SOYUZ TO LAUNCH GLOBALSTAR-2

Arianespace and Starsem's current mission will launch six satellites for Globalstar, a leading provider of mobile satellite voice and data services. These six satellites will be used to start deploying the company's second-generation LEO (low earth orbit) satellite constellation.

From February to November 1999, Arianespace subsidiary Starsem successfully orbited 24 satellites in Globalstar's current constellation and in May and October 2007, Starsem successfully launched 8 replacement satellites.

Globalstar has once again reaffirmed its confidence in Arianespace and Starsem with the additional four launches to inject the six ~700 kilograms satellites into a circular phasing orbit at an altitude of 920 km and at an orbital inclination of 52 degrees.

The first six satellites in the Globalstar-2 constellation were successfully orbited by Arianespace and Starsem on October 19, 2010.

ABOUT ARIANESPACE

Arianespace is the world's leading launch service & solutions company, providing innovation to its customers since 1980. Backed by 21 shareholders and the European Space Agency, Arianespace offers an unrivalled family of launchers, comprising Ariane 5, Soyuz and Vega, and an international workforce renowned for a culture of commitment and excellence. As of July 1, 2011, Arianespace had launched a total of 294 payloads, including more than half of all the commercial satellites now in service worldwide. It has a backlog of 18 Ariane 5 and 18 Soyuz launches, equal to more than three years of business. www.arianespace.com

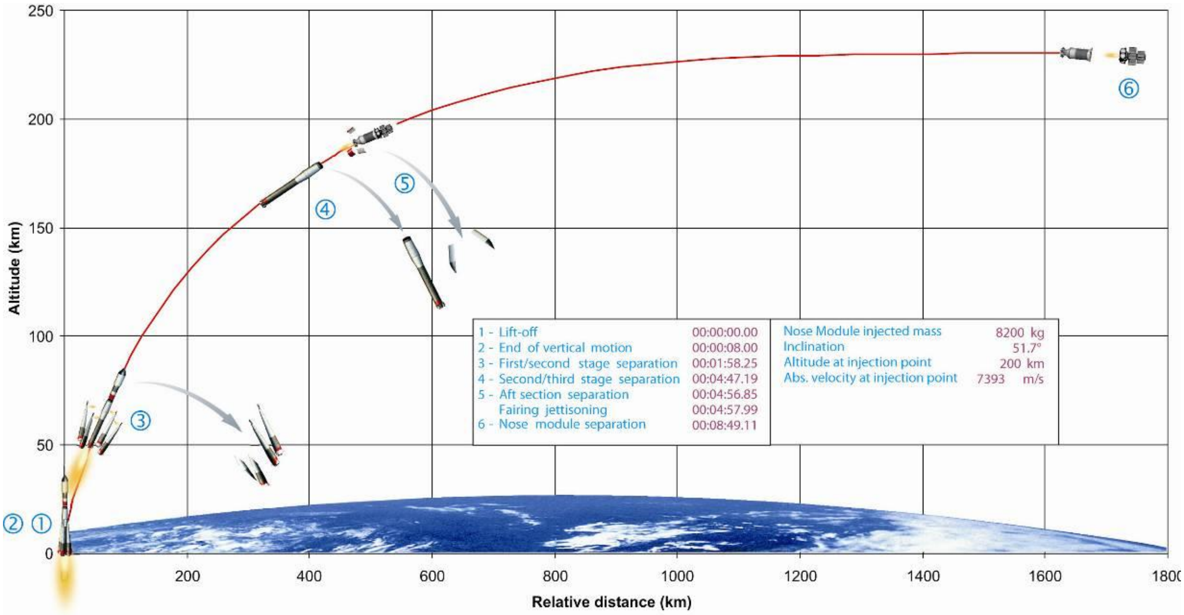
ABOUT STARSEM

Starsem is the Soyuz Company, bringing together all key players involved in the production, operation and international commercial marketing of the world's most versatile launch vehicle. Shareholders in Starsem are Arianespace, Astrium, the Russian Federal Space Agency and the Samara Space Center.

