UNITED STATES
SPACE FORCE
SPACE OPERATIONS COMMAND

FACTSHEET

SPACE BASED INFRARED SYSTEM (SBIRS)

MISSION: The Space Based Infrared System (SBIRS) program is the follow-on capability to the highly successful Defense Support Program (DSP). The SBIRS program was designed to provide a seamless operational transition from DSP to SBIRS and meet jointly-defined requirements of the defense and intelligence communities in support of the missile early warning, missile defense, battlespace awareness and technical intelligence mission areas.

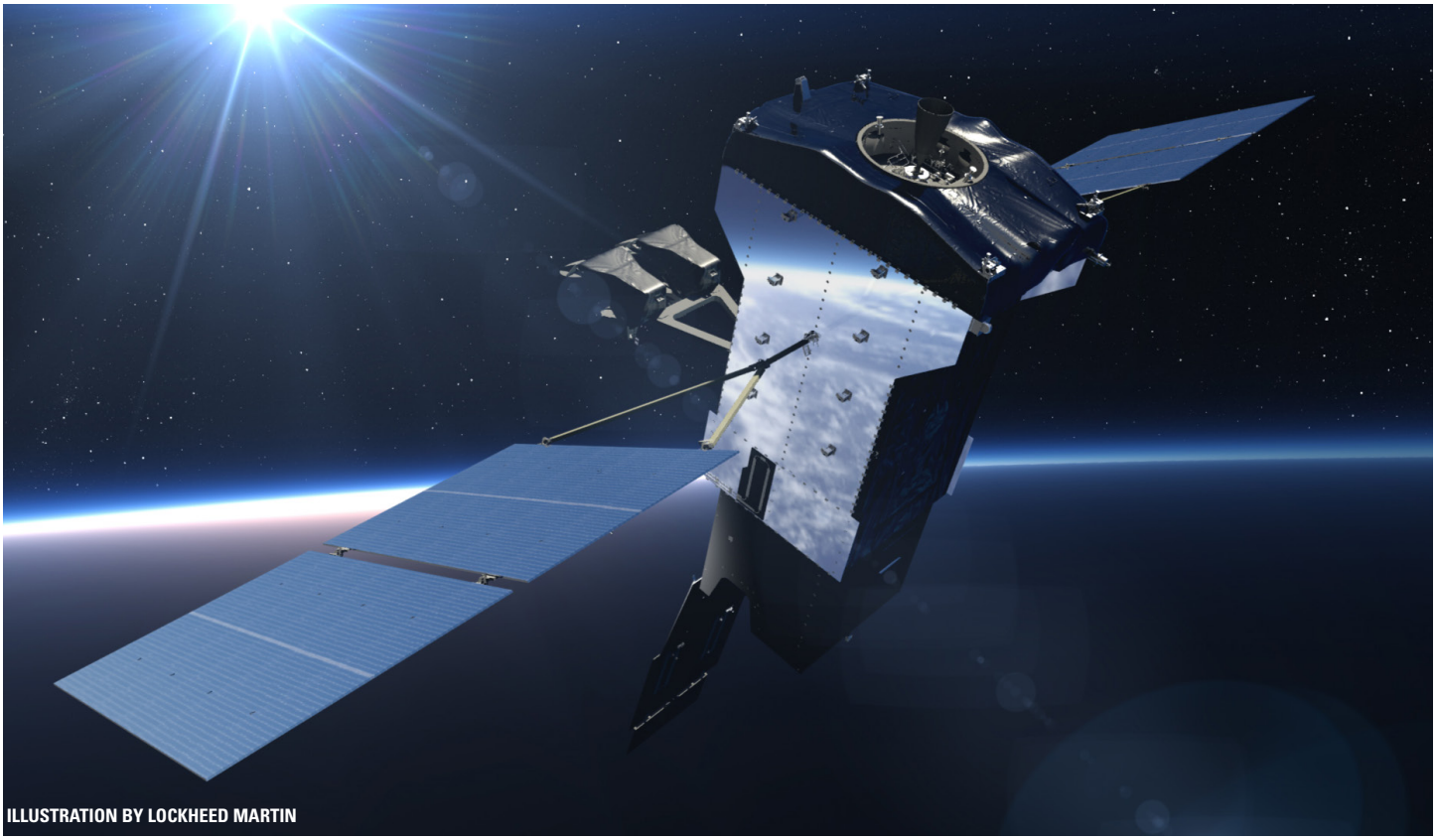

ILLUSTRATION BY LOCKHEED MARTIN

The SBIRS sensors are designed to provide greater flexibility and sensitivity than the DSP infrared sensor and detect short-wave and mid-wave infrared signals, allowing SBIRS to perform a broader set of missions. These enhanced capabilities result in improved prediction accuracy for global strategic and tactical warfighters. The on-going evolution of the ground system uses improved mission processing software, resulting in increased event message accuracy and reduced manpower for support and operations of the DSP and SBIRS portfolio.

SPACE BASED INFRARED SYSTEM (SBIRS)

DESCRIPTION

The SBIRS program consists of the space segment of Geosynchronous Earth Orbit satellites, Highly Elliptical Orbit sensors riding on host satellites, legacy DSP satellites and the associated world-wide deployed ground systems. Space Operations Command is responsible for conducting HEO, GEO and DSP operations at all fixed ground sites. An Air National Guard unit operates the Mobile Ground System (MGS), which processes data from DSP satellites currently, providing survivable and endurable mission support. The SBIRS program is managed by the Remote Sensing Systems Directorate at the U.S. Space Force's Space Systems Command. Three contracted companies are responsible for support system engineering, spacecraft development, ground systems, and payload.

