

Reflections

TRIANNUAL NEWSLETTER



ISRO YUVA VIGYANI (Young Scientist) from entire country at SDSC-SHAR after interacting with Chairman, ISRO

From the Director's Desk



Last four months have been very fruitful at NESAC. We have successfully conducted the maiden ISRO YUva VIgyani KARYakram (YUVIKA, Young Scientist Program) along with five major ISRO centres. This was the first ever such program conducted by ISRO, wherein 3 students of class IX standard from each state were given fifteen days of exposure to Space Science and Technology, in tune with the Government's vision "Jai Vigyan, Jai Anusandhan". NESAC conducted the program for the eight north eastern states and West Bengal. The best

known professionals from each area of Space Science and Technology were invited at NESAC to deliver lectures and interact with the students. The program consisted of lectures, demonstrations, field visits, sports activities, facility visits, practicals, etc. The students were also taken to Satish Dhawan Space Centre (SDSC) – Sriharikota to witness different stages of launch vehicle integration and sounding rocket launch. The young scientists from entire country assembled there which provided a unique opportunity to interact among themselves. They also interacted with Chairman, ISRO at SDSC-SHAR wherein Chairman, ISRO answered to different queries by these students. We took all care to make the event most memorable and fruitful one for the bright young minds of our country.

The second phase of the Sericulture project was completed recently and to commemorate the successful completion of this project covering 70 districts from 25 states and also to formally release the project outputs in the form of Project Atlas and SILKS portals, a national level workshop was organized at NESAC during Aug

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ISRO YUva Vigyani Karyakram (YUVIKA) conducted at NESAC

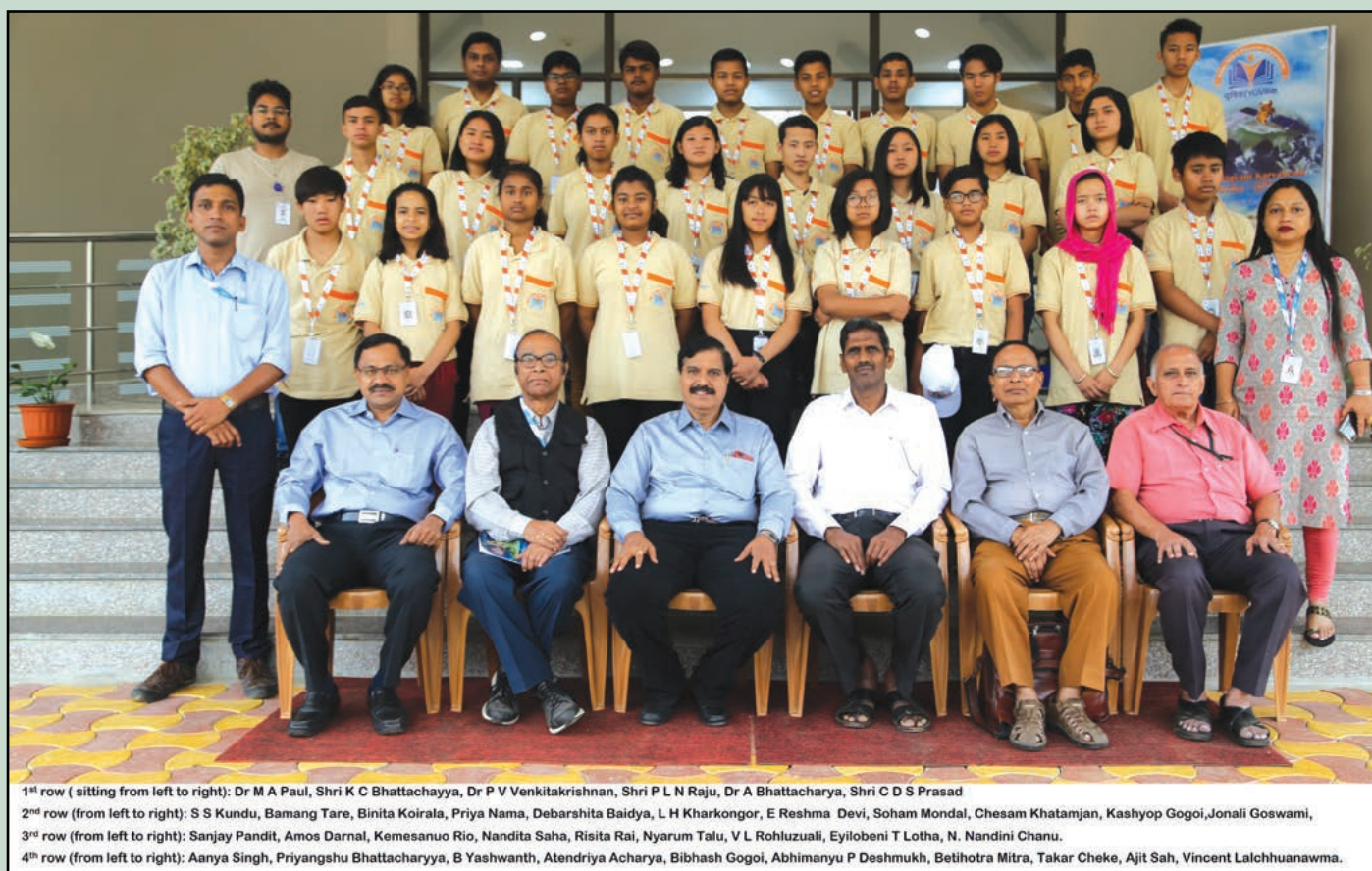
Shyam S Kundu, Jonali Goswami, and P L N Raju

Space Science and Technology has always fascinated a child's mind. There has been a constant demand from academia for internship to ISRO and to understand the various aspects of Indian Space Programme. To meet this demand, ISRO formulated an annual program called "Young Scientist Programme or YUva Vigyani Karyakram (YUVIKA)" starting from 2019 onwards in tune with the Government's vision of "Jai Vigyan, Jai Anusandhan" and also as part of the vision to expand the ongoing capacity building and outreach initiatives of ISRO. The programme was primarily designed for the school students of class IX and X standards to impart basic knowledge in the field of Space Sciences and Technologies and hence arousing their interest in these field, who are the future building blocks of our nation.

