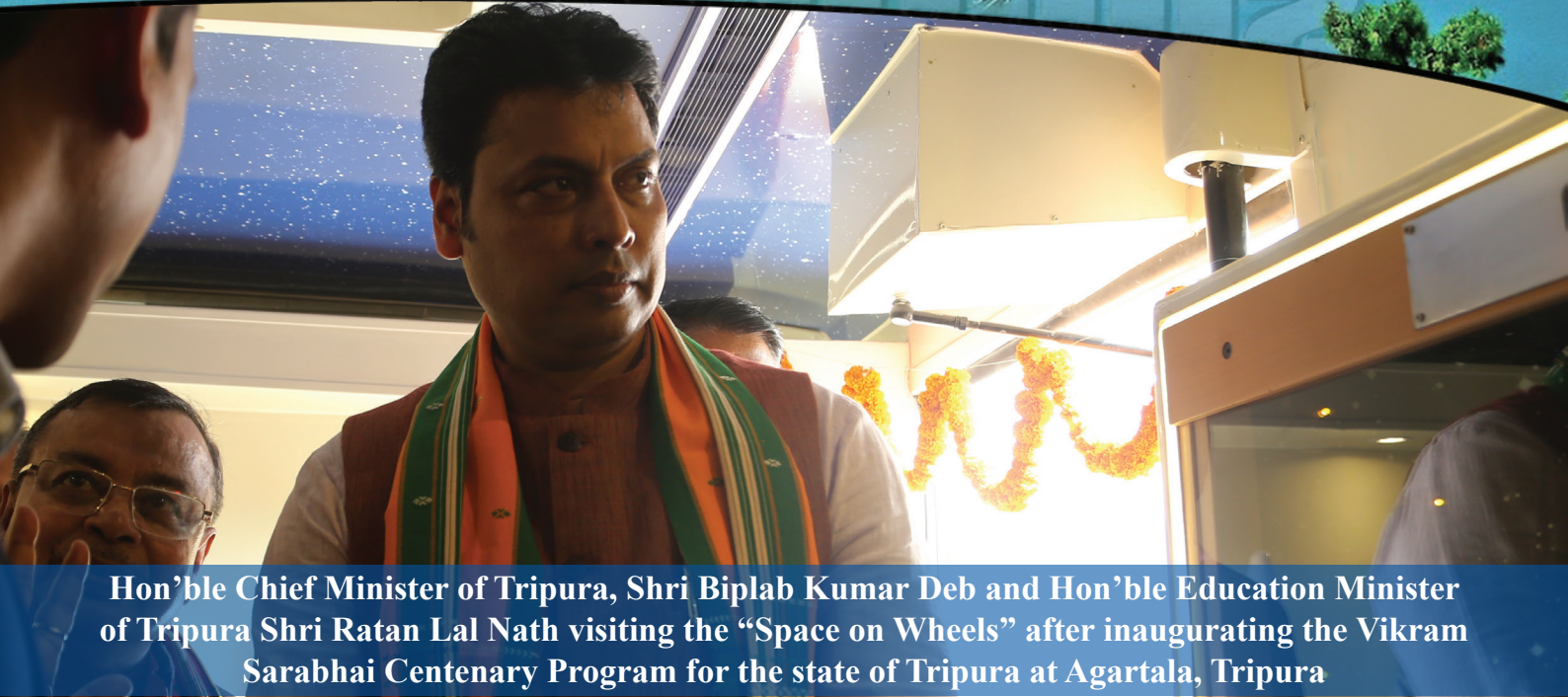


Reflections

TRIENNIAL NEWSLETTER



Hon'ble Chief Minister of Tripura, Shri Biplab Kumar Deb and Hon'ble Education Minister of Tripura Shri Ratan Lal Nath visiting the "Space on Wheels" after inaugurating the Vikram Sarabhai Centenary Program for the state of Tripura at Agartala, Tripura

From the Director's Desk



The world is facing an unprecedented crisis in the form of Corona virus (COVID-19). This pandemic, as declared by World Health Organization (WHO), has engulfed entire world including the NE region of India. This pandemic is making government and people to think and act on an entirely new direction. While the recovery rate of those who fall prey to the Coronavirus is excellent, we have still lost many valuable lives and the number is increasing. Following the Government of India's directives, we have

started our activities although we lost a good number of working days. We have reprioritized our activities and taking extra initiatives to optimize the delays due to the lost working days. I assure our users that we will make our best effort to ensure that there is no delay in delivering the committed services and products.

We are also trying to do our part of contribution to combat COVID-19. Towards this effort, NESAC and Indian Council of Medical Research (ICMR), Dibrugarh, Assam are jointly coordinating with the respective Government Departments of the NE Region to provide necessary support to fight against corona pandemic spread. NESAC has developed a mobile app known as 'FIGHT CORONA' and a dashboard as per the guidelines of ICMR with an aim to combine the community and health worker risk assessment with the response of health system. The Government of Tripura has directed the health workers and volunteers of the state to use the FIGHT CORONA app. The

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Capacity Building on the Space Technology Tools and Applications for the Professionals of BIMSTEC countries

Dr Dibyajyoti Chutia, Dr Jonali Goswami, Shri Nilay Nishant, Ms Ritu Anil Kumar, Shri Ramani K Das and Shri Avinash Shukla

