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THE IMPORTANCE OF THE CLIMATE FOR THE ECONOMY OF THE SUCEAVA PLATEAU

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Abstract. The climate of the Suceava Plateau shows traits of predominance of the favorability, but this way, excesses of the climate manifest also frequently, which diminish the potential climatic potential relatively high of this sub- unit of the Moldavian Plateau. When the temperatures are positive and the quantity of rainfall copious, the agricultural yields are high, but when the rainfall is lacking, a long atmospheric drought takes place at first, then if this negative phenomenon is extended, the soil drought is installed, and if the two types of drought are associated, the drought becomes mixed, causing partial or total compromise of the harvest. Manifestations of extreme climatic phenomena or elements bring, often, material, financial damages, where we can see the need for acute financial security which must also penetrate in the sphere of agriculture, economic branch which often suffers from natural disasters, among which an important place is held by the climate disasters.

The importance of the climate of a region to its geographical environment, for human life and economic activities that are conducted in that area is very high. On the whole, the climate of the Suceava Plateau shows traits of predominance of the favorability, but this way, excesses of the climate manifest also frequently, which diminish the potential climatic potential relatively high of this sub- unit of the Moldavian Plateau. But, sometimes, the manifestations of climate elements and phenomena are quite unpredictable, creating real difficulties to people and damages to the economy.

Knowing the climate particularities of the Suceava Plateau, we appreciate that besides its many shortcomings, such as, for example, in the form of torrential rain, often involving great floods, with the soil erosion and washing of the soil or periods of drought, the long droughts, powerful storms accompanied by hail, hoar and ground frost late in the spring or early autumn, with temperature inversions,

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deposits of veneer, with all the implications arising and turning on the economy and social status of the population, the climate of the Suceava Plateau has also a number of positive traits related to radiant energy, heat, wind, atmospheric rainfall or some hydro meteorological phenomena.

On the territory of the Suceava Plateau, the potential of radiating energy in the form of global solar radiation, for example, varies between 110-115 kcal / cm ^{2} / year and therefore we can say that the studied territory has a relatively moderate potential. These data on spatial distribution of annual sums of total solar radiation, which can be transformed into heat and used in various physical processes (including the weather), chemical, biological, and those relating to the annual regime of the global solar energy, characterized by a maximum in July and a minimum in December, totaling on average 1800-2000 hours per year annually, is perfectly correlated with the thermal processes which are more intense in the southeastern part the Suceava Plateau and poor the northwest.

The air temperature is the element that we cannot make abstraction of any day of the year, its evolution from day to day, from one month to another, from one season to another, influencing our lives.

The heat, which can be used in agriculture, construction, urban development, balneology, for instance, are in the form of positive monthly and annual thermal averages, the number of summer and tropical days (which is a prerequisite for positive development and maturation of plants growing some of them demanding to the conditions of temperature such as maize, sunflower, vines, tomatoes, beans, cucumbers), the number of days without frost, or sums of diurnal average temperatures that are equal or exceed certain limits such as 0 ° C ≥, ≥ 5 ° C, ≥ 10 ° C and ≥ 15 ° C.

From September to May, temperatures can be lowered below 0 ° C, the number of days with frost ranging from 140 days in the north and 110 days in the south, winter days oscillating from over 45 days between the north and north-west and under 40 days in the south and southeast, and the frosty nights between 35 days in the north-west and about 20 days in the southeast. Very low temperatures during the cold season, make it necessary to take on clothes adapted to cold and consumption of significant quantities of fuel for heating homes and various institutions, buildings used for public, commercial spaces etc. The risk of contracting diseases, pneumonia, influenza, or even frosting of the most exposed parts of the body, directly with cold atmospheric air or indirectly with the active area covered by ice and snow, is much higher in this season. In winter, low temperatures may be associated with persistent fogs or intensification of wind accompanied by snow storm, creating an accentuated heat discomfort, the body rapidly losing heat from its own reserves. The human body very hard bears the combination of low temperatures and high winds with speeds. If in the atmosphere

also persists the fog, the feeling the frost is completely accentuated. Low temperatures create problems not only to humans, whose state of discomfort grows outside heated spaces, but also to the transportation system (diesel engines start very slowly at low temperatures) and agricultural economy, both in livestock and in the plant. Absolute minimum temperatures recorded in the air in the Suceava Plateau have ranged between -34.2 ° C (Radauti - 28 December 1996) and -24.5 ° C (Cotnari - 14 January 1972), while those on the surface -- 38.0 ° C (Roman) and -33.1 ° C (Cotnari), thermal values which create many difficulties to the economy and health problems to the population.

