



AGROMETEOROLOGICAL BULLETIN

November 2014
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



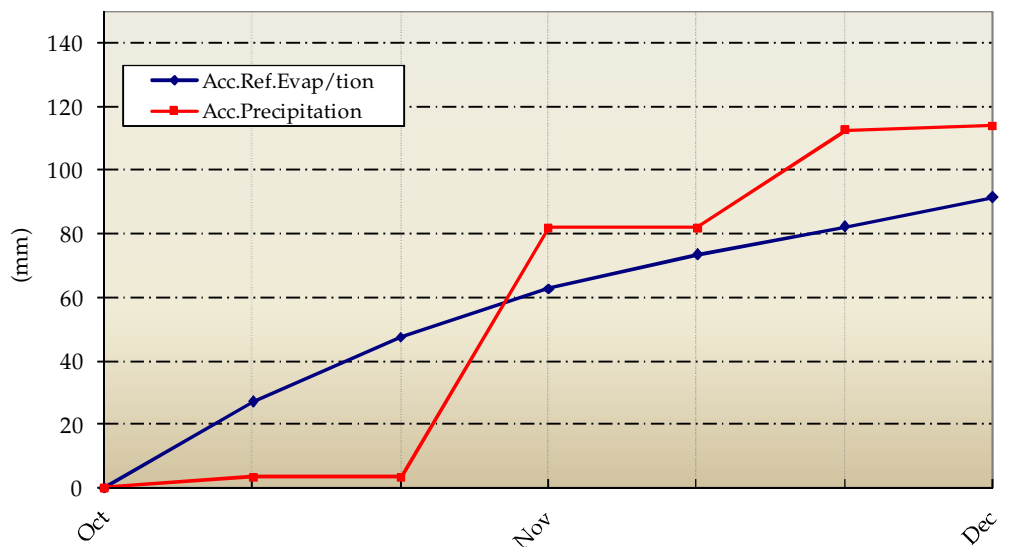
Hellenic National Meteorological Service
Division of Climatology-Applications
El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.4	12.0	11.6	11.2	9.8	8.4	6.4	10.4	14.0	13.2	11.2	14.3	12.8
	Min	5.6	5.0	5.0	5.6	4.0	0.8	-1.8	5.0	7.6	7.0	4.4	7.7	5.0
Relative Humidity	Max	97	88	74	76	80	85	92	86	97	97	87	95	-
	Min	39	56	50	41	44	42	60	66	82	77	56	70	-
Soil Temperature at 10 cm	06 UTC	10.4	9.6	8.6	8.8	8.0	5.8	4.0	7.0	9.8	11.4	8.3	11.3	8.6
	12 UTC	13.6	11.0	11.4	10.6	10.6	8.8	6.8	8.6	11.0	11.4	10.4	12.8	10.3
Sunshine Duration		6.0	4.6	4.2	4.7	7.8	5.8	0.0	0.0	0.0	0.0	3.3	4.1	3.2
Precipitation										0.2	1.2	1.4	77.4	32.9
Evaporation		0.2	1.2	2.3	3.0	0.0	0.0	0.0	0.7	0.2	1.2	8.8	7.8	16.3
Growing Degrees	5	5.5	3.5	3.3	3.4	1.9	0.0	0.0	2.7	5.8	5.1	31.2	59.8	42.5
	10	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	1.4	22.1	11.5

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.3	8.2	9.6
Precipitation - Reference Evapotranspiration	-7.9	69.2	23.3
Number of Rainy Days	2.0	5.0	3.3
Number of Dry Days	8.0	1.0	-

