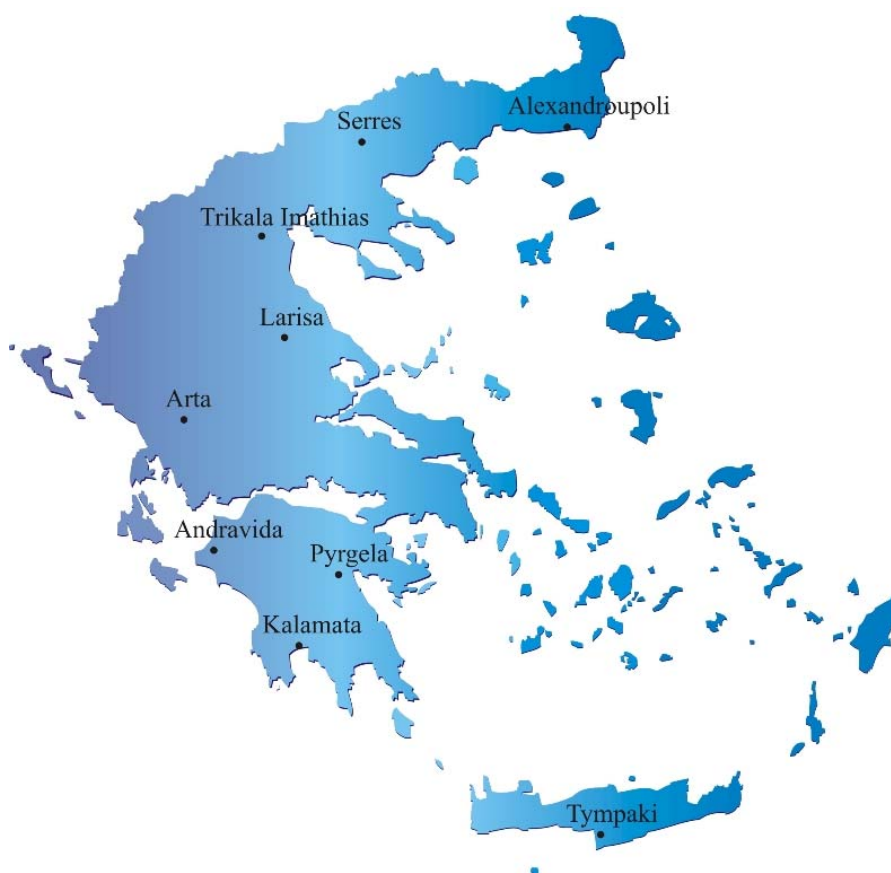


AGROMETEOROLOGICAL BULLETIN

May 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



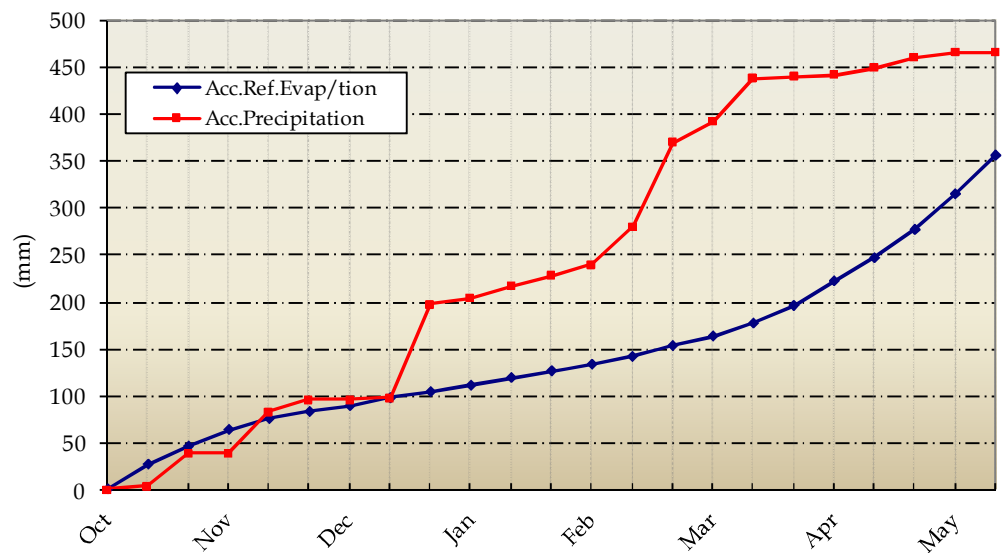
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.8	21.8	24.4	26.2	24.6	26.0	22.6	24.6	24.4	23.6	24.1	20.1	20.6
	Min	6.2	6.8	9.6	9.6	10.4	13.4	11.4	12.4	15.0	11.2	10.6	9.8	9.7
Relative Humidity	Max	77	77	82	84	83	84	83	80	83	90	82	89	-
	Min	23	33	27	30	35	35	50	39	47	40	36	51	-
Soil Temperature at 10 cm	06 UTC	15.4	15.8	17.0	17.6	18.4	19.4	19.4	19.5	20.8	20.2	18.4	15.5	15.1
	12 UTC	19.0	18.8	19.0	21.2	21.6	22.0	22.6	21.0	21.6	23.0	21.0	18.2	19.2
Sunshine Duration		13.0	13.0	11.1	13.2	9.5	11.5	12.8	4.8	9.2	13.5	11.2	8.9	8.0
Precipitation											0.1	0.1	24.9	9.3
Evaporation		4.4	8.7	3.3	5.8	6.2	8.3	5.2	3.5	10.1	5.0	60.5	-	55.4
Growing Degrees	5	9.5	9.3	12.0	12.9	12.5	14.7	12.0	13.5	14.7	12.4	123.5	-	101.5
	10	4.5	4.3	7.0	7.9	7.5	9.7	7.0	8.5	9.7	7.4	73.5	-	51.6

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.2	34.5	37.0
Precipitation - Reference Evapotranspiration	-41.1	-9.6	-27.7
Number of Rainy Days	1.0	2.0	2.2
Number of Dry Days	18.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