The programme was meticulously designed for two weeks duration and based on the geographical distribution of the states, the students were divided into four batches for reporting to four major centres of ISRO namely, Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram; U R Rao Satellite Centre (URSC), Bengaluru; Space Applications Centre (SAC), Ahmedabad and North Eastern Space Applications Centre (NESAC), Shillong. NESAC conducted the program for 27 students from eight NE states and West Bengal.

Inauguration Program

The YUVIKA program at NESAC was inaugurated through a grand function with the Inaugural address



Participating Young Scientists at NESAC with the ISRO and NESAC officials

Three students each from each State and Union Territory (UT) were selected for the programme based on the well defined criteria. Students, who belong to rural schools were given special weightage in the selection criteria. Thus, a total of 108 students were selected from 29 states and 7 Union territories put together.

by Chairman ISRO through video conference. The inauguration program at NESAC was continued which was Chaired by Prof B K Dutta, Hon'ble Member, North Eastern Council. Dr S Ramakrishnan, Former Director, VSSC was also present during the inaugural program. Shri P L N Raju, Director,

ISRO YUva Vigyani Karyakram (YUVIKA) conducted at NESAC

NESAC and other Sr. Scientists from ISRO present during the inaugural session also addressed the students.



Chairman, ISRO inaugurating the YUVIKA program remotely
Lectures and Practical Sessions

The programme included invited talks, experience sharing by the eminent scientists, facility and lab visits, exclusive sessions for discussions with



Director, CBPO, ISRO HQ addressing the students

experts, practical sessions, sports, cultural program, and feedback sessions.

The participants were also taken to the rocket launching Centre, Satish Dhawan Space Centre



The students witnessing Dr Pisharoty Sonde launch using Hydrogen gas filled balloon

(SDSC), Sriharikota to witness different stages of launch vehicle integration and launching of Sounding Rocket. The Young Scientists visited ISTRAC ground station, SSAB, SVAB, SLP (UT), FLP (MST), 6C Test Bed, MOTR, FCC2, LCC, MCC facilities and Space



The students actively took part in interactive classes
Museum in SDSC-SHAR. An interactive session (SAMWAD) with Chairman, ISRO/ Secretary, DOS was also conducted at SDSC-SHAR.

Some of the specific topics that were covered during the programme are history of science and technology in India, history of Launch Vehicles, different kinds of rocket propulsion, origin of Universe, Solar system, history of Indian satellite technology, types of satellites, parts of a satellite, applications of satellites, space science, satellites for weather/climate studies, interplanetary space missions, manned space missions, etc. Altogether nineteen lectures were delivered during the program.



Director, NESAC taking class during the program

The Young Scientists were involved in various practical sessions on exploring Google Earth and ISRO Bhuvan, walking on planetary surface, Atmospheric science, image processing and finally make your own map using GIS. They were also involved in 3D visualization and make their own 3D glasses.

ISRO YUva Vigyani KAryakram (YUVIKA) conducted at NESAC

Activities by Young Scientists

Interactive game based activities were kept as one of the focus area for the program. Two such events were organized for Young Scientists. First activity was to



Students during practical class

design a mechanism to prevent an egg from cracking when dropped from a certain height. This activity introduced them to the challenges in landing a rover



Young Scientists actively participated in activities

on different kind of surfaces and environments in space and also safe landing from high altitude in general. Students came up with different types of designs and some were extremely unique.

Almost all teams were successful in this event when the egg was dropped from 3rd floor. The second activity was to design a water rocket. In this activity the students were given a task to design water rocket out of used cold drink bottles. All students did well

in designing a water rocket and all the rockets were successfully launched using launchers. The students also participated actively in launching hydrogen gas filled balloon with Pisharoty sonde attached to the balloon for atmospheric probing.

Young Scientists participated in free hand exercise supervised by CISF PT trainer everyday morning at 6 AM. During evening, they were encouraged to participate in various sports like badminton, table-tennis, carom board, chess, etc. All the students took interest in playing some or the other games during the program.



Free hand exercise was conducted daily

The Young Scientists were taken to Regional Science Center at Guwahati. The students were taken to Innovation Hub, 3D film show, Earth on sphere and were introduced to properties of super-cooled materials using liquid nitrogen through live activity and demonstration. The Earth on sphere activity was new to students and they were able to understand various phenomenon that were taught in class. Thereafter they were taken to Guwahati Planetarium. The stars of the night sky were projected onto the dome of the planetarium. The difference between summer and winter skies and constellations were depicted. The students had a fascinating introduction to night sky watching and amateur astronomy.



Students were encouraged for indoor and outdoor games daily

ISRO YUva Vigyani Karyakram (YUVIKA) conducted at NESAC



All students actively participated in a cultural program and performed

A cultural program was organized in the NESAC auditorium. Students from all states participated in the event with a great deal of enthusiasm. There were



Young scientist visiting NESAC facilities

three programs performed by NESAC staff. Everyone present during the program enjoyed the vibrant and dynamic performances by the students.

A quiz competition was organized for the Young Scientists with questions focusing on Indian Space Program, Science and Technology, current affairs, etc. There was a exclusive round covering questions from the lectures that were delivered during the YUVIKA program and also from their visit to SDSC-SHAR.

The Young Scientists were also involved in project activities. Projects were allotted based on their interest and preference from a list of projects. Students were divided randomly into five groups. One scientist from NESAC was identified as mentor for each team. Students were found to work extra time in computers under the guidance of mentors. All the five teams made power point presentation on their respective projects on the final day of the program. Every team

member made part presentation. The projects were evaluated by an expert team.

