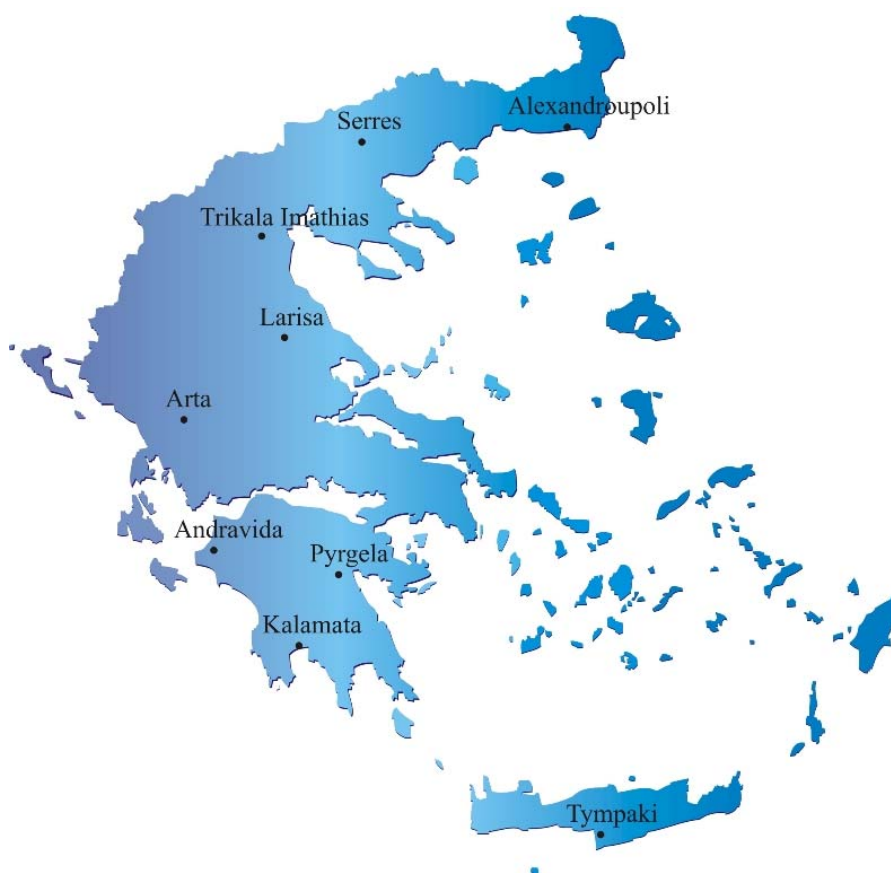


AGROMETEOROLOGICAL BULLETIN

January 2010
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



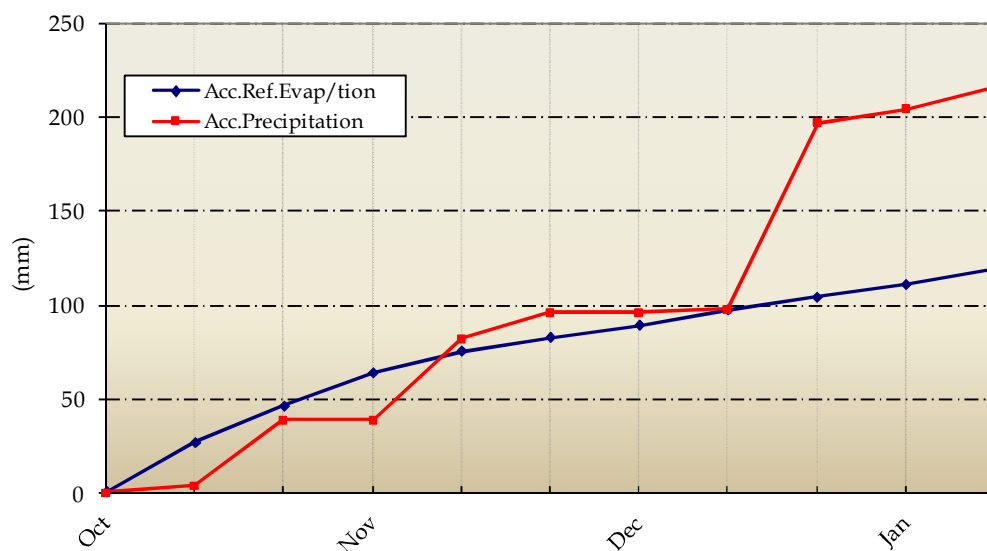
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.6	16.8	13.4	5.4	5.2	16.8	17.0	16.0	17.2	17.2	14.4	4.8	8.9
	Min	15.8	13.2	3.4	-0.8	-1.0	5.0	15.0	9.6	8.0	13.0	8.1	-0.7	1.5
Relative Humidity	Max	90	85	93	96	86	88	100	100	95	89	92	96	-
	Min	68	55	64	51	65	72	74	74	68	73	66	70	-
Soil Temperature at 10 cm	06 UTC	12.4	12.6	10.8	7.0	5.5	8.0	11.6	10.6	10.4	12.0	10.1	3.6	5.6
	12 UTC	13.8	12.8	11.4	7.6	6.0	10.0	12.5	11.8	11.6	13.0	11.0	3.7	6.6
Sunshine Duration		2.4	2.8	5.7	5.8	0.2	0.4	0.0	0.0	0.0	0.6	1.8	2.1	2.7
Precipitation				5.8	0.1	0.0	0.0				6.4	12.3	19.1	17.5
Evaporation		1.4	3.8	0.0	0.0	0.0	1.1	2.2	0.1	2.4	1.1	12.1	2.7	8.4
Growing Degrees	5	12.2	10.0	3.4	0.0	0.0	5.9	11.0	7.8	7.6	10.1	68.0	0.0	17.3
	10	7.2	5.0	0.0	0.0	0.0	0.9	6.0	2.8	2.6	5.1	29.6	0.0	2.8

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.3	5.7	7.7
Precipitation - Reference Evapotranspiration	4.0	13.4	9.8
Number of Rainy Days	3.0	7.0	2.8
Number of Dry Days	5.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

