



AGROMETEOROLOGICAL BULLETIN

February 2013
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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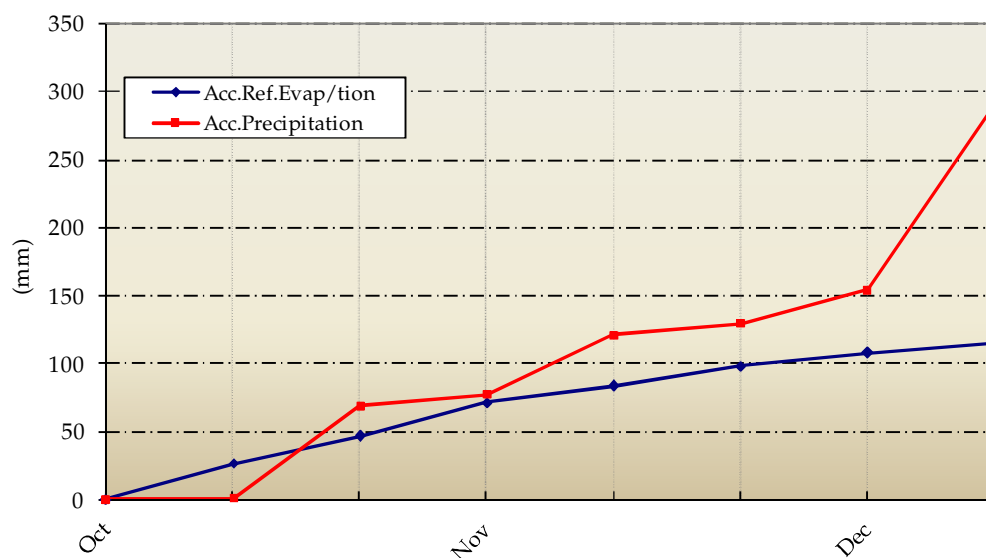
Agrinio

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-		14.6	14.5
	Min	5.6	8.6	-	-	12.0	6.2	5.1	2.6	6.7	3.8	3.6
Relative Humidity	Max	89	-	-	89	72	100	91	97	90	87	-
	Min	78	-	-	40	55	72	69	47	60	54	-
Soil Temperature at 10 cm	06 UTC	9.0	9.4	-	-	11.6	11.4	10.2	9.2	10.1	8.4	7.6
	12 UTC	9.2	10.0	-	-	13.0	12.4	11.2	10.8	11.1	9.1	10.5
Sunshine Duration		0.0	-	-	-	3.9	2.0	4.8	10.2	4.2	5.1	5.1
Precipitation		1.9	2.5				8.7	3.7		-	43.1	30.5
Evaporation		2.4	-	-	4.0	5.9	2.6	2.9	3.5	-	-	16.9
Growing Degrees	5	-	-	-	-	-	-	-	-	-	37.7	34.1
	10	-	-	-	-	-	-	-	-	-	2.4	6.4

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	13.9	12.9
Precipitation - Reference Evapotranspiration	-	29.2	17.6
Number of Rainy Days	4.0	3.0	3.0
Number of Dry Days	1.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

