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News Analysis (12 Dec, 2018)

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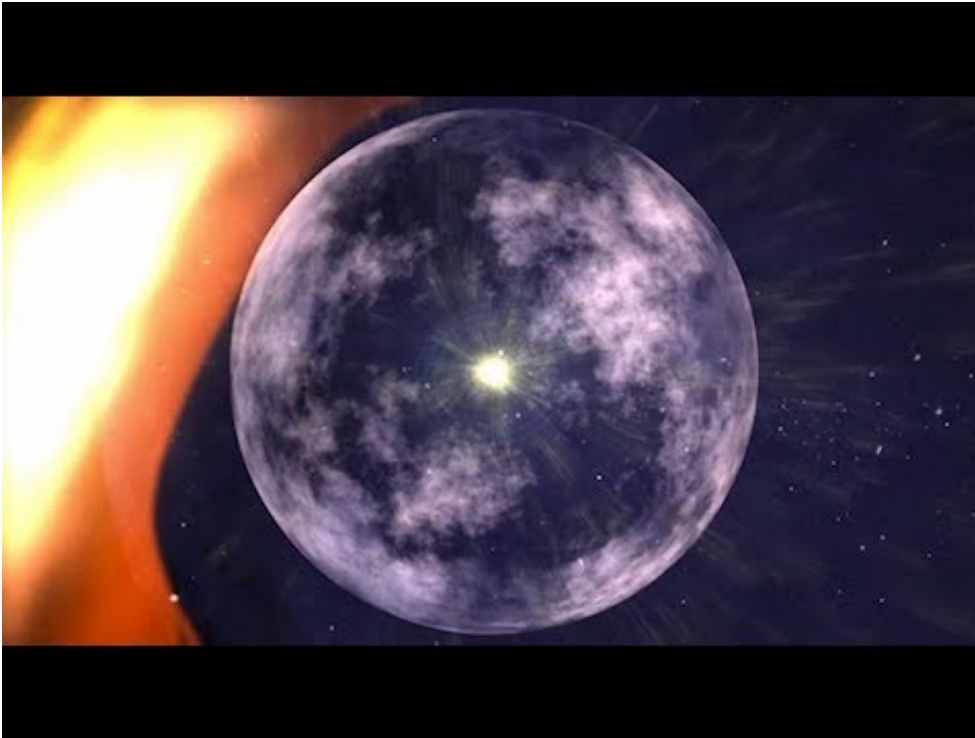
Voyager 2 Enters Interstellar Space

NASA's Voyager 2 has become the second human-made object in history to exit the Heliosphere (bubble created by solar winds).

- Spacecraft Voyager 1, crossed this boundary in 2012.
- The Voyager spacecraft are the third and fourth spacecraft to fly beyond all the planets in our solar system. Pioneers 10 and 11 preceded Voyager in going beyond the planets in the solar system.
- Voyager 2 is the only spacecraft to have visited all four gas giant planets — Jupiter, Saturn, Uranus, and Neptune.
- The two probes, Voyager 1 and Voyager 2 have left the heliosphere, but have not yet left the solar system as they are not out of the sun's gravitational field yet.

Significance and Challenges

- Together, the two Voyagers provide a detailed information on how heliosphere interacts with the constant interstellar wind flowing from outer space. Their observations will be used to complement data from NASA's Interstellar Boundary Explorer (IBEX), a mission that is remotely sensing the solar system's boundary.
- The challenge for the spacecraft operations is to deal with the gradual loss of heat and power. Voyager 2 is currently operating in temperatures of just about 38.5 degrees Fahrenheit (3.6 degrees Celsius), and for each year that passes the spacecraft's power production drops 4 watts.



[Watch Video At:](#)

<https://youtu.be/MGPM58S5Njg>

About the Mission

- **Launch:** Voyager 2 was launched on August 20, 1977, and Voyager 1 was launched on September 5, 1977.
- The spacecraft were built to last five years and conduct close-up studies of Jupiter and Saturn.
- Voyager 2 is NASA's longest-running mission.

Terminologies

- **Termination Shock**

Blowing outward billions of kilometers from the Sun is the solar wind, a thin stream of electrically charged gas. This wind travels at an average speed ranging from 300 to 700 kilometers per second (700,000 - 1,500,000 miles per hour) until it reaches the termination shock. At this point, the speed of the solar wind drops abruptly as it comes in contact with the interstellar wind.

