



AGROMETEOROLOGICAL BULLETIN

September 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



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www.hnms.gr
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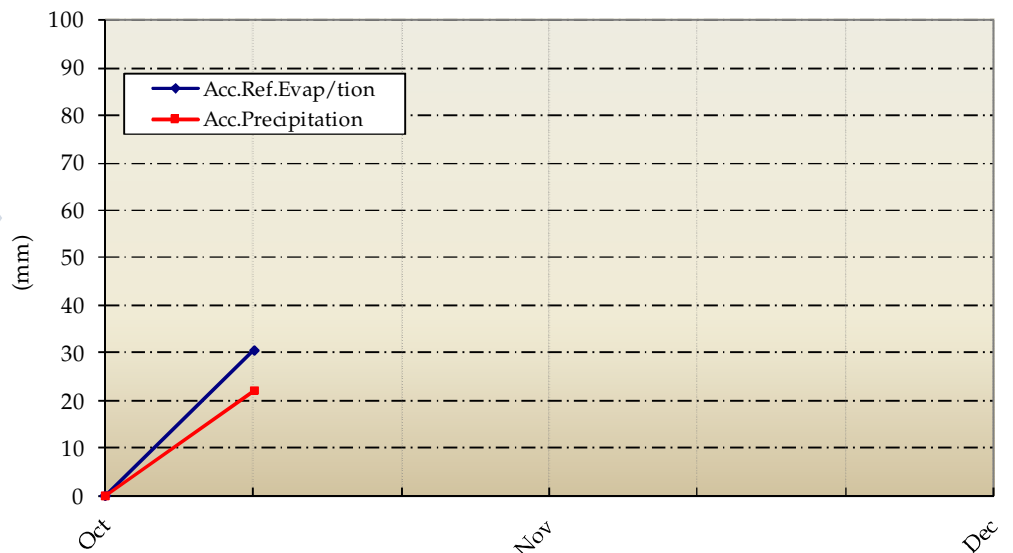
Agrinio

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max													
	Min													
Relative Humidity	Max													
	Min													
Soil Temperature at 10 cm	06 UTC													
	12 UTC													
Sunshine Duration														
Precipitation														
Evaporation														
Growing Degrees	5													
	10													

3rd 10-day period (21-30/09/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration		
Precipitation - Reference Evapotranspiration		
Number of Rainy Days		
Number of Dry Days		

This station is not operated

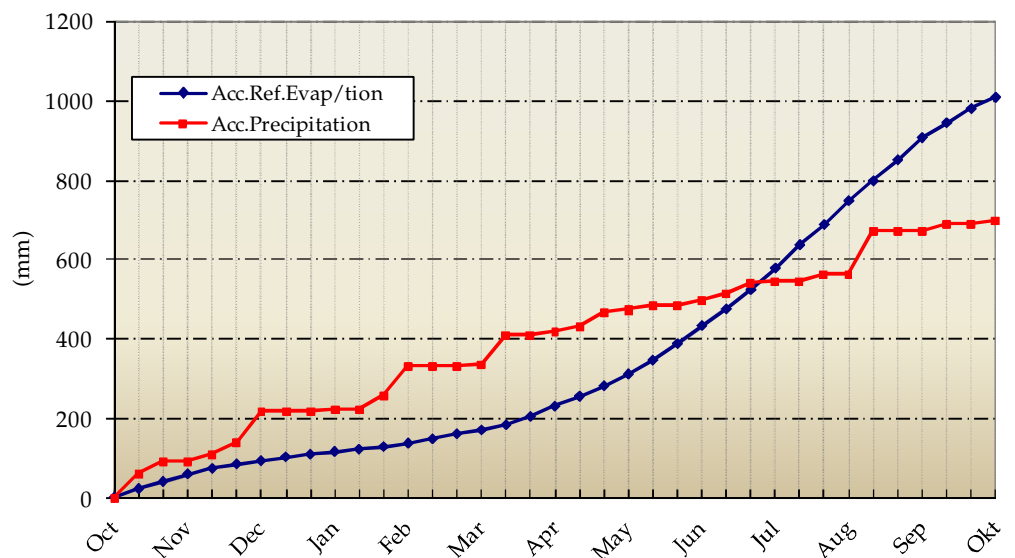
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.2	26.4	29.4	21.4	22.0	19.4	16.6	22.8	23.6	22.8	23.0	25.2	24.9
	Min	16.0	16.0	18.8	7.6	9.0	12.2	12.4	15.6	14.6	6.4	12.9	13.4	13.0
Relative Humidity	Max	90	92	94	78	89	93	83	64	78	88	85	87	-
	Min	54	59	25	34	48	53	47	29	30	40	42	46	-
Soil Temperature at 10 cm	06 UTC	22.5	21.8	23.2	19.6	19.0	20.0	17.5	15.8	17.0	16.6	19.3	20.9	19.0
	12 UTC	23.8	25.4	25.6	23.6	21.8	20.4	17.0	19.8	21.4	21.5	22.0	24.9	22.4
Sunshine Duration		3.6	7.5	8.1	10.8	9.1	0.0	0.0	10.0	10.7	10.1	7.0	9.9	7.5
Precipitation		1.0		0.4			4.6	2.1				8.1	0.4	12.3
Evaporation		1.8	3.2	6.6	4.3	2.6	1.0	4.9	10.0	5.6	3.3	43.3	56.1	59.3
Growing Degrees	5	15.6	16.2	19.1	9.5	10.5	10.8	9.5	14.2	14.1	9.6	129.1	143.3	139.4
	10	10.6	11.2	14.1	4.5	5.5	5.8	4.5	9.2	9.1	4.6	79.1	93.3	89.4

