

Final launch of Ariane 5 GS completes busy year

December 21 2009



On 18 December 2009, an Ariane 5 GS launcher lifted off from Europe's Spaceport in French Guiana on a journey to place the French military reconnaissance satellite Helios-2B into Sun-synchronous polar orbit. Flight V193 was the seventh Ariane 5 launch of 2009 and used the last of the GS variant of the launcher. Credits: ESA / CNES / Arianespace / Optique vidéo du CSG

(PhysOrg.com) -- Last week, an Ariane 5 GS launcher lifted off from Europe's Spaceport in French Guiana on a journey to place the French military reconnaissance satellite Helios-2B into Sun-synchronous polar orbit. Flight V193 was the seventh Ariane 5 launch of 2009 and used the last of the GS variant of the launcher.

Liftoff of the 49th Ariane 5 mission took place at 17:26 CET/Paris (16:26 UTC; 13:26 [French Guiana](#)). The [satellite](#) was accurately injected

into its target orbit about 59 minutes later. The payload mass for this launch was 5954 kg; the satellite mass was 4200 kg, with payload adapters and dispensers making up the additional 1754 kg.

Flight timeline

The Ariane 5's cryogenic, liquid-propellant main engine was ignited first. Seven seconds later, the solid-propellant boosters were also fired, and the vehicle lifted off a fraction of a second later.

The solid boosters were jettisoned 2 min 22 sec after main engine ignition, and the fairing protecting the payload during the climb through Earth's atmosphere was discarded at 3 min 10 sec. The launcher's main engine was shut down at 9 min 32 sec; six seconds later, the main cryogenic stage separated from the upper stage and its payload.

Seven seconds after main stage separation, the engine of the storable-propellant upper stage was ignited to continue the journey. The engine was shut down at 26 min 15 sec into the flight.

At 59 min 19 sec after main engine ignition, Helios-2B separated from the upper stage. Ariane 5's flight operations were completed 1 hr 15 min 29 sec after [main engine](#) ignition.

An attempt to launch flight V193 on 9 December was aborted due to an anomaly being detected in the helium system of the main stage, which necessitated a roll-back to the Final Assembly Building for investigation and repair.

The Ariane 5 GS version uses the Vulcain 1 engine on its main stage, which has been replaced by Vulcain 2 on the two remaining versions of Ariane 5, ECA and ES. These two variants share a common lower composite consisting of the cryogenic main stage and the two solid

rocket boosters. The Ariane 5 ES uses a re-ignitable storable propellant upper stage whereas the Ariane 5 ECA is equipped with a cryogenic upper stage.

Provided by European Space Agency

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