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Tornado

IMD warns of more tornadoes in northern Bengal after 5 killed.

- **Tornado** - A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground.

In the United States, twister is used as a colloquial term for tornado.

- **Characteristics** - Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris.
- Tornadoes can be among the most violent phenomena of all atmospheric storms experienced on Earth.
- Before a tornado hits, the wind may die down and the air may become very still.
- A cloud of debris can mark the location of a tornado even if a funnel is not visible.
- Tornadoes generally occur near the trailing edge of a thunderstorm.

It is not uncommon to see clear, sunlit skies behind a tornado.

- **Occurrence** - Tornadoes occur in many parts of the world, including Australia, New Zealand, Europe, Africa, Asia, and South America.
- Two of the highest concentrations of tornadoes outside the U.S. are Argentina and Bangladesh.

Tornado Alley is a nickname invented by the media to refer to a broad area of relatively high tornado occurrence in the central United States.

- **Formation** - The most destructive tornadoes occur from supercells, which are rotating thunderstorms with a well-defined radar circulation called a mesocyclone.
 - Supercells can also produce damaging hail, severe non-tornadic winds, frequent lightning, and flash floods.
- Tornado formation is believed to be dictated mainly by things which happen on the storm scale, in and around the mesocyclone.
 - Mesocyclone is a storm-scale region of rotation, typically around 2-6 miles in diameter and often found in the right rear flank of a supercell.
- Once a mesocyclone is underway, tornado development is related to the temperature differences across the edge of downdraft air wrapping around the mesocyclone.

Hail (form of solid precipitation) is very commonly found very close to the tornadoes, as the strongest thunderstorms that spawn tornadoes are formed under the atmospheric conditions that are also highly likely to make hail.

- **Measurement** - The Enhanced Fujita Scale or EF-Scale is a rating of how strong a tornado was.
- It is calculated by surveying the damage and comparing it with damage to similar objects at certain wind speeds.
- The EF-Scale is not meant to be used as a measure of how strong a tornado currently on the ground is.

Tornado Identification

- **Inflow Bands** - They are ragged bands of low cumulus clouds extending from the main storm tower usually to the southeast or south.
- The presence of inflow bands suggests that the storm is gathering low-level air from several miles away.
- If the inflow bands have a spiraling nature to them, it suggests the presence of rotation.
- **Beaver's Tail** - It is a smooth, flat cloud band extending from the eastern edge of the rain-free base to the east or northeast.
- **Wall Cloud** - A wall cloud is an isolated cloud lowering attached to the rain-free base of the thunderstorm.
- **Rear Flank Downdraft (RFD)** - RFD is a downward rush of air on the back side of the storm that descends along with the tornado.
- **Condensation Funnel** - A condensation funnel is made up of water droplets and extends downward from the base of the thunderstorm.
- If it is in contact with the ground it is a tornado; otherwise it is a funnel cloud.
- Dust and debris beneath the condensation funnel confirm a tornado's presence.

- **India** - In India, West Bengal and Odisha are vulnerable to tornadoes during pre-monsoon season (March-May).
- Northwest India does not normally experience this violent weather phenomenon; but there have been a few cases over the region.
- In India, there is no official monitoring of tornadoes.

Difference between Cyclone, Hurricane and Typhoon

Cyclone	Hurricane	Typhoon
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<ul style="list-style-type: none"> • It is a system of winds that are rotating inwards to an area of low barometric pressure. • In the Northern Hemisphere it is anticlockwise and in the Southern Hemisphere it is clockwise circulation. • They are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. 	<ul style="list-style-type: none"> • Hurricanes and Typhoons are the same thing, but in different places. • On the coast of Florida it is called hurricane. • Hurricanes occur in the Atlantic and typhoons, in the Pacific. • Basically, hurricanes and typhoons form over water and are huge, while tornados form over land and are much smaller in size. 	<ul style="list-style-type: none"> • A typhoon is a tropical cyclone that develops between 180° and 100°E in the Northern Hemisphere. • It produces sustained hurricane-force winds of at least 119 km/h (74 mph). • This region is referred to as the Northwestern Pacific Basin, accounting for almost one third of the world's tropical cyclones.
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References

