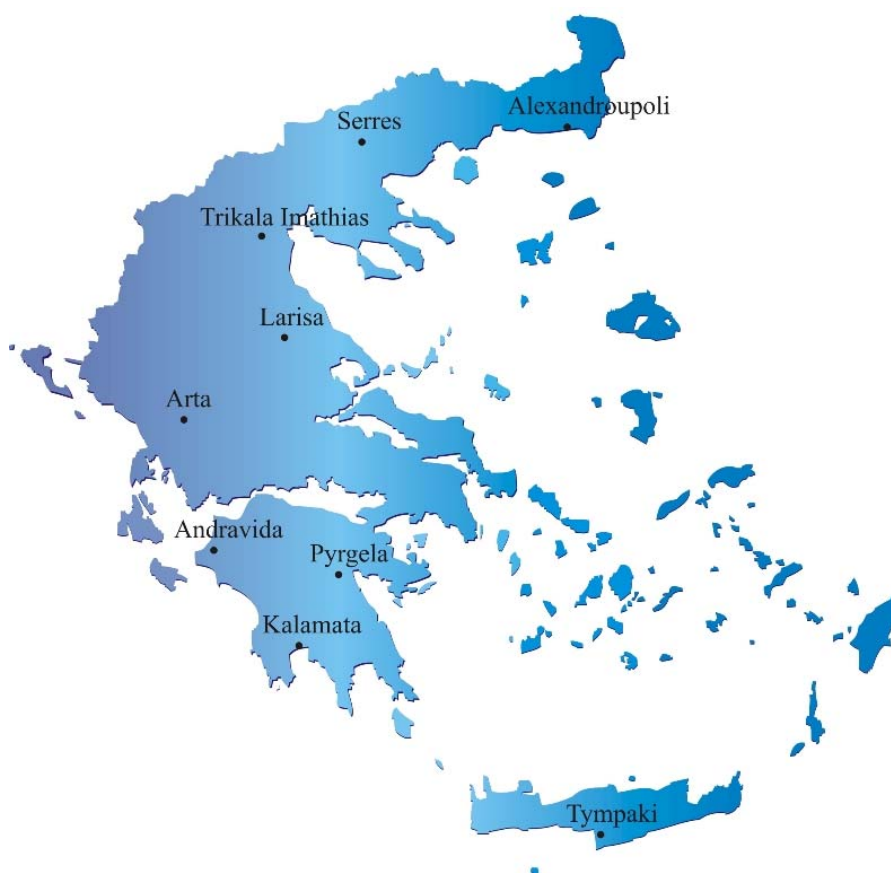


AGROMETEOROLOGICAL BULLETIN

April 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



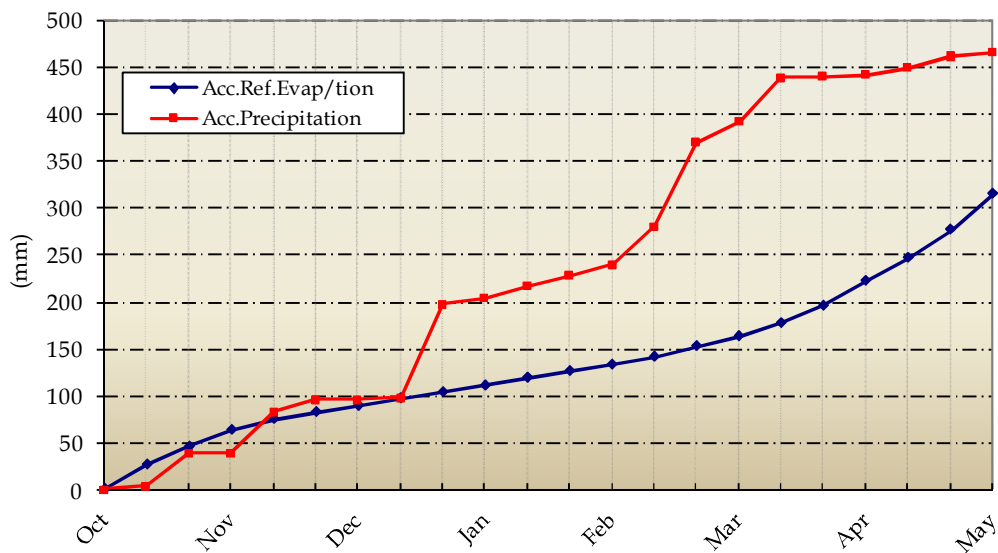
Hellenic National Meteorological Service
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El. Venizelou Street 14, 16777
Helliniko, Athens

