

PSLV: THE VERSATILE WORKHORSE LAUNCH VEHICLE OF INDIA

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Abstract

Polar Satellite Launch Vehicle (PSLV), the maiden operational launch vehicle of India, has emerged as a very reliable and versatile launch vehicle by successfully launching satellites, both Indian and foreign, into a variety of orbits around the earth. Though India has subsequently developed two succeeding generation of launch vehicles - GSLV Mark II and GSLV Mark III - of higher capability, complexity and efficiency, nevertheless they have not acquired the conspicuous attention of the country as well as the outside world as PSLV has, through its numerous multifarious achievements. Despite its uncommon design of alternating solid and liquid stages, the robustness of the four stage PSLV design has been repeatedly proved by its successes as well as the resilience of the vehicle to quickly recover from rare failures. Besides launching a record number of 104 satellites in a single mission, PSLV has many other achievements to its credit including the launch of satellites into polar Sun Synchronous, Geosynchronous Transfer and sub-Geosynchronous Transfer Orbits as well as Low Earth Orbits of moderate and very low inclinations. This paper discusses several important aspects of PSLV including its lineage, development, configuration and improvements as well as its heritage, past contribution and future prospects on the occasion of its recent success in launching 31 satellites from India and eight other countries into two different orbits on November 29, 2018.