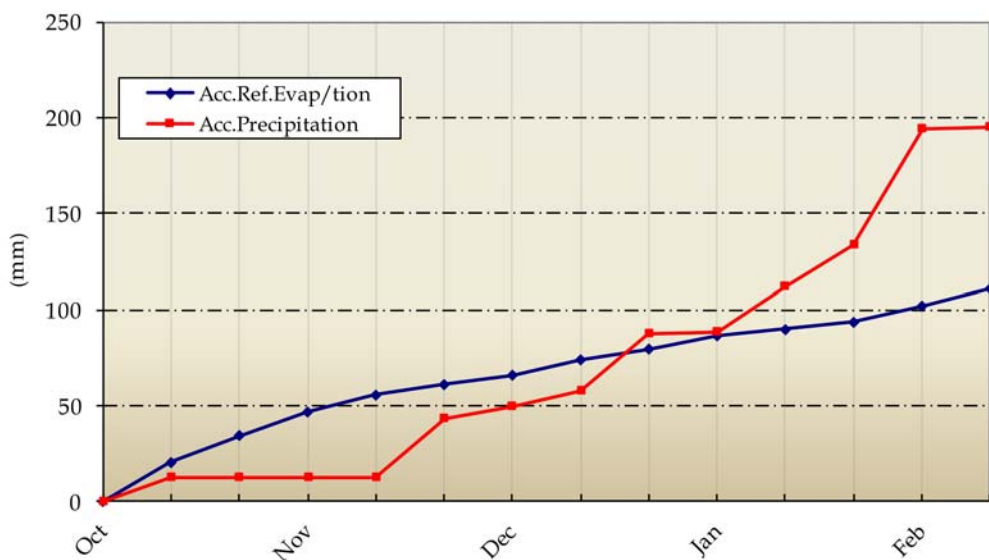


Series

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.2	8.0	9.6	18.8	19.8	18.0	15.0	18.4	15.6	14.0	14.6	-	9.9
	Min	4.2	4.4	4.8	6.6	6.0	3.6	3.6	7.0	5.2	3.6	4.9	-	0.5
Relative Humidity	Max	87	85	83	92	94	93	94	81	81	63	85	-	-
	Min	62	70	69	63	41	45	75	49	41	34	55	-	-
Soil Temperature at 10 cm	06 UTC	7.6	7.4	8.0	8.4	8.8	8.0	8.6	9.4	9.0	8.2	8.3	-	4.6
	12 UTC	7.8	7.8	8.2	9.2	9.4	9.4	9.2	10.0	9.2	8.6	8.9	-	5.8
Sunshine Duration		1.0	0.0	0.0	2.1	7.1	7.2	3.2	6.7	6.3	7.7	4.1	-	4.2
Precipitation									1.0			1.0	-	11.0
Evaporation		0.6	0.6	0.2	0.3	0.5	0.6	0.8	0.4	0.6	0.6	5.2	-	4.7
Growing Degrees	5	1.7	1.2	2.2	7.7	7.9	5.8	4.3	7.7	5.4	3.8	47.7	-	12.7
	10	0.0	0.0	0.0	2.7	2.9	0.8	0.0	2.7	0.4	0.0	9.5	-	0.4

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.9	-	7.7
Precipitation - Reference Evapotranspiration	-7.9	-	3.3
Number of Rainy Days	1.0	-	2.4
Number of Dry Days	8.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

