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Mars resonance on Earth

Mars causes the churning of Earth's ocean every 2.4 million years, which is linked to periods of increased solar energy and a warmer climate.

Mars
• **Red Planet –** Mars, sometimes called the Red Planet, is the fourth planet from the Sun, and the seventh largest. • **Roman God –** Mars has long been associated with warfare and slaughter, it is named for the Roman god of war. • **Distance –** Mars is 53% smaller than Earth, and is 1.52 Astronomical Unit (AU) from the Sun. • Earth is 1 Astronomical Unit away from the Sun. • **Proximity –** The planet is the second closest to Earth, after Venus. • **Orbit –** It is usually easy to observe in the night sky because its orbit lies outside Earth's. • **Moons –** Phobos and Deimos. • It is also the only planet whose solid surface and atmospheric phenomena can be seen in telescopes from Earth.

- **Astronomical Grand Cycles –** Deep-sea currents shifts every 2.4 million years, and this cycle is known as the astronomical grand cycles.
- This occurs due to the interaction between the orbits of Earth and Mars.

NASA's Ingenuity is the first helicopter to fly on Mars, helps in collecting samples from the surface from various locations on Mars.

- **Resonance –** Mars and Earth are affecting each other through a phenomenon signified as resonance.
- Resonance is a concept wherein two bodies affect each other based on their gravitational push or pull on each other.
- This phenomenon is essential in keeping a balance in the solar system and ensuring the steady orbiting of the planets as every planet's orbiting affects it's nearby one due to this resonance.
- **Eccentricity –** Resonance affects the shape of their orbits, called eccentricity (a measure of how close to circular their orbits are).
- Due to this resonance, the Earth is pulled slightly closer to the sun by Mars' gravitational pull.
- This means, our planet is exposed to more solar radiation and hence has a warmer climate, before drifting backward again, all over a period of 2.4 million years.
- **Deep Ocean Currents –** During warmer times, the deep-sea record shows more breaks, connected to stronger deep ocean currents.

- **Eddies –** The stronger currents, known as giant whirlpools or eddies, may reach the seafloor at the deepest parts of the ocean, known as the abyss or abyssal seafloor.

Eddies, played a big role in warming seas in the past.

- Eddies don not move water like the AMOC, which shifts water between different latitudes.
- **Contourites –** Once connected to the deep seafloor, these huge whirlpools could cause erosion and create large snowdrift-like buildups of sediments called "contourites".
- **AMOC –** Eddies may help the offsetting of ocean stagnation, which follows the slowing of Atlantic meridional overturning circulation (AMOC).
- AMOC is a vast system of ocean currents that carries warm water from the tropics to the North Atlantic Ocean.
- It is responsible for driving the Gulf Stream and maintaining warm climates in Europe.

India's maiden interplanetary mission, Mangalyaan or the Mars Orbiter Missions (MOM), explores and observes Mars surface features, morphology, mineralogy and the Martian atmosphere.

References

1. India Today – Mars secretly makes Earth's oceans dance to its tunes
2. Economic Times – Mars responsible for giant whirlpools on Earth
3. Live Science – Mars tugs on Earth so hard it changes the ocean floor
4. Space.com – Red Planet influences Earth's climate and seas

Model Code of Conduct (MCC)

Model Code of Conduct comes into force for 2024 Lok Sabha elections.

- **Guidelines –** The MCC of the Election Commission of India (ECI) is a set of guidelines issued to regulate political parties and candidates prior to elections.
- **Rules –** The rules range from issues related to speeches, polling day, polling booths, portfolios, the content of election manifestos, processions, and general conduct, so that free and fair elections are conducted.
- **Comes into Force –** The MCC comes into force from the date the election schedule is announced until the date that results are out.
- **Provisions –** The MCC contains eight provisions dealing with general conduct, meetings, processions, polling day, polling booths, observers, the party in power, and election manifestos.
- **Restrictions –** Parties in both centre and state, should ensure that it does not use its official position for campaigning.
- No policy, project or scheme can be announced that can influence the voting behaviour.

- No advertising at the cost of the public exchequer or using official mass media for publicity on achievements to improve chances of victory in the elections.
- Ministers must not combine official visits with election work or use official machinery for the same.
- Ruling party cannot use government transport or machinery for campaigning.
- Ruling government cannot make any ad-hoc appointments in government, public sector undertakings etc., which may influence the voters.
- Political parties can be criticised based only on their work record and no caste and communal sentiments can be used to lure voters.
- Mosques, Churches, Temples or any other places of worship should not be used for election campaigns.
- Bribing, intimidating or impersonation of voters is also barred.

