



AGROMETEOROLOGICAL BULLETIN

February 2019
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



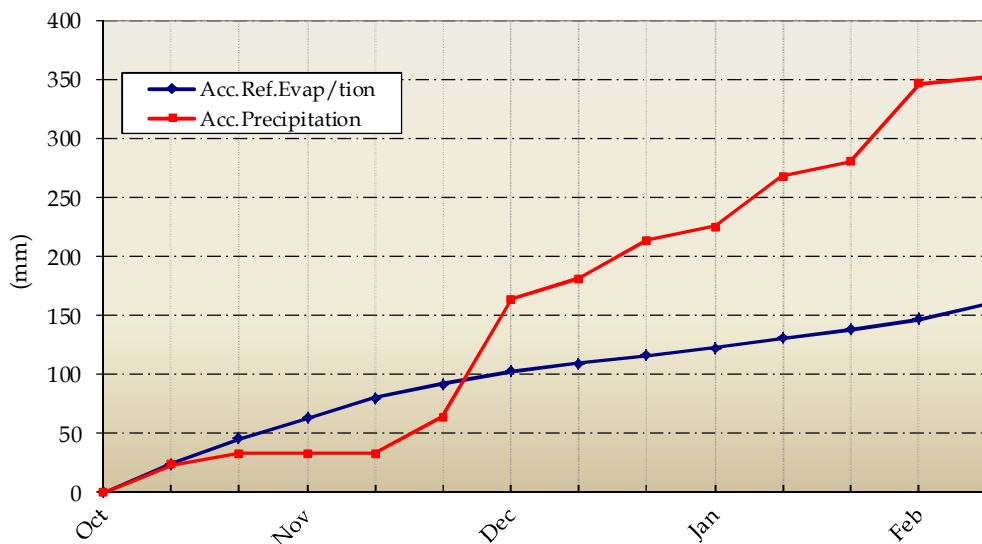
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www.emy.gr
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www.emy.gov.gr
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1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.4	15.4	16.0	17.2	17.4	11.2	6.4	9.0	9.4	11.0	12.6	13.5	9.1
	Min	3.2	3.8	8.8	6.8	6.4	5.4	4.2	4.4	1.4	-3.0	4.1	4.9	0.8
Relative Humidity	Max	93	97	95	94	66	88	76	67	76	92	84	92	-
	Min	42	73	69	60	35	65	65	42	36	62	55	68	-
Soil Temperature at 10 cm	06 UTC	7.4	7.6	9.6	9.2	9.6	9.0	7.0	5.2	5.2	4.2	7.4	7.7	5.3
	12 UTC	10.0	9.4	11.8	12.2	12.0	9.4	6.8	6.8	7.6	7.6	9.4	9.7	6.6
Sunshine Duration		8.6	2.2	4.7	8.0	7.9	1.6	0.0	0.5	8.0	8.1	5.0	4.0	3.9
Precipitation		0.3					5.2					5.5	24.1	19.4
Evaporation		1.1	1.6	0.3	1.4	4.4	2.8	1.1	2.1	0.0	0.0	14.8	7.8	11.6
Growing Degrees	5	3.3	4.6	7.4	7.0	6.9	3.3	0.3	1.7	0.4	0.0	34.9	41.9	14.1
	10	0.0	0.0	2.4	2.0	1.9	0.0	0.0	0.0	0.0	0.0	6.3	9.7	1.4

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.3	11.2	10.9
Precipitation - Reference Evapotranspiration	-6.8	12.9	8.5
Number of Rainy Days	2.0	4.0	2.5
Number of Dry Days	0.0	11.0	-

