

HUMIDITY CONDITIONS IN THE BANAT'S PLAIN IN THE PERIOD 2003 – 2006

CONDIȚIILE DE UMIDITATE DIN CÂMPIA BANATULUI ÎN PERIOADA 2003 - 2006

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Abstract: *In the present paper are showed the humidity conditions in three locations from Banat Field: Sânnicolau Mare, Timișoara and Banloc. The agricultural year 2003-2004 is characterization as temperate dry in all locations, unlike 2004-2005 year that is wet to temperate wet. The agricultural year 2005-2006 is feting in normal limits, being a temperate dry year with an arid vegetative period.*

Rezumat: *În lucrarea de față sunt prezentate condițiile de umiditate din trei localități a Câmpiei Banatului și anume: Sânnicolau Mare, Timișoara și Banloc. Anul agricol 2003-2004 se caracterizează ca fiind moderat uscat în toate cele trei locații, spre deosebire de anul 2004-2005 care este umed spre moderat umed. Anul agricol 2005-2006 se încadrează în limitele normale fiind moderat uscat cu o perioadă de vegetație aridă.*

Key words: *evapotranspiration, rainfall, humidity conditions, climatic indicators*

Cuvinte cheie: *evapotranspirație, precipitații, condiții de umiditate, indicatori climatici*

INTRODUCTION

The cognition of the evolution of an area and the cognition of the tendencies of some climatic factors are important for many branches of activity and especially for agriculture. The humidity deficit or excess is determined by many factories that are influence reciprocally as: the water reserve from the soil that is accessible to the plants, atmosphere rainfalls, air humidity, air temperature, speed wind, plant, physiological state, soil nature, agrotechnics used (2, 3).

MATERIAL AND METHOD

For a better characterisation of Banat Field humidity conditions were used meteorological data registered in three Meteorological Stations: Sânnicolau Mare (the western point of Banat Field), Timisoara (central point) and Banloc (southern point).

The potential evapotranspiration was calculated with Thornthwaite relation, which is perfectly suited for our country conditions. The obtained results were corrected with luminosity coefficients for each geographic position of every locality.

The humidity conditions were determined with the P-ETP relation and for period characterisation it was used the climatic indicators like De Martone dryness index, Donciu and Thornthwaite moistness index (1).

RESULTS AND DISCUSSIONS

In figure 1 it is graphically representing the chronological elements of the monthly precipitations (P) and of the potential evapotranspiration (ETP) produced at Sânnicolau Mare for 2003-2006 period. In 2003-2004 agricultural year was registered a humidity deficit (68.6 mm) especially in vegetative period, from May to September (188.2 mm).

