

Solar-powered plane makes successful maiden flight

April 7 2010, By BRADLEY S. KLAPPER , Associated Press Writer



The solar powered aircraft "Solar Impulse" (HB-SIA prototype) with test pilot Markus Scherdel on board starts its first flight at the military airport in Payerne, Switzerland, Wednesday, April 7, 2010. The prototype with the wingspan of a Boeing 747 and the weight of a small car started a two-hour test flight to examine if the plane can keep a straight trajectory. The Solar Impulse project aims to circumnavigate the world with an aircraft powered only by solar energy. (AP Photo/Laurent Gillieron, pool)

(AP) -- At the pace of a fast bicycle, a solar-powered plane took to the skies for its maiden flight Wednesday, passing an important test on the way to a historic voyage around the world - a journey that would not use a drop of fuel.

The Solar Impulse lifted off from a military airport at a speed no faster than 28 mph (45 kph) after briefly accelerating down the runway. It

slowly gained altitude above the green-and-beige fields and eventually faded into the horizon as villagers watched from the nearest hills.

"There has never been an airplane of that kind that could fly - never an airplane so big, so light, using so little energy. So there were huge question marks for us," said Bertrand Piccard, who is leading the project. In 1999, he copiloted the first nonstop round-the-world balloon flight.

During Wednesday's 90-minute flight, the plane completed a series of turns by gently tilting its black-and-white wings, which are as wide as those of a 747 jumbo jet. It climbed nearly a mile above the Swiss countryside. The weather was sunny, and there was little wind - obvious advantages for a plane so light and dependent on the sun.

Engineers on the \$93.5 million (euro70 million) project have been conducting short tests since December, taking the plane no higher than 2 feet and flying no more than 1,000 feet in distance. A night flight is planned before July, and then a second plane will be built based on the results of those tests.

That plane will be the one to attempt the round-the-world flight planned for 2012.

"The goal is to fly day and night with no fuel. The goal is to demonstrate the importance of renewable energies, to show that with renewable energies we can achieve impossible things," Piccard said.

Aviation experts said they see a future for renewable fuels in commercial aviation, but they predicted that biofuels from plants, algae or other sources were more likely to succeed than solar power.

"Solar energy does not have enough 'energy density' to power regular

airplanes that are supposed to fly somewhere in a reasonably short time," said Hans Weber, president of San Diego-based aviation consulting firm TECOP International, Inc. With solar planes, "the objective is only to stay aloft, not to go anywhere fast."

Test pilot Markus Scherdel said Wednesday's flight proved that the plane could take off and land safely and handles like a passenger jet.

"Everything worked as it should," he said.

While the next plane will have an outer shell, the current prototype has an open cockpit - sort of the aeronautic version of a convertible.

Scherdel said the frigid air didn't bother him and that it was "too cold for flies" that might otherwise have hit his face.

"I was wearing my special underwear and a windproof overall," he said. "I got shoes and gloves with built-in heating. You see, we thought of everything."

Using almost 12,000 solar cells, rechargeable lithium batteries and four electric motors, Piccard and co-pilot Andre Borschberg plan to take the plane around the world. They will make regular stops to switch places and stretch after long periods in the cramped cockpit - and to show off their aircraft.

The circumnavigation will take time. With the engines providing only 40 horsepower, the plane will perform like a moped in the sky, at an average flight speed of 44 mph (70 kph). The trip will be divided into five stages - keeping the plane in the air for up to five days at a time.

Solar flight isn't new, but Piccard's project is the most ambitious.

In 1980, a fragile ultra-lightweight experimental solar plane called the Gossamer Penguin flew short demonstration flights with one pilot on board. A bigger project called the Solar Challenger flew a single pilot from France to England in 1981 in a trip lasting more than five hours.

Solar plane technology recalls the early days of manned flight, and the slow ascent of the Solar Impulse was somewhat reminiscent of the Wright brothers' pioneering experiments in 1903.

Wilbur and Orville Wright also progressed from short hops to longer flights after 1905, reaching average speeds above 30 mph (48 kph) and only slightly slower than the Solar Impulse.

The loud clicks of the Swiss plane's four propellers added another hint of nostalgia. And designers acknowledged the same worries that preoccupied the first fliers.

"The first crucial question was: Do we have enough power to fly?" said Borschberg. "The second crucial thing was: Are we capable of landing this airplane, is it controllable?"

"It was two hours of deep emotion," he added, calling the test flight the high point of seven years of work on the project. "The airplane has landed but we have not yet landed."

Borschberg followed the flight in a helicopter. Below waited numerous people involved with the project and Piccard, who comes from a long line of adventurers. His late father, Jacques, was an oceanographer and engineer who plunged deeper beneath the ocean than any other man. His grandfather Auguste, also an engineer, was the first man to take a balloon into the stratosphere.

On Wednesday, the Solar Impulse reached an altitude of 5,500 feet.

After a gentle landing, Scherdel emerged from the cockpit with his arms raised, and the team broke open bottles of champagne.

When the plane attempts to circle the globe, the team will have to monitor conditions closely to ensure the aircraft follows the best weather. Ground crews will stay close to provide service at each stop, he said.

"Round-the-world will seem impossible until we do it," Piccard said.

"Today is an absolutely incredible milestone."

More information: Huge solar powered plane takes to the air (w/ Video) - www.physorg.com/news189322240.html

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Citation: Solar-powered plane makes successful maiden flight (2010, April 7) retrieved 9 April 2024 from <https://phys.org/news/2010-04-solar-powered-plane-successful-maiden-flight.html>

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