



# AGROMETEOROLOGICAL BULLETIN

*May 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



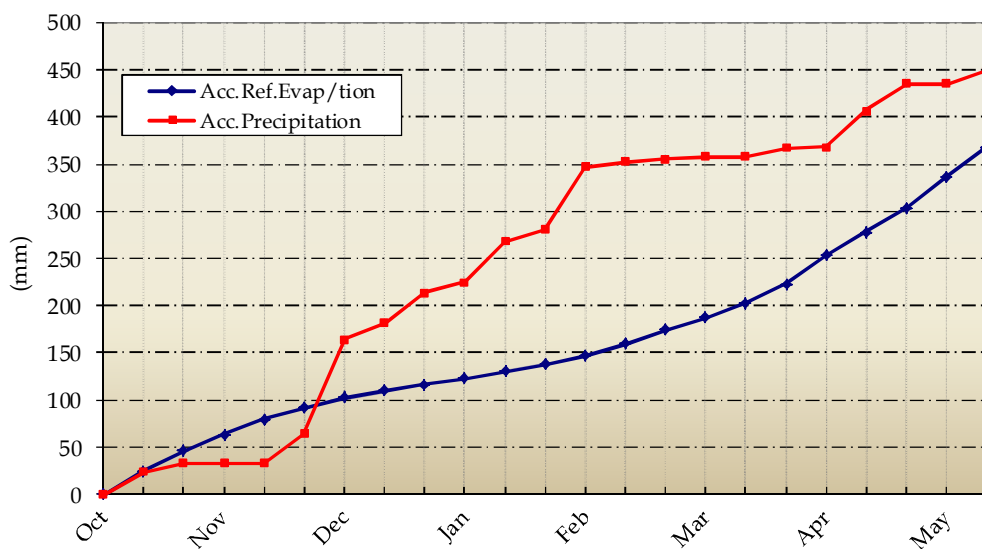
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1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	20.0	21.0	20.6	22.4	21.0	18.2	16.2	18.0	20.4	19.8	25.8	20.6
	Min	16.0	12.6	7.6	10.2	13.2	14.6	10.0	9.6	5.2	13.2	11.2	13.3	9.7
Relative Humidity	Max	91	96	94	95	96	87	92	90	96	96	93	92	-
	Min	50	45	59	44	46	57	64	49	45	70	53	47	-
Soil Temperature at 10 cm	06 UTC	17.6	17.4	15.8	17.0	17.0	17.4	15.4	14.0	12.4	16.6	16.1	20.0	15.1
	12 UTC	21.4	21.2	19.8	20.4	20.0	19.2	15.4	15.8	17.6	19.6	19.0	23.8	19.2
Sunshine Duration		9.2	7.2	11.7	2.5	4.8	7.8	2.0	2.7	8.4	8.8	6.5	8.2	8.0
Precipitation			1.6			3.8	0.4	7.0	0.3	0.0	1.3	14.4	17.6	9.3
Evaporation		3.8	7.1	4.6	2.5	2.5	5.0	0.5	2.9	2.9	4.9	36.7	53.8	55.4
Growing Degrees	5	13.0	11.3	9.3	10.4	12.8	12.8	9.1	7.9	6.6	11.8	105.0	145.4	101.5
	10	8.0	6.3	4.3	5.4	7.8	7.8	4.1	2.9	1.6	6.8	55.0	95.4	51.6

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.4	39.5	37.0
Precipitation - Reference Evapotranspiration	-17.0	-21.9	-27.7
Number of Rainy Days	6.0	3.0	2.2
Number of Dry Days	11.0	29.0	-

