



AGROMETEOROLOGICAL BULLETIN

May 2018
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



Hellenic National Meteorological Service
Division of Climatology-Applications
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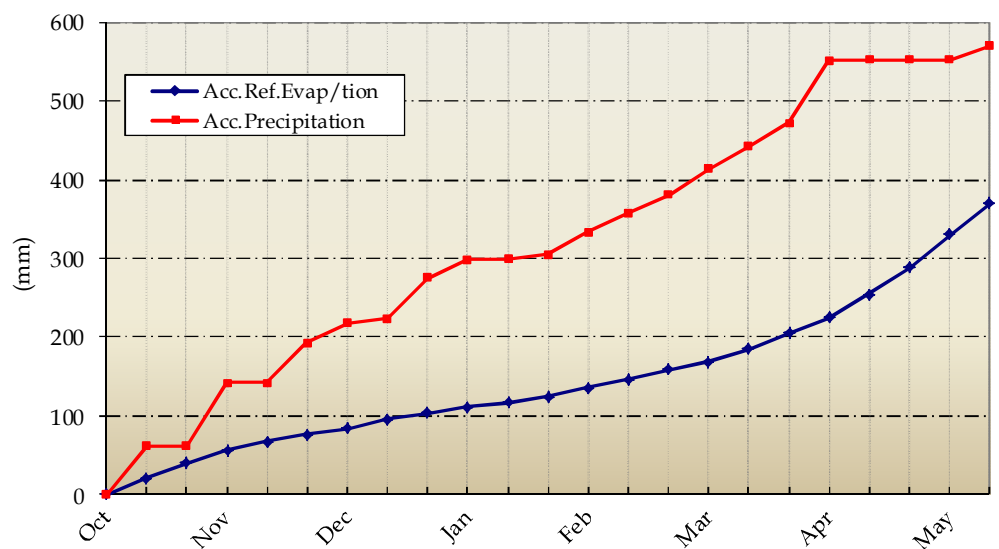
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Alexandroupoli

1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	25.0	28.2	27.8	29.2	22.0	25.4	22.4	24.4	28.8	25.8	24.4	20.6
	Min	11.4	9.6	12.0	17.2	15.0	13.0	15.2	12.0	13.8	13.4	13.3	10.6	9.7
Relative Humidity	Max	97	97	93	62	97	91	97	97	97	93	92	90	-
	Min	44	41	30	33	30	63	47	62	57	59	47	41	-
Soil Temperature at 10 cm	06 UTC	19.6	19.6	20.0	21.6	20.4	21.2	20.6	18.6	18.6	19.4	20.0	18.6	15.1
	12 UTC	24.6	24.0	24.8	24.0	25.6	24.8	23.0	22.0	23.0	22.6	23.8	24.8	19.2
Sunshine Duration		11.9	12.1	10.8	3.1	12.2	3.9	3.5	7.7	12.1	5.1	8.2	10.1	8.0
Precipitation								3.6	9.0		5.0	17.6	8.5	9.3
Evaporation		9.4	5.7	7.6	3.5	7.2	2.5	4.5	3.6	5.6	4.2	53.8	55.3	55.4
Growing Degrees	5	13.2	12.3	15.1	17.5	17.1	12.5	15.3	12.2	14.1	16.1	145.4	125.0	101.5
	10	8.2	7.3	10.1	12.5	12.1	7.5	10.3	7.2	9.1	11.1	95.4	75.0	51.6

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.5	40.6	37.0
Precipitation - Reference Evapotranspiration	-21.9	-32.1	-27.7
Number of Rainy Days	3.0	3.0	2.2
Number of Dry Days	29.0	11.0	-

