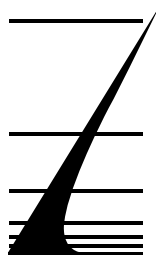


# The Market for Military Satellites

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Product Code #F678

A Special Focused Market Segment Analysis by:



**FORECAST** INTERNATIONAL



# Analysis 3

## The Market for Military Satellites

### 2010 - 2019

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## PROGRAMS

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The following reports are included in this section: (**Note:** a single report may cover several programs.)

Advanced EHF  
DMSP/NPOESS Spacecraft  
Enhanced Polar System  
Galileo Satellite Navigation System  
Helios  
Navstar Global Positioning System  
SAR Lupe  
SATCOMBw/Bundeswehrsat  
SBIRS High  
Skynet  
Space Tracking and Surveillance System (STSS)  
Syracuse III  
UHF Follow-On/MUOS  
Wideband Global Satcom



## Introduction

Satellites are a vital part of modern military operations. Advanced militaries around the world have an insatiable appetite for satellite communications and reconnaissance capabilities. This need for satellite capabilities has led to large space budgets, especially in the United States. In the future, militaries will have to match their growing requirements with a tighter budget environment. Global economic conditions are forcing governments to put restrictions on all spending, including for military satellites.

Going forward, the U.S. will focus on getting satellites that are currently being developed, launched and operational. The Pentagon will also place a renewed emphasis on developing smaller inexpensive satellites that can be put into orbit much faster than the larger more ambitious birds being developed now. They will also carry less risk, as they will have evolutionary development goals.

The major unclassified European military satellite efforts will come from France, Italy, Germany, and the United Kingdom. However, continued consolidation and international cooperation among the various military satellite programs will keep production numbers far below those in the United States.

The militarization of space will continue to be a vigorous market over the next decade, with more and more countries seeking proliferation. This market analysis is an examination of the trends and factors affecting and expected to affect the military satellite market. It is designed to provide an understanding of the current major military satellite systems, and of the market factors that may influence the development and production of those systems.

Military satellite programs for which a production forecast is provided within this analysis include the following:

ADVANCED EHF  
Athena-Fidus  
BASIC  
Bundeswehrrsat  
Compass  
ELISA  
Enhanced Polar System  
GFO-2  
GokTurk  
GPS Block IIF  
GPS III Block A  
GPS III Block B  
Helios  
JAPANESE IGS  
Mobile User Objective System  
OFEQ  
Precision Tracking Space System (PTSS)  
Quasi-Zenith  
SAR Lupe  
SBIRS High  
SEOSAR  
SEOSat  
Sicral-2  
SKYNET 5  
Space Based Space Surveillance  
SSOT  
TDRS  
WGS Block 2  
ZY-2

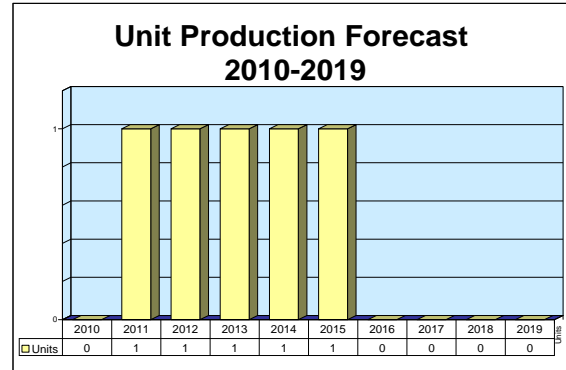
\* \* \*



# Wideband Global Satcom

## Outlook

- Final Block I WGS satellite, WGS-3, launched into orbit on December 5, 2009
- Three more WGS satellites, known as Block II spacecraft, are scheduled for launch starting in FY11
- Two additional spacecraft, WGS-7 and WGS-8, are expected to go under contract in the near future
- Boeing is ordering long-lead items for the seventh and eighth WGS



## Orientation

**Description.** The Wideband Global Satcom system (previously known as the Wideband Gapfiller Satellite system) will augment the current Defense Satellite Communications System (DSCS) and Global Broadcast Service military satellite communications (MILSATCOM) operations to allow dissemination of real-time information to forces and commanders on the ground, at sea, and in the air.