During the Fourth Summit of BIMSTEC held at Nepal capital Kathmandu on 30th and 31st August 2018, honourable Prime Minister of India emphasized the connectivity and greater cooperation and coordination among member states. In accordance to this, the honourable Prime Minister of India declared that the Government of India will provide outreach and capacity building programme to the researchers, students and professors of BIMSTEC countries on Space Technology Tools and Applications at North Eastern Space Applications Centre (NESAC), Shillong. It was recommended to conduct two short term courses of 2-week and two 3-month certificate courses every year for a period of 5 years. Total 12 BIMSTEC persons will be trained in each such course. To begin with, the Ministry of External Affairs (MEA BIMSTEC & SAARC Division) requested onetime two weeks course for the 24 BIMSTEC participants during the period 2019-2020 instead of two times similar courses with 12 participants in each course. Accordingly, NESAC had successfully conducted the first 2-week training on “Capacity Building on the Earth Observation Applications and Research: fundamentals, emerging technological tools and services for the BIMSTEC Countries” during January 06-17, 2020. A total of 24 participations from various User Departments, Science and Technology Ministries, Space Organizations and Academia and Research Institutions of BIMSTEC countries attended the course. The training has been designed to provide an opportunity for the participants to learn various aspects of Space Technology and relevant geospatial applications enhancing their ability and enable them to take up various applications in their respective countries after returning back to their country.

The inaugural program of the 1st 2-week course for BIMSTEC countries course was held on 6th January 2020 at Outreach facility of NESAC. Shri DK Das, Distinguished Scientist, Director, Space Applications Centre, ISRO, Ahmadabad graced the inaugural occasion as a Chief Guest.

Dr R R Navalgund, Former Director, Space Applications Centre, ISRO, Ahmadabad graced the occasion as Guest of Honor. The gathering was welcomed by Shri PLN Raju, Director, NESAC in his welcome speech. Then the participants of BIMSTEC countries were felicitated with Naga shawl. Chief Guest Shri DK Das, Distinguished Scientist, Director, Space Applications Centre, ISRO, Ahmadabad invoked the role of science to improve society from the medieval era and touched upon the several aspects of the Indian space program and its applications. Guest of Honor Dr R R Navalgund, Former Director, Space Applications Centre, ISRO, Ahmadabad who expressed his happiness at the conduction of this program and emphasized the growing importance of remote sensing and space technology in Governance.



Shri P L N Raju, Director, NESAC felicitated Shri D K Das, Chief Guest during the inaugural programme

The course contents comprised of total nine modules, prepared based on the real-world applications with. The total working hours (hrs) for entire two weeks course was 90 where more than 60% of the time was spent for hands-on training in the form of practical, project assignments, field visits and implementation of mini projects etc. The core resource personnel were from NESAC and other experts from premier institutions of India, invited to cover a few topics and to share their experiences. Major focus was given to make the environment more interactive, learning and live by conducting online quiz competitions after the

Capacity Building on the Space Technology Tools and Applications for the Professionals of BIMSTEC countries

theory classes. This made the participants more attentive and motivated throughout the whole training courses.

lake surroundings by referring corresponding hardcopy of remote sensing images was quite interesting and effective for the participants.



Group photo of the participants with the Chief Guest Shri D K Das, Dr R R Navalgund, Guest of honour, Shri PLN Raju, Director, NESAC and Scientists of NESAC

In addition to regular lecture and hands-on series, two field trips were organized for the benefit of the participants in their course programme. The first field trip was carried out for better understanding and interpretation of the remote sensing images. On the other hand second field trip was organized for understanding the working principle of GPS devices towards location based services. The visual interpretation on the land use features of Umiam

The participants were also required to carry out mini project as part of their training course. The projects were distributed across three broad domains: a) natural resources management, b) disaster management support and c) urban and infrastructure planning. The purpose of mini project was to enable the participants to understand the potential of the space technology tools and applications in the implementation of real world problems specific to BIMSTEC countries and also



A theory class in progress (left) and field trip to Umiam lake, Meghalaya for understanding the interpretation of satellite data (right)

Capacity Building on the Space Technology Tools and Applications for the Professionals of BIMSTEC countries

practically put into use that the knowledge they gained through the training program. Total of six important project themes were considered based on the discussion with the participants.

The valedictory program of the course was held on 17 January 2020 at the Conference room of Outreach facility of NESAC. All the Faculty members, Project Mentors of NESAC including other Administrative staff attended the valedictory programme in addition to the BIMSTEC participants. Shri Moses K Chalai, IAS, Secretary, North Eastern Council (NEC) graced the occasion as the Chief Guest. Shri Moses K Chalai spoken on the importance of space technology and the role of India to ensure the benefits of space technology reach all regions of similar physiogeographic, social and economic conditions in the form of BIMSTEC.

institute / country. Several potential domains of collaboration were discussed and identified during the training programme. The training program has enabled international collaboration among BIMSTEC countries with possible collaborations and recommendations as listed in the following:

- The first recommendation is to continue the program for the next four years, as committed by government of India.
- Sharing of expert knowledge
- Enabling the availability of satellite data among BIMSTEC countries
- In addition to two weeks of training, the long duration certificate program of three months



Distribution of certificates to the participants by Shri Moses K Chalai, IAS, Secretary, North Eastern Council (NEC) during valedictory programme

The summary of the feedback from the participants indicates that the course is very much useful as it has enhanced their knowledge in earth observation, geospatial analysis capabilities that will be put into use on their return. The participants are of the view that all the BISMSTEC countries need to collaborate utilising potential of specific

duration will be initiated and conducted in the next four years period.

- The beginning of the BIMSTEC training programs at NESAC has opened new vistas to expand collaboration among the user departments / research institutions.