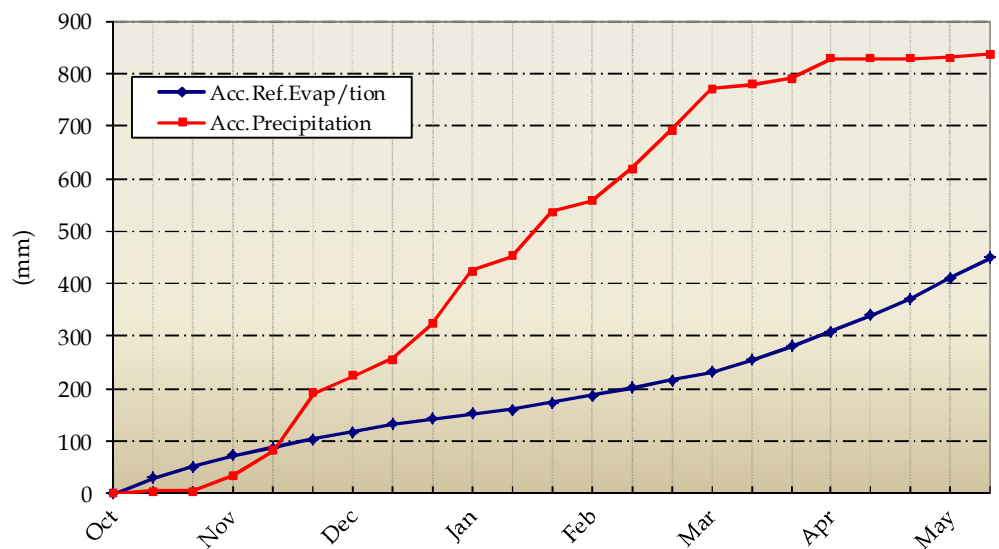
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.6	30.4	28.0	23.0	22.2	21.8	23.8	25.2	24.0	22.9	24.8	23.5	22.2
	Min	12.5	12.8	18.9	13.6	14.1	17.0	17.7	14.5	14.0	14.3	14.9	12.2	11.6
Relative Humidity	Max	94	86	75	84	86	88	93	92	94	91	88	89	-
	Min	32	27	26	42	55	62	54	50	44	51	44	42	-
Soil Temperature at 10 cm	06 UTC	19.2	20.0	21.2	21.0	21.0	20.8	20.8	20.8	20.8	20.5	20.6	19.8	17.3
	12 UTC	25.0	25.0	25.6	22.2	23.0	23.6	22.2	23.0	22.6	22.0	23.4	23.2	21.1
Sunshine Duration		10.9	7.0	6.4	6.6	6.4	1.5	6.5	8.7	7.8	7.2	6.9	11.1	8.8
Precipitation							3.2	3.1			0.1	6.4	0.1	8.6
Evaporation		7.0	7.0	3.0	5.0	4.0	7.3	4.1	6.0	4.0	4.7	52.1	40.6	49.3
Growing Degrees	5	14.6	16.6	18.5	13.3	13.2	14.4	15.8	14.9	14.0	13.6	148.7	128.4	119.0
	10	9.6	11.6	13.5	8.3	8.2	9.4	10.8	9.9	9.0	8.6	98.7	78.4	69.0

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.2	42.1	35.8
Precipitation - Reference Evapotranspiration	-30.8	-42.0	-27.2
Number of Rainy Days	3.0	1.0	2.0
Number of Dry Days	5.0	15.0	-

