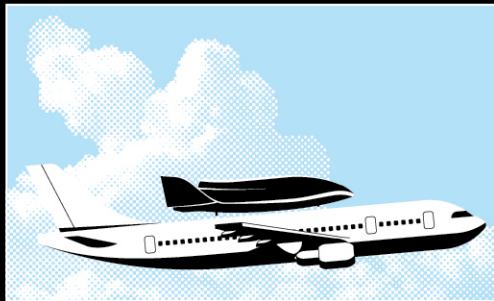
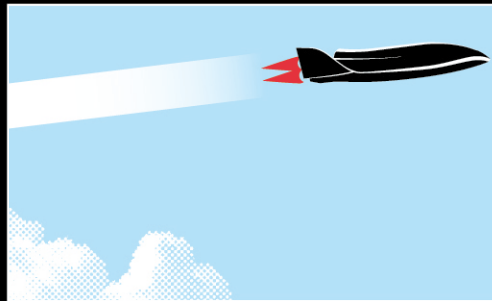


Soar, the Swiss space shuttle

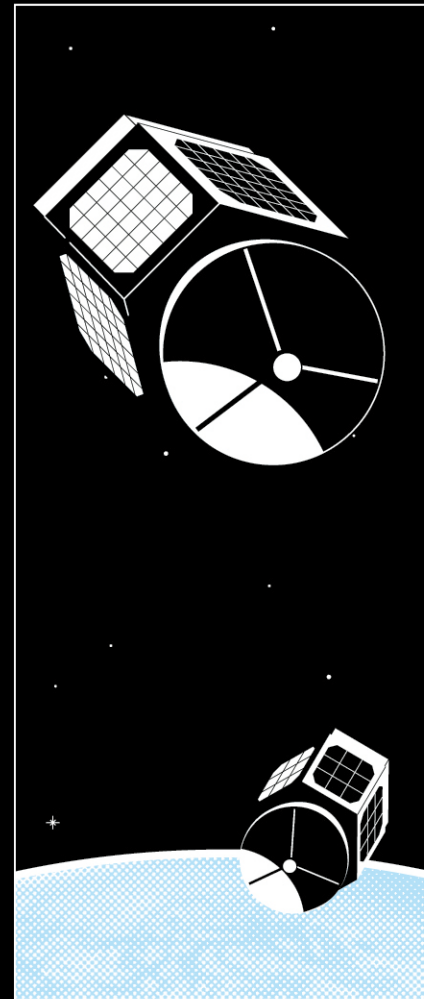
By Benjamin Bollmann. Illustrations by Francesco Muzzi



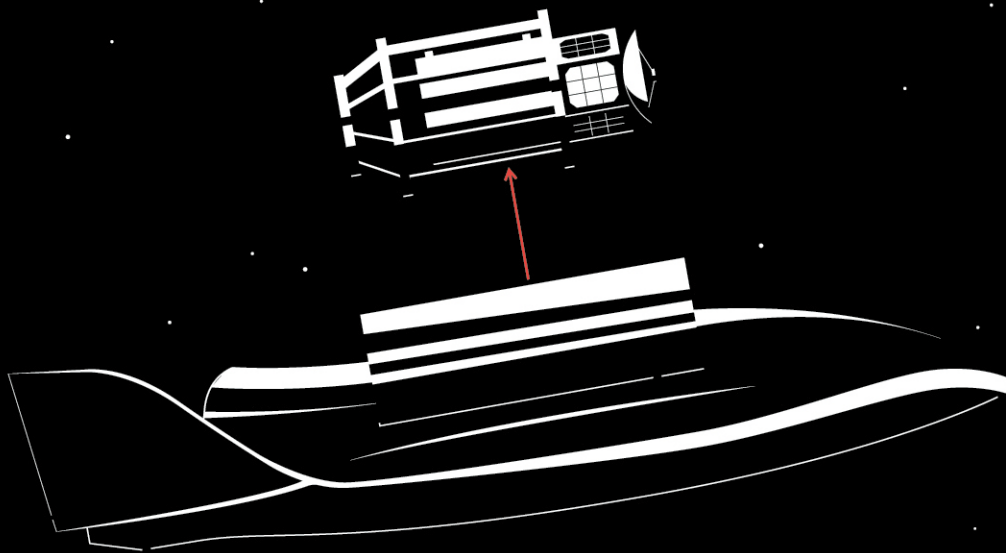
1 Swiss Space System (S3) has developed a shuttle that will put small satellites into orbit. It will be launched from the back of an Airbus flying at 10,000 m after which it will be controlled from Earth. The first commercial flights are scheduled for 2018. The company itself was set up in 2012 in Payerne, Vaud, and has been working with several dozen international partners to obtain the technology needed to create the shuttle. It will go public in 2015.



2 The Swiss shuttle, named Soar, is 15 m long and 10 m wide. It will travel at a maximum speed of 7,600 km/h and to a maximum altitude of 80 km. At such an altitude, the effects of the atmosphere are reduced almost to nothing. Its propulsion system is based on a modified Russian NK-39 rocket, part of the family that equipped the third stage of the Soyuz launcher. The French group Dassault Aviation will supply, amongst other things, the ground pilot station, which is based on the station used for flying the stealth combat drone Neuron.



4 S3 is targeting the rapidly expanding market for small satellites, particularly the demand for equipment for climate monitoring, microgravity research, satellite Wi-Fi, and even for keeping an eye on crops. It also aims to develop manned flight over the coming decade, by equipping the shuttle with a pressurised cabin to hold eight people with the long-term goal of offering high-speed intercontinental flights.



3 Soar will launch satellites into a low Earth orbit, i.e., a maximum altitude of 700 km. Once detached, its launcher stage will fall back to earth, burning up on re-entry rather than adding to the space clutter that also orbits the Earth.

The shuttle itself will be able to return to base by gliding into the atmosphere, meaning it can be reused for later missions. Its shape was inspired by the European space craft Hermes, a project that was abandoned in 1992.

