



AGROMETEOROLOGICAL BULLETIN

August 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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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
www.meteo.gov.gr
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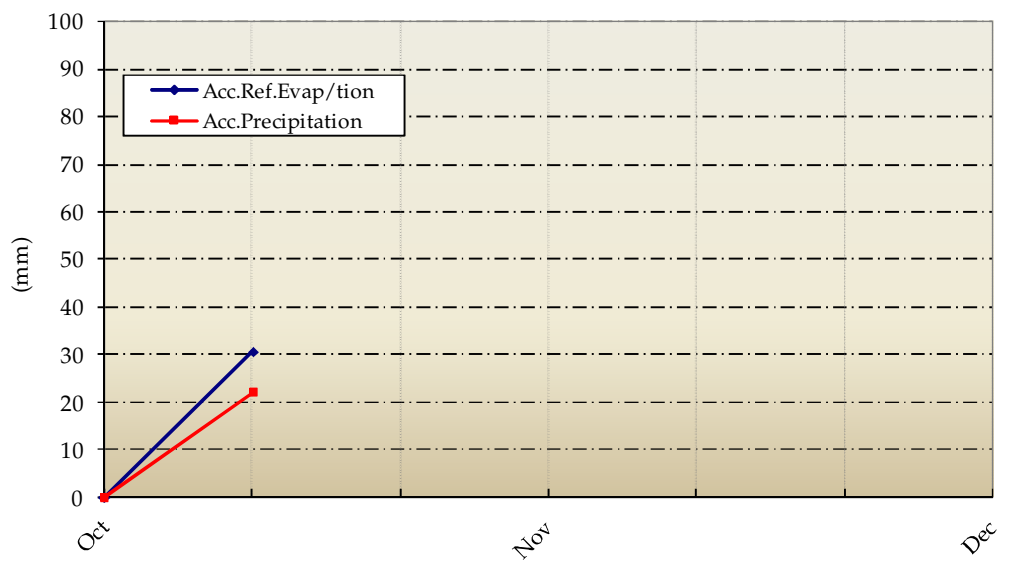
Agrinio

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	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 (21-31/08/2014)	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

