



# AGROMETEOROLOGICAL BULLETIN

*August 2014  
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



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*Web addresses of HNMS*  
[www.emy.gr](http://www.emy.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

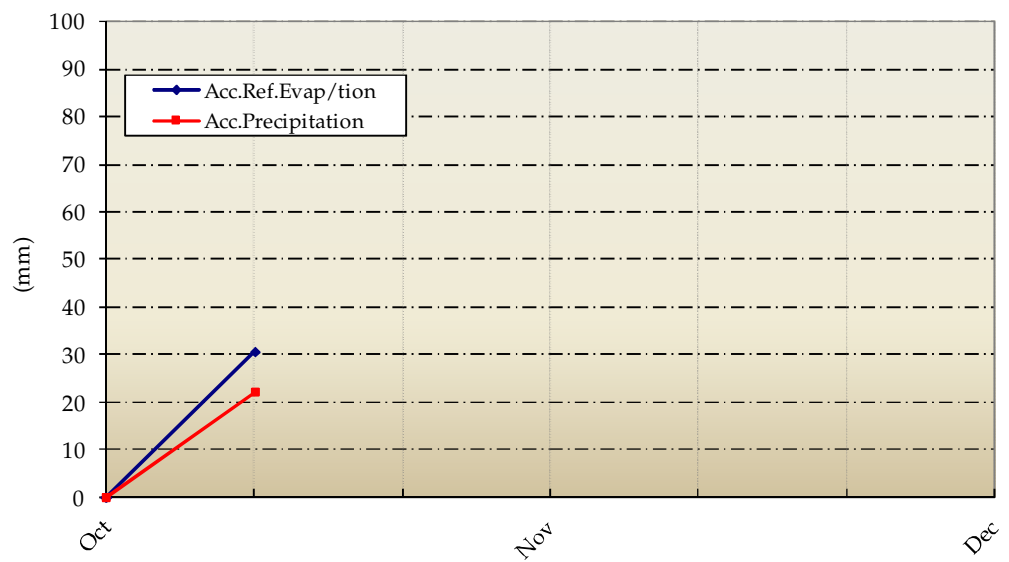
Agrinio

2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	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													

2nd 10-day period (11-20/08/2014)	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

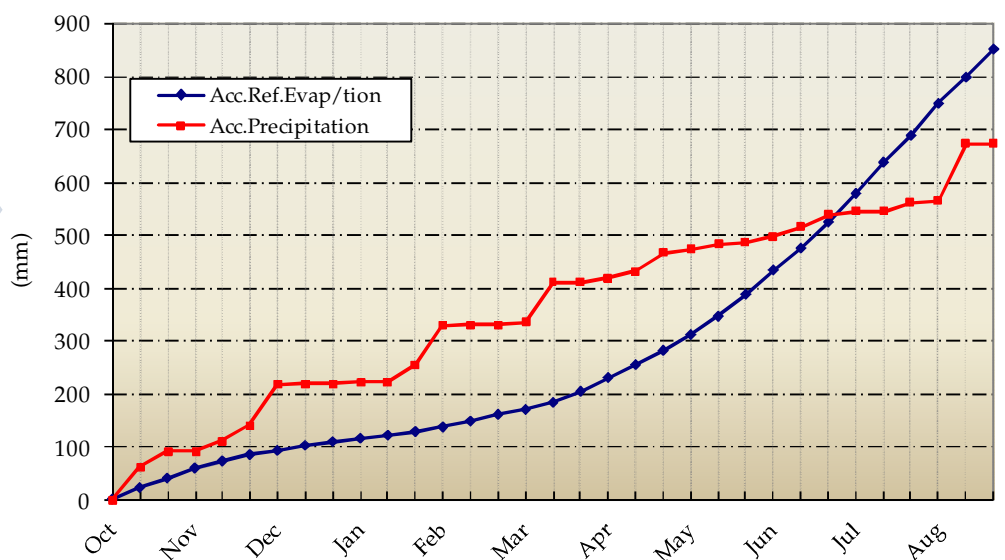
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.0	34.2	34.8	34.0	31.8	35.2	30.0	27.6	29.4	29.0	32.0	33.8	30.5
	Min	19.4	18.8	18.6	18.6	20.2	19.6	20.0	17.4	18.0	18.8	18.9	21.9	17.7
Relative Humidity	Max	87	85	88	81	91	87	91	69	85	90	85	68	-
	Min	30	33	27	32	47	36	43	32	28	41	35	26	-
Soil Temperature at 10 cm	06 UTC	26.0	26.4	27.0	26.8	27.6	27.4	28.4	24.2	24.2	25.2	26.3	28.3	23.8
	12 UTC	31.0	31.4	31.6	31.6	32.0	32.4	31.6	29.0	29.4	30.2	31.0	31.5	27.9
Sunshine Duration		12.4	12.6	12.6	12.8	12.4	12.5	7.6	12.5	12.5	12.5	12.0	12.2	10.0
Precipitation								1.1				1.1		3.9
Evaporation		8.4	9.2	9.4	7.3	8.7	10.1	6.7	9.3	9.6	5.7	84.4	111.8	94.5
Growing Degrees	5	21.7	21.5	21.7	21.3	21.0	22.4	20.0	17.5	18.7	18.9	204.7	228.4	191.3
	10	16.7	16.5	16.7	16.3	16.0	17.4	15.0	12.5	13.7	13.9	154.7	178.4	141.3