**Sponsor.** The MILSATCOM Joint Program Office, Space and Missile Systems Center (SMC), Los Angeles AFB, California, is responsible for development, acquisition, and sustainment of the WGS program.

**Status.** Launch of the first Wideband Global Satcom satellite occurred in October 2007 and the second in April 2009. Launch of the third also took place in 2009.

**Total Produced.** Three

**Application.** These military communications satellites are designed to provide secure communications to users worldwide.

**Price Range.** A Boeing-702-based Wideband Global Satcom spacecraft costs from \$240 million to \$300 million.

## Contractors

### Prime

<b>Boeing Satellite Development Center</b>	<a href="http://www.boeing.com/defense-space/space/bss/">http://www.boeing.com/defense-space/space/bss/</a> , 2260 E Imperial Hwy, El Segundo, CA 90245 United States, Tel: + 1 (951) 340-2492, Prime
<b>Science Applications International Corp (SAIC)</b>	<a href="http://www.saic.com">http://www.saic.com</a> , 1200 Wilson Blvd, 12th Fl, Arlington, VA 22209 United States, RDT+E Defunct (Systems Engineering)

### Subcontractor

<b>Harris Government Communications Systems Division</b>	<a href="http://www.harris.com">http://www.harris.com</a> , 2800 Jordan Blvd, Malabar, FL 32950 United States, Tel: + 1 (321) 727-9100, Email: gcsdweb2@harris.com (Ka-band Antennas)
<b>ITT Information Systems</b>	<a href="http://www.defense.itt.com/MKT_IS.htm">http://www.defense.itt.com/MKT_IS.htm</a> , 12975 Worldgate Dr, Herndon, VA 20170 United States, Tel: + 1 (703) 668-6000, Fax: + 1 (703) 668-6005 (Ka-Band Satellite Earth Terminals)

## Wideband Global Satcom

<b>Northrop Grumman Information Systems</b>	<a href="http://www.is.northropgrumman.com">http://www.is.northropgrumman.com</a> , 7575 Colshire Dr, McLean, VA 22102 United States, Tel: + 1 (703) 556-1000 (Software Subcontractor)
<b>Raytheon Intelligence and Information Systems</b>	<a href="http://www.raytheon.com/businesses/riis/">http://www.raytheon.com/businesses/riis/</a> , 16800 E Centrectech Pkwy, DN, S75, MS2511, Aurora, CO 80011-9046 United States (Telemetry Command & Control Software)
<b>Spectrolab Inc</b>	<a href="http://www.spectrolab.com">http://www.spectrolab.com</a> , 12500 Gladstone Ave, Sylmar, CA 91342-5373 United States, Tel: + 1 (818) 365-4611, Fax: + 1 (818) 361-5102 (Solar Array Panel)

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to [www.forecastinternational.com](http://www.forecastinternational.com) (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; [rich.pettibone@forecast1.com](mailto:rich.pettibone@forecast1.com)

## Technical Data

**Design Features.** The Wideband Global Satcom satellites will offer 4.875 GHz of instantaneous switchable bandwidth. The system will provide capacity ranging from 1.2 Gbps to more than 3.6 Gbps to tactical users, depending on the mix of ground terminals, data rates, and modulation schemes employed. Therefore, each WGS will be able to supply more than 10 times the capacity of a DSCS III Service Life Enhancement Program (SLEP) satellite. The WGS design includes 19 independent coverage areas that can be used throughout the field of view. This includes eight steerable/shapeable X-band beams formed by separate transmit and receive phased arrays; 10 steerable Ka-band beams served by independently steerable,

diplexed gimbaled dish antennas, including three with selectable polarization; and one X-band Earth coverage beam.

The enhanced connectivity capabilities of WGS enable any user to talk to any other user with very efficient use of satellite bandwidth. A digital channelizer divides the uplink bandwidth into nearly 1,900 independently routable 2.6-MHz subchannels providing any-coverage-to-any-coverage connectivity (including X-to-Ka and Ka-to-X crossbanding) for maximum operational flexibility. In addition, the channelizer supports multicast and broadcast services and provides an extremely effective and flexible uplink spectrum monitoring capability for network control.