Visit to facilities

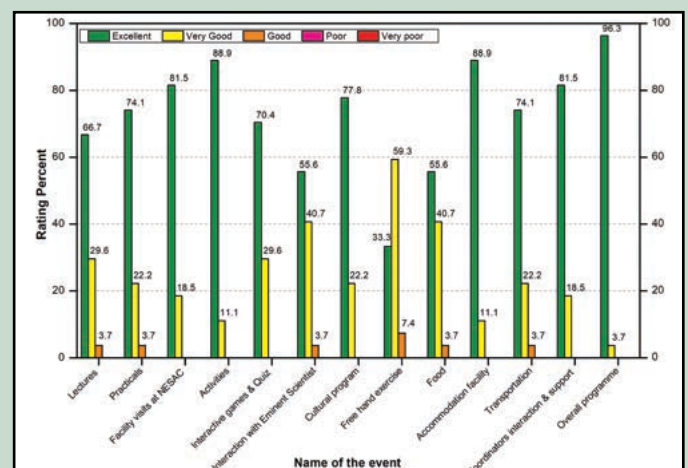
The Young Scientists were taken to different NESAC facilities such as Space exhibition, NavIC ground station, UAV lab, RS & GIS lab, Atmospheric science lab, etc. They were demonstrated on live satellite communication broadcasting. They were happy to go on air sitting in a professional studio.

Valedictory function



Students were interviewed by national media while at SDSC-SHAR

The valedictory ceremony of YUVIKA programme was held on May 25, 2019 at 2:00 PM at NESAC auditorium. Prof. B C Goswami, Vice Chancellor, Cotton University was the Chief Guest of the function. All the students were given certificates, mementoes, trophy for quiz competition, and prizes for projects presentation. Students provided feedback using google doc on different aspects of the program. They became emotional while sharing their 15 days experiences and parents too expressed their heartfelt indebtedness to the YUVIKA programme.

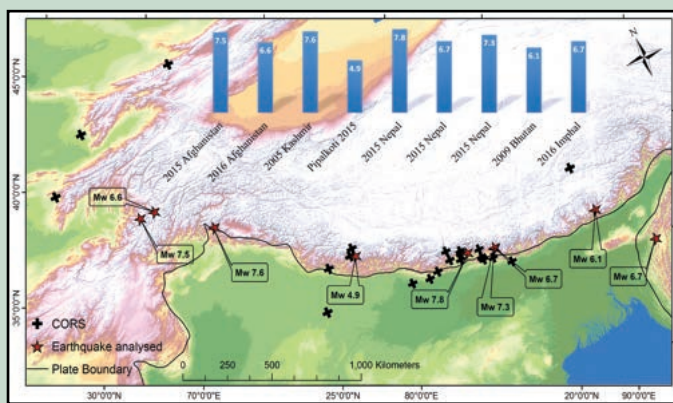


Summary of feedback received from the students

Ionospheric TEC Variations: A prominent tool for earthquake precursor detection

Gopal Sharma and P L N Raju

The prime factor for earthquake occurrences is deformation of the Earth's crust and strain accumulation. These deformations have certain manifestations in ground as well as in the ionosphere. The ionospheric perturbation can be studied by monitoring the behavior of Total Electron Content (TEC) at the ionosphere by use of dual frequency GPS receiver. TEC is the total number of electrons present between GPS Satellite and receiver. It is measured in TECU, defined as $1 \text{ TECU} = 10^{16} \text{ electrons/m}^2$. Number of case studies were analyzed in the Himalayan region to understand the behavior of TEC prior to earthquake (please refer figure)

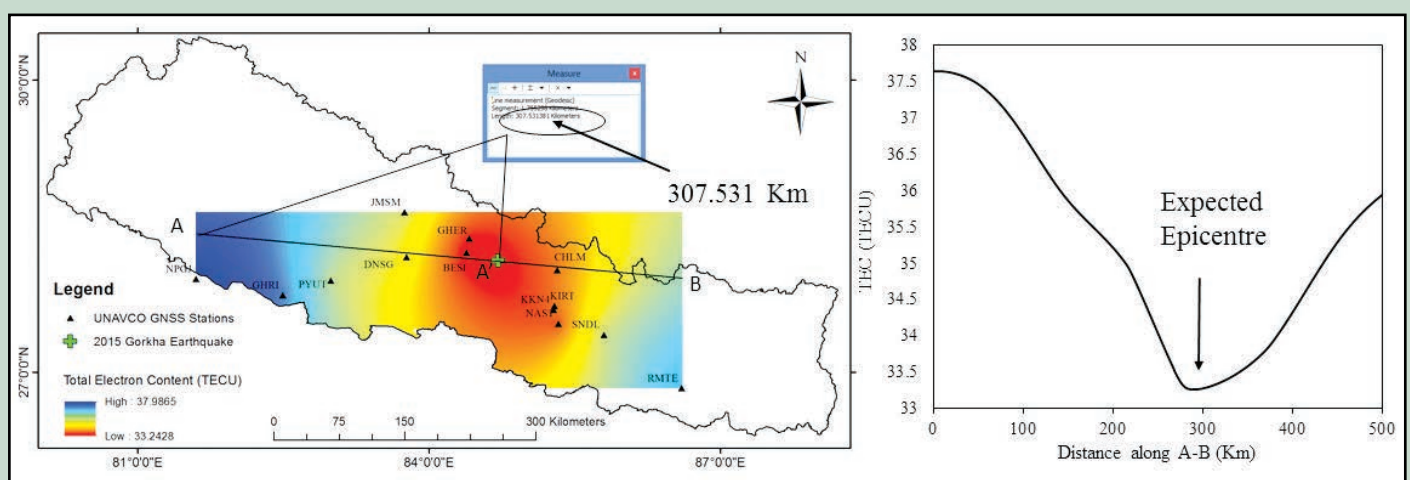


Map showing GNSS data in the Himalayan region and earthquake analyzed (Sharma et al., 2017, UNAVCO, IGS)

which reveals anomalies prior to the events in major cases.

