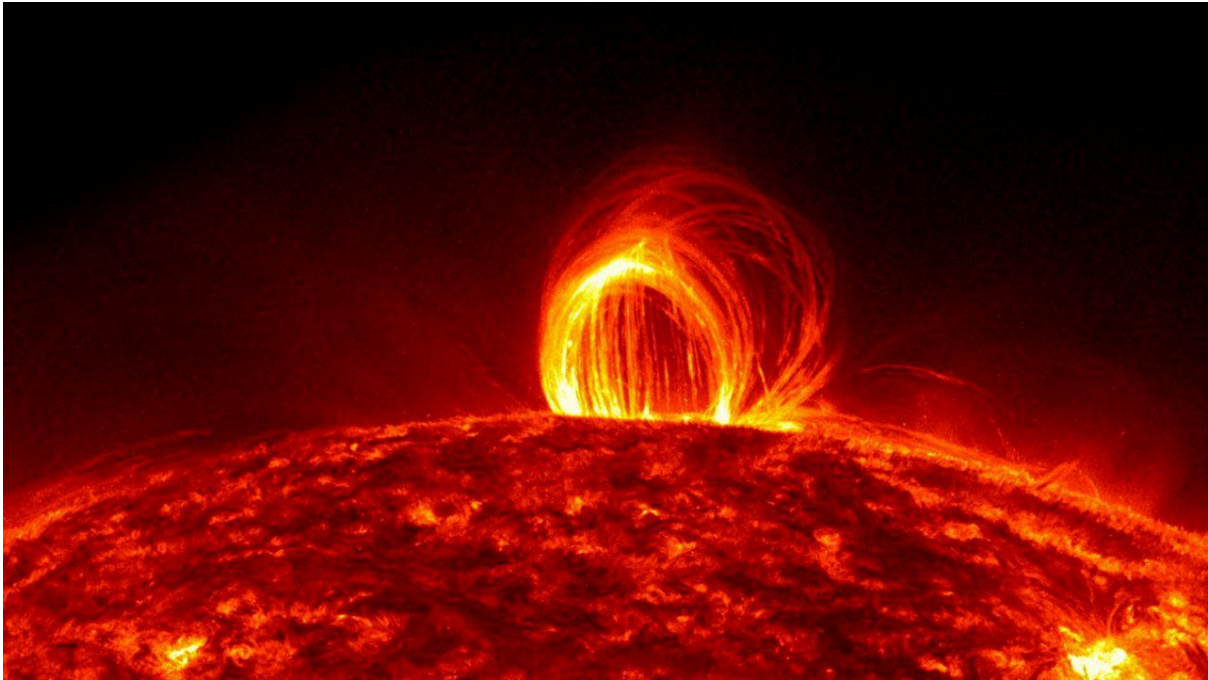


UPSC CURRENT AFFAIRS NOTES 22-02-2024

Solar Maximum

A new visualization from the European Space Agency (ESA) shows activity ramping up on the sun's surface as it approaches solar maximum this year.



About Solar Maximum

- The sun is a huge ball of electrically-charged hot gas. This charged gas moves, generating a powerful magnetic field.
- The sun goes through a natural solar cycle approximately every 11 years.
- Over the course of 11 years, the magnetic field between the Sun's northern and southern hemispheres winds up until it becomes so dense that the hemispheres flip. The north hemisphere becomes the south, and vice versa.
- This flipping point marks the Solar Maximum. It occurs approximately halfway through the solar cycle.
- It's associated with a greater number of sunspots observable on the surface of the sun.



- By contrast, the Solar Minimum, which marks the beginning and end of each Solar Cycle, has fewer sunspots.
- As the sun approaches the solar maximum, we see more brilliant explosions, dark sunspots, loops of plasma, and swirls of super-hot gas.
- Impacts:
 - This increased solar activity can cause extreme space weather events, including solar flares and eruptions.
 - It can also disrupt radio communications and the power grid and have serious health consequences for astronauts.

