



AGROMETEOROLOGICAL BULLETIN

May 2012
3rd 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



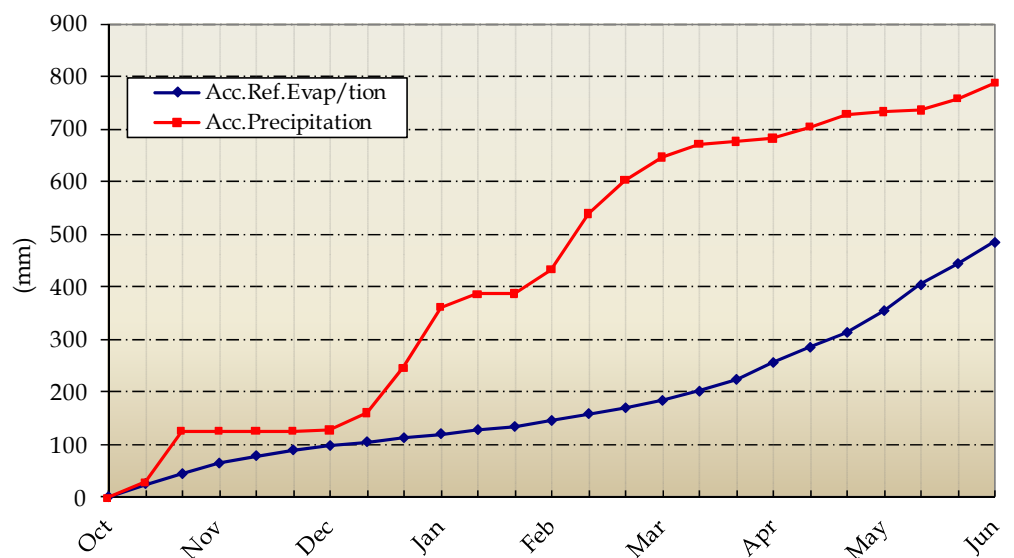
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.6	24.4	21.4	21.2	24.2	25.6	23.0	24.4	20.2	22.0	28.0	23.5	28.8	27.7
	Min	14.4	13.8	13.6	13.4	14.6	16.2	13.4	12.0	15.0	10.4	10.6	13.4	13.5	13.3
Relative Humidity	Max	80	81	89	96	94	92	90	96	94	89	87	90	95	-
	Min	43	39	56	57	59	57	56	46	61	63	42	53	39	-
Soil Temperature at 10 cm	06 UTC	20.6	19.4	20.0	19.2	19.6	21.0	20.8	20.2	20.6	19.0	18.8	19.9	21.1	21.0
	12 UTC	21.6	22.2	20.8	20.8	22.2	23.4	22.0	22.0	21.0	20.8	21.6	21.7	26.1	27.3
Sunshine Duration		0.0	10.7	1.2	1.4	8.9	8.0	6.8	12.6	4.6	8.6	13.2	6.9	7.6	9.3
Precipitation					25.6	0.4		1.2	0.4	0.2	1.5		29.3	11.8	10.2
Evaporation		3.2	7.4	2.5	3.6	17.8	6.1	3.9	6.5	2.3	2.6	7.0	62.9	69.3	71.9
Growing Degrees	5	14.5	14.1	12.5	12.3	14.4	15.9	13.2	13.2	12.6	11.2	14.3	148.2	177.8	170.2
	10	9.5	9.1	7.5	7.3	9.4	10.9	8.2	8.2	7.6	6.2	9.3	93.2	122.8	115.2

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.4	45.0	49.7
Precipitation - Reference Evapotranspiration	-11.1	-33.2	-39.5
Number of Rainy Days	6.0	7.0	1.9
Number of Dry Days	6.0	3.0	-

