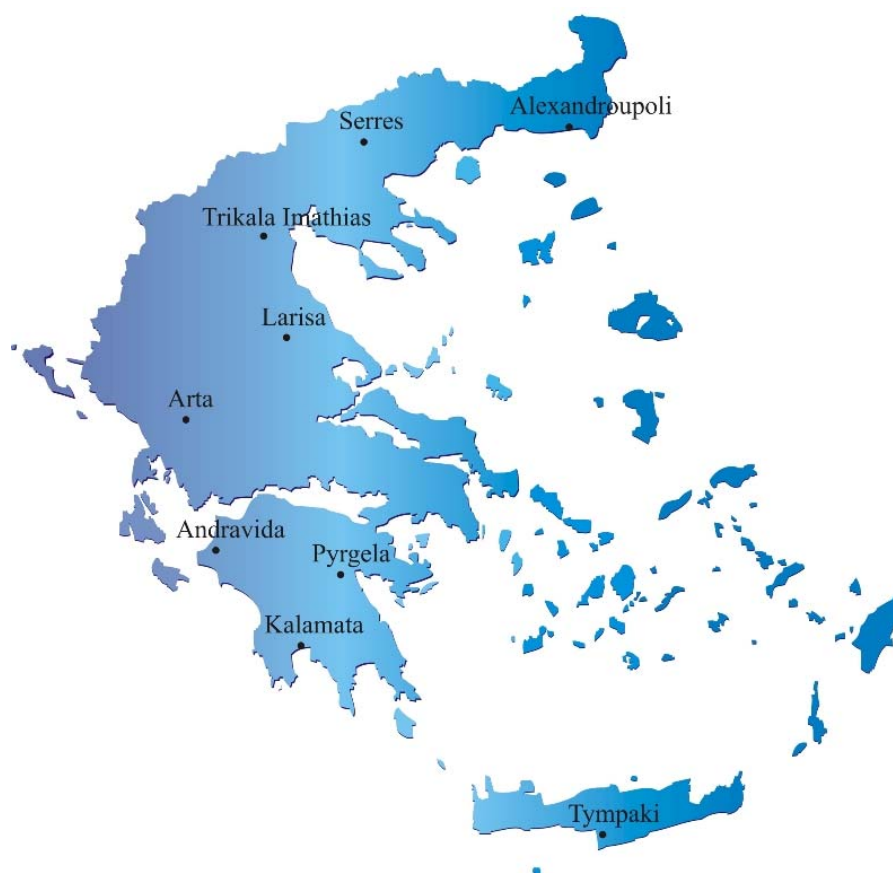




AGROMETEOROLOGICAL BULLETIN

October 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



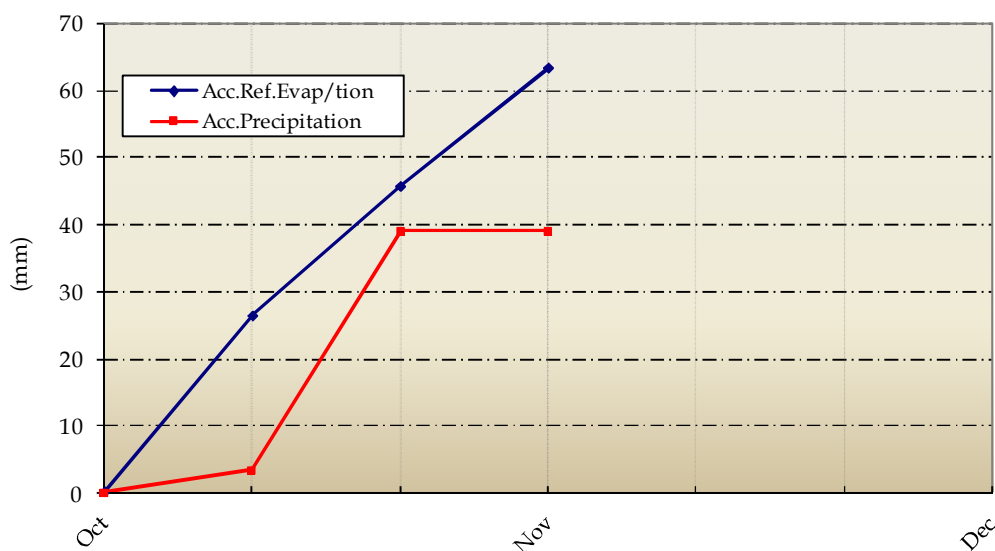
Hellenic National Meteorological Service
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	20.0	20.8	22.6	21.6	21.2	18.6	20.0	17.4	14.8	10.0	18.9	-	17.4
	Min	9.2	9.4	10.6	9.0	14.0	17.2	16.0	12.4	7.6	8.4	7.2	11.0	-	8.0
Relative Humidity	Max	92	95	95	92	93	86	88	91	94	86	80	90	-	-
	Min	53	57	64	48	60	60	59	53	50	69	51	57	-	-
Soil Temperature at 10 cm	06 UTC	15.8	15.2	15.5	15.6	16.6	17.4	17.4	15.2	13.0	14.2	13.0	15.4	-	12.7
	12 UTC	18.0	18.0	18.0	18.0	18.0	18.4	17.8	17.4	16.0	15.8	13.0	17.1	-	15.2
Sunshine Duration		9.5	9.8	9.6	4.8	1.4	2.2	0.0	3.7	1.0	1.9	0.4	4.0	-	5.2
Precipitation											0.0	0.0	0.0	-	22.3
Evaporation		2.9	4.7	1.5	1.9	3.5	1.4	3.0	1.0	2.0	2.4	2.2	26.5	-	41.1
Growing Degrees	5	9.8	9.7	10.7	10.8	12.8	14.2	12.3	11.2	7.5	6.6	3.6	109.2	-	85.3
	10	4.8	4.7	5.7	5.8	7.8	9.2	7.3	6.2	2.5	1.6	0.0	55.6	-	34.4

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.7	-	20.4
Precipitation - Reference Evapotranspiration	-17.7	-	1.9
Number of Rainy Days	0.0	-	2.2
Number of Dry Days	13.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

