

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

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JAPAN PICO NANO ADVANCE LAUNCH SYSTEM

Abstract

Even though the global interest in nano-satellites (≤ 50 kg) is increasing there is a large gap in affordable and dedicated launch options for such projects. Many nano-satellites (≤ 50 kg) are used for educational purposes. Yet within the past few years nano-satellite applications have expanded to on-orbit technology demonstration/experimentation, telecommunications, and earth observation. Such a growing market is ever desperate for launch options. Such options currently include ride shares and piggybacking on medium to heavy expendable launch vehicles. Yet with such options nano-satellite customers have no control over launch schedule and desired orbit. New options would be a valuable service to the ever increasing global community of nano-satellite developers.

A dedicated nano-launcher for such satellites is currently being designed based upon derivatives of existing sub-orbital expendable launch stages (namely the ISAS/JAXA S-310, S-520 and SS-520 solid rocket stages) upgraded with small and lightweight avionics systems (currently under development). This concept emphasizes peaceful use of space technology.

This paper presents states of pico nano launch system development advanced concept. The systems envisioned for the above nano-launcher are currently under development and supported by subsidies by NEDO/METI in Japan.