



# AGROMETEOROLOGICAL BULLETIN

*July 2014*  
*1st 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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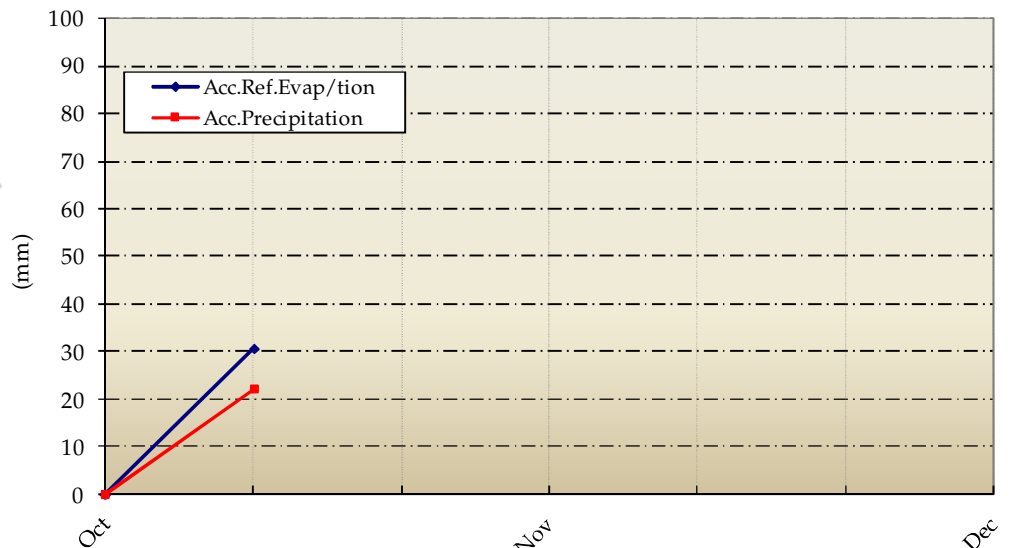
Agrinio

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	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													

1st 10-day period (1-10/07/2014)	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

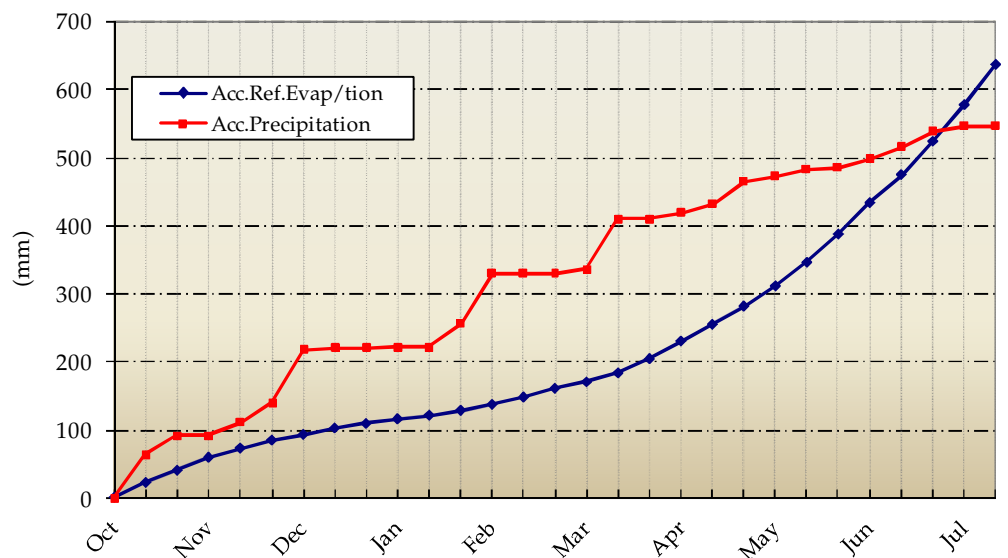
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.8	31.2	29.6	26.6	30.4	31.8	32.4	32.4	31.8	30.8	30.8	31.0	29.3
	Min	19.4	20.2	17.4	21.0	18.8	15.4	16.4	18.0	19.2	18.4	18.4	19.7	17.0
Relative Humidity	Max	87	71	74	74	69	88	76	77	84	94	79	73	-
	Min	39	32	31	30	29	27	24	24	32	36	30	32	-
Soil Temperature at 10 cm	06 UTC	25.6	26.2	26.0	26.2	25.0	25.0	25.8	25.4	27.2	27.4	26.0	26.5	23.7
	12 UTC	30.6	30.8	31.6	29.2	30.0	30.5	31.4	32.2	32.8	32.4	31.2	30.0	28.2
Sunshine Duration		10.3	13.0	12.5	12.3	13.1	13.2	11.0	12.4	13.0	12.5	12.3	12.3	10.3
Precipitation													0.1	12.1
Evaporation		8.7	10.3	9.4	7.5	9.3	8.2	11.3	6.9	8.8	5.7	86.1	95.2	85.9
Growing Degrees	5	20.1	20.7	18.5	18.8	19.6	18.6	19.4	20.2	20.5	19.6	196.0	203.5	181.3
	10	15.1	15.7	13.5	13.8	14.6	13.6	14.4	15.2	15.5	14.6	146.0	153.5	131.3

