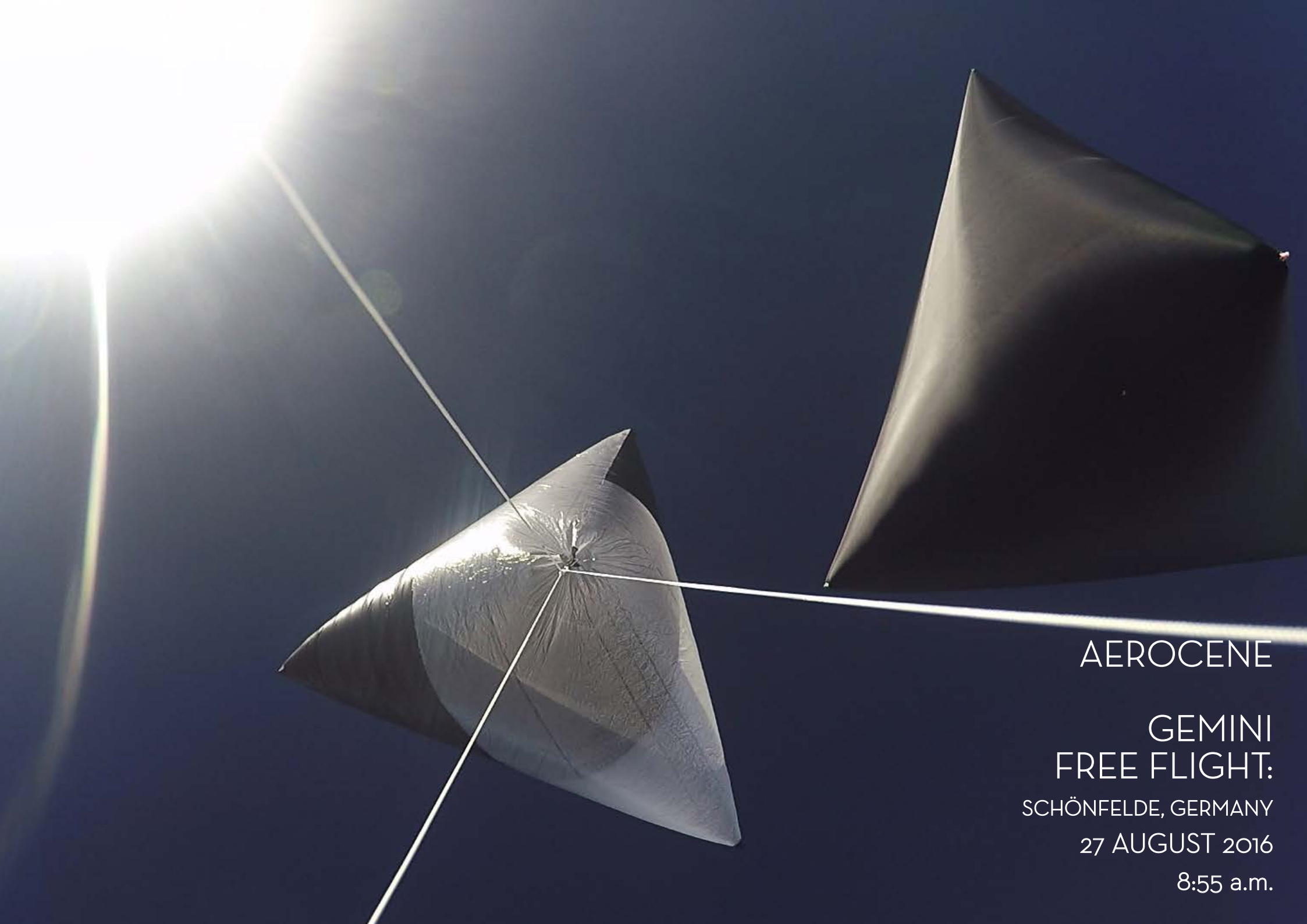


AEROCENE

GEMINI
FREE FLIGHT:

SCHÖNFELDE, GERMANY

27 AUGUST 2016

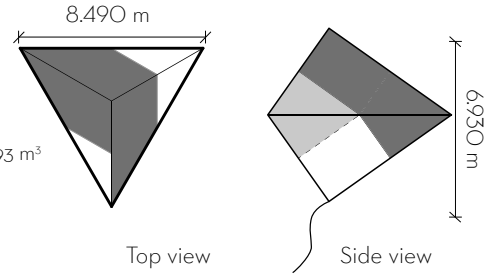
8:55 a.m.

