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Media Relations

Astrophysicists Can Discuss Solar Flare, Possible Impact On Earth

January 24, 2012

DURHAM, N.H. – A potent and unexpected solar flare observed yesterday morning by a NASA satellite could cause disruptions to satellite communications and power on Earth over the next few days, according to scientists at the University of New Hampshire's Space Science Center (SSC).

Experts Harlan Spence (603-862-0322; Harlan.spence@unh.edu), principal investigator (PI) for the Cosmic Ray Telescope for the Effects of Radiation (CRaTER) instrument onboard NASA's Lunar Reconnaissance Orbiter (LRO) mission, and Nathan Schwadron (603-862-3451; nschwadron@guero.sr.unh.edu), deputy PI on CRaTER and PI on the Earth-Moon-Mars Radiation Environment Module being developed at UNH, are available to discuss the solar flare with the media.

Early January 23, NASA's Solar Dynamics Observatory caught an extreme ultraviolet flash from a huge coronal mass ejection (CME) from a region of the Sun that has become increasingly active. The explosion's ranking puts it on the threshold of being an X-flare, the most powerful kind. Solar protons accelerated by the CME are currently streaming past Earth.

The Sun, which has been unusually inactive during an extended solar minimum cycle, launched the firestorm of radiation on a level not witnessed since 2005 and will likely lead to geomagnetic storm activity as the energetic protons pass through Earth's magnetic field or "magnetosphere." This could cause isolated reboots of computers onboard Earth-orbiting satellites, interfere with polar radio communications, and create aurora.

In addition to the Solar Dynamics Observatory, observations of the CME were made by two spacecraft on which UNH scientists and engineers have played a key role – the Solar Heliospheric Observatory (SOHO) and the Solar Terrestrial Relations Observatory (STEREO) spacecraft.

"During the two and a half years the LRO mission has been making measurements, this is certainly the most significant event," says Spence, an astrophysicist at UNH and director of its Institute for the Study of Earth, Oceans, and Space (EOS). The CRaTER instrument onboard the LRO satellite is designed to measure and characterize aspects of the deep space radiation environment.

Geomagnetic storms caused by eruptions on the Sun can disrupt power grids, satellites that operate global positioning systems and other devices, and can lead to some rerouting of flights over the polar regions.

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,300 graduate students.

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