



# AGROMETEOROLOGICAL BULLETIN

*January 2017  
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



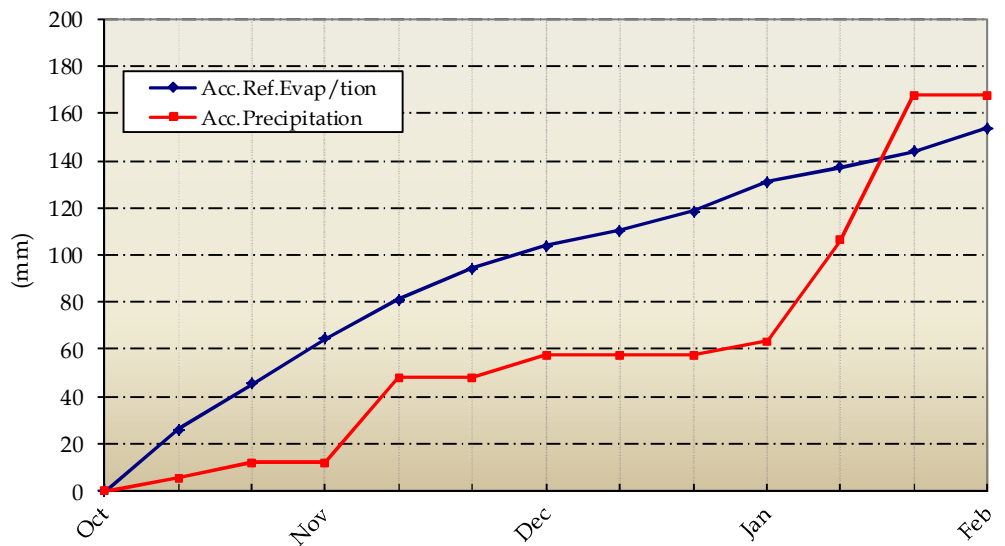
Hellenic National Meteorological Service  
Division of Climatology-Applications  
El. Venizelou Street 14, 16777  
Helliniko, Athens

*Web addresses of HNMS*  
[www.hnms.gr](http://www.hnms.gr)  
[www.emy.gov.gr](http://www.emy.gov.gr)  
[www.meteo.gov.gr](http://www.meteo.gov.gr)  
[www.meteohellas.gr](http://www.meteohellas.gr)

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	4.4	7.2	6.2	5.2	4.8	3.4	3.0	6.2	6.0	5.0	5.8	5.2	8.7	8.8
	Min	-3.8	-5.4	1.8	1.8	2.8	-1.0	-7.8	-5.0	-1.6	2.0	0.0	-1.5	-0.8	1.4
Relative Humidity	Max	92	90	82	79	73	77	87	92	92	76	76	83	88	-
	Min	60	42	60	69	52	32	43	51	49	54	44	51	55	-
Soil Temperature at 10 cm	06 UTC	1.7	1.0	3.4	3.4	4.0	2.0	1.4	1.6	1.6	3.5	3.4	2.5	3.2	4.6
	12 UTC	3.0	2.6	4.6	4.4	4.6	2.8	2.0	3.4	3.0	4.4	5.6	3.7	5.0	5.8
Sunshine Duration		8.1	5.8	0.0	0.0	2.5	4.5	7.9	8.8	1.3	0.0	8.8	4.3	5.2	3.3
Precipitation														0.7	16.6
Evaporation		0.0	0.0	1.1	1.4	0.0	0.0	0.0	0.0	0.0	2.0	0.0	4.5	6.9	10.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	16.7
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.2

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	9.7	7.9	10.8
Precipitation - Reference Evapotranspiration	-9.7	-7.2	5.8
Number of Rainy Days	0.0	1.0	2.7
Number of Dry Days	11.0	8.0	-