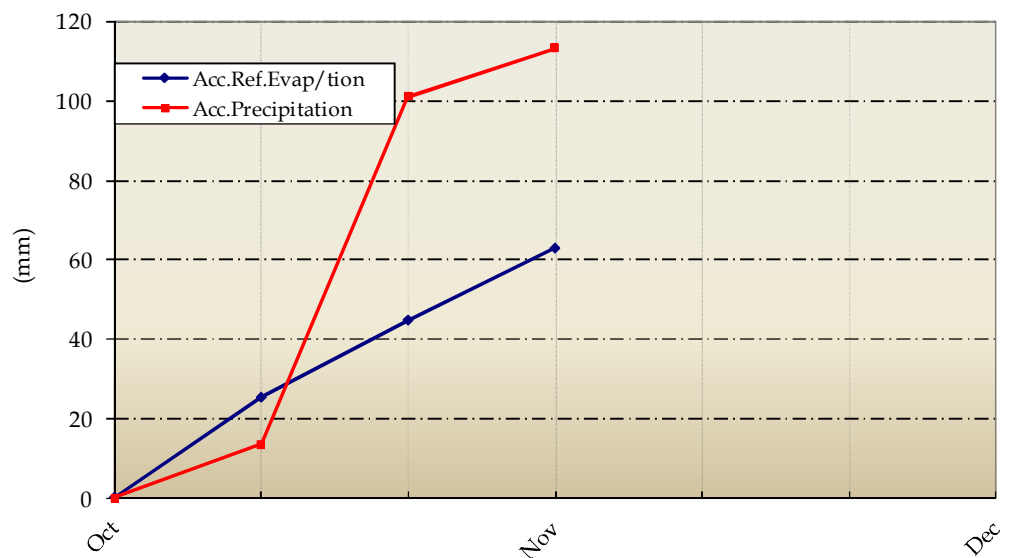


Andravida

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	25.4	24.8	22.0	21.2	24.8	24.4	23.6	22.0	20.0	18.0	22.4	-	21.5
	Min	10.8	11.6	11.8	16.6	12.4	14.6	14.0	14.6	10.8	11.8	11.8	12.8	-	11.4
Relative Humidity	Max	93	95	93	90	93	93	98	98	95	98	95	95	-	-
	Min	47	53	39	67	61	54	57	57	50	56	53	54	-	-
Soil Temperature at 10 cm	06 UTC	15.8	15.4	16.8	17.2	16.4	16.4	18.2	18.2	18.0	17.0	17.0	16.9	-	16.1
	12 UTC	20.6	20.8	19.6	19.0	18.8	19.0	22.4	21.6	21.8	22.0	19.4	20.5	-	18.7
Sunshine Duration		8.9	7.3	1.1	3.0	2.9	6.4	8.8	7.7	5.9	3.4	3.0	5.3	-	6.3
Precipitation				2.4	9.5	0.2							12.1	-	50.1
Evaporation		0.9	3.2	0.2	1.8	0.4	3.2	0.4	2.0	16.6	2.0	2.6	33.3	-	31.6
Growing Degrees	5	10.6	13.5	13.3	14.3	11.8	14.7	14.2	14.1	11.4	10.9	9.9	138.7	-	126.2
	10	5.6	8.5	8.3	9.3	6.8	9.7	9.2	9.1	6.4	5.9	4.9	83.7	-	71.3

3rd 10-day period (21-31/10/2009)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	18.2	-	18.7
