



Current Affairs - October to December 2017

Month Type







- **81** Current Affairs were found in **Last Three Months** for Type - **Science and Technology**

Science

- ▶ 2 new ant species *Tetramorium krishnani* and *Tetramorium jarawa* discovered in islands of Andaman, named after late scientist K.S. Krishnan of NCBS, and Jarawas – indigenous people of Andaman.
- ▶ Government launched Noxeno, a nasal foreign body removal device developed by start-up InnAccel Technologies, under Biodesign program. Noxeno is first dedicated tool for anterior nasal foreign body (NFB) removal that allows doctors in any setting to quickly and safely remove objects that people (mostly children aged 2 to 10 years) put into their noses.
- ▶ 5 students from Warangal (Telangana) selected to take part in 5th annual NASA Human Exploration Rover Challenge to be held in April 2018 in USA.
- ▶ A new LIGO (Laser Interferometer Gravitational-Wave Observatory) gravitational wave detector will be built in India by 2025 (world's 3rd after 2 in USA).
 - ▶ In 2016, LIGO detectors discovered gravitational waves produced by two giant merging blackholes. LIGO detector in India will help to pinpoint origin of gravitational waves that are detected in future.
- ▶ A new species of orang-utan named *Pongo tapanuliensis* identified in North Sumatra. It is most endangered great ape in world with just 800 individuals left.
- ▶ According to new NASA study, our solar system's Planet Pluto may have liquid water oceans beneath their surface, as heat generated by gravitational pull of moons formed from massive collisions could extend the lifetimes of liquid water oceans beneath its surface.
- ▶ As per a study by University of Maryland (USA), India is overtaking China as the World's largest emitter of Anthropogenic Sulphur Dioxide (SO₂). Sulphur dioxide causes acid rain, haze and many health-related problems.
 - ▶ India's emissions of SO₂ pollutant increased 50 % since 2007 while China's fell by 75 % (owing to excellent emission control measures undertaken by China).
- ▶ Astronomers discovered a 2 Sun-like star system around 350 light-years away that consumed rocky equivalent of 15 Earths, named *Kronos* (after child-eating Titan of Greek mythology).
- ▶ Australian Researchers discovered a new water-adapted species of spiders named 'Desis bobmarleyi' in Queensland, named after noted singer and songwriter Bob Marley.
- ▶ Australian scientists of University of New South Wales (UNSW) discovered a new species of marsupial lion which has been extinct for at least 19 million years. Named *Wakaleo schouteni*, it was a predator about the size of a border collie dog.
- ▶ Botanical Survey of India (BSI) scientists discovered two new species of Ginger - *Hedychium chingmeianum* (Nagaland) and *Caulokaempferia dinabandhuensis* (Manipur).
- ▶ Botanists discovered new species of wild banana named *Musa paramjitiana* in Andaman and Nicobar Islands, named in honour of Paramjit Singh, director of Botanical Survey of India (BSI).
- ▶ California Institute of Technology, USA (CALTECH) scientists made world's smallest recreation of Leonardo da Vinci's Mona Lisa, through a technique dubbed as *DNA origami*. Scientists folded DNA into desired self-assembling structures using 64 tiles, which were 100 nanometers wide.
- ▶ Cambridge University (UK) researchers discovered that oldest recorded solar eclipse occurred on 30 October 1207 BC, around 3200 years ago. It helped historians to date Egyptian pharaohs, monarchs of ancient Egypt. Solar eclipses are often used as a fixed point to date events in the ancient world.

15. ▶ China began test runs of world's first track-less train in Zhuzhou city, that runs on virtual track and is being considered *World's First smart train*. This train could travel at the speed of 70 kmph and is called Autonomous Rail Transit (ART).
16. ▶ China launched world's largest human genome research project to document genetic makeup of 1 lakh people, to detect genetic links between health and sickness and use that information to generate precision medicines for future.
