



AGROMETEOROLOGICAL BULLETIN

*January 2016
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



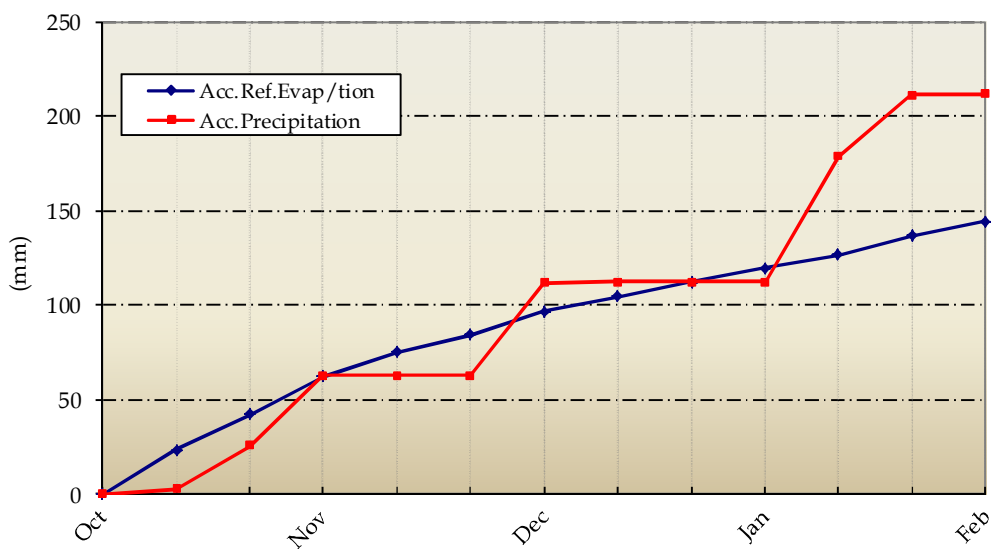
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3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.8	6.0	3.0	3.2	3.4	7.6	7.8	12.6	14.6	15.6	14.6	8.7	13.2	8.8
	Min	-1.4	-0.6	-3.0	-7.6	-5.8	-5.2	-4.4	5.2	5.4	6.0	2.4	-0.8	8.2	1.4
Relative Humidity	Max	89	64	73	91	85	96	91	96	97	97	94	88	94	-
	Min	46	27	31	36	39	69	62	77	76	62	78	55	71	-
Soil Temperature at 10 cm	06 UTC	3.4	3.0	1.6	0.6	0.4	0.6	0.6	4.0	6.0	8.0	6.6	3.2	8.9	4.6
	12 UTC	5.2	4.8	2.4	1.0	1.0	1.4	3.0	7.2	9.2	10.4	9.0	5.0	10.5	5.8
Sunshine Duration		8.6	7.4	8.6	8.0	6.3	2.3	1.2	1.6	3.7	7.7	2.2	5.2	1.8	3.3
Precipitation							0.7						0.7	167.2	16.6
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.8	3.0	6.9	19.0	10.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	5.0	5.8	3.5	18.2	62.7	16.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.8	17.5	2.2

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.9	11.2	10.8
Precipitation - Reference Evapotranspiration	-7.2	156.0	5.8
Number of Rainy Days	1.0	9.0	2.7
Number of Dry Days	8.0	8.0	-