One of the devastating earthquake of 21st century (Mw 7.8) in the Himalayan region occurred on the 25th April, 2015 (06:11 UTC) at 28.1473° N and 84.7079° E , 34 km east south east of Lamjung, Nepal. It was accompanied by two large aftershocks of Mw 6.6 (on 25th April 2015, 06:45 UTC) and Mw 6.7 (on 26 April, 2015 at 09:10 UTC). The availability of large network of Global Navigation Satellite System (GNSS) data from UNAVCO, USA at Nepal (please refer figure) has given the opportunity to study the behavior of this giant earthquake. TEC anomaly prior to the main shock on the 25 April, 2015 from plate boundary observatories data of 14 GNSS stations at Nepal maintained by UNAVCO, USA were also studied in detail. Ionosphere TEC and its deviation from the average concentration has been studied to trace the possible epicenter of the impending earthquake. The Ionospheric TEC changes on 11 April, 2015 at 8 UTC from 14 GNSS network at Nepal are shown in figure. The TEC profile along AB shows a reduction of TEC at a distance of around 300 km from A which could be the expected epicentre (please refer figure). Therefore a definite pattern has been observed showing decreased TEC gradient towards the epicentre. The detail can be found at Sharma et al., 2018, Current Science.

Large number of case studies reveals the possibility of precursor detection using space technology. This



Relationship between TEC and distance from the epicenter. Left figure represents the spatial distribution of the TEC values. Figure on the right represents profile along AB. The low TEC zone is the expected epicenter at A. (Sharma et al., 2018, Current Science)

Ionospheric TEC Variations: A prominent tool for earthquake precursor detection

opens a new avenue of research for understanding the behaviour of earthquakes and precursor detection in space and time (0 to 15 days) with good network of GNSS ground monitoring stations.

Table 1 Details of the earthquakes analyzed and their associated effects on ionospheric TEC (Sharma et al., 2017).

Date of event (dd-mm-yy)	Magnitude (Mw)	Region	Radius of EQ Prep zone (km)	Precursors prior to the event (days)
10-04-16	6.6	Afghanistan	689	0 to 13
08-10-15	7.6	Kashmir	1854	0 to 12
25-04-15	7.8	Nepal	2259	4 to 8
26-04-15	6.7	Nepal	760	5 to 9
12-05-15	7.3	Nepal	1377	1 to 3
21-09-09	6.1	Bhutan	420	3 to 15
03-01-16	6.7	Imphal	760	5 to 13

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05-06, 2019. All the collaborating institutions, State Directorates of Sericulture, CSB institutions, etc were invited to discuss in detail about the project outputs and way forward. As desired by most of the professionals during the workshop, NESAC will continue play an important role in providing geospatial inputs for Sericulture development in the country and specially in successful implementation of Muga Missions in the states of Assam and Meghalaya and take up new programme on Geo-tagging of assets with support from the State Sericulture Departments. The appreciation of the participants on the quality and volume of work done by NESAC, was a very good motivating factor to take forward our mission of supporting in livelihood generation and sustainable development programs.

We also conducted one workshop cum interaction meeting on lighting resilient India Campaign and Agromet Advisory Services in NER of India with participation of more than 100 professionals. We are very committed to make our best effort in making a lightning resilient NE region with collaboration from other stakeholders. We also intend to provide maximum space based support for rolling out the next generation agro advisory services by IMD. A Hindi technical seminar was also conducted during this time. Through all these we are enhancing our outreach activities, which proving to be very important in taking the benefits of Space Science and Technology to all corners of this region. To take this initiative further, a National Symposium on **“Innovations in Geospatial Technology for Sustainable Development with special emphasis on NER”** will be conducted during 20-22 November, 2019 at Shillong, Meghalaya. We are expecting about 500 delegates during the symposium and I take this opportunity to invite all to participate and nominate professionals to this mega event at NESAC.

As the monsoon season is in full swing, NESAC is fully busy in providing space based support for disaster management, particularly the flood forecasting. We are making efforts to make use of the Drones to enhance our reach for disaster management. Recently NEC has approved an innovative project on life saving drug delivery in remote and disaster affected areas using the Drones, which NESAC will be implementing in collaboration with NEIGRIHMS. We are using these Drones for many other applications including road realignment along the 130 km stretch from Ukhrul to Pfutsero, near real time infrastructure projects progress monitoring those are funded by NEC, etc. NESAC will also be assisting other states of our country in utilizing Drones for effective and early action for disaster management.

National workshop on Applications of Remote Sensing and GIS for Sericulture Development

Bijay K Handique

Sericulture, a significant component under the Ministry of Textiles is one of the important sectors of economy in India and plays an important role in programmes of poverty alleviation. But the current production is not adequate to meet the demand for silk in the country. At the same time there is tremendous scope for enhancing the production and quality of silk through expansion of areas under host plants, improved method of information collection, processing and dissemination with the use of geospatial technology. An ambitious plan was taken up by Central Silk Board (CSB) to identify and map additional potential areas for development of silkworm food plants for 178 priority districts from 25 states in two phases; Phase-I: at 1:50,000 scale for 108 districts covering 24 states out of which 41 districts were from North Eastern Region (NER), Phase-II: at 1:10,000 scale for 70 districts covering 25 states out of which 20 were from NER. North Eastern Space Applications Centre (NESAC) was assigned the responsibility of coordinating the programme for entire country. It was also envisaged to develop a geo-portal for integrating the potential area maps along with other required information for expansion of sericulture at district level. Accordingly a geoportal has been developed and hosted in the public domain as <http://silks.csb.gov.in>.

To commemorate the successful completion of the second phase of the project work in 70 districts from 25 states and to formally release the project outputs in the form of Project Atlas and SILKS portals, a national level workshop was organized at NESAC during Aug 05-06, 2019 inviting all the collaborating institutions, State Directorates of Sericulture, CSB institutions etc. About 90 delegates and participants attended the workshop.

