



### Current Affairs - May to July 2018

Month  Type



- [83 Current Affairs were found in Last Three Months for Type - Science and Technology.](#)

(Showing 45 Important Ones)

#### Science

- ▶ 6 new species of minute goblin spiders discovered in forests of Sri Lanka, named after fictional characters described by English children's writer Enid Blyton. Names given are - goblins Bom, Snooky and Tumpy and the brownies Chippy, Snippy and Tiggy.
- ▶ *IceCube*, a small NASA satellite has developed first global map of ice clouds. Ice clouds start as tiny particles high in atmosphere. They absorb moisture, and become heavier. This make them to fall to lower altitudes. Ice clouds affect Earth's energy budget by absorbing Sun's energy and by affecting emission of heat from Earth into space. IceCube will operate for a year, and then it will reenter Earth's atmosphere and burn up.
- ▶ A Massive underground lake has been detected for first time on Mars, discovered by European Space Agency's Mars Express orbiter (launched in 2003). It is about 20 kilometres wide, located under a layer of Martian ice and is largest body of liquid water ever found on Red Planet.
  - It lies almost 1.5 km beneath the icy surface and water is not drinkable. Tool that detected this is called Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS).
- ▶ A rare blood group named "pp" or "P null" phenotype has been identified by doctors from Kasturba Medical College (KMC) in Mangaluru, Karnataka. ABO and Rh D are the most common blood group systems. Doctors confirmed that a needy patient's cells contained rare "pp" phenotype, making it first time that P blood group null phenotype is detected in India.
- ▶ American Spzce Exploration Firm SpaceX launched twin NASA satellites GRACE-FO (Follow-On) that will track Earth's water Cycle i.e. water movement and icemelt.
  - GRACE-FO (Gravity Recovery and Climate Experiment Follow-On) is joint project between NASA and German Research Center for Geosciences (GFZ), as as follow-on mission to GRACE mission, which mapped Earth's water and ice by measuring changes in Earth's gravity field from 2002 to 2017.
  - To measure Earth's gravity, 2 GRACE-FO satellites will orbit around Earth together, with one trailing behind other at distance of 220km.
- ▶ Andhra Pradesh Government notified its new state symbols, after bifurcation of undivided Andhra Pradesh in 2014 that led to formation of New State Telangana. New state symbols -
  - State bird - Rose-ringed parakeet (*Psittacula krameri*). Locally known as Rama Chiluka.
  - State tree - Neem (*Azadirachta indica*). Locally known Vepa Chettu.
  - State animal - Black-buck (*Antilope cervicapra*). Locally known as Krishna Jinka.
  - State flower - Jasmine (*Jasminum officinale*).
  - State symbols of Telangana - Bird - Indian Roller (It also state bird of Odisha and Karnataka), Tree: Jammi Chettu, Animal - Spotted deer. Flower - Tangidi Puvvu.
- ▶ Antarctica has Reportedly lost about 3 trillion tonnes of sea ice since 1992 contributing to a global sea-level rise of 7.6 mm. Antarctica has enough ice to raise seas by 58 metres if it ever all melted.
- ▶ China launched relay satellite *Queqiao (Magpie Bridge)* to establish communication with its planned Chang'e-4 lunar probe (rover) that will explore dark side of moon.