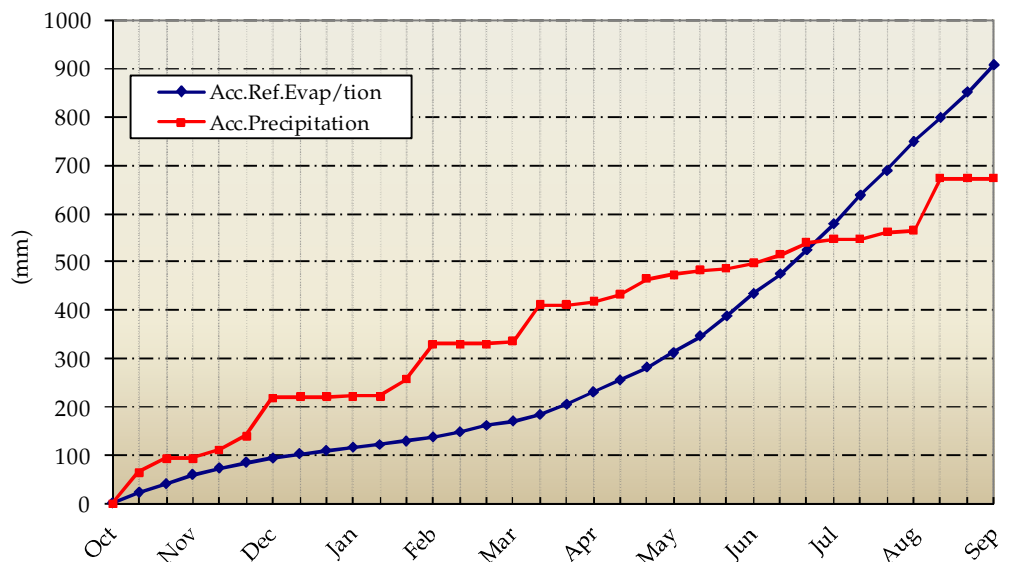


Alexandroupoli

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.4	32.6	33.4	29.6	30.8	31.4	30.2	32.8	30.0	29.0	30.2	30.9	31.7	29.1
	Min	18.6	20.4	23.6	21.8	23.6	20.0	18.0	19.6	22.0	18.6	18.6	20.4	20.4	16.6
Relative Humidity	Max	92	89	90	91	57	89	86	92	70	65	81	82	77	-
	Min	43	42	33	55	33	36	43	34	28	28	35	37	31	-
Soil Temperature at 10 cm	06 UTC	25.4	26.4	27.2	27.4	27.0	27.0	26.6	27.0	27.4	25.6	25.6	26.6	28.1	23.0
	12 UTC	30.6	31.4	32.2	32.0	31.2	31.4	31.6	31.4	30.8	29.6	29.6	31.1	31.1	27.1
Sunshine Duration		12.0	12.0	11.6	12.0	12.4	11.8	12.2	10.7	12.2	12.2	2.6	11.1	11.1	9.8
Precipitation															4.5
Evaporation		8.6	10.1	2.9	6.3	9.0	10.8	15.2	7.2	1.7	6.9	9.7	88.4	101.5	93.1
Growing Degrees	5	19.5	21.5	23.5	20.7	22.2	20.7	19.1	21.2	21.0	18.8	19.4	227.6	231.8	196.4
	10	14.5	16.5	18.5	15.7	17.2	15.7	14.1	16.2	16.0	13.8	14.4	172.6	176.8	141.4

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	56.3	56.8	54.2
Precipitation - Reference Evapotranspiration	-56.3	-56.8	-49.7
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	14.0	61.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

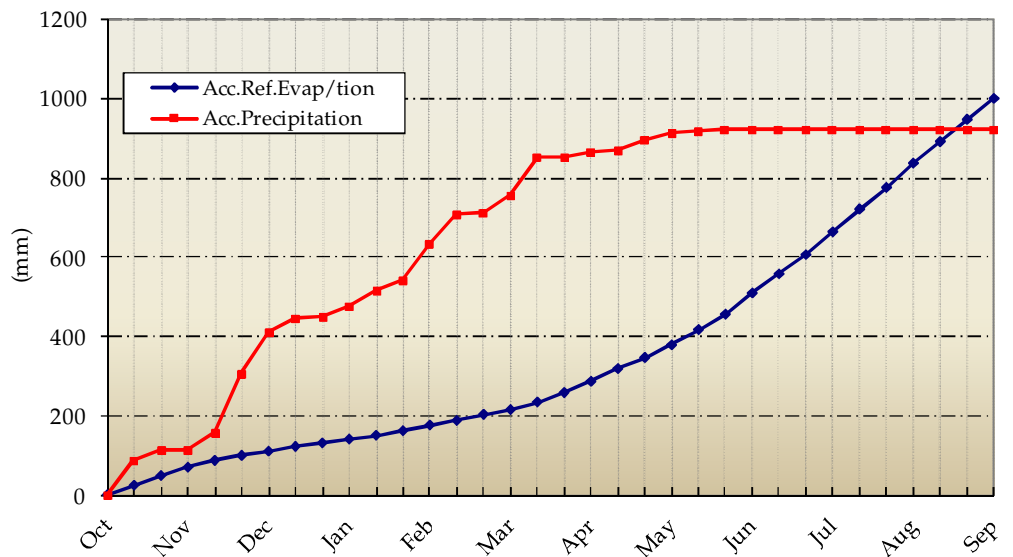


Andravida

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.2	32.5	30.2	34.6	32.9	30.6	30.7	32.1	33.4	31.8	30.8	31.9	31.7	30.0
	Min	17.9	19.6	18.9	20.7	18.4	17.9	18.0	18.7	19.0	20.2	20.7	19.1	20.2	18.5
Relative Humidity	Max	88	89	91	91	90	86	86	82	82	86	87	87	85	-
	Min	32	30	51	21	26	39	40	33	31	31	42	34	35	-
Soil Temperature at 10 cm	06 UTC	27.5	28.4	28.0	29.0	28.0	27.5	28.0	27.8	28.0	28.6	29.0	28.2	28.2	26.8
	12 UTC	32.5	32.6	32.0	34.0	34.0	33.0	33.2	33.6	33.6	34.0	34.0	33.3	34.7	30.8
Sunshine Duration		10.4	9.4	10.1	9.5	11.6	11.6	11.3	11.6	11.6	11.3	11.2	10.9	11.1	10.6
Precipitation															3.8
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	90.6	74.7
Growing Degrees	5	19.6	21.1	19.6	22.7	20.7	19.3	19.4	20.4	21.2	21.0	20.8	225.4	230.4	211.8
	10	14.6	16.1	14.6	17.7	15.7	14.3	14.4	15.4	16.2	16.0	15.8	170.4	175.4	156.8