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.2	64.4	55.4
Precipitation - Reference Evapotranspiration	-52.1	-64.4	-51.5
Number of Rainy Days	1.0	0.0	1.0
Number of Dry Days	9.0	50.0	-

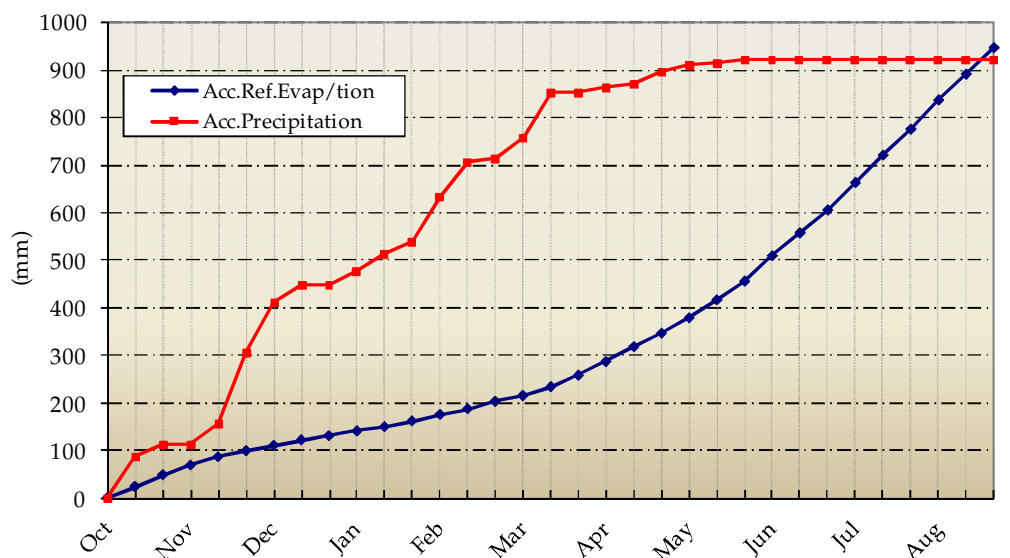
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.1	34.0	33.8	34.2	31.5	29.8	29.2	29.3	29.6	30.6	31.5	33.6	31.2
	Min	20.1	20.1	20.4	21.6	20.0	20.2	22.4	22.1	17.7	18.4	20.3	19.2	18.7
Relative Humidity	Max	87	86	86	85	87	82	80	78	80	86	84	83	-
	Min	38	33	35	33	42	46	48	36	36	28	38	27	-
Soil Temperature at 10 cm	06 UTC	29.0	29.0	39.2	29.6	30.0	28.8	29.0	28.0	27.6	27.2	29.7	28.3	27.4
	12 UTC	35.0	34.5	34.4	35.8	34.5	34.0	34.0	33.0	33.0	33.0	34.1	34.8	31.7
Sunshine Duration		12.1	12.2	13.0	12.2	11.8	12.4	11.9	12.2	11.9	11.0	12.1	11.6	11.2
Precipitation														4.0
Evaporation		4.9	0.0	6.6	5.5	7.3	-	-	-	-	-	-	119.1	73.5
Growing Degrees	5	21.6	22.1	22.1	22.9	20.8	20.0	20.8	20.7	18.7	19.5	209.1	214.3	199.2
	10	16.6	17.1	17.1	17.9	15.8	15.0	15.8	15.7	13.7	14.5	159.1	164.3	149.2