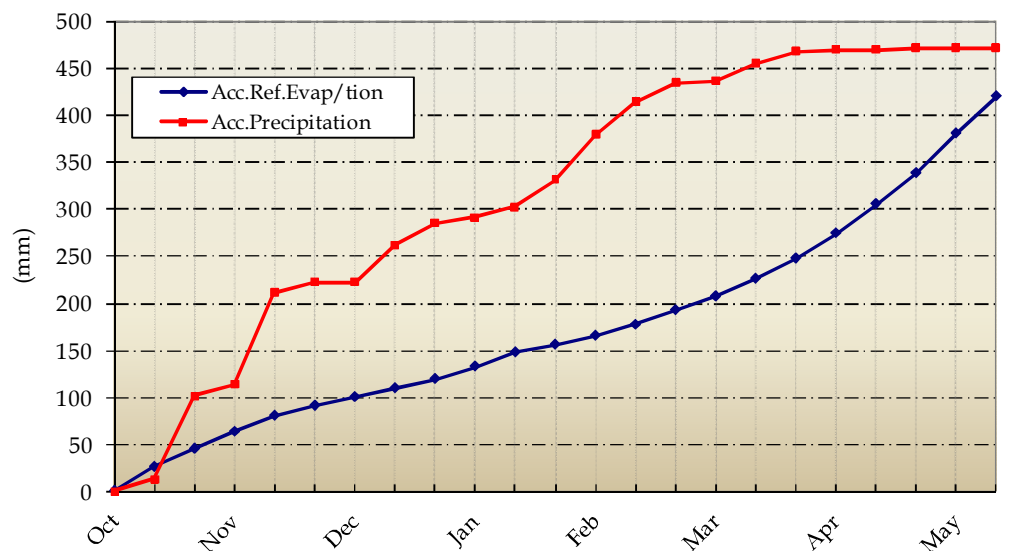


Andravida

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	22.4	23.4	26.2	27.0	26.4	22.4	25.6	23.0	24.8	24.4	20.6	22.2
	Min	10.0	10.8	11.2	9.6	12.6	16.8	11.8	14.2	10.8	13.6	12.1	11.2	11.6
Relative Humidity	Max	95	95	97	95	91	95	95	89	93	93	94	97	-
	Min	41	37	34	40	30	25	42	40	48	39	38	55	-
Soil Temperature at 10 cm	06 UTC	17.8	18.6	18.8	18.6	20.0	20.8	19.4	20.4	19.2	20.0	19.4	17.2	17.3
	12 UTC	26.4	27.2	27.4	28.0	26.0	24.8	26.6	25.0	26.8	27.8	26.6	22.4	21.1
Sunshine Duration		11.7	11.4	11.0	8.2	1.7	5.3	12.0	1.5	12.3	12.8	8.8	9.7	8.8
Precipitation														8.6
Evaporation		5.7	5.6	3.6	6.3	4.0	6.8	9.2	2.9	6.3	8.7	59.1	54.4	49.3
Growing Degrees	5	11.5	11.6	12.3	12.9	14.8	16.6	12.1	14.9	11.9	14.2	132.8	108.9	119.0
	10	6.5	6.6	7.3	7.9	9.8	11.6	7.1	9.9	6.9	9.2	82.8	58.9	69.0

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.7	36.1	35.8
Precipitation - Reference Evapotranspiration	-39.7	-36.1	-27.2