This station is not fully operated

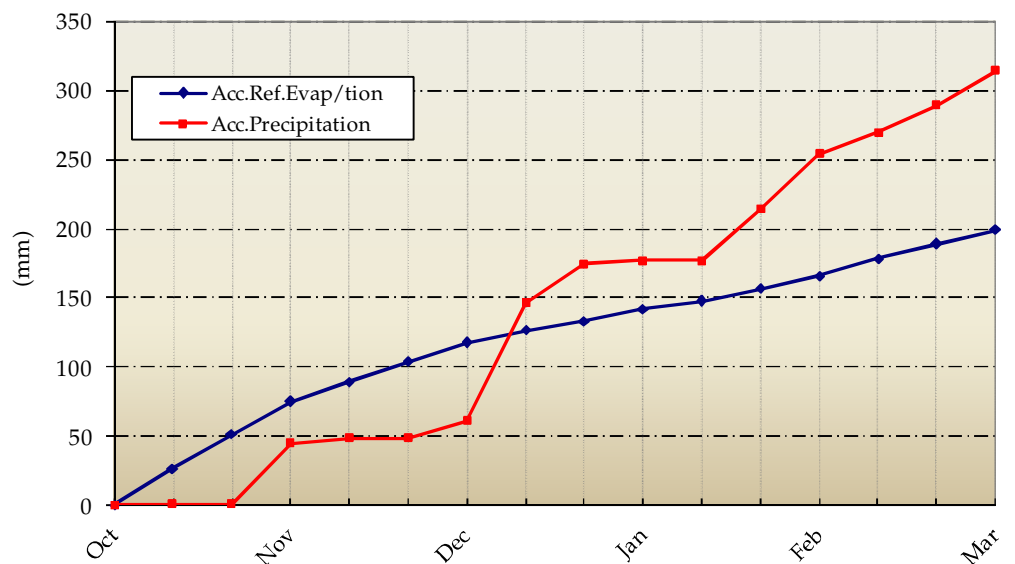


Alexandroupoli

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.2	8.2	12.4	16.0	18.6	13.4	11.0	10.8	12.3	9.9	9.7
	Min	0.5	4.6	6.2	6.6	6.0	7.4	4.8	3.6	5.0	0.6	1.6
Relative Humidity	Max	94	97	97	91	86	95	94	86	92	92	-
	Min	71	86	69	65	56	72	67	35	65	56	-
Soil Temperature at 10 cm	06 UTC	5.0	6.4	7.0	7.6	7.4	10.0	8.0	7.2	7.3	5.2	5.7
	12 UTC	6.6	6.8	9.6	9.6	11.0	10.0	9.2	7.6	8.8	6.4	7.3
Sunshine Duration		0.2	0.0	4.5	7.5	8.1	2.4	1.8	3.8	3.5	5.1	4.8
Precipitation			14.0				10.8			24.8	2.0	14.4
Evaporation		0.8	0.0	1.9	1.0	3.6	0.0	2.9	0.6	10.8	5.5	9.4
Growing Degrees	5	0.0	1.4	4.3	6.3	7.3	5.4	2.9	2.2	29.8	13.5	17.0
	10	0.0	0.0	0.0	1.3	2.3	0.4	0.0	0.0	4.0	0.0	2.5

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.2	11.9	12.0
Precipitation - Reference Evapotranspiration	14.6	-9.9	2.4
Number of Rainy Days	2.0	3.0	1.9
Number of Dry Days	1.0	9.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

