



AGROMETEOROLOGICAL BULLETIN

January 2012
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



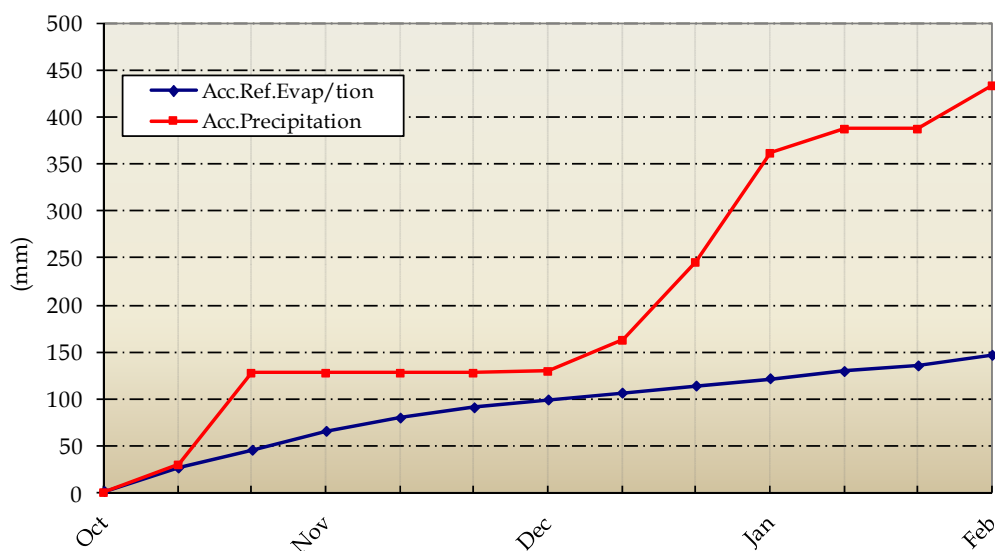
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Web addresses of HNMS
www.hnms.gr
www.emy.gov.gr
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www.meteohellas.gr

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.2	13.4	10.0	11.8	11.2	10.0	11.6	13.0	10.8	9.6	7.6	11.1	12.4	13.9
	Min	4.0	-3.0	2.4	6.4	4.8	0.0	-2.0	-0.8	5.0	3.0	0.0	1.8	4.5	3.3
Relative Humidity	Max	77	92	97	100	97	96	100	82	70	60	62	85	96	-
	Min	57	52	86	92	73	46	34	44	54	35	22	54	58	-
Soil Temperature at 10 cm	06 UTC	5.6	4.6	5.8	7.4	8.0	6.6	5.2	5.2	6.4	5.8	4.6	5.9	8.1	7.1
	12 UTC	6.6	5.2	6.4	8.0	8.4	6.8	6.0	6.4	7.2	6.6	5.2	6.6	9.2	8.9
Sunshine Duration		0.2	8.0	0.0	0.0	3.3	8.4	8.2	8.4	0.0	8.4	9.2	4.9	2.8	4.3
Precipitation		5.0		2.8	24.9	11.8	1.8						46.3	58.2	29.1
Evaporation		0.7	0.8	0.6	0.9	0.9	4.2	1.3	1.9	1.8	0.8	2.3	16.2	15.4	15.2
Growing Degrees	5	3.6	0.2	1.2	4.1	3.0	0.0	0.0	1.1	2.9	1.3	0.0	17.4	39.2	40.2
	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	3.5	5.9

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.4	10.0	11.5
Precipitation - Reference Evapotranspiration	34.9	48.2	17.6
Number of Rainy Days	5.0	8.0	3.9
Number of Dry Days	0.0	8.0	-

