



AGROMETEOROLOGICAL BULLETIN

February 2020
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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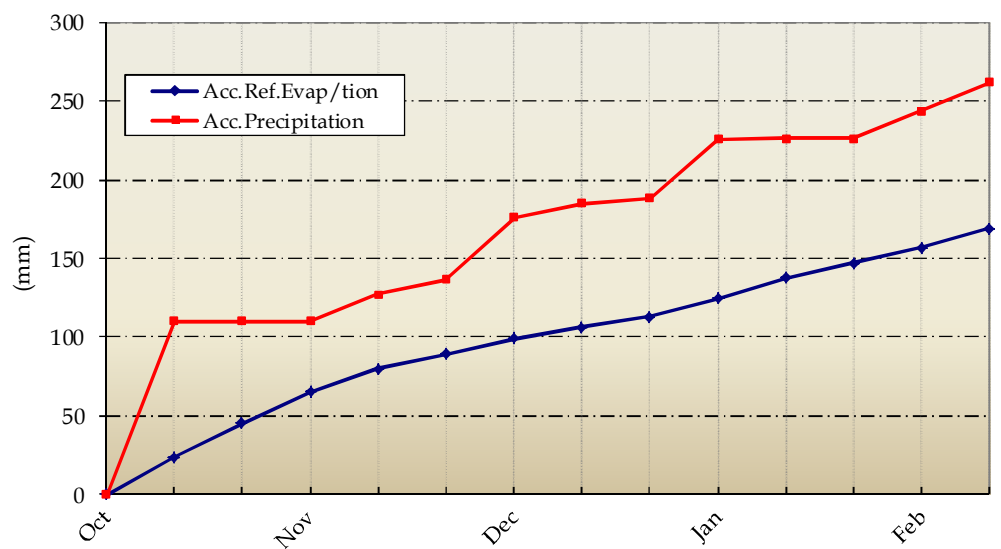
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www.hnms.gr
www.emy.gov.gr
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Alexandroupoli

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.6	17.4	15.4	16.8	15.4	6.2	7.8	5.4	8.4	11.8	12.1	12.6	9.1
	Min	8.2	3.6	8.6	8.2	4.4	1.4	-3.0	-2.0	-5.0	1.0	2.5	4.1	0.8
Relative Humidity	Max	79	97	97	94	93	73	87	62	86	93	86	84	-
	Min	49	67	77	79	79	46	36	34	38	64	57	55	-
Soil Temperature at 10 cm	06 UTC	8.0	7.4	9.6	9.6	12.0	7.4	3.6	3.6	2.8	5.2	6.9	7.4	5.3
	12 UTC	10.0	10.0	11.6	14.6	11.8	7.2	6.8	4.2	4.6	7.0	8.8	9.4	6.6
Sunshine Duration		5.6	8.1	1.9	3.9	0.0	2.6	3.7	9.0	8.4	3.4	4.7	5.0	3.9
Precipitation						18.2	0.3					18.5	5.5	19.4
Evaporation		0.8	1.1	0.9	1.9	3.3	0.0	0.0	0.0	0.0	2.0	10.0	14.8	11.6
Growing Degrees	5	7.4	5.5	7.0	7.5	4.9	0.0	0.0	0.0	0.0	1.4	33.7	34.9	14.1
	10	2.4	0.5	2.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	7.4	6.3	1.4

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.2	12.3	10.9
Precipitation - Reference Evapotranspiration	6.3	-6.8	8.5
Number of Rainy Days	2.0	2.0	2.5
Number of Dry Days	5.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



