THE FREQUENCY OF HYDROMETEORS FROM STÂNA DE VALE RESORT AREA

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Abstract

Through the current work we wanted to emphasize and to show the frequency of the days with different hydrometeors present in Stana de vale resort area. Hydrometeors are products of water vapor compression and sublimation, formed on the surface of the soil or on the cold objects found on the soil when the objects' surfaces cools until it reaches the dew point temperature, reaching the saturation estate. In this situation a series of deposits appear: the dew, the hoar, the hoar frost, the glazed frost.which greatly depend on the particularities of the generalatmosphere circulation, as well as on the local geographical conditions. The current study has been realized on the basis of a reach data base registered at Stâna de Vale weather station over a long period of time, that is for the time interval 1979 – 2012.

Key words: hydrometeors, dew, hoar, hoar-frost, glazed frost.

INTRODUCTION

Stâna de Vale spa is situated in the west part of Romania, in Bihor county, in Budureasa commune at an altitude of 1100 m, 46º41' north latitude and 22º37' east longitude. Situated in the Apuseni Mountains from the Occidental Carpathians in a mountain surrounded hollow, on the vest side of the Bihor Mountains, at the contact between the Bihor Mountains and the Vlădeasa Mountains (Gaceu, 2005).

MATERIAL AND METHOD

In order to study the frequency of the hydrometeors from the Stâna de Vale spa area we have used data from the time interval 1979 – 2012 obtained from the visual and meteorological observations performed at the respective weather station. Stâna de Vale weather station was founded as a mountain weather station in 1979. Although the weather station's coordinates have remained the same, the altitude of the platform has had different heights along the years, this fact has happened because the location had been moved in different points of the spa.

RESULTS AND DISCUSSION

The dew. The dew is a hydrometeor that lays down during the warm season, in cloudless nights when the radiative processes are very intense fact

that leads to the increase of air humidity in the layers above the soil. The multiannual average number of dew days in Stana de Vale is of 98.9 days. Analyzing the monthly values of number of dew days it comes out that the highest monthly average number is registered in the summer months and at the beginning of fall, August and September registering the maximum values with an average of 21.3 dew days in August and 18.1 dew days in September. The lowest number of dew days is registered at the end of fall and at the beginning of spring. Thus, in April and in November the multi annual monthly average number of dew days is of about 1 day a mont (see Figure 1).

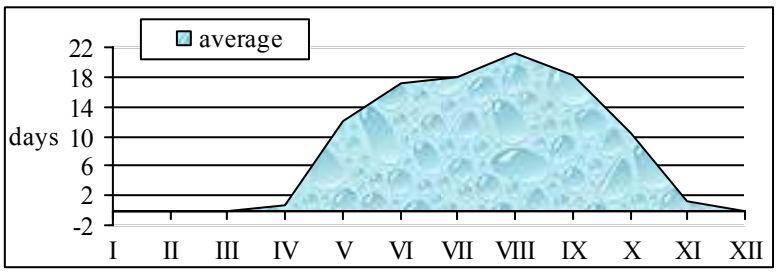

Fig. 1. The monthly average number of dew days at Stâna de Vale

The hoar. The late spring hoars are a real danger for the plants, especially when they are accompanied by intense air coolings that lead to the freezing of the water existent the plants' tissues and to their destruction and the early fall hoars can compromise the vegetable and fruit cultures and crops (I.N.M.H., 1995).