1. [The Indian Express - IMD warns of more tornadoes in Bengal](#)
2. [NWS - Tornado Definition](#)
3. [NOAA NSSL - Tornado Basics](#)
4. [Britannica - Tornado](#)

Gurkhas & Yobins

Tensions between the settlers, who are primarily families of Gurkhas who served in the Army and the Assam Rifles, and the Yobins, a trans-border community that was given Scheduled Tribe status, have been rising.

Gurkhas

- The term Gurkha refers to the region around the town of Gurkha, Central Nepal.
- The Shah dynasty (1559-2008) consolidated the modern state of Nepal through military conquest in the late 18th century.
- Gurkhas are soldiers from Nepal serving in the Indian Army and in the British Army.
- Gurkha fighters soon became known globally for their excellent combat qualities and their use of kukri knives.
- East India Company first recruited Gurkhas after suffering heavy casualties during the Anglo-Nepalese War, also known as the Gurkha War.
- The war ended with the signing of the Treaty of Sugauli in 1816.
- It ensured that Gurkhas in British and Indian service would enjoy broadly the same conditions of service as that of British and Indian citizens.
- In 1947, when India became independent, it was decided to split Gurkha regiments between the British and Indian armies.
- After the 1947 Tripartite Agreement, the British Army amalgamated the Gurkha regiment into combined Royal Gurkha Rifles (RGR).
- Currently, the Gurkhas comprise up to 3% of the British Army.
- The Gurkhas are recruited every year at the British Gurkha camp at Pokhara in Nepal.

Lisu People - Yobins

- The vast majority of the Lisu people live in China or Myanmar, but a few reside in Thailand or India.
- The Lisu people in India are called Yobin.
- In India, they are found in Shidi Valley and Nibodi village of Arunachal Pradesh, surrounded by Namdapha National Park.
- The tribe is speculated to have originated from the Yunnan region in North-Western Tibet in the 18th century and were traditionally slash and burn farmer communities.
- It is believed that in the 19th century, they started going towards the south and reached what is now China, India, Myanmar, Laos, and Thailand.
- They have the largest population in South-West China and almost all Yobin claim to be Christians.
- They celebrate harvest festival for two days in October.
- In the 1980s, the Lisu tribe in India was not given the privilege of Indian citizenship, and they were considered refugees from Myanmar and China.
- By 1994, India granted them citizenship, and in 1950, they were included in the Scheduled Tribes list.

In 2018, the Yobins residing in Arunachal Pradesh got their Scheduled Tribe (ST) status back.

Quick Facts

Assam Rifles

- The Assam Rifles was raised as *Cachar Levy* in 1835 to protect British tea estates and their settlements against tribal raids.
- **Assam Frontier Force** - AR was expanded to conduct punitive operations beyond the borders of Assam.
- It came to be known as the "*right arm of the civil and left arm of the military*".
- **Battalion force** - In 1870, the elements of the force were merged into three Assam Military Police Battalions, named after the Lushai Hills, Lakhimpur, and the Naga Hills.
- **Darang Battalion** - It was raised just before the onset of World War I. Since it was difficult to mobilise reservists at short notice, and soldiers of the Gurkha Battalion were on leave in Nepal, the Assam Military Police were tasked to take their place.
- **Name change** - In 1917, the name of the force was changed to Assam Rifles, recognizing their work during the Great War, in which they fought shoulder-to-shoulder with Rifle Regiments of the British Arm.
- **World War II** - After the Japanese advance in 1942, the Assam Rifles fought a number of independent actions behind enemy lines.
- They also organised a resistance group, *the Victor Force*, on the Indo-Burmese border to counter the Japanese forces and to harass the enemy line of communications.
- **Participation** -
 1. First World War, Second World War
 2. Sino-Indian war of 1962
 3. An anti-insurgency force against militant groups in the Northeast

References

1. [The Hindu - The unsettled settlers of Arunachal Pradesh](#)
2. [Britannica - Gurkha People](#)

Exchange Traded Currency Derivatives (ETCDs)

RBI defers Exchange Traded Currency Derivatives (ETCDs) norms.