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.2	30.4	31.9
Precipitation - Reference Evapotranspiration	-20.1	-30.0	-19.6
Number of Rainy Days	4.0	1.0	1.1
Number of Dry Days	13.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

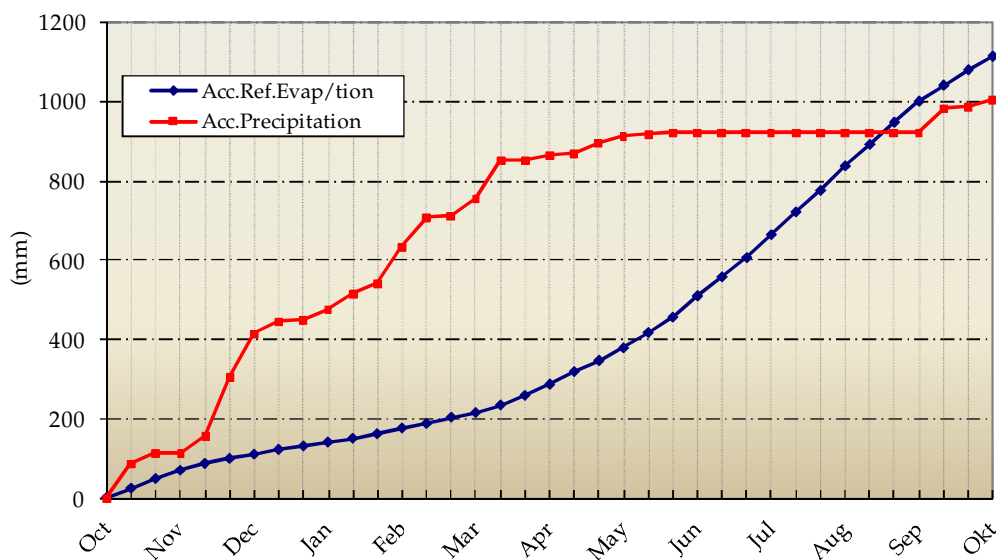


Andravida

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.6	29.6	29.5	28.0	26.0	25.2	23.6	25.7	25.8	24.4	26.5	27.2	27.0
	Min	18.9	19.7	22.1	16.0	16.7	18.4	16.2	10.2	10.0	9.4	15.8	16.4	15.6
Relative Humidity	Max	89	90	87	87	91	92	81	85	87	84	87	86	-
	Min	58	59	49	20	48	54	30	26	28	32	40	39	-
Soil Temperature at 10 cm	06 UTC	25.4	25.4	26.2	24.0	24.2	22.8	24.4	19.2	18.6	18.4	22.9	22.2	22.0
	12 UTC	28.4	29.0	28.4	27.8	26.4	25.8	26.6	23.2	22.4	22.0	26.0	28.2	25.5
Sunshine Duration		9.3	8.4	7.2	10.2	3.2	8.2	10.0	10.4	10.3	10.3	8.8	9.2	8.1
Precipitation						7.0	11.2					18.2	8.8	16.0
Evaporation		-	-	-	-	-	-	-	-	-	-	-	61.2	48.4
Growing Degrees	5	18.3	19.7	20.8	17.0	16.4	16.8	14.9	13.0	12.9	11.9	161.5	167.7	162.7
	10	13.3	14.7	15.8	12.0	11.4	11.8	9.9	8.0	7.9	6.9	111.5	117.7	112.7

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	34.1	34.1	30.8