Number of Rainy Days	0.0	0.0	2.0
Number of Dry Days	21.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

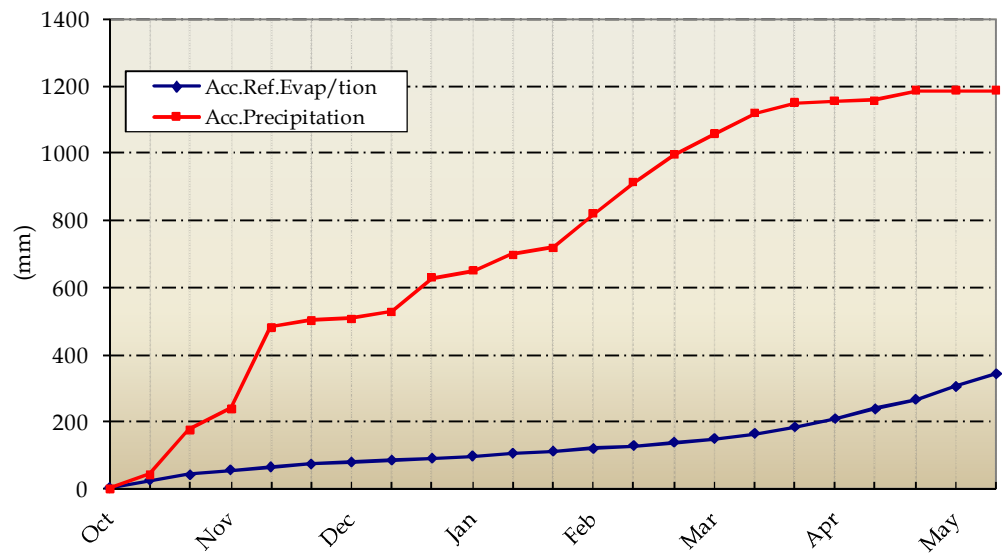


Arta

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.6	24.6	25.0	28.4	29.0	26.6	23.6	28.2	26.2	25.6	26.2	23.0	23.3
	Min	11.4	11.2	10.2	8.8	13.4	17.4	13.4	11.0	9.8	9.4	11.6	10.6	11.2
Relative Humidity	Max	89	100	84	100	73	70	90	100	100	100	91	97	-
	Min	57	32	44	30	46	43	34	25	33	36	38	38	-
Soil Temperature at 10 cm	06 UTC	18.0	18.4	18.0	18.0	19.0	20.0	19.4	19.2	18.8	19.0	18.8	16.2	17.0
	12 UTC	20.4	21.6	21.4	21.6	21.0	21.6	21.0	21.8	22.2	21.0	21.4	18.4	21.5
Sunshine Duration		11.7	12.1	12.1	8.4	1.4	6.0	12.7	5.7	12.2	12.2	9.4	8.2	7.6
Precipitation													6.2	19.0
Evaporation		4.1	6.5	4.3	5.3	2.7	4.0	6.1	5.2	6.3	6.1	50.6	-	-
Growing Degrees	5	13.0	12.9	12.6	13.6	16.2	17.0	13.5	14.6	13.0	12.5	138.9	-	122.7
	10	8.0	7.9	7.6	8.6	11.2	12.0	8.5	9.6	8.0	7.5	88.9	-	72.7

