

UPSC Daily Current Affairs | Prelim Bits 15-06-2024

Olympus Mons

European Space Agency (ESA)'s Mars Express have recently discovered frost at the top of Olympus Mons on Mars.

The presence of frost suggests that water vapor is moving through the Martian atmosphere and condensing in specific regions.

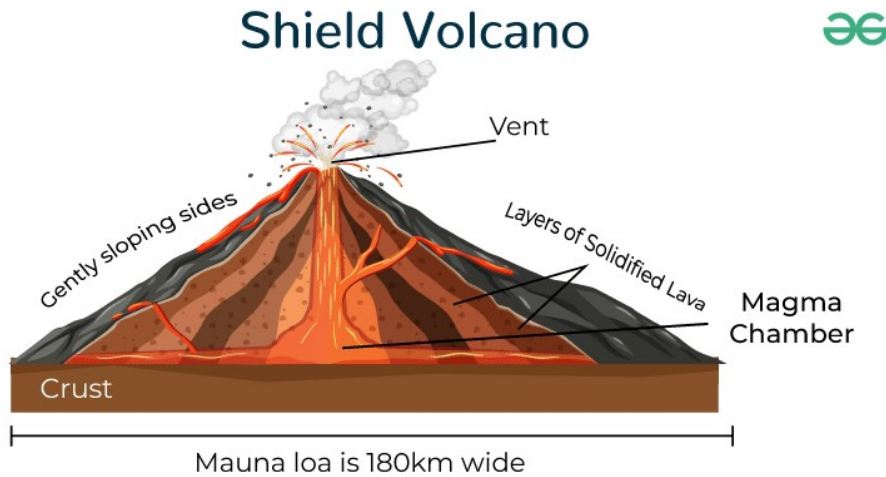
Mars Express is Europe's first mission to the Red Planet.

- Olympus Mons is an immense **shield volcano** located on **Mars**.
- **Discovered by** - It is first identified by NASA's Mariner 9 spacecraft in 1971.
- It is the **tallest volcano** in the solar system, located on Mars. (Two and a half times taller than Mount Everest).
- It is a large **shield volcano** on Mars and the largest volcano in the entire Solar System.
- It is associated with the volcanic region of **Tharsis Montes**.

Tharsis is a vast volcanic plateau centered near the equator in the western hemisphere of Mars.

Shield volcano

- It is an active volcano with a caldera that tends to erupt basalt lava. They are the largest volcanoes on Earth.
- Shield volcanoes broad volcanoes with gentle slopes and are shaped somewhat like a warrior's shield lying flat on the Earth.
- In this type, a volcano produces low viscosity, runny lava, it spreads far from the source and forms a volcano with gentle slopes.
- **Examples** - Mauna Kea, Mauna Loa and Kilauea.



References

1. [India today | Olympus Mons](#)
2. [ESA|Mars Express overview](#)

Kavli Prize

Recently, the 2024 Kavli Prize winners were announced.

- **About-** It is a **biennial award** introduced in 2008 to honour exceptional achievements in **astrophysics, neuroscience, and nanoscience.**

The Kavli Medal is awarded annually for excellence in all fields of science and engineering relevant to the environment.

- **Awarded by** -Norwegian Academy of Science and Letters in partnership with the Norwegian Ministry of Education and Research.
- **Objective-** To recognize
 - Outstanding scientific research,
 - Honor highly creative scientists,
 - Promote public understanding of scientists and their work, and
 - Foster international cooperation among scientists.
- The Kavli Prize is named after Norwegian-American businessman and philanthropist, Fred Kavli.
- **Prize-** It comprises a **\$1 million cash prize** (per field), a scroll, and a medal.