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	59.2	64.9	56.1
Precipitation - Reference Evapotranspiration	-59.2	-64.8	-44.0
Number of Rainy Days	0.0	1.0	2.2
Number of Dry Days	15.0	0.0	-

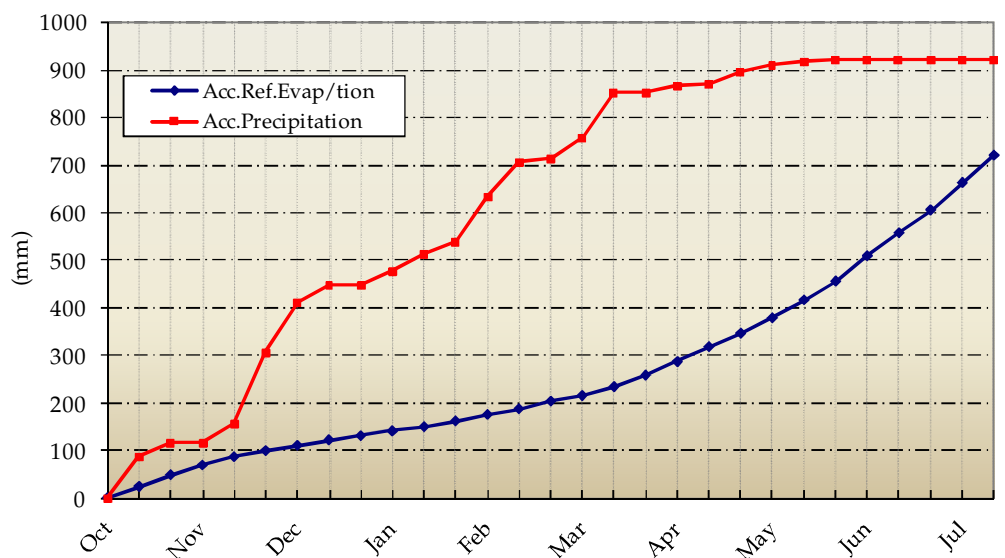
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.2	31.4	30.3	30.4	30.8	30.8	30.6	31.0	29.8	29.5	30.5	29.3	29.5
	Min	18.4	17.2	18.4	21.2	16.0	18.0	18.9	18.9	20.2	18.6	18.6	17.1	17.7
Relative Humidity	Max	86	80	87	83	88	88	88	88	85	87	86	86	-
	Min	33	37	36	31	29	28	43	36	49	48	37	38	-
Soil Temperature at 10 cm	06 UTC	28.0	27.0	27.2	28.4	28.6	27.0	28.0	28.0	28.4	28.0	27.9	27.0	26.9
	12 UTC	33.8	34.0	33.0	34.0	32.6	34.0	33.4	33.6	34.0	33.0	33.5	34.1	31.6
Sunshine Duration		13.2	12.9	13.4	13.5	13.2	13.6	12.6	11.7	12.9	12.4	12.9	12.9	12.0
Precipitation														0.7
Evaporation		10.0	5.0	12.3	3.7	8.0	13.0	8.0	17.0	7.0	7.0	91.0	91.5	75.0
Growing Degrees	5	19.3	19.3	19.4	20.8	18.4	19.4	19.8	20.0	20.0	19.1	195.3	181.9	186.1
	10	14.3	14.3	14.4	15.8	13.4	14.4	14.8	15.0	15.0	14.1	145.3	131.9	136.1