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.1	57.3	49.7
Precipitation - Reference Evapotranspiration	-53.1	-57.3	-45.9
Number of Rainy Days	0.0	0.0	0.7
Number of Dry Days	38.0	82.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

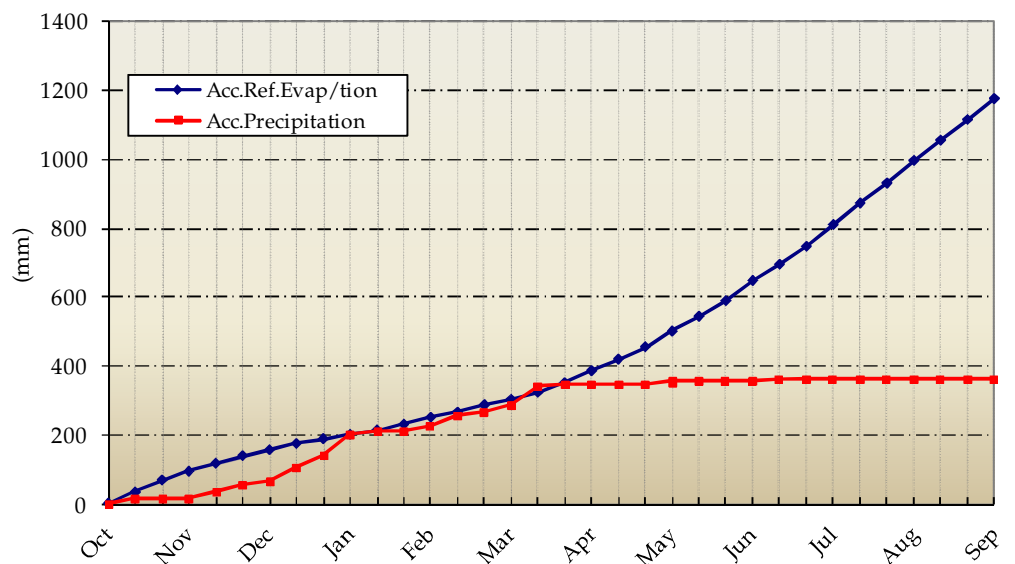


Iraklio

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	32.0	31.8	32.0	30.4	31.0	29.0	30.0	31.5	29.0	28.0	27.8	30.2	29.2	27.8
	Min	20.0	22.8	23.0	22.8	24.0	21.6	23.4	21.0	23.6	25.0	24.2	22.9	21.4	21.3
Relative Humidity	Max	84	89	80	76	90	86	78	75	75	72	73	80	83	-
	Min	34	46	41	42	41	53	46	34	63	55	58	47	52	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.9	11.9	11.1	11.9	11.6	11.5	11.8	12.8	11.2	11.2	9.2	11.5	11.2	10.8
Precipitation															0.6
Evaporation		4.5	6.0	5.0	5.2	7.2	5.3	5.1	10.4	2.2	8.6	5.0	64.5	61.1	88.9
Growing Degrees	5	21.0	22.3	22.5	21.6	22.5	20.3	21.7	21.3	21.3	21.5	21.0	237.0	223.4	215.1
	10	16.0	17.3	17.5	16.6	17.5	15.3	16.7	16.3	16.3	16.5	16.0	182.0	168.4	160.1

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	60.5	57.1	-
Precipitation - Reference Evapotranspiration	-60.5	-57.1	0.6
Number of Rainy Days	0.0	0.0	0.1
Number of Dry Days	87.0	105.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