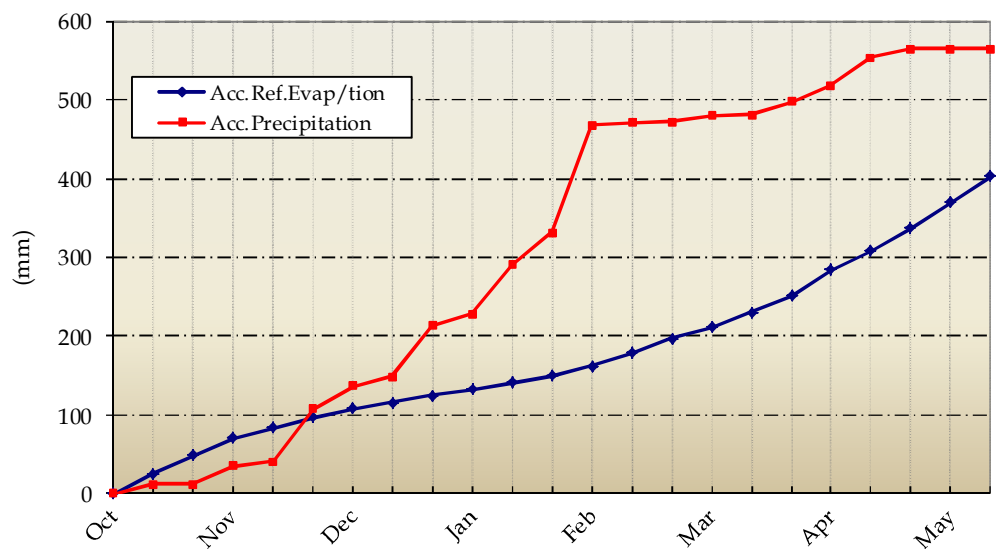
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.9	19.2	21.4	19.2	22.0	19.6	20.4	19.2	19.4	21.3	20.1	24.8	22.2
	Min	7.5	8.4	9.0	13.0	10.8	13.2	10.6	11.1	9.0	12.6	10.5	14.9	11.6
Relative Humidity	Max	94	91	95	95	98	100	87	87	91	98	94	88	-
	Min	47	51	38	48	57	44	44	46	46	49	47	44	-
Soil Temperature at 10 cm	06 UTC	17.2	17.0	15.6	14.6	18.0	16.6	16.8	16.8	16.4	17.8	16.7	20.6	17.3
	12 UTC	18.4	18.4	19.4	16.6	21.0	19.0	17.4	19.0	18.2	19.4	18.7	23.4	21.1
Sunshine Duration		3.3	10.9	11.3	0.9	5.8	8.0	10.9	12.7	5.9	6.4	7.6	6.9	8.8
Precipitation		0.0			0.1							0.1	6.4	8.6
Evaporation		7.4	8.0	4.0	5.1	4.2	2.0	5.0	6.0	4.0	8.1	53.8	52.1	49.3
Growing Degrees	5	8.2	8.8	10.2	11.1	11.4	11.4	10.5	10.2	9.2	12.0	102.9	148.7	119.0
	10	3.2	3.8	5.2	6.1	6.4	6.4	5.5	5.2	4.2	7.0	52.9	98.7	69.0

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.6	37.2	35.8
Precipitation - Reference Evapotranspiration	-33.5	-30.8	-27.2
Number of Rainy Days	1.0	3.0	2.0
Number of Dry Days	18.0	5.0	-