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

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	16.2	19.6	23.0	21.4	23.8	21.2	20.0	20.4	21.0	22.8	20.9	17.0	18.4
	Min	12.6	10.4	10.6	11.4	10.0	14.0	11.4	8.2	5.8	5.0	9.9	6.6	7.8
Relative Humidity	Max	89	90	97	91	90	67	76	78	76	78	83	93	-
	Min	66	52	37	48	32	38	31	18	19	29	37	50	-
Soil Temperature at 10 cm	06 UTC	15.4	13.6	14.6	16.0	16.2	16.6	15.8	15.0	14.6	15.0	15.3	12.8	12.7
	12 UTC	16.0	16.8	18.5	18.6	18.8	18.0	18.2	17.8	17.8	18.9	17.9	15.6	16.6
Sunshine Duration		2.3	12.1	9.7	6.3	3.9	4.0	10.9	13.1	13.1	12.8	8.8	6.0	7.4
Precipitation		4.6										4.6	4.9	11.6
Evaporation		1.6	3.0	5.0	5.1	7.0	9.7	4.2	7.2	8.9	5.7	57.4	44.2	46.0
Growing Degrees	5	9.4	10.0	11.8	11.4	11.9	12.6	10.7	9.3	8.4	8.9	104.4	68.0	80.8
	10	4.4	5.0	6.8	6.4	6.9	7.6	5.7	4.3	3.4	3.9	54.4	19.4	32.3

3rd 10-day period (21-30/04/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	38.1	26.6	31.2
Precipitation - Reference Evapotranspiration	-33.5	-21.7	-19.6
Number of Rainy Days	1.0	4.0	2.2
Number of Dry Days	0.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