When the air temperature reaches frequently in the summer days at ≥ 25 ° C (45 days of summer in the north-west and 70 days of summer in south-east) or ≥ 30 ° C (5 tropical days in the north-west and 13 tropical days in the south-east), the human body can hardly bear such high temperatures, the persons suffering from cardio-vascular diseases, overweight, elderly and children having serious problems of thermal discomfort. The consumption of fluids, avoiding exposure to sun, crowded areas, a choice of ventilated rooms, shaded seating and clothing in brighter colors, preferably white, are solutions to pass well with hot periods. High temperatures during the summer nights create many problems of rest extending heat stress during the day, decreasing their ability to concentrate and predisposition to physical or intellectual effort. Absolute maximum temperatures recorded in the air in the Suceava Plateau have ranged between 35.8 ° C (Radauti - 22 August 2000) and 38.8 ° C (Fălticeni - 20 July 1960) and those at the surface of the soil between 57.0 ° C (Suceava) and 61.4 ° C (Roman), raising real issues to the population and economic difficulties.

The Suceava Plateau has a lower thermal potential with frequent temperature inversions. To illustrate this assertion, we exemplify with the amount in degrees of actual temperatures ≥ 10 ° C which decreases to about 2400 ° C in the Depression Radauti (Radauti - 2404.5 ° C) varies between 2500-2670 ° C in the central Plateau of Suceva (Suceava - 2537.3 and Fălticeni ° C - 2674.3 ° C) and at around 3000 ° C in the south-eastern part of the region (Cotnari - 3008.5 ° C and Roman - 2887.9 ° C) (tab.1).

As it can be seen, thermal resources, expressed in degrees by the sum of these average daily temperatures, decrease from southeast to northwest.

In addition to accumulated temperatures, important clues about the real thermal resources also provide the interval in which they occur.

Proceeding to the calculation and analysis of data (obtained using the histogram) during the interval in days where temperatures equal to or exceeding certain limits occur, we can notice an increase of the duration of the intervals, generally from north to south, and at the same time from west to east. Differences are smaller for lower thermal thresholds and higher for higher thermal thresholds of

above 10 ° C and 15 ° C. Thus, the duration in days of production of the temperatures ≥ 0 ° C is higher in the south by 15-20 days than in the north (269 days to Radauti over 282 days to 290 days and Roman to Cotnari) and where temperatures ≥ 15 ° C is higher in the south by about 30-40 days than in the north (90 days in Radauti than 122 days in Roman and 126 days in Cotnari).

Tab.1: Amounts of daily average temperatures above certain thresholds Heat (1) and average duration in days (2)

Station	T ≥ 0 ° C	Dur.	T ≥ 5 ° C	Dur	T ≥ 10 ° C	Dur.	T ≥ 15 ° C	Dur.
	1	2	1	2	1	2	1	2
Radauti	2967.8	269	2818.7	212	2404.5	157	1487.3	90
Suceava	3074.8	272	2935.1	217	2537.3	164	1673.6	98
Fălticeni	3218.2	279	3055.2	220	2674.3	169	1884.6	108
Cotnari	3540.2	290	3383.4	227	3008.5	179	2304.8	126
Roman	3408.1	282	3270.6	226	28887.9	176	2193.5	122

More important differences are seen in the eastern and western parts of the Suceava Plateau, depending on the physical and geographical conditions, in particular, altitude. So,the southern and eastern regions have the highest potential and the north-western region the lowest potential. However, these data show that the duration of the growing season,of the optimum thermal conditions increase generally from northwest to southeast, which in practice has important repercussions on the agricultural works, harvesting, construction, etc..

