



# AGROMETEOROLOGICAL BULLETIN

*August 2015  
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



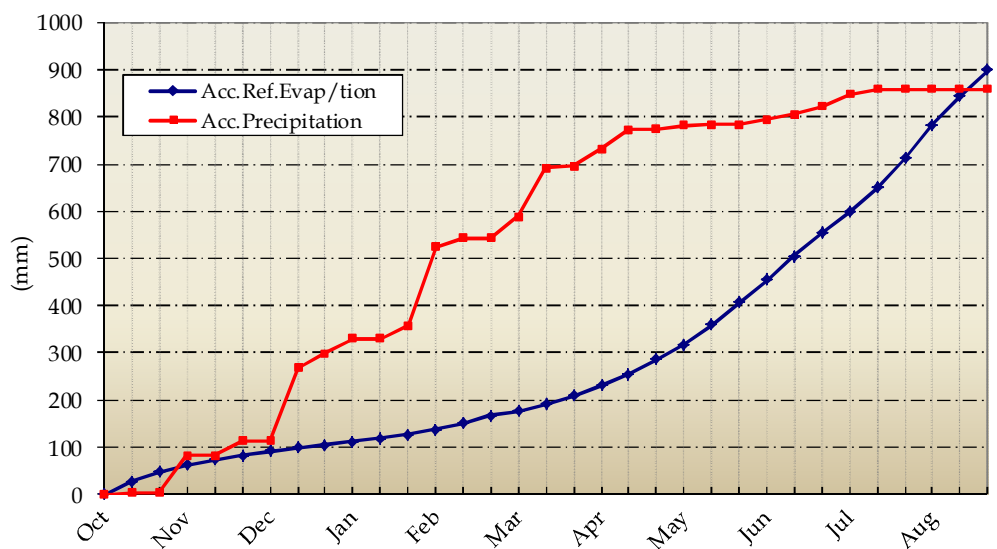
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2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.6	34.0	36.0	36.2	34.6	34.4	32.6	32.4	34.2	33.8	34.0	32.0	30.5
	Min	18.0	19.6	20.8	20.4	20.6	20.6	20.6	19.6	23.8	21.4	20.5	18.9	17.7
Relative Humidity	Max	83	79	82	84	90	87	91	93	89	93	87	85	-
	Min	43	36	34	30	34	43	42	48	45	45	40	35	-
Soil Temperature at 10 cm	06 UTC	27.8	27.0	28.8	28.8	29.2	29.0	28.6	28.2	28.6	29.4	28.5	26.3	23.8
	12 UTC	32.0	33.4	33.6	33.8	34.0	34.4	33.5	33.6	34.0	33.2	33.6	31.0	27.9
Sunshine Duration		12.6	11.9	12.0	12.1	11.8	11.5	11.4	12.5	12.1	12.3	12.0	12.0	10.0
Precipitation													1.1	3.9
Evaporation		6.9	10.3	9.0	12.1	7.6	11.2	8.4	5.0	10.4	8.3	89.2	84.4	94.5
Growing Degrees	5	19.8	21.8	23.4	23.3	22.6	22.5	21.6	21.0	24.0	22.6	222.6	204.7	191.3
	10	14.8	16.8	18.4	18.3	17.6	17.5	16.6	16.0	19.0	17.6	172.6	154.7	141.3

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.8	53.2	55.4
Precipitation - Reference Evapotranspiration	-54.8	-52.1	-51.5
Number of Rainy Days	0.0	1.0	1.0
Number of Dry Days	13.0	9.0	-

