



28 March, 2024

Krishi Integrated Command and Control Centre (ICCC)

Context: Arjun Munda, the Agriculture Minister, unveiled a Krishi Integrated Command and Control Centre (ICCC) at Krishi Bhavan in New Delhi, which serves as a centralized hub for monitoring digital innovations in agriculture.

➤ Overview of Krishi ICCC:

- The Krishi Integrated Command and Control Centre (ICCC) is a technological solution incorporating multiple IT applications and platforms.
- It is established within the Ministry of Agriculture & Farmers' Welfare to facilitate informed decision-making in the agricultural sector.

➤ Visual Outputs from ICCC:

- Eight large 55-inch LED screens display information on crop yields, production, drought situations, and cropping patterns.
- Data is presented in map, timeline, and drill-down views, showcasing trends, outliers, Key Performance Indicators (KPIs), and insights.

➤ Objectives of ICCC:

- Comprehensive monitoring of the agricultural sector by aggregating geospatial information from various sources.
- Integration of data for efficient decision-making processes.

➤ Generation of Individual Farmer-Specific Advisories:

- Future capabilities include generating personalized advisories for farmers based on their specific needs and circumstances.
- The system will utilize AI and machine learning to provide customized recommendations in local languages.



➤ Practical Applications:

- **Farmer's Advisory:** Visualization of soil health data combined with weather information enables tailored advisories for crop selection and resource management.
- **Drought Actions:** Analysis of yield data in correlation with weather patterns aids proactive decision-making in drought-prone regions.
- **Crop Diversification:** Utilization of crop diversification maps assists in identifying regions suitable for varied cropping practices.

- **Farm Data Repository:** The Krishi Decision Support System (K-DSS) serves as an agriculture data repository for evidence-based decision-making and customized farmer advisories.
- **Validation of Yield:** Krishi MApper data is compared with yield data from other sources to validate agricultural productivity.

Twisted magnetic field

Context: Astronomers recently discovered a spiral-patterned magnetic field around the Milky Way's supermassive black hole, unveiling new insights into its formidable nature.

➤ Key Findings:

- Astronomers detected a spiral-patterned magnetic field around Sagittarius A* (Sgr A*), the black hole at the center of the Milky Way.
- This magnetic field structure closely resembles the one observed around the black hole in the galaxy Messier 87 (M87), indicating a common feature among black holes.

➤ Implications:

- The magnetic field around M87's black hole, known as M87*, is responsible for launching powerful jets of material into space.
- While similar jets haven't been observed around Sgr A* yet, their existence is plausible and could be detected in the near future.

➤ New Image Release:

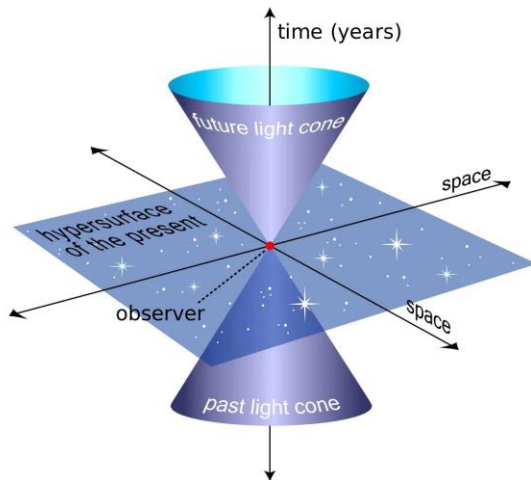
- Researchers unveiled a new image depicting the environment around Sgr A*, captured in polarized light for the first time.
- The polarized light originates from electrons gyrating around magnetic field lines, revealing the magnetic field structure.
- **Characteristics of Sgr A*:** Sgr A* is 4 million times more massive than the Sun and located approximately 26,000 light-years away from Earth.
- **Role of Magnetic Fields:** Strong and ordered magnetic fields are crucial for how black holes interact with surrounding matter and gas, influencing feeding and jet ejection processes.
- **Observational Technique:** The image of Sgr A* and previous images of M87* were obtained using the Event Horizon Telescope (EHT) global network of observatories.
- **Black Hole:** Black holes have intense gravity, preventing anything, including light, from escaping beyond their event horizon.
- **Future Prospects:** Improved instrumentation may reveal the presence of a powerful jet emanating from Sgr A* in the coming years, enhancing our understanding of black hole dynamics.