17. ▶ China tested its first photovoltaic (solar) highway in Shandong province, becoming 2nd country (after France) to construct a photovoltaic highway.
 - ▶ China's photovoltaic highway is constructed using solar panels with thin sheet of transparent concrete on top of them.
 - ▶ The photovoltaic panels of the highway are built to transfer energy to electric vehicles passing on top of them.
 - ▶ Tested 1 KM segment of solar highway can generate 817.2 KW of electricity and can generate 1 million KW hours of electricity yearly.
18. ▶ China will build a Martian village (simulating environmental conditions on Mars) in Qinghai Province, in red rock area of the Qaidam basin in western Qinghai.
19. ▶ China's Three Gorges Corp. started building world's biggest floating solar power plant in Anhui Province, expected to be launched by May 2018.
20. ▶ China's AG600 (also known as Kunlong), world's largest amphibious aircraft took off its first flight from Zhuhai City. It has huge wingspan of 38.8 metres and can land and take off from water.
21. ▶ Columbia University (USA) researchers converted a bacterial immune system into world's smallest data recorder, by modifying an ordinary laboratory strain of human gut microbe *Escherichia coli*, using CRISPR gene-editing method. It enabled bacteria to record their interactions with environment and also time-stamp the events. It has several possible applications such as disease diagnosis, environmental monitoring and basic studies in ecology and microbiology.
22. ▶ Food and Drug Administration (FDA) of USA approved *Abilify MyCite* as first drug in USA with a digital ingestion tracking system, to ensure that patients with mental illness take the medicine prescribed for them.
23. ▶ Geologists for first time discovered 152 million-year-old fossil of Ichthyosaur, an extinct marine reptile in Kutch desert region of Gujarat. The specimen belongs to Ophthalmosauridae family of ichthyosaurs that lived in oceans between 165 and 90 million years ago.
24. ▶ H-BOTS, Hyderabad-based artificial intelligence (AI) and machine learning start-up unveiled a prototype of a smart policing robot, which weighs 43 kg and is made of nylon plastic. H-BOTS is planning to produce 700 such units a year by 2020.
25. ▶ Hyderabad based Centre for Cellular and Molecular Biology (CCMB) and Indian Institute of Rice Research (IIRR) developed Improved Samba Masuri (ISM) variety rice with low Glycemic Index (50.99 against normal value of 53 - 70).
 - ▶ Rice with low GI is considered suitable for people with diabetics and it results in slow release of glucose into blood.
26. ▶ India has been declared free from infective Trachoma which is a contagious bacterial infection of the eye, that causes inflamed granulation on inner surface of lids. It was stated in National Trachoma Survey Report 2014-17 released by Minister of Health and Family Welfare J P Nadda.
27. ▶ India's First wave-powered navigational buoy developed by National Institute of Ocean Technology (NIOT), has been deployed at Ennore Kamarajar Port (Chennai) to guide ships in and out of ports. Buoy's ship guiding beacon is powered by wave energy while conventional ones use solar power.
 - ▶ National Institute of Ocean Technology (NIOT) will also build India's first offshore desalination plant about 40km from Chennai coast, with capacity of 10 million litres water / day.
28. ▶ Indian Space Research Organization (ISRO) will set up a research centre in Guwahati (Assam) for exploring possibility of using geospatial technology and geographical information systems (GIS).
29. ▶ India's First mission to Sun will be launched in 2019, aiming to improve our understanding of dynamical processes of the sun and help resolve some outstanding questions in solar physics. It will be launched from Sriharikota in Andhra Pradesh on PSLV- XL launch vehicle.
 - ▶ The mission will put 1500-kg heavy class Aditya-L1 satellite into halo orbit around Lagrangian point L1, a point between Sun and Earth.
