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ACHIEVING SCIENCE WITH CUBESATS: THINKING INSIDE THE BOX

**Abstract**

In this paper, we will summarize the key findings of a study conducted by the U.S. National Academies of Sciences, Engineering, and Medicine. The study, to be released Spring 2016, focuses on the scientific potential and technological promise of CubeSats – a type of small satellite that weighs between 1-20 kilograms and takes the form of one or several units of a “U,” which is a cube of approximately 103 cubic centimeters that is launched fully enclosed in a container.

We will first review the growth of the CubeSat platform from an education-focused technology toward a platform of importance for technology development, science, and commercial use, both in the United States and internationally. We will then assess the technological and science promise of CubeSats across space science disciplines, and discuss a subset of priority science goals that can be achieved given the current state of CubeSat capabilities. Next we will assess the key policy challenges that could constrain the expansion of CubeSats for science applications. Finally, we will summarize our conclusions and recommendations from this study, especially those focused on near-term investment that could improve the capabilities of CubeSats toward increased science and technological return and enable the science communities’ use of CubeSats.