# 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 enhance 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 ~650 kilograms satellites into a circular phasing orbit at an altitude of 920 km and at an orbital inclination of 52 degrees.

The first eighteen satellites in the Globalstar-2 constellation were successfully orbited by Arianespace and Starsem on October 19, 2010 and July 13, 2011 and December 28, 2011.

### ABOUT ARIANESPACE

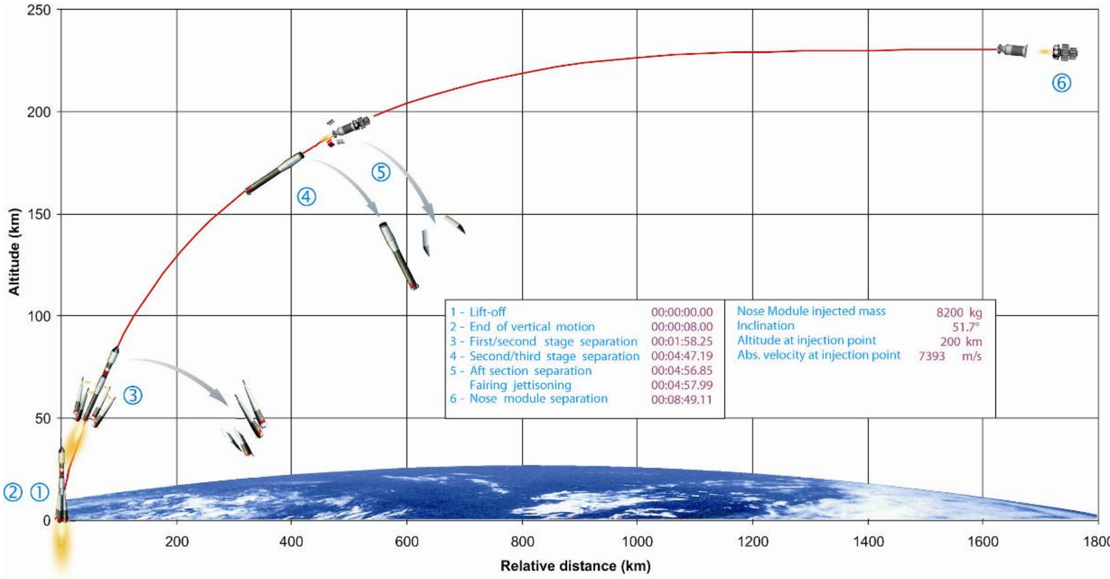
*Arianespace is the world's leading satellite launch company, providing innovation to its customers since 1980. Backed by 21 shareholders and the European Space Agency, the company offers an international workforce renowned for a culture of commitment and excellence. As of 1st January 2013, 211 Ariane launches, 29 Soyuz launches (four at the Guiana Space Centre and 25 at Baikonur with Starsem) and the first launch of Vega have been performed. The company has a backlog of 18 Ariane 5, 12 Soyuz and three Vega launches, equaling 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.*

The Globalstar-2 launch will be performed from the Baikonur Cosmodrome, Launch Pad #6. The launch will occur on **Tuesday, February 05, 2013, at 04:20 p.m. UTC:**

10:20 p.m. Baikonur time
08:20 p.m. Moscow time
05:20 p.m. Paris time
08:20 a.m. Pacific Standard Time




