

23rd IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)  
Access to Space for Small Satellite Missions (5)

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SMALL SATELLITE STANDARDIZATION: LESSONS LEARNED FROM THE CUBESAT  
REVOLUTION

**Abstract**

During the last decade, the CubeSat standard has created a nanosatellite revolution. As originally intended, CubeSats have become the standard in student satellite development but CubeSats have also had in impact in many other areas of spacecraft development. For example, start-up companies, such as Planet Labs and Spire, utilize CubeSat based spacecraft to provide commercial services and NASA scientists are using CubeSats for missions of exploration beyond Earth orbit. Following the success of the initial CubeSat standard, a number of larger standard form factors are emerging, including 6U and 12U CubeSats and larger 30kg-50kg standards. These new spacecraft standards can benefit from the experiences gained by the CubeSat community after more than 300 CubeSats successfully launched into space. The first step is to explore in detail the key parameters responsible for the success of the CubeSat standard. Including the evolution of the standard itself as well as the processes and infrastructure developed to support the CubeSat developer community. Lessons learned from the initial CubeSat experience can be used to develop guidelines for the definition of new spacecraft standards of any size. In the paper specific spacecraft standard guidelines and recommendations will be developed. The guidelines will be applied to the new emerging standards to identify potential improvements to these standards. In addition, the paper will include preliminary proposals for new larger spacecraft standards that can speed up the evolution of 30-50kg spacecraft.