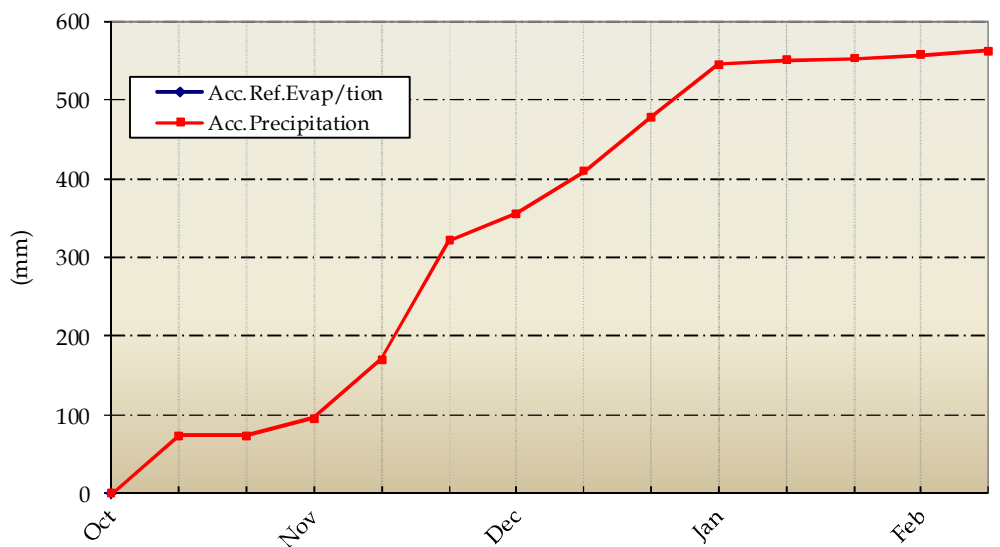
Andravida

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.2	17.8	18.0	17.5	14.9	12.2	11.5	14.8	15.7	16.2	15.6	17.4	14.0
	Min	6.6	6.9	6.3	8.4	7.2	1.3	-0.3	-0.7	-1.2	5.0	4.0	6.5	4.8
Relative Humidity	Max	100	100	100	100	100	99	98	94	100	100	99	85	-
	Min	64	61	65	76	52	46	44	33	39	58	54	42	-
Soil Temperature at 10 cm	06 UTC	11.0	11.4	11.8	12.0	13.4	10.4	8.8	7.6	8.2	9.4	10.4	9.9	9.2
	12 UTC	12.0	13.4	12.8	13.8	12.8	10.8	13.4	9.8	9.6	10.6	11.9	13.5	10.9
Sunshine Duration		7.7	8.0	6.6	2.1	3.4	7.4	8.9	8.9	8.8	6.3	6.8	5.7	5.2
Precipitation						4.1	1.9				0.2	6.2	3.4	28.0
Evaporation		1.5	2.1	1.7	0.6	0.2	2.2	2.0	5.0	2.9	1.4	19.6	28.5	19.1
Growing Degrees	5	6.9	7.4	7.2	8.0	6.1	1.8	0.6	2.1	2.3	5.6	47.7	69.5	44.7
	10	1.9	2.4	2.2	3.0	1.1	0.0	0.0	0.0	0.0	0.6	11.0	22.3	7.9

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	16.7	12.4
Precipitation - Reference Evapotranspiration	-	-13.3	15.6
Number of Rainy Days	3.0	2.0	4.1
Number of Dry Days	7.0	0.0	-

The missing info in the tables and the graph are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



