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Army Commanders' Conference 2026

- The biannual Army Commanders' Conference (ACC) which commenced on 13 April 26, culminated on 16 April 26. The conference chaired by Chief of the Army Staff (COAS), was attended by apex military leadership.
- Aligned with the vision of evolving into a '**Future Ready Force**', the Indian Army has designated the year 2026 as the year of "**Networking and Data Centricity".**
- The conference discussed a wide array of issues pertaining to modernisation, technology infusion in combat operations, doctrinal and training requirements besides networking and data centricity to enhance operational readiness and address emerging security challenges.
- Based on the lessons learnt from Operation Sindoor, and in keeping with the current operational dynamics globally, senior army leadership also focussed on operational capability requirements including employment of Unmanned Aerial Systems (UAS) and Counter Unmanned Aerial Systems (C-UAS).
- With specific reference to lessons emerging from global conflicts, the speakers alluded to the need for Hard Power for Guaranteed Protection of India's strategic and security interests while emphasising on inter ministerial coordination, enhanced synergy between civil and military institutions.

World Border Security Congress 2026

- India showcased its leadership in maritime security and reinforced its commitment to international cooperation during its participation in the World Border Security Congress 2026 held in Vienna, Austria from April 14-16, 2026.
- A three-member Indian delegation, led by Additional Director General Anand Prakash Badola, represented the country at the international forum. The delegation presented India's best practices in safeguarding its maritime boundaries, reflecting the nation's focus on building robust and resilient maritime governance.
- Established in 2012, the World Border Security Congress is a premier international platform that brings together senior government officials, security experts, and industry leaders to deliberate on emerging challenges, technological innovations, and best practices in border management, while fostering international cooperation.

India Strengthens Orbital Surveillance

- The Indian Space Research Organisation (ISRO) is expanding its network of facilities to track space objects in Earth's orbit, with plans to establish a phased array radar in the north-eastern region of India and an optical telescope at Hanle in Ladakh.
- These developments are part of a broader effort to enhance India's Space Situational Awareness (SSA) capabilities at a time when Low Earth Orbit (LEO), ranging between 500 and 1,000 kilometres above Earth, is becoming increasingly congested with satellites and debris, raising the risk of accidental collisions.
- Currently, ISRO operates the Multi-Object Tracking Radar (MOTR) at the Satish Dhawan Space Centre in Sriharikota. This L-Band Active Phased Array Radar is capable of tracking multiple objects simultaneously.
- It can monitor objects with a radar cross section of 0.25 square metres at distances of up to 1000 kilometres. The MOTR plays a crucial role in tracking Indian rocket bodies and satellites, ensuring operational safety in orbit.
- ISRO also highlighted the refurbishment of the Baker Nunn Schmidt Telescope (BNST) at Nainital, in collaboration with ARIES. Once operational, this telescope will further strengthen India's ability to track space objects. Together, these facilities will provide a complementary mix of radar and optical systems, essential for comprehensive SSA.

Tata Semiconductor Manufacturing Gets Special Economic Zone Nod

- To become the global semiconductor hub India have taken the strategic step. As the government have cleared the approval of a Special Economic Zone (SEZ) for the Tata Semiconductor Manufacturing in Dholera, Gujarat.

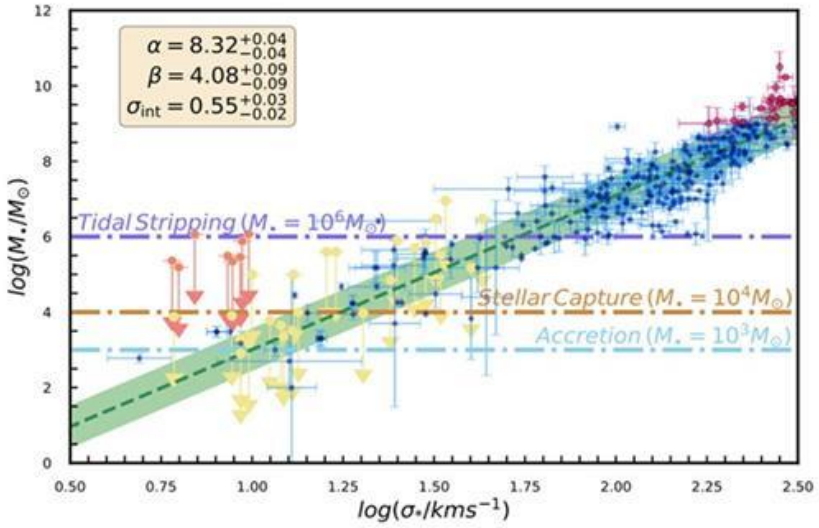
- It will be backed by the massive **₹91,000 crore** investment and this project will establish the country's first chip fabrication unit. The initiative is also expected to boost the domestic manufacturing, reduce reliance on the imports and will create the thousands of jobs.
- The government has officially notified the Special Economic Zone (SEZ) for the Tata Semiconductor Manufacturing Pvt Ltd at Dholera.
- It is approved by the Board of Approval which is the highest authority for SEZ matters.
- It will also be Chaired by the Commerce Secretary.
- And it was notified by the Department of Commerce on April 9, 2026
- **Massive Investment For The Semiconductor Hub**
- Key Highlights Are,
- To establishment of the India's first chip fabrication unit
- Also strengthening the domestic production of semiconductors
- Will reducing the dependency on global chip imports

Scientists Explore Black Holes in Dwarf Galaxies

- A recent scientific study has opened new possibilities in our understanding of the universe by investigating whether **dwarf galaxies**—the smallest and most common type of galaxies—can host black holes. This research provides important clues about how black holes form and evolve, especially in the early universe.