MISSION DESCRIPTION

The Globalstar-2 launch will be performed from the Baikonur Cosmodrome, Launch Pad #6. The launch will occur on **Monday, July 11, 2011, at 02:58 a.m. UTC:**

08:58 a.m. Baikonur time (Monday, July 11)
06:58 a.m. Moscow time (Monday, July 11)
04:58 a.m. Paris time (Monday, July 11)
07:58 p.m. Pacific Daylight Time (Sunday, July 10)



The Launch Vehicle Flight at a Glance

After lift-off from the Baikonur Cosmodrome, the flight of the three lower stages of the Soyuz launch vehicle will last for 8 minutes and 49 seconds. At this time, the Soyuz third stage will separate from the nose module, consisting of the Fregat upper stage, the satellite dispenser and six Globalstar-2 satellites. The three lower Soyuz stages will fall back to Earth.

The Fregat upper stage will then fire its own engine, taking the nose module into a transfer orbit above the Earth. After this first burn, the Fregat will perform a barbecue maneuver to maintain proper thermal conditions for the Globalstar-2 spacecraft during the following coast phase, which lasts for about 50 minutes.

At the correct point on this orbit, Fregat will fire again, to reach the circular separation orbit. Following stabilization and under visibility of the Russian ground tracking stations, the six satellites will be released from the dispenser. The separation of the two satellites of the upper dispenser mast will occur first. 1 minute 40 seconds later, the four satellites of the lower dispenser mast will be separated simultaneously. After spacecraft separation, the Fregat upper stage main engine is re-ignited to re-enter the stage in the South Pacific ocean.

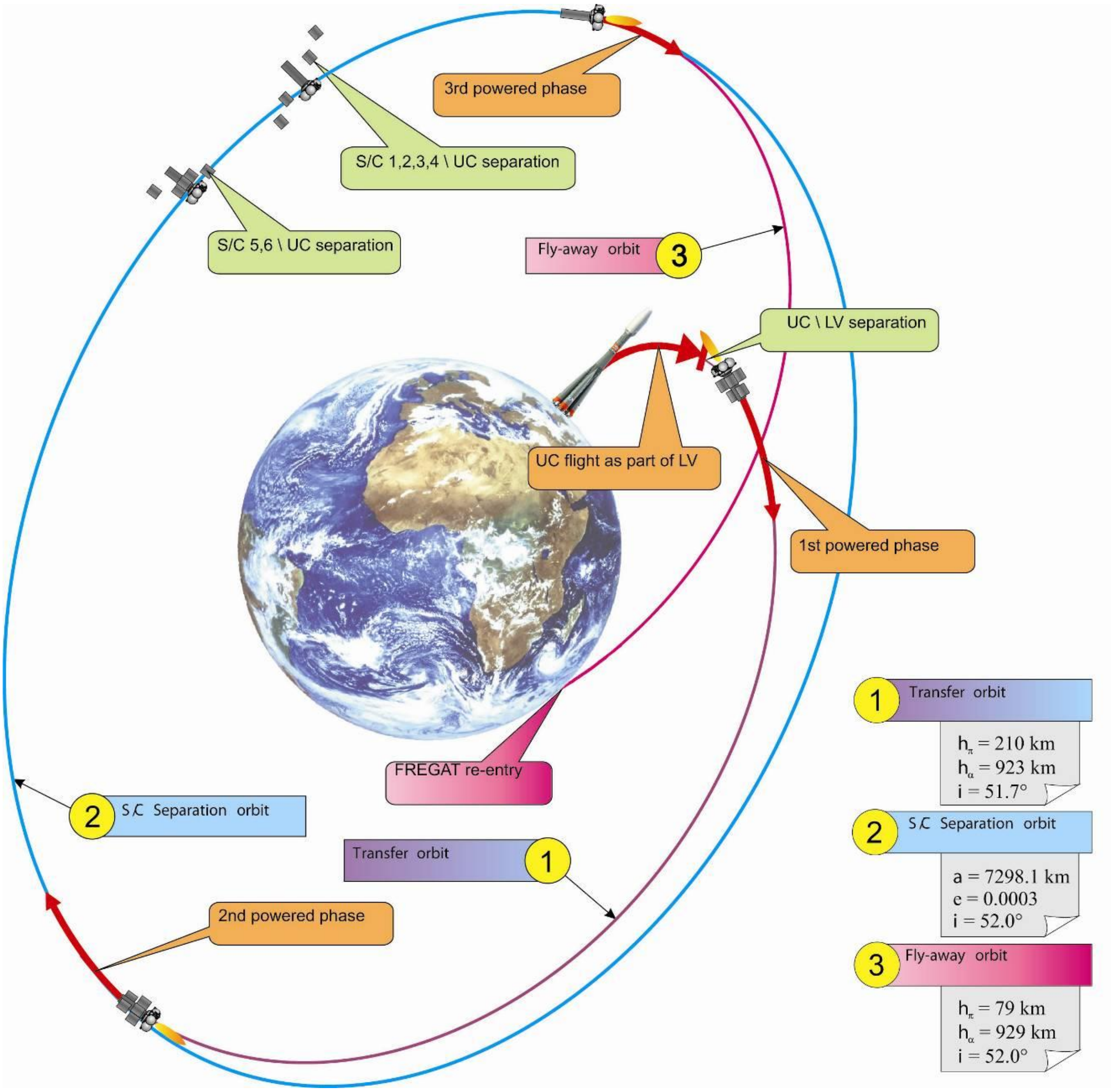
The targeted orbital parameters at separation are:

Semi Major Axis: 7298.1 km
Orbit inclination: 52.00 °
Eccentricity: 0.000

Mission Duration

The nominal mission duration (from lift-off to the last spacecraft separation) is 1 hour, 40 minutes, 20 seconds.

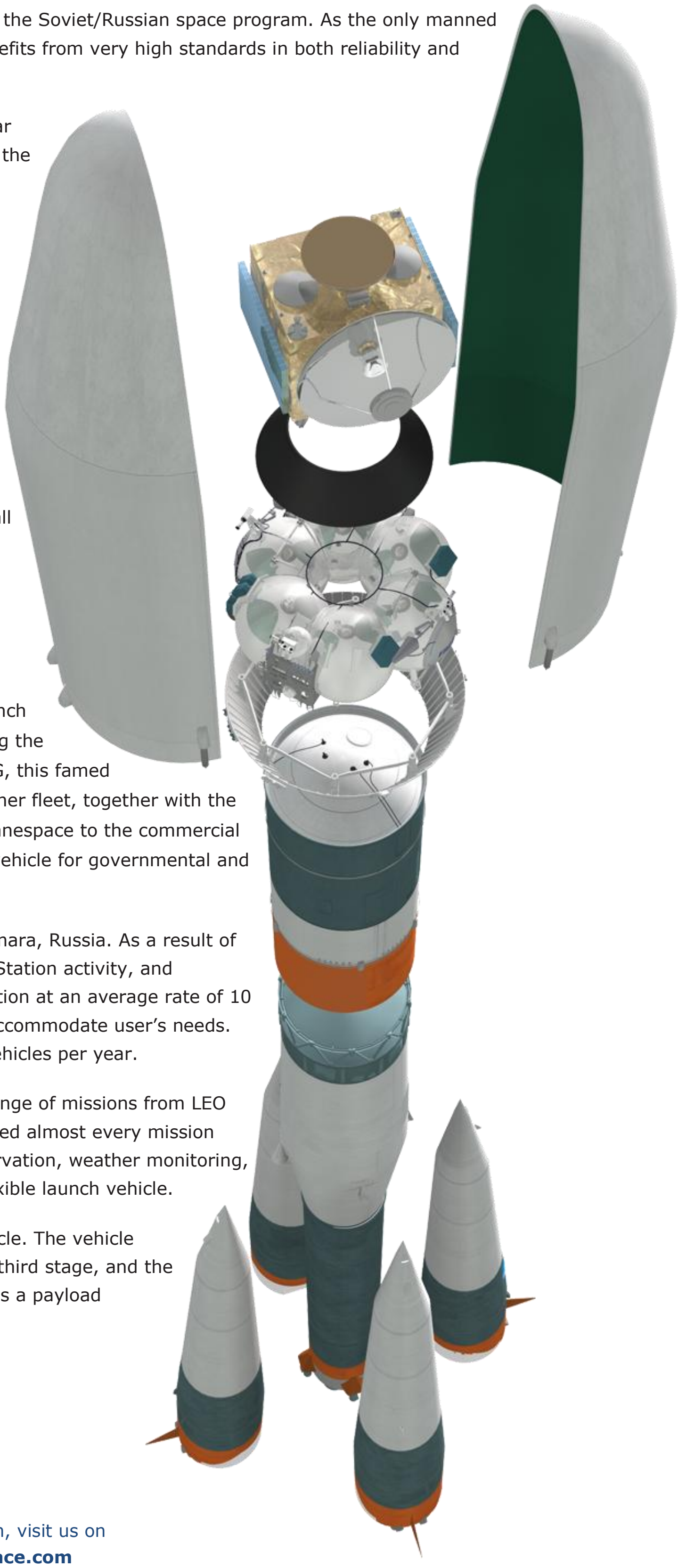
PROFILE OF THE GLOBALSTAR 2 INJECTION MISSION



