



AGROMETEOROLOGICAL BULLETIN

November 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



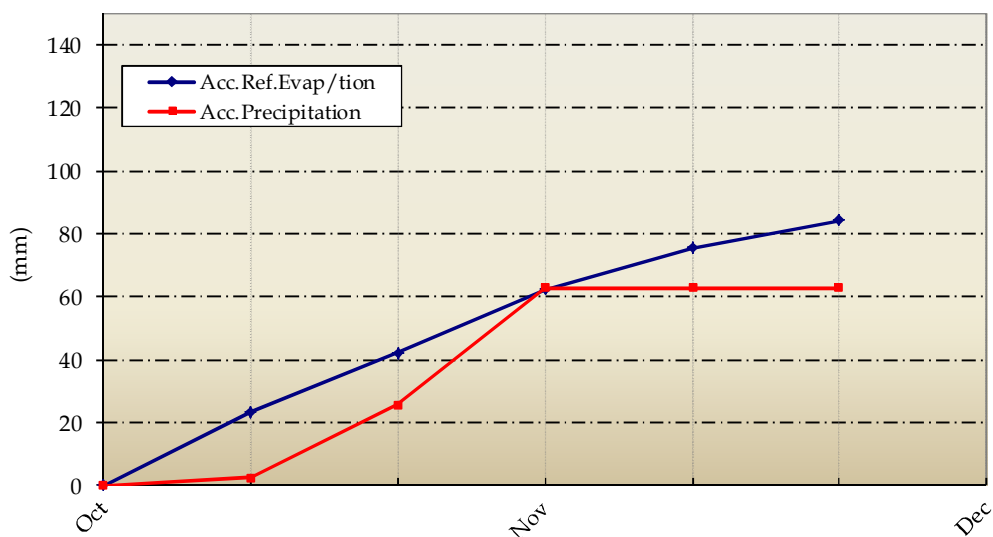
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2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.0	22.4	23.0	14.0	17.0	17.6	17.8	17.4	18.6	18.4	18.5	16.2	14.4
	Min	9.2	7.6	7.2	6.0	5.0	4.0	7.0	4.8	8.4	6.4	6.6	10.8	6.2
Relative Humidity	Max	93	94	94	100	86	90	85	93	97	96	93	93	-
	Min	66	48	43	90	36	61	45	70	69	68	60	73	-
Soil Temperature at 10 cm	06 UTC	12.8	12.4	12.0	12.0	11.4	10.2	11.4	10.4	11.4	12.6	11.7	13.0	9.7
	12 UTC	16.0	16.6	15.6	13.8	13.6	13.0	14.0	13.2	14.4	15.2	14.5	14.5	11.5
Sunshine Duration		8.9	8.8	8.7	0.6	4.0	6.4	8.6	5.5	5.4	5.7	6.3	0.7	3.9
Precipitation													30.8	29.1
Evaporation		2.5	1.6	2.0	0.5	2.3	2.0	2.0	1.0	0.8	0.7	15.4	9.8	18.6
Growing Degrees	5	9.1	10.0	10.1	5.0	6.0	5.8	7.4	6.1	8.5	7.4	75.4	85.3	54.2
	10	4.1	5.0	5.1	0.0	1.0	0.8	2.4	1.1	3.5	2.4	25.4	35.3	17.6

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.0	8.8	11.3
Precipitation - Reference Evapotranspiration	-9.0	22.0	17.8
Number of Rainy Days	0.0	5.0	2.9
Number of Dry Days	27.0	3.0	-