- **What Are Dwarf Galaxies?**
- Dwarf galaxies are relatively small cosmic systems containing only a few billion stars, compared to massive galaxies like the Milky Way, which host hundreds of billions. Despite their small size, they are abundant and play a crucial role in understanding galaxy formation and evolution.
- **Key Findings of the Study**
- Scientists analyzed observational data to determine whether black holes exist in dwarf galaxies. The findings suggest:
- The presence of **massive black holes is not strongly required** by current data, but their existence cannot be ruled out.
- The estimated upper limit for black hole mass in these galaxies is typically **below one million times the mass of the Sun**.
- Some dwarf galaxies may host even smaller black holes, possibly in the **intermediate-mass range**.
- **Scaling Relation Across Galaxies**
- One of the most significant outcomes of the research is the discovery of a **continuous relationship between galaxy properties and black hole mass**:
- Scientists found a link between **black hole mass and stellar velocity dispersion** across galaxies of all sizes.
- This relationship spans a wide range—from small dwarf galaxies to massive galaxies—suggesting a **universal scaling law**.
- However, uncertainties remain higher in smaller galaxies due to limited observational data.
- **Theoretical Models of Black Hole Growth**
- The study also compared observations with theoretical predictions:
- **Gas accretion models** suggest black holes in dwarf galaxies may have masses around **1,000 times the Sun's mass**.
- **Stellar capture processes** could allow them to grow up to **10,000 solar masses or more**.

- Both models fit within the observed limits, supporting the possibility that dwarf galaxies can indeed host black holes.
- **Why This Research Matters**
- Understanding black holes in dwarf galaxies is important because:
- These galaxies may contain the **"seed" black holes** that later grow into supermassive black holes found in large galaxies.
- It helps scientists trace the **origin and evolution of black holes** in the universe.
- It provides insights into the **formation of galaxies in the early universe**.
- A major diplomatic development has emerged as **Vladimir Putin**, the President of Russia, is set to visit India in 2026 to participate in the upcoming BRICS Summit. This visit highlights the continuing strength of India-Russia relations and the growing importance of multilateral cooperation among emerging economies.



REVIEW QUESTIONS

1. **Dwarf galaxies typically contain how many stars?**
   A. Trillions
   B. Hundreds of billions
   C. A few billion

D. Only thousands
Ans: C

2. **The estimated upper limit of black hole mass in dwarf galaxies is:**
   A. 10 billion solar masses
   B. 1 million solar masses
   C. 100 million solar masses
   D. 10,000 solar masses
   Ans: B
3. **The relationship between black hole mass and galaxy property is mainly linked to:**
   A. Temperature
   B. Velocity dispersion
   C. Size
   D. Distance
   Ans: B
4. **Black holes in dwarf galaxies are often categorized as:**
   A. Stellar black holes
   B. Supermassive black holes
   C. Intermediate-mass black holes
   D. Primordial black holes
   Ans: C
5. **Why are dwarf galaxies important in black hole studies?**
   A. They are largest galaxies
   B. They host quasars
   C. They may contain seed black holes
   D. They emit gamma rays
   Ans: C
6. **The Army Commanders' Conference 2026 was held in:**
   A. January
   B. March
   C. April
   D. June
   Ans: C
7. **The conference is chaired by:**
   A. Defence Minister
   B. Prime Minister
   C. Chief of the Army Staff
   D. National Security Advisor
   Ans: C

8. **The theme for 2026 is:**
   A. Digital India
   B. Atmanirbhar Bharat
   C. Networking and Data Centricity
   D. Modern Warfare Strategy
   Ans: C
9. **Which technology was emphasized for future warfare?**
   A. Nuclear weapons
   B. Unmanned Aerial Systems
   C. Submarines
   D. Ballistic missiles
   Ans: B
10. **The conference highlighted the need for:**
   A. Soft power only
   B. Economic reforms
   C. Hard power for protection
   D. Agricultural reforms
   Ans: C
11. **The World Border Security Congress 2026 was held in:**
   A. Paris
   B. Vienna
   C. London
   D. Berlin
   Ans: B
12. **The Indian delegation was led by:**
   A. Rajnath Singh
   B. Anand Prakash Badola
   C. Ajit Doval
   D. Manoj Pande
   Ans: B
13. **The Congress was established in:**
   A. 2005
   B. 2010
   C. 2012
   D. 2015
   Ans: C
14. **The main focus of India at the congress was:**
   A. Cybersecurity
   B. Maritime security

C. Air defence
D. Nuclear policy
Ans: B

15. **The Congress brings together:**
A. Only military officials
B. Only scientists
C. Government, industry, and experts
D. Only politicians
Ans: C

16. **Indian Space Research Organisation is responsible for India's space surveillance efforts.**
A. DRDO
B. NASA
C. ISRO
D. ESA
Ans: C

17. **MOTR stands for:**
A. Multi-Object Tracking Radar
B. Modern Orbital Tracking Radar
C. Multi Optical Tracking Range
D. Mobile Object Tracking Radar
Ans: A

18. **Low Earth Orbit (LEO) ranges approximately between:**
A. 0–100 km
B. 100–300 km
C. 500–1000 km
D. 2000–5000 km
Ans: C

19. **The semiconductor plant is being set up in:**
A. Maharashtra
B. Tamil Nadu
C. Gujarat
D. Karnataka
Ans: C

20. **The investment for the semiconductor project is approximately**:
A. ₹10,000 crore
B. ₹50,000 crore
C. ₹91,000 crore

D. ₹1,50,000 crore
Ans: C