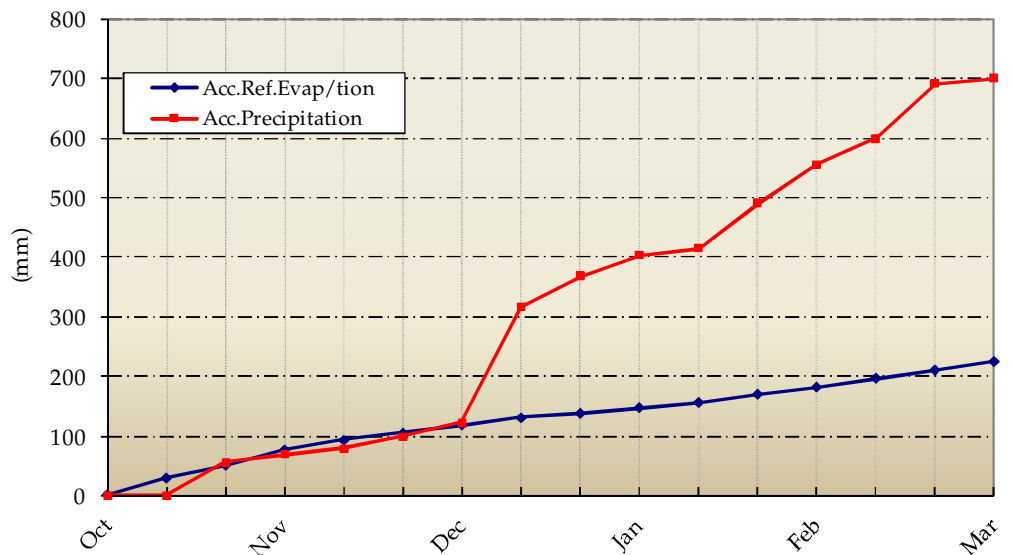


Andravida

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.9	15.0	16.5	22.6	19.2	16.4	12.6	14.4	16.3	13.9	14.1
	Min	7.0	11.0	9.0	8.2	12.2	7.5	6.5	5.8	8.4	5.1	5.3
Relative Humidity	Max	82	89	89	86	87	90	88	89	88	87	-
	Min	48	71	68	33	49	53	60	55	55	55	-
Soil Temperature at 10 cm	06 UTC	11.0	11.4	11.2	11.2	13.2	12.0	11.6	10.8	11.6	8.9	9.0
	12 UTC	11.2	12.4	13.2	14.0	14.2	14.4	13.0	14.2	13.3	10.9	11.2
Sunshine Duration		0.0	2.2	5.2	6.8	2.6	7.1	5.6	8.7	4.8	4.4	5.7
Precipitation		0.1					1.9	6.0	1.1	9.1	38.2	22.1
Evaporation		8.9	1.3	-	6.3	1.6	0.0	-	2.1	-	-	19.2
Growing Degrees	5	5.5	8.0	7.8	10.4	10.7	7.0	4.6	5.1	58.9	40.7	39.2
	10	0.5	3.0	2.8	5.4	5.7	2.0	0.0	0.1	19.4	4.7	8.3

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.4	15.0	12.9
Precipitation - Reference Evapotranspiration	-5.3	23.2	9.2
Number of Rainy Days	4.0	4.0	3.2
Number of Dry Days	0.0	2.0	-

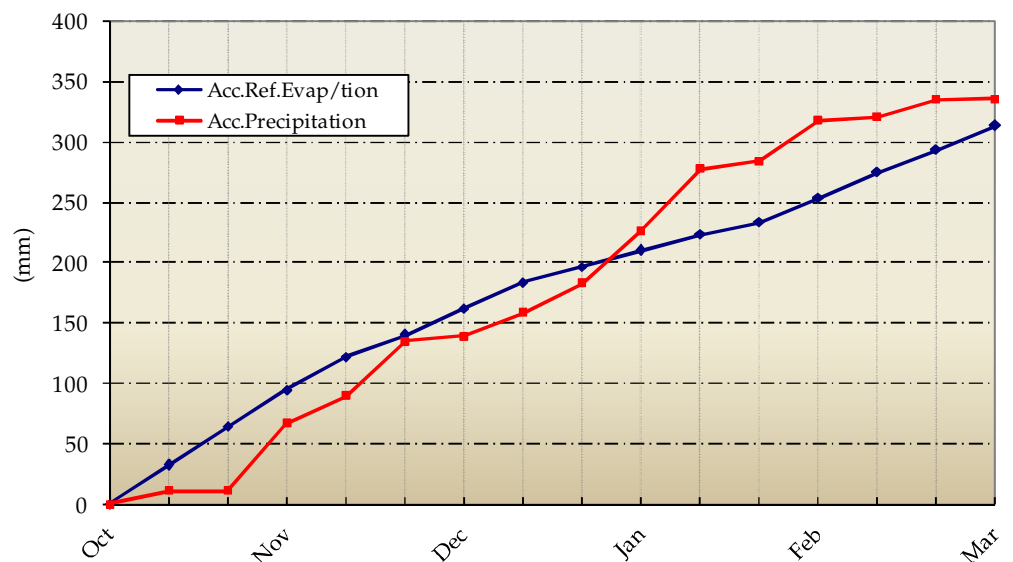
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.0	22.4	18.0	22.0	21.8	18.8	16.4	14.8	18.9	-	14.9
	Min	7.6	14.4	12.4	12.2	12.8	14.4	10.0	10.8	11.8	-	8.9
Relative Humidity	Max	86	91	84	86	81	92	92	83	87	-	-
	Min	41	44	64	43	46	64	59	64	53	-	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.6	2.0	9.0	6.0	8.9	5.8	8.7	5.9	5.9	-	4.7
Precipitation			0.7						0.0	0.7	-	19.7
Evaporation		0.0	3.2	3.7	1.9	-	2.4	3.2	1.7	-	-	26.4
Growing Degrees	5	7.3	13.4	10.2	12.1	12.3	11.6	8.2	7.8	82.9	-	57.1
	10	2.3	8.4	5.2	7.1	7.3	6.6	3.2	2.8	42.9	-	18.9

