



SOLARIMPULSE

EXPLORATION
TO CHANGE
the **WORLD** *to be continued...*

An idea born in Switzerland

MAIN PARTNERS



OFFICIAL PARTNERS



SOLAR IMPULSE AN AMBASSADOR FOR A CLEAN FUTURE

One could easily imagine oneself in a Jules Verne novel: a team wanting to promote renewable energies sets off around the world in a solar airplane, aiming to fly without fuel or pollution...

A new utopia? A great science fiction scenario? On the contrary, an innovative technological challenge! A project ambitious enough to arouse the emotions and unleash passions: to harness clean and renewable energies and use them freely to fly day and night.

Is it possible to invent a more responsible future? The only way to find out is to try... with the necessary means. By writing new pages of aviation history using solar energy, Solar Impulse is demonstrating the enormous potential of clean technologies for energy saving and renewable energy production.



H.S.H. Prince Albert II of Monaco
A technological and human adventure that encapsulates the challenges of the 21st century and shows change is possible.



James Cameron
A great way to attract attention to the issue of solar energy.



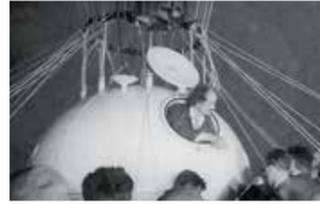
“A WEAPON [...] TO SHOW
THE NEED TO POWER
OUR WORLD ON CLEAN
ENERGY” SIR RICHARD BRANSON





STRATOSPHERIC BALLOON FNRS

Auguste Piccard
Invention of the pressurized cabin and first ascent into the stratosphere in 1931, reaching an altitude of 16,000 m/52,000 feet.



BATHYSCAPHE TRIESTE

Jacques Piccard
The construction of the bathyscaphe (invented by Auguste) and deepest dive ever to the bottom of the Mariana Trench at 10,916 m/36,000 feet.



BREITLING ORBITER 3 BALLOON

Bertrand Piccard
First non-stop balloon flight around the world, and the longest flight in distance and duration in aviation history 45,000 km/27,900 miles in 20 days



PIONEERING SPIRIT

EXPLORING THE UNKNOWN

With each of their great “firsts”, the adventurers of the last century constantly pushed back the limits of the impossible. Today, the drive to make new discoveries must go on, with the aim of improving quality of life on our planet.

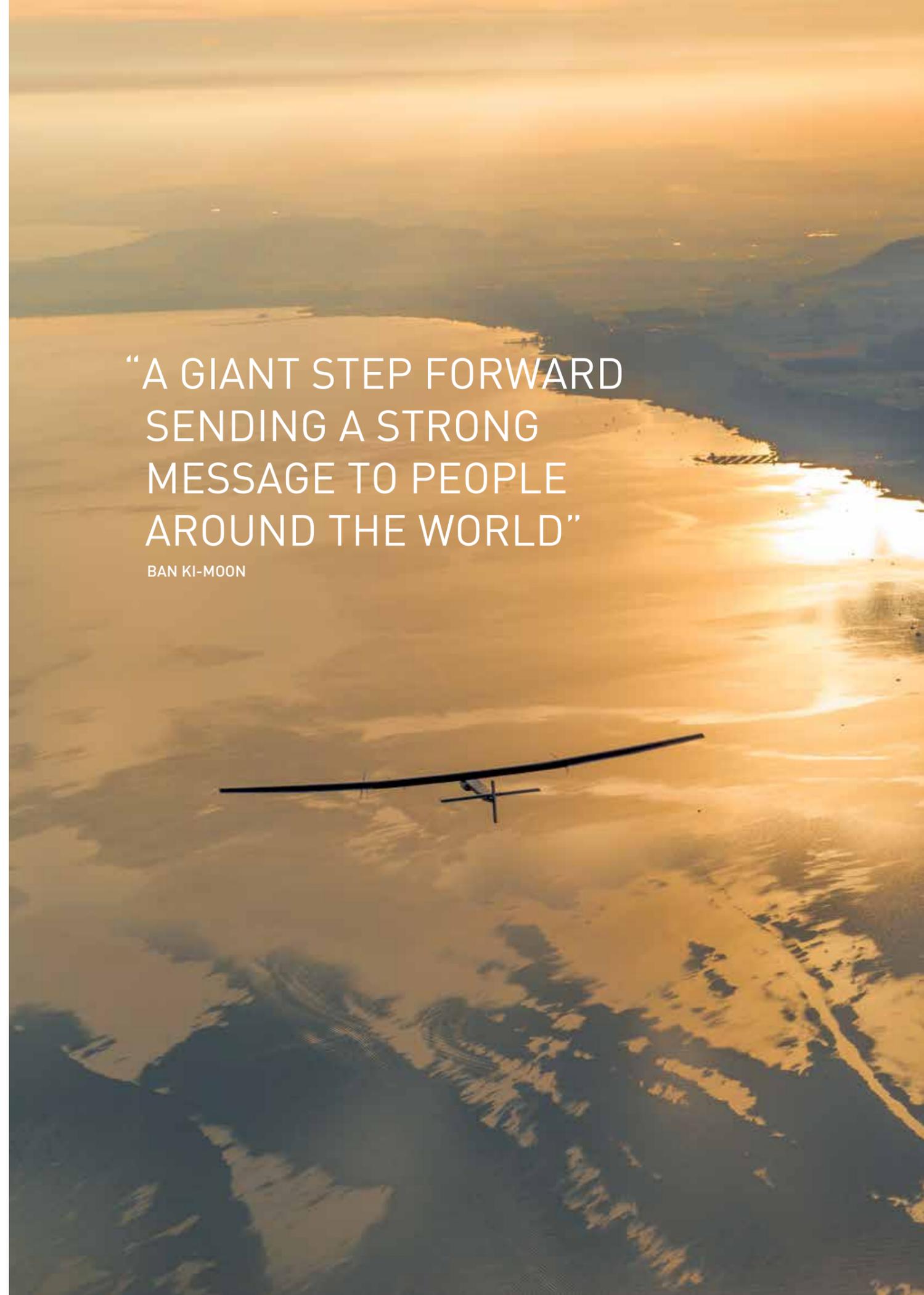
“The question now is not so much whether humans can go even further afield and populate other planets, but rather how to organize things so that life on Earth becomes more worthy of living.” wrote Auguste Piccard in 1931.