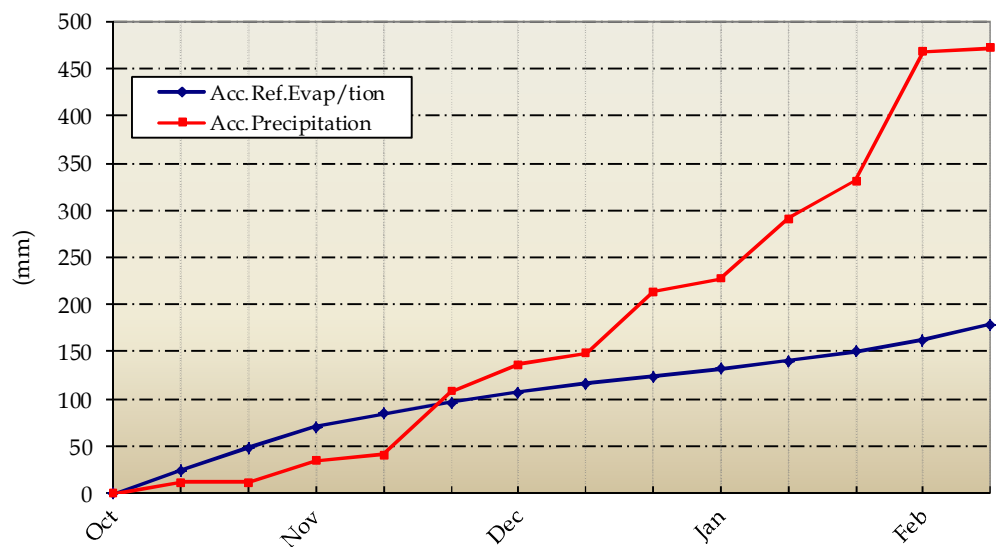
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.0	19.1	21.3	20.8	19.6	16.4	16.0	14.0	15.2	15.8	17.4	16.1	14.0
	Min	7.8	6.7	6.8	8.2	7.3	8.6	8.2	1.0	4.1	6.0	6.5	8.1	4.8
Relative Humidity	Max	90	91	90	83	72	82	83	86	88	85	85	88	-
	Min	60	45	24	35	43	49	32	44	34	52	42	57	-
Soil Temperature at 10 cm	06 UTC	10.0	10.6	10.5	10.8	10.6	10.4	9.0	9.8	7.0	10.4	9.9	11.0	9.2
	12 UTC	13.2	18.4	18.6	11.8	12.0	14.4	12.8	10.6	11.0	12.2	13.5	11.6	10.9
Sunshine Duration		6.8	8.0	2.7	2.9	6.0	2.2	9.0	4.3	8.2	6.6	5.7	2.7	5.2
Precipitation		0.8					2.6					3.4	61.0	28.0
Evaporation		1.2	2.1	3.6	3.0	1.3	4.7	4.6	2.6	3.0	2.4	28.5	27.7	19.1
Growing Degrees	5	6.9	7.9	9.1	9.5	8.5	7.5	7.1	2.5	4.7	5.9	69.5	71.0	44.7
	10	1.9	2.9	4.1	4.5	3.5	2.5	2.1	0.0	0.0	0.9	22.3	22.3	7.9

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.7	14.5	12.4
Precipitation - Reference Evapotranspiration	-13.3	46.5	15.6
Number of Rainy Days	2.0	5.0	4.1
Number of Dry Days	0.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