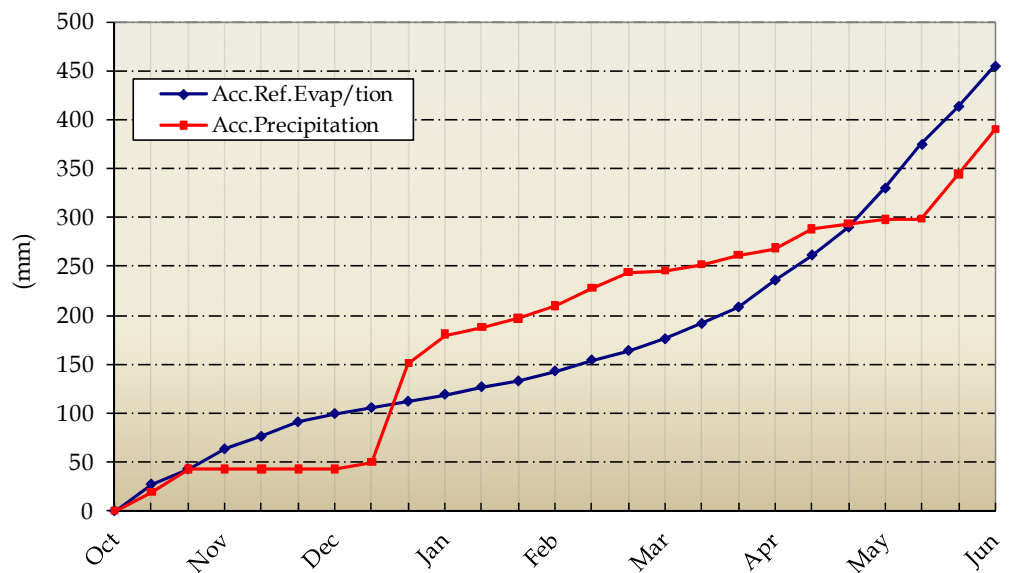
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	26.4	23.0	18.6	20.4	24.2	22.2	20.4	23.0	23.4	22.4	22.4	27.1	24.2
	Min	14.6	15.0	10.8	14.4	13.0	11.4	14.8	14.8	13.2	12.4	11.8	13.3	15.3	12.7
Relative Humidity	Max	93	88	91	96	96	95	98	98	95	89	91	94	86	-
	Min	61	45	46	80	70	51	57	65	57	52	57	58	41	-
Soil Temperature at 10 cm	06 UTC	17.2	18.6	19.2	20.6	17.8	17.6	19.8	19.8	18.2	19.2	20.2	18.9	19.9	19.3
	12 UTC	21.6	27.4	24.2	20.4	20.4	22.0	23.2	21.4	22.6	24.2	24.4	22.9	23.2	23.6
Sunshine Duration		9.2	11.0	13.3	1.0	4.2	11.3	9.2	1.9	8.3	12.8	9.4	8.3	10.4	8.3
Precipitation					9.0	1.7	0.0		34.1			0.5	45.3	0.0	12.4
Evaporation		4.0	6.2	5.7	0.5	0.2	2.5	7.1	2.0	6.0	5.8	3.3	43.3	67.8	70.1
Growing Degrees	5	13.5	15.7	11.9	11.5	11.7	12.8	13.5	12.6	13.1	12.9	12.1	141.3	178.3	147.7
	10	8.5	10.7	6.9	6.5	6.7	7.8	8.5	7.6	8.1	7.9	7.1	86.3	123.3	92.7

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.1	53.9	45.7
Precipitation - Reference Evapotranspiration	4.2	-53.9	-33.3
Number of Rainy Days	4.0	0.0	2.4
Number of Dry Days	3.0	11.0	-