What are Sunspots?

- Sunspots are dark, planet-size regions of strong magnetic fields on the surface of the sun.
- Sunspots form when concentrations of magnetic field from deep within the sun well up to the surface.
- They consist of a central darker region, known as the umbra, and a surrounding region, known as the penumbra.
- They can spawn eruptive disturbances such as solar flares and coronal mass ejections (CMEs).
- These regions of the sun appear darker because they are cooler than their surroundings.
- The frequency and intensity of sunspots visible on the surface indicate the level of solar activity during the 11-year solar cycle, that is driven by the sun's magnetic field.

Solar Flares

These are magnetic plasma ejected at great speed from the solar surface. They occur during the release of magnetic energy associated with sunspots ('dark' regions on the Sun that are cooler than the surrounding photosphere), and can last for a few minutes or hours. These flares can be divided into various categories based on their brightness in X-ray wavelengths. There are five different classes of solar flares: A, B, C, M, and X. Each class is at least ten times more potent than the one before it.



Flood Management and Border Areas Programme

Recently, the Union Cabinet approved the proposal of Department of Water Resources, RD & GR for continuation of “Flood Management and Border Areas Programme (FMBAP)” with total outlay of Rs. 4,100 crore for a period of 5 years from 2021-22 to 2025-26.

About Flood Management and Border Areas Programme

- It is a centrally sponsored Scheme.
- The Scheme has two components:
- Flood Management Programme (FMP) component: In this central assistance will be provided to State Governments for taking up critical works related to flood control, anti-erosion, drainage development and anti-sea erosion, etc.
- Funding: The pattern of funding to be followed is 90% (Centre): 10% (State) for Special Category States (8 North-Eastern States and Hilly States of Himachal Pradesh, Uttarakhand and UT of Jammu & Kashmir) and 60% (Centre):40% (State) for General/ Non-Special Category States.
- River Management and Border Areas (RMBA) component: Under this flood control and anti-erosion works on common border rivers with neighbouring countries including hydrological observations and flood forecasting, and investigation & pre-construction activities of joint water resources projects (with neighbouring countries) on common border rivers will be taken up with 100% central assistance.
- The works implemented under the RMBA component also protect important installations of security agencies, border out-posts, etc. along the border rivers from flood and erosion.
- The Scheme has the provision of incentivizing the States which implement flood plain zoning, recognized as an effective non-structural measure for flood management.
- Significance: This is particularly relevant as the increased incidence of extreme events have been witnessed during the last few years in view of the likely impact of climate change and the situation may further

aggravate in times to come exacerbating the problem of floods in terms of extent, intensity and frequency.

River Basin

A river basin is the portion of land drained by a river and its tributaries. It encompasses all of the land surface dissected and drained by many streams and creeks that flow downhill into one another, and eventually into the River.

Green Anaconda

A National Geographic expedition in the Amazon rainforest has led to the reclassification of the world's largest snake as two genetically distinct species: the southern green anaconda and the newly-discovered northern green anaconda (*Eunectes akayima*).

About Green Anaconda

It is the largest snake in the world, when both weight and length are considered.

It can reach a length of 30 feet (9 meters) and weigh up to 227 kilograms.

It has two species: **southern green anaconda** and the **northern green anaconda**.

Distribution: They are **native to South America east of the Andes**, and can be found in several countries, including Colombia, Venezuela, Peru, Brazil, the island of Trinidad, and as far south as northern Paraguay.



Habitat: They generally live in tropical rainforests and tend to prefer shallow, slow-moving waters, such as streams, rivers, and flooded grasslands.

The green anaconda is a member of a family of snakes called constrictors.

Constrictors are not venomous snakes. They don't kill prey by delivering venom through a bite.

Instead, constrictors wrap their bodies around their prey and squeeze until it stops breathing.

The giant snake opens its mouth wide enough to swallow its victim.

Anaconda jaws are held together with stretchy ligaments so they can open wide enough to swallow prey whole.