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.7	55.6	53.6
Precipitation - Reference Evapotranspiration	-57.7	-55.6	-52.9
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	31.0	30.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

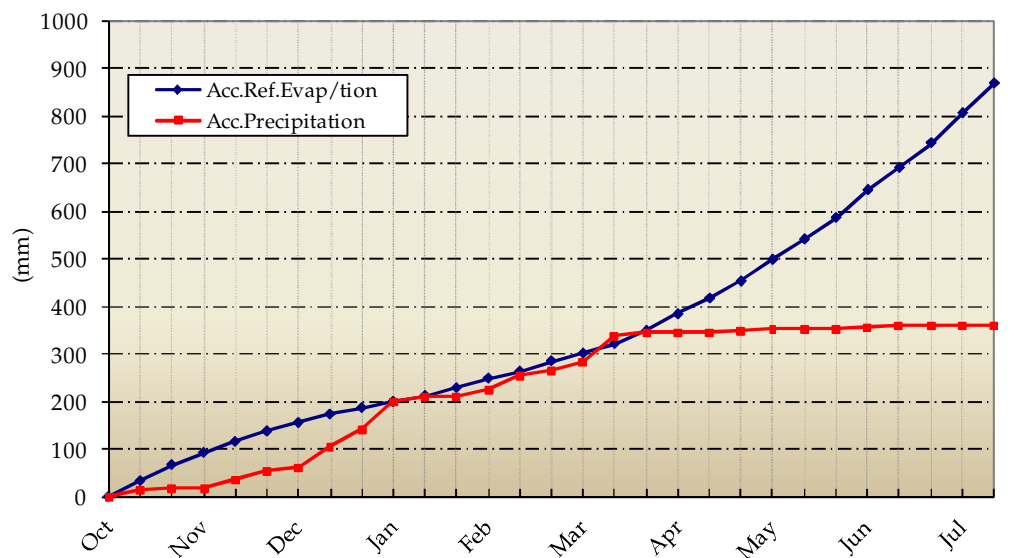


Iraklio

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.4	30.0	30.0	27.5	26.5	27.2	29.0	30.0	34.0	28.4	29.3	27.9	28.4
	Min	19.2	20.0	24.0	25.2	22.6	23.0	19.0	24.0	21.2	25.8	22.4	22.1	21.3
Relative Humidity	Max	87	77	82	96	98	82	81	75	77	82	84	81	-
	Min	36	52	41	44	54	54	45	43	37	49	46	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.7	13.0	13.2	12.6	9.1	12.2	12.8	12.7	12.5	11.5	12.2	12.7	12.1
Precipitation														0.7
Evaporation		6.8	6.1	10.0	11.0	7.2	4.5	5.8	7.8	8.4	5.0	72.6	60.9	92.1
Growing Degrees	5	19.8	20.0	22.0	21.4	19.6	20.1	19.0	22.0	22.6	22.1	208.5	200.1	198.6
	10	14.8	15.0	17.0	16.4	14.6	15.1	14.0	17.0	17.6	17.1	158.5	150.1	148.6

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.6	59.9	-
Precipitation - Reference Evapotranspiration	-62.6	-59.9	0.7
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	35.0	53.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

