



AGROMETEOROLOGICAL BULLETIN

May 2014
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

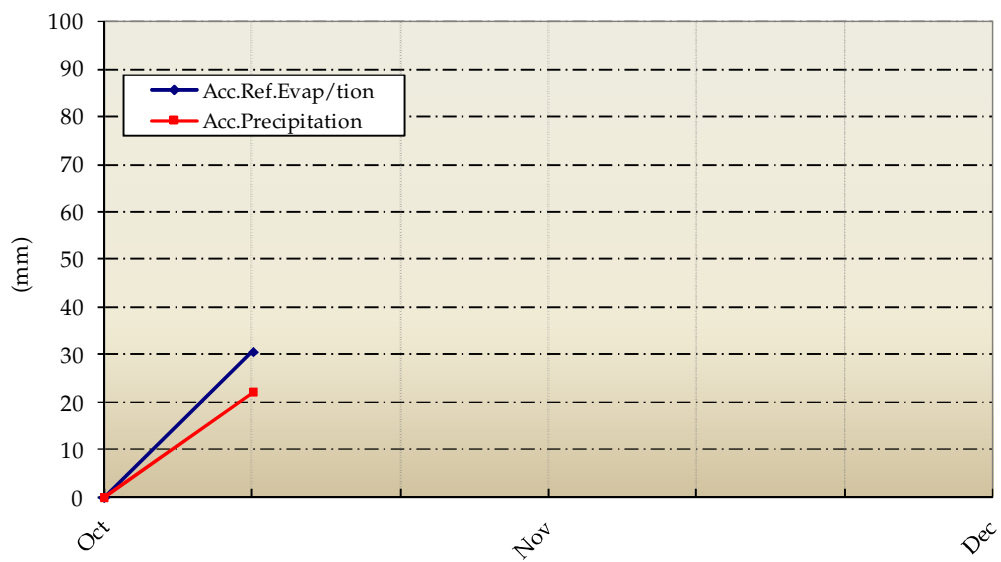
Agrinio

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max														
	Min														
Relative Humidity	Max														
	Min														
Soil Temperature at 10 cm	06 UTC														
	12 UTC														
Sunshine Duration															
Precipitation															
Evaporation															
Growing Degrees	5														
	10														

3rd 10-day period (21-31/05/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration		
Precipitation - Reference Evapotranspiration		
Number of Rainy Days		
Number of Dry Days		

