



AGROMETEOROLOGICAL BULLETIN

*January 2017
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



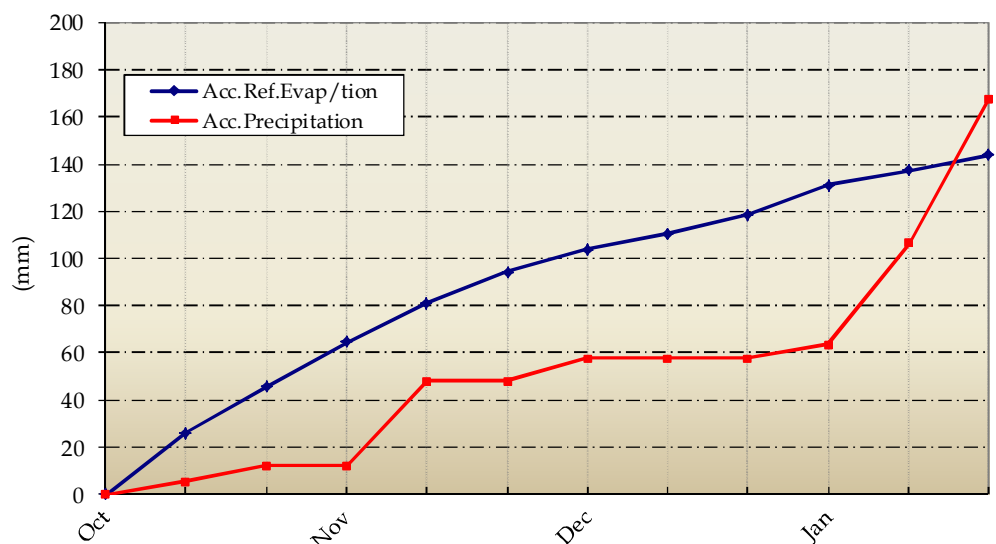
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2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	1.2	3.6	9.8	13.8	10.0	4.4	6.6	6.2	4.2	4.6	6.4	12.0	8.0
	Min	-3.2	-2.6	-8.2	7.0	1.8	1.0	4.2	4.2	1.4	-1.0	0.5	4.0	0.2
Relative Humidity	Max	96	93	95	93	92	96	94	87	92	84	92	91	-
	Min	84	62	71	78	66	75	85	67	72	61	72	61	-
Soil Temperature at 10 cm	06 UTC	0.6	0.0	1.1	5.2	5.4	3.4	5.0	5.6	4.2	3.2	3.4	7.5	4.2
	12 UTC	0.6	1.2	1.6	8.0	5.8	4.2	6.0	6.2	4.0	4.6	4.2	8.8	5.1
Sunshine Duration		0.0	3.8	5.2	0.9	0.2	0.0	0.0	0.0	0.0	2.8	1.3	3.7	3.1
Precipitation		18.0	3.6		3.9	0.7	5.7	14.1	4.7	9.5	1.0	61.2	32.3	11.4
Evaporation		0.0	0.0	0.0	0.0	0.7	0.3	0.3	2.8	0.3	0.0	4.4	6.8	6.6
Growing Degrees	5	0.0	0.0	0.0	5.4	0.9	0.0	0.4	0.2	0.0	0.0	6.9	41.9	9.4
	10	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	11.3	0.9

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.8	10.4	8.8
Precipitation - Reference Evapotranspiration	54.4	21.9	2.6
Number of Rainy Days	9.0	5.0	2.2
Number of Dry Days	3.0	0.0	-

