



AGROMETEOROLOGICAL BULLETIN

*January 2018
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



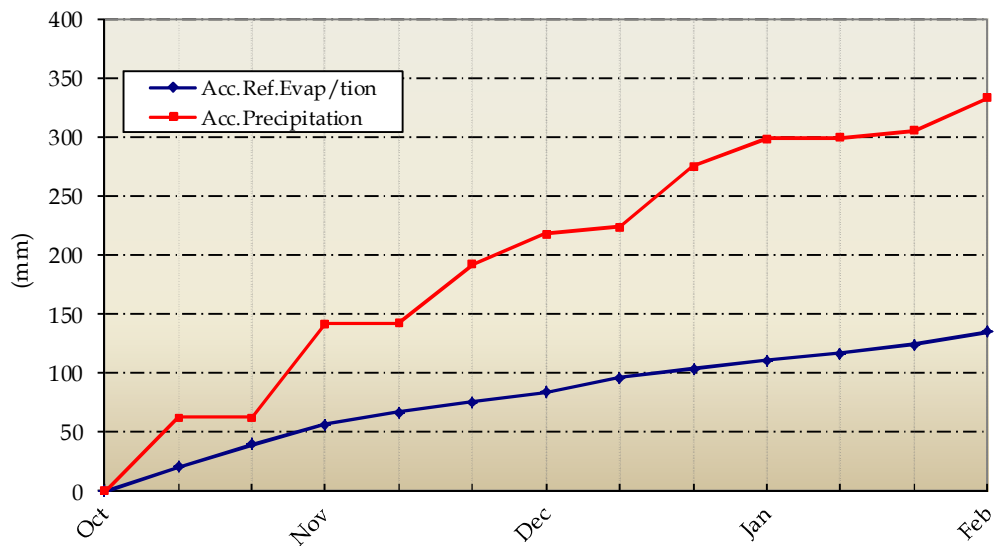
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

*Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
www.meteohellas.gr*

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	9.8	8.2	4.6	7.2	7.0	8.4	8.2	11.2	13.4	14.8	9.7	5.2	8.8
	Min	4.8	6.8	3.0	0.2	-0.6	-1.8	-3.0	-4.0	-3.6	-0.2	0.0	0.1	-1.5	1.4
Relative Humidity	Max	97	91	75	64	88	82	92	96	96	96	96	88	83	-
	Min	80	48	49	31	42	37	42	53	49	74	37	49	51	-
Soil Temperature at 10 cm	06 UTC	7.8	7.8	5.2	3.2	2.4	2.2	1.8	2.4	2.6	3.8	4.0	3.9	2.5	4.6
	12 UTC	8.0	7.6	7.2	4.0	4.0	3.8	4.6	5.0	5.6	6.6	7.2	5.8	3.7	5.8
Sunshine Duration		0.0	0.0	5.5	8.8	8.1	8.9	8.9	7.4	7.3	7.2	8.6	6.4	4.3	3.3
Precipitation		20.8	7.2										28.0		16.6
Evaporation		3.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	4.5	10.0
Growing Degrees	5	4.5	3.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6	2.4	12.4	0.0	16.7
	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	2.2

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.0	9.7	10.8
Precipitation - Reference Evapotranspiration	17.0	-9.7	5.8
Number of Rainy Days	2.0	0.0	2.7
Number of Dry Days	0.0	11.0	-