Currency Derivatives (CDs)

- Currency Derivatives are exchange-traded contracts deriving their value from their underlying asset, i.e., the currency.
- The investor buys or sells specific units of fixed currency on a pre-specified date and rate.
- These contracts are actively traded on the stock exchanges and are mainly used by importers and exporters to hedge against domestic currency fluctuation.
- Currency derivative contracts are standardized through a foreign regulatory exchange with an intermediary clearing house.
- Since derivatives are traded in a regulated market, the contract does not leave a window for buying or selling current assets at a specific date and rate, expelling the chance of counterparty risk.

Exchange Traded Currency Derivatives (ETCD)

- ETCD is a standardized financial contract that is traded in stock exchanges in a regulated manner.
- They are subject to the rules framed by market regulators such as Securities and Exchange Board of India (SEBI) in India.
- ETCD are essentially contracts, deriving values from the price fluctuation of their underlying assets.
- **Types of Derivatives** - They are two types of derivatives:
 1. One that is subject to standardized terms and conditions, and hence being traded in the stock exchanges.
 2. Second type being traded between private counter-parties, in the absence of a formal intermediary.
- The first type is known as Exchange Traded Derivatives (ETDs), the second is known as Over the Counter (OTC) derivatives.
- **Types of ETDs** - Stock ETDs, Index ETDs, Currency ETDs, Commodity ETDs, and Bond ETDs.
- **Working** - Exchange-traded currency contracts work on the same principle of buying at a low price and selling at a higher price.
- However, exchange-traded currency contracts are always bought in pairs:
 1. Indian Rupee vs United States Dollar (USD-INR)
 2. Indian Rupee vs Euro (EUR-INR)
 3. Indian Rupee vs Great Britain Pound (GBP-INR)
 4. Indian Rupee vs Japan's Yen (JPY-INR)

LIQUIDITY MAY TAKE A HIT

<p>> Exchange-traded currency derivatives, like futures contracts, help companies hedge against currency risk</p> <p>> For instance, an Indian exporter expecting payment in US dollars in three months can use currency futures to mitigate potential losses from adverse exchange rate movements</p> <p>> By entering a futures contract to sell US dollars at a predetermined rate, the exporter locks in a viable exchange rate</p>	<p>> The market for exchange-traded currency derivatives has been thriving for a decade due to positions taken by investors with a view on the currency</p> <p>> Dealers feel RBI's move to curb speculation is aimed at maintaining a tight leash on the markets. Speculation is needed if the goal is to move toward fuller capital account convertibility, increase rupee's influence, and prevent investors from moving to unregulated markets like cryptocurrency</p>
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References

1. [The Indian Express - RBI defers ETCD norms](#)
2. [Live Mint - RBI defers directive for ETCD to May 3](#)
3. [Times of India - RBI defers ETCD rules](#)

Well-Known Trademark

Delhi High Court declared Haldiram and its oval-shaped logo as well-known trademark for food items, restaurants, and eateries under the Trade Marks Act, 1999.