### Wideband Global Satcom Satellites

<u>Description</u>	<u>Metric</u>	<u>U.S.</u>
Satellite Bus	Boeing-702	
Weight	5,448 kg at launch/4,540 kg on orbit	12,000 lb at launch/10,000 lb on orbit
Design Life	10+ years	
Orbit Altitude	35,880 km	22,300 mi
Payload	Cross-banded X- and Ka-band sensors	
Antennas	2 X-band phased array and 10 gimbaled dish Ka-band	
Capability	96 125-MHz channels via digital channelizer	
Launch Vehicle	Delta IV & Atlas V EELVs	

## Variants/Upgrades

**IDCSP.** Initial military comsat; series started in 1966; 24 produced.

**DSCS II.** Follow-on to IDCSP; first produced in 1971; 16 produced.

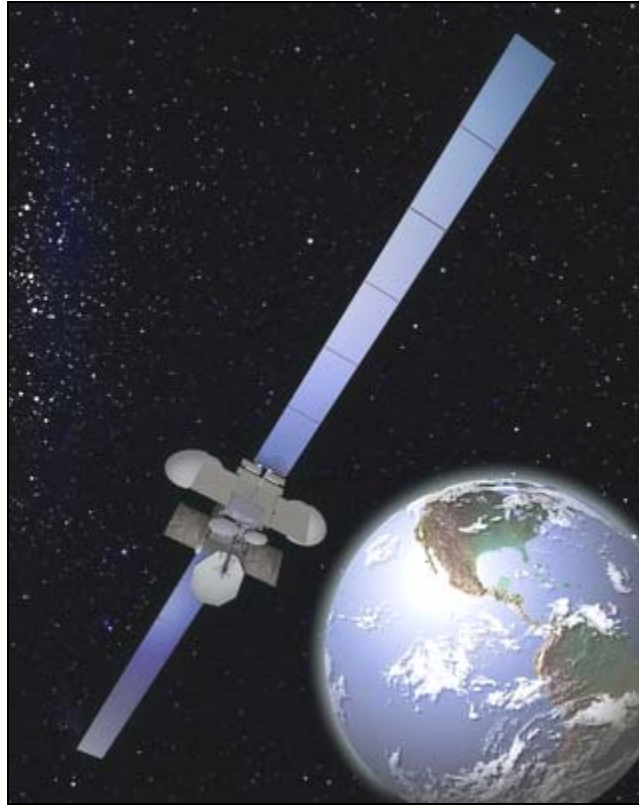
**DSCS III.** Follow-on to DSCS II; first launched in 1982; 14 produced.

**Wideband Gapfillers (Wideband Global Satcom).** Part of Phase 3 of the Global Broadcast System (GBS). Three Boeing-702 Wideband Global Satcom satellites will be launched beginning in mid-2007 to bridge the gap between the existing DSCS system and the Advanced Wideband System. In addition to X-band, the Gapfiller satellites will feature Ka-band frequencies to provide point-to-point service.

## Wideband Global Satcom

**Transformational Communications Satellites (TSATs).** The final step in Phase 3 of the GBS, these satellites were to replace current wideband systems and use the latest in commercial capabilities. A data-rate

capacity of one gigabit per second was expected. Launches of these satellites were slated to begin no earlier than 2015. This program was canceled in early 2009.



Artist's Depiction of a Boeing Wideband Global Satcom Satellite

Source: Boeing

## Program Review

**Background.** The Defense Satellite Communications System provides secure worldwide communications for a number of U.S. government agencies through the Defense Communications Agency. The system began under GBS in 1966 with the Initial Defense Communications Satellite Program (IDCSP). By mid-1968, 24 spacecraft had been launched. Each satellite weighed approximately 45 kilograms, measured 92 centimeters in diameter, and contained a single omnidirectional antenna. IDCSP satellites relayed voice, imagery, and computerized digital data and teletype transmission, and, beginning in 1967, proved highly valuable in transmitting messages as well as reconnaissance photographs from Vietnam to Washington via Hawaii.

IDCSP satellites were built by Ford Aerospace & Communications (now Space Systems/Loral) and had a

design life of four years. One of the satellites, however, remained operational for 11 years after launch.