## 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.

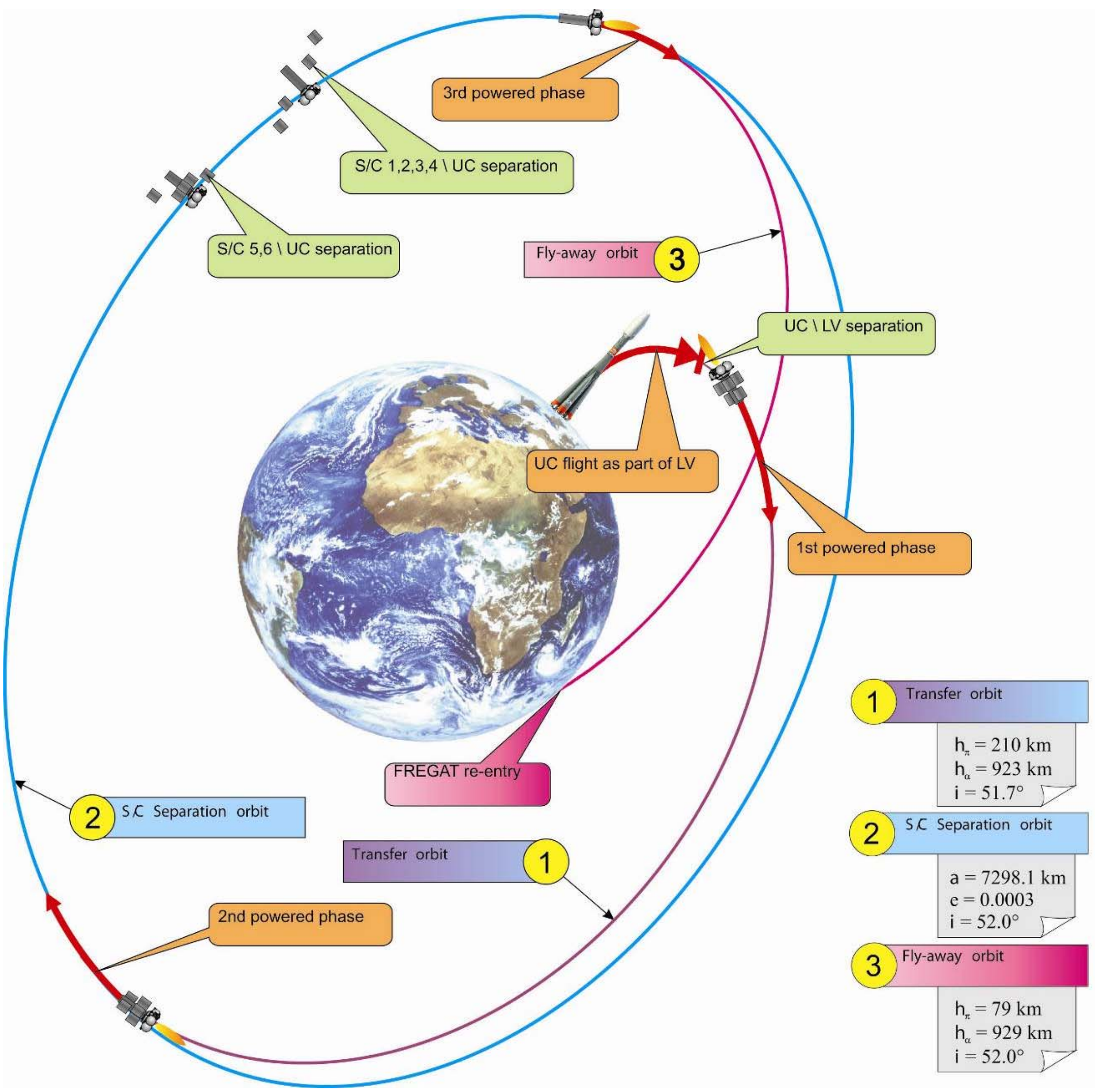
The targeted orbital parameters at separation are:

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.

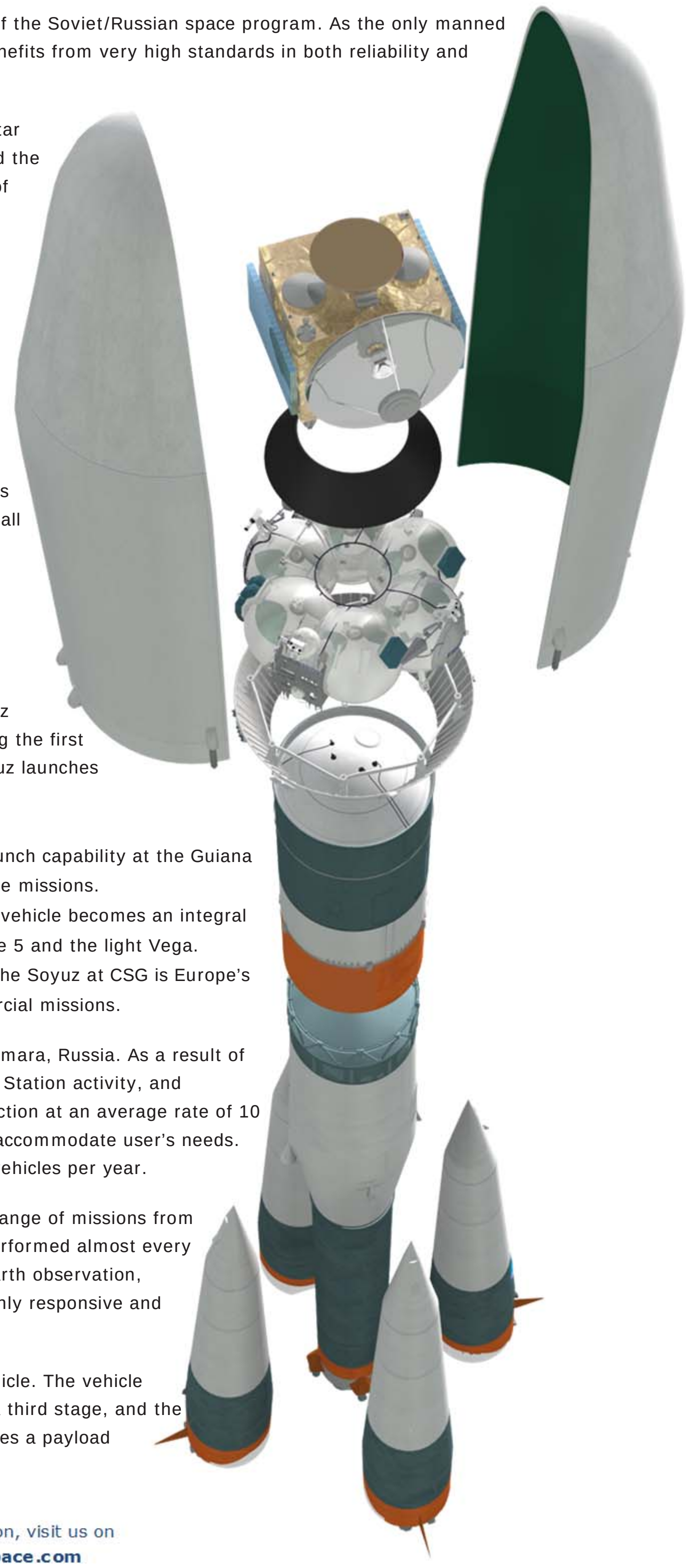
## PROFILE OF THE GLOBALSTAR 2 INJECTION MISSION