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	19.9	-	-
Precipitation - Reference Evapotranspiration	-19.2	-	19.7
Number of Rainy Days	1.0	-	3.4
Number of Dry Days	3.0	-	-

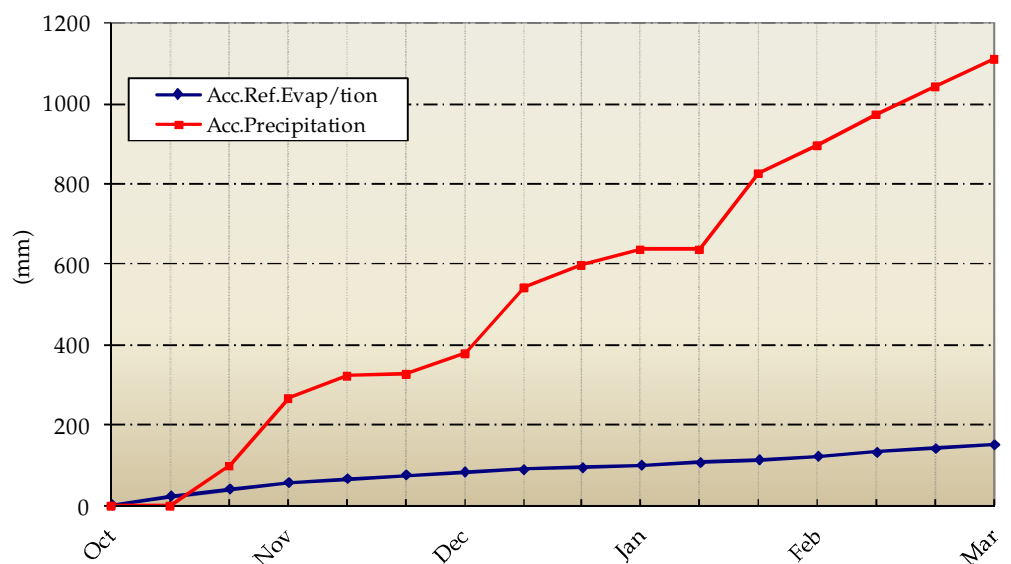
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	6.2	9.8	11.0	15.0	13.6	9.0	10.2	11.2	10.8	12.8	10.4
	Min	1.4	4.9	6.3	8.5	6.0	0.8	2.5	1.9	4.0	2.0	1.4
Relative Humidity	Max	98	98	97	92	97	99	97	98	97	81	-
	Min	82	80	76	43	50	71	56	47	63	39	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	4.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	5.7
Sunshine Duration		0.0	0.0	0.0	0.0	0.0	0.9	2.1	2.9	0.7	4.5	4.3
Precipitation		9.0	8.8	6.6	1.3	33.0	7.3	0.7		66.7	12.1	21.1
Evaporation		-	-	-	-	-	-	-	-	-	-	6.7
Growing Degrees	5	0.0	2.4	3.7	6.8	4.8	0.0	1.4	1.6	20.5	27.3	14.5
	10	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	1.8	1.3	1.1

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	8.8	18.0	10.3
Precipitation - Reference Evapotranspiration	57.9	-5.9	10.8
Number of Rainy Days	7.0	2.0	2.9
Number of Dry Days	0.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

