



AGROMETEOROLOGICAL BULLETIN

*April 2015
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



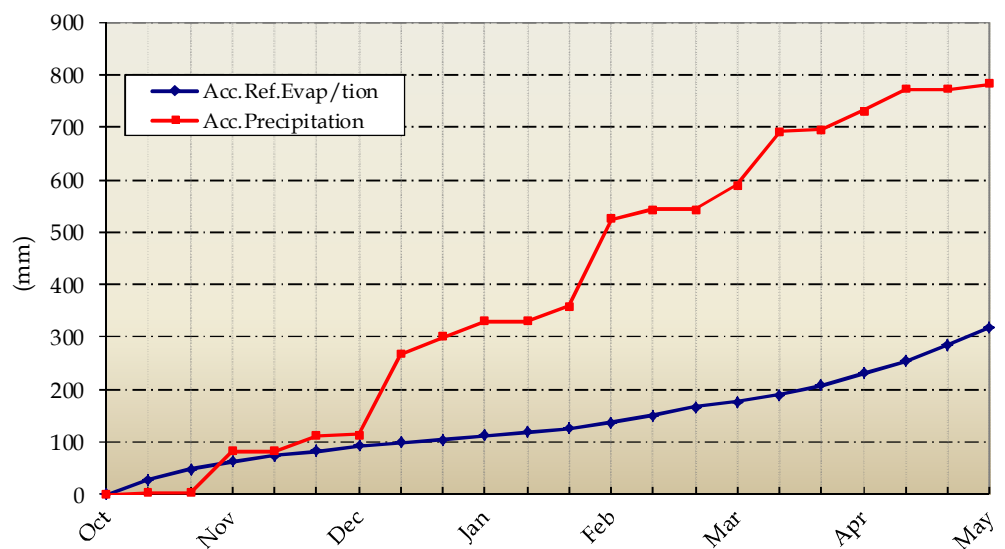
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.4	13.0	14.4	17.6	18.2	19.6	19.8	22.8	21.2	21.0	18.4	20.0	18.4
	Min	9.8	5.6	3.8	7.4	11.0	10.0	8.2	10.8	9.8	8.8	8.5	11.8	7.8
Relative Humidity	Max	90	91	90	94	95	93	94	93	98	92	93	92	-
	Min	30	59	39	45	61	60	59	43	72	45	51	59	-
Soil Temperature at 10 cm	06 UTC	13.2	12.4	9.0	11.4	14.6	15.0	14.6	16.6	16.4	16.0	13.9	16.2	12.7
	12 UTC	17.4	14.6	15.6	18.2	20.0	21.0	22.2	20.0	22.0	22.2	19.3	19.1	16.6
Sunshine Duration		7.2	7.1	11.9	10.8	7.9	10.3	11.5	8.7	7.6	8.5	9.2	6.4	7.4
Precipitation		0.3	6.2			1.2	1.0			0.0		8.7	7.4	11.6
Evaporation		4.9	2.2	4.7	6.3	4.7	2.8	4.8	4.7	1.9	4.4	41.4	41.0	46.0
Growing Degrees	5	8.1	4.3	4.1	7.5	9.6	9.8	9.0	11.8	10.5	9.9	84.6	109.2	80.8
	10	3.1	0.0	0.0	2.5	4.6	4.8	4.0	6.8	5.5	4.9	36.2	59.2	32.3

3rd 10-day period (21-30/04/2015)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	31.9	29.6	31.2
Precipitation - Reference Evapotranspiration	-23.2	-22.2	-19.6
Number of Rainy Days	4.0	9.0	2.2
Number of Dry Days	1.0	0.0	-

