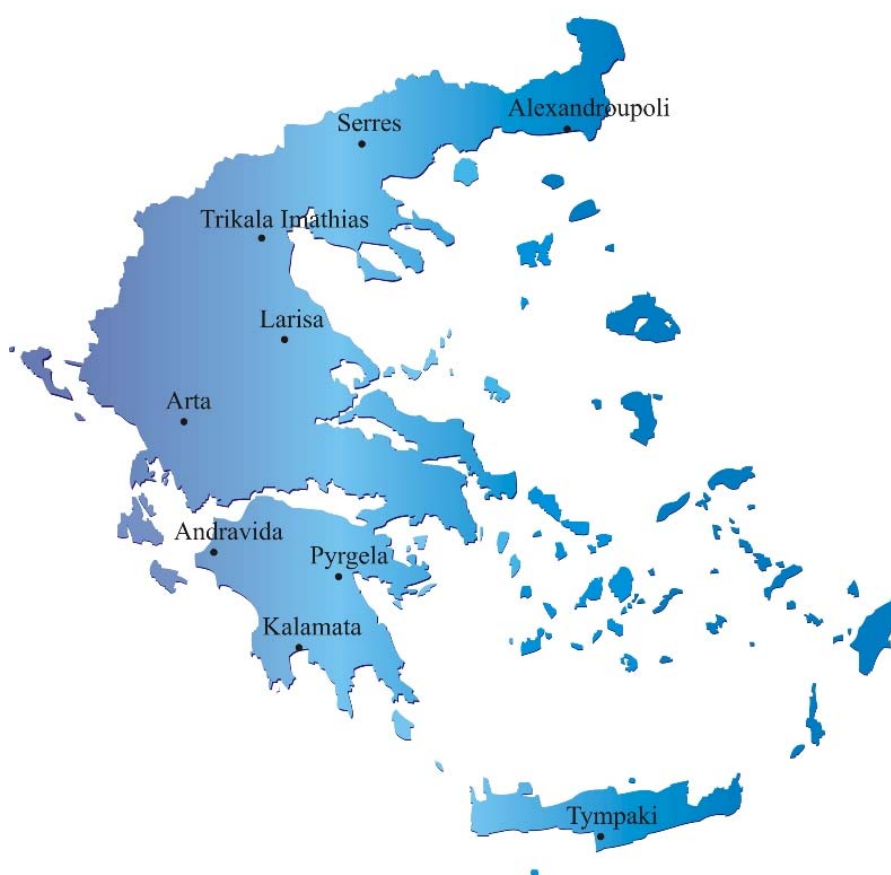


AGROMETEOROLOGICAL BULLETIN

*August 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



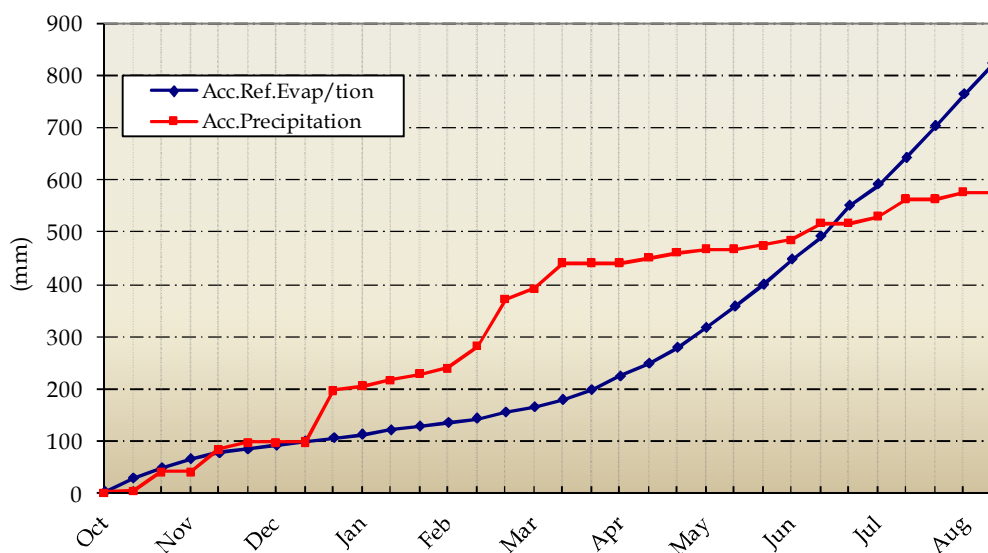
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.0	32.8	36.6	36.8	34.2	32.6	31.0	34.2	34.0	36.0	34.0	32.8	31.3
	Min	22.4	22.0	25.6	22.0	24.6	24.4	22.0	22.2	22.6	25.4	23.3	21.1	17.9
Relative Humidity	Max	91	79	74	76	73	80	82	81	81	66	78	74	-
	Min	57	46	34	30	43	45	56	42	41	36	43	30	-
Soil Temperature at 10 cm	06 UTC	27.4	28.0	29.0	27.0	29.2	29.0	29.2	29.0	29.4	30.0	28.7	27.8	24.7
	12 UTC	30.0	30.4	31.2	31.2	30.6	31.4	31.0	31.0	31.6	31.6	31.0	31.2	29.0
Sunshine Duration		11.6	12.7	12.5	12.5	9.1	12.0	12.7	9.7	12.5	12.5	11.8	11.2	10.7
Precipitation														4.0
Evaporation		16.2	6.8	10.8	10.2	6.5	5.5	8.8	11.2	9.8	10.1	95.9	97.4	96.8
Growing Degrees	5	22.2	22.4	26.1	24.4	24.4	23.5	21.5	23.2	23.3	25.7	236.7	219.5	195.9
	10	17.2	17.4	21.1	19.4	19.4	18.5	16.5	18.2	18.3	20.7	186.7	169.5	145.9

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.7	60.9	58.5
Precipitation - Reference Evapotranspiration	-58.7	-60.9	-54.5
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	13.0	31.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