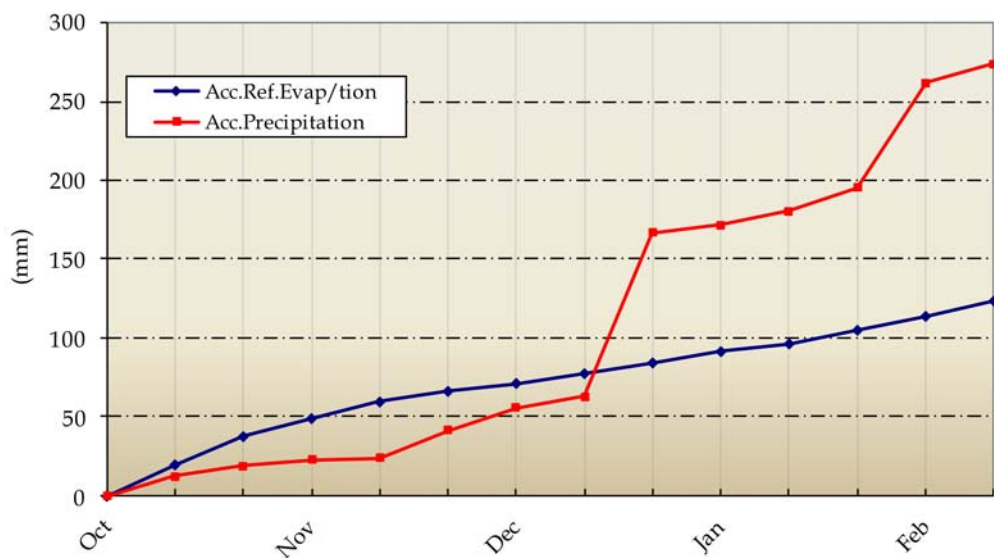


Trikala Imathias

1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.0	-	8.0	17.2	-	18.0	16.0	-	15.6	-	13.6	-	10.6
	Min	4.6	5.4	5.4	7.4	3.8	3.4	5.6	-	-	2.0	4.7	-	0.7
Relative Humidity	Max	98	98	98	98	98	94	-	98	90	90	96	-	-
	Min	94	94	94	70	42	44	-	34	35	35	60	-	-
Soil Temperature at 10 cm	06 UTC	7.0	7.4	7.8	8.0	8.2	8.0	8.6	-	9.2	7.8	8.0	-	6.0
	12 UTC	7.4	7.8	7.8	9.2	10.0	9.8	9.6	-	10.2	9.0	9.0	-	6.1
Sunshine Duration		0.0	0.0	0.0	4.6	8.8	6.2	-	7.6	6.4	7.0	4.5	-	4.6
Precipitation		7.2		3.7	0.9							11.8	-	15.2
Evaporation		0.2	0.2	1.0	0.3	1.2	1.2	-	-	1.2	0.8	-	-	7.0
Growing Degrees	5	0.8	-	1.7	7.3	-	5.7	5.8	-	-	-	-	-	16.6
	10	0.0	-	0.0	2.3	-	0.7	0.8	-	-	-	-	-	0.4

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.7	-	9.5
Precipitation - Reference Evapotranspiration	2.1	-	5.7
Number of Rainy Days	3.0	-	2.6
Number of Dry Days	0.0	-	-

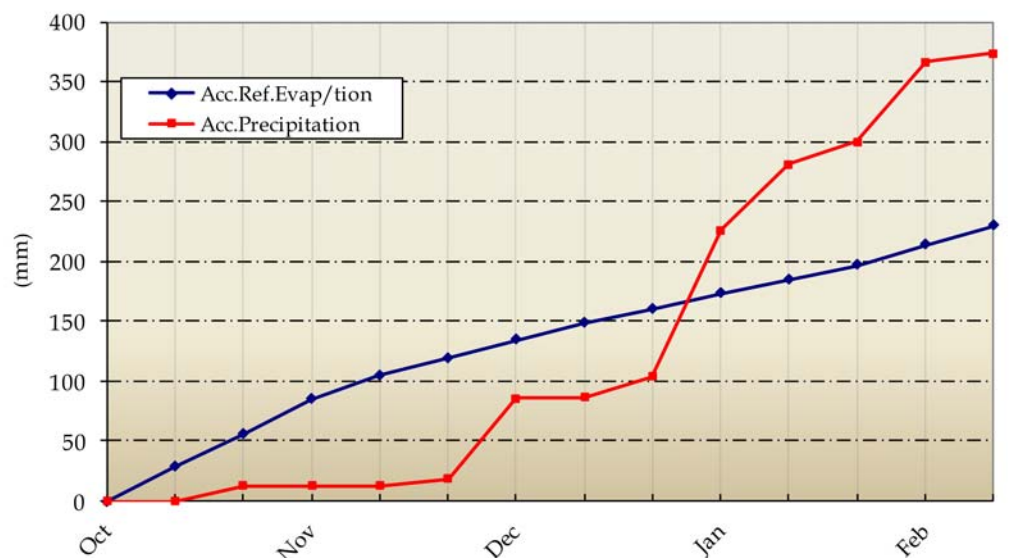
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2009)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	14.8	22.2	19.2	18.6	18.6	17.8	18.4	15.2	17.0	17.9	-	15.4
	Min	5.4	9.8	7.4	13.0	7.6	8.0	7.8	14.0	10.4	9.8	9.3	-	6.8
Relative Humidity	Max	91	95	94	96	96	96	96	91	96	79	93	-	-
	Min	38	57	32	50	68	44	62	49	64	33	50	-	-
Soil Temperature at 10 cm	06 UTC	9.6	12.0	11.6	13.2	12.2	12.0	12.2	14.0	13.4	11.2	12.1	-	10.8
	12 UTC	13.2	14.6	15.4	15.4	16.8	16.0	14.2	14.6	13.6	13.6	14.7	-	12.9
Sunshine Duration		6.9	0.7	5.6	0.0	7.8	2.8	0.0	0.0	2.3	8.9	3.5	-	5.7
Precipitation									0.4	5.7	1.3	7.4	-	25.1
Evaporation		2.0	2.0	3.0	3.0	3.0	1.0	1.3	1.6	2.5	5.0	24.4	-	29.6
Growing Degrees	5	6.1	7.3	9.8	11.1	8.1	8.3	7.8	11.2	7.8	8.4	85.9	-	61.0
	10	1.1	2.3	4.8	6.1	3.1	3.3	2.8	6.2	2.8	3.4	35.9	-	15.3

1st 10-day period (1-10/02/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.9	-	17.0
Precipitation - Reference Evapotranspiration	-8.5	-	8.1
Number of Rainy Days	3.0	-	3.3
Number of Dry Days	7.0	-	-

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
ΥΠΗΡΕΣΙΑ

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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)