- **Heliosphere**

The solar wind, emanating from the Sun, creates a bubble that extends far past the orbits of the planets. This bubble is the heliosphere, shaped like a long windsock as it moves with the Sun through interstellar space.

- **Heliosheath**

The heliosheath is the outer region of the heliosphere, just beyond the termination shock, the point where the solar wind slows abruptly, becoming denser and hotter. The solar wind piles up as it presses outward against the approaching wind in interstellar space.

- **Heliopause**

The boundary between solar wind and the interstellar wind is the heliopause, where the pressure of the two winds are in balance. This balance in pressure causes the solar wind to turn back and flow down the tail of the heliosphere.

- **Bow shock**

As the heliosphere plows through interstellar space, a bow shock forms, similar to what forms as a ship plowing through the ocean.

- **Oort Cloud**

- It is a collection of small objects that are still under the influence of the sun's gravity.
- The boundary of the solar system is considered to be beyond the outer edge of the Oort Cloud.
- The width of the Oort Cloud is not known precisely, but it is estimated to begin at about 1,000 astronomical units (AU) from the sun and to extend to about 100,000 AU (1 AU is the distance from the sun to Earth).

- **The Golden Record**

The Golden Record is the 12-inch gold-plated copper disk, phonograph record onboard Voyager 1 and 2. It carries data containing sounds and images selected to portray the diversity of life and culture on Earth.

- **Deep Space Network**

- The Deep Space Network (DSN) supports NASA and non-NASA missions that explore the furthest points of our solar system. The DSN has three ground stations located approximately 120 degrees apart on Earth ($120 + 120 + 120 = 360$). This is to ensure that any satellite in deep space is able to communicate with at least one station at all times.
- **Location of DSN:**
 - Canberra, Australia
 - Madrid, Spain
 - Goldstone, California, US

- **Interstellar Mapping and Acceleration Probe**

It is NASA's additional mission due to launch in 2024 to follow on the Voyagers' observations.

- **Interstellar Boundary Explorer (IBEX)**

- NASA's Interstellar Boundary Explorer (IBEX) mission objective is to discover the nature of the interactions between the solar wind and the interstellar medium at the edge of our solar system.
- It was launched on Oct. 19, 2008.

Port Community System 'PCS1x'

Indian Ports Association (IPA), under the guidance of **Ministry of Shipping** has launched the **Port Community System (PCS1x)**, a cloud based new generation technology, with user-friendly interface.

- This system will **enable maritime trade** to have an **improved communication with the customs**.
- It offers value added services such as notification engine, workflow, mobile application, track and trace, better user interface, better security features, improved inclusion by offering dashboard for those with no IT capability.
- A unique feature of 'PCS1x' is that it can **sync with the third party software** which provides services to the maritime industry thereby enabling the stakeholders to **access wide network of services**.
- Another major feature is the deployment of a world class state of the art payment aggregator solution which removes dependency on bank specific payment ecosystem. It is estimated that this feature alone will **drastically reduce transaction time**.
- The platform has the potential to revolutionize **maritime trade** in India and bring it at par with global best practices and pave the way to improve the **Ease of Doing Business world ranking** and **Logistics Performance Index (LPI) ranks**.
- This system is also an initiative that supports green initiatives by reducing dependency on paper. The web-based platform has been developed indigenously and is a part of the **'Make in India'** and **'Digital India'** initiative.

Logistics Performance Index (LPI)

- The Logistics Performance Index, **developed by the World Bank Group**, is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.

- The logistics performance (LPI) is the weighted average of the country's scores on the **six key dimensions**:
 - Efficiency of the **clearance** process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs;
 - **Quality of trade** and transport related infrastructure (e.g., ports, railroads, roads, information technology);
 - Ease of **arranging competitively priced shipments**;
 - Competence and quality of **logistics services** (e.g., transport operators, customs brokers);
 - Ability to **track and trace consignments**;
 - Timeliness of shipments in reaching destination within the scheduled or expected **delivery time**.
- Ease of Doing Business Report is also released by the **World Bank**. It provides an assessment of objective measures of business regulations and their enforcement across 190 economies on ten parameters affecting a business through its life cycle.

Partner's Forum Inaugurated in New Delhi

The Prime Minister inaugurated the fourth Partners' Forum at New Delhi.