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.4	35.1	34.9
Precipitation - Reference Evapotranspiration	-38.4	-28.9	-15.9
Number of Rainy Days	0.0	3.0	3.2
Number of Dry Days	16.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

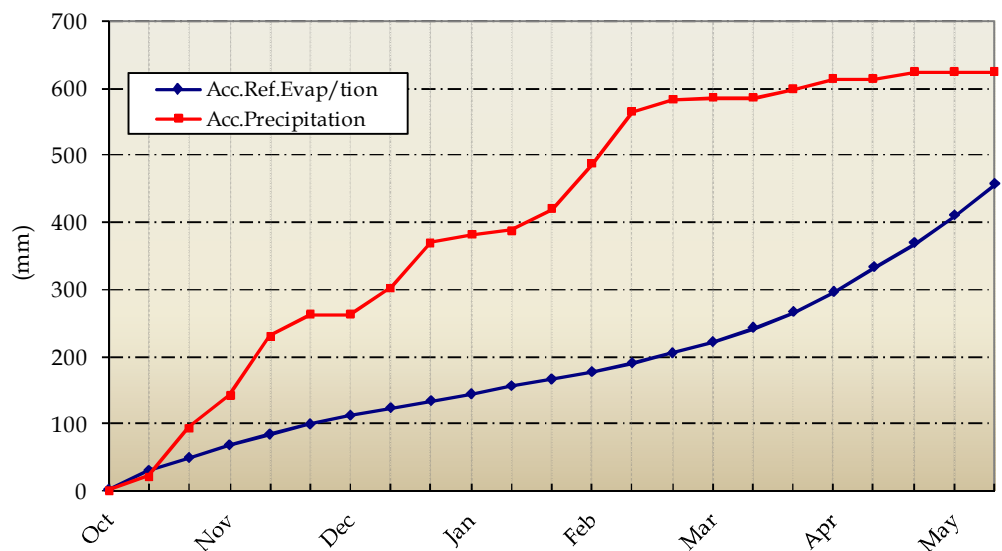


Kalamata

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	24.6	22.8	22.8	24.8	26.4	25.6	26.0	27.8	25.4	24.9	21.3	22.8
	Min	8.6	11.4	9.8	9.6	10.4	14.0	11.4	12.0	16.2	15.0	11.8	10.2	11.0
Relative Humidity	Max	94	95	93	97	95	86	91	91	77	79	90	94	-
	Min	45	38	53	45	31	33	27	35	25	31	36	54	-
Soil Temperature at 10 cm	06 UTC	17.0	17.0	17.6	17.6	18.0	18.6	17.6	18.6	18.6	18.6	17.9	16.3	16.9
	12 UTC	19.6	20.4	20.4	20.4	19.4	20.4	20.2	20.4	21.6	21.0	20.4	17.9	20.6
Sunshine Duration		12.5	12.2	10.5	11.5	2.1	5.9	12.5	4.3	12.9	13.1	9.8	9.1	8.6
Precipitation													24.8	9.1
Evaporation		6.8	5.6	6.2	5.7	-	-	-	-	-	8.2	-	-	52.2
Growing Degrees	5	10.8	13.0	11.3	11.2	12.6	15.2	13.5	14.0	17.0	15.2	133.8	-	119.0
	10	5.8	8.0	6.3	6.2	7.6	10.2	8.5	9.0	12.0	10.2	83.8	-	69.0

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.6	35.5	36.5
Precipitation - Reference Evapotranspiration	-46.6	-10.7	-27.4
Number of Rainy Days	0.0	4.0	2.3
Number of Dry Days	21.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