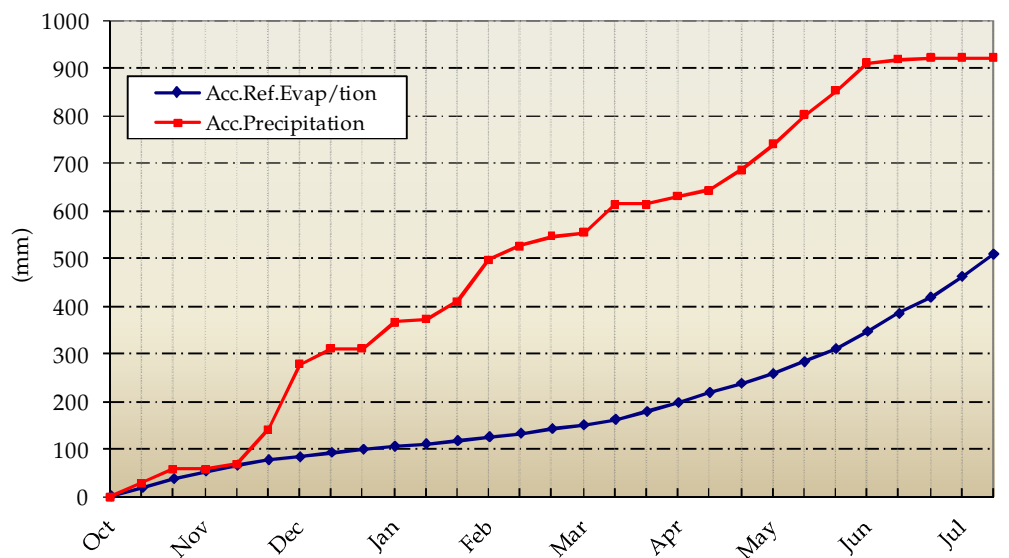


Ioannina

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.9	31.0	32.5	32.4	32.7	33.0	34.1	34.4	28.4	29.1	31.8	30.2	30.4
	Min	19.8	12.5	13.3	12.4	11.8	11.4	14.0	16.2	13.8	19.0	14.4	13.7	14.5
Relative Humidity	Max	97	95	75	90	45	92	64	92	75	94	82	72	-
	Min	23	24	21	12	21	19	30	19	34	29	23	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	27.2
Sunshine Duration		13.3	13.3	12.4	13.2	12.6	13.2	12.4	12.7	10.7	12.6	12.6	8.9	10.5
Precipitation													3.2	6.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	72.0
Growing Degrees	5	20.4	16.8	17.9	17.4	17.3	17.2	19.1	20.3	16.1	19.1	181.4	169.3	168.8
	10	15.4	11.8	12.9	12.4	12.3	12.2	14.1	15.3	11.1	14.1	131.4	119.3	120.3

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.0	48.9	51.3
Precipitation - Reference Evapotranspiration	-47.0	-45.7	-44.7
Number of Rainy Days	0.0	1.0	1.5
Number of Dry Days	20.0	16.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

