



AGROMETEOROLOGICAL BULLETIN

November 2017
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



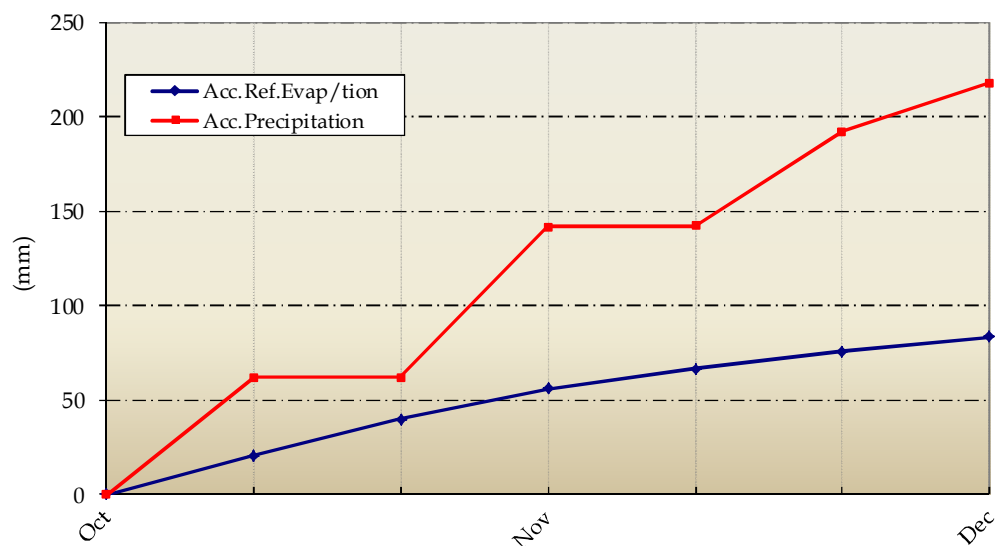
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.8	15.0	16.4	16.6	13.0	14.0	15.0	12.8	12.4	17.2	14.4	12.7	12.8
	Min	2.4	4.4	5.0	4.0	7.4	7.6	8.6	5.2	2.2	3.6	5.0	5.7	5.0
Relative Humidity	Max	83	91	94	97	95	97	98	97	93	97	94	84	-
	Min	33	53	56	75	70	88	85	75	65	80	68	60	-
Soil Temperature at 10 cm	06 UTC	7.0	8.8	8.2	8.4	10.0	9.2	9.4	10.0	7.8	8.0	8.7	9.4	8.6
	12 UTC	9.8	10.4	11.6	11.2	11.6	10.4	11.4	10.6	9.0	10.2	10.6	11.7	10.3
Sunshine Duration		8.8	4.3	8.5	6.0	8.0	1.2	0.0	0.0	6.4	0.0	4.3	1.9	3.2
Precipitation							1.0	20.4	3.4		0.8	25.6	9.5	32.9
Evaporation		2.0	0.6	1.4	1.2	0.9	0.3	1.0	0.7	0.7	1.6	10.4	14.3	16.3
Growing Degrees	5	2.1	4.7	5.7	5.3	5.2	5.8	6.8	4.0	2.3	5.4	47.3	43.3	42.5
	10	0.0	0.0	0.7	0.3	0.2	0.8	1.8	0.0	0.0	0.4	4.2	7.0	11.5

3rd 10-day period (21-30/11/2017)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.2	9.6
Precipitation - Reference Evapotranspiration	17.4	-0.1
Number of Rainy Days	4.0	3.0
Number of Dry Days	5.0	16.0