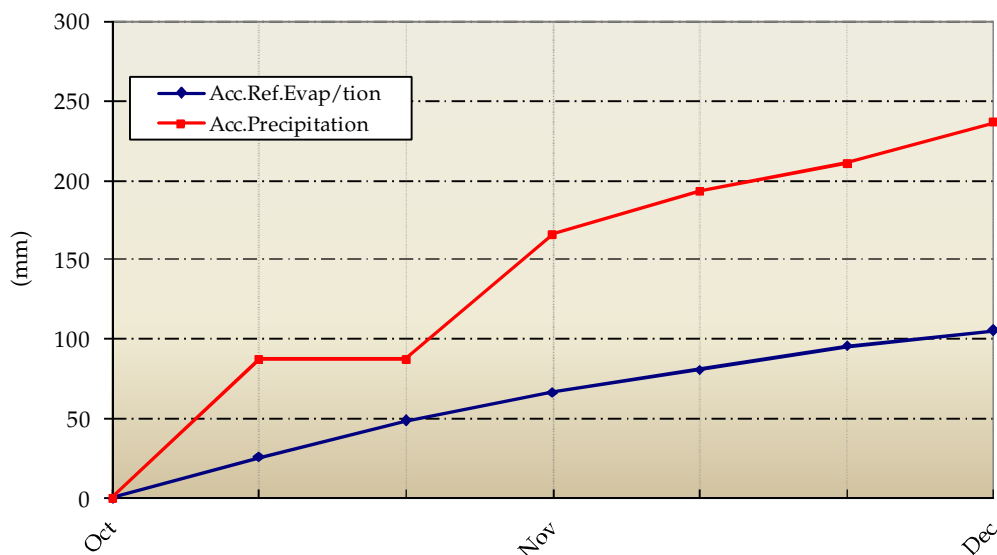
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	18.0	17.3	17.8	17.2	14.5	14.2	20.7	18.2	21.8	17.7	16.5	17.0
	Min	7.6	6.6	3.6	3.0	6.7	4.3	11.2	11.6	10.2	13.8	7.9	9.5	8.6
Relative Humidity	Max	89	89	91	90	87	88	91	91	91	80	89	88	-
	Min	46	43	35	36	36	56	88	64	72	56	53	59	-
Soil Temperature at 10 cm	06 UTC	14.2	13.6	12.8	11.4	12.8	11.0	13.8	13.6	14.0	14.8	13.2	13.2	11.7
	12 UTC	18.0	18.4	14.6	14.2	14.6	13.4	13.8	15.6	15.4	16.4	15.4	14.7	13.4
Sunshine Duration		7.9	8.6	8.5	8.4	6.6	0.8	0.0	4.9	0.0	3.2	4.9	3.5	4.6
Precipitation								25.4				25.4	105.2	62.9
Evaporation		2.0	3.0	2.5	3.4	2.4	0.1	2.3	6.0	3.4	1.2	26.3	27.9	20.2
Growing Degrees	5	7.6	7.3	5.5	5.4	7.0	4.4	7.7	11.2	9.2	12.8	78.0	80.1	78.3
	10	2.6	2.3	0.5	0.4	2.0	0.0	2.7	6.2	4.2	7.8	28.6	30.4	31.1

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.8	11.1	10.9
Precipitation - Reference Evapotranspiration	15.6	94.1	52.0
Number of Rainy Days	1.0	8.0	5.0
Number of Dry Days	9.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