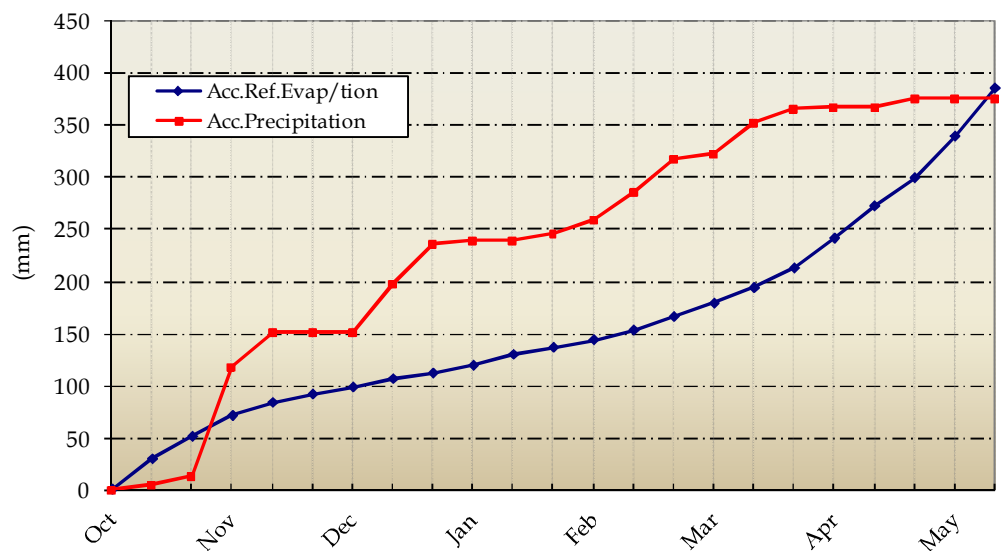


Larisa

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	27.0	26.6	27.2	26.4	25.2	27.4	24.2	29.6	28.6	26.9	23.2	23.7
	Min	8.2	8.8	10.4	10.0	12.4	16.2	8.2	11.2	10.0	10.4	10.6	9.2	9.3
Relative Humidity	Max	83	90	90	88	88	86	94	90	95	81	88	92	-
	Min	28	32	40	36	36	48	25	34	17	20	32	41	-
Soil Temperature at 10 cm	06 UTC	15.8	16.0	17.4	17.0	18.0	18.8	17.6	17.8	17.8	18.0	17.4	16.1	16.2
	12 UTC	18.2	18.6	19.4	19.6	17.8	19.8	20.0	18.8	19.6	20.0	19.2	18.5	18.4
Sunshine Duration		12.6	12.5	12.4	7.9	3.7	4.5	12.8	5.8	12.2	12.8	9.7	7.7	8.0
Precipitation							0.0					0.0	4.3	10.2
Evaporation		10.1	0.6	10.9	6.6	6.1	1.9	6.8	4.1	9.2	6.6	62.9	53.8	50.6
Growing Degrees	5	12.3	12.9	13.5	13.6	14.4	15.7	12.8	12.7	14.8	14.5	137.2	112.1	115.4
	10	7.3	7.9	8.5	8.6	9.4	10.7	7.8	7.7	9.8	9.5	87.2	62.1	65.4

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.3	35.2	38.0
Precipitation - Reference Evapotranspiration	-46.3	-30.9	-27.8
Number of Rainy Days	0.0	5.0	2.5
Number of Dry Days	15.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