Trademark

- **Trademark** - A trademark is a symbol, design, word or phrase that is identified with business.
- Registering a trademark allows its owner to claim exclusive rights to its usage.
- **Trademark Act** - The Trademarks Act of 1999 governs the regime of trademarks and their registration in India.
- It guarantees protection for trademarks registered with the Controller General of Patents, Designs, and Trademarks, also known as the trademark registry.
- **Section 25** - According to Section 25 of the 1999 Act, once registered, a trademark is valid for 10 years and can be renewed by the owner periodically.
- Using someone's registered trademark without their authorization amounts to its violation or infringement.
- **Passing off** - The notion of Passing off in the Indian Trademarks Act, 1999 seeks to safeguard the goodwill associated with unregistered trademarks.
- It is a deception where a brand misrepresents itself as another to benefit from their reputation.
- **Example of passing off** - 'Adidas' and 'Adibas'.
- In such infringement cases, the trademark owner can take legal action and is entitled to remedies such as injunctions (orders to cease an action), damages and accounts.

Well-Known Trademarks

- The Trade Marks Act, 1999, provides protection to well-known trademarks to prevent

- misuse and obligates the Registrar to safeguard them against similar trademarks.
- Once a mark is declared well-known, the owner can prevent others from registering or using identical or similar marks for different goods and services.
 - A well-known mark adds value to a brand and increases its reputation in the market.
 - **License** - A well-known mark can be licensed or franchised to others.
 - **Criteria** - The Indian Trademarks Act provides several factors that can be considered when determining whether a trademark is well-known, including:
 1. The degree of knowledge or recognition of the mark in the relevant section of the public in India.
 2. The duration, extent, and geographical area of any use of the mark in India.
 3. The duration, extent, and geographical area of any promotion of the mark in India.
 4. The degree of inherent or acquired distinctiveness of the mark.
 5. The extent to which the mark has been registered in India or in other countries.
 - **Registrar of Trade Marks** - The Registrar of Trade Marks maintains a list of famous trademark in India.
 - This list includes both Indian and foreign trademarks.

Some of the well-known marks in India include, Amul, Coca-Cola, Bisleri, Google, Pepsi, Nestle, McDonald's, Samsung, LG, Nike, BMW, Mercedes-Benz, Sony, Nokia, and Adidas.

References

1. [Times of India - Delhi HC declares Haldiram a well-known trademark](#)
2. [News 18 - Delhi High Court Declares Haldiram as 'Well-Known' Mark](#)
3. [The Hindu - Delhi HC declares 'Haldiram' as well-known trademark](#)

Tax exemptions to political parties

Income Tax department assured Supreme Court that they would not take coercive steps to recover about Rs 3,500 crore from the Congress Party.

- **Income Tax Act** - Section 13A of the Income Tax Act, which has special provisions, applies to recognised parties.
- Section 13A of the IT Act exempts political parties from paying income tax on the income they receive.
- Accordingly, income from house property, other sources, capital gains or received through voluntary contributions, are exempted from total income.
- However, they must meet prescribed conditions.
- **Prescribed Conditions** -
 1. A party must maintain books of account and other documents to enable the tax department's assessing officer to properly deduce its income.
 2. For each voluntary contribution, other than contributions made through electoral bonds in excess of Rs 20,000 (this no longer applies), it needs to maintain records of contributions and the name and address of the donor.

3. Party accounts have to be audited by a Chartered Accountant (CA).
 4. Donations of over Rs 2,000 must be made via account payee cheques, electronic transfer, or electoral bonds (now defunct).
 5. The treasurer or an authorized person should furnish a report of donations of over Rs 20,000 to EC on or before the due date for filing returns.
 6. Parties must file returns for the previous financial year by the prescribed date.
- **Violation of Conditions** - Non-compliance results in the exemption being withdrawn as it is a beneficial provision.
 - If any of these conditions are not satisfied, the party will not be able to claim income tax relief, according to section 13A of the Income-tax Act as well as Section 29C of the Representation of the People Act, 1951.
 - Along with returns, parties also have to attach certain documents, such as the balance sheet, income and expenditure statement, contribution report, among others.
 - **Denial of Tax Exemption** - In case of denial of tax exemption, political parties are treated as association of persons and are taxed according to the applicable slab.

