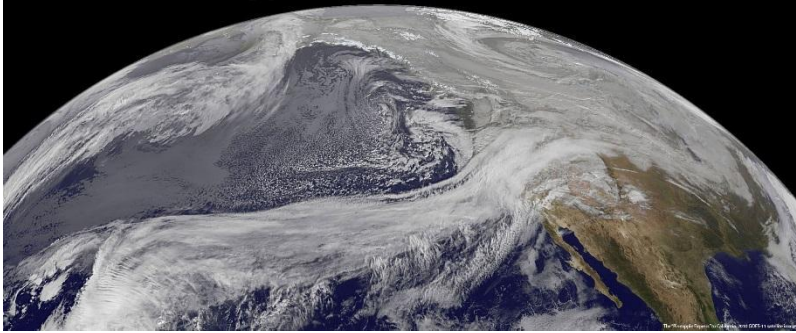


UPSC CURRENT AFFAIRS NOTES 03-02-2024

ATMOSPHERIC RIVER



Los Angeles faces rare 'high risk' of flash flooding as atmospheric river takes aim at Southern California.

Details

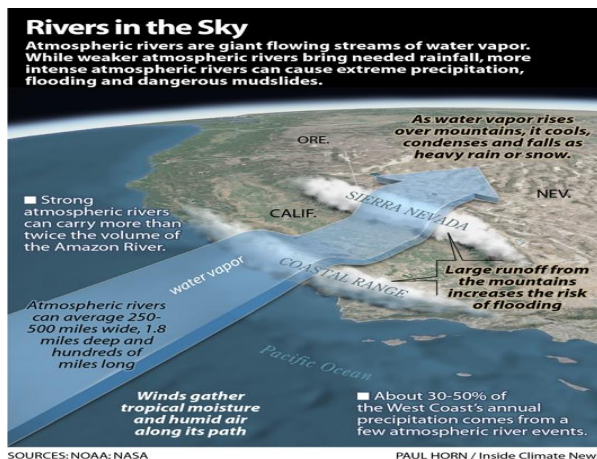
Atmospheric rivers

Atmospheric rivers are **narrow regions** in the atmosphere that transport large amounts of water vapour, similar to rivers in the sky.

Formation

Atmospheric rivers typically form over tropical regions due to warm temperatures causing ocean water to evaporate and rise into the atmosphere. Strong winds then carry the water vapour through the atmosphere.

As atmospheric rivers move over land, the water **vapour rises higher**, cools into water droplets, and falls as precipitation.



Areas of occurrence

They are most common in the **extratropical North Pacific/Atlantic**, southeastern Pacific, and **South Atlantic oceans**, often making landfall on the west coasts of North and South America.

Other regions that experience atmospheric river landfalls include Greenland, Antarctica, and the south-central United States.

Pineapple Express

- One well-known atmospheric river is the "**Pineapple Express**," which picks up warm, moist air near Hawaii and can cause heavy rain and snow when it hits land in the Western United States and Canada. In California, it can cause up to 5 inches of rain in a day.

Impact of atmospheric rivers

- Atmospheric rivers can have significant impacts on the areas they affect. The heavy rainfall associated with these systems can cause **flooding, landslides, and mudslides**, leading to property damage and loss of life.
- In addition, atmospheric rivers can disrupt water supply by overwhelming reservoirs and other water infrastructure.
- In some cases, these systems can also cause **drought-like conditions** by **pulling moisture** away from areas that rely on it for agriculture or other industries.

Significance

- However, it is important to note that not all atmospheric rivers cause damage. Many are weak systems that provide beneficial rain or snow that is crucial to the water supply.
- Some regions rely on these systems for a significant portion of their annual precipitation.
- Understanding the potential impacts of atmospheric rivers is important for preparedness and management, as these systems are an essential component of the Earth's water cycle.

How will climate change impact it?

atmospheric rivers, with some regions of the world expected to see an increase in the frequency and intensity of these systems, particularly in the mid-latitudes, reports The Indian Express.

This could have significant implications for water resources management, flood control, and other areas of public policy.

The warming of the oceans due to climate change is expected to increase the amount of water vapour available for atmospheric rivers to transport, leading to heavier rainfall and greater potential for flooding.

This could have a significant impact on regions that are already susceptible to these types of events, as well as on infrastructure that is not designed to handle such intense precipitation.

The implications of atmospheric rivers on water resources, extreme weather events, and climate change underscore the need for continued research and proactive measures.

OBELISK



The identification of "**Obelisks**," a novel class of virus-like entities in the human gut and mouth, raises intriguing questions about their potential impact on the human microbiome.

