



AMERICAN MUSEUM OF NATURAL HISTORY

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CITIZEN-SCIENCE PROJECT INVITES PUBLIC TO SEARCH FOR NEW NEARBY WORLDS

BACKYARD WORLDS: PLANET 9 ENLISTS HELP IN SIFTING THROUGH NASA IMAGES

A new [citizen-science tool](#) released today will help astronomers search for new worlds lurking in the outer reaches of our solar system and in neighboring interstellar space. **Backyard Worlds: Planet 9** is making available to the public brief “movies” made from images captured by [NASA's Wide-field Infrared Survey Explorer \(WISE\)](#) mission and encouraging viewers to flag objects that appear to be moving for investigation by scientists. The tool was developed by scientists at NASA, Arizona State University, the University of California Berkeley, the Space Telescope Science Institute in Baltimore, the science crowdsourcing site Zooniverse, and the American Museum of Natural History.

“It’s hard to believe, but our solar neighborhood is still unexplored territory,” said Jackie Faherty, a senior scientist in the Museum’s Department of Astrophysics and a collaborator on the project. “There are cold worlds hiding just a short distance from the Sun, and Backyard Worlds: Planet 9 is a platform for bringing citizen scientists into the search party.”

Unlike more distant sources, objects near our solar system appear to move across the sky, so the best way to discover them is through a systematic search of moving objects in WISE images. While parts of this search can be done by computers, machines are often overwhelmed by image artifacts, especially in crowded parts of the sky. This visual “noise” includes spikes associated with star images and blurs caused by light scattered inside WISE's instruments.

Human eyes, on the other hand, easily recognize important moving objects while ignoring other artifacts. By harnessing the eyes of viewers around the world, Backyard

Worlds: Planet 9 offers a 21st-century, scaled-up version of the technique astronomer Clyde Tombaugh used to identify Pluto in 1930, a discovery that was made 87 years ago this week.

On the Backyard Worlds: Planet 9 website, participants from around the world can view millions of "flipbooks," brief animations showing how small patches of the sky changed over several years. Moving objects flagged in these animations will be prioritized by the science team for follow-up observations by professional astronomers. Sharp-eyed participants will share credit for their discoveries in any scientific publications that result from the project.

WISE has scanned the entire sky several times since 2010, snapping pictures of three-quarters of a billion objects, including remote galaxies, stars, and asteroids. The new project uses all of this data to search for unknown objects in and beyond our own solar system and takes part of its name from Planet 9, the nickname for a predicted but undiscovered world that may exist in the outer solar system – also known as Planet X. Last year, astronomers at the California Institute of Technology showed that several distant solar system objects possessed orbital features indicating they were affected by the gravity of an unseen planet far beyond Neptune. If Planet 9 exists and is as bright as some predict, it could show up in WISE data.

The search also may discover more distant objects like brown dwarfs, sometimes called failed stars, in nearby interstellar space.

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The American Museum of Natural History, founded in 1869, is one of the world's preeminent scientific, educational, and cultural institutions. The Museum encompasses 45 permanent exhibition halls, including those in the Rose Center for Earth and Space and the Hayden Planetarium, as well as galleries for temporary exhibitions. It is home to New York State's official memorial to Theodore Roosevelt, a tribute to Roosevelt's enduring legacy of environmental conservation. The Museum's approximately 200 scientists draw on a world-class research collection of more than 33 million artifacts and specimens, some of which are billions of years old, and on one of the largest natural history libraries in the world. Through its Richard Gilder Graduate

School, the Museum grants the Ph.D. degree in Comparative Biology and the Master of Arts in Teaching (MAT) degree, the only such program at any museum in the United States. Annual physical attendance has grown to approximately 5 million, and the Museum's exhibitions and Space Shows can be seen in venues on six continents. The Museum's website, digital videos, and apps for mobile devices bring its collections, exhibitions, and educational programs to millions more around the world. Visit **amnh.org** for more information.

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No. 12