In line with the Piccard Family tradition of scientific exploration and protection of the environment, Solar Impulse wants to demonstrate that clean technologies can achieve impossible goals. If an airplane can fly day and night with no fuel, everybody could use these same technologies on the ground to save natural resources.

One of our ambitions with Solar Impulse is to challenge conventional thinking to inspire innovation, hope and action among citizens and key opinion leaders.

“A GIANT STEP FORWARD
SENDING A STRONG
MESSAGE TO PEOPLE
AROUND THE WORLD”

BAN KI-MOON



THE PILOTS

THE FLYING EXPLORER

In an unpressurized and unheated cockpit for very long flight durations, will have to demonstrate outstanding endurance and vigilance in spite of extreme conditions.



BERTRAND PICCARD

A medical doctor, explorer and lecturer, achieved the first ever non-stop Round-the-World balloon flight. Initiator of Solar Impulse, he brought together the partners to fund this project. Linking science with adventure to promote clean technologies, he develops the project's philosophy and outlines its symbolic and political reach.



ANDRÉ BORSCHBERG

An engineer by education, a graduate of Massachusetts Institute of Technology and an entrepreneur, André Borschberg has solid experience in creating and managing companies, as well as in flying. As co-founder of Solar Impulse, his passion for aviation and his interest in innovative solutions have led him to develop the strategy to design and build the Solar Impulse airplanes.

THE SYNERGY BETWEEN THESE TWO MEN IS A KEY SUCCESS FACTOR OF THE PROJECT AS WELL AS AN APPEALING HUMAN STORY



André by Bertrand
I, who have always done things by intuition and imagination, found myself beside an entrepreneur with an impressive capacity to work and think ahead. Our association made the perfect equation: 1 + 1 = 3 which resulted in Solar Impulse.

Bertrand by André
Bertrand is a pioneer, but not a dreamer. He has a disconcerting way of thinking: Always going beyond common assumptions. But isn't that the only way to reach the impossible?



Human endurance for a flight lasting 5 consecutive days and nights

Tailor-made autopilot incorporating a flight-envelope monitoring system capable of alerting the pilot through vibrations on his arms

Tests of vigilance carried out 4 times a day

Fatigue management through self-hypnosis and meditation techniques

Daily requirement for nourishment
2.4 kg (5.2 lbs.) of food, 2.5l (84.5 oz.) of water and 1l (33.8 oz.) of sports drinks