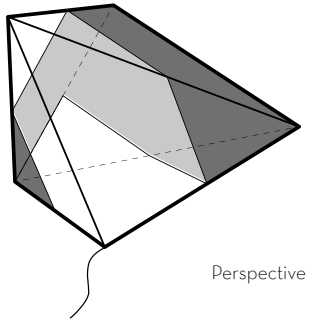
On 27 August 2016, just after sunrise, Aerocene returned to the skies once again, embarking on the next leg of its "Around the World" carbon-free solar journey.

The Aerocene Gemini – two flying solar balloon sculptures tethered together – was the chosen vehicle for this part of Aerocene's global circumnavigation.

FREE FLIGHT AEROSOLAR GEMINI

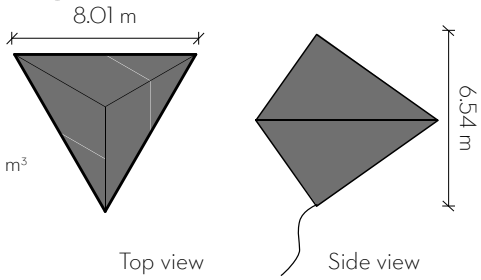
Geometry: Tetrahedron
Dimensions (W x L x H): 8.49 x 8.49 x 6.93 m³
Volume: 72 m³
Envelope weight: 3.37 Kg