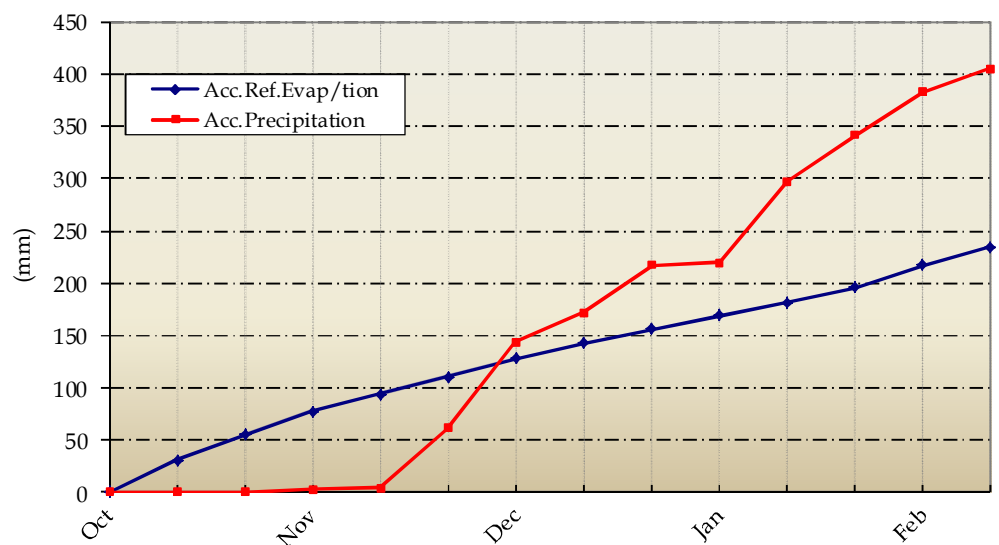


Iraklio

1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.4	18.8	19.4	17.8	17.8	16.0	13.6	12.8	13.6	15.0	16.1	17.6	14.6
	Min	8.4	8.0	8.4	8.0	9.0	11.6	8.8	10.4	9.8	9.2	9.2	11.3	8.7
Relative Humidity	Max	94	97	88	86	93	89	94	78	82	85	89	83	-
	Min	79	71	64	56	54	44	72	62	57	60	62	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		3.8	0.0	3.2	5.2	5.1	0.0	0.0	3.1	4.9	3.7	2.9	3.0	4.3
Precipitation			0.0	0.0		10.3	0.0	6.2	6.0	0.2		22.7	0.5	22.4
Evaporation		0.0	5.0	4.0	1.5	0.9	1.9	0.1	2.5	1.3	0.5	17.7	24.7	29.3
Growing Degrees	5	7.4	8.4	8.9	7.9	8.4	8.8	6.2	6.6	6.7	7.1	76.4	94.3	66.4
	10	2.4	3.4	3.9	2.9	3.4	3.8	1.2	1.6	1.7	2.1	26.4	44.3	19.8

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.1	19.6	-
Precipitation - Reference Evapotranspiration	5.6	-19.1	22.4
Number of Rainy Days	4.0	2.0	4.2
Number of Dry Days	4.0	12.0	-

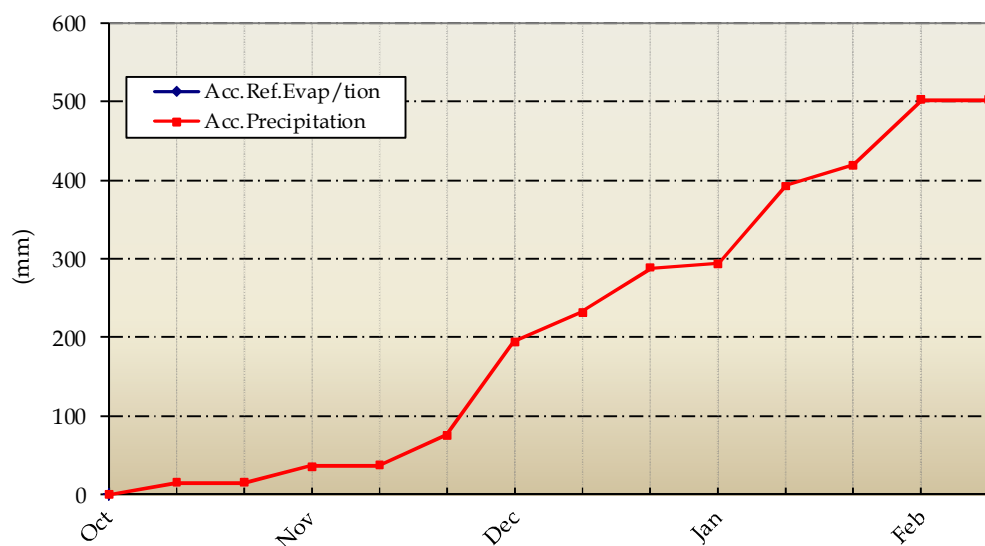
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.0	14.0	15.4	15.2	14.4	13.0	10.2	9.0	10.6	12.4	12.1	10.9	10.0
	Min	2.0	5.8	11.4	7.0	11.0	8.6	7.0	0.0	0.2	-1.0	5.2	3.6	0.6
Relative Humidity	Max	100	86	100	91	54	68	59	100	100	100	86	99	-
	Min	83	60	44	44	38	47	35	51	52	47	50	70	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.1
Sunshine Duration		0.0	4.1	0.0	0.3	4.4	2.9	5.0	3.6	5.8	6.6	3.3	1.3	3.6
Precipitation		0.1										0.1	107.3	35.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	5.0
Growing Degrees	5	0.0	4.9	8.4	6.1	7.7	5.8	3.6	0.0	0.4	0.7	37.6	23.0	13.4
	10	0.0	0.0	3.4	1.1	2.7	0.8	0.0	0.0	0.0	0.0	8.0	0.0	0.3