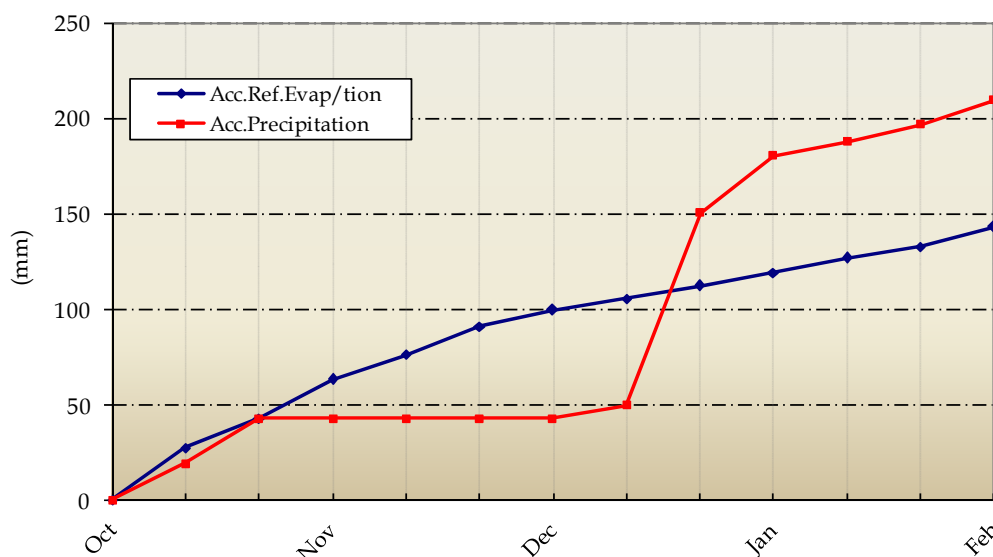
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.0	8.0	13.4	11.4	9.2	7.8	1.6	4.0	1.8	-1.2	-1.4	6.0	7.4	8.8
	Min	3.6	-2.0	-0.8	3.2	7.0	1.4	-2.6	-3.6	-1.2	-7.0	-10.4	-1.1	0.7	1.4
Relative Humidity	Max	95	96	92	92	100	94	78	78	77	59	66	84	93	-
	Min	54	57	61	64	91	60	54	49	30	41	40	55	64	-
Soil Temperature at 10 cm	06 UTC	4.2	3.4	3.2	4.4	6.8	6.8	4.2	2.8	3.0	2.0	1.6	3.9	4.5	4.6
	12 UTC	5.6	5.0	4.2	5.8	6.8	7.4	4.4	3.2	3.4	1.4	1.0	4.4	5.1	5.8
Sunshine Duration		1.4	2.5	8.6	2.5	0.0	1.3	4.7	5.4	0.7	9.0	9.1	4.1	4.2	3.3
Precipitation		3.2			0.0	7.5	2.0						12.7	20.1	16.6
Evaporation		0.0	0.0	0.0	0.0	0.5	2.5	0.0	0.0	0.0	0.0	0.0	3.0	5.5	10.0
Growing Degrees	5	2.3	0.0	1.3	2.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0	9.0	13.8	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	1.4	2.2

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.2	8.5	10.8
Precipitation - Reference Evapotranspiration	2.5	11.6	5.8
Number of Rainy Days	3.0	4.0	2.7
Number of Dry Days	6.0	4.0	-