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.0	59.7	49.2
Precipitation - Reference Evapotranspiration	-56.0	-59.7	-45.2
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	27.0	71.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

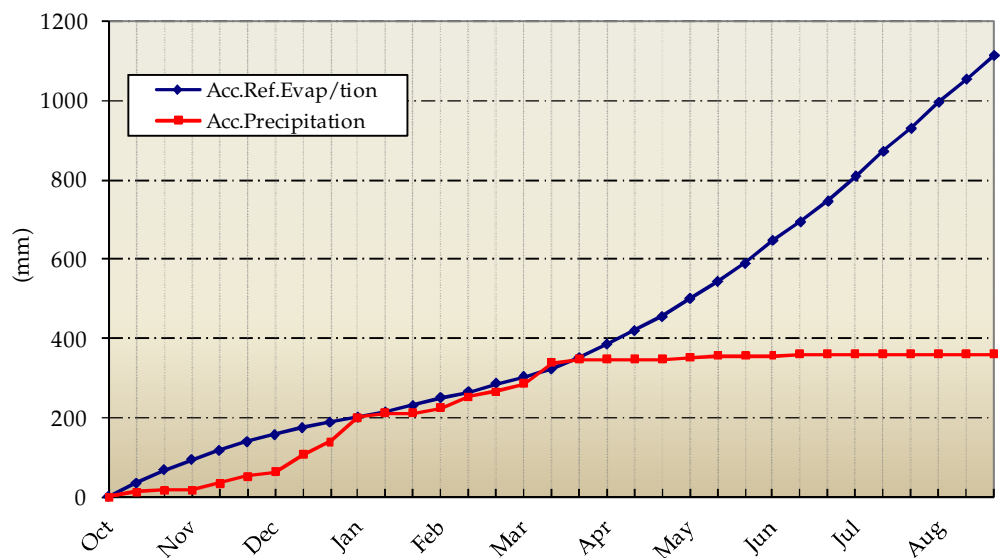


Iraklio

2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.0	31.5	30.5	30.2	32.0	31.6	30.6	28.5	28.4	28.2	30.2	28.9	28.2
	Min	26.2	22.0	24.5	21.6	22.8	23.0	21.8	25.5	24.8	24.2	23.6	22.3	22.2
Relative Humidity	Max	77	77	83	80	89	70	70	73	68	89	78	77	-
	Min	56	47	52	58	46	43	49	57	53	57	52	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.2	13.1	12.0	12.1	12.3	12.3	13.1	11.3	11.8	12.8	12.3	11.0	11.0
Precipitation														0.0
Evaporation		9.7	4.4	8.8	3.7	7.3	8.1	7.4	9.9	6.9	6.2	72.4	58.5	81.3
Growing Degrees	5	23.1	21.8	22.5	20.9	22.4	22.3	21.2	22.0	21.6	21.2	219.0	206.4	202.0
	10	18.1	16.8	17.5	15.9	17.4	17.3	16.2	17.0	16.6	16.2	169.0	156.4	152.0

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.1	55.5	-
Precipitation - Reference Evapotranspiration	-60.1	-55.5	0.0
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	76.0	94.0	-

