

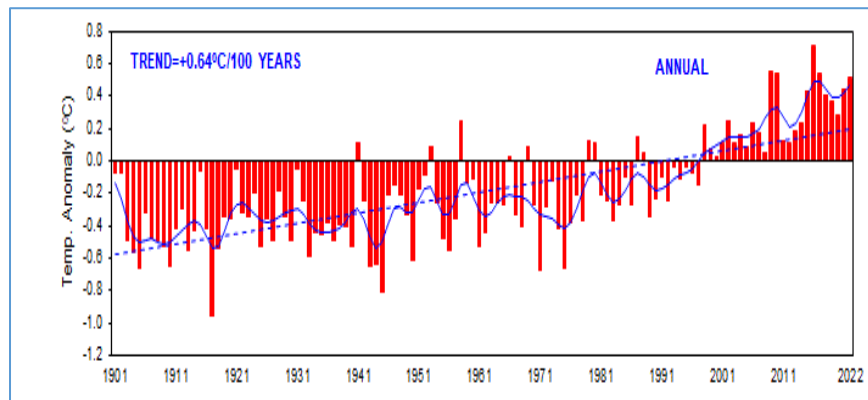
January - 15

TNPSC BITS

- ❖ Vice President and Rajya Sabha Chairman Jagdeep Dhankhar inaugurated the two-day 83rd All India Presiding Officers Conference in Jaipur.
- ❖ Tamil Nadu chess player M Pranesh won Rilton Cup 2022-23 and become India's 79th Grandmaster.
- ❖ India's squash player Anahat Singh won the girls' under-15 title at the British Junior Open.
- ❖ Union Ministry of State Science & Technology released the theme for the "National Science Day 2023", as "Global Science for Global Wellbeing".
- ❖ Naatu Naatu from SS Rajamouli's RRR movie, won the Golden Globe Award 2023 in Best Original Song category.
- ❖ ReNew Power has installed India's first 3x platform wind turbine generators in Gadag, Karnataka.

NATIONAL

Statement on climate of India during 2022



- ❖ In 2022, the annual mean land surface air temperature in India was 0.510C above the long-term average (1981-2010 period).
- ❖ This made the year the fifth warmest on record since nationwide records began in 1901.
- ❖ Global mean temperature in 2022 is currently estimated to be 1.15 ± 0.13 °C above the preindustrial (1850-1900) average.
- ❖ The rainfall over India in 2022 was 108% of its Long Period Average value based on the period 1971-2020.



- ❖ During the winter season, the rainfall was 147% of its Long Period Average.
- ❖ Pre-monsoon season rainfall was 99% of its Long Period Average.
- ❖ The southwest monsoon season had rainfall 106 % of its Long Period Average.
- ❖ The post-monsoon season had rainfall 119% of its Long Period Average.

Most Polluted City in India

THE WORST 10		
Rank 2022 (2019)	City	Annual PM2.5 2022
1(3)	Delhi	99.7
2 (-)	Faridabad	95.6
3 (1)	Ghaziabad	91.3
4 (-)	Patna	90.9
5 (-)	Muzaffarpur	86.9
6 (2)	Noida	80.4
7 (-)	Meerut	77.7
8 (8)	Gobindgarh	72.4
9 (-)	Gaya	70.8
10 (6)	Jodhpur	69.3

*Figures in brackets represent 2019 ranks.
(-) signifies no data available for 2019

- ❖ Delhi was the most polluted city in India in 2022.
- ❖ It had PM2.5 levels more than double the safe limit and the third highest average PM10 concentration.
- ❖ PM2.5 pollution has reduced by over 7 per cent in four years, from 108 micrograms per cubic metre in 2019 to 99.71 micrograms per cubic metre in 2022.
- ❖ Haryana's Faridabad and Uttar Pradesh's Ghaziabad ranked second and third respectively.
- ❖ The National Clean Air Programme (NCAP) targets to reduce pollution by 20 per cent to 30 per cent by 2024.

