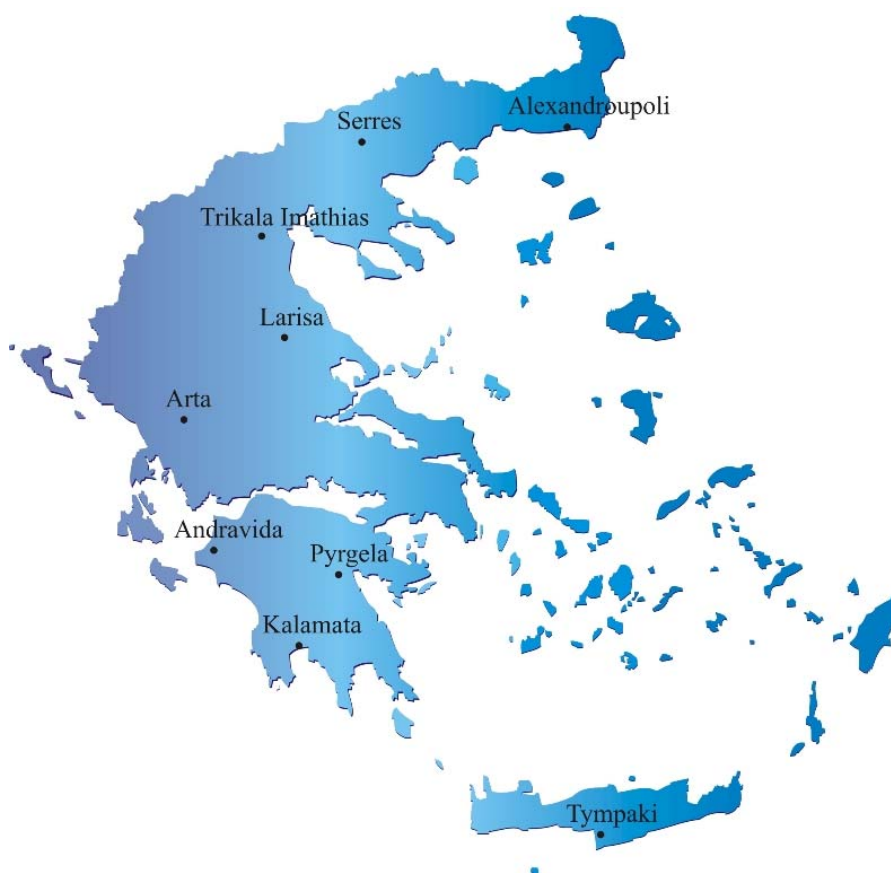


AGROMETEOROLOGICAL BULLETIN

February 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



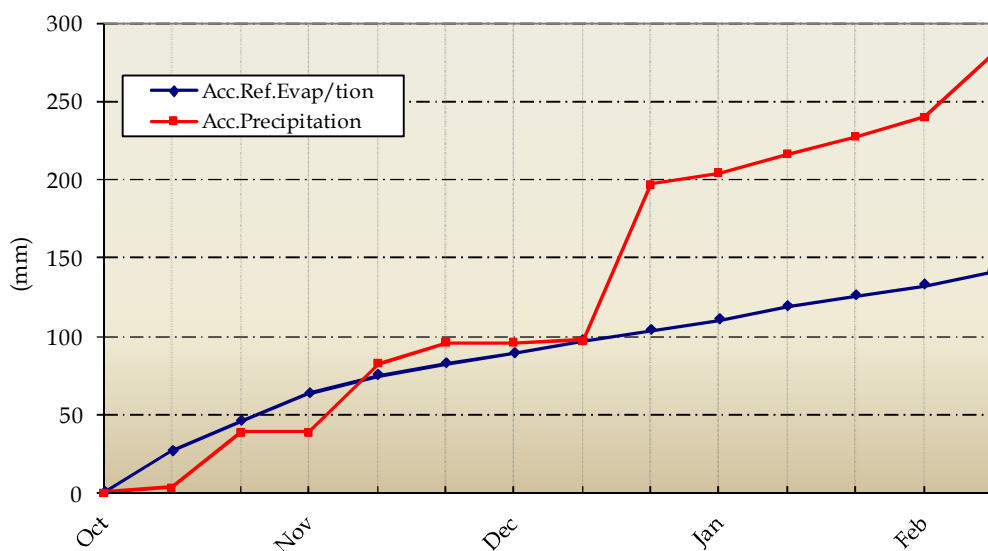
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	8.8	5.0	9.8	5.2	3.8	6.4	7.8	4.2	6.2	7.1	13.4	9.1
	Min	7.4	-1.0	-4.8	-2.8	-0.8	-1.6	2.6	2.6	-0.6	0.0	0.1	6.4	0.8
Relative Humidity	Max	95	92	95	92	89	89	97	97	93	97	94	91	-
	Min	68	55	46	44	54	67	80	84	65	78	64	67	-
Soil Temperature at 10 cm	06 UTC	6.4	5.5	2.4	1.0	2.0	1.6	3.8	4.4	3.0	2.4	3.2	8.8	5.3
	12 UTC	7.6	4.6	3.0	2.5	2.5	2.6	3.4	5.0	3.2	3.0	3.7	9.9	6.6
Sunshine Duration		0.9	0.0	9.0	6.3	9.0	0.0	0.0	0.0	3.2	0.0	2.8	3.6	3.9
Precipitation		3.0	0.0				0.0	18.0	10.4	0.0	9.0	40.4	3.6	19.4
Evaporation		0.7	0.0	0.0	0.0	3.5	3.3	1.7	0.4	0.0	2.9	12.5	11.3	11.6
Growing Degrees	5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	5.7	48.9	14.1
	10	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.9	1.4

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.4	10.2	10.9
Precipitation - Reference Evapotranspiration	32.0	-6.6	8.5
Number of Rainy Days	4.0	3.0	2.5
Number of Dry Days	0.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