Along with daily average temperatures or above 10 ° C and the period in which they are registered,there are also important those air temperatures that are below this value. For example, for different geographical regions, in general, but especially for cities , which concentrate a large number of population, it is necessary to know the average daily dataof production of air temperatures below 10 ° C, temperature at which, according to norms in Romania, interiors start heating. Therefore, the averagedata for crossing diurnal temperature below 10 ° C, and also the interval between the beginning and end of production corresponds to the heating of the interiors, parameter on which further depends the planning of the amount of fuel necessary to an urban center.

In this regard, using the histograms, the heating of the interiors on the Suceava Plateau varies greatly. Thus, this period is of approximately 175-190 days in southern and eastern parts of the Plateau and over 200 days in the northern region.

Under these conditions, heating the interiors takes longer in the north of the Suceava Plateau, compared to south,with almost a month. Heating period starts earlier (in early October) and ends later (during the third decade of April) in the north than in the south, where interior heating starts in the second half of October and ends in mid-April (tab. 2).

Tab. 2 - Beginning, end and duration (in days)of the annual interval of heating the interiors in the Suceava Plateau

Station	The range of heating		Duration heating interiors
	Top	End	
Radauti	3 X	28 IV	208
Suceava	6 X	23 IV	200
Fălticeni	9 X	21 IV	195
Cotnari	25 X	19 IV	177
Roman	12 X	17 IV	188

As for the difference between the period of heating the interiorsin the south and east regions compared to the north and west, it is higher by about 30 days. In conclusion, while the heating of the interiors in the south-eastern part of Suceva Plateau is of 175-190 days (6 months per year), in the north-western part it reaches about 200-210 days (7 months per year) .

In order to prevent risks caused by frosts and late spring hoartfrost, it is extremely necessary to know and choose, as such, the optimum time for cultivation of vegetable plants in solarium.

Obviously, determining the most favorable period varies from one plant to another, depending on the demands for heating. For these crops, a special importance has the air minimum temperature ≤ 0 ° C, which may adversely affect plants, sometimes even to death, as it is the case of thermophilic ones (cucumbers, tomatoes). Therefore, for the crops covered it is strictly indispensable the knowledge by experts and vegetablr gardenersof the average date of production of the last day with minimum air temperature of 0 ° C. From the processed data on this climatic parameter results that, on the territory of the Suceva Plateau, the minimum temperature of 0 ° C shall cease to register, on average, around 26 February at Cotnari and between March 4-10 in the rest of the Suceva Plateau.

The shaping of the needs of heat of the main crop plants can not be broken or isolated from the needs of light, moisture, water, etc.. Each plant has certain requirements from heat factor to cross well the specific phenology phases.

The ***wheat culture*** is the second crop plant, occupying 19.6% of the arable surface of the unit (N. Lupu-Bratiloveanu, 1992). Pluviometric and heat regime are the main limiting factors. The most favorable ares are the ones are growing in southern and eastern arts of the Suceava Plateau, where the conditions are more favorable from the Siret River valley, in line with the higher fertility of the soil and climatic peculiarities.

Most phenology phases may well be overlooked from the thermal point of view from the fall wheat in the Suceva Plateau, provided they take place on time, under conditions of normal agrotechnics and with the use of selected and treated seeds.

It should also be noted that, under 6 ^{0} C wheat (and other grains like rye, oats) no longer vegetates, and at temperatures that fall below -20 ^{0} C or rise above 45 ^{0} C, plants no longer resist. During strong winter frosts, the risk that air temperature and active surface can depreciate at values $\leq$ -20 ^{0} C is still high in the Suceava Plateau, especially when snow blizzard leaves open out the crops. The probability that the air temperature to go to over 45 ^{0} C is extremely low.

