



AGROMETEOROLOGICAL BULLETIN

April 2017
3rd 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



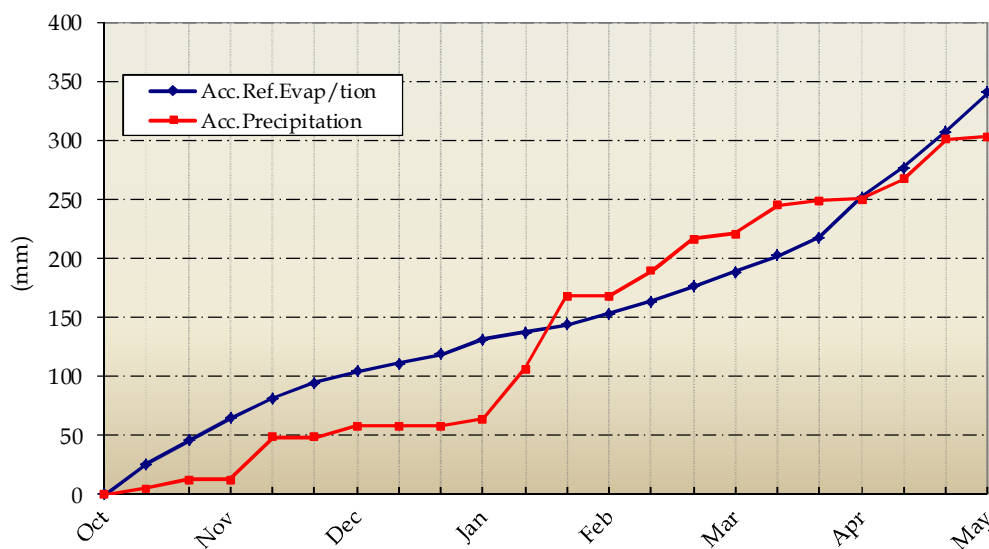
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www.hnms.gr
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3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.0	15.6	16.8	17.0	19.4	20.8	22.2	22.8	24.0	27.2	19.9	20.2	18.4
	Min	4.2	3.6	7.0	8.0	2.8	3.4	5.0	6.8	7.6	12.4	6.1	8.7	7.8
Relative Humidity	Max	88	69	96	78	87	78	93	88	95	81	85	88	-
	Min	48	35	47	37	31	31	36	38	36	35	37	44	-
Soil Temperature at 10 cm	06 UTC	11.4	9.6	12.2	13.6	12.6	12.8	14.6	15.6	17.0	19.2	13.9	16.2	12.7
	12 UTC	14.6	17.6	16.8	20.0	20.8	22.0	23.6	23.6	24.6	25.6	20.9	21.1	16.6
Sunshine Duration		4.1	9.4	6.4	12.1	12.7	12.8	12.6	12.3	9.1	5.8	9.7	9.1	7.4
Precipitation		1.2			1.0							2.2	11.0	11.6
Evaporation		2.4	4.7	3.5	5.4	5.4	5.4	5.9	5.6	5.5	6.5	50.3	50.6	46.0
Growing Degrees	5	3.6	4.6	6.9	7.5	6.1	7.1	8.6	9.8	10.8	14.8	79.8	94.5	80.8
	10	0.0	0.0	1.9	2.5	1.1	2.1	3.6	4.8	5.8	9.8	31.6	44.5	32.3

3rd 10-day period (21-30/04/2017)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.6	34.4
Precipitation - Reference Evapotranspiration	-31.4	-23.4
Number of Rainy Days	2.0	2.0
Number of Dry Days	2.0	11.0

