



❖ CSSTEAP Newsletter ❖

Quarterly Newsletter of Centre for Space Science and Technology Education in Asia and the Pacific (Affiliated to UN)

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ISRO LAUNCHES EDUSAT

EDUSAT is the first Indian satellite built exclusively for serving the educational sector. It is mainly intended to meet the demand for an interactive satellite based distance education system for the country. It strongly reflects India's commitment to use space technology for national development, especially for the development of the population in remote and rural locations.

EDUSAT was launched by India's Geosynchronous satellite launch vehicle GSLV-F01 on September 20, 2004 from Satish Dhawan Space Centre, SHAR, this is the first operational flight of the vehicle. The 1950 kg EDUSAT is launched from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, into a Geosynchronous Transfer Orbit (GTO) by ISRO's Geosynchronous Satellite Launch Vehicle (GSLV). From GTO, EDUSAT reached the 36,000 km high Geostationary Orbit (GSO) by firing, in stages, its on board Liquid Apogee Motor (LAM). In GSO, the satellite will be co-located with KALPANA-1 and INSAT-3C satellites at 74 deg East longitude.

EDUSAT carries five Ku-band transponders providing spot beams, one Ku-band transponder providing a national beam and six Extended C-band transponders with national coverage beam. It will join the INSAT system that already has more than 130 transponders in C-band, Extended C-band and Ku-band providing a variety of telecommunication and television services.



The pivotal role of education as an instrument of social change by altering the human perspective and transforming the traditional mindset of society is well recognised. The universalisation of education has become the top priority, especially for the developing countries. But the extension of quality education to remote and rural regions becomes a Herculean task for a large country like India with multi-lingual and multi-cultural population separated by vast geographical distances, and, in many instances, inaccessible terrain. Since independence, India has seen substantial increase in the number of educational institutions at primary, secondary and higher levels as well as the student enrolment. But the lack of adequate rural educational infrastructure and non-availability of good teachers in sufficient numbers adversely affect the efforts made in education.

Satellites can establish the connectivity between

✓ *ISRO Launches EDUSAT*

✓ *Fourth PG Course on Satellite Meteorology & Global Climate*

✓ *Fourth Post Graduate Course on Space and Atmospheric Science*



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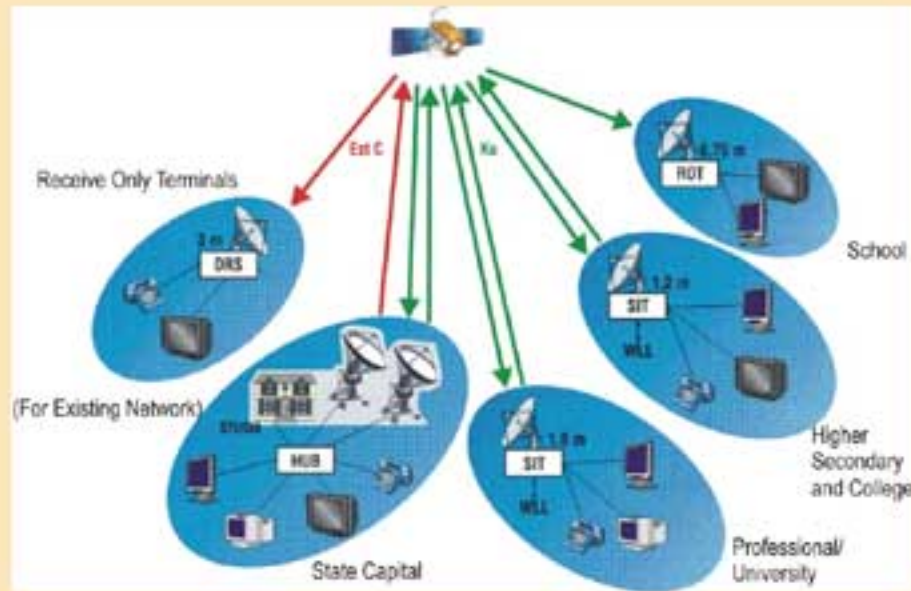
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urban educational institutions with adequate infrastructure imparting quality education and the large number of rural and semi-urban educational institutions that lack the necessary infrastructure. Besides supporting formal education, a satellite system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

EDUSAT is the first exclusive satellite for serving the educational sector. It is specially configured for audio-visual medium, employing digital interactive classroom and multimedia multicentric system. The satellite will have multiple regional beams covering different parts of India five Ku-band transponders with spot beams covering northern, north-eastern, eastern, southern and western regions of the country, a Ku-band transponder with its footprint covering the Indian mainland region and six C-band transponders with their footprints covering the



entire country.