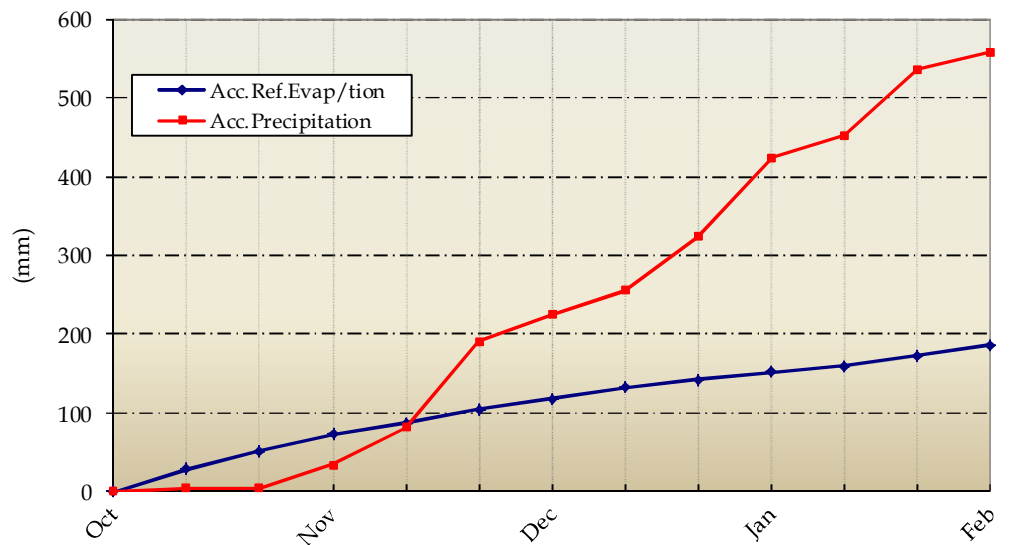
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.0	12.9	12.9	11.8	10.8	12.2	13.4	14.6	14.8	13.8	15.8	13.4	13.0	14.0
	Min	10.6	10.4	1.9	5.1	0.0	1.0	0.6	1.2	3.3	6.0	7.0	4.3	3.0	5.3
Relative Humidity	Max	91	86	86	68	82	85	87	90	89	87	88	85	88	-
	Min	85	45	35	42	37	42	53	62	59	62	55	52	51	-
Soil Temperature at 10 cm	06 UTC	11.6	11.2	8.8	9.4	7.8	7.0	7.7	8.0	8.4	9.4	10.0	9.0	7.7	8.6
	12 UTC	11.8	11.2	9.8	10.0	11.6	9.0	8.8	9.4	11.0	10.0	11.4	10.4	11.8	10.2
Sunshine Duration		0.0	7.6	4.3	8.1	8.0	8.0	8.0	7.6	8.0	0.0	5.4	5.9	4.8	4.8
Precipitation		16.5	5.3										21.8	10.8	33.1
Evaporation		0.8	3.0	1.0	3.0	2.0	3.0	2.0	3.0	2.0	0.5	3.0	23.3	25.7	18.6
Growing Degrees	5	7.3	6.7	2.4	3.5	0.4	1.6	2.0	2.9	4.1	4.9	6.4	42.1	33.2	51.2
	10	2.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	5.4	0.5	9.9

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.4	10.0	11.9
Precipitation - Reference Evapotranspiration	8.4	0.8	21.2
Number of Rainy Days	2.0	3.0	4.6
Number of Dry Days	2.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