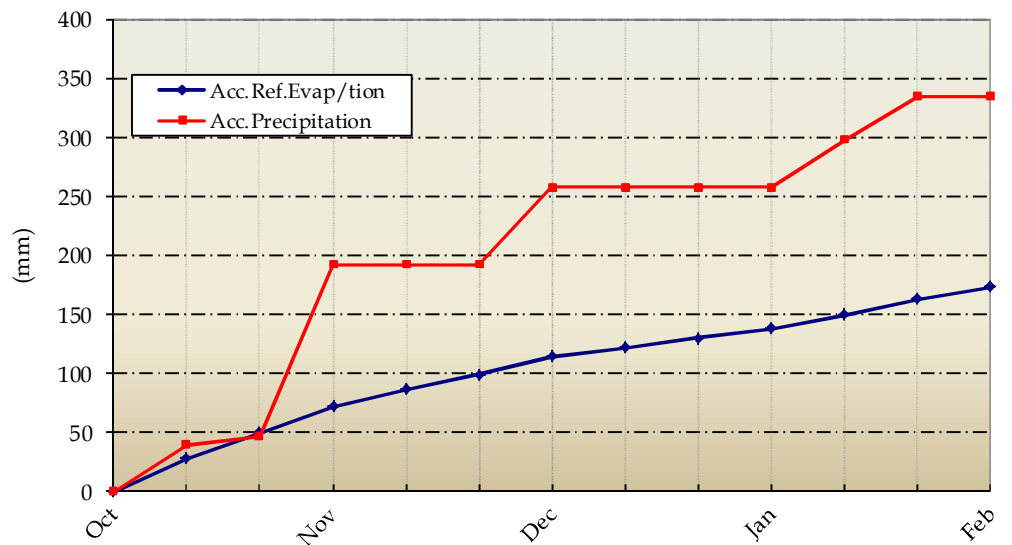
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.2	12.8	11.5	10.0	11.6	13.6	17.0	16.5	16.3	16.0	17.3	14.2	15.5	14.0
	Min	0.6	2.7	2.0	-2.0	-1.6	2.5	1.4	3.5	8.0	4.8	6.6	2.6	8.4	5.3
Relative Humidity	Max	91	90	91	87	86	89	89	91	90	92	86	89	88	-
	Min	51	55	42	34	32	54	38	58	65	56	58	49	58	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.5	8.6
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	11.6	10.2
Sunshine Duration		8.3	2.8	7.7	8.1	8.2	7.9	8.0	3.6	4.4	8.3	3.4	6.4	2.4	4.8
Precipitation														131.0	33.1
Evaporation		2.4	4.0	0.8	1.0	1.2	3.0	1.0	1.0	1.0	2.0	1.0	18.4	28.6	18.6
Growing Degrees	5	1.9	2.8	1.8	0.0	0.0	3.1	4.2	5.0	7.2	5.4	7.0	38.2	76.2	51.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.4	2.0	4.5	21.4	9.9

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.4	15.6	11.9
Precipitation - Reference Evapotranspiration	-10.4	115.4	21.2
Number of Rainy Days	0.0	10.0	4.6
Number of Dry Days	11.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