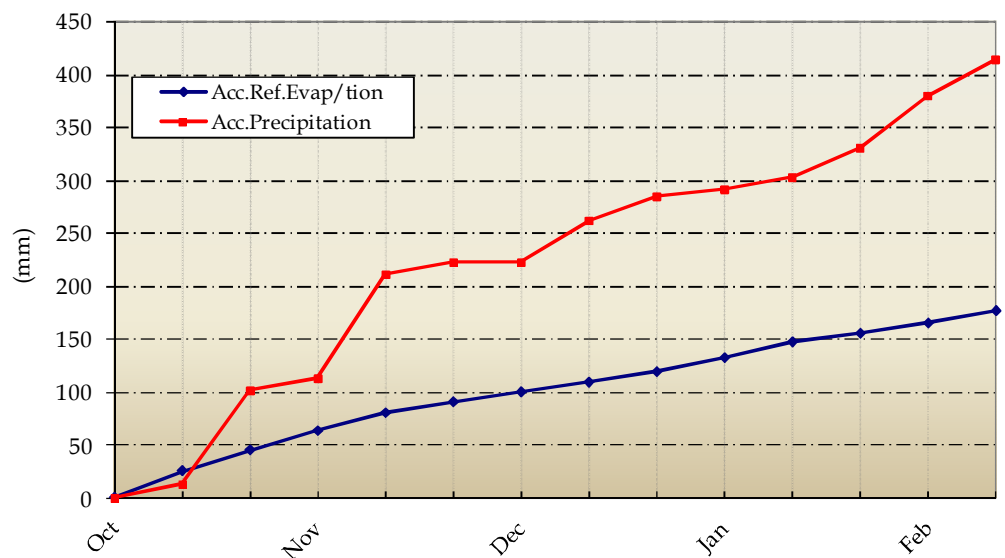


Andravida

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.6	11.0	9.4	12.6	15.0	14.2	12.4	13.0	12.6	17.2	13.3	16.6	14.0
	Min	10.0	7.2	0.6	1.0	3.4	7.6	8.0	5.2	3.6	8.0	5.5	9.1	4.8
Relative Humidity	Max	95	64	76	93	93	98	97	100	97	92	90	94	-
	Min	65	55	38	52	52	72	83	68	66	52	60	56	-
Soil Temperature at 10 cm	06 UTC	11.2	10.6	7.8	7.8	8.4	10.4	10.6	9.6	9.0	9.8	9.5	11.6	9.2
	12 UTC	11.4	11.2	9.2	10.2	11.0	10.8	10.4	11.4	10.2	10.8	10.7	13.1	10.9
Sunshine Duration		2.7	4.9	8.8	8.0	7.7	0.0	1.6	3.5	0.0	0.0	3.7	3.8	5.2
Precipitation		4.8	2.4				8.2	8.6	9.0	0.0	1.4	34.4	39.2	28.0
Evaporation		0.3	4.2	0.4	0.7	0.2	0.6	0.2	0.5	0.6	0.2	7.9	25.9	19.1
Growing Degrees	5	7.8	4.1	0.0	1.8	4.2	5.9	5.2	4.1	3.1	7.6	43.8	78.6	44.7
	10	2.8	0.0	0.0	0.0	0.0	0.9	0.2	0.0	0.0	2.6	6.5	28.7	7.9

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.7	14.7	12.4