EDUSAT is primarily meant for providing connectivity to school, college and higher levels of education and also to support non-formal education including developmental communication. The scope of the EDUSAT programme is planned to be realised in three phases.

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

FOURTH PG COURSE ON SATELLITE METEOROLOGY & GLOBAL CLIMATE

The fourth SATMET course of CSSTEAP, commenced on August 2, 2004 at the New SAC Campus, Bopal of Space Applications Centre (SAC), Ahmedabad. The participants were welcomed by Dr. K.N. Shankara, Director, SAC, Mr. S.K. Sharma, Acting Director, CSSTEAP & Controller, SAC, Dr. K.L. Majumdar, Deputy Director, RESIPA/SAC, Mr. B.M. Rao, Course Director, SATMET - IV and the Faculty Members of the SATCOM IV course.

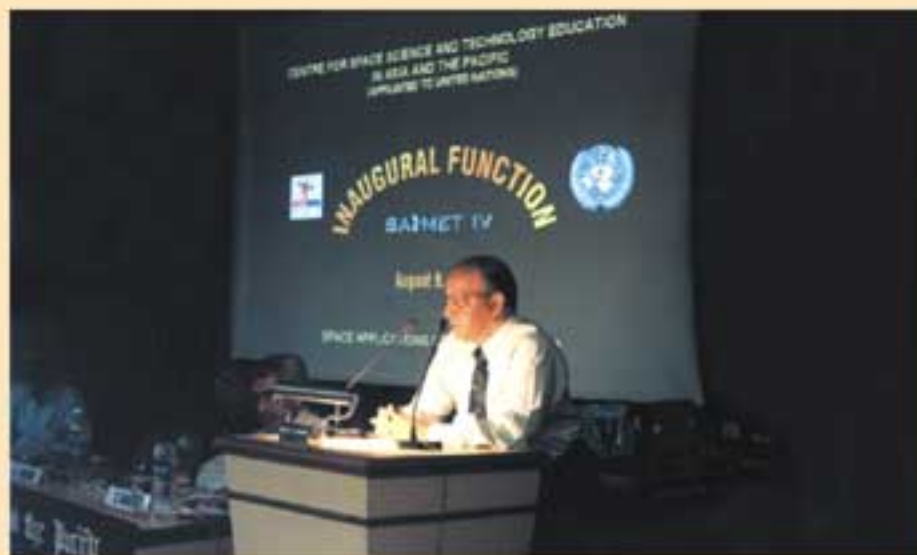


Inaugural function of 4th SATMET course

Fifteen Participants are attending the SATMET representing ten countries of Asia Pacific region:

Country *No. of Participants*

- Bangladesh 2
- China 1
- India 1
- Indonesia 2
- Kazakhstan 2



Dr. K. Kasturirangan delivering inaugural address

- Kyrgyzstan 1
- Maldives 1
- Mongolia 3
- Nepal 1
- Philippines 1

The course was formally inaugurated on August 9, 2004 by Honourable Member of the Parliament Dr. K. Kasturirangan. Dr. A.K.S. Gopalan ISRO Visiting Professor, was the Guest of Honour. Dr. Kasturirangan in his inaugural address lauded the role of CSSTEAP in capacity building in the Asia-Pacific region. He also appreciated the role of Meteorologists in harnessing space technology in the improvement of quality of life. Dr. Gopalan emphasized the need for accurate weather predictions and the increased dependence on the space technology in the mitigation of natural disasters. Dr. K.N. Shankara welcomed the Guests and Mr. S.K. Sharma, gave a brief introduction to

CSSTEAP, its activities and its achievements. He also spoke about the facilities and the arrangements at the New SAC Campus, Bopal for the participants. Mr. B.M. Rao, Course Director presented the details of the course.

