

EARTH'S SEISMIC NOISE

Why in News?

Scientists at the British Geological Survey (BGS) have reported a change in the Earth's seismic noise and vibrations amid the coronavirus lockdown.

About:

- They have observed a **30-50 per cent fall in levels of ambient seismic noise** since schools and businesses were closed in mid-March.
- Seismologists around the **world have now begun a collaborative effort** to study the fall in seismic noise levels.

What is seismic noise?

- In geology, seismic noise refers to the relatively persistent vibration of the ground due to a multitude of causes.
- It is the unwanted component of signals recorded by a seismometer– the scientific instrument that records ground motions, such as those caused by earthquakes, volcanic eruptions, and explosions.
- This noise includes vibrations caused due to human activity, such as transport and manufacturing, and makes it difficult for scientists to study seismic data that is more valuable.
- Apart from geology, seismic noise is also studied in other fields such as oil exploration, hydrology, and earthquake engineering.

How to reduce the noise levels help scientists?

- The **seismic noise vibration** caused by **human activity** are of high frequency (between 1-100 Hz), and travel through the **Earth's surface layers**.
- Usually, to measure **seismic activity** accurately and reduce the effect of seismic noise, geologists place **their detectors 100 meters below the Earth's surface**.
- Due to lower noise levels, scientists are **now hoping** that they would be **able to detect smaller earthquakes and tremors** that had slipped past their instruments so far.

CYCLONE AMPHAN

Why in News?

The India Meteorological Department (IMD) has declared a cyclone alert for the Indian coastline across the Bay of Bengal as a low-pressure area has formed over southeast Bay of Bengal and adjoining south Andaman sea. The cyclone will be named 'Cyclone Amphan'.

About Tropical Cyclones

- Cyclones developed in the regions between the **Tropic of Cancer and Tropic of Capricorn**, are called tropical cyclones.
- Tropical cyclones usually develop in **summer season** in the vicinity of Inter-Tropical Convergence Zone (ITCZ) **over warm ocean surface**.
- Tropical cyclones are one of the mechanisms by which surface heat energy is redistributed **from the equator to the poles**.

Conditions necessary for development:

- Large sea surface with **temperature higher than 27° C**
- Presence of the **Coriolis force**
- **Small differences in the vertical wind speed**
- A **pre-existing weak- low-pressure area** or low-level-cyclonic circulation
- **Upper divergence** above the sea level system

SOLAR ECLIPSE

- A solar eclipse happens during the New Moon when the Moon moves between Earth and the Sun to cast a shadow on the Earth blocking the rays of Sun.
- There are three kinds of solar eclipses Total, partial, and annular along with rare hybrid that is a combination of an annular and a total eclipse.
- In 2020, there will be two solar eclipses one is scheduled for Jun 21 and the other one is expected to occur on Dec 14.

LUNAR ECLIPSE

- It happens during a Full Moon when the Earth comes between the Sun and the Moon blocking the Sun's rays from directly reaching the Moon.
- The year 2020 has been listed to hold four lunar eclipses – one of which has been already witnessed in January.
- All the 4 will be penumbral, which means the Moon travels through the faint penumbral portion of Earth's shadow.

SUN SPOTS

- Researchers from IISER Kolkata identified Sunspots that herald the start of a new Sun Spot cycle.
- **Sun spots are areas that appear dark on the surface of the Sun and are cooler than other parts of the Sun's surface.**
- Form at areas where magnetic fields are so strong that they keep some of the heat within the Sun from reaching the surface.