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INDIA’S HEAVIEST SATELLITE GSAT-11 IS ALOFT IN SPACE FROM KOUROU

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Ariane5 VA-246 lifted off from Kourou Launch Base at 02:07 am (IST) carrying GSAT-11. Photo: Twitter/@isro

As most of India slept, its heaviest and most advanced communication satellite, GSAT-11, was shot to space from a European spaceport in faraway South America.

The mission of the 5,854-kg giant 'bird' is to enable much faster Internet services than now to users down home over the next 15 years. GSAT-11 was launched from the Guiana Space Centre at Kourou in French Guiana at 2.07 a.m. IST on Wednesday, December 5.

The large high-throughput satellite (HTS), along with two smaller HTS satellites GSAT-19 and GSAT-29 launched earlier (by ISRO from Srihsrihkota) will kick off effective satellite-based broadband services in remote, hitherto uncovered rural areas of the country. These and a few more upcoming HTS fleet will also innovatively enable the use of the superior and efficient Ka frequency band.

The lift off of GSAT-11 and a South Korean co-passenger satellite on European pace vehicle Ariane 5 VA246 was watched and cheered by the Chairman of Indian Space Research Organisation K. Sivan. In his post-launch remarks Dr. Sivan said: "It will meet most of the requirements of providing broadband connectivity to rural and inaccessible village panchayats under BharatNet which is part of the Digital India initiative."

With him at the space port were P. Kunhikrishnan, Director of the U.R.Rao Satellite Centre in Bengaluru which built the satellite; GSAT-11 Mission Director P.K. Gupta and many ISRO engineers who accompanied the satellite from Bengaluru to Kourou in late October.

GSAT-11, described by the space agency as a giant satellite, is the heaviest ever built by ISRO. (Its next biggest is the GSAT-17, weighing 3,477 kg and which was also launched for ISRO in June 2017 by the same European launch operator Arianespace.)

The new 'big bird' adds 40 more transponders, 32 in the Ku band and eight in the Ka band being introduced newly in an Indian satellite. Indian Internet users are estimated at over 450 million, apart from various businesses, bank ATM services and public organisations, with a growing appetite for ever speedier and better broadband services.

Enabling in-flight Internet and village web services are the government's other goals. By enabling rural high-speed connectivity the HTS satellite also promises to bridge the urban-rural digital divide.

The space agency described GSAT-11 as a "forerunner in the series of advanced communication satellites with multi-spot beam antenna coverage" over the mainland and islands. "GSAT-11 will play a vital role in providing broadband services across the country. It will also provide a platform to demonstrate new generation applications."

The ISRO Master Control Facility at Hassan in Karnataka immediately took control of the satellite and found it in good health. The spacecraft now goes around Earth in a temporary oval

orbit. Over the coming days MCF engineers will remotely fire its motors and nudge it in four stages into a circular 'geostationary' orbit almost 36,000 km away and settle it at 74° E over India.

Pre-launch, URSC's Dr. Kunhikrishnan said the spacecraft has the highest number of five communication antennas ever used in an ISRO satellite and largest solar panels and payload panels.

D.K. Das, Director of the Space Applications Centre in Ahmedabad which supplied the critical GSAT-11 payloads, said 90% of the hardware was from Indian industry. Four interconnected gateways in four cities would be set up to enable the services.

Stéphane Israël, Arianespace's Chief Executive Officer and group Executive Vice-President, said two more GSATs, 31 & 30, would be orbited from Guiana. GSAT-31 would go up first in early 2019.

Since 1981 Arianespace has put to space 22 Indian communication satellites (including GSAT-11) and will launch GSAT-31 and GSAT-30 in 2019. It also holds the highest number of 590 commercial satellite launches to date worldwide.

ISRO' s new and most powerful launcher can lift only satellite of nearly 4,000 kg. It is developing launchers that can put our spacecraft to orbit from within India.

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