- Partners' Forum is short for the meeting of **The Partnership for Maternal, Newborn & Child Health** (The Partnership, PMNCH).
- The 2018 Forum was hosted by the Government of India and focused on improving multisectoral action for results, sharing country solutions and capturing the best practices and knowledge within and among the health sector and related sectors.
- It will also emphasize the importance of people-centered accountability bringing forward the voices and lived realities of women, children, and adolescents through innovative programming and creative projects.
- Specific goals of the Partners' Forum include:
 - **Greater political momentum**, sustaining attention to the "Survive-Thrive-Transform" agenda of the Global Strategy, and its contribution to driving the Universal Health Coverage (UHC) and the 2030 Sustainable Development Goals (SDG).
 - **Knowledge exchange**, through sharing of lessons learned and best practices to innovate and improve implementation strategies for results.
 - **Improved cross-sectoral collaboration** through knowledge exchange and joint advocacy strategies.

- This is the second time India is hosting the Partners' Forum. The previous conference was held in Johannesburg, South Africa (2014), New Delhi, India (2010) and Dar es Salaam, Tanzania (2007).
- The Forum will present the findings of the 12 Success Factors case studies that showcase how countries are collaborating across sectors to improve women's, children's and adolescents' health.
- The Partners' Forum will showcase learning from across six regions: Africa, Eastern Mediterranean, Europe, Americas, South East Asia, and Western Pacific on six thematic areas:
 - **Early Childhood Development** (Germany & Chile)
 - **Adolescent Health and Well-Being** (USA & Indonesia)
 - **Quality, Equity and Dignity (QED) in Services** (India & Cambodia): From India, Intensified Mission Indradhanush has been selected as one of the case studies under QED theme.
 - **Sexual and Reproductive Health** (Malawi & Malaysia)
 - **Empowerment of Women, Girls, and Communities** (South Africa & Guatemala)
 - **Humanitarian and Fragile Settings** (Sierra Leone & Afghanistan)

Partner's Forum

- Partners' Forum is a global health partnership launched in September 2005 to accelerate efforts to reduce child and maternal mortality, improve adolescent, child, newborn and maternal health.
- The Partnership is governed by a Board and administered by a Secretariat hosted at the World Health Organization in Geneva, Switzerland.
- PMNCH mission is to support the global health community to work successfully towards achieving the Sustainable Development Goals (SDGs), particularly the health-related SDGs as articulated in the Strategy for Women's Children's and Adolescents' Health in support of 'Every Woman Every Child' (EWEC) movement.

'Every Woman Every Child' (EWEC) movement

- It was launched by the United Nations during the United Nations Millennium Development Goals Summit in September 2010.
- Every Woman Every Child is an unprecedented global movement that mobilizes and intensifies international and national action by governments, the private sector, and civil society to address the major health challenges facing women, children, and adolescents around the world.

Important Facts for Prelims (12th December 2018)

Eco-Sensitive Zone around Protected Regions

- The Supreme Court directed the Union Environment Ministry to **declare 10 km area around 21 national parks and wildlife sanctuaries** across the country as '**eco-sensitive zones**'.
- Eco-Sensitive Zone (ESZ) does not affect the ownership rights of people on land resources, it, however restricts land-use change.

BioBlitz

- People from across the India participated in the BioBlitz conducted by Bengaluru's **National Centre for Biological Sciences**.
- Participants observed individual trees in their neighbourhoods and campuses, and contributed information including the tree species, its location, proportions of flowers, fruits and leaves.
- This will generate a baseline for tree **phenology(periodic events such as fruiting and flowering) across India** over the years, helping scientists analyse if **climate change is altering tree phenology in future**.

BioBlitz

- A bioblitz is an event that focuses on **finding and identifying** as many species as possible in a specific area **over a short period of time**.
 - It is also known as a **biological inventory or biological census** whose primary goal is to get an overall count of the plants, animals, fungi, and other organisms found in a place.
 - It **differs from a scientific inventory** in a number of ways. Scientific inventories are usually limited to biologists, geographers, and other scientists. A bioblitz brings together volunteer scientists, as well as families, students, teachers, and other members of the community.
 - While a scientific survey often focuses on unique or isolated areas, bioblitzes focus on areas that are connected to residential, urban, and industrial areas.
 - These differences make a bioblitz a unique biological survey that encourages a relationship between the natural and human communities of a given area. It aims to promote and improve local natural spaces by empowering citizens to better understand and protect biodiversity.
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