



# AGROMETEOROLOGICAL BULLETIN

*March 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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Division of Climatology-Applications  
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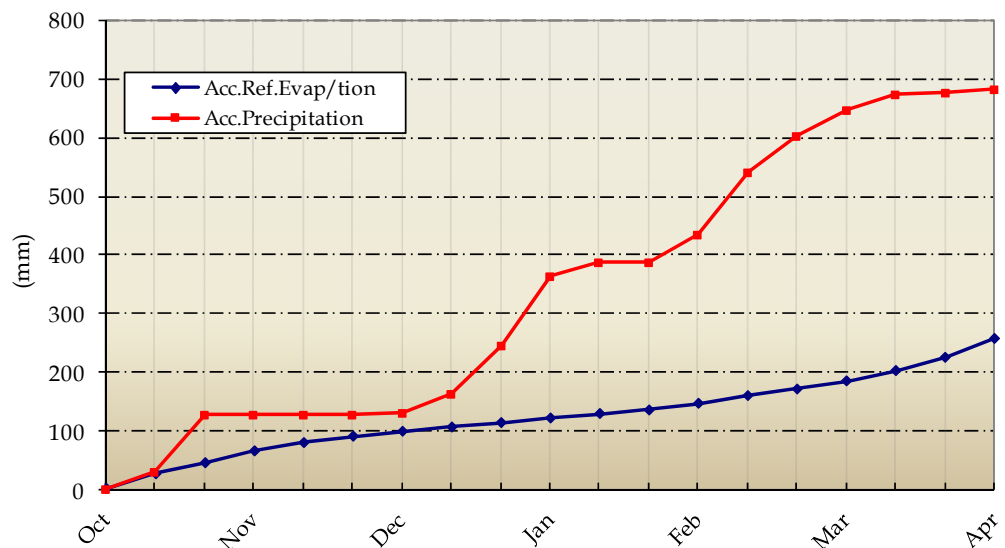
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Agrinio

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.0	25.8	22.8	23.4	21.6	22.6	22.4	22.0	20.4	19.2	20.4	22.4	18.3	18.4
	Min	7.0	6.6	7.2	7.6	7.0	4.2	5.6	9.0	6.4	5.6	6.6	6.6	5.5	6.3
Relative Humidity	Max	94	74	79	86	94	92	82	92	87	97	94	88	94	-
	Min	27	23	28	36	49	36	35	35	40	53	48	37	46	-
Soil Temperature at 10 cm	06 UTC	12.0	12.6	13.2	12.6	13.0	12.4	13.0	13.4	13.4	14.0	13.8	13.0	11.5	10.5
	12 UTC	14.8	14.6	15.2	15.0	15.2	15.0	15.4	15.8	16.0	16.6	17.2	15.5	13.6	14.3
Sunshine Duration		9.3	9.8	5.0	9.9	5.8	9.5	10.6	7.5	10.0	9.9	10.5	8.9	7.0	6.1
Precipitation						6.0							6.0	11.2	24.6
Evaporation		5.0	3.8	4.0	4.1	5.3	3.8	2.8	3.1	5.1	4.0	3.2	44.2	37.4	38.9
Growing Degrees	5	11.5	11.2	10.0	10.5	9.3	8.4	9.0	10.5	8.4	7.4	8.5	104.7	76.1	80.5
	10	6.5	6.2	5.0	5.5	4.3	3.4	4.0	5.5	3.4	2.4	3.5	49.7	22.5	29.2

3rd 10-day period (21-31/03/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	32.2	25.7	26.3
Precipitation - Reference Evapotranspiration	-26.2	-14.5	-1.7
Number of Rainy Days	1.0	3.0	3.6
Number of Dry Days	13.0	7.0	-