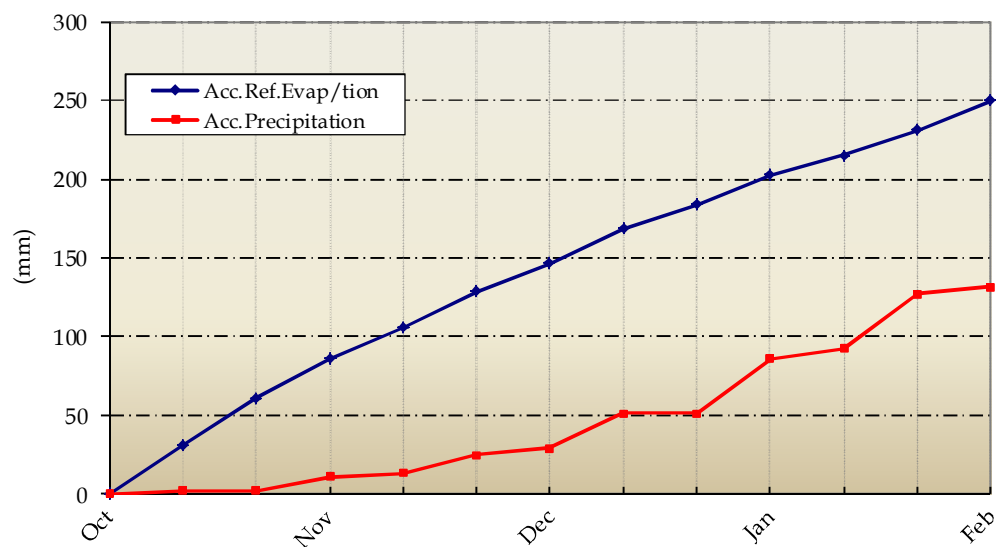


Iraklio

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.8	15.6	13.6	11.0	10.0	11.0	12.4	14.0	15.2	15.4	15.8	13.8	12.1	15.0
	Min	13.2	9.0	11.6	10.0	7.6	8.8	9.0	11.4	11.0	7.8	7.6	9.7	8.9	8.9
Relative Humidity	Max	88	89	85	83	83	75	83	87	87	89	94	86	83	-
	Min	65	62	66	66	59	62	65	67	67	62	72	65	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.1	4.5	3.9	1.6	2.3	1.2	4.6	2.4	7.7	7.9	7.2	4.6	2.3	4.0
Precipitation		0.5	1.9	0.3		1.8							4.5	16.0	25.2
Evaporation		1.8	3.2	4.1	2.4	3.6	3.9	4.2	0.5	2.4	1.9	0.2	28.2	23.4	29.5
Growing Degrees	5	10.5	7.3	7.6	5.5	3.8	4.9	5.7	7.7	8.1	6.6	6.7	74.4	60.4	76.7
	10	5.5	2.3	2.6	0.5	0.0	0.0	0.7	2.7	3.1	1.6	1.7	20.7	8.8	23.4

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.7	17.6	-
Precipitation - Reference Evapotranspiration	-14.2	-1.6	25.2
Number of Rainy Days	4.0	4.0	4.4
Number of Dry Days	6.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

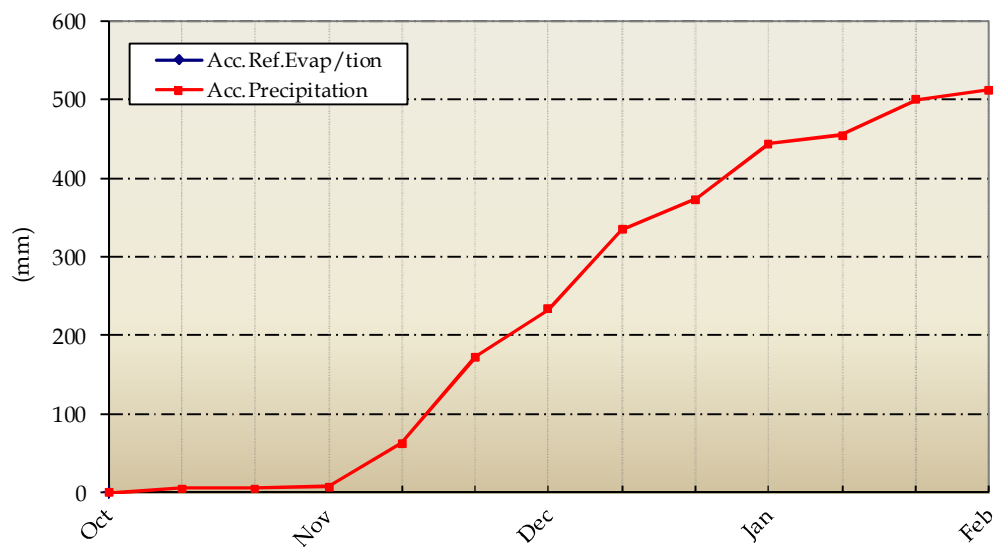


Ioannina

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.4	8.0	9.0	8.6	9.2	10.6	12.0	11.0	13.0	12.6	11.8	10.6	9.0	9.3
	Min	3.2	2.4	-3.6	1.8	-5.2	-5.0	-5.0	-2.2	-3.0	-3.6	-2.0	-2.0	-2.2	0.7
Relative Humidity	Max	100	100	96	97	100	100	100	100	100	100	100	99	100	-
	Min	92	44	51	30	36	46	60	62	45	56	68	54	60	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
Sunshine Duration		0.0	6.8	2.8	7.1	7.2	5.5	4.3	3.5	4.2	6.4	2.5	4.6	1.7	3.1
Precipitation		4.0	8.3										12.3	17.7	37.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
Growing Degrees	5	1.8	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	-	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	-	0.4