30. ▶ India's multi-wavelength space telescope *AstroSat* accomplished difficult task of measuring X-ray polarisation. It did 18 month long study of Crab pulsar in Taurus Constellation and measured variations of polarisation as this highly magnetised object spins 30 times per second. This measurement puts up a strong challenge to prevailing theories of high energy X-ray emission from pulsars.
31. ▶ International Conference of heads of Metrology Institutes held in Sevres (France) decided that measure of kilogram will no longer be pegged to cylinder. From 2019 onwards, it will be set by value of Planck constant in combination with definitions of meter and second.
 - ▶ Till now, kilogram is only unit of measures pegged to a real object. But cylinder's weight in kilogram fluctuates due to surface contamination with time, making it tricky to define its exact mass.
32. ▶ Lakhs of migratory birds made their way to Chilika Lake (Odisha) after a long flight of thousands of miles, to wetlands of Nalabana Bird Sanctuary inside Chilika and Mangalajodi (Odisha).

- ✏ During winters, migratory birds fly across continents from Caspian Sea, Baikal Lake and remote parts of Russia, Mongolia and Siberia and flock to marshy lands of Nalabana Bird Sanctuary inside Chilika Lake.
33. ▶ Mainstream space agencies in world proposed creation of a climate observatory to combine acquired data and share it with scientists around globe, during *One Planet Summit* in Paris (France).
34. ▶ NASA Stated That ozone hole that forms over Antarctica every year in September is smallest this year since 1988. It Declined gradually after reaching its extent on September 11.
35. ▶ NASA revealed that a mysterious world called *Planet Nine* does exist in solar system-
- ✏ It might be lingering on icy outer edges of solar system hiding in dark, but stretching out orbits of distant bodies.
- ✏ It is very distant and is 10 times mass of Earth and 20 times farther from sun than Neptune.
36. ▶ NASA will launch SuperTIGER Balloon in Antarctica, to study heavy cosmic particles, collect information on cosmic rays that enter Earth's atmosphere every day.
- ✏ SuperTIGER stands for Super Trans-Iron Galactic Element Recorder (SuperTIGER) and is balloon-borne instrument to study rare heavy nuclei, which hold clues about where and how cosmic rays attain speeds up to nearly the speed of light.
37. ▶ NVIDIA unveiled world's first Artificial Intelligence (AI) computer designed to drive fully autonomous robotaxis, named Pegasus. It be available to NVIDIA automotive partners in the second half of 2018. It will help to create a new class of vehicles that can operate completely without a driver.
38. ▶ National Aeronautics and Space Administration (NASA) launched Joint Polar Satellite System-1 (JPSS-1) as first of 4 multi-day weather forecasts satellites.
- ✏ JPSS-1 is joint venture between NASA and NOAA (National Oceanic and Atmospheric Administration). It will be renamed NOAA-20 when it reaches its final orbit. It is designed to monitor weather around world and help improve forecasts.
39. ▶ New species of blind fish "Schistura larketensis" has been discovered in East Jaintia Hills district of Meghalaya. The fish had lost its pigments and eye sight after living in darkness of the cave.
40. ▶ Palaeontologists from University of Portsmouth (UK) discovered remains of humankind's oldest mammal ancestor — a tiny rat-like creature that lived 145 million years ago.
41. ▶ Paleontologists from Chinese Academy of Sciences discovered approx 300 fossilised eggs of Pterosaurs, a group of extinct winged dinosaur. It is world's first such mass dinosaur egg discovery.
42. ▶ Researchers at *Swiss Federal Laboratories for Materials Science and Technology* have developed a flexible material that generates electricity when stretched or compressed, paving way for smart clothing or self-powered pacemakers -
- ✏ It is a composite material made of polar nanoparticles and an elastomer - silicone and can convert mechanical movements into electrical charges. Trick is internal polarisation that changes while rubber film is being mechanically stressed.
43. ▶ Researchers discovered new species of Gecko at Chhattisgarh's Kanger Ghati National Park in Eastern Ghats. Its common name is *Kanger valley rock gecko* and scientific name is *Hemidactylus kangerensis*.