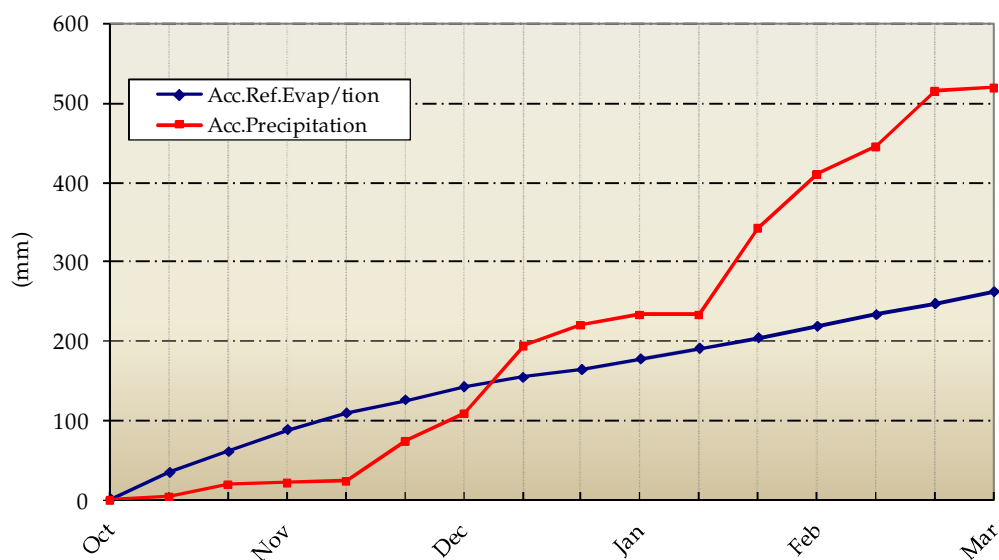


Kalamata

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.9	19.3	17.6	20.6	20.8	18.1	13.5	16.0	17.5	14.6	14.8
	Min	6.4	11.4	6.6	9.1	10.2	7.8	7.0	3.8	7.8	5.5	5.1
Relative Humidity	Max	87	92	95	93	93	94	94	94	93	94	-
	Min	32	70	66	50	47	40	55	44	50	51	-
Soil Temperature at 10 cm	06 UTC	10.6	11.4	11.6	12.0	13.0	13.0	12.4	11.4	11.9	9.6	9.6
	12 UTC	12.0	12.6	12.6	12.8	14.0	14.0	13.0	12.6	13.0	10.7	11.1
Sunshine Duration		0.0	0.0	4.2	4.0	0.7	2.1	1.4	1.3	1.7	4.2	5.3
Precipitation			3.0					1.9		4.9	35.1	28.6
Evaporation		2.3	1.0	0.0	8.4	3.8	2.9	1.6	2.2	22.2	16.5	20.1
Growing Degrees	5	5.2	10.4	7.1	9.9	10.5	8.0	5.3	4.9	61.1	45.7	40.8
	10	0.2	5.4	2.1	4.9	5.5	3.0	0.3	0.0	21.2	7.9	8.0

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.8	15.7	13.5
Precipitation - Reference Evapotranspiration	-9.9	19.4	15.1
Number of Rainy Days	2.0	3.0	3.3
Number of Dry Days	2.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