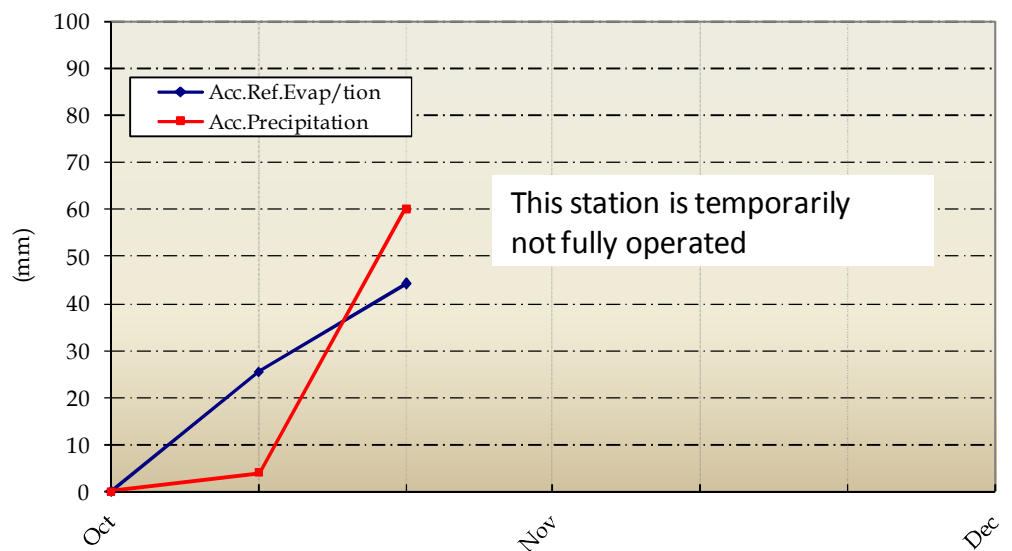


Pyrgela

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	23.7	24.1
	Min	6.8	6.8	-	6.8	7.4	10.2	6.8	-	-	8.8	7.7	8.3	8.8
Relative Humidity	Max	50	-	72	66	52	50	-	-	92	55	62	81	-
	Min	23	-	26	35	21	21	-	-	14	20	23	41	-
Soil Temperature at 10 cm	06 UTC	17.6	18.2	-	18.8	19.0	19.4	18.4	-	-	20.0	18.8	14.9	16.3
	12 UTC	26.4	26.6	-	26.6	26.0	26.2	28.0	-	-	30.0	27.1	22.0	24.3
Sunshine Duration		11.1	-	8.8	8.9	4.0	7.5	-	-	-	11.2	8.6	7.5	7.9
Precipitation													11.0	8.2
Evaporation		7.4	-	6.2	6.6	3.2	8.8	-	-	-	5.0	-	-	47.3
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	113.4
	10	-	-	-	-	-	-	-	-	-	-	-	-	63.9

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	34.9	36.2
Precipitation - Reference Evapotranspiration	-	-23.9	-28.0
Number of Rainy Days	-	2.0	2.5
Number of Dry Days	-	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

