



# AGROMETEOROLOGICAL BULLETIN

*September 2015*  
*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



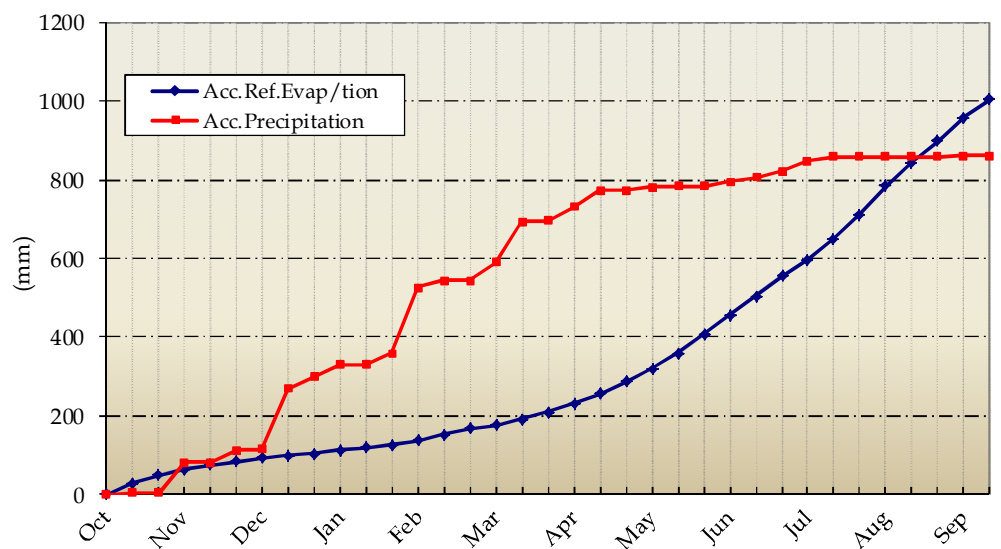
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1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.8	34.4	30.6	32.8	31.4	33.2	29.6	28.0	28.4	31.0	31.4	28.5	27.3
	Min	19.0	19.8	16.8	18.6	18.2	19.4	22.0	18.8	16.0	20.8	18.9	19.1	15.0
Relative Humidity	Max	92	83	91	91	83	91	76	77	75	78	84	90	-
	Min	24	30	56	40	52	45	30	28	30	40	38	47	-
Soil Temperature at 10 cm	06 UTC	27.4	27.2	26.4	27.0	27.0	26.6	22.8	26.8	24.6	25.8	26.2	23.9	21.2
	12 UTC	32.2	31.6	32.0	32.6	32.4	32.0	30.6	29.4	29.4	30.2	31.2	27.7	24.9
Sunshine Duration		12.2	11.9	11.3	11.7	11.7	11.6	9.6	6.5	10.2	6.4	10.3	8.4	8.8
Precipitation									0.0			0.0	16.9	6.6
Evaporation		12.5	5.5	11.3	4.1	4.7	10.1	13.5	6.5	10.1	8.3	86.6	46.7	73.7
Growing Degrees	5	21.9	22.1	18.7	20.7	19.8	21.3	20.8	18.4	17.2	20.9	201.8	188.0	161.8
	10	16.9	17.1	13.7	15.7	14.8	16.3	15.8	13.4	12.2	15.9	151.8	138.0	111.8

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.4	37.3	42.4
Precipitation - Reference Evapotranspiration	-46.4	-20.4	-35.8
Number of Rainy Days	0.0	5.0	1.1
Number of Dry Days	18.0	16.0	-