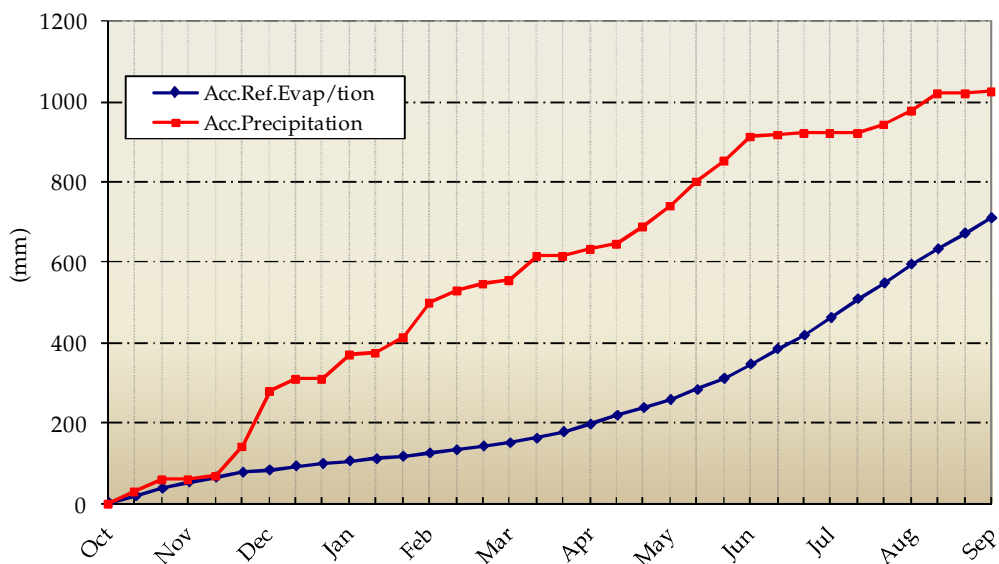


Ioannina

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	35.1	34.3	33.0	32.0	31.7	33.8	35.8	32.2	30.7	31.0	33.0	31.0	29.2
	Min	19.2	15.1	11.5	14.9	13.0	10.6	12.7	12.5	12.8	16.5	12.5	13.8	14.9	14.3
Relative Humidity	Max	71	95	93	73	73	92	96	68	96	81	100	85	82	-
	Min	31	13	14	25	21	30	22	24	30	42	28	25	26	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Sunshine Duration		9.4	10.3	10.7	9.6	10.4	10.2	10.4	10.2	6.6	7.0	8.8	9.4	8.8	8.9
Precipitation										3.9	0.0		3.9	8.0	15.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
Growing Degrees	5	21.4	20.1	17.9	19.0	17.5	16.2	18.3	19.2	17.5	18.6	16.8	202.3	197.3	178.0
	10	16.4	15.1	12.9	14.0	12.5	11.2	13.3	14.2	12.5	13.6	11.8	147.3	142.3	124.8

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	38.2	45.0	44.4
Precipitation - Reference Evapotranspiration	-34.3	-37.0	-28.5
Number of Rainy Days	1.0	1.0	2.1
Number of Dry Days	20.0	27.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

