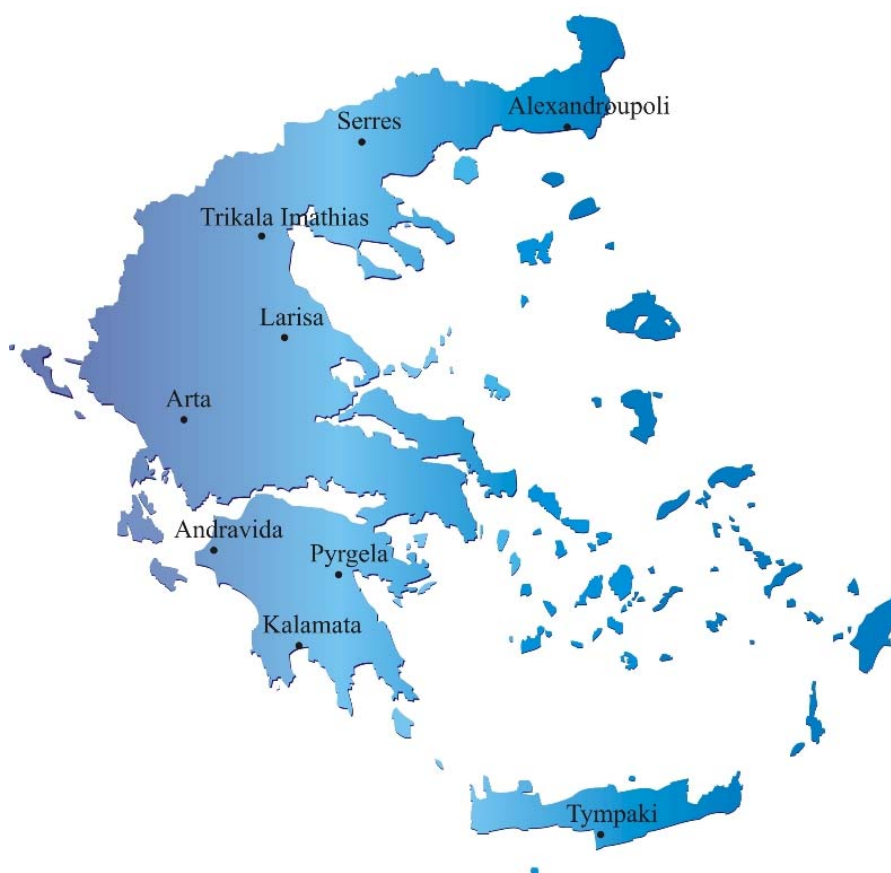


AGROMETEOROLOGICAL BULLETIN

February 2010
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



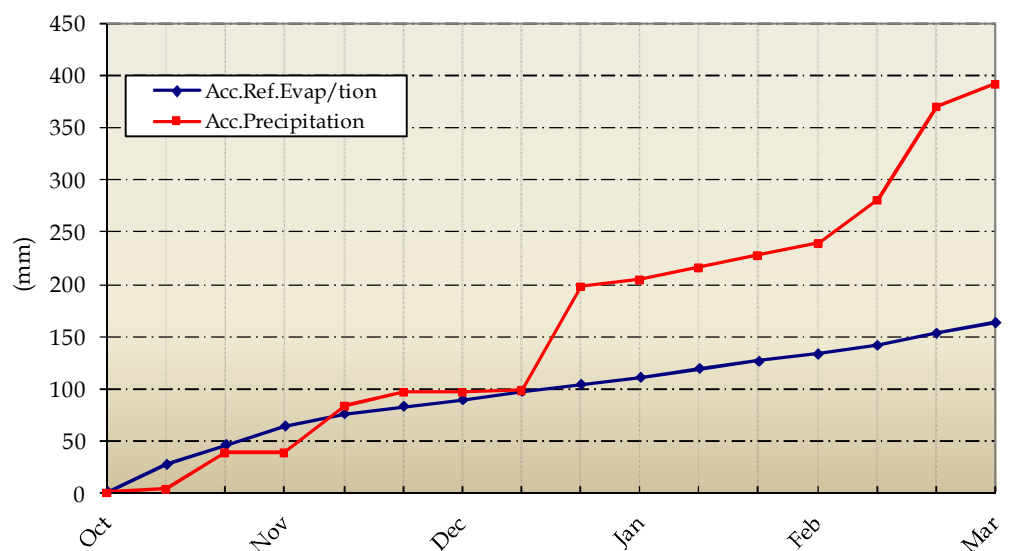
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Helliniko, Athens