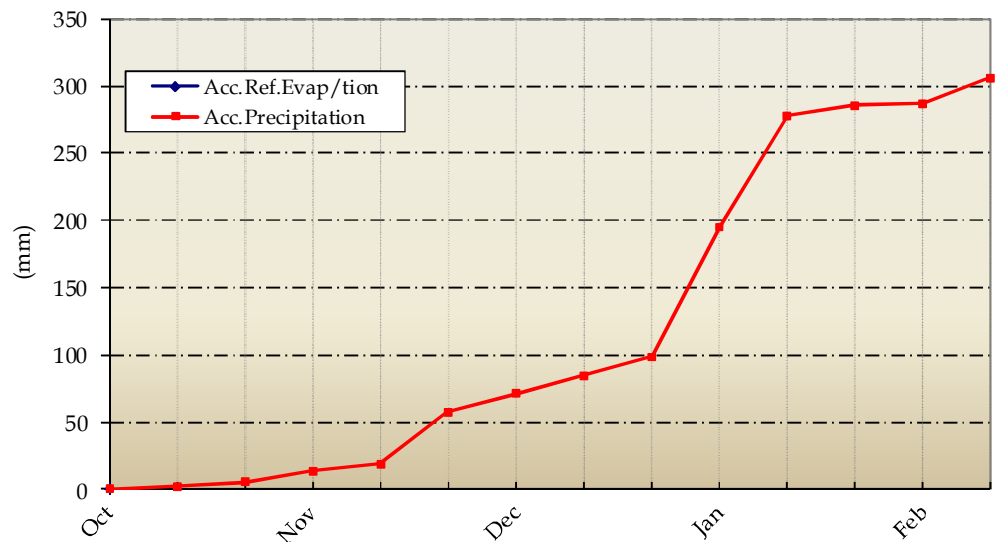
Iraklio

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.6	16.6	17.8	18.2	19.2	13.0	9.4	12.6	12.0	15.6	15.1	16.1	14.6
	Min	7.6	9.8	10.8	11.2	12.0	8.4	7.0	8.4	8.8	5.2	8.9	9.2	8.7
Relative Humidity	Max	90	90	90	88	90	87	91	82	80	88	88	89	-
	Min	54	64	65	66	46	56	52	50	54	58	56	62	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.2	7.0	6.3	6.2	5.7	3.5	0.1	2.7	6.5	7.7	5.4	2.9	4.3
Precipitation							7.0	10.8	2.0			19.8	22.7	22.4
Evaporation		0.3	2.1	1.8	5.3	4.5	2.6	8.6	1.2	1.8	1.9	30.1	17.7	29.3
Growing Degrees	5	7.1	8.2	9.3	9.7	10.6	5.7	3.2	5.5	5.4	5.4	70.1	76.4	66.4
	10	2.1	3.2	4.3	4.7	5.6	0.7	0.0	0.5	0.4	0.4	21.9	26.4	19.8

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	17.1	-
Precipitation - Reference Evapotranspiration	-	5.6	22.4
Number of Rainy Days	3.0	4.0	4.2
Number of Dry Days	5.0	4.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



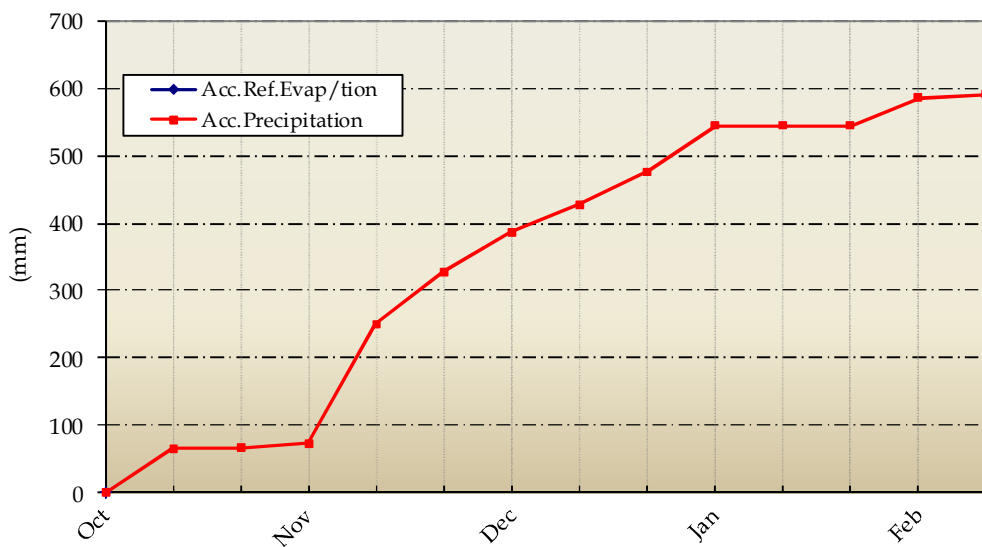
Ioannina

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.9	14.8	11.0	10.6	11.4	6.4	9.0	11.7	12.6	10.8	11.3	12.1	10.0
	Min	-1.4	1.4	0.4	1.8	3.8	1.4	-4.8	-6.4	-5.6	-1.8	-1.1	5.2	0.6
Relative Humidity	Max	100	100	100	100	91	80	100	100	96	100	97	86	-
	Min	57	61	75	89	62	37	28	32	50	54	54	50	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	4.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.1
Sunshine Duration		5.4	3.0	3.3	0.2	2.2	6.8	5.6	7.0	7.0	3.6	4.4	3.3	3.6
Precipitation					0.0	4.1			0.2		0.0	4.3	0.1	35.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	5.0
Growing Degrees	5	1.8	3.1	0.7	1.2	2.6	0.0	0.0	0.0	0.0	0.0	9.4	37.6	13.4
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.3