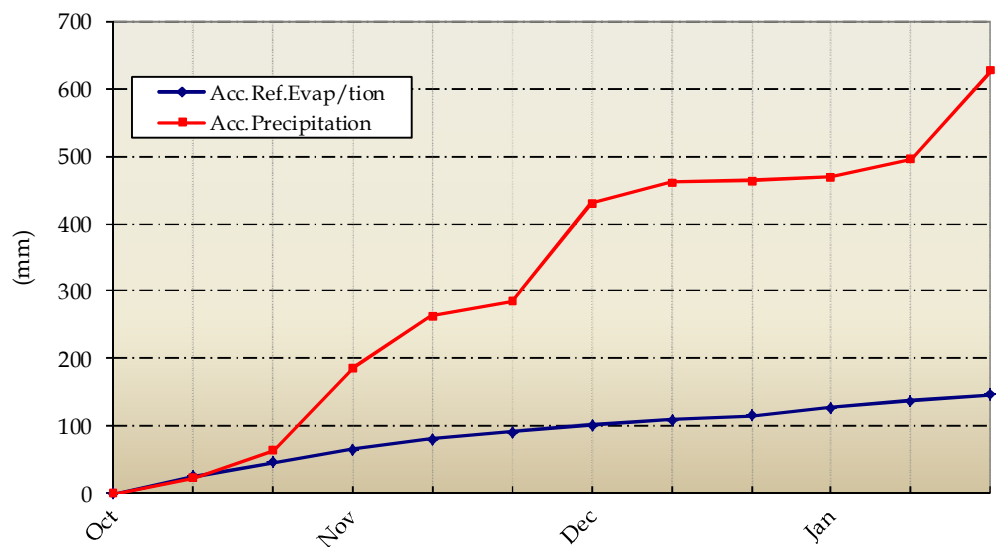
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	10.4	13.1	14.2	13.0	11.0	8.8	12.3	13.4	14.0	12.3	14.7	13.6
	Min	0.3	1.3	1.6	10.0	4.0	5.8	7.0	7.2	6.8	3.1	4.7	7.8	4.8
Relative Humidity	Max	92	91	88	91	87	89	89	90	88	93	90	86	-
	Min	61	49	65	52	39	70	88	70	59	47	60	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	11.0	8.4	6.2	8.2	8.4	8.4	7.4	8.3	-	8.3
	12 UTC	-	-	6.4	6.6	8.4	11.8	8.3	8.8	12.8	9.0	9.0	-	9.8
Sunshine Duration		0.2	7.3	2.4	2.0	3.4	1.6	0.0	0.0	3.0	5.2	2.5	4.1	4.4
Precipitation		29.9	9.0		7.8	5.6	8.9	37.9	25.7	6.8		131.6	36.8	33.0
Evaporation		0.0	4.0	4.0	0.0	2.0	0.0	0.0	3.0	3.0	2.0	18.0	23.4	18.1
Growing Degrees	5	1.7	0.9	2.4	7.1	3.5	3.4	2.9	4.8	5.1	3.6	35.2	62.2	42.4
	10	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.1	0.0	2.2	22.3	7.2

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.4	12.8	9.4
Precipitation - Reference Evapotranspiration	122.2	24.0	23.6
Number of Rainy Days	8.0	5.0	3.7
Number of Dry Days	0.0	5.0	-