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

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.8	12.4	14.6	15.6	12.4	13.0	10.6	13.0	13.6	7.3	9.7
	Min	10.0	2.6	4.6	6.4	10.2	9.0	8.0	5.2	7.0	-0.3	1.6
Relative Humidity	Max	93	93	93	97	97	92	100	94	95	84	-
	Min	52	39	62	60	86	66	89	55	64	44	-
Soil Temperature at 10 cm	06 UTC	11.0	8.0	8.4	9.5	10.4	9.6	9.2	7.6	9.2	4.2	5.7
	12 UTC	12.0	9.2	10.0	11.2	10.6	10.0	9.4	9.6	10.2	6.0	7.3
Sunshine Duration		7.5	7.8	4.1	5.5	0.0	5.8	0.0	8.8	4.9	5.1	4.8
Precipitation					0.0	10.2	1.1	10.8		22.1		14.4
Evaporation		4.0	2.1	0.0	1.1	1.2	0.2	0.5	2.7	1.5	1.7	9.4
Growing Degrees	5	8.4	2.5	4.6	6.0	6.3	6.0	4.3	4.1	42.2	0.1	17.0
	10	3.4	0.0	0.0	1.0	1.3	1.0	0.0	0.0	6.7	0.0	2.5

3rd 10-day period (21-28/02/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.4	12.2
Precipitation - Reference Evapotranspiration	11.7	-12.2
Number of Rainy Days	3.0	0.0
Number of Dry Days	7.0	8.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

