# Findings indicate the edge of the solar system is filled with a turbulent sea of magnetic bubbles

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Boston University astronomer Merav Opher will feature prominently in a NASA teleconference this week to discuss the latest findings about the nature of the solar system.

A new computer model of the solar system based on data from the Voyager space probe indicates that the edge of the solar system is not smooth, but filled with a turbulent sea of magnetic bubbles. The NASA media teleconference is scheduled for 1 p.m. EDT on Thursday, June 9 (see below for contact details).

Merav, assistant professor of astronomy at BU, will take part in a teleconference with some of the country's top with astronomers, including Arik Posner, Voyager program scientist, NASA Science Mission Directorate, Washington, D.C.; James F. Drake, professor of physics, University of Maryland, College Park; Edward C. Stone, Voyager project scientist, professor of physics, Caltech, Pasadena, California; and Eugene Parker, professor emeritus, Department of Physics, University of Chicago.

According to NASA, the latest Voyager data suggests that the picture of this previously unexplored region so critical for understanding how cosmic rays are created and reach near-Earth space needs to be revised. Galactic cosmic rays are of concern for human space travel, in particular during the quiet periods called the solar minimum. Voyager 1 is now

about 11 billion miles (17.7 billion kilometers) from Earth, while Voyager 2 is about 9 billion miles (14.5 billion km) away. Voyager 1 is the most distant human-made object in the universe.

Opher's research has focused on how plasma and magnetic effects reveal themselves in astrophysical and space physics environments and, in particular, how stars interact with the surrounding media, how the solar system interacts with the local interstellar medium, and the interaction of extra-solar planets with their host stars. Opher notes that the Voyager data led to the discovery of how interstellar magnetic fields play a major role in shaping the heliosphere, producing assymetries that are measurable. "We are arriving at the notion that the magnetic field outside our home, earth, is strong and important enough to influence and shape its structure," she said.

Opher has been a pioneer in the use of advanced, 3D computational models to investigate stellar phenomena. She also has studied how magnetic disturbances are driven and propagate from the sun to earth. She has a PhD in astronomy from the University of Sao Paulo, Brazil, and received her postdoctoral training at the Plasma Group of the Physics Department at the University of California, Los Angeles. She also was a Caltech Scholar at the Jet Propulsion Laboratory in Pasadena, California, and at the University of Michigan, Ann Arbor. Before coming to Boston University, she was an associate professor of astronomy at George Mason University, Fairfax, Virginia.

**More information:** Supporting information for the briefing will be posted at:
www.nasa.gov/sunearth

Audio of the teleconference will be streamed live on the Web at:
www.nasa.gov/newsaudio

Provided by Boston University