A DUAL LAUNCH FOR JAPAN AND VIETNAM

Arianespace will orbit a direct broadcast and a communications satellite on its second Ariane 5 launch of the year: JCSAT-13 for the Japanese operator SKY Perfect JSAT Corporation, and VINASAT-2 for Vietnam Posts and Telecommunications Group (VNPT), within the scope of a turnkey contract with American manufacturer Lockheed Martin Commercial Space Systems (LMCSS). Both satellites were built by Lockheed Martin Commercial Space Systems.

The choice of Arianespace by leading space communications operators and manufacturers is clear international recognition of the company's excellence in launch services. Based on its proven reliability and availability, Arianespace continues to confirm its position as the world's benchmark launch system.

Ariane 5 is the only commercial satellite launcher now on the market capable of simultaneously launching two payloads and handling a complete range of missions, from launches of commercial satellites into geostationary orbit, to dedicated launches into special orbits.

Over the last 23 years, since the launch of JCSAT-1 in 1989, Arianespace and SKY Perfect JSAT Corporation have developed an exceptional relationship. JCSAT-13 will be the 27th satellite for a Japanese operator to use the European launcher.

JCSAT-13 was built by Lockheed Martin Commercial Space Systems using an A2100 AX platform. Weighing 4,528 kg at launch, it will be positioned at 124 degrees East longitude on a geostationary orbit. It offers a design life exceeding 15 years. The satellite is fitted with 44 Ku-band transponders and will provide direct TV broadcast links to all of Japan as a replacement satellite for JCSAT-4A and will also meet satellite demands in Southeast Asia.

Arianespace is particularly proud of its selection to launch VINASAT-2, Vietnam's second communications satellite, after VINASAT-1, launched by Arianespace in April 2008. VINASAT-2 will enable the Vietnamese operator, Vietnam Posts and Telecommunications Group (VNPT), to expand its offering in Vietnam with an entire range of telecommunications services.

Weighing 2,969 kg at launch, VINASAT-2 was built by Lockheed Martin Commercial Space Systems using an A2100 platform. It will be positioned at 131.8 degrees East, and will have a design life exceeding 15 years. Fitted with 24 Ku-band transponders, VINASAT-2 will provide radio, television and telephone links for all of Vietnam from its geostationary orbit.

JCSAT-13 and VINASAT-2 will be the 42nd and 43rd Lockheed Martin platforms to be launched by Arianespace.

Follow the launch live on the internet broadband
at www.arianespace.com
(starting 20 minutes before lift-off)

1. Mission profile

The 206th Ariane mission will place two satellites into geostationary transfer orbit: JCSAT-13 for the Japanese operator SKY Perfect JSAT Corporation, and VINASAT-2 for Vietnam Posts and Telecommunications Group (VNPT), within the scope of a turnkey contract with American manufacturer Lockheed Martin Commercial Space Systems (LMCSS).

This will be the 62nd Ariane 5 launch.

The launcher will be carrying a total payload of 8,381 kg, including 7,563 kg for the JCSAT-13 and VINASAT-2 satellites, which will be released into their targeted orbits.

The launch will be from Ariane Launch Complex No. 3 (ELA 3) in Kourou, French Guiana.

Targeted orbit

Perigee altitude	***249.9 km***
Apogee altitude	***35,911 km at injection***
Inclination	***2° degrees***

The lift-off is scheduled on the night of May 15 to 16, 2012 as soon as possible within the following launch window:

Launch opportunity

Universal time (GMT)	*Paris time*	*Kourou time*	*Washington time*	*Hanoi time*	*Tokyo time*
Between 10:13 pm	*12:13 am*	*7:13 pm*	*6:13 pm*	*5:13 am*	*7:13 am*
and 12:13 am	*2:13 am*	*9:13 pm*	*8:13 pm*	*7:13 am*	*9:13 am*
on May, 15-16 2012	*May 16, 2012*	*May 15, 2012*	*May 15, 2012*	*May 16, 2012*	*May 16, 2012*

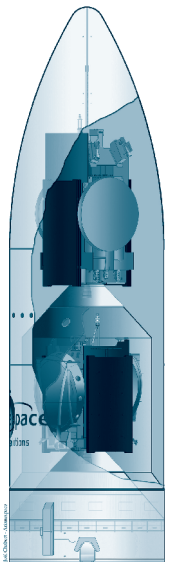
Payload configuration

The JCSAT-13 satellite was built by Lockheed Martin Commercial Space Systems (LMCSS) on behalf of the operator SKY Perfect JSAT Corporation.