The inaugural programme of the workshop started with rendition of Sawaswati Vandana and Lighting of Lamps. This was followed by felicitation of the Guests on the dias viz., Shri R.R. Okhandiar, Member Secretary & CEO, CSB, Dr. P.P. Nageswara Rao, Former Director, NESAC, Shri Prasenjit Hans, Special Secretary to the Govt. of West Bengal, Shri A.K. Yadav, Director,

Sericulture, Uttarakhand, Shri S.K. Barchung, Director, Sericulture, Meghalaya, Shri PLN Raju, Director, NESAC and the Project Director. Director, NESAC welcomed all the participants. This was followed by detail background and outline of the workshop explained by Dr. B.K. Handique, Coordinator of the project. Dr. C.M. Bajpayi, Scientist, CSB, Bengaluru, who is Coordinating the project from CSB head quarters, extended sincere appreciations to the entire project team for successfully completing both the phases of the project. He appealed to the State Sericulture departments to make best utilization of the project outputs and also access the SILKS webportal, which is a treasure of information required for development of Sericulture. Dr. P. P. Nageswara Rao, the first Project Director of the project explained the genesis and significance of the project.



Dignitaries on the dias releasing the Project Atlas (Phase II)

Shri R.R. Okhandiar, Member Secretary & CEO, CSB graced the Inaugural function as the Chief Guest. In his address, he stressed on the need of utilizing the valuable informations brought out with this project by all the stakeholders to increase the silk production in the country. Member Secretary & CEO, CSB released the Project Atlas for 50 districts from 18 states and launched SILKS portals for these 50 districts.

The inaugural function was followed by two Technical Sessions, Session-I and Session-II. Session- I was Chaired by Dr. P.P. Nageswara Rao

National workshop on Applications of Remote Sensing and GIS for Sericulture Development

with Co-Chair, Dr. V.K. Verma, Head, NRE, Punjab RS Centre, Ludhiana.



A section of the participants during the inaugural programme

Fifteen State Remote Sensing Centers along with NESAC presented the outcome of the project in their respective state during this session. The Session- I was completed with the valuable suggestions given by both Session Chair and Co-Chair.



Technical Session is in progress

Technical Session II was on the requirements of Geospatial inputs for Sericulture Department chaired by Shri M.N. Saikia, Director of Sericulture, Assam and co-chaired by Shri H.T. Kumaraswamy, Deputy Director, Dept. of Sericulture, Karnataka. Sixteen State Sericulture Departments, two R&D and the regional offices of CSB made presentation during the Technical Session II. A number of

important suggestions made by the representatives from the State Sericulture Departments which have been noted for taking appropriate actions by CSB and NESAC. A cultural programme was also organised in the evening showcasing the rich culture of NER.

Technical Session II was followed by panel discussions and concluding session. The panelists of the concluding session were Shri Mukta Nath Saikia, Dr. Alok Sahay, Director, Central Tasar Research & Training Institute, Ranchi; Dr. M.P.S Bisht, Director, Uttarakhand Space Applications Centre; Dr. P.P. Nageswara Rao, and Shri .PL.N. Raju. Important recommendations in terms of continuation of space technology support for sericulture development in the country were made by the panelists, which were accepted for taking them forward. It was urged that NESAC should play an important role in providing geospatial inputs in successful implementation of Muga Missions in the states of Assam and Meghalaya and should work with the concerned State Directorates of Sericulture.

Resolution was taken that the new programme on Geotagging of assets will be supported by all the State Sericulture Departments. The programme will be initiated in Meghalaya and BTC (Bodo Territorial Council) area of Assam. Meeting with the Director, Sericulture, Meghalaya and Director, Sericulture BTC to be organised soon. It was also recommended to organize State wise workshops to create awareness about the SILKS portal among grass root level workers.



Participants during the concluding function and panel discussions

Workshop cum interaction meeting on lighting resilient India Campaign and Agromet Advisory Services in NER of India

Shyam S Kundu and Jonali Goswami

A one day Workshop cum interaction meeting on lighting resilient India Campaign and Agromet Advisory services in NER of India was conducted on 22 June, 2019 at NESAC Outreach Facility. More than 100 participants from different Government departments, NGOs, and private organisations participated in the workshop. The workshop was divided in two halves; the first half covered the Lightning Resilient India campaign while the second half was focused on interaction meeting on agro advisory services over the NE region of India.



A section of the participants during lighting resilient India Campaign

The Lightning Resilient India campaign, spearheaded by Climate Resilient Observing Systems Promotion Council (CROPC) and is supported by India Meteorological Department (IMD) and Indian Meteorological Society (IMS) has the objective of making a lightning safe India. The program was organized jointly by NESAC and IMS-Shillong Chapter. Eminent speakers during the campaign was Dr K J Ramesh, Director General of Meteorology; Shri P P Shrivasta, Member, NDMA Advisory Board; Prof S K Srivastava, VC, NEHU; Shri P L N Raju, Director, NESAC and Col Sanjay Srivastava, Chairperson, CROPC. Scientists and Professionals from National Remote Sensing Centre, National Disaster Management Authority, Indian Air Force, IMD, NESAC, NEHU, Assam State Disaster Management Authority, Nagaland State Disaster Management Authority, Meghalaya Revenue & Disaster Management Department, Mizoram State Remote Sensing Centre, Earth Networks, Indian Red Cross Society, World Vision India, All India Radio, different NGOs, Print and

Electronic media, etc attended the workshop. The workshop provided the much needed platform for development of a multi-institutional strategy for making a lightning safe NE region. The lightning and severe storm early warning system developed by NESAC was presented during the workshop. Director, NESAC urged all states of NER to make best use of the forecasting services and provide feedback for improvement of the forecast. The participants appreciated the efforts made by CROPC and NESAC in conducting such workshop.