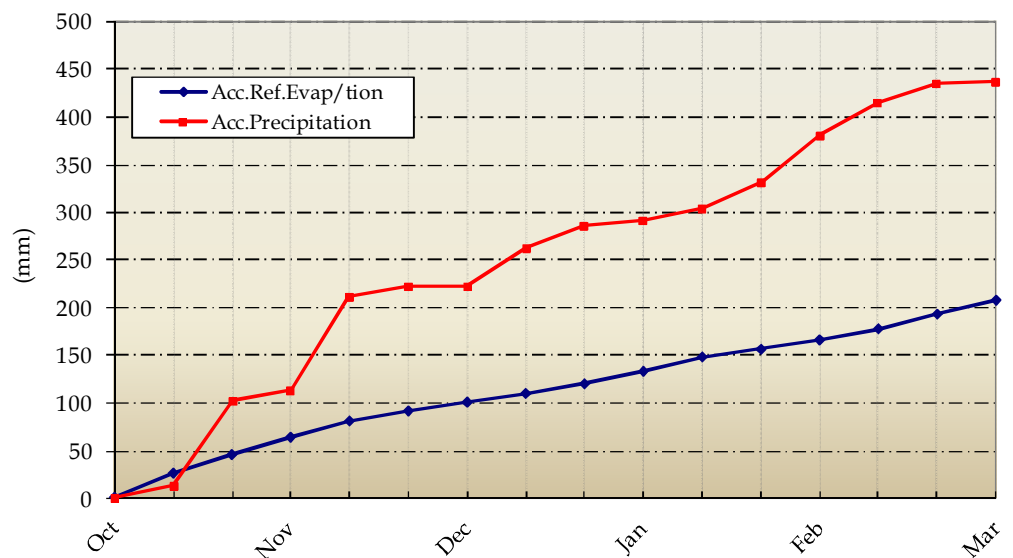


Andravida

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.4	14.4	18.2	17.8	16.0	16.2	16.8	14.4	16.3	11.2	14.1
	Min	12.2	6.8	11.2	9.4	9.0	8.6	10.0	6.0	9.2	0.3	5.3
Relative Humidity	Max	91	94	98	97	97	95	95	94	95	89	-
	Min	49	62	61	71	66	63	55	52	60	40	-
Soil Temperature at 10 cm	06 UTC	13.0	11.4	12.4	12.6	12.4	12.8	13.2	12.4	12.5	5.5	9.0
	12 UTC	14.4	12.4	14.0	14.2	15.0	14.4	15.2	15.0	14.3	9.0	11.2
Sunshine Duration		8.1	0.0	2.8	7.5	9.0	5.8	7.5	3.8	5.6	7.6	5.7
Precipitation			2.1							2.1	0.2	22.1
Evaporation		4.7	2.8	0.6	0.3	1.9	2.5	7.8	0.3	20.9	27.2	19.2
Growing Degrees	5	9.3	5.6	9.7	8.6	7.5	7.4	8.4	5.2	61.7	7.5	39.2
	10	4.3	0.6	4.7	3.6	2.5	2.4	3.4	0.2	21.7	0.0	8.3

3rd 10-day period (21-28/02/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.7	12.7
Precipitation - Reference Evapotranspiration	-12.6	-12.5
Number of Rainy Days	1.0	3.2
Number of Dry Days	3.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

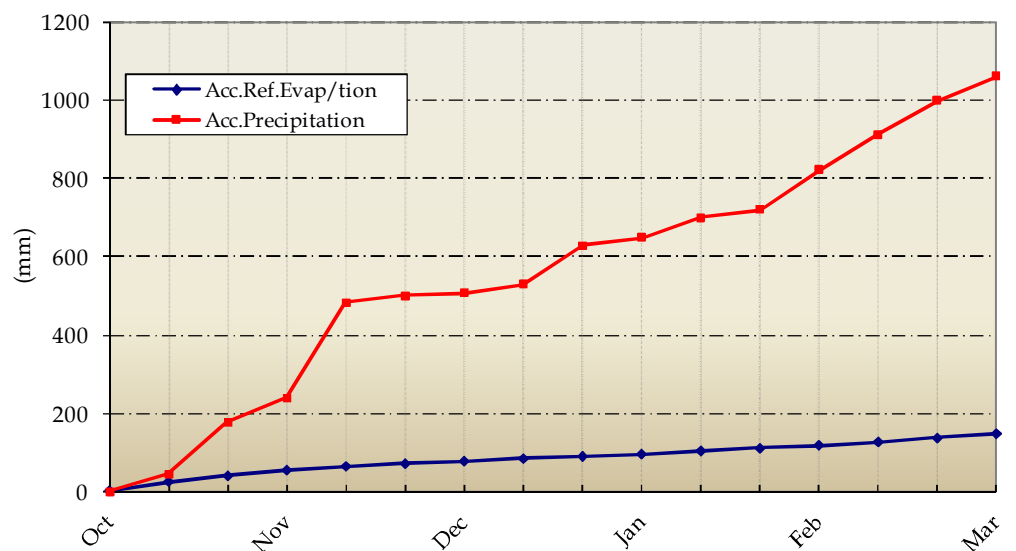




3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.4	13.4	17.8	16.8	20.0	14.0	18.6	14.4	16.3	14.1	14.8
	Min	8.2	2.4	9.4	9.6	3.4	3.0	7.6	6.0	6.2	0.0	4.0
Relative Humidity	Max	85	81	98	98	99	97	95	95	94	81	-
	Min	45	57	72	62	33	58	35	40	50	16	-
Soil Temperature at 10 cm	06 UTC	11.4	9.2	10.2	11.0	10.2	10.0	10.8	10.4	10.4	6.0	7.8
	12 UTC	12.0	10.0	11.2	11.6	10.8	10.6	11.8	11.2	11.2	6.8	10.0
Sunshine Duration		6.1	0.1	2.1	2.3	8.9	6.4	8.3	1.4	4.4	8.4	5.3
Precipitation		3.0	2.5	30.1	23.5	0.7		2.6		62.4	1.4	28.8
Evaporation		1.0	0.7	0.1	2.2	2.5	0.5	2.6	1.9	11.5	-	-
Growing Degrees	5	6.8	2.9	8.6	8.2	6.7	3.5	8.1	5.2	50.0	16.3	36.9
	10	1.8	0.0	3.6	3.2	1.7	0.0	3.1	0.2	13.6	0.0	7.3