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	8.6
Precipitation - Reference Evapotranspiration	-	-	28.6
Number of Rainy Days	2.0	2.0	4.3
Number of Dry Days	0.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.4	14.8	14.3	12.8	12.3	14.5	14.9	15.4	17.9	15.9	17.8	15.3	13.9	14.8
	Min	9.8	9.0	2.0	6.9	5.1	-0.4	0.1	1.9	1.2	3.8	3.0	3.9	4.7	5.3
Relative Humidity	Max	92	93	86	55	86	89	91	93	94	92	92	88	87	-
	Min	57	38	39	31	25	39	43	51	46	51	46	42	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	9.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.3
Sunshine Duration		4.4	7.7	6.6	7.5	8.5	8.2	8.1	8.3	8.3	8.6	8.4	7.7	4.8	4.4
Precipitation		2.9	4.2										7.1	30.3	36.5
Evaporation		0.3	4.6	3.0	3.8	1.6	2.0	2.4	2.0	1.0	5.8	0.0	26.5	18.7	21.4
Growing Degrees	5	8.6	6.9	3.2	4.9	3.7	2.1	2.5	3.7	4.6	4.9	5.4	50.2	47.1	55.6
	10	3.6	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.9	1.6	9.3

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.5	14.6	13.4
Precipitation - Reference Evapotranspiration	-10.4	15.7	23.1
Number of Rainy Days	2.0	7.0	4.7
Number of Dry Days	2.0	3.0	-