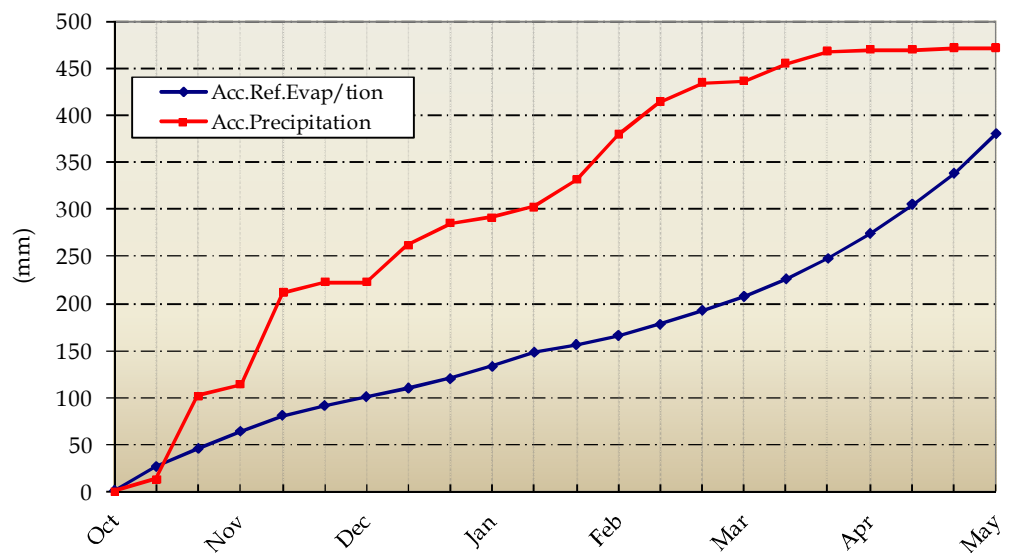


Andravida

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	20.6	23.0	23.6	27.2	22.8	24.6	24.0	22.4	24.0	22.4	23.5	18.9	20.2
	Min	13.8	9.8	10.6	12.2	10.0	11.2	11.2	8.6	7.8	5.8	10.1	11.4	9.8
Relative Humidity	Max	90	90	90	75	93	95	81	88	92	95	89	97	-
	Min	45	27	29	18	35	29	29	26	15	33	29	61	-
Soil Temperature at 10 cm	06 UTC	17.4	16.8	17.0	17.4	17.4	18.0	19.4	16.4	17.0	16.4	17.3	16.5	15.0
	12 UTC	25.0	24.8	25.0	25.4	24.6	24.2	24.6	25.6	25.0	24.6	24.9	18.9	18.4
Sunshine Duration		11.2	11.5	7.9	8.1	10.2	9.6	12.2	13.1	11.6	12.3	10.8	5.7	8.8
Precipitation													19.5	8.8
Evaporation		3.4	6.8	7.2	5.0	12.1	4.6	7.8	7.6	8.6	5.1	68.2	28.1	43.9
Growing Degrees	5	12.2	11.4	12.1	14.7	11.4	12.9	12.6	10.5	10.9	9.1	117.8	101.4	100.1
	10	7.2	6.4	7.1	9.7	6.4	7.9	7.6	5.5	5.9	4.1	67.8	51.4	50.1

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	42.2	27.4	33.2
Precipitation - Reference Evapotranspiration	-42.2	-7.9	-24.4
Number of Rainy Days	0.0	4.0	1.8
Number of Dry Days	11.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

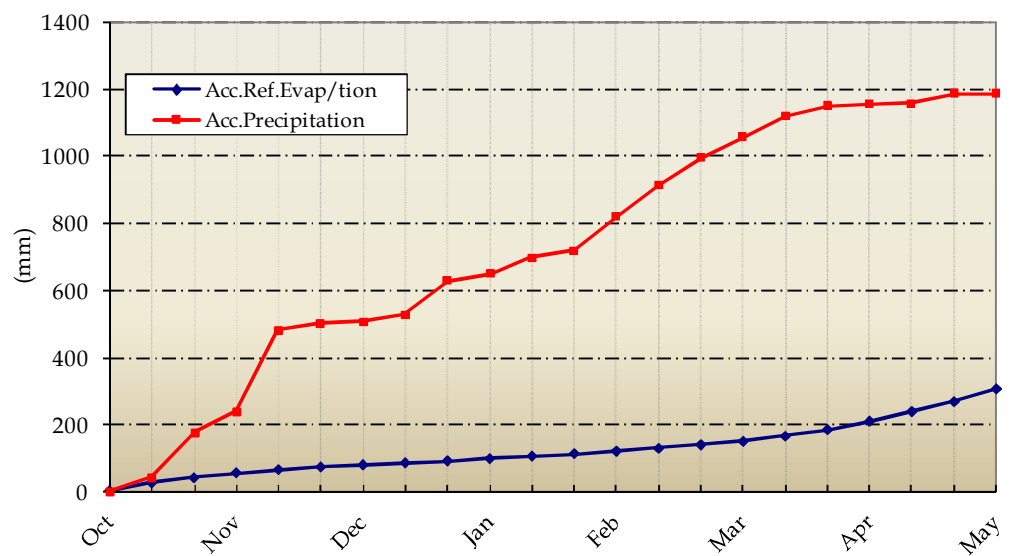




3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.4	23.4	24.2	27.0	26.0	24.0	26.2	25.6	27.0	25.2	25.4	19.8	21.2
	Min	7.2	8.4	8.4	13.0	12.0	13.0	13.4	9.0	9.4	9.0	10.3	11.2	9.1
Relative Humidity	Max	100	100	80	98	77	100	56	99	41	100	85	96	-
	Min	31	31	40	27	39	29	29	32	14	37	31	39	-
Soil Temperature at 10 cm	06 UTC	16.0	16.0	16.2	17.2	17.2	18.2	17.6	17.2	17.4	17.0	17.0	16.1	14.7
	12 UTC	18.0	18.2	18.0	19.6	19.2	19.4	20.0	19.8	19.4	19.8	19.1	17.3	18.8
Sunshine Duration		11.3	12.4	4.2	9.5	9.6	8.5	11.1	11.7	11.8	12.0	10.2	4.3	7.7
Precipitation					1.0							1.0	31.2	15.1
Evaporation		5.5	4.8	10.9	5.0	5.0	7.3	5.2	6.0	5.7	5.4	60.8	-	-
Growing Degrees	5	11.3	10.9	11.3	15.0	14.0	13.5	14.8	12.3	13.2	12.1	128.4	-	100.7
	10	6.3	5.9	6.3	10.0	9.0	8.5	9.8	7.3	8.2	7.1	78.4	-	51.2