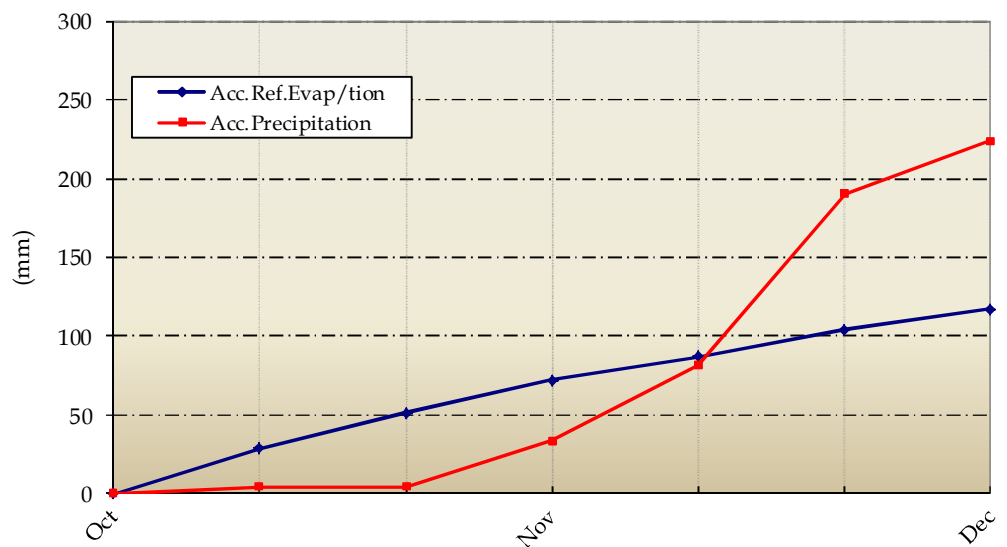
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.9	16.6	17.2	17.8	18.0	18.0	15.9	13.6	14.6	19.5	16.6	17.6	17.0
	Min	4.9	5.8	5.9	7.6	8.8	7.8	10.6	8.5	6.4	11.6	7.8	8.4	8.6
Relative Humidity	Max	81	81	85	88	86	89	92	89	91	84	87	92	-
	Min	33	50	54	61	41	61	49	51	47	69	52	59	-
Soil Temperature at 10 cm	06 UTC	12.8	10.8	12.0	12.0	13.0	13.0	13.2	12.2	11.8	13.0	12.4	-	11.7
	12 UTC	16.4	13.6	12.8	14.0	14.0	14.0	14.4	13.6	12.8	14.0	14.0	-	13.4
Sunshine Duration		8.4	7.7	8.0	7.7	2.6	3.0	1.4	1.5	5.7	0.0	4.6	2.7	4.6
Precipitation							1.4	21.4	8.2		2.6	33.6	144.4	62.9
Evaporation		5.0	4.0	3.0	4.0	3.0	0.1	3.0	8.0	3.5	3.0	36.6	20.0	20.2
Growing Degrees	5	4.9	6.2	6.6	7.7	8.4	7.9	8.3	6.1	5.5	10.6	72.0	80.4	78.3
	10	0.0	1.2	1.6	2.7	3.4	2.9	3.3	1.1	0.5	5.6	22.1	30.8	31.1

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	13.2	9.3	10.9
Precipitation - Reference Evapotranspiration	20.4	135.1	52.0
Number of Rainy Days	4.0	5.0	5.0
Number of Dry Days	5.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