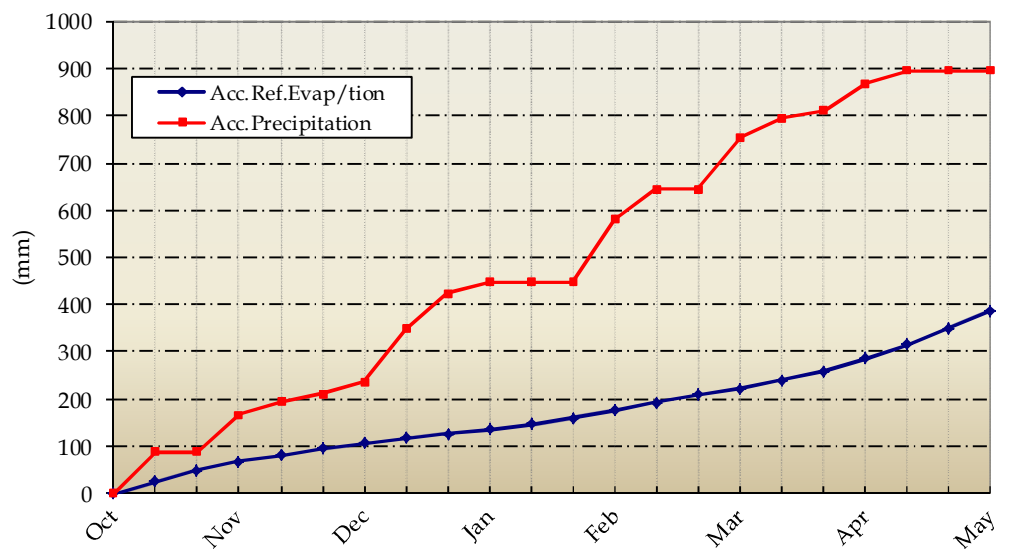
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.9	19.8	20.3	19.6	20.8	23.2	23.8	22.6	21.1	20.6	21.1	21.0	20.2
	Min	12.6	9.4	8.0	10.5	11.6	8.7	11.3	11.2	13.4	10.9	10.8	12.4	9.8
Relative Humidity	Max	85	86	85	86	88	90	89	88	89	90	88	89	-
	Min	45	43	48	47	49	43	41	51	53	55	48	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	16.5	15.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	18.7	18.4
Sunshine Duration		10.5	11.6	8.5	8.5	10.9	11.8	9.9	9.1	11.4	11.2	10.3	6.7	8.8
Precipitation													14.8	8.8
Evaporation		6.9	5.1	7.6	1.4	2.0	3.6	8.4	8.2	5.3	5.5	54.0	42.0	43.9
Growing Degrees	5	10.8	9.6	9.2	10.1	11.2	11.0	12.6	11.9	12.3	10.8	109.2	116.7	100.1
	10	5.8	4.6	4.2	5.1	6.2	6.0	7.6	6.9	7.3	5.8	59.2	66.7	50.1

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.0	32.1	33.2
Precipitation - Reference Evapotranspiration	-37.0	-17.3	-24.4
Number of Rainy Days	0.0	4.0	1.8
Number of Dry Days	23.0	1.0	-

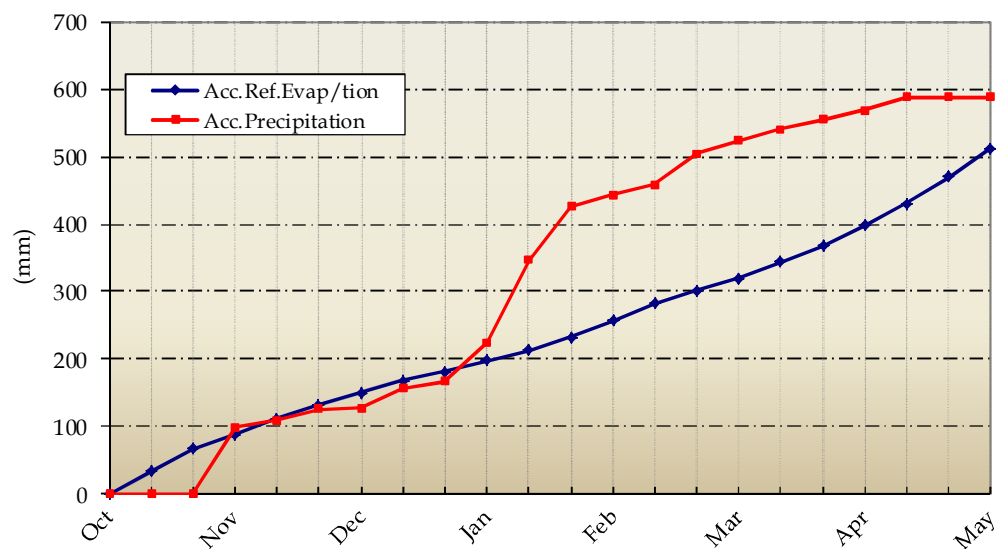
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.8	18.2	16.4	18.8	23.0	21.6	19.8	27.4	21.0	21.0	20.6	24.6	20.6
	Min	13.0	13.4	11.0	7.8	14.6	13.8	13.4	13.6	13.6	13.2	12.7	15.3	12.6
Relative Humidity	Max	86	82	82	71	60	91	93	62	81	89	80	79	-
	Min	56	44	40	47	33	53	36	15	53	53	43	42	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		10.7	12.3	6.3	11.9	8.9	11.0	11.1	7.8	11.6	12.0	10.4	8.8	8.9
Precipitation													5.1	5.6
Evaporation		3.3	3.5	3.7	6.2	5.9	3.5	4.1	7.8	3.4	3.7	45.1	52.3	52.8
Growing Degrees	5	10.9	10.8	8.7	8.3	13.8	12.7	11.6	15.5	12.3	12.1	116.7	149.2	115.8
	10	5.9	5.8	3.7	3.3	8.8	7.7	6.6	10.5	7.3	7.1	66.7	99.2	65.8