Mapping and Monitoring of Covid19 outbreak - initiatives of North Space Applications Centre (NESAC)

Dr Dibyajyoti Chutia, Shri Avinash Chouhan, Shri Nilay Nishant and Shri P Subhash Singh

Corona virus disease 2019 (Covid19) is an infectious disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). Covid19 has been one of the worst pandemic that world has faced with 210 countries infected with 3,660,470 Cases with 252,680 deaths as on May 05, 2020. Total number of Covid19 confirmed cases in India has reached 46,433 with 32,138 active cases and country's Covid19 death toll neared 1,568 (<https://www.mygov.in/covid-19>) as on date. The tally of those cured, discharged from hospital stands at 12,726. Government of India is taking all necessary steps to ensure that we are prepared well to face the challenge and threat posed by the growing pandemic of Covid19 the Corona Virus. The Ministry of Electronics and IT launched a mobile app AarogyaSetu which helps people in identifying the risk of getting affected by the Corona Virus. Respective State Governments of the country started using a number of apps developed by different organizations and vendors to track the spreads of Covid19. NESAC and Indian Council of Medical Research (ICMR), Dibrugarh, Assam are jointly coordinating with the respective Government Departments of the NE Region to provide necessary support to fight against corona pandemic spread.

FIGHT CORONA app: NESAC has developed a mobile app known as 'FIGHT CORONA' as per the guidelines of ICMR with an aim to combine the community and health worker risk assessment with the response of health system. The Government of Tripura has directed the health workers and volunteers of the state to use the FIGHT CORONA app. The app is further customized for the state of Assam with new sets of parameters. This app can help in combining the community and health worker risk assessment with the response from health system in the following manner:

a) Provides assistance on sample testing: Based on the questionnaire integrated in the app, it can be well decided whether one qualifies for Covid19 testing or not according to the latest

guideline. If the sample collection is needed, then advice would include contact of the nearest sample collection centre.

b) Assessment done by Health providers and workers: In addition to self-assessment of risk by the community, this app allows the community health workers, health providers, Airport /station authorities for themselves and the suspect cases in the hospital and during community surveillance. The app provides an additional option of instantaneously communicating the cases which qualify for sample testing as per ICMR and state guidelines via SMS to the health personnel responsible for sample collection.

The FIGHT CORONA app was developed using ionic platform which is a platform for development of progressive web applications. Currently supports android platform only. Any android phone with OS 4.4 or higher may be used. ICMR is coordinating with other State Government Departments of India for utilization of FIGHT CORONA app. The layout of FIGHT CORONA app is shown in the Figure-1.



Figure-1: User interface of FIGHT CORONA app

Covid19 Dashboard: NESAC has developed a covid19 dashboard and hosted at <https://covid19.nesdr.gov.in> (Figure-2) to provide the state-wise statistics on the spreads of Covid19 in real-time basis. This is equipped with various analytical and charting tools based on the data received from Covid19 tracker and MOHFW. The landing page features of covid19 dashboard (semi

Mapping and Monitoring of Covid19 outbreak - initiatives of North Space Applications Centre (NESAC)

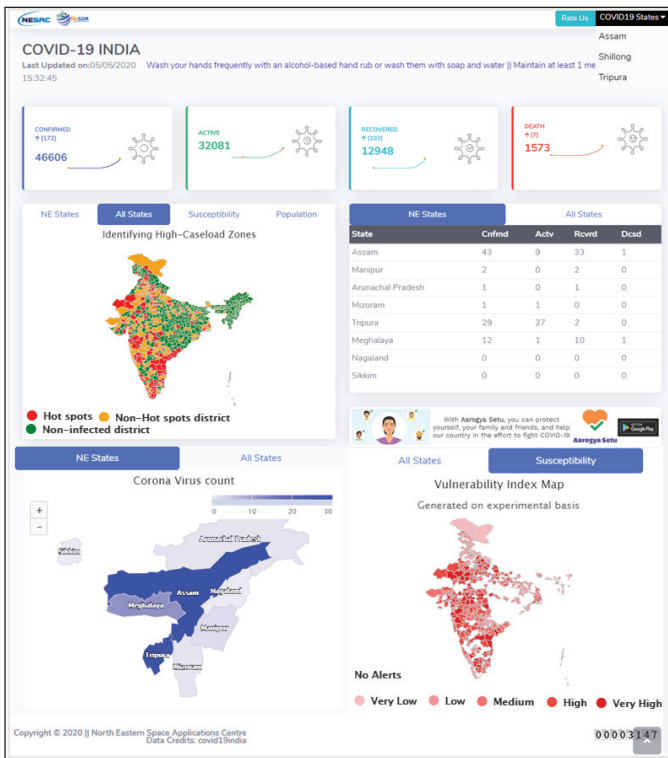


Figure-2: Landing page of Covid19 developed by NESAC

automated live data streaming) are given below:-

- Total updates on confirmed, active, recovered and death cases
- Daily state-wise updates on confirmed, active, recovered and death cases
- GIS maps identifying high-case load zones of NE states and all states showcasing - Hotspots, non-hotspots and non-infected districts
- Susceptibility map of India highlighting - No alerts, very low, low, medium, high and very high districts
- Daily statistical charts on sample tested, gender and age wise infected ration
- Link to Assam, Meghalaya and Tripura dashboard

Web applications for Assam, Shillong (Meghalaya) and Tripura: Three web applications have been specifically designed and integrated on the top of the main covid19 dashboard to support decision making activity using geospatial tools and services. The dashboard designed for Assam can provide the details of schools in spatial domain which may be suitable for quarantine camp in worst case scenario. On the other

hand, the Meghalaya dashboard application receives live data from the tracking mobile app developed by IIT Bombay and provides the visualization in GeoXplorer with GIS functionalities, on the request of Meghalaya Government. The large scale geospatial database prepared under AMRUT project for Shillong