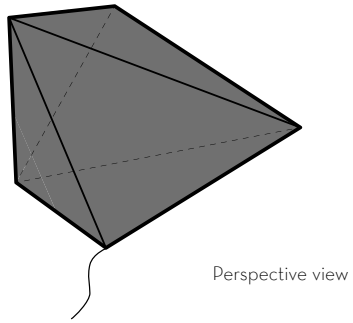




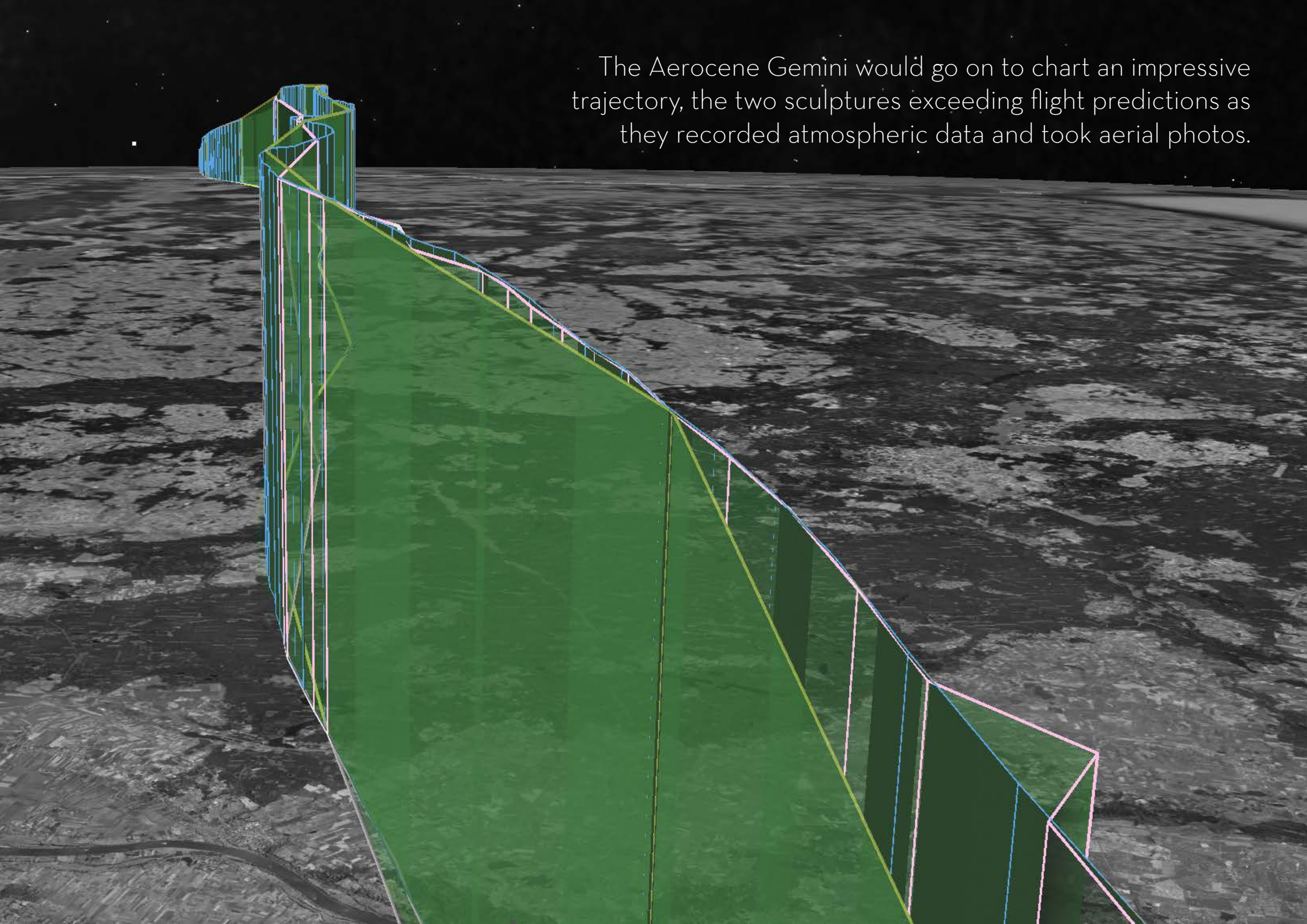
AEROCENE EXPLORER

Geometry: Tetrahedron
Dimensions (W x L x H): 8.01 x 8.01 x 6.54 m³
Volume: 61 m³
Envelope weight: 2.87 Kg





Flight speed: dependent on the wind
Flight duration: from sunrise to sunset (weather dependent)
Uplift force: determined by the difference between the temperature inside the sculpture versus the temperature of the air outside

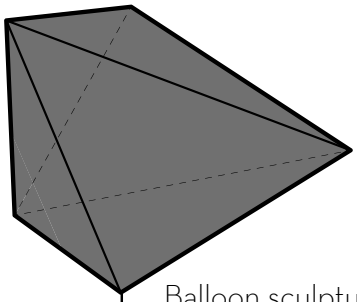


The Aerocene Gemini would go on to chart an impressive trajectory, the two sculptures exceeding flight predictions as they recorded atmospheric data and took aerial photos.

Every Aerocene launch is weather dependent, and fortunately, the weather that morning was perfect for launching – sunny, with very little wind.

The location of Schönfelde (**52°27'32.4"N 14°03'15.3"E**) was selected because it lies outside Berlin's air traffic control zone, a requirement due to local air traffic regulations.

We spread white tarps on the ground to increase the **albedo** of our launching surface. Launching from a light-colored surface reflects the intensity of the sun's rays on the sculptures, resulting in greater buoyancy.



Balloon sculpture

Radar reflector

SPOT Trace or APRS

Camera

Before launching we checked the sensing devices that would comprise the payload attached to the Aerocene Gemini.

Onboard were a GoPro camera and lightweight sensors recording air temperature, humidity, and pressure, as well as a **DustDuino** air quality and particulate matter sensor, provided by **Public Lab**. A GPS tracker and an APRS tracker were attached on this flight in order to track the sculptures once they became airborne.

If you'd like to propose a payload for our next flight, click **here**.

Aerocene solar sculptures travel without using any helium, hydrogen, or other gasses, so we utilised the kinetic energy of running with the sculpture to fill it with air, quickly sealing it afterward.

Then we waited as the air inside
the Aerocene solar sculptures was
gradually heated by the sun.

As the inside air warmed and expanded, the sculptures inflated to their full capacity.

Aerocene allows you to become attunded to the natural rhythms of the Earth – and move with them, not against them.

The magical point arrived when the air inside the sculptures became warmer than the air outside, lifting them slowly into the sky.

Sensing devices packs were placed in reused plastic bottles, and the payloads attached to their sculptures.

Then in a burst of movement, the sculptures received a running start, and were then released up into the air.

