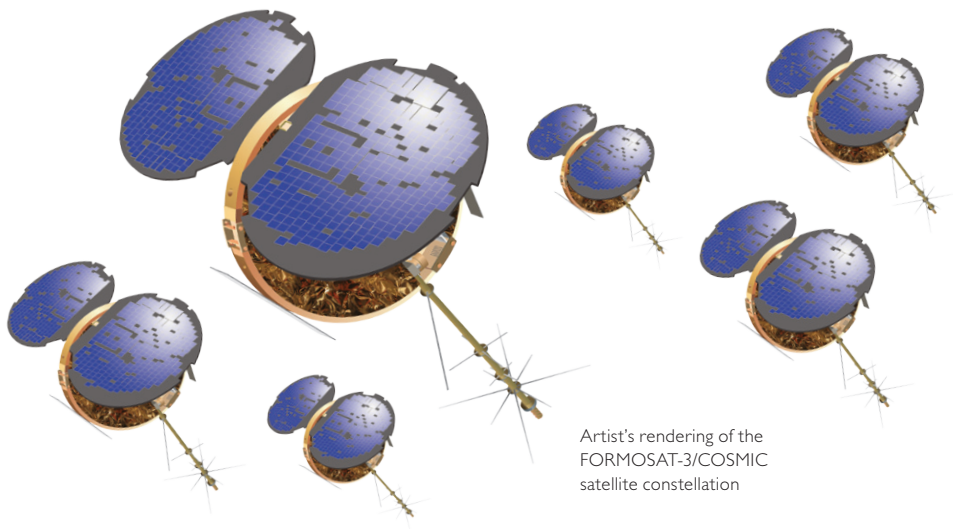




FORMOSAT-3/COSMIC

Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC)



Artist's rendering of the FORMOSAT-3/COSMIC satellite constellation

Mission Overview

The FORMOSAT-3/COSMIC program is an international collaboration between Taiwan and the United States that employs a constellation of six remote sensing microsatellites to collect atmospheric data for weather prediction and for ionosphere, climate and gravity research. Data from the satellites is available to the international scientific community in near real-time. FORMOSAT-3/COSMIC was launched aboard Orbital's Minotaur space launch vehicle on April 15, 2006.

Orbital was responsible for constellation design and analysis, development of the spacecraft bus, payload instrument development, and oversight of components made by Taiwan local vendors. Orbital provided assistance with system integration, satellite integration and testing in Taiwan, early on-orbit checkout and satellite positioning.

QUICK FACTS:

FORMOSAT-3/COSMIC is the third space mission in the history of Taiwan's national space program and the first to employ a constellation of microsatellites.

Originally developed for the ORBCOMM data communications network, Orbital's MicroStar™ spacecraft has been adapted to missions for NASA, DARPA and several commercial and international customers, such as Taiwan's NSPO.

To date, 45 MicroStar-based satellites have been launched.

Mission:

- Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC)
- Constellation of six MicroStar spacecraft to collect atmospheric sounding data for scientific research and operational testing

Customer:

National Space Organization (NSPO)
- HsinChu City, Taiwan



Six FORMOSAT-3/COSMIC satellites mated to the Minotaur launch vehicle

FORMOSAT-3/COSMIC

Specifications and Salient Features

Spacecraft

Satellite Mass:	416 kg (917 lb.) for all six spacecraft
Redundancy:	Single String
Power:	46 W continuous
Mission Life:	2 years (5 year expendables)
Orbit:	>700 km (800 km goal) circular, raised from 475 km, 72° inclination, 6 planes of 1 spacecraft spaced 24° apart
Attitude Control:	±5° roll & yaw, ±2° pitch (1σ)
Communications:	S-band Uplink, S-band Downlink
Status:	Operational

Payload

GPS Occultation Experiment
Tri-band Beacon
Tiny Ionospheric Photometer

Launch

Launch Vehicle:	Minotaur (all six spacecraft)
Site:	Vandenberg Air Force Base, CA
Date:	April 15, 2006

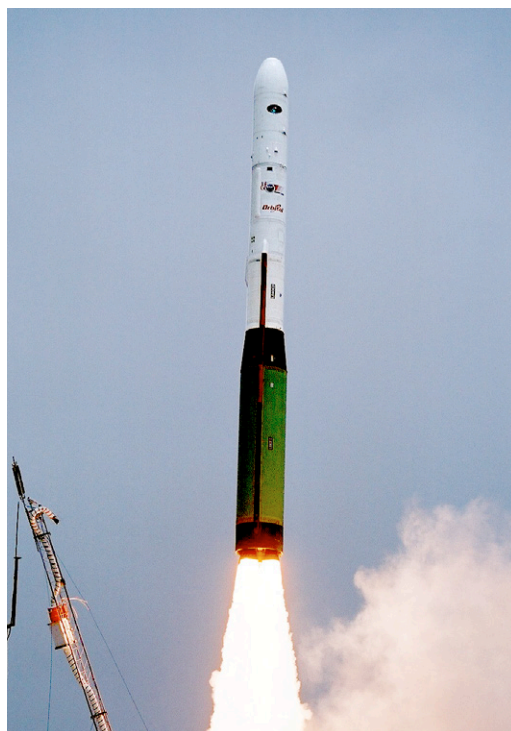
Mission Team

Orbital Sciences Corporation

Dulles, VA; Chandler, AZ; Vandenberg Air Force Base, CA – Constellation Design and Analysis, Spacecraft Bus Development, Payload Instrument Development, Launch Operations, and Minotaur Launch Vehicle

National Space Organization (NSPO)

HsinChu City, Taiwan



Orbital's Minotaur Space Launch Vehicle

Developed for the U.S. Air Force's Orbital/ Suborbital Program (OSP), the Minotaur Space Launch Vehicle (SLV) is a low-cost, four-stage rocket using a combination of U.S. Government-supplied Minuteman II motors and proven Orbital space launch technologies.

Minotaur made its inaugural flight in January 2000, successfully delivering a number of small military and university satellites into orbit. Less than six months later, Minotaur conducted a second successful mission with the launch of a technology demonstration satellite for the Air Force Research Laboratory. To date, Minotaur has conducted eight launches with 100% success launching 30 satellites into orbit.

Minotaur is capable of launching from a government pad at Vandenberg Air Force Base (VAFB), CA, as well as from commercial spaceports at VAFB, Wallops Island, VA, Cape Canaveral, FL and Kodiak Island, AK.