Precipitation - Reference Evapotranspiration	-15.9	-25.3	-14.8
Number of Rainy Days	2.0	1.0	1.5
Number of Dry Days	12.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

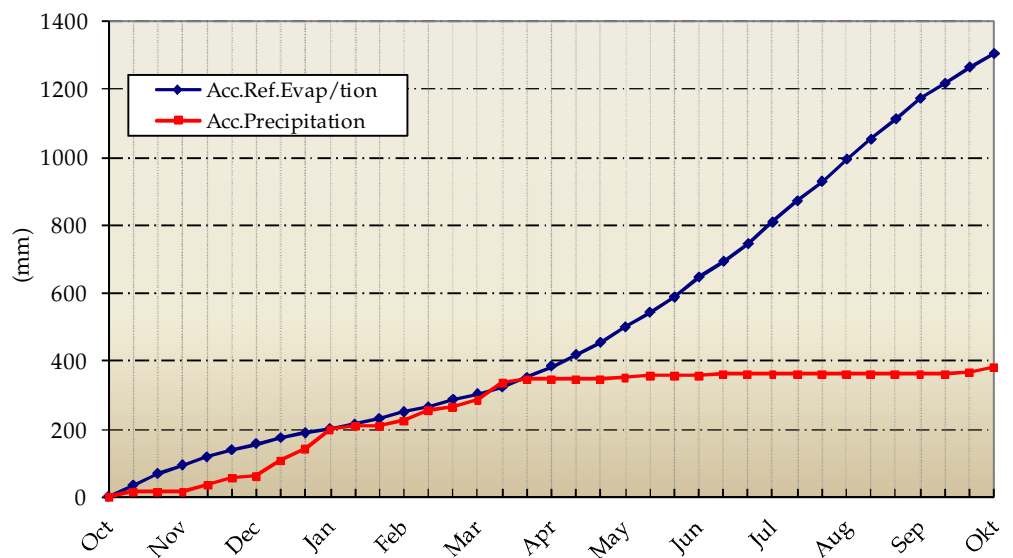


Iraklio

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	30.8	34.2	26.6	27.6	30.6	24.6	22.0	22.8	23.6	27.1	26.3	25.7
	Min	19.4	20.0	24.2	24.6	18.8	20.4	19.0	18.0	20.0	20.6	20.5	18.9	18.8
Relative Humidity	Max	88	87	90	85	87	78	90	77	72	71	82	82	-
	Min	55	41	36	56	63	36	44	56	56	52	50	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.9	8.7	8.5	6.1	9.6	8.1	3.3	2.0	8.7	9.1	7.2	9.4	8.3
Precipitation								14.9	2.6			17.5		4.1
Evaporation		2.1	4.4	5.1	3.0	3.4	3.8	3.1	6.2	6.0	6.0	43.1	47.8	61.7
Growing Degrees	5	18.9	20.4	24.2	20.6	18.2	20.5	16.8	15.0	16.4	17.1	188.1	176.4	172.5
	10	13.9	15.4	19.2	15.6	13.2	15.5	11.8	10.0	11.4	12.1	138.1	126.4	122.5

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.6	38.2	-
Precipitation - Reference Evapotranspiration	-22.1	-38.2	4.1
Number of Rainy Days	2.0	0.0	0.6
Number of Dry Days	7.0	135.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