Awardees, 2024

Field	Purpose
Astrophysics	<ul style="list-style-type: none">• Winner- David Charbonneau and Sara Seager.• Contribution- Recognised for discoveries of exoplanets, and the characterisation of their atmosphere.
Nanoscience	<ul style="list-style-type: none">• Winner- Robert Langer, Armand Paul Alivisatos, Chad Mirkin.• Contribution- For breakthroughs in nanoscience for <i>biomedical applications</i>.
Neuroscience	<ul style="list-style-type: none">• Winner- Nancy Kanwisher, Winrich Freiwald, Doris Tsao.• Contribution- For their collective effort over decades <i>to map the linkage between facial recognition and the brain</i>.

Reference

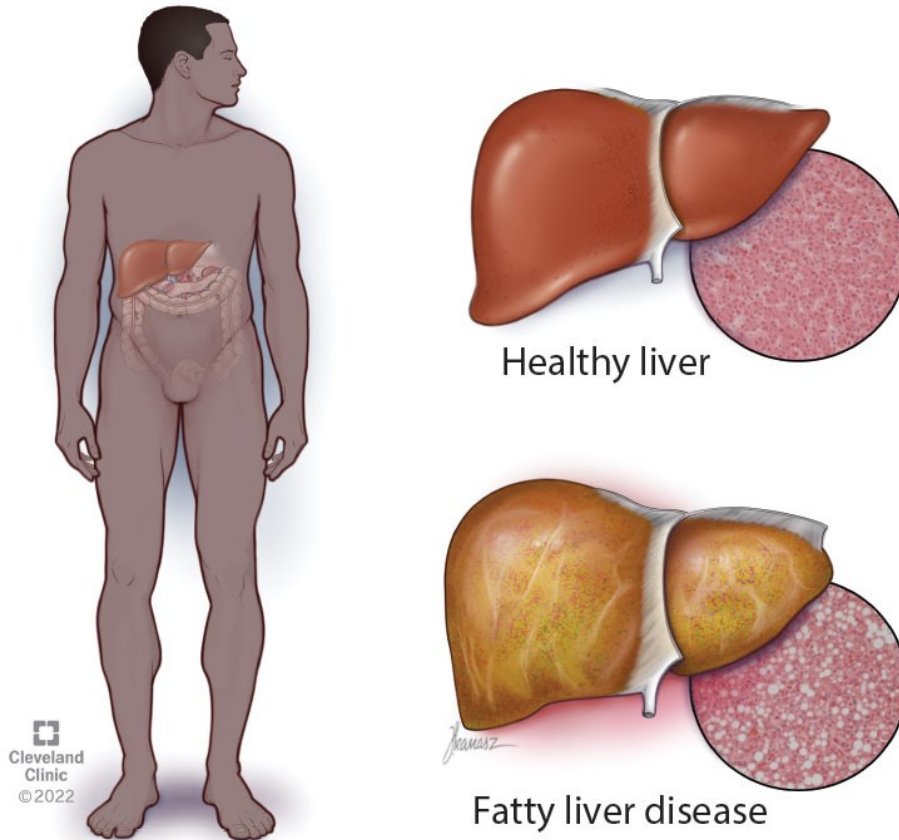
1. [Indian Express | Kavli Prize](#)
2. [Avliprize | About](#)

Metabolic dysfunction-associated steatotic liver disease (MASLD)

International Fatty Liver Day, 2024 is celebrated recently.

- **About -** MASLD is a chronic liver disease that occurs when fat builds up in the liver and a person has at least one metabolic risk factor.
- It is also known as non-alcoholic fatty liver disease (NAFLD).

Non-Alcoholic Fatty Liver Disease



- **Prevalence** - It is the most common cause of chronic liver disease and a leading cause of liver-related deaths and illnesses.

MASLD affects up to 25% of people worldwide, while MASH affects 25-30% of the population.

