



# AGROMETEOROLOGICAL BULLETIN

*May 2015*  
*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



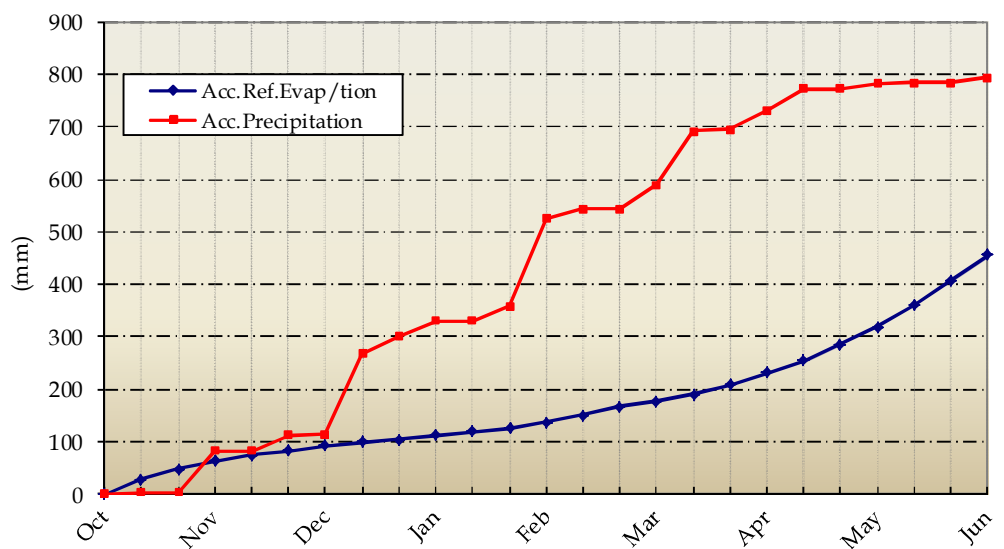
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3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	26.4	27.4	29.4	27.0	24.8	24.4	22.6	22.8	21.4	23.8	26.4	25.1	25.8	24.2
	Min	15.2	13.0	17.4	14.8	14.4	16.2	16.6	14.6	14.8	13.2	11.2	14.7	14.4	12.7
Relative Humidity	Max	91	89	83	90	89	92	98	96	77	87	95	90	92	-
	Min	36	47	33	51	55	64	67	48	48	46	36	48	50	-
Soil Temperature at 10 cm	06 UTC	22.6	22.2	23.8	23.4	23.4	23.8	23.6	19.8	18.2	18.4	18.8	21.6	21.7	19.3
	12 UTC	28.6	29.0	28.8	29.0	28.8	28.4	24.5	20.8	20.0	23.2	24.6	26.0	26.1	23.6
Sunshine Duration		12.0	12.0	13.4	12.1	12.8	11.7	2.9	1.0	4.3	11.0	12.2	9.6	9.0	8.3
Precipitation								4.0	0.1	5.8			9.9	11.9	12.4
Evaporation		6.1	9.3	6.6	7.3	6.2	7.6	0.8	3.5	4.9	14.0	6.2	72.5	68.0	70.1
Growing Degrees	5	15.8	15.2	18.4	15.9	14.6	15.3	14.6	13.7	13.1	13.5	13.8	163.9	165.8	147.7
	10	10.8	10.2	13.4	10.9	9.6	10.3	9.6	8.7	8.1	8.5	8.8	108.9	110.8	92.7

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	47.8	46.2	45.7
Precipitation - Reference Evapotranspiration	-37.9	-34.3	-33.3
Number of Rainy Days	3.0	5.0	2.4
Number of Dry Days	18.0	10.0	-