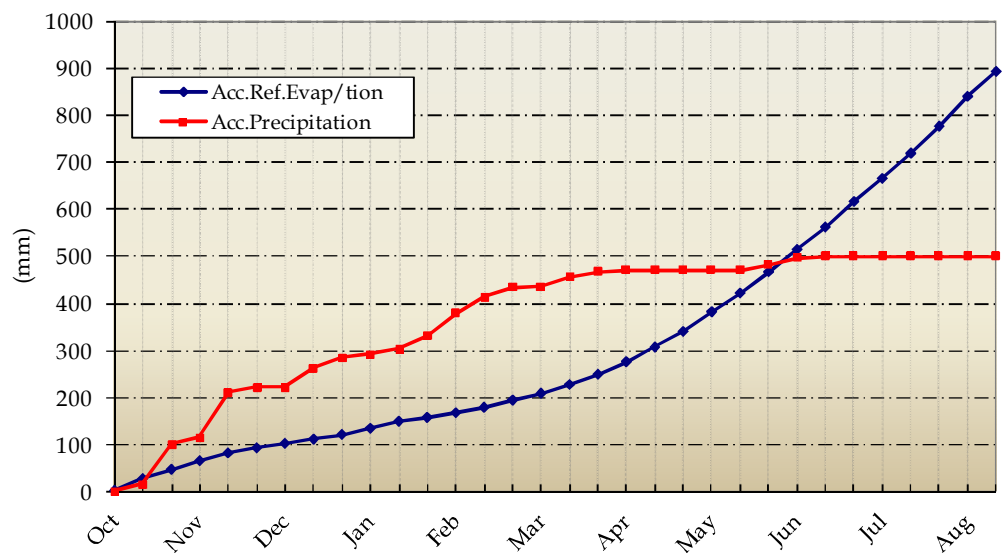


Andravida

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	32.2	32.0	30.4	32.2	31.4	30.4	29.2	30.6	31.8	31.0	32.5	31.3
	Min	19.6	19.6	21.0	21.4	20.2	20.8	20.6	18.2	18.6	21.0	20.1	20.8	18.8
Relative Humidity	Max	94	87	89	93	94	98	93	94	92	92	93	89	-
	Min	50	42	46	51	46	54	45	50	51	44	48	39	-
Soil Temperature at 10 cm	06 UTC	28.4	28.4	29.4	29.6	29.0	29.4	28.8	28.0	28.0	29.0	28.8	29.2	27.8
	12 UTC	35.8	36.8	37.2	37.2	37.4	37.6	36.4	35.6	36.2	37.2	36.7	36.1	32.1
Sunshine Duration		12.5	12.4	12.1	11.6	11.6	10.7	12.1	12.5	11.6	10.9	11.8	11.6	11.6
Precipitation														0.2
Evaporation		6.0	8.7	5.7	4.3	12.6	7.4	8.4	9.0	6.8	7.6	76.5	82.1	74.9
Growing Degrees	5	19.7	20.9	21.5	20.9	21.2	21.1	20.5	18.7	19.6	21.4	205.5	216.3	200.3
	10	14.7	15.9	16.5	15.9	16.2	16.1	15.5	13.7	14.6	16.4	155.5	166.3	150.3

1st 10-day period (1-10/08/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	53.1	53.2	52.3
Precipitation - Reference Evapotranspiration	-53.1	-53.2	-52.1
