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Man bites dog? No, planet heats sun

By Paul Recer, Associated Press

ATLANTA — Stars usually heat up their family of planets, but in an amazing reversal, an astronomer has found a planet that is actually heating up its sun.

Canadian astronomers reported Wednesday that their study of a large planet orbiting a star 90 light-years away shows that the magnetic field of the planet is producing hot spots on its parent sun, a reversal of the effect the sun has on planets such as the Earth.

The planet is one of 119 known extra-solar planets, objects that orbit stars other than the sun. The star, called HD179949, is very like the sun. The planet is a gas giant 270 times larger than the Earth, almost as big as Jupiter, the largest planet in the solar system. It circles very close to its parent star, completing one orbit every 3.09 days and moving at 350,000 miles an hour.

Evgenya Shkolnik of the University of British Columbia in Vancouver, Canada, reported at a national meeting of the American Astronomical Society that she and other astronomers have discovered that as the planet orbits its star, it causes a hot spot within the outer gaseous layer.

"The hotspot moves across the surface of the star keeping pace with the planet, but just a little bit ahead," Shkolnik said. She said measurements of more than 100 orbits showed that the hot spot on the face of the star exactly matches the motion of the planet.

Shkolnik said the hot spot is caused by the planet's powerful magnetic field, which transfers energy to a hot gaseous envelope just above the star's shining photosphere. The energy creates visible bright patches that can be detected by telescope instruments analyzing some types of ultraviolet light.

"This is the first time we have detected a magnetic field outside of the solar system," said Shkolnik.

The Earth has a powerful magnetic field that helps protect the planet from particles streaming from the sun. The magnetic field is created by the motion of liquid iron and nickel surrounding the Earth's core.

Shkolnik said the magnetic field of the extrasolar planet suggests that it too has a core structure that produces an energy force.

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Magnetic energy from the extrasolar planet adds about 750 degrees to the 14,000 degrees of the star's outer gaseous layer, said Shkolnik. The planet itself roasts at about 2,700 degrees.

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