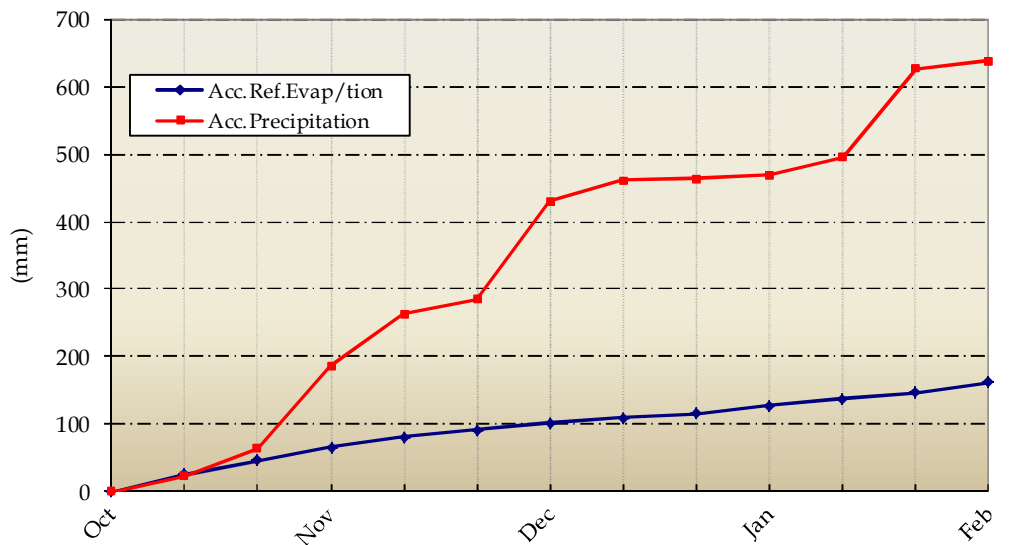
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	14.2	13.4	11.4	10.0	15.2	13.8	11.2	13.6	13.4	13.6	13.4	13.0	14.2	14.0
	Min	1.0	0.0	2.8	6.3	1.0	6.1	4.9	1.2	7.5	2.4	0.0	3.0	2.6	5.3
Relative Humidity	Max	88	90	88	91	92	88	87	88	82	86	90	88	89	-
	Min	65	48	48	78	51	49	46	42	50	40	43	51	49	-
Soil Temperature at 10 cm	06 UTC	7.6	7.2	7.0	6.8	6.0	8.8	9.2	8.0	7.6	8.4	7.8	7.7	-	8.6
	12 UTC	8.4	13.4	13.0	10.6	15.6	9.4	10.0	13.6	10.0	12.0	13.6	11.8	-	10.2
Sunshine Duration		8.2	3.6	0.0	0.0	7.9	4.7	8.0	6.6	0.0	6.0	8.2	4.8	6.4	4.8
Precipitation					10.1		0.1	0.6					10.8		33.1
Evaporation		2.0	3.0	1.1	3.0	1.4	1.4	2.8	4.0	2.0	3.0	2.0	25.7	18.4	18.6
Growing Degrees	5	2.6	1.7	2.1	3.2	3.1	5.0	3.1	2.4	5.5	3.0	1.7	33.2	38.2	51.2
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.5	4.5	9.9

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	10.0	10.4	11.9
Precipitation - Reference Evapotranspiration	0.8	-10.4	21.2
Number of Rainy Days	3.0	0.0	4.6
Number of Dry Days	4.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