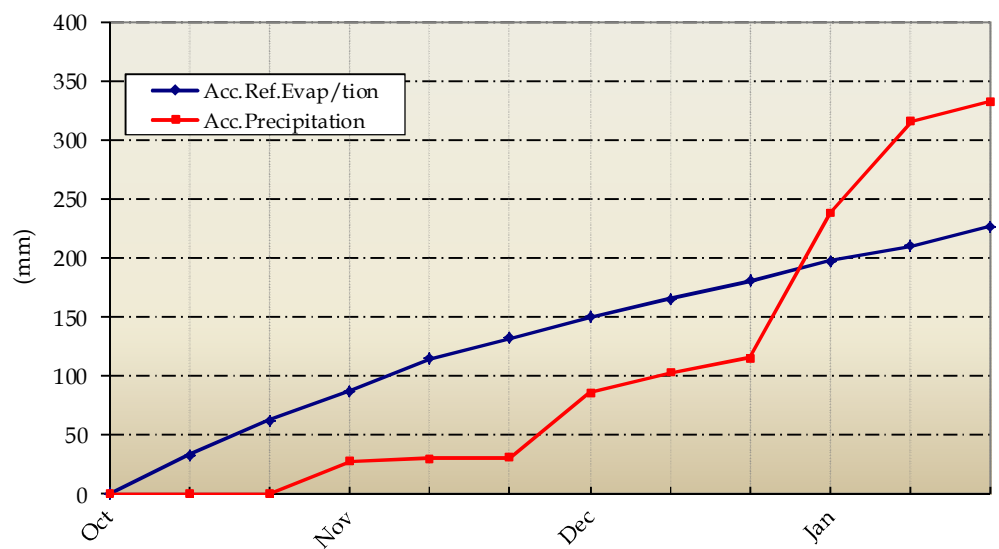
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.2	16.4	17.0	18.8	15.0	15.0	18.0	18.2	18.0	12.4	16.4	17.1	14.7
	Min	3.0	9.8	6.2	7.8	9.8	12.2	10.8	11.0	11.2	10.0	9.2	11.1	9.1
Relative Humidity	Max	82	76	83	85	90	87	87	73	92	94	85	82	-
	Min	49	48	41	50	66	58	44	43	56	63	52	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.9	6.3	8.0	8.3	0.8	0.6	7.5	8.4	5.3	0.0	5.3	5.2	3.7
Precipitation						0.3	1.8	1.7			13.0	16.8	34.5	28.7
Evaporation		1.5	2.9	0.7	2.7	1.5	1.4	1.4	3.6	0.4	4.3	20.4	22.5	24.1
Growing Degrees	5	4.1	8.1	6.6	8.3	7.4	8.6	9.4	9.6	9.6	6.2	77.9	91.1	68.9
	10	0.0	3.1	1.6	3.3	2.4	3.6	4.4	4.6	4.6	1.2	28.8	43.3	21.0

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.1	19.6	-
Precipitation - Reference Evapotranspiration	-0.3	14.9	28.7
Number of Rainy Days	4.0	3.0	4.2
Number of Dry Days	4.0	10.0	-

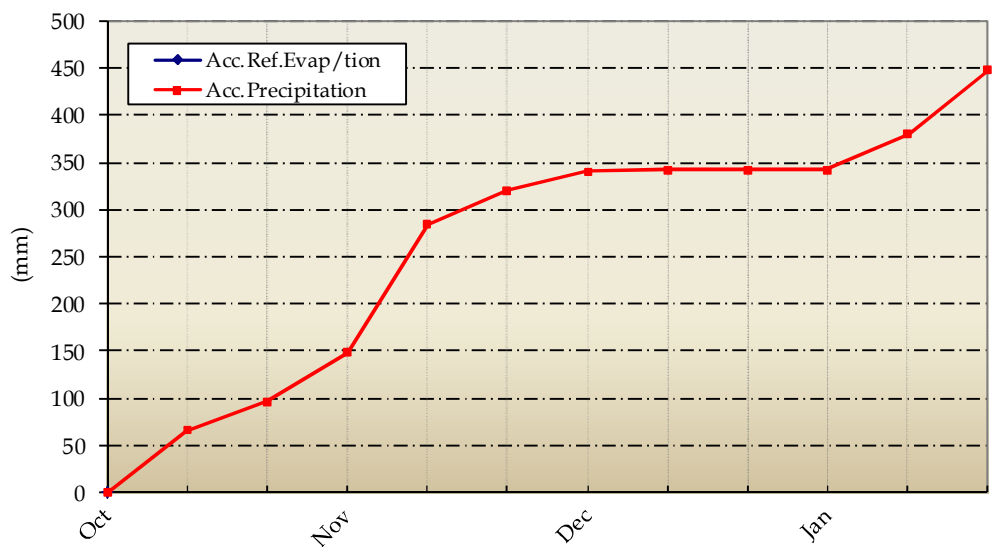
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	1.1	-0.8	1.7	8.0	8.7	5.0	7.1	7.2	7.2	11.4	5.7	14.9	8.7
	Min	-4.4	-7.4	-8.4	1.6	-5.2	0.0	1.6	1.1	1.3	-0.3	-2.0	2.1	-0.4
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	95	-
	Min	94	87	99	72	39	89	84	72	74	53	76	64	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	3.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	3.8
Sunshine Duration		0.0	-	0.0	-	4.3	0.1	0.0	0.0	-	6.1	1.5	2.4	3.0
Precipitation		12.6		1.1	9.9	0.0	7.9	16.0	10.8	10.0	0.0	68.3	101.4	26.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	4.4
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	40.5	9.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5	0.3