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	48.0	47.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

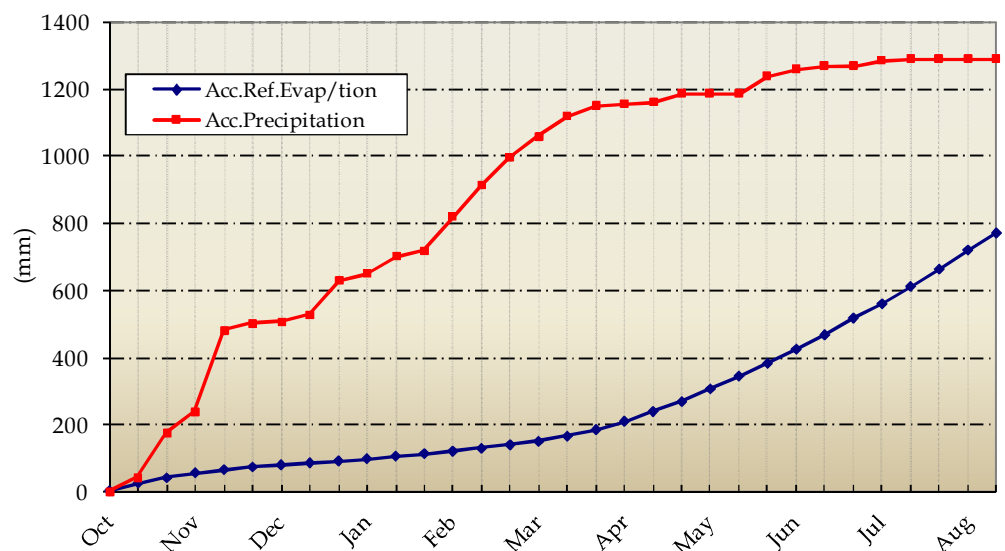




1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.0	35.2	35.0	32.4	34.4	32.6	32.0	32.0	35.0	35.8	33.6	34.0	32.4
	Min	18.2	19.0	19.4	21.2	19.4	19.6	19.6	15.6	18.6	19.6	19.0	19.6	18.2
Relative Humidity	Max	84	88	99	97	97	97	95	97	97	97	95	93	-
	Min	54	30	34	47	34	35	32	31	29	28	35	34	-
Soil Temperature at 10 cm	06 UTC	27.6	28.0	28.4	28.8	28.6	28.6	28.4	27.8	28.2	28.8	28.3	29.4	27.1
	12 UTC	29.4	30.2	30.2	30.6	30.4	30.4	30.2	29.8	30.2	30.8	30.2	31.1	31.7
Sunshine Duration		12.6	12.5	12.4	12.4	12.4	11.7	12.4	12.4	12.4	12.3	12.4	11.2	10.7
Precipitation														1.1
Evaporation		6.4	8.9	7.6	5.3	6.8	6.2	7.0	7.5	6.2	7.4	69.3	67.3	-
Growing Degrees	5	20.1	22.1	22.2	21.8	21.9	21.1	20.8	18.8	21.8	22.7	213.3	218.3	202.8
	10	15.1	17.1	17.2	16.8	16.9	16.1	15.8	13.8	16.8	17.7	163.3	168.3	152.8