The orientation courses for the participants commenced from August 2, 2004 wherein the participants were given a brief introduction to the geographical perspective, social customs, and the festivals of India and Gujarat in particular. They were introduced to Basics in Mathematics, Statistics and Computer Programming including Meteorology and Oceanography Groups Computer systems. The Module 1 dealing with the Basics in Meteorology, Climatology and Physical Oceanography, Basics in Satellite Remote Sensing - Radiative Transfer, Orbits and Instrumentation and Image Interpretation is in progress. The Participants made Country presentations highlighting Weather and Climate of their region

The Module 1 will conclude by the 22nd October, 2004. The core faculty consists of senior scientists of SAC, besides, well known experts from India Meteorological Department, National Institute of Oceanography and Indian Institute of Tropical Meteorology have been invited to deliver lectures on specialized topics.

In order to improve the Communication skills of

FOURTH POST GRADUATE COURSE ON SPACE AND ATMOSPHERIC SCIENCE



Guest faculty Dr. B.V. Krishnamurthy delivering lecture

The fourth Post Graduate course on Space and Atmospheric science started on August 2, 2004 at Physical Research Laboratory (PRL), Ahmedabad. The participants started to arrive from July 30 itself and Ahmedabad, which had experienced dry cell for almost whole of July also got its gift of rains with a bang. It well on raining for about three weeks, creating some transport problems for the participants. But they took it in their stride.

A total of ten participants from 5 countries have



Course participants

joined the space and atmospheric science course. Three participants each from Mongolia and India, two from Uzbekistan and one each from Sri Lanka and Maldives have come to PRL. Eminent scientists from India and abroad are giving them course lectures and we hope they would take advantage of it.

The participants of the course have been provided accommodation in a most modern hostel constructed two years ago for CSSTEAP participants at new Bopal campus of Space Applications Centre (SAC).

Participants of the space and atmospheric science being conducted at PRL as well as SATMET course being conducted at SAC are now living together in the same hostel. They enjoy cool and serene comfort of a bit of rural side of Ahmedabad. The course is now in full swing. Modul-I covering theory is being dealt within this period which would continue till middle of October followed by examinations. Weekly tests are being conducted on every Friday on the topics covered in the previous weeks. Each participant has to give a short seminar on the topics covered. The studies of structure composition dynamics and evolution of atmosphere of earth and other planets from paper-I. The paper-II deals with ionospheric physics.

The faculty for this module has been selected from eminent scientists such as Prof. P.B Rao, Chairman ADCOS, Prof. Shyam Lal, Chairman Space and Atmospheric Science Division, PRL and Prof. Iyer, Head Department of Physics, Saurashtra University, Dr. B.V Krishnamurthy, Former Director, SPL apart from a galaxy of experts from PRL and other institutions.

EIGHTH REMOTE SENSING & GIS PG COURSE

The Eighth Post Graduate Course on "Remote Sensing and Geographic Information System (RS & GIS)" of CSSTEAP was conducted at Indian Institute of Remote Sensing (IIRS), Dehradun. The course commenced on October 01, 2003 and successfully completed on June 28, 2004. The course was of nine months duration and was made of three modules each of three months duration. This course was attended by 21 participants from 16 countries of Asia-Pacific region namely Azerbaijan, Bangladesh, China, Fiji, Indonesia, Kyrgyz Republic, Mongolia, Maldives, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Uzbekistan, Vietnam and India.

The course was formally inaugurated by Dr. A.K.S



Valedictory function of 8th RS & GIS course

Gopalan, Visiting Scientist, ISRO & Former Director, Space Applications Centre (SAC), ISRO, Ahmedabad, on October 06, 2003. Director, CSSTEAP and Dean, IIRS also graced the occasion. The valedictory function of the course was held on June 28, 2004. The valedictory address was

delivered by Shri G Madhavan Nair, Chairman ISRO, Secretary, Deptt. of Space & Chairman, Governing Board CSSTEAP through Space-net

facility.