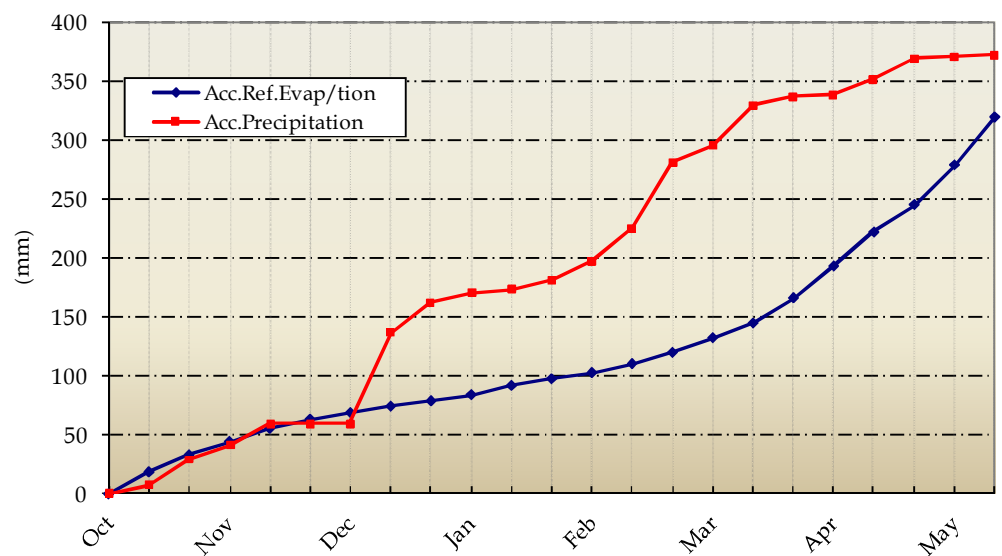


Series

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	26.4	27.2	28.2	28.0	25.2	29.2	22.8	27.8	30.0	27.0	23.6	23.7
	Min	6.4	10.0	11.0	11.0	12.8	16.0	10.8	11.6	12.0	11.2	11.3	10.2	11.0
Relative Humidity	Max	65	61	80	80	79	74	73	73	76	65	73	81	-
	Min	29	30	34	32	33	42	20	57	30	21	33	44	-
Soil Temperature at 10 cm	06 UTC	17.4	18.0	18.4	18.8	19.6	20.2	18.8	19.4	18.6	19.0	18.8	16.0	16.5
	12 UTC	18.4	19.0	19.8	20.0	20.8	21.2	20.8	20.0	21.2	21.2	20.2	17.4	20.0
Sunshine Duration		12.5	10.7	11.7	9.4	4.6	3.6	12.1	2.2	12.4	11.6	9.1	7.2	7.6
Precipitation							0.0		0.1	0.9		1.0	27.3	11.6
Evaporation		4.2	3.5	3.5	2.0	3.5	2.5	7.4	1.6	5.0	6.1	39.3	-	43.4
Growing Degrees	5	10.9	13.2	14.1	14.6	15.4	15.6	15.0	12.2	14.9	15.6	141.5	-	122.6
	10	5.9	8.2	9.1	9.6	10.4	10.6	10.0	7.2	9.9	10.6	91.5	-	72.9

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.4	32.0	34.2
Precipitation - Reference Evapotranspiration	-39.4	-4.7	-22.6
Number of Rainy Days	2.0	3.0	3.1
Number of Dry Days	13.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

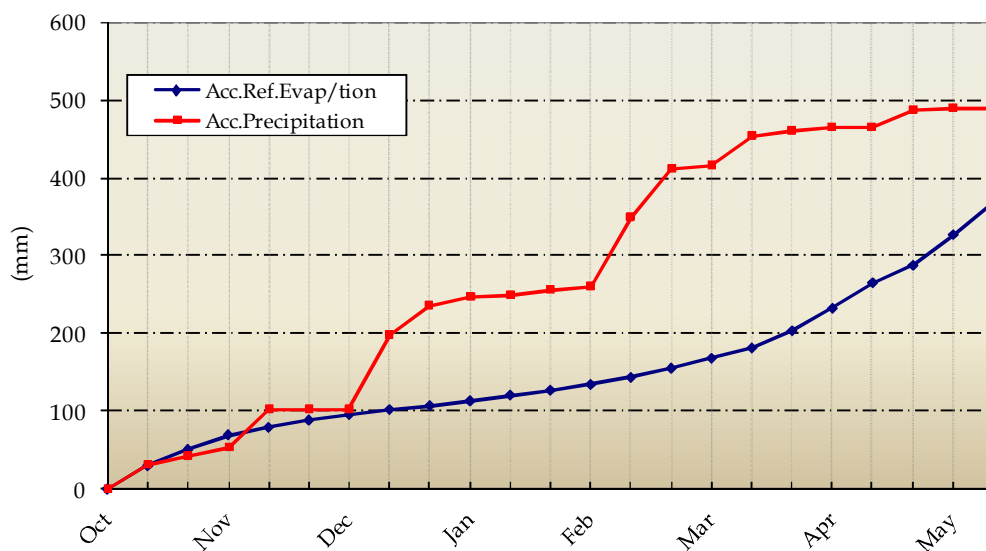


Trikala Imathias

1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	-	26.2	28.0	26.0	23.0	28.0	24.4	28.6	29.0	26.6	24.1	23.0
	Min	10.6	-	10.2	12.0	13.4	16.4	11.2	13.4	12.0	10.8	12.2	11.1	11.1
Relative Humidity	Max	-	90	88	92	92	95	89	90	89	95	91	91	-
	Min	-	32	25	25	29	48	16	39	25	20	29	36	-
Soil Temperature at 10 cm	06 UTC	17.4	-	18.2	18.6	19.0	19.6	18.0	18.6	18.0	18.8	18.5	16.7	16.6
	12 UTC	20.6	-	22.0	22.6	22.0	21.0	22.2	19.6	22.0	22.2	21.6	20.5	18.0
Sunshine Duration		-	11.8	11.7	8.7	3.4	2.1	12.7	5.8	12.4	12.4	9.0	7.8	7.2
Precipitation									0.6			0.6	6.9	16.4
Evaporation		5.2	4.5	5.0	4.0	3.0	2.2	5.8	2.2	5.4	5.0	42.3	24.6	41.6
Growing Degrees	5	13.5	-	13.2	15.0	14.7	14.7	14.6	13.9	15.3	14.9	-	-	120.7
	10	8.5	-	8.2	10.0	9.7	9.7	9.6	8.9	10.3	9.9	-	-	70.7