References

1. [Times of India - What tax exemptions do political parties enjoy?](#)
2. [Scroll.in - Congress facing 3,567-crore demand from IT department](#)

Other Important Topics

LUPEX Rover

JAXA-ISRO unveils LUPEX rover for moon's polar exploration.

- **LUPEX Mission** - **L**unar **P**olar **E**xploration Mission is slated to be launched in 2025.
- It aims to explore the polar regions of the Moon to study its geology, resources, and potential for future human missions.
- It will be accomplished in partnership of ***Japan Aerospace Exploration Agency (JAXA)*** with the ***Indian Space Research Organisation (ISRO)***.
- The **launch vehicle and rover** for this programme are supposed to be contributed by the **Japanese agency**, while the **lander** will be contributed by **ISRO**.
- **Rover** - The rover will be equipped with instruments for measuring the water content of regolith (lunar sand), drilling and sampling.

Smart AI Resource Assistant for Health (SARAH)

The World Health Organization (WHO) launched the Artificial Intelligence-powered digital health assistant ahead of World Health Day.

- **World Health Day** is celebrated annually at 7th of April.
- **2024 Theme** - 'My Health, My Right'.
- It aims to achieve access to quality health services, education and information.

- **SARAH** - It is a ***cutting-edge generative AI technology***.
- It is a digital health promoter prototype to engage users across major health topics, including healthy habits and mental health.
- It is available 24/7 in **8 languages** via video or text.

Clouded tiger cat (*Leopardus pardinoides*)

- *Leopardus pardinoides*, also known as the clouded tiger cat, is a small wild cat that was ***proposed as a new species in 2024***.
- It is part of the tiger cat complex, which includes southern tiger cat (*Leopardus guttulus*) and northern tiger cat (*Leopardus tigrinus*).
- *Leopardus pardinoides* is a ***long-tailed tiger Cat with short-round ears***.
- **Habitat** - It is found in high-altitude cloud forests in ***Central and South America***.
- **Distinction** - It has only one pair of mammae/teats.



India's stand on Gaza resolution

India abstains at U.N. Human Rights Council (HRC) on vote calling for Gaza ceasefire, arms embargo against Israel.

- **Arms embargo** - An arms embargo is a restriction on the import or export of weapons and military equipment to a specific country or region.
- Four resolutions critical of Israel passed by 47 member HRC in which India votes in favour of 3 resolutions.
- India favoured resolutions:
 1. Resolutions that criticised Israel for human rights violations against Palestinians.
 2. Resolution that criticised Israel's occupation of Syrian Golan.
 3. India also called for the Palestinian right to self-determination.
- All four resolutions were introduced at the HRC in Geneva by Pakistan on behalf of the Organisation for Islamic Cooperation.

Arrokoth

- Arrokoth is a planetesimal in the Kuiper Belt, a region beyond Neptune that contains remnants of the solar system's formation.
- Planetesimal is an accretion of dust and ice particles in a rock-like formation.
- It is a double-lobed object and resembles a snowman.
- It was discovered in 2014 by the Hubble Space Telescope.
- It is the farthest object in space that has been explored by a human space-craft.
- It is believed to have ancient 'gaseous ice' stored deep within it.



H5N1 bird flu in Penguins

A scientific expedition found that thousands of Adelie penguins are believed to have died because of bird flu in Antarctica.

- Avian influenza or bird flu refers to the disease caused by infection with ***avian (bird) influenza (flu) Type A viruses***.
- These viruses naturally spread among ***wild aquatic birds*** worldwide and can infect domestic poultry and other bird and animal species.
- Bird flu is known to affect mammals, directly from infected birds, through the consumption of bird droppings or preying on infected animals.
- **In humans** - Bird flu viruses typically don't infect humans.
- However, rare cases of human infection have occurred with some of these viruses.

India reported its first and only case of human avian influenza A (H5N1) in Haryana in 2021.