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.6	54.6	47.6
Precipitation - Reference Evapotranspiration	-51.6	-54.6	-46.5
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	19.0	36.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

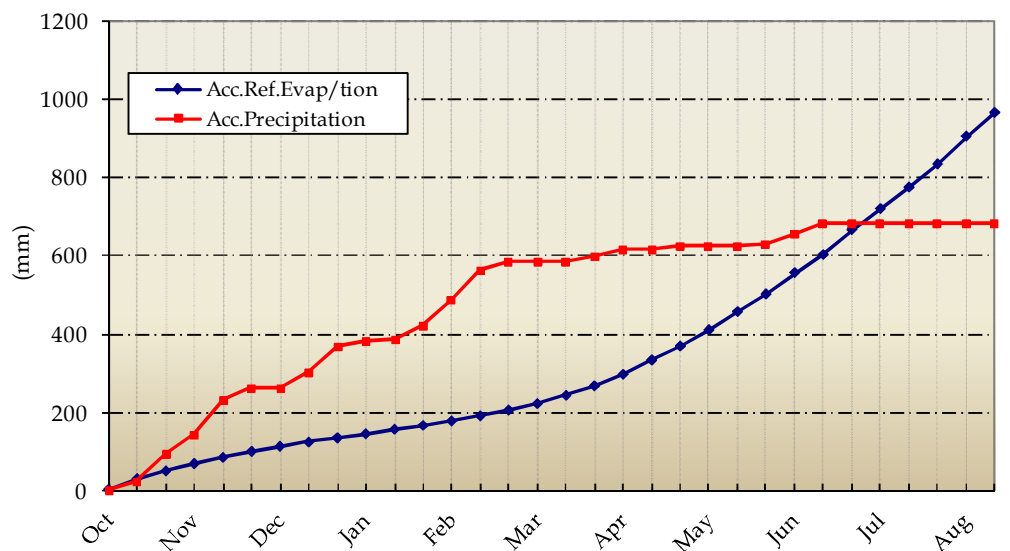


Kalamata

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	32.8	32.6	32.6	31.8	29.4	34.4	31.8	31.8	33.8	32.2	31.9	31.8
	Min	20.2	19.2	19.2	21.8	20.2	19.6	21.8	18.6	22.4	20.6	20.4	19.6	18.3
Relative Humidity	Max	89	87	90	91	92	96	86	84	86	84	88	90	-
	Min	45	35	37	42	49	56	27	34	39	40	40	41	-
Soil Temperature at 10 cm	06 UTC	25.6	26.0	26.0	26.4	26.4	26.4	26.6	26.2	26.6	26.4	26.3	25.3	26.3
	12 UTC	28.4	28.6	28.4	28.8	29.0	28.8	28.8	28.6	29.0	29.0	28.7	27.4	30.4
Sunshine Duration		12.5	12.5	12.2	12.1	12.2	11.4	12.4	12.4	13.1	10.6	12.1	10.6	11.0
Precipitation													6.0	3.9
Evaporation		12.0	10.2	11.6	9.0	6.4	6.4	9.6	6.9	6.6	7.9	86.6	69.0	84.1
Growing Degrees	5	20.5	21.0	20.9	22.2	21.0	19.5	23.1	20.2	22.1	22.2	212.7	207.7	200.7
	10	15.5	16.0	15.9	17.2	16.0	14.5	18.1	15.2	17.1	17.2	162.7	157.7	150.7

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.6	50.4	56.0
Precipitation - Reference Evapotranspiration	-60.6	-44.4	-52.1
Number of Rainy Days	0.0	2.0	0.5
Number of Dry Days	48.0	41.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