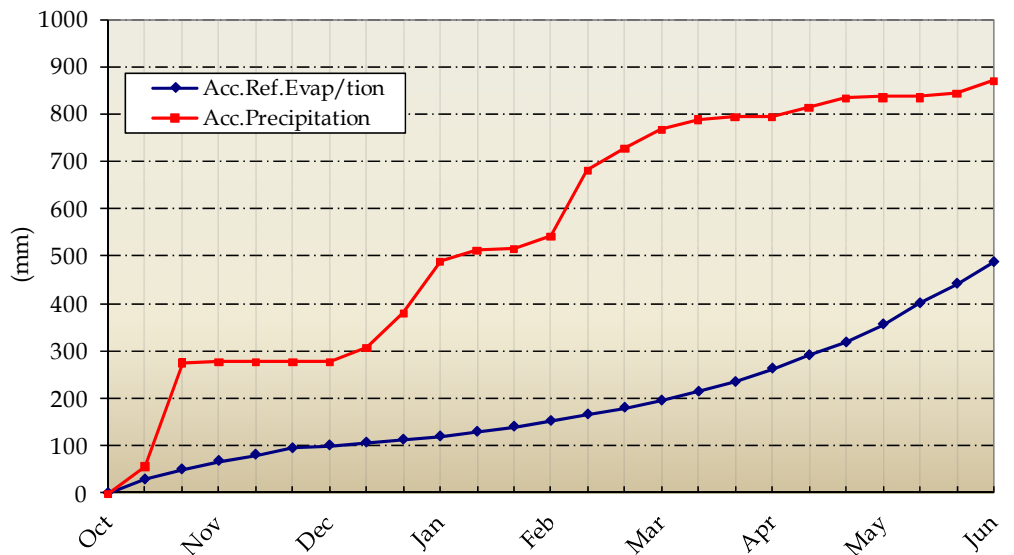
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	26.2	23.0	20.8	22.6	24.4	23.4	22.2	21.2	23.2	23.8	23.6	26.7	25.4
	Min	15.2	14.5	13.6	13.1	14.4	16.0	14.6	14.7	14.4	11.5	12.4	14.0	15.3	14.0
Relative Humidity	Max	85	86	90	93	91	90	88	89	89	91	90	89	91	-
	Min	27	44	41	58	61	52	58	49	54	40	50	49	43	-
Soil Temperature at 10 cm	06 UTC	21.6	21.0	21.0	19.2	19.4	20.2	20.8	20.2	21.0	18.8	20.2	20.3	21.0	21.4
	12 UTC	28.6	28.2	26.4	24.0	24.2	27.0	26.8	26.4	23.2	26.2	27.6	26.2	25.7	25.8
Sunshine Duration		2.0	10.7	7.7	8.2	7.5	11.7	8.8	12.6	2.2	12.5	12.5	8.8	7.1	10.2
Precipitation					26.2					0.1			26.3	3.9	6.8
Evaporation		6.4	5.6	5.9	4.1	4.2	5.6	4.1	6.4	4.0	5.1	6.9	58.3	62.3	63.7
Growing Degrees	5	16.9	15.4	13.3	12.0	13.5	15.2	14.0	13.5	12.8	12.4	13.1	151.9	176.4	161.7
	10	11.9	10.4	8.3	7.0	8.5	10.2	9.0	8.5	7.8	7.4	8.1	96.9	121.4	106.7

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.6	44.4	48.0
Precipitation - Reference Evapotranspiration	-19.3	-40.5	-41.2
Number of Rainy Days	2.0	3.0	1.0
Number of Dry Days	6.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