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	9.3
Precipitation - Reference Evapotranspiration	-	-	26.5
Number of Rainy Days	2.0	1.0	3.5
Number of Dry Days	5.0	0.0	-

The missing info in the tables and the graph are due to the absence of data.

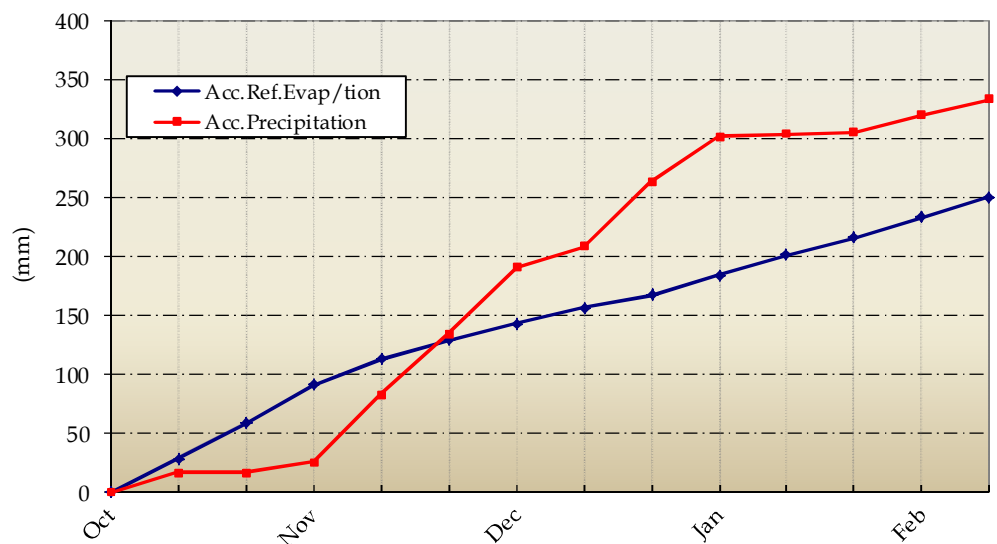
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.3	18.4	19.0	17.4	15.0	13.0	13.2	14.0	13.1	16.1	15.8	17.1	14.9
	Min	4.3	6.8	6.1	5.8	7.5	3.5	1.3	-0.6	7.8	5.6	4.8	7.0	4.8
Relative Humidity	Max	95	92	94	96	90	73	83	83	92	92	89	87	-
	Min	47	50	42	58	54	35	26	38	60	44	45	46	-
Soil Temperature at 10 cm	06 UTC	11.0	11.0	10.8	11.4	12.4	10.6	9.5	8.4	10.2	10.2	10.6	-	9.7
	12 UTC	11.2	12.0	11.6	11.8	12.4	11.0	10.0	11.4	10.8	10.4	11.3	-	11.0
Sunshine Duration		8.2	7.9	7.1	2.6	1.3	5.7	9.0	8.0	1.0	7.3	5.8	5.9	5.1
Precipitation						6.2	6.9				0.1	13.2	45.9	28.3
Evaporation		2.7	3.1	1.5	2.8	0.2	2.2	2.0	0.6	2.3	0.8	18.2	22.8	24.5
Growing Degrees	5	6.8	7.6	7.6	6.6	6.3	3.3	2.3	1.7	5.5	5.9	53.3	70.5	48.9
	10	1.8	2.6	2.6	1.6	1.3	0.0	0.0	0.0	0.5	0.9	11.1	21.5	8.7

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.8	18.5	14.4
Precipitation - Reference Evapotranspiration	-3.6	27.4	13.9
Number of Rainy Days	3.0	3.0	4.1
Number of Dry Days	5.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