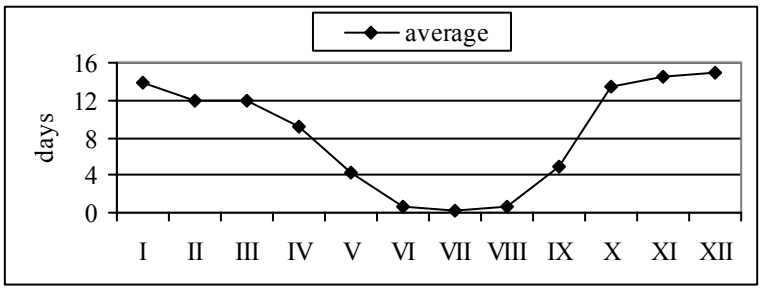

Fig. 2. The monthly course of the number of hoar days at Stâna de Vale

The multiannual average number of hoar days in Stâna de Vale is of 100.5 days/year. After having analyzed the monthly values of the hoar days' number it comes out that this phenomenon can be produced at Stâna de Vale all the year long with much lower values during the warm period of the year so that during the summer the multiannual average number is of under 1 day per month. The hoar registers the highest number of days in the winter months as well as at the end of fall and at the beginning of spring. Thus, there are 15 hoar days in November and December, approximately 14 hoar

days in January, an average of over 13 days in October and 12 hoar days in February and March. At the end of spring there are over 4 hoar days and at the beginning of fall an average of about 5 hoar days a month (see Figure 2).

The glazed frost. The multiannual average number of glazed frost days is reduced, of only 0.5 days a year. In the studied area the glazed frost lays down starting with December until February. The highest monthly average number of glazed forst days is registered in December and in January when there are approximately on average 0.2 glazed frost days a month. In February there are on average 0.1 days a month (see Figure 3).

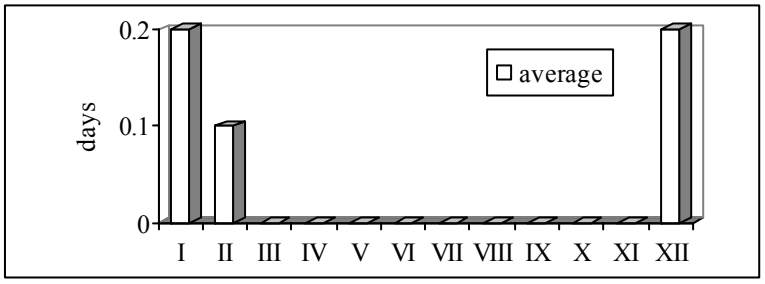

Fig. 3. The monthly course of the glazed frost days at Stâna de Vale

The hoar-frost. The massive hoar-frost deposits are endangering the forestry vegetation and the air conductors because it leads to their breakage. The multiannual average number of hoar-frost days in Stâna de Vale is of 0.6 days a year, their number having presented fluctuations during the analyzed period, from one year to another. The number of hoar-frost days varies not only from one year to another but also from one month to another. The hoar-frost is signaled at Stâna de Vale in the time interval November-February.

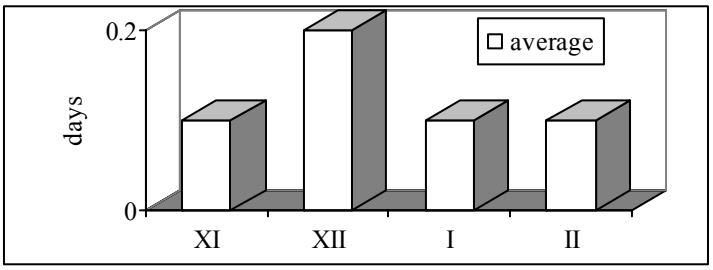

Fig. 4. The monthly course of the hoar-frost number of days at Stâna de Vale

The monthly average number of hoar-frost deposit days has got the maximum value in December with 0.2 days. In the other months the hoar-frost deposits lay down on average 0.1 days a month (see Figure 4). The higher frequency of the hoar-frost deposit number of days during the winter months is in a close interdependence with the advection of some cold and

wet air masses of arctic sea origin. Hoar-frost can appear at the contact of two masses of air that have got dofferent thermic features, one cold and dry, the other one wet and warmer.

CONCLUSIONS

The dew is formed on average 99 days a year with a higher frequency in the summer months and at the beginning of fall. The hoar registers its maximum values during the cold season of the year when there are frequent thermic inversions and the low values are produced during the warm season. The multiannual average number of hoar days is of about 100 days/year. The average number of glazed frost days is reduced due to the climate influences from the west and south-west of the continent that show their presence in this part of the country. The hoar-frost is signaled in the time interval November-February, with a multiannual average of under 1 day a year.

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