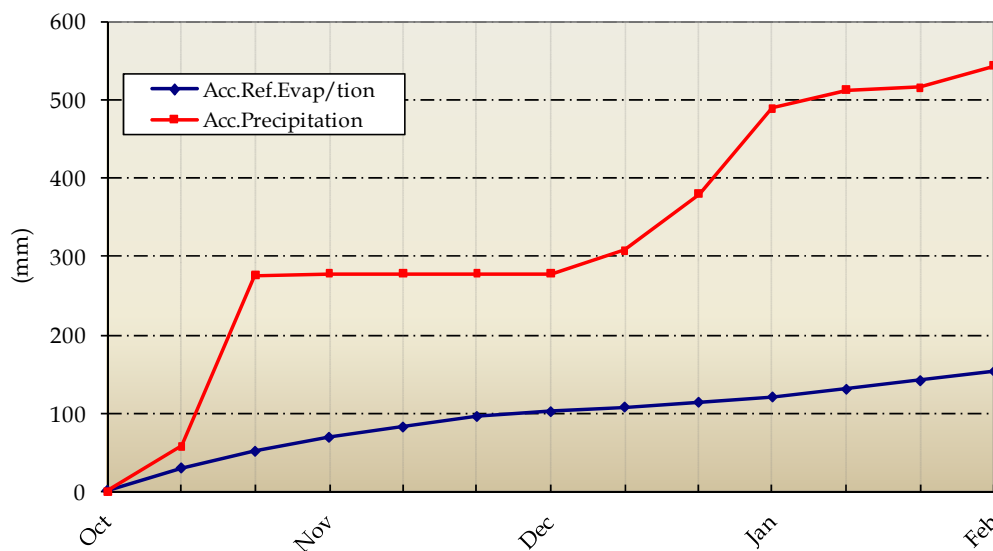
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.4	13.6	15.2	13.6	12.2	10.0	11.0	12.0	10.0	10.0	8.8	11.7	12.8	14.0
	Min	10.2	0.8	7.8	11.0	5.8	5.0	1.6	0.4	5.8	0.4	-3.2	4.1	6.0	5.3
Relative Humidity	Max	95	83	95	98	97	86	92	92	83	89	100	92	93	-
	Min	48	41	73	73	56	41	41	52	48	41	32	50	62	-
Soil Temperature at 10 cm	06 UTC	8.2	5.6	8.4	10.6	9.2	7.6	6.2	5.4	7.8	5.6	4.4	7.2	9.1	8.6
	12 UTC	9.0	11.4	10.0	11.0	10.2	9.0	9.2	8.4	8.6	8.8	7.4	9.4	10.6	10.2
Sunshine Duration		0.0	8.4	1.8	0.0	3.1	6.7	8.5	3.7	0.0	7.5	8.1	4.3	2.7	4.8
Precipitation		4.3			13.4	9.8	0.2						27.7	75.1	33.1
Evaporation		3.9	0.7	0.2	0.5	1.8	0.2	3.9	1.8	0.2	0.2	2.1	15.5	9.8	18.6
Growing Degrees	5	6.3	2.2	6.5	7.3	4.0	2.5	1.3	1.2	2.9	0.2	0.0	34.4	48.2	51.2
	10	1.3	0.0	1.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.3	9.9

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.9	10.0	11.9
Precipitation - Reference Evapotranspiration	15.8	65.1	21.2
Number of Rainy Days	4.0	8.0	4.6
Number of Dry Days	0.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