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	37.8	24.5	31.1
Precipitation - Reference Evapotranspiration	-36.8	6.7	-16.0
Number of Rainy Days	1.0	6.0	2.7
Number of Dry Days	3.0	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

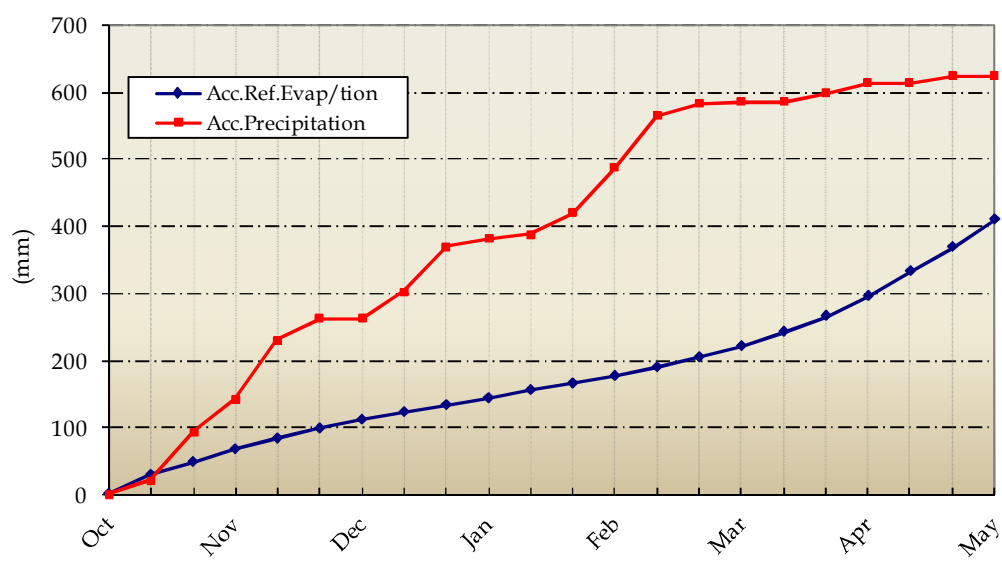


Kalamata

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.2	22.6	22.0	25.4	22.8	22.2	21.4	20.2	20.2	21.8	22.1	20.3	20.8
	Min	11.0	8.4	8.0	10.8	9.4	9.6	11.0	7.6	9.2	5.8	9.1	10.8	9.1
Relative Humidity	Max	95	97	92	83	93	95	95	97	95	95	94	95	-
	Min	36	39	31	23	31	42	40	56	55	29	38	54	-
Soil Temperature at 10 cm	06 UTC	16.6	16.4	16.4	16.4	16.2	16.4	16.6	17.0	16.8	16.4	16.5	16.2	15.1
	12 UTC	18.4	18.6	18.6	17.6	17.6	18.6	19.4	19.4	19.4	19.2	18.7	16.6	18.5
Sunshine Duration		10.7	12.0	8.4	7.3	10.4	8.3	11.8	9.7	12.3	12.0	10.3	5.8	8.3
Precipitation													40.1	12.2
Evaporation		6.8	4.0	13.0	4.4	6.8	3.8	5.8	5.2	6.4	8.2	64.4	36.6	46.5
Growing Degrees	5	11.6	10.5	10.0	13.1	11.1	10.9	11.2	8.9	9.7	8.8	105.8	105.6	99.4
	10	6.6	5.5	5.0	8.1	6.1	5.9	6.2	3.9	4.7	3.8	55.8	55.6	49.4

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	41.4	28.2	34.1
Precipitation - Reference Evapotranspiration	-41.4	11.9	-21.9
Number of Rainy Days	0.0	3.0	2.6
Number of Dry Days	11.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