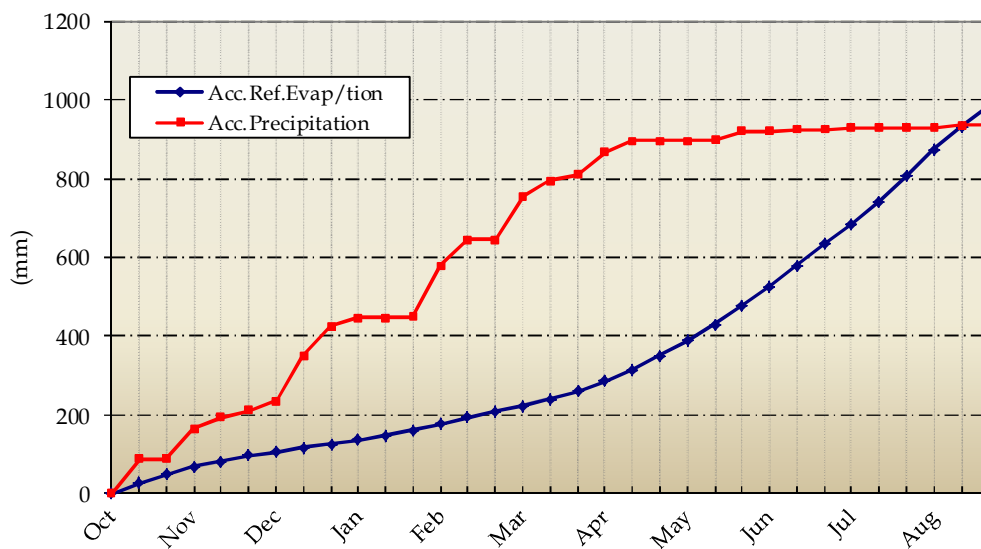
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.8	30.6	30.2	34.0	32.0	32.2	30.8	30.2	31.9	32.0	31.6	31.5	31.2
	Min	20.6	22.1	19.5	21.5	20.0	22.0	21.9	20.6	20.6	20.4	20.9	20.3	18.7
Relative Humidity	Max	82	83	85	83	87	87	84	84	80	80	84	84	-
	Min	35	43	42	31	36	40	32	34	35	43	37	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	29.7	27.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	34.1	31.7
Sunshine Duration		12.2	8.1	3.0	10.1	10.6	11.2	11.7	11.6	11.7	10.9	10.1	12.1	11.2
Precipitation														4.0
Evaporation		10.0	4.0	13.7	3.3	10.0	8.0	4.0	4.0	9.5	12.0	78.5	-	73.5
Growing Degrees	5	21.2	21.4	19.9	22.8	21.0	22.1	21.4	20.4	21.3	21.2	212.5	209.1	199.2
	10	16.2	16.4	14.9	17.8	16.0	17.1	16.4	15.4	16.3	16.2	162.5	159.1	149.2

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.3	56.0	49.2
Precipitation - Reference Evapotranspiration	-51.3	-56.0	-45.2
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	14.0	27.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