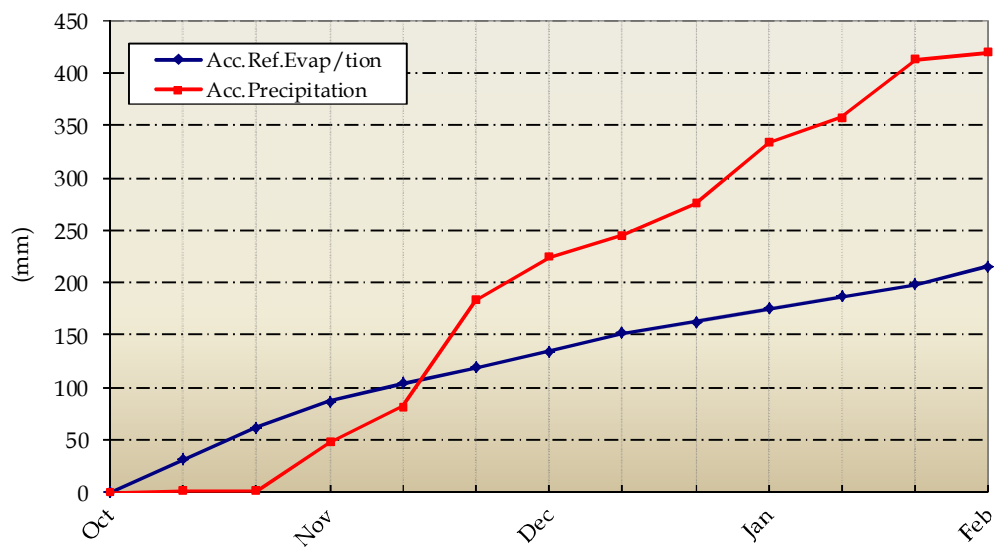


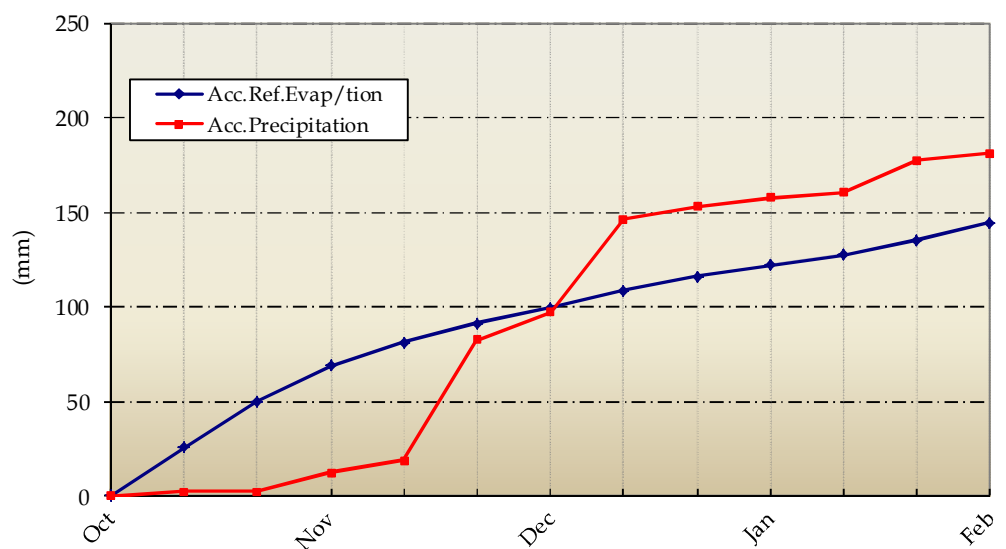
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

Larisa

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.8	11.0	9.0	7.8	8.0	10.1	10.0	12.0	14.6	16.2	15.8	11.4	6.6	10.7
	Min	1.8	5.0	-2.6	4.2	-0.2	-4.2	-0.7	-3.0	-4.2	-1.6	-1.8	-0.7	0.2	1.2
Relative Humidity	Max	100	100	93	69	97	99	100	100	100	100	100	96	99	-
	Min	86	53	46	48	47	51	63	62	51	50	50	55	64	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	5.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	6.2
Sunshine Duration		0.5	8.6	5.6	5.6	7.5	7.6	3.3	7.3	7.2	7.5	7.7	6.2	2.2	3.5
Precipitation		0.8	3.0										3.8	8.2	10.7
Evaporation		0.2	1.2	0.8	3.1	0.8	2.5	1.1	1.0	1.4	1.8	0.9	14.8	3.2	7.0
Growing Degrees	5	1.3	3.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	2.3	2.0	9.8	0.0	18.5
	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	1.5

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.5	6.4	8.6
Precipitation - Reference Evapotranspiration	-5.7	1.8	2.1
Number of Rainy Days	2.0	4.0	3.0
Number of Dry Days	5.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