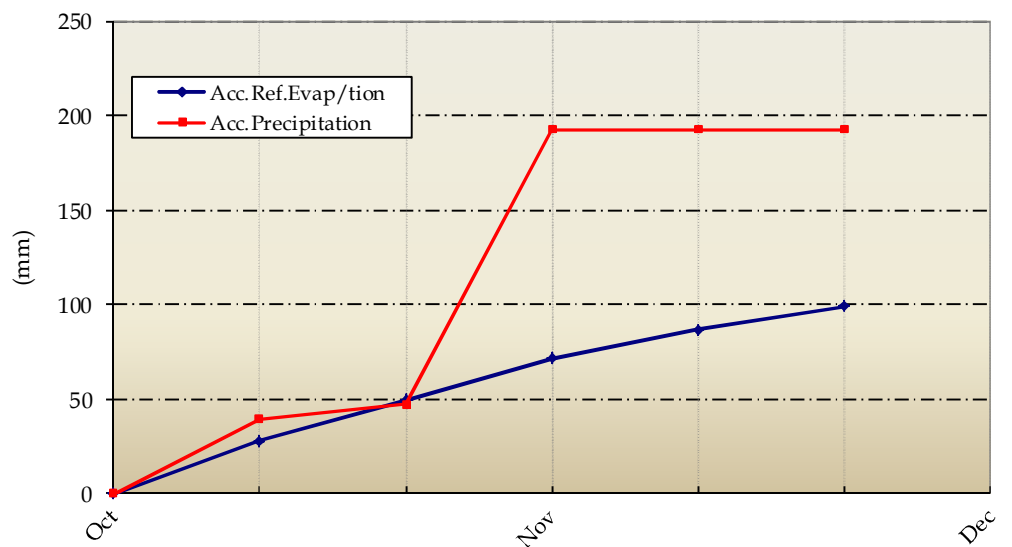
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	23.4	22.4	21.4	21.5	20.8	24.2	21.2	20.8	21.5	22.0	21.4	18.6
	Min	12.2	11.9	10.4	9.2	9.5	8.9	8.6	12.9	9.1	12.6	10.5	13.1	9.7
Relative Humidity	Max	89	91	92	92	93	92	92	90	92	91	91	89	-
	Min	52	50	57	65	54	58	34	58	62	54	54	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	15.9	13.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	17.8	15.2
Sunshine Duration		8.1	8.8	7.8	7.7	9.9	7.5	7.9	7.9	7.4	7.2	8.0	5.8	4.9
Precipitation													17.3	50.9
Evaporation		4.0	2.0	2.0	0.5	-	4.5	1.0	2.0	1.0	0.7	-	34.3	21.4
Growing Degrees	5	12.6	12.7	11.4	10.3	10.5	9.9	11.4	12.1	10.0	12.1	112.8	122.6	91.7
	10	7.6	7.7	6.4	5.3	5.5	4.9	6.4	7.1	5.0	7.1	62.8	72.6	42.4

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.6	15.1	11.8
Precipitation - Reference Evapotranspiration	-12.6	2.2	39.1
Number of Rainy Days	0.0	3.0	4.2
Number of Dry Days	28.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