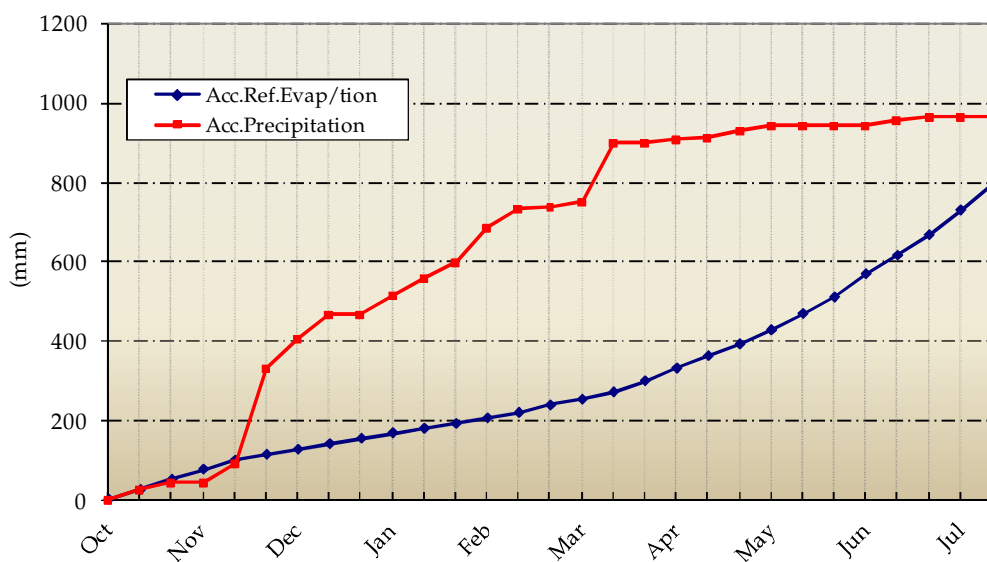


Kalamata

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.5	30.7	33.0	31.9	30.8	29.2	30.0	31.3	35.0	34.0	32.0	30.2	30.8
	Min	18.1	14.0	18.0	18.9	17.8	15.6	16.8	19.3	18.3	19.2	17.6	16.7	17.6
Relative Humidity	Max	81	83	76	90	86	89	88	85	74	80	83	84	-
	Min	24	31	31	29	28	39	38	37	23	27	31	32	-
Soil Temperature at 10 cm	06 UTC	25.6	25.0	25.2	25.8	25.8	25.0	25.4	25.8	25.6	26.0	25.5	24.4	25.3
	12 UTC	28.2	27.4	27.8	27.8	27.8	27.6	27.4	27.4	28.2	28.0	27.8	27.2	29.5
Sunshine Duration		12.6	12.6	12.6	12.6	12.3	12.6	12.7	12.0	12.6	12.0	12.5	11.8	11.4
Precipitation														1.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	84.2	89.7
Growing Degrees	5	21.3	17.4	20.5	20.4	19.3	17.4	18.4	20.3	21.7	21.6	198.2	184.4	191.7
	10	16.3	12.4	15.5	15.4	14.3	12.4	13.4	15.3	16.7	16.6	148.2	134.4	141.7

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	64.5	59.9	56.4
Precipitation - Reference Evapotranspiration	-64.5	-59.9	-55.4
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	20.0	26.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