This station is not operated

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

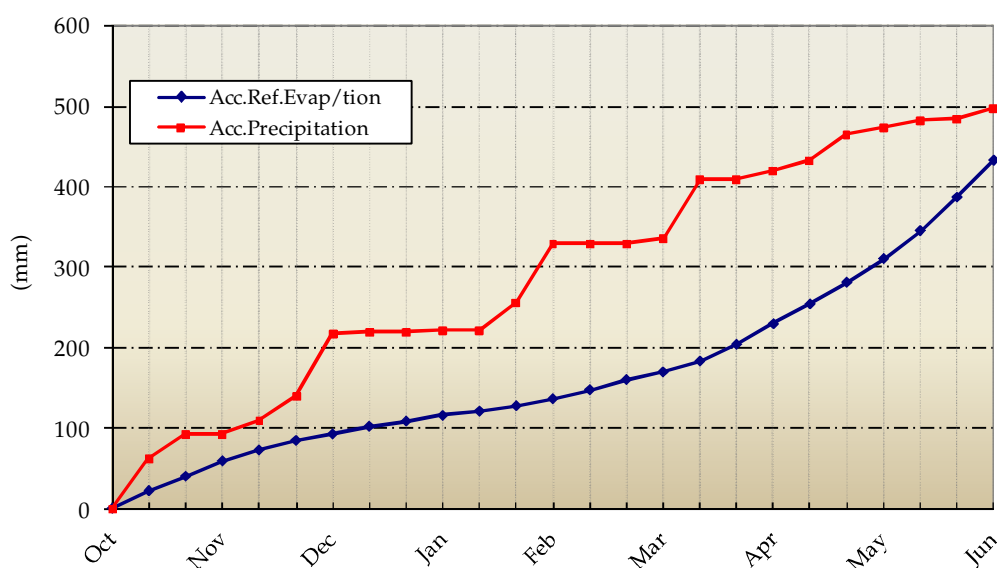


Alexandroupoli

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.0	27.6	25.4	24.0	25.4	27.6	25.8	28.0	27.0	23.4	22.2	25.8	27.1	24.2
	Min	10.6	13.6	11.2	12.4	13.8	15.2	18.4	15.4	14.6	17.0	16.0	14.4	16.4	12.7
Relative Humidity	Max	94	93	91	91	89	92	92	92	93	94	96	92	85	-
	Min	30	32	44	57	60	46	59	53	41	66	62	50	41	-
Soil Temperature at 10 cm	06 UTC	20.2	21.6	20.6	19.4	20.6	21.8	23.6	23.6	23.8	23.4	20.6	21.7	24.1	19.3
	12 UTC	24.6	26.5	24.8	25.2	25.6	27.0	28.4	28.8	28.4	24.6	23.0	26.1	27.3	23.6
Sunshine Duration		13.0	8.7	10.7	11.2	7.3	12.0	10.4	12.9	7.8	2.4	2.2	9.0	12.2	8.3
Precipitation			0.3	2.7				0.3			7.0	1.6	11.9		12.4
Evaporation		7.6	5.0	3.2	6.4	5.0	13.2	9.3	7.5	6.6	0.3	3.9	68.0	93.5	70.1
Growing Degrees	5	13.8	15.6	13.3	13.2	14.6	16.4	17.1	16.7	15.8	15.2	14.1	165.8	184.3	147.7
	10	8.8	10.6	8.3	8.2	9.6	11.4	12.1	11.7	10.8	10.2	9.1	110.8	129.3	92.7

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.2	60.4	45.7
Precipitation - Reference Evapotranspiration	-34.3	-60.4	-33.3
Number of Rainy Days	5.0	0.0	2.4
Number of Dry Days	10.0	18.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