Dissolved organic carbon (DOC)

- Dissolved organic carbon (DOC) is defined as the organic matter that is able to pass through a filter that generally range in size between 0.7 and 0.22 μm .
- DOC also refers to the fraction of organic carbon compounds that are present in a dissolved form in water.
- High concentrations of DOC can reduce the pH of water, making it acidic, and also can act as a carrier for other contaminants, including heavy metals.
- It also deteriorates the taste and odour of water, making it unfit for consumption.

Xenotransplantation

In a first-of-its-kind physician-scientists at Massachusetts, U.S. have transplanted a genetically edited pig kidney into a human.

- Xenotransplantation is an experimental treatment that involves transplanting non-human cells, tissues, or organs into humans.
- The cells, tissues, or organs used in xenotransplantation are called **xenografts or xenotransplants.**
- **Challenges** - Rejection and the transmission of diseases from the donor species to the recipient.
- Pigs are a promising source of animal kidneys because they are widely available, have kidneys that are similar in size to humans, and have a low risk of transferring disease.

Plankton crash

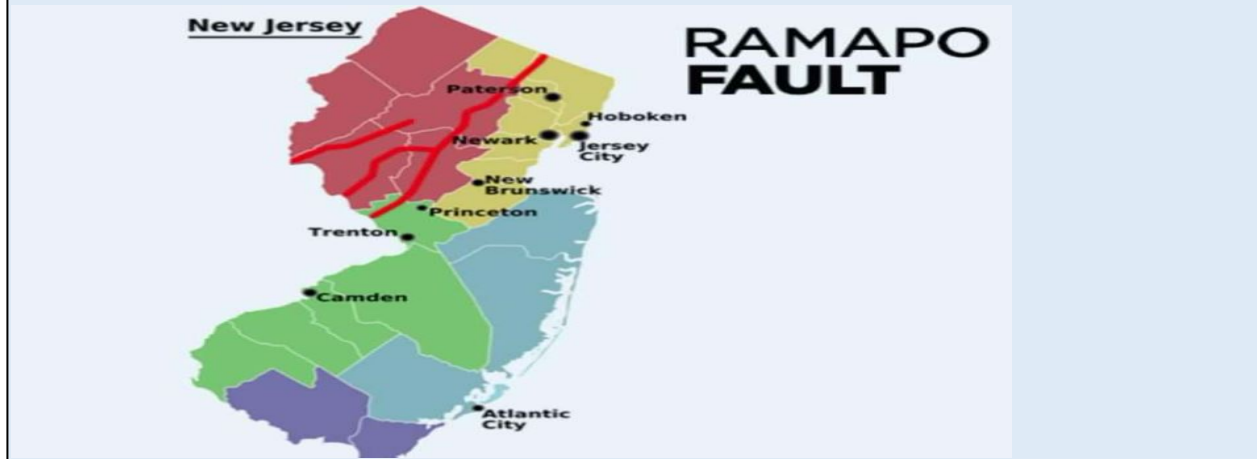
A National Green Tribunal (NGT) panel investigating the cause of the sea turning red in Puducherry has attributed the phenomenon to a plankton crash.

- An organism is considered a plankton if it is carried by tides and currents, and cannot swim well enough to move against these forces.
- A plankton crash can occur in a pond when there is a **lack of nutrients or carbon dioxide (CO₂).**
- This can cause a dramatic decline in the bloom, leaving very few viable plankton in the water.
- Dead plankton can cause large amounts of stable foam on the surface of the pond.
- Plankton crashes can be caused by **blue green algae or dinoflagellates.**
- When in large numbers, some plankton **turns red** and releases colored pigments from their cells.

Ramapo Fault

An earthquake with 4.8 magnitude struck near New York City, which is not near the edges of tectonic plates.

- It is the longest fault line in the ***northeastern U.S.***
- It stretches from ***Pennsylvania to southeastern New York.***
- It belongs to a network of fault lines oriented northeast and dipping south eastward.



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