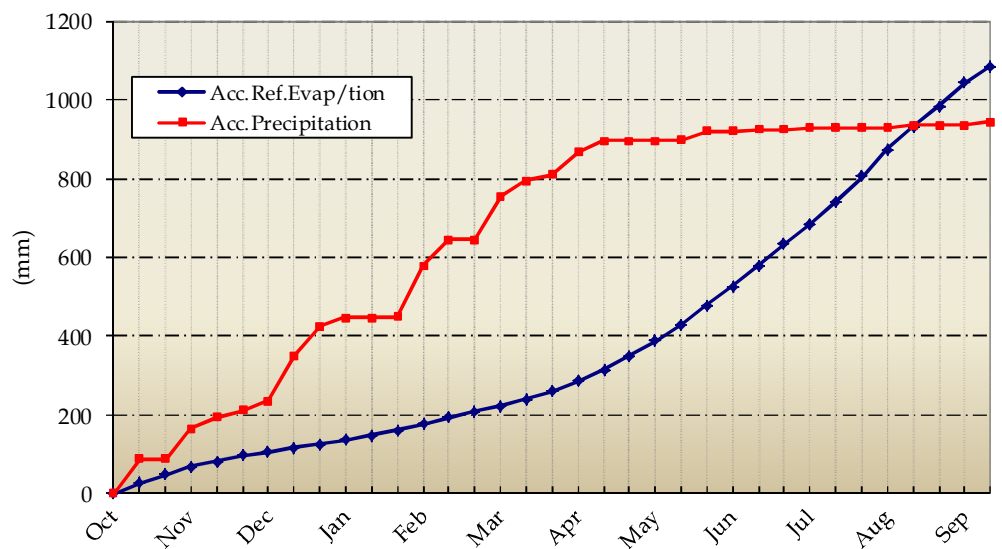
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	34.4	30.6	30.8	32.0	33.1	32.7	31.7	31.4	29.8	30.4	31.7	28.2	28.8
	Min	17.6	19.2	20.9	19.6	19.7	20.5	22.5	20.4	19.4	20.6	20.0	19.1	17.3
Relative Humidity	Max	85	86	88	89	87	86	88	85	80	90	86	89	-
	Min	22	45	49	36	31	47	39	33	43	48	39	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	25.4	24.8
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	28.6	28.9
Sunshine Duration		11.1	10.9	10.9	10.4	10.4	10.3	5.8	10.0	1.9	6.3	8.8	9.7	9.7
Precipitation											9.0	9.0	61.8	5.8
Evaporation		4.0	8.0	6.0	8.0	6.0	5.0	7.0	6.8	0.6	3.2	54.6	-	62.5
Growing Degrees	5	21.0	19.9	20.9	20.8	21.4	21.6	22.1	20.9	19.6	20.5	208.7	186.5	180.3
	10	16.0	14.9	15.9	15.8	16.4	16.6	17.1	15.9	14.6	15.5	158.7	136.5	130.3

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.7	40.3	40.4
Precipitation - Reference Evapotranspiration	-32.7	21.5	-34.6
Number of Rainy Days	1.0	3.0	1.2
Number of Dry Days	34.0	39.0	-

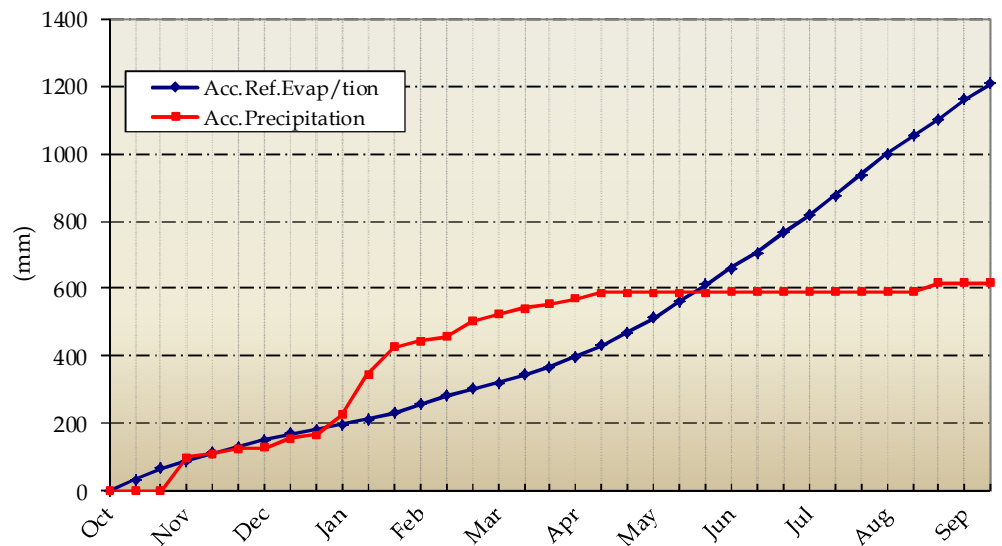
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.0	29.6	29.2	29.8	32.2	34.0	32.6	30.2	28.6	29.6	30.5	28.6	27.0
	Min	20.4	20.6	23.0	22.0	22.6	22.4	24.2	22.8	23.0	21.4	22.2	21.6	20.4
Relative Humidity	Max	87	90	83	77	75	68	85	83	87	77	81	85	-
	Min	55	46	56	59	41	23	36	57	65	51	49	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.3	11.0	11.1	10.5	10.4	10.5	8.4	9.2	9.3	9.9	10.2	9.5	9.9
Precipitation													0.0	1.6
Evaporation		7.1	1.8	5.4	6.1	5.8	4.4	5.6	4.2	3.4	6.3	50.1	48.1	74.3
Growing Degrees	5	19.7	20.1	21.1	20.9	22.4	23.2	23.4	21.5	20.8	20.5	213.6	201.2	187.3
	10	14.7	15.1	16.1	15.9	17.4	18.2	18.4	16.5	15.8	15.5	163.6	151.2	137.3