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.4	45.7	-
Precipitation - Reference Evapotranspiration	-42.4	-40.6	5.6
Number of Rainy Days	0.0	1.0	1.3
Number of Dry Days	20.0	12.0	-

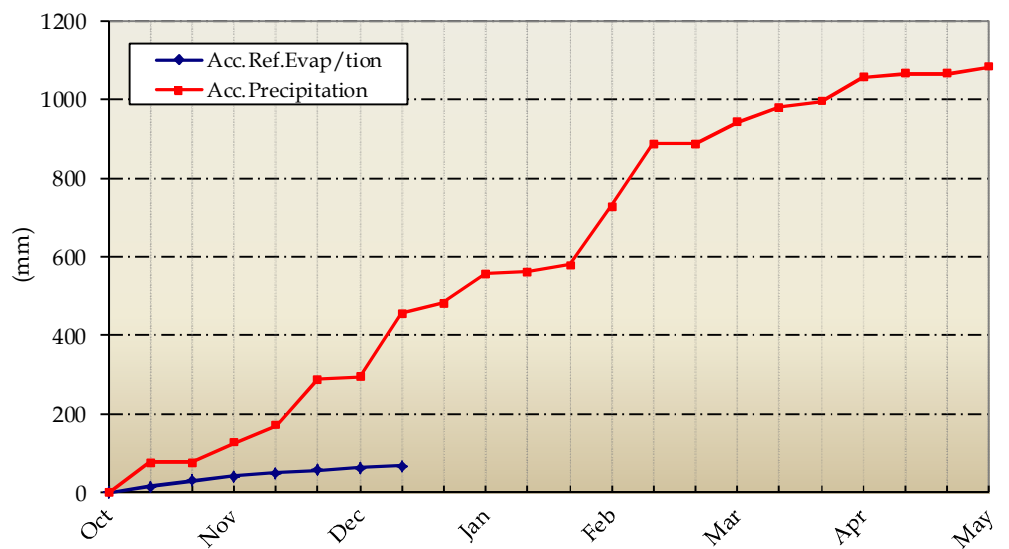
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	20.2	21.5	16.6	20.9	23.7	22.9	20.7	17.6	18.0	20.3	18.5	18.6
	Min	1.4	2.8	2.6	6.7	6.3	3.4	4.6	9.3	11.1	9.4	5.8	9.5	6.5
Relative Humidity	Max	100	98	100	100	100	100	100	98	100	100	100	92	-
	Min	20	19	21	45	34	22	22	44	65	47	34	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.9
Sunshine Duration		10.4	11.7	9.2	0.5	8.7	8.6	7.7	4.2	4.2	2.5	6.8	2.3	6.6
Precipitation					0.0					11.2	5.4	16.6	53.2	15.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.5
Growing Degrees	5	6.0	6.5	7.1	6.7	8.6	8.6	8.8	10.0	9.4	8.7	80.2	90.0	75.1
	10	1.0	1.5	2.1	1.7	3.6	3.6	3.8	5.0	4.4	3.7	30.2	40.0	27.7

