Sep 10, 2014 10:42 AM EDT

NASA to 3D Map Earth's Forests

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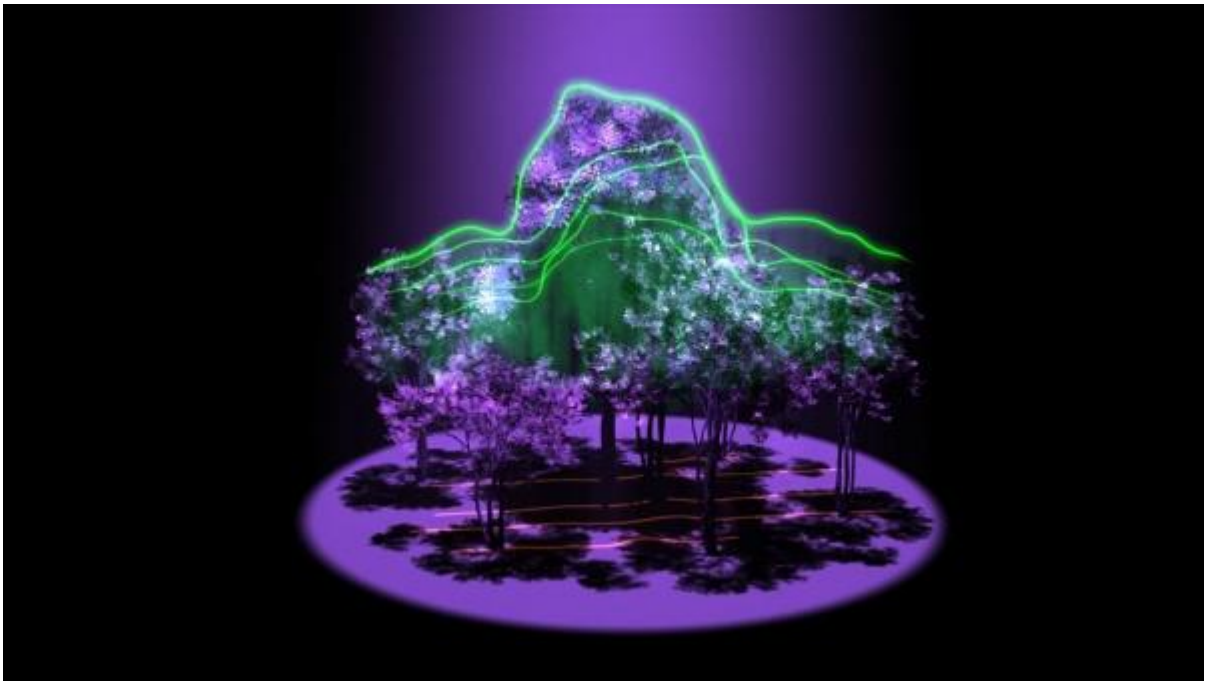

lidar tree

NASA will soon be taking some unique 3D snapshots of the Earth's forests from the International Space Station (ISS) in the hopes of learning more about our planet's important carbon cycle.

This will be done with an instrument called the Global Ecosystem Dynamics Investigation (GEDI) lidar.

Lidar is traditionally used by scientists to measure the height of an object or landmark. When a lidar-equipped craft flies over a region, laser pulses are sent to the ground and then reflected back up to the craft. The time it takes for that pulse to leave and bounce back helps experts then map out the surfaces of a region.

Lidars have been used by NASA and its partners in the past to map out craters, geological formations, and even ice melt, but this is the first time a lidar will be used from space to measure forest height and canopy density.

"GEDI will be a tremendous new resource for studying Earth's vegetation," Piers Sellers, deputy director of Goddard's Sciences and Exploration Directorate, said in a recent statement. "In particular, the GEDI data will provide us with global-scale insights into how much carbon is being stored in the forest biomass. This information will be particularly powerful when combined with the historical record of changes captured by the US's long-standing program of Earth-orbiting satellites."

Although it is well-established that trees absorb carbon and store it long-term, scientists have never had a clear picture of how much carbon the Earth's forests are sapping up. As a result, it's not possible to determine how much carbon would be released if a forest were destroyed, nor how well emissions could be countered by planting new trees.

NASA and its partners at the University of Maryland, College Park hope that this new lidar can help pull back the curtain on this issue.

"GEDI lidar will have a tremendous impact on our ability to monitor forest degradation, adding to the critical data needed to mitigate the effects of climate change," added University of Maryland Vice President and Chief Research Officer Patrick O'Shea.

The GEDI is one of two instruments that were recently selected for NASA's Earth Venture Instrument program to monitor our world's vegetation from space, and will likely be completed and launched by 2018.