

# Reflections

Quarterly In-house Newsletter

Space Economy Leaders Meeting (SELM) Precursor Event  
17 - 18 April 2023, Shillong, Meghalaya

4<sup>th</sup> Edition of  
Space Economy Leaders Meeting (SELM)  
Precursor Event

17 - 18 April 2023, Shillong, Meghalaya

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ONE EARTH • ONE FAMILY • ONE FUTURE



Hon'ble Chief Minister of Meghalaya, Hon'ble Union MoS Finance and other delegates during the inaugural program of the 4<sup>th</sup> Space Economy Leaders Meeting - Precursor event conducted at Shillong, Meghalaya

## From the Director's desk



I am extremely thankful to ISRO, Department of Space for giving us the opportunity to support and actively participate in the precursor event of the 4<sup>th</sup> Space Economy Leaders Meeting (SELM) held during 16-17 April, 2023 at Shillong with the theme “Towards a New Space ERA (Economy, Responsibility, Alliance)”. The event is the first of its kind supported by NESAC with participation of permanent members of the G20 and invited countries. The event had multiple stakeholders including the state government of Meghalaya, the Department of Space, G20 Secretariat, and Ministry of external affairs of Government of India. We provided all local support and coordinated with all stakeholders

*Continued to page 7*

## Inside this issue

A brief report on the 4<sup>th</sup> SELM Precursor Meeting **2**

**8** Training programs organized by NESAC

Recognition of Fever Tracker app from NESAC **6**

**10** News and Events



# A brief report on the 4<sup>th</sup> SELM Precursor Meeting

*Shyam S Kundu*

The precursor event for the 4<sup>th</sup> edition of the Space Economy Leaders Meeting (SELM) was held during April 17-18, 2023 at Shillong, Meghalaya under India's G20 Presidency. The main event of the SELM is scheduled to be organized at Bengaluru during July 6-7, 2023. The event was co-hosted by Department of Space (DOS)/ISRO, Government of Meghalaya, and Ministry of External Affairs, Govt. of India. The North Eastern Space Applications Centre (NESAC), on behalf of the DOS did the local coordination to successfully host the event. Director, NESAC was the Chairman of the local organizing committee, which coordinated with the Planning committee and Mentor committee from ISRO HQ,



*Chairman, ISRO felicitating Hon'ble CM of Meghalaya, Shri Conrad K Sangma*



*Chairman, ISRO welcoming the delegates and delivering the inaugural address*

G20 Secretariat at New Delhi, as well as with the Government of Meghalaya to plan the event. The event gave a great learning opportunity to NESAC officials. The program was attended by the H.E. Ambassadors/ High Commissioners and senior diplomats of G20 Countries and invited Countries and eminent think tanks. Senior officials from DOS/ISRO, Govt. of Meghalaya, Ministry of External Affairs, Indian National Space Promotion and Authorisation Centre (IN-SPACE), NewSpace India Limited (NSIL), etc also attended the program. Govt. of Meghalaya

The inaugural ceremony of the event was scheduled during the 10:00 – 11:15 Hours on 6<sup>th</sup> April, 2023.



*Hon'ble Union MoS, Dept of Space, Shri Jitendra Singh Ji addressed the meeting remotely*



## A brief report on the 4<sup>th</sup> SELM Precursor Meeting



*The 4<sup>th</sup> SELM meeting is under way at Shillong*

the 2020 space sector reforms is overwhelming. He urged for new technologies and new applications toward increased contribution to the Indian economy and world harmony. Mr. Pankaj Chaudhary, Hon'ble MoS, Ministry of Finance, affirmed that the New Space fuels the economy and remarked that the opportunities for responsible Space activities should not be left unexplored. G20 India Sherpa Mr. Amitabh Kant, appreciating the role of Space

technology in the well-being of humankind, called for the critical role to be played toward sustainable and socioeconomic development. Mr. Somanath S, Secretary, DoS/ Chairman, ISRO welcomed all delegates and outlined the layout and expectations of the precursor meeting. Dr. Pawan Kumar Goenka, Chairman, IN-SPACE briefed the opportunities post 2020 Space sector reforms in India.