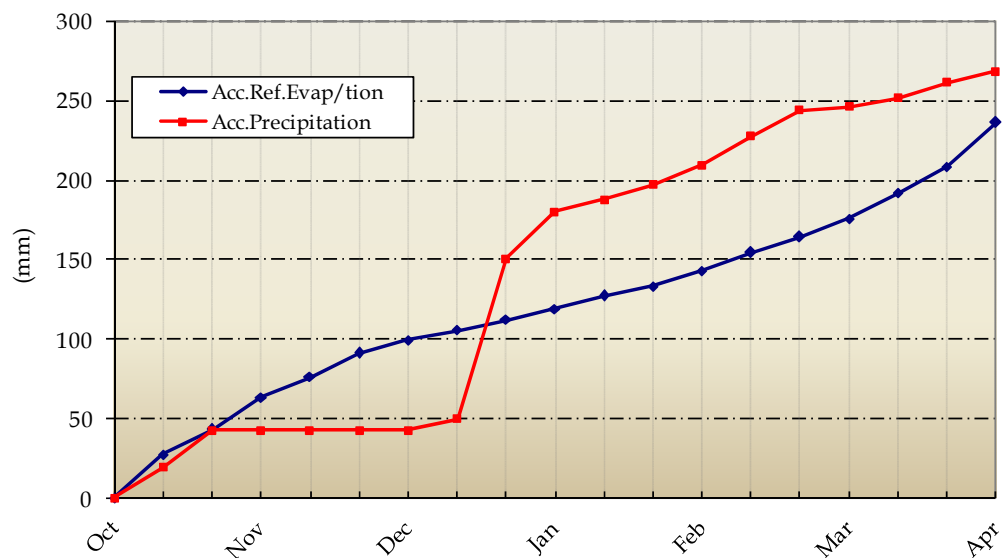
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	18.2	20.0	18.6	20.8	22.0	18.4	14.0	16.2	16.4	15.4	16.8	17.9	15.5	14.1
	Min	4.0	4.4	5.6	3.6	4.0	6.2	5.4	4.0	4.2	7.4	3.6	4.8	6.2	4.9
Relative Humidity	Max	93	84	91	90	85	85	76	94	97	95	93	89	89	-
	Min	40	34	40	34	29	50	30	49	53	77	42	43	56	-
Soil Temperature at 10 cm	06 UTC	10.0	10.6	10.8	11.0	11.4	11.8	9.8	10.6	10.6	12.2	9.6	10.8	9.6	8.3
	12 UTC	12.8	13.6	13.8	14.2	14.2	14.0	12.4	13.4	14.0	13.4	13.8	13.6	11.4	11.0
Sunshine Duration		9.9	10.3	11.2	10.9	10.2	5.6	10.8	9.7	11.4	0.1	11.1	9.2	7.1	5.5
Precipitation							3.5				3.7		7.2	1.8	15.2
Evaporation		4.8	1.2	4.0	4.5	4.2	0.0	3.8	4.6	-	7.7	5.5	-	24.5	32.3
Growing Degrees	5	6.1	7.2	7.1	7.2	8.0	7.3	4.7	5.1	5.3	6.4	5.2	69.6	64.1	51.2
	10	1.1	2.2	2.1	2.2	3.0	2.3	0.0	0.1	0.3	1.4	0.2	14.9	18.4	11.3

3rd 10-day period (21-31/03/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	27.5	24.5	23.3
Precipitation - Reference Evapotranspiration	-20.3	-22.7	-8.1
Number of Rainy Days	2.0	2.0	2.7
Number of Dry Days	10.0	8.0	-