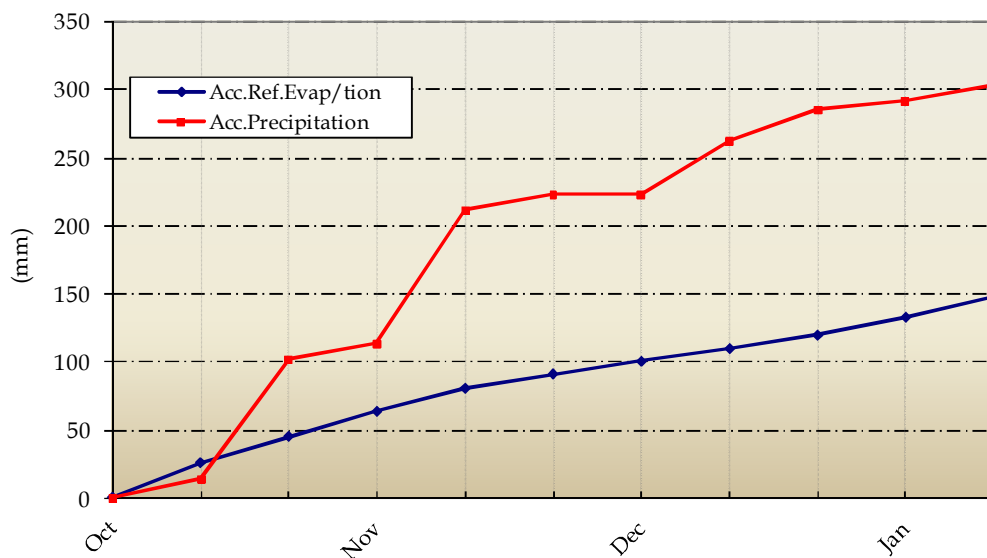


Andravida

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	16.4	14.6	12.4	18.0	18.0	18.4	20.4	20.0	15.6	17.4	13.5	13.8
	Min	12.8	13.8	11.0	6.0	9.0	14.6	11.8	7.8	12.0	7.4	10.6	7.3	5.4
Relative Humidity	Max	93	80	77	84	83	90	100	95	88	97	89	97	-
	Min	51	56	48	52	61	64	80	38	46	66	56	72	-
Soil Temperature at 10 cm	06 UTC	14.2	13.6	13.0	11.4	12.0	13.8	14.4	12.6	13.2	13.2	13.1	9.5	8.9
	12 UTC	15.8	15.8	13.8	12.8	13.4	13.6	14.6	14.2	14.0	13.8	14.2	10.7	10.3
Sunshine Duration		6.8	6.0	2.4	4.3	4.9	0.1	1.1	3.5	1.3	3.2	3.4	2.6	4.5
Precipitation			1.6	0.5						0.7	8.2	11.0	158.1	38.0
Evaporation		1.0	0.8	3.1	0.6	3.2	0.8	1.2	8.2	1.5	3.6	24.0	19.6	17.8
Growing Degrees	5	11.3	10.1	7.8	4.2	8.5	11.3	10.1	9.1	11.0	6.5	89.9	54.0	46.8
	10	6.3	5.1	2.8	0.0	3.5	6.3	5.1	4.1	6.0	1.5	40.7	8.4	10.2

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.1	7.4	9.2
Precipitation - Reference Evapotranspiration	-4.1	150.7	28.8
Number of Rainy Days	4.0	8.0	4.0
Number of Dry Days	4.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

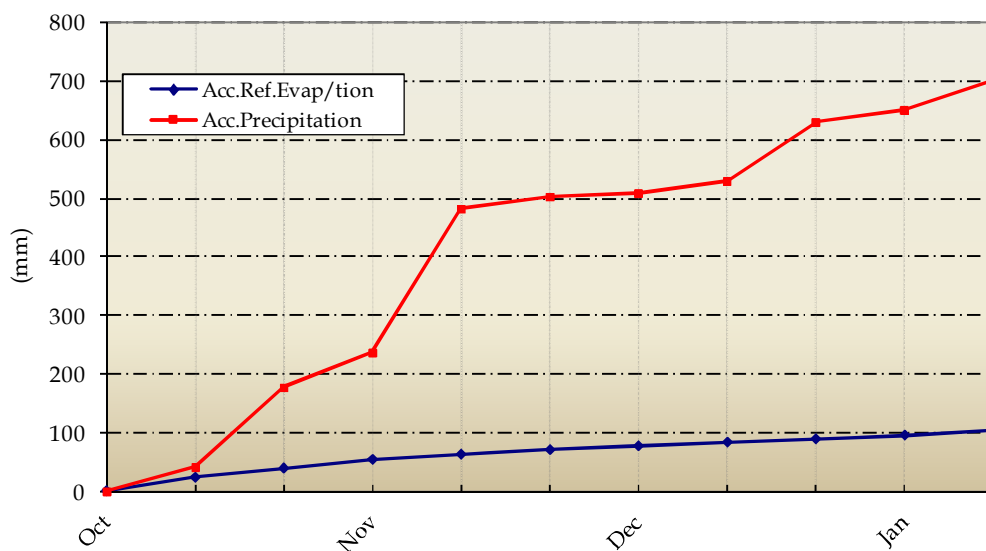


Arta

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.6	15.8	15.2	10.0	15.0	21.2	19.2	19.6	19.0	15.0	17.0	13.1	13.4
	Min	10.4	9.0	6.2	0.6	6.6	13.6	10.8	8.6	7.6	7.0	8.0	6.1	3.0
Relative Humidity	Max	81	97	97	98	100	99	98	97	89	98	95	90	-
	Min	63	45	30	42	64	61	69	34	58	61	53	57	-
Soil Temperature at 10 cm	06 UTC	12.4	12.6	11.2	8.4	9.8	11.0	11.6	10.8	10.8	11.4	11.0	8.2	7.2
	12 UTC	13.0	12.6	11.8	9.6	10.2	12.0	12.2	11.8	11.2	11.4	11.6	8.7	8.4
Sunshine Duration		3.6	1.5	5.6	0.4	0.0	1.5	0.6	0.7	0.0	0.9	1.5	2.1	4.1
Precipitation			13.1	7.5		3.2				3.7	23.6	51.1	126.0	41.0
Evaporation		0.7	0.4	2.7	0.6	1.9	1.2	1.3	0.9	0.6	1.7	12.0	-	-
Growing Degrees	5	10.0	7.4	5.7	0.3	5.8	12.4	10.0	9.1	8.3	6.0	75.0	-	34.8
	10	5.0	2.4	0.7	0.0	0.8	7.4	5.0	4.1	3.3	1.0	29.7	-	5.2