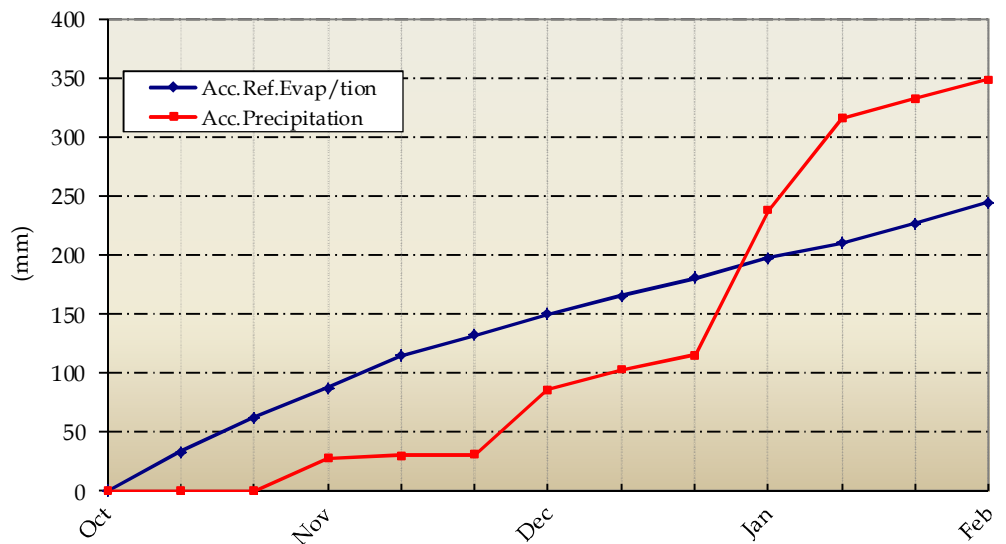


Iraklio

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	12.2	11.8	13.4	18.2	12.8	10.4	8.4	12.0	12.4	11.4	10.4	12.1	13.1	15.0
	Min	10.8	9.4	8.0	10.4	10.0	10.0	7.0	7.0	6.6	8.8	9.4	8.9	8.9	8.9
Relative Humidity	Max	75	77	87	92	92	100	71	71	81	86	79	83	82	-
	Min	55	55	58	41	75	59	51	55	52	60	31	54	55	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		0.1	3.7	1.2	4.1	1.3	0.0	4.1	5.4	5.0	0.0	0.1	2.3	3.6	4.0
Precipitation		0.0			5.2	8.2	1.7				0.9		16.0	12.1	25.2
Evaporation		0.6	2.0	0.5	2.2	2.2	2.3	1.8	4.2	0.1	5.6	1.9	23.4	21.0	29.5
Growing Degrees	5	6.5	5.6	5.7	9.3	6.4	5.2	2.7	4.5	4.5	5.1	4.9	60.4	65.5	76.7
	10	1.5	0.6	0.7	4.3	1.4	0.2	0.0	0.0	0.0	0.1	0.0	8.8	15.7	23.4

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	17.6	18.4	-
Precipitation - Reference Evapotranspiration	-1.6	-6.3	25.2
Number of Rainy Days	4.0	5.0	4.4
Number of Dry Days	3.0	0.0	-

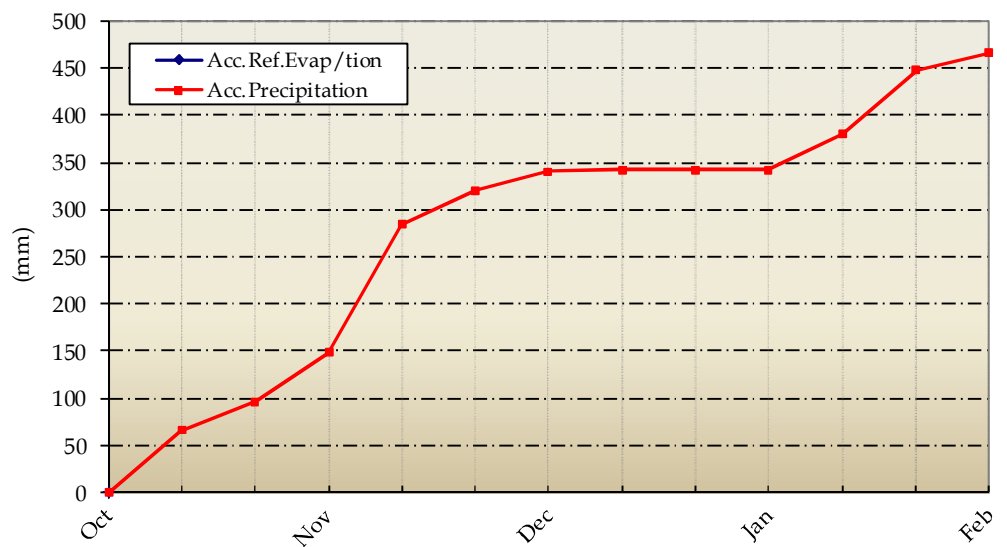
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	11.2	11.6	8.9	5.0	7.5	9.2	8.9	10.1	7.8	10.0	-	9.0	11.6	9.3
	Min	-5.0	-5.4	-0.9	1.2	1.4	-0.8	-3.8	-6.0	-1.5	-2.2	-1.0	-2.2	-3.0	0.7
Relative Humidity	Max	100	95	100	100	100	100	100	100	100	100	100	100	98	-
	Min	42	42	53	98	78	63	49	47	63	66	61	60	44	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6
Sunshine Duration		-	2.9	0.9	0.0	0.0	-	6.9	-	0.0	0.4	2.6	1.7	5.4	3.1
Precipitation					17.6		0.0	0.0	0.0	0.0		0.1	17.7	0.0	37.2
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	-	8.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	9.0	13.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.4