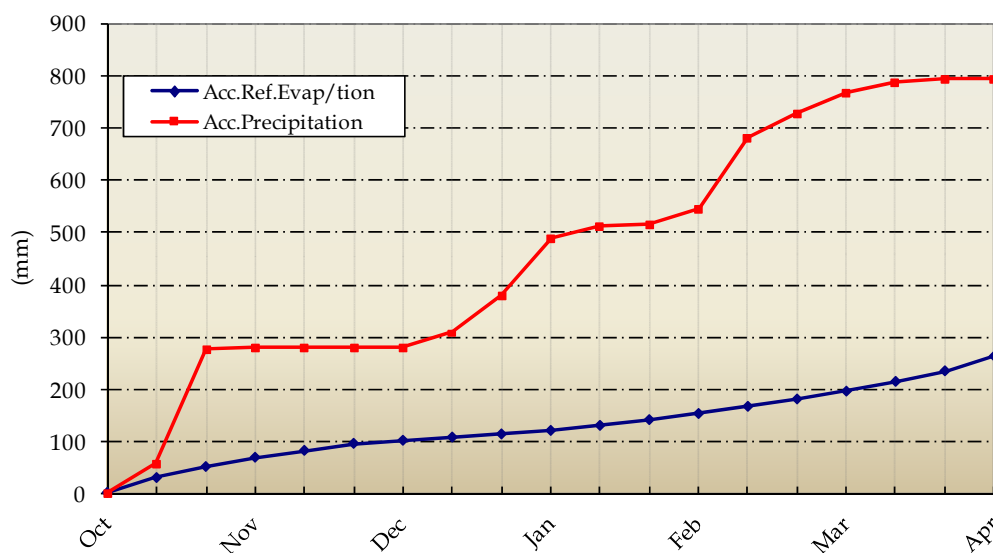
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	20.8	20.6	19.8	19.0	18.0	21.2	18.8	19.0	18.4	18.2	19.5	17.3	17.4
	Min	6.8	8.0	7.8	6.8	9.0	6.6	6.8	8.8	9.2	0.8	8.6	7.2	7.5	7.7
Relative Humidity	Max	97	98	97	98	97	100	100	100	97	100	100	99	93	-
	Min	60	51	47	56	59	64	39	45	67	64	65	56	51	-
Soil Temperature at 10 cm	06 UTC	12.4	13.6	13.8	13.2	14.0	13.6	14.0	14.4	14.4	14.2	14.2	13.8	12.4	11.5
	12 UTC	17.0	17.4	16.4	17.6	18.0	18.0	18.2	18.2	17.8	17.6	17.4	17.6	15.8	14.2
Sunshine Duration		9.4	10.1	3.3	10.2	8.3	9.3	9.8	9.1	9.6	10.3	9.8	9.0	6.8	6.8
Precipitation														7.3	19.5
Evaporation		3.9	3.0	3.4	2.3	2.4	4.0	3.2	3.5	3.2	2.5	5.0	36.4	33.1	33.3
Growing Degrees	5	8.7	9.4	9.2	8.3	9.0	7.3	9.0	8.8	9.1	4.6	8.4	91.8	81.3	83.1
	10	3.7	4.4	4.2	3.3	4.0	2.3	4.0	3.8	4.1	0.0	3.4	37.2	27.5	30.3

3rd 10-day period (21-31/03/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	28.5	26.0	27.1
Precipitation - Reference Evapotranspiration	-28.5	-18.7	-7.6
Number of Rainy Days	0.0	4.0	3.2
Number of Dry Days	19.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