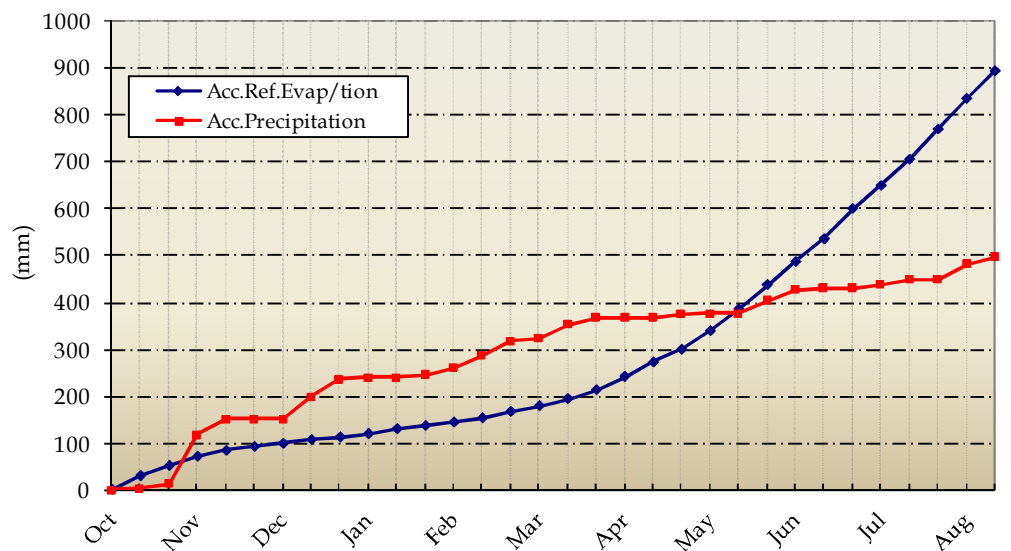


Larisa

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.4	35.0	35.4	36.2	34.4	33.6	36.2	35.4	35.8	36.0	35.2	32.7	33.2
	Min	19.8	22.2	20.0	21.4	19.6	22.0	19.6	18.6	23.4	23.4	21.0	20.2	18.0
Relative Humidity	Max	80	65	74	90	93	88	86	81	67	59	78	73	-
	Min	32	24	29	26	32	47	19	32	30	30	30	33	-
Soil Temperature at 10 cm	06 UTC	26.2	27.0	27.4	27.8	27.2	27.0	26.6	25.2	27.0	27.6	26.9	28.3	27.1
	12 UTC	29.8	30.4	30.4	30.2	30.0	30.4	29.6	29.4	30.4	30.6	30.1	30.9	29.4
Sunshine Duration		12.0	12.5	11.8	10.9	11.5	8.8	12.4	12.4	12.1	13.0	11.7	9.5	10.5
Precipitation					10.8	1.2	1.5					13.5	0.1	4.2
Evaporation		9.6	10.0	9.1	12.8	9.6	5.0	10.8	10.0	7.1	9.3	93.3	102.6	91.8
Growing Degrees	5	22.1	23.6	22.7	23.8	22.0	22.8	22.9	22.0	24.6	24.7	231.2	214.7	206.1
	10	17.1	18.6	17.7	18.8	17.0	17.8	17.9	17.0	19.6	19.7	181.2	164.7	156.1

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.5	59.2	58.6
Precipitation - Reference Evapotranspiration	-46.0	-59.1	-54.4
Number of Rainy Days	3.0	1.0	1.1
Number of Dry Days	8.0	30.0	-