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	9.3
Precipitation - Reference Evapotranspiration	-	-	26.5
Number of Rainy Days	1.0	6.0	3.5
Number of Dry Days	0.0	10.0	-

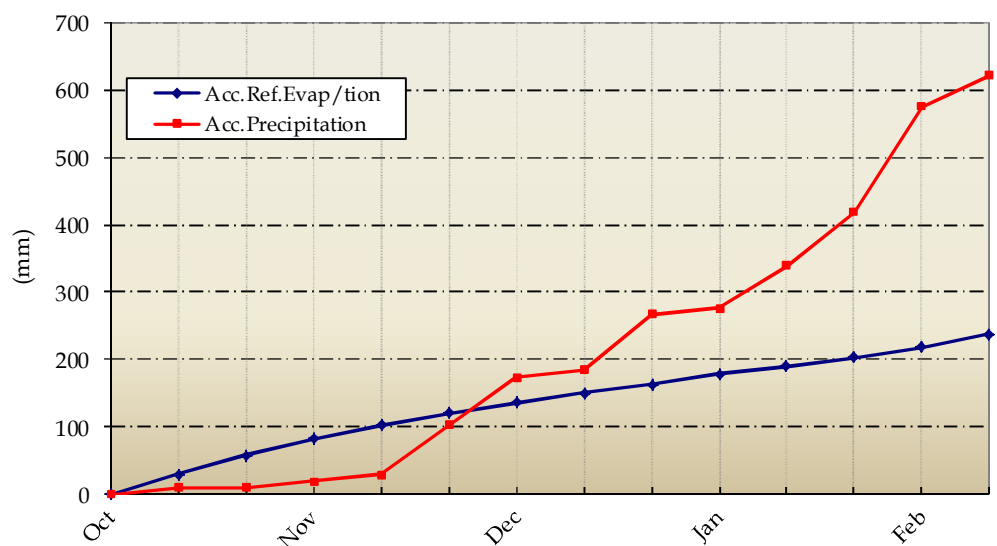
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.2	17.2	19.8	20.6	20.8	14.0	16.9	14.6	13.9	16.6	17.1	16.9	14.9
	Min	4.9	6.7	6.2	8.2	13.4	6.4	10.4	4.6	4.8	4.7	7.0	7.9	4.8
Relative Humidity	Max	92	92	89	89	93	94	64	80	90	91	87	89	-
	Min	53	61	48	36	38	50	33	43	54	44	46	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.0
Sunshine Duration		7.0	8.2	5.8	4.6	3.8	1.9	7.8	6.1	4.3	9.1	5.9	3.0	5.1
Precipitation		0.4				2.2	43.3					45.9	24.8	28.3
Evaporation		3.8	2.4	1.6	2.8	0.9	2.0	4.6	1.0	2.6	1.1	22.8	18.2	24.5
Growing Degrees	5	5.6	7.0	8.0	9.4	12.1	5.2	8.7	4.6	4.4	5.7	70.5	74.0	48.9
	10	0.6	2.0	3.0	4.4	7.1	0.2	3.7	0.0	0.0	0.7	21.5	24.4	8.7

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.5	15.9	14.4
Precipitation - Reference Evapotranspiration	27.4	8.9	13.9
Number of Rainy Days	3.0	4.0	4.1
Number of Dry Days	0.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