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	46.4	43.9	-
Precipitation - Reference Evapotranspiration	-46.4	-43.9	1.6
Number of Rainy Days	0.0	0.0	0.3
Number of Dry Days	26.0	97.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

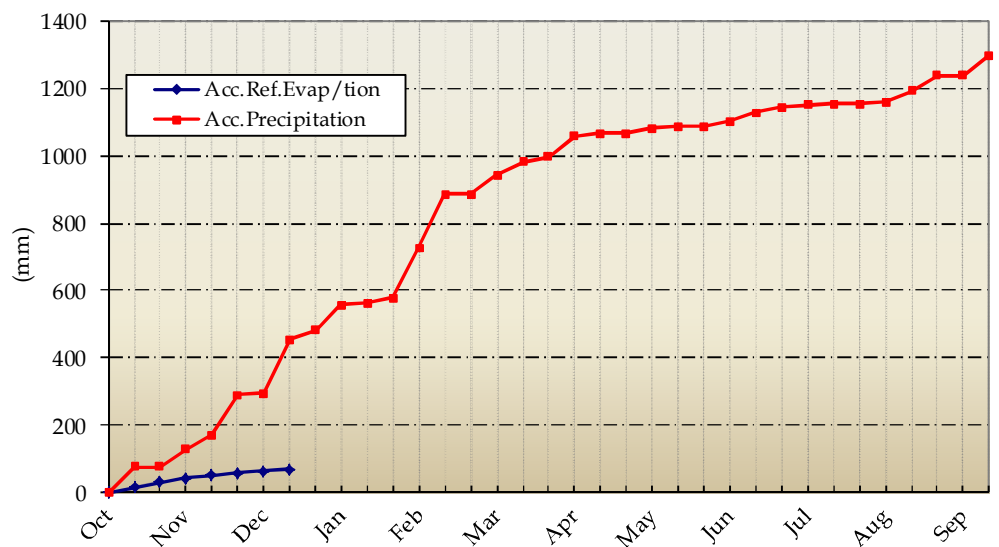


Ioannina

1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.2	33.2	31.2	34.3	31.9	32.4	28.9	30.5	26.1	25.6	30.6	25.8	27.0
	Min	13.3	14.0	16.1	15.2	13.2	19.4	14.5	14.2	12.0	17.6	15.0	14.2	13.0
Relative Humidity	Max	97	100	100	100	76	92	79	97	100	100	94	98	-
	Min	26	26	31	13	30	29	38	23	45	45	31	51	-
Soil Temperature at 10 cm	06 UTC	31.4	31.6	31.4	32.4	31.2	31.2	31.2	32.6	31.4	31.5	31.6	-	19.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.8
Sunshine Duration		10.1	9.8	8.4	9.8	9.3	7.5	6.1	9.8	1.1	5.8	7.8	4.7	7.5
Precipitation			0.5	0.5						0.5	58.4	59.9	49.1	16.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	44.5
Growing Degrees	5	17.8	18.6	18.7	19.8	17.6	20.9	16.7	17.4	14.1	16.6	177.9	150.4	150.0
	10	12.8	13.6	13.7	14.8	12.6	15.9	11.7	12.4	9.1	11.6	127.9	100.4	100.0