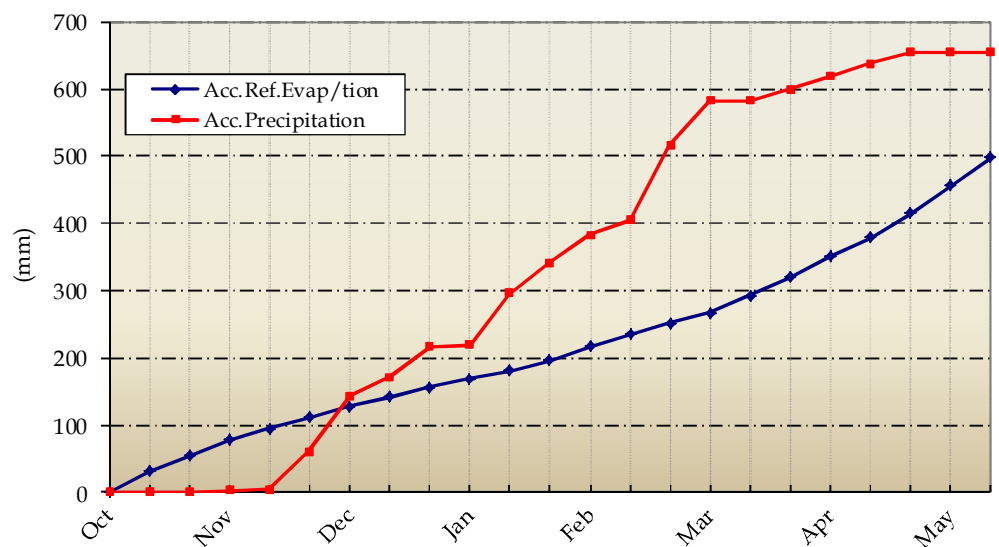
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.8	19.8	21.0	23.2	26.0	21.0	21.6	19.8	20.2	21.6	21.5	23.8	22.0
	Min	12.6	11.6	11.0	12.0	18.4	16.8	12.0	10.0	11.2	13.2	12.9	16.6	14.0
Relative Humidity	Max	95	88	95	95	81	89	87	95	97	89	91	94	-
	Min	71	50	65	28	16	61	42	61	69	63	53	70	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.4	12.3	12.2	4.0	3.3	10.1	12.2	12.4	11.5	9.0	9.4	9.8	9.1
Precipitation		0.7					0.2					0.9	21.7	5.2
Evaporation		0.6	3.5	4.5	8.1	4.4	6.0	6.9	3.6	1.8	2.8	42.2	39.2	59.2
Growing Degrees	5	11.7	10.7	11.0	12.6	17.2	13.9	11.8	9.9	10.7	12.4	121.9	152.1	130.2
	10	6.7	5.7	6.0	7.6	12.2	8.9	6.8	4.9	5.7	7.4	71.9	102.1	80.2

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	40.2	40.8	-
Precipitation - Reference Evapotranspiration	-39.3	-19.1	5.2
Number of Rainy Days	2.0	2.0	1.4
Number of Dry Days	14.0	29.0	-

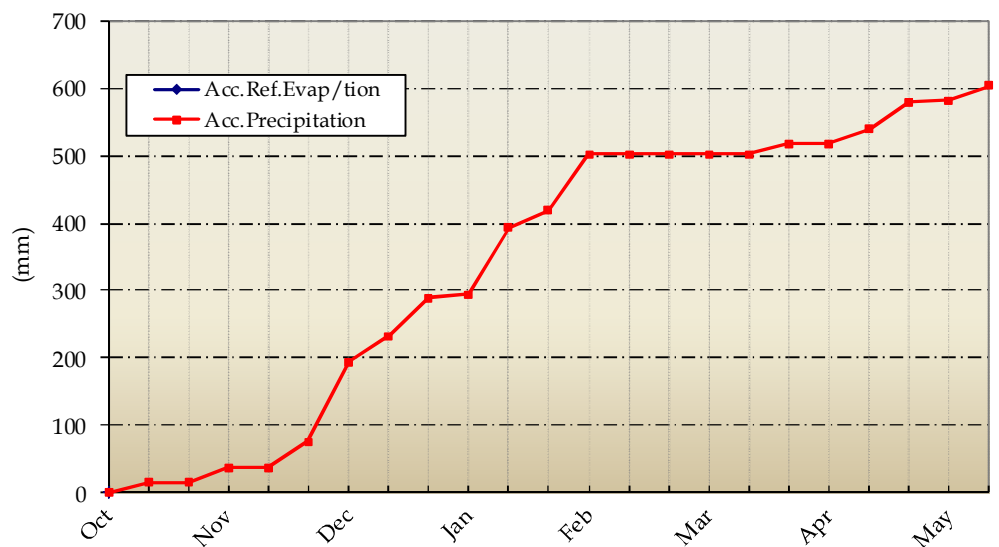
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2019)		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	19.0	20.0	15.2	17.6	16.0	14.8	20.6	18.6	18.6	17.7	24.2	21.2
	Min	2.4	7.0	5.4	10.0	11.4	7.4	7.4	5.6	8.2	11.0	7.6	13.3	8.6
Relative Humidity	Max	100	100	100	100	100	95	100	94	100	91	98	96	-
	Min	47	41	39	66	68	69	58	42	55	61	55	53	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	17.5
Sunshine Duration		3.1	9.3	7.4	0.3	3.1	4.4	7.1	11.5	3.4	4.4	5.4	4.8	6.7
Precipitation					2.8	7.5	8.4	3.5			0.3	22.5	82.1	22.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	36.0
Growing Degrees	5	4.4	8.0	7.7	7.6	9.5	6.7	6.1	8.1	8.4	9.8	76.3	137.4	99.4
	10	0.0	3.0	2.7	2.6	4.5	1.7	1.1	3.1	3.4	4.8	26.9	87.4	49.6