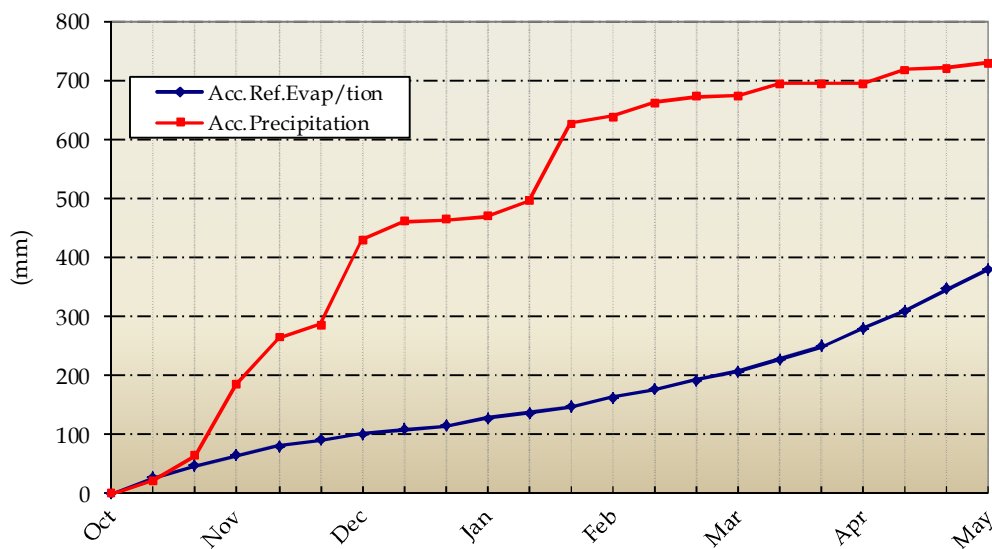
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.2	14.7	17.6	19.4	21.0	23.1	24.4	26.2	25.9	24.6	21.3	22.2	20.2
	Min	8.4	5.8	6.2	6.0	9.8	9.1	7.9	8.4	10.7	13.9	8.6	11.8	9.8
Relative Humidity	Max	77	88	87	89	88	88	86	85	83	88	86	85	-
	Min	31	46	43	39	46	36	31	21	25	36	35	35	-
Soil Temperature at 10 cm	06 UTC	17.0	16.8	15.0	13.0	17.0	17.4	15.8	17.5	17.4	18.6	16.6	-	15.0
	12 UTC	19.5	19.0	20.2	20.2	19.5	20.0	24.8	23.0	21.0	20.8	20.8	-	18.4
Sunshine Duration		8.9	8.2	11.7	11.1	11.0	11.3	11.4	10.9	4.2	4.2	9.3	9.6	8.8
Precipitation			8.8									8.8	2.3	8.8
Evaporation		3.0	1.8	4.0	6.0	6.0	3.0	7.0	3.0	6.0	3.0	42.8	51.5	43.9
Growing Degrees	5	7.3	5.3	6.9	7.7	10.4	11.1	11.2	12.3	13.3	14.3	99.7	120.2	100.1
	10	2.3	0.3	1.9	2.7	5.4	6.1	6.2	7.3	8.3	9.3	49.7	70.2	50.1

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.4	39.5	33.2
Precipitation - Reference Evapotranspiration	-25.6	-37.2	-24.4
Number of Rainy Days	1.0	2.0	1.8
Number of Dry Days	4.0	13.0	-