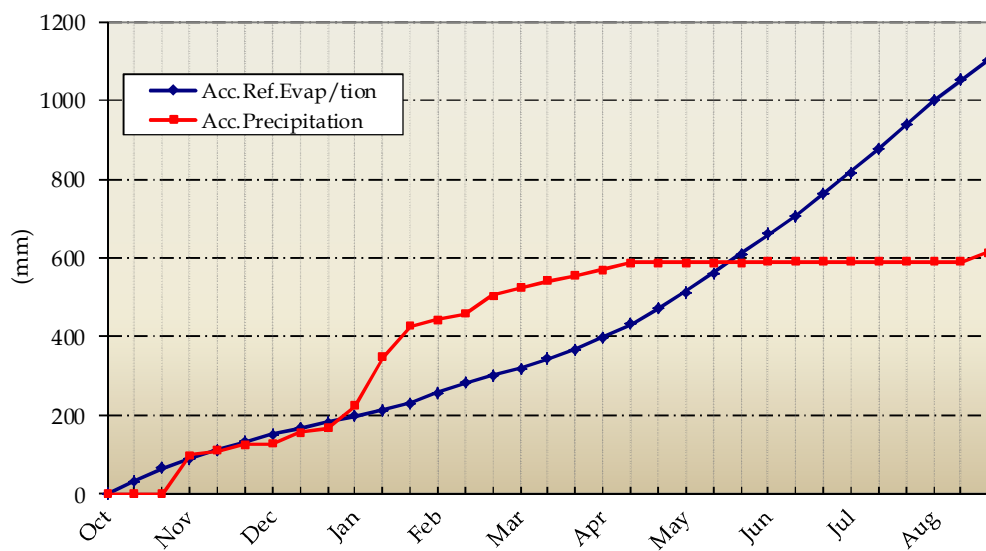


Iraklio

2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.8	29.4	30.6	34.6	29.0	30.0	31.0	30.2	29.0	30.8	30.4	30.2	28.2
	Min	22.2	22.4	22.2	24.6	23.8	22.6	23.0	22.8	21.8	21.0	22.6	23.6	22.2
Relative Humidity	Max	84	88	84	84	94	91	84	87	88	79	86	78	-
	Min	50	58	48	38	70	61	48	41	61	47	52	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.9	12.3	11.9	4.5	5.2	12.0	12.1	12.1	12.0	13.2	10.7	12.3	11.0
Precipitation					0.0	25.2						25.2		0.0
Evaporation		10.1	6.2	5.0	3.9	7.6	5.1	5.1	9.7	6.8	7.3	66.8	72.4	81.3
Growing Degrees	5	21.0	20.9	21.4	24.6	21.4	21.3	22.0	21.5	20.4	20.9	215.4	219.0	202.0
	10	16.0	15.9	16.4	19.6	16.4	16.3	17.0	16.5	15.4	15.9	165.4	169.0	152.0

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.3	60.1	-
Precipitation - Reference Evapotranspiration	-25.1	-60.1	0.0
Number of Rainy Days	1.0	0.0	0.1
Number of Dry Days	77.0	76.0	-

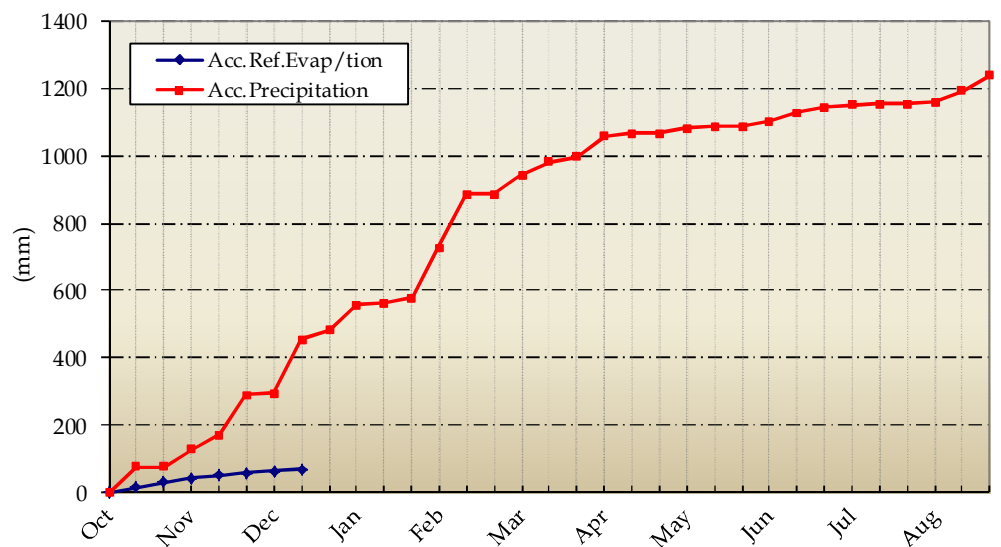
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.7	31.9	31.2	31.2	33.0	30.9	29.0	28.2	31.2	29.5	30.9	32.5	30.9
	Min	15.6	15.1	15.8	14.5	15.1	15.5	16.7	12.6	18.0	12.7	15.2	15.2	15.4
Relative Humidity	Max	100	99	100	100	100	92	100	99	100	97	99	86	-
	Min	29	36	24	27	31	39	39	39	31	32	33	23	-
Soil Temperature at 10 cm	06 UTC	31.2	31.2	31.0	31.5	31.4	31.2	31.0	31.2	31.4	31.2	31.2	-	23.3
	12 UTC	-	31.2	-	-	-	-	-	-	-	-	31.2	-	27.1
Sunshine Duration		9.8	7.1	6.3	6.6	7.7	9.5	10.3	11.2	9.6	7.0	8.5	10.7	9.5
Precipitation			8.9	0.6	19.2	17.1	0.0	0.1				45.9		11.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	64.1
Growing Degrees	5	19.2	18.5	18.5	17.9	19.1	18.2	17.9	15.4	19.6	16.1	180.2	188.2	176.6
	10	14.2	13.5	13.5	12.9	14.1	13.2	12.9	10.4	14.6	11.1	130.2	138.2	127.8

