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## UNH Satellite Instrument May Meet Fiery End

### NASA to Decide Next Month on Fate of Compton Gamma Ray Observatory

By [Sharon Keeler](#)  
UNH News Bureau

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**UNH Professor Mark McConnell is available for more comment at 603-862-2047.**

DURHAM, N.H. -- "This could be our last hurrah," admits Mark McConnell.

The University of New Hampshire space scientist is among the researchers waiting to hear the fate of the NASA Compton Gamma Ray Observatory. By March, the satellite could meet a fiery end, burning up in the Earth's atmosphere and its remains landing harmlessly in the ocean.

The end of the satellite would come as no surprise to UNH scientists working within the Space Science Center of the university's Institute for the Study of Earth, Oceans and Space. For the past nine years, research associate professor McConnell, project director and physics professor Jim Ryan and chief operator John Macri have overseen the operations of the COMPTEL Imaging Telescope, collecting and studying its data. The telescope is one of several instruments aboard the Compton Observatory, launched in 1991 aboard the shuttle Atlantis.

The observatory has always had a limited life span, McConnell points out. NASA had planned to bring the 17-ton satellite, equipped with gyros and thrusters, into a controlled re-entry into the Earth's atmosphere. In December, one of its three gyros failed, so it became imperative that a decision be made on the re-entry or possible retrieval by the shuttle. That decision is expected by Feb. 16.

"This is not an unexpected thing," says McConnell, who began initial work on the COMPTEL telescope in

1987. Ryan came aboard in 1982 and Macri's the veteran, having worked on the project since 1978.

Although the trio expected the Compton Observatory's time would soon come, the timing couldn't be worse: the Sun is approaching solar maximum, a time of increased flare and solar activity. The Compton Observatory would have been in place to study solar activity only seen every 11 years.

They also mourn the loss of continued information on the mysterious phenomena known as gamma ray bursts. The COMPTEL Imaging Telescope has continuously scanned the heavens for evidence of these bursts. In 1993 came the so-called "Super Bowl Burst," the highest energy gamma rays ever detected. In 1994, UNH scientists found a gamma ray burst that repeats, which meant rethinking current theories on what causes bursts.

The COMPTEL also allowed UNH researchers to ponder the mystery of one of the closest, most recent supernova explosions yet. And just last fall, a UNH-hosted symposium of international gamma ray astronomers was interrupted by news of a "whopper" gamma ray burst, prompting researchers to scurry from the conference site to their offices for a closer look at incoming data.

In fact, researchers continue to analyze data and will do so for months to come, no matter Compton's fate. "We haven't milked it yet for all it's worth," says McConnell. "So there's still a lot of science to be had." He adds: "We've been pretty fortunate to have gotten the data we've gotten."

Scientists discovered, for example, that COMPTEL could detect gamma ray bursts at incredible distances, outside our galaxy. "That was one of the big surprises," says McConnell. "We're dealing with incredible amounts of energy here." Researchers also were able to map out the amount of radioactive aluminum in the galaxy, and have detected solar flares much smaller than previously recorded.

UNH could be back in the gamma ray business soon, however, NASA is now considering a proposal from UNH to fund the Gamma Ray Large Area Space

Telescope (GLAST). A decision is expected soon.

"COMPTEL certainly exceeded our expectations,"  
Ryan concludes, "and it would certainly continue to do  
so -- if it stayed up."

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