Orbital position: 124° East

The VINASAT-2 satellite was built by Lockheed Martin Commercial Space Systems (LMCSS) for the operator Vietnam Posts and Telecommunications Group (VNPT).

Orbital position: 131.8° East



2. Range operations campaign: ARIANE 5 - JCSAT-13 & VINASAT-2

Satellites and launch vehicle campaign calendar

Ariane activities	*Dates*	*Satellites activities*
Campaign start review	*February 6, 2012*	
EPC Erection	*February 6, 2012*	
EAP transfer and positioning	*February 6-7, 2012*	
Integration EPC/EAP	*February 7, 2012*	
ESC-A and VEB Erection	*February 10, 2012*	
	April 11, 2012	*Arrival in Kourou of VINASAT-2 and beginning of preparation campaign in building S1 B*
	April 11, 2012	*Arrival in Kourou of JCSAT-13 and beginning of preparation campaign in building S5 C*
Roll-out from BIL to BAF	*April 11, 2012*	
	April 24-26, 2012	*JCSAT-13 filling operations*
	April 25-27, 2012	*VINASAT-2 filling operations*

Satellites and launch vehicle campaign final calendar

J-11	*Saturday April 28, 2012*	*JCSAT-13 integration on adaptor (ACU)*
J-10	*Monday April 30, 2012*	*JCSAT-13 transfer to Final Assembly Building (BAF)*
J-9	*Wednesday May 2, 2012*	*VINASAT-2 integration on adaptor (acu) - JCSAT-13 integration on Sylda*
J-8	*Thursday May 3, 2012*	*Fairing integration on Sylda - VINASAT-2 transfer to Final Assembly Building (BAF)*
J-7	*Friday May 4, 2012*	*VINASAT-2 integration on launcher*
J-6	*Saturday May 5, 2012*	*ESC-A final preparations and payloads control Upper composite integration with JCSAT-13 on launcher*
J-5	*Monday May 7, 2012*	*Satellite functional tests on launcher*
J-4	*Wednesday May 9, 2012*	*Launch rehearsal*
J-3	*Thursday May 10, 2012*	*Arming of launch vehicle*
J-2	*Friday May 11, 2012*	*Launch readiness review (RAL) and final preparation of launcher*
J-1	*Monday May 14, 2012*	*Roll-out from BAF to Launch Area (ZL), launch vehicle connections and filling of the EPC liquid helium sphere*
J-0	*Thursday May 15, 2012*	*Launch countdown including EPC and ESC-A filling with liquid*

3. Launch countdown and flight events

The countdown comprises all final preparation steps for the launcher, the satellites and the launch site. If it proceeds as planned, the countdown leads to the ignition of the main stage engine, then the two boosters, for a liftoff at the targeted time, as early as possible in the satellites launch window..
The countdown culminates in a synchronized sequence (see appendix 3), which is managed by the control station and onboard computers starting at T-7 minutes.
If an interruption in the countdown means that T-0 falls outside the launch window, then the launch will be delayed by one, two or more days, depending on the problem involved, and the solution developed.

Time	*Events*
- 11 h 30 mn	*Start of final countdown*
- 7 h 30 mn	*Check of electrical systems*
- 4 h 50 mn	*Start of filling of main cryogenic stage with liquid oxygen and hydrogen*
- 3 h 20 mn	*Chilldown of Vulcain main stage engine*
- 1 h 10 mn	*Check of connections between launcher and telemetry, tracking and command systems*
- 7 mn 00 s	*"All systems go" report, allowing start of synchronized sequence*
- 4 mn 00 s	*Tanks pressurized for flight*
- 1 mn 00 s	*Switch to onboard power mode*
- 04 s	*Onboard systems take over*
- 03 s	*Unlocking of guidance systems to flight mode*