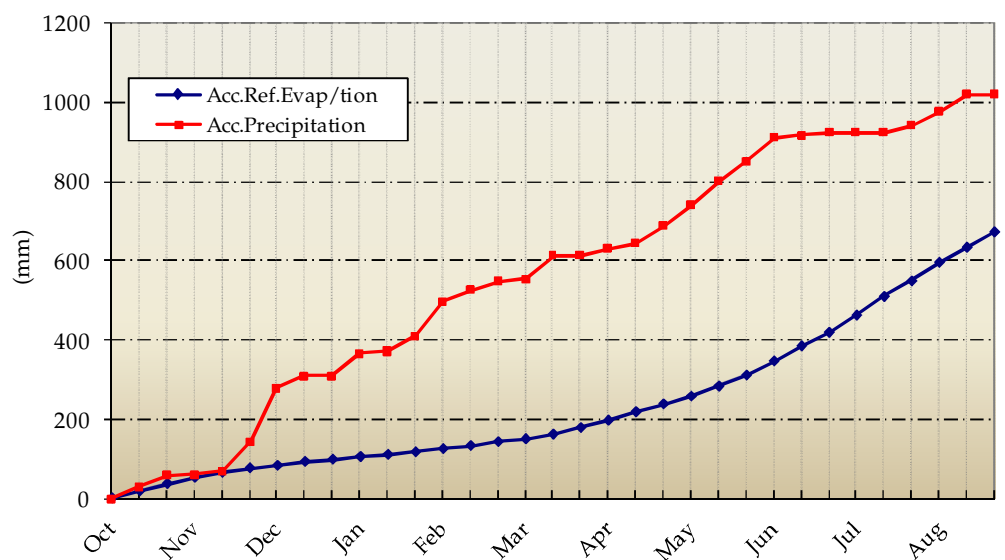
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.1	36.0	34.6	34.6	32.9	31.6	28.6	29.4	31.4	30.6	32.5	33.0	30.9
	Min	20.6	18.8	17.0	16.8	14.2	11.1	12.0	17.4	11.1	12.5	15.2	16.1	15.4
Relative Humidity	Max	81	96	95	74	93	76	94	97	76	79	86	72	-
	Min	32	19	21	24	14	32	24	18	27	23	23	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	23.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.1
Sunshine Duration		10.6	11.3	11.4	11.4	11.2	11.1	9.5	10.9	10.4	9.2	10.7	8.5	9.5
Precipitation													0.0	11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	64.1
Growing Degrees	5	22.9	22.4	20.8	20.7	18.6	16.4	15.3	18.4	16.3	16.6	188.2	195.3	176.6
	10	17.9	17.4	15.8	15.7	13.6	11.4	10.3	13.4	11.3	11.6	138.2	145.3	127.8

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.7	46.1	45.3
Precipitation - Reference Evapotranspiration	-38.7	-46.1	-34.0
Number of Rainy Days	0.0	0.0	1.8
Number of Dry Days	12.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