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	24.3	33.0
Precipitation - Reference Evapotranspiration	-	24.8	-16.6
Number of Rainy Days	4.0	6.0	2.1
Number of Dry Days	15.0	3.0	-

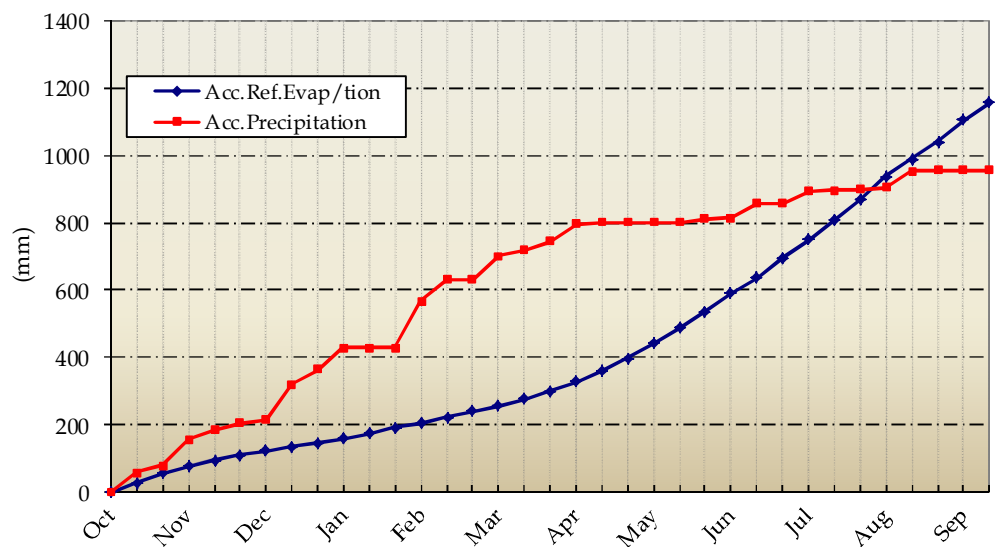
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.1	31.0	35.0	36.0	36.9	38.9	37.6	35.0	30.9	29.3	34.3	29.9	29.3
	Min	15.8	18.5	20.2	21.0	19.6	22.3	23.2	23.8	20.1	22.3	20.7	18.3	16.6
Relative Humidity	Max	92	90	90	82	78	80	79	79	87	91	85	91	-
	Min	26	46	18	30	16	17	26	25	47	52	30	39	-
Soil Temperature at 10 cm	06 UTC	24.8	25.0	26.0	26.0	27.0	26.0	26.4	26.8	26.4	26.0	26.0	24.4	23.8
	12 UTC	28.6	27.4	28.6	27.6	27.6	28.6	29.6	28.4	27.6	27.0	28.1	25.8	27.2
Sunshine Duration		11.4	11.0	11.3	11.5	11.0	10.8	7.9	10.3	6.5	4.6	9.6	10.7	9.3
Precipitation										0.2	0.0	0.2	58.6	7.7
Evaporation		6.0	8.4	7.6	8.8	6.0	7.4	8.6	8.7	3.7	7.1	72.3	-	67.1
Growing Degrees	5	19.0	19.8	22.6	23.5	23.3	25.6	25.4	24.4	20.5	20.8	224.8	190.9	179.8
	10	14.0	14.8	17.6	18.5	18.3	20.6	20.4	19.4	15.5	15.8	174.8	140.9	129.8

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	51.6	46.2	43.1
Precipitation - Reference Evapotranspiration	-51.4	12.4	-35.4
Number of Rainy Days	1.0	2.0	1.1
Number of Dry Days	25.0	1.0	-