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	33.0
Precipitation - Reference Evapotranspiration	-	-	-10.8
Number of Rainy Days	5.0	9.0	3.9
Number of Dry Days	7.0	24.0	-

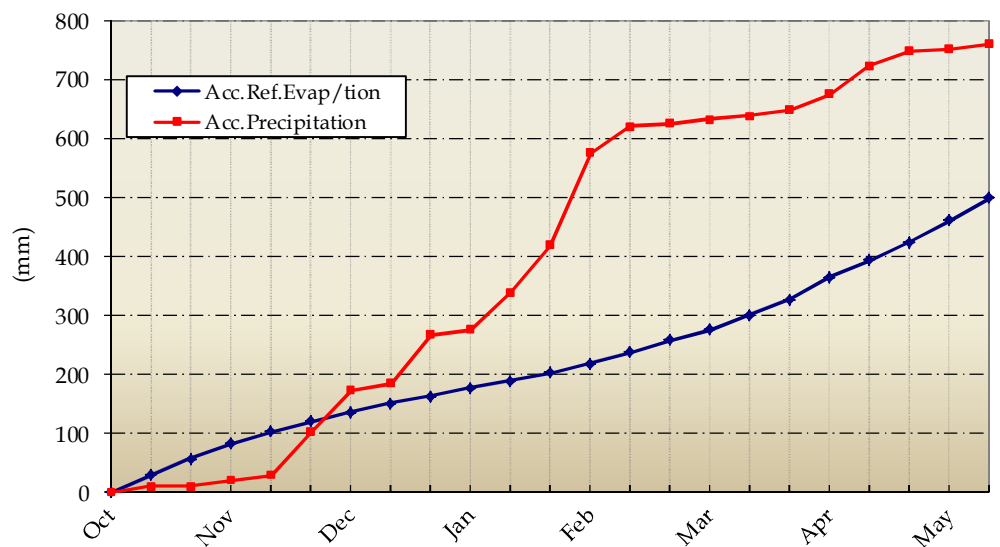
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.5	21.6	21.7	17.1	23.7	20.6	19.0	20.0	21.0	20.5	20.6	25.7	22.8
	Min	8.1	6.6	10.3	12.0	12.1	11.2	9.2	7.4	8.1	11.5	9.6	14.2	11.0
Relative Humidity	Max	91	91	86	91	90	92	92	90	90	89	90	87	-
	Min	34	32	46	61	49	40	40	42	19	58	42	42	-
Soil Temperature at 10 cm	06 UTC	17.0	15.6	16.4	18.0	16.2	16.4	16.8	15.6	16.4	18.0	16.6	21.5	16.9
	12 UTC	19.0	20.0	21.0	18.0	18.0	19.8	19.0	19.5	20.2	21.0	19.6	23.6	20.6
Sunshine Duration		4.0	11.6	12.4	0.5	4.5	10.9	10.5	11.6	10.9	10.9	8.8	8.0	8.6
Precipitation		0.0			3.3	3.0	0.0	2.1				8.4	24.4	9.1
Evaporation		1.6	5.4	7.3	1.0	0.5	6.5	4.9	5.1	5.9	2.7	40.9	52.6	52.2
Growing Degrees	5	9.3	9.1	11.0	9.6	12.9	10.9	9.1	8.7	9.6	11.0	101.1	149.8	119.0
	10	4.3	4.1	6.0	4.6	7.9	5.9	4.1	3.7	4.6	6.0	51.1	99.8	69.0

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.7	44.1	36.5
Precipitation - Reference Evapotranspiration	-30.3	-19.7	-27.4
Number of Rainy Days	3.0	2.0	2.3
Number of Dry Days	9.0	6.0	-

