Current Affairs 10th December 2023 by Saurabh Pandey

Honeyguide bird

- African honeyguide birds understand and respond to the culturally distinct signals made by local human honey hunters, suggesting cultural coevolution between species.
- These successful calls have been maintained in these groups for generations.
- Systems in which humans successfully cooperate with wild animals are rare.
- One such involves the greater honeyguide, a small African bird known to lead humans to wild bees' nests

- Honeyguides (family Indicatoridae) are near passerine birds in the order Piciformes.
- They are also known as indicator birds, or honey birds,
- These birds are best known for their interaction with humans. Honeyguides are noted and named for one or two species that will deliberately lead humans (but, contrary to popular claims, not honey badgers) directly to bee colonies, so that they can feast on the grubs and beeswax that are left behind.
- Near passerines and higher land-bird assemblage are terms of traditional, pre-cladistic taxonomy that have often been given to tree-dwelling birds or those most often believed to be related to the true passerines.
- The Hindu

Annual tree ring

- Annual tree ring growth records from more than 122 species of trees show that trees growing in wetter forests are more sensitive to increasing drought.
- The findings suggest that land management and policy focused solely on drought effects in drier regions overestimates the resilience of forests in wetter regions.

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- Dendrochronology (or tree-ring dating) is the scientific method of dating tree rings (also called growth rings) to the exact year they were formed in a tree

- Research suggests that forests will continue to shift from carbon sinks to sources as the effects of climate change increase. So there is a need to predict which forests are vulnerable to a hotter future.

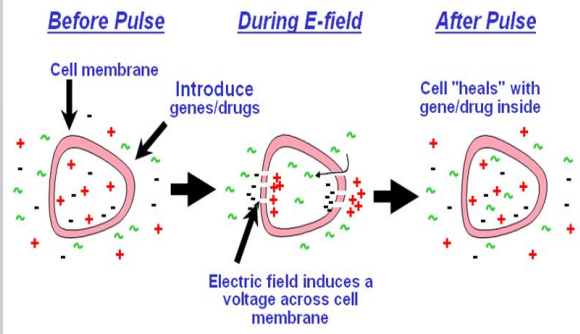
The Hindu

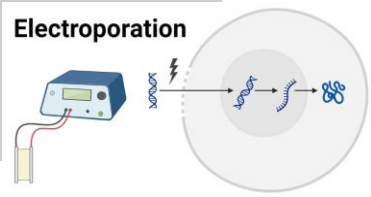
Teosinte

- Teosinte, any of four species of tall, stout grasses in the genus *Zea* of the family Poaceae.
- Teosintes are native to Mexico, Guatemala, Honduras, and Nicaragua. Domesticated corn, or maize
- Teosinte expands outward. It's an Omni-directional force starting from a pin point and then outward like an exploding star. This makes it impossible to define by a small sample

Electroporation

- Electroporation designates the use of short high-voltage pulses to overcome the barrier of the cell membrane.
- By applying an external electric field, which just surpasses the capacitance of the cell membrane, transient and reversible breakdown of the membrane can be induced





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Green turtle

- Rising global temperatures could lead to an increase in the nesting range of green turtles in the Mediterranean Sea, as per a study in Scientific Reports.
- Under the worst case climate scenario, the nesting range could increase by over 60% points, spreading west from the current area to include much of the North African, Italian, and Greek coastlines.
- Human caused climate change has caused sea surface temperatures to increase globally, with severe impacts on some marine life.
- Sea turtles are potentially particularly susceptible, as the sex of their offspring is dependent on incubation temperature

About Green turtle

- The green turtle is one of the largest Sea turtles and the only herbivore among the different species. Green turtles are in fact named for the greenish color of their cartilage and fat, not their shells.
- In the Eastern Pacific, a group of green turtles that have darker shells are called black turtles by the local community. Green turtles are found mainly in tropical and subtropical waters.
- Like other sea turtles, they migrate long distances between feeding grounds and the beaches from where they hatched. Classified as endangered, green turtles are threatened by overharvesting of their eggs, hunting of adults, being caught in fishing gear and loss of nesting beach sites.
- The Hindu