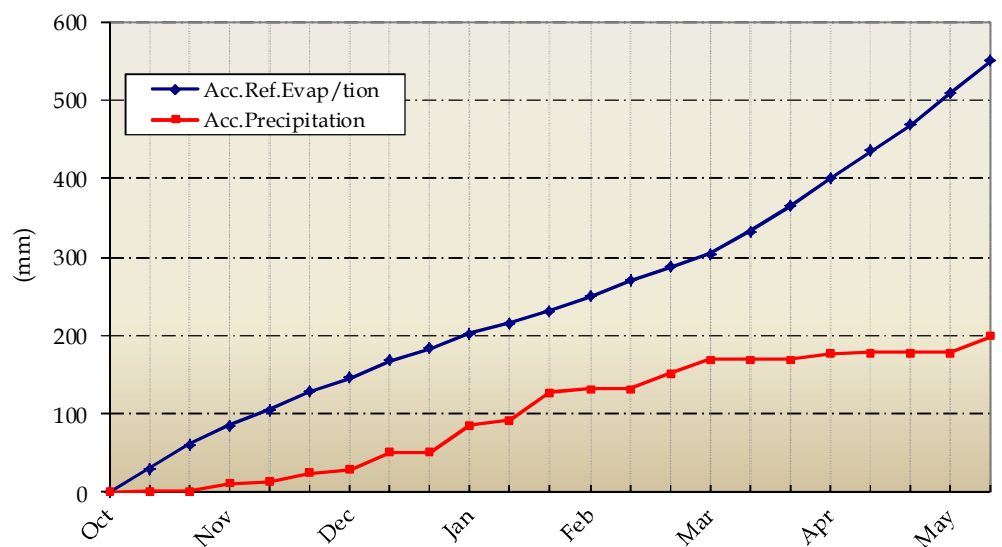
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	24.4	33.0	22.0	22.8	21.8	20.4	22.0	23.0	24.4	23.8	23.7	22.0
	Min	15.2	16.0	18.6	18.2	14.6	15.0	16.8	18.2	15.0	18.8	16.6	16.0	14.0
Relative Humidity	Max	93	94	94	93	93	90	96	97	95	94	94	88	-
	Min	73	65	24	78	76	74	83	82	79	64	70	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.2	9.1	10.4	9.7	10.9	10.1	4.9	10.5	12.0	8.8	9.8	10.4	9.1
Precipitation								21.3	0.4		0.0	21.7		5.2
Evaporation		4.2	2.5	6.1	6.9	3.5	3.8	0.9	3.6	4.2	3.5	39.2	40.5	59.2
Growing Degrees	5	14.6	15.2	20.8	15.1	13.7	13.4	13.6	15.1	14.0	16.6	152.1	148.1	130.2
	10	9.6	10.2	15.8	10.1	8.7	8.4	8.6	10.1	9.0	11.6	102.1	98.1	80.2

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.8	44.4	-
Precipitation - Reference Evapotranspiration	-19.1	-44.4	5.2
Number of Rainy Days	2.0	0.0	1.4
Number of Dry Days	29.0	18.0	-

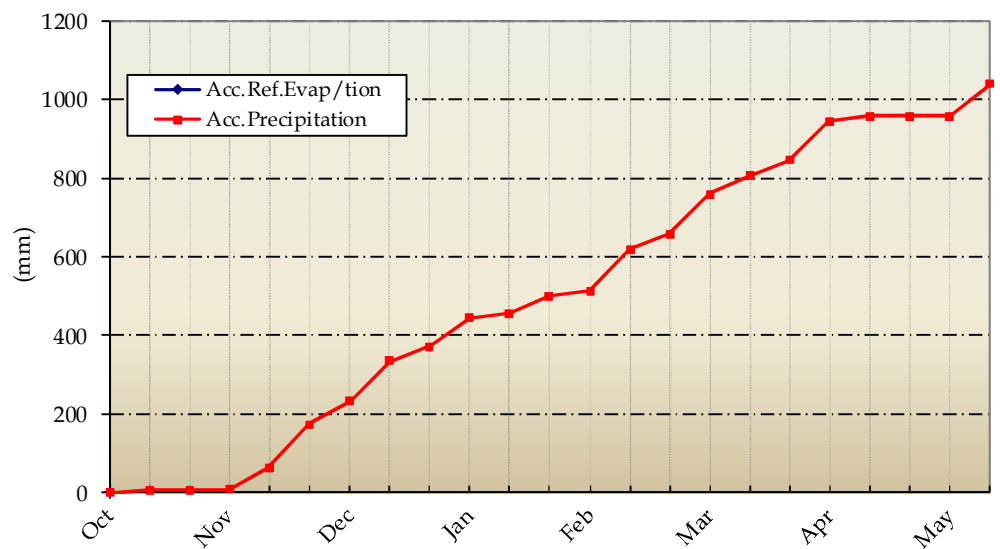
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.6	28.2	26.0	22.6	23.6	21.6	26.0	23.2	22.4	19.6	24.2	23.5	21.2
	Min	12.6	10.4	15.6	15.4	15.0	13.6	12.5	14.8	12.6	10.5	13.3	9.2	8.6
Relative Humidity	Max	81	97	100	91	100	100	89	100	100	98	96	98	-
	Min	30	29	41	68	66	64	41	61	63	71	53	36	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		9.6	8.2	2.5	5.7	1.2	4.6	7.1	1.5	3.9	4.2	4.8	8.4	6.7
Precipitation		0.8		11.3	0.3	20.3	10.5	1.9	7.0	27.1	2.9	82.1	4.2	22.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.0
Growing Degrees	5	15.6	14.3	15.8	14.0	14.3	12.6	14.3	14.0	12.5	10.1	137.4	-	99.4
	10	10.6	9.3	10.8	9.0	9.3	7.6	9.3	9.0	7.5	5.1	87.4	-	49.6