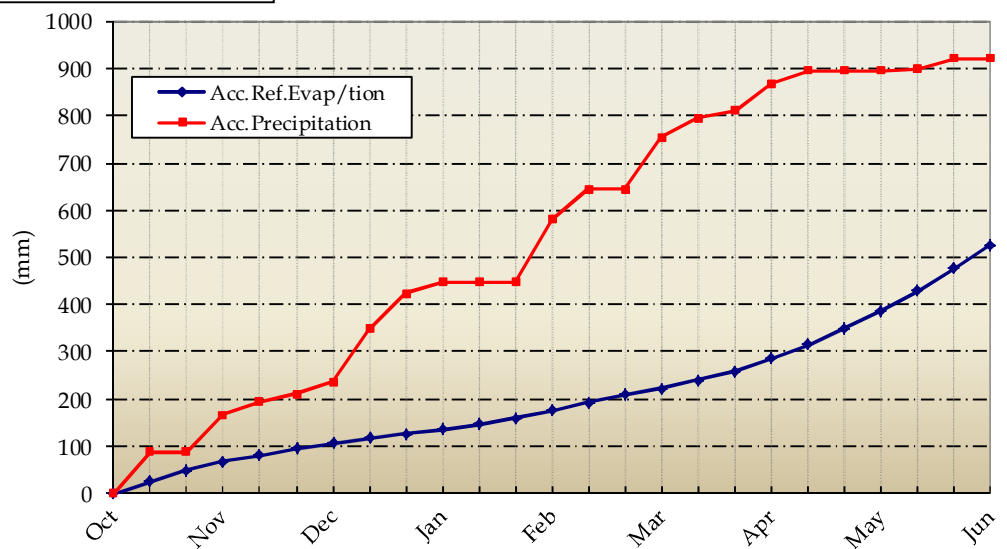
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.7	27.6	24.0	23.0	23.2	23.6	23.6	23.5	23.4	24.1	25.2	24.2	26.6	25.4
	Min	15.4	16.8	16.8	13.0	13.2	13.1	13.3	13.8	17.9	12.3	13.4	14.5	14.2	14.0
Relative Humidity	Max	90	86	88	87	78	88	88	65	83	87	86	84	88	-
	Min	45	42	44	46	77	40	43	48	39	41	45	46	38	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	21.7	21.4
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	29.6	25.8
Sunshine Duration		2.2	4.7	10.9	11.9	12.4	7.9	12.4	8.9	13.2	13.0	12.5	10.0	11.1	10.2
Precipitation															6.8
Evaporation		12.0	6.0	6.5	9.5	8.0	2.2	5.8	0.0	3.1	6.6	4.2	63.9	61.5	63.7
Growing Degrees	5	15.1	17.2	15.4	13.0	13.2	13.4	13.5	13.7	15.7	13.2	14.3	157.5	169.5	161.7
	10	10.1	12.2	10.4	8.0	8.2	8.4	8.5	8.7	10.7	8.2	9.3	102.5	114.5	106.7

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	49.7	53.5	48.0
Precipitation - Reference Evapotranspiration	-49.7	-53.5	-41.2
Number of Rainy Days	0.0	0.0	1.0
Number of Dry Days	11.0	12.0	-

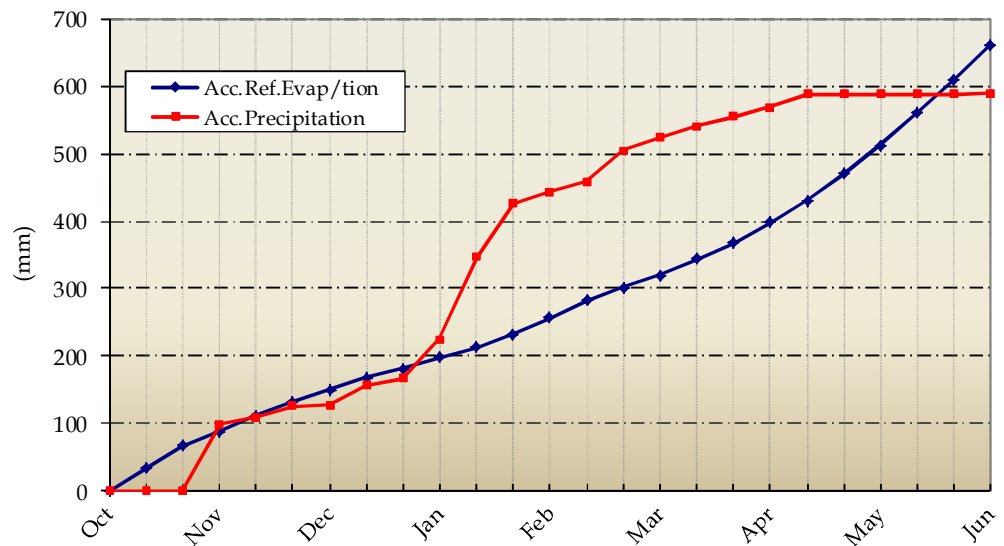
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.8	25.4	23.2	22.0	23.2	29.0	24.2	22.6	21.6	22.0	22.6	23.7	27.0	24.9
	Min	16.6	17.8	20.6	15.8	15.0	16.4	19.4	16.2	16.8	18.0	14.0	17.0	17.5	16.6
Relative Humidity	Max	90	81	90	91	89	81	87	89	91	84	91	88	83	-
	Min	55	46	32	57	51	30	58	54	59	61	61	51	47	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		11.2	2.0	11.7	12.6	12.8	5.4	8.8	9.7	8.8	12.4	12.5	9.8	11.0	10.1
Precipitation							0.2			1.0			1.2	0.8	4.4
Evaporation		3.7	2.7	5.4	2.9	5.0	2.1	3.7	5.2	9.0	6.3	3.2	49.2	67.0	74.4
Growing Degrees	5	15.7	16.6	16.9	13.9	14.1	17.7	16.8	14.4	14.2	15.0	13.3	168.6	190.1	173.1
	10	10.7	11.6	11.9	8.9	9.1	12.7	11.8	9.4	9.2	10.0	8.3	113.6	135.1	118.1