The four-channel Phase II (DSCS II) series of satellites followed in 1971. Through 1982, 16 DSCS II satellites were launched and positioned in geosynchronous orbits of 37,000 kilometers. DSCS III satellite production began in 1982 with a contract to General Electric (whose satellite production unit is now part of Lockheed Martin Missiles and Space) for the first two of an eventual 14 production satellites. That year, the first DSCS III was launched together with the last DSCS II satellite on a Titan 34D/IUS rocket.

### *Double Launch on the Shuttle*

Two more DSCS IIIs followed in 1985 as part of a double launch from the Space Shuttle Atlantis. Additional launches were delayed in the wake of the

## Wideband Global Satcom

1986 Challenger accident. At that point, the Air Force began using a dedicated booster, designated the Medium Lift Launch Vehicle II, to launch DSCS satellites. The USAF Delta IV evolved expendable launch vehicle (EELV) was used to carry the two remaining spacecraft (#13 and #14) in 2003. No more DSCS IIIs will be built or launched.

### ***'Gapfiller' System Comes into Play***

Wideband Global Satcom satellites are designed to bridge the super-high-frequency communications gap between the DSCS constellation and the T-SAT system that is planned for deployment no earlier than 2015. As such, WGS will augment X-band communications now provided by the DSCS and the one-way Ka-band service provided by the Global Broadcast Service (GBS). This combination of the Wideband Global Satcom satellites, DSCS satellites, GBS payloads, wideband payload and platform control assets, and Earth terminals operating with them is called the Interim Wideband System (IWS).

Upon first launch into geosynchronous orbit in 2007, WGS Flight 1 will become the DoD's most capable and powerful communications satellite. At least three and as many as six satellites will be built, providing service in both the X-band and Ka-band frequency spectrums, as well as new two-way Ka-band services.

### ***Boeing Tapped for WGS Prime***

Boeing Satellite Systems (now Boeing Satellite Development Center) began building the Wideband Global Satcom satellites on its BSS-702 platform in 2001 under an initial \$160.3 million USAF contract. The spacecraft are being built with 95 percent commercial off-the-shelf (COTS) products, marking the first time the U.S. Department of Defense has purchased a near-commercial satellite. In 2002, Boeing received an additional contract for \$336.4 million to produce the first two Wideband Global Satcom satellites and procure long-lead items for a third.

### ***The Global Broadcast Service***

The GBS, mentioned earlier, is a military program to provide high-data-rate broadcast capability between many distributed information sources and forces in the field, using satellites and small, inexpensive user terminals. Services began in 1996 as part of a three-phase program. Phase 1 began in 1996 using leased capacity on commercial satellites as a testbed for requirements definition and operational concept refinement. In Phase 2, high-speed communications packages were installed on UFO satellites F8 through F10 to provide nearly global capability at military frequencies.

Phase 3, however, will provide a global, secure, military SHF communications capability integrated into the conceptual T-SAT system. The transition includes at least three Wideband Global Satcom satellites scheduled for launch in 2007 and 2008. The USAF plans to start launching a worldwide constellation of T-SATs in the 2015 timeframe to augment these operations.

### ***USAF Exercises Option***

The U.S. Air Force exercised a \$150 million option to procure a third Wideband Global Satcom satellite from Boeing Integrated Defense Systems in November 2002. Boeing received funding to build the first two satellites in January 2002. The third satellite was scheduled to launch in 2005. However, the first launch slipped to October 2007, WGS-2 followed in April 2009, and -3 is now expected to launch sometime in 2009.

### ***DoD Wants Two More WGS Satellites; Program Costs Rise***

In April 2003, the U.S. Department of Defense released details on major defense acquisition program cost and schedule changes since the September 2002 reporting period. WGS program costs increased \$667.2 million (76.1 percent) – from \$876.9 million to \$1,544.1 million. These cost increases were due primarily to the additional funding for two more satellites, making a total of five (+\$634.3 million), plus a radio frequency modification associated with satellites #4 and #5 to support Airborne Intelligence Surveillance and Reconnaissance (+\$63.2 million), and restoration of launch and flight support services for satellites #1 through #3 from FY04 to FY07 (+\$18.6 million). These increases were partially offset by contract savings through the use of existing hardware, which resulted in a revised estimate for the Primary Injection Points for Gapfiller broadcast service (-\$19.9 million).