## 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 1795 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.

On October 21 2011, Arianespace successfully launched the first Soyuz Rocket from the Guiana Space Center (CSG) in French Guiana, orbiting the first two satellites in the Galileo constellation. Since then three others Soyuz launches were successfully performed from the CSG.

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 cylindrical-conical boosters are assembled around the central core. The booster's RD-107A engines are powered by liquid oxygen and kerosene, the same propellants used on each of the lower three stages. The kerosene tanks are located in the cylindrical part and the liquid oxygen tanks in the conical section. Each engine has four combustion chambers and four nozzles. Three-axis flight control is provided by aerofins (one per booster) and steerable vernier thrusters (two per booster). Following liftoff, the boosters burn for approximately 118 seconds and are then jettisoned. Thrust is transferred to the vehicle through a ball joint located at the top of the conical 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 special shape to accommodate the boosters. A stiffening ring is located at the interface between the boosters and the core. This stage is fitted with an RD-108A engine, also comprising four combustion chambers and four nozzles. It also has four vernier thrusters, used for three-axis flight control once the boosters have separated. The core stage has a nominal burn time of 286 seconds. The core and boosters are ignited simultaneously on the launch pad, 20 seconds before liftoff. Thrust is first adjusted to an intermediate level to check engine readings. The engines are then gradually throttled up, until the launcher develops sufficient thrust for liftoff.

## THIRD STAGE

The third stage is linked to the central core by a latticework structure. Ignition of the third stage's engine occurs approximately two seconds before shutdown of the central core engine. The third stage engine's thrust enables the stage to separate directly from the central core. Between the oxidizer and fuel tanks is a dry section where the launcher's avionics systems are located. The third stage uses the powerful RD-0110 engine with four combustion chambers and four nozzles. The RD-0110 is a staged combustion engine with a turbopump driven by gases from combustion of the main propellants in a gas generator. These combustion gases are tapped to feed the four nozzles providing stage flight control. Attitude control is provided by activating the four nozzles using gases from the gas generator. The liquid oxygen (LOX) tank is pressurized by the heating and evaporation of oxygen taken from the tank. The kerosene tank is pressurized by gases taken from the gas generator, after being cooled.

## 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 Soyuz launcher, now covering a full range of orbits (LEO, SSO, MEO, GTO, GEO and escape). To ensure high reliability for the Fregat stage right from the outset, various flight-proven subsystems and components from previous spacecraft and rockets are used. The upper stage consists of six spherical tanks (four for propellants, two for avionics) arrayed in a circle and welded together. A set of eight struts through the tanks provide an attachment point for the payload, and also transfer thrust loads to the launcher. The upper stage is independent from the lower three stages, since Fregat has its own guidance, navigation, attitude control, tracking, and telemetry systems. The stage's engine uses storable propellants – UDMH (unsymmetrical dimethyl hydrazine) and NTO (nitrogen tetroxide) – and can be restarted up to 20 times in flight, thus enabling it to carry out complex missions. It can provide the customer with 3-axis or spin stabilization of their spacecraft.