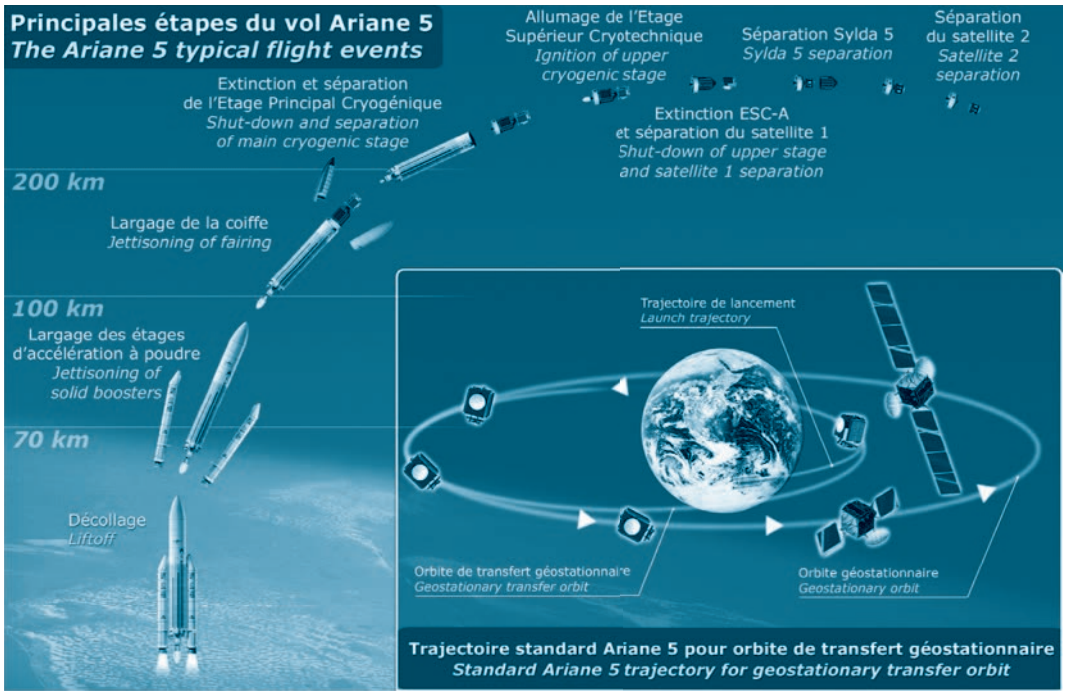
H0	*Ignition of the cryogenic main stage engine (EPC)*	*ALT (km)*	*V. rel. (m/s)*
+ 7,05 s	*Ignition of solid boosters*	*0*	*0*
+ 7,3 s	*Liftoff*	*0*	*0*
+ 12,6 s	*End of vertical climb and beginning of pitch rotation (10 seconds duration)*	*0,088*	*36,2*
+ 17,1 s	*Beginning of roll manoeuvre*	*0,33*	*72,8*
+ 2 mn 25 s	*Jettisoning of solid boosters*	*70,9*	*2002*
+ 3 mn 11 s	*Jettisoning of fairing*	*107,4*	*2181*
+ 7 mn 21 s	*Acquisition by Natal tracking station*	*199*	*4739*
+ 8 mn 54 s	*Shut-down of main cryogenic stage*	*201,1*	*6824*
+ 9 mn 00 s	*Separation of main cryogenic stage*	*201,1*	*6850*
+ 9 mn 04 s	*Ignition of upper cryogenic stage (ESC-A)*	*201,1*	*6853*
+ 13 mn 01 s	*Acquisition by Ascension tracking station*	*196,3*	*7427*
+ 18 mn 56 s	*Acquisition by Libreville tracking station*	*230,7*	*8206*
+ 23 mn 18 s	*Acquisition by Malindi tracking station*	*480,2*	*9082*
+ 25 mn 01 s	*Injection*	*669,9*	*9339*
+ 26 mn 35 s	*Separation of JCSAT-13 satellite*	*898,6*	*9148*
+ 35 mn 00 s	*Separation of Sylda 5*	*2635*	*7918*
+ 36 mn 01 s	*Separation of VINASAT-2 satellite*	*2881*	*7769*
+ 48 mn 30 s	*End of Arianespace Flight mission*	*6057*	*6222*

