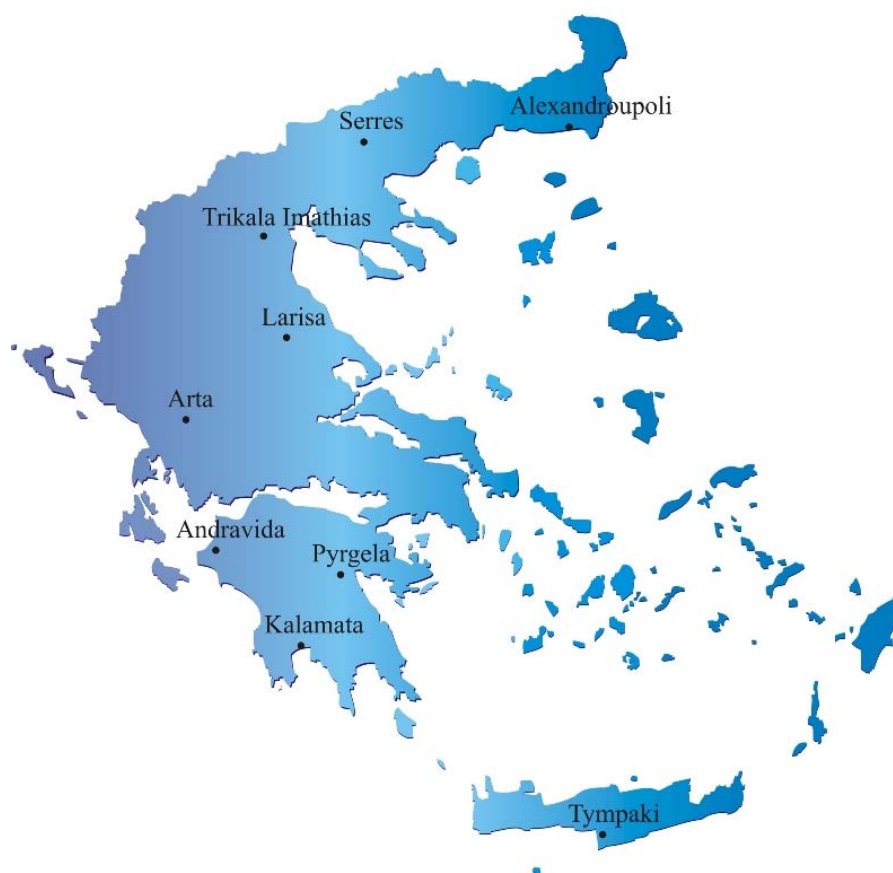


AGROMETEOROLOGICAL BULLETIN

*May 2010
2nd 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



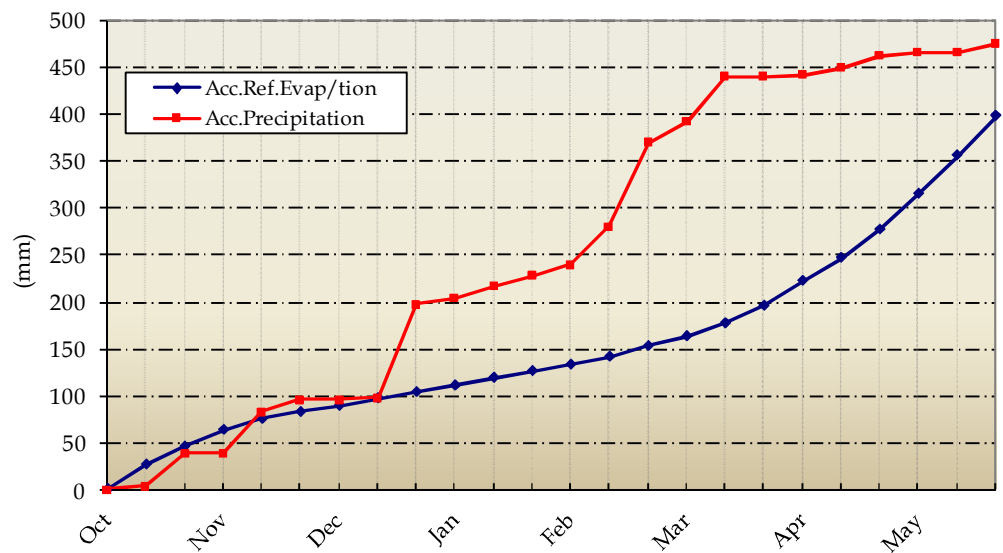
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	28.6	28.4	25.4	24.6	23.2	22.0	19.4	21.0	20.4	23.7	26.2	22.5
	Min	11.6	13.4	14.6	16.0	17.0	19.2	16.4	11.2	12.8	11.6	14.4	14.3	11.3
Relative Humidity	Max	85	91	78	80	87	75	87	86	88	88	84	84	-
	Min	38	35	36	49	44	47	45	44	42	41	42	41	-
Soil Temperature at 10 cm	06 UTC	19.8	19.8	21.6	22.2	22.4	20.2	24.6	18.6	17.8	17.6	20.5	20.5	17.0
	12 UTC	26.0	24.0	24.8	25.0	22.0	22.6	22.0	20.4	20.0	21.4	22.8	24.5	21.2
Sunshine Duration		12.6	12.6	10.0	12.0	4.1	11.7	6.7	5.4	3.9	11.6	9.1	10.7	8.2
Precipitation						4.0			5.0			9.0	0.1	10.7
Evaporation		8.1	6.2	4.4	8.3	4.0	8.0	5.0	4.6	5.1	5.3	59.0	73.1	57.1
Growing Degrees	5	12.8	16.0	16.5	15.7	15.8	16.2	14.2	10.3	11.9	11.0	140.4	-	118.8
	10	7.8	11.0	11.5	10.7	10.8	11.2	9.2	5.3	6.9	6.0	90.4	-	68.8

2nd 10-day period (11-20/05/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.9	47.3
Precipitation - Reference Evapotranspiration	-32.9	-47.2
Number of Rainy Days	2.0	1.0
Number of Dry Days	4.0	10.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