*Director, NESAC presenting a memento to a delegate*

There were three technical sessions. In a round table meeting, G20 countries presented their perspectives on the Space Economy. The present state of the space economy in the respective countries, efforts by the respective governments to promote the space economy including the New Space, and the challenges faced were presented. Secretary, DOS chaired the session and presented the Indian perspective. The awareness-building session on 'Space Economy: Policy perspectives' was chaired by Chairman, IN-SPACE where he presented on "Evolving Indian space policy framework and future outlook". The delegates made engaging technical presentations and actively discussed the status, trends, and future of the Space economy. In the concluding session explaining the 4<sup>th</sup> SELM at

## A brief report on the 4<sup>th</sup> SELM Precursor Meeting

Bengaluru, the delegates were briefed on the importance of the event, and the selection of the venue, and were urged to ensure the participation of a delegation from the respective countries.



*Delegates attending the meeting*

An exhibition was also organized as part of the event. ISRO and other leading Indian Space Industries showcased their products and Services. The government of Meghalaya presented a glimpse of its rich heritage. A cultural program to showcase the rich cultural heritage of Meghalaya and the North East India was organized at the end of the first day, which was followed by Gala dinner. On the second day, the delegates visited various locations in Meghalaya including parts of Shillong and a visit to Sohra (erstwhile Cherrapunjee).

The precursor event successfully enhanced the awareness of the contribution of space to the global economy and created momentum for the SELM at Bengaluru. The event is hoped to help the further proliferation of space technology applications in this region and enhance the engagements by space industries and start-ups.

The 4<sup>th</sup> edition of Space Economy Leaders Meet in Bengaluru is planned during July 6-7, 2023. Under India's G20 Presidency, India's national Space agency, the Indian Space Research Organisation (ISRO) of the Department of Space (DOS) is organizing the SELM. The theme of the 4<sup>th</sup> edition of SELM is "SELM: towards a new space ERA (Economy, Responsibility, Alliance)", in line with India's G20 Summit's theme of 'One Earth, One



*The rich and colorful traditional culture of Meghalaya and NE India was performed during the meeting*



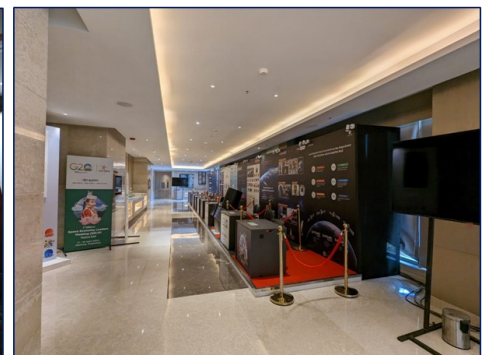
*Chairman, INSPACE sharing his views*

Space and One Future' and the demand for an alliance of responsible space fairing nations for an enhanced contribution of Space economy in the global economy. The Heads of National Space Agencies and leaders of space industries of G20 and Guest nations are expected to participate in the SELM.

[Acknowledgement: [https://www.isro.gov.in/g20selm/Precursor\\_Event.html](https://www.isro.gov.in/g20selm/Precursor_Event.html)]