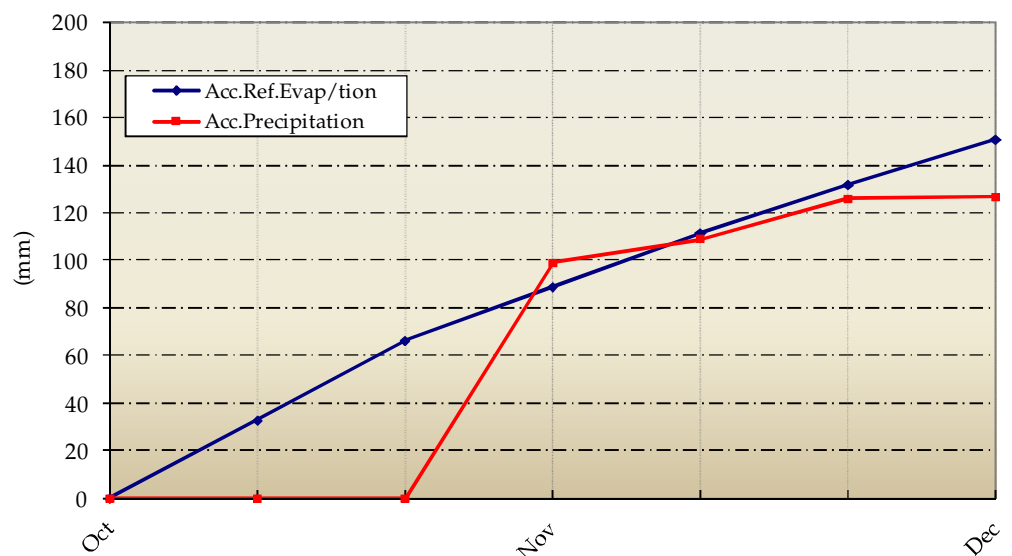


Iraklio

3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	18.0	17.0	16.2	14.4	15.0	17.0	20.0	20.0	21.8	17.7	20.2	18.8
	Min	11.6	14.2	13.0	14.6	13.4	12.6	13.6	14.0	13.0	14.6	13.5	14.6	12.7
Relative Humidity	Max	85	66	84	68	81	73	85	89	89	79	80	83	-
	Min	59	55	49	52	54	54	61	69	73	48	57	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.4	5.1	2.8	0.1	1.3	2.1	3.9	5.2	7.1	5.0	3.4	3.6	4.6
Precipitation		0.2				0.6						0.8	9.0	25.7
Evaporation		2.7	3.2	4.1	5.2	4.3	1.6	1.4	0.6	1.1	1.6	25.8	17.7	32.4
Growing Degrees	5	9.6	11.1	10.0	10.4	8.9	8.8	10.3	12.0	11.5	13.2	105.8	124.1	107.2
	10	4.6	6.1	5.0	5.4	3.9	3.8	5.3	7.0	6.5	8.2	55.8	74.1	57.3

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.0	17.7	-
Precipitation - Reference Evapotranspiration	-18.2	-8.7	25.7
Number of Rainy Days	2.0	4.0	3.7
Number of Dry Days	4.0	3.0	-

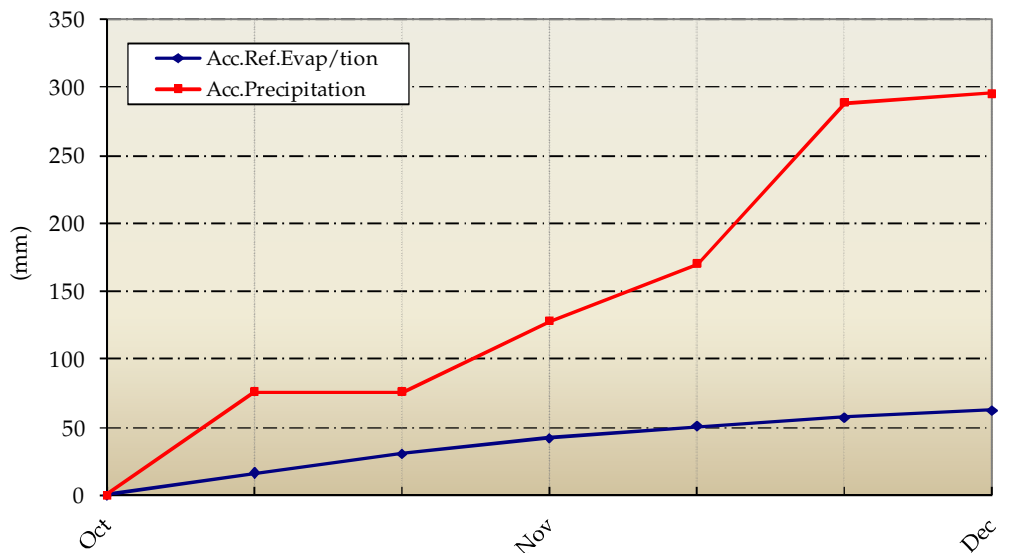
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	14.3	13.6	13.6	13.4	7.2	11.0	15.5	14.5	17.0	13.4	9.9	12.0
	Min	-0.5	-2.0	-2.8	-2.2	0.7	1.6	6.8	10.1	9.0	11.1	3.2	4.1	3.6
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	97	-
	Min	49	41	54	52	45	97	99	75	86	74	67	72	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	7.1
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	8.3
Sunshine Duration		4.0	3.4	4.0	4.0	5.5	0.0	0.0	3.6	0.0	0.6	2.5	1.2	2.6
Precipitation			0.0			0.0	1.3	2.1	0.1	1.6	1.9	7.0	135.9	57.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	9.5
Growing Degrees	5	1.9	1.2	0.4	0.7	2.1	0.0	3.9	7.8	6.8	9.1	33.7	25.1	31.9
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	1.8	4.1	8.6	1.2	4.7

