

Environment News Futures

Japan Developing Wooden Satellites to Cut Space Junk

By Justin Harper, Business reporter, BBC News

A Japanese company and Kyoto University have joined forces to develop what they hope will be the world's first satellites made out of wood by 2023.

Sumitomo Forestry said it has started research on tree growth and the use of wood materials in space.

The partnership will begin experimenting with different types of wood in extreme environments on Earth.

Space junk is becoming an increasing problem as more satellites are launched into the atmosphere.

Wooden satellites would burn up without releasing harmful substances into the atmosphere or raining debris on the ground when they plunge back to Earth.

Climate Change: Extreme Weather Causes Huge Losses in 2020

By Matt McGrath, Environment correspondent

The world continued to pay a very high price for extreme weather in 2020, according to a report from the charity Christian Aid.

Against a backdrop of climate change, its *study* lists 10 events that saw thousands of lives lost and major insurance costs.

Six of the events took place in Asia, with floods in China and India causing damages of more than \$40bn.

In the US, record hurricanes and wildfires caused some \$60bn in losses.

Coronavirus: What Has Covid Done for Climate Crisis?

When Covid-19 sparked lockdowns around the world, emissions of one of the greenhouse gases responsible for climate change, atmospheric carbon dioxide, plummeted. But is this record drop a short-term effect of the 2020 pandemic or a 'new normal'? BBC Weather's Ben Rich explores the impact of coronavirus on the global climate.

Ivory: Elephant Decline Revealed by Shipwreck Cargo

By Victoria Gill, Science correspondent, BBC News

December 17, 2020

Researchers have examined ancient DNA preserved in elephant tusks that were among the cargo of a 487-year-old shipwreck.

Their forensic examination of the 100 tusks pinpointed the devastation caused to the elephant population by centuries of ivory trade.

On this single ship, researchers found genetic evidence of 17 distinct herds of the threatened animals.

Today, scientists can find only four of those herds surviving in Africa.

The tusks were so well preserved—in cold water off the Namibian coast—that scientists were even able to find out what type of diet the elephants had, which revealed where they had lived and been hunted.

The findings are published in the Journal *Current Biology*.

Caspian Crisis: Sinking Sea Levels Threaten Biodiversity, Economy and Regional Stability

Utrecht University

December 23, 2020

The water levels of the Caspian Sea will be 9 to 18 metres lower than they are now, German and Dutch researchers calculate.

Coastal nations are rightly worried about a sea level rise, but in the countries around the Caspian Sea over a hundred million people are facing the opposite problem: an enormous drop in sea level. Technically, this sea is a land-locked lake, but it is the largest on the planet (371,000 km²), and quite salty.

The largest lake in the world is getting smaller every year, though. Since the 90's, the water level has been dropping a few centimetres every year. This drop will accelerate during the upcoming decades, scientists from the German universities of Gießen and Bremen calculated, together with Dutch geologist Dr. Frank Wesselingh external link, affiliated with Utrecht University and Naturalis.

“If the North Sea would drop two or three metres, access to ports like Rotterdam, Hamburg and London would be impeded. Fishing boats and container giants alike would struggle, and all the countries on the North Sea would have a huge problem,” Wesselingh says.

International Research Team Calls for ‘Glocal’ Approach to help Mitigate Flooding Damage

By Chinese Academy of Sciences

Large-scale global forecasting and on-the-ground observations need to meld into one system to better predict and prevent wide-spread flooding disasters, according to an international research team who published a short view in *Advances in Atmospheric Sciences* on Dec. 23. “A ‘glocal’—global to local—hydrometeorological solution for floods is considered to be critical for better preparedness, mitigation, and management of different types of significant precipitation-caused flooding, which happen extensively almost every year and in many countries, such as China, India and the United States,” said paper author Huan Wu, professor and deputy director in the Guangdong Province Key Laboratory for Climate Change and Natural Disaster Studies and School of Atmospheric Sciences, Sun Yat-sen University. Such a solution, dubbed GHS-F by the researchers, is necessary for both scientific research and operational logistics, according to Wu. A GHS-F could combine wide-spread weather predictions with the deep understanding of how forecasted rain could affect river basins to produce highly detailed and consistent rain-flood information.

Plastic is Blowing in the Wind

By Weizmann Institute of Science

As the plastic in our oceans breaks up into smaller and smaller bits without breaking down chemically, the resulting microplastics are becoming a serious ecological problem. A new study at the Weizmann Institute of Science reveals a troubling aspect of microplastics—defined as particles smaller than 5 mm across. They are swept up into the atmosphere and carried on the wind to far-flung parts of the ocean, including those that appear to be clear. Analysis reveals that such minuscule fragments can stay airborne for hours or days, spreading the potential to harm the marine environment and, by climbing up the food chain, to affect human health. “A handful of studies have found microplastics in the atmosphere right above the water near shorelines,” says Dr. Miri Trainic, in the groups of Prof. Ilan Koren of the Institute’s Earth and Planetary Sciences Department in collaboration with that of Prof. Yinon Rudich of the same department, and Prof. Assaf Vardi of the Institute’s Plant and Environmental Sciences Department. “But we were surprised to find a non-trivial amount above seemingly pristine water.

Food Production-Driven Land Use Leads to Changes in Water-Related Ecosystem Services

By Zhang Nannan, Chinese Academy of Sciences

With global population growth, accompanied by factors like COVID-19 and natural disasters, increasing food yield has become a major concern worldwide. However, the links between food

production and local land-use driven water-related ecosystem services (WESs) changes remain underestimated and unrevealed.

Threshold for Dangerous Climate Warming Will Likely Be Crossed Between 2027–2042

By McGill University

The threshold for dangerous global warming will likely be crossed between 2027 and 2042—a much narrower window than the Intergovernmental Panel on Climate Change’s estimate of between now and 2052. In a study published in *Climate Dynamics*, researchers from McGill University introduce a new and more precise way to project the Earth’s temperature. Based on historical data, it considerably reduces uncertainties compared to previous approaches.