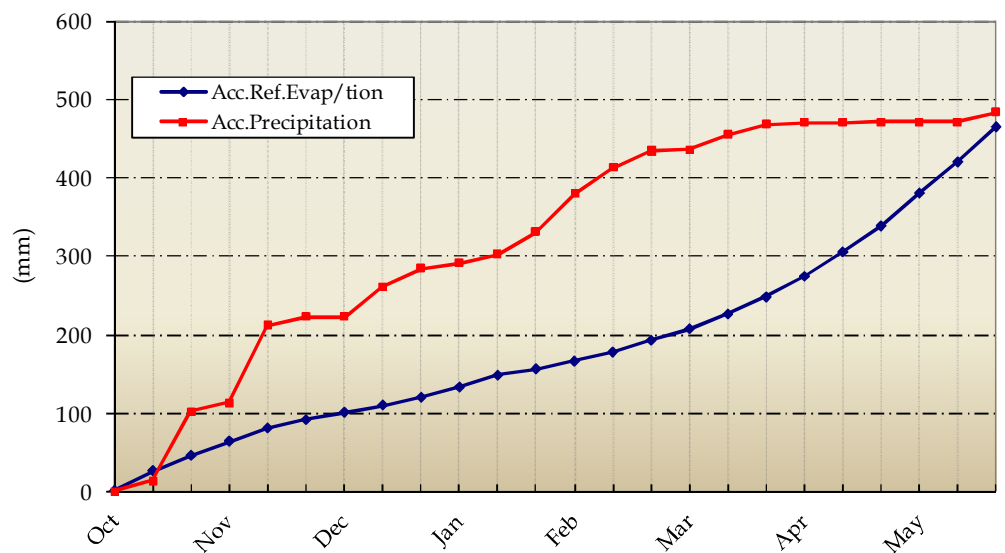


Andravida

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.6	29.4	29.8	27.0	26.4	21.4	21.0	20.4	22.0	22.4	24.5	27.0	23.9
	Min	10.8	12.8	14.2	14.0	18.4	12.8	12.4	11.8	13.2	13.4	13.4	13.8	12.7
Relative Humidity	Max	93	88	96	100	96	91	95	86	91	93	93	93	-
	Min	38	26	28	32	49	49	49	45	40	48	40	39	-
Soil Temperature at 10 cm	06 UTC	19.8	20.4	21.0	21.6	22.6	18.6	18.6	18.4	18.4	20.0	19.9	20.8	19.3
	12 UTC	29.0	26.0	29.0	29.2	24.4	24.6	24.0	23.2	23.6	26.2	25.9	28.8	23.6
Sunshine Duration		10.2	11.3	10.4	8.8	4.4	12.4	9.2	11.0	12.3	6.6	9.7	10.6	9.4
Precipitation					0.1	4.6			0.8		6.7	12.2		8.3
Evaporation		4.1	7.6	5.2	7.2	2.5	5.6	4.8	7.8	7.4	5.2	57.4	74.8	54.3
Growing Degrees	5	13.2	16.1	17.0	15.5	17.4	12.1	11.7	11.1	12.6	12.9	139.6	154.2	133.2
	10	8.2	11.1	12.0	10.5	12.4	7.1	6.7	6.1	7.6	7.9	89.6	104.2	83.2

2nd 10-day period (11-20/05/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.0	46.0
Precipitation - Reference Evapotranspiration	-32.8	-46.0