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	20.0	29.4
Precipitation - Reference Evapotranspiration	-	33.2	-14.2
Number of Rainy Days	2.0	7.0	3.6
Number of Dry Days	21.0	3.0	-

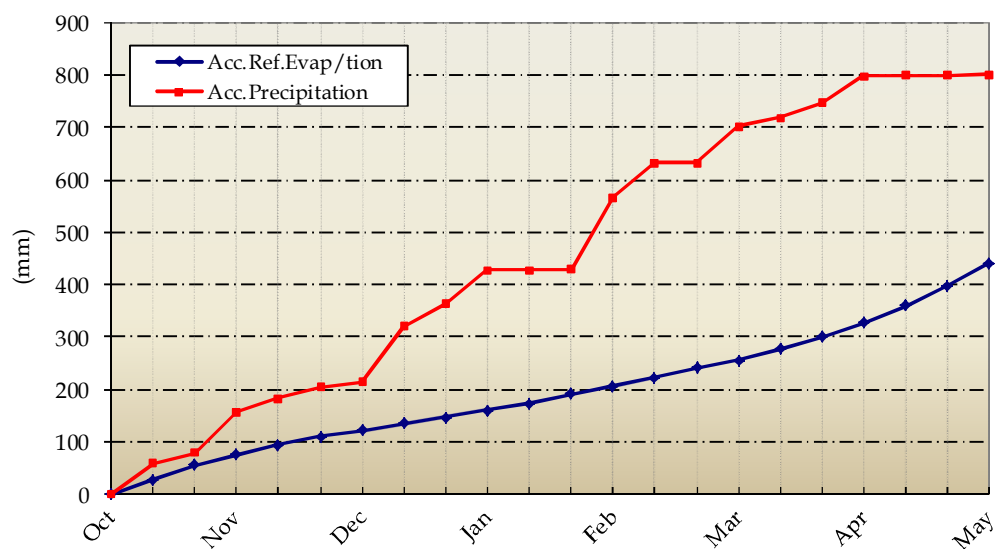
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.1	19.8	19.7	19.6	23.4	24.2	22.0	22.2	23.6	24.8	22.0	22.4	20.8
	Min	8.0	9.0	7.5	7.2	10.8	11.2	9.7	10.0	9.1	11.5	9.4	11.8	9.1
Relative Humidity	Max	85	93	94	93	93	92	93	93	94	92	92	92	-
	Min	32	49	50	48	33	38	46	35	40	31	40	44	-
Soil Temperature at 10 cm	06 UTC	15.4	16.0	15.8	15.4	15.6	16.4	16.8	17.0	15.8	17.2	16.1	16.5	15.1
	12 UTC	18.8	17.6	19.0	17.6	17.0	18.6	18.6	18.6	19.0	19.0	18.4	18.0	18.5
Sunshine Duration		11.6	11.4	9.6	10.2	10.3	11.1	12.0	10.6	10.3	12.4	11.0	7.2	8.3
Precipitation						1.6						1.6	11.7	12.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	46.5
Growing Degrees	5	9.6	9.4	8.6	8.4	12.1	12.7	10.9	11.1	11.4	13.2	107.2	121.3	99.4
	10	4.6	4.4	3.6	3.4	7.1	7.7	5.9	6.1	6.4	8.2	57.2	71.3	49.4

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.9	35.4	34.1
Precipitation - Reference Evapotranspiration	-40.3	-23.7	-21.9
Number of Rainy Days	1.0	4.0	2.6
Number of Dry Days	16.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