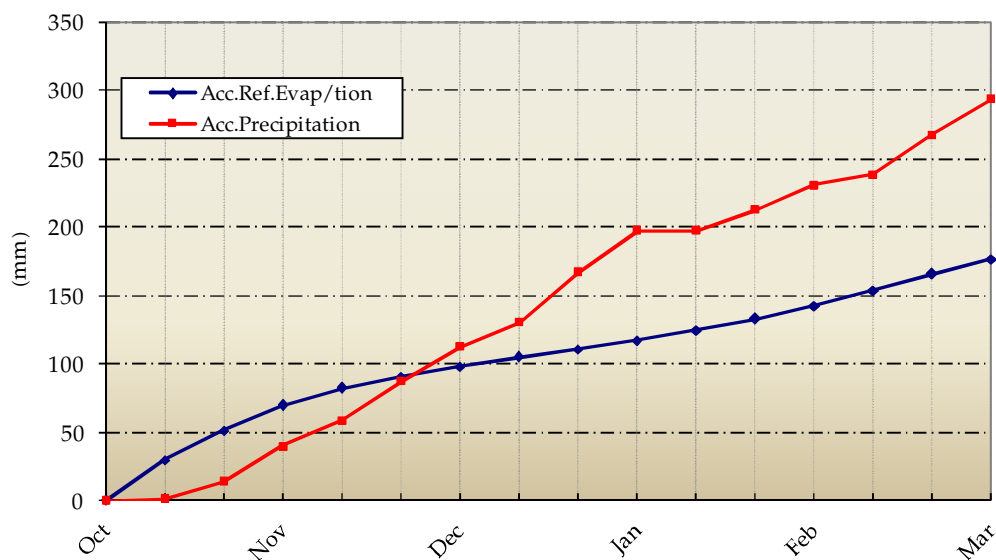


Larisa

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.9	9.9	14.6	17.6	19.8	16.2	15.4	10.8	14.0	13.9	11.9
	Min	4.2	6.8	3.0	7.3	6.4	6.2	1.8	4.5	5.0	3.0	1.7
Relative Humidity	Max	100	100	100	100	100	100	97	96	99	84	-
	Min	89	83	64	63	53	46	37	66	63	37	-
Soil Temperature at 10 cm	06 UTC	8.2	8.4	8.2	10.0	9.8	10.0	9.0	9.2	9.1	6.4	7.0
	12 UTC	8.2	9.0	10.0	11.6	12.0	11.6	10.8	10.4	10.4	7.5	7.7
Sunshine Duration		0.0	0.0	3.8	6.8	4.8	5.5	6.6	0.4	3.5	4.7	4.6
Precipitation		9.8	12.0		0.0	4.1	0.3	0.0		26.2	6.7	13.4
Evaporation		0.0	0.5	1.8	0.5	6.0	3.2	2.9	0.9	15.8	26.7	9.6
Growing Degrees	5	1.1	3.4	3.8	7.5	8.1	6.2	3.6	2.7	36.2	33.0	20.2
	10	0.0	0.0	0.0	2.5	3.1	1.2	0.0	0.0	6.8	3.6	2.5

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.5	18.3	11.5
Precipitation - Reference Evapotranspiration	15.7	-11.6	1.9
Number of Rainy Days	4.0	2.0	2.6
Number of Dry Days	1.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

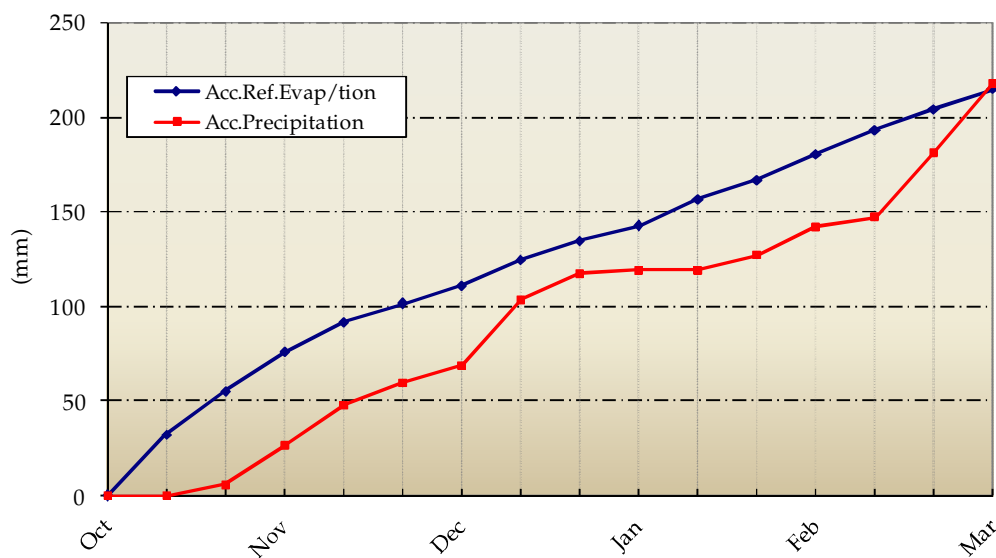


Mikra

3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.0	11.5	11.6	17.2	18.0	15.6	13.4	10.4	13.3	12.3	11.1
	Min	3.8	7.0	2.5	9.4	13.6	9.3	7.4	7.4	7.6	4.6	2.8
Relative Humidity	Max	93	93	94	91	91	93	88	91	92	83	-
	Min	78	66	72	59	59	61	55	56	63	43	-
Soil Temperature at 10 cm	06 UTC	8.2	8.4	8.2	10.2	11.2	11.0	11.2	11.2	10.0	6.6	6.7
	12 UTC	8.2	9.2	9.2	11.2	11.6	12.0	12.0	11.2	10.6	8.8	9.0
Sunshine Duration		0.0	0.2	0.8	3.5	0.1	7.5	3.8	0.6	2.1	4.5	4.4
Precipitation		8.5	9.5		0.0	1.6	16.2	0.8		36.6	8.3	13.2
Evaporation		1.3	1.2	0.7	1.1	1.7	2.0	2.8	2.0	12.8	21.9	13.2
Growing Degrees	5	1.4	4.3	2.1	8.3	10.8	7.5	5.4	3.9	43.6	32.1	21.0
	10	0.0	0.0	0.0	3.3	5.8	2.5	0.4	0.0	12.0	5.4	2.4