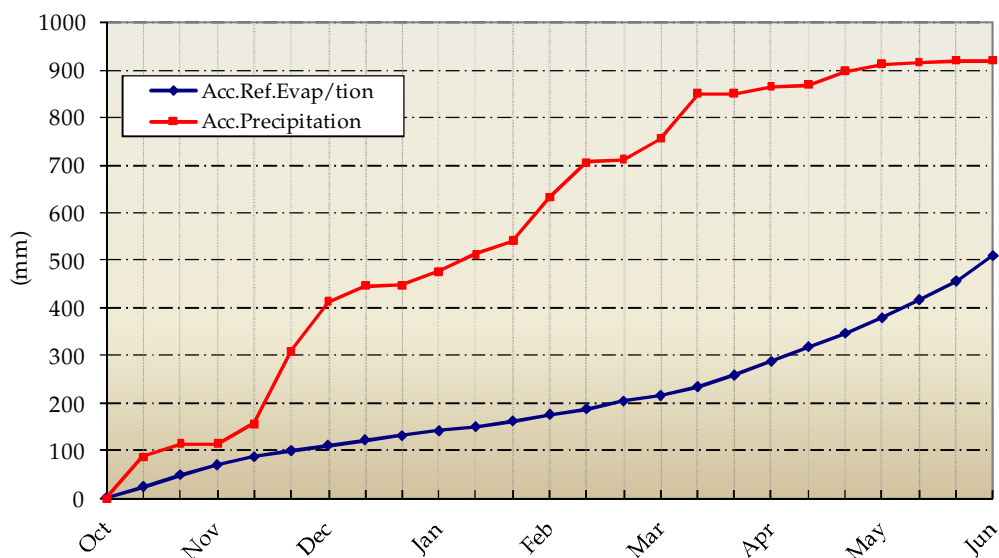


Andravida

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	26.8	26.5	27.0	27.6	30.6	27.0	27.4	26.4	23.8	23.4	26.6	25.5	25.4
	Min	12.6	11.8	14.4	14.6	14.2	14.2	15.0	15.2	15.0	14.4	14.6	14.2	15.7	14.0
Relative Humidity	Max	91	89	87	86	90	87	89	90	90	82	85	88	82	-
	Min	33	32	44	34	38	31	40	38	31	45	50	38	38	-
Soil Temperature at 10 cm	06 UTC	19.4	20.0	21.6	22.0	21.2	21.6	22.0	23.2	23.0	22.8	22.2	21.7	22.4	21.4
	12 UTC	24.0	28.4	30.2	30.0	30.0	31.0	31.0	31.0	28.2	30.6	30.8	29.6	27.6	25.8
Sunshine Duration		12.4	13.1	12.7	7.6	7.0	12.4	12.2	9.2	10.2	12.8	12.3	11.1	9.5	10.2
Precipitation														0.9	6.8
Evaporation		4.6	5.3	8.3	5.8	4.0	7.0	6.0	4.5	1.7	6.0	8.3	61.5	72.5	63.7
Growing Degrees	5	14.5	14.3	15.5	15.8	15.9	17.4	16.0	16.3	15.7	14.1	14.0	169.5	171.7	161.7
	10	9.5	9.3	10.5	10.8	10.9	12.4	11.0	11.3	10.7	9.1	9.0	114.5	116.7	106.7

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.5	51.9	48.0
Precipitation - Reference Evapotranspiration	-53.5	-51.0	-41.2
Number of Rainy Days	0.0	2.0	1.0
Number of Dry Days	12.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

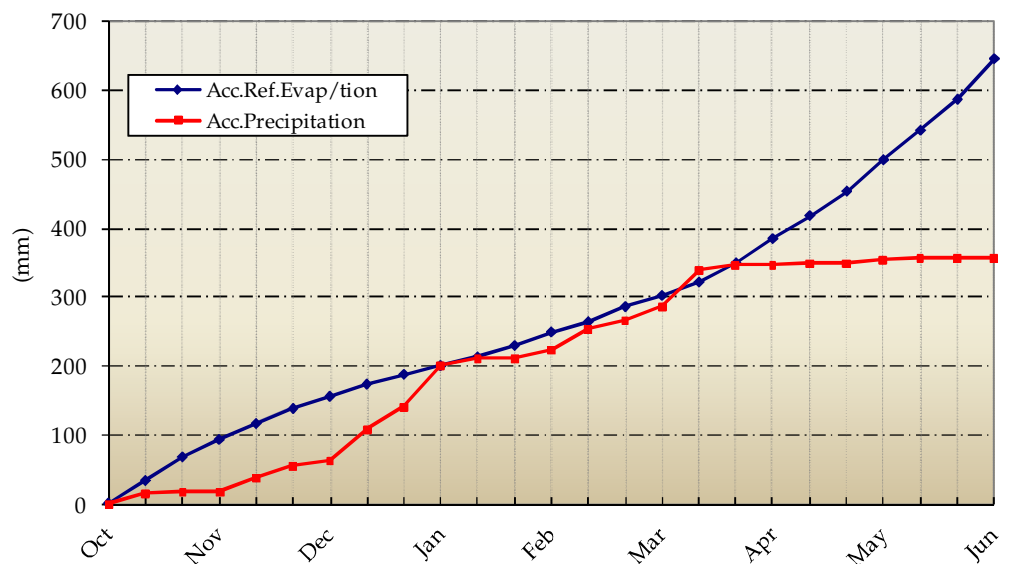


Iraklio

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	24.4	25.0	27.0	27.6	34.0	25.2	27.0	34.2	24.5	24.2	27.0	26.7	24.9
	Min	14.0	16.0	19.0	15.5	18.0	19.4	17.0	17.5	20.2	18.0	18.4	17.5	17.9	16.6
Relative Humidity	Max	83	83	81	75	86	86	80	80	90	87	78	83	81	-
	Min	47	54	49	49	47	24	62	45	30	56	54	47	36	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.6	12.9	12.8	12.3	12.3	12.1	11.6	7.4	5.7	7.8	13.0	11.0	10.7	10.1
Precipitation										0.8			0.8		4.4
Evaporation		6.3	5.2	6.4	7.9	7.5	7.9	3.8	4.6	5.1	9.3	3.0	67.0	69.0	74.4
Growing Degrees	5	14.0	15.2	17.0	16.3	17.8	21.7	16.1	17.3	22.2	16.3	16.3	190.1	190.8	173.1
	10	9.0	10.2	12.0	11.3	12.8	16.7	11.1	12.3	17.2	11.3	11.3	135.1	135.8	118.1

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.9	59.6	-
Precipitation - Reference Evapotranspiration	-58.1	-59.6	4.4
Number of Rainy Days	1.0	0.0	0.7
Number of Dry Days	23.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