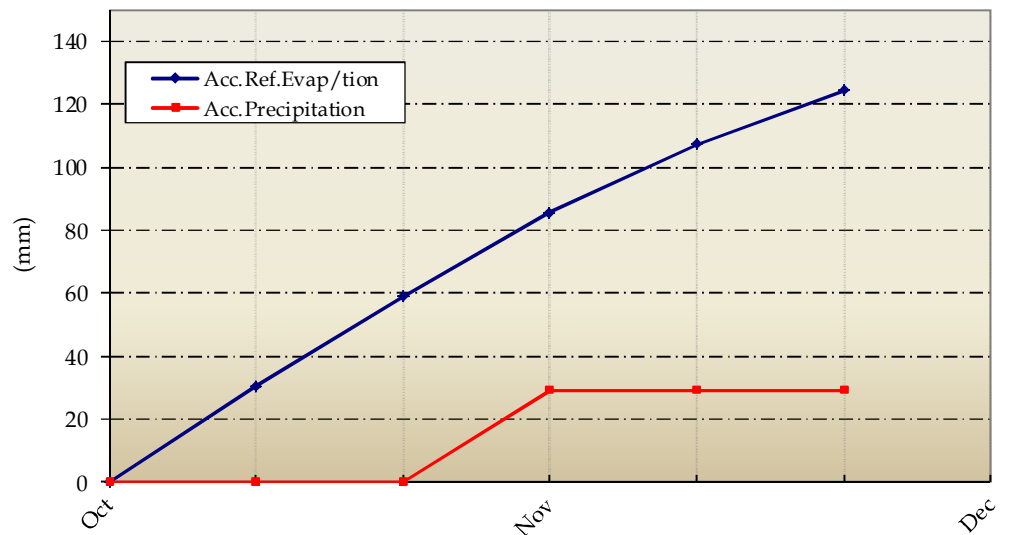


Iraklio

2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.8	21.4	21.0	21.0	20.2	20.0	20.4	21.0	21.4	20.0	20.8	22.3	19.7
	Min	14.8	14.0	14.0	14.0	14.4	17.0	16.4	15.6	14.0	11.6	14.6	16.1	13.2
Relative Humidity	Max	89	91	93	95	95	79	85	88	95	91	90	86	-
	Min	64	68	79	76	74	61	62	56	70	73	68	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.5	8.2	7.5	6.9	5.2	7.5	7.4	8.0	7.6	6.8	7.3	5.0	4.9
Precipitation													17.2	22.2
Evaporation		0.8	0.6	2.4	1.0	2.1	4.0	3.0	0.7	1.3	0.4	16.3	26.4	33.6
Growing Degrees	5	13.3	12.7	12.5	12.5	12.3	13.5	13.4	13.3	12.7	10.8	127.0	141.6	114.3
	10	8.3	7.7	7.5	7.5	7.3	8.5	8.4	8.3	7.7	5.8	77.0	91.6	64.3

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.0	20.2	-
Precipitation - Reference Evapotranspiration	-17.0	-3.0	22.2
Number of Rainy Days	0.0	3.0	2.7
Number of Dry Days	27.0	4.0	-

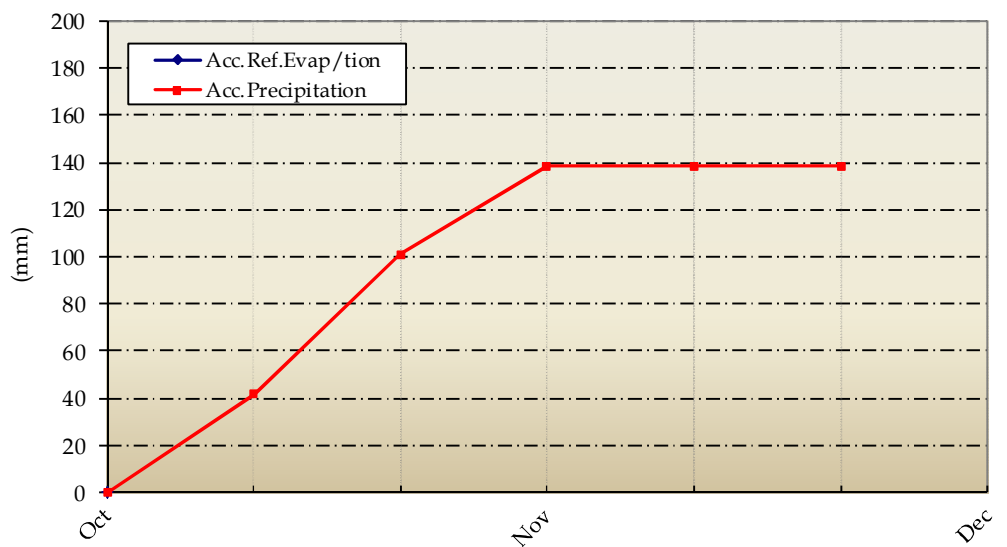
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.3	23.6	22.0	20.5	16.0	17.2	21.6	19.7	17.1	16.0	19.5	16.4	13.9
	Min	2.5	3.3	3.6	4.4	6.3	3.9	3.8	1.2	3.0	2.0	3.4	6.9	4.6
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	100	-
	Min	46	-	45	57	69	83	49	50	-	62	58	73	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.1
Sunshine Duration		5.7	-	5.6	-	1.8	2.8	3.7	5.4	-	3.0	4.0	1.5	3.0
Precipitation				0.0	0.0	0.0		0.0	0.0		0.0	0.0	118.4	63.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	13.4
Growing Degrees	5	6.9	8.5	7.8	7.5	6.2	5.6	7.7	5.5	5.1	4.0	64.5	66.2	44.8
	10	1.9	3.5	2.8	2.5	1.2	0.6	2.7	0.5	0.1	0.0	15.5	17.3	8.8

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	6.9	7.9
Precipitation - Reference Evapotranspiration	-	111.5	55.7
Number of Rainy Days	0.0	6.0	4.4
Number of Dry Days	29.0	2.0	-

