

# NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

## Ballistic Missile Range Safety Technology Program



The Ballistic Missile Range Safety Technology (BMRST) program is a range safety command and tracking system that is managed by the 114<sup>th</sup> Range Operations Squadron of the Florida Air National Guard. BMRST is currently undergoing Eastern Range acceptance. When accepted, the system will be capable of providing launch site or down range support, either independently or in conjunction with other Eastern Range systems.

The goal of the program is to develop and certify a mobile system that will supplement and enhance launch data and public safety systems at space launch ranges.

The BMRST systems consist of a mobile operations center, two OMNI antennas, and two trailer-mounted 5.4 meter directional antennas. The directional antennas are dual use, capable of receiving and transmitting concurrently, as required. The mobile operations center houses an operations crew of four, along with all data processing equipment. The center also houses two range safety positions and is capable of transmitting command destruct signals as required for safety during flight. The entire BMRST system can be transported over the road or in a single C-17 or C-5 aircraft.

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The system also supports the capability to integrate a Global Positioning System (GPS) reference base station and associated antenna. It receives flight vehicle based GPS and inertial guidance derived position and velocity data, processes the data, computes and displays the instantaneous impact point of the vehicle related to the theoretical trajectory, as well as impact limit lines. The vehicle translational and rotational states are also displayed for comparison with those of the theoretical trajectory.



Once accepted for use, BMRST systems will augment range capabilities and increase flexibility as they can be easily moved to support range requirements.

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