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.0
Precipitation - Reference Evapotranspiration	-	-	-10.8
Number of Rainy Days	9.0	3.0	3.9
Number of Dry Days	24.0	1.0	-

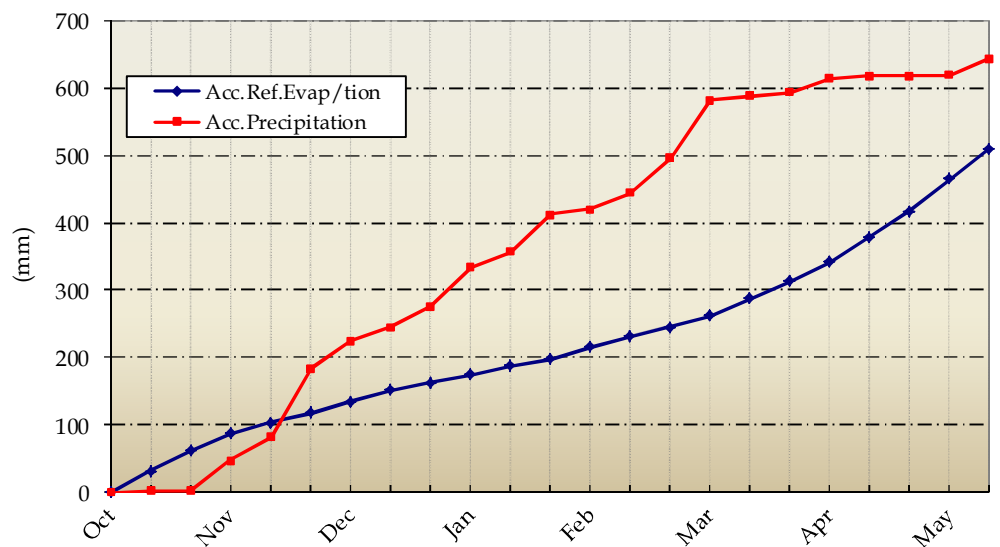
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.8	28.1	28.5	26.1	25.6	25.6	24.2	23.5	23.4	25.4	25.7	26.0	22.8
	Min	12.8	12.2	17.6	14.3	16.4	14.8	15.5	12.6	13.4	12.8	14.2	11.6	11.0
Relative Humidity	Max	81	85	77	83	83	93	93	93	93	90	87	88	-
	Min	35	31	29	34	42	44	59	60	49	37	42	32	-
Soil Temperature at 10 cm	06 UTC	21.6	21.8	22.6	22.2	22.0	22.2	21.0	20.4	20.4	20.6	21.5	-	16.9
	12 UTC	24.4	24.6	24.4	24.0	24.0	24.0	22.4	22.6	23.2	22.8	23.6	-	20.6
Sunshine Duration		11.2	9.7	5.1	8.2	11.0	3.0	2.7	8.4	11.2	9.1	8.0	11.1	8.6
Precipitation								23.7	0.7		0.0	24.4		9.1
Evaporation		6.5	4.5	7.5	7.8	6.0	2.1	3.0	4.2	5.6	5.4	52.6	64.2	52.2
Growing Degrees	5	14.8	15.2	18.1	15.2	16.0	15.2	14.9	13.1	13.4	14.1	149.8	138.1	119.0
	10	9.8	10.2	13.1	10.2	11.0	10.2	9.9	8.1	8.4	9.1	99.8	88.1	69.0

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.1	51.0	36.5
Precipitation - Reference Evapotranspiration	-19.7	-51.0	-27.4
Number of Rainy Days	2.0	0.0	2.3
Number of Dry Days	6.0	18.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