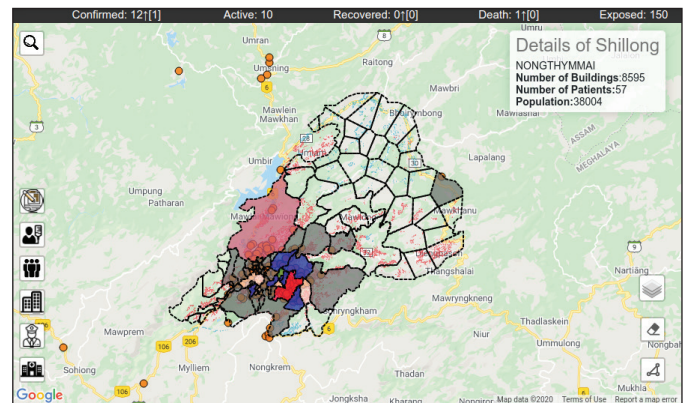


Figure-3: GeoXplorer of Shillong dashboard application

municipality is being used for household identification of suspected corona affected people. The dashboard of Tripura provides the live visualization of geotagged locations of suspected patients captured during the survey by the Health workers using FIGHT CORONA app. The layout of the GeoXplorer of Shillong dashboard application is depicted in the Figure-3.

It is equipped with the following features:

- Visualize facilities for possible expansion of quarantine centers along with details attributes
- Multi dimensional queries on the attributes of facilities.
- Visualize statistics based on custom polygon on the fly.
- Live tacking of quarantine patients in real-time in a web based platform.
- Identification of hotspot zones based on the number of patients and population distribution.
- Village level mapping of quarantine patients.

Vulnerability index on Covid19: In addition, vulnerability index based on the modified version of SIER model is evaluated on experimental basis to highlight the vulnerable districts considering different model parameters as inputs. It uses actual

Mapping and Monitoring of Covid19 outbreak - initiatives of North Space Applications Centre (NESAC)

collected statistics and applies the mathematics for finding parameters for the specific disease such as Covid19. It is implemented using the concept of compartmental approach where population is divided into compartments with each individual in the same compartment will possess same characteristics. The individuals in the population are assigned to different

compartments or subgroups in the compartment, each representing a specific stage of the pandemic. It not only will predict how the infectious disease spread but also allows for different interventions such as lockdown or social distancing will affect the spread of the disease over the population and therefore effective in well informed decision making.

Continued from page 1.....

app is further customized for the state of Assam with new sets of parameters. This app can help in combining the community and health worker risk assessment with the response from health system.

The nationwide lockdown reduced the emission of anthropogenic pollutants and gave an opportunity to study the impact of reduced human activity on atmospheric pollution. We have conducted a study based on instrument and satellite data and found that while most part of India saw a drastic reduction in spatial distribution of aerosols and other green house gases including over most part of Northern India and even Eastern India, the total aerosol over the North East India almost remained unchanged with little increase over parts of Manipur, Mizoram and Meghalaya. This gives a good indication that the aerosol seen over the NE region could be of local origin and that the aerosols over NE region most probably are from natural sources. The green house gases though, has shown similar to national level tendencies with reduced concentration over most part of NE.

Vikram Sarabhai Centenary Program (VSCP) celebration activities picked up during the initial months of the year and we had plans ready for conducting this program in almost all states. During January to March, 2020, we conducted VSCP in Tripura, Sikkim, and Meghalaya. The program in all states saw very large participation of enthusiastic children starting from KG level to Engineering students. The specially designed "Space on Wheels" and Space Exhibition was displayed in a big way. We conducted lectures by eminent space scientists from India, conducted several competitions on drawing, debate, extempore speech, quiz, etc. and popularized the Space Science and Engineering among the young generations of our country. We have plans ready for conducting the VSCP in other states of NE region, once the Covid induced lockdown is relaxed and schools are open.

The pre-monsoon season also brings lot of challenges in terms of providing the space based disaster management support. NESAC has been providing lightning and severe storm warning for all states in the NE region and this year also, despite all odds, we have been providing the services like other years. We have established a new network of lightning detectors with support from National Remote Sensing Centre, Hyderabad and soon expect to assimilate this data in numerical model for more effective lightning early warning system. The forest fire warnings were also continued and alerts were disseminated to the concerned. Like other years, we have completed the ground works for the flood forecasting under the Flood Early Warning System (FLEWS) project which has already been extended to most part of NE region. The network of 17 new Automatic Weather Stations (AWS) and four River Gauges in the Ranganadi Hydro Electric Project area in Arunachal Pradesh with funding support from NEEPCO (North Eastern Electric Power Corporation Limited) has been functioning well. We have almost finalized a dashboard that will have real time display of data from this network to facilitate dam operation and decision related to downstream flood scenario.

The training activities at NESAC had to be stopped following the government directives and several training program was cancelled. However, we are exploring all options using the digital platform and expect to come up with a new mode of training soon. NESAC remains ever committed to capacity building initiatives and we look forward to come stronger from this situation. The national conference of Indian Meteorological Society "Tropmet-2020" also has been planned at NESAC and we are looking all options to successfully host this conference.

We understood the trouble faced by the daily wage earners due to the nationwide lockdown. The NESAC family arranged and distributed food to the needy families in and around Umiam. All regular and even the contractual employees' whole heartedly contributed for this noble cause and we helped more than 200 families during the lockdown period.

I wish good health and safety for all our readers in this troubled time.