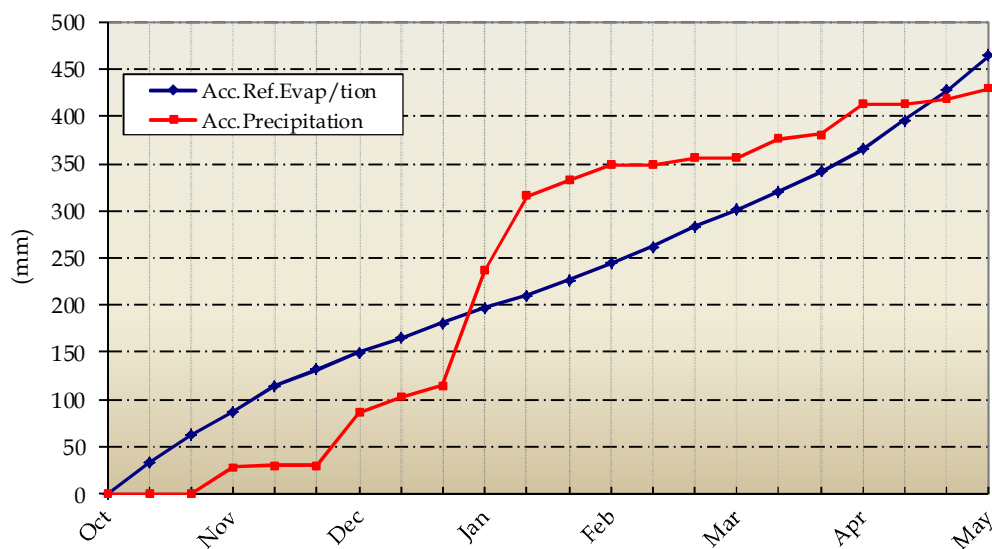
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.2	15.0	16.0	19.0	19.4	20.2	20.6	22.4	23.0	27.0	20.2	22.5	20.6
	Min	15.4	14.0	8.6	10.0	10.4	10.6	9.6	10.0	12.8	20.6	12.2	15.7	12.6
Relative Humidity	Max	89	92	92	95	94	88	84	86	73	86	88	85	-
	Min	63	63	51	69	68	52	59	55	47	41	57	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.2	0.0	11.7	12.1	10.9	12.0	12.2	12.1	9.7	10.3	9.6	10.2	8.9
Precipitation			10.4									10.4		5.6
Evaporation		5.1	0.3	2.2	2.9	1.8	3.7	4.3	4.8	6.4	6.0	37.5	48.2	52.8
Growing Degrees	5	12.3	9.5	7.3	9.5	9.9	10.4	10.1	11.2	12.9	18.8	111.9	141.0	115.8
	10	7.3	4.5	2.3	4.5	4.9	5.4	5.1	6.2	7.9	13.8	61.9	91.0	65.8

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.3	44.3	-
Precipitation - Reference Evapotranspiration	-26.9	-44.3	5.6
Number of Rainy Days	1.0	0.0	1.3
Number of Dry Days	9.0	19.0	-

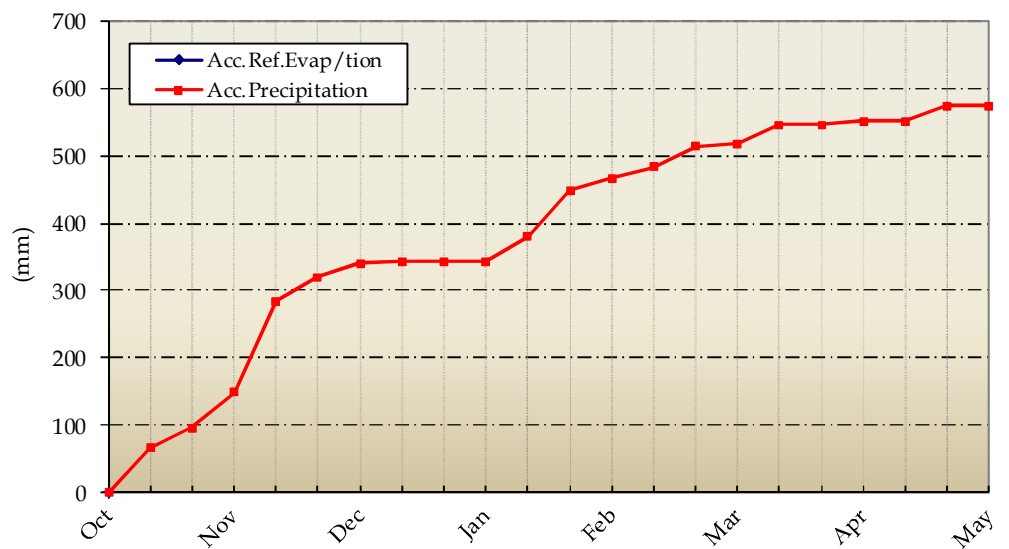
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.7	13.4	17.8	20.4	21.4	23.0	25.6	26.7	23.2	26.0	21.2	19.6	18.6
	Min	-	1.0	-1.3	0.6	3.6	2.0	6.0	5.4	7.7	-	3.1	7.6	6.5
Relative Humidity	Max	92	99	100	100	98	84	97	99	-	91	96	99	-
	Min	35	29	35	38	35	25	30	13	-	24	29	43	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	14.9
Sunshine Duration		10.5	-	10.9	9.9	10.8	10.9	10.3	-	-	-	10.5	6.5	6.6
Precipitation										0.2	0.0	0.2	60.3	15.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.5
Growing Degrees	5	-	2.2	3.3	5.5	7.5	7.5	10.8	11.1	10.5	-	-	86.0	75.1
	10	-	0.0	0.0	0.5	2.5	2.5	5.8	6.1	5.5	-	-	37.0	27.7