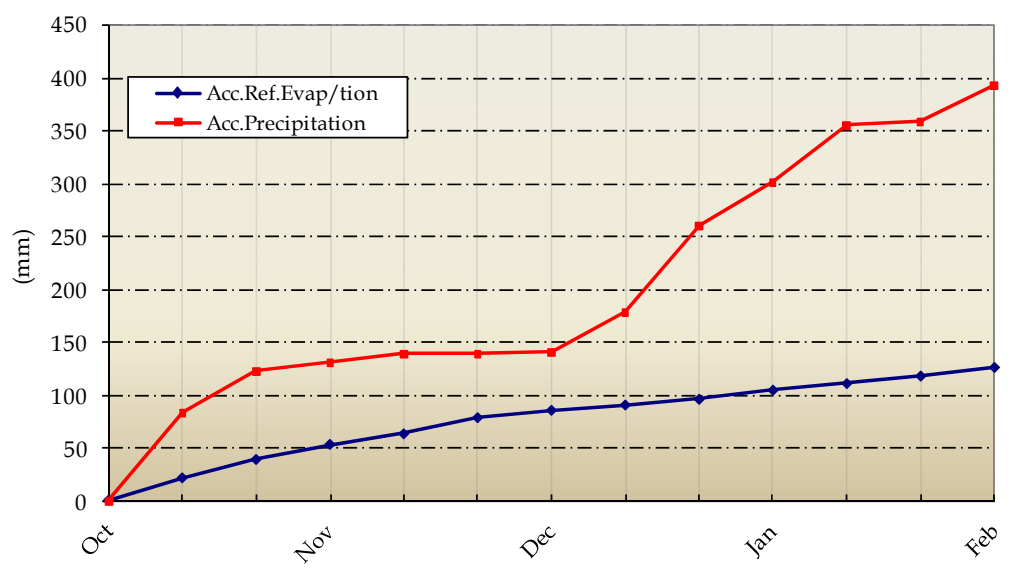


Ioannina

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.0	5.4	13.0	9.0	6.6	5.0	7.0	7.6	7.4	4.6	3.4	7.0	-	9.3
	Min	2.0	-4.8	2.2	6.2	0.8	-3.0	-5.0	-6.0	-0.4	0.8	-1.4	-0.8	-	0.7
Relative Humidity	Max	93	96	96	97	96	96	85	90	89	78	92	92	-	-
	Min	38	34	62	86	76	44	33	34	51	29	34	47	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
Sunshine Duration		2.7	3.3	3.9	0.0	0.0	4.0	5.8	5.4	0.0	6.3	7.3	3.5	-	3.1
Precipitation		15.1		0.3	7.6	10.0	0.9						33.9	-	37.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
Growing Degrees	5	0.0	0.0	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	-	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 (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.3	-	8.6
Precipitation - Reference Evapotranspiration	25.6	-	28.6
Number of Rainy Days	5.0	-	4.3
Number of Dry Days	6.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

