SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Small Launchers: Concepts and Operations (7)

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CURRENT PROJECTS FOR SUPER-SMALL LAUNCH VEHICLES

Abstract

The continuing growth in the number of 'super-small' satellites (i.e. of satellites with masses less than 100 kg that are attributed to micro-, nano- and pico-classes) has created a need for suitable launch vehicles. Numerous studies and real requests have shown that piggy-back and multi-satellite cluster launches of these satellites, which provide acceptable launch prices, would not satisfy a significant number of the satellites' owners for certain reasons, and the existence of a demand for super-small launch vehicles for the dedicated launches of these satellites has become evident. The requirements for these launchers are presented in the paper. However, no one launcher which could meet all these requirements has appeared till the current time. A number of corresponding projects have been proposed and even developed up to a level sufficient to show that these projects were infeasible from an economic point of view. A brief review of those projects which have recently been in a process realization is presented in the paper and one of them, the Russian 'Taimyr' project, is chosen as a reference example for analysis and for a following comparison with other projects. A comparison of all the projects from the point of view of meeting the requirements and an analysis and comparison of the results allows us to make a preliminary conclusion that super-small launchers with a payload capability around 100 kg would be most suitable size.