Michaung intensification and MJO

- On December 4, the cyclonic storm intensified into a supercyclonic storm. Tropical cyclones are 'engines' that use a warm sea surface as 'fuel'.
- As air moves over a warm sea, it also warms and accumulates moisture, and begins to ascend.
- In the process, it becomes cooler, which condenses the vapour and forms clouds. Condensation releases heat, which makes the air lighter and causes it to ascend further.
- As it does, the surrounding air moves in underneath, creating the surface winds associated with cyclones.
- This (simplified) process is the reason climate change has been conducive to cyclone intensification.

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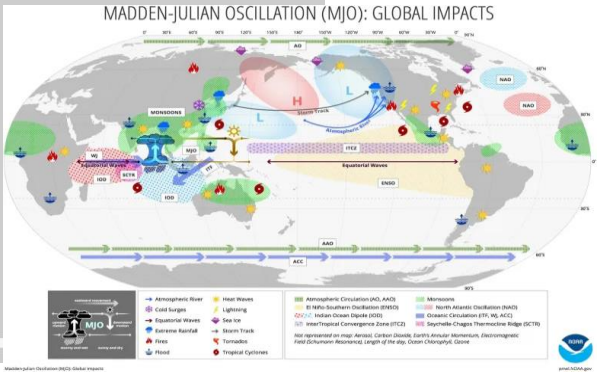
- Large water bodies absorb most of the heat of global warming.
- The intensification is also greater if the cyclone spends more time over water before landfall, as Cyclone Michaung did off the Tamil Nadu coast.

Why does intensification matter?

- Cyclones draw heat from the sea and move it to the upper atmosphere, where winds carry it to the earth's poles.
- An intensifying cyclone will do this more powerfully. A study published in May 2020 found that tropical cyclones with wind speeds upward of 185 km/hr had become 15% more likely since 1979.
- Cyclone Michaung's own intensification was also assisted by the MaddenJulian oscillation (MJO), among other factors
- The MJO consists of a 'pair' of weather anomalies that move eastward around the world once every one to two months.
- The leading side imposes dry weather while the trailing side imposes wet (rainy) weather. The advisory said that on December 3, the MJO near Cyclone Michaung maintained favourable conditions for rain formation.
- Cyclone intensification complicates forecast models and allows storms to make landfall with more energy, move further inland, survive longer, and bring their on ground devastation to previously 'inaccessible' areas.

ALL ABOUT MJO (MaddenJulian oscillation (MJO))

- Imagine ENSO as a person riding a *stationary* exercise bike in the middle of a stage all day long. His unchanging location is associated with the persistent changes in tropical rainfall and winds that we have previously described as being linked to ENSO.
- Now imagine another bike rider entering the stage on the left and pedaling slowly across the stage, passing the stationary bike (ENSO), and exiting the stage at the right.
- This bike rider we will call the MJO and he/she may cross the stage from left to right several times during the show.



