

# Current Affairs Roundup - 2020

## Science and Technology

### Successful maiden test trial of SAHAYAK-NG

Defense Research and Development Organisation, DRDO along with the Indian Navy conducted the successful maiden test trial of SAHAYAK-NG India's first indigenously designed and developed Air Dropped Container from IL 38SD aircraft of Indian Navy off the coast of Goa.

- ★ The trial was conducted by the Indian Navy to enhance its operational logistics capabilities and provide critical engineering stores to ships that are deployed more than 2000 kilometers from the coast. It reduces the requirement of ships to come close to the coast to collect spares and stores.
- ★ Two DRDO laboratories, NSTL, Visakhapatnam, and ADRDE, Agra were involved in the development of the SAHAYAK-NG container along with the industry partner M/s Avintel for GPS integration.
- ★ SAHAYAK-NG is an advanced version of SAHAYAK Mk I. The newly developed GPS aided air dropped container is having the capability to carry a payload that weighs up to 50 kg and can be dropped from heavy aircraft.



### South Korea's 'artificial sun' breaks world record

Reaching an ion temperature of over 100 million degrees Celsius for 20 seconds, South Korea's magnetic fusion device, the Korea Superconducting Tokamak Advanced Research (KSTAR) has set a new world record for fusion.

- ★ The magnitude of the experiment can be understood from the fact that the Sun burns at 15 million degrees Celsius. By comparison, the KSTAR was able to achieve a temperature of over 6.6 times more than that of Sun's.
- ★ The KSTAR which is placed at the Korean Institute of Fusion Energy (KFE) is also a part of joint research conducted with Seoul National University (SNU) and Columbia University of the US.
- ★ In the future, the aim to increase the time and work on a fusion reactor that takes less energy than it produces. According to a report by IFLScience, KFE is targeting 300 seconds mark by 2025.

### Jupiter And Saturn's great conjunction

A rare great celestial event has happened between two planets Jupiter and Saturn. They appeared to merge and looked like a single bright star, which is called a conjunction. The optimal "conjunction" took place at 1822 GMT.

- ★ The two planets were, in fact, more than 730 million kilometers (400 million miles) apart. But because of their alignment in relation to Earth, they appeared to be closer to each other than at any time in almost 400 years. This will not occur again in 2080.

### Smart mobile app "AgSpeak" for farmers

Students at IIT Guwahati, NIT Silchar, and Dibrugarh University in Assam have jointly developed a multi-lingual smartphone application for farmers to smartly manage their farms and remotely monitor distress activities. Developed with the goal of optimizing the in-farm productivity through Artificial Intelligence (AI), the application called "AgSpeak" will help the farmers in making decisions and managing farm activities through their smartphone or computer.

### GRSE Kolkata launches 'Himgiri'

GRSE Kolkata launches 'Himgiri', Ship of Project 17A. The launch ceremony took place in the waters of the Hoogly River. Chief of Defence Staff (CDS) General Bipin Rawat was the Chief Guest.

- ★ Himgiri is the first of the three Project 17A ships being built at Garden Reach Shipbuilders and Engineers Limited (GRSE), Kolkata.
- ★ Under the Project 17A program, a total of seven ships, four at Mazagon Dock Shipbuilders Limited (MDL) and three ships at GRSE are being built with enhanced stealth features, advanced indigenous weapons and sensors fit along with several other improvements.

### Russia successfully tested the A5 space rocket 'Angara'

Russia successfully test-launched its heavy-lift Angara A5 space rocket.

- ★ First test-launched in 2014, it is being developed to replace the Proton M as Russia's heavy-lift rocket, capable of carrying payloads bigger than 20 tonnes into orbit. A launchpad for the new rocket is due to open in 2021.

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### China launches Chang'e-5 Moon successfully

A Long March 5 rocket successfully launched China's Chang'e-5 spacecraft to kick off a 23-day mission to deliver the first lunar samples to Earth since the 1970s.