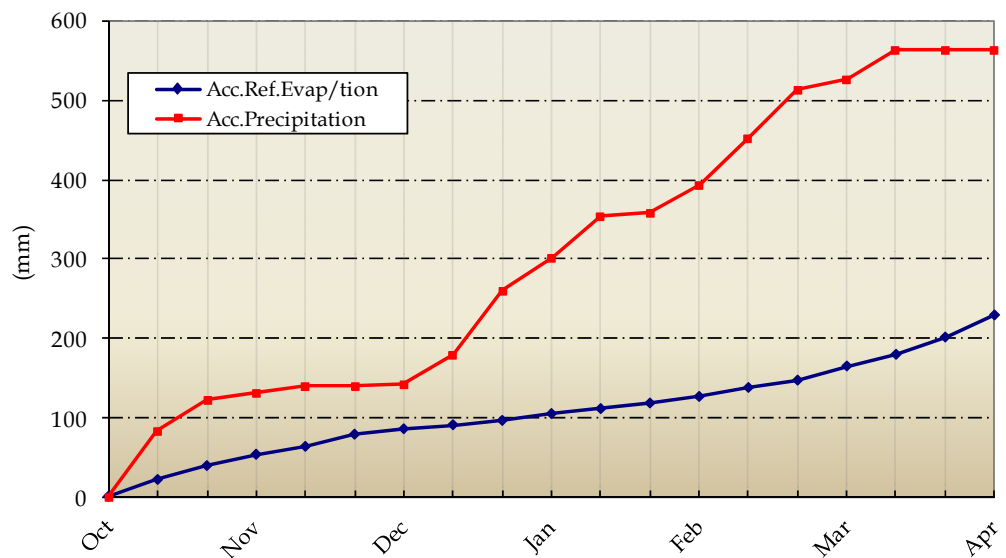


Ioannina

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	23.0	23.2	20.2	22.0	21.0	19.0	20.2	19.0	18.6	16.8	19.0	20.2	-	15.1
	Min	4.0	6.0	5.0	4.0	9.0	1.2	2.2	1.0	1.0	5.0	2.0	3.7	-	4.4
Relative Humidity	Max	81	85	85	83	82	89	78	85	88	97	94	86	-	-
	Min	30	25	27	23	21	38	23	18	32	45	45	30	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	10.5
Sunshine Duration		7.3	7.3	5.2	7.9	5.4	6.4	8.7	8.7	8.8	5.8	6.2	7.1	-	4.7
Precipitation														-	32.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	28.9
Growing Degrees	5	8.5	9.6	7.6	8.0	10.0	5.1	6.2	5.0	4.8	5.9	5.5	76.2	-	50.7
	10	3.5	4.6	2.6	3.0	5.0	0.1	1.2	0.0	0.0	0.9	0.5	21.4	-	11.1

3rd 10-day period (21-31/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	28.0	-	22.4
Precipitation - Reference Evapotranspiration	-28.0	-	9.9
Number of Rainy Days	0.0	-	3.9
Number of Dry Days	20.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