- ✎ Queqiao (meaning bridge of magpies) will serve as communications relay for future Chang'e-4 rover that will explore in South Pole-Aitken Basin in moon's far side. It will be world's first communication satellite operating in halo orbit - Earth-moon Lagrange point L2, a gravitationally stable spot located 64,000 kilometers beyond lunar far side.
- ✎ Need for relay Satellite -
  - ✎ Moon is tidally locked to Earth, it always shows same face (near side) to Earth. So, relay link is necessary to communicate with spacecraft on far side, which will otherwise have to send their signals through moon's rocky bulk.
  - ✎ Under China National Space Administration (CNSA)'s Chang'e program (Chinese Lunar Exploration Program), Chang'e 1 and Chang'e 2 probes already have reached lunar orbit in 2007 and 2010 respectively. Chang'e 3 mission is in process to put lander and rover on moon's near side.
- 9. ▶ China will launch a 300-satellite array known as *Hongyan constellation*, with 1st launch scheduled in end of 2018. The constellation will provide worldwide communication services, allowing a mobile phone to be connected anywhere on planet, including remote deserts or middle of an ocean.
  - ✎ Low-orbit satellites have stronger signals and a shorter signal delay than synchronous orbit satellites, which are 36,000 kilometers above equator.
- 10. ▶ Flower *Impatiens dorjeekhanduii* has been named after former Arunachal Pradesh Chief Minister Dorjee Khandu. It was discovered at a forest in Zemithang area of Tawang in September 2017.
- 11. ▶ ISRO conducted its first PAT (pad abort test), through Crew Escape System that provides an escape mechanism for astronauts if the launch operation is aborted. Once deployed, India will become 4th nation (after USA, Russia and China), to have human space flight programmes.
  - ✎ Only Indian to ever travel to space was fighter pilot Rakesh Sharma who flew aboard Soyuz T-11, a spacecraft of the former USSR in 1984. India currently does not have a human space flight programme.
- 12. ▶ ISRO successfully conducted ground test of its high thrust version of Vikas Engine at ISRO Propulsion Complex (IPRC) in Mahendragiri (Tamil Nadu).
  - ✎ Vikas belongs to family of liquid fuelled rocket engines conceptualized and designed by ISRO's Liquid Propulsion Systems Centre in 1970s. It is workhorse liquid rocket engine powering second stage of PSLV, second stage and four strap on stages of GSLV and is part of first stage twin engine core liquid stage (L110) of GSLV Mk-III.
  - ✎ Tested high thrust version of Vikas engine will improve payload capability of PSLV, GSLV and GSLV Mk-III launch vehicles.
- 13. ▶ ISRO's Liquid Propulsion Systems Centre (LPSC) is developing environment-friendly propellant blend based on hydroxylammonium nitrate (HAN) to power satellites and spacecrafts, aiming to replace conventional hydrazine fuel, which has dominated space industry as choice of propellant for over six decades despite hazards.
  - ✎ HAN-based monopropellant formulation consists of HAN, ammonium nitrate, methanol and water. Monopropellant is chemical propulsion fuel which does not require separate oxidizer. It is used extensively in satellite thrusters for orbital correction and orientation control.
  - ✎ HAN-based monopropellant will replace conventional hydrazine rocket fuel, a highly toxic and carcinogenic chemical, with greener propellant for future missions. It will also ensure cost effective re-usable, recoverable, re-startable and reliable space launches of ISRO.
- 14. ▶ ISRO's Vikram Sarabhai Space Centre (VSSC) will transfer its own in-house lithium ion (Li ion) cell technology to successful Indian industries and start-ups on non-exclusive basis in automobiles for INR 1 crore. It aims to accelerate development of indigenous electric vehicle (EV) industry and reduce dependence of imported lithium ion cell technology.
  - ✎ Transfer of ISRO's technology will help in establishing production facilities in country that can produce cells of varying size, capacity, energy density and power density catering to entire spectrum of power storage requirements of electric vehicles (EVs).
- 15. ▶ India Meteorological Department (IMD) will use flash flood guidance system for the first time, to forecast floods. Currently, Central Water Commission issues flood warnings. Different kinds of soil from various parts of country have been studied to find out how absorbent each variety was.
- 16. ▶ India will start producing first indigenous Lithium Ion batteries, after an MoU for transfer of technology for India's first Lithium Ion (Li-ion) Battery project was signed between CSIR Central Electrochemical Research Institute (CECRI) and RAASI Solar Power Pvt Ltd. India imported Li-Ion batteries worth 150 million dollars in 2017 and is one of its largest importers in the world.
- 17. ▶ Indian Institute of Science Education and Research (IISER) developed a *Arsenic Sensor and Removal Media* device to remove arsenic content from water and make it safe for use. It is capable of sensing soluble arsenic which cannot be easily removed. It is highly sensitive as it can sense up to parts per billion (ppb) levels, compared to currently available techniques that sense parts per million (ppm).
  - ✎ Arsenic is a natural component in earth's crust, widely distributed and highly toxic in its inorganic form.

