

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

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INDIA'S GEO-SYNCHRONOUS SATELLITE LAUNCH VEHICLE (GSLV): MAKING ITS ENTRY
INTO INTERNATIONAL COMMERCIAL LAUNCH SERVICES MARKET

Abstract

ABSTRACT Over the last four decades, the Indian satellite launch vehicles have made significant progress, by successfully taking up the developmental/ operational flights of four generation of launchers viz., SLV-3, ASLV, PSLV and GSLV. Today, the Polar Satellite Launch Vehicle (PSLV) has been effectively meeting the national satellite launch requirements in addition to commercially supporting the international customer satellite launches, in the Low Earth Orbit (LEO) segment. On the other hand, the Geo-synchronous Satellite Launch Vehicle (GSLV) has been able to hitherto cater only to the national communication satellite launch needs in Geo-synchronous Transfer Orbit (GTO). GSLV, the two tonne GTO Launcher, is a three-stage vehicle employing solid, liquid and cryogenic propulsion modules for its stages. Keeping pedigree of already developed stages and thereby achieving higher reliability, and in order to reduce the overall developmental cost and schedule, the PSLV modules have been maximally utilized for the first two stages of GSLV. While for the initial flights of GSLV, the cryogenic stages procured from Russia and the total avionics system for cryogenic stage realised by ISRO were utilized; the recent successful flight of GSLV, during January 2014, had the fully indigenously developed and qualified cryogenic upper stage, from India. With the recent text book launch of GSLV with indigenously developed cryogenic upper stage, there are plans to use commercially, the launch services of GSLV for meeting the international customer satellite needs, into various orbits viz., LEO, SSO, GTO and highly circular/ elliptical orbits. GSLV has had eight flights so far, and is expected to emerge as one of the reliable launchers, with a good number of flights planned in the coming years. This paper describes in detail the capability and possible mission opportunities on-board GSLV, along with details on the launch base operations support, towards meeting the launch service needs of the international customer satellites. Antrix corporation Limited (Antrix), the commercial arm of Indian Space Research Organisation (ISRO), will act as the nodal agency for providing the GSLV launch services for international customer satellites.