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	5.3	6.0	6.7
Precipitation - Reference Evapotranspiration	1.7	129.9	50.3
Number of Rainy Days	5.0	8.0	5.1
Number of Dry Days	6.0	0.0	-

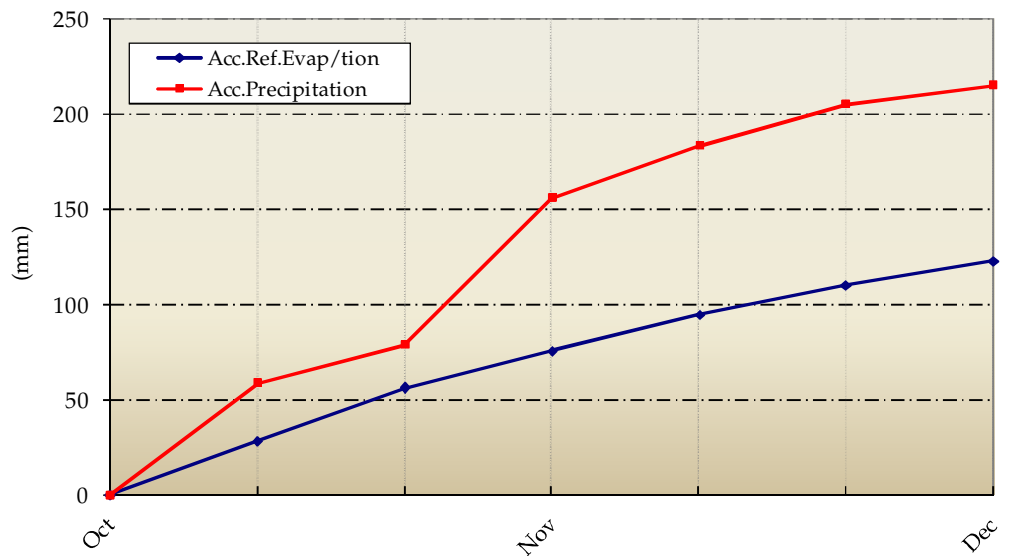
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	19.4	18.8	20.6	19.4	17.8	12.1	14.2	21.3	19.6	21.6	18.5	18.0	18.0
	Min	6.7	5.0	6.8	7.2	5.8	8.2	10.5	12.2	11.5	11.6	8.6	8.9	8.3
Relative Humidity	Max	91	91	91	89	89	94	94	95	95	95	92	92	-
	Min	33	41	41	33	41	69	78	63	69	59	53	52	-
Soil Temperature at 10 cm	06 UTC	15.0	14.2	14.0	13.4	13.6	13.6	13.6	14.2	14.8	15.2	14.2	-	12.7
	12 UTC	16.6	14.8	14.6	14.2	14.0	13.6	13.8	14.6	15.8	15.8	14.8	-	13.9
Sunshine Duration		8.7	8.5	8.3	9.3	2.9	0.0	0.0	2.5	0.0	5.1	4.5	3.8	4.3
Precipitation							3.7	4.5	1.7			9.9	71.2	54.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	26.0
Growing Degrees	5	8.1	6.9	8.7	8.3	6.8	5.2	7.4	11.8	10.6	11.6	85.2	84.5	81.4
	10	3.1	1.9	3.7	3.3	1.8	0.2	2.4	6.8	5.6	6.6	35.2	34.5	33.0

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.7	12.5	12.1
Precipitation - Reference Evapotranspiration	-2.8	58.7	41.9
Number of Rainy Days	3.0	7.0	4.8
Number of Dry Days	8.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