**EELV Integration.** In October 2003, the U.S. Air Force authorized International Launch Services (ILS) to begin integrating the Wideband Global Satcom Satellite #3 (WGS-3) with the Atlas V rocket. WGS-3 was launched in 2009. The Air Force had previously authorized ILS to begin integration of WGS-2.

**Contract Modifications in 2005.** In January 2005, the USAF modified the Boeing contract for the Wideband Global Satcom satellites. The \$14 million modification will be used to incorporate radio frequency bypass into the spacecraft.

A second contract modification was awarded in April 2005 for production of parts under a \$12.4 million obsolescence study. The study is meant to mitigate the risk of parts going out of production between the third and fourth spacecraft.

## Wideband Global Satcom

***Ground Segment Option Exercised***

In early 2006, the USAF exercised a \$7.8 million ground segment option under the WGS contract for two Gapfiller Satellite Configuration Control Elements (GSCCEs), two initial sets of spares, and on-site equipment training. The GSCCE provides payload control for all WGS satellites. The price for each GSCCE, along with spares and training, was established in the initial WGS contract award.

***Long-Lead Items in the Pipeline***

In early 2006, the USAF awarded Boeing a \$148 million contract to provide non-recurring engineering and advanced procurement of long-lead parts for the fourth WGS spacecraft. Approximately \$100.5 million had been obligated at the time of the contract.

***Incentive Contract Modification for WGS F5***

In December 2006, the USAF awarded Boeing a \$50.7 million fixed-price-incentive contract modification. The contract exercises an option for advanced procurement of WGS F5 long-lead items. These include high-reliability items and major components of the spacecraft subsystems.

***Block II Contract Modification Exercised***

In November 2006, Boeing received a \$229.8 million contract for the production of the fourth WGS satellite. This is the first option to be exercised under the WGS Block II contract.

***Three More WGS Spacecraft Planned***

In October 2006, Boeing signed a \$1.067 billion contract with the USAF for up to three more WGS satellites, if all options are exercised. The Block II satellites will be similar to the three Block I satellites already in production. Under Block II, Boeing will add a radio frequency bypass capability designed to support airborne intelligence, surveillance and reconnaissance platforms requiring ultra-high bandwidth and data rates. The Block II contract calls for the launch of F4 by the first quarter of 2011 and subsequent launches every year thereafter.

***Boeing Completes Thermal Tests of First WGS***

Boeing completed Spacecraft Thermal Vacuum (SCTV) testing for the first of its WGS satellites in September 2006. The tests, conducted at the Boeing Satellite Development Center in El Segundo, California, evaluated the WGS operating systems' ability to withstand the extreme temperatures of space. "WGS has completed one of the most difficult and highest risk

tests in the build process to evaluate its ability to withstand the extreme hot and cold temperatures of space," said U.S. Air Force Lt. Col. David Lee, WGS Block I program manager.

***CCS-C Contract Modification***

In September 2006, the USAF awarded Integral Systems Inc two cost-plus-award-fee modifications totaling \$7.8 million for the Command and Control System-Consolidated (CCS-C) effort to support the WGS program. Under this change, full development capability for all on-orbit satellite command procedures will be provided in support of the first WGS launch, which took place in 2007. The CCS-C program provides an upgraded capability to control the Air Force's communication satellites, including the DSCS, Milstar, Advanced EHF (AEHF), and WGS.

***WGS Space-to-Ground Tests Completed***

Boeing successfully completed two key WGS program space-to-ground compatibility tests in July 2006 with partners Universal Space Network (USN) and ITT Industries. The joint tests, conducted at the Boeing Satellite Development Center in El Segundo, California, proved the interoperability between the satellite and two key ground control systems used during orbital operations.

***Atlas Launches First WGS***

An Atlas 5 launched the first WGS in October 2007. The Atlas 5 421 lifted off from Space Launch Complex 41 at Cape Canaveral, Florida, at 8:22 p.m. EDT (0022 GMT Oct 11) and put the Wideband Global Satcom (WGS) 1 spacecraft into geosynchronous transfer orbit. The launch was the first for the Atlas 5 since a June 2007 mission was deemed a partial failure after a leaky valve caused the booster's upper stage to shut down prematurely, placing a pair of classified spacecraft in a lower-than-planned orbit.