18. ▶ Indian Institute of Technology (IIT)-Madras commissioned world's first remotely operable Local Electrode Atom Probe (LEAP) microscope, which is operatable through special terminal by researchers divided geographically. LEAP can provide a precise atom-by-atom view of materials, providing atomic-scale insights into metallic.
19. ▶ Indian Space Research Organization developed an atomic clock to be used in navigation satellites to measure clear-cut location data. Currently ISRO imports atomic clocks from European aerospace manufacturer Astrium for navigation satellites.
  - ✎ It will be used on seven navigation satellites of India as part of Indian Regional Navigation Satellite System (IRNSS) or NavIC. Currently 3 NAVIC satellites have 3 imported Rubidium atomic clocks.
20. ▶ Ministry of Earth Science (MoES) launched Ensemble Prediction System (EPS), as a new system to generate more area specific forecast of extreme weather events.
  - ✎ EPS system has been developed by Indian Meteorological Department (IMD), National Centre for Medium Range Weather Forecasting (NCMRWF) and Indian Institute of Tropical Meteorology.
  - ✎ EPS is special for its high resolution short-medium range weather forecasts. Under it, area of spatial resolution (currently 23 km grid scale) will come down to 12 km.
  - ✎ In its calculations, system will use a newly procured 8 petaflops high-power computing system.
  - ✎ Forecasts of severe weather events at 12 km grid scale would greatly help in making better emergency response decisions.
21. ▶ Ministry of Earth Sciences announced that Century's (2001 AD to 2100 AD) longest total lunar eclipse of 1 hour 43 minutes will occur on July 27-28, 2018, to be visible from all parts of India.
  - ✎ Moon will be gradually covered by Earth's shadow and totality phase will begin on July 28 and total eclipse will last up to 2h 43m.
  - ✎ Longest Total Lunar Eclipse - Moon will be passing through central part of Earth's umbral shadow. During this, Moon is located at apogee (farthest from Earth) and will be moving at slower speed in its orbit. It will take longer time for Moon and greater distance of Earth's umbral shadow to travel, making it longest duration of total eclipse of century.
  - ✎ Such long duration of total lunar eclipses earlier had occurred on July 16, 2000 for totality duration of 1 hour 46 minutes.
22. ▶ NASA discovered 12 new moons around Jupiter, where one of them is on a collision course which could create a crash large enough to be visible from Earth. This brings total number of Jovian moons to 79, most for any planet.
23. ▶ NASA discovered a special kind of neutron star outside the Milky Way galaxy for first time. Neutron stars are highly dense cores of massive stars that collapse and go through a supernova explosion. It was spotted via NASA's Chandra X-ray Observatory and European Southern Observatory's Very Large Telescope (VLT) in Chile.
24. ▶ NASA extended Juno's science operations until July 2021, providing it additional 41 months in orbit around Jupiter. Larger orbits will also allow scientists to further explore far reaches of the Jovian magnetosphere, region of space dominated by Jupiter's magnetic field.
25. ▶ NASA will launch mission InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) to study deep interior of Mars on May 5, 2018. Rocket will also launch two mini-spacecraft called Mars Cube One (MarCO), NASA's technology experiment. InSight is stationary lander that will be first NASA mission since Apollo moon landings to place seismometer, a device that measures quakes on soil of another planet.
26. ▶ NASA will launch world's lightest satellite in August 2018, which is developed by engineering students from Hindustan Institute of Technology and Science in Tamil Nadu. It is 4cm 'cube' satellite named 'Jaihind-1S', with a 3D printed outer casing from polylactic acid (PLA) nylon material, making it weigh just 33.39 grams.
27. ▶ NASA's Parker Solar Probe, mission to get closest to Sun than ever by any human-made object has got its revolutionary heat shield "Thermal Protection System or TPS" permanently attached to spacecraft.
  - ✎ Parker Solar Probe will be launched in August 2018, after been in making for 60 years. Spacecraft's orbit will carry it to within 4 million miles of Sun's surface with the help of its heat shield, and will collect data about the inner workings of the corona.
  - ✎ Heat shield's diameter is 8 feet and weighs 72.5 KG.
  - ✎ As Probe approaches Sun, temperatures on heat shield will reach around 1,371 degrees Celsius. But, spacecraft and its instruments will be maintained at a relatively comfortable temperature of nearly 29.4 degrees Celsius.
  - ✎ Sun-facing side of heat shield is sprayed with a specially formulated white coating to reflect most of Sun's energy away.
  - ✎ Parker Solar Probe will travel at a speed of 69,2018 km per hour at its closest approach to Sun.
28. ▶ NASA's Transiting Exoplanet Survey Satellite (TESS) become operational, after its launch in April 2018. It will look for potential exoplanets in a strip of sky running from the far south to near equator.
  - ✎ TESS mission is led by Massachusetts Institute of Technology's (MIT) Kavli Institute for Astrophysics and Space Research.
  - ✎ It is designed to find potential planets orbiting stars close to Earth. It will identify such planets by spotting decreased brightness of stars after planet passes in front of it.
  - ✎ It is successor to Kepler, space observatory which is responsible for detecting most of the currently known exoplanets.