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	-	-	8.6
Precipitation - Reference Evapotranspiration	-	-	28.6
Number of Rainy Days	2.0	0.0	4.3
Number of Dry Days	4.0	13.0	-

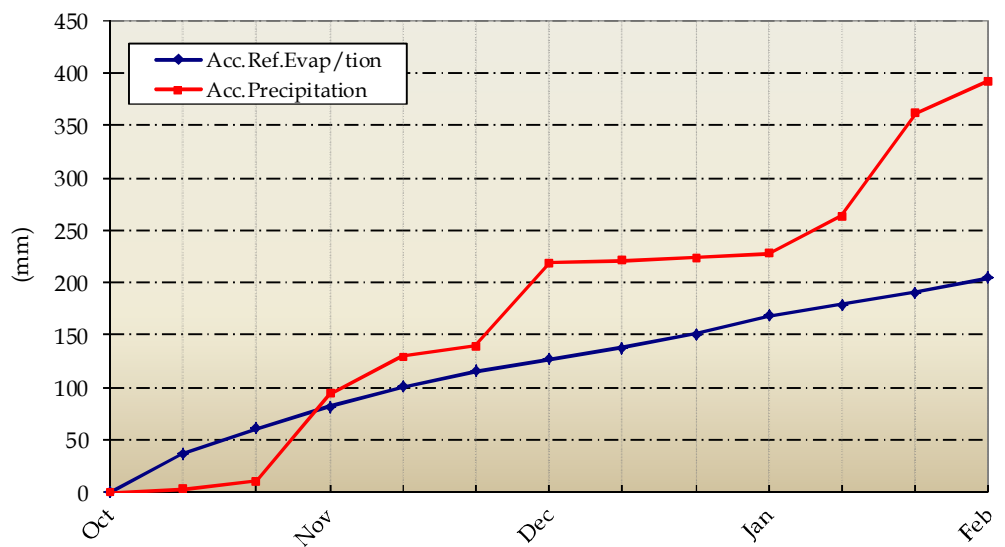
Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	13.6	13.6	11.1	14.7	15.4	12.9	13.2	13.9	14.1	14.9	15.4	13.9	16.2	14.8
	Min	2.5	2.8	5.8	6.5	3.0	5.7	4.4	3.0	7.6	5.2	4.8	4.7	3.6	5.3
Relative Humidity	Max	80	78	90	93	95	92	93	91	83	70	90	87	88	-
	Min	38	40	49	56	59	46	39	40	48	35	38	44	40	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	9.6	9.0
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	10.5	10.3
Sunshine Duration		9.2	6.6	0.0	3.2	4.6	0.7	7.4	4.1	2.1	4.9	9.7	4.8	7.8	4.4
Precipitation				0.4	9.0	14.9	0.8	4.7		0.3	0.2		30.3	0.2	36.5
Evaporation		2.1	3.9	0.5	2.0	0.6	0.0	1.8	0.8	2.7	1.6	2.7	18.7	21.8	21.4
Growing Degrees	5	3.1	3.2	3.5	5.6	4.2	4.3	3.8	3.5	5.9	5.1	5.1	47.1	54.3	55.6
	10	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.9	0.1	0.1	1.6	9.5	9.3

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	14.6	17.4	13.4
Precipitation - Reference Evapotranspiration	15.7	-17.2	23.1
Number of Rainy Days	7.0	1.0	4.7
Number of Dry Days	3.0	1.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