44. ▶ Researchers discovered species of ant in Periyar Tiger Reserve (Kerala), as one of world's 'hottest hotspots' of biological diversity. It has been named *Tyrannomyrmex alii* (or *T. alii*), after eminent myrmecologist Musthak Ali, who is regarded as the India's 'ant man'.
45. ▶ Researchers from Brunel University (UK) developed first 3D printed wearable 'battery' that stacks silicone, glue and gel electrolyte, layer by layer to make a supercapacitor. It stores energy on its surface without chemical reactions and could be used to power smartphones, electric cars, medical implants like pacemakers etc.
46. ▶ Researchers from Massachusetts Institute of Technology (USA) developed low-cost rapid test that can quickly and accurately detect Zika and dengue viruses from blood. Test is conducted through a strip which contains gold nano particles and antibodies that react to the presence of Zika or dengue virus.
47. ▶ Researchers from North Carolina State University in USA found that antibiotic resistance can be passed between bacteria found in soil and spreading manure on ground as fertiliser can also spread antibiotic resistance to bacteria in soil.
- ✏ Bacteria contain small DNA molecules known as plasmids that are separate from bacteria's actual DNA and can pick up and exchange genes between bacteria. Thus, these plasmids in bacterias are responsible for antibiotic resistance in soil also.
48. ▶ Researchers from University of British Columbia (Canada) developed earthquake-proof fibre-reinforced concrete that can enhance earthquake resistance of seismically vulnerable structures.
- ✏ Cement Material is made of eco-friendly ductile cementitious composite (EDCC) which combines cement with polymer-based fibres, flyash and other industrial additives, making it highly sustainable.
49. ▶ Researchers from University of California and University of Illinois confirmed existence of new form of matter called excitonium, made up of excitons and exhibits macroscopic quantum phenomena just like a superconductor.

-  Technique called momentum-resolved electron energy-loss spectroscopy (M-EELS) was used by researchers to prove existence of excitonium.
50. ▶ Researchers from University of Tasmania (Australia) discovered rare, living specimens of stromatolites, oldest evidence of life on Earth, deep within a remote and protected World Heritage Area in Australia.
51. ▶ Samsung developed world's smallest 8-gigabit DRAM chip, with improved energy efficiency and data processing performance. In these chips, only 1 transistor and a capacitor are required per bit, compared to 4 to 6 in SRAM.
52. ▶ Scientists ETH Zurich in Switzerland successfully created the world's shortest X-ray laser pulse with a duration of just 43 attoseconds.
-  Its significance lies in fact that to fully understand dynamics during a chemical reaction, scientists must be able to study all movements of atoms and molecules on their basic time scale.
-  Molecules rotate in range of picoseconds, their atoms vibrate in the range of femtoseconds, and electrons move in the range of attoseconds.
-  This laser pulse is shortest controlled event that has ever been created by humans. Researchers can now observe in high detail how electrons move within a molecule or how chemical bonds are formed.
53. ▶ Scientists at Cornell University (USA) spotted 2 hyper-luminous starburst galaxies, extremely bright and spectacularly massive galaxies, collectively known as ADFS-27, reported to have approximately 50 times amount of star-forming gas as Milky Way.
54. ▶ Scientists detected dust belts around Proxima Centauri, indicating presence of elaborate planetary system hosted by closest star to solar system. These observations were made by Atacama Large Millimeter Array (ALMA) observatory in Chile.
55. ▶ Scientists discovered most ancient spiral galaxy known as A1689B11, recorded so far in universe. It was detected using powerful technique that combines gravitational lensing with Near-infrared Integral Field Spectrograph (NIFS) on Gemini North telescope in Hawaii.
-  A1689B11 galaxy was born 11 billion years ago and existed just 2.6 billion years after Big Bang, when universe was only one-fifth of its present age.