# Glimpses of the 4<sup>th</sup> SELM Precursor Meeting





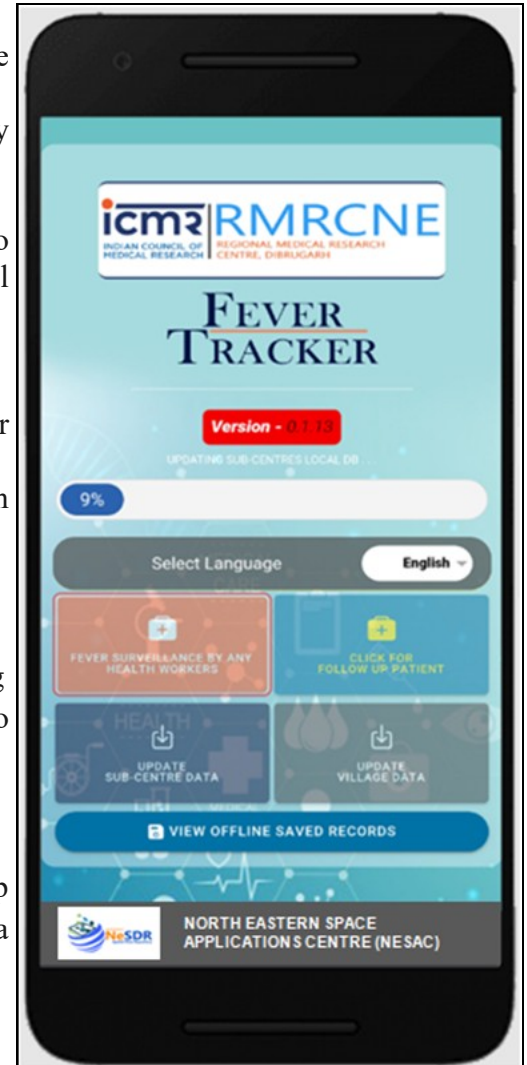
*Dibyajyoti Chutia, Puyam S Singh, Nilay Nishant*

The Fever Tracker app for Health Workers has been awarded for **Best Innovation in the category 'Technology & Innovation: Transforming Healthcare'** during the **ICMR Intramural Research and Innovation Meet 2023**

An integrated surveillance graphical app called 'Fever Tracker app' was developed by North Eastern Space Applications Centre (NESAC) in collaboration with Regional Medical Research Centre (RMRC) for NE region, Dibrugarh to assist the community and the healthcare workers in digital surveillance and thereby contribute towards malaria control and elimination. Utilizing a geographic information system connected to a web app, this innovative tool automates data digitization, SMS text messaging, and provides advisory instructions. It enables immediate real-time notifications of individual malaria cases to district and state health authorities. The adoption of Fever Tracker app is crucial as it replaces the outdated paper-based surveillance methods currently in use. Fever Tracker app has been successfully utilized in various districts of Tripura for surveillance of malaria patients. Additionally, the Fever Tracker app is augmented with a mosquito tracker feature, enabling the tracking of mosquito species distribution. This

feature enhances the surveillance system by providing valuable insights into the spatial distribution of mosquitoes and their potential impact on malaria transmission.

By incorporating the mosquito tracker application, Fever Tracker app becomes a



*The home page of the Fever Tracker App*



*The certificate provided to the Fever Tracker App*

comprehensive tool for disease surveillance and control, empowering health authorities to make informed decisions and implement targeted interventions to mitigate the spread of malaria. The software application has got copyright (SW-15293/2022) in the year 2022 in the category Computer Software. The patent for the application has also been filed jointly with RMRC - NE.

*Continued from page 1*

and ensured that there is synergy in planning, monitoring, and execution of the plan for successful hosting of the event.

We have put on our best effort to make the event seamless and give a long lasting experience to the delegates, particularly for the foreign delegates. The event had technical program as well as excursion visits to Sohra (Cherrapunjee) and parts of Shillong in addition to cultural nights and gala dinner. It needed special planning as it involved execution of the vision of the Hon'ble Prime Minister of India and the prestige of our country as well as that of ISRO. Team NESAC worked shoulder to shoulder with all other stakeholders to demonstrate excellent teamwork. I congratulate and complement Team NESAC for this spectacular show and also thank ISRO and Government of India for giving us the opportunity.

Shri S Somanath Chairman, ISRO made his maiden visit to NESAC and reviewed NESAC activities. He also addressed the NESAC officials and shared his vision about NESAC. His appreciation for the innovative space application projects taken up by NESAC to address the perennial issues of NE region of India, will encourage NESAC scientists to take up more challenging assignments. I express my sincere gratitude for his visit as well as for all the support that he has been providing us from time to time.