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	29.4
Precipitation - Reference Evapotranspiration	-	-	-14.2
Number of Rainy Days	1.0	4.0	3.6
Number of Dry Days	11.0	13.0	-

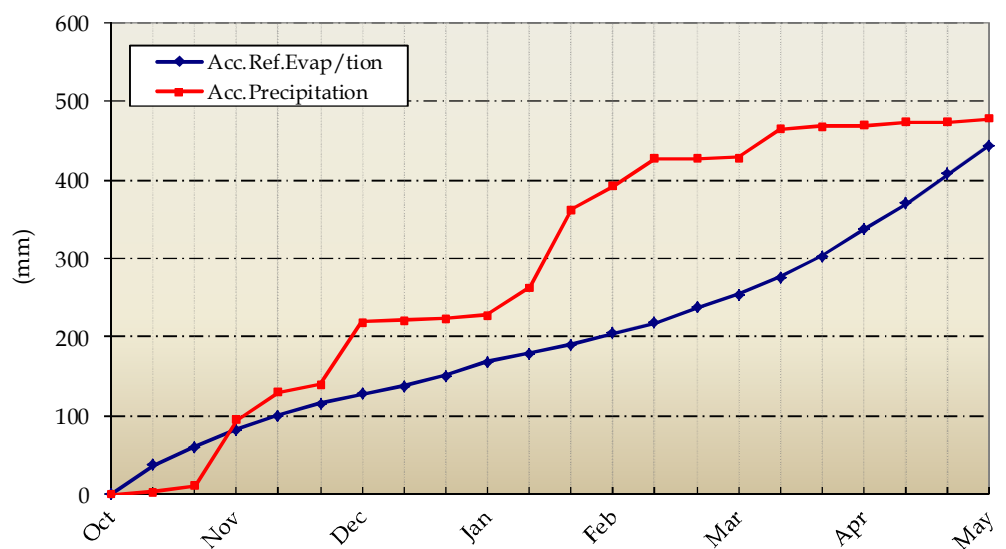
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.0	15.3	20.2	20.8	21.2	22.4	24.2	24.1	24.4	21.4	21.0	23.5	20.8
	Min	9.6	8.6	2.9	6.7	7.6	5.8	6.0	6.3	8.6	10.8	7.3	10.4	9.1
Relative Humidity	Max	75	93	93	91	91	91	90	88	87	90	89	88	-
	Min	32	49	27	35	36	27	26	28	16	51	33	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	17.8	15.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	19.2	18.5
Sunshine Duration		0.0	2.3	11.9	12.0	11.7	11.7	11.6	11.0	7.4	6.7	8.6	10.6	8.3
Precipitation			4.4									4.4		12.2
Evaporation		2.2	0.4	4.4	5.8	5.2	6.0	3.2	9.2	4.8	1.6	42.8	59.3	46.5
Growing Degrees	5	7.8	7.0	6.6	8.8	9.4	9.1	10.1	10.2	11.5	11.1	91.5	119.2	99.4
	10	2.8	2.0	1.6	3.8	4.4	4.1	5.1	5.2	6.5	6.1	41.5	69.2	49.4

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.2	45.9	34.1
Precipitation - Reference Evapotranspiration	-32.8	-45.9	-21.9
Number of Rainy Days	1.0	0.0	2.6
Number of Dry Days	4.0	19.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