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.3	58.9	-
Precipitation - Reference Evapotranspiration	-49.1	-58.1	4.4
Number of Rainy Days	2.0	1.0	0.7
Number of Dry Days	45.0	23.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

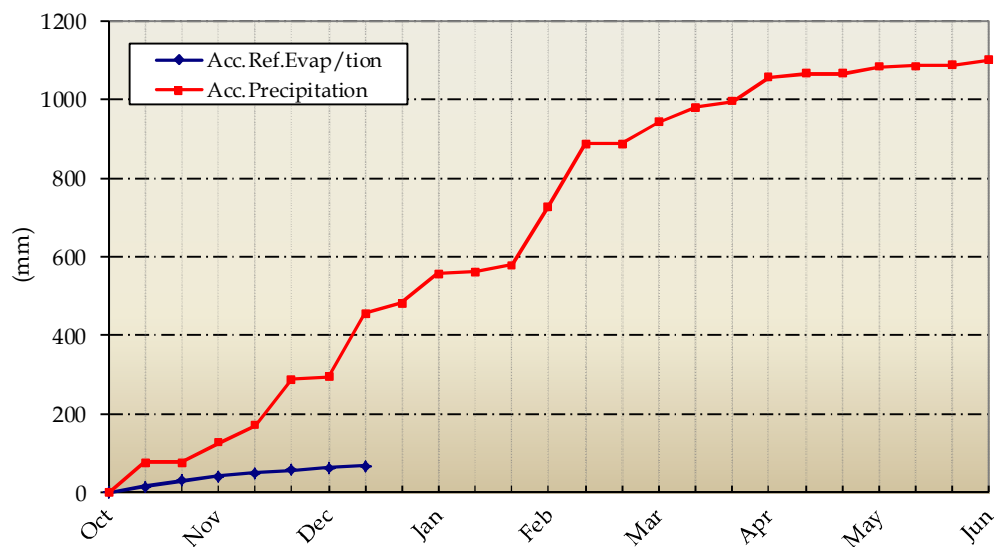
May 2015

Ioannina

3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	24.5	26.6	24.0	23.6	22.5	24.8	21.2	20.8	23.6	25.5	26.3	23.9	24.6	24.6
	Min	11.3	12.3	13.5	6.6	6.0	5.9	12.7	11.5	7.6	7.4	8.8	9.4	11.4	10.6
Relative Humidity	Max	100	100	97	100	100	100	100	100	100	100	100	100	94	-
	Min	38	33	43	34	39	31	54	46	31	29	33	37	42	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	17.3
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	21.4
Sunshine Duration		1.7	2.1	8.3	9.3	11.6	9.7	0.9	2.0	12.1	12.7	8.2	7.1	6.9	8.1
Precipitation			0.0				0.0	2.5	11.8	0.0			14.3	58.2	20.9
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	55.4
Growing Degrees	5	12.9	14.5	13.8	10.1	9.3	10.4	12.0	11.2	10.6	11.5	12.6	128.5	143.2	138.9
	10	7.9	9.5	8.8	5.1	4.3	5.4	7.0	6.2	5.6	6.5	7.6	73.5	88.2	83.9

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	36.2	42.6
Precipitation - Reference Evapotranspiration	-	22.0	-21.7
Number of Rainy Days	2.0	4.0	3.4
Number of Dry Days	6.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