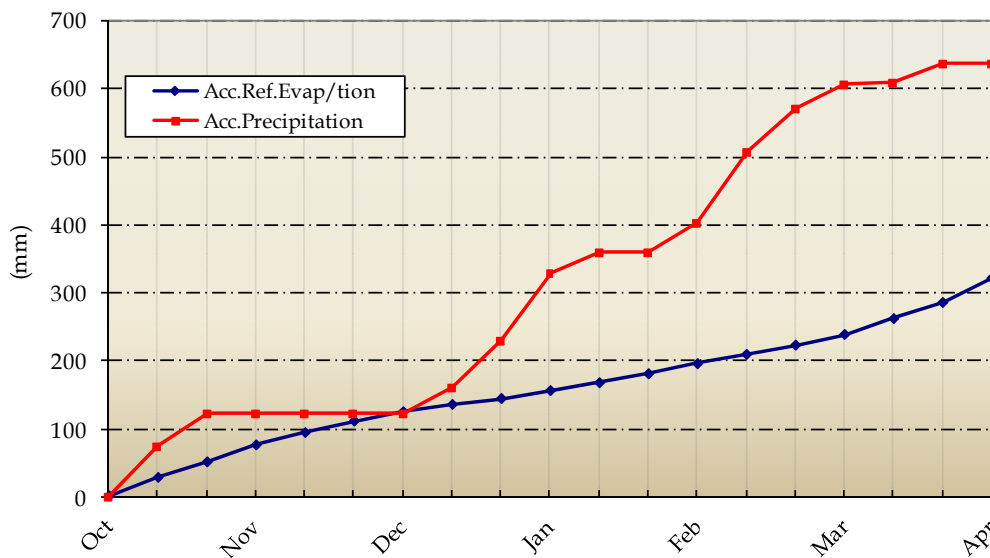


Kalamata

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.0	21.8	19.4	19.4	20.7	19.8	20.7	19.6	20.9	19.4	20.5	18.3	17.8
	Min	6.0	6.9	8.0	5.2	7.3	7.2	7.0	7.0	6.2	5.1	6.4	6.6	6.7	6.9
Relative Humidity	Max	94	87	84	91	92	89	93	94	94	95	95	92	94	-
	Min	36	34	30	39	46	32	42	53	47	44	52	41	47	-
Soil Temperature at 10 cm	06 UTC	12.4	12.6	13.0	12.6	12.0	13.0	13.2	12.0	13.0	13.0	13.0	12.7	12.7	11.8
	12 UTC	14.6	14.8	15.0	14.6	15.0	15.0	15.0	15.0	14.8	15.0	15.4	14.9	14.2	14.2
Sunshine Duration		9.3	10.2	6.3	9.7	8.5	11.0	7.4	11.2	9.6	11.2	10.9	9.6	7.1	6.5
Precipitation								0.3	0.3				0.6	19.7	20.1
Evaporation		7.0	4.8	5.2	4.0	3.6	4.0	4.3	1.1	3.2	6.0	3.8	47.0	45.4	37.4
Growing Degrees	5	9.1	9.5	9.9	7.3	8.4	9.0	8.4	8.9	7.9	8.0	7.9	94.1	82.2	81.3
	10	4.1	4.5	4.9	2.3	3.4	4.0	3.4	3.9	2.9	3.0	2.9	39.1	27.2	28.3

3rd 10-day period (21-31/03/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	35.6	29.6	27.8
Precipitation - Reference Evapotranspiration	-35.0	-9.9	-7.7
Number of Rainy Days	2.0	3.0	3.3
Number of Dry Days	13.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