Number of Rainy Days	4.0	0.0
Number of Dry Days	24.0	22.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

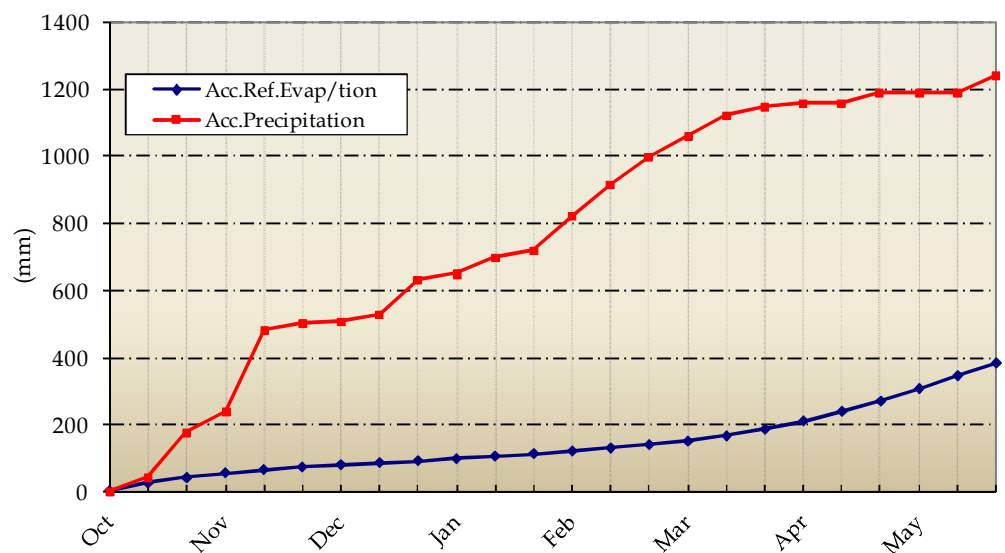




2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	29.2	28.6	27.6	23.0	21.0	20.0	22.6	22.4	21.0	24.4	28.8	25.1
	Min	11.5	12.6	12.2	14.4	17.0	15.6	11.2	11.4	9.0	10.6	12.6	14.9	12.7
Relative Humidity	Max	81	100	80	81	98	66	93	96	95	96	89	89	-
	Min	45	29	30	33	76	53	72	30	36	45	45	26	-
Soil Temperature at 10 cm	06 UTC	19.4	19.8	20.2	20.8	21.6	20.4	19.2	18.6	18.2	18.2	19.6	20.9	19.2
	12 UTC	22.6	23.0	23.0	23.6	22.2	21.2	20.0	20.4	20.2	19.6	21.6	23.5	24.2
Sunshine Duration		11.3	11.5	11.6	8.6	5.3	9.5	3.2	9.7	10.0	4.9	8.6	9.0	8.3
Precipitation						38.2	0.2	5.8	0.4		7.8	52.4		16.5
Evaporation		5.0	5.2	5.8	0.7	2.7	4.7	2.7	5.1	3.5	2.7	38.1	60.3	-
Growing Degrees	5	15.0	15.9	15.4	16.0	15.0	13.3	10.6	12.0	10.7	10.8	134.7	168.5	138.8
	10	10.0	10.9	10.4	11.0	10.0	8.3	5.6	7.0	5.7	5.8	84.7	118.5	88.8