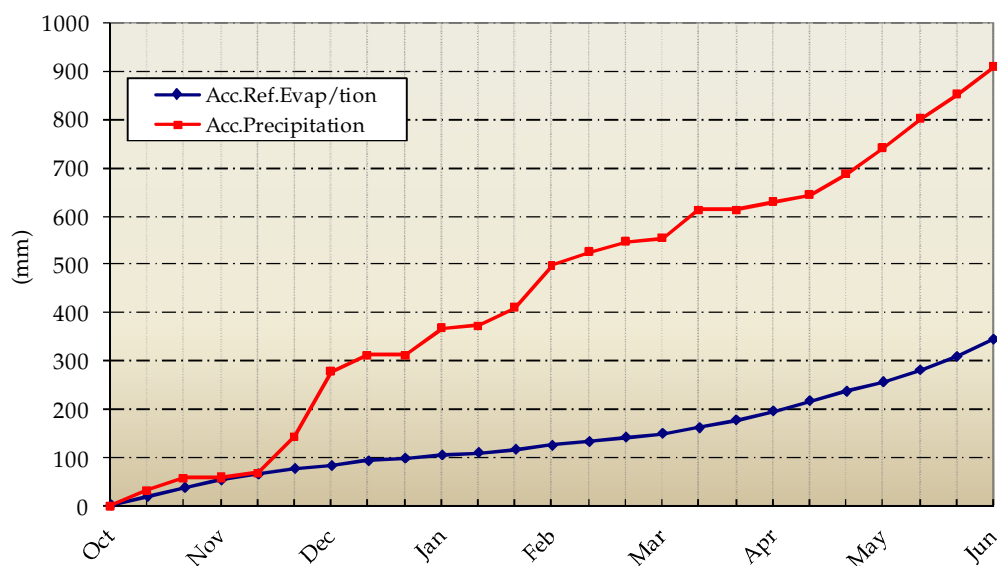


Ioannina

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.4	26.4	27.5	24.7	28.6	27.2	26.0	24.9	20.3	17.4	20.3	24.6	23.5	24.6
	Min	10.6	9.0	10.5	12.4	10.2	14.3	11.4	8.7	13.2	11.5	13.8	11.4	11.0	10.6
Relative Humidity	Max	100	80	100	100	100	83	100	80	99	93	100	94	83	-
	Min	28	40	35	40	26	38	37	32	55	73	56	42	31	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4
Sunshine Duration		9.4	9.4	7.1	7.1	6.6	10.8	11.0	9.8	1.5	1.3	1.5	6.9	7.5	8.1
Precipitation				37.2						6.3	2.5	12.2	58.2	27.7	20.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	55.4
Growing Degrees	5	14.0	12.7	14.0	13.6	14.4	15.8	13.7	11.8	11.8	9.5	12.1	143.2	134.8	138.9
	10	9.0	7.7	9.0	8.6	9.4	10.8	8.7	6.8	6.8	4.5	7.1	88.2	79.8	83.9

3rd 10-day period (21-31/05/2014)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	36.2	42.3	42.6
Precipitation - Reference Evapotranspiration	22.0	-14.6	-21.7
Number of Rainy Days	4.0	3.0	3.4
Number of Dry Days	2.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

