

EDUSAT – the Indian satellite for education

India's educational programme got a fillip on 20 September 2004 with the successful launch of EDUSAT, from the launch pad of the Satish Dhawan Space Centre, Sriharikota, AP. EDUSAT is an indigenously designed satellite, which is exclusively devoted to the field of education. This is a path-breaking effort in the concept of tele-education.

EDUSAT was placed in the 36,000 km high geostationary orbit and co-located with INSAT-3C and KALPANA-1 at 74° East longitude. The satellite weighing 1950 kg at lift off, including 1110 kg of propellants for orbit raising and maintenance is designed to provide service for seven years.

Satellites can establish the connectivity between urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions that lack the necessary infrastructure. Besides supporting formal education, satellite systems can facilitate dissemination of knowledge to the rural and remote population about important aspects of health, hygiene and personality development and allow professionals to update their knowledge base as well. Thus in spite of limited number of trained and skilled teachers, the aspirations of the growing student population can be met through the concept of tele-education.

The concept of beaming educational programmes through satellites was effectively demonstrated for the first time in India in 1975–76 through the Satellite Instructional Television Experiment (SITE) conducted using the American Applica-

tion Technology Satellite (ATS-6). During this unique experiment, which is hailed as the largest sociological experiment conducted anywhere in the world, programmes pertaining to health, hygiene and family planning were telecast directly to about 2400 Indian villages spread over six states. Later with the commissioning of INSAT system in 1983, a variety of educational programmes had been telecast. In the nineties, the Jhabua Developmental Communications Project (JDCP) and the Training and Developmental Communication Channel (TDCC) further demonstrated the efficacy of tele-education. With the success of the INSAT-based educational services, a need was felt to launch a satellite dedicated for educational service and ISRO conceived the EDUSAT project in October 2002.

EDUSAT is the first exclusive satellite for serving the educational sector. It is specially configured to meet the growing demand for an interactive satellite-based distance education system for the country through audio-visual medium, employing Direct-to-Home (DTH) quality broadcast. The satellite has multiple regional beams covering different parts of India – 5 Ku band transponders with spot beams covering different regions, a Ku-band and transponder with its footprint covering the Indian mainland region and 6C-band transponders with their footprints covering the entire country.

The scope of the EDUSAT programme is planned to be realized in three phases. In the first phase of pilot projects, Ku-band transponder on board INSAT-3B, which is already in orbit, is being used.

Visveswaraiah Technological University (VTU) is the main beneficiary of this pilot project. Under this project, all engineering colleges of VTU are being networked with 100 nodes. Besides Karnataka, the Y. B. Chavan State Open University, Nasik in Maharashtra and the Rajiv Gandhi Technical University in Madhya Pradesh are covered. In the second phase, EDUSAT spacecraft will be used in a semi-operational mode with at least one uplink in each of the 5 spot beams. About 100–200 classrooms will be connected in each beam. Two more states and one national institution will be covered. In the third phase, EDUSAT network is expected to become fully operational. ISRO will provide technical and managerial support in the replication of EDUSAT ground system to manufacturers and service providers. EDUSAT will be able to support about 25–30 uplinks and about 5000 remote terminals per link.

While ISRO will provide the space segment for EDUSAT system and demonstrate the efficacy of the satellite system for interactive distance education, content generation is the responsibility of the user agencies. The quantity and quality of the content would ultimately decide the success of EDUSAT System. To help in this, ISRO, in cooperation with the user agencies, has already organized 5 conferences at regional level and one at the national level to create awareness about EDUSAT and its capabilities.

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