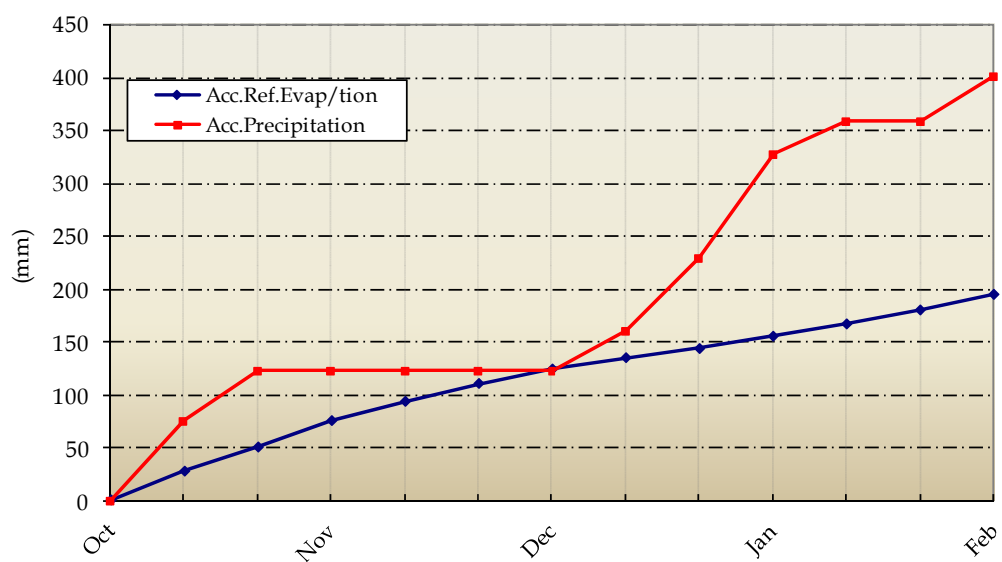


Kalamata

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.0	13.2	14.0	17.0	13.4	10.0	13.6	13.8	12.8	10.8	9.6	12.7	12.3	14.8
	Min	6.8	0.0	4.2	10.6	6.8	3.0	-0.2	3.2	3.4	4.8	3.0	4.1	5.0	5.3
Relative Humidity	Max	95	92	97	100	97	97	93	83	79	56	49	85	98	-
	Min	64	37	78	72	65	61	36	42	44	32	28	51	70	-
Soil Temperature at 10 cm	06 UTC	8.6	6.0	8.2	10.0	10.6	9.2	7.6	8.2	8.0	8.0	6.8	8.3	10.0	9.0
	12 UTC	9.0	8.0	9.2	11.4	11.0	9.8	8.6	9.4	8.6	8.8	7.4	9.2	10.5	10.3
Sunshine Duration		0.0	8.1	1.0	5.5	3.2	3.5	7.3	6.2	1.1	7.0	8.1	4.6	3.1	4.4
Precipitation		8.7	0.5	0.8	20.1	7.2	4.6						41.9	117.2	36.5
Evaporation		0.1	1.7	0.7	1.2	0.7	0.4	3.1	1.6	0.8	6.2	3.4	19.9	13.1	21.4
Growing Degrees	5	4.4	1.6	4.1	8.8	5.1	1.5	1.7	3.5	3.1	2.8	1.3	37.9	40.1	55.6
	10	0.0	0.0	0.0	3.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.4	9.3

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.8	10.4	13.4
Precipitation - Reference Evapotranspiration	27.1	106.8	23.1
Number of Rainy Days	6.0	10.0	4.7
Number of Dry Days	5.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