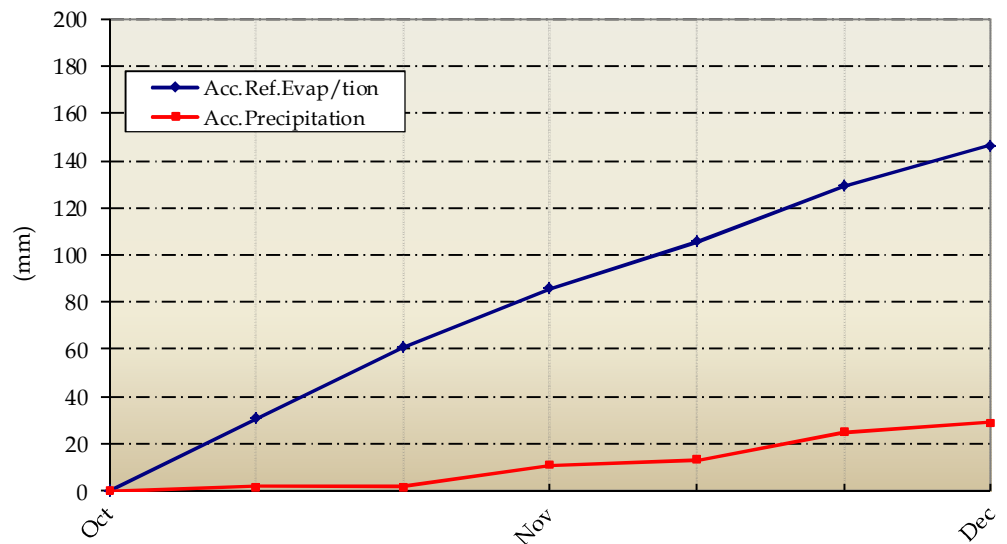


Iraklio

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.8	18.0	20.0	19.0	18.8	19.4	18.8	17.4	18.2	20.8	18.6	19.4	18.8
	Min	13.6	7.8	10.4	10.6	12.2	12.8	13.0	12.0	12.4	12.4	11.7	14.9	12.7
Relative Humidity	Max	72	84	92	87	88	88	87	86	78	78	84	84	-
	Min	40	50	50	64	70	54	59	52	53	54	55	60	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		5.7	7.9	7.7	6.9	0.2	7.8	2.3	4.6	5.9	8.0	5.7	3.1	4.6
Precipitation		0.2						3.6	0.2			4.0	55.7	25.7
Evaporation		4.2	0.4	1.6	2.0	2.0	2.2	0.6	1.4	2.9	3.8	21.1	23.1	32.4
Growing Degrees	5	9.7	7.9	10.2	9.8	10.5	11.1	10.9	9.7	10.3	11.6	101.7	121.5	107.2
	10	4.7	2.9	5.2	4.8	5.5	6.1	5.9	4.7	5.3	6.6	51.7	71.5	57.3

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.4	17.2	-
Precipitation - Reference Evapotranspiration	-13.4	38.5	25.7
Number of Rainy Days	3.0	1.0	3.7
Number of Dry Days	2.0	14.0	-

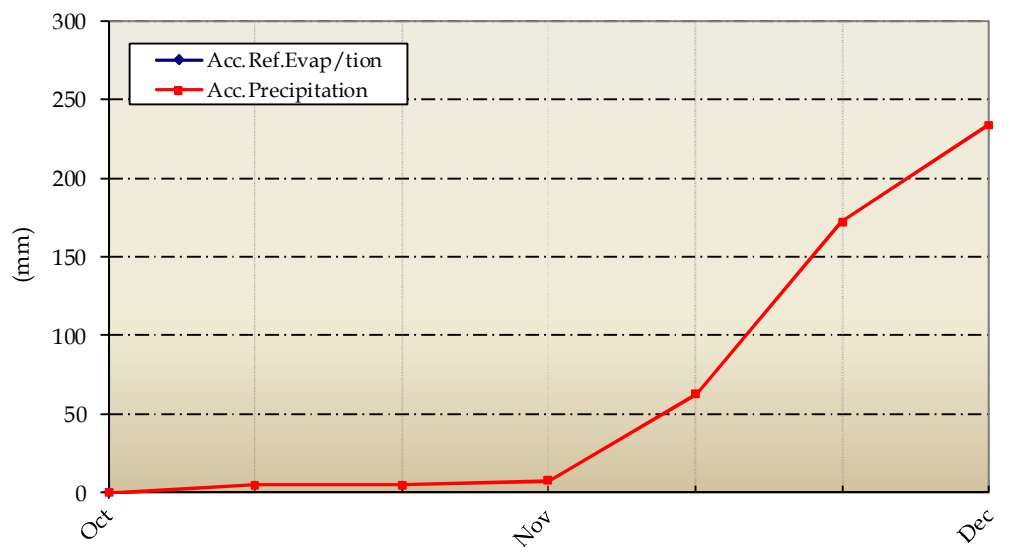
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	13.0	14.8	13.4	12.4	12.4	11.6	9.8	7.4	13.2	11.9	12.6	12.0
	Min	-2.0	-3.6	-3.0	-1.8	-1.0	3.8	6.8	1.0	-5.0	5.8	0.1	2.4	3.6
Relative Humidity	Max	92	100	100	98	100	100	100	100	100	100	99	97	-
	Min	39	36	41	52	63	82	90	45	74	91	61	61	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	7.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.3
Sunshine Duration		6.7	6.1	6.2	4.2	2.5	1.1	0.4	5.9	1.3	0.0	3.4	2.5	2.6
Precipitation							1.0	13.2	0.1	0.0	47.1	61.4	20.3	57.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	9.5
Growing Degrees	5	0.0	0.0	0.9	0.8	0.7	3.1	4.2	0.4	0.0	4.5	14.6	25.8	31.9
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	4.7