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.8	5.2	6.3
Precipitation - Reference Evapotranspiration	43.3	120.8	34.7
Number of Rainy Days	5.0	6.0	3.6
Number of Dry Days	1.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

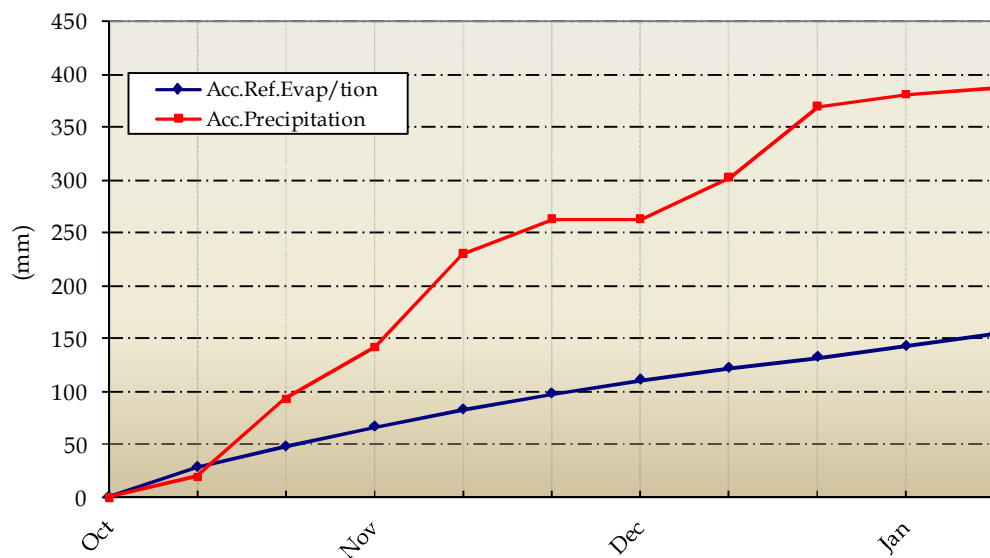


Kalamata

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	17.2	15.6	13.0	17.4	18.2	18.6	18.6	18.6	16.4	17.4	14.6	14.7
	Min	7.8	11.0	6.4	2.8	6.6	15.4	12.6	8.0	11.0	6.8	8.8	7.3	5.3
Relative Humidity	Max	100	95	97	91	89	85	95	97	90	94	93	96	-
	Min	63	53	55	47	69	66	79	65	69	60	63	70	-
Soil Temperature at 10 cm	06 UTC	13.0	13.0	12.4	11.2	11.4	13.4	13.6	13.4	14.0	14.0	12.9	10.2	9.3
	12 UTC	13.8	13.4	12.8	11.4	12.4	13.8	14.4	14.0	14.4	13.8	13.4	10.7	10.4
Sunshine Duration		7.3	6.6	2.8	4.0	2.2	0.3	4.8	3.5	0.0	3.3	3.5	2.9	4.5
Precipitation			1.3	0.2		0.1					4.6	6.2	100.8	30.6
Evaporation		0.9	1.2	2.2	1.8	1.5	0.4	0.5	2.3	0.4	1.0	12.2	16.1	22.0
Growing Degrees	5	9.2	9.1	6.0	2.9	7.0	11.8	10.6	8.3	9.8	6.6	81.3	59.8	49.2
	10	4.2	4.1	1.0	0.0	2.0	6.8	5.6	3.3	4.8	1.6	33.4	15.4	10.6

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.2	7.8	11.0
Precipitation - Reference Evapotranspiration	-6.0	93.0	19.6
Number of Rainy Days	4.0	5.0	4.0
Number of Dry Days	4.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