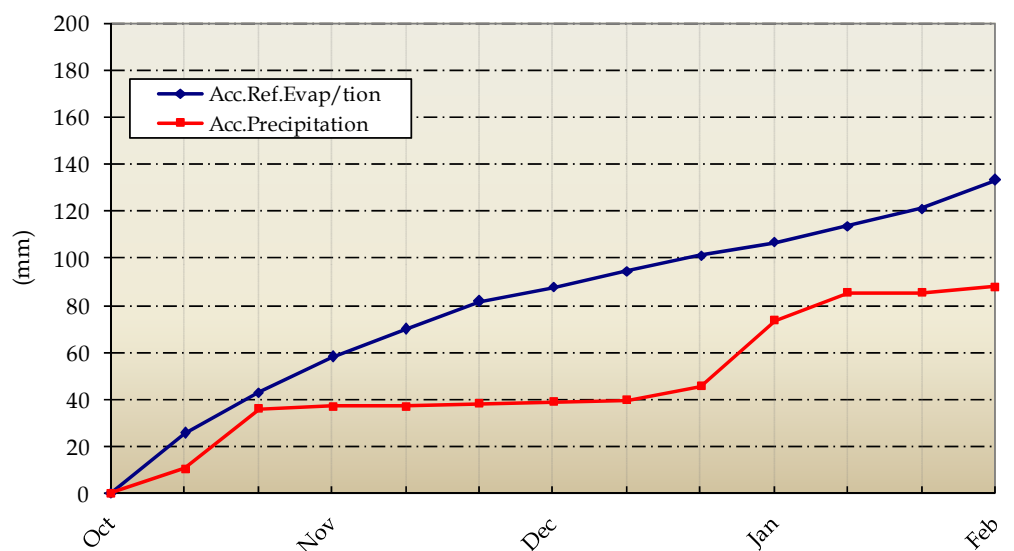


Larisa

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.4	14.2	16.0	12.0	11.2	8.4	8.6	7.6	5.8	5.2	3.0	9.4	9.3	10.7
	Min	3.4	-4.0	-3.0	6.2	2.4	1.6	-0.8	-1.0	3.0	0.8	-1.6	0.6	1.8	1.2
Relative Humidity	Max	91	82	87	94	97	67	78	84	83	72	92	84	94	-
	Min	29	25	39	74	62	42	38	44	63	41	46	46	62	-
Soil Temperature at 10 cm	06 UTC	3.6	2.8	3.0	4.6	4.4	5.4	4.8	4.4	5.2	4.6	4.0	4.3	5.8	5.5
	12 UTC	5.2	3.8	5.6	6.6	7.0	6.6	5.4	4.8	5.0	5.6	5.0	5.5	7.5	6.2
Sunshine Duration		7.0	7.8	7.7	0.0	3.5	1.5	5.7	4.3	0.0	8.1	6.7	4.8	3.0	3.5
Precipitation		1.6			0.8	0.0						0.0	2.4	9.1	10.7
Evaporation		1.2	0.4	1.8	2.0	1.4	3.0	1.8	0.8	1.9	3.8	0.9	19.0	4.4	7.0
Growing Degrees	5	2.4	0.1	1.5	4.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	9.9	15.8	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	0.2	1.5

3rd 10-day period (21-31/01/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	12.0	7.7	8.6
Precipitation - Reference Evapotranspiration	-9.6	1.4	2.1
Number of Rainy Days	2.0	3.0	3.0
Number of Dry Days	13.0	4.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

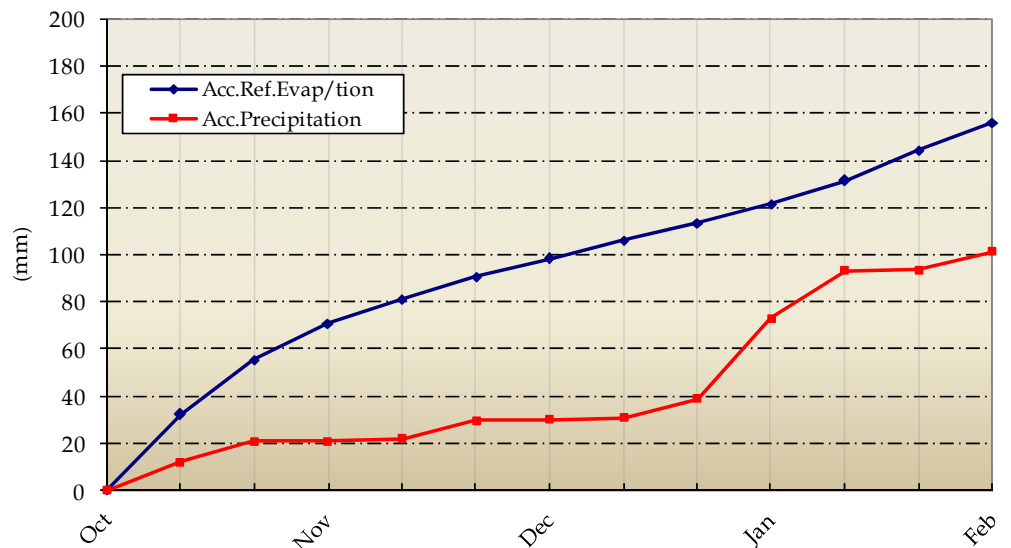


Mikra

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	8.6	10.8	7.0	7.0	4.0	6.4	3.4	4.6	3.4	2.8	6.0	-	9.8
	Min	3.4	-3.2	-3.4	2.4	4.0	2.2	1.0	-3.0	1.4	-4.0	-6.8	-0.5	-	1.9
Relative Humidity	Max	84	79	87	97	100	79	87	87	89	73	80	86	-	-
	Min	40	38	46	84	63	57	42	66	52	39	38	51	-	-
Soil Temperature at 10 cm	06 UTC	4.4	3.2	2.6	5.0	6.4	4.2	3.4	2.6	4.2	2.4	1.8	3.7	-	5.1
	12 UTC	5.0	4.6	4.6	4.2	-	4.6	4.6	4.0	4.2	5.4	2.8	4.4	-	6.5
Sunshine Duration		5.4	6.9	8.8	0.0	0.5	0.5	3.4	0.0	0.0	6.3	8.5	3.7	-	3.5
Precipitation		0.0			1.3	6.7	0.0						8.0	-	11.8
Evaporation		-	0.0	1.5	0.8	0.9	4.1	1.5	0.7	0.2	0.1	-	-	-	12.6
Growing Degrees	5	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	-	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	-	1.5