MCC ensures that public places and facilities are provided to the opposition parties on the same terms and conditions on which they are used by the party in power.

- **Election Silence –** Holding public meetings during the 48-hour period before the hour fixed for the closing of the poll is also prohibited.
- The 48-hour period is known as election silence.
- **Binding Nature –** It has no statutory backing, meaning anybody breaching the MCC cannot be proceeded against under any clause of the Code.
- Everything is voluntary.
- The Election Commission (EC) uses moral sanction or censure for its enforcement.
- The ECI can issue a notice to a politician or a party for an alleged breach of the MCC either on its own or based on a complaint by another party or individual.
- Once a notice is issued, the person or party must reply in writing, either accepting fault and tendering an unconditional apology or rebutting the allegation.

References

1. The Hindu – What is Model Code of Conduct?
2. The Indian Express – Model Code of Conduct comes into force
3. ECI – Model Code of Conduct (MCC)

Bugun Liocichla

Arunachal Bugun Tribe donates land for critically endangered songbird Bugun Liocichla.

- Bugun Liocichla is a small babbler bird (only 20 cm) with olive-grey plumage and black cap.

Bugun Liocichla is found only in the Eaglenest Wildlife Sanctuary and nowhere else in the world.

- The bird was identified by Ramana Athreya, a Pune-based astrophysicist.
- The avian species is critically endangered with only 14 individual birds spotted so far in the Braiduah village under the Singchung sub-division.

Bugun Liocichla was the first bird to be discovered in India since its independence, in 2006.

- As a major step towards conservation, the Arunachal Pradesh government finally notified Braiduah Community Reserve under the Wildlife Protection Act, 1972.
- The reserve is situated adjacent to the Eaglenest Wildlife Sanctuary.

Bugun Liocichla Utsav is a festival held to commemorate 15 years of the bird's discovery.



Bugun Tribes
• **From –** The Khowa tribe, also known as Bugun people, of western Arunachal Pradesh bordering Bhutan is one of India's smallest tribal communities. • **Language –** They speak Kho-Bwa language, which is derived from the words 'Kho' meaning fire and 'Bwa' for water, hence the name Khowa. • Their language is similar to Mey language of the neighboring Sherdukpen tribe, with who they coexisted peacefully in the mountains. • **Race –** The Buguns are of Mongoloid race and they believe to have descended from a mythical tribe Achinphumphulua. • **Endogamous –** Buguns are generally endogamous as they marry within their community.

References

1. Deccan Herald – Arunachal tribe donates land for Bugun Liocichla
2. Down To Earth – 15 years of Bugun Liocichla

Tentative UNESCO list

Six heritage sites from Madhya Pradesh earn a spot on UNESCO's tentative list.

Procedure to be included in World Heritage Site (WHS)

• **Selection criteria –** To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of 10 selection criteria of UNESCO.
• Only countries that have signed the World Heritage Convention can submit nomination proposals for properties on their territory to be considered for inclusion in UNESCO's World Heritage List.
• **Tentative List –** The first step a country must take is to make an 'inventory' of its important natural and cultural heritage sites located within its boundaries, known as the Tentative List.
• The World Heritage Committee cannot consider a nomination for inscription on the World Heritage List unless the property has already been included on the State Party's Tentative List.
• **Evaluation –** A nominated property is independently evaluated by
1. The International Council on Monuments and Sites (ICOMOS)
2. The International Union for Conservation of Nature (IUCN)
3. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)

• **Deciding authority –** Once a site has been nominated and evaluated, it is up to the intergovernmental World Heritage Committee to make the final decision on its inscription.

- The sites included in the new list included:
  - Gwalior Fort, Historical Group of Dhamnar, Bhojeshwar Mahadev Temple, Rock Art Sites of Chambal Valley, Khooni Bhandara, God Memorial of Ramnagar.