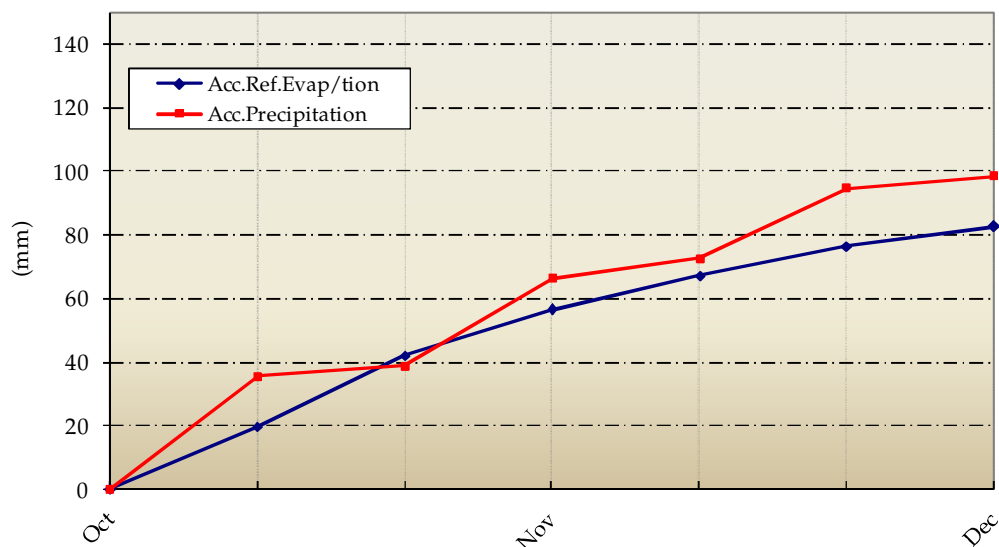


Larisa

3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.7	13.8	14.0	14.0	12.6	7.8	8.6	11.4	12.6	15.0	12.6	14.3	13.6
	Min	2.3	0.7	-0.2	0.2	4.6	3.6	6.6	8.2	9.8	8.0	4.4	4.1	4.1
Relative Humidity	Max	100	100	100	100	98	100	100	100	100	100	100	99	-
	Min	32	39	49	51	46	91	99	93	80	81	66	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.2
Sunshine Duration		7.0	6.7	7.0	6.9	6.5	0.0	0.0	0.0	0.0	0.4	3.4	3.6	3.5
Precipitation						0.0	0.7	2.3	0.7		0.1	3.8	16.7	21.8
Evaporation		1.6	3.2	0.4	1.4	1.8	0.6	0.1	1.0	0.3	0.1	10.5	6.2	10.2
Growing Degrees	5	4.5	2.3	1.9	2.1	3.6	0.7	2.6	4.8	6.2	6.5	35.2	42.6	40.6
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.5	2.7	8.1	8.0

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.1	7.6	7.3
Precipitation - Reference Evapotranspiration	-2.3	9.1	14.5
Number of Rainy Days	4.0	5.0	3.5
Number of Dry Days	6.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