# Agrometeorological Data

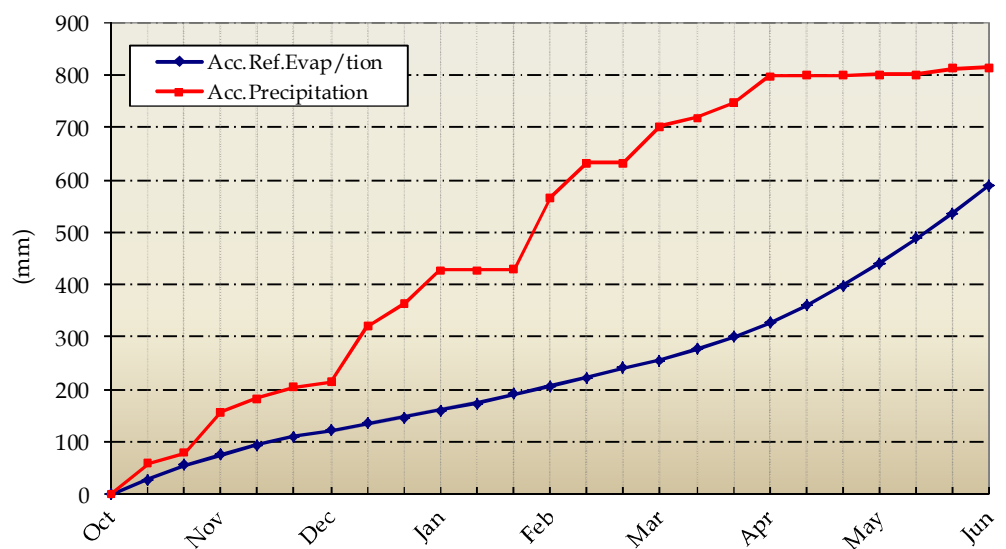
## May 2015

Kalamata

3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.4	31.2	26.2	25.4	26.3	25.6	25.1	26.5	24.4	23.8	24.3	26.1	28.4	26.1
	Min	15.2	14.9	15.0	12.4	12.6	13.2	12.5	10.9	12.3	12.8	12.2	13.1	13.9	13.4
Relative Humidity	Max	90	90	93	91	93	89	91	93	91	88	92	91	87	-
	Min	38	28	43	35	33	33	39	36	34	50	48	38	28	-
Soil Temperature at 10 cm	06 UTC	19.8	20.0	22.2	20.0	19.4	19.8	19.2	18.8	19.4	19.6	20.0	19.8	20.8	20.5
	12 UTC	21.0	21.0	22.0	21.6	21.6	21.6	21.4	20.4	20.6	21.4	21.8	21.3	22.8	24.4
Sunshine Duration		3.7	6.1	11.2	12.2	12.6	10.6	7.1	12.5	11.0	12.8	9.3	9.9	10.1	9.6
Precipitation			0.5				1.2	0.5	0.0	0.0			2.2		3.4
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	68.8
Growing Degrees	5	16.8	18.1	15.6	13.9	14.5	14.4	13.8	13.7	13.4	13.3	13.3	160.6	178.0	162.7
	10	11.8	13.1	10.6	8.9	9.5	9.4	8.8	8.7	8.4	8.3	8.3	105.6	123.0	107.7

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	53.0	59.1	49.3
Precipitation - Reference Evapotranspiration	-50.8	-59.1	-45.9
Number of Rainy Days	3.0	0.0	1.1
Number of Dry Days	1.0	12.0	-