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	38.7	45.3
Precipitation - Reference Evapotranspiration	-	-38.7	-34.0
Number of Rainy Days	5.0	0.0	1.8
Number of Dry Days	1.0	12.0	-

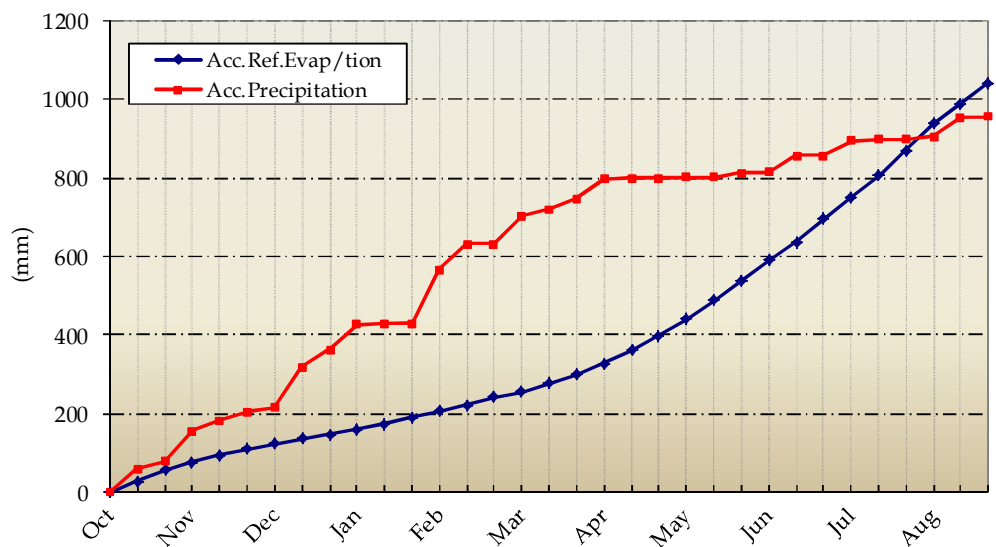
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.6	32.1	31.5	32.3	31.5	33.1	33.3	33.0	32.9	34.4	32.7	32.7	31.4
	Min	19.3	18.7	19.0	18.8	20.4	20.3	20.1	17.7	21.0	20.1	19.5	19.5	18.2
Relative Humidity	Max	90	90	89	86	88	90	88	85	79	85	87	83	-
	Min	43	36	35	34	44	41	30	28	33	28	35	31	-
Soil Temperature at 10 cm	06 UTC	25.0	25.4	25.0	24.6	25.2	25.0	25.4	25.0	25.4	25.2	25.1	26.4	25.7
	12 UTC	26.0	26.2	25.6	25.0	26.2	26.0	26.6	26.4	26.6	26.6	26.1	28.3	29.6
Sunshine Duration		10.7	8.9	2.3	9.4	10.4	11.2	11.9	12.0	11.6	11.9	10.0	12.1	10.6
Precipitation			0.3	0.1	1.4							1.8		3.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	78.6
Growing Degrees	5	21.0	20.4	20.3	20.6	21.0	21.7	21.7	20.4	22.0	22.3	211.1	211.1	198.2
	10	16.0	15.4	15.3	15.6	16.0	16.7	16.7	15.4	17.0	17.3	161.1	161.1	148.2

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	52.8	62.1	50.7
Precipitation - Reference Evapotranspiration	-51.0	-62.1	-46.8
Number of Rainy Days	3.0	0.0	0.7
Number of Dry Days	2.0	26.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