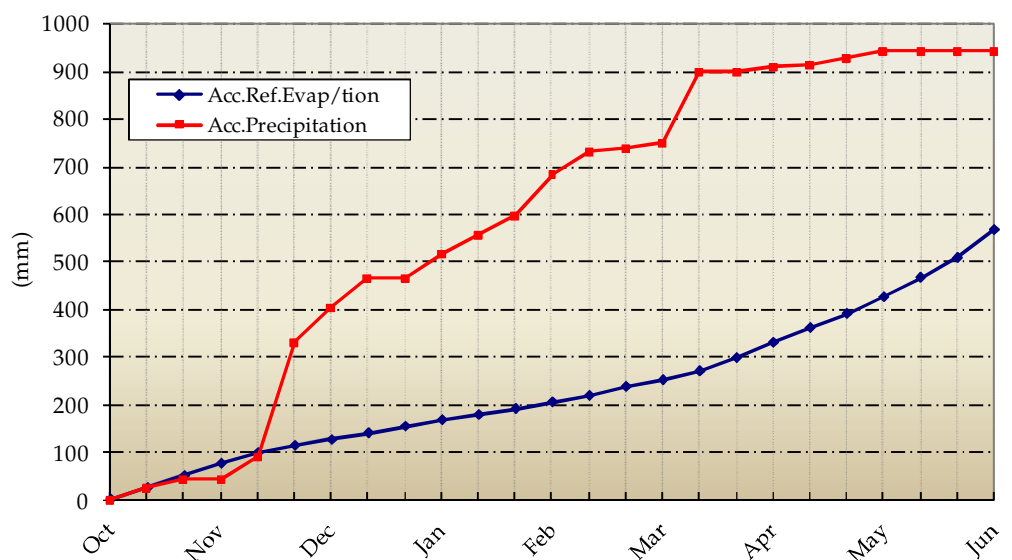


Kalamata

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.2	27.6	27.3	30.8	27.1	35.0	30.9	29.7	25.5	25.7	26.9	28.4	27.1	26.1
	Min	12.0	10.7	14.4	13.6	16.0	14.8	15.2	16.7	13.1	13.2	13.5	13.9	14.1	13.4
Relative Humidity	Max	91	82	85	90	84	82	88	87	91	92	90	87	86	-
	Min	34	28	40	14	35	17	21	29	21	39	34	28	31	-
Soil Temperature at 10 cm	06 UTC	19.4	19.6	20.4	20.8	21.4	20.8	21.8	22.4	21.4	20.6	20.6	20.8	20.2	20.5
	12 UTC	21.2	21.2	22.6	23.0	23.2	23.4	24.2	24.2	22.2	22.4	22.8	22.8	22.3	24.4
Sunshine Duration		13.0	12.8	13.1	8.2	8.4	11.9	11.8	3.5	4.6	11.4	12.0	10.1	8.5	9.6
Precipitation														0.0	3.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	69.8	68.8
Growing Degrees	5	14.1	14.2	15.9	17.2	16.6	19.9	18.1	18.2	14.3	14.5	15.2	178.0	171.3	162.7
	10	9.1	9.2	10.9	12.2	11.6	14.9	13.1	13.2	9.3	9.5	10.2	123.0	116.3	107.7

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.1	53.3	49.3
Precipitation - Reference Evapotranspiration	-59.1	-53.3	-45.9
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	12.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