Precipitation - Reference Evapotranspiration	-6.1	-	31.4
Number of Rainy Days	3.0	-	3.7
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

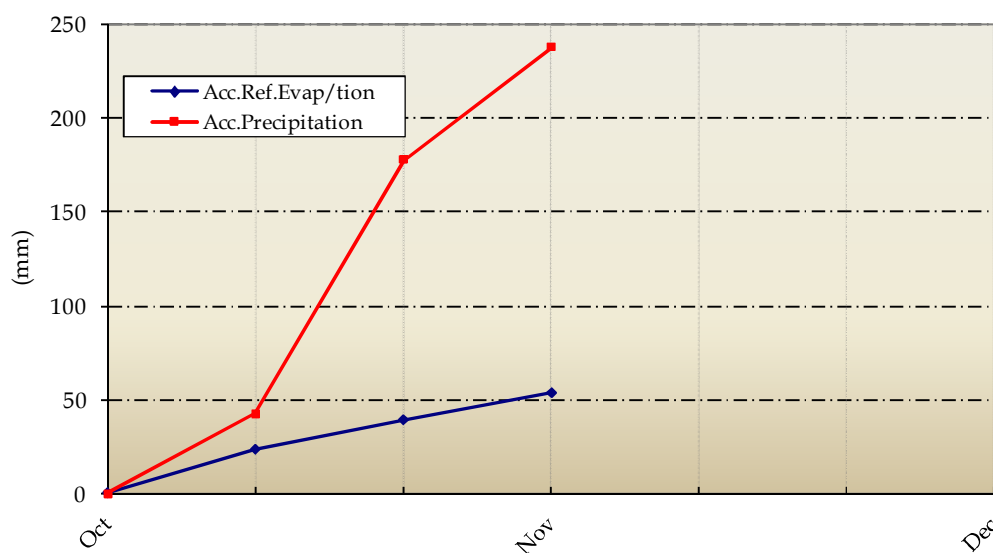


Arta

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.4	17.0	20.2	22.6	25.2	24.2	24.6	23.4	23.2	19.0	22.2	-	21.9
	Min	8.0	11.6	13.2	14.6	13.6	17.0	16.8	13.2	11.2	12.2	13.0	13.1	-	10.7
Relative Humidity	Max	95	96	98	100	96	82	90	98	91	97	45	90	-	-
	Min	45	41	87	67	45	41	66	36	51	31	37	50	-	-
Soil Temperature at 10 cm	06 UTC	15.2	16.4	16.8	16.0	16.2	17.2	18.0	17.4	17.2	17.0	17.0	16.8	-	14.9
	12 UTC	16.6	17.4	17.0	16.6	17.2	18.0	18.8	-	18.4	18.2	17.4	17.6	-	17.7
Sunshine Duration		8.1	3.7	0.0	1.0	2.0	3.5	1.4	6.9	6.7	6.1	7.1	4.2	-	5.6
Precipitation				35.9	22.9	0.7	0.5	0.2					60.2	-	49.4
Evaporation		0.7	1.5	0.6	2.4	1.6	1.2	1.4	3.3	1.0	4.1	3.4	21.2	-	-
Growing Degrees	5	10.1	12.0	10.1	12.4	13.1	16.1	15.5	13.9	12.3	12.7	11.0	139.2	-	124.0
	10	5.1	7.0	5.1	7.4	8.1	11.1	10.5	8.9	7.3	7.7	6.0	84.2	-	69.1