The Post Graduate diploma certificates were awarded to the course participants by Guest of

INTERNATIONAL TRAINING COURSE ON GEOINFORMATICS FOR DISASTER MANAGEMENT

Indian Institute of Remote Sensing, Dehradun organized a short course, International training Course on Geoinformatics for Disaster Management for CSSTEAP during August 16 - September 10, 2004. Twenty participants from 14 countries (Afghanistan, Azerbaijan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Iran, Lao PDR, Mongolia, Myanmar, Nepal, Sri Lanka, Thailand) participated in the course..

These participants were sponsored by UN-ESCAP, TCS of Colombo Plan, Ministry of Finance, Govt. of India, CSSTEAP and four participants were funded by their departments. This course was of 4 weeks duration. During the first week, topics of remote sensing technology consisting of Aerial photography, fundamentals of Photogrammetry, stereo-photogrammetry, visual image interpretation, fundamentals of remote sensing, platforms and sensors, introduction to digital image processing and image classification were covered by faculty of Photogrammetry and Remote Sensing division.



Course participants at Taj Mahal, Agra

The second week topics were of geo-information science consisting of GIS technology - over view, Hardware and software requirements of GIS, conceptual modelling of spatial & Non-Spatial data, Digitizing, editing & structuring of map data, spatial data analysis and network analysis, DEM, fundamentals of GPS and application of GPS were covered by faculty of Geo-informatics, and in the next two weeks the application of remote sensing and GIS for various natural disasters such as floods, drought, land slides, earth quakes, volcanoes, land degradation, forest fires, coastal flooding, erosion and role of communication etc. were covered by the faculty of IIRS from Agriculture & Soils, Geosciences, Forestry & Ecology, HUSAD, Marine Sciences and Water Resources Divisions. In addition to this, two guest faculty members from Space Application Centre, Ahmedabad delivered guest lectures on cyclones and communication systems. In all about 39 hours of lectures and 45 hours of practical demonstrations were conducted.



Course participants along with Dean IIRS and Course Coordinator

In addition to this technical load on the participants, the participants were taken on a sight

BACKGROUND OF CSSTEAP

In response to the UN General Assembly Resolution (45/72 of 11th December, 1990) endorsing the recommendations of UNISPACE-82 the United Nations Office for Outer Space Affairs (UN-OOSA) prepared a project document (A/AC.105/534) envisaging the establishment of Centres for Space Science & Technology Education in the developing countries. The Objective of the Centres is to enhance the capabilities of the member states in different areas of space science and technology that can advance their social and economic development. The first of such centres, named as Centre for Space Science & Technology Education in Asia & the Pacific (CSSTEAP) was established in India in November 1995. Department of Space, Government of India has made available appropriate facilities and expertise to the Centre through the Indian Institute of Remote Sensing (IIRS) Dehradun, Space Applications Centre (SAC) & Physical Research Laboratory (PRL) Ahmedabad. The Centre is an education and training institution that is capable of high attainments in the development and transfer of knowledge in the fields of space science & technology. The emphasis of the Centre is on in-depth education, training and application programmes, linkage to global programmes / databases; execution of pilot projects, continuing education and awareness and appraisal programmes. The Centre offers Post Graduate level and short courses in the fields of (a) Remote Sensing and Geographic Information System, (b) Satellite Communications and GPS, (c) Satellite Meteorology and Global Climate, (d) Space and Atmospheric Sciences. A set of standard curricula developed by the United Nations is adapted for the educational programmes.

Ongoing Courses

- Fourth 9 month Post Graduate course in Satellite Meteorology and Global Climate at SAC, Ahmedabad from August 2, 2004.
- Fourth 9 month Post Graduate course in Space & Atmospheric Science at

Forthcoming Courses

- Ninth 9 month Post Graduate course in RS & GIS at IIRS Dehradun from October 1, 2004.
- Fifth 9 month Post Graduate course in Satellite Communications at SAC, Ahmedabad from August 1, 2005
- International short course in RS & GIS Applications in Sustainable

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CSSTEAP welcomes the views and opinions of the readers of Newsletter. Short Communications on space science and technology education which may be relevant to Asia Pacific Region are also welcome. Views