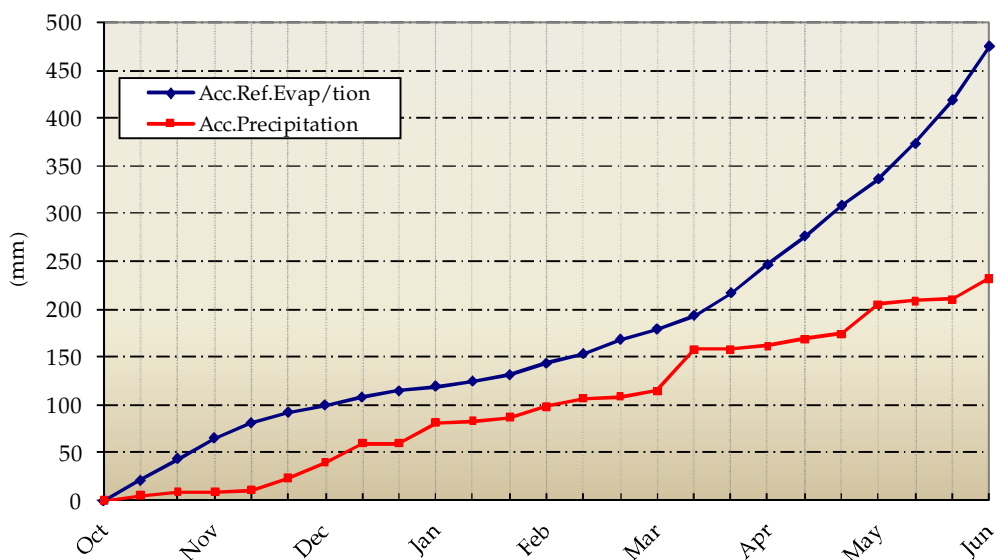


Larisa

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	31.1	30.6	31.8	31.5	30.7	32.6	32.6	29.4	25.6	27.4	30.2	29.5	27.7
	Min	9.1	13.2	12.0	13.4	14.8	17.4	14.1	14.8	16.6	15.4	16.4	14.3	14.4	12.6
Relative Humidity	Max	79	70	81	97	100	91	95	69	97	94	100	88	67	-
	Min	25	20	25	22	29	28	21	11	23	38	26	24	17	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	22.3
Sunshine Duration		10.6	11.6	10.0	7.7	9.6	9.1	9.8	11.2	2.9	2.3	9.5	8.6	10.5	8.8
Precipitation						9.6				3.5	2.8	5.7	21.6	0.0	17.2
Evaporation		9.1	8.4	10.3	9.2	9.1	9.8	7.7	11.9	3.7	3.4	5.8	88.4	117.6	67.8
Growing Degrees	5	13.8	17.2	16.3	17.6	18.2	19.1	18.4	18.7	18.0	15.5	16.9	189.5	186.4	166.2
	10	8.8	12.2	11.3	12.6	13.2	14.1	13.4	13.7	13.0	10.5	11.9	134.5	131.4	111.2

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.1	70.1	50.4
Precipitation - Reference Evapotranspiration	-34.5	-70.1	-33.2
Number of Rainy Days	4.0	0.0	3.0
Number of Dry Days	7.0	14.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

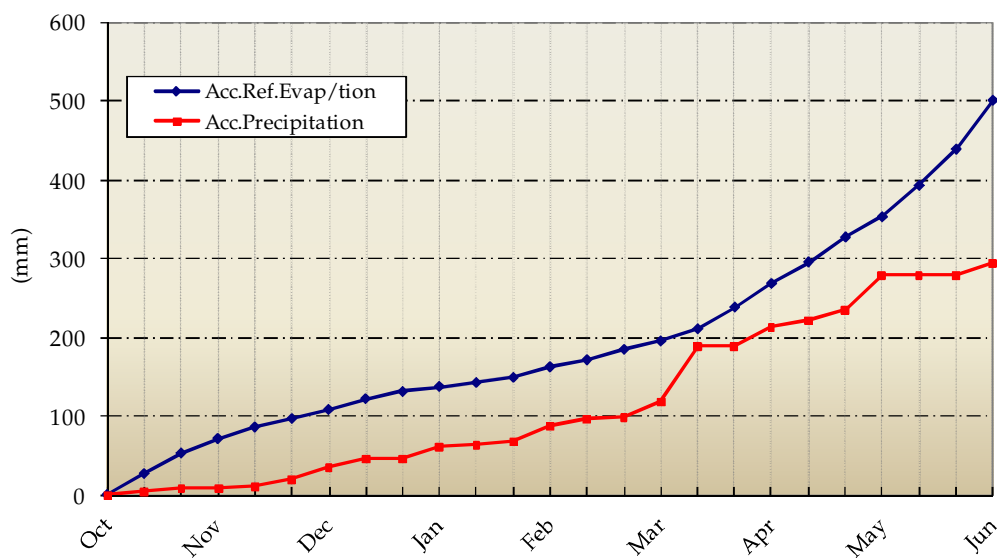


Mikra

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.0	30.3	28.7	28.1	29.7	28.0	28.0	31.2	26.7	23.8	24.8	27.9	29.0	26.2
	Min	12.2	14.0	16.9	14.2	15.0	16.6	14.6	15.0	16.5	16.0	18.4	15.4	16.2	13.9
Relative Humidity	Max	76	74	77	72	80	87	89	80	92	90	51	79	66	-
	Min	27	23	29	25	31	38	30	14	29	46	31	29	20	-
Soil Temperature at 10 cm	06 UTC	20.2	21.6	23.2	22.8	22.4	23.6	22.4	23.0	23.9	20.2	18.8	22.0	25.3	20.7
	12 UTC	27.2	28.0	29.0	28.0	28.9	29.0	28.0	29.8	27.2	22.8	23.9	27.4	31.0	25.4
Sunshine Duration		12.9	11.6	12.2	9.6	12.8	5.1	11.8	12.5	2.4	0.1	12.7	9.4	11.1	8.3
Precipitation							0.4	0.6		7.2	6.1		14.3	0.0	16.2
Evaporation		8.2	10.0	7.4	8.4	9.8	6.6	7.0	10.6	3.8	5.0	9.7	86.5	103.8	70.6
Growing Degrees	5	15.1	17.2	17.8	16.2	17.4	17.3	16.3	18.1	16.6	14.9	16.6	183.4	194.1	165.0
	10	10.1	12.2	12.8	11.2	12.4	12.3	11.3	13.1	11.6	9.9	11.6	128.4	139.1	110.0