56. ▶ Scientists discovered new scorpion species named Schaller's wood scorpion (*Liocheles schalleri*) from at Trishna Wildlife Sanctuary, Tripura. It has been named in honour of celebrated wildlife biologist George Schaller who has studied wildlife across world.
57. ▶ Scientists discovered new species of frog named Mewa Singh's night frog (*Nyctibatrachus mewasinghi*) in Kozhikode's Malabar Wildlife Sanctuary, Kerala in Western Ghats.
58. ▶ Scientists discovered new species of gecko in Eastern Ghats in northern Andhra Pradesh, named *Hemidactylus sushilduttai* or *Dutta's Mahendragiri gecko*, after eminent herpetologist Sushil Kumar Dutta from Odisha.
59. ▶ Scientists found that parasite called *Leptomonas seymouri* hosting virus *Lepsey NLV1* may be also responsible for spread of kala-azar (visceral leishmaniasis). Earlier it was believed that parasite *Leishmania donovani* (sandfly) alone is responsible for spread of kala-azar.
60. ▶ Scientists from Botanical Survey of India (BSI) discovered a new species of parasitic flowering plant named *Gleadovia konyakianorum* near Tobu town of Mon district in eastern Nagaland, named in honour of Konyak tribe of Nagas.
61. ▶ Scientists from Broad Institute and Massachusetts Institute of Technology in USA developed RNA Editing for Programmable A to I Replacement (REPAIR), a new gene editing tool therapies that can reverse disease-causing mutations in humans.
-  REPAIR can tweak individual RNA 'letters' in human cells without making changes to entire genome and can have profound potential as a tool for both research and disease treatment.
-  REPAIR is based on gene editing tool CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) that can be used to modify DNA in cells.
62. ▶ Scientists from Florida State University (USA) developed new tool for objectively defining onset and demise of Indian Summer Monsoon (ISM). The new method uses rainfall rates to mark span of ISM at any given location throughout affected region.
63. ▶ Scientists from Massachusetts Institute of Technology (USA) found a novel way to induce plants to give off dim light by embedding specialised nanoparticles into their leaves.
-  It has great significance as it will make plants function as a desk lamp, powered by energy metabolism of the plant itself and not by electricity connection.
-  To create glowing plants, scientists has used to luciferase, an enzyme that gives fireflies their glow. Luciferase acts on molecule called luciferin, causing it to emit light.
64. ▶ Scientists from Thiruvananthapuram based CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST) have developed organic filter that allows only near-infrared (NIR) light to pass through it. It was found to absorb light from 300-850 nm (both ultraviolet, visible and part of NIR light) and transmit NIR light from 850-1500 nm.
-  Its Significance lies in fact that Currently available inorganic filters are expensive and brittle whereas organic filters are easy to process and flexible too. The filter can be used for night vision glasses, night photography. It will also have applications in security and forensics such as identifying blood stains on dark fabric which are invisible to naked eyes.

65. ▶ Scientists from US have developed a smart bandage that can precisely control dose and delivery schedule of medication tailored for a specific type of wound, leading to faster healing. This is first bandage that is capable of dose-dependent drug release and can be used to heal chronic wounds or battlefield injuries.
66. ▶ Scientists from University of Michigan (USA) developed a new type of neural network chip using reservoir computing system to improve efficiency of teaching machines to think like humans.
- ▶ Network developed using this system can predict words before they are said during conversation and help predict future outcomes based on present.
67. ▶ Scientists from Zoological Survey of India (ZSI) discovered new frog species in the fast flowing streams in Talle Valley Wildlife Sanctuary (WLS) in Lower Subansiri district of Arunachal Pradesh. It is named *Odorrana arunachalensis*.
68. ▶ Scientists identified a new bacterium from a lime quarry in Karnataka and it will be expecting as a source of antibiotics for several diseases including malaria. It is named as *Allostreptomyces indica* YIM 75704T and belongs to *Streptomycetaceae* a family of bacteria.
