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ANALYSIS OF RECENT SATELLITE LAUNCH NUMBERS AND THEIR FUTURE MARKET EXTRAPOLATION

Abstract

In this paper we present an in-depth analysis of satellite launches in the mass range beyond 1000 kg from the year 2006 onwards based on several databanks and satellite lists, like the CEOS Earth Observation Handbook or the AGI Spacecraft Digest. We elaborate various evaluations regarding multiple satellite properties, such as mission purpose, orbit type, launch mass and satellite origin and describe developments and trends in these properties. By extrapolating from the collected data, we further discuss possible future scenarios of the market development and implications on future launcher requirements. The first scenario only recognizes current mission and satellite types to extrapolate possible launch numbers in the future. The second projection includes an increase in launch demands caused by the introduction of new technologies in addition to current spaceborne applications, like space debris removal, commercial human space flights and space tourism. We i.a. show that the importance of Earth observation satellites is increasing and that European satellites are about equally numbered as civilian US satellites. We further discuss launcher requirements and the need of sustaining launcher families because future satellite demands in the given mass range are too diverse to be efficiently covered by a single launcher. The analysis includes data about commercial and public satellites, manned spaceflight and its support missions but excludes military satellites, which are unlikely to be open for launches by a general market instead of strictly national launch programmes (e.g. those from the USA, Russia or China). Overall 321 vehicles are part of the analysis.