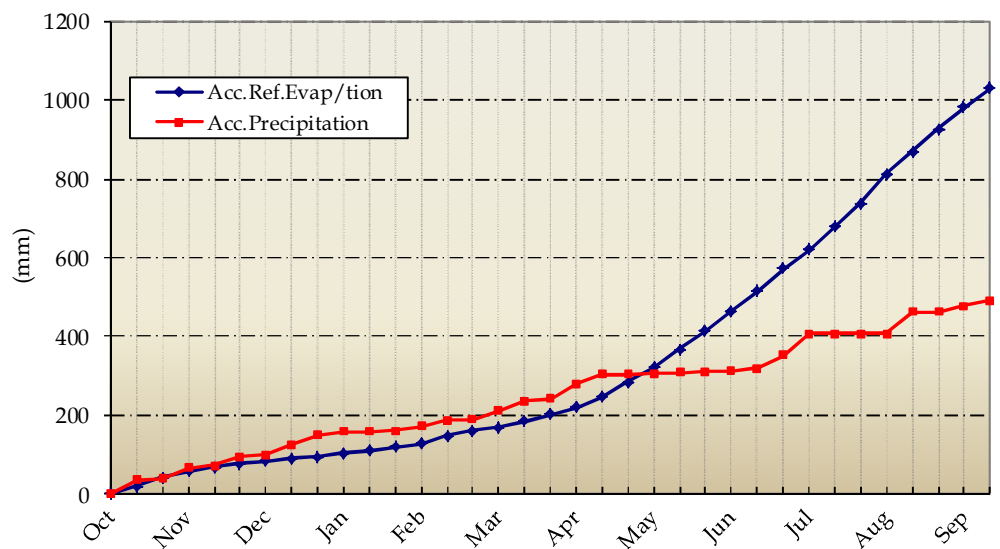
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.0	36.0	36.0	38.2	40.4	39.2	32.5	28.8	25.2	27.8	33.9	29.2	29.4
	Min	16.6	14.3	18.2	18.4	18.2	19.6	23.7	19.2	19.2	18.4	18.6	17.4	14.9
Relative Humidity	Max	80	87	82	70	67	69	85	88	100	100	83	97	-
	Min	20	13	18	11	11	15	20	38	53	54	25	37	-
Soil Temperature at 10 cm	06 UTC	27.0	27.0	27.0	27.4	27.6	28.2	28.0	27.6	27.2	24.8	27.2	-	23.3
	12 UTC	27.0	27.0	27.2	27.6	27.6	28.0	28.0	27.6	26.8	25.8	27.3	-	25.4
Sunshine Duration		10.4	10.6	10.7	9.6	9.6	7.7	6.8	6.2	0.5	5.5	7.8	8.2	8.7
Precipitation							1.1		0.3	5.9	4.7	12.0	65.5	5.6
Evaporation		8.9	4.4	12.2	8.0	9.6	8.9	7.9	7.3	3.3	5.5	76.0	70.4	63.7
Growing Degrees	5	20.8	20.2	22.1	23.3	24.3	24.4	23.1	19.0	17.2	18.1	212.5	182.7	171.4
	10	15.8	15.2	17.1	18.3	19.3	19.4	18.1	14.0	12.2	13.1	162.5	132.7	121.4

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	48.9	41.4	42.5
Precipitation - Reference Evapotranspiration	-36.9	24.1	-36.9
Number of Rainy Days	4.0	6.0	1.4
Number of Dry Days	13.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