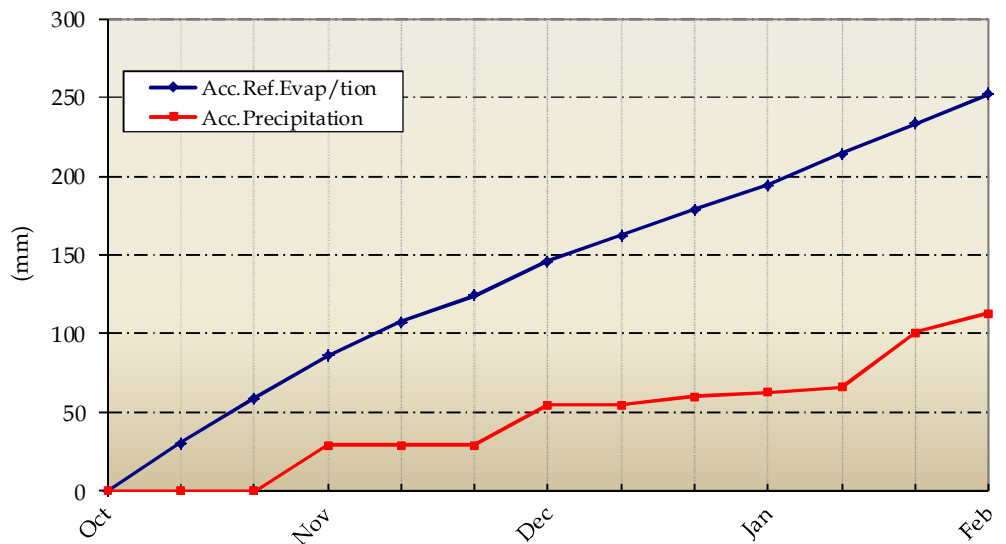


Iraklio

3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	13.0	9.0	8.0	8.6	12.6	11.2	16.2	17.4	16.8	16.6	13.1	18.2	15.0
	Min	10.0	9.4	9.0	7.0	8.0	8.0	9.6	4.8	8.8	13.4	9.4	8.9	11.1	8.9
Relative Humidity	Max	92	89	79	55	71	86	79	84	86	92	92	82	81	-
	Min	61	59	48	44	50	50	51	60	51	73	54	55	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		2.6	0.7	0.0	1.4	0.0	5.2	3.0	8.1	7.8	2.3	8.1	3.6	5.4	4.0
Precipitation		5.0	3.0	0.0		0.3	3.2	0.6					12.1	16.5	25.2
Evaporation		0.2	3.3	3.0	2.3	3.9	0.7	1.9	0.9	2.4	2.0	0.4	21.0	23.4	29.5
Growing Degrees	5	7.1	6.2	4.0	2.5	3.3	5.3	5.4	5.5	8.1	10.1	8.0	65.5	105.9	76.7
	10	2.1	1.2	0.0	0.0	0.0	0.3	0.4	0.5	3.1	5.1	3.0	15.7	50.9	23.4

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.4	24.8	-
Precipitation - Reference Evapotranspiration	-6.3	-8.3	25.2
Number of Rainy Days	5.0	7.0	4.4
Number of Dry Days	0.0	9.0	-

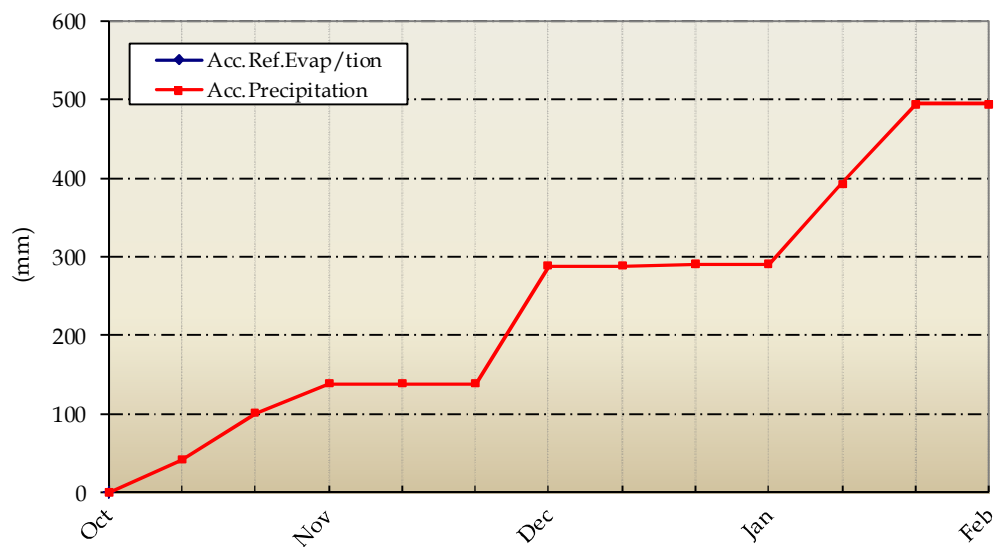
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.4	10.0	7.4	8.5	9.6	13.8	15.0	11.4	12.8	15.8	13.4	11.6	10.7	9.3
	Min	-5.6	-2.2	-6.0	-8.1	-6.2	-4.6	0.0	-0.7	5.3	-2.6	-2.4	-3.0	4.3	0.7
Relative Humidity	Max	100	100	97	96	90	98	100	100	100	100	100	98	100	-
	Min	39	29	33	26	32	47	52	74	60	-	48	44	68	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
Sunshine Duration		-	7.0	-	6.9	6.9	6.4	6.9	-	0.0	-	3.7	5.4	2.0	3.1
Precipitation			0.0										0.0	149.9	37.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.4	4.1	1.6	0.5	9.0	27.4	13.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	8.6
Precipitation - Reference Evapotranspiration	-	-	28.6
Number of Rainy Days	0.0	10.0	4.3
Number of Dry Days	13.0	0.0	-