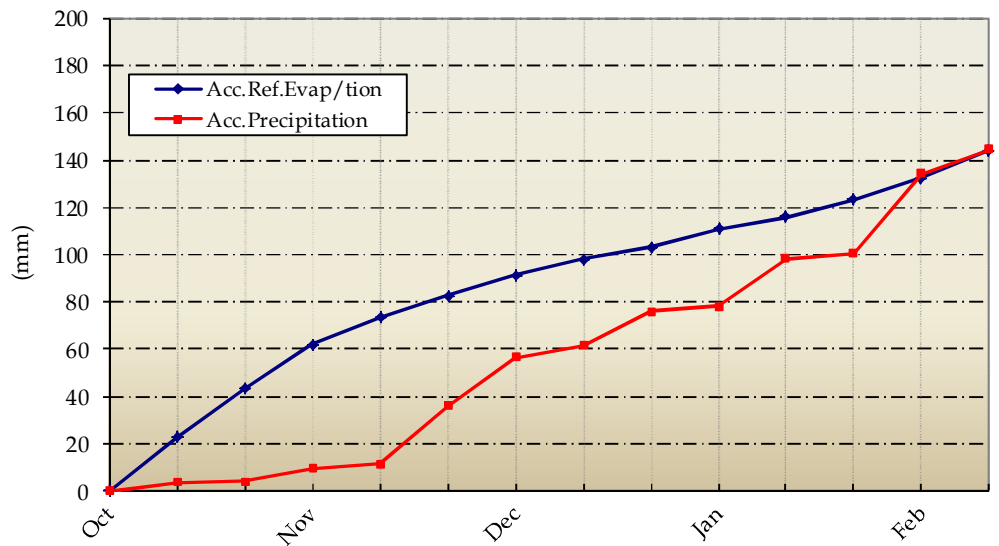


Larisa

1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.5	16.2	15.6	16.5	17.6	14.6	9.8	10.4	12.0	13.6	14.2	15.2	11.2
	Min	0.6	1.2	5.7	6.8	8.4	8.6	5.8	4.9	3.6	-1.8	4.4	3.8	0.4
Relative Humidity	Max	97	97	97	97	93	92	90	95	97	99	95	96	-
	Min	41	56	71	68	49	58	65	68	54	57	59	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.8
Sunshine Duration		7.5	4.3	1.0	0.6	2.8	0.0	0.4	3.2	4.6	7.9	3.2	3.5	4.3
Precipitation							10.4					10.4	34.3	9.7
Evaporation		2.1	3.6	0.5	0.8	5.6	0.1	0.6	0.8	1.5	1.7	17.3	21.9	6.9
Growing Degrees	5	3.1	3.7	5.7	6.7	8.0	6.6	2.8	2.7	2.8	0.9	42.8	45.1	16.7
	10	0.0	0.0	0.7	1.7	3.0	1.6	0.0	0.0	0.0	0.0	6.9	8.1	0.7

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.7	12.7	9.6
Precipitation - Reference Evapotranspiration	-1.3	21.6	0.1
Number of Rainy Days	1.0	3.0	2.8
Number of Dry Days	5.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