Sites included in UNESCO Tentative List	
Sites	**Features**
Gwalior Fort	• Gwalior Fort was built in the 8th century, and its origins can be traced back to the Tomar dynasty. • The fort is strategically located on a steep sandstone hill, which provides a natural defense advantage. • The fort showcases a unique amalgam of architectural styles, including Rajput, Mughal, and Hindu. • This blend of styles is a proof to the various dynasties that ruled the region.
Historical Group of Dhamnar	• The Dhamnar caves are located on a hill near the village of Dhamnar. • This rock cut site consists of a total of 51 caves of varying sizes carved into the laterite hill. • The hill consists of two groups of structures, the series of Buddhist caves and the hindu temple complex known as the Dharmarajeshwara temple, also called Dharmanath temple. • The caves have been mentioned by three different accounts of explorers James Tod who visited the site in 1821, James Furgusson in 1845 and later by Alexander Cunningham who visited the site in 1864-65.

Bhojeshwar Mahadev Temple	• The origin of the town of Bhojpur can be credited to Raja Bhoj, the same man who founded Bhopal in the 11th century AD. • The 12th century Bhojeshwar Temple is considered to be one of the finest examples of temple architecture in the region. • At its core is the abstract representation of the deity Shiva, or 'linga', in the temple sanctum.
Rock Art Sites of Chambal Valley	• At Daraki-Chattan in the Chambal basin in Madhya Pradesh, a cave in the quartzite buttresses of Indragarh hill. • The vertical walls of the cave boast more than 500 cupules. • On the southern wall of the cave at Daraki-Chattan, small circular cupules that show conical depth and are about two million years old. • The paintings dates back to the Megalithic Age.
Khooni Bhandara	• Khooni Bhandara is an underground water management system comprising of eight waterworks. • These Mughal period waterworks of Burhanpur form one of the most significant historic water systems in India. • It was built on similar Persian qanat approach in 1615 CE.

Many important sites of Madhya Pradesh are already part of the tentative list of UNESCO, such as the Satpura Tiger Reserve, The historic ensemble of Orchha, Iconic Saree Weaving Clusters of India etc.

Quick Facts
Ramnagar Ramlila
• Ramnagar Ramlila is a famous cultural event held annually in Ramnagar, Madhya Pradesh. • It's a traditional performance that reenacts the epic story of the Ramayana, particularly focusing on the life and adventures of Lord Rama. • This Ramlila is known for its vibrant costumes, elaborate sets, and enthusiastic participation from the local community. • It usually takes place during the festival of Navaratri, attracting large crowds of devotees and tourists who come to witness the spectacle. • It was classified as an Intangible Cultural Heritage of Humanity in 2008 by UNESCO.

References

1. Hindustan Times – 6 MP sites included in tentative UNESCO list
2. Times of India – Gwalior Fort among 6 heritage sites in tentative list
3. UNESCO – Tentative Lists

Joint Logistics Over-the-Shore (JLOTS)

US Army ships have sailed from Virginia with equipment to build a floating pier on the Gaza coast to deliver humanitarian aid to the enclave.

- **JLOTS –** It is the project to build the floating pier on the Gaza coast.
- Pier is a large wooden or metal structure that is built out into the sea from the land.
- Boats can stop at piers so that people or goods can be taken on or off.
- JLOTS is the American solution to deal with hunger and an impending famine in Gaza.
- JLOTS capabilities are used to transport cargo by sea when one or more ports cannot be operated or are not available for loading or unloading.
- Usually, JLOTS is part of a military campaign or exercise, such operations usually involve joint operations by the forces.
- The navy transports the goods and provides protection, the army or other agencies are involved in building the last mile bridge, delivery, etc.
- The floating pier in Gaza will be built with no US boots on the ground.
- The US will take the help of the private company Fogbow, which is run by former military and intelligence officials.

- **The Floating Dock –** The floating dock will be a platform built with pieces of steel, which will be delivered to the spot by a roll on, roll off ship, which is essentially a cargo ship with a platform to load and unload heavy cargo.
- While the pier will be attached to the shore, the dock could be located up to a kilometre from the coast.
- The dock is required so that ships carrying aid don't have to come close to the shore where they may possibly get stuck in shallow water.

All floating bridges can take heavy weights such as tanks and cargo, and they stay afloat because of buoyancy and density.

Principle of buoyancy
• The principle of buoyancy states that any fully or partially submerged object experiences an upward force, known as buoyant force, equal to the weight of the fluid displaced by the object. • Objects that are less dense than water stay afloat. • That's because they displace less water and therefore, the buoyant force is more than the gravitational force. • Objects that are denser than water sink.

References

1. The Indian Express – USA plans to deliver humanitarian aid to Gaza
2. BBC – US military plans to construct a pier and get foot into Gaza



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Information is Empowering