Vikram Sarabhai Centenary Program conducted at Agartala, Tripura

Dr Shyam S Kundu, Dr Bijoy K Handique

To commemorate the 100th birth day of Vikram Sarabhai, Indian Space Research Organisation (ISRO) and Department of Atomic Energy (DAE) planned to conduct various programmes at national level during

eastern region (NER) of India. The first such program in NER of India was organized at Maharani Tulsibati Girls Higher Secondary School at Agartala, Tripura during 2-4 January, 2020. The program was conducted



Hon'ble Chief Minister of Tripura inaugurating the program

the centenary year. The inaugural function of this year long programme was held on 12th August 2019 at Gujarat University Convention Centre, Ahmadabad. As part of this nationwide Vikram Sarabhai Centenary Program organized by ISRO, NESAC planned to conduct state level program covering all states in north

in collaboration with State Council of Educational Research and Training (SCERT) of Government of Tripura and coincided with the Annual state level fair on Science, Mathematics, and Environment conducted by the Government of Tripura. NESAC set up large exhibition stall with complete set of material received



Prof V Adimurthy delivering his talk during the program



Director, NESAC delivering his talk during the valedictory program

Vikram Sarabhai Centenary Program conducted at Agartala, Tripura



Students in queue to visit the Space on Wheels

for this program that reflected Indian Space program, displayed the space on wheels, arranged different competitions like painting, quiz, extempore speech, essay writing, etc in addition to special lectures by eminent space scientists.

The program was inaugurated by Hon'ble Chief Minister of Tripura, Shri Biplab Kumar Deb in presence of Hon'ble Education Minister of Tripura Shri Ratan Lal Nath. Hon'ble Chief Minister visited the space on wheels and took keen interest on the displays. Two lectures were organized during the program. The first lecture was by Padmashree Dr V Adimurthy, ISRO Honorary Distinguished Professor on "Indian Space Program with focus on Planetary Missions, Exploration, and Science and the second lecture was on "Benefits of Space Technology with special emphasis on Societal

Development", which was delivered by Shri P L N Raju, Director, NESAC. More than 2000 students visited the Space on wheels and exhibition area every day. The students enthusiastically participated in different competitions and interacted with scientists. Different posters, stickers, T-shirts, caps, pens, etc. specially designed for the centenary celebration program were gifted to the students. The students were also shown by flying the Unmanned Aerial Vehicles, different Science activities, video shows, etc. The program was concluded on 4 January, 2020 where Hon'ble Minister of Forest and Tribal Welfare of Tripura, Shri Mevar K. Jamatia was the Chief Guest. During the valedictory program, students were given prizes and certificates for their exceptional performance in different competitions.



Painting competition in progress



Demonstration of Space Technology to students by NESAC Scientist

Vikram Sarabhai Centenary Program conducted at Majitar, Sikkim

Dr Vikram Sarabhai Centenary Program was conducted in Sikkim with 3 days program during 04th – 06 March, 2020 in collaboration with Sikkim Manipal Institute of Technology (SMIT) at their campus at Majitar, Rangpo, Sikkim. The program



Vikram Sarabhai Memorial Lecture by Dr. Jayaraman, Former Director, NRSC, ISRO at SMIT

was inaugurated on 4th March by Dr (Prof) Ashis Sharma, Director, SMIT and Dr V Jayaraman, Former Director, NRSC had given the invited talk on “Life of Dr. Vikram Sarabhai and Applications of Space Technology for Society”. The inauguration program was attended by faculty & students of SMIT and teachers and students of various secondary schools, ITI etc. across Sikkim. Dr(Prof) Utpal Deka, HOD, Dept. of Physics, SMIT had coordinated the program from SMIT end.

Shri Ramani K Das, Dr Bijoy K Handique

As part of the program, exhibition stall was set up in ground and also the exhibition bus i.e. “Space on



Students gathered for the ‘Space On Wheels Exhibition Bus’ at SMIT

Wheels” were demonstrated among students, teacher, faculty, parents and all interested people. More than 1000 people had witnessed the exhibitions. Various educational aids & awareness materials on space science education were distributed among students. Several competitions like painting, essay writing, extempore speech, quiz etc. were conducted among different levels of school’s students and very good participation was observed. Prizes were distributed to winners in a concluding ceremony conducted on 06th March, 2020.



Students at the VSCP Exhibition at SMIT

Vikram Sarabhai Centenary Program conducted at Umiam, Meghalaya

Dr Jenita M Nongkynrih, Dr Bijoy K Handique

A two-day program on Vikram Sarabhai Centenary Program was conducted for the students of Meghalaya at NESAC Outreach Facility during 25 – 26 February 2020. More than 500 students attended the program.

of Science, Technology & Environment (SCSTE), Meghalaya. On the first day, various competitions like drawing, extempore speech, painting and quiz were arranged, both for the junior and senior groups. The



Vikram Sarabhai Memorial Lecture by Shri K. C. Bhattacharyya, Former Director, NESAC at NESAC Outreach Facility

Twelve schools were selected and participated in the program. The inauguration program took off with the welcome speech by Shri P. L. N. Raju, Director NESAC and the inaugural speech was delivered by Shri A. S. Suting, Officer on Special Duty, State Council



Students participating in various Space Club Activities



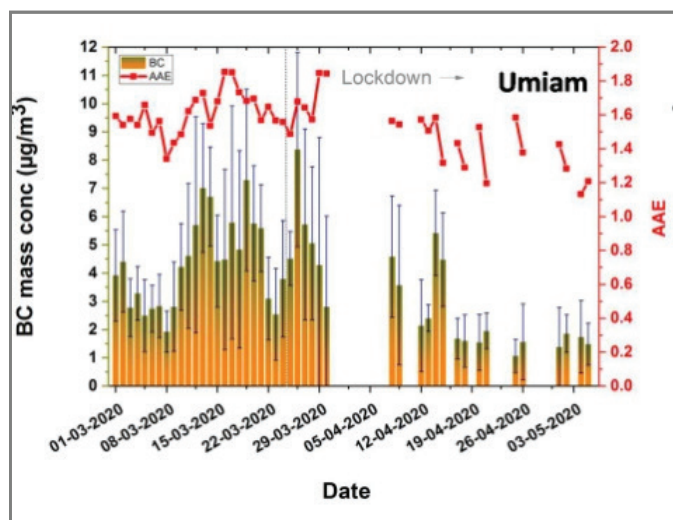
Students gathered for the 'Space On Wheels Exhibition Bus' at NESAC Outreach Facility

Vikram Sarabhai Memorial Lecture was delivered by Shri. K. C. Bhattacharyya, Former Director, NESAC at NESAC Outreach Facility. The program ended with good feedback from the students, who liked the illustrative interaction with the space models in the Space on Wheel.