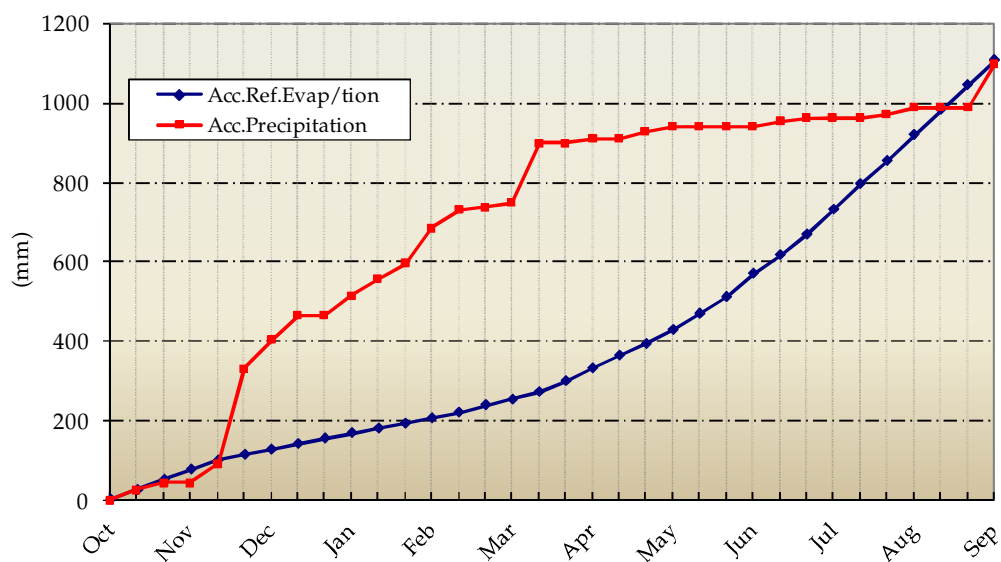


Kalamata

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.1	35.8	38.8	38.6	36.3	31.2	33.1	33.5	32.6	30.4	29.4	33.9	32.7	30.5
	Min	18.8	19.3	18.5	19.9	19.5	16.2	18.6	20.3	18.4	20.5	19.7	19.1	20.0	17.7
Relative Humidity	Max	81	78	77	75	87	81	82	78	82	94	93	83	82	-
	Min	25	16	12	13	21	41	28	28	42	44	55	30	28	-
Soil Temperature at 10 cm	06 UTC	25.8	26.0	26.0	26.4	26.2	25.6	26.0	26.2	26.4	26.4	25.2	26.0	26.2	25.4
	12 UTC	27.6	27.8	27.6	27.8	28.0	27.6	27.6	27.8	28.0	28.0	27.4	27.7	28.9	29.0
Sunshine Duration		11.6	11.0	11.5	11.9	12.0	12.1	12.0	12.2	10.6	9.9	11.3	11.5	10.9	10.0
Precipitation											1.1	110.0	111.1	1.0	3.6
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	71.7	81.7
Growing Degrees	5	21.0	22.6	23.7	24.3	22.9	18.7	20.9	21.9	20.5	20.5	19.6	236.3	235.0	210.0
	10	16.0	17.6	18.7	19.3	17.9	13.7	15.9	16.9	15.5	15.5	14.6	181.3	180.0	155.0

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.7	65.2	52.5
Precipitation - Reference Evapotranspiration	48.4	-64.2	-48.9
Number of Rainy Days	2.0	1.0	0.9
Number of Dry Days	35.0	20.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