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	6.6
Precipitation - Reference Evapotranspiration	-	-	20.3
Number of Rainy Days	7.0	8.0	2.9
Number of Dry Days	0.0	0.0	-

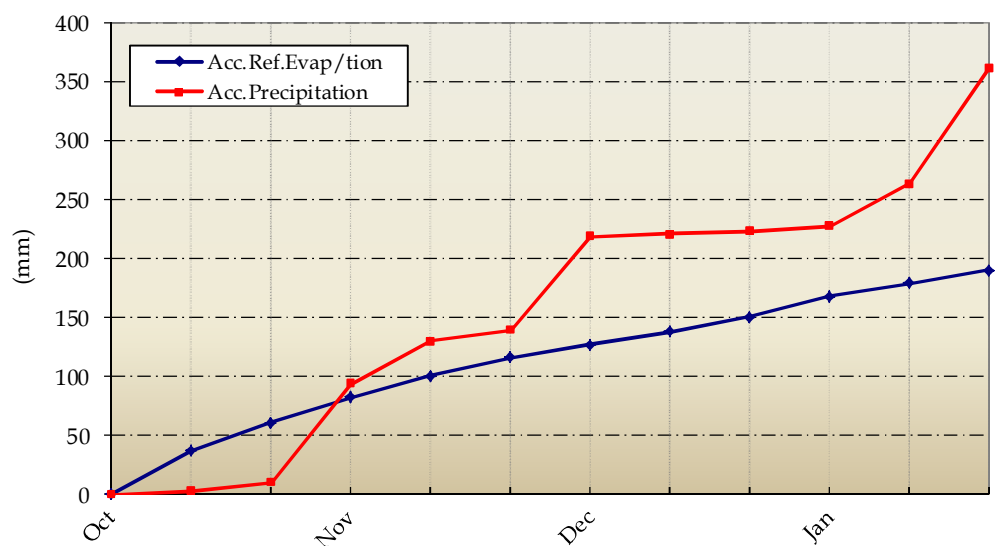
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.8	12.9	15.0	15.8	14.4	13.1	12.4	13.8	13.6	16.3	14.0	16.0	14.6
	Min	-0.5	6.2	0.0	5.6	5.0	3.9	6.9	6.7	4.8	4.0	4.3	5.4	4.9
Relative Humidity	Max	94	84	93	94	94	94	94	93	94	91	92	94	-
	Min	75	28	38	66	42	58	67	67	60	39	54	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	11.1	9.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	11.7	10.1
Sunshine Duration		0.0	8.9	7.5	1.5	4.0	2.3	0.7	1.0	4.3	9.0	3.9	4.2	4.2
Precipitation		27.2	2.0		7.5	1.7	11.7	23.7	20.4	4.3		98.5	59.3	33.9
Evaporation		0.2	3.8	0.3	1.0	1.7	0.2	0.9	0.2	0.8	3.0	12.1	20.1	23.4
Growing Degrees	5	1.2	4.6	2.5	5.7	4.7	3.5	4.7	5.3	4.2	5.2	41.4	57.2	47.5
	10	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.3	0.0	0.2	1.1	16.3	8.1

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.5	13.2	11.1
Precipitation - Reference Evapotranspiration	87.0	46.1	22.8
Number of Rainy Days	8.0	7.0	3.8
Number of Dry Days	0.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