The interaction meeting to address various issues for implementation of block level Agromet Advisory Services (AAS) for NER was presided by Dr K J Ramesh. The purpose of conducting the workshop was to focus on creation of implementing strategies of next generation agromet advisory services for the GKMS (Gramin Krishi Mausam Seva) at block level for NE region. Dr Sanjay O'Neil Shaw, DDGM,



Participants during the interaction meet for Agromet Advisory Services in NER of India

RMC-Guwahati; Dr. Dr A K Tripathi, Director ICAR-ATARI, Guwahati; Dr B C Deka, Director ICAR-ATARI, Umiam; and Nodal officers, Technical officers of all concerned KVK's and State Universities of NE Region participated in the workshop.

The officials freely interacted with DG, IMD and other senior officials of IMD and discussed about different field level issues faced by them while implementing the advisory services. The role of space technology for improving the AAS was also discussed and it was expected that NESAC will take lead role in demonstrating such technology in NER of India.

उत्तर पूर्वी अंतरिक्ष उपयोग केंद्र में हिंदी तकनीकी संगोष्ठी का आयोजन किया गया

07.03.2018 को आयोजित विभागीय राजभाषा कार्यान्वयन समिति के 159 वीं बैठक के कार्यवृत्त पर की गई कार्रवाई के अनुसार प्रतिवर्ष विभाग के सभी प्रमुख केंद्रों/यूनिटों द्वारा हिंदी में तकनीकी विषयों पर एक संगोष्ठी आयोजित किया जाना था। इस कार्रवाई में वर्ष 2017 एवं 2018 में विभिन्न केंद्रों/यूनिटों द्वारा आयोजित हिंदी तकनीकी संगोष्ठी का विवरण भी जारी किया गया। इस उद्देश्य से समिति द्वारा तकनीकी संगोष्ठी के आयोजन हेतु विभाग के सभी केंद्रों को 7 समूहों में विभाजित करके, समूहों द्वारा आयोजित कराये जाने वाले वर्षवार पाँच वर्षों का योजना भी निर्धारित किया गया। जिसमें एनईसैक सातवें समूह में शाखा सचिवालय, नई दिल्ली, एस.सी.एल., चंडीगढ़, आई.आई.आर.एस., देहरादून तथा इस्ट्रैक, पोर्टब्लेयर के साथ शामिल है। इस समूह द्वारा वर्ष 2018 में शाखा सचिवालय नई दिल्ली, वर्ष 2019 में एनईसैक, वर्ष 2020 में एस.सी.एल., चंडीगढ़ तथा वर्ष 2021 में आई.आई.आर.एस., देहरादून द्वारा हिंदी तकनीकी संगोष्ठी आयोजित किया जाना प्रस्तावित था।

इसी प्रस्ताव के क्रम में विभागीय राजभाषा कार्यान्वयन समिति के 160 वीं बैठक में लिये गये निर्णय के अनुसार वर्ष 2019 के लिये एनईसैक द्वारा हिंदी तकनीकी संगोष्ठी आयोजित किया जाना प्रस्तावित हुआ था। अतः इसी क्रम में उत्तर पूर्वी अंतरिक्ष उपयोग केंद्र (एनईसैक), उमियम, मेघालय में दिनांक 12 जुलाई 2019 को एक दिवसीय हिंदी तकनीकी संगोष्ठी का आयोजन किया गया जिसका विषय अंतरिक्ष विज्ञान और प्रौद्योगिकी के माध्यम से दूरदराज तक पहुंचना था।

संगोष्ठी की अध्यक्षता श्री पी.एल.एन. राजू निदेशक, एनईसैक ने किया। संगोष्ठी की मुख्य अतिथि श्रीमती कला रामचंद्रन, आई.पी.एस., निदेशक, उत्तर पूर्वी पुलिस अकादमी, उमसाव रहीं एवं विशिष्ट अतिथि श्रीमती सरला, संयुक्त निदेशक (रा.भा.) अंतरिक्ष विभाग, बेंगलूरु एवं श्री बदरी यादव, अनुसंधान अधिकारी, क्षेत्रीय कार्यान्वयन कार्यालय, राजभाषा विभाग, गुवाहाटी रहे।

सर्वप्रथम दीव प्रज्वलन के उपरान्त संगोष्ठी का प्रारम्भ हुआ। इसके पश्चात मां सरस्वती वंदना गीत की प्रस्तुति हुई, कार्यक्रम के अध्यक्ष श्री पी.एल.एन. राजू निदेशक एनईसैक ने इसरो के विभिन्न केंद्रों से आये वैज्ञानिकगण और अधिकारीगण



उद्घाटन सत्र के दौरान स्वागत करते हुए निदेशक, एनईसैक

अवनीश शुक्ला एवं सूर्य प्रकाश तिवारी

का स्वागत किया और हिंदी भाषा को देश की अखण्डता एवं एकता कायम रखने वाली भाषा बताया और उन्होंने यह भी बताया की एनईसैक भारत सरकार के राजभाषा नितियों को लागू करने के लिए प्रतिबद्ध एवं तत्पर है।

सूक्ष्म जलपान के पश्चात कार्यक्रम दो चरणों में प्रारम्भ हुआ। कार्यक्रम का संचालन श्री अवनीश शुक्ला वरि. प्रशासनिक अधिकारी, एनईसैक द्वारा किया गया।



प्रमाण पत्र देते समय निदेशक, एनईसैक

राजभाषा सत्र:

कार्यक्रम का पहला चरण राजभाषा सत्र था जिसके लिए कुल 4 लेख प्राप्त हुए थे तथा सभी लेखों को प्रस्तुति हेतु चुना गया था। जिसमें से 3 लेखकों द्वारा अपना लेख प्रस्तुत किया गया।

राजभाषा सत्र का मूल्यांकन श्रीमती सरला संयुक्त निदेशक (रा.भा.) एवं श्री जी चंद्रशेखर प्रमुख पी.जी.ए. इस्ट्रैक पोर्टब्लेयर ने किया जिसमें प्रथम स्थान पर शाखा सचिवालय नई दिल्ली की कनिष्ठ हिंदी अनुवादक एनाक्युलेट फर्नांडिस रहीं।