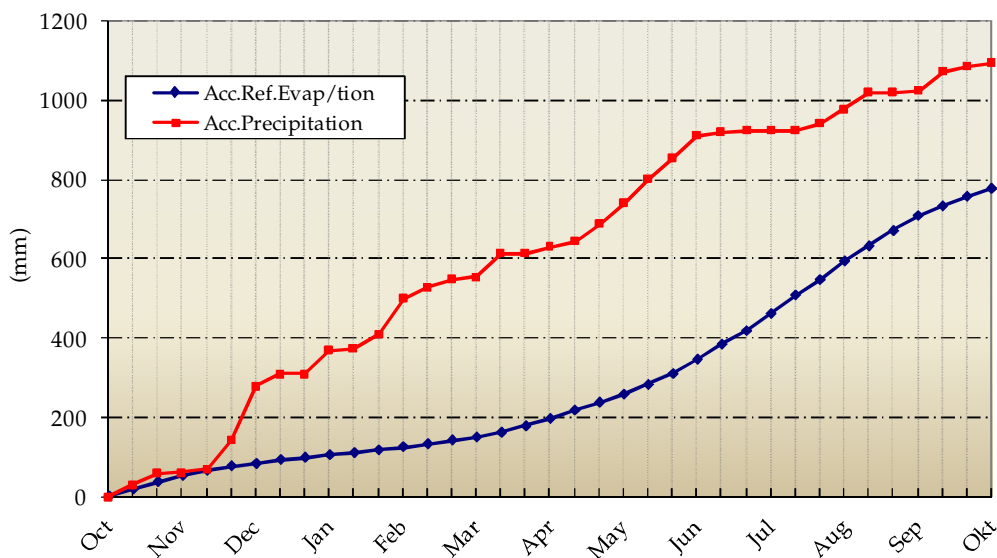


Ioannina

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.8	26.4	24.3	23.2	20.4	21.4	20.3	21.4	23.9	26.0	23.6	26.1	24.8
	Min	14.4	18.0	16.8	7.0	12.0	13.6	6.8	5.8	11.0	7.8	11.3	10.1	11.3
Relative Humidity	Max	80	94	97	91	90	100	63	72	57	83	83	91	-
	Min	53	55	52	40	60	61	30	32	30	35	45	35	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	16.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	19.5
Sunshine Duration		7.2	4.7	5.2	8.1	1.2	3.0	8.6	8.2	8.6	8.6	6.3	6.9	6.4
Precipitation				2.1		3.4	2.0					7.5	30.1	24.5
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	40.6
Growing Degrees	5	16.6	17.2	15.6	10.1	11.2	12.5	8.6	8.6	12.5	11.9	124.7	131.0	130.3
	10	11.6	12.2	10.6	5.1	6.2	7.5	3.6	3.6	7.5	6.9	74.7	81.0	80.3

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.9	26.3	25.1
Precipitation - Reference Evapotranspiration	-12.4	3.8	-0.6
Number of Rainy Days	3.0	1.0	2.5
Number of Dry Days	8.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