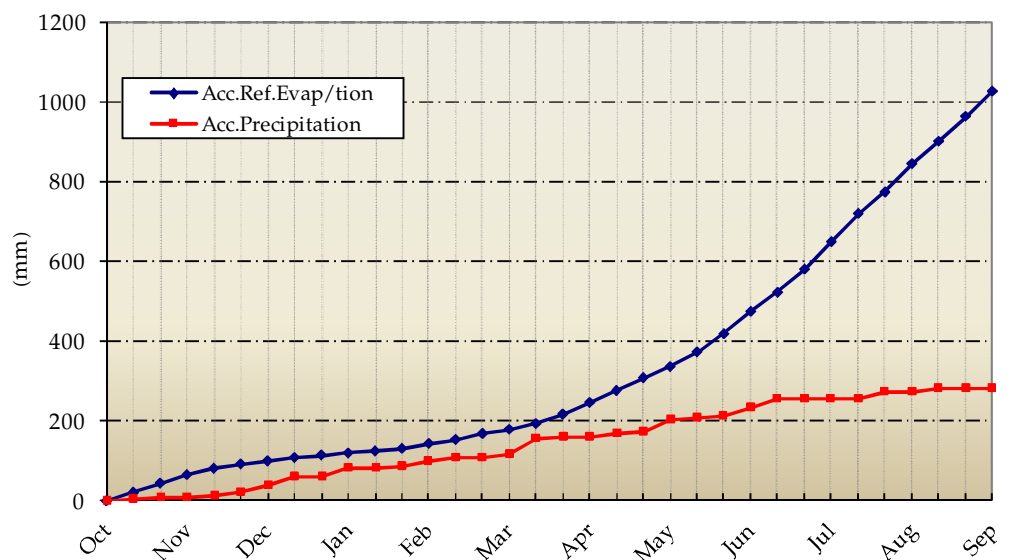


Larisa

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	37.8	36.6	35.2	38.9	32.6	32.8	36.2	36.0	27.6	30.1	31.0	34.1	34.1	31.3
	Min	18.1	21.1	20.3	18.8	19.6	21.0	18.6	18.8	24.0	20.0	15.7	19.6	18.8	16.4
Relative Humidity	Max	93	83	94	80	70	79	83	79	68	90	81	82	69	-
	Min	19	28	29	11	24	34	20	20	51	34	30	27	20	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	27.7
Sunshine Duration		11.0	11.2	11.7	11.6	11.1	9.8	11.1	11.0	1.4	6.0	10.0	9.6	10.0	9.7
Precipitation											0.3		0.3		8.3
Evaporation		10.5	14.2	11.1	13.4	13.7	6.5	12.7	12.8	4.8	5.0	12.0	116.7	110.3	85.2
Growing Degrees	5	23.0	23.9	22.8	23.9	21.1	21.9	22.4	22.4	20.8	20.1	18.4	240.4	236.0	207.5
	10	18.0	18.9	17.8	18.9	16.1	16.9	17.4	17.4	15.8	15.1	13.4	185.4	181.0	152.5

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	62.9	64.4	54.4
Precipitation - Reference Evapotranspiration	-62.6	-64.4	-46.1
Number of Rainy Days	1.0	0.0	1.6
Number of Dry Days	21.0	40.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

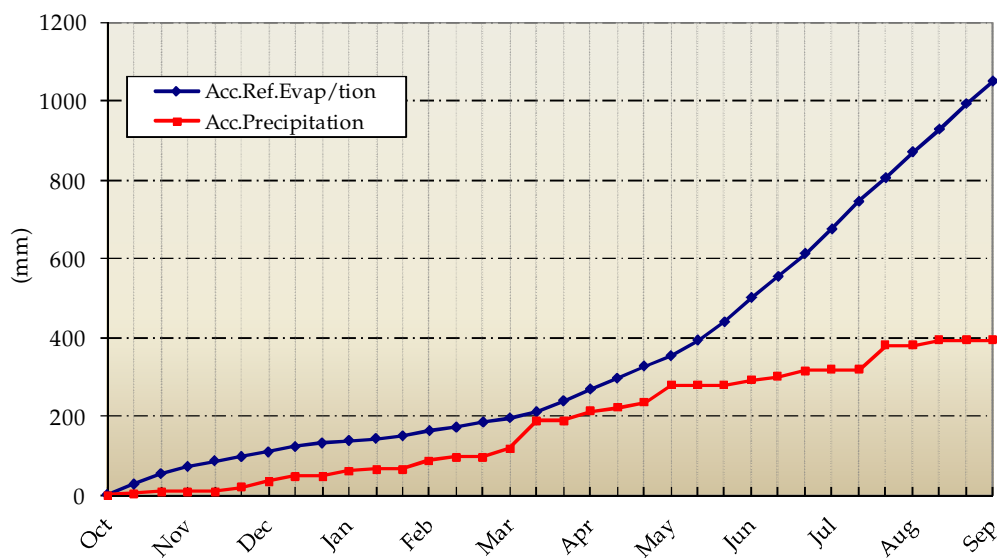


Mikra

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	33.6	33.3	34.1	36.2	31.2	31.0	35.0	33.8	29.0	28.8	30.2	32.4	31.9	29.9
	Min	20.0	20.4	21.1	21.6	22.5	20.6	20.0	19.6	22.0	20.3	18.1	20.6	20.1	17.9
Relative Humidity	Max	81	84	85	83	78	81	83	78	75	72	76	80	72	-
	Min	33	34	32	17	42	43	27	30	41	39	37	34	27	-
Soil Temperature at 10 cm	06 UTC	27.8	28.2	28.8	28.8	28.6	29.0	28.2	28.4	27.0	26.2	27.0	28.0	27.7	25.1
	12 UTC	31.8	33.2	32.8	33.4	33.6	32.2	32.6	32.8	30.8	31.4	31.4	32.4	32.7	29.4
Sunshine Duration		11.1	12.6	11.7	11.8	9.7	9.9	11.7	11.0	4.9	8.6	11.4	10.4	10.2	9.2
Precipitation							0.0			0.9			0.9	10.9	10.5
Evaporation		10.6	10.8	11.2	11.8	11.4	13.0	10.6	11.2	15.3	7.4	6.1	119.4	106.5	84.9
Growing Degrees	5	21.8	21.9	22.6	23.9	21.9	20.8	22.5	21.7	20.5	19.6	19.2	236.2	230.8	208.0
	10	16.8	16.9	17.6	18.9	16.9	15.8	17.5	16.7	15.5	14.6	14.2	181.2	175.8	153.0