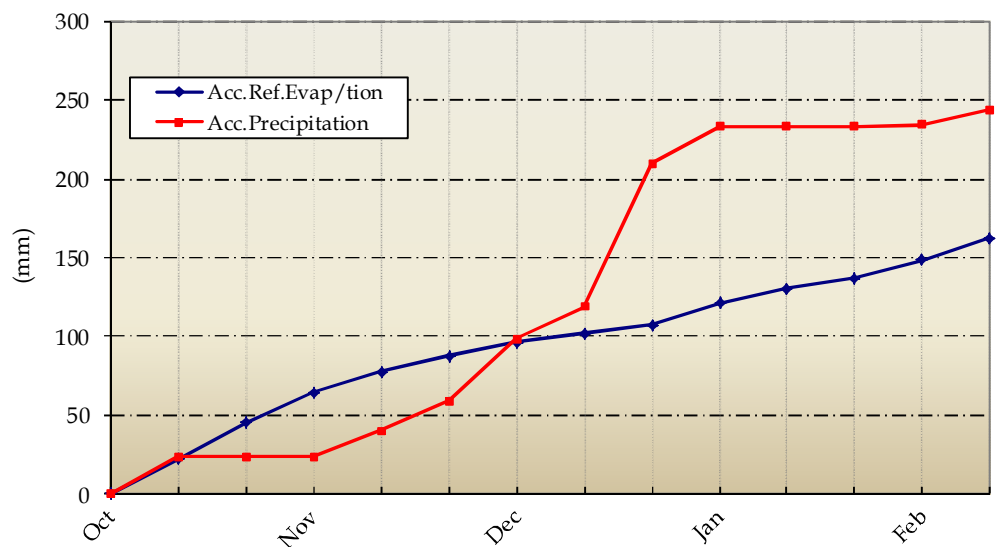
Larisa

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.0	18.3	19.4	18.8	15.0	7.8	9.0	9.4	11.0	16.2	14.3	14.2	11.2
	Min	0.8	0.2	0.6	1.4	5.2	3.8	-4.0	-3.2	-3.8	-3.8	-0.3	4.4	0.4
Relative Humidity	Max	84	94	97	95	94	93	84	94	96	96	93	95	-
	Min	38	45	45	45	57	42	34	50	50	36	44	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.8
Sunshine Duration		7.9	7.6	5.5	7.0	0.9	4.4	8.7	7.9	7.6	6.3	6.4	3.2	4.3
Precipitation						8.2	1.4					9.6	10.4	9.7
Evaporation		2.4	2.4	1.6	1.6	1.9	0.0	0.0	0.0	0.0	5.1	15.0	17.3	6.9
Growing Degrees	5	4.4	4.3	5.0	5.1	5.1	0.8	0.0	0.0	0.0	1.2	25.9	42.8	16.7
	10	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	6.9	0.7

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.4	11.7	9.6
Precipitation - Reference Evapotranspiration	-3.8	-1.3	0.1
Number of Rainy Days	2.0	1.0	2.8
Number of Dry Days	8.0	5.0	-

The missing info in the tables are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