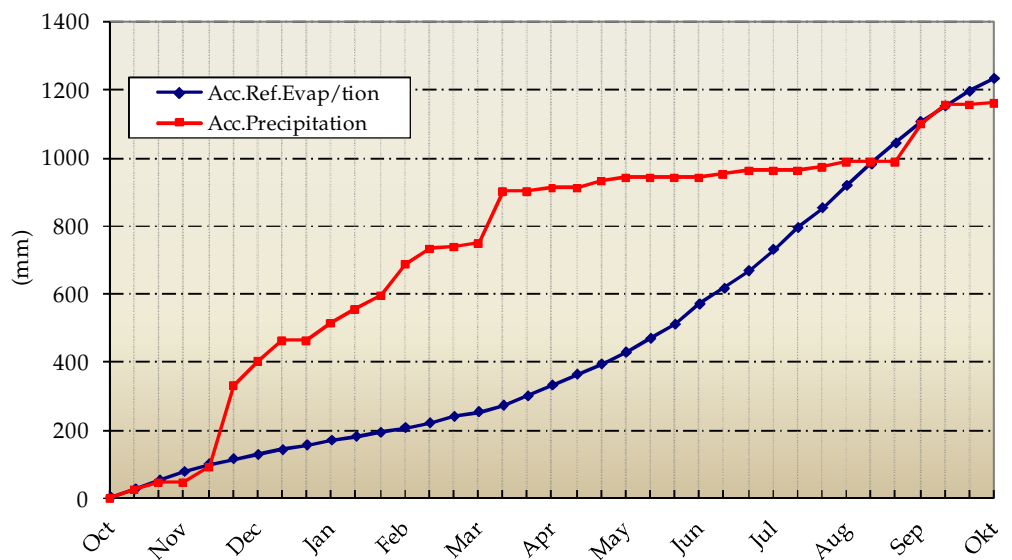


Kalamata

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.6	30.4	32.1	29.3	28.6	28.0	26.2	24.8	27.5	25.8	28.3	28.2	27.6
	Min	17.8	19.9	19.0	18.0	15.4	15.7	14.8	11.5	13.5	14.1	16.0	15.5	15.0
Relative Humidity	Max	90	92	93	83	87	91	92	77	71	77	85	90	-
	Min	37	39	44	33	42	40	28	29	23	27	34	36	-
Soil Temperature at 10 cm	06 UTC	23.6	24.2	24.4	24.2	23.6	23.0	22.4	21.0	20.6	20.6	22.8	-	21.4
	12 UTC	24.8	24.8	25.4	25.0	25.4	24.2	23.6	22.2	22.0	21.8	23.9	-	24.4
Sunshine Duration		10.6	9.5	8.1	10.4	5.6	8.5	8.7	10.1	10.6	10.7	9.3	9.4	7.7
Precipitation							2.7	0.5				3.2	11.0	12.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	45.4	51.4
Growing Degrees	5	19.2	20.2	20.6	18.7	17.0	16.9	15.5	13.2	15.5	15.0	171.5	168.9	162.8
	10	14.2	15.2	15.6	13.7	12.0	11.9	10.5	8.2	10.5	10.0	121.5	118.9	112.8

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.0	38.2	32.9
Precipitation - Reference Evapotranspiration	-34.8	-27.2	-20.6
Number of Rainy Days	2.0	2.0	1.7
Number of Dry Days	13.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