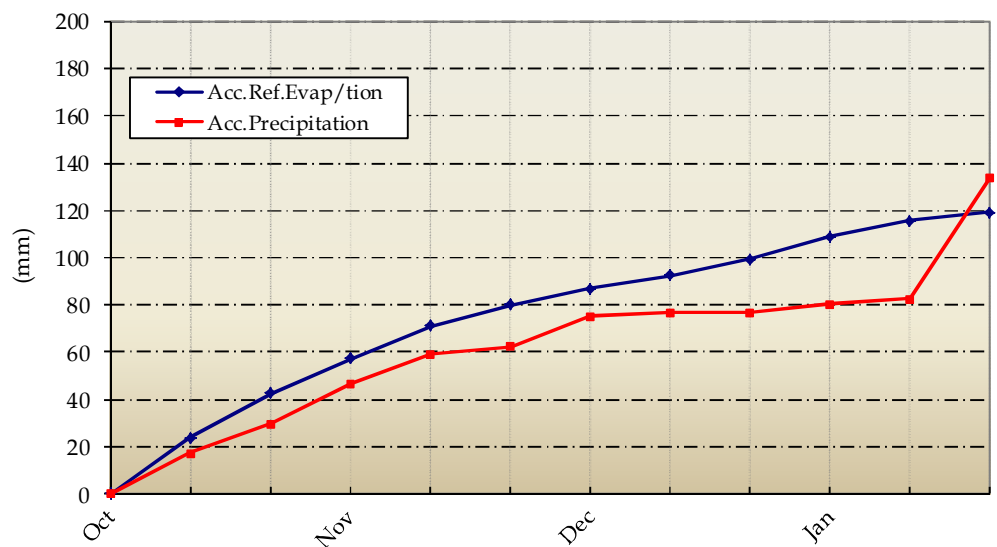


Larisa

2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-3.0	-2.9	-4.5	1.8	0.5	2.6	2.3	5.0	8.0	9.3	1.9	12.4	9.3
	Min	-14.8	-9.4	-18.6	-8.4	-7.4	-4.6	0.3	0.4	1.6	2.0	-5.9	2.3	0.0
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	93	-
	Min	94	91	82	68	94	98	92	99	66	70	85	48	-
Soil Temperature at 10 cm	06 UTC	3.2	3.2	-	-	-	-	-	-	-	-	3.2	8.5	5.0
	12 UTC	3.6	-	-	-	-	-	-	-	-	-	3.6	8.5	5.5
Sunshine Duration		0.0	3.4	2.6	2.4	1.8	0.0	0.0	0.0	0.3	1.8	1.2	4.1	3.6
Precipitation		8.5	0.5				13.2	2.8	7.2	19.3		51.5	40.2	8.6
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.2	21.5	5.9
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	35.9	9.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.4

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	3.6	9.7	6.4
Precipitation - Reference Evapotranspiration	47.9	30.5	2.2
Number of Rainy Days	6.0	4.0	2.6
Number of Dry Days	0.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