3rd 10-day period (21-28/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.5	12.7	11.6
Precipitation - Reference Evapotranspiration	51.9	-11.3	17.2
Number of Rainy Days	6.0	1.0	2.6
Number of Dry Days	0.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

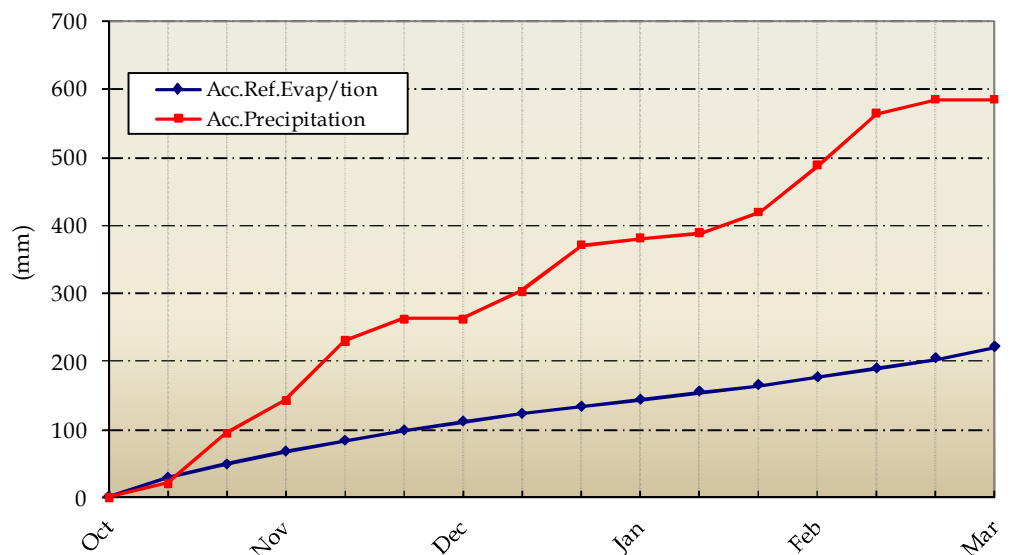


Kalamata

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.4	16.0	18.0	18.8	18.4	18.6	19.2	17.6	18.0	13.2	14.8
	Min	9.6	6.4	7.8	10.0	8.4	7.4	8.0	5.8	7.9	2.1	5.1
Relative Humidity	Max	93	94	97	97	97	94	92	91	94	89	-
	Min	46	55	65	64	45	40	40	46	50	38	-
Soil Temperature at 10 cm	06 UTC	13.0	12.0	12.2	13.0	13.0	12.4	12.4	12.2	12.5	8.0	9.6
	12 UTC	13.4	12.6	13.0	13.8	13.6	13.0	13.6	13.0	13.2	9.1	11.1
Sunshine Duration		8.7	1.1	5.9	6.3	8.6	7.7	8.9	5.7	6.6	1.4	5.3
Precipitation			0.0			1.2				1.2	2.3	28.6
Evaporation		3.6	0.8	2.2	1.6	2.6	3.3	2.5	3.4	20.0	-	20.1
Growing Degrees	5	8.5	6.2	7.9	9.4	8.4	8.0	8.6	6.7	63.7	-	40.8
	10	3.5	1.2	2.9	4.4	3.4	3.0	3.6	1.7	23.7	-	8.0

3rd 10-day period (21-28/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	16.8	12.6	13.5
Precipitation - Reference Evapotranspiration	-15.6	-10.3	15.1
Number of Rainy Days	1.0	1.0	3.3
Number of Dry Days	4.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