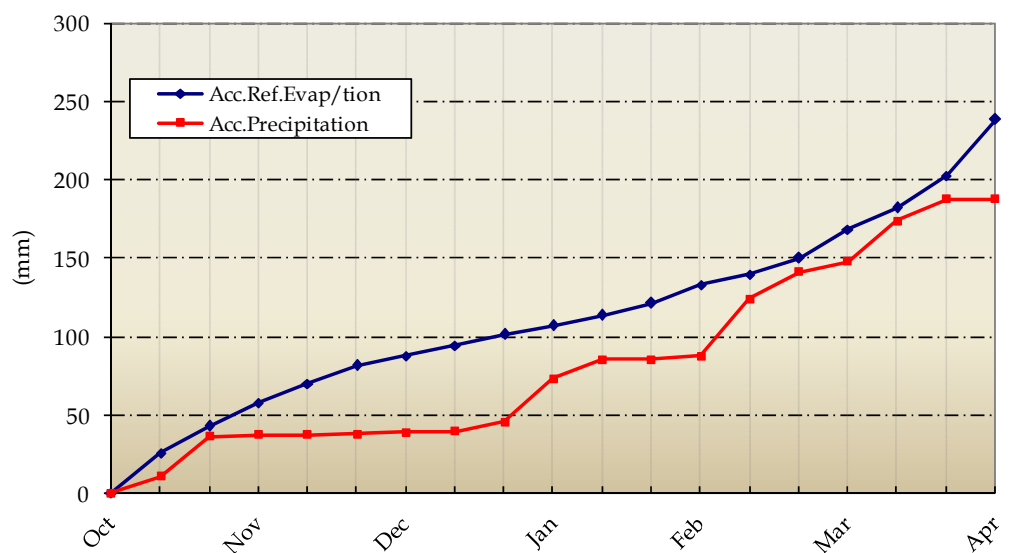


Larisa

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.4	22.8	21.9	23.0	22.4	23.0	17.8	20.2	22.0	23.0	21.9	22.0	18.3	16.9
	Min	4.6	6.2	3.8	4.1	5.0	3.8	8.8	2.6	1.6	7.2	5.0	4.8	6.4	4.2
Relative Humidity	Max	79	88	84	89	82	80	86	90	84	73	82	83	90	-
	Min	50	23	25	21	20	20	37	20	23	24	31	27	43	-
Soil Temperature at 10 cm	06 UTC	10.6	11.0	11.2	11.6	11.0	11.0	12.6	12.0	11.0	12.0	12.6	11.5	10.5	10.0
	12 UTC	12.0	14.0	-	12.6	12.2	18.2	16.0	14.6	13.2	13.8	13.6	14.0	11.7	11.4
Sunshine Duration		9.3	9.2	8.5	9.6	7.8	8.3	9.5	9.1	10.1	6.6	8.5	8.8	6.7	6.0
Precipitation														3.6	11.3
Evaporation		2.8	5.0	4.8	4.2	7.9	3.1	5.3	4.5	4.4	10.8	6.2	59.0	35.9	32.5
Growing Degrees	5	9.5	9.5	7.9	8.6	8.7	8.4	8.3	6.4	6.8	10.1	8.5	92.6	80.8	61.7
	10	4.5	4.5	2.9	3.6	3.7	3.4	3.3	1.4	1.8	5.1	3.5	37.6	26.9	16.3

3rd 10-day period (21-31/03/2012)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	35.7	28.6	25.6
Precipitation - Reference Evapotranspiration	-35.7	-25.0	-14.3
Number of Rainy Days	0.0	3.0	3.1
Number of Dry Days	18.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

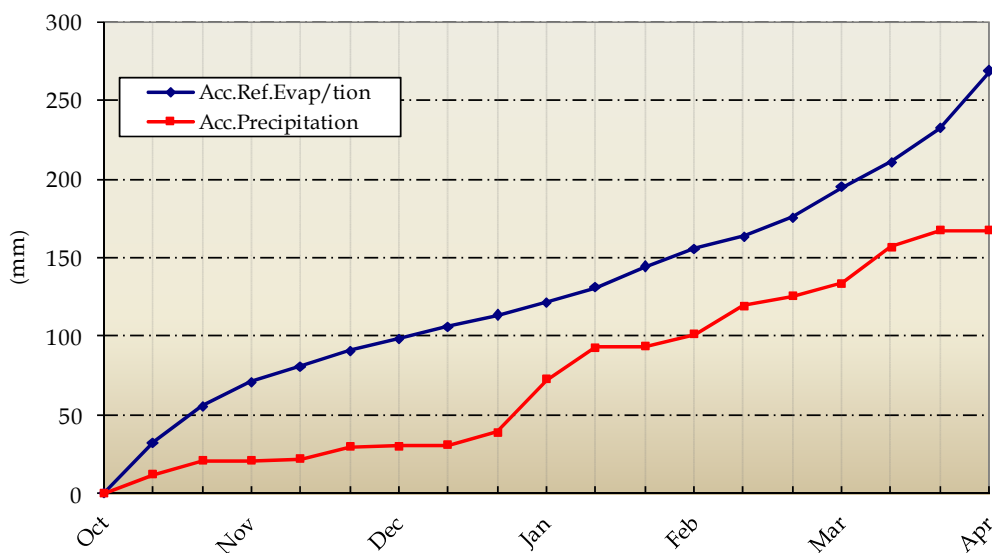


Mikra

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	21.9	20.2	20.7	22.0	21.0	18.2	20.0	20.8	23.8	19.6	21.0	-	16.0
	Min	5.4	6.0	5.6	4.0	6.0	10.2	10.4	4.9	5.0	8.8	8.4	6.8	-	5.7
Relative Humidity	Max	94	83	74	82	79	69	83	85	75	68	68	78	-	-
	Min	32	22	31	31	22	26	31	25	27	26	30	28	-	-
Soil Temperature at 10 cm	06 UTC	11.2	11.2	11.2	11.2	11.4	13.0	12.0	12.2	12.0	13.0	12.0	11.9	-	9.6
	12 UTC	13.6	14.6	14.6	14.0	15.4	15.0	15.4	15.2	15.0	15.8	15.4	14.9	-	12.9
Sunshine Duration		10.0	10.3	9.6	9.7	9.4	10.2	9.3	10.6	6.3	4.9	7.3	8.9	-	5.4
Precipitation														-	11.2
Evaporation		3.4	5.4	2.8	4.8	6.0	8.2	2.8	5.8	2.4	6.0	5.0	52.6	-	35.2
Growing Degrees	5	9.0	9.0	7.9	7.4	9.0	10.6	9.3	7.5	7.9	11.3	9.0	97.8	-	64.3
	10	4.0	4.0	2.9	2.4	4.0	5.6	4.3	2.5	2.9	6.3	4.0	42.8	-	17.2

