Monitoring of variations of the upper atmosphere density

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The concept of development of the system for monitoring of upper atmosphere density variations is considered. The system is based on using the satellites atmospheric drag data obtained during operation of Space Surveillance Systems. For determination of atmospheric density variations it is offered to use the orbital data estimates of low altitude satellites, whose number reaches some hundreds. The orbital elements of these satellites are updated some times per day in real time mode. So, this allows to perform operating estimation of atmosphere density variations without essential additional costs.

The concept is considered and the methodical problems of information processing for estimating the atmosphere density variations are stated. The recommendations and proposals on their implementation are presented. They are based on the results of algorithm improvement on the basis of simulated and actual information. The scientific, technological and organizational issues to require solution are considered.

The implementation of the system for monitoring of the upper atmosphere density variations would allow to increase the prediction accuracy of LEO satellites motion and to obtain the regular real data for perfecting existing upper atmosphere models.