तकनीकी सत्र:

कार्यक्रम का दूसरा चरण तकनीकी सत्र था जिसके लिए कुल 16 लेख प्राप्त हुए थे, तथा सभी प्राप्त लेखों को प्रस्तुति हेतु चयन किया गया। कुल 11 लेखकों द्वारा अपने लेखों की प्रस्तुति दी गई।

तकनीकी सत्र का मूल्यांकन श्री बिजय कृष्ण हैडिक, वैज्ञा/अभि. एसएफ, एनईसैक उमियम एवं श्री मुनिश रीहाल वैज्ञा/अभि. एसई, एस.सी.एल. चंडीगढ़ द्वारा किया गया जिसमें प्रथम स्थान पर श्रीमती रेखा भराली गोगोई, वैज्ञा/अभि. एसई. एनईसैक, उमियम द्वितीय स्थान पर कु. प्रियंका शर्मा, वैज्ञा/अभि. एससी, एस.सी.एल., चंडीगढ़ एवं तृतीय स्थान पर डॉ. शुचिता श्रीवास्तव, वैज्ञा/अभि. एसई, आई.आई.आर.एस., देहरादून रहीं। दोनों सत्रों के समापन के पश्चात संगोष्ठी के अध्यक्ष श्री पी.एल.एन. राजू निदेशक, एनईसैक द्वारा लेखकों को प्रमाण पत्र का वितरण किया गया। तत्पश्चात संगोष्ठी के संयोजक श्री अवनीश शुक्ला, वरि. प्रशासनिक अधिकारी, एनईसैक द्वारा धन्यवाद ज्ञापन के पश्चात संगोष्ठी के समापन की घोषणा की गई।

Trainings and Workshops conducted at NESAC

Short course on Microwave Remote Sensing conducted

A course titled 'Short course on microwave remote sensing with special emphasis on North East India' was conducted during 19-23 August, 2019 at NESAC. Around 30 participants including students, JRFs, Research Scientists and Scientists attended the training which included theory as well as practical sessions. A total of 8 lectures and 4 practical sessions were taken by faculties from Indian Institute of Remote Sensing, Dehradun and Space Applications Centre, Ahmedabad.



One day orientation program on water conservation related projects (MGNREGA):

A one day orientation program on water conservation related projects (MGNREGA) was organized by BDO, Bhoirymbong & Umsning Block at NESAC on 9 August, 2019. The program was attended by around 20 officials which was held at NESAC Outreach Facility. Dr. Diganta Barman & Dr. Arjun B M, Scientist, NESAC coordinated the program.



IRADE-NESAC-GBPANT joint project stakeholder meeting conducted

The stakeholder meeting for the joint project by IRADE-NESAC-GBPANT was conducted on 30

July, 2019 to discuss on the project planning and implementation strategy. Officials from all the



participating institutes deliberated on different aspects of the project.

Three days training was conducted on Applications of Remote Sensing and GIS in Agriculture

Agriculture and Soils Group of NESAC organized a 3 days training on "Applications of Remote Sensing & GIS in Agriculture" for 20 officers of Agricultural Technology Management Agency (ATMA), Department of Agriculture, Govt. of Meghalaya at NESAC during 03-05 July, 2019. The programme was sponsored by Meghalaya Agricultural Management & Extension Training Institute (MAMETI). The programme covered a wide range of topics starting from Basics of Remote Sensing & GIS to Advanced Remote Sensing Techniques for agricultural applications in 9 theory lectures and 7 practical sessions.



NESAC conducted Research Collaborators Meeting for the Meghna Basin for Bangladesh & India

A research collaborators meeting was held at NESAC during 11-12 June, 2019 to discuss, define and identify priority areas for sustainable development and co-operative management of the Meghna Basin. Professionals from India and Bangladesh participated in the meeting. NESAC was requested to work on utilizing space technology to address the issues.

Trainings and Workshops conducted at NESAC



4th basic course on Remote Sensing and GIS conducted at NESAC

The three week basic course on Remote Sensing and GIS was organized at NESAC during June 03-21, 2019. 39 Participants from Govt. departments, academia and students were enrolled for the course. Participants from the Soil and Water Conservation Dept. of Shillong and Nongstoin, PHE Shillong, Irrigation Dept of Assam, NIC-Kolhapur as well as several students, researchers and faculty members from the academia from across the country participated in the course. The course covered all aspects of remote sensing and GIS. A field visit and visit to facilities at NESAC and the Doppler Weather Radar at Cherrapunjee was also arranged. The valedictory function was held on 20 June, 2019, where Shri James Sangma, Minister of District Council Affairs, Food, Civil Supplies & Consumers Affairs, Home (Passport & Police), Law, Power and Prisons Departments, Govt, of Meghalaya graced the occasion as the Chief Guest.



NESAC conducted two weeks customized course for ONGC officials

NESAC conducted a two weeks customized course for officials from ONGC, Jorhat during 27 May–08

June, 2019 at newly constructed NESAC Outreach Facility. The main objective of the course was to understand Remote Sensing technology and its applications for surface geomorphological study for oil exploration. A total of 10 participants consisting of two superintending Geologists, four senior Geologists, two Geologist, and two Geophysists attended the training at NESAC.



NESAC Conducted two week course on Remote Sensing and GIS - Technological Advances and Applications

The course was organized during 29 April – 10 May, 2019 at NESAC outreach facility. The course was organized in online mode through internet based video conferencing. Lectures were delivered by joint faculty of Indian Institute of Remote Sensing, Dehradun and NESAC. A total of 10 lectures were delivered to almost 250 participants who participated through online mode. NESAC participants received the interactive lectures at NESAC Outreach Facility digital classroom. Examination was conducted online and certificates were issued to all participants on successful completion of examination.