The pre-monsoon and monsoon season brings a 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 we have been providing value added services on location based lightning early warning by assimilating the ground based lightning data in numerical models. Our efforts have been to enhance the lead time of

forecast without compromising the accuracy of the forecast. The forest fire warnings were also continued and alerts were disseminated to the concerned through development of exclusive dashboard. The forest fire hazard map and forest burnt area maps are also generated and shared with the users. 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. We have also been giving high priority on landslide warning system. Near real time landslide inventory data are collected and the same is used for developing landslide warning system jointly with NRSC. We have reviewed the preparedness towards providing the space based support for disaster management in NE region for the upcoming season, and I am confident of providing all possible support required by the NE states including near real time mapping and monitoring services using the drones.

The projects under the Plan of Action (PoA) have remained one of our most priority activities during more than a year now. The regional projects covering entire NE region has been progressing very well and I am confident to deliver the objectives well within the time. We are also continuously coordinating with the state governments for early execution of the projects that are being executed by the state remote sensing applications centres as well as funded by the respective state governments. We are committed to complete all 110 projects by March, 2024 as desired by the President of NESAC Society.

There are more than seventy other projects that NESAC is executing. I also appreciate the efforts of the contractual employees at NESAC, who have been working tirelessly to support the Scientists to complete the projects on time.

## Training programs organized by NESAC

### NESAC conducted two weeks short course on “Applications of Remote Sensing and GIS in Geoscience”

Two weeks short course on “Applications of Remote Sensing and GIS in Geoscience” was conducted by Geoscience Division (GSD), NESAC during January 30 to February 10, 2023 at NESAC Outreach Facility. The program was inaugurated by Dr. K. K. Sarma, Group Head, RSAG where Dr. Jonali Goswami, Coordinator, Outreach Program, NESAC formally welcomed the course participants. A total of 18 participants from different parts of the country attended the course, which includes students, faculties from colleges and universities, research scholars and post graduate students. Shri M Sormorjit Singh, Head GSD was the Course Director whereas Dr. Gopal Sharma, Scientist GSD was the course Coordinator. The course consisted of the series of lectures followed by hands-on/practical, Geological Field work/ Survey and includes basic



remote sensing and GIS hands-on to few advance remote sensing applications in Geosciences. The course is designed with a view to provide participants an understanding of the scientific concepts associated with remote sensing and its applications to various fields of Geoscience. Guest faculties were invited to deliver talks on technology few specific topics viz. Shri. Hari Shankar (Scientist, IIRS, ISRO) on Microwave remote sensing and its applications in Geoscience, Shri. Karan Nayak (Ph.D Scholar, Sinaloa University, Mexico) on GNSS data processing and quality checks. A one day Geological Field study for the participants was conducted by Dr.

Ningthoujam Surdas Singh (Senior Geologist, GSI, Shillong) on 6th February 2023 in and around Sohra (Cherrapunjee).

The valedictory programme of the course was held on February 10, 2023. Dr. S P Aggarwal, Director NESAC, during his address congratulated all the participants on successful completion of the course and distributed the course certificate. During the concluding session a number of good feedbacks have been received. A few of the participants suggested inclusion of more number of modeling and hands-on exercises, demonstrations of live dashboards and geoportals. The programme was concluded with vote of thanks proposed by Dr. Gopal Sharma, Course Coordinator.

### Training Course on ‘Satellite Meteorology and its Application in Numerical Weather Prediction’

NESAC conducted a two-week training course on “Satellite Meteorology and its Application in Numerical Weather Prediction” during 13 - 24 March, 2023. Participants from various educational institutions across India attended the course. The course featured informative lectures and practical sessions on the topics of Satellite Meteorology and Numerical Weather Prediction. Distinguished faculty members such as Dr. S. Lakshmiarahan, Professor Emeritus at Oklahoma University, and Dr. Govindan M Kutty, Associate Professor at the Indian Institute of Space Science Technology, delivered lectures during the course. Visit to the Doppler Weather Radar at Sohra (Cherrapunjee) and atmospheric science laboratory, NESAC were also arranged for the participants.