Intelligent nylon fiber used in pilot's clothing for a stable body temperature

Resting strategy about 12x20 mins during a 24 h cycle over unpopulated areas

Living space of 3.8 m³ fitted with a couchette seat with integrated toilet

Live satellite connection to the Mission Control Center

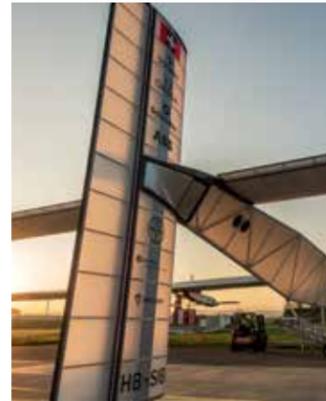
THE PLANE

FLYING LABORATORY

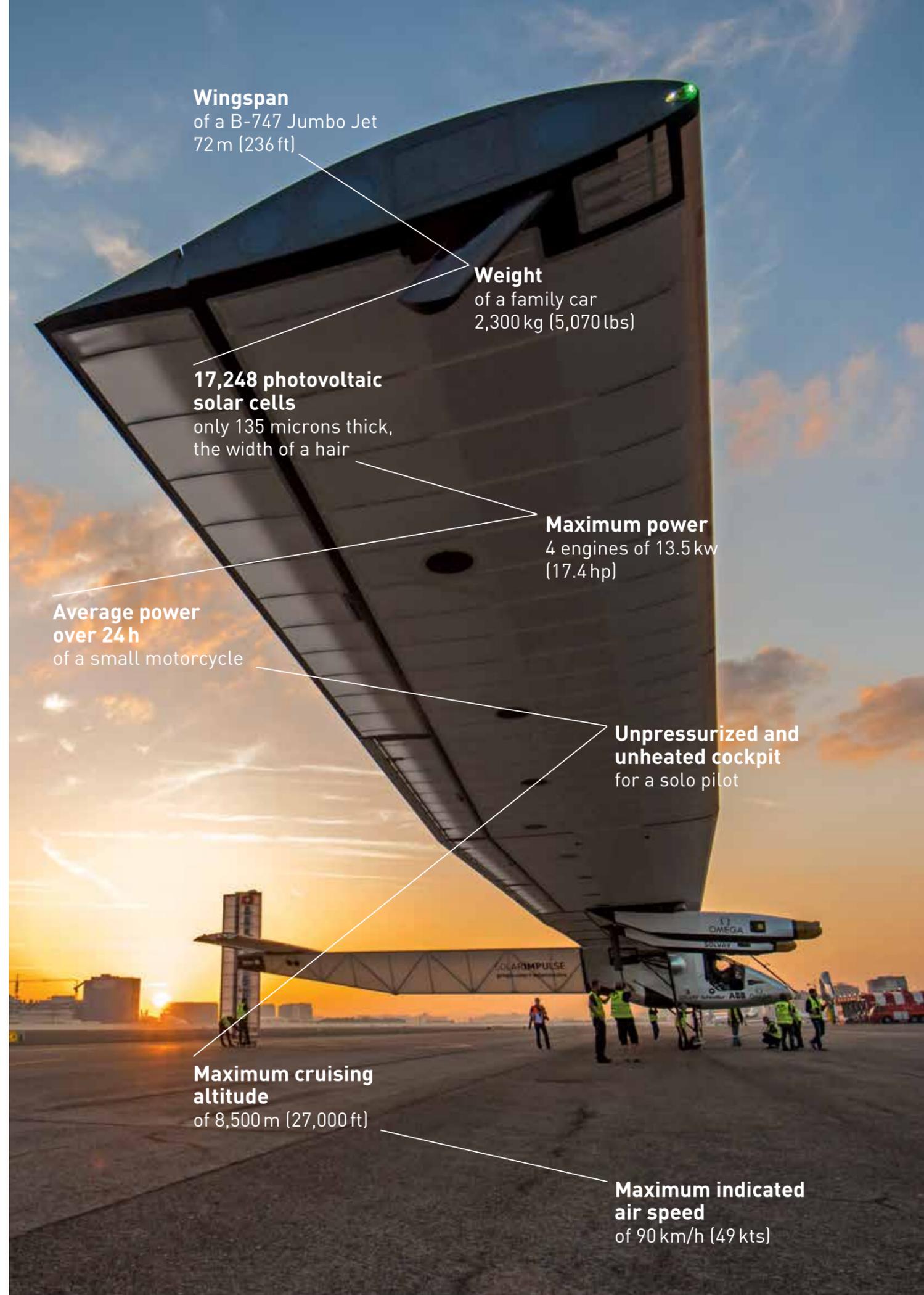
What major civil and military aircraft makers thought impossible has been achieved by the ingenuity of the Solar Impulse team.



André Borschberg
Between the vision and its implementation, there are numerous challenges to be met. However, it is extremely important to transform ideas into reality.



A REVOLUTION
A MAJOR ADVANCE
IN MATERIALS,
LIGHTWEIGHT
TECHNOLOGY
AND ENERGY
EFFICIENCY
DEMONSTRATING
THE POTENTIAL
OF CLEAN
TECHNOLOGY



Wingspan
of a B-747 Jumbo Jet
72m (236ft)

Weight
of a family car
2,300 kg (5,070 lbs)

17,248 photovoltaic solar cells
only 135 microns thick,
the width of a hair

Maximum power
4 engines of 13.5 kw
(17.4 hp)

Average power over 24 h
of a small motorcycle

Unpressurized and unheated cockpit
for a solo pilot

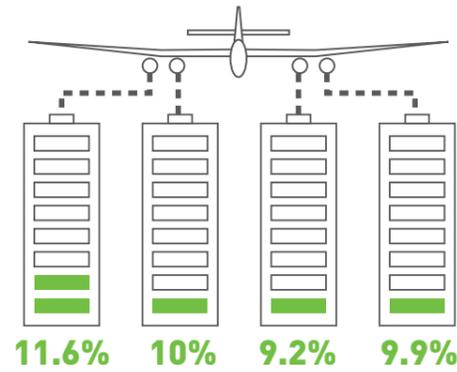
Maximum cruising altitude
of 8,500 m (27,000 ft)