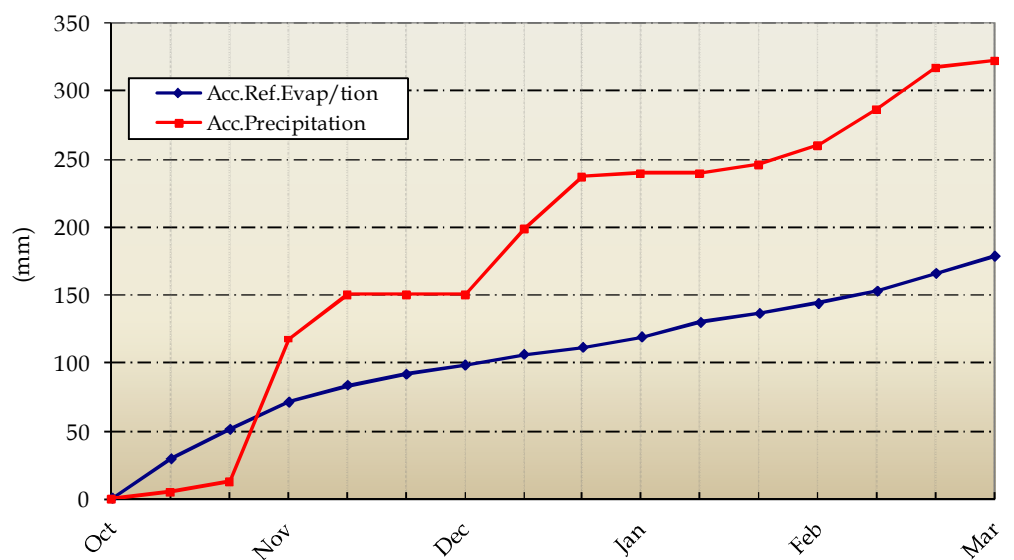


Larisa

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	15.6	13.6	13.4	11.6	18.2	16.4	17.2	15.0	15.1	9.8	11.9
	Min	10.0	2.0	6.8	4.2	5.4	2.4	5.4	2.0	4.8	-2.2	1.7
Relative Humidity	Max	73	85	91	97	97	94	100	85	90	92	-
	Min	29	37	62	77	49	50	34	42	48	39	-
Soil Temperature at 10 cm	06 UTC	10.8	8.6	9.4	9.6	9.2	9.4	10.2	9.2	9.6	5.0	7.0
	12 UTC	11.0	9.4	10.2	10.0	10.6	10.8	11.0	10.2	10.4	6.0	7.7
Sunshine Duration		8.3	3.2	1.9	0.0	7.2	6.9	6.5	5.3	4.9	6.4	4.6
Precipitation			0.1		4.7	0.2		0.3		5.3	0.0	13.4
Evaporation		6.7	0.9	1.2	0.7	2.8	1.9	1.3	2.2	17.7	0.0	9.6
Growing Degrees	5	7.8	2.8	5.1	2.9	6.8	4.4	6.3	3.5	39.6	1.7	20.2
	10	2.8	0.0	0.1	0.0	1.8	0.0	1.3	0.0	6.0	0.0	2.5

3rd 10-day period (21-28/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.7	12.1	11.5
Precipitation - Reference Evapotranspiration	-7.4	-12.1	1.9
Number of Rainy Days	4.0	0.0	2.6
Number of Dry Days	4.0	9.0	-

