

### **13.35 THE ROLE OF METEOROLOGICAL RADAR STATION IN THE SYSTEM OF EFFECTIVE MANAGEMENT AND PREDICTION OF HAIL**

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The territory of the Republic of Armenia periodically exposed to various sorts of natural disasters. The most common hazard for agriculture. It is the phenomena caused the most damage and because of it every year rural population suffers great damage. Over the last decade greatly increased intensity and frequency of natural disasters, the number of human fatalities and material losses.

So, the discovering of spatiotemporal distribution regularities of natural disasters, risk assessment and productive management, reliable forecast and warning in time, prevention and neutralization, development of rapid response, as well as alert the population and increase the level of education are one of the important prerequisites of public safety, stable development of republic.

So, the goal of this work is to discover and analysis the regularities of spatiotemporal distribution of hail in the territory of the republic of Armenia, to discuss some tasks of productive management of sphere, to evaluate the risk and vulnerability. For solving these problems theoretical base are relevant studies, decisions of government of the republic of Armenia, report of relevant services. Information base for this work are actual observations of the Ministry of Emergency Situations of the Republic of Armenia “Service for Hydrometeorology and active influence on atmospheric phenomena” and the data of the RA National Statistical Service have been used. During the research are used general scientific, characteristics, situation, systematic, statistic, mathematic, comparison and analysis, correlation methods.

So, the studies revealed, almost the entire the territory of the republic is in danger of hail, just in mountainous areas caused by hail damage or nonexistent or negligible.

The number of days with hail both of in the same and in close areas varies quite wide limits. With the height of increase in the number of days with hail.

In the territory of the republic mainly observes a tendency of decrease of number days with hail, which does not means reducing the damage caused by hail. So, is necessary to pay special attention to the intensity and duration as well as to the size of hail.

The meteorological radar MRL-5 is used to receive and process operational information about the radio location of hazardous weather phenomena (cloudiness, precipitation, thunderstorms, hail, storm), transmitting data in real time to distant users of the Crisis Management national Center of the MES of RA, as well as the regional anti-hail centers.

In Ministry of Emergency Situations of the Republic of Armenia “Service for Hydrometeorology and Active Impact on Atmospheric Phenomena” two radar stations MRL-5 are operate, one of which is in the territory of the Dsegh community of Lori marz of Armenia, the other is in the Aragatsotn marz, where radar observations

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are made. On the basis of the data obtained, a decision is made on the action of anti-hail stations.

Meteorological high-potential radar MRL-5 is a specialized radar of storm warning and hail protection, designed to solve the following problems

- detection and location of thunderstorms, hail and rainfall in a radius of 300 km,
- determination of the horizontal and vertical extent of meteorological formation, the direction and speed of their movement,
- determination of the upper and lower boundaries of clouds of any form,
- measurement of average radio-echo power for meteorological purposes,
- selection of radio-echo of meteobjects against the background of disturbing signals reflected from local objects,
- provision of hail protection, that is the detection and localization of hail foci in the clouds (measuring their coordinates and determining their physical characteristics).

Thus, the use of such an information system makes it possible to improve the level of accuracy of forecasts of hazardous meteorological phenomena. With the help of a meteorological radar MRL-5 we can determine the geometric dimensions of the hail-threatening foci (the heights of the lower and upper surfaces, in some cases also the zones and the latitude of the extent), the zones of their involvement, intensity and character of movement. All of these parameters are displayed in their color separations on the corresponding map. Use of such a system of satellite information in the hydromet service makes it possible to improve the degree of accuracy of meteorological forecasts.

Is necessary:

- Expansion of the meteorological radar network;
  - To create and develop the system of monitoring and forecasting of hail and other natural disasters;
  - Formation of statistical database of threatening danger to specific municipality;
  - Detailed and systematic study and evaluation of damage, dynamics change, of frequency of hail with various intensity and size;
  - To work out short-time reliable methods of forecast of hail for areas as small as possible;
  - To work out and use more alternative productive methods with hail control;
  - Increase of productivity with hail control, great investments;
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- Organization of activity with hail prevention and liquidation of effects;
- To work out new methods of warning about expected hail;
- Increasing of human education in productive activity of risk management and dependence of population from natural disasters;
- To work out and invest the mechanisms of agricultural insurance.