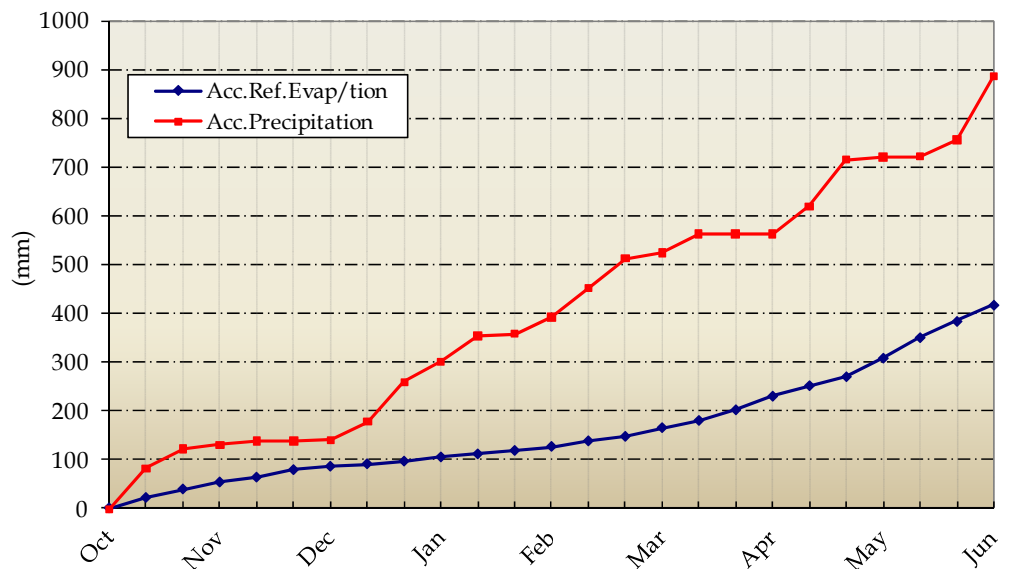


Ioannina

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	20.2	16.0	19.0	23.2	18.4	18.2	21.6	18.6	21.4	25.4	20.7	-	24.6
	Min	13.0	13.6	11.0	11.0	15.4	13.4	12.6	9.6	11.6	9.4	9.0	11.8	-	10.6
Relative Humidity	Max	77	93	98	95	91	96	93	95	93	88	97	92	-	-
	Min	51	55	79	63	51	80	64	51	61	46	42	58	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4
Sunshine Duration		1.2	8.0	0.2	6.3	6.9	0.6	0.4	10.6	3.8	7.0	9.4	4.9	-	8.1
Precipitation			7.3	25.8	26.7	0.7	13.9	16.0		0.2	6.6	32.8	130.0	-	20.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	55.4
Growing Degrees	5	14.2	11.9	8.5	10.0	14.3	10.9	10.4	10.6	10.1	10.4	12.2	123.5	-	138.9
	10	9.2	6.9	3.5	5.0	9.3	5.9	5.4	5.6	5.1	5.4	7.2	68.5	-	83.9

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.4	-	42.6
Precipitation - Reference Evapotranspiration	96.6	-	-21.7
Number of Rainy Days	9.0	-	3.4
Number of Dry Days	4.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