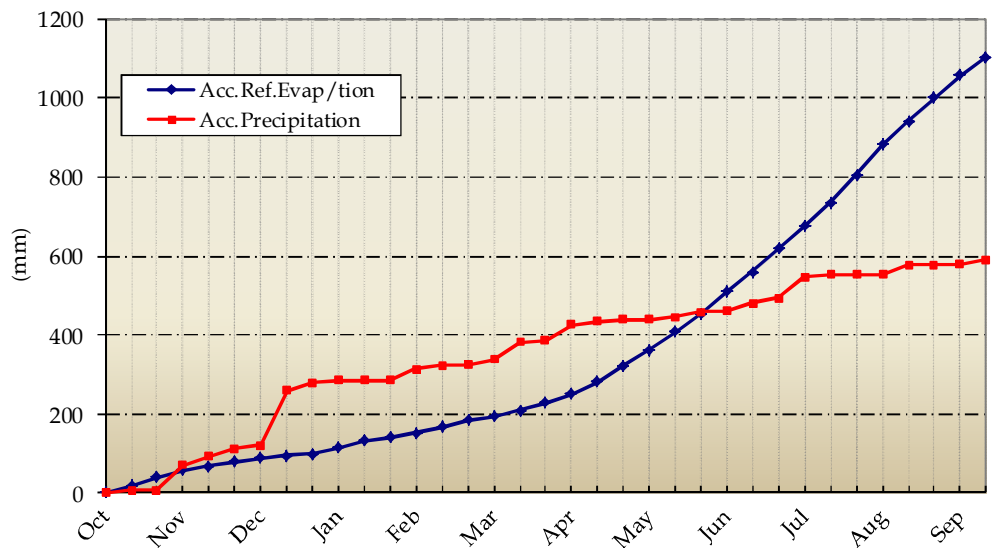


Mikra

1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.8	34.4	34.2	36.5	35.7	37.3	30.5	26.8	24.2	25.6	31.8	27.8	28.1
	Min	19.6	12.0	18.0	18.4	18.5	21.2	23.1	19.9	18.9	18.3	18.8	18.4	16.4
Relative Humidity	Max	77	80	80	80	79	72	67	90	88	91	80	90	-
	Min	32	26	29	14	28	19	26	42	43	65	32	49	-
Soil Temperature at 10 cm	06 UTC	27.4	27.6	27.4	27.4	27.6	28.2	28.0	27.6	24.8	23.2	26.9	24.8	22.6
	12 UTC	32.0	31.6	31.6	31.2	31.4	31.2	31.0	27.0	26.0	24.4	29.7	27.8	26.5
Sunshine Duration		10.0	10.7	11.7	11.0	10.8	7.8	7.5	4.6	1.1	5.2	8.0	6.6	8.4
Precipitation									3.3	0.3	8.5	12.1	59.7	7.2
Evaporation		12.5	7.5	7.9	9.3	5.7	11.3	6.6	5.4	2.8	2.0	71.0	64.5	68.9
Growing Degrees	5	21.2	18.2	21.1	22.5	22.1	24.3	21.8	18.4	16.6	17.0	203.0	181.1	172.3
	10	16.2	13.2	16.1	17.5	17.1	19.3	16.8	13.4	11.6	12.0	153.0	131.1	122.3

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.3	35.0	42.4
Precipitation - Reference Evapotranspiration	-33.2	24.7	-35.2
Number of Rainy Days	3.0	7.0	1.4
Number of Dry Days	16.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



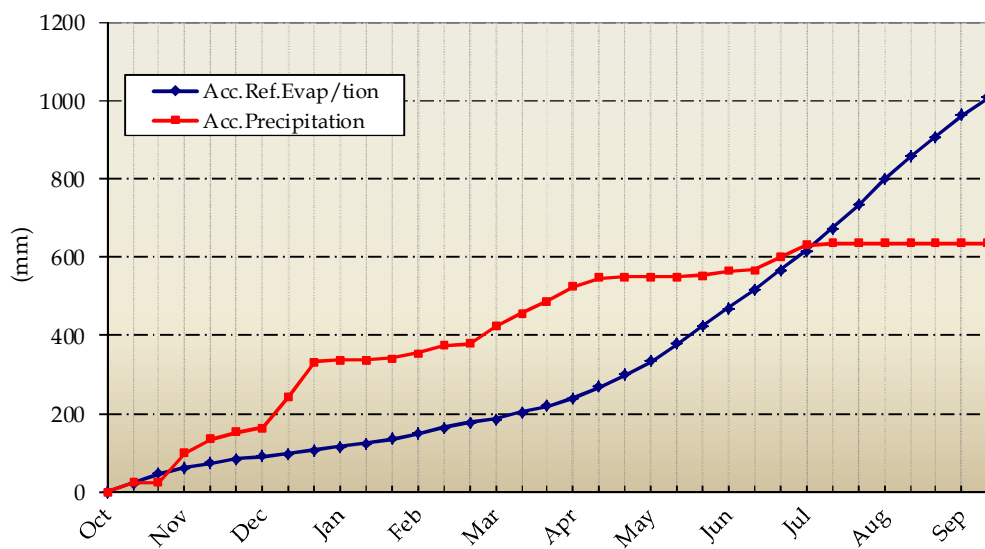


Tanagra

1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.1	33.8	34.6	36.6	38.0	40.2	33.8	30.0	28.0	31.0	33.9	28.9	28.9
	Min	19.0	16.0	20.2	20.0	22.0	23.0	23.8	20.5	18.6	18.1	20.1	18.5	16.1
Relative Humidity	Max	63	77	75	81	64	57	68	76	75	78	71	83	-
	Min	12	20	24	14	17	14	21	38	40	33	23	41	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		12.7	11.3	11.0	11.1	10.7	10.0	7.9	8.7	4.8	8.5	9.7	-	-
Precipitation								0.0	0.0	0.0		0.0	22.1	8.1
Evaporation		9.5	8.5	10.0	10.0	10.5	12.5	9.0	4.5	5.0	7.0	86.5	-	-
Growing Degrees	5	21.1	19.9	22.4	23.3	25.0	26.6	23.8	20.3	18.3	19.6	220.2	-	-
	10	16.1	14.9	17.4	18.3	20.0	21.6	18.8	15.3	13.3	14.6	170.2	-	-