Precipitation - Reference Evapotranspiration	22.7	24.5	15.6
Number of Rainy Days	6.0	5.0	4.1
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

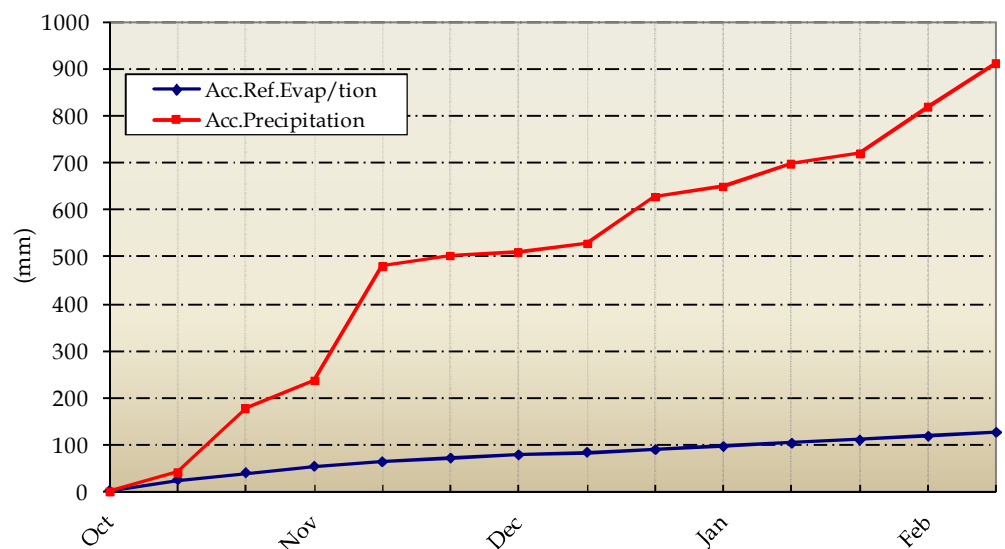




1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	12.6	10.6	14.4	16.0	11.2	10.4	14.4	13.0	11.6	12.8	16.8	14.2
	Min	8.6	4.8	-1.6	-2.4	0.2	6.4	5.6	2.2	2.6	7.4	3.4	7.0	3.1
Relative Humidity	Max	97	62	100	100	100	97	97	97	99	97	95	92	-
	Min	38	21	18	42	40	87	72	59	49	80	51	36	-
Soil Temperature at 10 cm	06 UTC	9.6	9.2	7.0	6.0	6.0	8.0	8.2	7.8	7.4	8.4	7.8	10.3	7.5
	12 UTC	9.8	9.2	7.4	6.8	7.2	8.4	8.6	8.2	8.2	8.6	8.2	10.8	9.1
Sunshine Duration		3.5	8.2	9.1	8.6	7.3	0.0	0.0	6.5	3.2	0.0	4.6	3.3	5.1
Precipitation		35.6					25.5	4.6		0.1	26.2	92.0	51.4	48.5
Evaporation		2.1	0.0	0.0	0.0	2.2	0.0	0.1	1.2	0.1	2.2	7.9	12.1	-
Growing Degrees	5	6.1	3.7	0.0	1.0	3.1	3.8	3.0	3.3	2.8	4.5	31.3	-	38.6
	10	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	-	4.8