In addition to the optimum heat and these critical thermal thresholds, of great importance is also the thermal constant, which for the fall wheat is 2500 - 3000 ^{0} C (from total average daily temperatures greater than 5 ^{0} C). Given that the average daily temperature $\geq$5 ^{0} C reached 2818 ^{0} C in the north-west to Radauti, at 3383 ° C in Cotnari and 3270 ^{0} C in the south - east to Roman, temperatures accumulated in 212, 227 and 226 days, we appreciate that the thermal requirements of wheat culture of autumn are fully satisfied, provided that all appropriate agricultural crops take place on time and at least one week, maximum two weeks earlier in northern part than in the south.

In autumn wheat, the optimum amount of water during the growing season is 700mm, best that in most years is not provided by rainfall and should be supplemented with irrigation. In very few years considered rainy in the Suceava Plateau, the amounts of annual rainfall surpass 700mm and therefore the question of providing the necessary of water for the culture is real.

The death of fall wheat during the winter in the Suceava Plateau is not only due to low temperatures but also to other adverse conditions such as maintaining a thick layer of snow over the crops which prevent breathing out and stops the process of photosynthesis, the sudden melting of snow resulting accumulation of water in the low or less inclined areas to asfixiation of plants, the regelation of the water can cause mechanical injury to plants by the mass of ice.

Wheat has the highest weightings in the arable municipalities: Baia, Botosani Cajvana, Ciprian Porumbescu, Darmanesti, Dolhesti, Drăguşeni, Horodniceni, Forăşti, Grămeşti, Pîrteşti de Jos, Stroieşti, Todiresti, Balcauti,

Grăniceşti, Mihaileni, Dersca, Bucecea, corni, Vorona, Tudora, Siretel, Lespezi, Tătăruşi, Cristesti, Moţca, Ruginoasa, Stolniceni Prăjescu, etc.

For the ***maize crop,*** natural conditions are not the most favorable, especiallyfrom the point of viewof the climate. The limits on corn production are determined in particular by the thermal regime and then by the soil conditions. The most favorable areas are the ones growing in southern and eastern parts of the unit, while in the central north and west, the areas occupied by the maize are relatively small. The average area planted with maize is 22.4% of the arable area of the Suceva Plateau (N. Lupu-Bratiloveanu, 1992).

Maize does not vegetate at temperatures below 5 ^{0} C, under difficult conditions it vegetates between 5 - 16 ^{0} C, and over 16 ^{0} C the growing conditions are optimal. Light rimes destroy the leaves, and temperatures of -4 ^{0} C destroy the entire plant, as well as the temperatures over 45 ^{0} C. During the growing season, the temperature of the Suceava Plateau is not, generally, a limiting factor for growing maize . Only by accident, at the beginning of the vegetation and in north the cooler airs of the scandinavo - baltic causes coolings near to the lower thermal threshold, but in few years corn crop have suffered because of this. Upper critical thermal threshold does not raise problems to this crop (O. Berbecel et al., 1970).

The constant amount of heat from the sum of the average daily temperatures that exceed 10 ^{0} C is for the corn crop from 2000 to 2800 ^{0} C. In the Suceava Plateau the sum of the daily average temperatures of $\geq$10 ^{0} C, is between 2404 ^{0} C in the north-west to Radauti,2887 ° C in the southeast to Roman and 3008 ^{0} C in the east to Cotnari, realised in 157 days, in 176 days and 179 days of the year, the requirements imposed by the culture of maize by this thermal parameter is satisfied.

The optimum quantity of water during the growing of maize, of 600mm necessary to the maize is not ensured from rainfall or the soil moisture every year, in the dry seasons the maize suffering from this cause.

There are however few years when in the Suceava Plateau the maize crop is totally compromised by the emergence of the phenomena of drought and and severe drought. The most critical period of vegetative cycle of this plant is between three weeks before and three weeks after the panicle,when for a good vegetation the plant needs 100-150mm of water, where evapoperspiration is a very active process. Unfortunately, this phenology phase which overlaps the end of July and early August in some years coincides with the dry run of episodes leading to drastic reduction of the production.