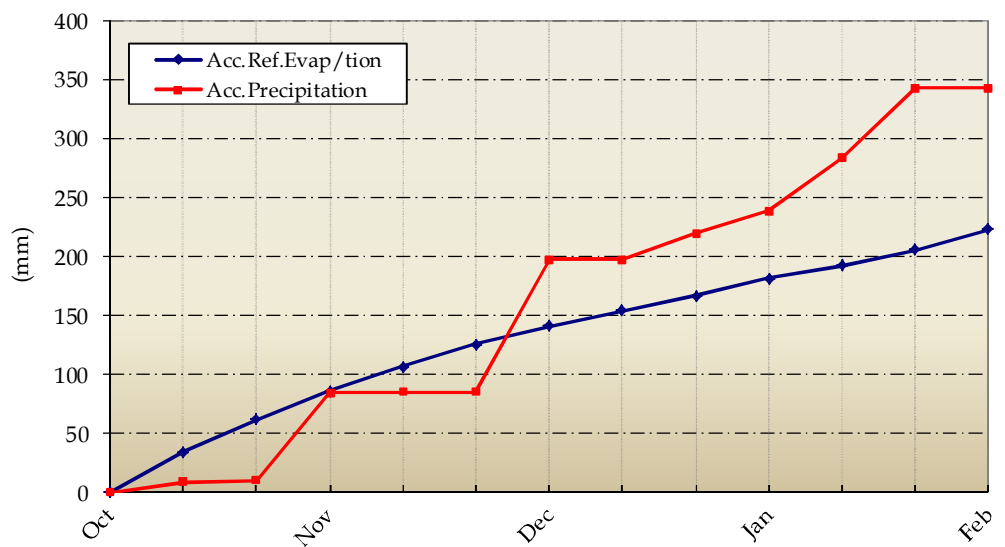
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.2	15.3	13.4	13.2	13.4	15.5	17.7	18.4	19.2	19.4	17.9	16.2	15.9	14.8
	Min	2.4	2.9	4.9	1.4	3.3	-1.2	4.0	4.8	7.0	6.5	4.0	3.6	7.5	5.3
Relative Humidity	Max	92	88	82	82	80	86	92	93	93	92	92	88	94	-
	Min	43	50	38	19	27	48	43	49	45	33	50	40	62	-
Soil Temperature at 10 cm	06 UTC	9.4	9.0	10.0	8.8	8.8	8.4	9.0	10.0	10.2	11.4	10.2	9.6	11.0	9.0
	12 UTC	10.0	10.2	10.2	9.2	9.6	8.8	10.0	10.6	11.6	12.4	12.4	10.5	11.3	10.3
Sunshine Duration		8.5	4.9	6.5	8.5	8.2	8.0	8.0	8.7	8.0	8.5	7.7	7.8	2.4	4.4
Precipitation			0.2										0.2	137.5	36.5
Evaporation		1.2	1.7	0.7	2.4	2.2	1.9	1.7	1.4	4.6	2.2	1.8	21.8	-	21.4
Growing Degrees	5	3.8	4.1	4.2	2.3	3.4	2.2	5.9	6.6	8.1	8.0	6.0	54.3	73.8	55.6
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.6	3.1	3.0	1.0	9.5	19.5	9.3

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.4	14.7	13.4
Precipitation - Reference Evapotranspiration	-17.2	122.8	23.1
Number of Rainy Days	1.0	9.0	4.7
Number of Dry Days	1.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