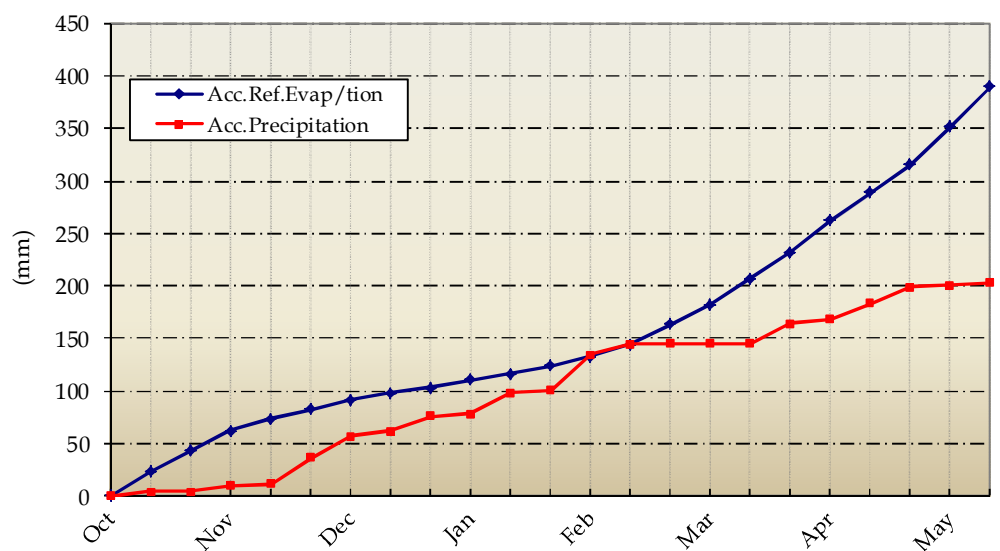
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	23.2	26.4	20.6	24.8	22.4	21.5	21.0	22.2	26.0	22.9	24.1	23.7
	Min	8.0	5.2	5.4	9.2	12.0	7.8	6.4	8.3	9.0	10.4	8.2	13.3	9.3
Relative Humidity	Max	84	91	92	86	94	91	88	80	87	78	87	93	-
	Min	34	29	21	38	43	29	31	30	38	30	32	45	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.2
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	18.4
Sunshine Duration		2.7	10.4	9.8	1.9	7.4	8.8	8.8	10.4	4.5	6.9	7.2	4.9	8.0
Precipitation					0.1	2.7						2.8	4.7	10.2
Evaporation		6.7	7.0	4.6	3.0	5.0	6.6	9.3	18.3	4.4	6.8	71.7	56.9	50.6
Growing Degrees	5	9.6	9.2	10.9	9.9	13.4	10.1	9.0	9.7	10.6	13.2	105.5	137.1	115.4
	10	4.6	4.2	5.9	4.9	8.4	5.1	4.0	4.7	5.6	8.2	55.5	87.1	65.4

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.5	35.1	38.0
Precipitation - Reference Evapotranspiration	-35.7	-30.4	-27.8
Number of Rainy Days	2.0	6.0	2.5
Number of Dry Days	5.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