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.0	40.1	39.0
Precipitation - Reference Evapotranspiration	14.4	-40.1	-22.5
Number of Rainy Days	5.0	0.0	2.4
Number of Dry Days	20.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

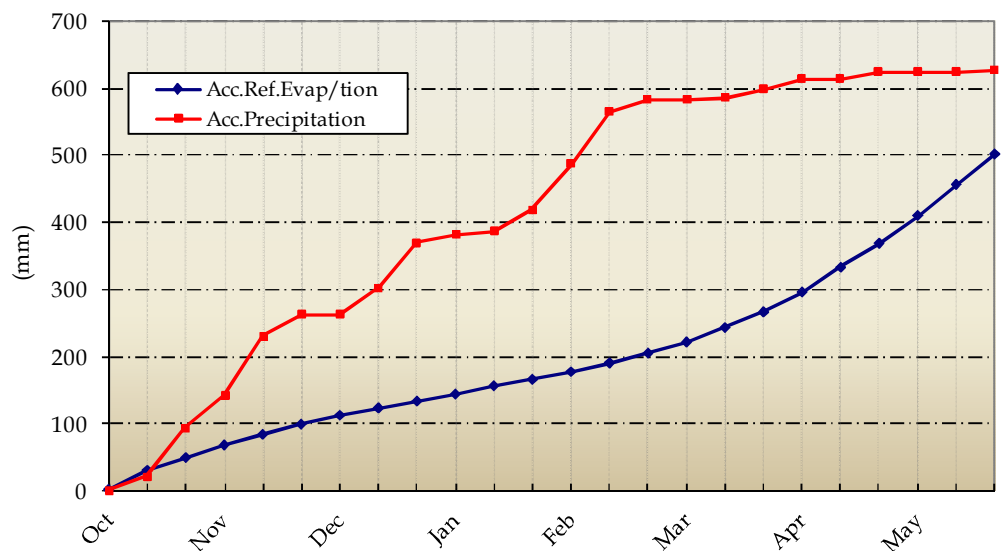


Kalamata

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.6	27.6	27.8	27.4	25.0	24.8	22.6	22.2	25.4	20.8	24.9	26.4	24.3
	Min	12.4	11.6	11.2	14.6	17.8	9.8	7.8	10.8	12.2	9.4	11.8	13.7	12.1
Relative Humidity	Max	91	91	93	93	91	95	97	93	90	98	93	92	-
	Min	38	32	30	28	45	39	41	40	25	56	37	41	-
Soil Temperature at 10 cm	06 UTC	18.6	18.6	18.6	19.2	20.2	18.0	18.2	18.0	18.2	18.2	18.6	18.7	18.7
	12 UTC	21.2	21.4	20.8	21.6	20.4	20.2	19.6	19.6	20.6	20.0	20.5	20.5	22.5
Sunshine Duration		13.0	11.0	10.5	9.0	2.0	12.0	9.0	10.7	12.8	5.8	9.6	11.1	9.1
Precipitation				0.0		0.0			2.2		1.4	3.6	2.7	9.5
Evaporation		7.0	5.0	4.2	6.8	2.6	4.8	4.6	6.8	8.2	6.0	56.0	58.7	57.5
Growing Degrees	5	14.0	14.6	14.5	16.0	16.4	12.3	10.2	11.5	13.8	10.1	133.4	-	132.1
	10	9.0	9.6	9.5	11.0	11.4	7.3	5.2	6.5	8.8	5.1	83.4	-	82.1

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.4	45.7	39.6
Precipitation - Reference Evapotranspiration	-41.8	-43.0	-30.1
Number of Rainy Days	2.0	1.0	1.8
Number of Dry Days	28.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