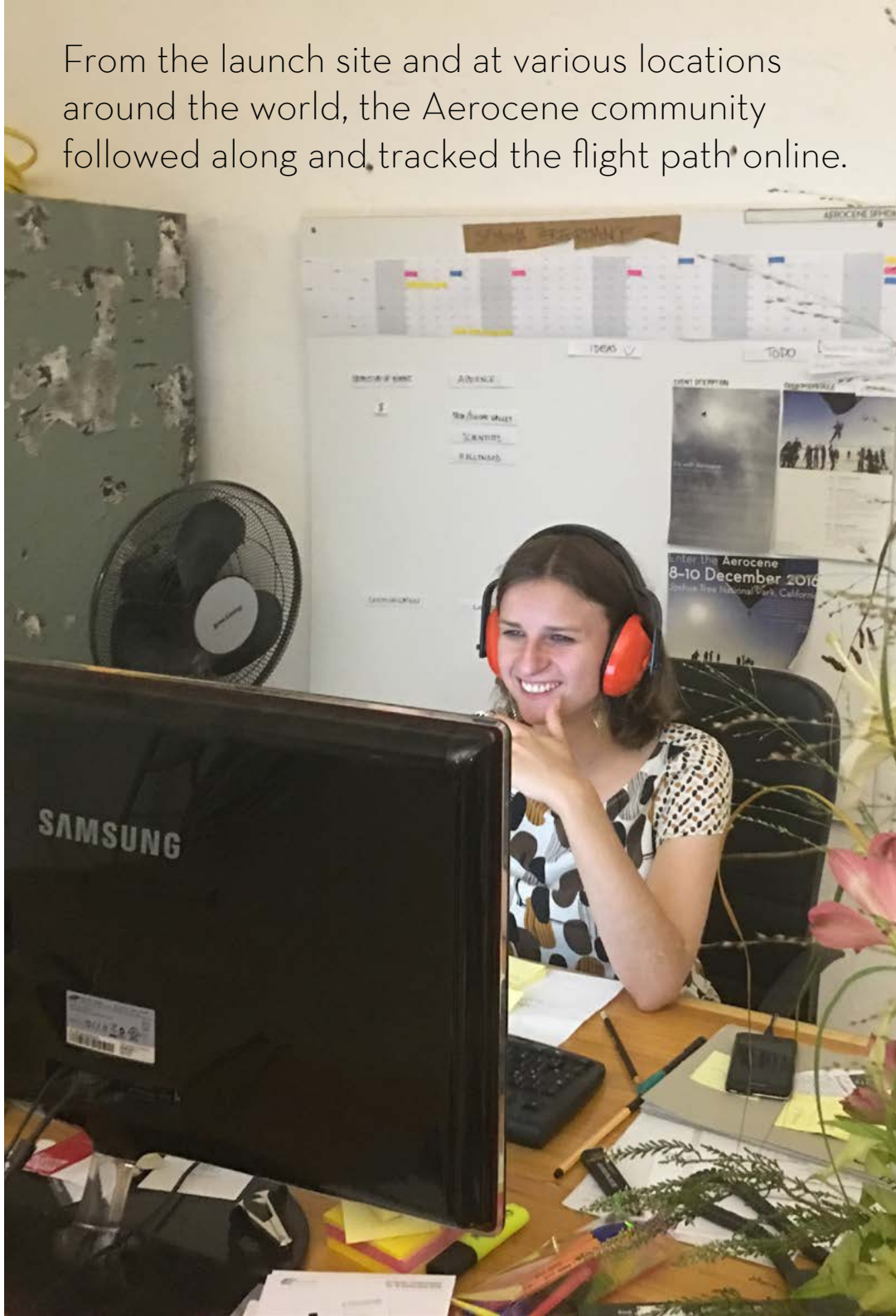
The Aerocene Gemini traveled at great speed.

To everyone's relief, the sculptures cleared the nearby windmills and trees, continuing upwards and eventually out of sight.

The GoPro camera onboard the Gemini began to record some fantastic images.

All images were transmitted live here:
http://ssdv.habhub.org/DL7AD

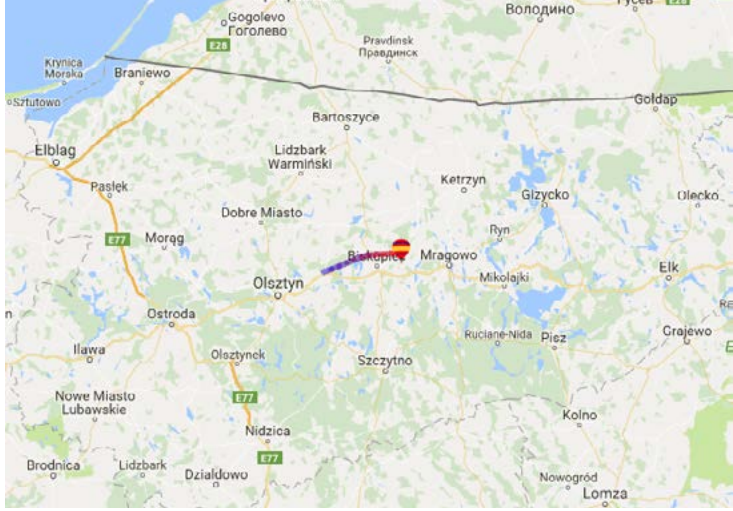
From the launch site and at various locations around the world, the Aerocene community followed along and tracked the flight path online.

