Prelim Bits 08-11-2018

International Space Station

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- The International Space Station is a collaboration between the U.S., Russia, Canada, Europe and Japan.
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- It has been in operation since 1998 and due to be retired in 2024.
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- China has recently unveiled a core module of its space station which is expected to be completed by 2022.
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- It is named “Tiangong” or “Heavenly Palace” with 3 astronauts placed permanently.
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- China will have the only space station in orbit after ISS expires in 2024.
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- Tiangong will be much smaller than the ISS which weighs 400 tonnes.
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- It weighs 60 tonnes and will have the lifespan of around 10 years.
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- China has announced that the lab would be open to “all countries” to conduct science experiments.
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Oumuamua

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- Two researchers from Harvard University have claimed that a cigar-shaped rock zooming through our solar system may have been sent by aliens.
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- Oumuamua is the first interstellar object known to enter our solar system.
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- It accelerated faster away from the sun than expected. This has created the notion that some kind of artificial sail (force of radiation pressure that runs on sunlight) may have pushed it.

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- This artificial sunlight known as “Light sail” may be responsible for the excess acceleration of the object.
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State of Ozone Layer

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- A new UN report has unveiled that ozone layer is finally beginning to heal from all the damages caused by anthropogenic means.
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- Scientists across the world have raised the alarm about the impact of chlorofluorocarbons (CFCs) on ozone layer in the 1980s.
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- In 1987, countries around the world agreed in the Montreal Protocol to phase out CFCs and businesses came up with replacements for spray cans and other forms of the harmful chemicals.
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- As a result of it, the upper ozone layer above the Northern Hemisphere should be completely restored in the 2030s.
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- The report has highlighted that, a gaping hole in the ozone over the Antarctic won’t disappear until later in the 2060s.
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Montreal Protocol

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- The Montreal Protocol on Substances that Deplete the Ozone Layer has been recognized as the most successful international environment treaty in history.
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- It is the only environmental treaty which enjoys universal ratification of 197 UN numbers countries.
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- The protocol has been amended by Kigali Agreement which was signed by the member countries in its 28^{th} Conference of Parties (CoP).
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- Kigali agreement aims to phase out Hydro fluorocarbons (HFCs), a family of potent greenhouse gases by the late 2040s.

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- The protocol and its amendments have banned the use of ozone destroying chemicals and the rate of ozone depletion seems to have slowed.
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- Its implementation has not only led to the phase-out of around 98% of ozone depleting chemicals, but also averted more than 135 billion tonnes of carbon dioxide equivalent emissions.
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Polarimetry Doppler Weather Radar

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- ISRO has inaugurated the Polarimetry Doppler Weather Radar (DWR) at Sriharikota spaceport.
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- It provides advanced information, enhances the lead-time essential for saving lives and property in the event of a natural disaster associated with severe weather.
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- While conventional radars are able to track and predict cyclones, the DWR provides detailed information on a storm’s internal wind flow and structure.
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- The polarimetric capability of the radar will significantly improve the accuracy of rainfall estimation leading to accurate and timely flash flood warnings.
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Source: The Hindu, Business Standard

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