They are well adapted to aquatic life. Their nose and eyes are located on the top of their heads to help them see and breathe while swimming in the water.

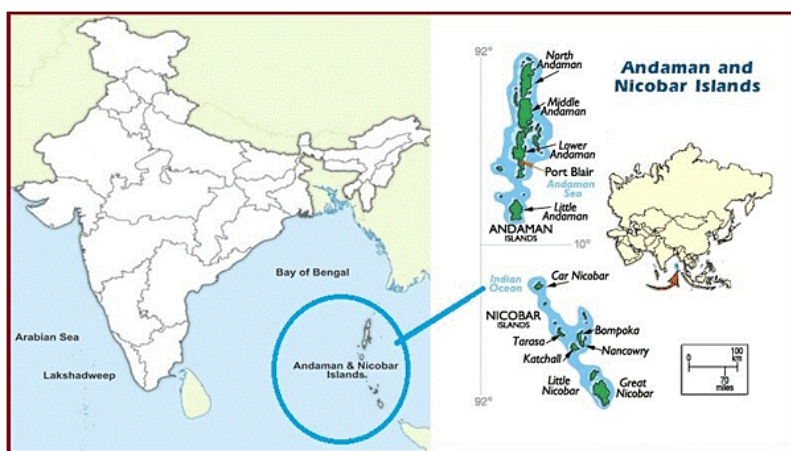
These anacondas are olive-green with dark oval spots along their spines and similar spots with yellow centers along their sides.

Their color and pattern provide camouflage, allowing them to blend in with the wet, dense vegetation of their habitat.

Conservation Status:

IUCN Red List: Least Concern

GREATER NICOBAR AND SHOMPEN TRIBES





India's president has made a whistle stop tour of an island earmarked for multi-billion dollar development that experts warn could wipe out the **indigenous tribe** which calls it home.

Details

Great Nicobar Island:

- The Andaman and Nicobar Islands is a cluster of about 836 islands in the eastern Bay of Bengal, the two groups of which are separated by the 150-km wide **Ten Degree Channel**.
- The Andaman Islands lie to the north of the channel, and the Nicobar Islands to the south.
- Great Nicobar is the southernmost island of the Nicobar Islands Archipelago, has an area of 910 sq km.
- The Great Nicobar Island lies between the **Bay of Bengal and the Andaman Sea** in a tectonically **sensitive zone**.

India's southernmost point:

- Indira Point on the southern tip of Great Nicobar Island is India's southernmost point, less than 150 km from the northernmost island of the Indonesian archipelago.

Protected area:

- Great Nicobar is home to two national parks, a biosphere reserve.
- National Parks: **Campbell Bay National Park and Galathea National Park**
- **Biosphere Reserve: Great Nicobar Biosphere Reserve.**
- Great Nicobar Island as one of the “**Important Marine Turtle Habitats in India**”. Beaches on either side of the **Galathea River** are the most important nesting sites in the northern Indian Ocean for the Leatherback turtle, the world's largest marine turtle.
- The giant Leatherback is not the only species dotting this ecologically and culturally rich Island spanning over a little more than 900 sq. km, of which 850 sq. km is designated as a tribal reserve under **the Andaman and Nicobar Protection of Aboriginal Tribes Regulation, 1956**.

Inhabitants:

- The **Mongoloid Shompen Tribe**, about 200 in number, live in the forests of the biosphere reserve particularly along the rivers and streams.
- Another **Mongoloid Tribe, Nicobarese**, about 300 in number, used to live in settlements along the west coast.

Flora and fauna:

- It covers 1,03,870 hectares of unique and threatened **tropical evergreen forest** ecosystems, mountain ranges reaching almost 650 m above sea level, and coastal plains.
- It is home to a very rich ecosystem, including 650 species of angiosperms, ferns, gymnosperms, bryophytes, among others.
- In terms of fauna, there are over 1800 species, some of which are endemic to this area.
- Fourteen species of mammals, 71 species of birds, 26 species of reptiles, 10 species of amphibians, and 113 species of fish are found on the island, some of which are endangered.