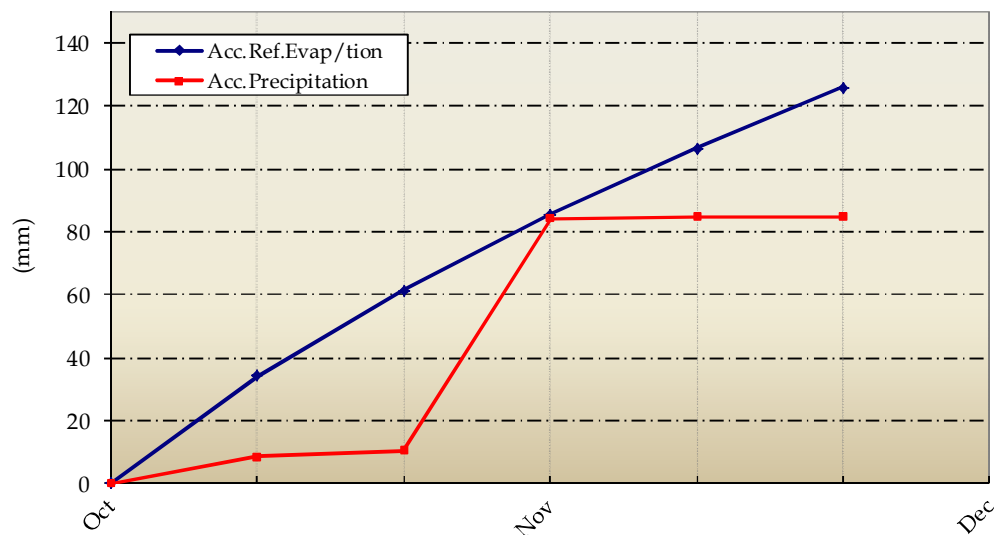
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	25.2	25.5	25.5	22.2	24.0	23.4	23.0	22.4	23.6	23.9	21.9	19.5
	Min	8.4	10.2	9.4	9.5	11.1	9.8	9.6	10.7	11.4	9.9	10.0	11.4	9.3
Relative Humidity	Max	90	90	92	91	93	92	93	93	93	94	92	95	-
	Min	32	33	33	41	52	42	41	49	49	42	41	58	-
Soil Temperature at 10 cm	06 UTC	16.4	16.0	16.4	16.4	16.6	16.6	16.4	16.2	16.4	16.4	16.4	16.3	14.0
	12 UTC	16.8	17.2	17.4	17.6	17.6	17.2	17.2	17.2	17.4	17.2	17.3	16.9	15.4
Sunshine Duration		8.2	8.9	8.4	8.6	8.6	9.5	8.7	8.2	8.3	8.1	8.6	5.6	4.6
Precipitation													21.8	55.3
Evaporation		2.6	3.2	4.4	1.8	3.7	1.6	1.5	3.0	5.6	0.1	27.5	-	22.8
Growing Degrees	5	11.4	12.7	12.5	12.5	11.7	11.9	11.5	11.9	11.9	11.8	119.6	116.4	93.9
	10	6.4	7.7	7.5	7.5	6.7	6.9	6.5	6.9	6.9	6.8	69.6	66.4	44.2

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.1	15.5	13.4
Precipitation - Reference Evapotranspiration	-19.1	6.3	41.9
Number of Rainy Days	0.0	3.0	3.8
Number of Dry Days	19.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