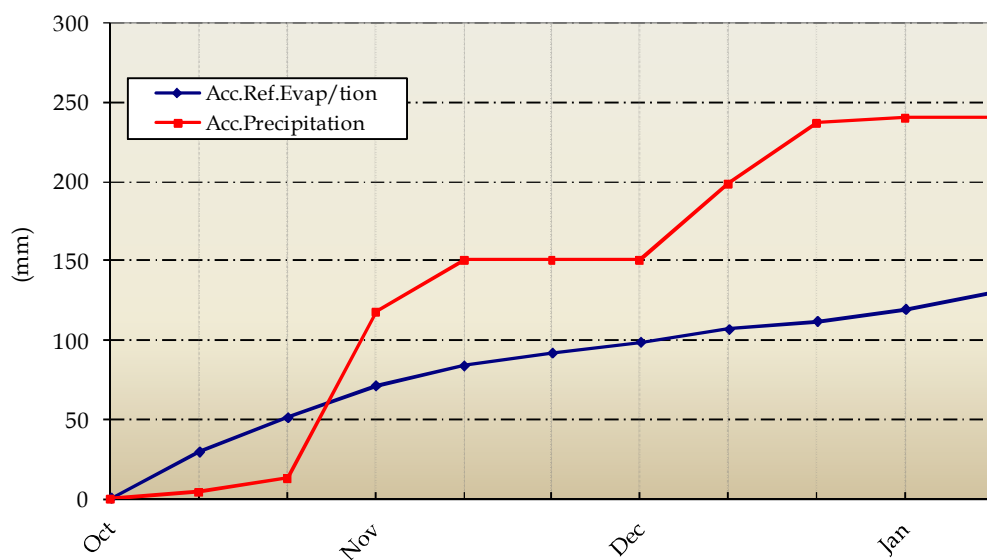


Larisa

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	16.0	14.6	9.0	6.2	17.8	20.6	14.4	18.2	14.8	15.2	6.3	9.7
	Min	5.2	7.4	7.0	1.0	3.6	0.0	4.4	6.0	4.8	7.4	4.7	1.1	0.5
Relative Humidity	Max	97	87	77	73	93	100	97	94	100	81	90	98	-
	Min	32	52	40	44	67	56	49	69	62	42	51	80	-
Soil Temperature at 10 cm	06 UTC	8.8	9.8	9.4	7.8	8.0	7.2	8.2	8.8	5.2	9.6	8.3	5.4	5.3
	12 UTC	10.0	10.2	10.0	8.2	8.0	8.0	9.4	9.8	9.6	10.0	9.3	5.6	5.9
Sunshine Duration		7.5	6.6	7.3	2.4	0.0	6.8	6.8	0.0	5.0	3.5	4.6	0.8	3.9
Precipitation													22.8	11.6
Evaporation		3.7	2.7	2.9	1.3	0.1	1.1	1.1	0.7	1.2	1.2	16.0	7.3	5.2
Growing Degrees	5	8.0	6.7	5.8	0.0	0.0	3.9	7.5	5.2	6.5	6.1	49.7	2.5	13.7
	10	3.0	1.7	0.8	0.0	0.0	0.0	2.5	0.2	1.5	1.1	10.8	0.0	1.0

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.6	4.3	6.2
Precipitation - Reference Evapotranspiration	-10.6	18.5	5.4
Number of Rainy Days	0.0	8.0	2.5
Number of Dry Days	14.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