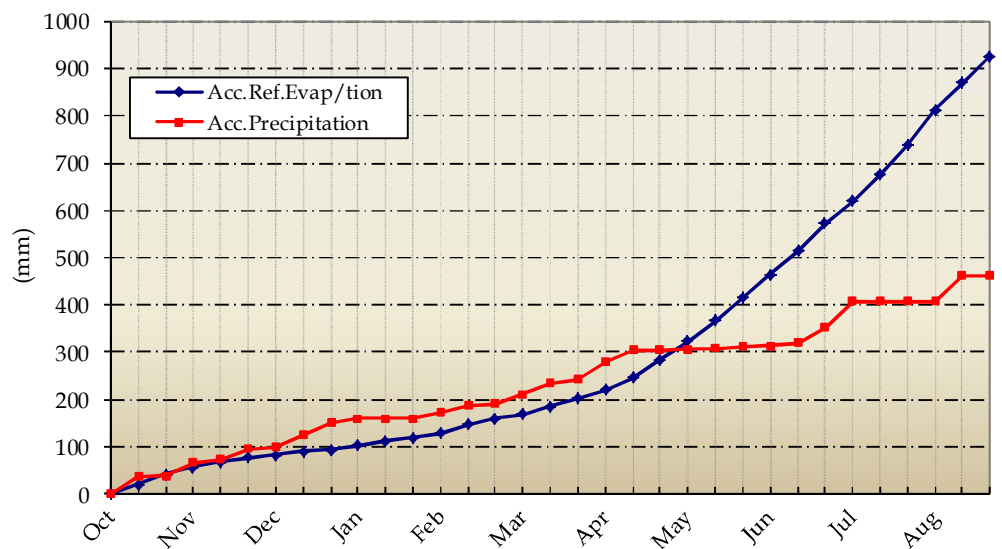


Larisa

2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	36.2	35.0	34.3	35.2	35.5	36.2	34.7	34.6	34.8	34.8	35.1	35.8	32.3
	Min	18.5	19.6	18.9	18.7	19.1	19.6	20.5	17.3	17.6	19.0	18.9	18.8	17.5
Relative Humidity	Max	89	85	89	86	91	79	78	74	79	80	83	70	-
	Min	21	26	27	23	24	26	22	19	21	19	23	19	-
Soil Temperature at 10 cm	06 UTC	27.2	27.8	27.8	28.0	28.0	28.2	28.2	28.2	28.2	28.2	28.0	-	26.4
	12 UTC	27.4	27.6	27.8	28.0	28.0	28.2	28.2	28.4	28.0	28.2	28.0	-	28.7
Sunshine Duration		11.5	10.1	10.7	10.0	11.0	10.0	12.2	11.9	11.9	11.2	11.0	11.9	9.9
Precipitation														6.2
Evaporation		8.2	8.0	11.2	6.9	9.5	7.8	10.1	9.7	10.3	7.2	88.9	102.0	84.1
Growing Degrees	5	22.4	22.3	21.6	22.0	22.3	22.9	22.6	21.0	21.2	21.9	220.1	223.2	199.1
	10	17.4	17.3	16.6	17.0	17.3	17.9	17.6	16.0	16.2	16.9	170.1	173.2	149.1

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.5	62.6	53.3
Precipitation - Reference Evapotranspiration	-56.5	-62.6	-47.1
Number of Rainy Days	0.0	0.0	1.4
Number of Dry Days	12.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