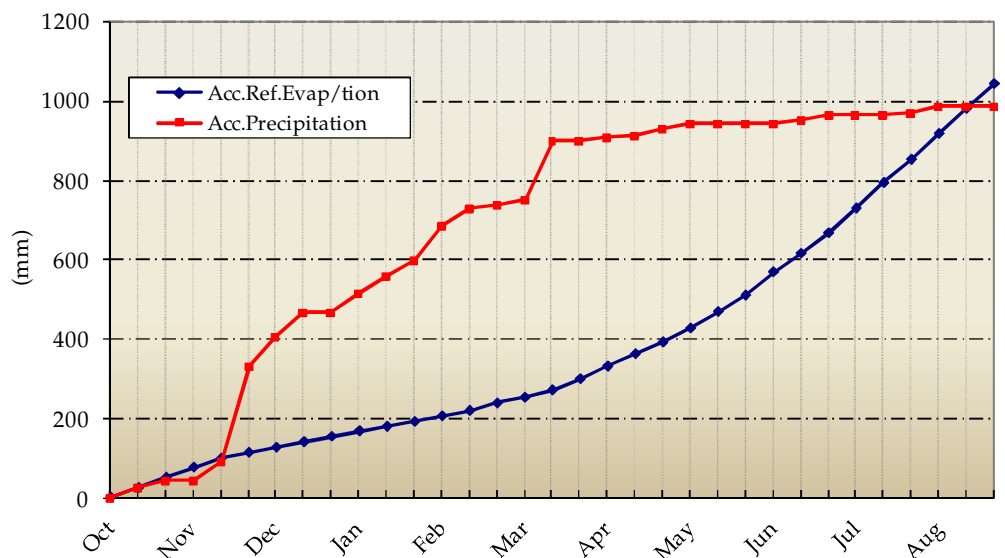


Kalamata

2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	32.6	34.2	33.1	35.8	33.6	32.5	29.8	30.4	29.8	32.7	34.1	31.4
	Min	19.4	17.9	21.2	18.9	18.7	21.4	22.5	22.1	17.1	16.1	19.5	19.5	18.2
Relative Humidity	Max	87	87	88	86	88	68	67	86	89	83	83	80	-
	Min	31	29	28	28	29	19	27	41	36	40	31	27	-
Soil Temperature at 10 cm	06 UTC	26.6	26.6	26.6	26.6	26.6	26.4	26.6	26.4	26.0	25.8	26.4	26.2	25.7
	12 UTC	28.4	28.6	28.6	28.2	28.6	28.2	28.2	28.2	28.0	27.8	28.3	29.2	29.6
Sunshine Duration		11.7	11.7	12.3	12.5	12.3	12.2	12.3	11.9	12.2	11.8	12.1	11.0	10.6
Precipitation													0.0	3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	95.6	78.6
Growing Degrees	5	22.2	20.3	22.7	21.0	22.3	22.5	22.5	21.0	18.8	18.0	211.1	217.9	198.2
	10	17.2	15.3	17.7	16.0	17.3	17.5	17.5	16.0	13.8	13.0	161.1	167.9	148.2

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.1	61.3	50.7
Precipitation - Reference Evapotranspiration	-62.1	-61.3	-46.8
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	26.0	19.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