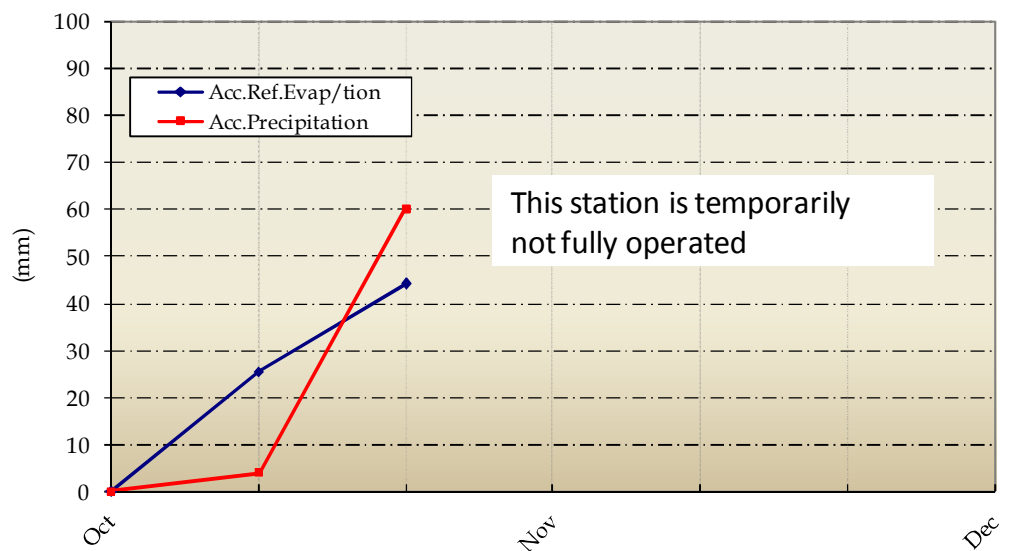


Pyrgela

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	12.6	14.9
	Min	-	-	-	-1.4	8.2	8.0	-	6.4	10.8	10.0	7.0	3.9	3.1
Relative Humidity	Max	-	-	-	92	91	92	59	94	92	45	81	94	-
	Min	-	-	-	25	71	30	54	68	72	30	50	73	-
Soil Temperature at 10 cm	06 UTC	-	-	-	7.4	10.0	10.0	13.0	10.4	11.8	12.0	10.7	7.7	6.8
	12 UTC	-	-	-	10.2	11.6	13.6	14.4	13.4	14.0	13.4	12.9	9.0	9.9
Sunshine Duration		-	-	-	3.9	0.9	6.1	5.1	1.2	0.2	5.8	3.3	2.1	4.5
Precipitation		-	-	-	-	0.0	-	-	-	-	-	-	19.9	22.6
Evaporation		-	-	-	0.0	0.2	2.0	1.0	1.0	0.0	1.8	-	5.2	10.1
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	32.9	41.8
	10	-	-	-	-	-	-	-	-	-	-	-	1.2	7.2

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	6.0	7.5
Precipitation - Reference Evapotranspiration	-	13.9	15.1
Number of Rainy Days	-	5.0	3.2
Number of Dry Days	-	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