Maximum indicated air speed
of 90 km/h (49 kts)

THE MILESTONES

AROUND THE WORLD WITH NO FUEL

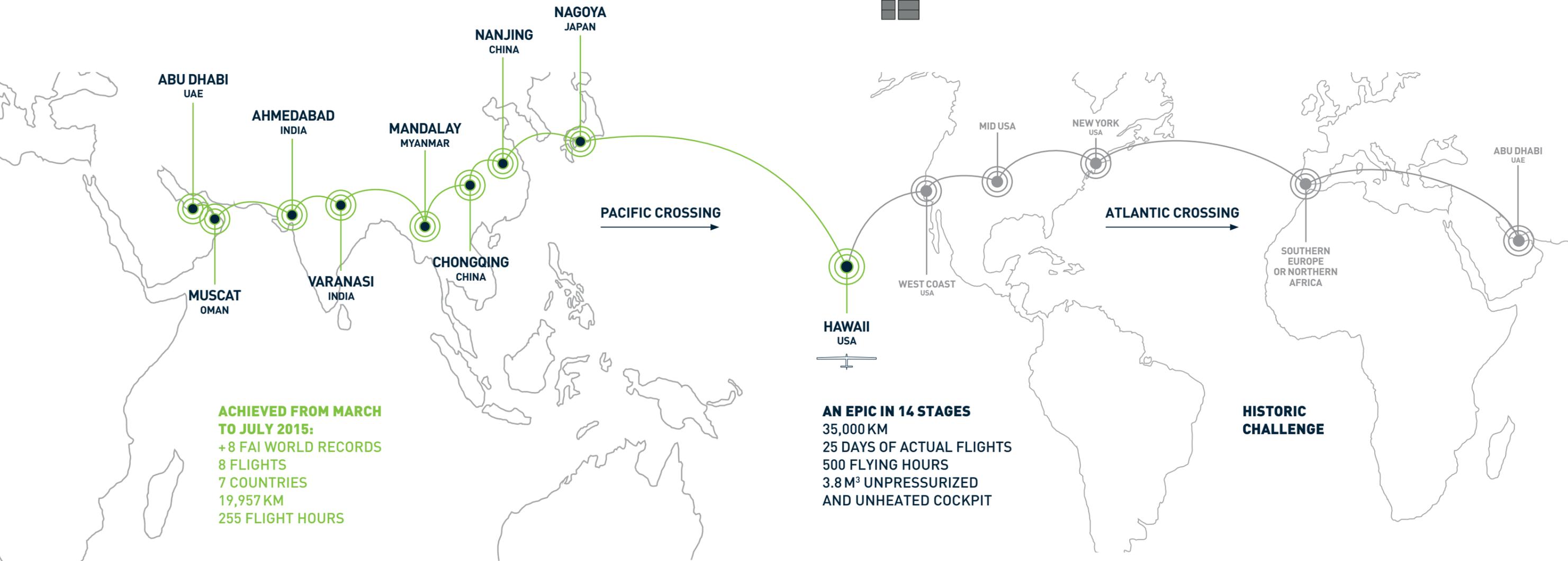
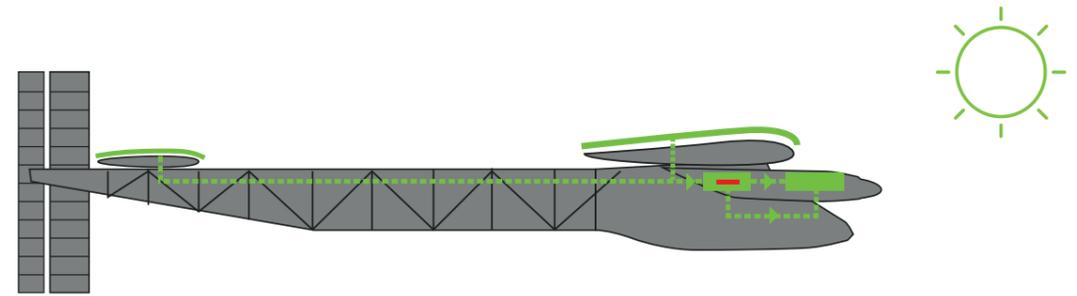
35,000 km only powered by solar energy from Abu Dhabi, our departure and arrival Host City, to Oman, India, Myanmar, China, Japan, U.S.A, back to Europe and Abu Dhabi. As with all great firsts, there are no benchmarks. Solar Impulse 2 will have to do what no airplane has ever done before: fly days and nights without using any fuel to cross oceans from one continent to the next. Strategies have to be invented from scratch.



BATTERY CHARGE STATE ON ARRIVAL IN HAWAII AFTER 117 H 52 MIN / 8,924 KM

MISSION CONTROL CENTER

- CAPCOM** is responsible for direct voice communications with the pilot.
- FLIGHT DIRECTOR** manages the team, and together with the pilot, takes the main strategic decisions.
- MISSION ENGINEERS** draw up the flight plan and monitor the aircraft's technical data.
- MATHEMATICIANS** calculate the flight parameters, taking into account meteorological data, amount of sunshine and air traffic restrictions.
- METEOROLOGISTS** analyze the weather forecasts to find a favorable routing for the flight.
- AIR TRAFFIC CONTROLLERS** coordinate the flight trajectory with regional control centers.





LEG 1 /

ABU DHABI TO MUSCAT

READY FOR TAKE OFF!

After months of intense preparation, training and simulations, Solar Impulse 2 was ready to attempt the first solar flight around the world. On 9 March 2015, André Borschberg took off at Si2's controls for the first stage of this round-the-world odyssey. Bertrand Piccard joined him in Oman, took over the controls and continued the journey across the Arabian Sea. The two of them then took turns flying this single-seat experimental prototype with virtually unlimited endurance. As they encountered new horizons and each staging post dotted along their way, a whole team was beside them sharing the epic challenge. Their job: to anticipate and develop strategies, to prepare, track and receive the aircraft, and not least to communicate and spread news about the venture.



Richard Branson
Congrats Solar Impulse, beating Virgin GlobalFlyer record non-stop solo flight without refuelling. Huge step forward.
8:16PM - 10 Mar 2015



Leonardo DiCaprio
Check out the record breaking attempt to circumnavigate the globe via the solar-powered plane Solar Impulse.



Kofi Annan
Good luck to Bertrand Piccard and André Borschberg for their 1st round the world Solar Flight.
6:30PM - 18 May 2015



Pilot André Borschberg	Flights 1/14	Flight Time 13h01m	Distance 772 km	Max Altitude 6,383 m	Flight Simulations 300	Batteries Charge at Arrival 36.9%	Solar Energy Produced 383 kWh



"SOLAR-POWERED PLANE BEGINS HISTORIC AROUND-THE-WORLD FLIGHT"

CBS SAN FRANCISCO - CBS LOCAL

André Borschberg
I see technology changing much faster than we are able to think. We seem to be constantly behind what is possible. The challenge is to build up the spirit that lets us develop in line with pace of technology.



André Borschberg
The Omanis gave us an extraordinary welcome dressed in white dishdashas, with colorful turbans and ceremonial daggers at the waist, contrasting with our prototype's futuristic technology.



Pilot Bertrand Piccard	Flights 2/14	Flight Time 15 h 20 m	Distance 1,593 km	Max Altitude 8,874 m	Flight Simulations 270	Batteries Charge at Arrival 27.6%	Solar Energy Produced 304 kWh	FAI World Records 2

Bertrand Piccard
Sunset above the meanders of a Pakistanese river after crossing the Arabian Sea.
6:14PM - 10 Mar 2015



LEG 2 /

MUSCAT TO AHMEDABAD

AN ENTHUSIASTIC CROWD

During this leg, Bertrand flew across the Arabian Sea and part of Pakistan, before finally performing a holding pattern near Ahmedabad while he waited for permission to land. It wasn't by chance that our plane chose this region as a staging-post to spread its message on clean technologies. Gujarat actively promotes sustainable development, generating about 15% of India's renewable energy. It's India's lead state for solar installations. This was reflected in the enthusiasm and curiosity shown by the thousands of Indian people flocking to the entrance of the tent to see Si2. Most of them had to wait for hours to take pictures of themselves standing proudly beside this aircraft of the future.



“SOLAR-POWERED PLANE TAKES OFF FROM OMAN, HEADS TO INDIA”

HERALD TRIBUNE



Bertrand Piccard
Tonight, for the first time, a solar airplane lands in India!
8:16PM - 10 Mar 2015





Pilot André Borschberg	Flights 3/14	Flight Time 13h 15m	Distance 1,170 km	Max Altitude 5,182 m	Flight Simulations 250	Batteries Charge at Arrival 37.1%	Solar Energy Produced 428 kWh

LEG 3 /

AHMEDABAD TO VARANASI

NIGHT-STOP IN A HOLY CITY

“Imagine energy reserves increasing during flight! Si2’s batteries were only half full when I took off this morning – and now they’re fully charged for tomorrow’s flight”, exclaimed André on landing in Varanasi, having thanked the Indian air traffic controllers for their excellent cooperation. A night’s stopover in the holy city, and an opportunity for André to give thanks for life at a prayer and blessing ceremony by the Ganges. The warrior could rest for a few hours. Bertrand and the team were already busy preparing for the next day’s flight. No time that evening to celebrate the b-day of our Managing Director Gregory Blatt!



Swisscom AG
Solar powered around the world! We support Solar Impulse, because we believe in renewable energy.
3:08PM - 18 Mar 2015

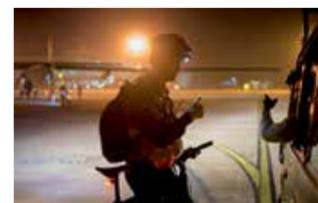


Bertrand Piccard
Schools are coming today to visit Solar Impulse. Great to see so many children inspired with a smile on their face.



“AFTER 28-DAY BREAK,
SOLAR PLANE BACK
IN QUEST OF
LONGEST FLIGHT”

THE TIMES OF INDIA



Solvay
We are proud to stand side-by-side with Solar Impulse for its RTW without using a single drop of fuel.
11:59AM - 9 Mar 2015



Pilot	Flights	Flight Time	Distance	Max Altitude	Flight Simulations	Batteries Charge at Arrival	Solar Energy Produced	World Records
Bertrand Piccard	4/14	13 h 29 m	1,536 km	8,230 m	400	32.1%	397 kWh	1



Solar Impulse
Fantastic Myanmar spirit on the runway! All waiting for Bertrand Piccard to land in less than 2 hours!
8:16PM - 10 Mar 2015



Gisele Bündchen
Congratulations! Solar Impulse not only an historic 1st in aviation, but also in energy & clean tech.

"HERE COMES THE SUN-POWERED PLANE"

THE MYANMAR TIMES

LEG 4 / VARANASI TO MANDALAY

GLORIOUS LANDSCAPES... AND WELCOME!

"Behind me lie the Bay of Bengal and the Meghna Delta, where floodplains inter-spense with meanders to create one of the most beautiful sights nature can offer. I flew along at over 200 km/h thanks to one of my friendly jet-streams. And before me lies a country that rejoices in discovering that clean technologies and solar energy can be a source of social cohesion, peace and economic development." Bertrand made two consecutive flights – from India to Mandalay, and then on to China. He was looking forward to flying over the local temples at daybreak, but departure was brought forward to 3.30 a.m. – in inky darkness. "The sight of all the floodlit temples, like specks of gold scattered along my flight-path, quickly made me forget my disappointment and offered me an even more spectacular sight than by day."



Solar Impulse
President U Thein Sein attending the Si2 event.



ABB
With ABB's help, Solar Impulse and solar electricity are coming to Myanmar.





Pilot Bertrand Piccard	Flights 5/14	Flight Time 20h 29m	Distance 1,636 km	Max Altitude 8,634 m	Flight Simulations 750	Batteries Charge at Arrival 35.3%	Solar Energy Produced 440 kWh

LEG 5 /
MANDALAY TO CHONGQING
FIRST SOLAR
WINGS OVER
CHINA

The first solar airplane ever to enter China. Flying above the mountainous Chinese provinces of Yunnan and Sichuan required the pilot to perform a steep climb at the beginning of the flight. As he had to fly continuously at high altitude, facing temperatures as low as -20°C, pilot Bertrand Piccard had to wear an oxygen mask in the 3.8m³ unpressurized cockpit. In addition, tackling the strong low-level winds in Chongqing made this leg one of the most challenging since the start of the round-the-world flight. No headwind could have prevented Bertrand and André from telling the 1,600 students of Bashu Secondary School about their adventure and their passion. Yet the weather was going to impose its law and make them wait there for several weeks.



Twitter Bertrand Piccard
It is always an immense pleasure to meet with schools in the countries we visit.
9:51AM - 31 Mar 2015



Twitter SwissRe Corporate Solutions
We share in Solar Impulse's mission about renewable energy and sustainability in China.
5:46PM - 21 Apr 2015



Twitter Schindler Elevator
The Solar Impulse mission proves that when we work together, big ideas can change the world.





Pilot Bertrand Piccard	Flights 6/14	Flight Time 17 h 22 m	Distance 1,384 km	Max Altitude 4,270 m	Flight Simulations 1,300	Batteries Charge at Arrival 25.7%	Solar Energy Produced 325 kWh

LEG 6 / CHONGQING TO NANJING

A TEAM FLIGHT, NOT JUST MINE

“Held up for 3 weeks by the weather in Chongqing, we were beginning to despair of ever finding a good slot to reach Nanjing. The meanders of the Yangtze, disappearing and reappearing behind each summit; wooded mountains, sculpted by sheer cliffs and deep gorges; thousands of tiny lakes reflecting the setting sun; and here and there enormous cities of several million inhabitants, whose names I’ve never heard before. And just beyond the lights of Nanjing, a triumphant welcome from the team, in proportion with their hopes and their fears of not seeing the aircraft arrive. A moment of shared happiness.” **Bertrand**

Solar Impulse
Flight 6 from Chongqing is probably the trickiest so far in terms of weather!
4:30AM – 21 Apr 2015



“SUN-POWERED PLANE MAKES HISTORY!” DAILY SUN

Bertrand Piccard
Just behind the lights of Nanjing, a triumphant welcome from the team, proportional to the length of their wait, and to their fear of not seeing the aircraft arrive.



André Borschberg
The Chinese Association for Science and Technology saw the potential of Solar Impulse to inspire young generations.





Pilot André Borschberg	Flights 7/14	Flight Time 44 h 10 m	Distance 2,942 km	Max Altitude 8,634 m	Flight Simulations 2,300	Batteries Charge at Arrival 28.3%	Solar Energy Produced 958 kWh	FAI World Records 3

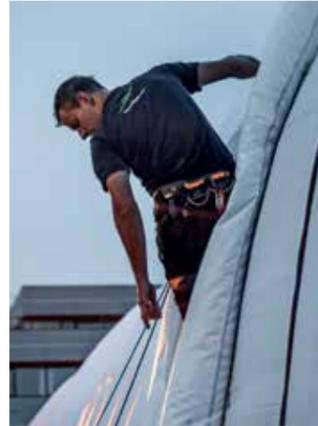


LEG 7 /
NANJING TO NAGOYA
HEADWINDS

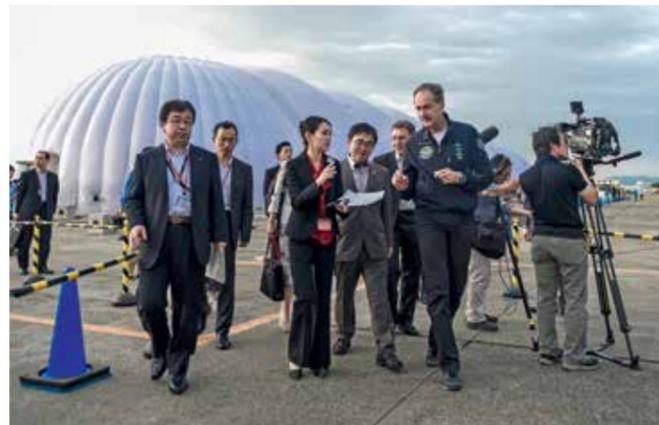
In Nanjing and Monaco, the team was preparing to attempt the Pacific crossing. On 31 May, Andre set off towards Hawaii. After 44 hours of flight, the suddenly pessimistic weather forecasts forced the mission control center to divert Si2 to Japan. The bad weather front caught up with the plane and heavy rain fell on the runway just after the landing. Then began the team's race against time to secure the aircraft against gale-force winds and erect the mobile hangar. After a long night's efforts, the 20 ground crew had the situation under control. The aircraft was under shelter, but it had absorbed water and the engineers were concerned. The next day, careful checks of all the systems began, but the uncooperative weather was destined to keep Si2 glued to the ground for another month.



André Borschberg
Landing in Nagoya
Japan was not planned but there must be a good reason why our path has brought us here today.
11:20AM - 1 Jun 2015



Bertrand Piccard
Diplomatic ballet worthy of thriller to get clearance to land and import our mobile hangar.



"SOLAR IMPULSE
SUN-POWERED PLANE
LANDS IN JAPAN AFTER
WEATHER DIVERSION"

ABC-7.COM



Pharell Williams
Solar Impulse is fighting climate change with the first solar-powered flight around the world.
10:43PM - 12 May 2015



Pilot André Borschberg	Flights 8/14	Flight Time 117 h 52 m	Distance 8,924 km	Max Altitude 8,634 m	Flight Simulations 3,800	Batteries Charge at Arrival 10.2%	Solar Energy Produced 2,409 kWh	FAI World Records 3
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LEG 8 / NAGOYA TO HAWAII

THE LONGEST SOLO FLIGHT IN AN AIRPLANE

For the first 7 hours, it was still possible to return to Nagoya if a problem arose. But not after that... Not long after take-off, the system monitoring the automatic pilot gave up the ghost. For the engineers, an absolute "no-go". The weather window was the best we'd seen for 2 months, and the vital functions of the aircraft were in the green. You can't cross an ocean without losing sight of the coast, even if the prospect is frightening. The whole team had lessons to learn... including André, facing 5 days and nights before he could hope to land. In these extreme conditions, his exceptional concentration enabled him to fly longer without fuel than any jet plane in history!



André Borschberg
During the fourth day I felt very tired, having climbed the equivalent altitude of Mount Everest four times.
4:50AM - 3 Jul 2015



André Borschberg
I'm fighting, it's difficult... Managing energy level is not easy. I have to find a hole in the cold front.
16:29AM - 2 Jul 2015

Joel Dicker
Keeping my fingers crossed for André Borschberg! What you guys are achieving is just unbelievable!
10:30AM - 2 Jul 2015



Robert Swan
I'm so proud to be a patron for Solar Impulse & celebrate history today! Thank you team! Well done!
9:24PM - 3 Jul 2015



UN Environment
Solar Impulse flies successfully to reach the point of no return on its way to the next stop in Hawaii.
6:05PM - 30 Jun 2015



Solar Impulse
117 hours and 52 minutes over the Pacific to reach Hawaii. Not a single drop of fuel.
9:00PM - 3 Jul 2015



"SOLAR IMPULSE 2 REACHES HAWAII, SHATTERS RECORDS IN HISTORIC PACIFIC FLIGHT"

FOX NEWS



ANSWER TO YOUR QUESTIONS

WHAT NEXT?

Solar Impulse 2 has completed eight flights and nearly half its journey around the world. Setbacks are part of the challenges faced by any cutting-edge project. During the flight from Nagoya, the batteries overheated, causing irreversible damage that needed repair. In spring 2016, the aircraft should be able to set off again from Hawaii to return to its point of departure in Abu Dhabi via the USA, the Atlantic Ocean and Southern Europe or North Africa. Bertrand and André will continue to take turns at the controls of Si2.



Si2 is now secured in Hawaii, covered with space blankets to protect it from UV radiation! Great work by the Solar Impulse.



André Borschberg has built up a team of engineers and led the construction of the two experimental solar airplanes.



“THIS FLIGHT IS NOT A RACE AGAINST THE CLOCK. THE GOAL IS TO DEMONSTRATE WHAT IS IN FACT FEASIBLE AND TO EXPLORE AND FIND WAYS OF DOING IT”

ANDRÉ BORSCHBERG



Solar Impulse
Gov David Ige declares July 3rd Solar Impulse day for the state of Hawaii! ALOHA
9:00PM - 3 Jul 2015

Where is the plane now? And the team?

Solar Impulse has been hangared at Kalaeloa airport in Hawaii since July, thanks to the support of the University of Hawaii and the Ministry of Transport. The airplane is well-protected until the mission resumes. The whole team returned to Switzerland. Mission Control in Monaco will re-open in spring 2016.

Can you tell us more about the battery problem during the flight to Hawaii?

In Japan, we had to conduct a test flight immediately followed by the 5-day leg to Hawaii, all in a warm environment. The design process had not foreseen this. The Japanese authorities didn't let us make a test flight after the emergency landing in Nagoya. Japanese airspace is extremely busy, and it was too complicated for them to fit Solar Impulse in. So we had to perform the necessary tests early in the flight to Hawaii. That meant climbing rapidly, discharging the batteries, and then rapidly recharging them at altitude. The batteries overheated, and since

air temperatures remained quite high for the rest of the 5-day flight, the batteries never had a chance to cool down. So we couldn't continue.

Why do you have to make new batteries?

Several component parts of the batteries were damaged. We didn't have enough spare parts to repair them. Our batteries aren't standard products. They have a higher energy storage capacity (260Wh/kg). Upgraded components are now being produced. To prevent the batteries from overheating again, our engineers have also integrated a cooling system.

What about the rest of the round-the-world flight?

Round and flight tests will be conducted in Hawaii from mid-February through March, so that the adventure can restart in early April 2016. Bertrand will fly from Hawaii to reach the east coast of the USA four days later.

Why wait until April 2016 to continue?

Because the days are longer.

This means more daylight hours to recharge the batteries during flight. We're at the limits of technology: every morning the charge goes down to 10% of battery capacity. The pilot feels the same way you feel when the battery level of your cell phone goes red and you realize you only have a few minutes left before it shuts down!

Can Solar Impulse only fly through the night in summer?

Yes, today's technology only allows Solar Impulse to stay aloft indefinitely between April and August. The Wright Brothers didn't wait until they could carry 200 passengers in bad weather before they flew their first airplane. Nor did Lindbergh when he crossed the Atlantic. Solar Impulse's 5-day and night flight from Japan to Hawaii showed that a plane without fuel can have unlimited endurance. That's our goal. We don't want to revolutionize aviation or the battery industry but simply demonstrate that renewable energy and clean technologies can accomplish things people think impossible.

CLEAN REVOLUTION ON THE MOVE

20,000 KM LEFT TO...

LAY DOWN A MARKER FOR THE FUTURE

By flying day and night without fuel, Solar Impulse proves that existing clean technologies can help drastically reduce our carbon footprint on Earth. Up to 50%! All we need to do is better integrate them into our daily lives.

THINK OFF THE GRID

Sustainable growth will only come from products that can save energy and protect the environment. Fixing climate change is not an expensive problem requiring financial and behavioral sacrifices, but rather a unique opportunity for profit and job creation. To show that it is possible to bridge ecology and the economy.



THIS IS BERTRAND PICCARD'S CONVICTION. HE HAS COME UP WITH 7 PRINCIPLES FOR SOLVING CLIMATE CHANGE WITH CLEAN TECHNOLOGIES, LIKE THE ONES EMBARKED ON BOARD SOLAR IMPULSE.

Highlight the solutions instead of the problems

Stop threatening human comfort – no need for sacrifices

Speak of profitable investments instead of higher costs

Refrain from setting goals without showing how to reach them

Offer both rich and poor countries a share in the returns on investment

Combine regulations with private initiative: we need a legal framework for energy efficiency

Act in the interest of today's generations and not only for future generations



And he's not the only one! Our Future Is Clean initiative has managed to rally 260 associations around these ideas. And what about you? Do you recognize yourself in this clean generation?



“WHAT WE CAN ACHIEVE IN THE AIR, ANYONE CAN DO ON THE GROUND”

BERTRAND PICCARD