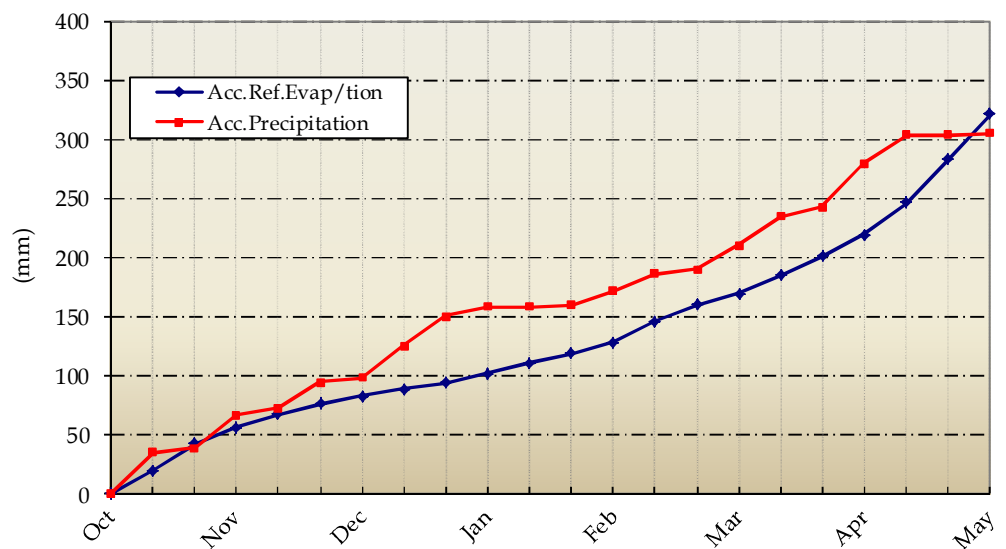


Larisa

3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.8	22.4	19.5	21.6	22.0	22.6	25.0	26.6	24.6	23.4	22.8	20.8	21.1
	Min	3.6	3.4	7.4	5.8	9.2	5.3	8.0	11.6	9.8	8.4	7.2	10.3	7.3
Relative Humidity	Max	100	100	95	100	100	100	100	100	86	100	98	99	-
	Min	21	20	39	33	33	42	36	23	31	35	31	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.2
Sunshine Duration		10.2	10.5	8.3	7.6	7.0	9.9	9.4	10.9	8.7	8.6	9.1	4.0	7.9
Precipitation											1.8	1.8	31.7	10.7
Evaporation		3.5	6.8	5.5	3.9	4.9	4.9	6.3	10.6	2.1	8.7	57.2	27.4	43.9
Growing Degrees	5	6.7	7.9	8.5	8.7	10.6	9.0	11.5	14.1	12.2	10.9	100.0	105.4	91.9
	10	1.7	2.9	3.5	3.7	5.6	4.0	6.5	9.1	7.2	5.9	50.0	55.4	42.7

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.6	27.8	34.0
Precipitation - Reference Evapotranspiration	-36.8	3.9	-23.3
Number of Rainy Days	1.0	6.0	2.7
Number of Dry Days	20.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

