

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations, and Facilities (2)

Author: Mr. Radhakrishnan Durairaj
ISRO, India

A CENTURY OF SATELLITES IN A SINGLE ROCKET- POLAR SATELLITE LAUNCH VEHICLE
(PSLV'S)RECORD BREAKING MISSION

Abstract

Polar Satellite Launch Vehicle (PSLV), the workhorse of ISRO's space transportation system, has had a string of successful missions, with a track record of 38 successive successful flights, till date. With the capability to perform low inclination LEO missions, SSO, Geo-synchronous Transfer Orbit (GTO), sub-GTO missions, PSLV has time and again demonstrated its versatility of the inertial systems, on-board software, propulsion system and most importantly the robust vehicle design.

The recent successful mission of PSLV-C37 during Feb 2017 with 104 satellites on-board a single rocket has demonstrated the capability of the launcher to carry out multiple satellite mission design and management. PSLV presently has two variants (i) PSLV-Core alone (PSLV-CA) without the use of six solid strap-on motors and (ii) PSLV high-end version (PSLV-XL) with six solid strap-on boosters. Over the years, in addition to launching national satellites, PSLV has successfully launched 180 satellites belonging to international customers, on commercial basis, into various orbits ranging from planar to SSO. In order to utilize the spare capacity, whenever available, various satellite accommodation options have been evolved to accommodate small, micro and nano satellites. The multiple satellite mounting configurations and their safe separations in orbit have all been demonstrated.

The paper highlights, the success story of PSLV towards undertaking international customer satellite missions and the technology adaptation that led to the record-breaking launch. Antrix Corporation Limited (Antrix), the commercial arm of Indian Space Research Organisation (ISRO), acts as the nodal agency for providing end-to-end PSLV launch services for the international customer satellites, from the state-of-the-art launch base facility located at Sriharikota.