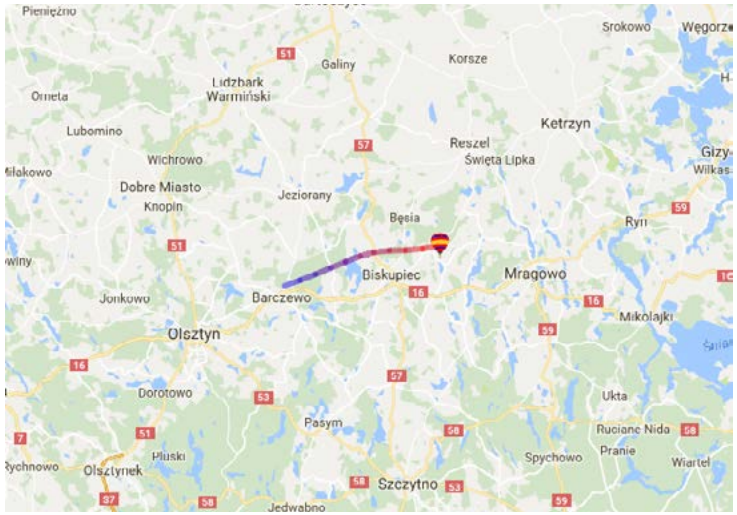


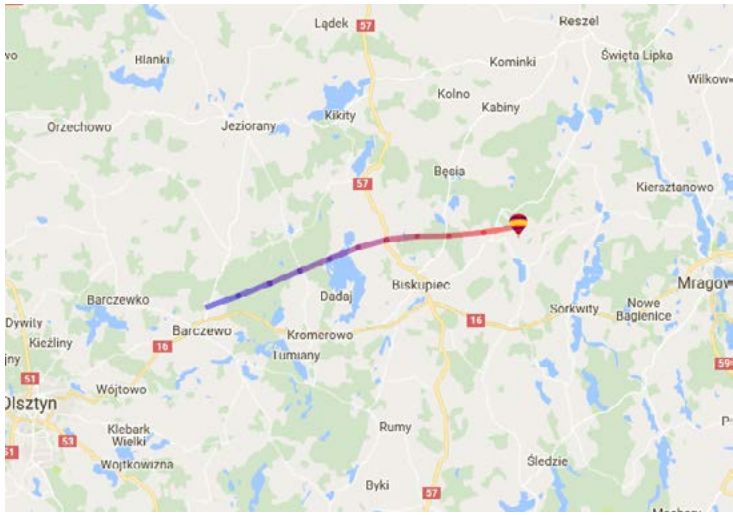
The flight was tracked online in real time at **www.aprs.fi**

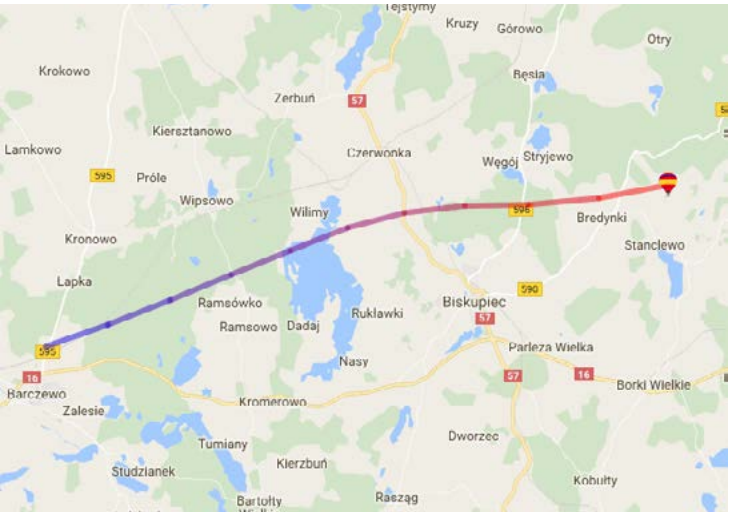
The transmission featured APRS position messages including outside temperatures, humidity, and air pressure.