SOYUZ LAUNCH VEHICLE

The Soyuz launch vehicle family has provided reliable and efficient launch services since the birth of the space program. Vehicles in this family, which launched both the first satellite and first man into space, have been credited with more than 1770 launches to this date. Today, this vehicle is used for manned and unmanned flights to the International Space Station and commercial launches from Baikonur managed by Arianespace's affiliate Starsem.

The Soyuz configuration introduced in 1966 has been the workhorse of the Soviet/Russian space program. As the only manned launch vehicle in Russia and in the former Soviet Union, the Soyuz benefits from very high standards in both reliability and robustness.



In 1999, Soyuz allowed Starsem to launch 24 satellites of the Globalstar constellation in 6 launches. Following this success, Starsem introduced the flexible, restartable Fregat upper stage, thus opening up a full range of missions (LEO, SSO, MEO, GTO, GEO and escape).

The introduction in 2004 of the Soyuz 2-1a launch vehicle performed represents a major step in the launch vehicle evolution program. This modernized version of Soyuz, which was also used to successfully launch MetOp-A on October 19, 2006, implements a digital control system providing additional mission flexibility and will enable control of the launch vehicle with the 4.1 m ST fairing. It represents a necessary milestone towards the next generation evolved Soyuz 2-1b launcher as the latest step in a cooperative European/Russian evolution program. In addition to the 2-1a version's features, it utilizes the more powerful third stage engine, significantly increasing the overall launch vehicle performance.

The inaugural flight of the upgraded Soyuz 2-1b launch vehicle was successfully performed on December 27, 2006, launching the Corot scientific spacecraft for the French Centre National d'Etudes Spatiales.

The decision of the European Space Agency to introduce the Soyuz launch capability at the Guiana Space Center (CSG) is a major step in widening the range of accessible missions. With the introduction of the Soyuz at CSG, this famed Russian launch vehicle becomes an integral part of the European launcher fleet, together with the heavy-lift Ariane 5 and the light Vega. To be offered exclusively by Arianespace to the commercial market, the Soyuz at CSG is Europe's reference medium-class launch vehicle for governmental and commercial missions.

The Samara Space Center continues to mass-produce the Soyuz in Samara, Russia. As a result of continued demand from the Russian government, International Space Station activity, and Arianespace's commercial orders, the Soyuz is in uninterrupted production at an average rate of 10 to 15 launch vehicles per year with a capability to rapidly scale up to accommodate user's needs. In fact, peak production of the Soyuz in the early 1980's reached 60 vehicles per year.