- ★ The mission aims to collect the youngest samples so far obtained from the moon and later land in Siziwang Banner, Inner Mongolia. Now China is the third country to deliver lunar samples to Earth, after the U.S. Apollo crewed program and Soviet robotic Luna missions of the 1960s and 1970s.
- ★ The Chang'e-5 lander also carries a panoramic camera, lunar penetrating radar, and imaging spectrometer for observation and analysis of the landing area.



### Indian Navy trilateral exercise SITMEX-20

The Indian Navy is participating in the two-day trilateral maritime exercise SITMEX-20 in the Andaman sea along with the navies of Singapore and Thailand.

- ★ Indian naval ships, including indigenously-built anti-submarine warfare corvette Kamorta and missile corvette Karmuk, are participating in the 2nd edition of the trilateral exercise.
- ★ The SITMEX series of exercises are conducted to enhance mutual interoperability and to imbibe best practices between the Indian Navy, Republic of Singapore Navy (RSN), and Royal Thai Navy (RTN). The RSN is being represented by the Formidable-class frigate Intrepid and Endurance-class landing ship tank Endeavour and the RTN by the Chao Phraya-class frigate Kraburi in the exercise.
- ★ The first edition of SITMEX, hosted by the Indian Navy, was conducted off Port Blair in September 2019. The 2020 edition of the exercise is being hosted by the RSN.

### **NTPC develops geo-polymer aggregate from fly ash**

Power generator NTPC Ltd announced that it has developed a geopolymer coarse aggregate from fly ash generated at its plants. The research development is expected to help the company in replacing natural aggregates and reduce the impact on the environment.

- ★ The company said that the results of the research project meet the statutory requirements of the Indian standards and are also confirmed by the National Council for Cement and Building Materials (NCCBM).
- ★ India requires around 2,000 tonnes of such aggregates annually. Around 258 million tonnes of ash is produced by coal-fired power plants in India.

### **ISRO's successfully launches PSLV-C49**

India's Polar Satellite Launch Vehicle PSLV-C49, in its 51st flight successfully launched EOS-01 along with nine international customer satellites from the First Launch Pad of Satish Dhawan Space Centre, Sriharikota.



- ★ After separation, the two solar arrays of EOS-01 were deployed automatically and the ISRO Telemetry Tracking and Command Network at Bengaluru assumed control of the satellite.

### **New light on 'First stars' formation and survival**

Scientists shed new light on the possibility of survival of the first sources of illumination to the present day.

- ★ A new analytical model has thrown up possibilities that some of the 'First stars' formed between 100 million to 250 million years after the Big Bang, may have survived till the present epoch.
- ★ Led by Jayanta Dutta from Indian Institutes of Science Education and Research (IISER) Mohali, a team consisting of Sharanya Sur from Indian Institute of Astrophysics Bangalore, an autonomous institute of the Department of Science & Technology, Athena Stacy from UC Berkeley and Jasjeet Singh Bagla from IISER Mohali have developed a model that allows following the evolution of these protostars up to a million years from their birth.
- ★ This work offers a fresh approach to explore the complex nature of the non-linear process of gravitational collapse and sheds new light on the eventual fate of the first sources of illumination in our Universe.

### **World's largest solar tree developed by CSIR-CMERI**

The CSIR's Central Mechanical Engineering Research Institute have developed world's largest 'solar tree' to promote the usage of Solar energy, which is installed at its residential complex in Durgapur in West Bengal.

- ★ The solar tree has been designed in a manner to ensure maximum exposure of each solar photovoltaic (PV) panel to sunlight and also creation of the least amount of shadow area beneath.

- ★ According to Dr Harish Hirani, Director, CSIR-CMERI, the installed capacity of the Solar Tree is above 11.5 kWp (kilowatts peak). It has the annual capacity to generate 12,000-14,000 units of Clean and Green Power. There are a total of 35 Solar PV Panels in each tree with a capacity of 330 wp (watts peak) each.
- ★ Each Solar Tree has the potential to save 10-12 tons of CO<sub>2</sub> emissions being released into the atmosphere as Greenhouse Gases. Each Solar Tree can cost Rs 7.5 lakhs.

**For more information click the below link..**

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