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.0	9.9	10.0
Precipitation - Reference Evapotranspiration	83.0	41.5	38.5
Number of Rainy Days	5.0	8.0	3.7
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

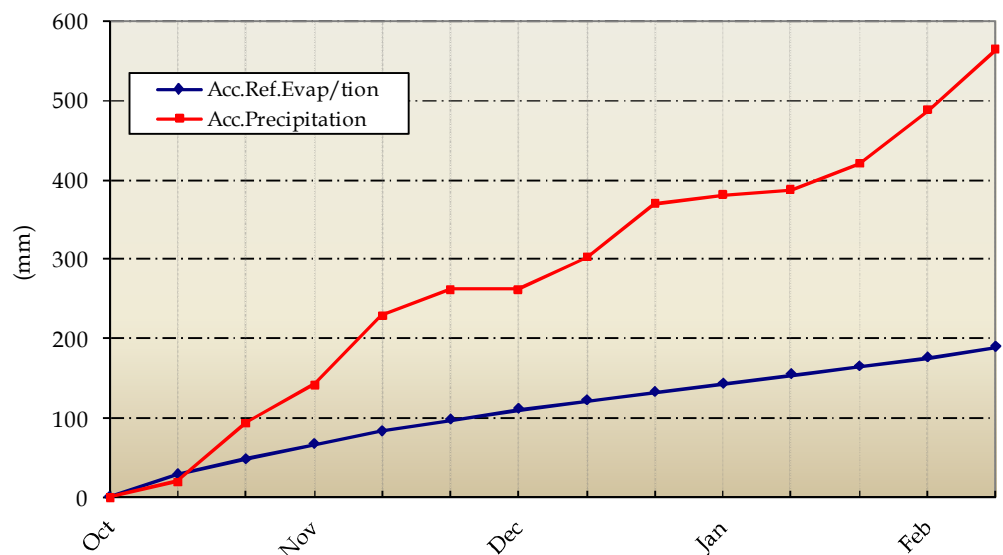


Kalamata

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	11.4	10.4	15.2	15.0	14.0	13.0	13.6	12.8	16.8	13.9	16.9	14.9
	Min	6.4	5.0	-0.6	-1.6	1.8	8.0	9.4	7.0	2.8	7.2	4.5	8.3	4.8
Relative Humidity	Max	97	95	85	92	93	98	95	97	97	95	94	96	-
	Min	58	50	24	44	50	71	74	62	61	70	56	56	-
Soil Temperature at 10 cm	06 UTC	11.2	11.4	9.2	7.6	8.4	10.0	10.6	10.4	10.2	10.4	9.9	11.5	9.7
	12 UTC	11.4	11.8	9.0	8.8	9.4	10.4	10.6	10.8	10.2	10.4	10.3	12.2	11.0
Sunshine Duration		4.1	6.3	9.0	8.4	7.8	0.4	1.1	4.4	0.9	0.0	4.2	4.3	5.1
Precipitation		16.8	16.5	0.9			8.1	19.7	11.7	0.2	2.5	76.4	30.3	28.3
Evaporation		3.4	0.3	0.0	0.0	1.9	0.1	1.0	1.3	1.0	0.0	9.0	37.8	24.5
Growing Degrees	5	6.7	3.2	0.0	1.8	3.4	6.0	6.2	5.3	2.8	7.0	42.4	76.0	48.9
	10	1.7	0.0	0.0	0.0	0.0	1.0	1.2	0.3	0.0	2.0	6.2	26.1	8.7

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.2	13.1	14.4
Precipitation - Reference Evapotranspiration	63.2	17.2	13.9
Number of Rainy Days	8.0	6.0	4.1
Number of Dry Days	0.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