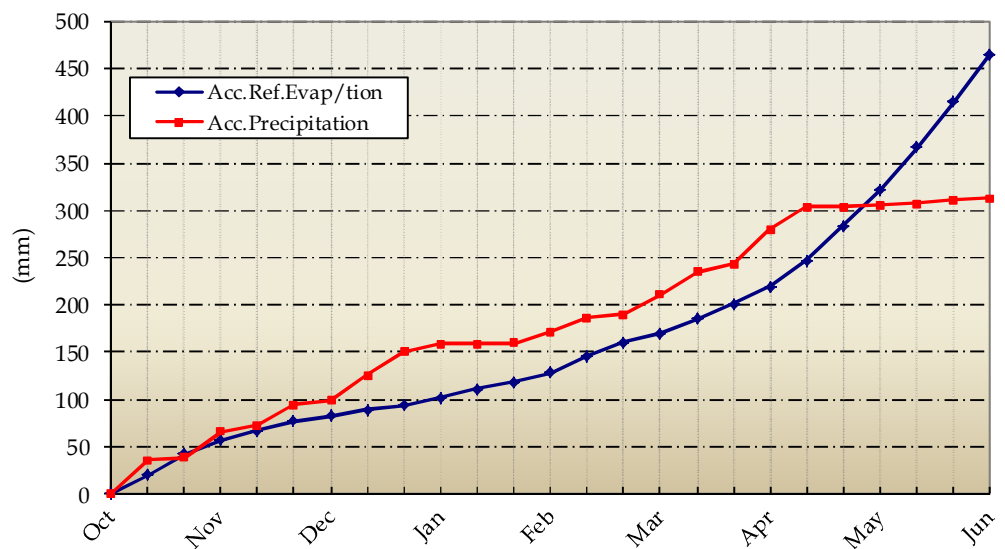
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	31.0	27.8	31.7	29.4	28.5	28.8	24.6	18.6	23.3	27.6	29.0	27.3	30.2	27.7
	Min	13.3	16.0	13.2	12.8	12.8	12.0	15.8	13.8	14.3	11.4	11.4	13.3	14.3	12.6
Relative Humidity	Max	99	91	99	89	75	77	83	100	91	100	87	90	88	-
	Min	28	30	12	30	19	14	41	57	34	22	25	28	24	-
Soil Temperature at 10 cm	06 UTC	21.6	22.0	21.8	22.4	22.4	22.4	22.6	22.2	20.8	21.0	21.8	21.9	-	20.0
	12 UTC	21.6	22.0	21.8	22.2	22.2	22.6	22.4	21.6	20.8	21.2	21.5	21.8	-	22.3
Sunshine Duration		8.3	2.0	12.2	9.2	12.0	9.7	1.7	0.5	6.8	12.3	9.4	7.6	8.6	8.8
Precipitation								0.2	1.6				1.8	21.6	17.2
Evaporation		5.2	7.4	8.8	9.7	9.3	9.5	0.5	1.6	2.0	8.0	9.0	71.0	88.4	67.8
Growing Degrees	5	17.2	16.9	17.5	16.1	15.7	15.4	15.2	11.2	13.8	14.5	15.2	168.6	189.5	166.2
	10	12.2	11.9	12.5	11.1	10.7	10.4	10.2	6.2	8.8	9.5	10.2	113.6	134.5	111.2

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	50.5	56.1	50.4
Precipitation - Reference Evapotranspiration	-48.7	-34.5	-33.2
Number of Rainy Days	2.0	4.0	3.0
Number of Dry Days	6.0	7.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