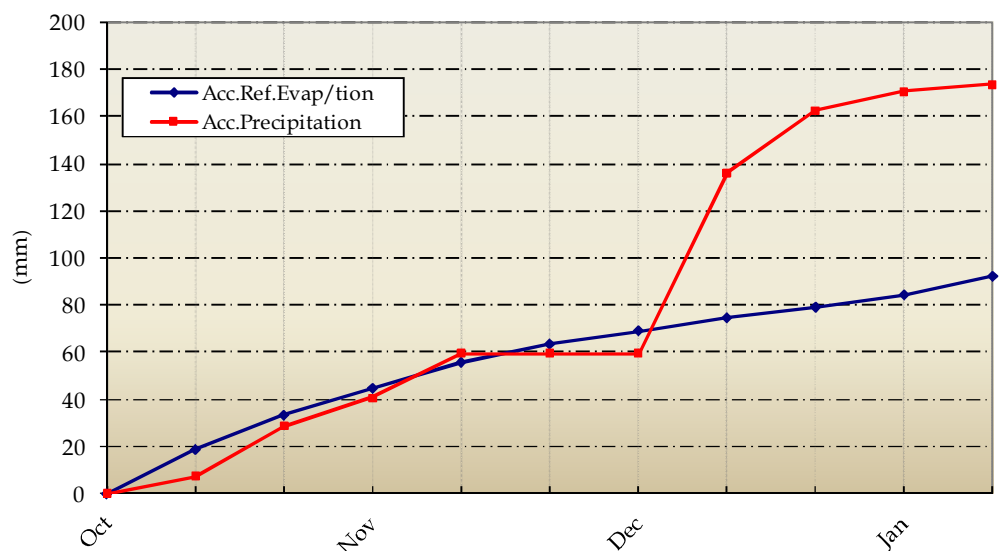


Series

1st 10-day period (1-10/01/2010)		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	13.4	7.6	2.8	11.2	17.8	16.0	18.6	17.6	13.2	3.1	7.6
	Min	2.4	5.0	5.8	-1.0	0.6	0.6	4.6	2.8	13.6	11.6	4.6	-1.9	-0.4
Relative Humidity	Max	94	78	76	58	92	93	97	94	80	93	86	94	-
	Min	81	43	45	27	64	68	64	65	59	46	56	74	-
Soil Temperature at 10 cm	06 UTC	7.2	7.2	7.2	5.2	5.0	5.0	7.4	7.4	9.6	10.6	7.2	3.1	3.6
	12 UTC	8.4	10.6	7.8	5.2	4.8	6.2	8.2	8.8	10.2	10.8	8.1	3.3	4.1
Sunshine Duration		0.0	1.3	4.6	4.9	0.0	3.2	4.0	0.0	4.0	3.0	2.5	0.8	3.4
Precipitation						3.0						3.0	23.3	10.6
Evaporation		0.7	0.3	0.0	2.4	0.0	0.3	0.3	1.0	1.8	1.0	7.8	-	5.2
Growing Degrees	5	1.9	5.5	4.6	0.0	0.0	0.9	6.2	4.4	11.1	9.6	44.2	0.0	7.5
	10	0.0	0.5	0.0	0.0	0.0	0.0	1.2	0.0	6.1	4.6	12.4	0.0	0.3

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.8	3.2	4.2
Precipitation - Reference Evapotranspiration	-4.8	20.1	6.4