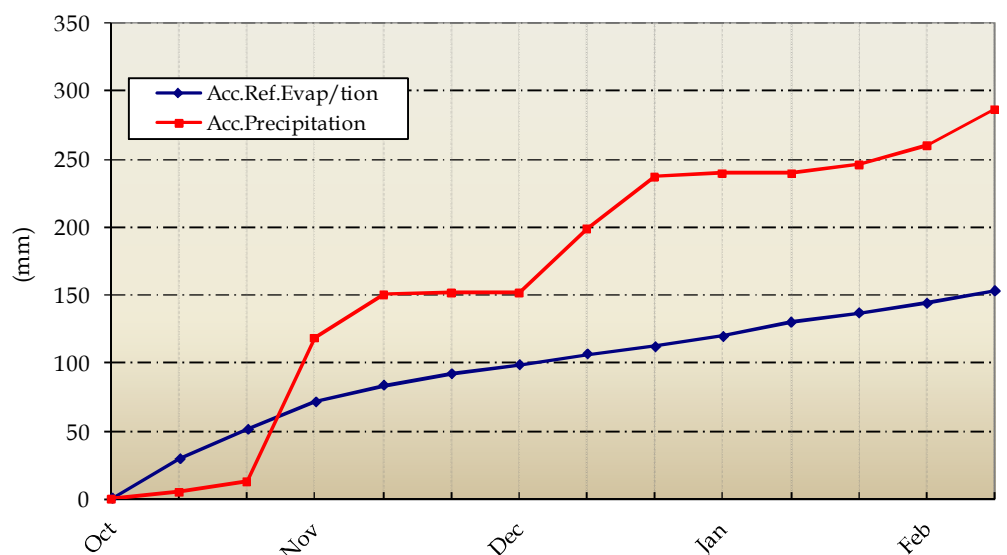


Larisa

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.0	8.2	6.8	12.0	12.0	12.0	8.0	9.4	8.6	7.6	9.7	14.0	11.2
	Min	3.6	2.0	-2.8	-4.6	-1.8	5.6	5.8	3.0	-1.0	5.6	1.5	5.1	0.4
Relative Humidity	Max	94	93	92	90	92	97	97	97	93	97	94	97	-
	Min	74	39	32	38	56	67	88	48	57	79	58	64	-
Soil Temperature at 10 cm	06 UTC	7.4	6.8	5.0	4.0	4.4	7.6	7.2	6.0	5.6	7.2	6.1	8.9	6.1
	12 UTC	7.6	8.0	5.4	5.0	5.6	7.2	7.4	6.4	6.4	7.4	6.6	9.4	6.8
Sunshine Duration		2.4	5.9	8.3	8.3	7.0	0.5	0.0	3.4	5.2	0.0	4.1	3.6	4.3
Precipitation		4.3					4.5	11.0	1.1		6.1	27.0	8.6	9.7
Evaporation		1.9	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.0	1.2	3.9	16.0	6.9
Growing Degrees	5	2.8	0.1	0.0	0.0	0.1	3.8	1.9	1.2	0.0	1.6	11.5	45.8	16.7
	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	0.7

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.1	11.3	9.6
Precipitation - Reference Evapotranspiration	17.9	-2.7	0.1
Number of Rainy Days	5.0	4.0	2.8
Number of Dry Days	0.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

