

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

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SMALLSATS BY THE NUMBERS 2023: GROWING SMALLSAT ACTIVITY AND ITS
IMPLICATIONS FOR THE SMALL LAUNCH MARKET**Abstract**

Over the previous ten years, smallsats (defined by the Federal Aviation Administration as satellites 600 kilograms and less) have garnered increased interest and are becoming more widely leveraged by space start-ups and traditional operators alike. The number of smallsats launched in 2022 reached 2,303, a historic high, representing over 17 times more smallsats than launched a decade ago and surpassing the record number deployed in 2021 by almost 600 smallsats. Initial deployments of large smallsat telecommunications constellations and increased availability of smallsat rideshare continue to drive smallsat activity. This paper places the expansive growth in smallsat activity into context and provides an overview of the smallsat market and its implications for small launch vehicles.

The paper first highlights smallsat activity in 2022, presenting contextual information on smallsat growth within the past 10 years. Next, the paper discusses key emerging trends in smallsat activity including increasing smallsat mass, shifts in historical smallsat applications, growing participation from commercial smallsat operators, and the global proliferation of smallsats outside of the United States.

The paper then assesses the historical smallsat market share captured by small and medium-heavy launch vehicles, presents the value propositions and potential barriers associated with each vehicle category, and identifies emerging and future trends in smallsat operator preferences toward launch solutions. This analysis covers the increasing percentage of launches with smallsats, the number of launches dedicated to smallsats, historical launch rates of smallsats on small and medium-heavy vehicles, and the shares of smallsats launched by different vehicles.

Finally, the paper highlights several future areas to watch including business outcomes of smallsat ventures, initial deployment of SpaceX, OneWeb, and other large smallsat constellations, concerns about orbital debris stemming from smallsat activity, and government interest in smallsat systems.