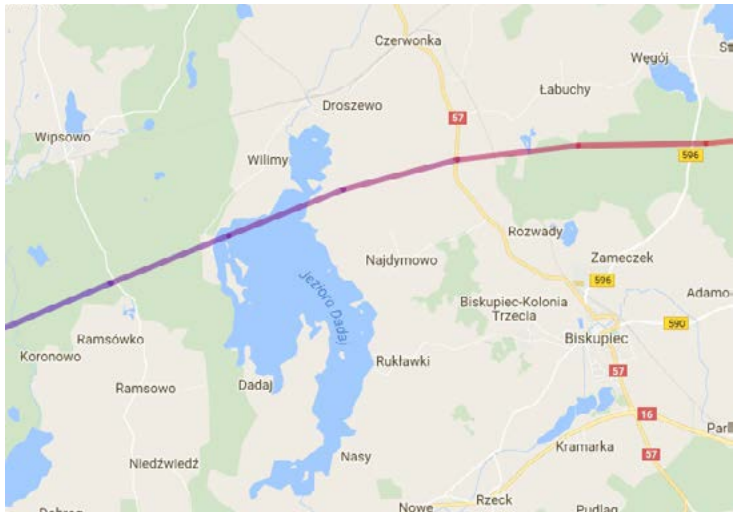
Callsign: DL7AD-11
Frequency: 144.800 MHz AFSK1200
Packets: Low-duty.cycle APRS/SSDV images, Position packets, Log packets, Software error log packets (for debugging)
We ran a special SSDV/APRS service which picks up the packets from the APRS-Igates and sends them to Habhub.
There was an additional Byonics AIO Tracker working with AF5LI-11