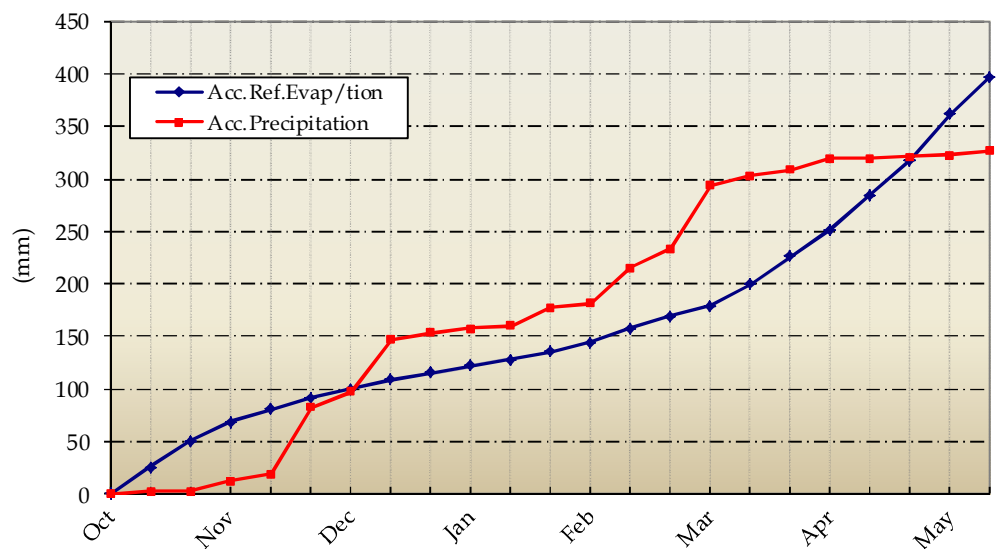


Larisa

1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	29.6	27.8	25.2	23.4	19.8	20.4	22.6	20.2	27.2	25.0	24.1	27.5	23.7
	Min	11.4	11.2	15.6	14.6	15.4	14.2	12.4	14.0	12.0	12.2	13.3	10.6	9.3
Relative Humidity	Max	97	92	89	87	91	95	90	96	97	95	93	91	-
	Min	29	34	53	38	50	73	47	45	41	44	45	20	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4
Sunshine Duration		8.7	5.6	5.0	9.0	0.5	2.0	4.3	0.8	8.1	5.2	4.9	10.3	8.0
Precipitation				0.0	0.0	1.7	1.0	1.3	0.3	0.1	0.3	4.7	9.1	10.2
Evaporation		6.4	11.3	5.0	5.6	3.6	0.4	4.7	3.1	15.5	1.3	56.9	79.1	50.6
Growing Degrees	5	15.5	14.5	15.4	14.0	12.6	12.3	12.5	12.1	14.6	13.6	137.1	140.5	115.4
	10	10.5	9.5	10.4	9.0	7.6	7.3	7.5	7.1	9.6	8.6	87.1	90.5	65.4

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.1	49.1	38.0
Precipitation - Reference Evapotranspiration	-30.4	-40.0	-27.8
Number of Rainy Days	6.0	2.0	2.5
Number of Dry Days	4.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