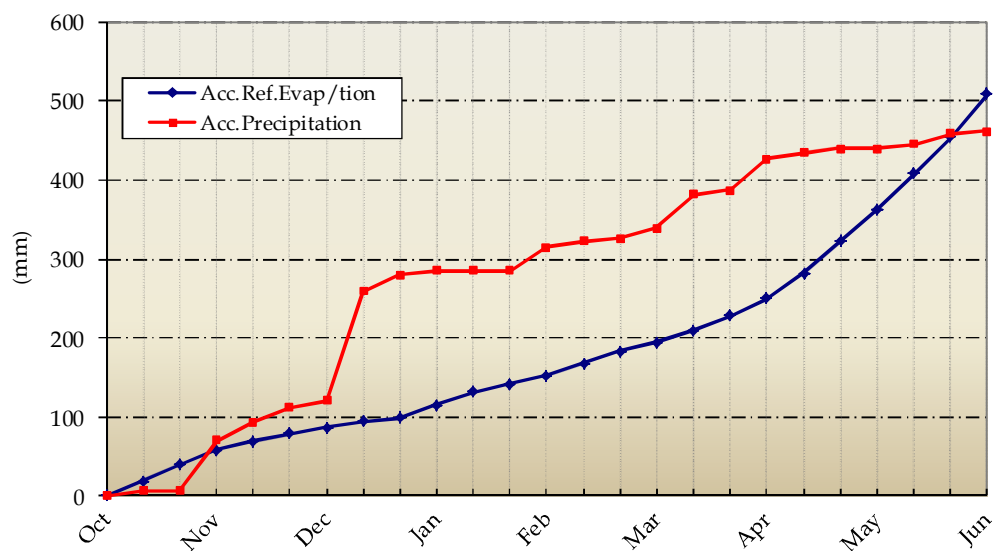


Mikra

3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	27.6	25.6	28.0	27.7	27.4	26.6	26.6	22.2	22.7	26.0	26.3	26.1	27.9	26.2
	Min	15.9	18.0	16.2	15.4	18.0	13.0	17.8	14.6	15.2	9.6	12.0	15.1	15.4	13.9
Relative Humidity	Max	79	81	83	85	84	78	70	72	82	84	80	80	79	-
	Min	37	42	43	36	28	23	34	45	30	28	28	34	29	-
Soil Temperature at 10 cm	06 UTC	22.6	23.6	22.0	24.0	24.4	23.5	24.2	21.2	18.2	18.2	20.8	22.1	22.0	20.7
	12 UTC	28.0	25.2	28.4	28.8	30.0	29.4	28.4	20.6	21.3	25.6	27.8	26.7	27.4	25.4
Sunshine Duration		9.3	1.9	12.3	10.9	12.3	8.8	4.6	0.0	4.2	13.4	13.5	8.3	9.4	8.3
Precipitation		0.0						0.0	2.3	0.0			2.3	14.3	16.2
Evaporation		5.3	4.1	0.9	6.4	7.8	5.8	6.2	5.1	2.2	9.6	9.3	62.7	86.5	70.6
Growing Degrees	5	16.8	16.8	17.1	16.6	17.7	14.8	17.2	13.4	14.0	12.8	14.2	171.2	183.4	165.0
	10	11.8	11.8	12.1	11.6	12.7	9.8	12.2	8.4	9.0	7.8	9.2	116.2	128.4	110.0

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	54.4	62.2	48.7
Precipitation - Reference Evapotranspiration	-52.1	-47.9	-32.5
Number of Rainy Days	1.0	4.0	2.9
Number of Dry Days	16.0	19.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

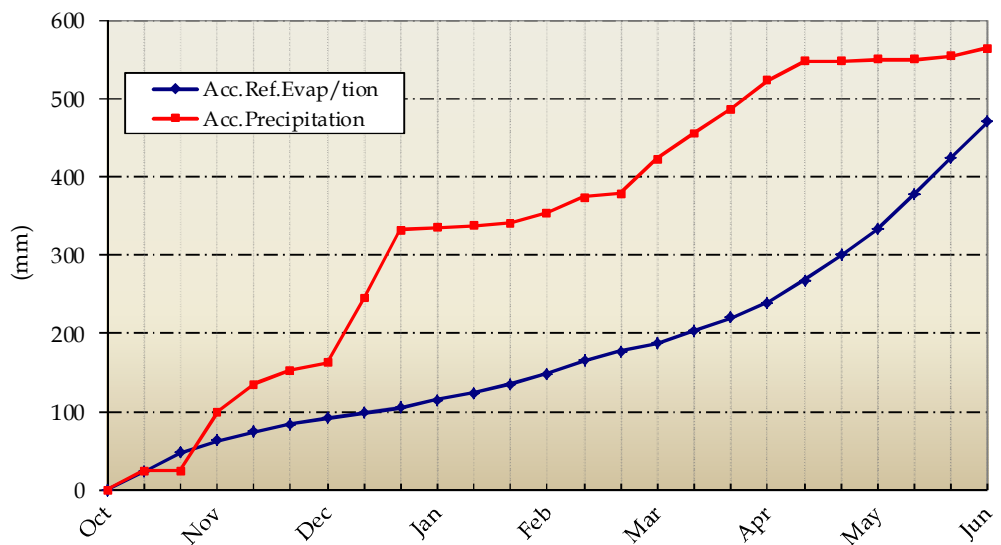




3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	30.1	29.1	29.2	28.5	27.7	27.0	25.3	20.0	19.0	24.6	26.4	26.1	29.2	26.9
	Min	14.5	15.1	15.2	14.6	13.0	12.0	13.2	13.8	12.5	9.7	10.4	13.1	15.2	12.8
Relative Humidity	Max	82	84	94	77	75	80	100	99	97	99	96	89	74	-
	Min	29	24	32	16	21	30	38	60	55	34	25	33	28	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		7.1	3.1	12.3	11.3	13.0	7.4	6.7	3.2	4.0	11.4	11.6	8.3	-	-
Precipitation							0.0	9.4	0.7	0.1			10.2	1.7	6.0
Evaporation		5.5	8.0	5.5	8.0	7.5	8.5	3.5	1.6	2.4	5.0	11.0	66.5	-	-
Growing Degrees	5	17.3	17.1	17.2	16.6	15.4	14.5	14.3	11.9	10.8	12.2	13.4	160.5	-	-
	10	12.3	12.1	12.2	11.6	10.4	9.5	9.3	6.9	5.8	7.2	8.4	105.5	-	-