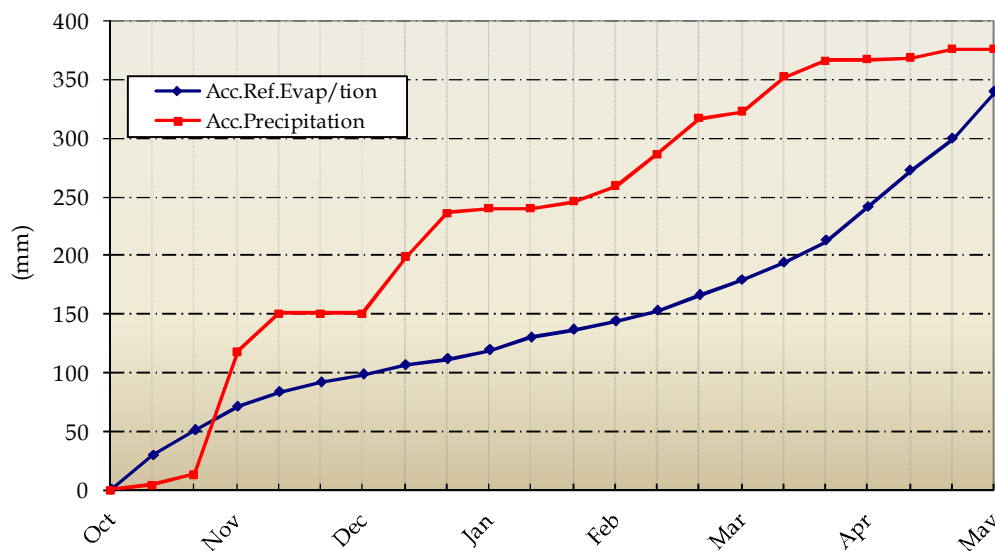


Larisa

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	22.6	25.0	23.2	22.0	23.6	20.2	21.0	22.2	22.0	23.8	22.6	18.7	21.1
	Min	12.6	6.0	7.2	13.4	8.0	14.0	10.6	5.6	6.2	7.2	9.1	8.9	7.3
Relative Humidity	Max	87	94	97	91	95	81	88	85	80	85	88	93	-
	Min	32	25	45	45	27	37	36	35	34	25	34	46	-
Soil Temperature at 10 cm	06 UTC	15.4	14.8	14.6	16.6	16.0	16.8	15.6	13.2	15.2	15.4	15.4	14.8	14.2
	12 UTC	16.6	16.8	17.0	17.8	17.4	16.6	16.8	16.4	16.6	16.8	16.9	16.4	16.2
Sunshine Duration		9.2	12.8	9.8	5.2	8.8	1.5	11.9	12.2	12.5	12.6	9.6	5.3	7.9
Precipitation		0.4			0.0	0.1	0.0					0.5	8.7	10.7
Evaporation		5.9	5.8	5.0	3.4	6.8	4.4	6.0	6.0	5.8	4.2	53.3	34.1	43.9
Growing Degrees	5	12.6	10.5	10.2	12.7	10.8	12.1	10.8	8.9	9.1	10.5	108.2	88.4	91.9
	10	7.6	5.5	5.2	7.7	5.8	7.1	5.8	3.9	4.1	5.5	58.2	38.4	42.7

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.9	29.8	34.0
Precipitation - Reference Evapotranspiration	-39.4	-21.1	-23.3
Number of Rainy Days	2.0	4.0	2.7
Number of Dry Days	0.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