Monitoring of air quality over North East India during COVID lockdown

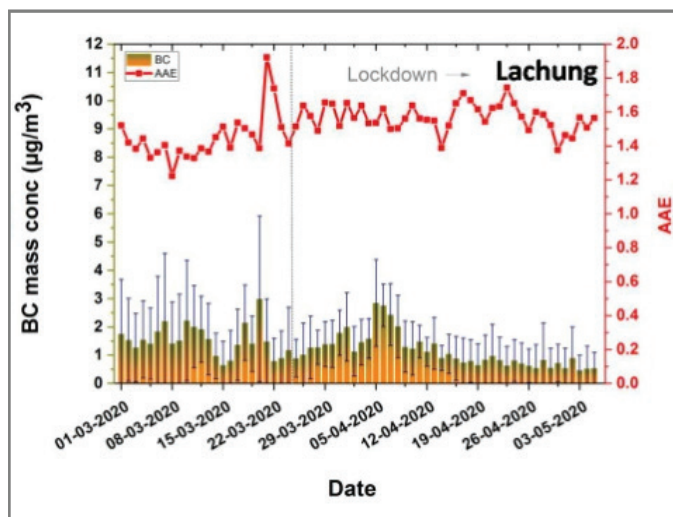
Ms Arundhati Kundu, Ms Manasi Gogoi, Dr Shyam S Kundu

The government of India declared a nationwide lockdown starting from 25 March 2020 stopping the movement of the public, all transport system, industries, etc. to combat the impact of COVID-19 in India. This lockdown continued in multiple phases with varied restrictions. As all the human generated emissions



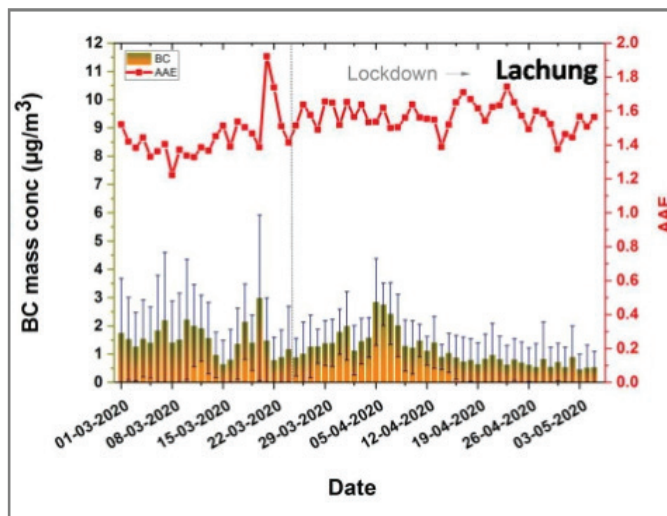
BC concentration over Umiam

were either completely off or reduced in different phases, this lockdown period gave us a wonderful opportunity to understand the effect of those emissions to the environment. So, NESAC indulged to study how



BC concentration over Lachung

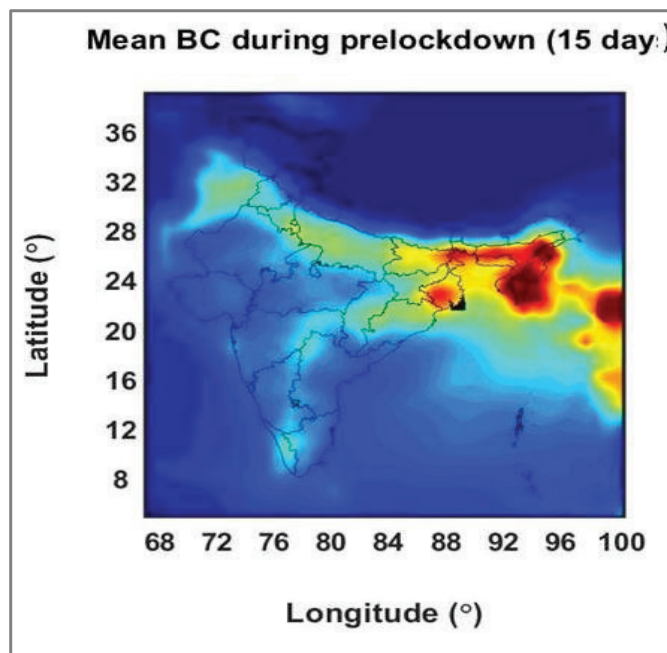
lockdown can impact the air quality over north eastern region of India. Both instrumental and satellite data were used for the purpose of investigation. An Aethalometer which gives us the concentration of Black Carbon (soot particle) was operational over Umiam (25.65° N, 91.88°



Aerosol over Umiam

E, 1040 m ASL, Shillong, Meghalaya) and Lachung (27.41° N, 88.42° E; 2650 m ASL, Sikkim) throughout the period. Along with that, a Sunphotometer was used to get the idea on columnar aerosol loading.