4. Flight trajectory of JCSAT-13 & VINASAT-2

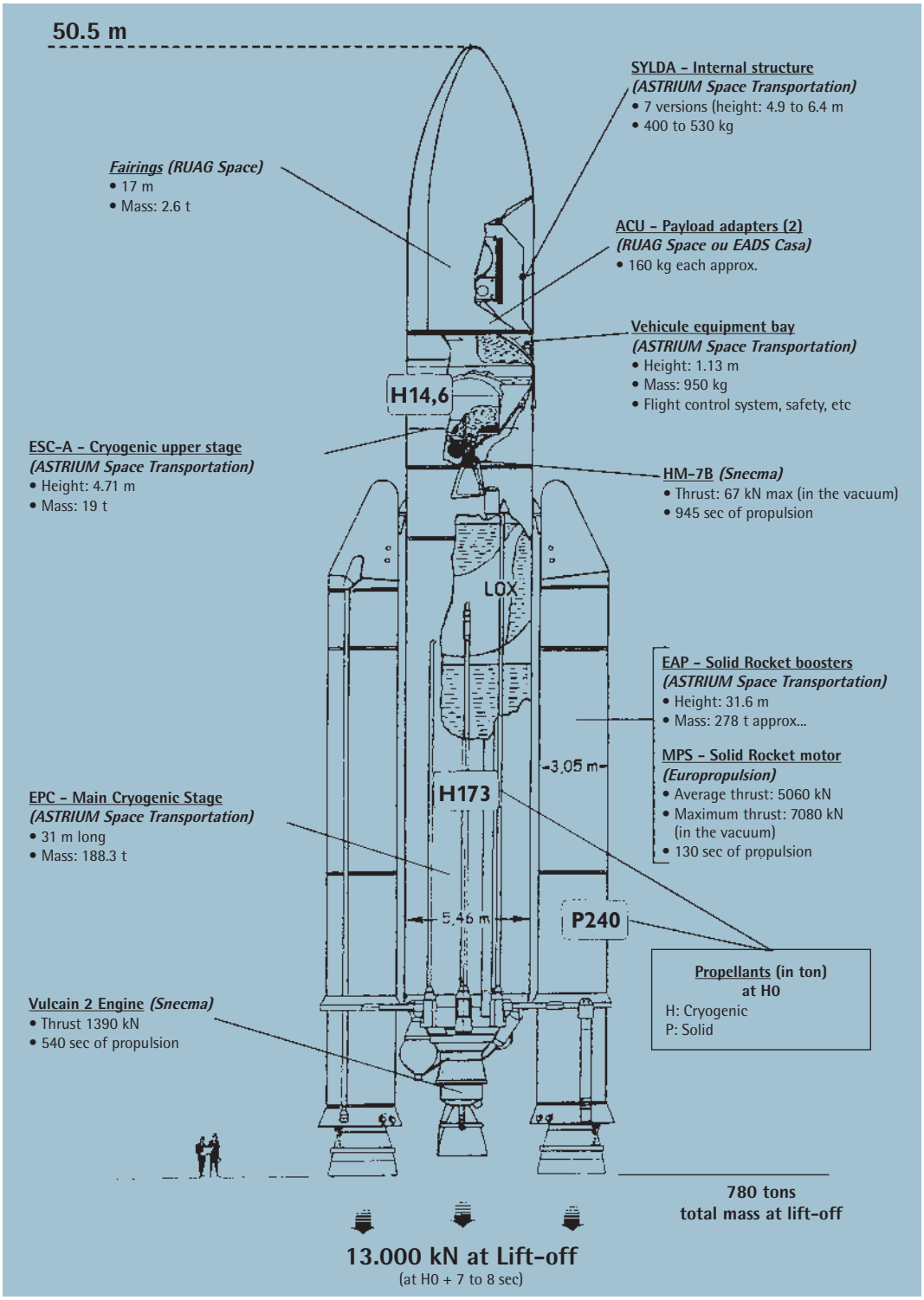
The launcher's attitude and trajectory are totally controlled by the two onboard computers, located in the Ariane 5 vehicle equipment bay (VEB).
7.05 seconds after ignition of the main stage cryogenic engine at T-0, the two solid-propellant boosters are ignited, enabling liftoff. The launcher first climbs vertically for 6 seconds, then rotates towards the East. It maintains an attitude that ensures the axis of the launcher remains parallel to its velocity vector, in order to minimize aerodynamic loads throughout the entire atmospheric phase, until the solid boosters are jettisoned.
Once this first part of the flight is completed, the onboard computers optimize the trajectory in real time, minimizing propellant consumption to bring the launcher first to the intermediate orbit targeted at the end of the main stage propulsion phase, and then the final orbit at the end of the flight of the cryogenic upper stage.
The main stage falls back off the coast of Africa in the Atlantic Ocean (in the Gulf of Guinea).