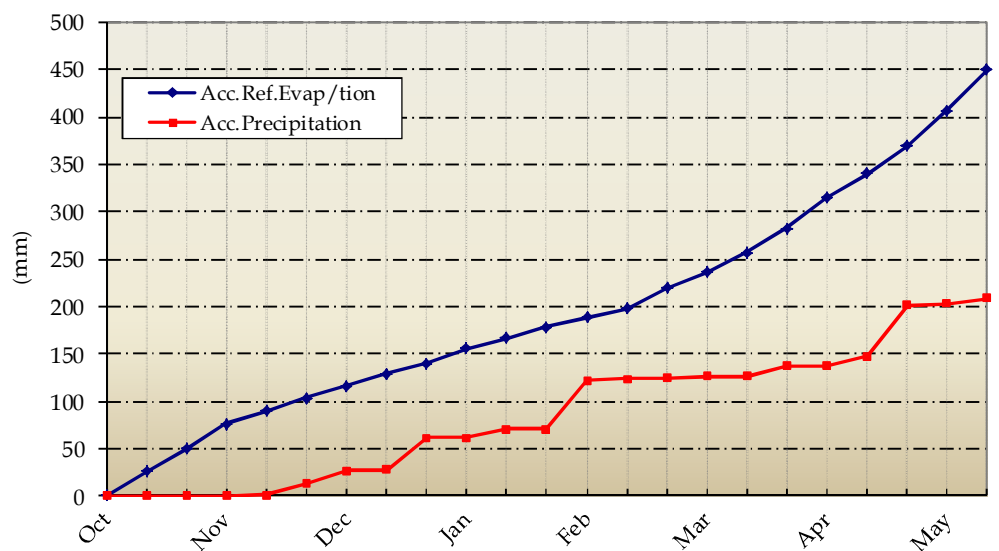


Mikra

1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.0	23.6	25.6	21.2	22.8	22.8	18.4	20.4	18.6	23.0	21.7	25.9	22.7
	Min	10.4	13.2	9.8	12.8	12.4	12.0	11.2	10.0	9.4	10.2	11.1	15.2	10.7
Relative Humidity	Max	68	68	85	84	93	95	76	79	82	85	82	87	-
	Min	29	27	17	57	47	27	30	26	45	36	34	42	-
Soil Temperature at 10 cm	06 UTC	16.2	16.4	16.2	17.4	16.8	16.6	16.2	14.4	15.4	16.0	16.2	20.4	16.9
	12 UTC	19.0	19.2	20.0	18.6	19.4	20.4	17.2	18.2	18.6	20.2	19.1	23.3	21.5
Sunshine Duration		7.0	11.6	9.1	0.0	6.5	4.7	9.0	11.6	4.1	10.7	7.4	7.1	7.9
Precipitation					0.0	2.9		2.3				5.2	54.4	12.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	55.3	53.6
Growing Degrees	5	10.7	13.4	12.7	12.0	12.6	12.4	9.8	10.2	9.0	11.6	114.4	155.5	116.7
	10	5.7	8.4	7.7	7.0	7.6	7.4	4.8	5.2	4.0	6.6	64.4	105.5	66.7

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.2	40.0	38.0
Precipitation - Reference Evapotranspiration	-38.0	14.4	-25.1
Number of Rainy Days	2.0	5.0	2.6
Number of Dry Days	7.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



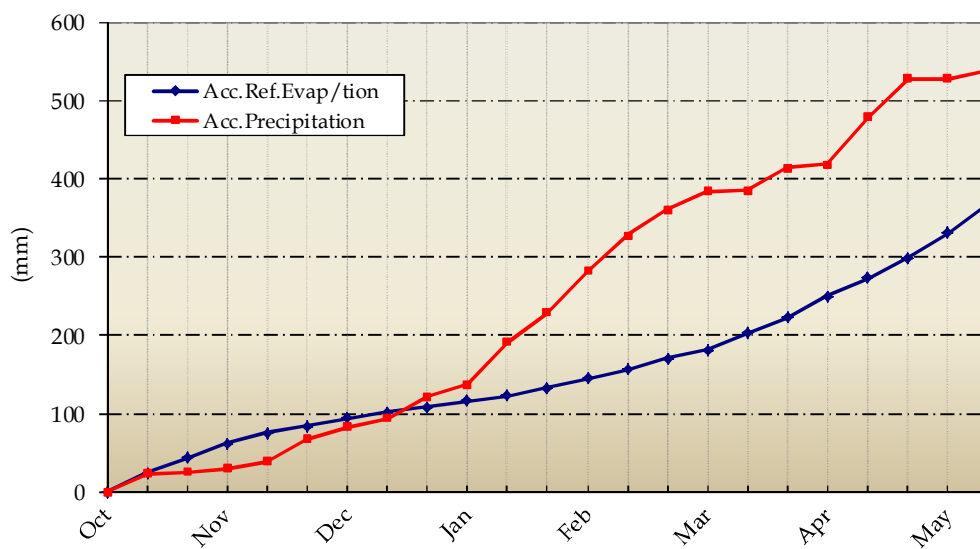


Tanagra

1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	22.1	24.8	16.8	23.8	23.4	19.4	19.7	23.2	24.1	21.8	25.9	22.9
	Min	7.0	6.9	8.5	9.5	12.4	12.3	10.7	10.6	6.6	11.2	9.6	13.6	9.6
Relative Humidity	Max	80	95	97	88	95	76	98	98	100	96	92	94	-
	Min	26	31	29	50	39	23	35	36	36	40	34	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		6.9	10.9	11.8	0.0	6.4	12.1	8.4	11.1	11.3	8.3	8.7	7.3	
Precipitation					2.2			8.7				10.9	23.7	8.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	9.1	9.5	11.7	8.2	13.1	12.9	10.1	10.2	9.9	12.7	107.1	147.4	
	10	4.1	4.5	6.7	3.2	8.1	7.9	5.1	5.2	4.9	7.7	57.1	97.4	