- **Symptoms** - People typically don't experience symptoms until MASLD progresses to **MASH (metabolic dysfunction-associated steatohepatitis)**.
- **MASH** - When fat leads to inflammation and cell damage in your liver, it is called steatohepatitis.
- The non-alcohol related version is called Metabolic Dysfunction-Associated Steatohepatitis (MASH), previously, known as non-alcohol related steatohepatitis (NASH).
- **Other causing factors** - Factors that can cause this condition other than alcoholic consumption were Metabolic syndrome, Diet and nutritional causes, Genetics.
- **Treatment** - There is no medicine yet to reverse steatotic (fatty) liver disease, making changes to what you eat, how much you drink and increasing your activity levels can help.
- **Vulnerables** - It can affect anyone, including all ages and races, more common in people of **Hispanic descent** and less common in Black people.
- **Fatty liver cases in India** - In India, the prevalence is high, with around 38.6% among adults and approximately 36% among obese children, as of 2022.

International Fatty Liver Day

- International Fatty Liver Day is a global initiative observed every year on the 2nd Thursday of June, formerly known as International NASH Day.
- **Launched by** - The initiative was first launched by the **Global Liver Institute (GLI)** in 2018.
- **Theme, 2024** - 'Act Now, Screen Today'.
- **Objective**- It aims to educate people about the risks, prevention, and management of fatty liver conditions.

Reference

[The Hindu | Metabolic dysfunction-associated steatotic liver disease](#)

Iskander-M missile

Russia reportedly targeted the Ukrainian military airbase using the nuclear-capable Iskander-M missile system.

- **About**- It is a **road-mobile short-range** ballistic missile system developed by Russia.
- It was Codenamed **"SS-26 Stone"** by NATO.
- Iskander is designed for tactical strikes on small, high value land targets.

The North Atlantic Treaty Organization (NATO) is an intergovernmental military alliance based on the North Atlantic Treaty.

- **Induction**- It was inducted by Russia in 2006.
- **Size**- It is **7.3 meters long, 0.92 meters** in diameter
- **Propulsion** - Single-stage solid propellant.
- **Range**- 500 km
- **Payload** - It can carry a payload of up to 700 kg.
- **Warheads**- It can carry both **conventional and nuclear warheads**.
- **Speed**- Seven times the speed of sound (Mach 7).
- **MaRV**- It employs a Maneuverable Reentry Vehicle (MaRV) and decoys to defeat theatre.

A maneuverable re-entry vehicle (MaRV) is a type of warhead designed to be carried by ballistic missiles.

- **Variants**
 - **Iskander-E** -has a range of 280 km with a reduced 480 kg payload.
 - **Iskander-K**- a new cruise missile R-500, range: 280 km max.

Reference

Mercy petition

The mercy petition of Pakistani terrorist convicted in the Red Fort attack case has been rejected by President of India.

- **About** - It is a plea made by a convict to the President or governor for some leniency in the capital punishment.
- It is the last resort available to the convict and is exercised when all legal remedies exhaust.
- To seek a mercy petition, the death sentence by the Session Court must be confirmed by the High Court.
- The convict who has been given a death sentence can appeal to the Supreme Court.
- If the Supreme Court refuses to hear the appeal or upholds the death sentence, it can be submitted to the President or Governor.
- The convict can file the mercy petition within **7 days** after the date on which the jail superintendent informs him of the dismissal of the appeal or special leave petition from the Supreme Court.
- It is available in **USA, UK, Canada and India.**

Constitutional Provisions

- **Article 21** - It guarantees the right to life and personal liberty.
- **Pardoning power of president (Article 72)** - It empowers the President to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence -
 - In all cases where the punishment or sentence is by a Court Martial.
 - In all cases where the punishment or sentence is for an offence against any law relating to a matter to which the executive power of the Union extends.
 - In all cases where the sentence is a sentence of death.
- **Pardoning power of Governor (Article 161)** - It empower the governors with the power to grant pardons, reprieves, respites, or remissions of punishment or to suspend, remit, or commute the sentence of any person convicted of any offence.
- **President vs Governor** - The scope of the pardoning power of the President is wider than the pardoning power of the Governor.

President	Governor
He can pardon a death sentence	He cannot pardon a death sentence
He can pardon in court martial	He cannot pardon in court martial

- There is **no time limit** given for mercy plea.
- There is **no binding effect** on the President and Governor to accept all the mercy petitions.

Reference

[The Indian Express | Mercy petition](#)