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.7	-	9.9
Precipitation - Reference Evapotranspiration	-3.7	-	1.9
Number of Rainy Days	2.0	-	3.3
Number of Dry Days	9.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

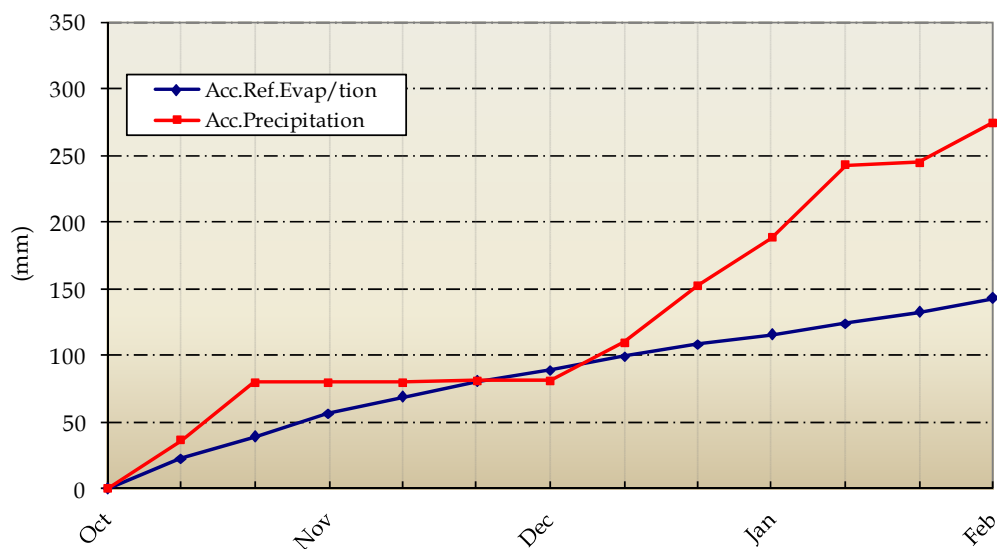


Tripoli

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.5	10.3	10.3	9.5	9.8	5.7	6.7	6.4	3.0	1.9	1.7	6.8	6.9	9.8
	Min	2.9	-5.1	-2.1	6.1	1.9	-0.2	-5.7	-3.9	1.3	-1.8	-4.0	-1.0	0.9	0.9
Relative Humidity	Max	79	92	92	95	89	84	90	90	71	71	72	84	96	-
	Min	36	34	78	81	54	42	45	53	69	58	43	54	75	-
Soil Temperature at 10 cm	06 UTC	3.8	2.0	2.0	4.5	4.8	3.4	1.8	2.2	3.4	2.4	1.2	2.9	4.5	4.6
	12 UTC	5.6	3.4	3.2	6.8	7.0	4.8	3.4	3.8	3.4	3.4	1.2	4.2	5.7	5.4
Sunshine Duration		0.8	7.1	0.3	0.3	6.2	7.2	4.3	4.2	0.0	4.1	7.6	3.8	2.3	4.0
Precipitation		10.9	1.1	0.0	16.4	1.4	0.0						29.8	88.9	32.5
Evaporation		0.0	0.0	0.0	0.5	0.7	0.0	0.0	0.0	1.0	0.0	0.0	2.2	4.6	8.6
Growing Degrees	5	1.2	0.0	0.0	2.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	4.9	5.7	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 (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.5	7.2	11.0
Precipitation - Reference Evapotranspiration	19.3	81.7	21.5
Number of Rainy Days	4.0	9.0	4.6
Number of Dry Days	6.0	8.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