In some years, the phenomenon of large hail damages this crop if it is surprised before the period of full maturity. When maize is the second successive crop after the wheat, it is not able to reach maturity, the crop may be used only in livestock.

Corn crop has the highest weights in the structure of arable in the communes Dolhesti, Drăguşeni, Preuteşti, Dersca, Bucecea, corn, Vorona, Tudora, Lespezi, Cristesti, Seacă Valley, Moţca, hunters, Todiresti, Ruginoasa, etc.

The ***potato Culture,*** whose vegetative cycle is carried out between 0^0 and 35^0 C (below and above these values plants having to suffer more), has found the most favorable conditions for development. The potato cultivation imposes both by area and by production, we can consider it a characteristic culture of the Suceava Plateau. The potato is a crop plant that needs a cool and wet climate, soil with lught texture and with a high degree of breaking up, well developed on weak acid soils. The Suceav Plateau is recognized as one of the most important basins of the potato crop in the country. The average cultivated area is 15.3% of the arable area o the Suceva Plateau (N. Lupu-Bratiloveanu, 1992).

The water needs of this plant during the growing season reaches 700 mm and the heat necessary from 2200 to 2600 ^{0} C (Berbecel O. et al., 1970).

The most critical period for the cultivation of potatoes is the months of May-June, when if rains that bring moist air masses from the Atlantic are delayed, the potato harvest decreases drastically. The periods of dryness and drought during the vegetative cycle are generally unfavorable to this culture, having as consequence a small number of tubers and their low weight, favoring, instead, the growth of the Colorado beetle.

Industrial varieties, for starch and alcohol, are more resistant to moderate conditions of favorability (Ostra, Desiree, Ora) and belong to the category of late and semilate varieties, to allow the phased processing of raw materials (in August). The semilate varieties have the advantage that they have a rich content in starch. The potato cultivation imposes, therefore,by a large production, which allows trade and industrialization.

The potato cultivation occupies large areas in the communes Bosanci, Calafindeşti, Cornu Luncii, Ciprian Porumbescu, Darmanesti, Drăgoieşti, Dumbrăveni, Grămeşti, Grăniceşti, Horodnic, Liteni, Mihaileni, Mill, Muşenița, Stroieşti, Todiresti, Tudora, Udeşti, Vadu Moldova Vereşti, Varfu Câmpului, Vorona, Zvoriştea, Zamostea etc.

The ***beet*** is a crop that currently occupies smaller areas than in recent years, not because the climatic factors have diminished the favorability for this plant, but due to poor economic policies, preffering the massive imports of molasses sugar and high commissions to various people, rather than stimulating domestic production. However, the sugar beet is still significantly grown in the Suceava Plateau area, about 4% of the arable unit.

Unlike the temperature, for the entire period of growing season, from April to October, the beet claims are relatively moderate,it needs from 2400 to 2800 ^{0} C, with optimum heat values of 10.7 ^{0} C between April 15 to June 15, from sunrise

until the root formation (550 - 650 ^{0} C), of 18.8 ^{0} C between June 15 to August 15, from thickening of the root until the beginning of sugar accumulation in large quantity (1000 - 1150 ^{0} C) and of 16 , 5 ^{0} C between August 15 to October 15, at the beginning of faster storage of the sugar until harvest (850 - 1000 ^{0} C).

Beet can stand frosts of short duration, even when the temperature gets down to -8 ^{0} C after the first true leaves, and at high temperatures, above 30 ^{0} C plants languish, losing most premature leaves, and the root grows very little in weight, higher temperatures causing plant death. In many years, the beet may suffer the negative consequences of early , late frosts, or even too early falls of snow,the harvest being more difficult, and there is also quantitative and qualitative loss of production. From the heat point of view, on the largest area of the Suceava Plateau Sucev, the beet meets optimal conditions of development (Berbecel O. et al., 1970).

The amount of rainfall needed for the entire growing seasons of beet is 350-600mm. For the seed to germinate, the sugar beet needs about 240mm of water accumulated during the winter months until March, i.e., 120-150% water than its weight, compared to most cultivated plants that require much less water. In the remaining period of growing, the sugar beet needs about 360mm of water.