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.3	-	-
Precipitation - Reference Evapotranspiration	-44.3	-	0.0
Number of Rainy Days	0.0	-	-
Number of Dry Days	18.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

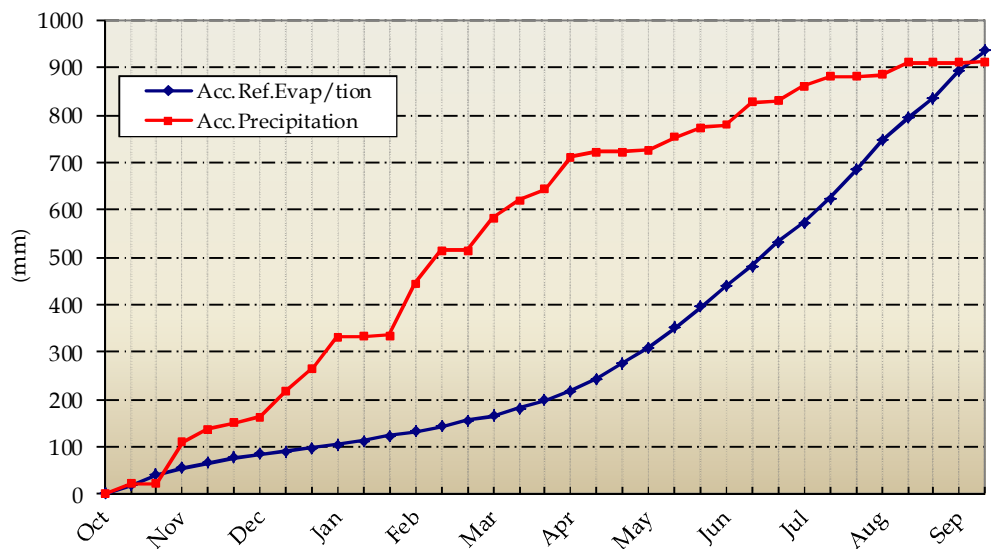


Tripoli

1st 10-day period (1-10/09/2015)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.6	31.9	31.8	35.1	34.7	36.3	34.7	31.7	25.8	29.0	32.4	26.9	27.4
	Min	11.0	12.4	14.8	14.4	15.0	15.4	17.6	18.5	17.1	17.2	15.3	13.4	12.2
Relative Humidity	Max	88	92	95	98	87	82	70	96	98	99	90	98	-
	Min	16	20	24	14	16	15	23	25	48	33	23	35	-
Soil Temperature at 10 cm	06 UTC	24.4	24.8	25.0	25.0	25.4	26.0	25.4	27.0	26.6	25.6	25.5	21.3	21.7
	12 UTC	-	-	30.0	30.0	-	-	30.8	31.0	29.4	28.6	30.0	25.8	24.2
Sunshine Duration		11.5	10.3	9.5	9.7	11.1	10.6	7.4	8.7	4.6	7.4	9.1	8.0	9.3
Precipitation											1.0	1.0	73.0	5.8
Evaporation		6.4	6.0	5.9	6.7	7.1	8.2	7.0	6.8	3.4	3.7	61.2	46.5	47.2
Growing Degrees	5	16.8	17.2	18.3	19.8	19.9	20.9	21.2	20.1	16.5	18.1	188.5	151.7	148.0
	10	11.8	12.2	13.3	14.8	14.9	15.9	16.2	15.1	11.5	13.1	138.5	101.7	98.0

1st 10-day period (1-10/09/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.9	33.8	39.2
Precipitation - Reference Evapotranspiration	-39.9	39.2	-33.4
Number of Rainy Days	1.0	5.0	1.6
Number of Dry Days	25.0	1.0	-

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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