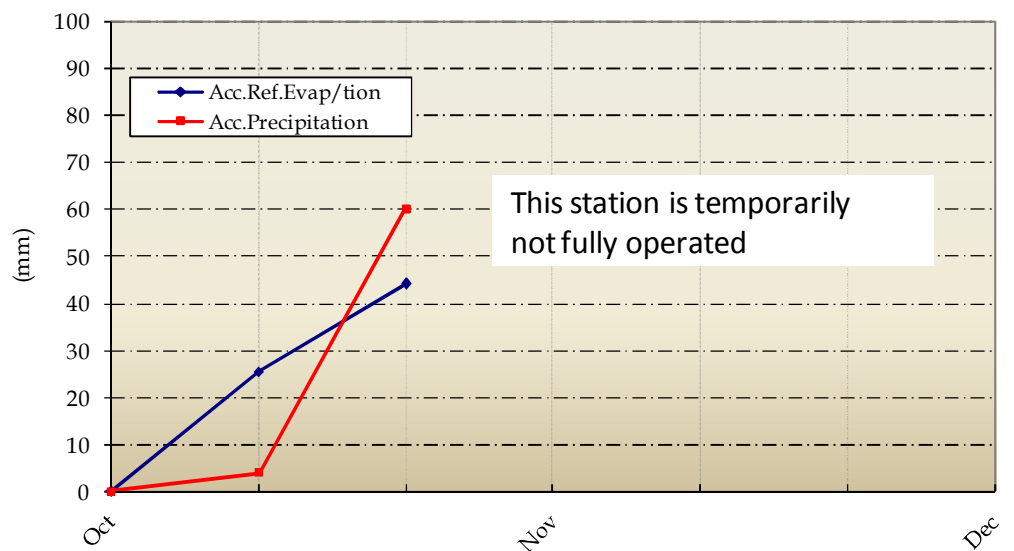
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	35.0	34.2
	Min	17.6	19.0	19.8	18.0	21.6	20.0	18.8	19.0	20.4	20.2	19.4	18.5	17.2
Relative Humidity	Max	60	55	44	70	57	73	68	62	56	53	60	64	-
	Min	24	23	21	22	32	42	38	22	21	23	27	31	-
Soil Temperature at 10 cm	06 UTC	29.8	30.0	30.4	30.6	31.2	30.6	30.0	30.0	30.0	30.4	30.3	28.4	26.7
	12 UTC	38.4	38.4	39.2	39.6	39.0	37.0	-	39.4	38.2	38.4	38.6	37.2	34.8
Sunshine Duration		11.9	7.8	11.2	9.8	8.8	11.2	11.5	11.3	11.2	10.8	10.6	10.9	10.7
Precipitation														0.5
Evaporation		6.2	1.2	7.6	6.4	5.8	5.4	5.8	4.2	7.0	6.4	56.0	82.8	72.9
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	217.7	206.8
	10	-	-	-	-	-	-	-	-	-	-	-	167.7	156.8

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	51.5	51.6
Precipitation - Reference Evapotranspiration	-	-51.5	-51.1
Number of Rainy Days	0.0	0.0	0.5
Number of Dry Days	-	35.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



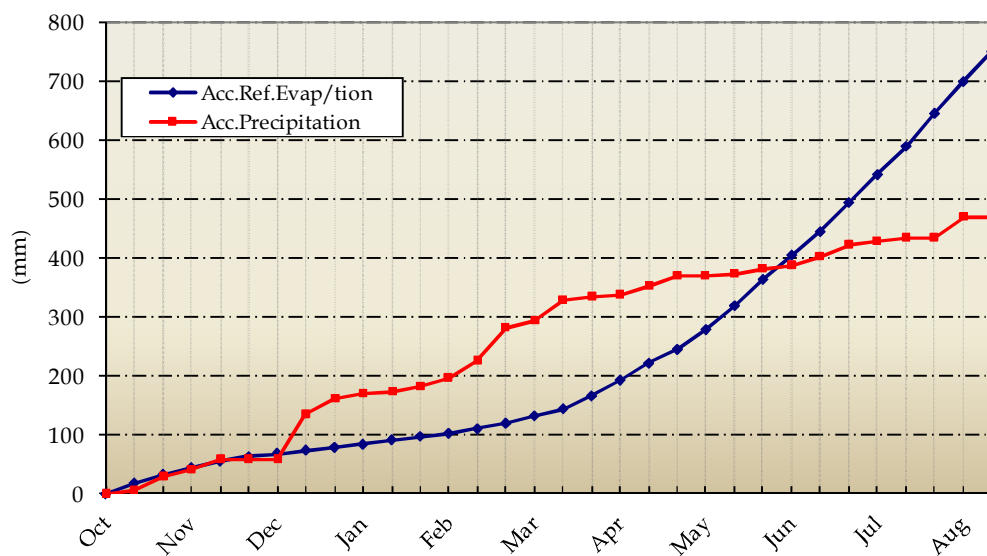
This station is temporarily not fully operated