The highest amounts of rainfall are needed during July and August, when roots are thickening, and the lowest in September and October, when the beet needs more heat and light for sugar accumulation. Not in all the years, in the hot season, the optimal quantities of water needed for this crop are insured. The beet uses well the light rains because of the large foliar surface that traps water and connects it to the root, but it prefers the pluviometric regime with a lower frequency but with high intensity rainfall. The crop quality depends very much on the amount of solar radiation decade, which in the July-August exceeds 4.5 kcal / cm $^{2.}$

The rainfall must be distributed according to the requirements of all plants during the growing season, and the number of days with rain is the lowest and with sufficient heat and light necessary to photosynthesis, roots growth and sugar accumulation.

The culture of sugar beet occupies large areas in the communes: Dolhasca, Liteni, Siminicea, Zvorîştea, Zamostea, Vorona, Vîrfu Câmpului, Dumbrăveni, Bucecea, Mihaileni, Stolniceni Prăjescu, etc.

In the Suceava Plateau ***orchards*** occupy small areas, the apple being the dominant species in the orchards here. The areas occupied by orchards are billet with predilection in thr fruit-growing area of Falticeni, where the housing climate, soil conditions and topography, the traditions favor this. Besides the apple, there are also found on relatively small surfaces,pear tree, plum tree, cherry tree and sour cherry tree.

The apple varieties of early ripening need during the growing season of 125 - 150 days without frost, and for those with late ripening between 150 - 185 days. Given that in the Suceava Plateau the average annual number of days with frost ranges from 227 days in the north - west to Radauti, 247 days in south-east to Roman and 260 days in the east to Cotnari, this requirement of heat of the apple is satisfied. The amount of actual temperatures during the growing season exceeds the minimum 1500 ^{0} C. During the winter the apple varieties resistant to cold bear temperatures that could descend under -45 ^{0} C. In spring, the flowers can be destroyed by temperatures of -2 ^{0} - -2.5 ^{0} C. In young fruit, at such temperatures seeds are destroyed first, and then the fruit falls after it has frozen. At -5 ^{0} - -8 ^{0} C the harvest is totally compromised. Late frosts in April-May, the hail from the hot periods of the year are often affecting the apple plantations in our subunit. The apple requires greater quantities of moisture especially during fruit formation, the amounts often unsatisfactory in the drier years, resulting low production of fruit.

The pear tree is more exacting to heat and moisture than the apple tree, the period without frost early varieties being of 130 - 140 days, and for the lateones of 180 - 190 days, conditions found in the Suceava Plateau, but it hardly bears temperatures that fall below -25 ^{0} C in air or under -9 ^{0} C in the soil, cases in which the pear tree can be destroyed. At flowering, temperatures of -2 ^{0} C destroy crops, and temperatures above 35 ^{0} C are unfavorable this plant. Late frosts and spring rimes commonly affect the culture, and when forming the fruit it needs quantities of 200 - 300 mm of water like the apple tree, uninsured amounts in the dry years (Berbecel O. et al., 1970) .

Vines occupy small areas in the Suceava Plateau, only in the area Cotnari, it is a demanding plant to light and heat. The vine bearly resists to temperatures below -15^0 C (different parts of its frosting) and over 45^{0}C (the leaves wilt, or even dry). Vines require an optimum amount of water of 450 mm during the growing season, which is favored by low values of relative humidity (50 - 60%), mist (4-5 tenths), high values of the sun shining duration (over 2000 h / year) ,hot and dry winds of föhn. In the area Cotnari vines found ideal conditions for vegetation, in conditions of favorable exhibition on the eastern, south - eastern and southern coasts, where frosts and rime are rare and take less time, hail is the most unfavorable weather phenomena for this crop in this area (O. Berbecel et al., 1970).