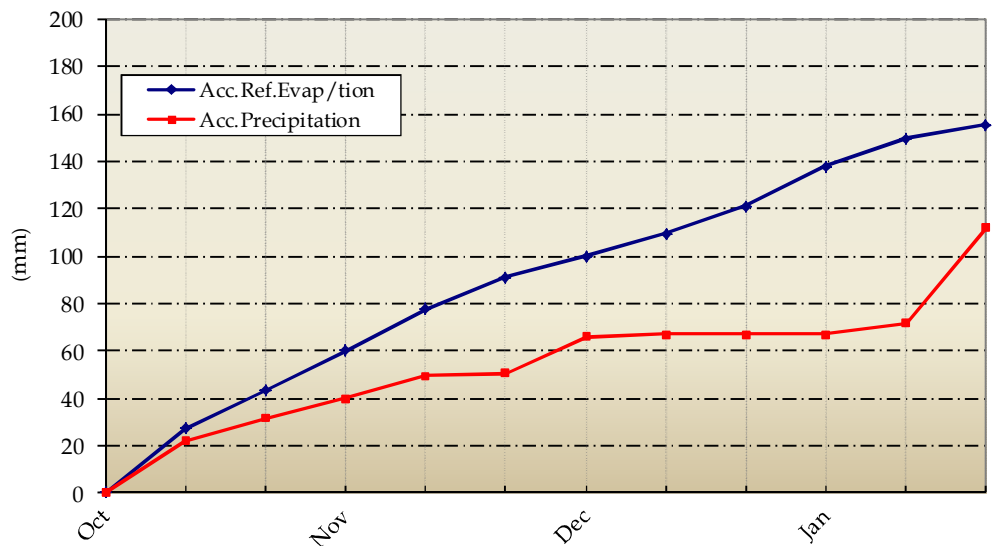


Mikra

2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-2.0	4.4	5.2	6.0	9.8	6.4	8.2	7.5	7.0	7.6	6.0	11.3	8.8
	Min	-9.6	-10.0	-7.8	-1.9	-0.5	2.8	3.9	5.5	2.8	3.6	-1.1	2.8	1.1
Relative Humidity	Max	100	98	95	96	95	92	97	97	97	94	96	88	-
	Min	89	55	60	77	47	51	80	79	64	56	66	51	-
Soil Temperature at 10 cm	06 UTC	-1.4	0.0	-0.4	0.4	1.2	3.2	4.2	5.6	4.9	5.4	2.3	6.9	4.3
	12 UTC	-1.0	-0.4	-0.2	1.2	2.6	3.4	5.2	6.1	5.4	6.4	2.9	8.0	5.7
Sunshine Duration		0.0	4.3	5.2	2.1	8.0	0.0	0.0	0.0	0.0	0.5	2.0	4.1	3.6
Precipitation		1.6					0.2	1.7	20.7	15.9	0.0	40.1	18.7	6.6
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	4.9	4.3	10.5
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.5	0.0	0.6	3.2	32.1	11.4
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.9

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	5.7	13.4	8.8
Precipitation - Reference Evapotranspiration	34.4	5.3	-2.2
Number of Rainy Days	5.0	3.0	2.2
Number of Dry Days	4.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