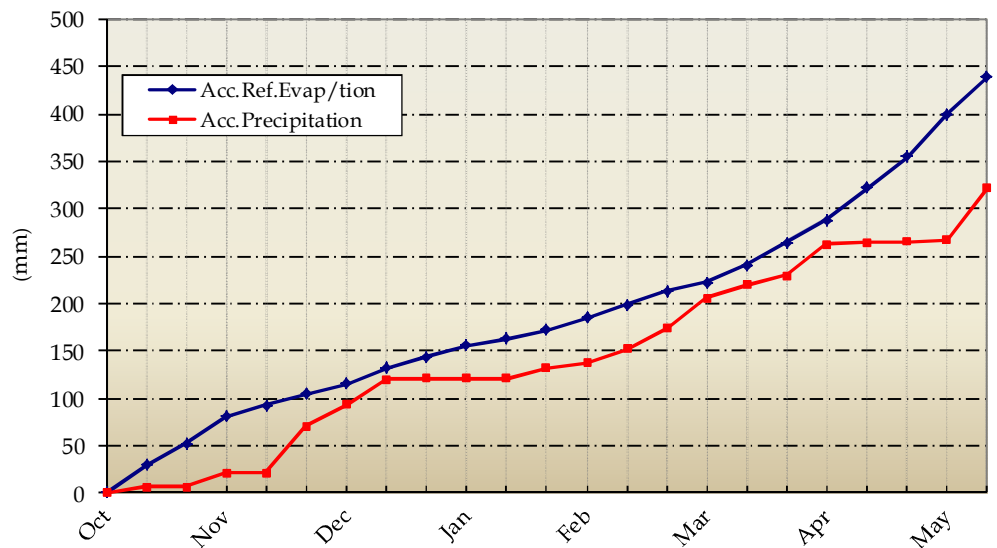


Mikra

1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.7	29.2	24.0	28.1	27.4	23.8	25.3	25.0	25.6	22.2	25.9	25.9	22.7
	Min	13.2	13.8	14.4	15.4	17.2	16.6	16.7	16.4	12.0	16.0	15.2	12.4	10.7
Relative Humidity	Max	80	86	87	79	91	91	91	90	89	90	87	80	-
	Min	26	32	43	33	31	56	51	45	42	63	42	27	-
Soil Temperature at 10 cm	06 UTC	19.2	20.7	20.8	20.9	22.0	20.4	20.2	19.6	20.1	20.4	20.4	19.8	16.9
	12 UTC	22.0	25.2	24.0	25.0	22.8	24.0	23.2	23.0	23.2	21.0	23.3	24.4	21.5
Sunshine Duration		12.3	10.7	4.1	9.9	5.2	5.2	6.1	10.3	6.3	1.3	7.1	10.7	7.9
Precipitation				0.0		0.2	18.1	19.8	3.6		12.7	54.4	2.6	12.9
Evaporation		6.8	8.7	6.3	9.9	4.5	3.4	6.7	5.9	3.1	0.0	55.3	78.1	53.6
Growing Degrees	5	16.0	16.5	14.2	16.8	17.3	15.2	16.0	15.7	13.8	14.1	155.5	141.9	116.7
	10	11.0	11.5	9.2	11.8	12.3	10.2	11.0	10.7	8.8	9.1	105.5	91.9	66.7

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.0	48.9	38.0
Precipitation - Reference Evapotranspiration	14.4	-46.3	-25.1
Number of Rainy Days	5.0	1.0	2.6
Number of Dry Days	4.0	9.0	-

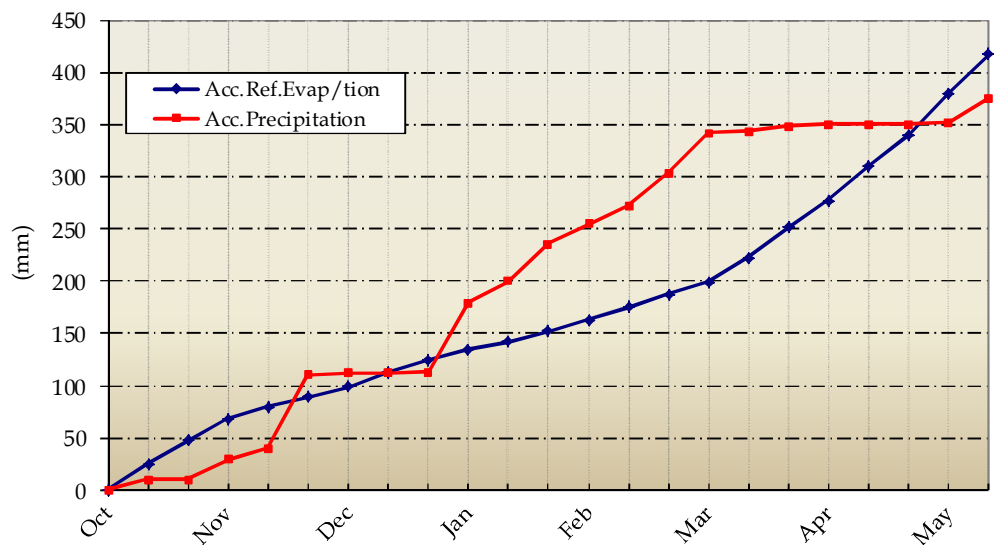
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.2	28.2	26.8	27.0	26.8	22.6	22.4	24.8	27.7	24.1	25.9	26.8	22.9
	Min	11.8	11.3	14.6	13.6	15.8	14.1	15.5	13.3	13.0	13.2	13.6	12.1	9.6
Relative Humidity	Max	93	79	83	96	96	100	100	99	99	100	94	74	-
	Min	25	28	41	38	34	45	54	37	32	43	38	22	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.0	10.4	6.6	9.0	4.4	2.6	5.0	5.5	10.3	8.3	7.3	11.3	
Precipitation						5.4	11.4	1.3			5.6	23.7	0.1	8.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	15.0	14.8	15.7	15.3	16.3	13.4	14.0	14.1	15.4	13.7	147.4	144.8	
	10	10.0	9.8	10.7	10.3	11.3	8.4	9.0	9.1	10.4	8.7	97.4	94.8	

