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THE MAIN STATEMENTS AND GENERAL CONCEPT FOR A DEVELOPMENT OF A SUPPOSED
ANTI-METEOR SYSTEM WITH USING AN AIR LAUNCHED LAUNCH VEHICLE

Abstract

The recent falling of large meteor over the Chelyabinsk Region Of Russia has shown that the danger of similar disasters with quite more tragic consequences is not a hypothetical threat but a real natural factor. Therefore, the mankind has to put its efforts for a prevention of these consequences by all the means which are currently in its disposal. These means to those that are relevant advanced space/rocket technologies including space observation and surveillance, spacecraft and their systems for provision of targeting and rendezvous, launch systems for urgent reaction.

The paper is dedicated to a brief description of the proposed approach of Russian experts to a development of the surface-based system for a prevention of large meteor falling onto the Earth.

Initially, a definition of the main statements for solving this task is done for various phases of the required mission beginning from exposition of threatening celestial body, through a definition of its flight parameters and to a launch of interceptor by an especially prepared launcher with a following collision of this interceptor with the meteor. The main general requirements for every component of the system are worked out proceeding from these statements.

Thus, it is shown there that a most suitable concept of launch vehicle for the studied mission is the air launch concept that provides an omni-azimuthality of launches that is necessary for a most urgent delivery of the interceptor to the coming meteor that, in a contrast with asteroids, would a trajectory with any inclination. An application of this concept needs to use a launch vehicle that should meet a range of specific requirements.

A general definition of the requirements for the launch system to be used is carried out and an attempt is undertaken to propose a preliminary design view of this system to be developed on a basis of currently existing technologies while the items of the interceptor development are not yet analyzed in similar details and are described schematically.

A further analysis of these components of the supposed system for the purpose to define their look and preliminary designs is planned among other activities that are proposed in the paper for a continuation of the studies that would pave the way to a creation of real system for a prevention of large meteor falling.