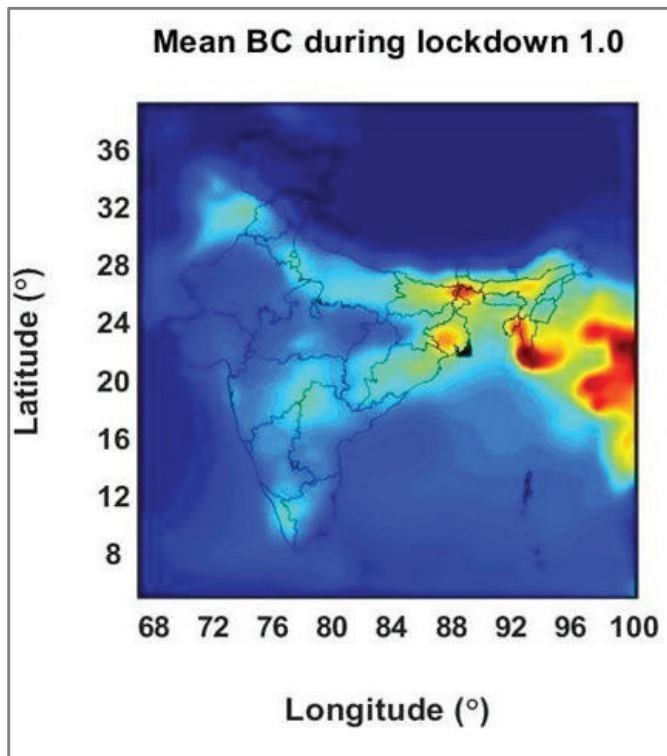
It was observed that Black carbon reduced over Umiam but increased initially over Lachung. As Umiam is an



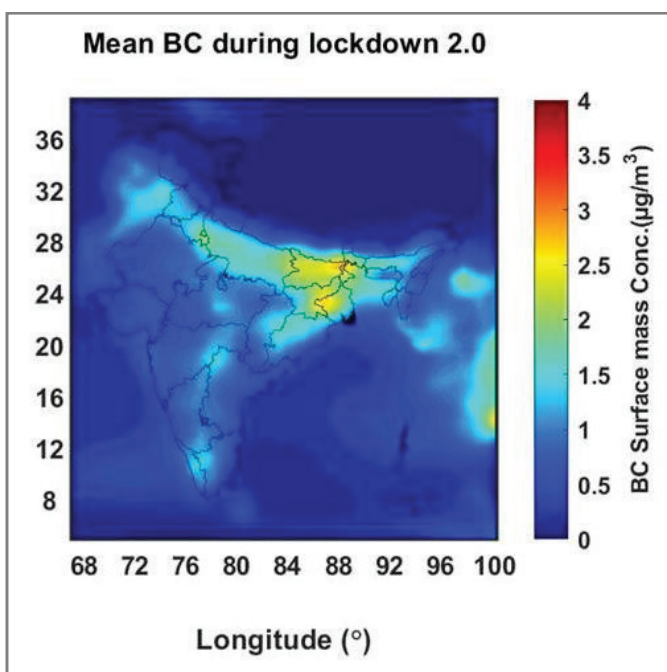
industrial area and very close to a national highway, anthropogenic activity is the dominant pollution source here. So, Lockdown helped in improving the air quality over this place. The same did not happen over Lachung as it is a remote area with large presence of Indian defense installations. This causes large movement of

Monitoring of air quality over North East India during COVID lockdown

diesel burnt trucks. Despite the lockdown, movement of defense personnel was there which contributed a significant part of the BC loading over Lachung.

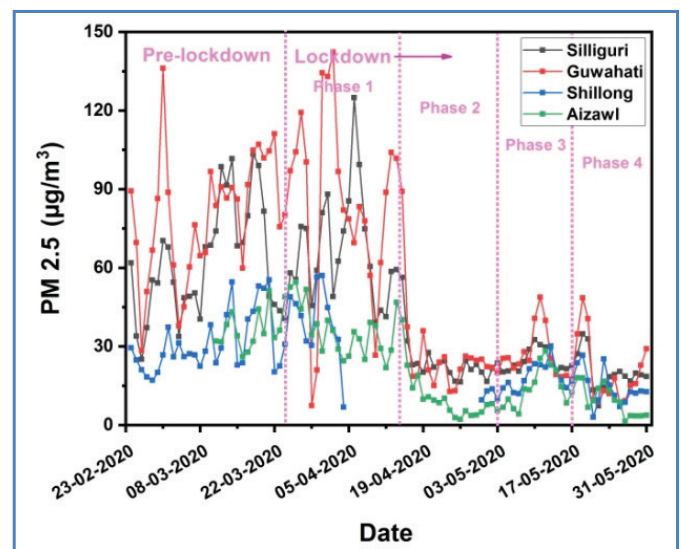


Satellite imageries also showed that concentration of BC surface mass reduced gradually with the progress of lockdown, although the drop is lesser as compared to



the rest of the India. A distinct reduction of more than $3 \mu\text{g}/\text{m}^3$ was seen over some parts of it.

In contrast to BC, the Aerosol Optical Depth (AOD) measured over Umiam did not reduce in the first lockdown period. A drop can only be seen from the Lockdown 2.0. It could be due the fact that all the aerosols which originated during the pre-lockdown period from North Western part of India, especially the Indo Gangetic Plain, reached North East India during the first Lockdown period. This burdened the aerosol load of the atmosphere over North East. The same can be seen from satellite imageries also where Indo-Gangetic plain is showing huge drop. A highest decrease of nearly 40% was observed over the hilly regions of NEI. Along with the pollution transport, the contribution from fire events of Jhum cultivation which occurs every year during pre-monsoon season can not be ignored.