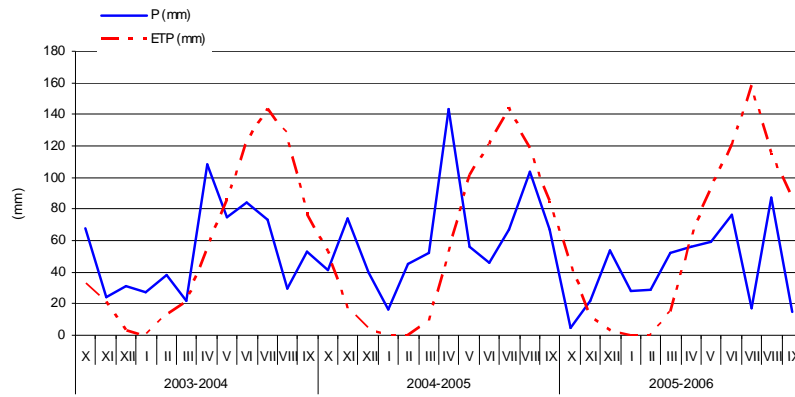


Figure 1. The humidity excess and deficit produced at Sânnicolau Mare

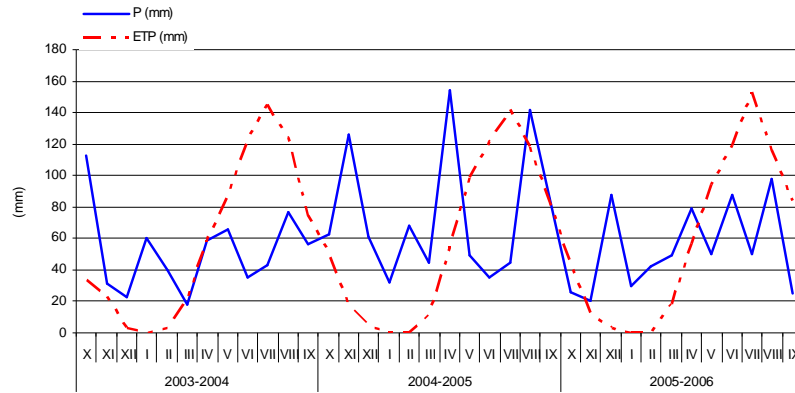


Figure 2. The humidity excess and deficit produced at Timișoara

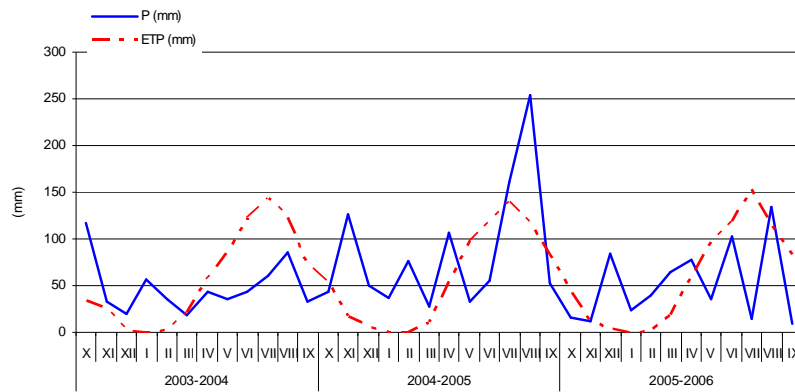


Figure 3. The humidity excess and deficit produced at Banloc

Table 1

The period characterisation based by climatic indicators

Place	Agricultural year	Period	CLIMATIC INDICATORS					
			De Martonne		Donciu		Thornthwaite	
			Index	Rating	Index	Rating	Index	Rating
Sănicolau Mare	2003-2004	Annual	30.6	Temperate dry	90.2	Temperate dry	-9.8	Temperate dry
		IV-IX	15.3	Semiarid	69.2	Dry	-30.8	Semiarid
	2004-2005	Annual	36.4	Temperate wet II	106.5	Temperate wet	6.5	Temperate wet I
		IV-IX	17.2	Semiarid	77.7	Dry	-22.3	Semiarid
	2005-2006	Annual	24.1	Temperate dry	70.5	Dry	-29.5	Semiarid
		IV-IX	10.9	Arid	48.8	Excessive dry	-51.25	Arid
	Multiannual average	Annual	25.5	Temperate dry	76.0	Dry	-24.0	Semiarid
		IV - IX	11.4	Arid	51.5	Very dry	-48.5	Arid
Timișoara	2003-2004	Annual	29.9	Temperate dry	89.2	Temperate dry	-10.8	Temperate dry
		IV-IX	12.1	Arid	54.8	Excessive dry	-45.2	Arid
	2004-2005	Annual	43.8	Wet	129.3	Wet	29.3	Wet
		IV-IX	18.3	Semiarid	83.0	Temperate dry	-16.9	Temperate dry
	2005-2006	Annual	31.0	Temperate wet I	92.1	Temperate dry	-7.89	Temperate dry
		IV-IX	13.8	Arid	62.5	Very dry	-37.5	Arid
	Multiannual average	Annual	29.8	Temperate dry	90.4	Temperate dry	-9.6	Temperate dry
		IV - IX	13.1	Arid	60.0	Very dry	-40.0	Arid
Banloc	2003-2004	Annual	27.9	Temperate dry	84.4	Temperate dry	-15.6	Temperate dry
		IV-IX	10.9	Arid	49.9	Excessive dry	-50.1	Arid
	2004-2005	Annual	49.4	Wet	146.9	Wet	46.9	Wet
		IV-IX	23.8	Temperate dry	108.4	Temperate wet	8.4	Temperate wet I
	2005-2006	Annual	29.3	Temperate dry	87.1	Temperate dry	-12.9	Temperate dry
		IV-IX	13.2	Arid	59.6	Very dry	-40.4	Arid
	Multiannual average	Annual	28.3	Temperate dry	85.0	Temperate dry	-14.9	Temperate dry
		IV - IX	12.7	Arid	58.1	Very dry	-41.9	Arid

The 2004-2005 year was characterized as temperate wet, with an efficient precipitation about 45.9 mm. However, in vegetative period the humidity deficit is 138.4 mm. The annual humidity deficit for 2005-2006 period was 209.9 mm and 325.9 mm in vegetation state, values which are bigger than mulatinnual average.

The same situation is registered also in Timisoara (figure 2), where in 2003-2004 period the humidity deficit was 75.4 mm and 276.6 mm for the vegetation state. The 2004-

2005 agricultural year is a distinct one because the precipitation quantity was bigger, with an efficient of precipitations about 205.7 mm. In vegetation period humidity deficit was produced only in May and June (104.6 mm). The humidity deficit is 55.3 mm for 2005-2006 period and 234 mm for vegetation state of the same year.

The 2003-2004 year in Banloc is showed in figure 3 as poor in precipitation with an annual deficit of 107.3 mm and 303.4 mm in warm period of the year. Unlike the precedent year, 2004-2005 is a distinct year with historical maximum of precipitation recorded in Banat Field. The precipitation efficient was 326.2 mm and in vegetation period the precipitation had a surplus of 51.5 mm. The humidity deficit is produced only in May and June (65 mm). August is a distinct month because the precipitation surplus is about 137 mm. 2005-2006 is a normal year with an humidity deficit of 90.7 mm and 252.9 mm in vegetation state.

In table 1 is shown the yearly and warm period characterization for studied years after different climatic indicators. As we can see, the whole climatic indicators for the all locations indicate that the 2003-2004 agricultural year is "temperate dry" with an "arid" vegetative period, unlike 2004-2005 which is "wet" with a "temperate dry" vegetation state and, finally, the 2005-2006 agricultural year as "temperate dry" and "arid" in the warm period of the year.

CONCLUSIONS

The present paper presents the humidity conditions in Banat Field for 2003-2006 period independently by soil type, culture and agotechnics used.

The 2003-2004 agricultural year was humidity deficit in all locations, being lowest in Sânnicolau Mare and biggest in Banloc. 2004-2005 year is a distinct year with maximum of precipitations recorded in Banat Field with an annual precipitations surplus and humidity deficit in vegetation period at Sânnicolau Mare and Timisoara, unlike Banloc where was recorded precipitation surplus in vegetation state.

The 2005-2006 agricultural year is a normal one, with humidity deficit in whole warm period of the year.

This study is very important for the good plant development, because the period when the humidity deficit is bigger corresponds with the period when the plant request for water is high.

According to the present information, it is necessary to give attention to the execution of draining and drainage works, also the irrigation, because in the cold period of the year is registered a precipitations surplus, unlike warm period when the humidity deficit is high.

LITERATURE

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