On orbital injection, the launcher will have attained a velocity of approximately 9339 meters/second, and will be at an altitude of about 670 kilometers.
The fairing protecting the JCSAT-13 and VINASAT-2 spacecraft is jettisoned shortly after the boosters are jettisoned at about T+191 seconds.

Standard Ariane 5 trajectory for geostationary transfer orbit



5. The Ariane 5-ECA (Industrial prime contractor: ASTRIUM Space Transportation)

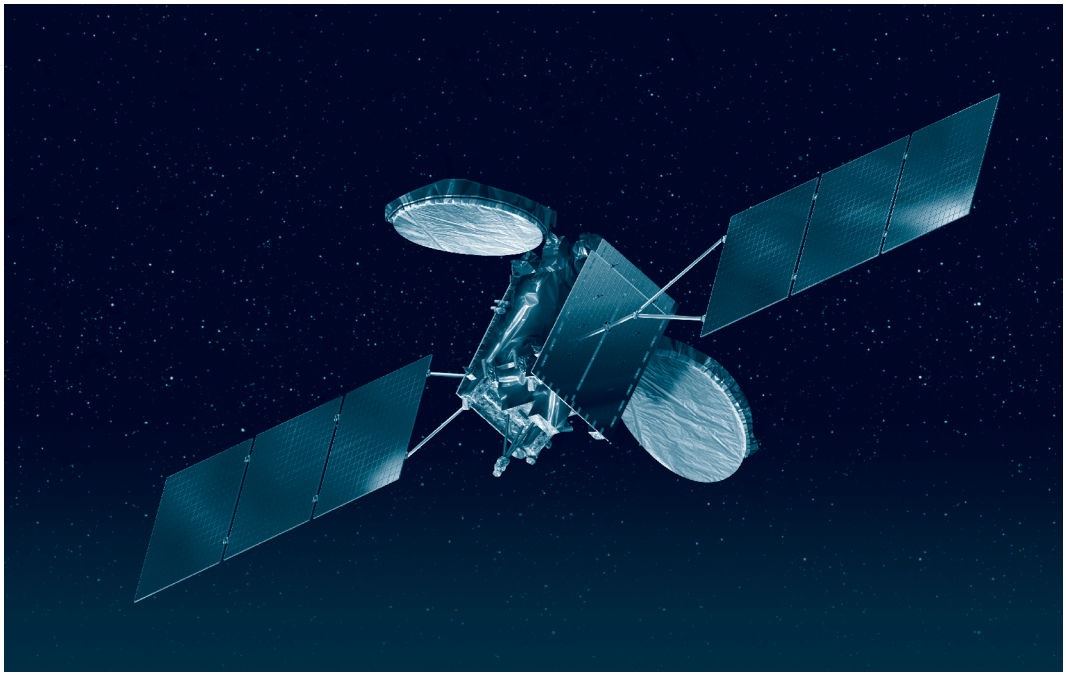


6. The JCSAT-13 satellite

Customer	*SKY Perfect JSAT Corporation (JAPAN)*
Prime contractor	*Lockheed Martin Commercial Space Systems*
Mission	*Direct to Home television (DTH) and Telecommunications*
Mass	*Total mass at lift-off 4,528 kg*
Stabilization	*3 axis stabilized*
Dimensions *Span in orbit*	*6.0 x 3.3 x 2.6 m* *27 m*
Platform	*A 2100 AX*
Payload	*44 Ku-band transponders*
On-board power	*11.9 kW (end of life)*
Life time	*15 years*
Orbital position	*124° East*
Coverage area	*Japan, Asia and Oceania*

Press Contact
Etsumi SUZUKI
SKY Perfect JSAT Corporation
Corporate Communications & Investor Relations Division
Phone : +81 3 5571 7600
E-mail : pr@sptvjsat.com