Given that in our subunit zootechnics is a basic occupation of the rural population and that many years of gathered quantities of hay for the winter are not satisfactory because of droughts which determin low production per hectare, it is recommended the cultivation of fodder plants resistant to drought (clover, alfalfa, etc.) , which give good productions even under pluviometric deficit.

The negative temperatures thus cause problems to the human health, to plant culture, to animal husbandry and other sectors of the economy

(transportation, construction, industry, etc..), frost being a negative phenomenon in winter, especially in transition seasons, surprising crops at the beginning or end of the vegetative cycle. In the soil bed frost begins to penetrate even from the end of October and early November to depths of only a few centimeters, and it is maintained until the end of March, when everything is still in the first centimeters of soil. The maximum depth to which frost can penetrate in the coldest months of the year, easily exceed the average depth of 30 cm but not that of 35 cm. In exceptional cases, frost can penetrate locally up to 60 - 80 cm, depth below which pipes for transport of water and wastewater, gas, oil or certain chemicals, etc.must be placed.

When the temperatures are positive and the quantity of rainfall copious, the agricultural yields are high, but when the rainfall is lacking, a long atmospheric drought takes place at first, then if this negative phenomenon is extended, the soil drought is installed, and if the two types of drought are associated, the drought becomes mixed, causing partial or total compromise of the harvest.

Drought as a weather phenomenon can occur throughout the year with a greater impact, more strongly felt on crops, meadows, hay fields, forests, orchards and vineyards, surface waters and groundwater, etc.. during the hot season.

Snow is a form of precipitation which together with the liquid ones is an important source of water for spontaneous and culture plants by filling a large part of the moisture requirements of the soil, for water supply of arteries basins, lake basins, groundwater, etc. . Poor caloric conductivity of snow, makes the snow a good insulator that protects the agricultural crops from frost, but if its thickness is big it can damage and can destroy, or even suffocate, agricultural crops underneath it. Snow dispelled by wind leads to snowbound communication paths almost every winter, or interruption of links between localities and creating difficulties in the supply of food and transport of people. In spring, in the case of a slow melting, the snow supplies with water beds the soil and underground water, imbues the argilo – marne substrate that may cause sliding, and the sudden melting, due to rapid heating or fall of liquid precipitations can produce overflows and floodings and an intense activity of ersion on the slopes.

Blizzard is a phenomenon that cause problems to people and damages to the economy, by the sweeping of the layer of snow and uncovering of the crops, which in its absence, are subject to frosts in winter and the transport, and the deposition of snow in sheltered places, giving rise to snowdrifts, that make more difficult or interrupt the movement by road, railways, airports etc. The violence of the blizzard in many winters is high. Visibility drops to a few tens of meters, the blizzard discovering open areas or proeminences of the relief exposed to the wind, the crop farming in autumn remaining prey to frost that intensifies, the currents of very cold air and snow blizzard hit the people's faces and make them difficult to

breath, and the storm-swept snow penetrates everywhere, led by vortical air currents, deposing in the form a layer in the not properly isolated spaces. The roads are covered, snowed up, the installed snow fences being submerged and are proving to be useless. The machinery that clear the snow no longer cope, the blizzard covering roads and railways with the snow removed very quickly, so that the European and national roads Siret - Suceava - Fălticeni - Roman, Suceava - Gura Humorului, Suceava - Botosani, Suceava - Dorohoi etc. are almost every year snowbound. Flimsy roofs can assign to the violence of wind or to the weight of the deposited snow, the tree branches may be broken or torsioned, and the airlines conductors affected. Winters of the Suceva Plateau are in some years due to frost, snow falls and blizzard true polar sequences, requiring large financial and organizational efforts of the authorities and population to be well passed.

Among the most violent blizzards of the Suceava Plateau we can remember the one in the 5-6 January 1966, when during a blizzard, the wind in puffy, reached a true hurricane speed (198 km / h). Blizzard cases causing difficulties especially to circulation were in November 1993, 1995, 1998.