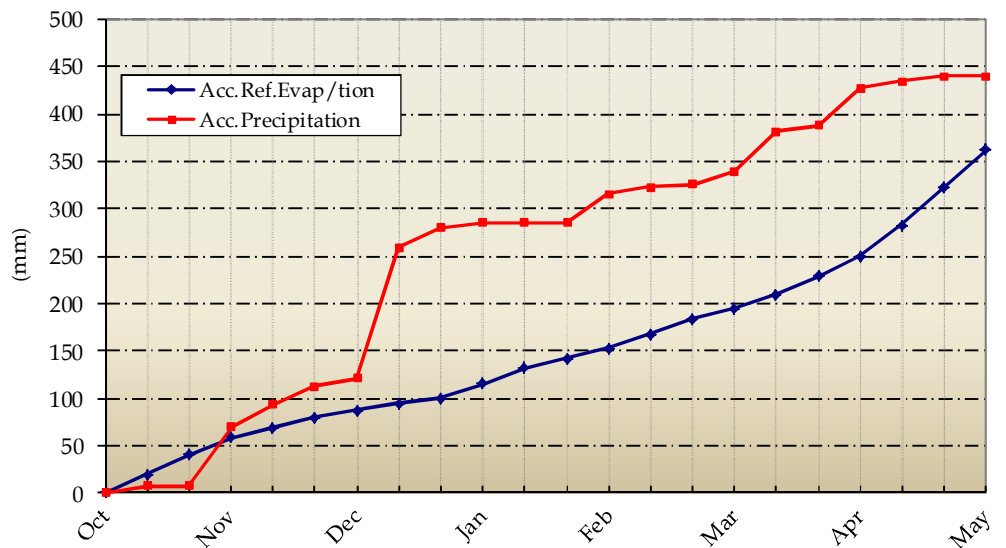


Mikra

3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	20.6	17.7	19.2	20.4	21.1	21.2	22.4	23.6	21.8	20.7	19.7	20.2
	Min	5.0	6.6	7.8	6.7	9.2	7.9	8.6	12.6	11.7	14.9	9.1	11.9	8.4
Relative Humidity	Max	90	80	83	89	90	90	90	91	84	84	87	92	-
	Min	22	26	42	50	43	48	55	53	39	36	41	59	-
Soil Temperature at 10 cm	06 UTC	13.2	13.4	14.2	14.3	15.5	16.0	16.4	17.6	18.0	17.6	15.6	16.1	14.2
	12 UTC	16.8	18.0	18.2	18.0	20.2	20.6	21.4	22.2	23.6	22.2	20.1	18.8	18.8
Sunshine Duration		11.9	10.5	9.4	7.9	8.3	7.3	6.3	11.5	11.0	8.4	9.2	3.9	7.6
Precipitation			0.0			0.0						0.0	44.3	11.2
Evaporation		2.3	6.5	6.3	5.2	4.1	3.9	3.9	4.9	7.7	5.4	50.2	35.2	45.8
Growing Degrees	5	7.1	8.6	7.8	8.0	9.8	9.5	9.9	12.5	12.7	13.4	99.1	108.0	93.3
	10	2.1	3.6	2.8	3.0	4.8	4.5	4.9	7.5	7.7	8.4	49.1	58.0	43.8

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.6	25.8	33.7
Precipitation - Reference Evapotranspiration	-38.6	18.5	-22.5
Number of Rainy Days	0.0	6.0	3.0
Number of Dry Days	10.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

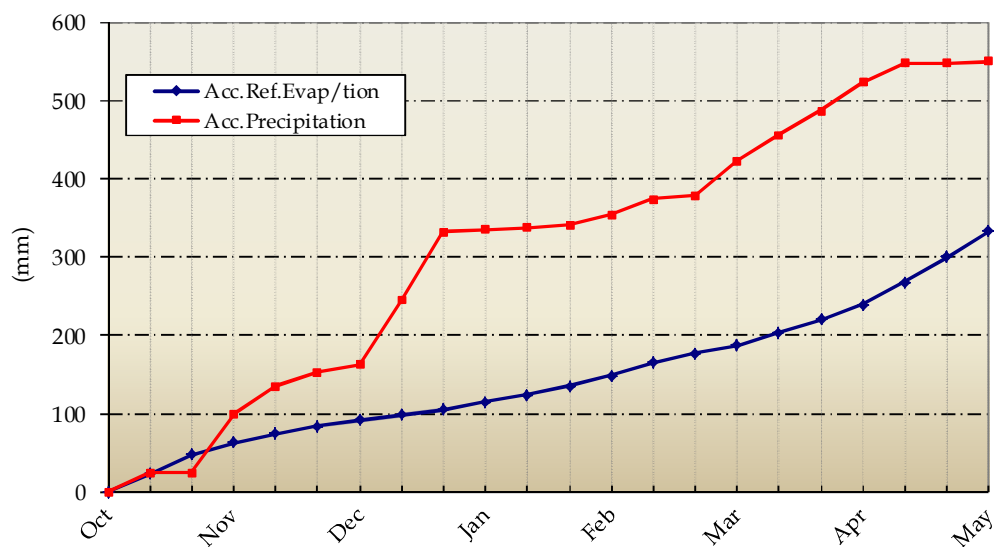


Tanagra

3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.1	19.1	17.4	18.9	19.3	21.4	23.0	25.0	24.1	23.0	20.8	21.1	15.8
	Min	6.5	4.0	5.2	5.4	10.8	7.3	7.6	10.2	10.9	9.9	7.8	10.5	
Relative Humidity	Max	99	98	94	97	99	100	98	96	81	95	96	95	-
	Min	30	26	44	49	54	47	34	28	36	39	39	51	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	
Sunshine Duration		9.2	10.9	10.3	5.0	3.9	9.0	9.0	8.5	11.7	8.6	8.6	-	
Precipitation						0.0					1.6	1.6	36.5	7.9
Evaporation		0.5	4.5	4.0	2.2	2.8	3.0	4.2	5.8	5.0	3.6	35.6	-	
Growing Degrees	5	6.8	6.6	6.3	7.2	10.1	9.4	10.3	12.6	12.5	11.5	93.1	-	
	10	1.8	1.6	1.3	2.2	5.1	4.4	5.3	7.6	7.5	6.5	43.1	-	