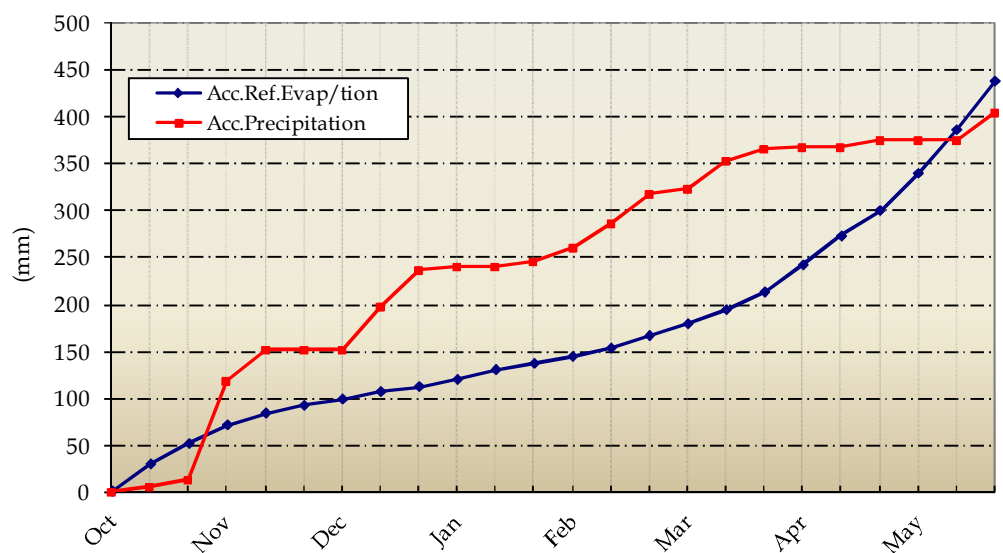


Larisa

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.6	29.8	33.2	32.6	29.0	22.4	23.0	24.0	24.0	22.6	27.0	29.5	25.6
	Min	10.6	12.6	15.2	15.2	17.6	14.4	9.6	12.4	10.6	10.0	12.8	14.0	11.0
Relative Humidity	Max	85	91	87	63	98	66	87	81	88	98	84	88	-
	Min	33	31	20	17	40	29	31	29	27	33	29	31	-
Soil Temperature at 10 cm	06 UTC	18.4	19.0	20.0	20.0	20.0	19.4	18.4	18.4	18.0	17.6	18.9	20.4	18.1
	12 UTC	20.6	21.2	22.2	22.0	21.8	20.6	19.6	19.8	20.0	20.4	20.8	23.2	20.4
Sunshine Duration		8.6	8.7	10.4	11.7	11.7	12.6	10.5	7.0	9.0	6.1	9.6	9.6	8.3
Precipitation						23.8				0.2	4.7	28.7	1.8	11.8
Evaporation		6.9	5.4	10.6	8.0	8.1	10.4	6.9	5.0	6.1	3.1	70.5	69.8	55.6
Growing Degrees	5	15.1	16.2	19.2	18.9	18.3	13.4	11.3	13.2	12.3	11.3	149.2	167.2	133.1
	10	10.1	11.2	14.2	13.9	13.3	8.4	6.3	8.2	7.3	6.3	99.2	117.2	83.1

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.7	49.8	42.0
Precipitation - Reference Evapotranspiration	-23.0	-48.0	-30.2
Number of Rainy Days	3.0	1.0	2.4
Number of Dry Days	19.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