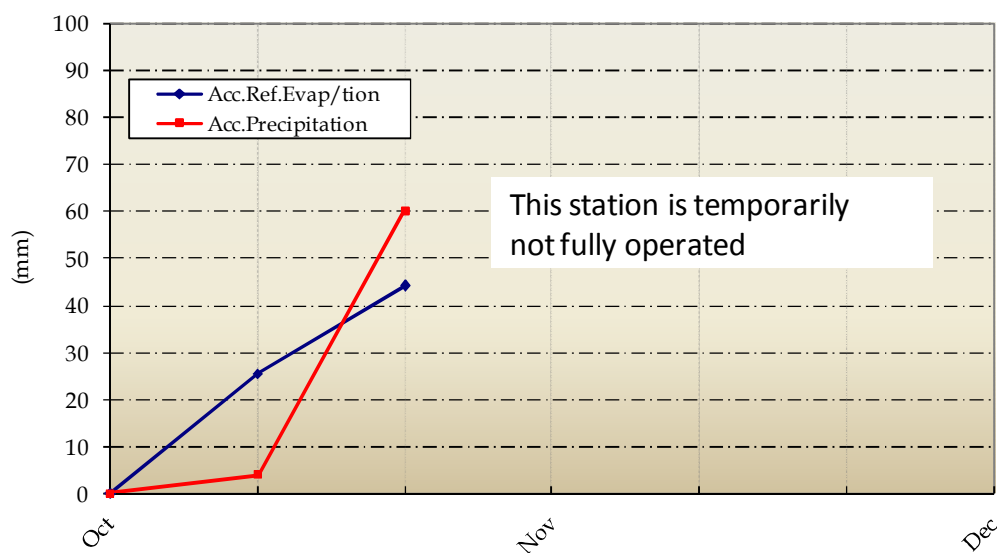


Pyrgela

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	17.8	14.3
	Min	-	-	-2.0	-4.0	-1.0	7.0	8.0	3.8	-0.2	7.6	2.4	5.8	2.2
Relative Humidity	Max	-	92	87	92	92	91	92	93	93	94	92	94	-
	Min	-	25	31	24	30	76	89	41	61	92	52	56	-
Soil Temperature at 10 cm	06 UTC	-	-	4.8	3.8	5.6	9.0	9.0	7.2	7.4	9.0	7.0	10.0	6.7
	12 UTC	-	11.4	8.0	8.4	9.0	10.8	10.0	11.4	9.4	10.0	9.8	12.0	10.9
Sunshine Duration		-	7.0	7.8	7.7	7.0	0.3	0.0	5.7	1.2	0.0	4.1	4.8	4.8
Precipitation		-	-				3.2	8.3	0.4	0.6	17.2	-	36.5	14.9
Evaporation		-	0.8	0.8	2.4	1.0	0.3	0.0	1.2	0.6	0.0	-	13.5	14.0
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	68.1	34.6
	10	-	-	-	-	-	-	-	-	-	-	-	22.0	3.9

1st 10-day period (1-10/02/2010)		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