- ✍️ TESS will be able to observe about 85% of sky over its expected two-year mission.
  - ✍️ Data collected by TESS will help to study mass, size, density and orbit of large cohort of small planets, including sample of rocky worlds in habitable zones (goldilocks zone) of their host stars.
29. ▶ National Aeronautics and Space Administration (NASA) demonstrated that Its Kilopower portable nuclear fission reactor could enable crewed missions to Moon, Mars and beyond.
- ✍️ Kilopower Reactor Using Stirling Technology (KRUSTY) experiment was conducted by NASA at in November 2017 - March 2018, established that this system can create electricity with fission power.
  - ✍️ KRUSTY is a small, lightweight fission power system which is capable of providing up to 10 kilowatts of electrical power continuously for at least 10 years. This prototype uses a solid uranium-235 reactor core.
30. ▶ National Board for Wildlife (NBWL) added 4 species (*Northern River Terrapin*, *Clouded Leopard*, *Arabian Sea Humpback Whale* and *Red Panda*) into Centre's Recovery Programme for Critically Endangered Species.
- ✍️ Norther River Terrapin - Species of riverine turtle found in rivers that flow in Eastern India.
  - ✍️ Clouded Leopard - Found in Himalayan foothills. It is threatened due to habitat loss, poaching for its skin and is also as a live pet trade.
  - ✍️ Arabian Sea Humpback Whale - Migrates from Oman coast through Arabian sea, along Indian coasts till Sri Lankan coast.
  - ✍️ Red Panda - Closely associated with montane forests with dense bamboo-thicket. It is found in Sikkim, West Bengal and Arunachal Pradesh.
31. ▶ Researchers from Northumbria University (UK) found out mountain ranges and three vast, deep sub-glacial valleys hidden under Antarctica ice. This is first finding observed from ice penetrating radar data collected in Antarctica as part of European Space Agency PolarGAP project. Largest valley, named Foundation Trough, is over 350 kilometres long and 35 kilometres wide. Other 2 are Patuxent Trough and Offset Rift.
32. ▶ Russian researchers created a battery based on radioactive isotope nickel-63 that has a half-life of 100 years, which could help power deep space missions. The prototype packs about 3,300 kilowatt-hours of energy per gram, which is more than any other nuclear battery based on nickel-63 and 10 times more than commercial electrochemical cells.
33. ▶ Satellite named RemoveDEBRIS was successfully deployed from International Space Station (ISS), to clean up space debris orbiting Earth. It was transported to ISS via SpaceX CRS-14 launch in early April 2018. Satellite was built by consortium of space companies and research institutions led by Surrey Space Centre at University of Surrey (United Kingdom).
- ✍️ Satellite is aimed at performing key Active Debris Removal (ADR) technology demonstrations (e.g capture, deorbiting) representative of operational scenario during low-cost mission using novel key technologies for ADR.
34. ▶ Scientists approved three new ages on geologic time scale of Holocene Epoch - Meghalayan Age, Middle Holocene Northgrippian Age and Early Holocene Greenlandian Age.
- ✍️ These new ages of Holocene Epoch are represented by wealth of sediments that accumulated worldwide on sea floor, on lake bottoms, as glacial ice, and as calcite layers in stalactites and stalagmites.
  - ✍️ Meghalayan Age -
    - ✍️ Named after cave in Indian state of Meghalaya. It helped to define climatic events 4,200 years ago, marking beginning of phase that continues till today. Meghalayan Age was part of longer period known as Epoch, which reflects everything that has happened over past 11,700 years.
    - ✍️ It began with mega global drought that devastated ancient agricultural civilisations from Egypt to China. Droughts over 200-year period resulted in human migrations in Egypt, Syria, Palestine, Mesopotamia, Greece, Indus valley and Yangtze river valley.
  - ✍️ Middle Holocene Northgrippian Age and Early Holocene Greenlandian Age -
    - ✍️ These 2 ages are defined with beginnings at climatic events that happened about 8,300 years and 11,700 years ago, respectively.
    - ✍️ Lower boundary of Greenlandian and Northgrippian stages are defined at specific levels in Greenland ice cores.
35. ▶ Scientists at Ahmedabad Physical Research Laboratory have discovered an exoplanet, Taking India into a select group of countries which have found planets outside the solar system. The 'super-Neptune' is about 27 times mass of Earth and six times its radius. It is 600 light-years away from Earth. It is named as EPIC 211945201b (or K2-236b) and host star has been named EPIC 211945201 (or K2-236).
- ✍️ Discovery was made by measuring mass using indigenously designed "PRL Advance Radial-velocity Abu-sky Search" (PARAS) spectrograph integrated with 1.2m Telescope at PRL's Gurushikhar Observatory in Mount Abu (Rajasthan). PARAS is first of its kind spectrograph in Asia, which can measure the mass of a planet going around a star.