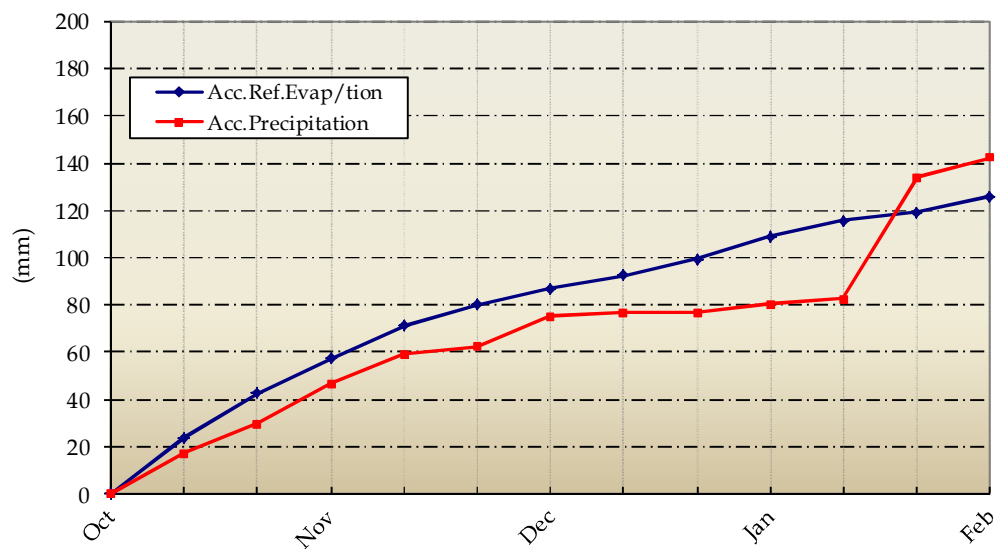


Larisa

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	10.0	7.6	7.2	5.0	6.4	4.6	6.2	8.0	3.3	6.8	7.8	6.6	12.8	10.7
	Min	-1.8	-3.5	2.8	3.3	3.0	1.2	-0.2	-4.9	-2.4	2.6	2.0	0.2	0.5	1.2
Relative Humidity	Max	100	100	100	100	100	89	100	100	100	100	100	99	97	-
	Min	52	60	69	93	78	65	49	51	51	79	59	64	49	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	5.6	5.5
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	6.8	6.2
Sunshine Duration		7.1	4.0	0.0	0.0	0.0	0.0	6.7	6.4	0.0	0.0	0.0	2.2	5.3	3.5
Precipitation					3.8	3.9	0.0			0.2	0.3		8.2		10.7
Evaporation		0.0	0.0	1.2	0.2	0.1	0.4	0.0	0.0	0.2	0.5	0.6	3.2	-	7.0
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	18.5
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	1.5

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	6.4	9.8	8.6
Precipitation - Reference Evapotranspiration	1.8	-9.8	2.1
Number of Rainy Days	4.0	0.0	3.0
Number of Dry Days	4.0	11.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