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.6	-	16.2
Precipitation - Reference Evapotranspiration	45.6	-	33.2
Number of Rainy Days	5.0	-	3.6
Number of Dry Days	2.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

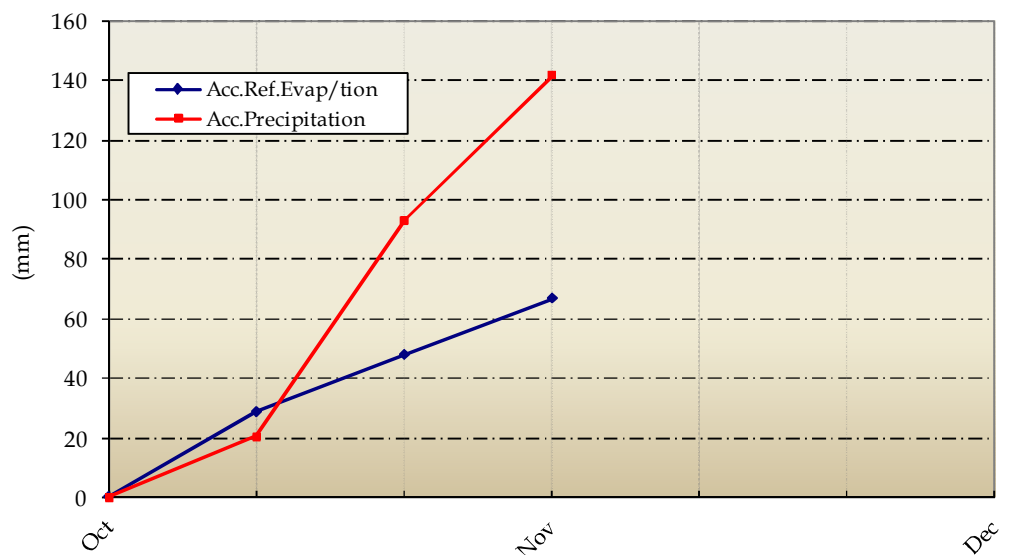


Kalamata

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	24.0	24.2	22.4	22.0	25.6	24.0	23.8	23.2	22.0	20.0	23.1	-	22.3
	Min	9.0	11.4	11.0	17.4	12.8	15.0	15.0	16.0	11.8	11.2	10.8	12.9	-	11.5
Relative Humidity	Max	97	96	96	94	95	93	98	95	95	98	98	96	-	-
	Min	45	58	52	70	67	50	54	54	52	65	51	56	-	-
Soil Temperature at 10 cm	06 UTC	27.0	17.0	17.4	19.0	17.6	17.6	17.6	19.0	17.6	17.4	17.2	18.6	-	16.7
	12 UTC	18.8	19.0	19.2	19.2	18.4	19.4	19.6	-	19.4	19.0	18.0	19.0	-	18.5
Sunshine Duration		9.9	8.5	6.3	2.2	2.0	6.0	3.7	5.8	8.5	4.7	3.7	5.6	-	5.9
Precipitation					7.3	4.3	8.3				23.1	5.6	48.6	-	43.6
Evaporation		4.0	1.0	2.8	1.5	0.7	4.9	2.0	3.0	2.0	3.5	12.0	37.4	-	36.3
Growing Degrees	5	10.8	12.7	12.6	14.9	12.4	15.3	14.5	14.9	12.5	11.6	10.4	142.6	-	130.7
	10	5.8	7.7	7.6	9.9	7.4	10.3	9.5	9.9	7.5	6.6	5.4	87.6	-	75.7

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.0	-	21.6
Precipitation - Reference Evapotranspiration	29.6	-	22.0
Number of Rainy Days	5.0	-	3.7
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