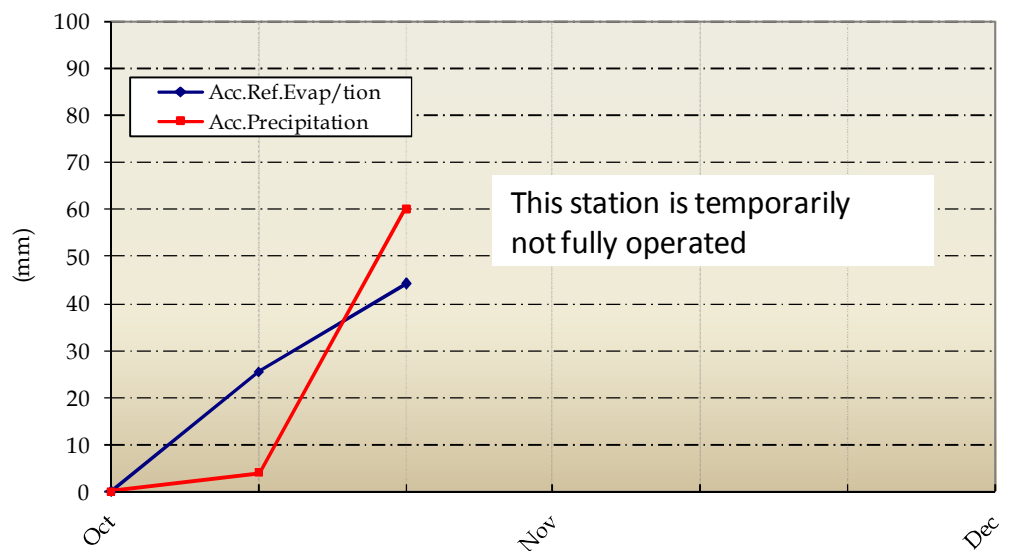


Pyrgela

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	28.9	26.4
	Min	9.4	9.0	10.4	10.2	18.4	9.0	11.8	10.4	7.0	8.8	10.4	11.4	10.7
Relative Humidity	Max	63	60	59	43	92	31	40	45	45	56	53	66	-
	Min	32	26	28	26	79	21	23	23	25	37	32	31	-
Soil Temperature at 10 cm	06 UTC	20.6	21.4	21.0	21.6	21.4	18.4	19.4	20.2	20.0	21.0	20.5	20.7	18.7
	12 UTC	29.4	29.6	26.0	29.4	25.0	27.4	28.0	28.0	28.0	28.2	27.9	27.5	26.9
Sunshine Duration		10.8	10.4	8.2	7.1	6.4	10.3	11.2	10.0	9.3	8.8	9.2	10.2	8.6
Precipitation						2.0						2.0		7.7
Evaporation		6.0	6.6	7.4	4.4	3.6	6.8	6.2	3.0	2.6	2.0	48.6	71.8	53.0
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	151.6	135.3
	10	-	-	-	-	-	-	-	-	-	-	-	101.6	85.3

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	47.6	39.8
Precipitation - Reference Evapotranspiration	-	-47.6	-32.1
Number of Rainy Days	-	0.0	1.9
Number of Dry Days	-	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