The pollution level over major cities in NE India was also examined by using the data from Central Pollution Control Board (CPCB) operated stations. The PM_{2.5} concentration from four stations, viz, Siliguri, Guwahati, Shillong, and Aizawl has been examined. A marked reduction in particulate matter was observed from the surface measurements of the CPCB stations. Overall, the study indicates that the air quality at the surface over NEI improved but the same was not happened high in the sky where aerosols were still present due to long range transport of pollutants.

Observance of Swachhta Pakhwada 2020 at NESAC



स्वच्छ भारत पखवाड़ा का अनुपालन
OBSERVANCE OF SWACHHTA PAKHWADA 2020

विषय: 'डायऑक्सीन से ऑक्सीजन'
Theme: 'Dioxin to Oxygen'

दिनांक: 01.02.2020 से 15.02.2020
Date: 01.02.2020 to 15.02.2020

उत्तर पूर्वी अंतरिक्ष उपयोग केंद्र
North Eastern Space Applications Centre
भारत सरकार/Government of India
अंतरिक्ष विभाग/Department of Space
उमियम/Umiyam-793103, मेघालय/Meghalaya

'एक कदम स्वच्छता की ओर/ Ek Kadam Swachhata Ki Ore'

NESAC observed the Swachhta Pakhwada 2020 during 01 – 15 February, 2020. Several activities were taken up to commemorate the event. NESAC staff took up cleaning activities in NESAC office campus, Outreach facility, NESAC residential campus. NESAC staff also took up cleaning drive in the nearby areas, particularly the Nongsder village, Umiyam market. An awareness campaign was also conducted for the nearby areas to make people aware about the importance of cleanliness and hygiene. A popular lecture on the theme of the Pakhwara, “Dioxin to Oxygen” was also organized at NESAC Auditorium for the NESAC staff.

NESAC Celebrates 71st Republic Day of the Nation



71st Republic Day of the nation was celebrated at NESAC on 26th January 2020 with a colorful program. 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 honor to Director, NESAC and performed Republic Day parade. Director, NESAC addressed the staff of the Centre with an informative speech, where he highlighted the significance of Republic Day celebration and briefed about the activities and achievements of NESAC vis-a-vis the Department of Space. This was followed by distribution of sweets and snacks to the gathering by NESAC Canteen.

TROPMET 2020



Virtual Symposium on



Weather and Climate Services over Mountainous Regions

14 - 17 December 2020

Organized by
Indian Meteorological Society, New Delhi

Hosted by
North Eastern Space Applications Centre (NESAC)
Dept of Space, Govt. of India, Umiam, Shillong, Meghalaya

and
Indian Meteorological Society – Shillong Chapter
Shillong, Meghalaya

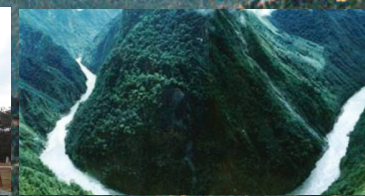
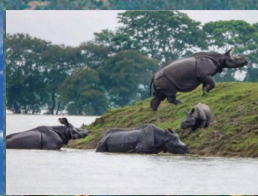
Theme for the virtual Symposium

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|---|--|
| T - 1: Dynamics and Physics of orographic clouds and precipitation | T - 10: Impact of Climate Variability/Change on Agriculture |
| T - 2: Lightning Physics and Forecasting | T - 11: Hydro-meteorological disasters and management |
| T - 3: Numerical weather prediction, data assimilation, and forecasting | T - 12: Artificial Intelligence, ML & Deep learning in weather & climate research and services |
| T - 4: Monsoon prediction and dynamics | T - 13: Remote Sensing of Atmosphere, geophysical parameter retrieval, calibration, and validation |
| T - 5: Boundary layers and turbulence | T - 14: Aerosol -cloud-precipitation interactions |
| T - 6: The Mountain Cryosphere (snowpack, glaciers, avalanches, etc.) | T - 15: Weather and Climate for human health |
| T - 7: Climate change and climate variability | T - 16: Indigenous instrumentation for atmospheric profiling (Radars, Sodars, Lidars, AWS) |
| T - 8: Land -Ocean -Atmosphere Interactive Processes | T - 17: Severe weather and complex terrains |
| T - 9: Weather and climate services for farmers | |

Last date for abstract submission: 30 October, 2020

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NESAC Training Calendar for 2020-2021

SN	Title of the course	Duration and date
1.	Short course on RS & GIS applications in Disaster Management (NDMA sponsored)	2 Days (18 - 19 August, 2020)
2.	Basic course in Remote Sensing and Geographic Information System	2 Weeks (14 - 25 September, 2020)
3.	Basic Training Course on Satellite Meteorology and its Applications in Numerical Weather Prediction	1 Week (5 - 9 October, 2020)
4.	Applications of Remote Sensing & GIS in Agriculture and allied areas during	1 Week (2 - 6 November, 2020)
5.	UAV Remote Sensing Applications & Technological Advances during	2 Weeks (23 November - 4 December, 2020)
6.	Basics of Satellite Communication and Satellite Navigation : Technology & Applications during	2 Weeks (7 November - 18 December, 2020)
7.	basic course on Applications of Remote sensing & GIS in Water Resources during	1 Week (16 - 20 November, 2020)
8.	Drone Data Processing Using Open Source Tool during	1 Week (18 - 22 January, 2021)
9.	Disaster Management using UAV (Drones)	1 Week (4 - 8 January, 2021).
10.	Remote Sensing & GIS applications in forestry and ecology during	1 Week (1 -5 February, 2021)
11.	Applications of Remote sensing & Geographical Information System in Geoscience	1 Week (8 - 12 February, 2021)

Editorial Board

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Web: www.nesac.gov.in

Designed and Printed at

Eastern Panorama Offset, Keating Road Shillong - 793001