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	6.7
Precipitation - Reference Evapotranspiration	-	-	50.3
Number of Rainy Days	4.0	5.0	5.1
Number of Dry Days	5.0	10.0	-

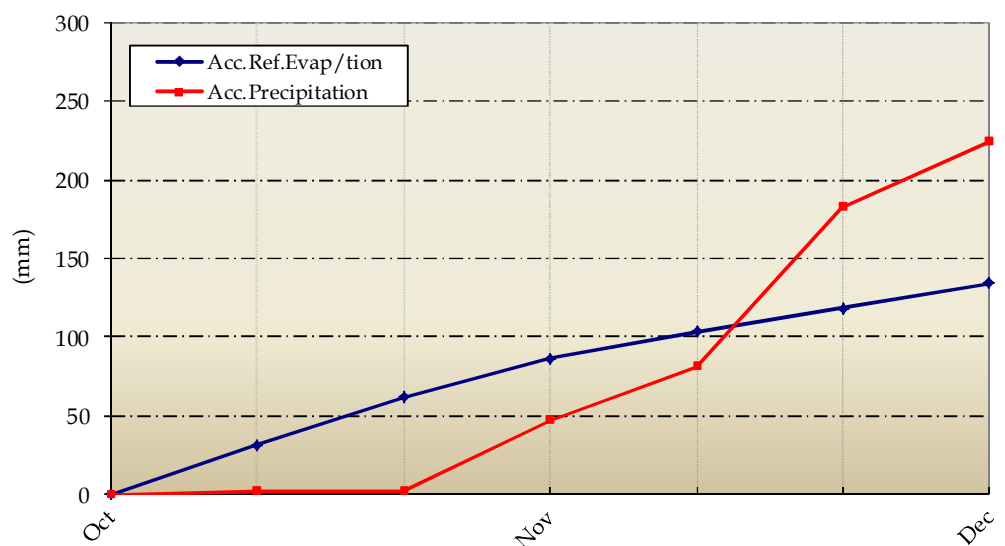
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	19.2	19.4	19.2	20.1	20.5	15.4	13.2	17.5	20.2	18.2	18.5	18.0
	Min	2.9	3.2	6.2	6.8	7.2	6.8	11.2	6.4	4.3	7.4	6.2	9.7	8.3
Relative Humidity	Max	88	83	88	89	90	90	93	91	93	92	90	91	-
	Min	22	34	33	43	40	39	69	59	42	64	44	59	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	13.9
Sunshine Duration		8.6	8.9	8.7	6.3	8.2	7.3	0.0	5.8	6.2	3.0	6.3	3.4	4.3
Precipitation								38.2	2.2	0.2	1.1	41.7	79.5	54.0
Evaporation		1.5	1.8	2.6	1.5	1.5	1.7	0.0	1.4	0.1	2.0	14.1	9.5	26.0
Growing Degrees	5	4.9	6.2	7.8	8.0	8.7	8.7	8.3	4.8	5.9	8.8	72.0	91.2	81.4
	10	0.0	1.2	2.8	3.0	3.7	3.7	3.3	0.0	0.9	3.8	22.3	41.5	33.0

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	15.6	11.4	12.1
Precipitation - Reference Evapotranspiration	26.1	68.1	41.9
Number of Rainy Days	4.0	5.0	4.8
Number of Dry Days	6.0	12.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