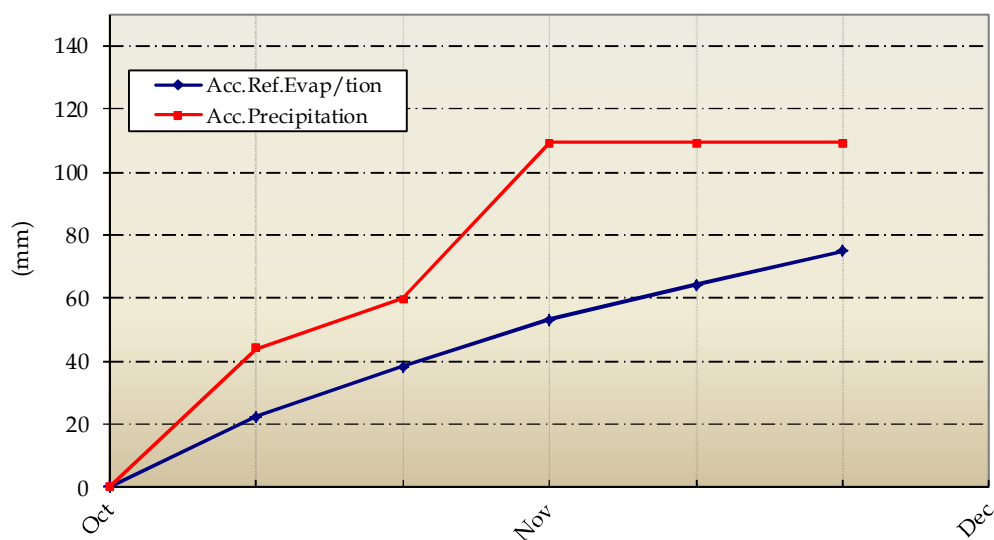


Larisa

2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	24.2	22.8	21.9	18.2	20.3	21.8	21.0	22.3	20.7	21.8	18.6	15.3
	Min	7.4	8.8	7.4	6.8	6.4	4.0	6.6	5.0	3.6	3.4	5.9	11.9	5.5
Relative Humidity	Max	97	100	100	100	100	100	100	100	100	100	100	97	-
	Min	36	41	47	47	52	48	38	44	39	42	43	68	-
Soil Temperature at 10 cm	06 UTC	14.0	14.4	14.0	11.4	14.6	14.2	14.0	14.2	13.8	13.2	13.8	-	10.9
	12 UTC	14.2	11.4	14.6	14.4	14.6	13.8	14.2	14.2	13.6	13.4	13.8	-	11.6
Sunshine Duration		6.7	6.3	6.1	6.0	4.1	6.0	6.1	6.1	6.1	6.8	6.0	1.4	3.5
Precipitation													22.2	21.2
Evaporation		1.4	1.0	2.5	2.2	2.9	0.8	1.4	1.9	2.0	2.6	18.7	-	13.7
Growing Degrees	5	11.1	11.5	10.1	9.4	7.3	7.2	9.2	8.0	8.0	7.1	88.7	102.3	54.7
	10	6.1	6.5	5.1	4.4	2.3	2.2	4.2	3.0	3.0	2.1	38.7	52.3	14.5

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.6	9.4	8.8
Precipitation - Reference Evapotranspiration	-10.6	12.8	12.4
Number of Rainy Days	0.0	6.0	3.4
Number of Dry Days	27.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