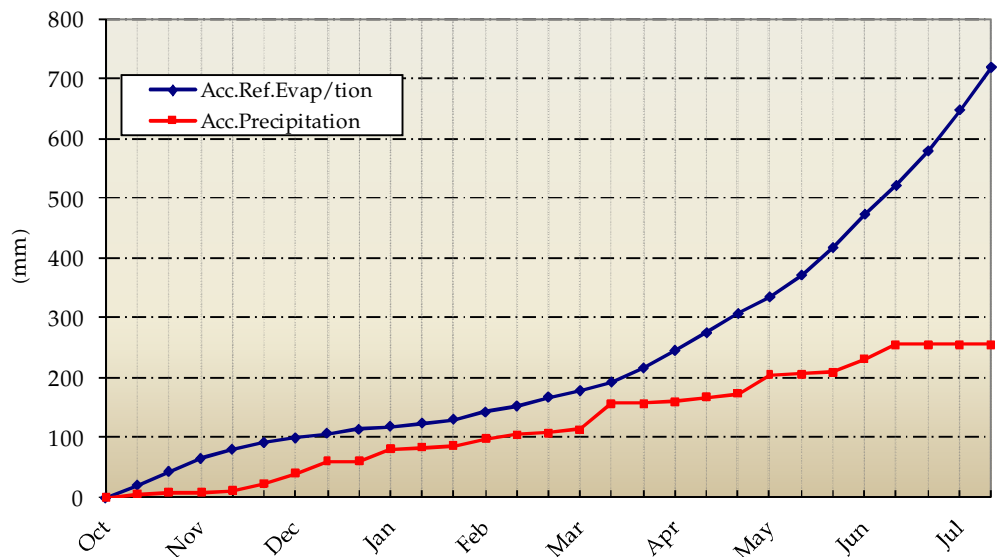


Larisa

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.6	32.6	34.5	31.5	31.3	33.0	35.0	36.4	37.0	35.4	34.1	32.0	32.9
	Min	19.1	18.0	17.6	22.0	16.5	16.8	17.0	20.2	19.2	17.8	18.4	18.9	17.5
Relative Humidity	Max	73	68	79	65	78	62	61	68	76	58	69	69	-
	Min	16	27	25	15	22	22	23	22	14	14	20	23	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	26.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	28.7
Sunshine Duration		13.1	12.4	12.2	12.2	12.3	12.5	12.2	12.2	12.5	11.8	12.3	11.0	10.7
Precipitation													0.0	5.5
Evaporation		12.6	12.0	12.2	11.5	11.3	13.7	12.8	14.4	13.4	16.8	130.7	103.4	95.9
Growing Degrees	5	21.9	20.3	21.1	21.8	18.9	19.9	21.0	23.3	23.1	21.6	212.8	204.7	202.1
	10	16.9	15.3	16.1	16.8	13.9	14.9	16.0	18.3	18.1	16.6	162.8	154.7	152.1

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	71.0	61.5	62.4
Precipitation - Reference Evapotranspiration	-71.0	-61.5	-56.9
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	26.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



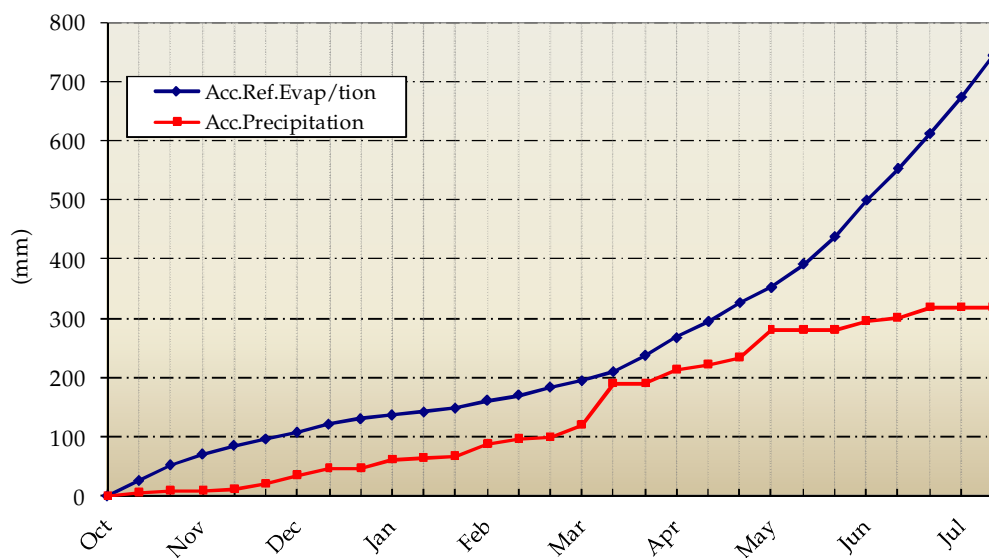


Mikra

1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.2	30.4	31.2	30.9	30.0	31.0	33.0	33.6	34.0	32.4	31.8	30.4	31.1
	Min	17.6	18.0	19.0	22.0	12.0	17.8	19.0	21.0	19.2	19.4	18.5	20.2	18.5
Relative Humidity	Max	84	70	74	62	66	63	71	70	75	79	71	75	-
	Min	27	34	34	24	29	30	25	28	20	24	28	32	-
Soil Temperature at 10 cm	06 UTC	26.8	27.0	27.4	27.0	27.0	27.2	28.0	28.6	28.1	28.4	27.6	27.9	26.2
	12 UTC	32.8	33.0	33.8	33.0	32.6	34.0	34.8	33.9	35.0	35.0	33.8	31.9	30.9
Sunshine Duration		13.8	13.4	13.4	13.8	13.2	13.1	13.3	13.3	13.0	12.6	13.3	10.4	10.7
Precipitation													14.6	8.7
Evaporation		10.8	6.0	15.4	12.1	10.1	9.2	10.0	13.2	9.6	7.2	103.6	86.8	95.7
Growing Degrees	5	19.4	19.2	20.1	21.5	16.0	19.4	21.0	22.3	21.6	20.9	201.4	202.9	198.0
	10	14.4	14.2	15.1	16.5	11.0	14.4	16.0	17.3	16.6	15.9	151.4	152.9	148.0

