



23-04-2024

Mount Erebus

Why in News?

- Mount Erebus, an active volcano in Antarctica has been in the news for spewing gold dust worth \$6000 every single day; it is about 80 grams of gold dust that is being emitted each day.

More About the News

- Mount Erebus in Antarctica, is the world's southernmost active volcano and is the only volcano in the world which is presently an erupting phonolite volcano.
- Antarctica, which is home to hundreds of active volcanoes, has one on the continent that spews real gold dust with a monetary value.
- Mount Erebus, one of the most intense and southernmost active volcanoes on Earth, is estimated to release roughly 80 grams of gold daily, worth about \$6,000, according to IFL Science.

- Scientists discovered that its gusts of gas are loaded with tiny crystals of metallic gold.
- Gold dust from Mount Erebus can travel far and wide with researchers finding traces of gold in the air up to 621 miles from the volcano.
- The volcano sits above a thin slice of crust, allowing molten rock to easily rise from Earth's interior.
- According to NASA, it regularly emits plumes of gas and steam and sometimes expels rock (bombs) in strombolian eruptions.
- Mount Erebus overlooks the McMurdo research station on Ross Island and has a lava lake in the summit crater that's remained active since 1972.
- Because the volcano is in a remote location, researchers monitor it using satellites, according to the Smithsonian Institute.
- While other volcanoes emit gold, Mount



Erebus is unique in releasing metallic specks, which puzzles scientists.

- Its lava expels hot gas, carrying volatile materials, including gold, at temperatures exceeding 1000°C.
- Upon contact with the cooler air, this gas rapidly cools to below 100°C, leading to the precipitation of various materials, including metals like zinc and copper.
- These particles - smaller than 20 micrometres - disperse far and wide, with traces detected over 1000 kilometres from the volcano.
- However, the emission of gold is just one facet of the volcano's interaction between its fiery depths and the frigid Antarctic air.
- Erebus's gold emissions serve as a reminder of Earth's wealth and the delicate balance between its fiery interior and icy exterior.
- This volcano, with its golden breath, continues to inspire awe and scientific curiosity - a testament to nature's untamed power in the frozen solitude of Antarctica.

Tundra Ecosystems

Why in the News?

- The warming planet may alter the characteristics of tundra environments and could transform them from carbon sinks to carbon sources, a study has warned.



More About the News

- The study, Environmental drivers of increased ecosystem respiration in a warming tundra, revealed that the warming

climate may assist ecosystem respiration, which will result in the release of carbon into the atmosphere.

- Ecosystem respiration is the sum of all respiration occurring by the living organisms in a specific ecosystem.
- Rising temperatures change the biogeochemistry of an area, affecting local soil by altering nitrogen levels and pH, the researchers found.
- Arctic and alpine tundra ecosystems are known to be large reservoirs of organic carbon.
- The study found that a mean increase of 1.4 degrees Celsius in air temperature, 0.4°C in soil temperature and a 1.6 per cent drop in soil moisture led to a 30 per cent increase in respiration during the growing season.
- The increase in activity was due to an increase in both plant and microbial respiration, resulting in the release of carbon.
- Moreover, the scientists found that the tundra regions with higher nitrogen limitations and sites that stimulated plant and microbial turnover show more sensitivity to warming through respiration responses.
- Regarding the global impact of plant-soil connections, the authors noted that the warming rate in the tundra biome could reach 0.73°C per decade, significantly outpacing the global average rate of 0.19°C per decade.
- The findings of the latest study are more precise, particularly regarding changes in nitrogen concentrations in the deeper mineral layers of soil.

Siachen Glacier

Why in the News?

- Raksha Mantri Shri Rajnath Singh, on April 22, 2024, visited Siachen, the world's highest battlefield, to carry out a first-hand assessment of the security situation. He also interacted with the soldiers deployed in the



extreme weather & tough terrain conditions.

More About the News

- The Raksha Mantri described Siachen as not an ordinary land, but a symbol of India's sovereignty and determination.
- He stated that just as Delhi is India's national capital, Mumbai is the financial capital and Bengaluru is the technology capital; Siachen is the capital of courage, grit & determination.
- The nation recently celebrated the 40th anniversary of the success of Operation Meghdoot.
- Shri Rajnath Singh termed the operation, which was launched by the Indian Army in Siachen on April 13, 1984, as a golden chapter of the country's military history.
- On the occasion, the Raksha Mantri also laid a wreath at the Siachen War Memorial, as a mark of solemn tribute to the bravehearts who have made the supreme sacrifice in service of the Motherland.

World's 'Disaster Capital' in 2023

Why in the News?

- The Asian continent was the world's most disaster-prone region in 2023. Floods and storms caused the highest number of reported casualties and economic losses in Asia, while the impact of heatwaves became more severe, according to a report launched by the World Meteorological Organization (WMO) on April 23 in Bangkok.

More About the News

- The WMO report - The State of the Climate in Asia 2023 - is based on inputs from National Meteorological and Hydrological Services; United Nations partners and a network of climate experts.
- It also showed that sea level rise in the Bay of Bengal off India's eastern coast was the second-highest in the region last year, being nearly 30 per cent above the global average.
- The rise of temperature in eastern and northern India had been highest in India, according to the document.
- The report emphasizes the need for robust climate finance mechanisms to scale up adaptation and address loss and damage in developing countries of Asia, which bear the brunt of climate-related adversaries.
- The annual mean near-surface temperature over Asia in 2023 was the second-highest on record, 0.91°C above the 1991-2020 average and 1.87 °C above the 1961-1990 average.



- Warming of the upper-ocean (0 m-700 m) is particularly strong in the North-Western Arabian Sea, the Philippine Sea and the seas east of Japan, more than three times faster than the global average; it further stated.
- Marine heatwaves - prolonged periods of extreme heat in the ocean - had occurred in a large area of the Arctic Ocean, in the Eastern Arabian Sea and the Northern Pacific, and lasted three to five months.

- The document pointed out that the High Mountain Asia region, centred on the Tibetan Plateau and containing the largest volume of ice outside of the polar regions with glaciers covering an area of approximately 100,000 sq km, is under threat.

Market Study on Artificial Intelligence and Competition in India

Why in the News?

- The Competition Commission of India (CCI) has invited proposal for launching Market Study on Artificial Intelligence and Competition in India.

More About the News

- The Competition Commission of India (CCI) will launch a Market Study on Artificial Intelligence (AI) and Competition to understand the transformative capabilities of AI that have significant pro-competitive potential, as well as competition concerns emanating from the use of AI.
- He proposed study will be a knowledge building exercise to develop an in-depth understanding of the emerging competition dynamics in the development ecosystems of AI systems and implications of AI applications for competition,

efficiency and innovation in key user industries.

- The Competition Commission of India (CCI) is a statutory authority established under the Competition Act, 2002.
- The Competition Commission of India is the chief national competition regulator in India. It is a statutory body within the Ministry of Corporate Affairs and is responsible for enforcing the Competition.
- Section 18 of the Act casts a duty on the CCI to eliminate practices having adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade carried on by other participants, in markets in India.



Boost your AIR with

**GS TARGET COURSE
FOR BPSC & UPSC**

हिंदी माध्यम | ENGLISH MEDIUM
MODE: Offline & Online

ADMISSION OPEN

upto **50% OFF***



**प्रयास
IAS ACADEMY**

An Institute for UPSC & BPSC