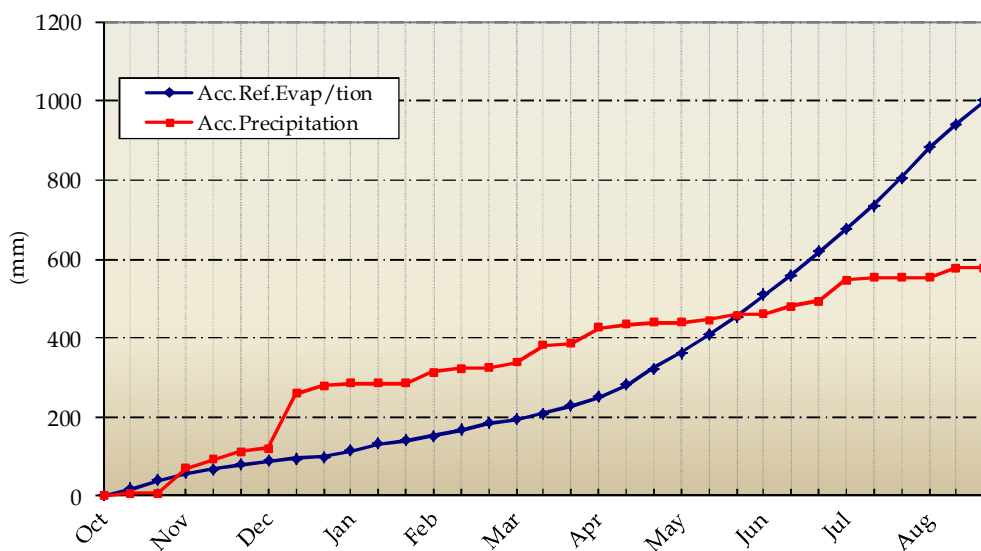


Mikra

2nd 10-day period (11-20/08/2015)		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	35.2	34.6	33.0	35.2	34.6	34.0	33.0	33.2	31.4	33.8	33.5	31.3
	Min	19.9	20.4	21.1	21.3	20.6	20.8	23.2	17.6	19.3	20.9	20.5	21.0	18.9
Relative Humidity	Max	67	70	76	81	82	76	70	76	72	82	75	75	-
	Min	24	24	27	33	22	24	24	27	30	41	28	29	-
Soil Temperature at 10 cm	06 UTC	27.9	28.0	29.0	29.4	29.0	29.0	29.8	28.8	28.6	29.0	28.8	28.3	26.0
	12 UTC	31.8	32.4	33.1	33.2	33.0	33.0	33.2	32.7	32.4	32.2	32.7	32.8	30.5
Sunshine Duration		11.3	12.0	11.6	11.6	12.1	10.6	12.0	12.2	11.6	9.7	11.5	12.1	10.0
Precipitation														6.6
Evaporation		7.2	9.4	10.6	5.5	9.8	10.1	8.1	10.1	9.9	6.6	87.3	89.2	83.0
Growing Degrees	5	22.1	22.8	22.9	22.2	22.9	22.7	23.6	20.3	21.3	21.2	221.8	222.2	201.0
	10	17.1	17.8	17.9	17.2	17.9	17.7	18.6	15.3	16.3	16.2	171.8	172.2	151.0

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	58.2	64.5	52.4
Precipitation - Reference Evapotranspiration	-58.2	-64.5	-45.8
Number of Rainy Days	0.0	0.0	1.1
Number of Dry Days	13.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

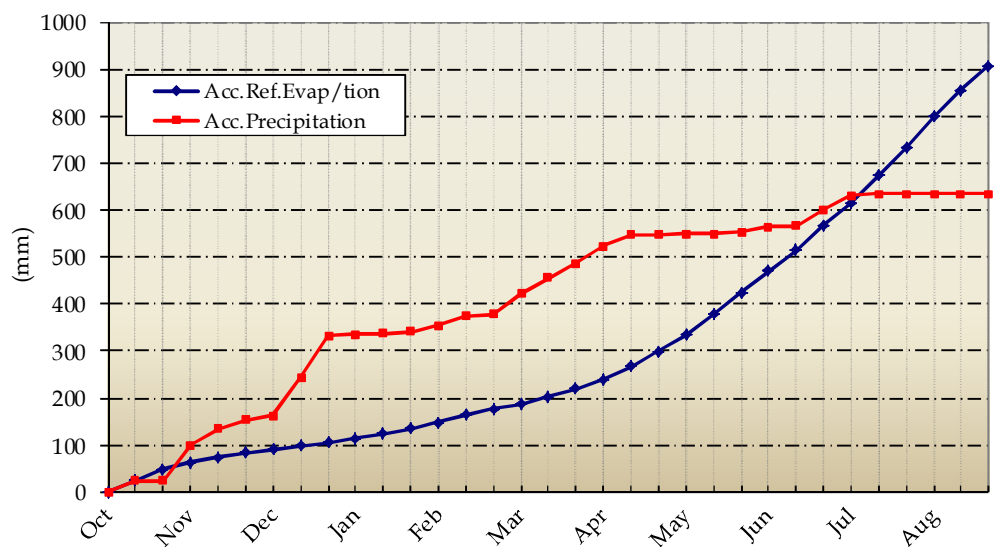




2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.4	34.6	34.2	33.8	34.3	35.3	35.4	33.2	34.1	34.6	34.4	33.5	31.8
	Min	19.6	22.0	19.7	21.0	22.1	20.6	22.8	20.0	20.0	20.8	20.9	19.8	18.4
Relative Humidity	Max	61	76	76	69	75	76	64	63	73	76	71	69	-
	Min	23	23	26	28	26	20	16	25	20	27	23	24	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.1	9.8	8.9	8.9	6.5	11.9	12.2	12.5	12.9	12.1	10.7	-	-
Precipitation													0.0	3.4
Evaporation		9.5	8.7	9.3	7.0	7.5	11.3	16.3	11.5	9.0	13.5	103.6	-	-
Growing Degrees	5	22.0	23.3	22.0	22.4	23.2	23.0	24.1	21.6	22.1	22.7	226.3	-	-
	10	17.0	18.3	17.0	17.4	18.2	18.0	19.1	16.6	17.1	17.7	176.3	-	-