The Soyuz is a reliable, efficient, and cost effective solution for a full range of missions from LEO to Mars. In its unequalled flight history, the Soyuz has already performed almost every mission profile, including orbiting satellites for telecommunications, Earth observation, weather monitoring, scientific missions and manned flights. It is a highly responsive and flexible launch vehicle.

The Soyuz currently offered by Arianespace is a four-stage launch vehicle. The vehicle consists of four boosters (first stage), a central core (second stage), a third stage, and the restartable Fregat upper stage (fourth stage). Each vehicle also includes a payload adapter/dispenser and fairing.

THE BOOSTERS (FIRST STAGE)

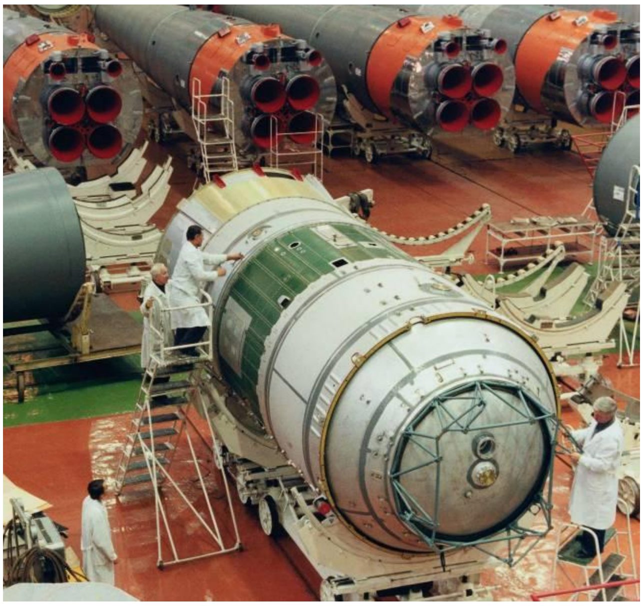
The four boosters are assembled around the central core and are tapered cylinders with the oxidizer tank in the tapered portion and the kerosene tank in the cylindrical portion. The booster's RD-107A engines are powered by liquid oxygen and kerosene, the same propellants which are used on each of the lower three stages. Each engine has four combustion chambers and nozzles. Three-axis flight control is carried out by aerofins (one per booster) and movable vernier thrusters (two per booster). Following lift-off, the boosters burn for 118 seconds and are then discarded. The separation time is determined by comparing the velocity with a predefined value. Thrust is transferred through a ball joint located at the top of the cone-shaped structure of the booster, which is attached to the central core by two rear struts.

CENTRAL CORE (SECOND STAGE)

The central core is similar in construction to the four boosters, with a hammer-head shape to accommodate the boosters. A stiffening ring is located at the interface between the boosters and the core. This stage has a RD-108A engine with four combustion chambers and nozzles and four vernier thrusters. The verniers are used for three-axis flight control once the boosters have separated. The core stage nominally burns for 286 seconds. Ignition of the central core and boosters occurs at an intermediate level of thrust on the launch pad 20 seconds before lift-off in order to monitor engine health parameters before the engines are throttled up and the vehicle leaves the pad.

THIRD STAGE

The third stage is linked to the central core by a lattice-work structure. Ignition of the third stage's main engine occurs approximately 2 seconds before shutdown of the central core. The third stage engine's thrust directly separates the stage from the central core. In between the oxidizer and fuel tanks is an intermediate bay where avionics systems are located. This stage uses a RD-0110 engine with four combustion chambers and nozzles. Four vernier nozzles provide three-axis flight control. The third stage engine nominally burns for 240 seconds. After engine cut-off and separation of the fourth stage, the third stage performs an avoidance maneuver by opening an outgassing valve in the liquid oxygen tank.