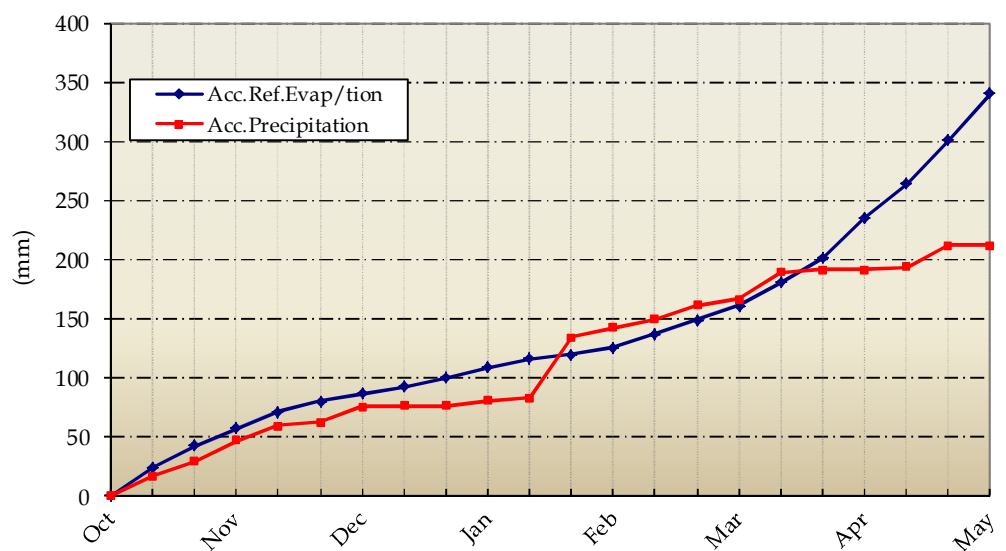


Larisa

3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.3	16.0	21.4	19.5	20.6	24.5	27.2	28.5	27.0	24.0	22.5	22.6	21.1
	Min	4.6	6.2	1.3	7.8	4.6	4.3	7.2	8.3	10.5	16.8	7.2	9.3	7.3
Relative Humidity	Max	70	96	99	86	100	100	100	100	100	91	94	95	-
	Min	23	26	23	28	43	31	24	23	31	38	29	31	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	18.0	14.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	18.4	16.2
Sunshine Duration		10.5	10.9	10.4	10.2	11.1	11.7	11.4	9.9	2.9	4.6	9.4	8.8	7.9
Precipitation													2.7	10.7
Evaporation		3.0	10.1	2.1	6.2	5.7	6.3	6.3	8.1	3.9	5.3	57.0	56.9	43.9
Growing Degrees	5	5.5	6.1	6.4	8.7	7.6	9.4	12.2	13.4	13.8	15.4	98.3	109.3	91.9
	10	0.5	1.1	1.4	3.7	2.6	4.4	7.2	8.4	8.8	10.4	48.3	59.3	42.7

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.3	39.0	34.0
Precipitation - Reference Evapotranspiration	-39.3	-36.3	-23.3
Number of Rainy Days	0.0	1.0	2.7
Number of Dry Days	12.0	18.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