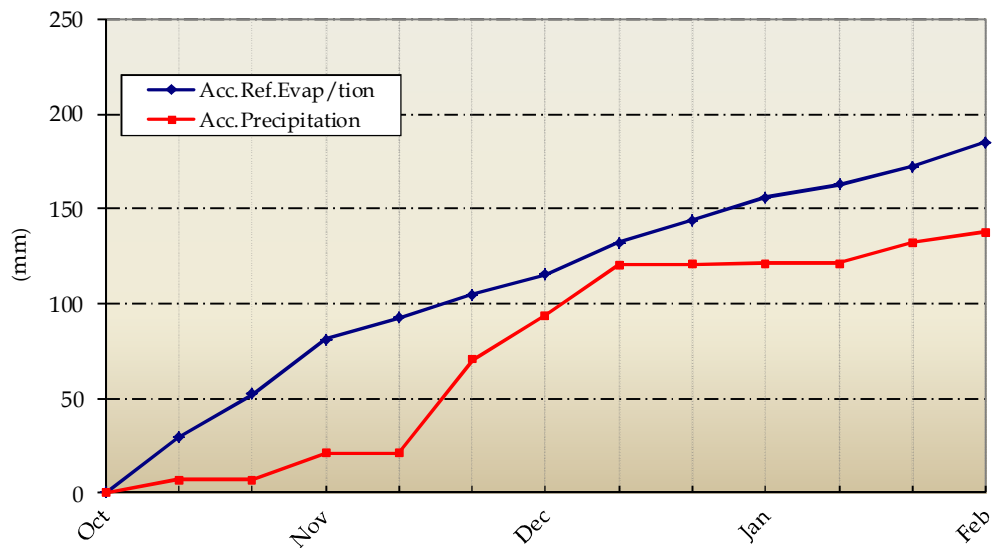


Mikra

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	8.2	9.2	8.6	7.4	8.3	9.7	11.8	16.0	16.0	15.2	10.9	5.8	9.8
	Min	3.0	5.2	-1.1	4.4	-3.5	-2.8	0.9	-1.4	-1.4	-1.0	1.1	0.3	-0.5	1.9
Relative Humidity	Max	87	73	73	73	77	80	83	90	90	76	88	81	92	-
	Min	68	68	35	35	39	49	55	50	37	34	42	47	59	-
Soil Temperature at 10 cm	06 UTC	6.8	6.8	5.0	5.7	4.0	3.5	4.4	4.6	4.6	5.2	6.0	5.1	3.1	5.1
	12 UTC	7.4	6.4	5.6	6.2	5.0	4.6	4.8	5.6	5.8	6.0	6.0	5.8	4.3	6.5
Sunshine Duration		0.0	6.4	7.5	5.3	8.7	8.4	3.9	7.8	8.3	8.5	8.5	6.7	2.9	3.5
Precipitation		0.0	5.6										5.6	4.7	11.8
Evaporation		0.3	4.2	2.8	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.6	8.6	1.8	12.6
Growing Degrees	5	1.5	1.7	0.0	1.5	0.0	0.0	0.3	0.2	2.3	2.5	3.2	13.2	0.0	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	0.0	1.5

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.9	7.4	9.9
Precipitation - Reference Evapotranspiration	-7.3	-2.7	1.9
Number of Rainy Days	1.0	3.0	3.3
Number of Dry Days	3.0	5.0	-

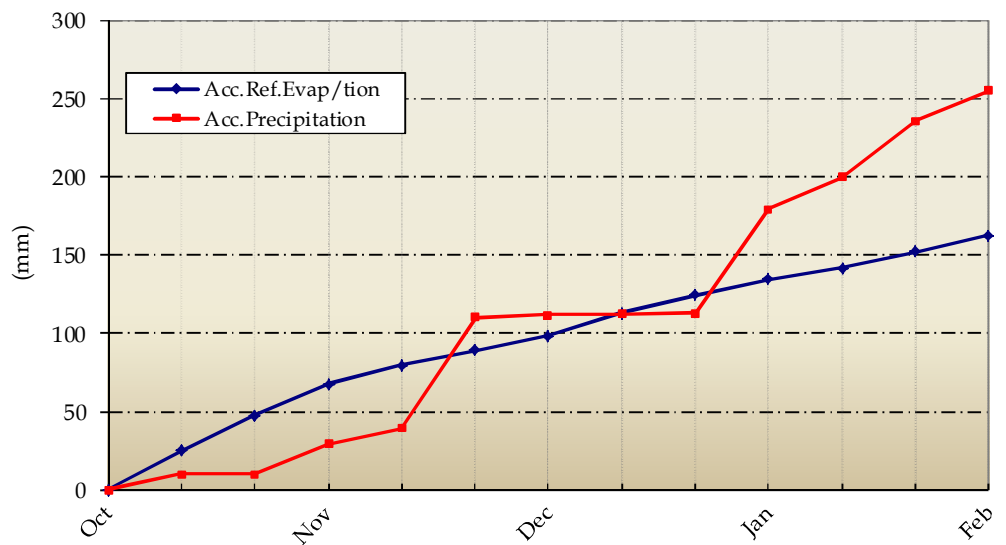
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.0	8.8	7.6	5.8	7.7	9.0	10.2	12.6	15.8	17.6	16.6	11.6	7.4	11.7
	Min	7.7	5.1	2.4	-1.0	3.7	0.4	0.0	1.4	0.4	0.1	3.0	2.1	2.6	3.1
Relative Humidity	Max	100	100	95	94	78	84	99	100	100	100	100	95	97	-
	Min	55	51	59	47	40	48	60	57	40	37	41	49	65	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.6	1.6	0.0	0.0	5.6	7.2	3.6	5.6	8.0	7.8	8.1	4.8	1.5	
Precipitation		0.8	9.7	0.0	9.0								19.5	24.3	24.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	6.9	2.0	0.0	0.0	0.7	0.0	0.1	2.0	3.1	3.9	4.8	23.4	5.1	
	10	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	

