

NASA GLAST Burst Monitor Powers Up Successfully

June 27 2008

NASA's GLAST Burst Monitor (GBM) Instrument Operations Center in Huntsville, Ala., the focal point for observing gamma ray bursts, was alive with energy as scientists gathered to witness instrument activation the evening of June 25. The GBM team linked in with GLAST mission operations at NASA's Goddard Space Flight Center in Greenbelt, Md., by teleconference and studied a big screen projecting spacecraft information live.

The GLAST Burst Monitor, a space-based instrument for studying gamma ray bursts, is one of two instruments on NASA's GLAST spacecraft which was successfully launched into orbit on June 11. Now in a circular orbit 350 miles above the Earth, the spacecraft is in the process of a two-month in-orbit checkout. Once fully operational, the Large Area Telescope and the GBM will observe gamma rays ranging in energy from a few thousand electron volts to many hundreds of billions of electron volts or higher, the widest range of coverage ever available on a single spacecraft for gamma ray studies.

Earlier in the day, one detector was turned on, then off, over a period of fourteen minutes to test the high voltage control. Now, the team eagerly anticipated the activation of all 14 detectors on the monitor. Twelve detectors are made of sodium iodide for catching X rays and low-energy gamma rays, and two detectors made of bismuth germanate for identifying high-energy gamma rays.

At precisely 7:45 p.m. CDT, the high voltage switched on and the room

erupted in cheers. All fourteen detectors powered on successfully and the team began studying the data pouring in from the spacecraft.

“Everything is working great. I feel a little numb,” said Charles “Chip” Meegan, GBM principal investigator and an astrophysicist at Marshall. “The detectors all powered up successfully and the background rate is pretty much what we expected it to be. That tells us the instrument is working as expected and we have the sensitivity we need to see 200 bursts per year.”

Alexander Van Der Horst, a NASA Postdoctoral Program Fellow with Marshall cranked up Kool and the Gang’s song “Celebration” as the team shared the good news with the NASA Goddard-based GLAST team.

“Now we’re eagerly anticipating our first burst and the many years of excellent science ahead!” said Meegan.

More energetic than X-rays, gamma rays are the highest-energy form of electromagnetic radiation. When a burst occurs, the GBM will detect gamma rays from the explosion and within seconds identify the location of the burst and transmit this information to scientists on the ground. Operations center scientists will examine data from gamma ray bursts and disseminate this information to the wider scientific community swiftly, allowing ground-based instruments to observe these bursts as soon as possible.

Located at the National Space Science and Technology Center (NSSTC) in Huntsville, Ala., operations personnel and scientists working in the GBM Instrument Operations Center will scrutinize the health of the monitor and enjoy a first-hand peek at ground-breaking new gamma ray science. The NSSTC is a partnership between NASA, the state of Alabama and several universities.

A complementary operations center is located at the Max Planck Institute for Extraterrestrial Physics in Garching, Germany, allowing scientists to look at real-time data during their normal work day, offset seven hours from Huntsville. Huntsville-based operations center staff will host regular meetings via teleconference to Germany to discuss data analysis and German colleagues will assist in operations and monitoring instrument performance.

NASA collaborated with the Institute through an agreement with the German Aerospace Center to design the GBM and the institute built the monitor's power supply and crystal detectors -- the main component for intercepting gamma rays.

GLAST is an astrophysics and particle physics partnership, developed in collaboration with the U.S. Department of Energy, along with important contributions from academic institutions and partners in France, Germany, Italy, Japan, Sweden and the U.S.

Source: NASA

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