Series

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.8	35.4	37.6	35.6	34.6	34.8	34.8	36.0	36.2	36.4	35.6	33.1	32.7
	Min	20.0	20.4	21.8	21.6	21.8	21.2	21.6	21.0	21.4	21.4	21.2	20.8	18.7
Relative Humidity	Max	77	67	72	72	74	74	76	76	65	62	72	77	-
	Min	33	29	27	33	34	41	41	34	26	30	33	42	-
Soil Temperature at 10 cm	06 UTC	25.6	26.0	26.2	27.0	27.2	27.2	27.2	27.2	27.4	28.0	26.9	27.6	26.0
	12 UTC	28.0	28.2	29.4	29.0	29.0	29.0	29.4	29.6	29.6	29.6	29.1	28.9	29.5
Sunshine Duration		12.3	11.8	12.3	7.3	10.8	10.4	6.7	9.1	10.8	11.8	10.3	7.4	10.1
Precipitation													11.3	7.4
Evaporation		7.7	7.1	7.7	6.5	5.3	5.7	4.5	5.0	8.5	9.0	67.0	53.3	70.0
Growing Degrees	5	22.4	22.9	24.7	23.6	23.2	23.0	23.2	23.5	23.8	23.9	234.2	219.7	198.0
	10	17.4	17.9	19.7	18.6	18.2	18.0	18.2	18.5	18.8	18.9	184.2	169.7	150.1

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.3	41.7	46.4
Precipitation - Reference Evapotranspiration	-51.3	-30.4	-39.0
Number of Rainy Days	0.0	4.0	1.7
Number of Dry Days	15.0	24.0	-

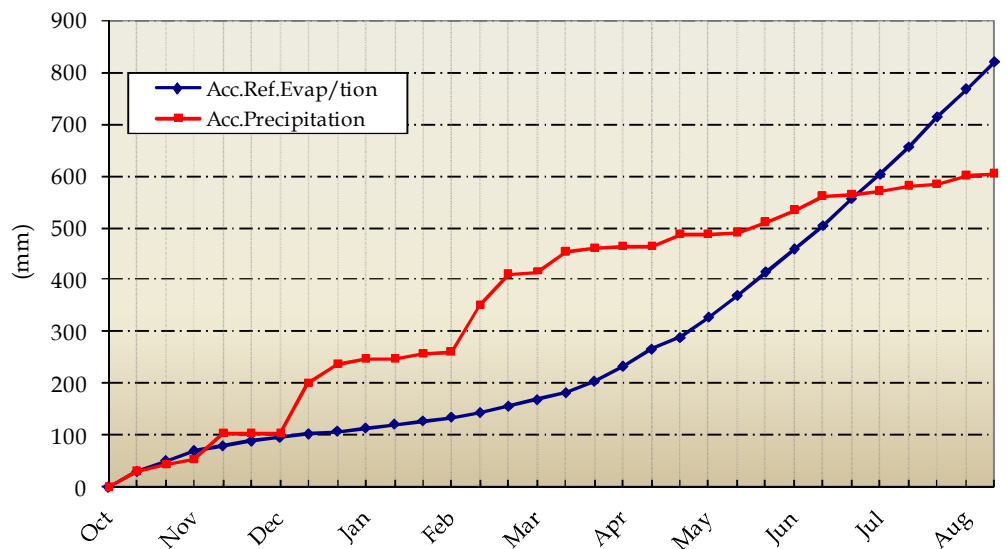
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.8	34.2	35.8	35.0	33.2	32.6	33.2	35.0	35.4	36.0	34.3	31.4	31.9
	Min	20.4	21.2	21.4	21.4	19.6	21.4	22.0	21.0	21.0	21.0	21.0	20.2	18.4
Relative Humidity	Max	93	81	96	98	93	98	94	93	80	82	91	96	-
	Min	40	40	36	44	49	55	56	36	32	36	42	42	-
Soil Temperature at 10 cm	06 UTC	26.4	26.4	27.4	27.4	27.2	27.2	27.8	27.8	27.6	27.2	27.2	27.6	25.9
	12 UTC	29.8	30.6	30.8	31.2	30.0	30.0	30.4	30.8	30.6	30.2	30.4	30.3	27.5
Sunshine Duration		12.4	12.7	12.3	9.1	11.4	8.9	10.3	11.5	12.1	11.7	11.2	8.2	10.0
Precipitation						1.8						1.8	15.5	5.7
Evaporation		5.6	4.6	5.1	5.2	4.2	3.6	4.2	5.0	5.2	4.8	47.5	40.7	58.3
Growing Degrees	5	21.6	22.7	23.6	23.2	21.4	22.0	22.6	23.0	23.2	23.5	226.8	208.2	201.3
	10	16.6	17.7	18.6	18.2	16.4	17.0	17.6	18.0	18.2	18.5	176.8	158.2	151.3