3rd 10-day period (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.9	7.8	
Precipitation - Reference Evapotranspiration	8.6	16.5	24.3
Number of Rainy Days	3.0	5.0	5.1
Number of Dry Days	6.0	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

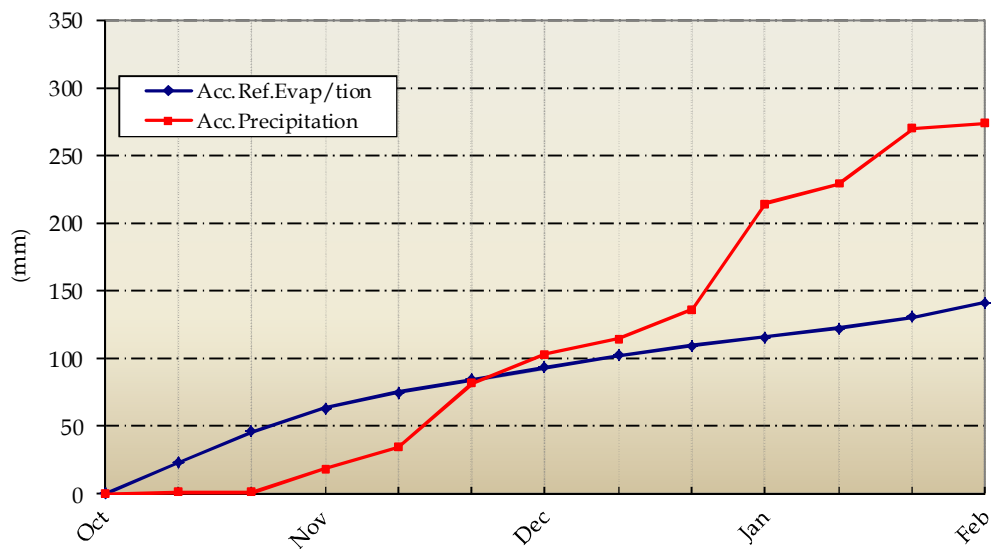


Tripoli

3rd 10-day period (21-31/01/2018)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.8	9.2	8.5	4.6	6.3	10.9	12.8	16.0	17.0	14.4	15.6	11.6	6.1	9.8
	Min	7.0	3.4	-4.0	0.4	-0.7	-6.8	-5.1	-4.7	-5.0	-4.2	-2.9	-2.1	-1.2	0.9
Relative Humidity	Max	100	98	100	100	99	100	100	100	100	100	100	100	99	-
	Min	55	41	39	55	43	34	41	26	18	33	32	38	68	-
Soil Temperature at 10 cm	06 UTC	7.2	7.0	4.0	4.8	3.2	2.2	2.2	2.4	2.6	2.8	3.2	3.8	3.1	4.6
	12 UTC	-	7.8	5.8	5.2	4.2	3.6	-	-	4.8	5.2	5.8	5.3	4.3	5.4
Sunshine Duration		4.6	8.2	6.6	1.7	8.7	7.1	7.1	7.4	7.6	7.7	7.4	6.7	2.3	4.0
Precipitation		2.4	1.2		0.7								4.3	8.9	32.5
Evaporation		0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	2.2	1.4	8.6
Growing Degrees	5	4.9	1.3	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.1	1.4	9.3	0.0	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 (21-31/01/2018)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.6	7.4	11.0
Precipitation - Reference Evapotranspiration	-6.3	1.5	21.5
Number of Rainy Days	3.0	3.0	4.6
Number of Dry Days	2.0	4.0	-

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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