- ❖ The Centre launched NCAP to reduce PM2.5 and PM10 levels in 102 cities by 20 per cent to 30 per cent by 2024
- ❖ 2017 was being the base year for NCAP.

SCIENCE AND TECHNOLOGY

Hypersonic Vehicle Test Run

- ❖ The Indian Space Research Organisation (ISRO) successfully conducted a joint hypersonic vehicle trial.
- ❖ The hypersonic vehicle, based on state-of-the-art technology, is capable of delivering military response over long distances by rapidly reaching space.
- ❖ A hypersonic vehicle can be an airplane, missile, or spacecraft that has the ability to travel five times faster than the speed of sound, or greater than Mach 5.
- ❖ It has been developing hypersonic missiles in collaboration with Russia.



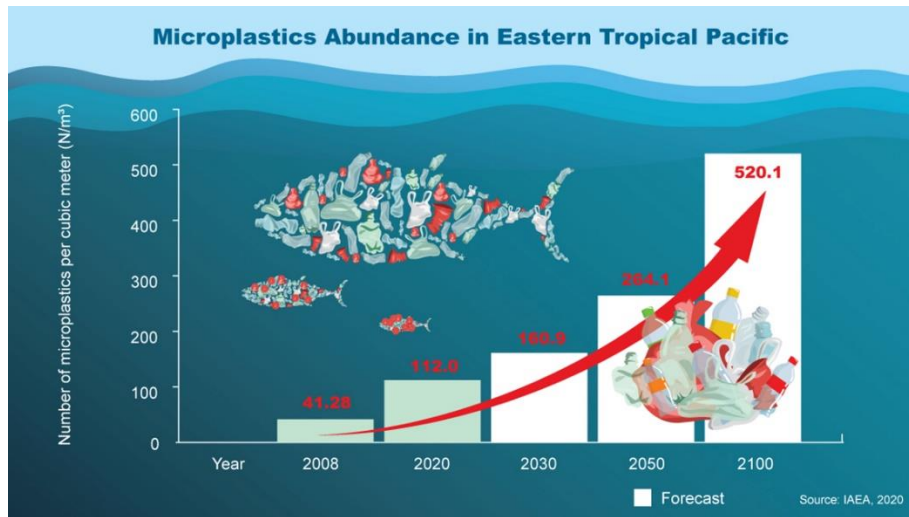
Virgin Orbit rocket

- ❖ The first-ever orbital mission to lift off from the United Kingdom did not go as planned.
- ❖ The "horizontal launch" mission had left from the coastal town of Newquay.
- ❖ The Rocket carried under the wing of a modified Boeing 747 called "Cosmic Girl", and later released over the Atlantic Ocean.
- ❖ It had planned to deploy nine small satellites into lower Earth orbit (LEO) in its first mission outside its United States base.

- ❖ A mission failure would be the second in Virgin Orbit's history since its first launch in 2020.



Filter Micro-plastics from Water



- ❖ South Korea have developed a new water purification system that can effectively remove microplastics from water in just 10 seconds.
- ❖ The system uses a polymer that is relatively inexpensive and has excellent adsorption performance and good photothermal properties.
- ❖ Microplastics, tiny plastic particles that are less than 5mm in size, have become a global problem.
- ❖ They have been found in water bodies, soil, and air, and have even made their way into the human food chain.