FREGAT UPPER STAGE (FOURTH STAGE)

Flight qualified in 2000, the Fregat upper stage is an autonomous and flexible upper stage that is designed to operate as an orbital vehicle. It extends the capability of the lower three stages of the Soyuz vehicle to provide access to a full range of orbits (LEO, SSO, MEO, GTO, GEO and escape). In order to provide the Fregat with high initial reliability, several flight-proven subsystems and components from previous spacecraft and rockets are incorporated into the upper stage. The upper stage consists of 6 spherical tanks (4 for propellants, 2 for avionics) arrayed in a circle, with trusses passing through the tanks to provide structural support. The stage is independent from the lower three stages, having its own guidance, navigation, control, tracking, and telemetry systems. The stage uses storable propellants (UDMH/NTO) and can be restarted up to 20 times in flight, thus enabling it to carry out complex mission profiles. It can provide the customer with 3-axis stabilization or spin-up of their spacecraft.

PAYLOAD ACCOMMODATION

The current Soyuz flies the ST-type fairing, with external diameter of 4.1 m and a length of 11.4 m. The Fregat upper stage is encapsulated in the fairing with the payload and a payload adapter/dispenser. Arianespace has already developed a series of adapters and dispensers, which may be used directly by the customer. Arianespace can also carry out development of new adapter or dispenser tailored to the customer's spacecraft.

THE GLOBALSTAR-2 SPACECRAFT

COURTESY OF THALES ALENIA SPACE

The new Globalstar second-generation low-earth-orbit (LEO) satellite is a three-axis stabilized spacecraft consisting of a trapezoidal main body with two solar arrays. In 2006 Globalstar contracted Thales Alenia Space for the design, manufacture and delivery of its second-generation constellation satellites. The first six satellites being launched were delivered to Globalstar in August of this year.

The new Globalstar spacecraft has a design life of 15 years or twice the design life of the first-generation Globalstar satellite. To help ensure the reliability of the design life, the second–generation robust architecture has placed particular emphasis on redundancy management and the radiation environment of the Globalstar operational orbit. In addition, each functional chain of the spacecraft was carefully analyzed for implementation of redundancies and tolerances to minimize single point failures.

Each second-generation Globalstar satellite weighs approximately 700 kg, offers power of 2.4 kW, is fitted with 16 transponders from C-to S-band, and 16 receivers from L- to C-band. The satellite's trapezoidal body is fabricated from rigid aluminum honeycomb panels. The trapezoidal shape was selected to conserve volume and to allow the mounting of multiple satellites under the launch vehicle's payload fairing.

The satellite operates in a body-stabilized, three-axis attitude control mode and uses sun sensors, Earth sensors, and a magnetic sensor to help maintain attitude. The satellite utilizes thrusters for orbit-raising, station-keeping maneuvers and attitude control. The spacecraft's thrusters are fueled from a single on-board propellant tank.

The two solar arrays provide the primary source of power for the Globalstar spacecraft, while batteries are used during eclipses and peak traffic periods. The solar panels automatically track the sun as the satellite orbits the Earth, providing maximum possible exposure to the sun's energy.

The heart of a Globalstar satellite is its communications systems. These systems are mounted on the Earth deck, which is the larger of the two rectangular faces on the satellite's body. There are C-band antennas for communications with Globalstar gateways, and L- and S-band antennas for communications with user terminals. Designed with the same frequencies and beam patterns which are compatible with existing gateway antenna and ground infrastructure, each second-generation satellite can be mixed seamlessly with Globalstar's first-generation satellite operations.

Four launches of six satellites each will be conducted by Arianespace using the highly reliable Soyuz launch vehicle. The Soyuz has been used to successfully launch Globalstar satellites on eight previous occasions. Once the first six new Globalstar satellites are in operational orbit, the most immediate service improvement will benefit those customers who use the Company's voice and Duplex data services. With each subsequent launch, these customers can expect a progressive return to the high reliability and service quality enjoyed before 2007.