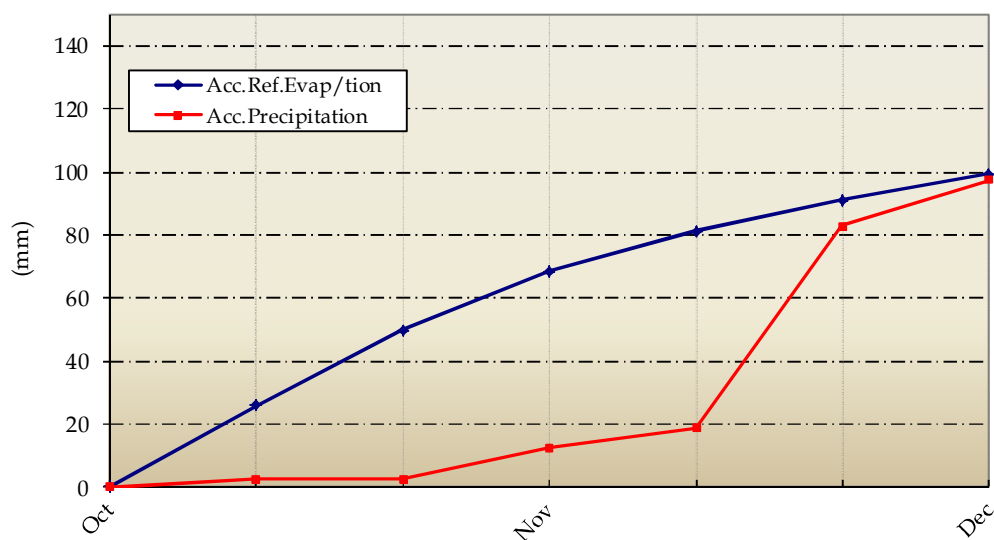


Larisa

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.4	14.4	15.8	15.3	15.4	17.0	13.2	11.4	12.0	17.4	14.4	12.4	13.6
	Min	-1.5	-1.1	-0.6	0.2	3.4	1.2	7.2	3.2	-1.6	3.8	1.4	5.4	4.1
Relative Humidity	Max	96	100	100	100	100	100	100	97	100	100	99	99	-
	Min	46	44	55	74	69	53	62	29	45	64	54	69	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	12.5	9.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	12.7	10.2
Sunshine Duration		7.0	6.1	6.8	6.8	5.5	5.5	0.0	7.6	6.9	0.0	5.2	1.3	3.5
Precipitation							0.0	14.7				14.7	12.7	21.8
Evaporation		2.2	1.6	1.5	0.9	3.5	0.0	0.6	0.8	4.6	0.6	16.3	5.7	10.2
Growing Degrees	5	0.5	1.7	2.6	2.8	4.4	4.1	5.2	2.3	0.2	5.6	29.3	40.6	40.6
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.6	0.8	6.5	8.0

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.2	7.0	7.3
Precipitation - Reference Evapotranspiration	6.5	5.7	14.5
Number of Rainy Days	1.0	5.0	3.5
Number of Dry Days	6.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