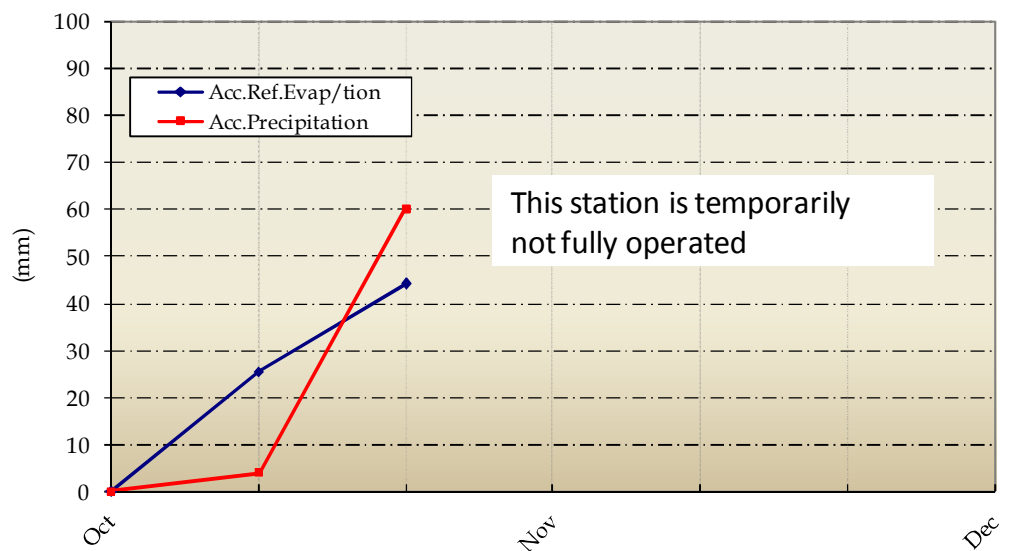


Pyrgela

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	-	-	-	-	-	-	-	-	-	-	-	19.8	22.5
	Min	-	-	-	-	-	13.0	14.4	9.0	4.0	4.6	9.0	8.7	7.3
Relative Humidity	Max	-	-	-	-	91	56	50	36	33	33	50	92	-
	Min	-	-	-	-	33	31	26	15	21	21	24	48	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	18.0	18.0	17.8	16.8	16.6	17.4	14.6	14.2
	12 UTC	-	-	-	-	-	22.0	22.6	27.0	23.0	24.4	23.8	19.3	21.9
Sunshine Duration		-	-	-	-	-	7.3	9.2	11.8	11.3	10.9	10.1	6.1	7.7
Precipitation		-	-	-	-	-	-	-	-	-	-	-	18.1	9.5
Evaporation		-	-	-	-	-	9.0	6.6	7.4	6.0	6.0	-	32.1	42.3
Growing Degrees	5	-	-	-	-	-	-	-	-	-	-	-	-	98.7
	10	-	-	-	-	-	-	-	-	-	-	-	-	48.8

3rd 10-day period (21-30/04/2010)	Previous Year Value	Past Years Mean Value	
Reference Evapotranspiration	-	27.9	32.5
Precipitation - Reference Evapotranspiration	-	-9.8	-23.0
Number of Rainy Days	-	6.0	1.8
Number of Dry Days	-	5.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