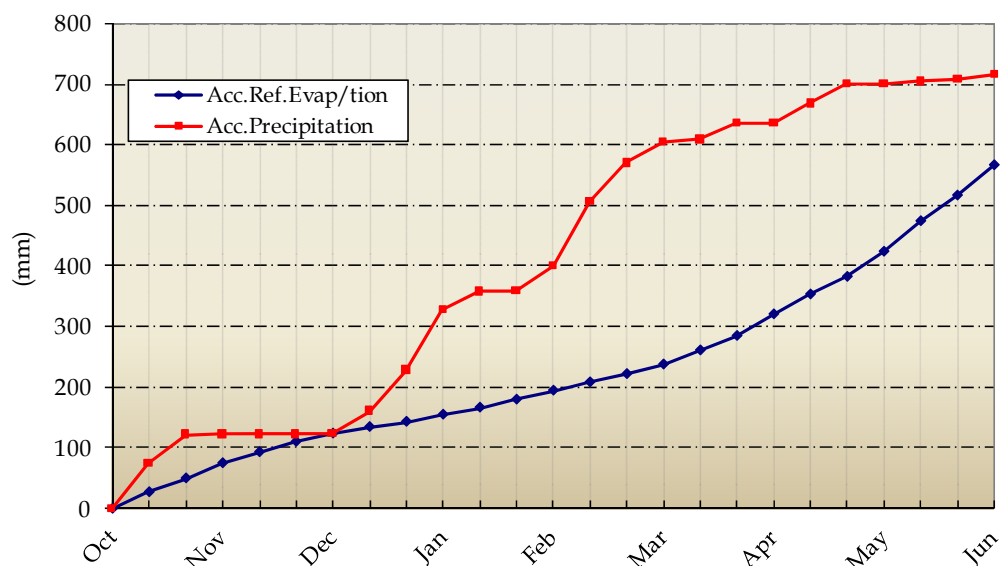


Kalamata

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	26.0	23.8	21.6	23.1	24.6	25.6	24.8	24.0	27.0	24.5	24.9	25.5	26.1
	Min	14.7	17.0	9.6	15.1	13.7	13.2	12.4	12.6	12.8	12.2	12.8	13.3	13.7	13.4
Relative Humidity	Max	91	91	93	91	94	94	94	94	92	94	92	93	95	-
	Min	32	32	49	56	54	48	51	36	40	30	40	43	54	-
Soil Temperature at 10 cm	06 UTC	20.0	20.8	19.4	19.4	19.0	19.4	19.6	20.0	19.8	19.8	19.8	19.7	19.5	20.5
	12 UTC	21.0	23.6	23.4	20.6	20.6	23.0	23.0	22.4	22.0	23.0	23.4	22.4	22.5	24.4
Sunshine Duration		7.6	10.4	10.1	3.7	9.0	10.7	11.2	12.4	5.9	12.0	12.9	9.6	7.7	9.6
Precipitation					6.7					0.0			6.7	32.6	3.4
Evaporation		3.7	8.8	7.4	2.2	5.2	3.6	4.8	8.6	6.4	2.0	13.0	65.7	54.6	68.8
Growing Degrees	5	16.9	16.5	11.7	13.4	13.4	13.9	14.0	13.7	13.4	14.6	13.7	155.1	160.6	162.7
	10	11.9	11.5	6.7	8.4	8.4	8.9	9.0	8.7	8.4	9.6	8.7	100.1	105.6	107.7

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.9	44.3	49.3
Precipitation - Reference Evapotranspiration	-43.2	-11.7	-45.9
Number of Rainy Days	1.0	5.0	1.1
Number of Dry Days	5.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