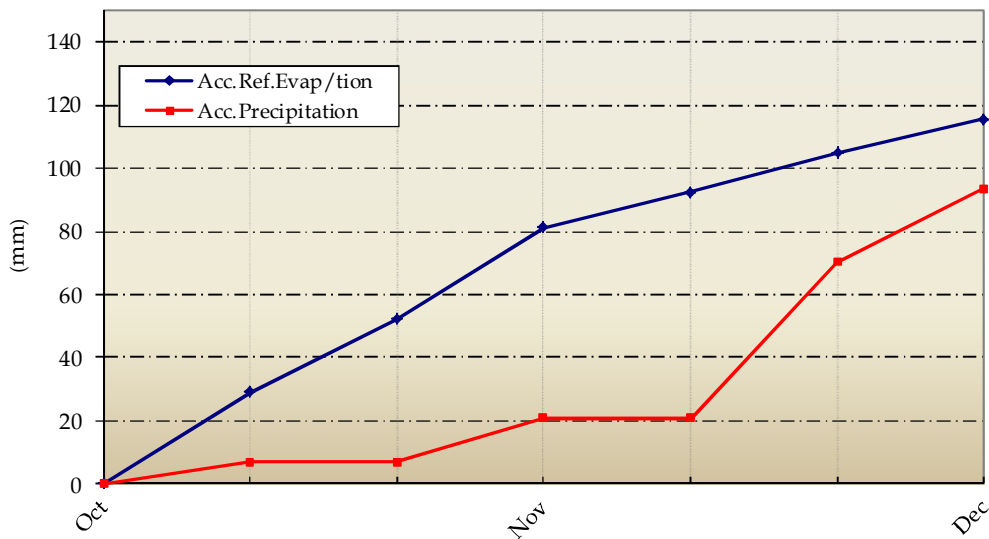


Mikra

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.8	14.8	16.1	14.4	14.2	13.6	12.1	8.4	10.3	10.6	12.7	12.6	13.2
	Min	5.0	1.4	2.3	3.1	7.2	6.4	6.9	5.7	-0.9	1.9	3.9	6.2	5.2
Relative Humidity	Max	72	81	86	91	89	94	93	69	85	87	85	90	-
	Min	28	38	39	57	65	77	60	46	42	51	50	67	-
Soil Temperature at 10 cm	06 UTC	9.2	8.6	8.8	8.2	10.2	10.6	11.8	7.7	6.4	7.2	8.9	10.7	8.8
	12 UTC	10.2	10.0	9.4	10.6	11.0	12.0	11.4	7.8	7.0	8.0	9.7	11.6	10.6
Sunshine Duration		8.9	6.8	8.5	8.1	5.7	2.9	0.1	7.1	7.9	0.6	5.7	1.1	3.5
Precipitation								23.3				23.3	15.5	21.0
Evaporation		1.1	2.2	1.0	1.4	0.4	1.8	1.3	3.8	0.7	0.1	13.8	18.5	15.7
Growing Degrees	5	3.9	3.1	4.2	3.8	5.7	5.0	4.5	2.1	0.0	1.3	33.5	44.5	43.9
	10	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.7	5.5	10.2

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.7	8.9	9.9
Precipitation - Reference Evapotranspiration	12.6	6.6	11.1
Number of Rainy Days	1.0	4.0	3.6
Number of Dry Days	6.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

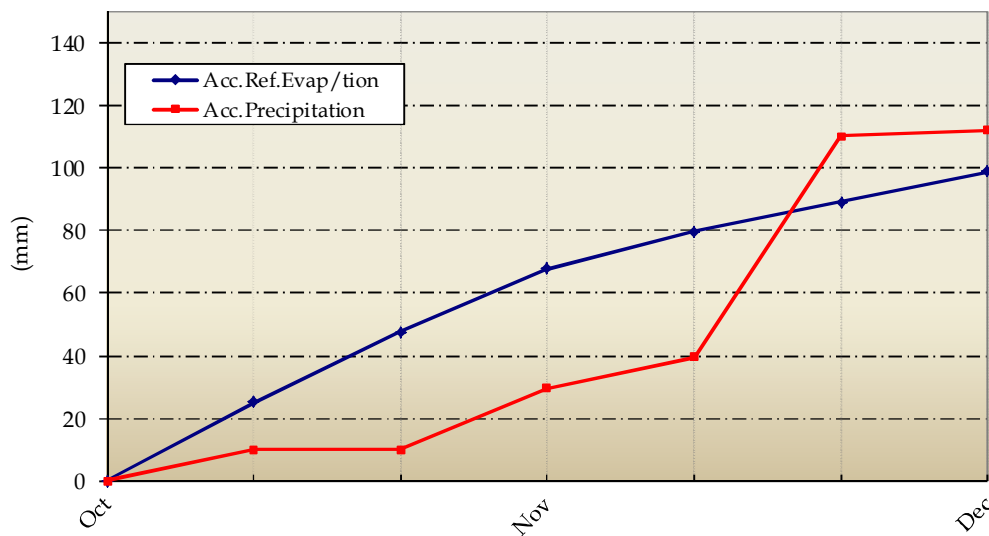


Tanagra

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.1	17.7	18.2	16.8	15.8	18.8	16.8	12.0	15.8	18.8	16.4	14.7	15.7
	Min	3.2	1.6	2.3	4.9	6.8	7.5	10.7	6.8	1.5	6.0	5.1	8.7	6.7
Relative Humidity	Max	97	97	100	100	99	100	99	99	100	85	98	91	-
	Min	29	38	35	58	67	38	52	54	33	53	46	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		8.0	8.0	7.8	7.7	2.4	9.7	3.4	3.9	9.8	1.5	6.2	1.6	
Precipitation								1.7	0.2			1.9	20.9	23.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-
Growing Degrees	5	3.2	4.7	5.3	5.9	6.3	8.2	8.8	4.4	3.7	7.4	57.6	66.7	
	10	0.0	0.0	0.3	0.9	1.3	3.2	3.8	0.0	0.0	2.4	11.7	20.9	