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.6	37.2	
Precipitation - Reference Evapotranspiration	-26.7	-13.5	8.5
Number of Rainy Days	2.0	4.0	2.7
Number of Dry Days	8.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

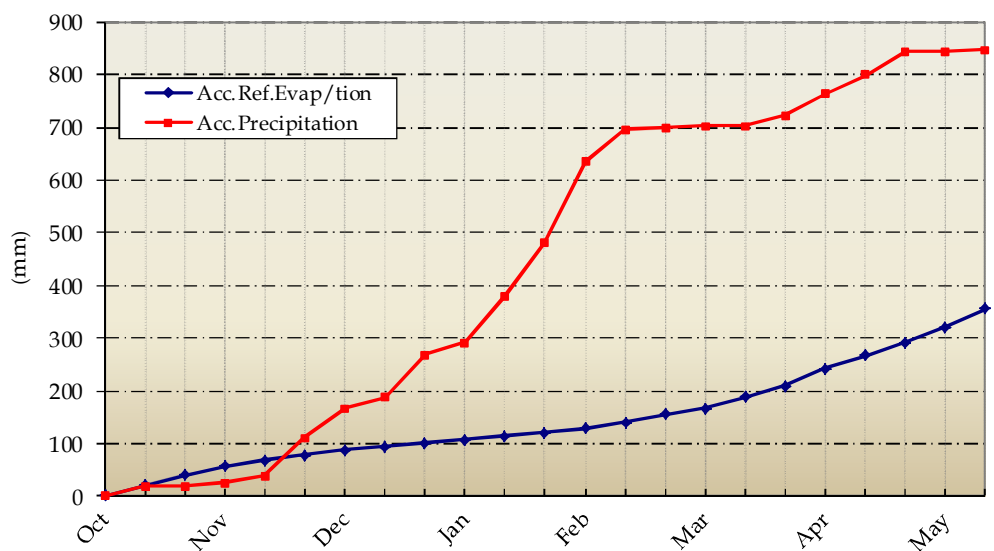


Tripoli

1st 10-day period (1-10/05/2019)		1	2	3	4	5	6	7	8	9	10	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	18.5	21.2	14.7	19.6	16.5	14.6	17.7	19.8	20.9	18.0	22.3	21.0
	Min	3.4	2.1	3.1	8.8	6.3	9.5	6.8	1.6	3.0	8.5	5.3	9.7	7.0
Relative Humidity	Max	90	95	97	95	98	93	96	97	99	98	96	99	-
	Min	33	35	25	60	52	29	42	37	27	38	38	44	-
Soil Temperature at 10 cm	06 UTC	-	11.2	12.8	-	-	14.0	-	11.2	12.8	15.6	12.9	18.9	14.6
	12 UTC	-	20.8	23.4	-	-	21.0	-	20.0	22.8	22.4	21.7	22.2	17.1
Sunshine Duration		6.2	9.7	12.4	1.3	10.4	10.1	11.5	11.0	9.5	9.1	9.1	6.1	8.1
Precipitation		0.0			1.8	0.2	0.0	1.5				3.5	24.0	10.2
Evaporation		-	3.0	-	-	0.7	-	4.6	3.6	5.3	-	-	-	39.1
Growing Degrees	5	5.2	5.3	7.2	6.8	8.0	8.0	5.7	4.7	6.4	9.7	66.8	110.0	89.7
	10	0.2	0.3	2.2	1.8	3.0	3.0	0.7	0.0	1.4	4.7	17.2	60.0	40.9

1st 10-day period (1-10/05/2019)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.3	31.6	36.7
Precipitation - Reference Evapotranspiration	-31.8	-7.6	-26.5
Number of Rainy Days	3.0	7.0	2.8
Number of Dry Days	10.0	0.0	-

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<sub>n</sub> 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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