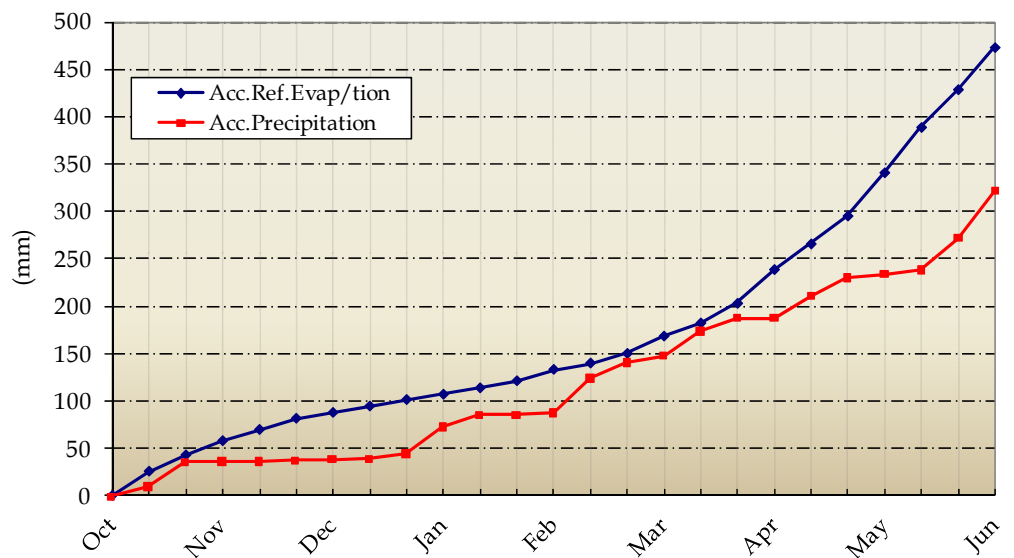


Larisa

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.6	27.0	24.8	21.6	27.0	25.6	21.4	26.7	24.2	24.0	28.8	24.8	27.7	27.7
	Min	14.2	13.4	10.4	14.2	12.8	15.6	12.4	13.6	14.4	10.4	12.0	13.0	14.1	12.6
Relative Humidity	Max	95	97	97	97	97	99	99	97	96	96	95	97	88	-
	Min	64	23	31	48	31	49	54	27	34	37	29	39	37	-
Soil Temperature at 10 cm	06 UTC	18.0	18.0	18.0	18.0	18.0	19.6	18.0	17.6	18.4	18.2	18.4	18.2	19.3	20.0
	12 UTC	19.0	19.2	18.8	17.2	19.4	20.8	19.4	20.0	19.6	20.0	20.2	19.4	21.7	22.3
Sunshine Duration		0.0	11.3	8.3	4.0	12.0	7.0	3.8	12.8	4.5	9.7	9.8	7.6	8.7	8.8
Precipitation				0.0	5.2	0.3	36.0	2.3		4.0	1.1		48.9	0.5	17.2
Evaporation		2.3	5.5	5.2	2.3	6.8	0.2	4.8	6.7	3.1	4.5	5.8	47.2	74.1	67.8
Growing Degrees	5	12.9	15.2	12.6	12.9	14.9	15.6	11.9	15.2	14.3	12.2	15.4	153.1	174.9	166.2
	10	7.9	10.2	7.6	7.9	9.9	10.6	6.9	10.2	9.3	7.2	10.4	98.1	119.9	111.2

3rd 10-day period (21-31/05/2012)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.4	53.3
Precipitation - Reference Evapotranspiration	4.5	-52.8
Number of Rainy Days	6.0	1.0
Number of Dry Days	5.0	22.0

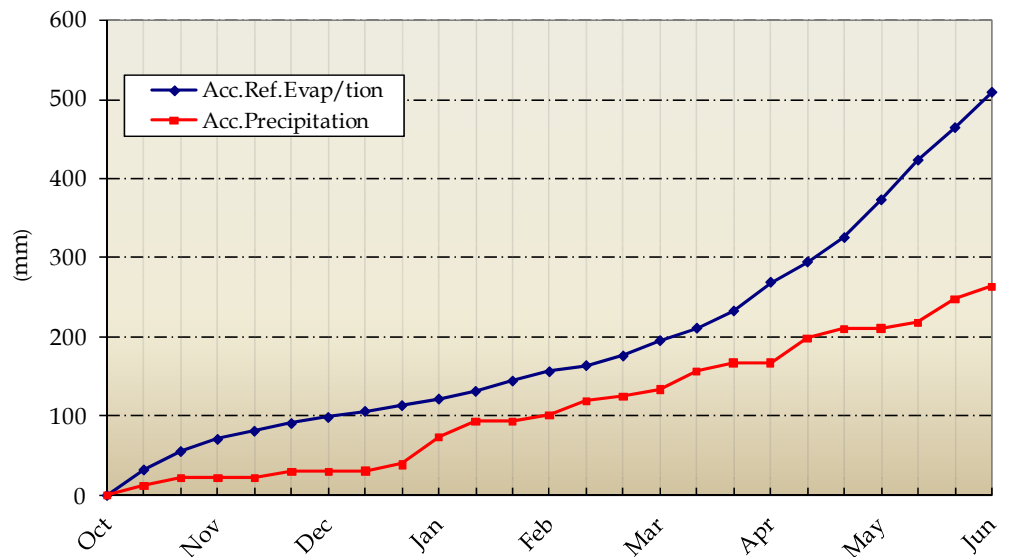
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.4	24.6	25.0	22.6	25.4	20.4	21.5	24.4	24.0	22.6	27.1	23.6	-	26.2
	Min	13.2	14.1	10.8	13.0	11.6	16.8	16.2	16.8	12.8	12.8	12.0	13.6	-	13.9
Relative Humidity	Max	90	91	88	90	90	91	92	75	81	88	88	88	-	-
	Min	44	44	30	45	43	70	60	33	30	50	42	45	-	-
Soil Temperature at 10 cm	06 UTC	20.2	19.4	18.2	19.4	18.8	21.6	19.6	20.0	19.8	20.0	19.6	19.7	-	20.7
	12 UTC	22.0	22.0	24.0	25.0	24.2	21.8	23.2	23.0	24.0	23.8	24.8	23.4	-	25.4
Sunshine Duration		2.3	8.7	10.9	3.9	10.9	0.0	5.4	12.0	7.1	4.0	11.9	7.0	-	8.3
Precipitation			0.6		2.0		12.9	0.1	0.1		0.3		16.0	-	16.2
Evaporation		3.2	3.5	5.9	4.8	9.9	4.4	2.5	7.2	7.2	4.9	7.4	60.9	-	70.6
Growing Degrees	5	12.8	14.4	12.9	12.8	13.5	13.6	13.9	15.6	13.4	12.7	14.6	150.1	-	165.0
	10	7.8	9.4	7.9	7.8	8.5	8.6	8.9	10.6	8.4	7.7	9.6	95.1	-	110.0