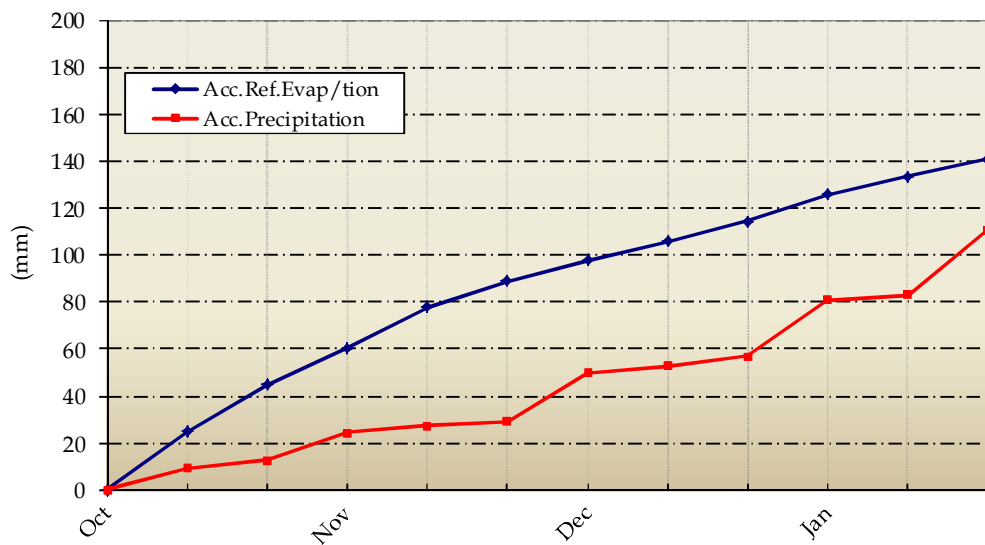


Tanagra

2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	2.9	10.6	14.1	16.0	12.4	8.1	10.0	11.2	10.2	9.1	10.5	13.0	11.4
	Min	-9.4	0.8	-3.3	1.8	5.1	4.1	3.1	3.8	6.8	5.4	1.8	6.1	3.0
Relative Humidity	Max	100	100	100	69	99	100	100	100	100	100	97	87	-
	Min	71	47	47	49	26	72	99	83	65	60	62	49	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.9	7.8	6.7	4.4	7.7	0.6	1.0	1.3	2.0	5.7	3.8	4.0	
Precipitation		0.7					11.0	7.1	6.1	0.8	1.7	27.4	36.0	26.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	29.7	
Growing Degrees	5	0.0	0.7	0.4	3.9	3.8	1.1	1.6	2.5	3.5	2.3	19.7	51.0	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.4	12.7	
Precipitation - Reference Evapotranspiration	20.0	23.3	26.0
Number of Rainy Days	6.0	3.0	4.7
Number of Dry Days	3.0	6.0	-

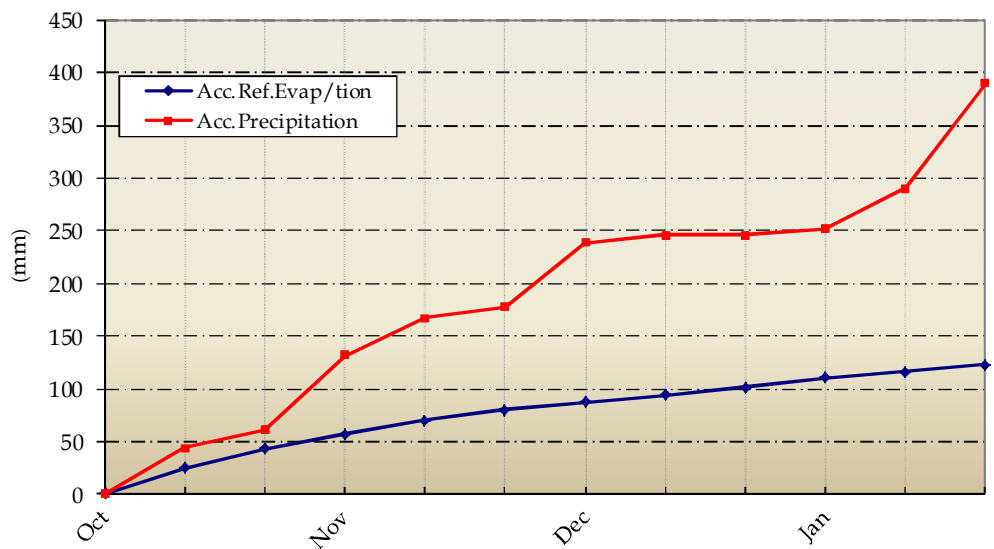
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



2nd 10-day period (11-20/01/2017)		11	12	13	14	15	16	17	18	19	20	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	4.8	9.5	11.2	9.9	10.4	6.0	5.9	7.6	10.1	8.3	8.4	10.6	9.4
	Min	-5.7	-0.2	-5.3	4.1	2.2	-0.4	1.6	0.4	0.8	2.5	0.0	3.2	0.1
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	96	-
	Min	81	35	42	65	42	85	88	93	56	57	64	56	-
Soil Temperature at 10 cm	06 UTC	1.4	2.2	1.2	3.8	3.8	3.2	3.8	3.8	4.2	5.0	3.2	5.3	4.3
	12 UTC	1.4	4.0	2.4	-	-	4.6	4.8	5.6	6.2	5.8	4.4	7.2	5.0
Sunshine Duration		0.0	7.4	5.8	2.3	4.8	1.2	0.0	1.5	3.5	4.3	3.1	4.7	4.1
Precipitation		24.6	10.1		13.0	2.4	16.8	11.0	16.0	5.7		99.6	46.3	31.6
Evaporation		0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.2	2.0	0.1	2.9	-	5.6
Growing Degrees	5	0.0	0.0	0.0	2.0	1.3	0.0	0.0	0.0	0.5	0.4	4.2	29.7	10.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.5

2nd 10-day period (11-20/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.5	8.5	8.5
Precipitation - Reference Evapotranspiration	93.1	37.8	23.1
Number of Rainy Days	8.0	5.0	3.7
Number of Dry Days	0.0	2.0	-

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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