# Training programs organized by NESAC

## NESAC conducted two days training on Disaster Risk Management

NESAC conducted two days training program on “Applications of Geographic Information System in Disaster Risk Management” for officials nominated by various state disaster management departments and National Disaster Management Authority (NDMA) during 27-28 March, 2023 at NESAC Outreach Facility. A total of nine participants from Assam, Jharkhand, Meghalaya, Sikkim and Tripura attended the training course. The program was inaugurated by Dr S P Aggarwal, Director NESAC, where he interacted with the participants by highlighting the importance of space technology in disaster management and the works taken up by NESAC towards various disasters such as floods, forest fire, landslides, earthquakes, lightning and thunderstorms etc. in NER and other parts of the country.



The topics covered in the course included an overview of geospatial tools and techniques, and their applications in different disaster domains, applications of UAV technology and emergency satellite communication during disasters and demonstration of various dashboard/ web-portals developed by NESAC for disaster management. A valedictory session was arranged on 28th March, 2023. Valuable feedbacks and suggestions were shared by the participants during the valedictory session. Shri Abhishek Sharma, Senior Research Officer from NDMA also addressed the participants during the valedictory program. Dr K K Sarma, Deputy Project Director of NER-DRR and Group Head of RSAG congratulated all the participants on successful completion of the course and distributed the course certificate. He assured all the participants about extending support from NESAC, whenever they need space based support for DRR.

## NESAC conducted one week introductory course in AI, ML and DL for the officials of Tripura Government

NESAC conducted one week training program on “Artificial Intelligence, Machine Learning and Deep Learning for Geospatial data” for the officials of Government of Tripura during 24-28 April, 2023 at NESAC Outreach Facility. The program was inaugurated by Dr S P Aggarwal, Director NESAC. The training programme was conducted as per the recommendation of 10th NESAC Society Meeting held on 8th Oct, 2022 chaired by Hon’ble Union Home Minister of India.

A total of eleven participants from Tripura Space Application Centre (TSAC), Department of IT, Directorate of Agriculture, State Disaster Management Authority (SDMA), and Department of Forest, Govt. of Tripura have attended the course. The major objective of the training programme was to provide introductory exposure on utility of AI for different geospatial applications for governance activities. Two invited talks were arranged – one from Prof. J. Adinarayana, Centre of Studies in Resources Engineering (CSRE), IIT-Bombay and another one from Shri Shashikant A



Sharma, Group Director, VEDAS Research Group, SAC, ISRO on AI case studies for geospatial applications and analytics. Dr Dibyajyoti Chutia, Course Director & Head, GID and Shri Avinash Chouhan, Course Officer have coordinated the training programme. The program provided the first hand experience about the strength of AI, ML, and DL in different areas of the geospatial technology applications.

### Shri S. Somanath, Secretary, DOS / Chairman, ISRO visited NESAC

Shri S Somanath, Chairman, ISRO / secretary, DOS visited NESAC on 18th April, 2023. He attended the 4th Space Economy Leaders Meet - Precursor Meeting held at Shillong during 17-18 April, 2023. Dr Prakash Chauhan, Director, NRSC and Dr Shantanu Bhatwadekar, Scientific Secretary, ISRO also visited NESAC along with Chairman, ISRO.



Director, NESAC made a brief presentation on NESAC activities and briefed Chairman about the progress of the PoA projects. He interacted with all Scientist/Engineers as well as the administrative staff of NESAC and address them. This was followed by Chairman, ISRO visiting the proposed NESAC auditorium site and other scientific facilities.



### NESAC celebrated World Hindi Week

NESAC celebrated World Hindi Week during 10 - 16 January, 2023 to promote the usage of Hindi language at NESAC. The program was inaugurated by Dr. S.P. Aggarwal, Director, NESAC by lighting of the lamp. Mrs. Namita Rani Paul Mitra, Junior Translation Officer, NESAC briefed about the various events and competitions to be organized as part of the week-long celebration.



Various Hindi competitions viz. Creative writing competition, Hindi poetry recitation competition and Tasveer Kya Bolti Hai competition etc were organized as part of the program. In which all the officers and staff of NESAC participated with full enthusiasm.