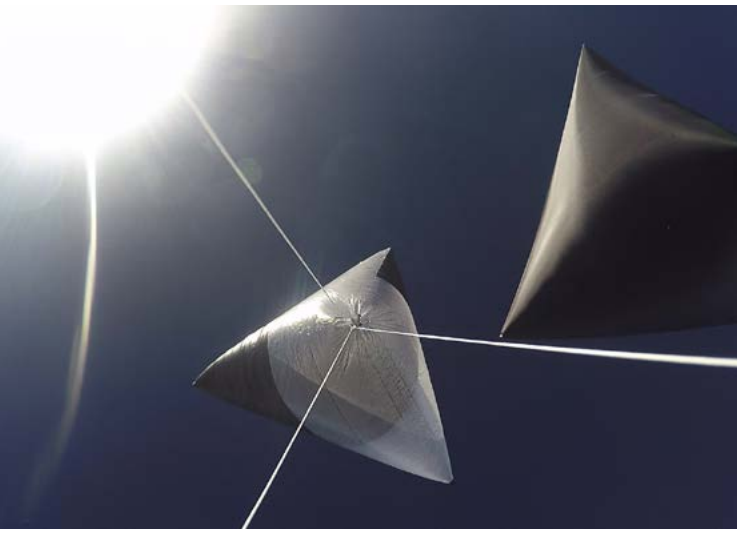


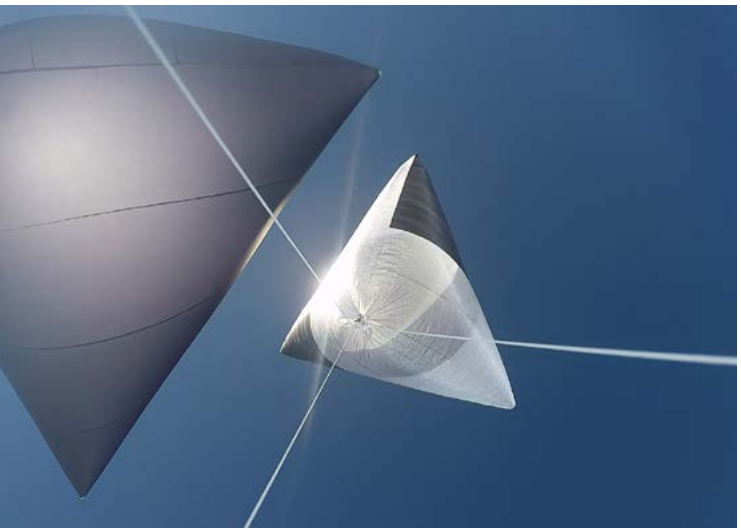








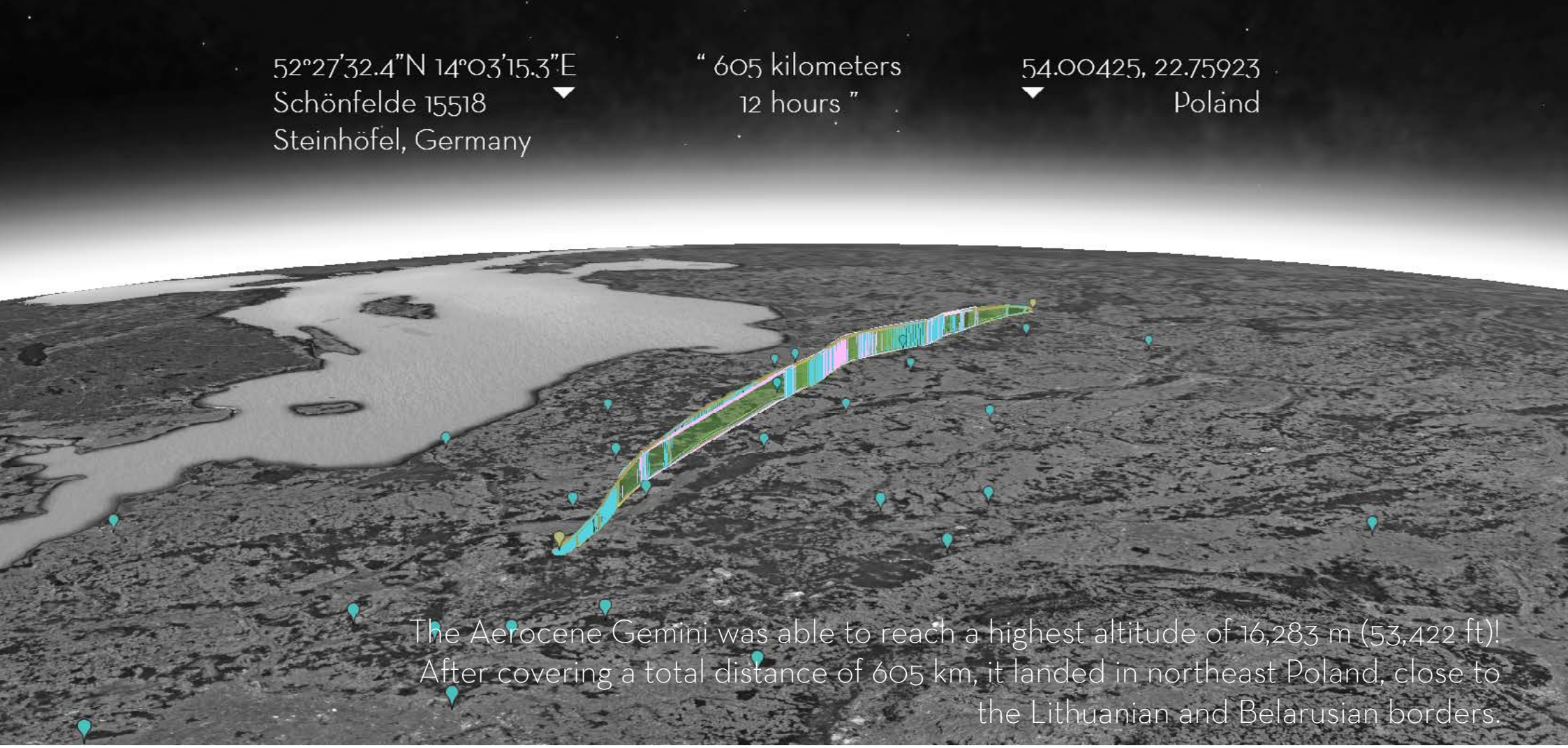
As the Aerocene Gemini traveled higher and higher, it was able to capture some stunning images of the Earth from above.

Floating and becoming one with the wind, the aerostatic sculptures danced in the sky for over 12 hours.