3rd 10-day period (21-31/05/2015)	Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	45.8	-
Precipitation - Reference Evapotranspiration	-35.6	-
Number of Rainy Days	3.0	2.3
Number of Dry Days	15.0	-

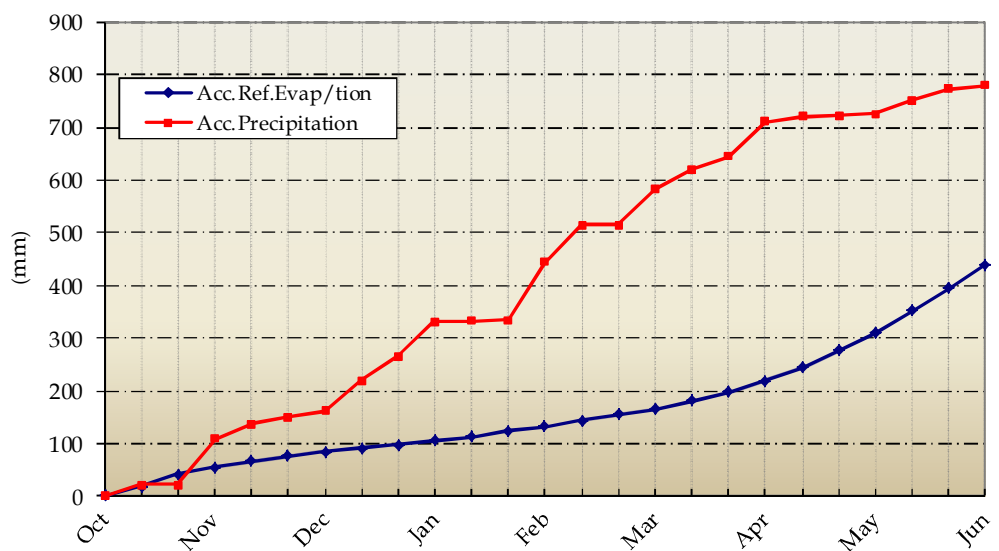
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/05/2015)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	28.9	25.5	24.8	21.9	23.2	25.5	21.8	20.4	20.5	22.8	24.4	23.6	25.6	24.8
	Min	9.6	12.8	9.2	6.5	8.1	7.9	8.4	5.8	7.4	8.5	7.3	8.3	9.3	9.2
Relative Humidity	Max	100	100	100	98	95	100	100	100	100	100	100	99	91	-
	Min	21	37	27	34	32	17	30	38	42	38	30	31	28	-
Soil Temperature at 10 cm	06 UTC	18.6	-	-	-	20.0	20.4	19.0	18.4	16.8	17.6	18.2	18.6	18.8	18.5
	12 UTC	23.8	-	-	-	26.8	27.0	22.4	22.2	22.4	-	-	24.1	25.4	21.5
Sunshine Duration		13.5	-	-	0.0	12.1	7.1	9.2	7.6	8.4	9.9	10.5	8.7	9.5	8.9
Precipitation			0.3				0.6	0.4	4.3				5.6	2.8	11.3
Evaporation		-	-	-	-	6.9	9.5	0.6	2.7	2.8	5.9	5.3	-	64.7	48.7
Growing Degrees	5	14.3	14.2	12.0	9.2	10.7	11.7	10.1	8.1	9.0	10.7	10.9	120.6	137.4	132.1
	10	9.3	9.2	7.0	4.2	5.7	6.7	5.1	3.1	4.0	5.7	5.9	65.6	82.4	77.1

3rd 10-day period (21-31/05/2015)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	43.6	48.6	47.0
Precipitation - Reference Evapotranspiration	-38.0	-45.8	-35.7
Number of Rainy Days	4.0	4.0	2.6
Number of Dry Days	2.0	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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