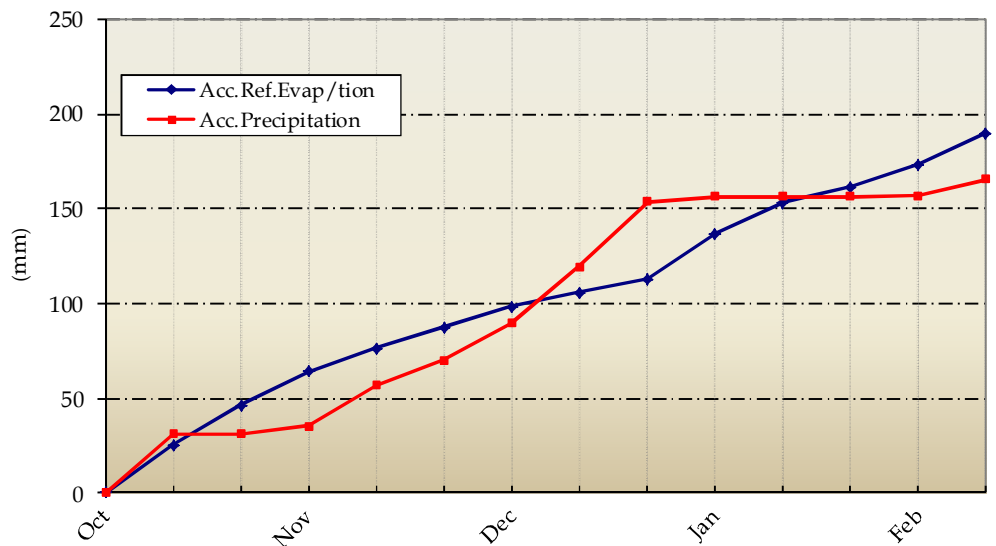
Mikra

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.5	16.0	13.6	18.4	15.0	6.1	8.6	10.0	9.9	11.0	12.7	12.5	10.3
	Min	1.1	2.7	2.8	3.8	5.0	4.0	2.1	3.3	-0.8	2.6	2.7	5.1	1.6
Relative Humidity	Max	84	89	91	91	84	70	60	88	94	91	84	94	-
	Min	41	54	66	48	63	53	50	42	53	64	53	66	-
Soil Temperature at 10 cm	06 UTC	7.2	8.2	8.6	8.4	9.6	6.6	4.8	5.8	5.4	6.6	7.1	7.8	5.6
	12 UTC	9.2	9.8	9.6	10.4	8.0	6.8	6.0	7.2	7.0	10.2	8.4	9.3	7.1
Sunshine Duration		8.7	7.9	4.6	7.1	0.0	2.3	8.5	6.6	8.3	5.6	6.0	3.9	4.3
Precipitation						7.9	0.8					8.7	1.7	10.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	13.4	12.4
Growing Degrees	5	4.8	4.4	3.2	6.1	5.0	0.1	0.4	1.7	0.0	1.8	27.3	38.2	17.2
	10	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.4	0.8

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.4	9.2	11.4
Precipitation - Reference Evapotranspiration	-7.7	-7.5	-0.9
Number of Rainy Days	2.0	2.0	2.6
Number of Dry Days	8.0	5.0	-

The missing info in the tables are due to the absence of data.