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.7	40.2	35.2
Precipitation - Reference Evapotranspiration	-41.1	-33.3	-18.8
Number of Rainy Days	1.0	3.0	3.1
Number of Dry Days	13.0	1.0	-

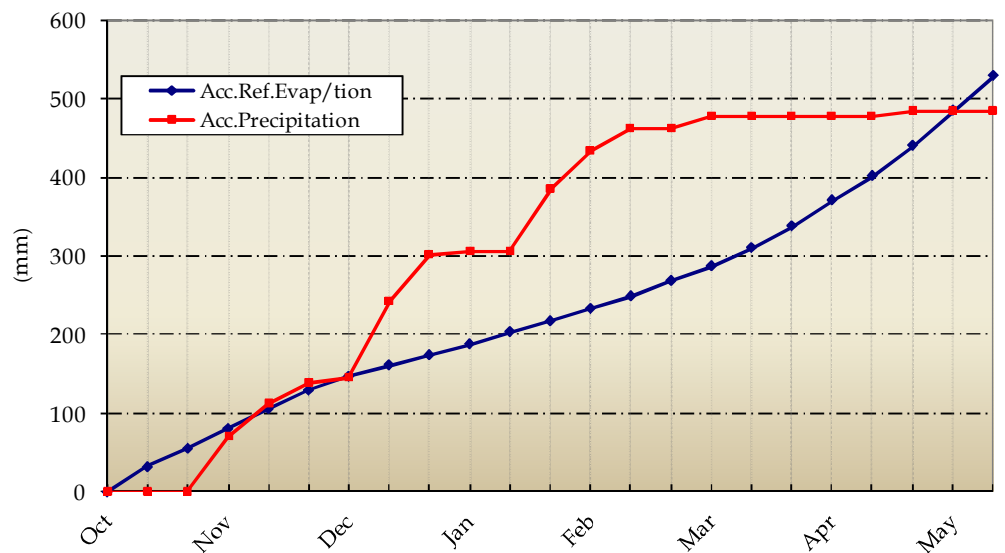
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	22.4	20.4	22.0	24.6	25.4	22.2	25.6	28.8	27.4	24.3	21.4	23.0
	Min	11.0	11.4	10.8	8.0	9.6	13.4	11.0	16.6	17.2	15.0	12.4	11.9	12.7
Relative Humidity	Max	54	96	97	96	80	62	97	78	54	98	81	95	-
	Min	19	26	40	32	21	27	36	28	19	23	27	48	-
Soil Temperature at 10 cm	06 UTC	19.4	20.2	21.8	21.4	22.0	23.4	22.6	24.0	24.0	23.2	22.2	19.5	21.3
	12 UTC	26.0	27.8	28.8	28.6	29.0	28.6	29.4	29.0	29.2	30.6	28.7	26.2	26.1
Sunshine Duration		11.8	11.3	9.7	11.3	9.5	5.8	9.1	0.5	8.4	11.4	8.9	9.0	9.3
Precipitation													4.5	3.0
Evaporation		8.0	6.5	5.4	6.4	8.2	8.0	5.7	7.1	11.6	5.4	72.3	55.3	65.1
Growing Degrees	5	12.5	11.9	10.6	10.0	12.1	14.4	11.6	16.1	18.0	16.2	133.4	116.8	128.8
	10	7.5	6.9	5.6	5.0	7.1	9.4	6.6	11.1	13.0	11.2	83.4	66.8	78.8

1st 10-day period (1-10/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.1	38.5	39.6
Precipitation - Reference Evapotranspiration	-44.1	-34.0	-36.6
Number of Rainy Days	0.0	1.0	0.9
Number of Dry Days	21.0	26.0	-

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.

Measurements 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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