NESAC celebrated 73rd Independence Day

The 73rd Independence Day of the nation was celebrated at NESAC with a colorful program. Shri P. L. N. Raju, Director, NESAC hoisted the tricolor amidst singing of national anthem by the staff of NESAC at 09:00 AM. The CISF unit of NESAC offered a guard of honour to Director, NESAC and performed Independence Day parade.



Director, NESAC addressed the staff of the centre with an informative speech, where he highlighted the significance of Independence Day celebration and briefed about the activities and achievements of NESAC and the Department of Space. A cultural program, interactive games, quiz and other activities were conducted on this occasion at NESAC auditorium.

Inauguration of new guest house at Sohra



A new guest house has been set up at DWR facility at Sohra (Cherrapunjee). The guest house is built in collaboration with IMD using their unused staff quarters. The guest house was inaugurated by Dr K J Ramesh, DG, IMD on 21 June, 2019 in presence of Director, NESAC.

Inauguration of new CISF Quarters at NESAC Residential Complex

New CISF Quarters were inaugurated in presence of Dr. D.P. Sarmah, Director, CEPR, ISRO HQ. on 09 August, 2019. Currently the block consists of 22 quarters including one quarter for Assistant Commandant, CISF Unit.



NESAC conducted free eye camp

One day free eye check up camp was organized by NESAC, in association with Bansara Eye Care Centre, Laitumkhrah, Shillong on 12 July 2019 at Community Hall, NESAC Residential Complex.



The programme was inaugurated by Shri P L N Raju, Director NESAC. NESAC staff and residents of Nongsder & Umiam village got their eyes checked in the eye camp. A team of doctors and staff from Bansara Hospital led by Doctor Wakaru Shullai conducted the camp. A total of 158 people were benefited from the eye camp.

5th International Yoga day celebrated at NESAC

The International Day of Yoga was celebrated at NESAC on 21 June, 2019. As part of the program,

News and Events

common Yoga protocol was performed from 6:30 AM onwards at NESAC community hall. Director NESAC, Shri. P L N Raju on his opening remarks told that the practice of yoga may be done on a daily basis to get its maximum benefits. Dr. Himangshu Barua, Lecturer, North Eastern Institute of Ayurveda and Homeopathy (NEIAH) delivered a lecture on “Role of Yoga and Ayurveda for better health” for the benefit of the NESAC staff and students. The celebration also included quiz completion for NESAC staff and students.



Bomb threat & evacuation mock drill conducted at NESAC

A bomb threat & evacuation mock drill was arranged jointly by CISF Unit & Safety Group of NESAC on 12 June, 2019 at NESAC campus. Teams of bomb detection & defusal squad and Shillong dog squad, Shillong participated in the drill along with CISF Unit, staff of Meghalaya Home Guard posted at NESAC, Staff of NESAC, Local Police & Fire Station at Umiam. A mock bomb threat situation was created and staff of NESAC were given training on dos and don'ts at such situations.'



World Environment Day observed at NESAC

The World Environment Day 2019 was observed at NESAC during 04-06 June, 2019. Tree plantations were done in the residential area of NESAC on 4 June, 2019. As part of the celebration, invited talks were organised at NESAC auditorium for NESAC staff and students. Dr. A Balusamy, Scientist, ICAR RC NEH, Umiam delivered a talk on ‘Beat Air Pollution’ and Smt. H. Lato, DFO (Wildlife), Jaintia Hills Division delivered a talk on ‘Wildlife conservation and its importance’. The talks were followed by mass tree plantation inside the NESAC main campus on 6 June, 2019.



Students Visits at NESAC



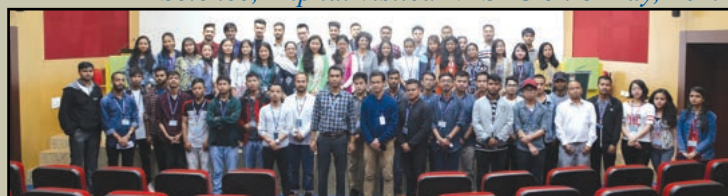
Students from Mangaldai, Assam visited NESAC on 21 May, 2019

53 Students from St. Anthonys College, Shillong visited NESAC on 3 May, 2019

9th and 10th standard students from Sanskriti-The Gurukul, Guwahati visited NESAC on 21 June, 2019.



23 M.Sc. Physics Students from DM College of Science, Imphal visited NESAC on 8 May, 2019



Upcoming Training and Seminar at NESAC



Atal Mission for Rejuvenation and Urban Transformation

FORMULATION OF GIS BASED MASTER PLANS FOR AMRUT CITIES

Capacity Building

Build capacity among town planning, line departments and other concerned personnel at State and local levels to create a cadre of professionals proficient in the use of Remote Sensing and GIS technology for use and updating of databases in urban planning and management.



ISO 9001:2015



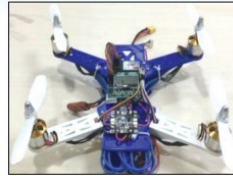
North Eastern Space Applications Centre
Department of Space, Government of India
Umiam, Meghalaya 793103
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Fourth Course on

UAV Remote Sensing

Possible Applications & Future Advances

September 16-27, 2019



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Drone Data Acquisition, Processing and Analysis

Using Open Source Tools

Nov 4-8, 2019



Organised by

North Eastern Space Applications Centre
Department of Space, Government of India,
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A National Symposium on “**Innovations in Geospatial Technology for Sustainable Development with special emphasis on NER**” and Annual Conventions of Indian Society of Geomatics (ISG) and Indian Society of Remote Sensing (ISRS) will be conducted during 20-22 November, 2019 at Shillong, Meghalaya. The seminar will be jointly organized by ISG and ISRS and will be hosted by ISG-Shillong Chapter, ISRS-Shillong Chapter, NESAC and North Eastern Hill University.

The last date for submission of abstract has been extended till 21 September, 2019. The details about the symposium can be found at www.isgns2019.in

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