3rd 10-day period (21-31/08/2014)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	57.2	62.0
Precipitation - Reference Evapotranspiration	-56.3	-51.1
Number of Rainy Days	1.0	3.0
Number of Dry Days	21.0	7.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

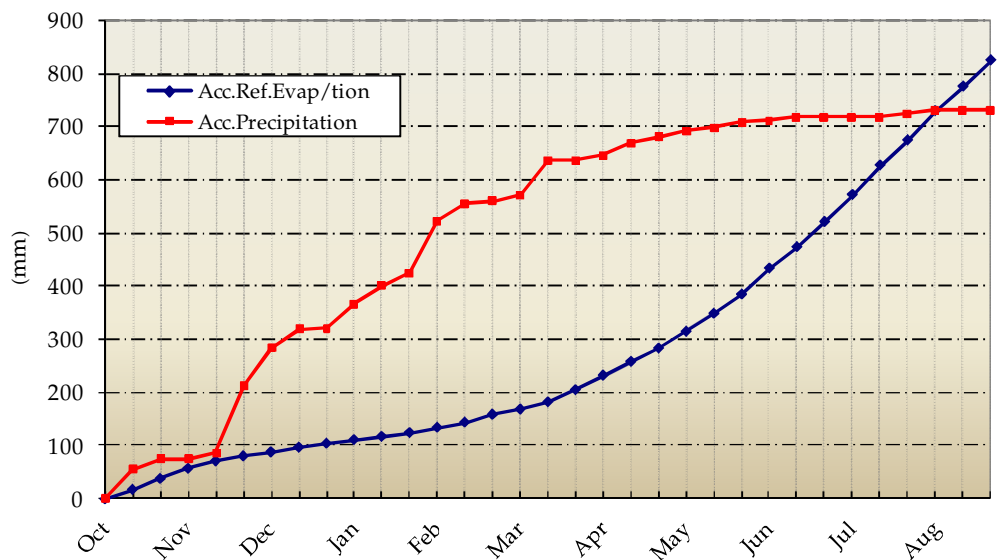


Tripoli

3rd 10-day period (21-31/08/2014)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	35.9	37.5	36.9	35.7	34.8	32.6	33.9	34.8	31.0	29.1	29.5	33.8	31.3	29.3
	Min	14.0	15.8	15.3	14.6	11.8	14.3	14.2	14.5	17.2	14.8	14.2	14.6	13.5	13.3
Relative Humidity	Max	77	74	64	72	73	72	80	82	78	81	97	77	76	-
	Min	12	16	10	12	12	24	21	20	32	31	27	20	17	-
Soil Temperature at 10 cm	06 UTC	26.2	27.0	-	-	26.4	26.6	26.8	27.2	27.6	-	-	26.8	25.2	23.4
	12 UTC	32.2	-	-	-	32.6	32.4	33.9	32.2	30.8	-	-	32.4	30.8	26.2
Sunshine Duration		11.1	11.7	-	0.0	11.8	11.6	11.5	9.9	8.7	-	7.1	9.3	9.5	9.5
Precipitation											0.0	47.6	47.6	0.1	5.3
Evaporation		8.4	-	-	-	10.0	7.2	6.8	7.0	-	-	-	-	-	54.7
Growing Degrees	5	20.0	21.7	21.1	20.2	18.3	18.5	19.1	19.7	19.1	17.0	16.9	211.2	-	179.5
	10	15.0	16.7	16.1	15.2	13.3	13.5	14.1	14.7	14.1	12.0	11.9	156.2	-	124.5

3rd 10-day period (21-31/08/2014)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	48.4	47.4
Precipitation - Reference Evapotranspiration	-	-48.3	-42.1
Number of Rainy Days	1.0	1.0	1.2
Number of Dry Days	23.0	40.0	-

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.

Mesurements 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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