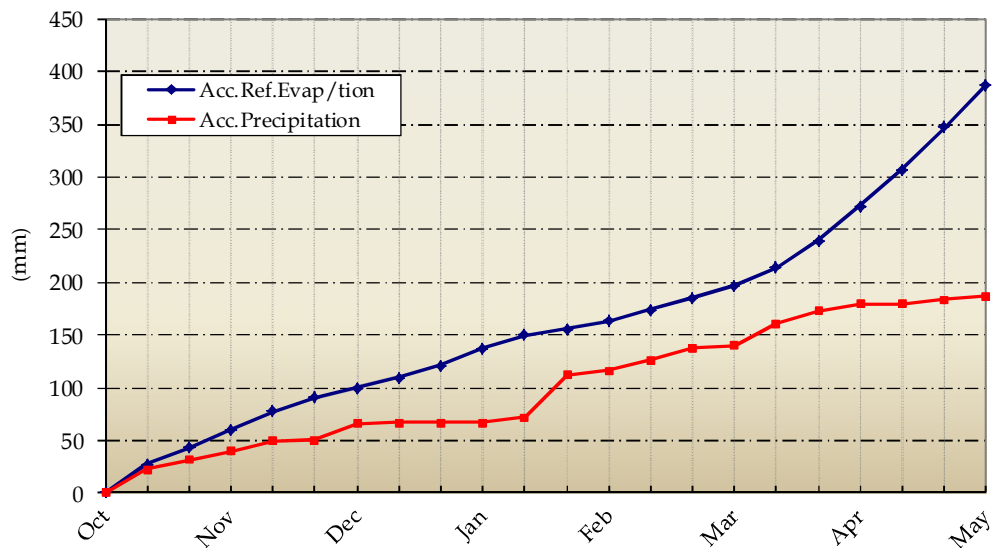


Mikra

3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.8	15.4	21.8	20.6	19.4	22.6	24.3	25.8	22.4	20.8	20.7	20.8	20.2
	Min	8.4	4.0	3.2	10.4	6.7	6.0	7.2	9.0	11.7	15.2	8.2	8.9	8.4
Relative Humidity	Max	48	66	70	73	80	80	86	81	74	95	75	87	-
	Min	27	26	21	16	33	35	36	30	35	54	31	36	-
Soil Temperature at 10 cm	06 UTC	14.0	13.2	13.8	15.2	16.0	16.1	17.0	17.8	18.8	19.0	16.1	15.3	14.2
	12 UTC	17.4	18.0	17.8	20.0	20.4	20.6	21.2	22.4	21.2	19.5	19.8	21.8	18.8
Sunshine Duration		11.9	11.7	10.3	12.0	11.9	12.0	11.9	11.5	0.7	0.2	9.4	9.2	7.6
Precipitation											2.7	2.7	5.3	11.2
Evaporation		8.7	5.1	5.6	7.6	6.2	5.3	6.0	5.9	4.6	2.4	57.4	58.6	45.8
Growing Degrees	5	6.1	4.7	7.5	10.5	8.1	9.3	10.8	12.4	12.1	13.0	94.4	98.7	93.3
	10	1.1	0.0	2.5	5.5	3.1	4.3	5.8	7.4	7.1	8.0	44.7	48.7	43.8

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.1	40.4	33.7
Precipitation - Reference Evapotranspiration	-37.4	-35.1	-22.5
Number of Rainy Days	1.0	2.0	3.0
Number of Dry Days	12.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

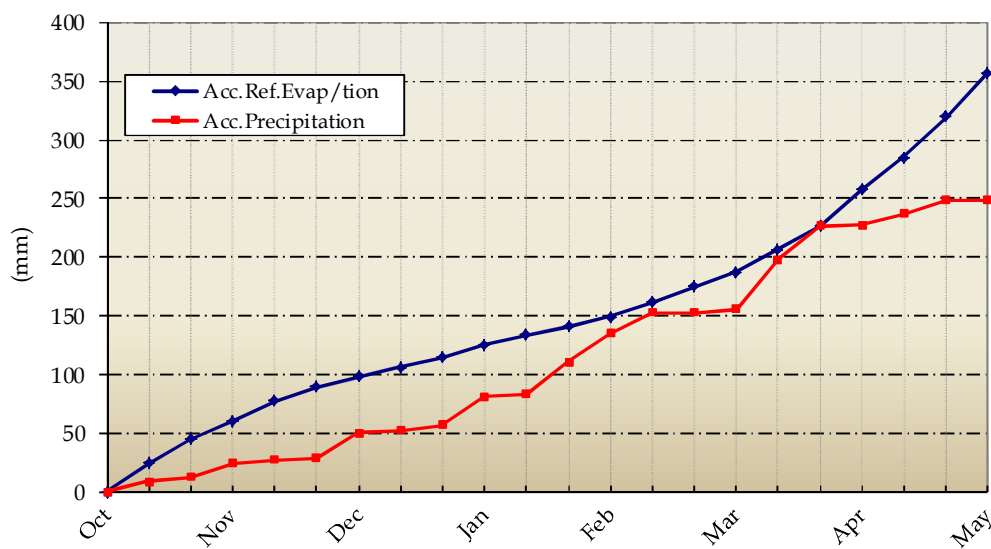


Tanagra

3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	13.4	20.6	20.0	20.3	22.6	25.5	26.3	26.6	25.4	21.6	22.3	20.7
	Min	8.8	8.1	4.4	6.4	5.7	6.0	6.6	9.6	10.5	15.3	8.1	10.8	7.9
Relative Humidity	Max	67	77	80	96	98	82	83	75	74	70	80	78	-
	Min	11	44	24	34	40	30	28	27	24	25	29	30	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		4.5	10.9	12.2	11.7	11.2	11.9	11.5	11.5	6.5	7.1	9.9	9.3	
Precipitation														7.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	52.9	
Growing Degrees	5	6.8	5.8	7.5	8.2	8.0	9.3	11.1	13.0	13.6	15.4	98.5	115.2	
	10	1.8	0.8	2.5	3.2	3.0	4.3	6.1	8.0	8.6	10.4	48.5	65.2	