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.6	8.9	
Precipitation - Reference Evapotranspiration	-7.7	12.0	23.8
Number of Rainy Days	2.0	4.0	3.9
Number of Dry Days	6.0	10.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

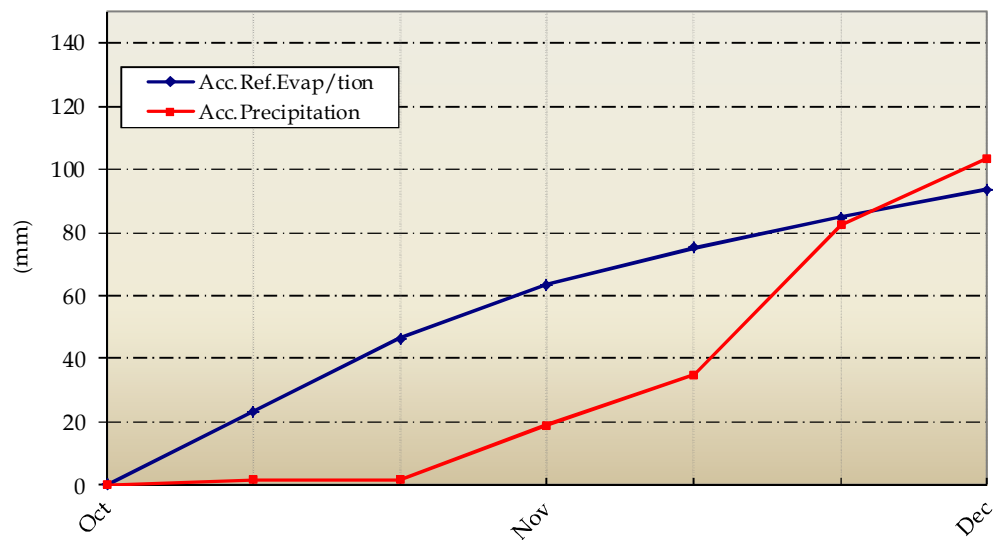


Tripoli

3rd 10-day period (21-30/11/2017)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.2	16.7	18.4	17.4	16.0	15.7	11.0	9.5	12.7	14.8	14.4	12.9	12.9
	Min	-3.1	-3.1	-1.2	-1.2	1.0	-0.8	7.5	3.3	-0.7	6.6	0.8	3.6	3.6
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	100	-
	Min	23	28	25	24	39	49	61	48	45	61	40	74	-
Soil Temperature at 10 cm	06 UTC	7.4	6.2	6.4	6.4	7.2	7.0	9.4	7.8	6.2	8.4	7.2	8.9	8.3
	12 UTC	-	8.6	8.8	8.8	-	-	8.8	8.8	8.2	10.0	8.9	10.3	9.4
Sunshine Duration		7.4	8.2	8.1	6.4	7.1	6.7	3.6	5.7	6.1	0.9	6.0	2.8	4.2
Precipitation								18.5			2.6	21.1	60.8	45.1
Evaporation		0.0	0.0	0.0	0.0	1.4	0.3	1.1	0.0	0.0	0.5	3.3	14.8	13.0
Growing Degrees	5	0.0	1.8	3.6	3.1	3.5	2.5	4.3	1.4	1.0	5.7	26.8	33.7	35.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.9	5.3

3rd 10-day period (21-30/11/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.6	7.2	9.3
Precipitation - Reference Evapotranspiration	12.5	53.6	35.8
Number of Rainy Days	2.0	5.0	4.7
Number of Dry Days	6.0	12.0	-

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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Papakrivou Anastasia

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