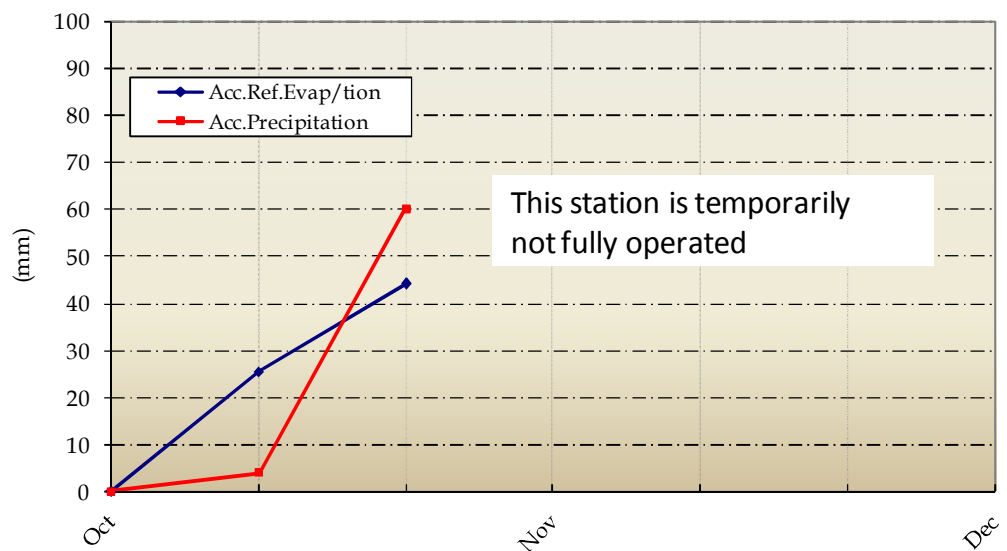
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	12.6	15.1
	Min	11.4	-	-	4.0	3.8	1.2	6.4	2.8	4.9	0.1	2.9
Relative Humidity	Max	-	-	92	93	85	93	92	84	90	87	-
	Min	-	-	42	40	23	30	23	31	32	40	-
Soil Temperature at 10 cm	06 UTC	12.0	-	-	9.4	10.0	9.2	10.4	9.0	10.0	5.1	6.9
	12 UTC	-	-	-	15.0	15.4	15.0	15.4	14.6	15.1	8.6	12.4
Sunshine Duration		-	-	-	6.8	9.2	7.4	6.2	3.7	6.7	5.5	5.4
Precipitation		-	-	-						-	7.4	14.3
Evaporation		-	-	-	3.0	2.7	2.6	5.0	1.0	-	12.3	16.7
Growing Degrees	5	-	-	-	-	-	-	-	-	-	11.0	34.1
	10	-	-	-	-	-	-	-	-	-	0.0	6.0

3rd 10-day period (21-28/02/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	-	12.0	12.3
Precipitation - Reference Evapotranspiration	-	-4.6	2.0
Number of Rainy Days	-	3.0	2.8
Number of Dry Days	-	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