Key Highlights of the research

Discovery of Viroids in Human Gut and Mouth: Scientists have identified a new class of virus-like entities called "Obelisks" in the human gut and mouth. These viroids may influence gene activity within the human microbiome.

Viroid Characteristics: Viroids are tiny loops of RNA, a genetic cousin of DNA, lacking protective shells and without instructions to build proteins. Originally thought to infect only plants, recent studies suggest viroids may infect animals, fungi, or bacteria.



Host Confirmation: Streptococcus sanguinis, a common bacterium in the mouth, is identified as one host for Obelisks. Other potential hosts, likely bacteria, are yet to be confirmed.

Viroid Complexity: Some Obelisks contain instructions for enzymes needed for replication, indicating greater complexity compared to previously described viroids.

Presence in Metatranscriptomes: Obelisks were found in 7% of human fecal metatranscriptomes, providing insight into gene activity in the gut microbiome. In mouth metatranscriptomes, Obelisks were present in about 53% of the samples.

Impact on Human Health: It is still unknown how or whether these viroids affect human health. There is speculation that viroids may shape the human microbiome, especially considering their ability to infect bacteria.

Evolutionary Debate: Ongoing discussion surrounds whether viruses evolved from viroids or if viroids evolved from viruses. The discovery of Obelisks may contribute to this debate.

The discovery of Obelisks adds a new dimension to our understanding of the virome within the human body and prompts further investigation into their potential roles and impacts on human health.

Codex Committee on Spices and Culinary Herbs

The 7th session of the Codex Committee on Spices and Culinary Herbs (CCSCH) was held from 29th January 2024 to 2nd February 2024 at Kochi.

About Codex Committee on Spices and Culinary Herbs

- It was established as one of the Commodity Committees under the Codex Alimentarius Commission (CAC) in 2013.
- India has hosted this prestigious Committee since the beginning and Spices Board India serves as the **secretariat organization** which organizes the Committee's sessions.
- In CCSCH 7th session quality standards for 5 spices, namely small cardamom, turmeric, juniper berry, allpice and star anise were finalised.

Codex Alimentarius Commission

- It was jointly established by **FAO and WHO**.
- It is an international, intergovernmental body which is **based in Rome**.



- **Members:** It consists of 189 member countries.
- Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO which are interested in international food standards.
- The Commission meets in regular sessions once a year, alternating between Geneva and Rome.
- **Funding:** The programme of work of the Commission is funded through the regular budgets of WHO and FAO, with all work subject to the approval of the two governing bodies of the parent organisations.
- The Commission works in the **six official languages** of the UN.
- The standards of CAC are recognized by the WTO as international reference points for the resolution of trade disputes concerning food safety and consumer protection.
- The standards developed by the Committees under the CAC, including the CCSC, are voluntary in nature, which the member countries of the CAC adopt and use as reference standards to align their national standards.
- The works of CAC contribute to harmonization of food standards across the globe, facilitate fair global trade in food, and enhance food safety to safeguard the health of global consumers.

National Research Foundation

Despite approving a Bill to set up a National Research Foundation (NRF) to boost scientific advancement in the country just eight months earlier, the Union government was silent on allocation for the institution or progress made so far in the interim budget for 2024-25.

About National Research Foundation:

- It is **an apex body** to provide high-level strategic direction of scientific research in the country in accordance with the **recommendations of the National Education Policy (NEP)**, will be established at a cost of 50,000 crore over the **period 2023-28**.
- It enhances “India’s national research infrastructure, knowledge enterprise, and innovation potential, for scientific pursuit”.



- **Goals:** To increase private sector contributions to research in India and to ensure that a larger portion of government funds go to state universities and colleges.
- **Nodal Agency:** The **Department of Science and Technology (DST)** will be NRF's administrative department.
- **Governing body:**

The Prime Minister will be the **ex-officio President of the Board.**

The Union Minister of Science & Technology & Union Minister of Education will be **the ex-officio Vice-Presidents.**

NRF's functioning will be governed by an **Executive Council** chaired by the **Principal Scientific Adviser** to the Government of India.

Functions

Forge collaborations among the industry, academia, and government departments and research institutions, and create an interface mechanism for participation and contribution of industries and State governments in addition to the scientific and line ministries.

It will focus on **creating a policy framework** and putting in place regulatory processes that can encourage collaboration and increased spending by the industry on R&D.

What is the aim of NEP

National Education Policy 2020 aims to increase the GER to 100% in preschool to secondary level by 2030 whereas GER in Higher Education including vocational education from 26.3% (2018) to 50% by 2035.