The second-generation satellites are designed to support Globalstar's current lineup of voice, Duplex and Simplex data products and services including the Company's lineup of SPOT retail consumer products. Once the Company's next-generation ground network is installed, the advanced constellation will also provide Globalstar customers with enhanced future services featuring increased data speeds of up to 256 kbps in a flexible Internet protocol multimedia subsystem (IMS) configuration. Products and services supported are expected to include: push-to-talk and multicasting, advanced messaging capabilities such as multimedia messaging or MMS, geo-location services, multi-band and multi-mode handsets, and data devices with GPS integration.

About Globalstar, Inc.
With over 400,000 subscribers, Globalstar is a leading provider of mobile satellite voice and data services. Globalstar offers these services to commercial customers and recreational consumers with coverage in more than 120 countries around the world. The Company's products include mobile and fixed satellite telephones, simplex and duplex satellite data modems, the SPOT Satellite GPS Messenger™ and flexible airtime service packages. Many land based and maritime industries benefit from Globalstar with increased productivity from remote areas beyond cellular and landline service. Global customer segments include: oil and gas, government, mining, forestry, commercial fishing, utilities, military, transportation, heavy construction, emergency preparedness, and business continuity as well as individual recreational users. Globalstar data solutions are ideal for various asset and personal tracking, data monitoring and SCADA applications.

For more information regarding Globalstar, please visit Globalstar's web site at www.globalstar.com

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SOYUZ LAUNCH CAMPAIGN

After the completion of the pre-launch assembly, integration and testing at Thales Alenia Space in Rome, the Globalstar second-generation satellites arrived at the Baikonur airport and the launch campaign began. Activities in Baikonur during the first several weeks of the launch campaign included preparation of the satellites in the PPF followed by filling and mounting to the dispenser in the HPF. The six satellites, on the dispenser, were then mated to the Fregat upper stage and together encapsulated under the fairing, comprising the Upper Composite.

The key events of the Globalstar 2 Launch Campaign in the final days and moments prior to launch proceed as follows (L = lift-off):

L-7 days:
Upper composite (satellites + dispenser + Fregat + fairing) is transferred to assembly facility near the launch pad where it is mated to the third stage of the launch vehicle

L-4 days:
The Transfer Readiness Review ensures the Soyuz and its payload are ready for final launch pad activity and launch

L-3 days:
The fully assembled launch vehicle is transferred to the pad and erected in the vertical position. Check out and countdown rehearsal for the lower 3 stages of the vehicle takes place

L-2 days:
Countdown rehearsal for the customer’s spacecraft and the Fregat upper stage

L-10 hours:
Final countdown begins. Systems checks on Soyuz begin

L-5 hours:
Systems checks begin on Fregat upper stage

L-4 h20m:
Launch vehicle fueling authorization review

L-4 hours:
Launch vehicle fueling begins

L-30 minutes:
Removal of service platform

L-2m35s:
Pressurization of propellant tanks

L-45 seconds:
Transfer to on-board power supply

L-20 seconds:
Ignition of booster and core engines at intermediate thrust level

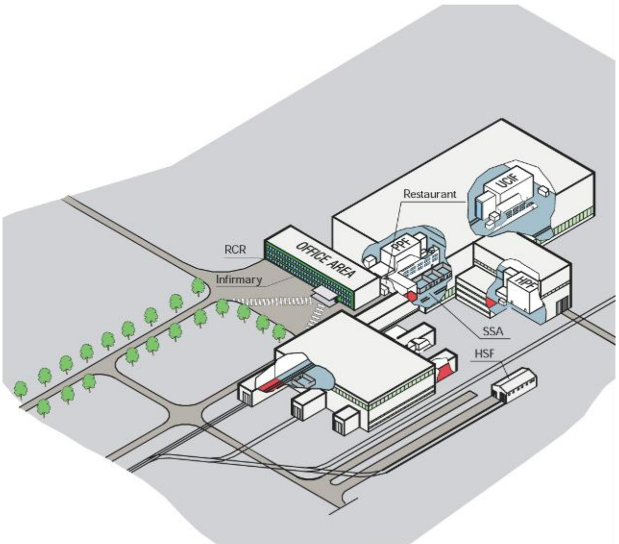
L:
Lift-off !