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.2	49.2	
Precipitation - Reference Evapotranspiration	-13.5	-49.1	8.5
Number of Rainy Days	4.0	1.0	2.7
Number of Dry Days	4.0	13.0	-

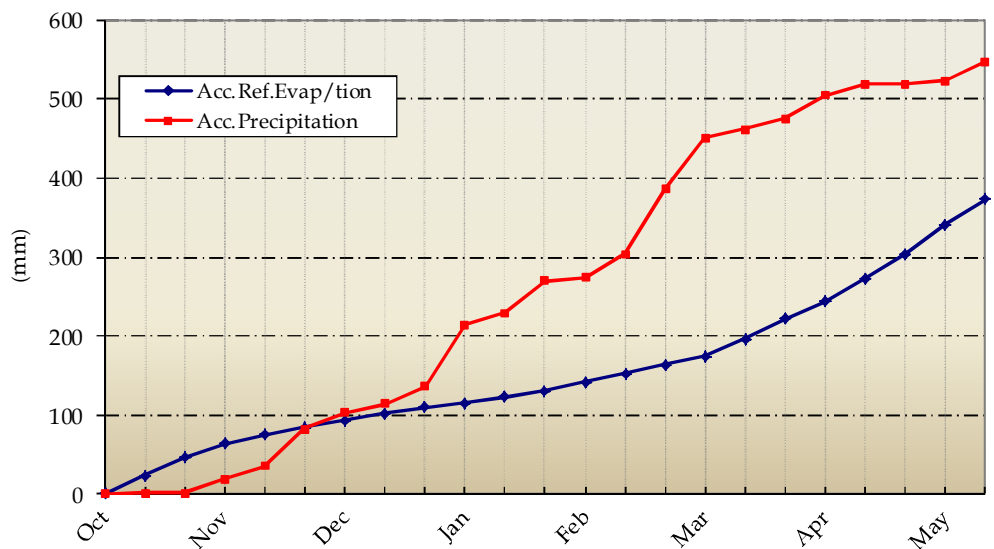
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2018)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.1	24.9	23.3	24.1	21.9	21.0	17.0	22.6	22.8	19.5	22.3	24.5	21.0
	Min	8.3	6.7	14.4	9.5	10.5	11.9	12.4	7.3	8.6	7.1	9.7	6.8	7.0
Relative Humidity	Max	100	97	98	100	99	100	100	100	100	99	99	90	-
	Min	22	28	44	42	56	57	73	43	26	49	44	21	-
Soil Temperature at 10 cm	06 UTC	-	19.4	20.8	20.4	20.8	19.8	18.4	16.2	16.8	17.4	18.9	17.6	14.6
	12 UTC	-	24.2	23.8	24.6	-	-	19.2	21.4	22.2	19.8	22.2	23.6	17.1
Sunshine Duration		7.7	10.1	7.9	9.3	3.2	3.7	0.7	5.6	9.1	4.1	6.1	10.0	8.1
Precipitation		0.4				5.8	10.6	4.8	0.2	0.3	1.9	24.0	0.0	10.2
Evaporation		-	6.2	4.7	4.5	3.4	1.6	0.8	2.5	4.4	1.9	-	-	39.1
Growing Degrees	5	12.2	10.8	13.9	11.8	11.2	11.5	9.7	10.0	10.7	8.3	110.0	106.6	89.7
	10	7.2	5.8	8.9	6.8	6.2	6.5	4.7	5.0	5.7	3.3	60.0	56.6	40.9

1st 10-day period (1-10/05/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.6	41.1	36.7
Precipitation - Reference Evapotranspiration	-7.6	-41.1	-26.5
Number of Rainy Days	7.0	0.0	2.8
Number of Dry Days	0.0	18.0	-

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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ
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Division of Climatology-Applications

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