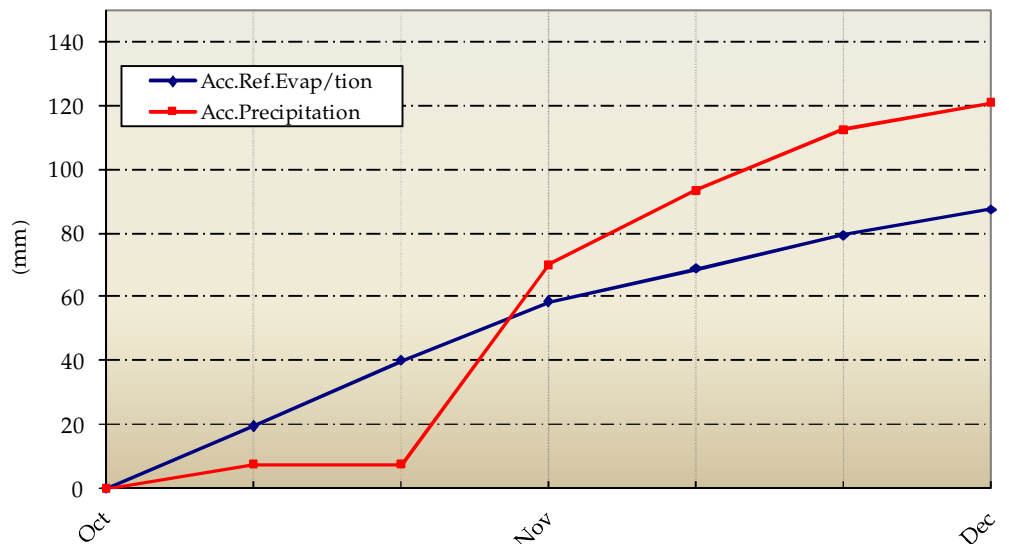


Mikra

3rd 10-day period (21-30/11/2014)		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	13.9	13.7	12.8	12.4	10.7	9.0	10.8	13.1	13.6	12.5	14.2	13.2
	Min	10.2	3.5	1.8	2.4	5.2	5.2	7.0	8.0	10.4	11.3	6.5	6.6	5.2
Relative Humidity	Max	60	89	92	94	90	87	93	94	94	94	89	89	-
	Min	43	41	50	52	36	80	80	92	83	88	64	59	-
Soil Temperature at 10 cm	06 UTC	11.2	10.0	8.6	8.4	10.0	9.8	10.2	10.4	11.4	12.4	10.2	10.6	8.8
	12 UTC	13.4	13.0	13.0	10.8	11.2	10.8	10.8	11.0	12.2	12.4	11.9	12.4	10.6
Sunshine Duration		8.7	8.5	8.1	7.3	7.2	0.5	0.0	0.0	0.0	0.3	4.1	3.8	3.5
Precipitation						0.7	0.2	2.0	3.3		2.0	8.2	14.4	21.0
Evaporation		0.0	8.1	0.6	0.0	1.2	0.7	0.2	0.6	0.4	0.2	12.0	9.3	15.7
Growing Degrees	5	7.6	3.7	2.8	2.6	3.8	3.0	3.0	4.4	6.8	7.5	45.0	55.4	43.9
	10	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.5	6.8	18.0	10.2

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.0	11.7	9.9
Precipitation - Reference Evapotranspiration	0.2	2.7	11.1
Number of Rainy Days	5.0	4.0	3.6
Number of Dry Days	5.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

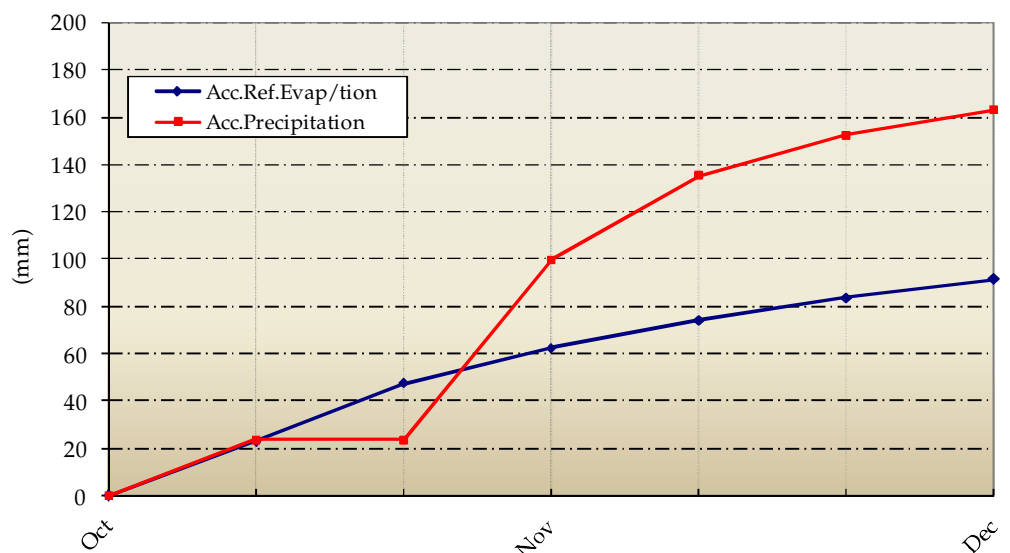


Tanagra

3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	13.8	12.0	11.8	11.6	9.2	10.7	12.6	18.1	18.6	13.3	16.6	15.7
	Min	6.1	4.7	5.0	6.8	5.5	5.4	7.0	8.8	7.2	13.4	7.0	7.3	6.7
Relative Humidity	Max	92	87	96	96	95	97	100	100	100	100	96	98	-
	Min	43	47	68	63	51	77	72	89	70	68	65	51	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.8	7.3	0.0	0.9	5.6	0.0	0.0	0.0	1.3	0.0	2.3	-	-
Precipitation				0.0		0.5	1.4	1.9	6.6		0.3	10.7	22.2	23.8
Evaporation		2.7	1.8	1.5	1.0	3.0	0.6	0.6	0.8	1.3	2.2	15.5	-	-
Growing Degrees	5	5.5	4.3	3.5	4.3	3.6	2.3	3.9	5.7	7.7	11.0	51.6	-	-
	10	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.7	6.0	9.8	-	-