Number of Rainy Days	1.0	6.0	2.4
Number of Dry Days	7.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

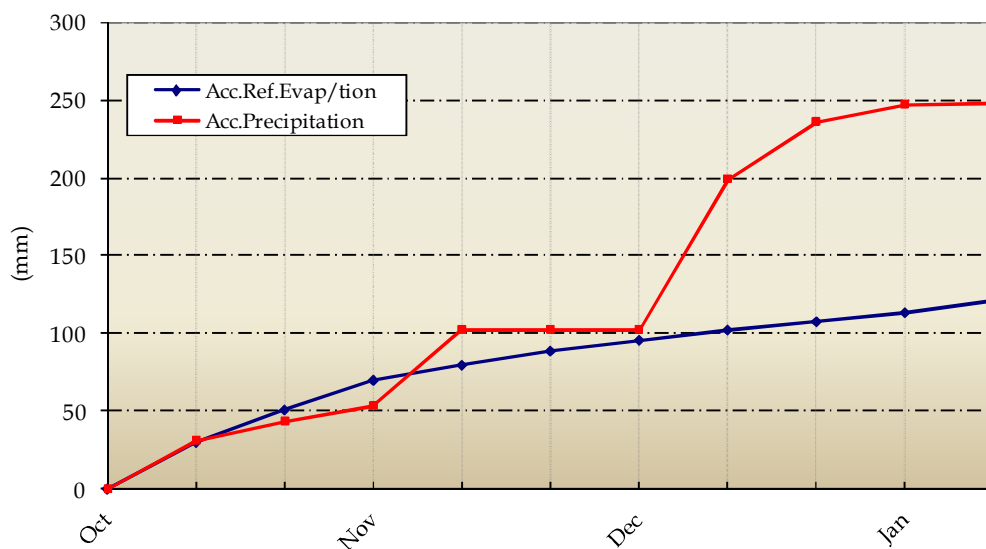


Trikala Imathias

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.2	16.0	11.4	7.0	3.4	12.4	18.2	12.4	18.0	17.0	13.6	5.4	9.1
	Min	8.0	9.6	4.4	-1.0	0.6	3.2	4.0	6.4	10.0	8.8	5.4	-0.6	0.5
Relative Humidity	Max	95	70	71	81	96	95	99	94	95	77	87	97	-
	Min	36	42	51	34	92	92	68	88	62	53	62	76	-
Soil Temperature at 10 cm	06 UTC	9.6	9.2	8.4	6.2	6.6	6.4	7.2	7.8	9.2	9.4	8.0	3.7	5.6
	12 UTC	10.2	10.2	9.6	7.2	6.0	7.0	8.4	8.4	10.0	9.6	8.7	3.6	5.7
Sunshine Duration		5.1	2.6	4.4	4.9	0.0	2.8	5.9	0.0	2.7	2.8	3.1	1.3	3.9
Precipitation				0.2		0.9				0.3	0.2	1.6	8.3	14.0
Evaporation		1.0	1.2	1.1	0.7	0.5	1.0	0.2	0.5	0.5	1.1	7.8	0.2	4.4
Growing Degrees	5	9.1	7.8	2.9	0.0	0.0	2.8	6.1	4.4	9.0	7.9	50.0	-	14.2
	10	4.1	2.8	0.0	0.0	0.0	0.0	1.1	0.0	4.0	2.9	14.9	-	0.8