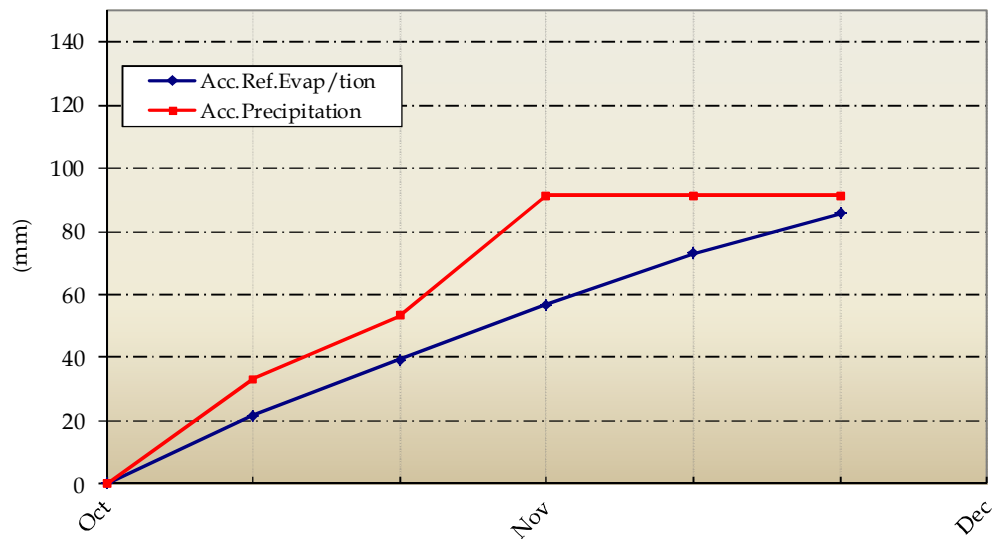


Mikra

2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.6	23.6	23.4	17.6	17.4	21.4	20.4	18.6	21.0	17.0	20.5	16.9	14.7
	Min	12.7	12.2	10.0	9.6	8.6	7.4	9.4	8.2	5.8	5.9	9.0	12.2	6.8
Relative Humidity	Max	78	93	96	95	95	92	93	93	97	95	93	90	-
	Min	35	48	44	74	66	48	54	62	51	69	55	70	-
Soil Temperature at 10 cm	06 UTC	14.4	14.4	14.6	14.4	13.4	12.4	13.0	13.0	12.1	11.8	13.4	14.6	10.3
	12 UTC	16.4	16.6	16.6	16.2	14.6	14.0	15.0	14.8	14.2	13.4	15.2	15.6	12.2
Sunshine Duration		10.5	8.3	5.4	5.4	0.7	7.0	10.8	6.1	8.0	6.0	6.8	1.2	3.5
Precipitation													19.2	21.1
Evaporation		2.2	2.0	2.4	1.4	1.2	3.0	7.3	0.7	1.5	3.6	25.3	17.4	18.7
Growing Degrees	5	13.7	12.9	11.7	8.6	8.0	9.4	9.9	8.4	8.4	6.5	97.4	95.8	57.6
	10	8.7	7.9	6.7	3.6	3.0	4.4	4.9	3.4	3.4	1.5	47.4	45.8	17.1

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.4	10.6	11.2
Precipitation - Reference Evapotranspiration	-12.4	8.6	9.9
Number of Rainy Days	0.0	5.0	3.0
Number of Dry Days	27.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

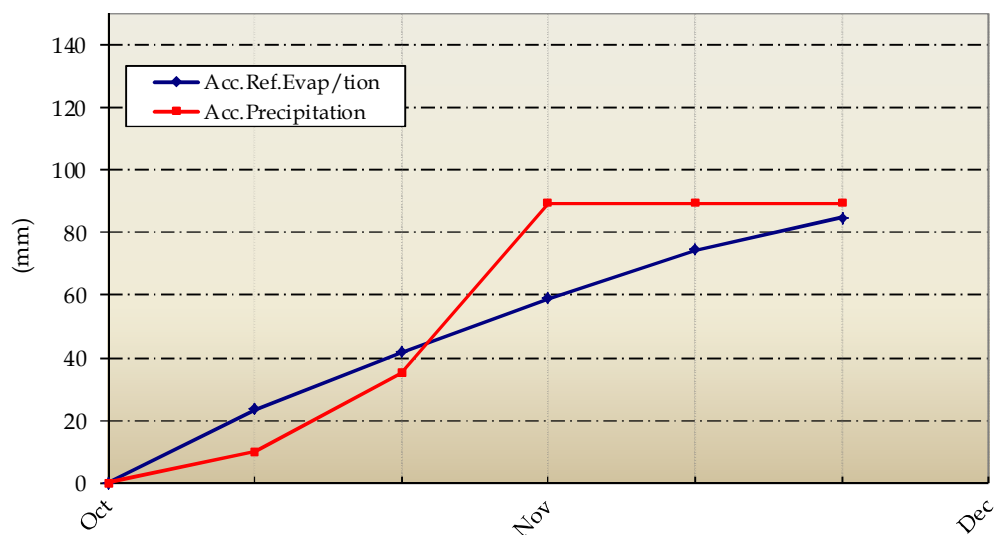


Tanagra

2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.1	23.6	22.5	21.9	18.9	20.8	20.2	20.6	21.9	22.1	21.7	18.7	17.8
	Min	10.5	9.8	9.4	8.4	8.8	5.9	7.6	6.8	6.7	6.1	8.0	10.6	8.3
Relative Humidity	Max	82	92	98	99	100	99	94	99	100	100	96	96	-
	Min	31	41	51	48	50	44	47	55	49	47	46	62	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.3	8.3	7.8	7.6	6.3	5.9	7.6	7.3	7.6	7.5	7.4	3.2	
Precipitation													17.0	21.4
Evaporation		3.5	3.0	2.0	2.0	1.0	2.0	2.5	2.0	3.0	3.0	24.0	18.3	
Growing Degrees	5	12.3	11.7	11.0	10.2	8.9	8.4	8.9	8.7	9.3	9.1	98.3	96.4	
	10	7.3	6.7	6.0	5.2	3.9	3.4	3.9	3.7	4.3	4.1	48.3	46.4	

