Prelim Bits 04-05-2017

NASA's inflatable greenhouse

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- One of the biggest problems we still have to solve when it comes to sending humans to live on the moon or Mars is food.
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- To conjure up a possible solution to the issue, NASA scientists are developing an inflatable cylindrical greenhouse for outer space.
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- The Prototype Lunar/Mars Greenhouse project uses what's called **"bioregenerative life support system"** that mimics Earth's environment to be able to grow plants outside our planet.
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- The prototype involves an inflatable, deployable greenhouse to support plant and crop production for nutrition, air revitalisation, water recycling and waste recycling.
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- The support system will introduce the carbon dioxide astronauts exhale into the greenhouse and will release the oxygen plants produce into the human settlement.
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- While plants here at home grow under the sun, the greenhouse will likely have to be **buried underground** to protect the plants from radiation.
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Tarang Sanchar

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- It is a web portal for Information sharing on **Mobile Towers and EMF Emission Compliances.**
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- It will go a long way in clearing the myths and misconceptions of public on mobile towers and emissions from them.
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- The portal will empower common man about towers working in a particular locality and whether they are compliant to the EMF emission norms defined by the Government.
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Aerotropolis in Assam

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- The Centre is planning to build an aerotropolis in Guwahati, Assam and has sought 2,000 acres from the State for the purpose.
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- An aerotropolis is **an airport centric metropolitan hub,** where infrastructure and economy are all based on the access to the airport serving as a commercial point like any traditional metropolis that contains a central city commercial core area and commuter-linked suburbs.
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- **Andal Aerotropolis is India's first Aerotropolis** located at Andal in Durgapur sub-division between the industrial cities of Durgapur and Asansol in West Bengal, India.
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Brahmos

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- The Army carried out a successful test of the advanced BrahMos Block III Land Attack Cruise Missile (LACM) in the Andaman and Nicobar Islands on May 3, 2017.
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- BrahMos is a product of joint collaboration between India and Russia and is **capable of being launched from land, sea, sub-sea and air** against surface and sea-based targets.
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- It is a **two-stage missile** with a solid propellant booster engine as its first stage which brings it to supersonic speed and then gets separated.
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- The liquid ramjet or the second stage then takes the missile closer to 3 Mach

speed in cruise phase.
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- **Stealth technology and guidance system** with advanced embedded software provides the missile with special features.
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- It is the first supersonic cruise missile known to be in service.
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- It operates on '**Fire and Forget Principle'**, adopting varieties of flights on its way to the target.
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- The range of the supersonic missile was initially capped at 290 km as per the obligations of the MTCR. Since India's entry into the club, the range has been extended to 450 km and the plan is to increase it to 600km.
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How the hatchetfish hides?

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- The study is the first to investigate how reflecting rather than absorbing light from search beams allows deep-water creatures to camouflage.
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- Like other silvery fish, hatchetfish are known for using **their reflective, aluminium-like skin** as a mirror to confuse fellow sea creatures in ambient light.
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- But scientists have long wondered **how they manage to hide in deeper water,** where a mirror would reflect incoming searchlight beams and reveal their position to predator fish.
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- The fish found a way to both simultaneously have this mirror-like property in ambient light, and a stealth technology when it comes to predators looking directly with directed beams.
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- The fish's skin did not reflect the beam straight back, but **diffused it in different directions, softening the light.** This effectively reduced the fish's luminosity, which in real life would help keep it hidden.
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