7. The VINASAT-2 satellite



Customer	*LOCKHEED MARTIN COMMERCIAL SPACE SYSTEMS (USA) for Vietnam Posts and Telecommunications Group (VNPT)*
Prime contractor	*Lockheed Martin Commercial Space Systems*
Mission	*Broadcasting and Telecommunications*
Mass	*Total mass at lift-off 2,969 kg*
Stabilization	*3 axis stabilized*
Dimensions *Span in orbit*	*4.4 x 1.9 x 1.8* *18.9 m*
Platform	*A 2100 A*
Payload	*24 Ku-band transponders*
On-board power	*7.6 kW (end of life)*
Life time	*15 years*
Orbital position	*131.8° East*
Coverage area	*Vietnam and neighbouring countries*

Press Contact
Dee Valleras
Manager, Communications & Public Affairs
Lockheed Martin Commercial Space Systems
Phone : (215) 497 4185 - Fax : (215) 497 4017
E-mail : dee.valleras@lmco.com

Appendix 1. Arianespace - JCSAT-13 & VINASAT-2 launch key personnel

In charge of the launch campaign			
Mission Director	*(CM)*	*Thierry WILMART*	*ARIANESPACE*
In charge of the launch service contract			
Program Director JCSAT-13	*(CP)*	*Thomas PANOZZO*	*ARIANESPACE*
Program Director VINASAT-2	*(CP)*	*Pierre - Yves BERTIN*	*ARIANESPACE*
In charge of JCSAT-13 satellite			
Satellite Mission Director	*(DMS)*	*Noriko MASUDA*	*SKY Perfect JSAT*
Satellite Program Manager	*(CPS)*	*Gregg MACDONALD*	*LMCSS*
Satellite Preparation Manager	*(RPS)*	*Roy WELLER*	*LMCSS*
In charge of VINASAT-2 satellite			
VINASAT-2 Program Manager	*(PM)*	*Pham MAI PHUONG*	*VNPT*
Satellite Mission Director	*(DMS)*	*Luis TERRAZAS*	*LMCSS*
Satellite Program Manager	*(CPS)*	*Richard ISAACS*	*LMCSS*
Satellite Preparation Manager	*(RPS)*	*Paul COLLINS*	*LMCSS*
In charge of the launch vehicle			
Launch Site Operations Manager	*(COEL)*	*Patrick LUCET*	*ARIANESPACE*
Ariane Production Project Manager	*(CPAP)*	*Olivier RICOUART*	*ARIANESPACE*
Launcher Production Quality Manager	*(RQLP)*	*Sebastien GASPARINI*	*ARIANESPACE*
Launch Campaign Quality Manager	*(CQCL)*	*Denis CORLAY*	*ARIANESPACE*
In charge of the Guiana Space Center (CSG)			
Range Operations Manager	*(DDO)*	*Antoine GUILLAUME*	*CNES/CSG*
Range Operations Deputy	*(DDO/A)*	*Jean-Marie BOURGEADE*	*CNES/CSG*

Appendix 2. Launch environment conditions

Acceptable wind speed limits at lift-off range from between 7.5 m/s to 9.5 m/s according to the wind direction. The most critical is a northerly wind. For safety reasons, the wind's speed on the ground (Kourou), and at a high altitude (between 10,000 and 20,000 m) is also taken into account.

Appendix 3. The synchronized sequence

The synchronized sequence starts 7 mn before ignition (T-0), it is primarily designed to perform the final operations on the launcher prior to launch, along with the ultimate checks needed following switchover to flight configuration. As its name indicates, it is fully automatic, and is performed concurrently by the onboard computer and by two redundant computers at the ELA 3 launch complex until T-4 seconds.
The computers command the final electrical operations (startup of the flight program, servocontrols, switching from ground power supply to onboard batteries, etc.) and associated checks. They also place the propellant and fluid systems in flight configuration and perform associated checks. In addition, it handles the final ground system configurations, namely:

- Startup of water injection in the flame trenches and jet guide (T-30 sec).
- Hydrogen aspiration for chilldown of the Vulcain engine in the jet guide (T-18 sec).
- Burnoff of hydrogen used for chilldown (T-5.5 sec).

At T-4 seconds, the onboard computer takes over control of final engine startup and lift-off operations:

- It starts the ignition sequence for the Vulcain main stage engine (T-0).
- It checks engine operation (from T+4.5 to T+7.3 sec).
- It commands ignition of the solid boosters for immediate lift-off at T+7.3 seconds.