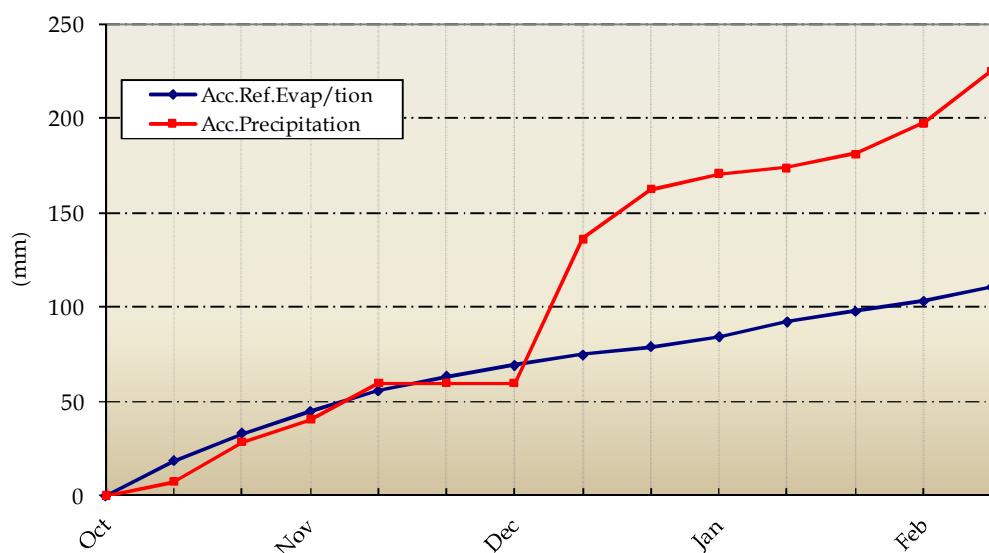


Series

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.6	7.0	6.2	13.2	9.6	4.6	6.2	5.0	7.8	5.0	7.6	14.6	9.9
	Min	4.6	0.2	-2.8	-4.4	0.8	2.0	2.0	0.8	-3.2	1.0	0.1	4.9	0.5
Relative Humidity	Max	91	86	74	82	86	97	100	96	91	97	90	85	-
	Min	56	41	31	35	-	93	85	82	55	87	63	55	-
Soil Temperature at 10 cm	06 UTC	5.0	4.6	3.4	2.6	3.2	4.2	4.4	4.8	1.4	5.0	3.9	8.3	4.6
	12 UTC	5.4	4.6	4.6	2.6	3.4	4.2	5.0	5.2	4.2	5.0	4.4	8.9	5.8
Sunshine Duration		0.7	1.8	7.3	7.2	0.0	0.0	0.0	0.0	6.0	0.0	2.3	4.1	4.2
Precipitation		1.7				0.0	9.2	3.6	8.1		5.1	27.7	1.0	11.0
Evaporation		0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.8	5.2	4.7
Growing Degrees	5	3.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	3.3	47.7	12.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.4

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.6	8.9	7.7
Precipitation - Reference Evapotranspiration	20.1	-7.9	3.3
Number of Rainy Days	5.0	1.0	2.4
Number of Dry Days	0.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

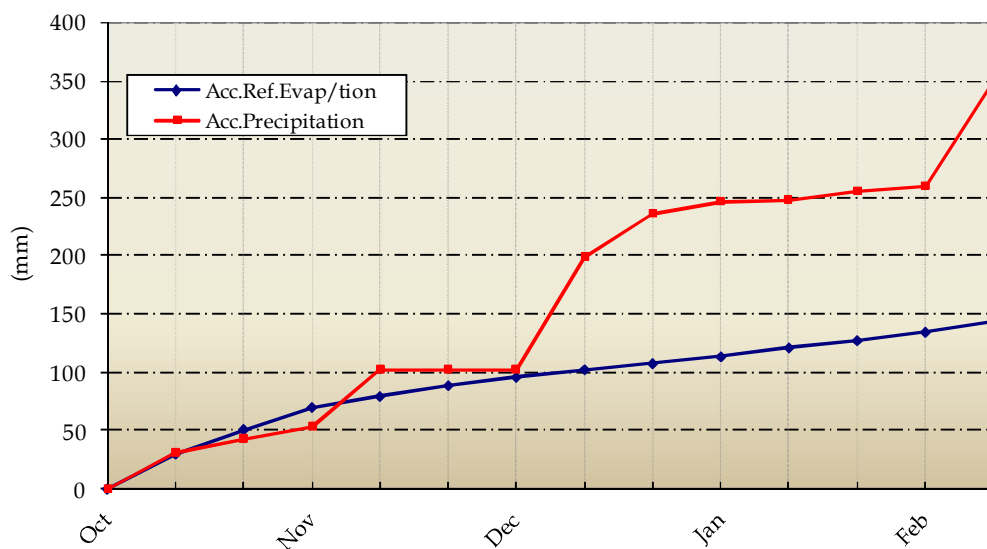


Trikala Imathias

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	6.4	8.2	13.4	7.0	5.6	5.4	6.4	7.6	5.8	7.9	13.6	10.6
	Min	6.0	0.6	-3.4	-3.6	-1.2	3.2	3.2	1.0	-2.0	2.4	0.6	4.7	0.7
Relative Humidity	Max	91	70	72	95	94	98	100	85	88	94	89	96	-
	Min	35	26	23	25	71	93	90	56	44	91	55	60	-
Soil Temperature at 10 cm	06 UTC	6.8	5.4	4.0	3.4	4.2	5.4	5.6	5.4	4.0	5.2	4.9	8.0	6.0
	12 UTC	7.2	5.4	4.8	4.2	4.4	5.4	5.8	5.6	5.2	5.4	5.3	9.0	6.1
Sunshine Duration		2.4	5.9	7.7	9.2	1.4	0.0	0.0	5.1	7.8	0.0	4.0	4.5	4.6
Precipitation						1.0	24.2	16.6	9.3		39.1	90.2	11.8	15.2
Evaporation		0.7	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.4	2.2	-	7.0
Growing Degrees	5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	-	16.6
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.4

