

21st IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Access to Space for Small Satellite Missions (5)

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A QUALITATIVE ANALYSIS OF OPPORTUNITIES AND PROCESSES FOR SECONDARY AND
HOSTED PAYLOADS**Abstract**

The smallest launch vehicles currently in use have payload capacities on the order of 500 kg. For smaller payloads, the only economical option is to fly as a secondary or hosted payload (SHP). In this configuration multiple payloads are launched atop a single rocket, either as separate free-flying spacecraft or as a single spacecraft, sharing the same bus for power and communications.

Secondary and hosted payloads are an ideal opportunity to utilize excess launch vehicle capacity, provide an economic benefit to the primary payload, and allow a small payload to reach orbit in a cost-effective manner. However, SHPs are relatively infrequent occurrences for reasons that are primarily programmatic and not technical in nature. In the United States, NASA has funded the development and launch of numerous small payloads on NASA and other government launches.

In order to determine the possible size or quantity of SHPs that could be placed on NASA launches, a previous work estimated the excess launch vehicle capacity as 1,650 kg per launch, averaged from 34 NASA launches over a 7 year period. This paper will begin by updating that work by including values for recent launches. In addition, a comparison of the frequency of SHP use amongst commercial and noncommercial customers was conducted based on 531 worldwide launches over a 7 year period. It was determined that 38