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.5	4.9	5.7
Precipitation - Reference Evapotranspiration	-5.9	3.4	8.3
Number of Rainy Days	4.0	4.0	2.3
Number of Dry Days	5.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

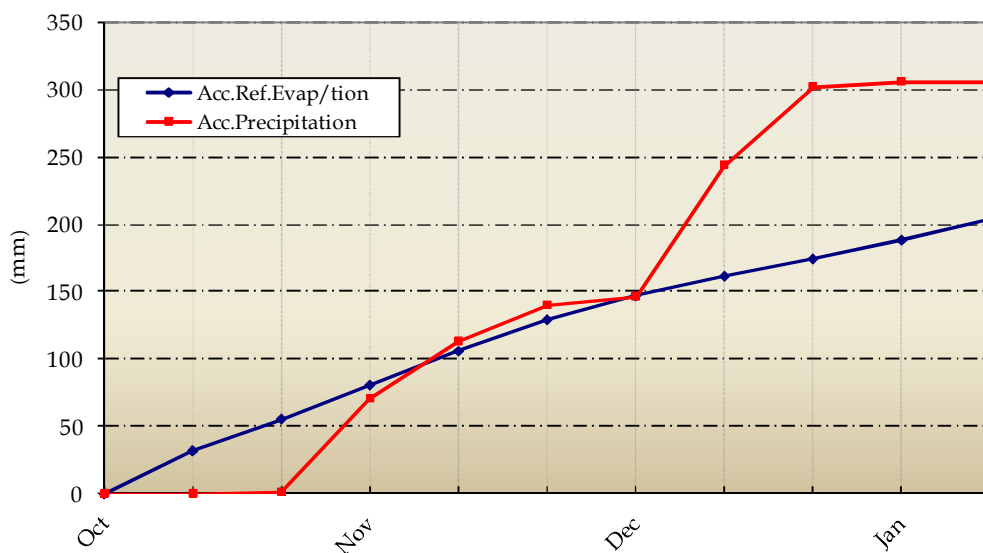


Tympaki

1st 10-day period (1-10/01/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	19.0	18.8	17.6	17.8	19.4	19.4	19.8	21.6	19.0	19.5	16.3	15.8
	Min	8.6	11.6	12.0	10.8	8.4	12.0	10.6	8.6	10.2	11.4	10.4	8.0	7.6
Relative Humidity	Max	99	100	76	91	98	98	100	100	98	100	96	93	-
	Min	39	51	49	41	50	61	69	60	49	41	51	56	-
Soil Temperature at 10 cm	06 UTC	13.2	14.6	14.2	13.6	12.6	14.2	13.8	12.8	13.0	14.0	13.6	10.5	11.5
	12 UTC	17.0	16.6	16.6	16.4	16.0	16.8	16.4	16.6	17.0	16.8	16.6	12.7	13.0
Sunshine Duration		6.3	5.9	4.6	6.4	5.4	3.5	1.7	4.4	6.1	3.7	4.8	3.3	4.5
Precipitation											0.1	0.1	54.6	35.1
Evaporation		1.5	5.9	5.3	3.5	1.9	1.7	1.2	1.5	1.9	4.5	28.9	18.6	26.2
Growing Degrees	5	10.6	10.3	10.4	9.2	8.1	10.7	10.0	9.2	10.9	10.2	99.6	71.6	67.0
	10	5.6	5.3	5.4	4.2	3.1	5.7	5.0	4.2	5.9	5.2	49.6	23.4	20.7

1st 10-day period (1-10/01/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.5	11.2	14.4
Precipitation - Reference Evapotranspiration	-15.4	43.4	20.7
Number of Rainy Days	1.0	4.0	3.9
Number of Dry Days	10.0	5.0	-

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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