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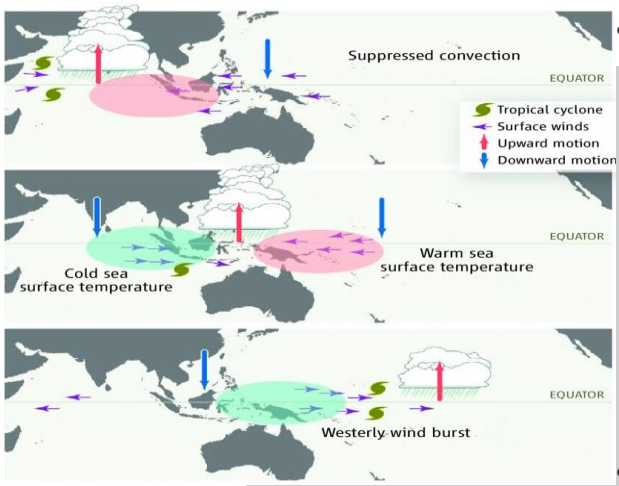
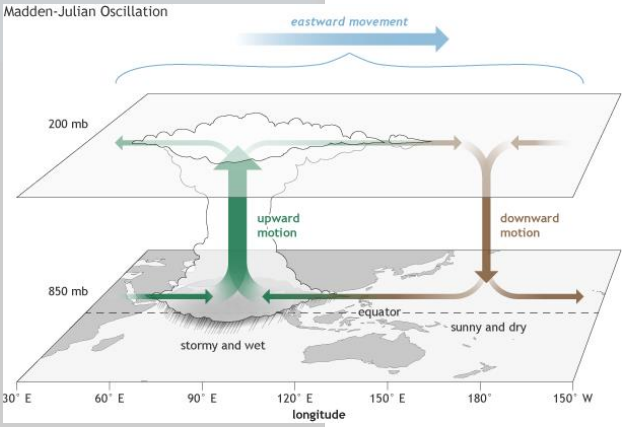


- **So, unlike ENSO, which is stationary, the MJO is an *eastward moving* disturbance of clouds, rainfall, winds, and pressure that traverses the planet in the tropics and returns to its initial starting point in 30 to 60 days, on average.**
- **This atmospheric disturbance is distinct from ENSO, which once established, is associated with persistent features that last several seasons or longer over the Pacific Ocean basin.**
- **There can be multiple MJO events within a season, and so the MJO is best described as *intraseasonal* tropical climate variability (i.e. varies on a week-to-week basis).**
- **The MJO was first discovered in the early 1970s by Dr. Roland Madden and Dr. Paul Julian when they were studying tropical wind and pressure patterns.**
- **The MJO consists of two parts, or phases: one is the enhanced rainfall (or convective) phase and the other is the suppressed rainfall phase. Strong MJO activity often dissects the planet into halves: one half within the enhanced convective phase and the other half in the suppressed convective phase.**
- **These two phases produce opposite changes in clouds and rainfall and this entire dipole (i.e., having two main opposing centers of action) propagates eastward.**
- **In the enhanced convective phase, winds at the surface converge, and air is pushed up throughout the atmosphere. At the top of the atmosphere, the winds reverse (i.e., diverge).**
- **Such rising air motion in the atmosphere tends to increase condensation and rainfall**



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PMJANMAN

- The Tribal Affairs Ministry told the Rajya Sabha that the population of Particularly Vulnerable Tribal Groups (PVTGs) was not in decline, citing information provided by the Office of the Registrar General and Census Commissioner of India (ORGI)

Who are the PVTGs?

- Initially known as Primitive Tribal Groups, the PVTGs are defined by the government as tribal communities that show either a declining or stagnant population, use of pre-agrarian technology, economic backwardness, low literacy etc.
- They are found to be living in some of the remotest and most inaccessible areas in the country.
- There are 75 such communities which are spread over 18 States and Union Territories, according to government figures.

What does the PMJANMAN aim to do?

- The Cabinet recently approved the ₹24,000 crore Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan after the Prime Minister announced the Particularly Vulnerable Tribal Groups Development Mission early this year that would take basic facilities likes roads, power, homes, mobile connectivity, etc. to the most backward among the Scheduled Tribes, the PVTGs.
- The first announcement of this package came early this year during the Budget Session, when Finance Minister Nirmala Sitharaman announced that a PMPVTG Development Mission would be launched, for which the Government was planning a ₹15,000 crore expenditure, to be spent over a period of three years.
- The allocation cleared by the Union Cabinet on November 29 for this package stood at ₹24,104 crores out of which the central share would be ₹15,336 crores and the share for the respective State governments would stand at ₹8,768 crores.
- The Hindu