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.7	19.4	11.8
Precipitation - Reference Evapotranspiration	25.9	-11.1	1.4
Number of Rainy Days	5.0	3.0	2.4
Number of Dry Days	1.0	7.0	-

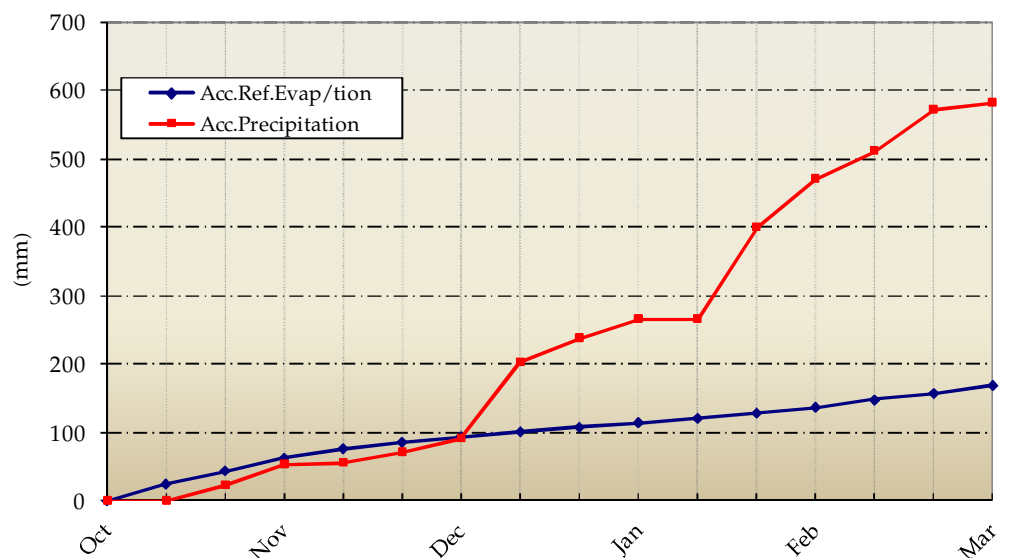
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-28/02/2013)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	9.0	14.6	13.9	18.0	15.6	13.8	8.6	10.4	13.0	10.1	10.1
	Min	2.6	5.9	6.2	1.5	6.8	5.4	3.2	-2.1	3.7	0.5	1.0
Relative Humidity	Max	94	99	75	99	77	75	87	96	88	92	-
	Min	74	59	74	64	52	33	54	46	57	50	-
Soil Temperature at 10 cm	06 UTC	5.6	6.6	7.4	6.8	8.0	8.0	7.2	4.6	6.8	4.5	5.0
	12 UTC	6.6	10.4	-	-	11.2	11.6	8.8	8.6	9.5	-	6.2
Sunshine Duration		0.0	3.8	5.8	8.8	4.0	9.3	5.5	6.5	5.5	0.9	5.1
Precipitation		0.9	3.9			0.0		4.0	0.3	9.1	39.9	27.0
Evaporation		0.2	0.3	2.3	2.1	1.1	0.9	1.1	1.4	9.4	-	9.7
Growing Degrees	5	0.8	5.3	5.1	4.8	6.2	4.6	0.9	0.0	27.6	11.2	14.5
	10	0.0	0.3	0.1	0.0	1.2	0.0	0.0	0.0	1.5	0.0	1.4

3rd 10-day period (21-28/02/2013)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	11.7	11.8	12.6
Precipitation - Reference Evapotranspiration	-2.6	28.1	14.4
Number of Rainy Days	4.0	5.0	3.2
Number of Dry Days	1.0	1.0	-

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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ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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