3rd 10-day period (21-30/04/2017)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.2	40.0
Precipitation - Reference Evapotranspiration	-38.2	-40.0
Number of Rainy Days	0.0	0.0
Number of Dry Days	13.0	20.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

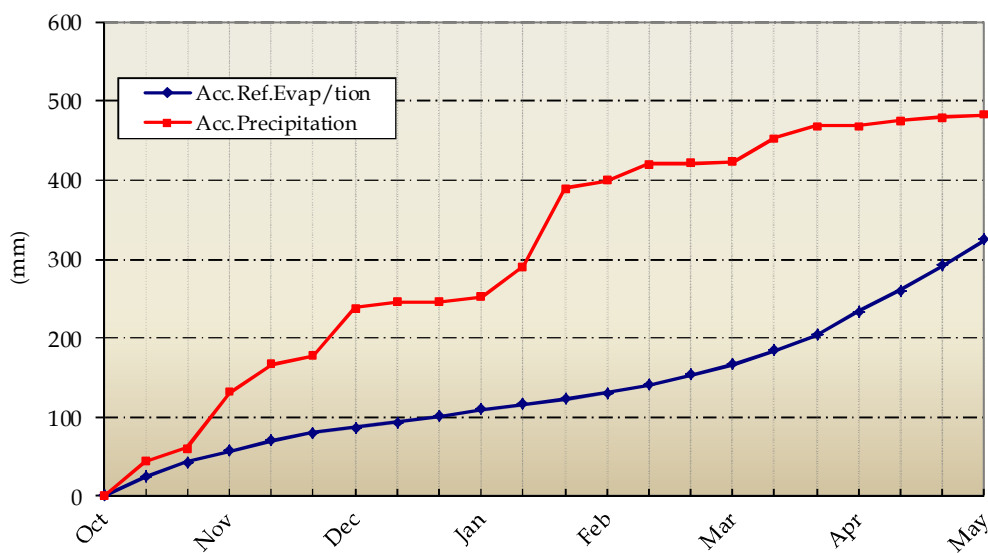


Tripoli

3rd 10-day period (21-30/04/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.7	9.1	17.3	19.5	19.3	22.4	25.4	27.4	26.5	23.2	20.2	20.8	18.7
	Min	3.6	5.6	-1.4	0.8	1.5	1.3	3.0	4.5	6.3	10.8	3.6	6.3	5.4
Relative Humidity	Max	80	100	100	100	100	100	98	90	87	66	92	88	-
	Min	28	56	36	27	35	16	10	12	13	18	25	27	-
Soil Temperature at 10 cm	06 UTC	-	-	-	10.2	11.4	12.2	13.6	14.8	-	-	12.4	17.0	12.1
	12 UTC	-	-	-	17.8	19.0	20.2	21.2	22.2	-	-	20.1	22.1	14.3
Sunshine Duration		0.5	1.2	11.2	9.7	10.0	11.4	11.8	11.3	8.3	10.9	8.6	10.3	8.0
Precipitation			3.7									3.7	0.0	14.5
Evaporation		-	-	-	4.7	4.9	5.1	6.3	-	-	-	-	55.1	35.0
Growing Degrees	5	2.7	2.4	3.0	5.2	5.4	6.9	9.2	11.0	11.4	12.0	68.9	85.5	70.7
	10	0.0	0.0	0.0	0.2	0.4	1.9	4.2	6.0	6.4	7.0	26.0	35.5	24.2

3rd 10-day period (21-30/04/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.1	39.6	32.9
Precipitation - Reference Evapotranspiration	-29.4	-39.6	-18.4
Number of Rainy Days	1.0	0.0	2.7
Number of Dry Days	3.0	20.0	-

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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