3rd 10-day period (21-31/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.2	-	25.7
Precipitation - Reference Evapotranspiration	-36.2	-	-14.5
Number of Rainy Days	0.0	-	2.7
Number of Dry Days	19.0	-	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



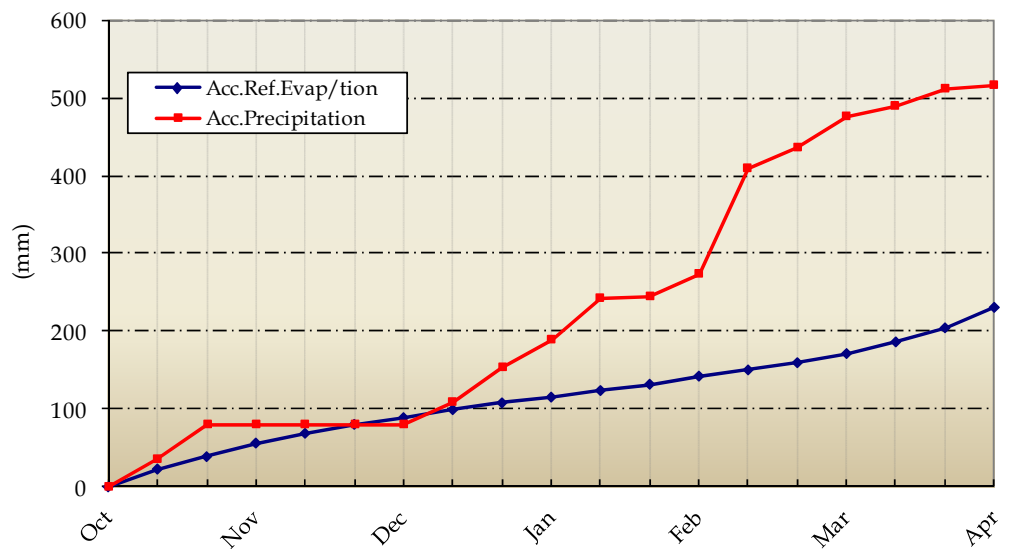


Tripoli

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.2	20.8	18.7	19.3	18.7	19.1	15.2	15.4	16.5	16.8	18.6	18.2	15.2	14.8
	Min	2.9	1.9	1.9	0.8	3.1	-0.2	3.4	2.1	-0.3	2.7	1.1	1.8	2.8	3.1
Relative Humidity	Max	84	87	71	72	92	97	91	93	97	84	92	87	89	-
	Min	29	49	40	52	74	59	74	61	57	23	30	50	47	-
Soil Temperature at 10 cm	06 UTC	8.6	9.0	9.2	8.8	9.8	8.2	9.4	8.6	8.0	8.4	-	8.8	7.6	7.9
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	12.4	9.5
Sunshine Duration		10.5	10.1	5.5	9.7	4.7	7.8	6.1	5.6	9.5	-	-	7.7	7.4	6.3
Precipitation						3.5	0.0	1.6	0.0				5.1	27.5	22.9
Evaporation		2.6	3.7	4.3	1.8	3.0	1.4	1.6	3.7	2.8	-	-	-	26.5	26.8
Growing Degrees	5	7.1	6.4	5.3	5.1	5.9	4.5	4.3	3.8	3.1	4.8	4.9	54.9	44.6	45.6
	10	2.1	1.4	0.3	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	4.7	6.0	7.9