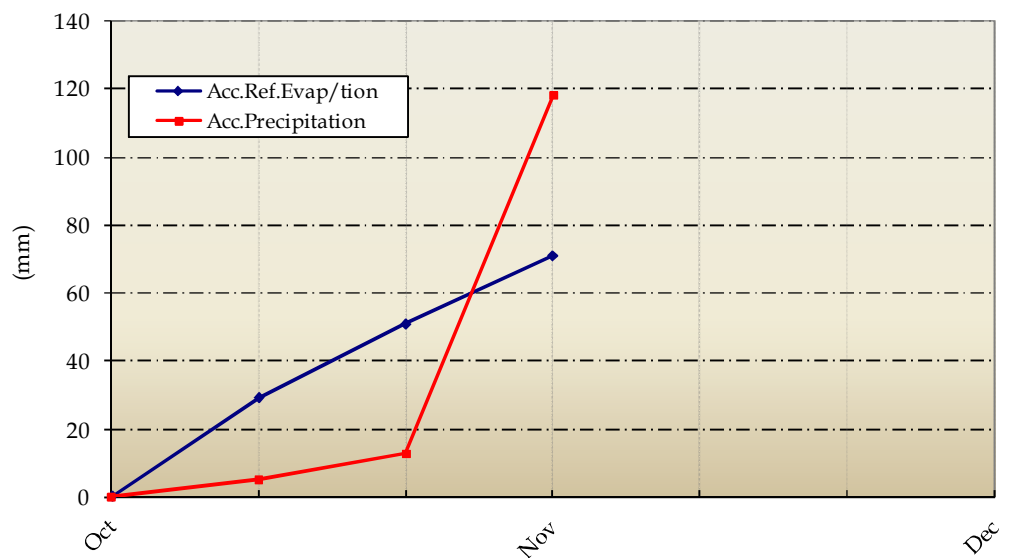


Larisa

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.0	22.8	24.0	19.4	20.0	21.0	21.0	20.0	18.6	14.6	20.5	-	18.9
	Min	5.4	6.8	8.6	16.0	15.8	14.8	16.4	14.4	10.0	10.0	9.2	11.6	-	8.3
Relative Humidity	Max	91	94	96	94	98	100	96	98	95	90	95	95	-	-
	Min	31	36	54	50	78	80	68	43	43	47	45	52	-	-
Soil Temperature at 10 cm	06 UTC	15.8	15.4	16.2	17.0	18.0	15.6	16.8	16.0	15.8	15.4	14.4	16.0	-	14.6
	12 UTC	17.2	18.2	17.8	19.0	18.4	16.6	18.4	18.4	17.0	16.4	13.0	17.3	-	15.6
Sunshine Duration		8.4	6.2	5.3	4.6	2.0	0.0	3.2	5.9	7.8	5.4	1.3	4.6	-	4.4
Precipitation					5.5	15.3	82.9	0.8				0.4	104.9	-	23.9
Evaporation		5.0	1.2	0.8	2.8	1.0	17.2	0.8	2.0	3.6	1.4	2.8	38.6	-	24.8
Growing Degrees	5	8.8	9.4	10.7	15.0	12.6	12.4	13.7	12.7	10.0	9.3	6.9	121.5	-	94.1
	10	3.8	4.4	5.7	10.0	7.6	7.4	8.7	7.7	5.0	4.3	1.9	66.5	-	41.5

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	20.1	-	16.4
Precipitation - Reference Evapotranspiration	84.8	-	7.5
Number of Rainy Days	5.0	-	3.5
Number of Dry Days	5.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