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.5	-	48.7
Precipitation - Reference Evapotranspiration	-28.5	-	-32.5
Number of Rainy Days	6.0	-	2.9
Number of Dry Days	3.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

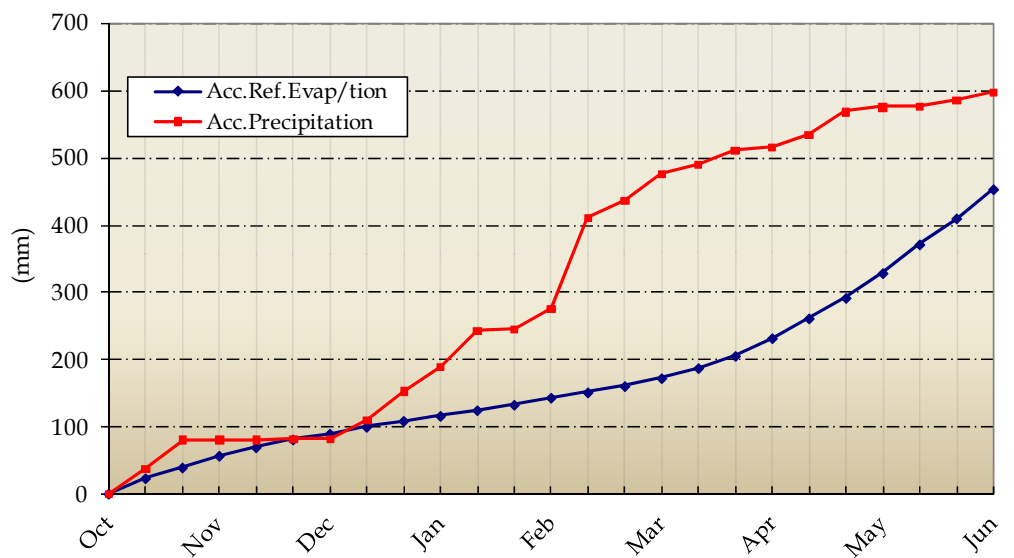


Tripoli

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.4	21.1	20.0	18.0	22.0	23.4	22.6	21.9	19.2	22.7	24.0	21.5	23.1	24.8
	Min	12.2	8.3	10.7	10.7	8.1	8.2	8.8	11.2	7.5	7.4	7.4	9.1	11.3	9.2
Relative Humidity	Max	84	64	71	93	91	94	94	85	89	80	74	84	93	-
	Min	31	29	42	71	51	41	40	30	41	30	34	40	46	-
Soil Temperature at 10 cm	06 UTC	19.0	18.0	18.8	18.6	15.8	15.4	17.6	18.6	17.4	17.4	18.2	17.7	17.2	18.5
	12 UTC	23.0	25.2	22.2	19.4	19.2	22.8	24.4	24.4	21.8	23.6	25.8	22.9	22.4	21.5
Sunshine Duration		5.8	13.0	8.9	4.2	6.7	11.6	9.9	11.4	8.4	12.5	8.9	9.2	7.9	8.9
Precipitation					10.9				0.2		0.0		11.1	23.2	11.3
Evaporation		4.3	6.3	6.2	1.3	1.3	5.7	4.4	4.3	3.2	6.8	5.6	49.4	36.9	48.7
Growing Degrees	5	11.8	9.7	10.4	9.4	10.1	10.8	10.7	11.6	8.4	10.1	10.7	113.4	134.0	132.1
	10	6.8	4.7	5.4	4.4	5.1	5.8	5.7	6.6	3.4	5.1	5.7	58.4	79.0	77.1

