

Weekly Update

1. Study maps human uptake of microplastics across 109 countries

As a starting point for this journey it is possible to use a world map that identifies hot and dense spots of blue microplastics. The data used in these models shows how much of those foods are consumed in different countries. The entry of microplastics into the human body is a result of plastic waste left in nature and their dispersion in the environment.

Source: Cornell University

<https://news.cornell.edu/stories/2024/05/study-maps-human-uptake-microplastics-across-109-countries>

2. The origin of the sun's magnetic field could lie close to its surface

Researchers developed advanced models to simulate the solar magnetic field. These storms can also wreak havoc, destroying Earth-orbiting satellites and power grids and radio communications, so knowing when these events occur can prepare countries around the world for potential damage.

Source: Massachusetts Institute of Technology

<https://news.mit.edu/2024/suns-magnetic-field-origin-could-lie-close-to-its-surface-0522#:~:text=The%20team%20generated%20a%20precise,patterns%2C%20with%20similar%20characteristics%20to>

3. Serotonin Affects Behavior and Motivation

Using optogenetics and high-field magnetic resonance imaging, researchers found that stimulation of serotonin neurons in the dorsal raphe nucleus of the DRN activates the cerebral cortex and basal ganglia, which are important for cognitive functions. This activation throughout the brain reflects the important role of serotonin in the regulation of behavior.

Source: NeuroScience News

<https://neurosciencenews.com/serotonin-behavior-motivation-26169/>

4. DARPA Shows Concepts For ANCILLARY VTOL Uncrewed Aerial Systems

In Phase Ia, support team members examined concept designs from nine non-traditional and conventional military companies, and in Phase Ia, six companies focused on reducing system risks through more detailed design and analysis.

Source: Naval News

<https://www.navalnews.com/naval-news/2024/05/darpa-shows-concepts-for-ancillary-vtol-uncrewed-aerial-systems/>

5. Something strange is happening with Earth's magnetic field tail

Magnetic reconnection occurs when magnetic field lines connect, move apart, and then reconnect, releasing a lot of energy in the form of heat and kinetic energy in the process. The MMS exploration program will continue to study and measure magnetic reconnection in Earth's magnetic field, and scientists will also conduct simulations of the magnetic field on Earth to better understand its behavior.

Source: Space

<https://www.space.com/mms-magnetic-substorms>

6. Gliese 12 b: An Intriguing World Sized Between Earth and Venus

The planet, named Gliese 12b, is similar in size to Earth or slightly smaller than Venus, and its surface temperature is estimated to be about 42 degrees Celsius. The new planet was discovered by the US space agency's Transiting Extrasolar Survey Satellite (TESS). This satellite was launched in 2018 with the aim of discovering exoplanets in other galaxies. NASA has said that Gliese 12b is a good candidate for further study using the James Webb Space Telescope.

Source: NASA Scientific Visualization Studio

<https://svs.gsfc.nasa.gov/14581/>

7. Fluoride exposure during pregnancy linked to increased risk of childhood neurobehavioral problems, study finds

Some countries have been adding fluoride to drinking water for decades to prevent tooth decay. The researchers did not recommend banning the addition of fluoride to water, but said these results suggest that fluoride intake should be reduced during pregnancy.

Source: Keck School of Medicine of USC

<https://keck.usc.edu/news/fluoride-exposure-during-pregnancy-linked-to-increased-risk-of-childhood-neurobehavioral-problems-study-finds/#:~:text=The%20researchers%20found%20that%20a,published%20in%20JAMA%20Network%20Open.>

8. Bird flu (H7N3) detected at Victorian poultry farm

Transmission of infection from birds to domesticated pigs is very serious because pigs can be carriers of human influenza and avian influenza and can develop a strain that is easily transmitted between humans. Bird flu virus does not transmit easily between humans because it is compatible only with birds. However, the virus can mutate and adapt to the human respiratory system.

Source: Scimex

<https://www.scimex.org/newsfeed/expert-reaction-bird-flu-h7n3-detected-at-victorian-poultry-farm>

9. One 'Super Predator' Instills More Fear in Marsupials Than Any Other Creature

Man's role as a hunter has not been recognized till date. So researchers exposed wild kangaroos, wallabies, pademelons and possums to the sounds of sheep, dogs, Tasmanian tigers, wolves and humans. For example, Notamacropus eugenii reacts only to the sight of Australian wild dogs, not to their sounds; Daniel Blumstein and his team believe this may be because predators' visual signals are more distinctive than their vocalizations.

Source: Science Alert

<https://www.sciencealert.com/one-super-predator-instills-more-fear-in-marsupials-than-any-other-creature>

10. More than 300 million child victims of online sexual abuse globally: report

This is the first study of online child abuse on a global scale, with researchers at the University of Edinburgh finding that 12.6% of children worldwide (302 million) were exposed to inappropriate images, videos and conversations last year. The research also revealed that the United States is one of the most dangerous regions for children.

Source: The University of South Wales, Sydney

<https://www.unsw.edu.au/newsroom/news/2024/05/more-than-300-million-child-victims-of-online-sexual-abuse-globally-report>