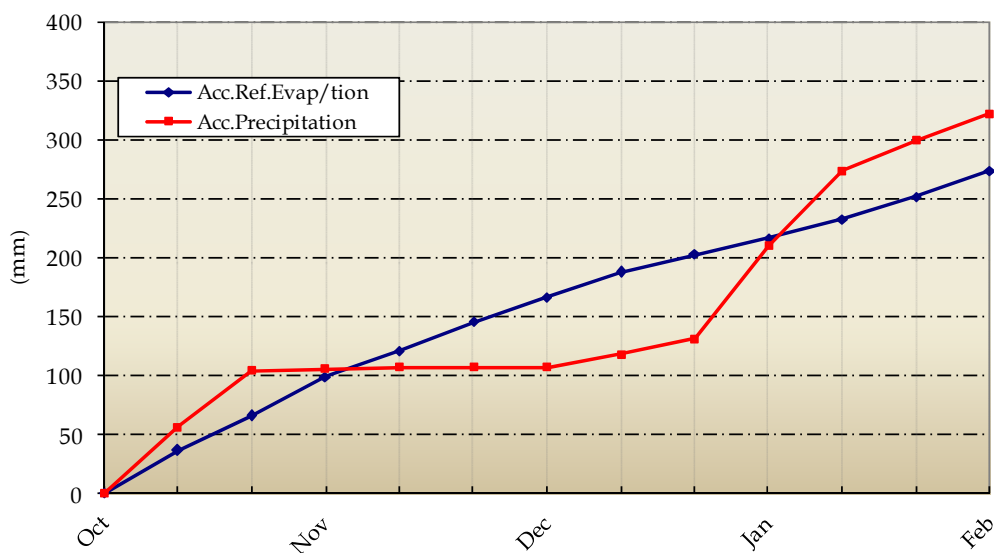


Tympaki

3rd 10-day period (21-31/01/2012)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.8	16.4	16.6	17.0	16.2	13.4	13.4	12.2	14.6	13.4	8.6	14.2	16.9	15.7
	Min	11.2	9.0	3.8	10.4	8.4	7.6	5.6	3.6	6.0	5.6	5.6	7.0	8.9	7.2
Relative Humidity	Max	99	95	99	95	95	87	96	88	90	94	62	91	94	-
	Min	46	23	67	44	38	40	32	37	40	39	34	40	47	-
Soil Temperature at 10 cm	06 UTC	10.6	9.4	8.0	11.4	11.8	11.0	8.6	7.6	8.4	9.0	8.2	9.5	11.9	10.5
	12 UTC	11.2	11.6	10.2	12.8	13.2	12.2	10.6	10.4	11.6	11.2	9.2	11.3	14.1	12.3
Sunshine Duration		0.5	8.8	4.3	1.7	3.6	4.9	8.6	8.6	3.1	6.0	7.7	5.3	4.3	4.9
Precipitation		11.9	3.5		1.3	4.7	0.8	0.1					22.3	34.0	32.4
Evaporation		2.6	2.9	1.1	0.1	3.4	2.1	3.2	3.1	1.1	3.1	2.7	25.4	25.9	25.8
Growing Degrees	5	8.0	7.7	5.2	8.7	7.3	5.5	4.5	2.9	5.3	4.5	2.1	61.7	86.8	70.7
	10	3.0	2.7	0.2	3.7	2.3	0.5	0.0	0.0	0.3	0.0	0.0	12.7	32.0	18.8

3rd 10-day period (21-31/01/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	22.5	17.6	16.3
Precipitation - Reference Evapotranspiration	-0.2	16.4	16.1
Number of Rainy Days	6.0	6.0	3.8
Number of Dry Days	5.0	3.0	-

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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ΥΠΗΡΕΣΙΑ

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