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.1	9.7	9.5
Precipitation - Reference Evapotranspiration	81.1	2.1	5.7
Number of Rainy Days	5.0	3.0	2.6
Number of Dry Days	6.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

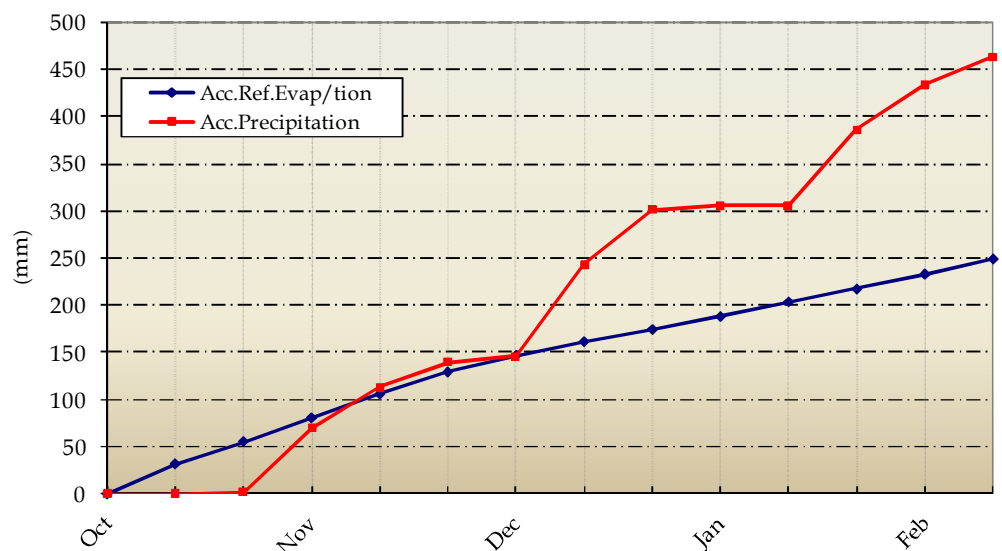


Tympaki

1st 10-day period (1-10/02/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	16.8	10.8	14.0	15.6	15.2	15.2	15.8	15.2	19.8	15.6	17.9	15.4
	Min	7.4	8.4	7.8	1.2	3.2	4.6	10.4	9.2	6.6	9.4	6.8	9.3	6.8
Relative Humidity	Max	100	99	72	92	96	100	100	97	97	89	94	93	-
	Min	64	30	39	39	37	52	66	56	52	45	48	50	-
Soil Temperature at 10 cm	06 UTC	11.4	11.8	10.0	7.0	7.6	8.6	11.6	10.6	10.2	11.6	10.0	12.1	10.8
	12 UTC	14.4	13.8	11.0	11.2	12.0	12.4	12.2	12.6	13.0	13.8	12.6	14.7	12.9
Sunshine Duration		5.0	3.3	4.4	8.0	8.3	3.4	0.0	3.4	2.8	0.0	3.9	3.5	5.7
Precipitation		2.9						10.4	14.3	1.1		28.7	7.4	25.1
Evaporation		2.3	5.4	3.7	3.1	2.6	0.6	1.6	2.0	2.0	3.0	26.3	24.4	29.6
Growing Degrees	5	7.6	7.6	4.3	2.6	4.4	4.9	7.8	7.5	5.9	9.6	62.2	85.9	61.0
	10	2.6	2.6	0.0	0.0	0.0	0.0	2.8	2.5	0.9	4.6	16.0	35.9	15.3

1st 10-day period (1-10/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.9	15.9	17.0
Precipitation - Reference Evapotranspiration	12.8	-8.5	8.1
Number of Rainy Days	4.0	3.0	3.3
Number of Dry Days	0.0	7.0	-

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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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Division of Climatology-Applications

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