USSF operates HEO sensors and GEO satellite constellations. All GEO satellites were launched at Cape Canaveral Space Force Station, Fla. The SBIRS Mission Control Station manages the constellation of HEO sensors, GEO satellites and the legacy DSP satellites. The SBIRS ground system consolidates the legacy DSP, HEO and GEO ground systems from three locations into one primary and one backup ground station. This consolidation provides a significant reduction in manpower requirements, allows for improved mission processing capabilities and greatly increases performance across all four SBIRS mission areas. The SBIRS Survivable/Endurable Evolution program will replace MGS, initially designed for support of DSP operations in the 1960s, supporting SBIRS strategic mission requirements.

FEATURES

The spacecraft bus consists of a militarized, radiation-hardened spacecraft, providing power, attitude control, command and control and a communications subsystem with five separate mission data downlinks to meet mission requirements, including system survivability requirements. The infrared payload consists of two sensors; a scanner and a "step-starer". The scanning sensor continuously scans the earth to provide 24/7 global strategic missile warning capability. Data from the scanner also contributes to theater and intelligence missions. The step-staring sensor, with its highly-agile and highly-accurate pointing and control system, provides coverage for theater missions and intelligence areas of interest with its fast revisit rates and high sensitivity. SBIRS infrared sensors gather raw, unprocessed data that are down-linked to the ground, so the same radiometric scene observed in space will be available on the ground for processing. The SBIRS sensors also perform on-board signal processing and transmit detected events to the ground, in addition to the unprocessed raw data.

DIMENSION

Sensor: Approximately 7 feet x 4 feet x 3 feet
Satellite: Approximately 49 feet x 22 feet x 20 feet with all appendages deployed on-orbit
Weight (all weights approximate) **Sensor**: 530 pounds
Satellite: On-orbit, 5,525 pounds, including a 1,100 pound two-sensor payload and 430 pounds of fuel
Power source: Sun-tracking solar arrays

LAUNCHES

May 7, 2011
March 19, 2013
Jan. 20, 2017
Jan. 19, 2018
May 18, 2021

For more information please visit
https://www.spoc.spaceforce.mil

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(Current as of Oct 2021)