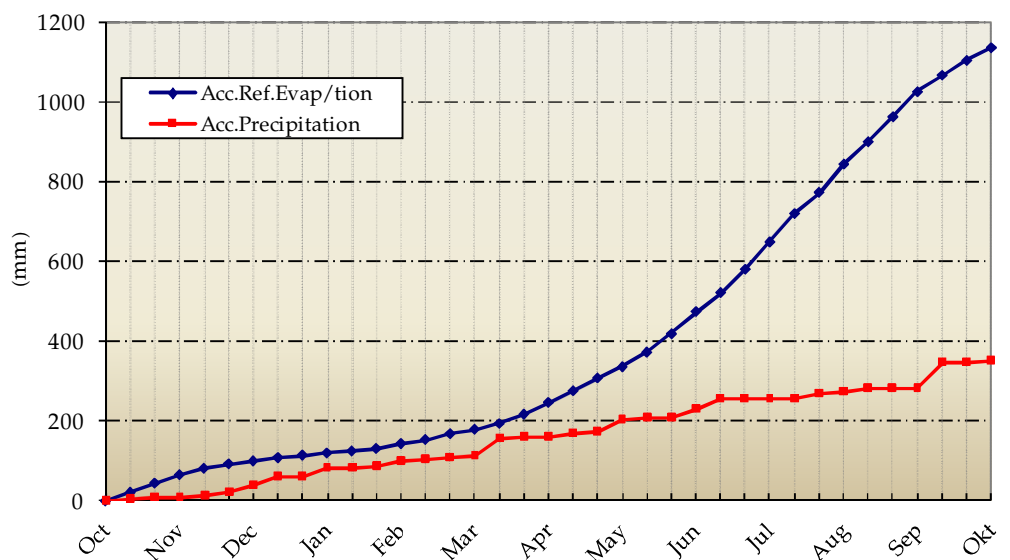


Larisa

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.8	33.6	31.6	24.8	25.2	23.8	21.6	24.3	23.6	26.6	26.8	30.0	27.3
	Min	16.1	17.6	19.6	12.5	10.8	15.6	9.4	9.6	12.8	7.2	13.1	13.6	13.0
Relative Humidity	Max	96	92	59	68	81	92	90	80	87	92	84	78	-
	Min	30	26	23	26	37	50	31	25	29	26	30	20	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	20.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	22.7
Sunshine Duration		7.2	7.7	8.6	8.0	3.6	3.8	4.6	8.2	5.2	7.7	6.5	7.2	7.0
Precipitation							2.9			0.3		3.2	4.1	7.0
Evaporation		4.8	10.0	6.1	5.1	2.5	3.9	3.5	4.7	4.6	5.6	50.8	68.5	51.2
Growing Degrees	5	19.5	20.6	20.6	13.7	13.0	14.7	10.5	12.0	13.2	11.9	149.6	168.1	151.5
	10	14.5	15.6	15.6	8.7	8.0	9.7	5.5	7.0	8.2	6.9	99.6	118.1	101.5

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.5	37.4	31.7
Precipitation - Reference Evapotranspiration	-28.3	-33.3	-24.7
Number of Rainy Days	2.0	1.0	1.7
Number of Dry Days	11.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

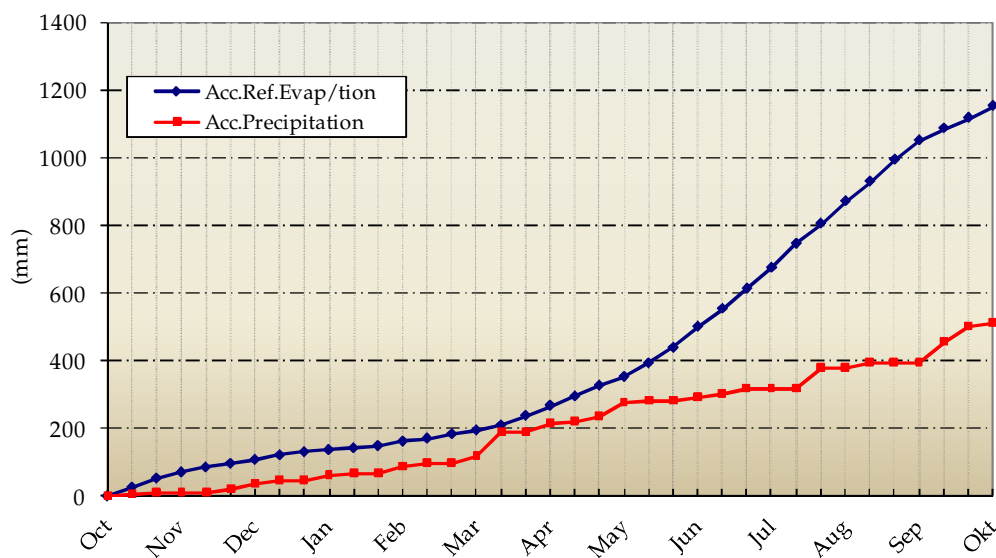


Mikra

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.1	28.0	28.0	22.4	22.4	20.8	21.6	24.0	23.4	24.2	24.2	26.7	25.8
	Min	18.0	17.4	18.7	13.7	11.3	15.2	14.6	15.9	11.2	11.2	14.7	15.3	14.1
Relative Humidity	Max	90	93	84	70	80	93	69	76	84	87	83	79	-
	Min	57	60	35	23	44	59	34	31	36	36	42	36	-
Soil Temperature at 10 cm	06 UTC	21.6	22.4	23.2	18.6	18.4	20.8	17.0	17.0	17.2	17.6	19.4	22.2	19.9
	12 UTC	25.6	25.6	24.6	21.8	22.4	21.6	21.4	20.4	20.0	21.8	22.5	26.0	23.6
Sunshine Duration		7.8	7.3	10.0	10.6	6.2	0.2	7.7	10.5	9.8	10.2	8.0	8.9	6.9
Precipitation							10.6	0.0				10.6	10.4	10.7
Evaporation		0.9	3.3	7.2	9.4	3.4	3.9	5.4	7.2	3.0	3.9	47.6	66.2	49.1
Growing Degrees	5	17.6	17.7	18.4	13.1	11.9	13.0	13.1	15.0	12.3	12.7	144.6	160.0	149.6
	10	12.6	12.7	13.4	8.1	6.9	8.0	8.1	10.0	7.3	7.7	94.6	110.0	99.6