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.5	-	
Precipitation - Reference Evapotranspiration	-31.9	-	
Number of Rainy Days	1.0	-	
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

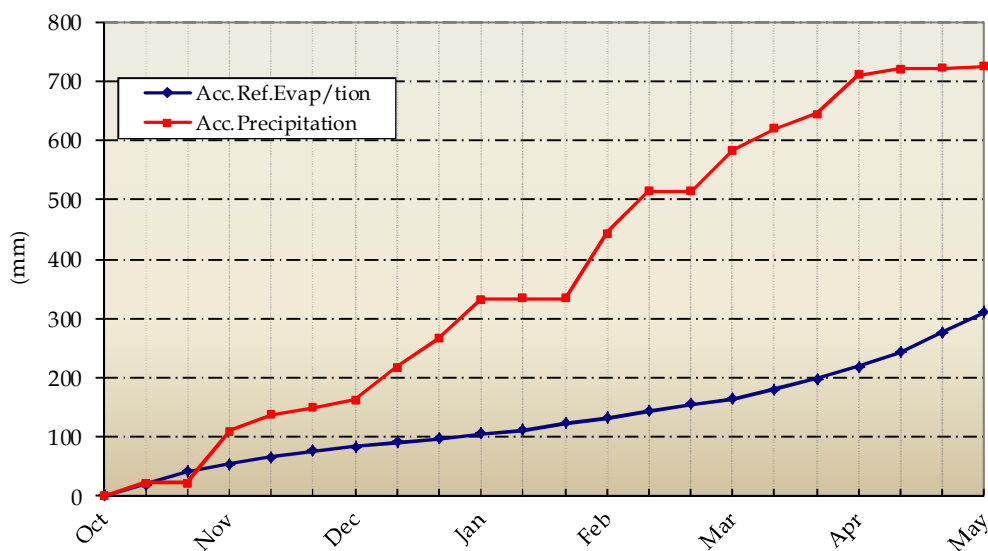


Tripoli

3rd 10-day period (21-30/04/2015)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	17.6	16.8	18.1	19.6	19.8	22.7	21.0	19.1	21.9	19.4	18.5	18.7
	Min	1.5	2.7	2.7	2.0	6.8	4.5	4.8	6.5	8.9	4.6	4.5	8.8	5.4
Relative Humidity	Max	100	100	100	100	100	100	100	84	100	100	98	91	-
	Min	35	31	47	27	45	35	29	31	46	29	36	40	-
Soil Temperature at 10 cm	06 UTC	12.2	11.6	11.6	11.8	13.4	13.6	14.6	16.0	16.4	14.8	13.6	13.9	12.1
	12 UTC	16.0	16.4	17.0	16.4	-	-	21.4	22.2	19.0	22.4	18.8	19.1	14.3
Sunshine Duration		5.9	7.3	6.6	8.3	10.3	10.8	10.8	11.5	9.9	11.9	9.3	7.0	8.0
Precipitation		1.4	0.5			0.0						1.9	11.9	14.5
Evaporation		1.4	3.2	3.0	3.5	3.8	6.2	4.9	6.4	3.4	-	-	33.3	35.0
Growing Degrees	5	4.6	5.2	4.8	5.1	8.2	7.2	8.8	8.8	9.0	8.3	69.6	86.4	70.7
	10	0.0	0.2	0.0	0.1	3.2	2.2	3.8	3.8	4.0	3.3	20.3	36.4	24.2

3rd 10-day period (21-30/04/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.8	31.6	32.9
Precipitation - Reference Evapotranspiration	-31.9	-19.7	-18.4
Number of Rainy Days	2.0	5.0	2.7
Number of Dry Days	1.0	0.0	-

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 :

Papakrivou Anastasia

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens