

# Historic solar flight marks first round-the-world journey

July 26 2016, by Aya Batrawy

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The Solar Impulse 2 plane lands in an airport in Abu Dhabi, United Arab Emirates, early Tuesday, July 26, 2016, marking the historic end of the first attempt to fly around the world without a drop of fuel, powered solely by the sun's energy. Solar Impulse Chairman and pilot Bertrand Piccard was at the controls of the single-seater when it landed at the Al Bateen Executive Airport. Piccard traded off piloting with co-founder Andre Borschberg in the epic journey that took more than a year to complete. (AP Photo/Aya Batrawy)

The world's first round-the-world flight to be powered solely by the sun's

energy made history on Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago.

Since its March 2015 take off, the Swiss-engineered Solar Impulse 2 has made 16 stops around the world without using a drop of fuel to demonstrate that using the plane's [clean technologies](#) on the ground can halve the world's energy consumption, save natural resources and improve quality of life.

After landing the plane, pilot Bertrand Piccard was greeted outside the cockpit by his Solar Impulse partner and fellow pilot Andre Borschberg. They hugged and pumped their fists in the air.

"The future is clean. The future is you. The future is now. Let's take it further," Piccard said, speaking through a microphone to applause and cheers from a crowd that included Prince Albert of Monaco.

The aircraft is uniquely powered by 17,248 solar cells that transfer energy to four electrical motors that power the plane's propellers. It runs on four lithium polymer batteries at night. The plane's wingspan stretches 236 feet (72 meters) to catch the sun's energy.

At around 5,070 pounds (2,300 kilograms), the plane weighs about as much as a minivan or mid-sized truck. An empty Boeing 747, in comparison, weighs 400,000 pounds (180,000 kilograms). To help steady it during takeoffs and landings, the plane was guided by runners and bicyclists.



The Solar Impulse 2 plane approaches to land at Al Bateen Executive Airport in Abu Dhabi, United Arab Emirates, on Tuesday, July 26, 2016. The world's first ever round-the-world flight to be powered solely by the sun's energy made history with its landing in the Emirati capital, where it first took off on an epic 22,000-mile (35,000 kilometer) journey more than a year ago (AP Photo/Adam Schreck)

Despite its historic mission, the Solar Impulse 2's journey was far from quick or problem-free.

The pilots faced a nine-month delay a year ago after the plane's batteries were damaged during a flight from Japan to Hawaii. It was also delayed for more than a week in Cairo ahead of its final flight to Abu Dhabi when Piccard fell ill, and due to poor weather conditions.

Over its entire mission, Solar Impulse 2 completed more than 500 flight

hours, cruising at an average speed of between 28 mph (45 kmh) and 56 mph (90 kmh). It made stops in Oman, India, Myanmar, China, Japan, the United States, Spain, Italy, Egypt and the United Arab Emirates. Its North American stops included California, Arizona, Oklahoma, Ohio, Pennsylvania and New York.

The carbon-fiber plane is a single-seater aircraft, meaning its two Swiss pilots—Piccard and Borschberg— had to take turns flying solo for long days and nights. To calm their minds and manage fatigue during the long solo flights, Borschberg practiced yoga and Piccard self-hypnosis.

In a statement this week, Borschberg said it is no longer a question of whether it's possible to fly without fuel or polluting emissions.



Solar Impulse 2 pilots Bertrand Piccard, left, and Andre Borschberg speaks with the media as they celebrate the landing of their plane at an airport in Abu Dhabi,

United Arab Emirates, early Tuesday, July 26, 2016. The world's first round-the-world flight to be powered solely by the sun's energy made history Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago.(AP Photo/Aya Batrawy)

"By flying around the world thanks to renewable energy and clean technologies, we have demonstrated that we can now make our world more energy efficient," he said.

The pilots would rest a maximum of 20 minutes at a time, repeating the naps 12 times over each 24-hour stretch.

It took 70 hours for Piccard to cross the Atlantic Ocean, which was the first by a solar-powered airplane.

Borschberg's flight over the Pacific Ocean at 118 hours—about five days and five nights—shattered the record for the longest flight duration by an aircraft flying solo.

Neither pilot was able to stand in the cockpit while flying, but the seat reclined for stretching and its cushion could be removed for access to a toilet. Goggles worn over the pilot's eyes flashed lights to wake him up while armbands placed underneath their suits buzzed when the plane was not at flying level.





A solar-powered plane, Solar Impulse 2, approaches to land at Al Bateen Executive Airport in Abu Dhabi, United Arab Emirates, on Tuesday, July 26, 2016. The world's first ever round-the-world flight to be powered solely by the sun's energy made history with its landing in the Emirati capital, where it first took off on an epic 22,000-mile (35,000 kilometer) journey more than a year ago. (AP Photo/Adam Schreck)

The [plane](#) also did not have a pressurized cockpit so Borschberg and Piccard could feel changes in temperature. The pilot's blood oxygen levels were monitored and sent back to ground control in Monaco.

Hot temperatures in the Middle East this time of year cause thermals and turbulence that forced Piccard to fly longer periods of time with an oxygen mask as he piloted the last leg of the trip from Cairo to Abu Dhabi in roughly three nights and two days.

Piccard, a psychiatrist, is the son of undersea explorer Jacques Piccard

and a grandson of balloonist Auguste Piccard. In 1999, he became the first person to circumnavigate the globe non-stop in a hot air balloon.

Borschberg, an engineer and graduate of Massachusetts Institute of Technology, is also an entrepreneur. He launched the Solar Impulse project in 2003 with Piccard.

The project is estimated to cost more than \$100 million. The UAE-based Masdar, the Abu Dhabi government's clean-energy company, was a main sponsor of the flight. There were more than 40 additional sponsors, including Omega, Belgian chemical company Solvay, Swedish-Swiss automation corporation ABB, Swiss manufacturer Schindler, Google and Moët Hennessey, among others.



In this July 26, 2016 photo provided by Solar Impulse, pilots Bertrand Piccard, right, and Andre Borschberg celebrate the landing of their plane at an airport in Abu Dhabi, United Arab Emirates, early Tuesday, July 26, 2016. The world's

first round-the-world flight to be powered solely by the sun's energy made history Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago. (Christophe Chammartin/Rezo/Solar Impulse via AP)



The Solar Impulse 2 plane lands in an airport in Abu Dhabi, United Arab Emirates, early Tuesday, July 26, 2016, marking the historic end of the first attempt to fly around the world without a drop of fuel, powered solely by the sun's energy. Solar Impulse Chairman and pilot Bertrand Piccard was at the controls of the single-seater when it landed at the Al Bateen Executive Airport. Piccard traded off piloting with co-founder Andre Borschberg in the epic journey that took more than a year to complete. (AP Photo/Aya Batrawy)





Bertrand Piccard, right, and Andre Borschberg, left, the pilots of the Solar Impulse 2 plane, embrace in Abu Dhabi, United Arab Emirates, on Tuesday, July 26, 2016. The world's first round-the-world flight to be powered solely by the sun's energy made history on Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago. (AP Photo/Adam Schreck)



The Solar Impulse 2, bottom, taxis after landing at Al Bateen Executive Airport in Abu Dhabi, United Arab Emirates, Tuesday, July 26, 2016. The world's first ever round-the-world flight to be powered solely by the sun's energy made history with its landing in the Emirati capital, where it first took off on an epic 22,000-mile (35,000 kilometer) journey more than a year ago (AP Photo/Adam Schreck)



Bertrand Piccard, right, and Andre Borschberg, left, the pilots of the Solar Impulse 2 plane, celebrate in Abu Dhabi, United Arab Emirates, Tuesday, July 26, 2016. The world's first round-the-world flight to be powered solely by the sun's energy made history on Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago. (Peter Klaunzer/Keystone via AP)



The Solar Impulse 2 plane is seen with an Emirati flag at Al Bateen Executive Airport after landing in Abu Dhabi, United Arab Emirates, on Tuesday, July 26, 2016. The world's first ever round-the-world flight to be powered solely by the sun's energy made history with its landing in the Emirati capital, where it first took off on an epic 22,000-mile (35,000 kilometer) journey more than a year ago (AP Photo/Adam Schreck)



The Solar Impulse 2 plane lands in an airport in Abu Dhabi, United Arab Emirates, early Tuesday, July 26, 2016, marking the historic end of the first attempt to fly around the world without a drop of fuel, powered solely by the sun's energy. The epic 22,000-mile (35,000km) journey began more than a year ago in the same spot where it landed at the Al Bateen Executive Airport. The Swiss-engineered Si2 has made 16 stops across the world to demonstrate that using the plane's clean technologies on the ground can save natural resources and improve quality of life. (AP Photo/Aya Batrawy)





Bertrand Piccard, left, and Andre Borschberg, right, the pilots of the Solar Impulse 2 plane, celebrate the completion of their round-the-world journey in Abu Dhabi, United Arab Emirates, on Tuesday, July 26, 2016. The world's first round-the-world flight to be powered solely by the sun's energy made history on Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago. (AP Photo/Adam Schreck)



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The Solar Impulse 2 plane flies over Abu Dhabi, United Arab Emirates, shortly before landing on Tuesday, July 26, 2016. The world's first ever round-the-world flight to be powered solely by the sun's energy made history with its landing in the Emirati capital, where it first took off more than a year ago. (AP Photo/Adam Schreck)



Bertrand Piccard, right, and Andre Borschberg, left, the pilots of the Solar Impulse 2 plane, celebrate in Abu Dhabi, United Arab Emirates, Tuesday, July 26, 2016. The world's first round-the-world flight to be powered solely by the sun's energy made history on Tuesday as it landed in Abu Dhabi, where it first took off on an epic 25,000-mile (40,000-kilometer) journey that began more than a year ago. (Peter Klaunzer/Keystone via AP)

**More information:** Solar Impulse: [www.solarimpulse.com](http://www.solarimpulse.com)

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