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	35.1	39.0	29.8
Precipitation - Reference Evapotranspiration	-24.5	-28.6	-19.1
Number of Rainy Days	1.0	1.0	1.5
Number of Dry Days	7.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

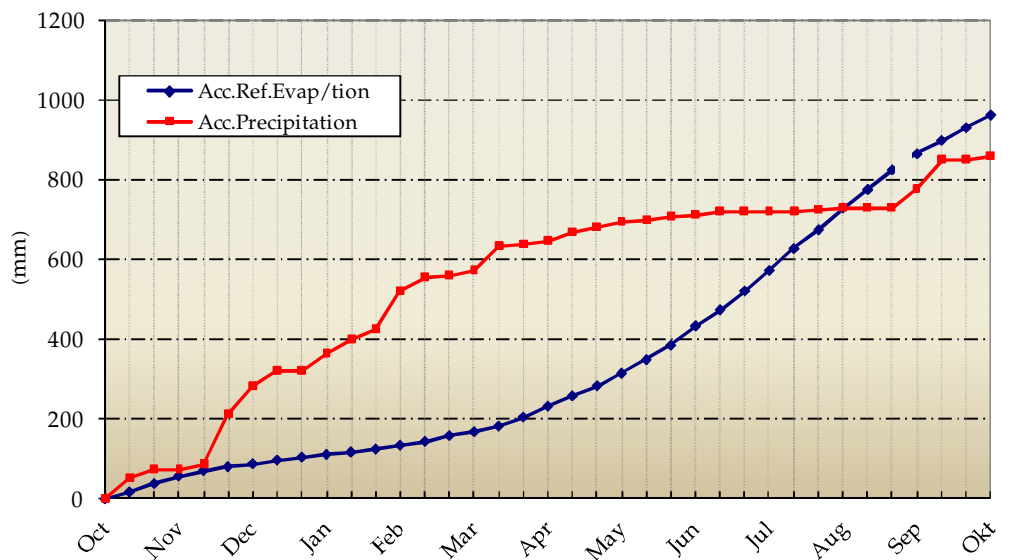


Tripoli

3rd 10-day period (21-30/09/2014)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.0	29.9	29.0	28.1	25.9	23.9	20.7	20.9	21.5	23.5	25.4	25.9	25.0
	Min	13.6	14.5	18.8	13.9	10.6	13.6	13.1	6.3	11.4	5.6	12.1	9.6	10.2
Relative Humidity	Max	95	88	76	93	84	94	79	88	68	88	85	91	-
	Min	21	26	31	27	33	40	30	26	29	25	29	29	-
Soil Temperature at 10 cm	06 UTC	-	22.0	22.4	21.8	20.8	20.2	-	-	17.2	15.8	20.0	17.9	18.9
	12 UTC	-	27.4	26.6	27.0	25.4	24.2	-	-	21.6	21.8	24.9	23.4	21.1
Sunshine Duration		0.0	10.0	9.4	9.1	6.0	-	-	0.0	9.7	10.5	6.8	8.3	7.8
Precipitation							6.9					6.9	0.7	11.6
Evaporation		-	5.0	6.4	5.1	2.5	-	-	-	5.2	3.2	-	-	36.1
Growing Degrees	5	17.3	17.2	18.9	16.0	13.3	13.8	11.9	8.6	11.5	9.6	137.9	127.8	126.3
	10	12.3	12.2	13.9	11.0	8.3	8.8	6.9	3.6	6.5	4.6	87.9	77.8	76.4

3rd 10-day period (21-30/09/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	31.7	28.8	29.5
Precipitation - Reference Evapotranspiration	-24.8	-28.1	-17.9
Number of Rainy Days	1.0	1.0	1.5
Number of Dry Days	7.0	6.0	-

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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ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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