Shompen Tribe





- The Shompen - who number between 100 and 400 people - are nomadic hunter gatherers who live in the island's rainforest.
- They are one of five "**particularly vulnerable**" tribes across the Nicobar and Andaman islands chain, but the only one on Great Nicobar.
- Though according to the Census (2011), the estimated population of Shompen is 229, the exact population of Shompen is unknown till today.
- Most of them are **uncontacted**, refusing all interactions with outsiders. Very few of the Shompen have ever had contact with the outside world.
- They collect a wide variety of forest plants, but their staple food is the **pandanus fruit**, which they call larop.
- Shompen speak their own language, which has many dialects. Members of one band do not understand the dialect of the other.
- Shompen have nuclear families comprising husband, wife, and their unmarried children.
- A Shompen family is controlled by the eldest male member, who controls all activities of the women and kids. **Monogamy** is the general rule, although polygamy is allowed too.

Threat and Concern

- Due to the proposed Great Nicobar Development Plan, hectares of land on Great Nicobar Island will be reclaimed and may impact 1,700 people including many Shompens.
- Also this project will increase non-local population on the island which will affect the ethnicity of Shompens.

The “Holistic Development of Great Nicobar Island” project

- The Great Nicobar Island (GNI) is a mega project to be implemented at the southern end of the Andaman and Nicobar islands.
- A “**greenfield city**” has been proposed, including an International Container Transshipment Terminal (ICTT), a greenfield international airport, a power plant, and a township for the personnel who will implement the project.

- The port will be controlled by the Indian Navy, while the airport will have dual military-civilian functions and will cater to tourism as well. Roads, public transport, water supply and waste management facilities, and several hotels have been planned to cater to tourists.



Economic and strategic importance

- The government's greater goal is to leverage the locational advantage of the island for economic and strategic reasons.
- Great Nicobar is equidistant from Colombo to the southwest and **Port Klang** and Singapore to the southeast.
- It is positioned close to the **East-West international shipping corridor**, through which a very large part of the world's shipping trade passes.
- The proposed ICTT can potentially become a hub for cargo ships travelling on this route.
- As per the NITI Aayog report, the proposed port will allow Great Nicobar to participate in the regional and global maritime economy by becoming a major player in cargo trans-shipment.
- According to the government, expediting the project is of paramount national security and strategic importance.



- Increasing Chinese assertion in the Bay of Bengal and the **Indo-Pacific** has added great urgency to this imperative in recent years.

IMPACT OF LA NINA ON AIR QUALITY

The study conducted by researchers at the National Institute of Advanced Studies and the Indian Institute of Tropical Meteorology sheds light on the link between La Nina events and air quality in Indian cities, particularly during the winter of 2022.

El Nino and La Nina events are known for influencing monsoon rainfall over India, with the alternating warming and cooling of the eastern **Pacific Ocean** affecting global weather patterns.

Link between Pollution and Winter Months in India

During October to January, northern Indian cities, especially Delhi, typically experience high concentrations of PM2.5.

Meteorological factors such as temperature, moisture, air heaviness, wind speed, and direction play a role in trapping pollutants in the lower atmosphere.

Pollution transport is influenced by winds, often carrying pollutants from regions like Punjab and Haryana due to agricultural waste burning.

Deviation in Winter 2022

The winter of 2022 exhibited a significant deviation from the norm, with northern cities being cleaner than usual, while western and southern cities, including Mumbai, Bengaluru, and Chennai, faced worse-than-usual air quality.

5 concentrations in Ghaziabad saw a 33% reduction from normal, while Delhi experienced a 10% reduction. In contrast, Mumbai witnessed a 30% increase, and Bengaluru registered a 20% rise in PM2.5 levels.

Impact of La Nina on Air Quality

Changes in wind patterns were identified as a crucial factor in the anomaly of winter 2022.