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



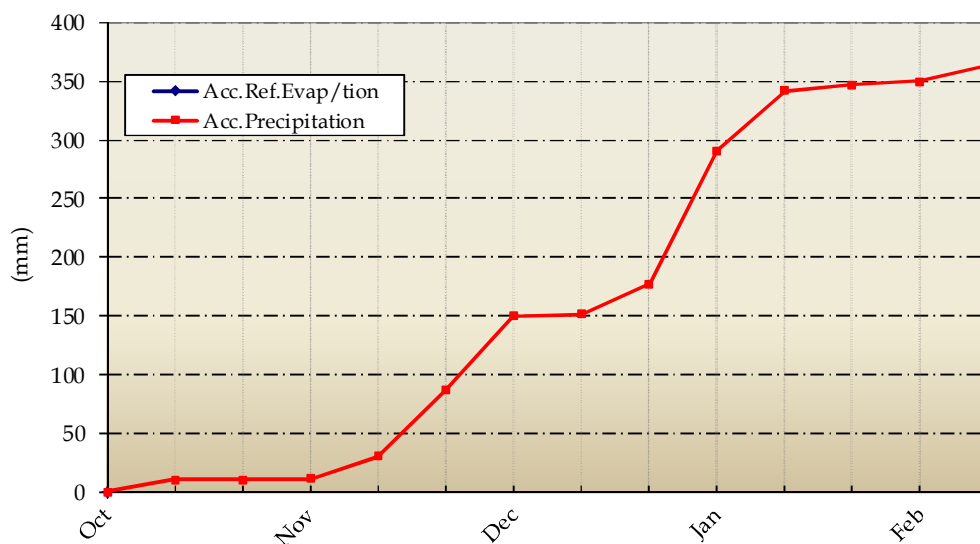
Tanagra

1st 10-day period (1-10/02/2020)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.8	18.6	19.3	20.0	14.8	5.8	7.8	5.9	11.3	16.0	13.8	14.1	12.0
	Min	3.8	1.9	4.7	6.0	12.6	1.0	2.1	0.8	-2.4	-2.0	2.8	5.0	2.6
Relative Humidity	Max	95	100	100	96	84	95	72	99	100	100	94	99	-
	Min	35	43	36	37	46	62	38	63	42	37	44	56	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.4	8.1	7.8	7.2	3.4	0.0	8.2	0.2	7.9	7.9	5.9	3.5	
Precipitation						5.9	6.9	0.1	1.1			14.0	45.3	16.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	6.3	5.3	7.0	8.0	8.7	0.0	0.0	0.0	0.0	2.0	37.3	45.9	
	10	1.3	0.3	2.0	3.0	3.7	0.0	0.0	0.0	0.0	0.0	10.3	8.3	

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	10.7	
Precipitation - Reference Evapotranspiration	-	34.6	16.3
Number of Rainy Days	4.0	3.0	4.1
Number of Dry Days	8.0	5.0	-

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Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



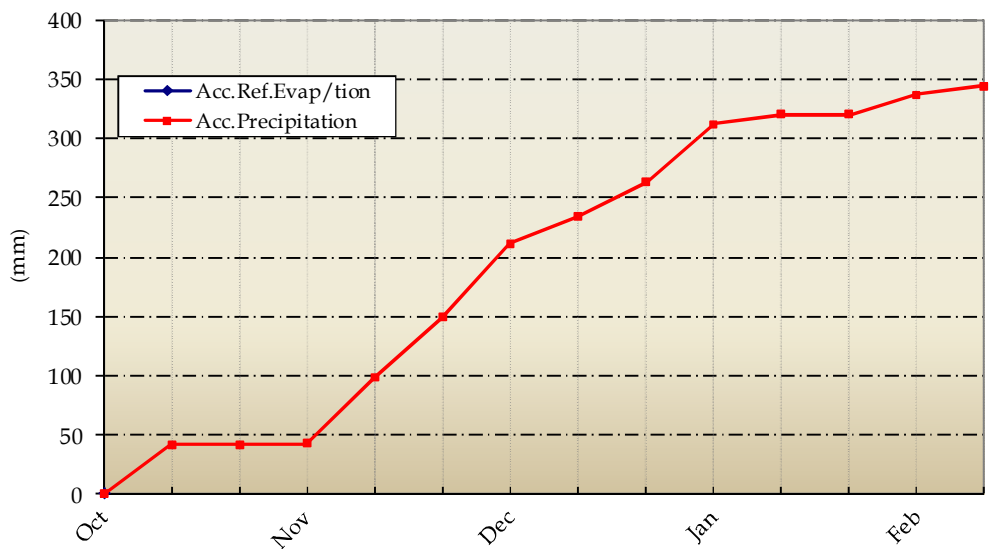
Tripoli

1st 10-day period (1-10/02/2020)		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	16.6	14.6	15.0	-	5.3	8.0	8.4	12.9	12.6	12.2	11.8	10.0
	Min	-0.3	0.1	-1.4	0.1	-	-1.7	-2.3	-5.9	-2.4	-2.9	-1.9	2.6	0.4
Relative Humidity	Max	-	100	100	99	-	99	-	-	100	99	100	99	-
	Min	36	46	52	54	59	56	27	36	35	41	44	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	2.8	2.8	-	5.0
	12 UTC	-	-	-	-	-	-	-	-	-	6.4	6.4	-	5.8
Sunshine Duration		8.1	8.1	7.6	8.2	-	-	-	-	0.0	7.4	6.6	4.5	4.9
Precipitation				0.0		7.3	0.4			0.0	0.0	7.7	60.2	26.5
Evaporation		-	-	-	-	-	-	-	-	-	0.0	-	-	8.6
Growing Degrees	5	3.0	3.4	1.6	2.6	-	0.0	0.0	0.0	0.3	0.0	-	22.7	13.4
	10	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.8	0.4

1st 10-day period (1-10/02/2020)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	11.0	11.6
Precipitation - Reference Evapotranspiration	-	49.2	14.9
Number of Rainy Days	2.0	4.0	4.1
Number of Dry Days	5.0	0.0	-

The missing info in the tables and the graph are due to the absence of data.

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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