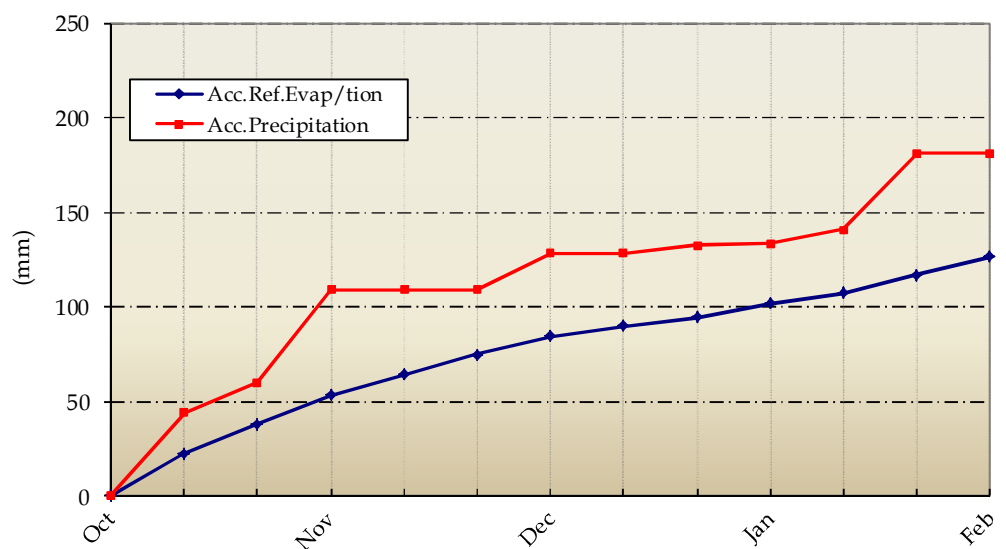


Larisa

3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.2	22.2	5.1	5.4	8.3	12.0	14.3	16.2	17.1	17.2	17.1	12.8	14.3	10.7
	Min	-2.7	19.4	-2.0	-6.6	-2.4	-2.6	0.6	-0.2	-0.8	2.6	0.2	0.5	4.7	1.2
Relative Humidity	Max	90	100	80	100	100	100	100	100	100	100	100	97	100	-
	Min	70	42	39	43	42	71	51	52	48	39	45	49	67	-
Soil Temperature at 10 cm	06 UTC	6.0	6.0	6.2	5.2	1.4	3.0	6.0	6.2	7.0	7.2	7.6	5.6	-	5.5
	12 UTC	6.0	6.2	6.2	5.2	11.0	5.0	6.0	6.6	7.2	7.6	8.0	6.8	-	6.2
Sunshine Duration		2.6	1.3	1.7	5.9	6.7	5.8	6.8	7.5	6.8	6.9	6.2	5.3	2.2	3.5
Precipitation														12.1	10.7
Evaporation		-	0.0	0.0	0.0	0.0	0.0	2.8	1.5	0.5	2.0	1.0	-	12.4	7.0
Growing Degrees	5	0.0	15.8	0.0	0.0	0.0	0.0	2.5	3.0	3.2	4.9	3.7	33.0	49.5	18.5
	10	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	8.4	1.5

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.8	9.5	8.6
Precipitation - Reference Evapotranspiration	-9.8	2.6	2.1
Number of Rainy Days	0.0	6.0	3.0
Number of Dry Days	11.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