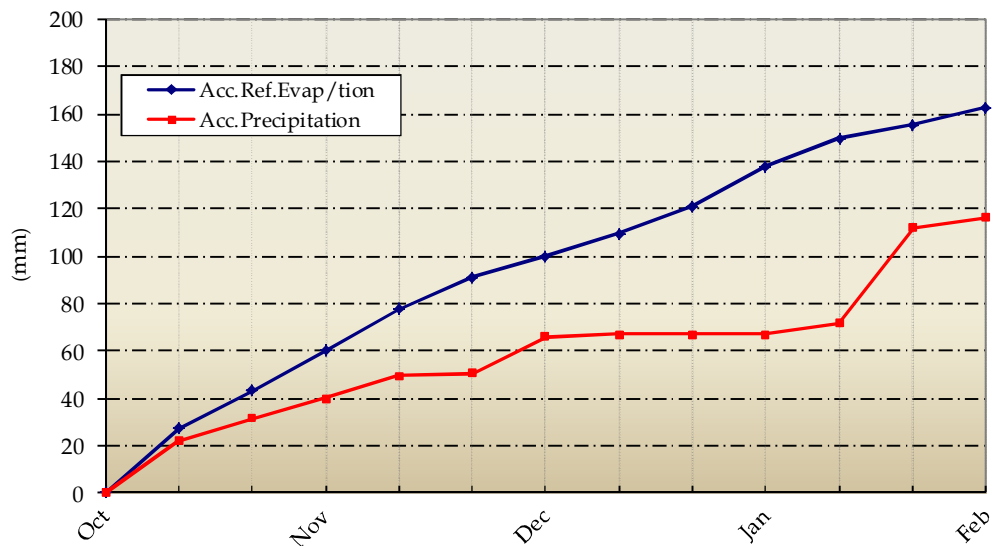


Mikra

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	30	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.6	7.8	7.0	7.0	4.5	3.7	4.7	6.2	4.4	5.0	5.8	5.8	11.0	9.8
	Min	-2.4	-3.8	-2.1	0.9	3.2	0.8	-4.2	-5.1	1.0	3.0	3.2	-0.5	0.5	1.9
Relative Humidity	Max	98	97	96	83	83	91	93	84	97	98	92	92	89	-
	Min	59	55	63	62	64	53	36	42	69	84	65	59	43	-
Soil Temperature at 10 cm	06 UTC	3.4	2.6	1.0	4.0	4.6	3.8	2.0	1.6	2.2	4.2	4.6	3.1	4.3	5.1
	12 UTC	4.4	4.0	4.1	5.2	5.0	3.4	3.2	4.2	4.0	4.8	5.2	4.3	6.1	6.5
Sunshine Duration		6.4	6.7	2.8	0.2	0.0	0.0	7.8	8.5	0.0	0.0	0.0	2.9	7.6	3.5
Precipitation					0.0	3.6	0.1	0.0		1.0	0.0	0.0	4.7	0.0	11.8
Evaporation		0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.7	0.8	1.8	8.8	12.6
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3	18.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.4	12.9	9.9
Precipitation - Reference Evapotranspiration	-2.7	-12.9	1.9
Number of Rainy Days	3.0	0.0	3.3
Number of Dry Days	5.0	13.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration



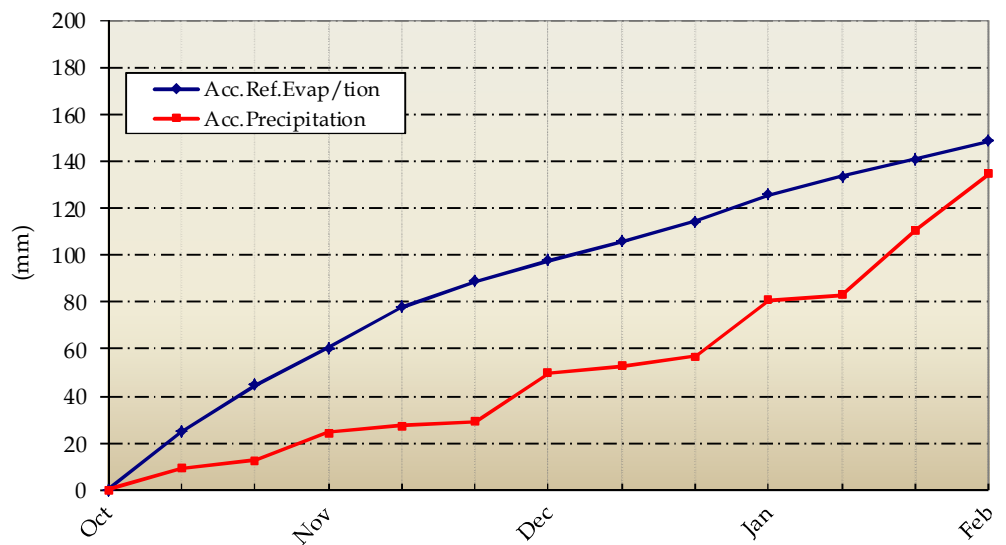


Tanagra

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	8.8	9.6	8.4	6.4	6.3	5.6	4.8	8.9	7.5	7.5	7.6	7.4	11.2	11.7
	Min	5.2	1.6	1.5	5.0	4.6	4.5	1.6	-3.6	0.4	4.4	3.0	2.6	1.7	3.1
Relative Humidity	Max	99	98	97	100	98	89	99	99	100	100	84	97	98	-
	Min	63	50	62	97	90	64	62	50	64	61	56	65	54	-
Soil Temperature at 10 cm	06 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 UTC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunshine Duration		1.4	4.9	0.0	0.0	0.0	0.0	0.4	7.7	0.6	1.1	0.5	1.5	4.7	
Precipitation					15.6	8.4	0.1	0.1			0.1		24.3	3.5	24.3
Evaporation		-	-	-	-	-	-	-	-	-	-	-	-	16.7	
Growing Degrees	5	2.0	0.6	0.0	0.7	0.5	0.1	0.0	0.0	0.0	1.0	0.3	5.1	25.1	
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.8	9.1	
Precipitation - Reference Evapotranspiration	16.5	-5.6	24.3
Number of Rainy Days	5.0	2.0	5.1
Number of Dry Days	3.0	2.0	-