3rd 10-day period (21-31/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	26.4	27.0	25.6
Precipitation - Reference Evapotranspiration	-21.3	0.5	-2.7
Number of Rainy Days	2.0	3.0	3.9
Number of Dry Days	11.0	0.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

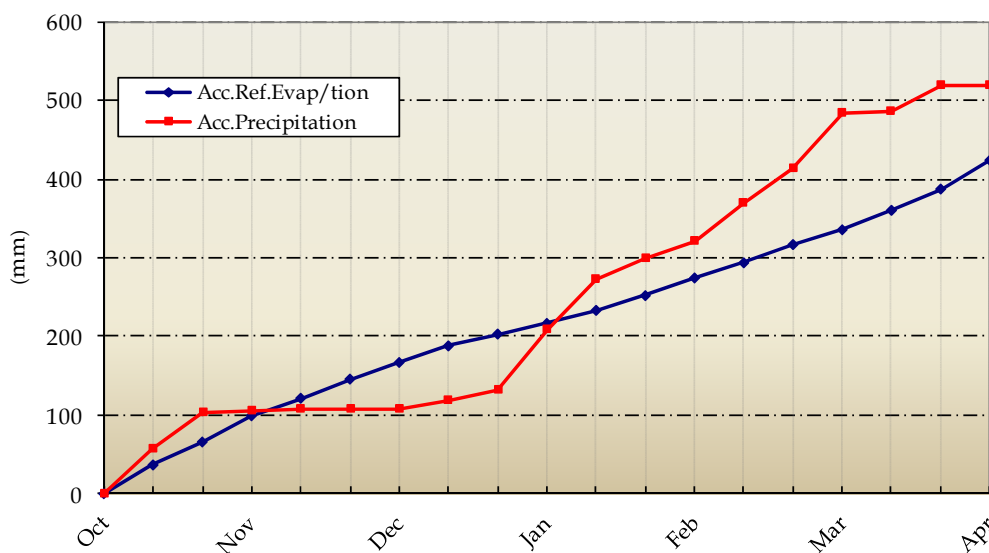


Tympaki

3rd 10-day period (21-31/03/2012)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.8	22.4	20.4	17.8	18.4	20.8	21.4	19.2	19.0	17.8	18.0	19.8	19.0	18.4
	Min	6.2	8.0	6.2	8.0	7.6	6.2	6.0	6.8	4.6	4.6	8.4	6.6	9.3	8.9
Relative Humidity	Max	87	94	90	96	94	91	91	91	91	90	90	91	88	-
	Min	20	19	40	43	46	23	27	38	34	65	65	38	39	-
Soil Temperature at 10 cm	06 UTC	13.2	14.0	13.6	14.2	14.8	14.6	14.4	14.4	14.4	14.6	15.2	14.3	15.0	14.3
	12 UTC	19.2	20.0	19.2	19.4	20.4	20.0	20.2	21.0	21.0	19.8	21.6	20.2	19.1	17.1
Sunshine Duration		10.7	10.9	9.1	5.7	7.9	10.5	10.6	10.0	10.7	10.3	11.0	9.8	8.1	7.3
Precipitation														2.5	10.6
Evaporation		4.9	5.0	4.3	3.9	2.7	5.3	5.4	4.7	5.1	3.8	6.1	51.2	56.0	46.0
Growing Degrees	5	9.5	10.2	8.3	7.9	8.0	8.5	8.7	8.0	6.8	6.2	8.2	90.3	100.8	95.2
	10	4.5	5.2	3.3	2.9	3.0	3.5	3.7	3.0	1.8	1.2	3.2	35.3	45.8	40.5

3rd 10-day period (21-31/03/2012)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	36.6	36.8	30.5
Precipitation - Reference Evapotranspiration	-36.6	-34.3	-19.9
Number of Rainy Days	0.0	3.0	1.9
Number of Dry Days	17.0	2.0	-

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<sub>n</sub> 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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ΥΠΗΡΕΣΙΑ

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