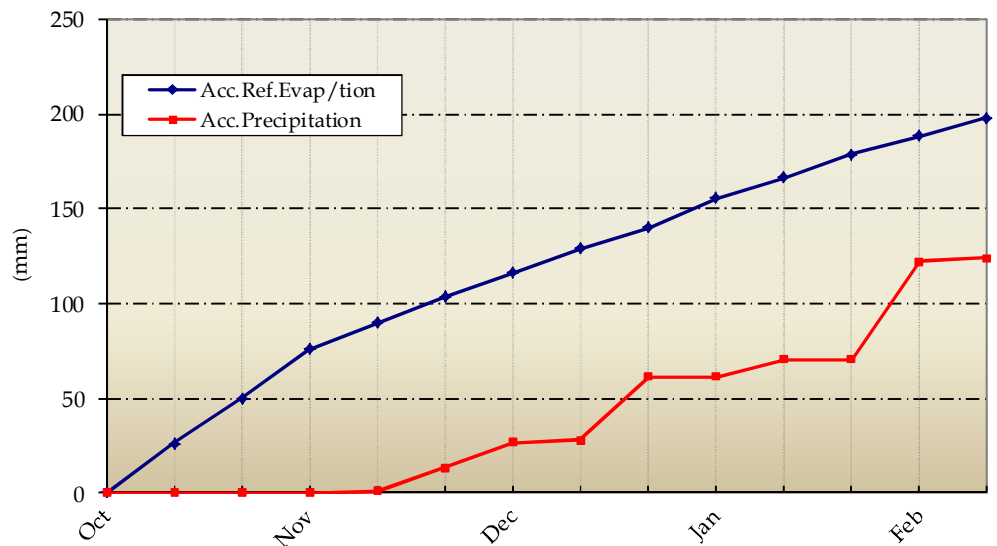


Mikra

1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.2	12.8	13.2	15.2	15.8	13.0	9.8	9.4	10.0	11.0	12.5	15.0	10.3
	Min	2.0	4.6	6.0	7.0	5.0	8.8	7.6	6.6	2.0	1.4	5.1	6.1	1.6
Relative Humidity	Max	97	97	95	97	97	94	89	90	93	93	94	87	-
	Min	37	72	86	83	65	68	64	67	62	60	66	51	-
Soil Temperature at 10 cm	06 UTC	6.0	7.0	7.8	8.5	8.6	10.0	8.6	8.6	6.4	6.0	7.8	8.9	5.6
	12 UTC	8.4	9.0	9.8	10.6	11.0	9.6	9.4	9.0	8.2	8.0	9.3	9.9	7.1
Sunshine Duration		8.0	4.6	2.8	2.2	6.0	0.0	0.6	1.4	5.5	8.1	3.9	3.2	4.3
Precipitation							1.6		0.1			1.7	14.3	10.5
Evaporation		1.8	2.2	1.4	1.9	0.7	0.5	1.1	0.4	1.0	2.4	13.4	10.2	12.4
Growing Degrees	5	3.6	3.7	4.6	6.1	5.4	5.9	3.7	3.0	1.0	1.2	38.2	55.5	17.2
	10	0.0	0.0	0.0	1.1	0.4	0.9	0.0	0.0	0.0	0.0	2.4	11.5	0.8

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.2	13.6	11.4
Precipitation - Reference Evapotranspiration	-7.5	0.7	-0.9
Number of Rainy Days	2.0	5.0	2.6
Number of Dry Days	5.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