3rd 10-day period (21-31/05/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.2	72.3
Precipitation - Reference Evapotranspiration	-47.9	-72.3
Number of Rainy Days	4.0	0.0
Number of Dry Days	19.0	18.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

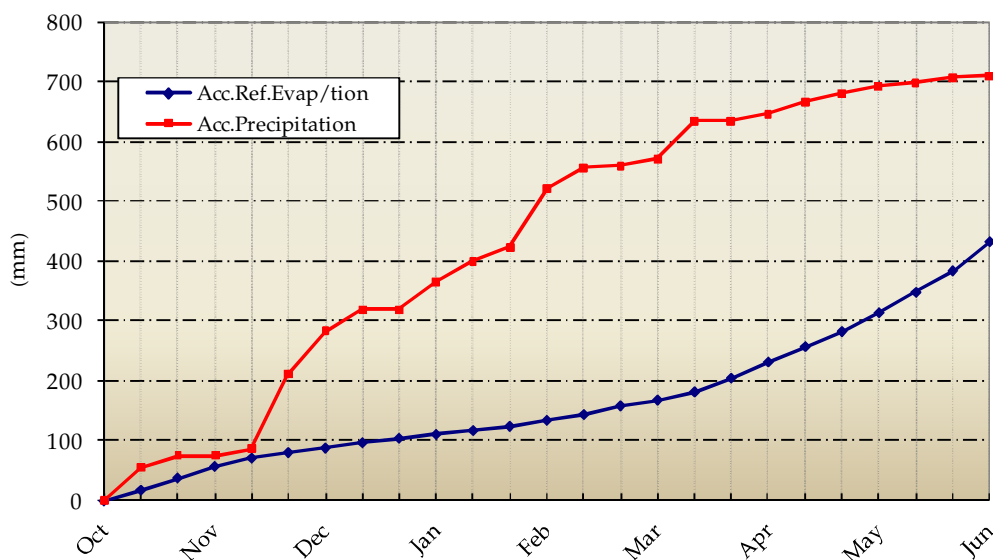


Tripoli

3rd 10-day period (21-31/05/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	26.7	27.1	27.0	28.3	27.6	28.0	27.0	23.4	19.5	22.4	25.6	25.0	24.8
	Min	7.0	7.3	8.8	10.6	9.3	10.8	10.4	8.3	10.2	12.0	8.1	9.3	10.3	9.2
Relative Humidity	Max	97	83	100	100	96	99	92	82	84	77	95	91	63	-
	Min	26	25	28	22	27	26	17	25	35	43	31	28	26	-
Soil Temperature at 10 cm	06 UTC	15.4	16.4	18.0	18.4	19.4	20.2	21.0	20.8	20.6	18.6	18.0	18.8	21.3	18.5
	12 UTC	23.0	-	25.4	-	-	27.6	29.0	25.0	25.4	22.4	-	25.4	27.9	21.5
Sunshine Duration		12.7	13.2	5.9	9.3	11.0	12.0	11.7	3.0	4.7	11.5	9.5	9.5	10.8	8.9
Precipitation				0.4	0.1	0.5				1.8			2.8		11.3
Evaporation		7.5	6.4	4.8	5.6	6.2	7.1	8.2	4.1	5.2	5.2	4.4	64.7	73.9	48.7
Growing Degrees	5	11.0	12.0	13.0	13.8	13.8	14.2	14.2	12.7	11.8	10.8	10.3	137.4	139.2	132.1
	10	6.0	7.0	8.0	8.8	8.8	9.2	9.2	7.7	6.8	5.8	5.3	82.4	84.2	77.1

3rd 10-day period (21-31/05/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.6	52.1	47.0
Precipitation - Reference Evapotranspiration	-45.8	-52.1	-35.7
Number of Rainy Days	4.0	0.0	2.6
Number of Dry Days	2.0	14.0	-

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