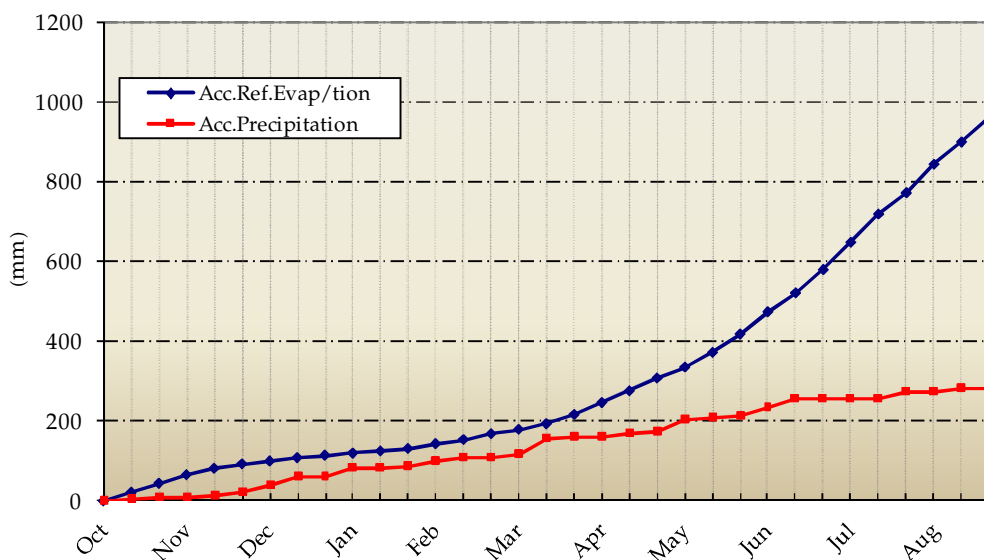


Larisa

2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.6	37.3	37.1	38.2	40.3	37.4	34.7	30.6	31.8	33.8	35.8	34.5	32.3
	Min	18.9	19.1	20.0	20.8	19.5	18.8	19.1	19.2	14.9	18.2	18.8	18.8	17.5
Relative Humidity	Max	70	70	69	65	75	55	58	68	77	90	70	65	-
	Min	21	21	20	18	11	9	15	20	26	25	19	20	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.7
Sunshine Duration		11.7	11.9	11.9	11.7	12.2	12.2	12.0	12.0	11.9	11.3	11.9	11.4	9.9
Precipitation														6.2
Evaporation		10.0	13.4	9.6	14.9	6.3	13.8	8.4	6.8	9.4	9.4	102.0	117.1	84.1
Growing Degrees	5	22.8	23.2	23.6	24.5	24.9	23.1	21.9	19.9	18.4	21.0	223.2	216.4	199.1
	10	17.8	18.2	18.6	19.5	19.9	18.1	16.9	14.9	13.4	16.0	173.2	166.4	149.1

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.6	63.9	53.3
Precipitation - Reference Evapotranspiration	-62.6	-63.9	-47.1
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	12.0	29.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



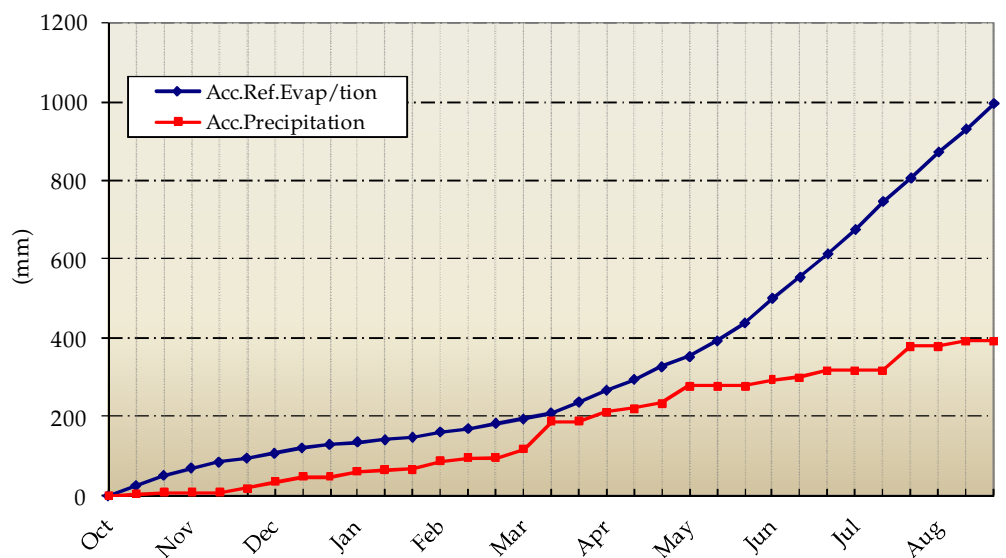


Mikra

2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.7	35.3	35.9	35.3	36.0	34.2	32.0	30.0	30.0	31.2	33.5	33.8	31.3
	Min	21.0	21.0	22.0	21.8	21.6	21.2	24.9	20.7	17.4	18.2	21.0	20.9	18.9
Relative Humidity	Max	75	73	75	81	82	76	60	71	79	80	75	69	-
	Min	24	26	24	30	29	32	31	26	33	34	29	25	-
Soil Temperature at 10 cm	06 UTC	27.8	28.2	28.8	29.0	29.2	29.2	29.0	27.0	27.0	27.4	28.3	29.4	26.0
	12 UTC	32.2	32.2	32.2	34.2	34.0	33.8	32.8	31.8	32.0	32.4	32.8	33.7	30.5
Sunshine Duration		12.2	12.1	12.1	11.8	11.3	12.5	12.3	12.6	12.4	11.9	12.1	10.8	10.0
Precipitation													2.6	6.6
Evaporation		9.8	9.0	5.8	8.2	8.5	12.1	12.2	8.6	6.6	8.4	89.2	99.7	83.0
Growing Degrees	5	22.9	23.2	24.0	23.6	23.8	22.7	23.5	20.4	18.7	19.7	222.2	223.5	201.0
	10	17.9	18.2	19.0	18.6	18.8	17.7	18.5	15.4	13.7	14.7	172.2	173.5	151.0

