

Prelim Bits 04-11-2018

Planetary Nebula

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- A planetary nebula is formed when a star like our Sun, or a few times heavier, is in its dying days.

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- The term was coined by astronomers in the 19th century since the nebula looked like planets through their telescopes.

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- Indian astrophysicists have recently discovered planetary nebula called “NGC 6302” using Ultra -Violet Imaging Telescope (UVIT) onboard AstroSat.

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- The nebula is popularly known as the Butterfly Nebula.

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- They have discovered large ultraviolet lobes and jets that were hurled out from a dying star.

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AstroSat

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- AstroSat is a space observatory launched by ISRO in 2015.

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- It was launched with a lift-off mass of about 1500 kg by PSLV-C30.

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- It is India’s first dedicated multi wavelength space observatory.

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- Most other scientific satellites can observe only a narrow range of wavelength band.

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- But AstroSat enables the simultaneous multi-wavelength observations of various astronomical objects with a single satellite.

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- It observes universe in the optical, Ultraviolet, low and high energy X-ray regions of the electromagnetic spectrum.

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- The scientific objectives of ASTROSAT mission are:
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1. To understand high energy processes in binary star systems containing neutron stars and black holes
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2. Estimate magnetic fields of neutron stars
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3. Study star birth regions and high energy processes in star systems lying beyond our galaxy
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4. Detect new briefly bright X-ray sources in the sky
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5. Perform a limited deep field survey of the Universe in the Ultraviolet region
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Sovereign Blue Bond

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- The Republic of Seychelles has recently launched the world's first sovereign blue bond.
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- Blue Bond is a financial instrument designed to support sustainable marine and fisheries projects.
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- It is partially guaranteed by a US\$5 million guarantee from the World Bank (IBRD).
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- It is further supported by a US\$5 million concessional loan from the Global Environment Facility (GEF) which will partially cover interest payments for the bond.
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- Proceeds from the bond will also contribute to the World Bank's South West Indian Ocean Fisheries Governance.
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- It combines Public and private investment to mobilize resources for empowering local communities and businesses in achieving a transition to sustainable fisheries.
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Earth BioGenome Project

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- The Earth BioGenome Project aims to sequence the genomes of the roughly 1.5 million known animal, plant, protozoan and fungal species collectively known as eukaryotes.
- The project will characterize the genomes of all of Earth's eukaryotic biodiversity over a period of 10 years.
- It was officially launched in London with an estimated cost of US\$4.7 billion.
- The last project of a similar scale and importance was the 13-year Human Genome Project which was completed in 2003.
- **Eukaryotes** - The branch of complex life consisting of organisms with cells that have a nucleus inside a membrane—lag far behind the bacteria and archaea.

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Orion Spacecraft

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- Orion spacecraft is being designed by NASA to take humans deeper into space than ever before.
- It is the next-generation vehicle that the US is developing to carry astronauts to the Moon and on to Mars.
- It is scheduled to be launched in 2020.
- It is known as Exploration Mission-1 (EM-1).
- European industry has recently handed over a key part of the spaceship infrastructure to NASA.
- This is the first time America has gone outside its shores for such an important piece of human spaceflight hardware

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- The European Service Module (ESM) is essentially Orion's back end.
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- ESM will provide propulsion, an electricity supply, thermal control, and all the gases and water needed to sustain any humans riding inside the capsule.
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Source: BusinessLine, Business Standard, First Post

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