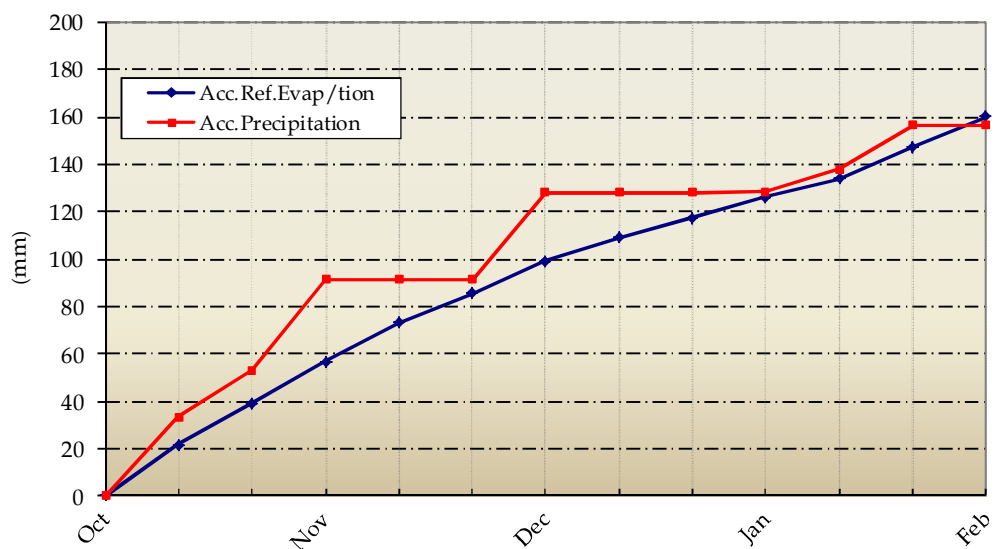


Mikra

3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.9	7.2	4.4	5.6	8.2	13.2	11.8	14.1	16.1	17.4	13.6	11.0	12.8	9.8
	Min	0.8	2.6	-2.2	-6.4	-2.0	-1.8	3.6	2.3	1.8	2.3	4.2	0.5	7.1	1.9
Relative Humidity	Max	93	77	82	90	81	85	92	96	96	93	93	89	93	-
	Min	44	29	35	29	35	49	65	51	48	25	59	43	68	-
Soil Temperature at 10 cm	06 UTC	4.2	4.4	2.6	1.6	2.2	2.6	5.2	5.4	6.0	6.4	7.2	4.3	9.1	5.1
	12 UTC	5.4	5.0	3.4	3.6	4.4	5.4	7.0	7.6	7.8	8.6	9.0	6.1	10.1	6.5
Sunshine Duration		8.1	7.3	8.2	8.0	7.2	7.4	5.9	7.6	8.0	8.7	6.9	7.6	2.5	3.5
Precipitation		0.0											0.0	29.5	11.8
Evaporation		0.0	0.0	0.0	0.0	0.0	2.1	0.3	1.1	2.1	2.8	0.4	8.8	8.2	12.6
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.7	2.7	3.2	4.0	4.9	3.9	19.3	54.7	18.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	1.5

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.9	10.9	9.9
Precipitation - Reference Evapotranspiration	-12.9	18.6	1.9
Number of Rainy Days	0.0	8.0	3.3
Number of Dry Days	13.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

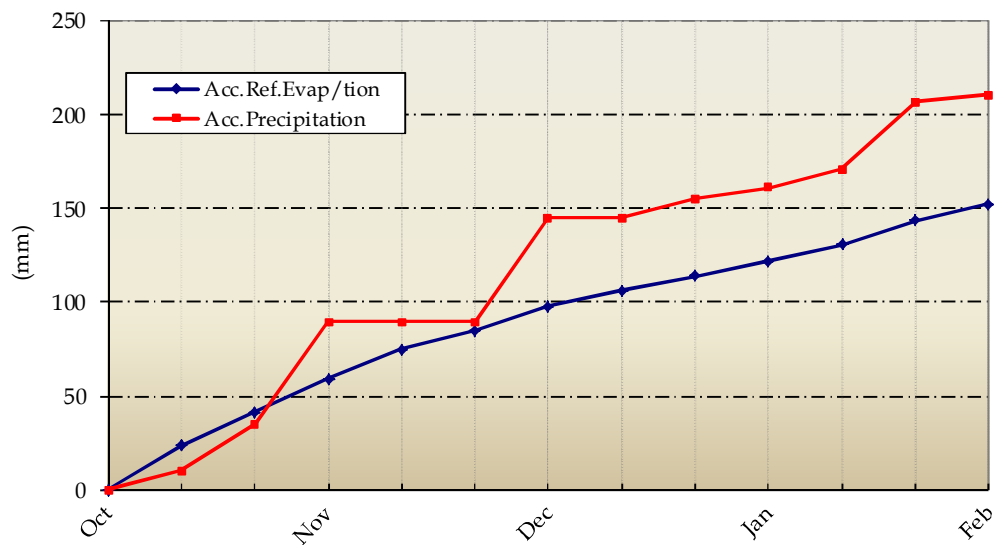


Tanagra

3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.7	8.8	3.9	5.4	3.4	9.8	12.6	18.1	17.2	15.6	17.5	11.2	14.9	11.7
	Min	2.8	0.0	2.6	1.6	0.0	-4.0	1.2	0.9	2.9	8.4	2.2	1.7	5.0	3.1
Relative Humidity	Max	100	100	97	84	100	100	100	100	100	100	100	98	97	-
	Min	61	52	74	47	63	58	56	45	46	49	41	54	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.1	5.6	0.4	3.5	0.0	0.7	6.8	7.5	7.7	7.4	6.8	4.7	3.3	
Precipitation				2.2		1.3							3.5	12.9	24.3
Evaporation		0.7	1.8	1.0	1.5	0.3	1.2	1.4	2.5	2.5	1.0	2.8	16.7	16.8	
Growing Degrees	5	1.8	0.0	0.0	0.0	0.0	0.0	1.9	4.5	5.1	7.0	4.9	25.1	54.4	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0	0.0	2.1	13.6	