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.5	-	-
Precipitation - Reference Evapotranspiration	-50.5	-	0.0
Number of Rainy Days	0.0	-	-
Number of Dry Days	50.0	-	-

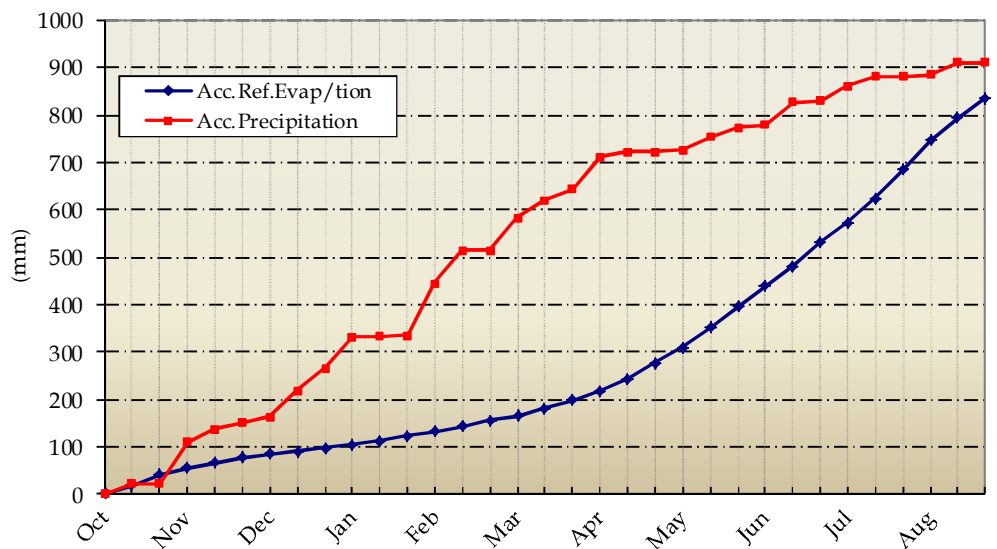
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/08/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.5	29.7	28.9	29.1	31.0	32.3	29.8	30.7	32.1	32.4	30.6	33.7	29.9
	Min	14.4	15.3	15.1	15.2	15.2	15.1	15.5	11.5	13.9	14.0	14.5	13.7	14.5
Relative Humidity	Max	100	100	100	99	99	100	100	99	99	97	99	83	-
	Min	28	31	33	32	29	23	32	32	25	21	29	18	-
Soil Temperature at 10 cm	06 UTC	21.8	22.6	23.0	22.2	-	-	24.2	23.4	24.6	24.8	23.3	25.4	24.7
	12 UTC	27.4	27.4	26.2	25.8	-	-	28.8	28.8	29.6	30.0	28.0	31.5	27.4
Sunshine Duration		9.5	10.0	5.3	-	-	0.0	12.0	11.1	11.5	11.7	8.9	11.2	9.7
Precipitation						0.8						0.8		13.8
Evaporation		4.7	5.9	3.4	-	-	-	7.9	7.0	5.8	7.4	-	-	56.3
Growing Degrees	5	17.5	17.5	17.0	17.2	18.1	18.7	17.7	16.1	18.0	18.2	175.9	186.9	172.3
	10	12.5	12.5	12.0	12.2	13.1	13.7	12.7	11.1	13.0	13.2	125.9	136.9	122.3

2nd 10-day period (11-20/08/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.9	49.4	47.6
Precipitation - Reference Evapotranspiration	-42.1	-49.4	-33.8
Number of Rainy Days	1.0	0.0	1.4
Number of Dry Days	4.0	13.0	-

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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