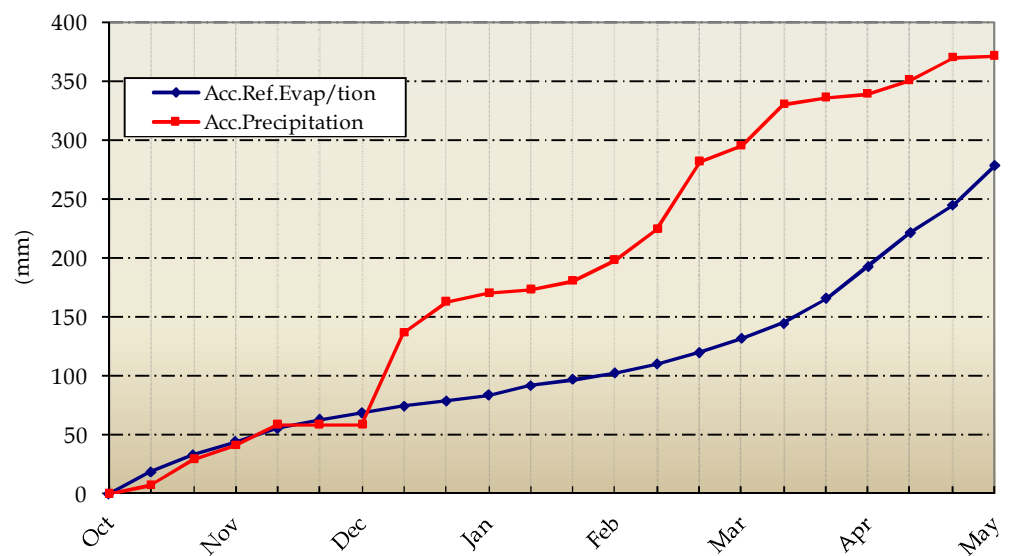


Series

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.0	25.4	23.8	20.0	23.4	24.4	23.4	24.4	24.0	25.0	23.8	18.8	21.1
	Min	12.4	8.2	8.7	13.4	7.6	12.4	9.8	6.4	6.0	7.0	9.2	8.2	8.8
Relative Humidity	Max	61	83	75	85	91	73	75	73	63	79	76	80	-
	Min	25	41	50	57	42	25	29	27	33	29	36	50	-
Soil Temperature at 10 cm	06 UTC	16.2	15.2	15.6	17.2	15.8	17.0	16.4	16.0	16.2	16.6	16.2	14.3	13.9
	12 UTC	16.8	18.2	16.8	17.4	18.4	18.6	18.4	18.2	18.6	18.2	18.0	15.5	17.2
Sunshine Duration		6.2	10.7	7.0	0.9	3.8	2.2	12.0	12.4	11.7	12.2	7.9	5.6	7.2
Precipitation					1.6							1.6	7.9	11.5
Evaporation		3.5	3.3	4.2	0.6	3.0	1.8	4.8	3.7	4.1	4.0	33.0	-	38.3
Growing Degrees	5	13.2	11.8	11.3	11.7	10.5	13.4	11.6	10.4	10.0	11.0	114.9	-	99.5
	10	8.2	6.8	6.3	6.7	5.5	8.4	6.6	5.4	5.0	6.0	64.9	-	49.8

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	33.7	25.0	30.1
Precipitation - Reference Evapotranspiration	-32.1	-17.1	-18.6
Number of Rainy Days	1.0	3.0	3.0
Number of Dry Days	4.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

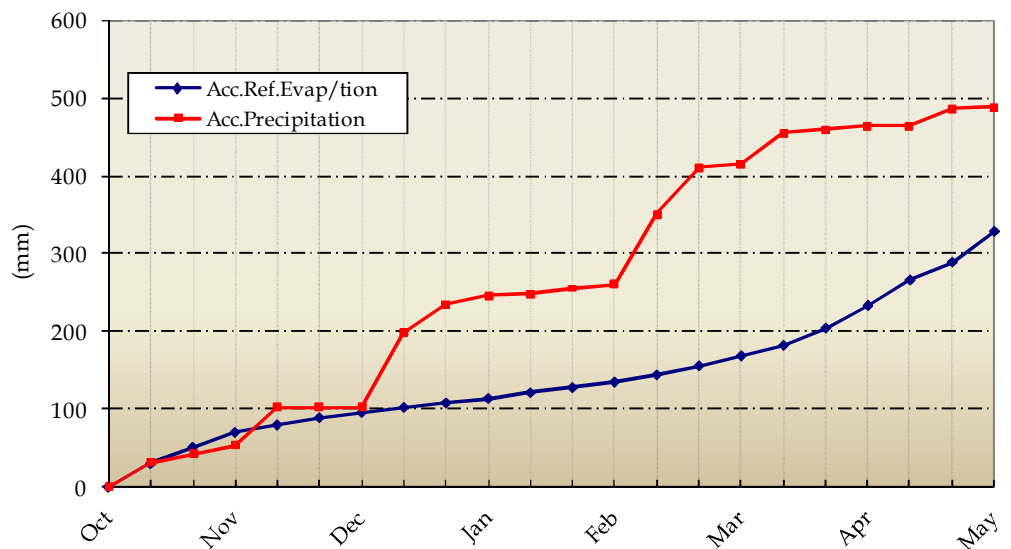


Trikala Imathias

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	25.0	24.8	23.0	24.8	26.6	26.2	23.0	22.4	26.0	25.0	24.7	19.6	21.0
	Min	12.6	8.4	10.2	14.2	12.6	14.0	11.0	7.6	8.8	10.2	11.0	8.9	9.3
Relative Humidity	Max	96	92	99	93	93	93	86	95	91	83	92	94	-
	Min	19	23	40	25	25	19	30	35	21	23	26	47	-
Soil Temperature at 10 cm	06 UTC	15.2	14.6	15.8	16.8	16.8	17.4	17.2	16.4	16.8	17.4	16.4	14.5	14.6
	12 UTC	17.0	18.2	19.0	18.0	19.8	20.2	20.6	20.4	20.6	20.6	19.4	17.0	15.9
Sunshine Duration		8.6	11.4	6.2	5.2	8.8	7.5	11.6	12.0	11.7	12.1	9.5	5.9	7.0
Precipitation		1.7			0.2							1.9	12.3	16.5
Evaporation		3.4	3.8	2.2	3.8	3.6	4.4	3.4	9.0	4.2	5.7	43.5	31.1	39.7
Growing Degrees	5	13.8	11.6	11.6	14.5	14.6	15.1	12.0	10.0	12.4	12.6	128.2	92.7	101.6
	10	8.8	6.6	6.6	9.5	9.6	10.1	7.0	5.0	7.4	7.6	78.2	42.7	52.0