Director, NESAC, congratulated everyone for the successful organization of World Hindi day Celebration and also distributed the prizes to the winners of the competitions. Director, NESAC also distributed certificates to the staff who had successfully completed the Proboadh, Praveen, Pragma examinations. The program concluded with vote of thanks proposed by Smt. Namita Rani Paul Mitra, Jr. Hindi Translation Officer and Member-Secretary, Official Language Implementation Committee, NESAC.

### **Celebration of 74<sup>th</sup> Republic Day of the Nation at NESAC**

The 74th Republic Day of the nation was celebrated at NESAC on 26th January 2023 with a colorful program. Dr. S. P. Aggarwal, 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 Republic Day parade.



Director, NESAC addressed the staff of the Centre with an inspiring and informative speech, where he highlighted the significance of Republic Day celebration and briefed about the activities and achievements of ISRO and NESAC in recent times. Following this, a colourful cultural program was organised at NESAC auditorium by the NESAC Sports & Recreation Committee. Prizes for various competitions organized as part of the Republic Day celebrations were distributed during the program.

### **Prof. S. Laksmivarahan, University of Oklahoma, USA visited NESAC**

Prof. S. Laksmivarahan, Professor Emeritus, George Lynn Cross Research for School of Computer Science, University of Oklahoma, USA visited NESAC on 19th January 2023 and delivered a talk on “Confluence of Data Science and AI” at the Outreach facility of NESAC. In a very simple language, Prof. Varahan explained what Data Science is and how it has evolved. He also talked about how growth in Data Science will be propelled by advances in statistics, probability theory, applied mathematics, large scale inverse problems, numerical simulation, and domain specific knowledge. It was indeed a very interactive session, where more than 25 students were present and all were very much enthusiastic to listen to Prof Laksmivarahan. The program was coordinated by Dr. Rekha B Gogoi, Scientist-‘SF’, SASD, NESAC.



### **Celebration of International Women’s Day 2023 at NESAC**

The International Women’s Day was celebrated at NESAC on 9th March 2023 (8th March being a holiday). The celebration commenced with welcome by Dr. Jonali Goswami, Sci/Engr ‘SF’ & Chairperson, NESAC Internal Complaint Committee (ICC), NESAC followed by felicitation of the Chief Guest, Smt. Delina Khongdup, Member, National Commission for Women by Dr. S P Aggarwal, Director NESAC with memento and bouquet. As part of the Celebration, Smt. Delina Khongdup, Member, National Commission for Women delivered a talk focusing on “Elimination of gender based violence and discrimination adopting innovative approaches to bring perceptible changes

## News & Events

to the social, political, economic and cultural empowerment of women”.



### **Shri Anil Kumar, Vice President, New Development Bank (NDB) visited NESAC**

Shri Anil Kumar, Vice President, New Development Bank (NDB) made a visit to NESAC on March 11, 2023 and interacted with scientists of the centre. A presentation on the activities of NESAC was made by Dr Dibyajyoti Chutia, Head, GID followed by a live demonstration on UAV flying. Shri Anil Kumar appreciated the wide range of projects and activities of NESAC in providing space technology support for developmental planning in NE region.

### **NESAC participated in National Science Day Celebration by Govt. of Meghalaya**

The State Council of Science, Technology & Environment, Govt. of Meghalaya organized a 2 day National Science Day Celebration during the 22-23 March 2023 at State Convention Hall, Shillong. The theme of National Science Day 2023 was “Global Science for Global Wellbeing. The students with meritorious performance in Science and Mathematics in Secondary and Higher Secondary examination



conducted by Meghalaya State Board during 2021-2022 were felicitated during the program. A number of popular talks were organized along with science experiments and demonstrations. Several students showcased their innovative projects and poster presentations. Further, a number of activities such as open quizzes, extempore speech competitions, science skits, puppet shows were also conducted. NESAC



stationed Space on Wheels bus during the event and demonstrated the components of space technology and how they are relevant to our day-to-day activities to more than 150 students.

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