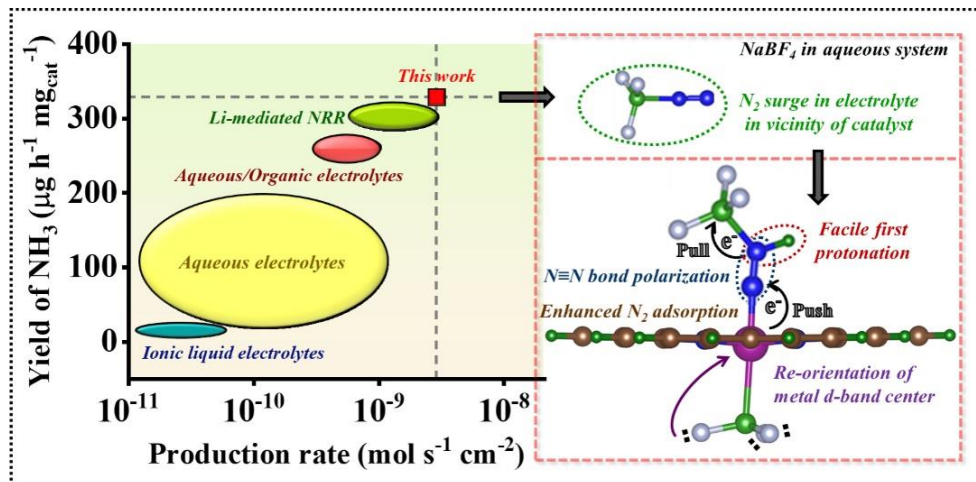
- ❖ The presence of microplastics in water can have negative impacts on aquatic life and potentially on human health.

Lecanemab drug for Alzheimer

- ❖ The US Food and Drug Administration has approved lecanemab (Leqembi) for treatment of Alzheimer's disease.
- ❖ Lecanemab, which will be sold under the brand name Leqembi, is the first Alzheimer's treatment of its kind.



New electrolyte to Ammonia synthesis



- ❖ The scientists at INST (Institute of Nano Science and Technology (INST)) have developed a new electrolyte called sodium tetrafluoroborate (NaBF₄).



- ❖ It acts as an N₂ carrier in the medium, and functions as a “co-catalyst” with MnN₄ to produce high yields of NH₃ under ambient conditions.
- ❖ Ammonia synthesis is an important process for industries producing green energy or hydrogen.
- ❖ The electrochemical reduction of N₂, also known as the Nitrogen Reduction Reaction (NRR).
- ❖ One major obstacle is the poor solubility of N₂ in water, which limits the efficiency of the NRR.

REPORTS AND INDICES

Henley Passport Index 2023

- ❖ London based company Henley & Partners has released a list in which it has ranked passports across the world.
- ❖ The index includes 199 different passports and 227 different travel destinations.
- ❖ Japan has topped the list with a visa free access score of 193.
- ❖ This is the fifth time in a row a Japanese passport has been crowned the world's most powerful passport.
- ❖ India was ranked 85th in the index and had visa-free access to 59 countries.
- ❖ Pakistan (32), Syria (30), Iraq (29), Afghanistan (27) are the bottom 4 countries in the index.

COUNTRY	RANK	ACCESS
Japan	1	193
Singapore, South Korea	2	192
Germany, Spain	3	190
Finland, Italy, Luxembourg	4	189
Austria, Denmark, Netherlands, Sweden	5	188
France, Ireland, Portugal, United Kingdom	6	187
Belgium, Czech Republic, New Zealand, Norway, Switzerland, United States	7	186
Australia, Canada, Greece, Malta	8	185
Hungary, Poland	9	184
Lithuania, Slovakia	10	183

PERSONALITIES, AWARDS, AND EVENTS

India's first woman pilot in Japan

- ❖ Squadron leader Avani Chaturvedi will participate in the inaugural air exercise Veer Guardian 2023.

- ❖ She is the first female fighter pilot in the Indian Air Force.
- ❖ This would mark the first occasion that women officers would be representing the nation abroad.
- ❖ The exercise is intended to strengthen bilateral air defence cooperation between India-Japan.
- ❖ Squadron Leader Bhawana Kanth, Mohana Singh Jitarwal and Avani Chaturvedi are the first three female fighter pilots and a flier of Su-30MKI fighter jets.
- ❖ The Su-30MKi is a versatile multirole combat aircraft which can carry out both air-to-ground and air-to-air missions simultaneously.