Face to Face Centres





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Loss of microbiome of the Mouth

Context: Scientists examining teeth samples from the Bronze Age have discovered that the bacterial composition in our mouths was more varied back then.

- **Loss of Microbial Diversity in Ancient Teeth:**
 - Well-preserved microbiomes from 4,000-year-old teeth reveal a decline in microbial diversity among modern humans.
 - Ancient teeth samples contained a higher diversity of *Tannerella forsythia* compared to modern humans, indicating a shift in oral microbiota over time.
- **Genetic Differences in Ancient Strains:**
 - Strains of *Tannerella forsythia* from ancient teeth showed greater genetic diversity compared to modern strains, despite geographic variations.
 - This genetic variation underscores the potential negative impacts of biodiversity loss on oral health.

- **Evolution of Human Oral Microbiome:**
 - Limited data on prehistoric bacterial diversity highlights the importance of studying ancient human teeth to understand oral microbiome evolution.
 - New findings contribute to understanding how human oral microbiomes have evolved over time, particularly in response to dietary changes such as the expansion of farming.
- **Insights from Excavated Teeth:**
 - Bacterial genomes were recovered from teeth found in a limestone cave in Ireland, shedding light on ancient oral microbiomes.
 - While no evidence of dental caries was found, high quantities of *Streptococcus mutans* sequences suggest a high risk of cavities in ancient individuals.
- **Changes in *Streptococcus mutans* and *Tannerella forsythia*:**
 - The first ancient *Streptococcus mutans* genome was retrieved along with two distinct strains of *Tannerella forsythia*, showing dramatic changes over the last 750 years.
 - *Streptococcus mutans* may have outcompeted other streptococcal species, possibly due to increased sugar consumption.
- **Dominance of Specific Strains:**
 - Currently, only one lineage of *Tannerella forsythia* dominates globally, indicating a genetic advantage over other strains.
 - *Tannerella forsythia* genomes have acquired new genes since the industrial era, facilitating colonization and disease development.
- **Support for Disappearing Microbiome Theory:**
 - Findings support the theory of the disappearing microbiome, suggesting that ancestral microbiomes were more diverse than modern ones, with potential implications for chronic diseases.

NEWS IN BETWEEN THE LINES

Mushk Budji Rice



Recently, the scientists at Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST), Srinagar, conducted a study on Mushk Budji rice.

About Mushk Budji Rice:

- Mushk Budji is a **short-grain, aromatic rice variety** grown in the Anantnag district of **Kashmir**.
- In August **2023**, it was granted a **Geographical Indication (GI) tag**.
- It is an indigenous rice variety cultivated in the Kashmir Himalayas known for its distinctive aroma and taste.
- The cooked rice has a unique blend of taste, aroma and rich organoleptic properties.
- It's also a better choice for a balanced diet as it contains low fat.
- The variety was facing extinction due to factors like **rice blast disease, low yield and lack of profitability**.
- This rice is labor-intensive and high-yielding, but it's at risk of blast disease and faces marketing hurdles.
- However, a revival program initiated by scientists at Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST) in **2007** helped in its slow comeback.
- **Gas Chromatography-Mass Spectroscopy (GC-MS)** and an '**electronic nose**' were used to study the flavor profile of Mushk Budji rice.

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National Assessment and Accreditation Council (NAAC)

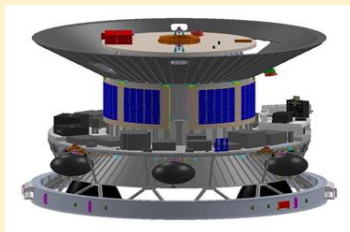


Recently, the National Assessment and Accreditation Council (NAAC) has decided to replace the letter grade system with a binary "accredited" or "not accredited" categorization for higher educational institutions.