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	64.5	61.2	52.4
Precipitation - Reference Evapotranspiration	-64.5	-58.6	-45.8
Number of Rainy Days	0.0	2.0	1.1
Number of Dry Days	13.0	19.0	-

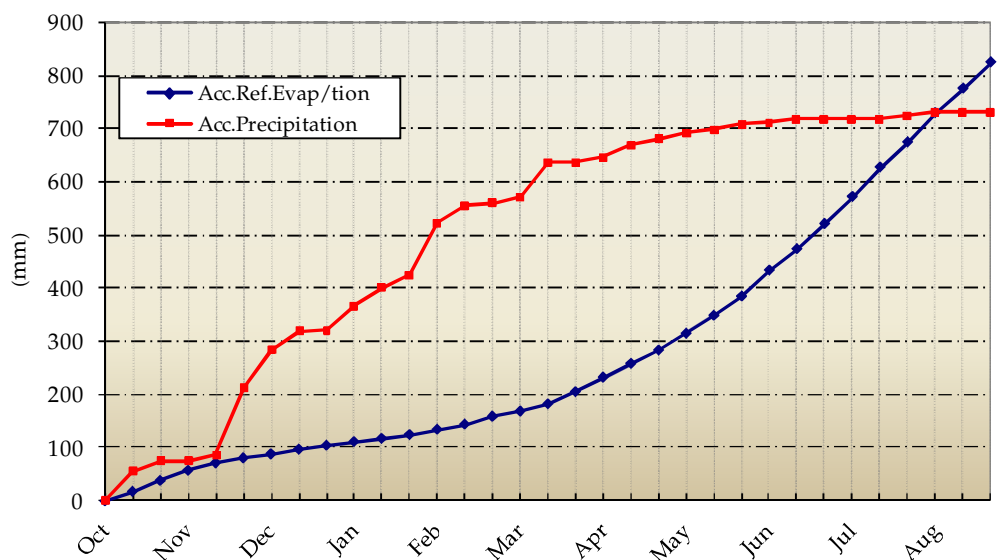
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2014)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.2	34.4	34.9	35.8	37.4	35.3	32.0	28.7	29.9	34.1	33.7	32.5	29.9
	Min	14.7	14.8	14.8	14.8	14.6	13.1	12.3	13.7	11.9	12.4	13.7	15.3	14.5
Relative Humidity	Max	89	85	70	81	77	76	83	90	95	84	83	63	-
	Min	14	30	15	16	12	12	14	30	22	17	18	19	-
Soil Temperature at 10 cm	06 UTC	24.4	24.4	25.8	26.4	-	-	-	26.4	24.8	25.4	25.4	26.0	24.7
	12 UTC	30.8	32.0	32.4	32.8	-	-	-	30.6	30.4	31.6	31.5	31.4	27.4
Sunshine Duration		12.0	9.7	12.1	12.0	12.0	12.0	12.0	7.2	11.5	11.4	11.2	10.1	9.7
Precipitation														13.8
Evaporation		9.5	5.8	8.8	-	-	-	-	5.8	7.2	7.3	-	-	56.3
Growing Degrees	5	19.5	19.6	19.9	20.3	21.0	19.2	17.2	16.2	15.9	18.3	186.9	189.1	172.3
	10	14.5	14.6	14.9	15.3	16.0	14.2	12.2	11.2	10.9	13.3	136.9	139.1	122.3

2nd 10-day period (11-20/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.4	-	47.6
Precipitation - Reference Evapotranspiration	-49.4	-	-33.8
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	13.0	30.0	-

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<sub>n</sub> 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

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