

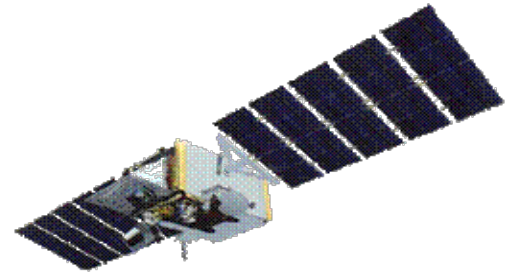


# Fact Sheet

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## Space Tracking and Surveillance System

- The Missile Defense Agency (MDA) operates the Space Tracking and Surveillance System-Demonstrators (STSS-D). STSS-D constellation consists of two satellites orbiting at 1350 km, 58 degree inclination, with 120 minute orbital period. Using sensors capable of detecting visible and infrared light, STSS-D serves as the experimental space layer of the Ballistic Missile Defense System (BMDS).
- Mission Objective: Provide Accurate Tracks of Midcourse Re-entry Vehicles to the Shooter.
  - Boosting targets detected by acquisition sensor – continuously scans visible Earth in Short-Wave Infrared band.
  - Targets autonomously handed-off to track sensor – Sensitivity/Wavebands enable midcourse tracking.
  - Target 2-D Line-of-Sight reported to ground via Object Sighting Messages.
  - Ground forms high accuracy 3-D track from stereo Object Sighting Messages.
  - 3-D tracks reported to the Ballistic Missile Defense System (BMDS).



### Program Overview

- On Sept. 25, 2009, MDA, NASA, and the Air Force teamed to successfully launch two tandem satellites into low earth orbit on a NASA Delta II launch vehicle from Cape Canaveral, Fla.
- Both satellites are operating nominally on-orbit under the control of the Missile Defense Space Development Center (MDSDC).
- STSS-D is participating in integrated BMDS testing and providing significant risk reduction in support of the development and fielding of a future missile defense operational satellite constellation.

### Program Update and 2011 Accomplishments

- STSS-D satellites completed an Early On-orbit Test series of 127 System Functionality Tests and achieved a critical milestone of demonstrating full calibrated performance of both satellites, their crosslink systems, and the acquisition and track sensor payloads.
- First stereo collection on birth-to-death missile flight and provided the missile tracking data to the BMDS in near real-time.
- First on-orbit demonstration of receipt of an external cue and the use of the STSS-D crosslink to transmit that cue to the out-of-view satellite, resulting in stereo midcourse tracking and first observation of missile intercept from low earth orbit.
- First simulated Aegis remote engagement authorization based on STSS-D tracking data.
- Transferred STSS-D Program Office Responsibility from Los Angeles AFB, Calif. to MDSDC, Colorado Springs, Colo.

### Program Outlook

- Validate remote sensor and fire control integration to inform the design and operations of the next generation space tracking system, to characterize the contribution of space data into the BMDS architecture, and to provide sensor measurements and background data supporting trade studies and analysis for BMDS systems.
- Integrate space capabilities into the BMDS architecture and collaborate with Air Force Space Command on studies and experiments to optimize next generation tracking satellites support for Space Situational Awareness (SSA) functionality.
- Continue to participate in MDA scheduled test events and track available targets and missiles in all phases of flight and provide track data to the integrated BMDS.
- Provide invaluable engineering and integration data for development of a follow-on operational BMDS Space Layer for accurate and timely object tracking and reporting of missile attacks against U.S., its allies, and deployed forces.