About the National Assessment and Accreditation Council:

- The National Assessment and Accreditation Council (NAAC) is an **autonomous body** that evaluates and accredits higher education institutions (HEIs) in India.
- It was established in **1994** by the University Grants Commission (UGC) and is headquartered in **Bangalore**.
- Its primary objective is to **improve the quality of education** provided by these institutions and to ensure that they meet national and international standards.
- The NAAC's functions encompass periodic assessment, stimulating academic environments, and encouraging self-evaluation and innovation in higher education.
- The NAAC bases its assessment procedure on seven criteria, including curricular aspects, teaching-learning and evaluation, research, infrastructure, student support, governance and innovative practices.
- It awards **grades ranging from A++ to C** based on parameters such as curriculum, faculty, infrastructure, research and financial well-being.

POEM-3



Recently, the Indian Space Research Organisation (ISRO) revealed that it has achieved another milestone as the PSLV Orbital Experimental Module-3 (POEM-3) met its fiery end through a re-entry into the Earth's atmosphere.

About POEM-3:

- The **PSLV Orbital Experimental Module-3 (POEM-3)** is a space platform that launched on **January 1, 2024**, alongside the XPoSat satellite.
- It involved the transformation of the terminal stage of PSLV into a 3-axis stabilized platform specifically for experimentation purposes.
- It is a **three-axis-attitude controlled platform** with power generation and telecommand & telemetry capabilities.
- It's the third version of a space lab that can control its position in all three directions in space, make its own power and send and receive messages from Earth.
- To facilitate early re-entry into Earth's atmosphere and minimize risks of accidental break-up, POEM-3 was strategically de-orbited from 650 km to 350 km.
- It was equipped with a total of **9 experimental payloads** aimed at conducting various technology demonstrations and scientific experiments.
- Notably, **6 of these payloads were delivered by New Generation Entrepreneurs (NGEs)** through the Indian National Space Promotion and Authorization Center (IN-SPACe).

Catastrophe



Recently, Damning research revealed that a world-leading reforestation project in Australia's desert Outback has been an underperforming "catastrophe."

About Catastrophe:

- The term "catastrophe" **refers to the failure or disastrous outcome** of a significant undertaking, such as the world-leading **reforestation project** in Australia's desert Outback.
- The research findings revealed that the reforestation project, intended to **offset emissions through native forest regeneration**, has been severely underperforming across vast areas.
- Despite the underperformance, **Australia utilized these projects** to generate millions of tonnes in carbon credits, which are used to offset emissions from polluting industries.
- The catastrophic outcome of the reforestation project calls into question the effectiveness of such initiatives in achieving their intended environmental goals.

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Place in News

Thailand

Recently, the Thailand's lower house approved legislation to legalize same-sex marriage, potentially would make it the first country in Southeast Asia and the third Asian country to legalise gay marriage.

Thailand (Capital: Bangkok)

Location: Thailand is a country located in Southeast Asia.

Boundaries: Thailand shares its borders with **Myanmar** (Northwest), **Laos** (Northeast), **Cambodia** (Southeast), **Gulf of Thailand and Malaysia** (South), the **Andaman Sea** (Southwest).

Physical Features:

- Thailand boasts numerous islands in the Andaman Sea and the Gulf of Thailand, such as **Phuket, Koh Samui, Koh Phi Phi** and **Koh Tao**.
- The highest point in Thailand is **Doi Inthanon**, located in the Chiang Mai Province in the northern part of the country.
- The major rivers in Thailand include the **Chao Phraya, Mekong, Mae Klong, Nan** and **Ping**.
- Thailand generally experiences a **tropical climate** characterized by hot and humid weather throughout the year.



POINTS TO PONDER

- Who recently swore in as judicial member of Lokpal, with the oath administered by Justice A. M. Khanwilkar, Chairperson of Lokpal?
– **Justice Ritu Raj Awasthi**
- The Archaeological Survey of India (ASI) recently decided to delist 18 protected monuments due to their diminished significance. What was the reason behind this decision? – **Ceased to be of "national importance"**
- According to a recent statement by the Supreme Court, what is the stance on granting ex-parte injunctions against the publication of a news article? – **Ex-parte injunctions should only be granted in exceptional cases.**
- The International Astronomical Union (IAU) recently approved the name 'Statio Shiv Shakti.' What does this name signify?
– **It designates the landing site of Chandrayaan-3's Vikram lander.**
- Which organization has recently connected the strategically important road from Manali to Leh through Darcha and Nimmu on the Kargil-Leh Highway? – **Border Road Organisation (BRO)**

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