Any shutdown of the synchronized sequence after T-7 mn automatically places the launcher back in its T-7 min configuration.

Appendix 4. Arianespace and the Guiana Space Center

Arianespace was founded in 1980 as the world's first launch Service & Solutions company. Today, Arianespace has 21 shareholders from ten European countries (including French space agency CNES with 34%, Astrium with 30%, and all European companies participating in the construction of Ariane launchers).
Since the outset, Arianespace has signed more than 350 launch contracts and launched 299 satellites. More than two-thirds of the commercial satellites now in service worldwide were launched by Arianespace. The company posted sales of 1013 million euros in 2011.

At January 1, 2012, Arianespace had 330 employees, working at the company's headquarters in Evry (near Paris), the Guiana Space Center in French Guiana, where the Ariane, Soyuz and Vega launch pads are located, and offices in Washington, D.C., Tokyo and Singapore.
Arianespace offers launch Service & Solutions to satellite operators from around the world, including private companies and government agencies. These Service & Solutions call on three launch vehicles:
- The Ariane 5 heavy launcher, operated from the Guiana Space Center in Kourou, French Guiana.
- The Soyuz medium launcher. Currently in operation at the Baikonur Cosmodrome in Kazakhstan and the Guiana Space Center.
- The Vega light launcher, launched also from the Guiana Space Center.

With its family of launchers, Arianespace won over half of the commercial launch contracts up for bid worldwide in the last two years. Arianespace now has a backlog of more than 40 satellites to be launched.

The Guiana Space Center: Europe's Spaceport

For over 30 years, the Guiana Space Center (CSG), Europe's Spaceport in French Guiana, has offered a complete array of facilities for rocket launches.
It mainly comprises the following:
- CNES/CSG technical center, including various resources and facilities that are critical to launch base operations, such as radars, telecom network, weather station, receiving sites for launcher telemetry, etc.
- Payload processing facilities (ECPU), in particular the S5 facility.
- Ariane, Soyuz and Vega launch complexes, comprising the launch zones and launcher integration buildings.
- Various industrial facilities, including those operated by Regulus, Europropulsion, Air Liquide Spacial Guyane and Astrium, which contribute to the production of Ariane 5 elements. A total of 40 European manufacturers and local companies are involved in operations.

Europe's commitment to independent access to space is based on actions by three key players: the European Space Agency (ESA), French space agency CNES and Arianespace.

ESA is responsible for the development of the Ariane, Soyuz an Vega programs at the Guiana Space Center. Once these launch systems are qualified, ESA will transfer responsibility to the operator Arianespace. ESA has helped change the role of the Guiana Space Center, in particular by funding the construction of the launch complexes, payload processing buildings and associated facilities. Initially used for the French space program, the Guiana Space Center has gradually become Europe's own spaceport, according to the terms of an agreement between ESA and the french government.
To ensure that the Spaceport is available for its programs, ESA takes charge of the lion's share of CNES/CSG fixed expenses, and also helps finance the fixed costs for the ELA launch complexes.

French space agency CNES plays several roles at the Space Center.
- It designs all infrastructures and, on behalf of the French government, is responsible for safety and security.
- It provides the resources needed to prepare the satellites and launcher for missions.

Whether during tests or actual launches, CNES is also responsible for overall coordination of operations. It collects and processes all data transmitted from the launcher via a network of receiving stations, to track Ariane, Soyuz and Vega rockets throughout their trajectories.
In French Guiana, Arianespace is the contracting authority in charge of operating the family of three launchers, Ariane, Soyuz and Vega.

Arianespace supervises the integration and functional checks of the Ariane launcher, built by Astrium as production prime contractor, in the Launcher Integration Building (BIL). It then carries out acceptance tests of the launcher at the same time as satellite preparations in the Payload Preparation Complex (EPCU), operated by the Guiana Space Center (CSG). Arianespace next oversees final assembly of the launcher and integration of satellites in the Final Assembly Building (BAF), followed by transfer of the launcher to Launch Zone No. 3 (ZL3), and then final countdown and liftoff from Launch Complex No. 3 (CDL3). Arianespace has created a top-flight team and array of technical resources to get launchers and satellites ready for their missions. Building on this unrivalled expertise and outstanding local facilities, Arianespace is now the undisputed benchmark in the global launch services market.