Normally, winds blew in a northwesterly direction from Punjab towards Delhi, carrying pollutants. However, in 2022, wind circulation was north-south,



causing pollutants to bypass Delhi and flow over Rajasthan and Gujarat towards southern regions, including Mumbai.

Anomalous wind behavior near Mumbai also contributed to pollutant accumulation, with winds persisting in one direction for an extended period.

Extended La Nina and Climate Change

The extended La Nina conditions over the three years influenced wind patterns, and when global air circulation data from La Nina was used in computer models, it showed similar patterns to those observed in 2022.

The sensitivity to La Nina conditions was evident when comparing models with and without strong La Nina events.

Accumulative Effect and Uncertainty with El Nino

The impact on air circulation became evident only in the third year of La Nina, suggesting a potential accumulative effect.

It remains unclear whether El Nino, the counterpart to La Nina, would produce an opposite effect on air quality over India.

Committee of Privileges in Parliament

The Supreme Court recently stayed the proceedings of the Lok Sabha Privilege committee against the Chief Secretary, Director General of Police and three other officials of the State of West Bengal.

What is the meaning of Parliamentary Privileges?

- Each House of Parliament and its Committees collectively and members of each House individually enjoy certain rights, privileges, and immunities without which they cannot perform their functions efficiently and effectively.
- The object of parliamentary privilege is to safeguard the freedom, authority and dignity of Parliament.
- They are enjoyed by individual members, because the House cannot perform its functions without unimpeded use of the services of its members and by each House collectively for the protection of its members and the vindication of its own authority and dignity.



- But they are available to individual members only insofar as they are necessary for the House to perform its functions freely without any let or hindrance.
- They do not exempt the members from the obligations to the society which apply to other citizens.
- When any of these rights and immunities, both of the members, individually, and of the assembly in its collective capacity, are disregarded or denied by any individual or authority, the offence is called a breach of privilege, and is punishable under the law of Parliament.
- Articles 105 and 194 of the Constitution deal with the powers, privileges, and immunities of Members of Parliament/State Legislatures, and their House, Members, and Committees.
- Each House also claims the right to punish actions which, while not breaches of any specific privilege, are offences against its authority or dignity, such as disobedience to its legitimate commands or libels upon itself, its officers, or its members. Such actions, though called ‘breaches of privilege’, are aptly distinguished as ‘contempt’.

About Committee of Privileges in Parliament

- This committee consists of **15 members in Lok Sabha (10 in the case of Rajya Sabha)** nominated by the Speaker (Chairman in the case of Rajya Sabha).
- In the Rajya Sabha, the deputy chairperson heads the committee of privileges.
- Powers and Functions:

The committee examines every question involving a breach of privilege of the House, or of the members, or of any Committee thereof referred to it by the House or by the Speaker/Chairman.

It also determines, with reference to the facts of each case, whether a breach of privilege is involved and makes suitable recommendations in its report.

It also states the procedure to be followed by the House in giving effect to its recommendations.



When a question of privilege is referred to the Committee by the House, the report of the Committee is presented to the House by the Chairman or, in his absence, by any member of the Committee.

Where a question of privilege is referred to the Committee by the Speaker, the report of the Committee is presented to the Speaker, who may pass final orders thereon or direct that it be laid on the table of the House.

The Speaker/Chairman may refer to the Committee any petition regarding the disqualification of a member on the ground of defection for making a preliminary inquiry and submitting a report to him.

The procedure to be followed by the Committee in these cases is, so far as may be, the same as that applicable to questions of breach of privilege.

Parliamentary Committees

Parliamentary Committee means a committee which is appointed or elected by the House or nominated by the Speaker and which works under the direction of the Speaker and presents its report to the House or to the Speaker and the Secretariat for which is provided by the Lok Sabha Secretariat. By their nature, Parliamentary Committees are of two kinds: **Standing Committees** and **Ad hoc Committees**.