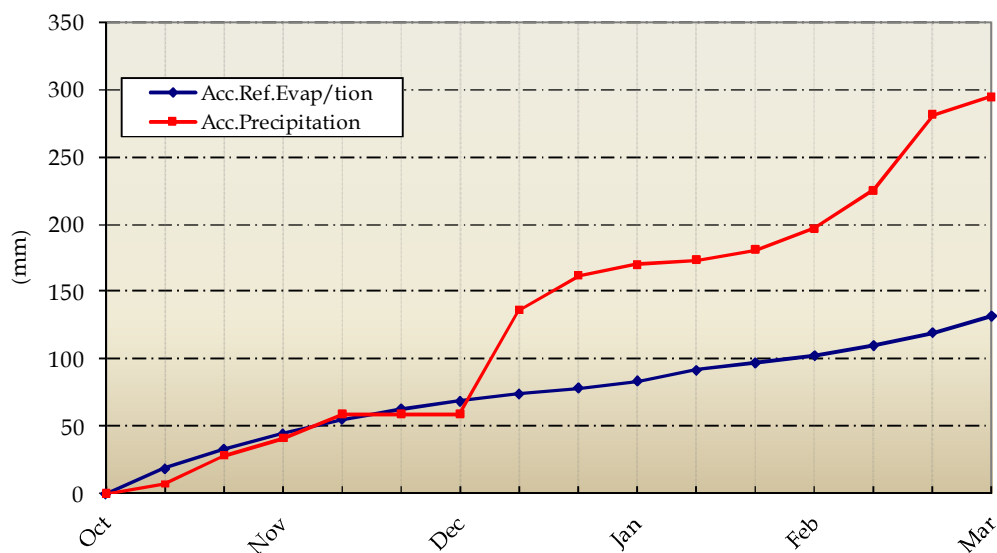


3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	17.6	12.8	14.2	12.4	17.2	16.8	15.4	14.6	15.1	9.8	11.3
	Min	10.0	2.0	5.4	2.6	8.0	2.6	5.4	3.2	4.9	-2.1	1.7
Relative Humidity	Max	45	77	92	94	97	91	95	76	83	74	-
	Min	29	31	54	79	60	47	74	37	51	43	-
Soil Temperature at 10 cm	06 UTC	9.2	7.0	7.4	7.4	9.2	8.2	10.0	7.8	8.3	4.8	6.0
	12 UTC	10.4	8.2	8.4	8.2	9.8	9.2	11.0	10.0	9.4	5.2	7.4
Sunshine Duration		7.8	4.7	2.4	0.6	2.6	5.9	5.2	3.4	4.1	6.0	4.9
Precipitation				1.7	5.4	0.3	0.0	6.1		13.5	3.7	11.2
Evaporation		1.0	2.2	0.0	0.0	0.7	1.0	1.0	0.9	6.8	0.8	8.7
Growing Degrees	5	8.8	2.4	4.8	2.5	7.6	4.7	5.4	3.9	40.1	2.5	20.3
	10	3.8	0.0	0.0	0.0	2.6	0.0	0.4	0.0	6.8	0.0	2.6

Series

3rd 10-day period (21-28/02/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.3	9.8	9.5
Precipitation - Reference Evapotranspiration	1.2	-6.1	1.7
Number of Rainy Days	4.0	1.0	2.1
Number of Dry Days	5.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

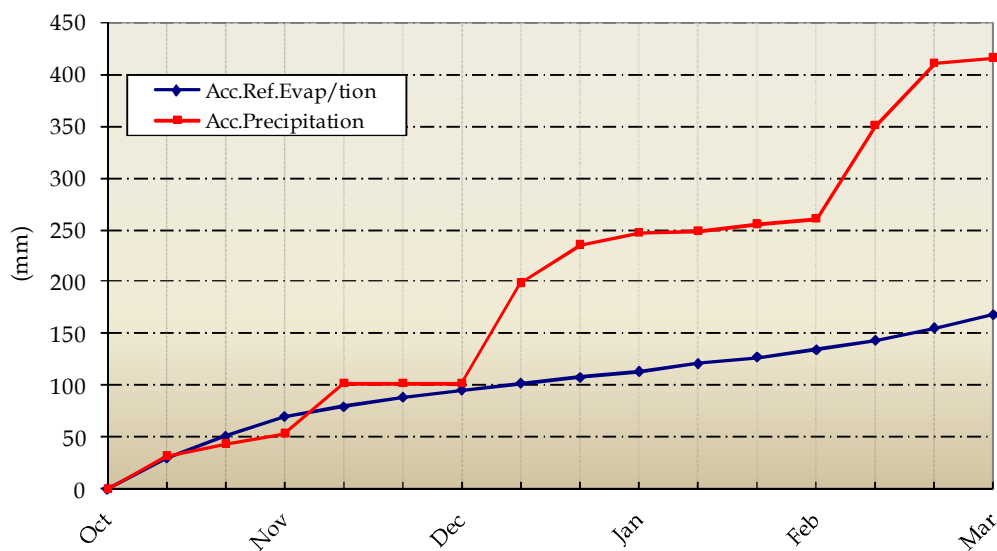


Trikala Imathias

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.0	13.4	12.2	11.6	17.4	18.8	19.2	15.6	16.0	11.8	11.9
	Min	8.0	1.8	5.4	4.4	6.0	3.2	8.2	3.4	5.0	-2.1	2.1
Relative Humidity	Max	85	85	99	95	96	96	94	80	91	86	-
	Min	25	35	56	88	37	35	24	34	42	30	-
Soil Temperature at 10 cm	06 UTC	10.2	7.6	8.4	8.0	8.6	8.2	10.0	8.6	8.7	4.8	7.2
	12 UTC	11.0	9.2	9.4	8.2	9.8	10.2	11.2	9.8	9.8	6.5	7.5
Sunshine Duration		9.6	4.5	1.0	0.0	3.7	8.0	5.6	4.6	4.6	7.4	4.8
Precipitation				0.5	0.9			3.0		4.4		17.2
Evaporation		2.2	1.8	0.4	0.8	0.8	1.5	1.7	1.6	10.8	2.2	7.8
Growing Degrees	5	9.0	2.6	3.8	3.0	6.7	6.0	8.7	4.5	44.3	-	23.6
	10	4.0	0.0	0.0	0.0	1.7	1.0	3.7	0.0	10.4	-	3.8