An Atlas V rocket successfully launched the second WGS military communications satellite on April 3, 2009, from Cape Canaveral. WGS-3 launched on December 5, 2009, on board a Delta IV launch vehicle.

In January 2009, the U.S. Air Force authorized the Commonwealth of Australia's provision of \$234 million for Boeing to complete production of the sixth WGS satellite. With this authorization, Boeing is now fully funded for the production of all three WGS Block II satellites.

Australia is providing funding for WGS-6 as part of a cooperative agreement between the U.S. and Australian governments. A Memorandum of Understanding signed by both governments in November 2007 gives the

## Wideband Global Satcom

Australian Defence Force access to WGS services worldwide in exchange for funding the constellation's sixth satellite. Boeing received long-lead materials funding for WGS-6 in December 2007. The WGS Block I and II contracts, together valued at \$1.8 billion, include six satellites, associated ground-based payload command and control systems, mission-unique software

and databases, satellite simulators, logistics support, and operator training. Boeing also performs final satellite processing and preparations for launch, as well as initial orbital operations and on-orbit testing.

The bus and payload module of WGS-4 were integrated in February 2010.

## Funding

RDT&E funding for the Wideband Global Satcom system is awarded by the USAF and can be found in Budget Activity 04 (Advanced Component Development and Prototypes) PE#0603854F, Wideband MILSATCOM (Space). Funding is split between actual Wideband Global Satcom funding and Command & Control System Consolidated funding, as noted below.

WGS procurement and advance procurement funding is awarded under USAF Missile Procurement Appropriation, Budget Activity 05, Other Support, Item Nos. 16 & 17 – Wideband Gapfiller Satellites (Space). The following is derived from FY2011 USAF budget documents.

### U.S. FUNDING

	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>	<u>AMT</u>
<b>RDT&amp;E</b>									
PE#0603854F Total	43.9	20.9	29.5	70.7	36.1	12.8	12.5	14.6	17.6
Wideband									
MILSATCOM	31.0	0	9.9	52.3	17.9	0	0	0	0
CCS-C	15.5	20.9	19.6	18.3	18.2	12.8	12.5	14.6	17.6
<b>Procurement</b>									
WGS (AMT)	362.0	312.3	51.6	151.2	517.6	473.4	23.1	34.9	100.3
WGS (Adv. Proc.)	50.7	0	0	62.2	58.1	0	0	0	0
WGS (Qty)	1	1	0	0	1	1	0	0	0

All \$ are in millions. Because the totals have been rounded, they may not always equal the sum of the amounts being added.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Jun	1966	First launch of seven IDCSP satellites on a Titan IIIC
Nov	1971	First two DSCS II satellites launched on Titan IIIC
Dec	1981	GE awards production contract for DSCS III
Oct	1982	16th and final DSCS II launched along with first DSCS III
	1982-89	DSCS III F1-F4 launched
Feb	1992	DSCS III F5 launched on Atlas II
Jul	1992	DSCS III F6 launched on Atlas II
Jul	1993	DSCS III F7 launched on Atlas II
Nov	1993	DSCS III F8 launched on Atlas II
Jul	1995	DSCS III F9 launched on Atlas IIA
Oct	1997	DSCS III F10 launched on Atlas IIA
Jan	2000	DSCS III B8 (F11) launched on Atlas IIA
Oct	2000	DSCS III B11 (F12) launched on Atlas II
Mar	2003	DSCS III A3 (F13) launched on Delta IV
Sep	2003	DSCS III B6 (F14) launched on Delta IV
Oct	2007	WGS-1 launched on Atlas V
Apr	2009	WGS-2 launched on Atlas V

## Wideband Global Satcom

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Dec	2009	WGS-3 launched on Delta IV
	2011	WGS-4 scheduled for launch
	2012	WGS-5 scheduled for launch
	2013	WGS-6 scheduled for launch

## Forecast Rationale

With the cancellation of the Transformational Satellite (TSAT) program, the Wideband Global Satcom (WGS) program has increased in importance to the U.S. military. The program was originally intended to procure gapfiller satellites that would add capacity until the more advanced TSAT constellation became operational. However, the WGS will now fill a vital role for U.S. military communications for many years.