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.2	48.9	47.3
Precipitation - Reference Evapotranspiration	-50.4	-33.4	-41.6
Number of Rainy Days	1.0	3.0	1.0
Number of Dry Days	8.0	25.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

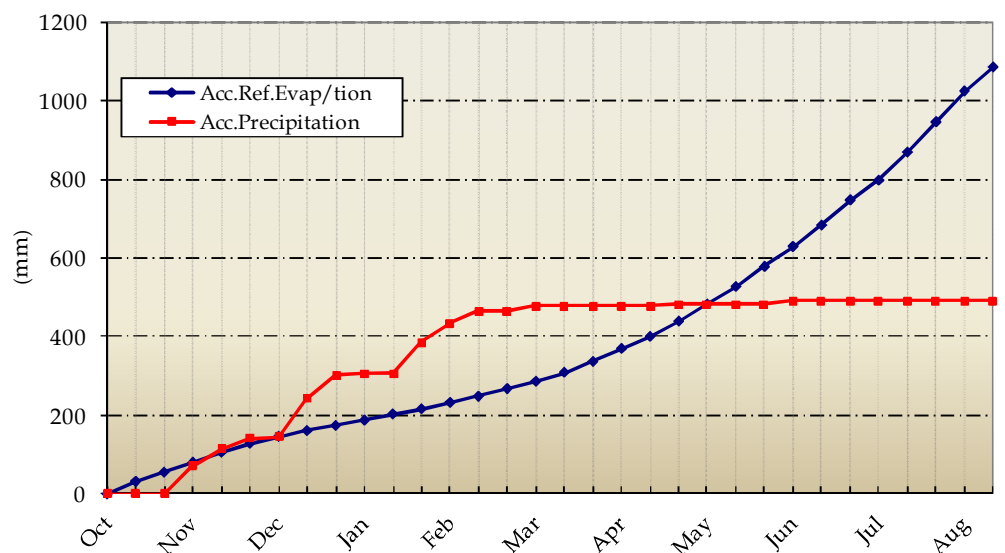


Tympaki

1st 10-day period (1-10/08/2010)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	33.2	33.0	33.0	30.0	30.6	30.0	29.6	34.6	36.0	32.0	32.0	32.6
	Min	20.6	23.4	25.6	25.2	24.0	23.2	20.6	20.6	20.6	23.4	22.7	21.6	20.7
Relative Humidity	Max	97	65	77	99	99	95	96	90	70	81	87	68	-
	Min	38	33	35	42	46	53	61	52	29	29	42	30	-
Soil Temperature at 10 cm	06 UTC	30.2	31.2	32.0	32.2	32.2	32.0	31.2	31.0	30.6	31.6	31.4	30.0	31.1
	12 UTC	36.0	36.6	37.4	37.2	37.6	37.4	37.0	36.2	36.2	36.8	36.8	34.8	35.3
Sunshine Duration		11.6	10.6	10.9	9.9	10.6	11.2	11.4	11.6	11.6	11.1	11.0	11.1	12.0
Precipitation														
Evaporation		6.5	13.4	11.0	7.9	6.9	7.2	9.2	8.1	9.0	13.0	92.2	121.2	121.2
Growing Degrees	5	20.3	23.3	24.3	24.1	22.0	21.9	20.3	20.1	22.6	24.7	223.6	218.0	215.8
	10	15.3	18.3	19.3	19.1	17.0	16.9	15.3	15.1	17.6	19.7	173.6	168.0	166.0

1st 10-day period (1-10/08/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	61.1	66.4	64.7
Precipitation - Reference Evapotranspiration	-61.1	-66.4	-64.7
Number of Rainy Days	0.0	0.0	0.0
Number of Dry Days	66.0	98.0	-

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

© HELLENIC NATIONAL METEOROLOGICAL SERVICE

Reproduction is prohibited without written permission

El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Charalabopoulos Christos

Filiou Anna

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