36. ▶ Scientists discovered new frog species named *Microhyla kodial* or Mangaluru narrow-mouthed frog in a region in coastal Karnataka. It is seen only in small industrial region which was former timber dumping yards surrounded by seaport, petrochemical, chemical and refinery industries. It is small in size measuring just 2 cm long.
37. ▶ Scientists discovered world's second oldest grain of magmatic zircon (mineral that contains traces of radioactive isotopes) from Champua from Singhbhum rock sample in Odisha's Kendujhar district. It is oldest magmatic zircon on earth.
- ✎ Isotopic analysis of Singhbhum rock sample with magmatic zircon was done used Sensitive High Resolution Ion Microprobe (SHRIMP) at Chinese Academy of Geological Sciences. It confirmed presence of two zircon grains that aged 4240 million and 4030 million years.
  - ✎ Oldest zircon on earth was found in Jack Hill (Western Australia), which is 4400 million years old. It is metamorphosed sedimentary rock.
38. ▶ Scientists from Newcastle University (UK) created world's first 3D printed human corneas that could solve problem of shortage of available eye donors and help millions of blind people gain sight again.
- ✎ Cornea is outermost layer of the human eye. Its key function is to focus vision. It also barricades eyes against harmful dirt and bacteria.
  - ✎ 3D printed human corneas were produced using bio-ink solution consisting of healthy corneal stem mixed together with alginate and collagen.
39. ▶ Scientists from Tohoku University in Japan found mineral called moganite in lunar (Moon's) meteorite that points presence of abundant hidden reserves of water ice under surface of moon. The mineral discovered in a desert in northwest Africa could be potentially useful for future human exploration of moon.
- ✎ Moganite is a crystal of silicon dioxide (SiO<sub>2</sub>), known to form on earth in specific circumstances in sedimentary settings from alkaline fluids.
  - ✎ Researchers believe that mineral formed on surface of moon in area called Procellarum Terrane as water was present in lunar dirt, that evaporated due to strong sunlight. But in subsurface, water remains in form of ice.
40. ▶ Scientists from University of Minnesota (USA) discovered that chemical element ruthenium (Ru(44)) is fourth element to have unique magnetic properties (ferromagnetism) at room temperature, after Iron (Fe), Cobalt (Co), and Nickel (Ni). The discovery will help to improve sensors, devices in computer memory and logic industry or other devices using magnetic materials. It was discovered in 1844 by Russian-born scientist Karl Ernst.
41. ▶ Scientists have developed world's fastest rotor, which will help in studying quantum mechanics. It can spin at more than 60 billion revolutions per minute, making it world's fastest man-made object. Spinning dumbbell functions as rotor, and vibrating dumbbell functions like instrument for measuring tiny forces and torques, known as a torsion balance.
42. ▶ Scientists identified new shape called *scutoid* while studying epithelial cells.
- ✎ Scutoid shape has five sides on one end and six on the other and a triangular surface on one of its longer edges. and It is completely new to geometry and resembles beetle's scutellum (shield-like structure) from top-down view.
  - ✎ It will help to explain how cells arrange themselves in tightly packed three-dimensional (3D) structures that serve as protective barriers in body. It will contribute to tissue engineering specifically development of artificial organs.
43. ▶ Tapanuli Orangutan, the rarest ape species on Earth, is on verge of extinction with only approx 800 members of the species alive. This species was discovered in 2017 in Sumatra (Indonesia).
44. ▶ Two new species of cricket frogs named Kalinga and Krishnan discovered in the Odisha (Eastern Ghats) and Karnataka (Western Ghats) respectively. The other species has been named Krishnan. Kalinga has been named after ancient kingdom of Kalinga. The other species from Karnataka has been named after eminent biologist, Dr. K Subramanian Krishnan.
45. ▶ *Uropeltis bhupathyi*, a new snake species has been discovered in the Anaikatty hills, Coimbatore, Tamil Nadu. It has been named after late herpetologist S. Bhupathy. They are non-venomous, burrowing, mostly earthworm-eating.