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	39.5	31.3	31.6
Precipitation - Reference Evapotranspiration	-37.6	-19.0	-15.1
Number of Rainy Days	2.0	4.0	3.0
Number of Dry Days	0.0	6.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

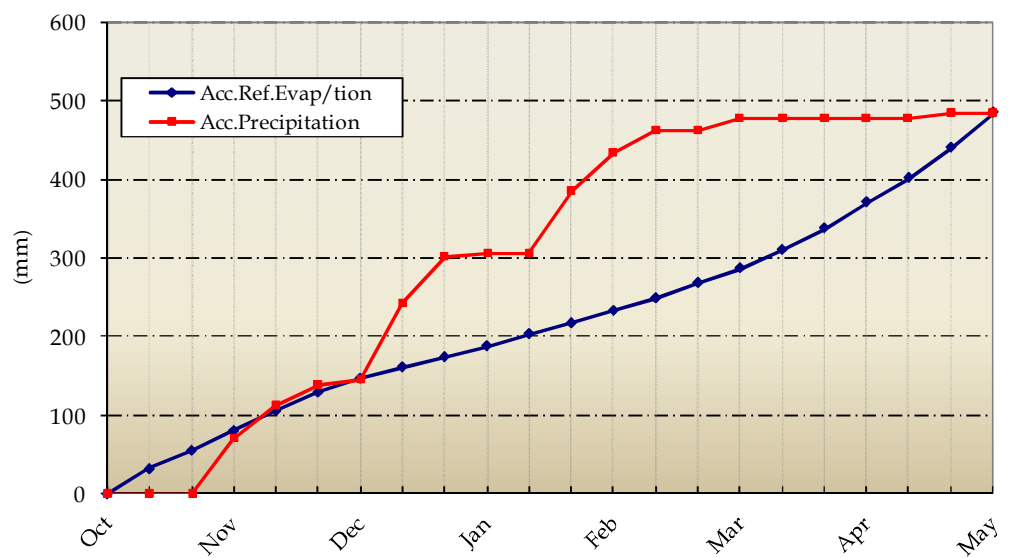


Tympaki

3rd 10-day period (21-30/04/2010)		21	22	23	24	25	26	27	28	29	30	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	21.8	23.0	20.0	25.6	24.8	21.8	21.0	20.8	20.4	22.0	22.1	21.2	21.4
	Min	12.4	9.8	10.0	11.4	9.6	12.2	15.0	13.6	11.0	10.6	11.6	11.5	11.1
Relative Humidity	Max	70	93	100	79	90	85	74	70	62	76	80	90	-
	Min	33	29	40	16	19	42	43	28	32	26	31	43	-
Soil Temperature at 10 cm	06 UTC	19.4	18.6	19.6	20.4	20.4	20.6	21.6	20.0	19.6	19.6	20.0	19.8	19.4
	12 UTC	21.6	26.0	26.0	25.0	25.6	27.4	25.0	24.8	24.6	25.0	25.1	25.8	24.1
Sunshine Duration		10.3	11.1	7.8	4.1	1.6	8.0	9.0	10.2	10.9	11.3	8.4	8.6	9.0
Precipitation														2.6
Evaporation		6.2	6.3	6.5	5.4	7.2	7.3	8.7	9.5	9.0	9.1	75.2	63.0	56.5
Growing Degrees	5	12.1	11.4	10.0	13.5	12.2	12.0	13.0	12.2	10.7	11.3	118.4	113.6	112.4
	10	7.1	6.4	5.0	8.5	7.2	7.0	8.0	7.2	5.7	6.3	68.4	63.6	62.4

3rd 10-day period (21-30/04/2010)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	44.6	38.5	36.3
Precipitation - Reference Evapotranspiration	-44.6	-38.5	-33.7
Number of Rainy Days	0.0	0.0	0.6
Number of Dry Days	11.0	23.0	-

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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