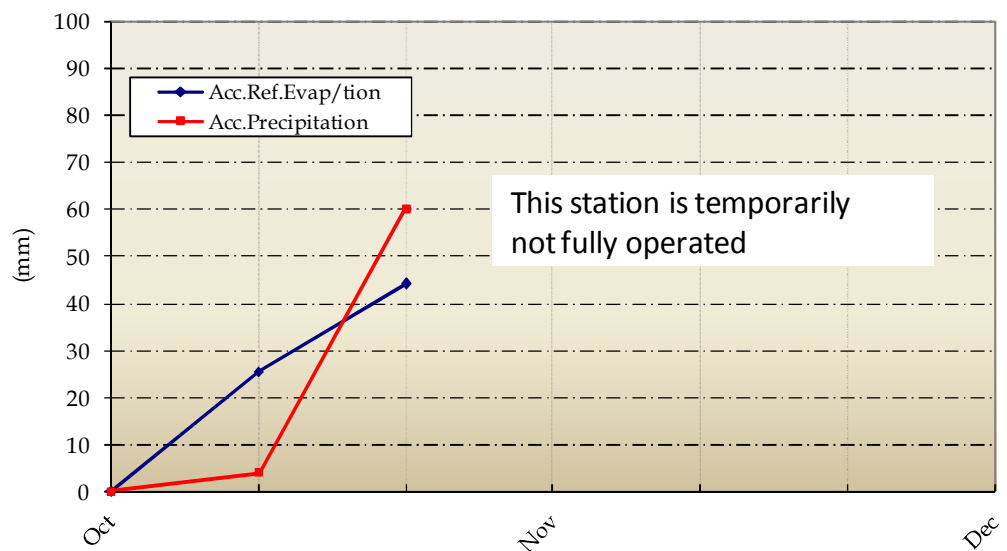


Pyrgela

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	-	-	22.0
	Min	5.0	8.6	8.6	10.8	14.2	-	-	-	-	-	-	9.4	-	10.7
Relative Humidity	Max	93	93	93	93	-	-	-	-	-	-	-	93	-	-
	Min	21	37	54	77	-	-	-	-	-	-	-	47	-	-
Soil Temperature at 10 cm	06 UTC	13.8	14.0	15.0	18.0	17.0	-	-	-	-	-	-	15.6	-	15.1
	12 UTC	19.0	18.0	20.0	20.0	19.6	-	-	-	-	-	-	19.3	-	19.4
Sunshine Duration		9.2	7.9	5.8	1.1	-	-	-	-	-	-	-	6.0	-	5.5
Precipitation					14.4	-	-	-	-	-	-	-	-	-	33.2
Evaporation		2.4	2.0	1.0	0.6	-	-	-	-	-	-	-	-	-	23.6
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	-	124.9
	10	-	-	-	-	-	-	-	-	-	-	-	-	-	69.9

3rd 10-day period (21-31/10/2009)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	16.9
Precipitation - Reference Evapotranspiration	-	16.3
Number of Rainy Days	-	3.2
Number of Dry Days	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