## PAYLOAD ACCOMMODATION

Soyuz launchers operated by Arianespace use the ST-type fairing in standard configuration, with an external diameter of 4.1 meters and a length of 11.4 meters.

The Fregat upper stage is encapsulated in a fairing with the payload and a payload adapter/dispenser.

# THE GLOBALSTAR-2 SPACECRAFT


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. Globalstar contracted Thales Alenia Space for the design, manufacture and delivery of its second-generation constellation satellites.

The new Globalstar spacecraft has a design life of 15 years, twice the design life of the first-generation Globalstar satellites. To help ensure the reliability of the design life, the second–generation's robust architecture has placed a 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- band to S-band, and 16 receivers from L- band 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 communicating with Globalstar gateways, and L- band and S-band antennas for communicating with user terminals. Designed with the same frequencies and beam patterns which are compatible with the existing gateway antennas and ground infrastructure, the second-generation satellites seamlessly mix in with Globalstar's first-generation satellite operations.

The Soyuz has been used to successfully launch Globalstar satellites on eleven previous occasions. With this fourth launch of Globalstar's second generation satellites, Globalstar's network will restore the network's high level of reliability and service quality.

The second-generation satellites are designed to support Globalstar's current lineup of voice, Duplex and Simplex data products and services including SPOT, the Company's retail consumer product line. 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 and advanced messaging, such as, multimedia messaging or MMS in a flexible Internet protocol multimedia subsystem (IMS) configuration. Support products and services include: push-to-talk and multicasting, geo-location services, multi-band and multi-mode handsets, and data devices with GPS integration.

**About Globalstar, Inc.**

For further media information:

Globalstar is a leading provider of mobile satellite voice and data services. Globalstar offers these services to commercial and recreational users in more than 120 countries around the world. The Company's products include mobile and fixed satellite telephones, simplex and duplex satellite data modems and flexible 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. Note that all SPOT products described in this or any Globalstar press release are the products of Spot LLC, which is not affiliated in any manner with Spot Image of Toulouse, France or Spot Image Corporation of Chantilly, Virginia. SPOT Connect is a trademark of Spot LLC.

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

**Safe Harbor Language for Globalstar Releases**

This press release contains certain statements such as, "Once deployed, the six satellites will restore full service for Globalstar's customers and position the Company as the first mobile satellite service provider to deploy a second-generation constellation of low-earth-orbit (LEO) satellites," that are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. Forward-looking statements, such as the statements regarding our ability to develop and expand our business, our anticipated capital spending (including for future satellite procurements and launches), our ability to manage costs, our ability to exploit and respond to technological innovation, the effects of laws and regulations (including tax laws and regulations) and legal and regulatory changes, the opportunities for strategic business combinations and the effects of consolidation in our industry on us and our competitors, our anticipated future revenues, our anticipated financial resources, our expectations about the future operational performance of our satellites (including their projected operational lives), the expected strength of and growth prospects for our existing customers and the markets that we serve, commercial acceptance of our new Simplex products, including our SPOT satellite GPS messenger™ products, problems relating to the ground-based facilities operated by us or by independent gateway operators, worldwide economic, geopolitical and business conditions and risks associated with doing business on a global basis and other statements contained in this release regarding matters that are not historical facts, involve predictions.

Any forward-looking statements made in this press release speak as of the date made and are not guarantees of future performance. Actual results or developments may differ materially from the expectations expressed or implied in the forward-looking statements, and we undertake no obligation to update any such statements. Additional information on factors that could influence our financial results is included in our filings with the Securities and Exchange Commission, including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

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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

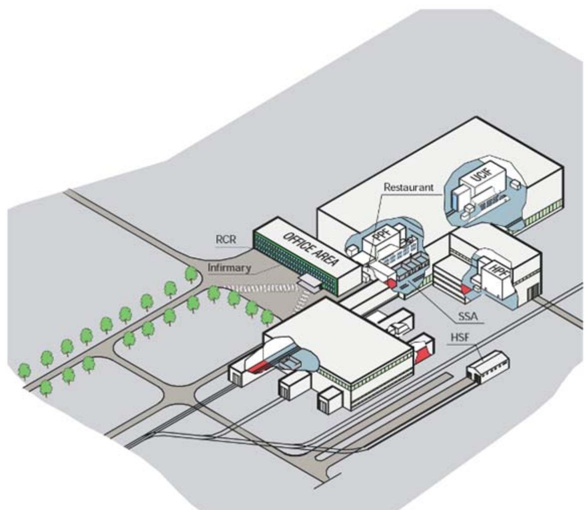
**L:**
Lift-off !

# 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/$N_2O_4$). 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.