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.4	-	-
Precipitation - Reference Evapotranspiration	3.3	-	23.8
Number of Rainy Days	5.0	-	3.9
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

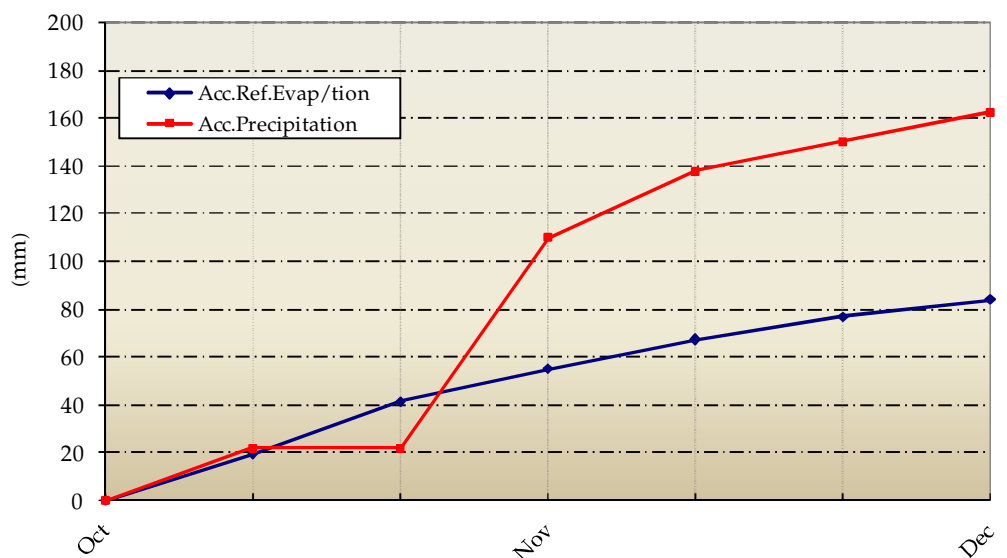


Tripoli

3rd 10-day period (21-30/11/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.0	14.6	13.7	12.1	10.0	7.8	8.5	13.1	14.5	17.3	12.7	13.1	12.9
	Min	-0.1	-0.6	0.4	-1.9	-0.6	-2.9	5.3	8.2	5.7	9.9	2.3	3.8	3.6
Relative Humidity	Max	100	100	100	100	100	100	100	100	100	100	100	96	-
	Min	36	41	48	51	52	70	100	91	80	65	63	60	-
Soil Temperature at 10 cm	06 UTC	8.2	7.6	7.8	6.4	6.4	5.0	7.6	9.2	9.6	10.4	7.8	8.5	8.3
	12 UTC	-	-	-	9.2	8.2	7.0	8.4	10.4	-	-	8.6	10.1	9.4
Sunshine Duration		7.9	7.7	5.9	7.6	6.0	0.5	0.0	0.0	0.0	4.2	4.0	3.5	4.2
Precipitation							0.0	7.1	5.3			12.4	72.3	45.1
Evaporation		1.7	0.7	1.0	0.7	0.7	0.0	0.8	0.8	0.3	1.1	7.8	12.5	13.0
Growing Degrees	5	2.5	2.0	2.1	0.1	0.0	0.0	1.9	5.7	5.1	8.6	27.9	35.0	35.8
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	3.6	4.4	2.8	5.3

3rd 10-day period (21-30/11/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.1	7.5	9.3
Precipitation - Reference Evapotranspiration	5.3	64.8	35.8
Number of Rainy Days	2.0	7.0	4.7
Number of Dry Days	7.0	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_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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Issue Editors :

Papakrivou Anastasia

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