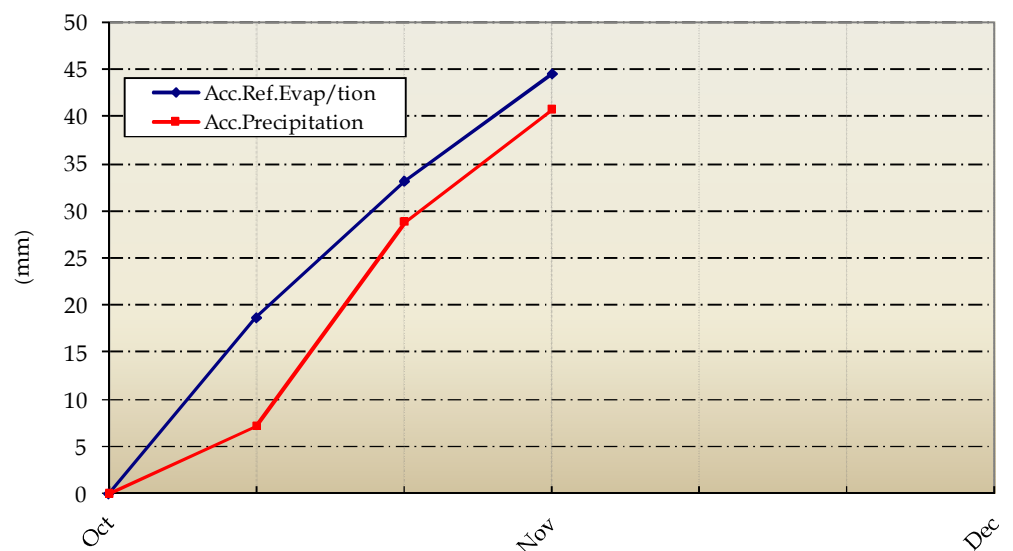


Series

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	21.8	22.2	22.2	19.6	23.6	21.4	22.8	18.2	17.4	12.8	20.4	-	17.9
	Min	6.0	6.0	9.4	12.0	5.2	13.2	10.0	11.2	9.4	8.8	6.0	8.8	-	7.4
Relative Humidity	Max	89	95	95	94	93	93	93	70	90	87	83	89	-	-
	Min	30	54	54	57	79	52	57	34	52	52	58	53	-	-
Soil Temperature at 10 cm	06 UTC	14.4	13.4	15.4	15.4	16.2	16.2	15.6	16.6	15.0	14.4	13.8	15.1	-	12.5
	12 UTC	16.2	16.6	-	-	-	-	17.4	17.6	16.2	16.0	14.4	16.3	-	14.4
Sunshine Duration		7.5	5.2	5.2	1.5	0.3	4.8	4.5	6.6	1.8	0.2	0.5	3.5	-	4.4
Precipitation					6.7		0.3					5.0	12.0	-	15.3
Evaporation		1.0	2.8	2.8	0.3	1.0	1.7	3.0	1.6	6.4	1.4	0.4	22.4	-	21.7
Growing Degrees	5	9.1	8.9	10.8	12.1	7.4	13.4	10.7	12.0	8.8	8.1	4.4	105.7	-	83.5
	10	4.1	3.9	5.8	7.1	2.4	8.4	5.7	7.0	3.8	3.1	0.0	51.3	-	33.5

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.4	-	12.0
Precipitation - Reference Evapotranspiration	0.6	-	3.3
Number of Rainy Days	3.0	-	2.7
Number of Dry Days	5.0	-	-

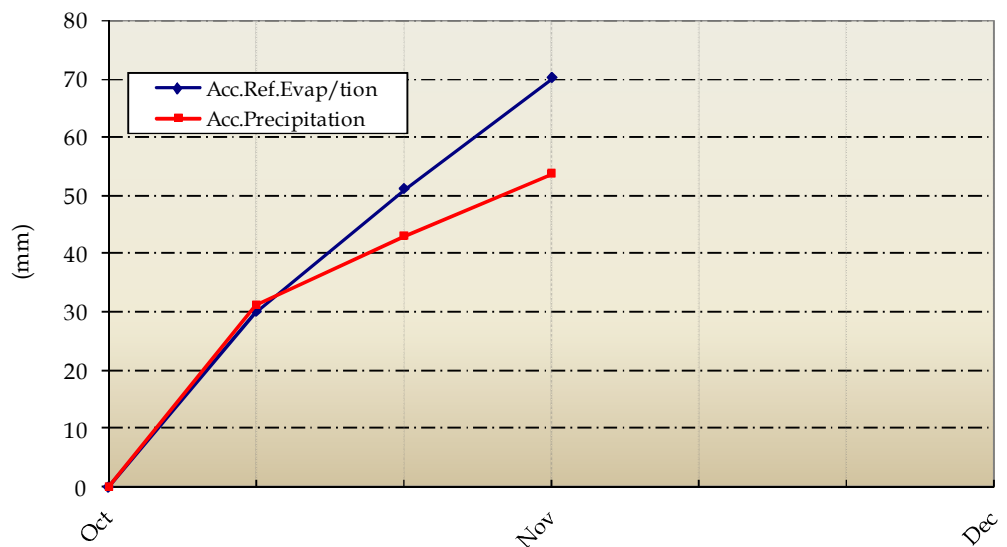
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.4	22.2	20.2	21.6	20.0	22.4	22.0	21.6	20.0	17.0	15.0	20.5	-	18.6
	Min	6.6	6.4	13.6	14.8	15.6	16.0	15.8	11.4	7.4	8.0	7.4	11.2	-	8.5
Relative Humidity	Max	97	95	95	98	98	95	93	96	95	95	85	95	-	-
	Min	27	43	62	62	70	51	52	33	36	42	36	47	-	-
Soil Temperature at 10 cm	06 UTC	14.2	14.0	16.2	16.8	17.0	16.8	17.4	17.0	14.2	13.8	13.6	15.5	-	14.5
	12 UTC	17.0	17.0	17.8	18.0	17.6	17.4	19.0	-	16.4	15.2	15.6	17.1	-	15.1
Sunshine Duration		9.4	5.9	0.3	3.3	0.5	3.0	0.2	8.7	5.1	0.0	7.6	4.0	-	4.4
Precipitation					5.8	4.8	0.1						10.7	-	26.8
Evaporation		3.2	0.6	4.8	5.4	2.1	1.5	3.5	1.4	2.4	1.8	2.4	29.1	-	19.2
Growing Degrees	5	10.0	9.3	11.9	13.2	12.8	14.2	13.9	11.5	8.7	7.5	6.2	119.2	-	94.6
	10	5.0	4.3	6.9	8.2	7.8	9.2	8.9	6.5	3.7	2.5	1.2	64.2	-	42.5