Diagram of Accumulated Precipitation and Accumulated Reference Evapotranspiration

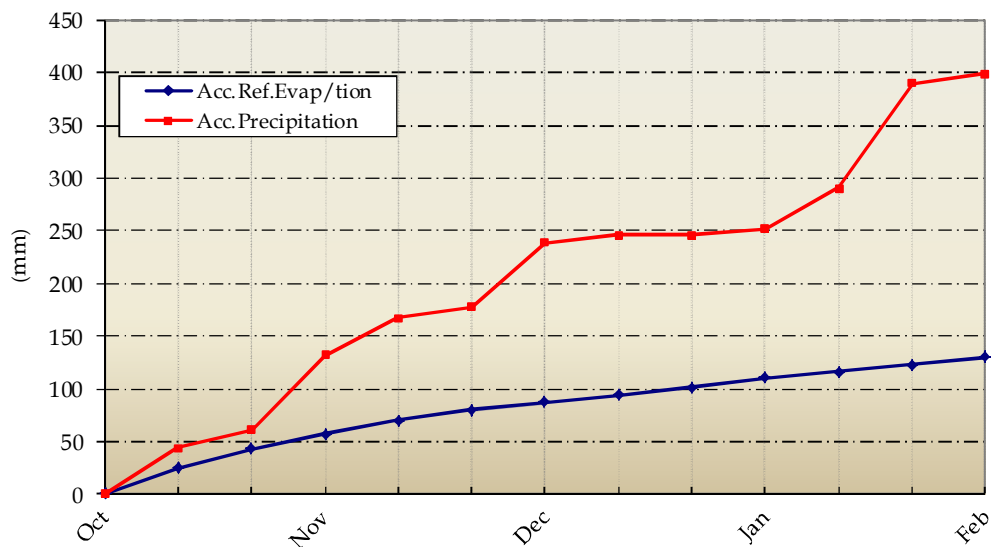


Tripoli

3rd 10-day period (21-31/01/2017)		21	22	23	24	25	26	27	28	29	20	31	Mean Value or Sum	Previous Year Value	Past Years Mean Value
Temperature	Max	7.2	8.7	4.3	5.7	6.3	4.4	3.5	9.1	4.3	7.5	6.6	6.1	11.1	9.8
	Min	-3.0	-3.1	-1.8	1.6	-0.9	1.3	-1.9	-5.8	3.0	-2.1	-0.6	-1.2	-1.8	0.9
Relative Humidity	Max	100	100	100	100	100	100	100	100	92	97	100	99	97	-
	Min	58	51	68	98	90	78	66	48	75	55	59	68	49	-
Soil Temperature at 10 cm	06 UTC	3.4	2.2	2.4	3.6	3.4	4.4	3.0	1.8	4.0	2.8	3.4	3.1	3.3	4.6
	12 UTC	-	-	3.6	4.0	5.0	4.8	4.0	-	-	4.2	4.8	4.3	6.1	5.4
Sunshine Duration		6.0	6.2	0.0	0.0	0.0	0.0	1.9	4.8	0.0	2.3	4.4	2.3	6.3	4.0
Precipitation				0.0	7.1	1.7	0.0	0.1					8.9	0.2	32.5
Evaporation		0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.0	0.3	0.6	0.0	1.4	4.3	8.6
Growing Degrees	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	14.3
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

3rd 10-day period (21-31/01/2017)		Previous Year Value	Past Years Mean Value
Reference Evapotranspiration	7.4	9.5	11.0
Precipitation - Reference Evapotranspiration	1.5	-9.3	21.5
Number of Rainy Days	3.0	1.0	4.6
Number of Dry Days	4.0	0.0	-

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

© HELLENIC NATIONAL METEOROLOGICAL SERVICE

Reproduction is prohibited without written permission

El. Venizelou street 14, Zip Code 16777

Helliniko, Athens



ΕΘΝΙΚΗ  
ΜΕΤΕΩΡΟΛΟΓΙΚΗ  
ΥΠΗΡΕΣΙΑ

HELLENIC NATIONAL METEOROLOGICAL SERVICE

Division of Climatology-Applications

Issue Editors :

Papakrivou Anastasia

The present bulletin was designed and implemented under the support of Water Resources Management Division of Agriculture University of Athens