Regarding the frost and the consequences which this climatic phenomenon produces some references were made. Given the data we have, we can say in general that from the first decade of September until the end of the second decade of May, in the Suceava Plateau the phenomenon of rime was observed and it can occur in the future, the most early and later rimes having a smattering negative effect on crop plants, the vine planting with fruit trees by partial or total injury plant, with serious consequences on the agricultural production that decreased in proportion to the intensity of this phenomenon and that of frost. If in fall, because of rimes and early frosts, especially vegetable gardens, plantations of fruit trees and vines have to suffer, the late rimes and spring frosts affect most plants (the big culture, the vegetables and greens, orchards in blossom, vines etc.).

Glazed frost is a weather phenomenon, which has generally unfavorable consequences, especially for road transport, but also for airlines, causing slippages and the phenomenon of frosting, making it difficult for people to walk, or suffocating the agricultural crops when the surface of the glazed frost is somewhat thick (for few mm) and and covers an autumn agricultural crop, after a warm period, the plant being in the vegetation period and is suffocated by it.

The s*leet,* can be regarded as a negative phenomenon of hydrometeorology when it occurs in the warm period of the year affecting plant life, or when sleet falls to disturb the circulation, but also as a positive one by its contribution of water on the ground.

The f*og* is one of the most dangerous phenomena for air navigation,but also for road movement. Fog is a typical phenomenon for cold season, but it also

occurs in the warm season of the year, every month, being one of the phenomena which fully favors the air pollution.

The dew has positive consequences for the climate, especially during the periods of dryness and drought, when plants use small amounts of water brought on the surface by this phenomenon. After the heat during the day, the dew of the cool nights is a real boon for nature and man, making comfortable the summer nights.

As a phenomenon whose maximum frequency is achieved in a warm year, *hail* surprises the cereal crops, vegetables and greens, vines and fruit trees in various stages of development, affecting or stopping the development of their vegetative cycle. A single case of hail in a critical stage of plant development, may lead to compromise the harvest.

Hail may have less harmful effects, when it occurs at the end stage of vegetation, the size of ice grains is small, their density per square meter is small and the duration of ice falls is reduced. The only positive effect of hail is the pluviometric intake brought on the active surface which often interrupts periods of drought of great recrudescence.

From the examples shown we can detach the importance of climate for the natural and human geographic environment of the Suceava Plateau.

The geomorphological processes of erosion, transport and accumulation are performed in direct connection with-value evolution and distribution of elements and weather phenomena, like the air temperature, the rainfall and the dynamics of air masses which have a major role to play.

The network of rivers and lakes of the Suceava Plateau is also a product of the climate of this subunit or the neighboring subunits and units.

Plant formations and associations of animals found in the Suceava Plateau develop their evolution and existence in relation and under the direct influence of climatic factor, which has a very important role in their spatial distribution.

Between the soil bed and the climatic factor, there is an obvious interdependence, the latter influencing a number of major features and pedogenetic processes that occur inside layer of interference from the surface of the terrestrial crust.

Even if in agriculture advanced technologies of processing soil would be used, selected seeds would be used, species of plants resistant to adverse climatic conditions would be cultivated and animals of superior breeds would be grown, genetically tailored to our climate, the new results in this sector of the economy remain in a fairly large degree, dependent on the climate.

The construction sector, depends on and must take into account the season oscillations of elements and of climate phenomena, the maximum and minimum values that they can achieve, spatial infrastructure planning of the Suceva Plateau (construction of housing, economic objectives, communications channels, dams,

dykes,weirs, offset etc..) having to comply with and respond to climate factor requirements, requirements that are not few.

The health of the population is also influenced by the evolution in time and spatial distribution of the values of the climatic parameters, that can also influence the level of material wealth or the degree of pauperization, especially of the population working in agriculture, but which also turns on the urban population, by the high price of agricultural products on the market, in periods of crisis of subproduction generated by the vagaries of climate.

Manifestations of extreme climatic phenomena or elements bring, often, material, financial damages, where we can see the need for acute financial security which must also penetrate in the sphere of agriculture, economic branch which often suffers from natural disasters, among which an important place is held by the climate disasters.

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