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.0	-	14.2
Precipitation - Reference Evapotranspiration	-8.3	-	12.6
Number of Rainy Days	3.0	-	3.5
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

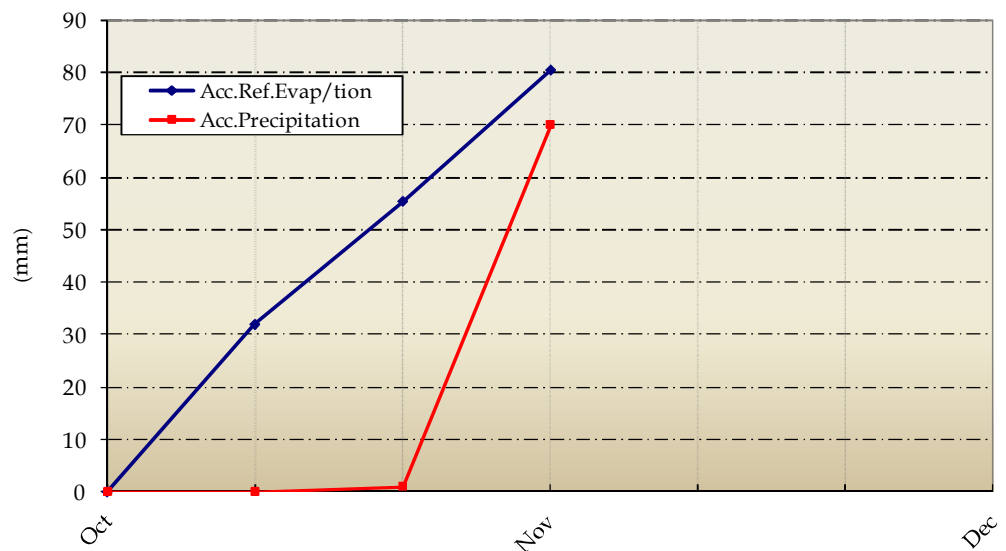


Tympaki

3rd 10-day period (21-31/10/2009)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.8	25.0	25.2	25.0	25.0	23.0	24.0	23.6	22.2	22.6	22.6	23.8	-	23.2
	Min	18.2	12.4	14.4	15.0	14.0	16.8	15.8	15.4	16.6	11.6	15.0	15.0	-	13.7
Relative Humidity	Max	61	75	96	100	100	100	100	100	98	90	93	92	-	-
	Min	25	29	47	61	46	50	43	26	39	38	46	41	-	-
Soil Temperature at 10 cm	06 UTC	22.0	19.2	20.0	21.2	21.0	19.0	18.2	18.4	19.2	16.6	17.6	19.3	-	19.8
	12 UTC	25.2	24.6	25.6	25.0	21.8	20.6	23.2	-	21.6	20.4	20.2	22.8	-	23.3
Sunshine Duration		8.3	8.2	7.8	4.2	0.9	0.0	8.3	5.7	7.9	5.1	2.8	5.4	-	6.9
Precipitation					2.1	14.2	25.2	20.0		6.6		1.0	69.1	-	20.5
Evaporation		13.8	5.4	4.5	2.6	6.5	4.3	2.3	2.9	10.6	4.3	4.2	61.4	-	51.4
Growing Degrees	5	16.0	13.7	14.8	15.0	14.5	14.9	14.9	14.5	14.4	12.1	13.8	158.6	-	148.0
	10	11.0	8.7	9.8	10.0	9.5	9.9	9.9	9.5	9.4	7.1	8.8	103.6	-	93.0

3rd 10-day period (21-31/10/2009)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	25.1	-	27.1
Precipitation - Reference Evapotranspiration	44.0	-	-6.6
Number of Rainy Days	6.0	-	2.3
Number of Dry Days	6.0	-	-

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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The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens (Professor A. Liakatas)