69. ▶ Scientists in Austria and China made first video call using quantum encryption, that is said to be unhackable. Encryption through quantum networks uses quantum particles to transfer information from one point to another and hacking Attempts would create detectable disturbances in system.
70. ▶ Space Kingdom of Asgardia (virtual nation) launched its first satellite 'Asgardia-1' into space from NASA's Wallops Flight Facility in Virginia.
- ▶ Asgardia (virtual nation) project was poroposed in 2016 by Russian scientist and billionaire Igor Ashurbeyli.
71. ▶ USA based National High Magnetic Field Laboratory tested world's strongest superconducting magnet 32 T, producing 32 teslas (a unit of magnetic field strength), 33% stronger than previous record.
- ▶ 32 T will allow physicists studying materials to explore how electrons interact with each other and their atomic environment.
72. ▶ USA based SpaceX for first time ever has successfully launched used Dragon spacecraft with a used Falcon 9 rocket, as part of resupply mission to International Space Station (ISS). It was SpaceX's 13th of 20 Missions under a \$1.6 billion contract with National Aeronautics and Space Administration (NASA).
73. ▶ USA's NASA discovered 8th planet in Our Solar System, circling Kepler-90, a Sun-like star which is 2545 light-years far from Earth.
- ▶ Newly-discovered planet Kepler-90i was discovered in data from NASA's Kepler Space Telescope, using Machine Learning from Google.
74. ▶ USA's NASA tested supersonic landing parachute that will be deployed in its Mars rover mission set to launch in 2020, called Advanced Supersonic Parachute Inflation Research Experiment (ASPIRE). Mission will rely on special parachute to slow spacecraft down as it enters Martian atmosphere at over 5.4 kilometres per second.
75. ▶ USA's National Aeronautics and Space Administration (NASA) approved 2nd extension of Dawn mission at Ceres dwarf planet which is largest object in asteroid belt between Mars and Jupiter.
- ▶ During this extension, Dawn will descend to lower altitudes than ever before at dwarf planet. Priority of second extension mission is to collect data with Dawn's gamma ray and neutron spectrometer, which measures number and energy of gamma rays and neutrons.
76. ▶ USA's Space Exploration Firm SpaceX launched 10 French-designed and USA built satellites for Iridium Satellite Constellation using Falcon 9 Rocket. It provides voice and data coverage to satellite phones, pagers and integrated transceivers over Earth's entire surface.
77. ▶ World's First 3D-printed cycling bridge has been made in Gemert (Netherlands). 3D printing is a method of manufacturing an object using a computer by placing layers of material one over other.
78. ▶ World's first floating wind farm located in Scotland started generating electricity, using five 6MW turbines procured from Norway. It is expected to generate 135GWh of electricity each year.
79. ▶ World's first hybrid electric tram powered by hydrogen fuel cells started running in Tangshan (north China's Hebei Province). It marks a big step in application of green energy in public transport as water is only emission of this Tram and it emits no pollutants.
- ▶ It can can run for 40 kilometers at a maximum speed of 70 kilometers per hour after being refilled with 12 kilograms of hydrogen.
80. ▶ World's first negative emissions plant under CarbFix Project to turn atmospheric carbon dioxide (CO₂) into stone begun operations in Hellisheidi (Iceland), intended to lock away carbon dioxide by reacting it with basaltic rocks.
- ▶ In CarbFix Project, CO₂ is captured from ambient air, bound to water, and sent 700 meters underground. There, CO₂ reacts with basaltic bedrock using enhanced weathering process and forms solid minerals, creating a permanent storage solution.
81. ▶ World's heaviest bony fish ever caught weighing 2,300 kilograms has been identified in Japan, confirmed by researchers from Hiroshima University. Bony fish have skeletons made of bone rather than cartilage.