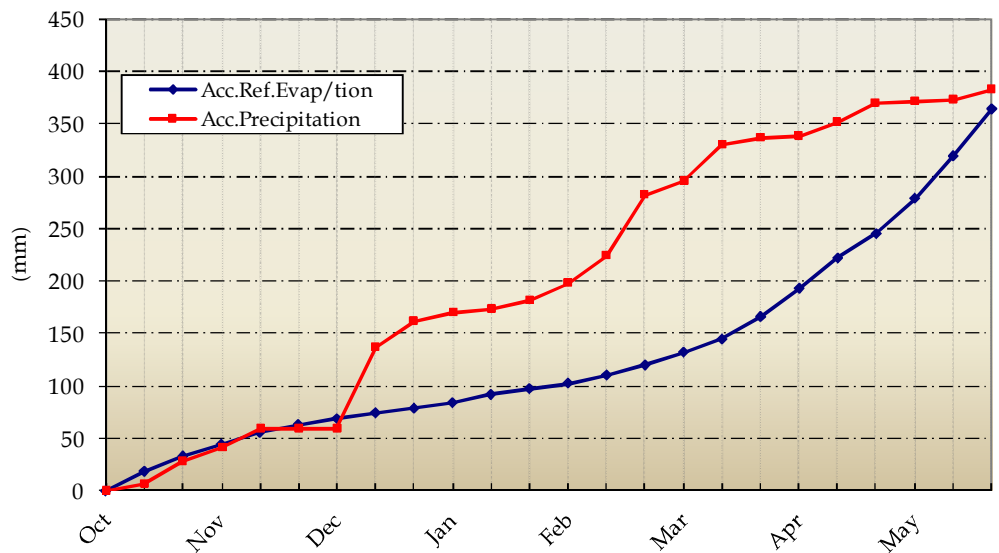


Series

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	30.6	28.4	32.0	24.6	24.4	22.4	21.6	22.6	24.4	26.2	30.8	25.2
	Min	11.6	11.0	12.0	14.0	17.2	13.4	14.4	12.8	12.0	14.0	13.2	15.1	12.7
Relative Humidity	Max	85	74	72	56	94	62	68	50	50	64	68	77	-
	Min	28	26	32	18	70	27	37	34	26	25	32	33	-
Soil Temperature at 10 cm	06 UTC	20.6	21.4	21.6	21.2	23.0	18.4	18.2	18.2	18.2	19.0	20.0	20.8	18.0
	12 UTC	22.0	22.6	23.0	23.2	22.2	20.6	20.2	20.0	20.4	20.6	21.5	23.2	21.8
Sunshine Duration		10.6	9.9	8.7	12.9	1.2	8.2	6.2	10.9	11.7	9.8	9.0	10.0	7.4
Precipitation						8.4	2.3					10.7	12.4	16.8
Evaporation		4.3	4.6	3.9	2.4	5.8	0.5	6.6	5.3	5.7	3.5	42.6	47.0	43.2
Growing Degrees	5	16.5	15.8	15.2	18.0	15.9	13.9	13.4	12.2	12.3	14.2	147.4	179.7	139.0
	10	11.5	10.8	10.2	13.0	10.9	8.9	8.4	7.2	7.3	9.2	97.4	129.7	89.0

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.7	44.1	35.7
Precipitation - Reference Evapotranspiration	-34.0	-31.7	-18.9
Number of Rainy Days	2.0	2.0	3.8
Number of Dry Days	5.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

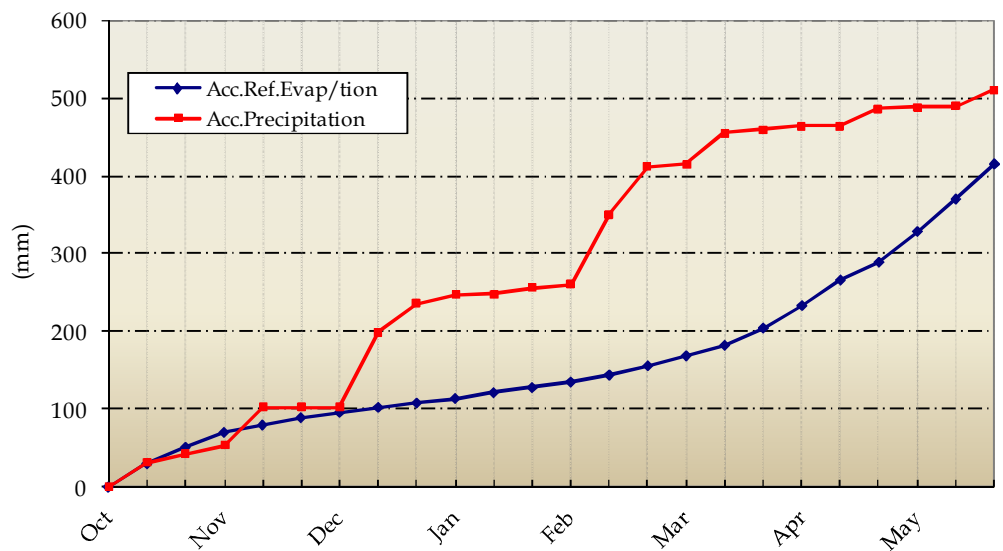


Trikala Imathias

2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.0	28.6	28.0	31.8	23.4	-	20.6	22.4	23.4	22.8	25.4	29.8	25.7
	Min	13.0	15.8	15.0	16.4	17.0	-	14.0	11.8	9.8	12.6	13.9	14.9	13.3
Relative Humidity	Max	91	95	84	60	-	48	59	76	80	98	77	88	-
	Min	26	26	32	24	-	29	38	28	26	28	29	33	-
Soil Temperature at 10 cm	06 UTC	20.0	20.6	20.8	21.4	22.0	-	18.6	17.4	17.6	19.0	19.7	20.9	18.6
	12 UTC	24.0	21.2	23.6	25.4	21.4	-	20.4	21.6	22.2	22.0	22.4	24.7	20.3
Sunshine Duration		7.4	11.1	8.7	11.5	-	11.7	2.6	8.2	12.0	3.5	8.5	9.9	7.9
Precipitation						20.7					0.4	21.1	15.4	11.2
Evaporation		4.6	4.9	3.7	4.4	3.4	2.4	3.5	5.7	6.1	2.2	40.9	-	45.1
Growing Degrees	5	15.5	17.2	16.5	19.1	15.2	-	12.3	12.1	11.6	12.7	-	-	145.1
	10	10.5	12.2	11.5	14.1	10.2	-	7.3	7.1	6.6	7.7	-	-	95.1

