

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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OVERVIEW AND POST-LAUNCH RESULTS FROM THE ISILAUNCH01 CAMPAIGN

Abstract

In April 2009 ISIS launched 4 picosatellites, or CubeSats, in the ISILaunch01 cluster. The spacecraft were launched on board an Indian Polar Satellite Launch Vehicle, PSLV-C14, hitchhiking to orbit with the Oceansat-2 primary payload.

The paper will provide an overview of the complete process from contracting to launch and early operations, including a discussion of the key aspects that make cluster launches of (very) small satellite such as the ISILaunch clusters unique. The process is viewed from both the satellite developer's and launch service provider's position as well as ISIS' position.

The paper will start with an introduction of ISILaunch Services and its characteristics. In the ISILaunch model, ISIS functions as a single point of contact between customers and launch service providers (LSPs), taking care of all technical and non-technical aspects of the launch arrangement. This approach saves both customer and LSP valuable time. In a nutshell, a unique flexibility in launch opportunities and needs is offered to satellite developers, while increasing the economical use of capacity of launch vehicles for the LSP at the same time.

The contractual process of arranging a launch through ISIS with its ISILaunch Services, for this particular launch and for future launches, will be discussed in detail, supported by specific ISILaunch01 examples. It will be made clear why arranging a launch for such a very small satellite as a CubeSat is completely different from their larger family members, in terms of launch and orbit requirements, schedules, timelines and required standards versus flexibility.

Subsequently, a typical ISILaunch cluster launch campaign will be presented, again with the ISILaunch01 cluster as an example. The process, timelines, shipment and export considerations will be discussed, to the interest of future customers and launch service providers. All seen through the eyes of a very small satellite developer delivering his satellite to the launch base for a ride on board a large launch vehicle.

The final and most important phase of the ISILaunch01 campaign, the actual launch and early operations phase, will be discussed in detail as well. For these very small satellites, separation from the upper stage and fast satellite acquisition directly after launch are of key importance. Not only for the satellite operators, anxiously waiting for that first signal from space, but also for satellite tracking organizations such as NORAD. As these pico- and nanosatellites are difficult to track, ISIS cooperates directly with NORAD for its ISILaunch campaigns.

The post-launch results from the ISILaunch01 campaign will be presented as a summary, including an outline of what went well, what went less well and what may be improved for future campaigns. A status report of all four customers will be discussed; UWE-2, BEESAT, ITUpSat-1 and SwissCube.

The paper will conclude with an overview of upcoming cluster launches and launch opportunities, and what the benefits are of launching one's small satellite through a launch brokering service such as ISIS

offers with its ISILaunch Services. It is of key importance that both satellite developers and launch service providers come to realize that launching such very small satellites is in essence different from launching larger payloads and therefore calls for a different approach. This is why ISIS is working on its 'Hitchhiker's Guide to Orbit'.

<http://www.isilaunch.com>