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	70.7	64.7	61.2
Precipitation - Reference Evapotranspiration	-70.7	-50.1	-52.5
Number of Rainy Days	0.0	4.0	1.7
Number of Dry Days	12.0	4.0	-

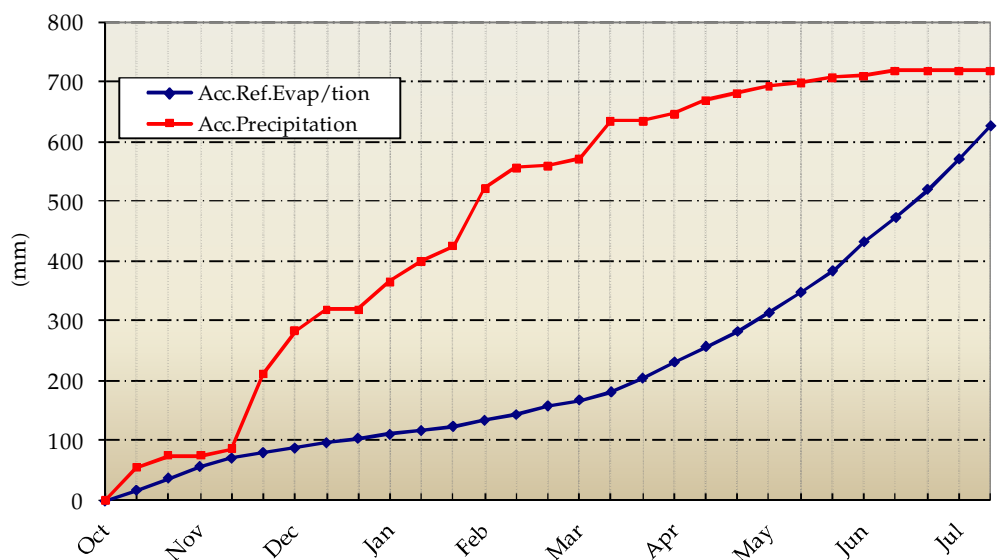
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/07/2014)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.4	31.6	32.8	29.4	30.7	32.6	32.0	34.9	32.4	33.8	32.2	29.7	30.2
	Min	13.5	13.5	13.4	14.7	15.8	12.2	13.4	15.2	14.3	12.7	13.9	12.8	13.4
Relative Humidity	Max	86	76	82	78	67	76	75	82	71	81	77	69	-
	Min	10	19	24	22	20	21	24	23	19	13	20	24	-
Soil Temperature at 10 cm	06 UTC	26.8	27.0	27.4	27.6	-	-	27.4	27.8	27.8	27.2	27.4	25.1	25.0
	12 UTC	34.0	34.2	34.4	34.2	-	-	34.4	34.8	34.6	34.8	34.4	31.9	28.1
Sunshine Duration		13.2	13.3	13.1	-	-	0.0	11.0	12.8	13.4	12.7	11.2	9.1	10.6
Precipitation													6.4	7.1
Evaporation		-	8.0	9.5	-	-	-	9.0	8.3	11.5	9.8	-	66.1	64.6
Growing Degrees	5	17.5	17.6	18.1	17.1	18.3	17.4	17.7	20.1	18.4	18.3	180.2	162.7	167.9
	10	12.5	12.6	13.1	12.1	13.3	12.4	12.7	15.1	13.4	13.3	130.2	112.7	117.9

1st 10-day period (1-10/07/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	55.3	48.0	53.2
Precipitation - Reference Evapotranspiration	-55.3	-41.6	-46.1
Number of Rainy Days	0.0	2.0	1.3
Number of Dry Days	31.0	15.0	-

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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ΕΘΝΙΚΗ  
ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ

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