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.1	9.8	
Precipitation - Reference Evapotranspiration	-10.1	7.2	21.4
Number of Rainy Days	0.0	2.0	3.7
Number of Dry Days	27.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

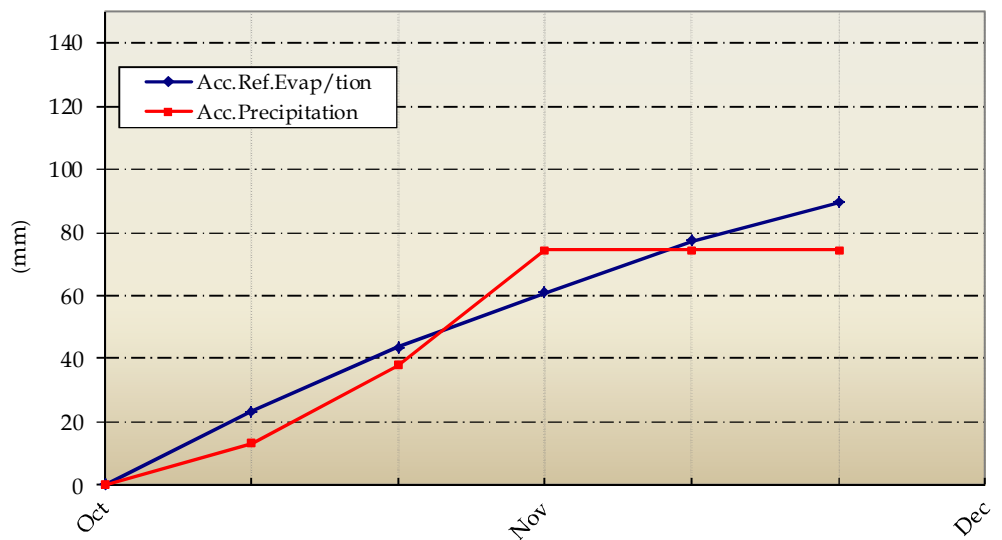


Tripoli

2nd 10-day period (11-20/11/2015)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.7	24.3	24.3	23.1	18.3	21.3	19.3	20.5	21.9	20.2	21.6	17.2	14.9
	Min	2.8	3.5	3.2	2.7	1.7	4.4	1.6	2.0	3.1	1.2	2.6	7.6	4.4
Relative Humidity	Max	99	100	100	100	100	100	99	100	100	100	100	100	-
	Min	34	33	29	32	56	25	38	46	33	36	36	59	-
Soil Temperature at 10 cm	06 UTC	9.4	9.8	10.2	10.2	9.8	10.4	9.6	9.4	10.0	9.4	9.8	11.8	9.7
	12 UTC	12.6	13.2	13.2	-	-	12.6	12.4	12.4	12.8	12.8	12.8	14.3	10.8
Sunshine Duration		9.1	8.0	8.0	7.6	7.4	6.6	7.9	7.9	7.5	7.1	7.7	4.1	4.5
Precipitation													12.4	45.7
Evaporation		1.7	1.6	1.8	0.9	1.9	1.6	1.3	0.3	1.0	1.1	13.2	6.8	15.6
Growing Degrees	5	7.8	8.9	8.8	7.9	5.0	7.9	5.5	6.3	7.5	5.7	71.1	73.8	46.8
	10	2.8	3.9	3.8	2.9	0.0	2.9	0.5	1.3	2.5	0.7	21.1	24.3	10.1

2nd 10-day period (11-20/11/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.1	9.8	10.5
Precipitation - Reference Evapotranspiration	-12.1	2.6	35.2
Number of Rainy Days	0.0	4.0	4.0
Number of Dry Days	28.0	4.0	-

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.

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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