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.1	12.3	
Precipitation - Reference Evapotranspiration	-5.6	0.6	24.3
Number of Rainy Days	2.0	3.0	5.1
Number of Dry Days	2.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

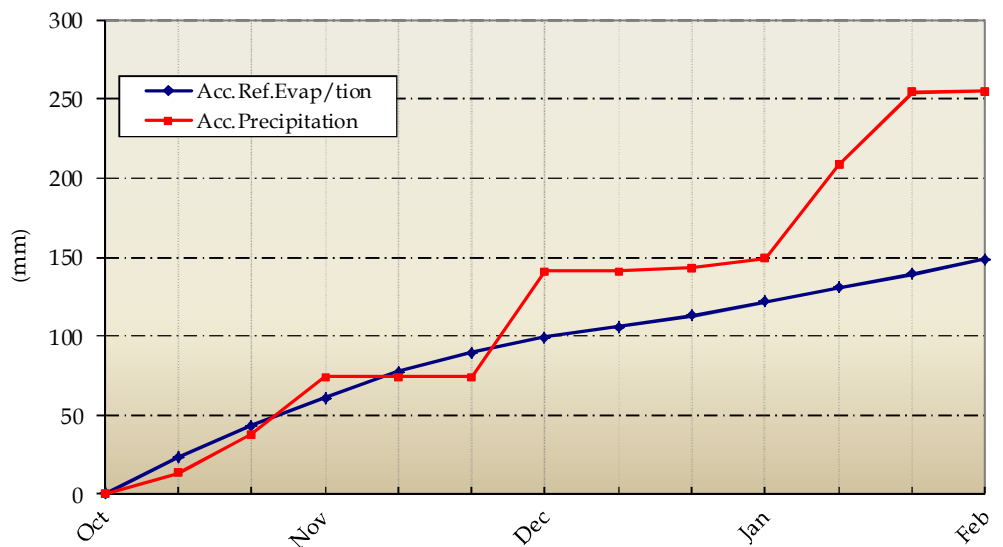


Tripoli

3rd 10-day period (21-31/01/2016)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.8	7.8	2.8	4.4	7.1	13.0	13.2	17.5	15.1	15.0	16.0	11.1	10.8	9.8
	Min	0.4	-1.7	1.5	-4.7	-4.4	-6.3	-0.7	-2.3	-0.4	1.6	-2.5	-1.8	2.4	0.9
Relative Humidity	Max	100	100	70	94	98	100	100	100	100	100	100	97	100	-
	Min	62	67	69	47	39	42	40	41	50	38	40	49	66	-
Soil Temperature at 10 cm	06 UTC	3.4	2.8	-	-	1.8	1.6	3.4	3.0	3.6	5.6	4.2	3.3	5.9	4.6
	12 UTC	6.4	5.8	-	-	4.2	4.8	6.8	7.0	7.4	-	-	6.1	7.5	5.4
Sunshine Duration		6.0	3.2	4.9	2.8	6.6	7.3	7.8	8.0	7.9	7.1	7.9	6.3	2.3	4.0
Precipitation		0.2											0.2	109.6	32.5
Evaporation		0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.5	0.8	0.8	1.3	4.3	-	8.6
Growing Degrees	5	0.1	0.0	0.0	0.0	0.0	0.0	1.3	2.6	2.4	3.3	1.8	11.4	18.4	14.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

3rd 10-day period (21-31/01/2016)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.5	9.0	11.0
Precipitation - Reference Evapotranspiration	-9.3	100.6	21.5
Number of Rainy Days	1.0	10.0	4.6
Number of Dry Days	0.0	8.0	-

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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Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens