

STRIDES

Science, Technology, Research, Innovation & DEvelopmentS

BRINGS NEWS ON S&T DEVELOPMENT FROM DST SUPPORT AND BEYOND

EDITORIAL

FROM HEAD OF DST MEDIA CELL

Where knowledge is free; Where the world has not been broken up into fragments by narrow domestic walls –Rabindranath Tagore

A significant step for the awakening of the country into the Heaven of Freedom envisioned by Nobel Laureate Rabindranath Tagore was taken with the release Guidelines that unshackled the acquiring and producing Geo-Spatial Data and Geo-Spatial Data Services. The month also celebrated the significant boost in the S&T budget with declaration of missions and schemes that would boost research, development, and innovations in the country. The newsletter covers these significant transformative steps and also takes us through scientific innovations like paper-based sensors developed to detect Antimicrobial Resistance, detection of a huge optical flare in one of the oldest astronomical objects, as well as geological evidence of a significant eastern Himalaya earthquake recorded in history.

The current issue also captures how innovative ideas of women entrepreneurs are all set to make the new normal a better one and a new research which highlights significant reduction of heavy metal pollution during the COVID 19 pandemic. The newsletter features the Indian Institute of Geomagnetism (IIG), which is carrying out significant work on new methods of earthquake prediction and gives meet up with its director.

—DR AKHILESH GUPTA, EDITOR-IN-CHIEF

COVER STORY



GUIDELINES FOR ACQUIRING AND DISSEMINATING GEOSPATIAL DATA TO MAKE MAPS & RELEVANT DATA ACCESSIBLE

The Government has announced liberalised guidelines for geo-spatial data. Giving details of the liberalised guidelines at a media briefing in New Delhi today, the Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare, Dr. Harsh Vardhan said that by liberalizing the geo-spatial guidelines, the government has taken a historic decision that will lead to a One Lakh Crore Rupees Geo-Spatial economy.

[Read More](#)



BUDGET ANNOUNCES SEVERAL INITIATIVES TO BOOST S&T IN THE COUNTRY

The Budget 2021 includes several initiatives to promote science, technology and innovation with applications in the country. It is a forward looking budget to substantially boost support for R&D in the key identified areas of national priorities. These are also in line with the projections in the draft Science Technology and Innovation Policy 2021 put up for public consultations.

[Read More](#)



From Head of DST MEDIA CELL
Cover Story

Popular Science Stories

INSIDE THE E-NEWSLETTER

COVID-19 Stories

Meet the Scientist
Featured Institution





Empowering Communities in Flood-Affected Areas for Livelihoods Gain: Technological interventions on effective farming planning like gradient-based cropping system, multi-layered farming with time and space management, appropriate crop combination, raised bed low tunnel poly house, and appropriate utilization of weather advisory

Hope shines among the flood-hit farmers of Gorakhpur

Smt Koila Devi, an elderly marginal farmer of a tiny village in Gorakhpur district of Uttar Pradesh, had given up hopes of earning a decent living from the produce of her agricultural land. Like many farmers' in northeastern Uttar Pradesh and Bihar, floods and associated water logging for more than three to four months affected her agricultural produce severely each year.

[Read More](#)

SERB announces Women Excellence Award 2021 on the International Day of Women and Girls in Science

Four young women fellows of National Science Academies have been awarded for excelling in science and engineering on the International Day of Women and Girls in Science 2021.

[Read More](#)

PSA calls for unlocking entrepreneurship in design, training youth in machine learning at TIFAC foundation day

PSA to the Government of India Professor K VijayRaghavan underscored the need for breaking

open entrepreneurship in design across sectors to scale up technologies and boost local manufacturing for sustainable, inclusive development at his tech talk on 'Reboot, Reinvent & Resilience – Road ahead' organised on the occasion of the celebration of the 34th TIFAC Foundation Day.

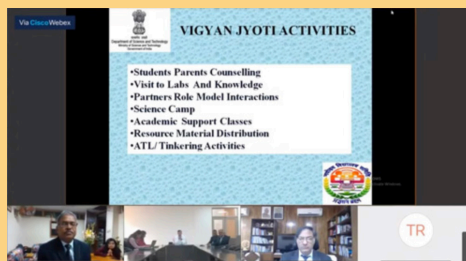
[Read More](#)



Technologies that can benefit the circular economy & negotiate the future necessary for Atmanirbharata: Experts

Dignitaries stressed on the technologies that can negotiate the future and benefit the circular economy for realizing sustainable development at a panel discussion on technology as an engine of Atmanirbharata organized on the occasion of the 34th foundation day of TIFAC.

[Read More](#)



Vigyan Jyoti programme spreads to 100 districts in 2nd phase initiated on International Day of Women & Girls in Science

The second phase of Vigyan Jyoti programme was commenced on

the occasion of International Day of Women and Girls in Science on February 11, 2021, which will spread the programme for encouraging girls to take interest in science and build a career in STEM to 50 more districts adding to the existing 50 districts across the country.

[Read More](#)

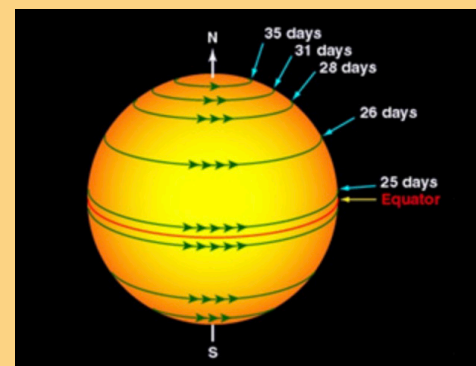


Figure 1: A cartoon image showing the solar rotation observed at different latitude. Image courtesy NASA

Kodaikanal Solar Observatory Digitized Data probes Suns rotation over the Century, paving way to predict solar cycles

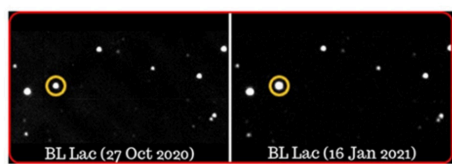
Scientists have estimated how the Sun has rotated over a century from data extracted from old films and photographs that have been digitized.

[Read More](#)

Experts to discuss research related to heterostructure engineering for quantum materials & devices

Experts from around the world will come together to discuss research related to heterostructure engineering for quantum materials and devices at the National Conference on Quantum Matter Heterostructures (QMH) to be organized from February 18 to 20, 2021.

[Read More](#)



The luminosity of BL Lac observed on 27 October 2020 (left panel of figure) was around $2.95 \times 10^{42} L_{\odot}$ and after 80 days, i.e., 16 January 2021 (right panel of figure) was $\sim 7.25 \times 10^{41} L_{\odot}$ i.e., $\sim 250\%$ increase in the luminosity which is equivalent to more than 4 trillion L_{\odot} (here L_{\odot} = luminosity of the Sun).

Indian astronomers detect huge optical flare in one of the oldest astronomic objects

Indian Astronomers have reported one of the strongest flares from a feeding supermassive black hole or blazar called BL Lacertae. Analysis of the flare from this blazar, one of the oldest astronomical objects, can help trace the mass of the black hole and the source of this emission.

[Read More](#)

New ant species discovered from Kerala named after JNCASR researcher, evolutionary biologist

Two new species of a rare ant genus have been discovered in India. The species of the ant genus *Ooceraea* found in Kerala, and Tamil Nadu add to the diversity of this rare genus.

[Read More](#)

Paper-based sensors developed by IIT Madras can detect Antimicrobial Resistance and related pollutants easily

Scientists have developed a paper-based sensor that can detect antimicrobials or antibiotics that have an inhibitory effect on bacteria in water bodies by a see and tell mechanism. As the world is tackling the effects of one pandemic, the scientific community has warned that Antimicrobial Resistance (AMR) could be the next big pandemic, and this would involve a battle with several pathogens.

[Read More](#)

▶ New material that can tune electromagnetic (EM) waves to scatter in one direction useful for thin-film solar cells

▶ Students, teachers, principals participated in initiation of engage with science

▶ Innovative low-cost intervention tackles water supply challenges in Maharashtra towns

▶ SNBNCBS makes notable research progress in computational materials science, quantum science, astronomy, gravitational physics and advanced materials

▶ Women weavers from Dudhwa Tiger Reserve profit from technological interventions for their looms

▶ Experts highlight consultation process that went into drafting of comprehensive STIP

▶ Scientists find geological evidence of eastern Himalaya earthquake recorded in history

▶ FISTAB S&T advisory board meeting highlights need for focusing on supporting interdisciplinary problems & translational research

▶ Experts highlight the need for strengthening centre-state cooperation, developing researchers network at state level

[Read More](#)

COVID-19 STORIES

Study shows significant reduction of heavy metal pollution during COVID-19 pandemic

The COVID 19 pandemic lockdown provided a team of scientists from IIT Kanpur a rare opportunity to quantify the impact of restricted anthropogenic activities on the water chemistry resilience of large rivers.

[Read More](#)

Innovative ideas of women entrepreneurs all set to make the new normal a better one

In 2020 as people were struggling to cope up with COVID 19 and the associated lockdown Dr. Radhika Shrivastava, a doctor, launched the journey of her start-up 'Uniworld Care' to redefine the health ecosystem with the help of technology-driven solutions.

[Read More](#)

INTERNATIONAL

India-EU Joint Committee on S&T Cooperation creates action-oriented agenda focusing on ICT, resource efficiency & electric mobility

The India-EU joint steering committee on science and technology agreed to develop and adopt a long-term strategic perspective for India-EU collaboration in research and innovation at the 13th Joint Steering Committee on Science and Technology Cooperation meeting hosted by the European Commission.

[Read More](#)

▶ NEW INITIATIVES

▶ Advertisement for Swarnajayanti Fellowships Scheme - 2020-21

Indo-Italian Joint Call for Proposals

[Read More](#)



MEET THE SCIENTIST

PROF. D.S. RAMESH



Dr. D.S. Ramesh, Director, Indian Institute of Geomagnetism, Navi Mumbai, is renowned for his work on demonstrating the unique power of entropy in deciphering the inner workings of the earth-ocean-atmosphere coupled system and in exploring the Sun-Earth connection. His broad research interests span from understanding the physics of earthquakes to Ionosphere Seismology besides climate change & variability. Development of cutting-edge techniques based on information theory & inverse modeling approaches are his forte.

An alumni of the University of Roorkee (now IIT Roorkee) and Osmania University, the significant among his seminal contributions to earth system science are discovery of anisotropic character of the Indian shield induced by plate motion strain as well as 3-D velocity images with fine layering beneath various geo-tectonic segments of India forged by Paleo geodynamic processes. He is also known for his research on recognition of the greater role of mode of formation rather than age in shaping the thickness and composition of the Earth's crust and deciphering of the current climate drivers and major paleo-climatic forcings through entropy metrics and transfer entropy. He was also involved in characterization of seismic rupture and mapping of co-seismic signatures using Space-borne observations, delineation of diamond prospect regions of SE India through an integrated approach, prediction of weak solar cycles 24-25 and possible Dalton Minimum, development of a cost-effective tsunami early warning system as well as discrimination of tectonic and non-tectonic origin signals in the ionosphere system based on concepts of Ionosphere seismology.

FEATURED INSTITUTION



IIG focuses on new methods of predicting earthquakes, magnetic

anomaly maps, predicting state of ionosphere

The Indian Institute of Geomagnetism (IIG) is one of the premier research institutions in the world equipped to undertake highly advanced and front-line interdisciplinary research in areas ranging from Geomagnetism to Solar-Terrestrial Interaction, Archeological exploration, Groundwater quality assessment, and other related research domains.

[Read More](#)



FOLLOW US ON:



OUR WEBSITES: <http://dst.gov.in/> / <https://vigyanprasar.gov.in/>

This e-newsletter created by the DST communication team at Vigyan Prasar brings you brief information on scientific achievements and activities supported by DST. Each brief, links to detailed information on DST website. If there is any DST supported popular science event which requires wider outreach please share it with us. We also welcome your feedback/suggestions at

mediacell.dst@gmail.com

Editor-in-Chief: Dr Akhilesh Gupta

Copyright © 2019, All Right Reserved by Department of Science & Technology & Vigyan Prasar