STARSEM BAIKONUR FACILITIES

Arianespace's affiliate Starsem has adapted, modified, developed, and built dedicated facilities at the Baikonur Cosmodrome which allow its customers to access to state-of-the-art facilities for their launch campaign. Central to these facilities are the three class 100,000 clean rooms used for the complete integration checkout, test, and fueling of customer's spacecraft.

SITE 112

Starsem's facilities are located primarily in two areas of the Cosmodrome: Site 112 and Site 31. Site 112 is the location of the assembly and integration facility for the former Energia launch vehicle. This facility (MIK 112) houses Starsem's dedicated clean rooms and is the location where customer's spacecraft are prepared, fueled, and eventually mated to the Fregat upper stage and encapsulated in the fairing. Customer's offices are also located in this facility. Built in 1998, Starsem's 1158-m2 of Class 100 000 clean rooms ensure customers with international standard facilities for the preparation of their spacecraft. This allows customers to have their spacecraft in a controlled environment from spacecraft unpacking through encapsulation. Portable and fixed ventilation systems ensure the thermal conditions of the spacecraft until launch. Failsafe backup power supplies are available in all clean rooms to protect sensitive hardware during processing activities. Dedicated networks allow voice and data exchange between the clean rooms and other facilities. An independent, redundant satellite communications system provides high data rate connections between customers and their home base.

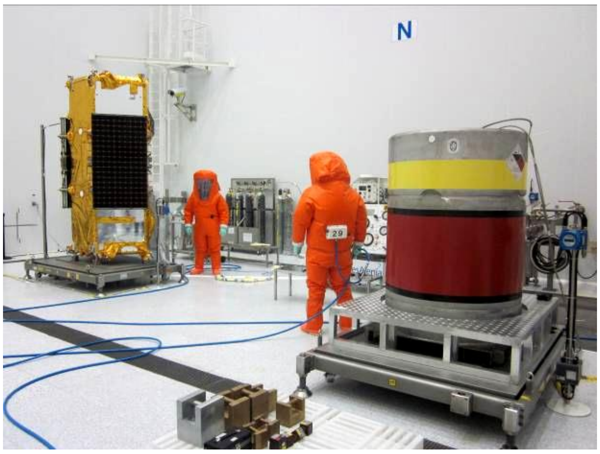


THE PAYLOAD PROCESSING FACILITY (PPF)

The PPF features a 286 m2 high bay for the processing of customer's spacecraft. This facility has two independent 70 m2 control rooms to permit parallel operations and personnel and equipment airlocks to ensure the integrity of conditions in the processing area.

THE HAZARDOUS PROCESSING FACILITY (HPF)

The HPF high bay covers a surface of 285 m2, and is designed for spacecraft filling activities and pressurization of tanks. The HPF is designed to accommodate bipropellant spacecraft (e.g. MMH/N2O4). The facility has airlocks and an on-site control room. A remote control room in the customer office area with a dedicated data transmission system, intercoms, and video monitors ensures maximum safety for customer's launch teams. Spacecraft propellants are stored in the controlled and monitored Hazardous Storage Facility, located next to MIK 112.



THE UPPER COMPOSITE INTEGRATION FACILITY (UCIF)

Spacecraft mating with the Fregat upper stage is performed in this 587 m2 high bay, along with fairing encapsulation. The facility has equipment and personnel airlocks and a on-site control room. The remote control room in the customer office area can also be used to monitor activities in the UCIF. The data network allows the customer to carry out spacecraft testing via direct links with EGSE installed in the PPF control room.

SITE 31

Site 31 includes the launch pad, assembly and integration facility for the launch vehicle (MIK 40), and administrative buildings. After encapsulation, customer's spacecraft is transported to MIK 40 under a controlled environment to be mated to the rest of the launch vehicle in MIK 40. Following integration, the vehicle is rolled out to the launch pad.