

The statistical characteristics of results of radar observations of atmospheric phenomena related to Cb

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I. INTRODUCTION

The weather phenomena related to Cb impacts on the aviation safety. In this connection the statistical analysis of the radar-tracking data has the significant importance for researching these phenomena in the certain flights region.

The implementation of statistical characteristics of weather phenomena in the radius of 300 km of the aerodrome “Heydar Aliev” (Baku) based on the radar data for the period 2004-2006. The statistical characteristics are based on the following phenomena: frequencies of Cb and storm activity, the top height of the convective clouds with storm and total amount of showers.

II. PRESENTATION OF RESEARCH

The results of statistical analysis of Cb average frequencies for the period of 2004-2006 is indicated in the figure 1.

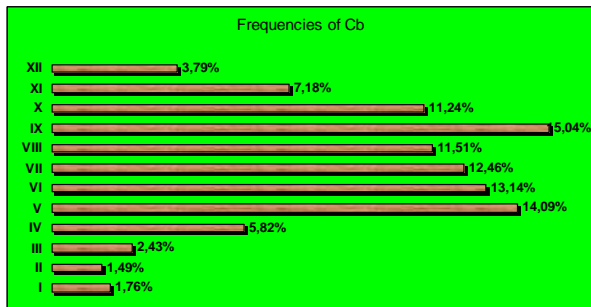


FIG 1. The histogram of the average frequencies of Cb for the period of 2004-2006.

According to the histogram the maximum occurrences of Cb are typical for spring and summer periods.

Statistical research of Cb with storms activities also indicates their advantage occurrence during spring and summer periods (FIG 2).

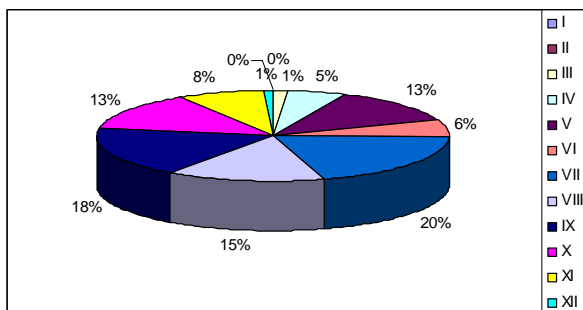


FIG 2. The diagram of storm activities.

The histogram created on the top height of Cb with storm is shown in the figure 3.

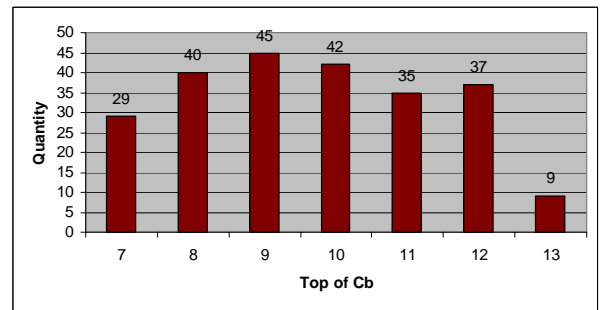


FIG 3. The histogram of the top height of storm clouds.

The highly common altitudes were 8-10 km (55%).

According to the research showers consist 50,2% of all atmospheric precipitation.

III. RESULTS AND CONCLUSION

According to climatic characteristics of Baku storm clouds formation is typical for frontal process, intramass - are observed extremely seldom. In this region storms are being formed under three definite types of synoptic conditions:

1. Most frequently storms are formed in a warm season, when from the side of Caspian sea the cold air masses advect to the middle troposphere in the presence of relatively high pressure of warm air masses above Northern Africa.
2. Storms are also formed during advection of cold air masses when the cold front is passing the region.
3. Within all year particularly in spring season when passing warm fronts with warm air masses may cause favorable conditions for the development of storm clouds.

On the basis of research dependence of storms on top borders of convective clouds has been determined. According to this dependence frequencies of occurred storms show the best correlation with the heights 7-10 and 13 km (FIG. 4).

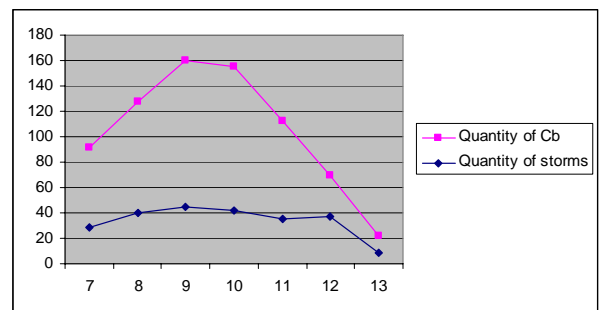


FIG 4. Dependence of storms on top borders of convective clouds.

IV. REFERENCES

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