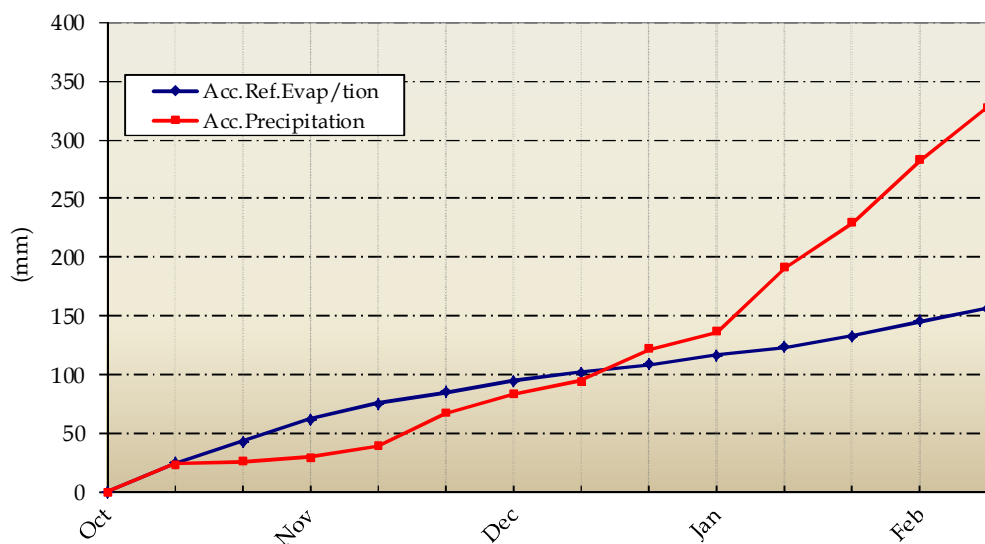


Tanagra

1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.3	17.0	19.0	16.0	17.4	12.0	10.4	9.2	10.1	14.0	14.1	15.3	12.0
	Min	1.7	2.8	7.6	9.3	7.3	6.0	7.4	5.4	2.8	0.1	5.0	7.1	2.6
Relative Humidity	Max	96	100	96	100	100	100	96	100	100	100	99	89	-
	Min	36	50	48	58	49	74	64	64	70	51	56	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.0	7.1	3.6	1.1	5.0	1.0	0.9	0.1	1.4	8.0	3.5	4.2	
Precipitation							41.2	3.7	0.4			45.3	17.5	16.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	4.0	4.9	8.3	7.7	7.4	4.0	3.9	2.3	1.5	2.1	45.9	62.1	
	10	0.0	0.0	3.3	2.7	2.4	0.0	0.0	0.0	0.0	0.0	8.3	17.6	

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.7	12.4	
Precipitation - Reference Evapotranspiration	34.6	5.1	16.3
Number of Rainy Days	3.0	2.0	4.1
Number of Dry Days	5.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

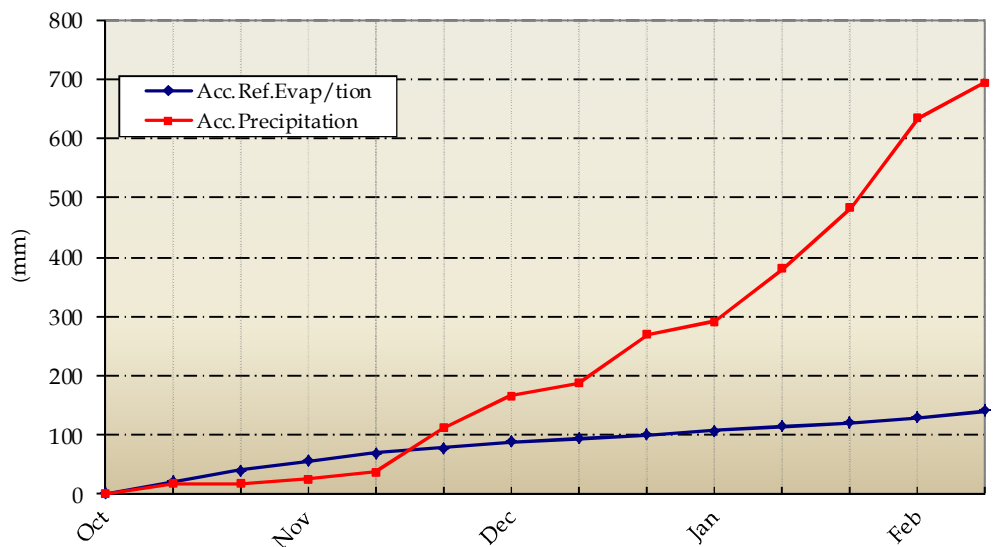


Tripoli

1st 10-day period (1-10/02/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.6	13.9	18.1	11.6	11.9	9.8	7.8	9.8	9.6	13.1	11.8	12.2	10.0
	Min	4.0	-0.1	1.0	3.6	9.6	3.4	4.7	-1.1	3.5	-2.8	2.6	3.7	0.4
Relative Humidity	Max	100	100	99	100	96	97	-	100	-	100	99	97	-
	Min	52	61	31	66	60	74	65	45	45	47	55	57	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	6.5	5.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	7.6	5.8
Sunshine Duration		7.6	4.9	4.1	1.7	0.2	-	-	-	-	8.5	4.5	3.7	4.9
Precipitation		0.4			0.0	2.6	51.7	5.5		0.0		60.2	29.5	26.5
Evaporation		1.4	0.7	0.2	1.1	-	-	-	-	-	-	-	-	8.6
Growing Degrees	5	3.3	1.9	4.6	2.6	5.8	1.6	1.3	0.0	1.6	0.2	22.7	29.6	13.4
	10	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.3	0.4

1st 10-day period (1-10/02/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.0	10.8	11.6
Precipitation - Reference Evapotranspiration	49.2	18.7	14.9
Number of Rainy Days	4.0	3.0	4.1
Number of Dry Days	0.0	9.0	-

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.

Mesurements 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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