The U.S. Air Force exercised an option for the sixth WGS, and in January 2009, signed an agreement with Australia. Under the agreement, Australia will pay \$234 million toward the purchase of the satellite in return for access to capacity on the WGS system. The satellite, the last of the originally planned six-satellite constellation, is now fully paid for under the agreement.

With all Block II satellites paid for and all Block I satellites successfully launched into orbit, the U.S. Department of Defense has begun talks for the building

of two additional spacecraft. The spacecraft are not under contract, but Boeing is reportedly ordering long-lead items for the WGS-7 and WGS-8.

Despite the importance of WGS, the program has come under scrutiny. In March 2010, Air Force officials notified Congress that the WGS program had breached the 25 percent cost increase Nunn-McCurdy threshold. The Air Force will now need to justify to Congress continued funding of the program. While this could place the program in a difficult position, the importance of satellite communications to successful military operations worldwide, as well as a lack of alternative programs, ensures future funding for the program. Congress is unlikely to have the political will to cut such an important program to the Air Force, despite cost increases. At this time, Forecast International expects production of the three satellites already under contract, as well as production of two additional satellites.

## Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
<b>Boeing Satellite Development Center</b>												
<b>WGS Block 2 &lt;=&gt; BOEING-702 &lt;=&gt; WIDEBAND GLOBAL SATCOM</b>												
	0	0	1	1	1	1	1	0	0	0	0	5
<b>Total</b>	0	0	1	1	1	1	1	0	0	0	0	5



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## ORDER FORM FOR PROPER SHIPPING, PLEASE PROVIDE ALL OF THE FOLLOWING INFORMATION.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

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Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

Cardholder Name \_\_\_\_\_

Card# \_\_\_\_\_ Exp. \_\_\_\_\_ csc# \_\_\_\_\_

Billing Address (if different from above) \_\_\_\_\_

- Check Enclosed  
 Bill Company  
(Purchase Order # and Signature Required)  
 Quotation Requested  
 VISA   MasterCard   
 American Express 

Name of Product/Service	Code	E-Mail Address	Qty.	Price

Please include your e-mail address to receive twice-weekly E-Market Alert Newsletters.



Subtotal \_\_\_\_\_  
 Shipping \_\_\_\_\_  
 In Connecticut add 6% sales tax \_\_\_\_\_  
 Grand Total \_\_\_\_\_

### SHIPPING AND HANDLING RATES

	U.S.	World		U.S.	World		U.S.	World
<b>Market Intelligence Services</b>			<b>Market Intelligence Libraries</b>			<b>Governments &amp; Industries</b>		
Binder	\$45	\$85	<b>Complete Library</b>			Binder	\$540	\$1,020
DVD	\$50	\$95	<b>(Civil/Commercial &amp; Military)</b>			DVD	\$50	\$95
Binder & DVD	\$95	\$180	Binder	\$1,575	\$2,975	<b>International Military Markets</b>		
Binder & RT	\$45	\$85	DVD	\$50	\$95	<b>(A Subset of G&amp;I above)</b>		
<b>Worldwide Inventories</b>			<b>Military Market Library</b>			Binder	\$270	\$510
<b>Aerospace Systems</b>			Binder	\$1,440	\$2,720	DVD	\$50	\$95
CD	\$50	\$95	DVD	\$50	\$95	<b>Naval</b>		
<b>Weapons Systems</b>			<b>Civil/Commercial Library</b>			Binder	\$90	\$170
Hard Copy	\$45	\$85	Binder	\$360	\$680	DVD	\$50	\$95
CD	\$50	\$95	DVD	\$50	\$95	<b>Power</b>		
<b>Power Systems</b>			<b>Market Intelligence</b>			Binder	\$90	\$170
Hard Copy	\$45	\$85	<b>Group Libraries</b>			DVD	\$50	\$95
<b>Focused Market</b>			<b>Aerospace</b>			<b>Weapons</b>		
<b>Segment Analyses</b>			Binder	\$360	\$680	Binder	\$180	\$340
Hard Copy	\$25	\$45	DVD	\$50	\$95	DVD	\$50	\$95
			<b>Electronics</b>			<small>NOTE: No charge for Real-Time format.</small>		
			Binder	\$360	\$680	<b>2011 Historic Art Calendar</b>		
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**NOTE: ORDERS CAN TAKE UP TO 5 BUSINESS DAYS TO SHIP.**

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