3rd 10-day period (21-28/02/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	12.6	16.2
Precipitation - Reference Evapotranspiration	-8.2	-16.2
Number of Rainy Days	3.0	0.0
Number of Dry Days	5.0	9.0

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

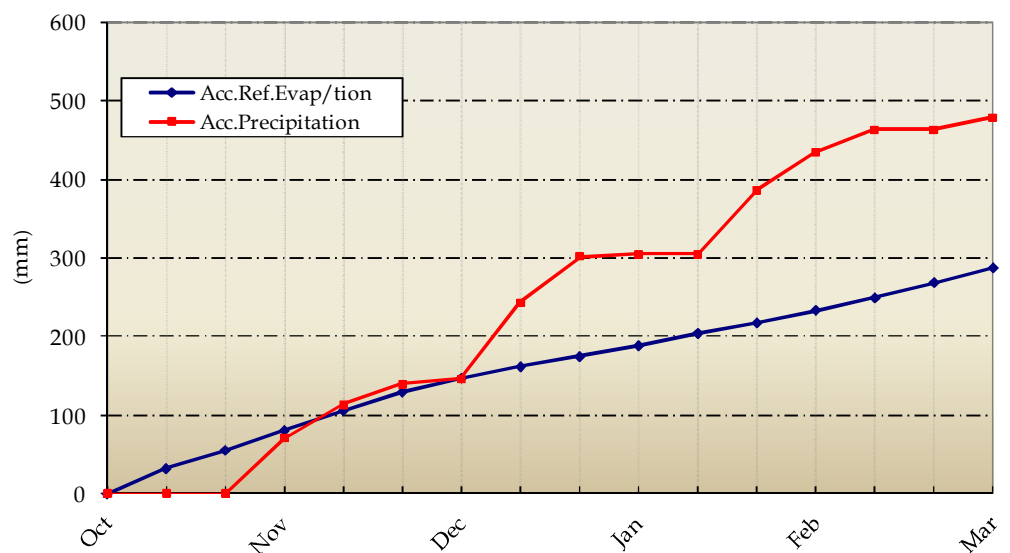


Tympaki

3rd 10-day period (21-28/02/2010)		21	22	23	24	25	26	27	28	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.4	16.0	18.0	18.8	18.6	18.4	19.0	17.2	18.3	13.1	15.4
	Min	13.0	8.0	7.4	11.0	10.6	10.2	8.4	11.8	10.0	5.9	7.2
Relative Humidity	Max	98	96	98	95	90	88	95	100	95	88	-
	Min	39	46	48	65	50	39	16	33	42	44	-
Soil Temperature at 10 cm	06 UTC	16.6	13.0	12.0	13.2	14.6	13.8	13.6	14.0	13.8	8.8	11.0
	12 UTC	17.8	15.2	16.0	17.6	17.6	18.4	17.4	16.4	17.0	11.7	13.5
Sunshine Duration		6.3	0.1	3.0	5.1	4.3	6.1	2.2	4.1	3.9	4.8	6.1
Precipitation		13.8							1.3	15.1	40.2	18.3
Evaporation		5.4	1.9	1.6	4.7	3.6	4.6	3.8	5.3	30.9	26.2	25.3
Growing Degrees	5	11.7	7.0	7.7	9.9	9.6	9.3	8.7	9.5	73.4	36.2	52.1
	10	6.7	2.0	2.7	4.9	4.6	4.3	3.7	4.5	33.4	1.0	14.4

3rd 10-day period (21-28/02/2010)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	18.7	15.7
Precipitation - Reference Evapotranspiration	-3.6	24.5
Number of Rainy Days	2.0	4.0
Number of Dry Days	11.0	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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ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ

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