3rd 10-day period (21-31/05/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.4	41.8	47.0
Precipitation - Reference Evapotranspiration	-32.3	-18.6	-35.7
Number of Rainy Days	2.0	7.0	2.6
Number of Dry Days	4.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

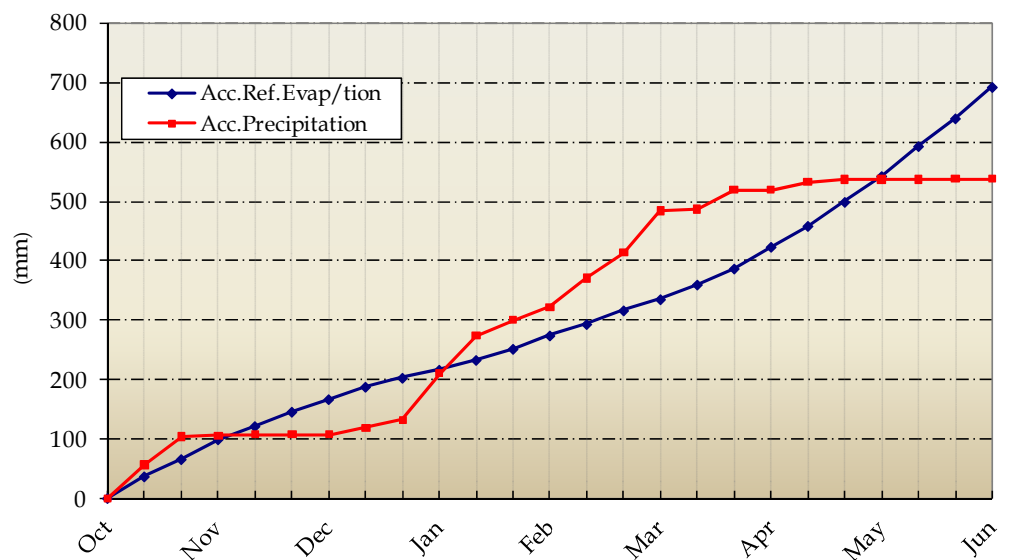


Tympaki

3rd 10-day period (21-31/05/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	24.8	22.2	22.6	22.0	23.0	23.4	23.0	22.4	23.4	24.0	23.7	26.1	26.1
	Min	13.0	19.4	15.2	15.6	14.0	14.6	14.0	14.6	13.2	15.4	15.2	14.9	15.8	15.3
Relative Humidity	Max	62	92	94	94	92	94	93	95	94	95	93	91	94	-
	Min	16	22	42	69	71	73	76	68	69	68	47	56	37	-
Soil Temperature at 10 cm	06 UTC	23.6	25.8	24.4	24.0	24.0	23.8	24.6	25.4	24.8	24.8	24.4	24.5	24.4	25.2
	12 UTC	28.4	31.0	30.2	30.4	30.4	30.6	31.0	31.6	30.6	30.6	31.0	30.5	29.4	30.3
Sunshine Duration		3.3	10.8	12.9	9.8	12.6	13.1	12.4	13.1	13.1	10.4	13.5	11.4	9.3	10.3
Precipitation														2.7	1.4
Evaporation		9.0	8.2	9.1	7.7	5.2	7.1	7.7	7.5	9.1	6.1	9.4	86.1	77.7	83.8
Growing Degrees	5	16.5	17.1	13.7	14.1	13.0	13.8	13.7	13.8	12.8	14.4	14.6	157.5	175.8	172.9
	10	11.5	12.1	8.7	9.1	8.0	8.8	8.7	8.8	7.8	9.4	9.6	102.5	120.8	117.9

3rd 10-day period (21-31/05/2012)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.8	55.4
Precipitation - Reference Evapotranspiration	-52.8	-52.7
Number of Rainy Days	0.0	4.0
Number of Dry Days	14.0	12.0

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

© 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)