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.1	52.6	39.8
Precipitation - Reference Evapotranspiration	-24.0	-37.2	-28.6
Number of Rainy Days	2.0	3.0	2.5
Number of Dry Days	6.0	10.0	-

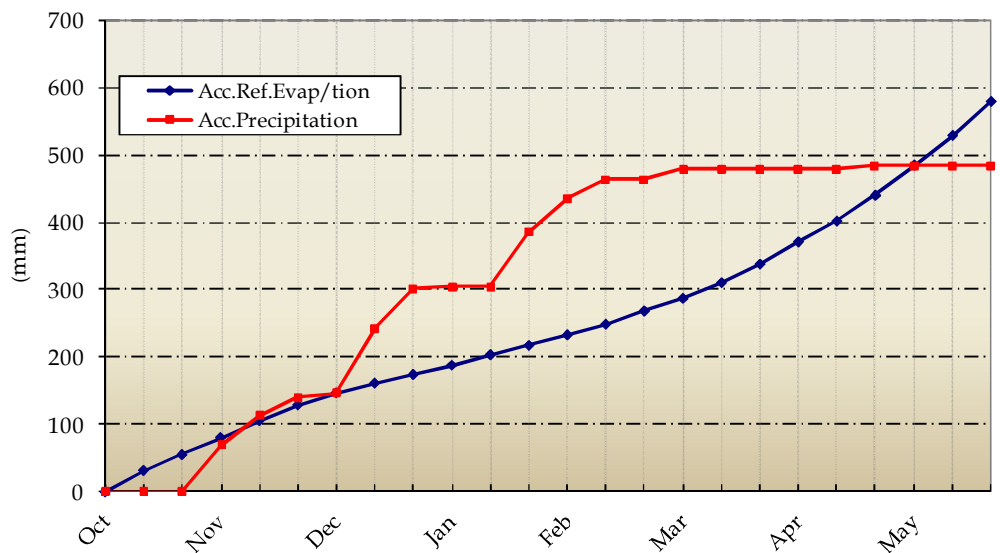
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/05/2010)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.8	24.8	30.4	26.4	35.0	24.0	22.6	21.6	22.0	21.8	25.5	24.8	24.2
	Min	15.0	12.6	12.0	13.4	17.6	17.2	17.4	15.4	14.0	11.4	14.6	14.5	13.9
Relative Humidity	Max	86	91	68	97	97	97	82	78	99	100	90	86	-
	Min	18	35	13	41	10	27	26	46	46	48	31	40	-
Soil Temperature at 10 cm	06 UTC	24.0	24.6	24.6	24.0	26.2	26.6	24.2	23.6	22.6	22.4	24.3	22.8	23.3
	12 UTC	30.8	31.4	29.6	31.2	31.6	29.8	29.4	27.6	29.0	29.0	29.9	28.9	28.5
Sunshine Duration		12.1	11.5	3.7	8.8	3.3	5.6	9.9	8.3	8.8	10.1	8.2	9.3	9.8
Precipitation														3.2
Evaporation		8.1	7.0	6.5	7.9	7.2	9.8	9.0	9.1	5.7	8.2	78.5	-	70.3
Growing Degrees	5	15.9	13.7	16.2	14.9	21.3	15.6	15.0	13.5	13.0	11.6	150.7	-	140.1
	10	10.9	8.7	11.2	9.9	16.3	10.6	10.0	8.5	8.0	6.6	100.7	-	90.3

2nd 10-day period (11-20/05/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.7	45.2	42.8
Precipitation - Reference Evapotranspiration	-50.7	-45.2	-39.6
Number of Rainy Days	0.0	0.0	0.5
Number of Dry Days	31.0	16.0	-

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)