52°27'32.4"N 14°03'15.3"E
Schönfelde 15518
Steinhöfel, Germany

" 605 kilometers
12 hours "

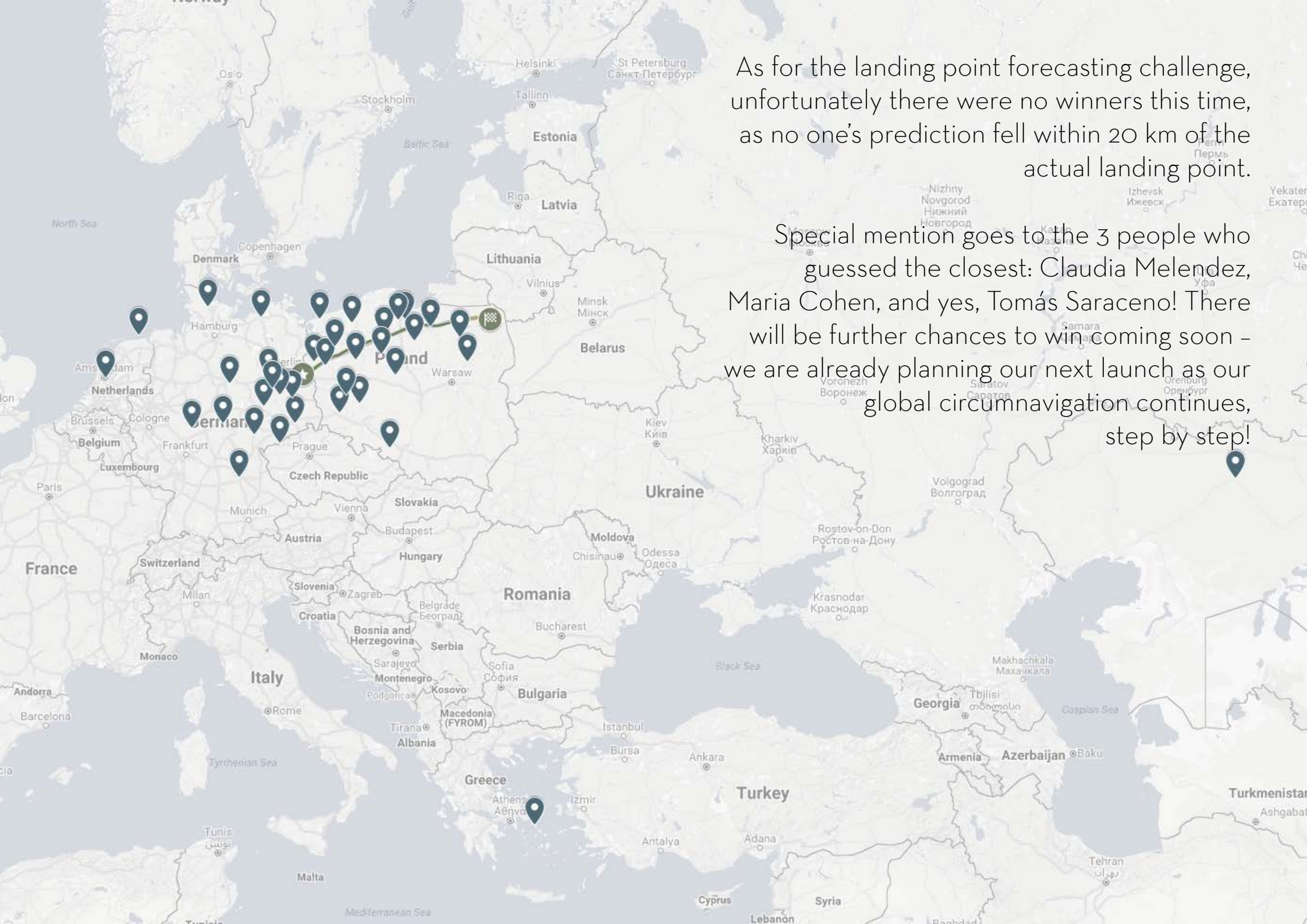
54.00425, 22.75923
Poland



The Aerocene Gemini was able to reach a highest altitude of 16,283 m (53,422 ft)! After covering a total distance of 605 km, it landed in northeast Poland, close to the Lithuanian and Belarusian borders.

ALTITUDE PROFILE

The sculptures' flight path was tracked with ARPS by Sven Steudte and Thomas Krahn of Radioamateur, along with Adrian Krell, and they were located in a field in Poland around 1:00 a.m. local time on
28 August, 2016.

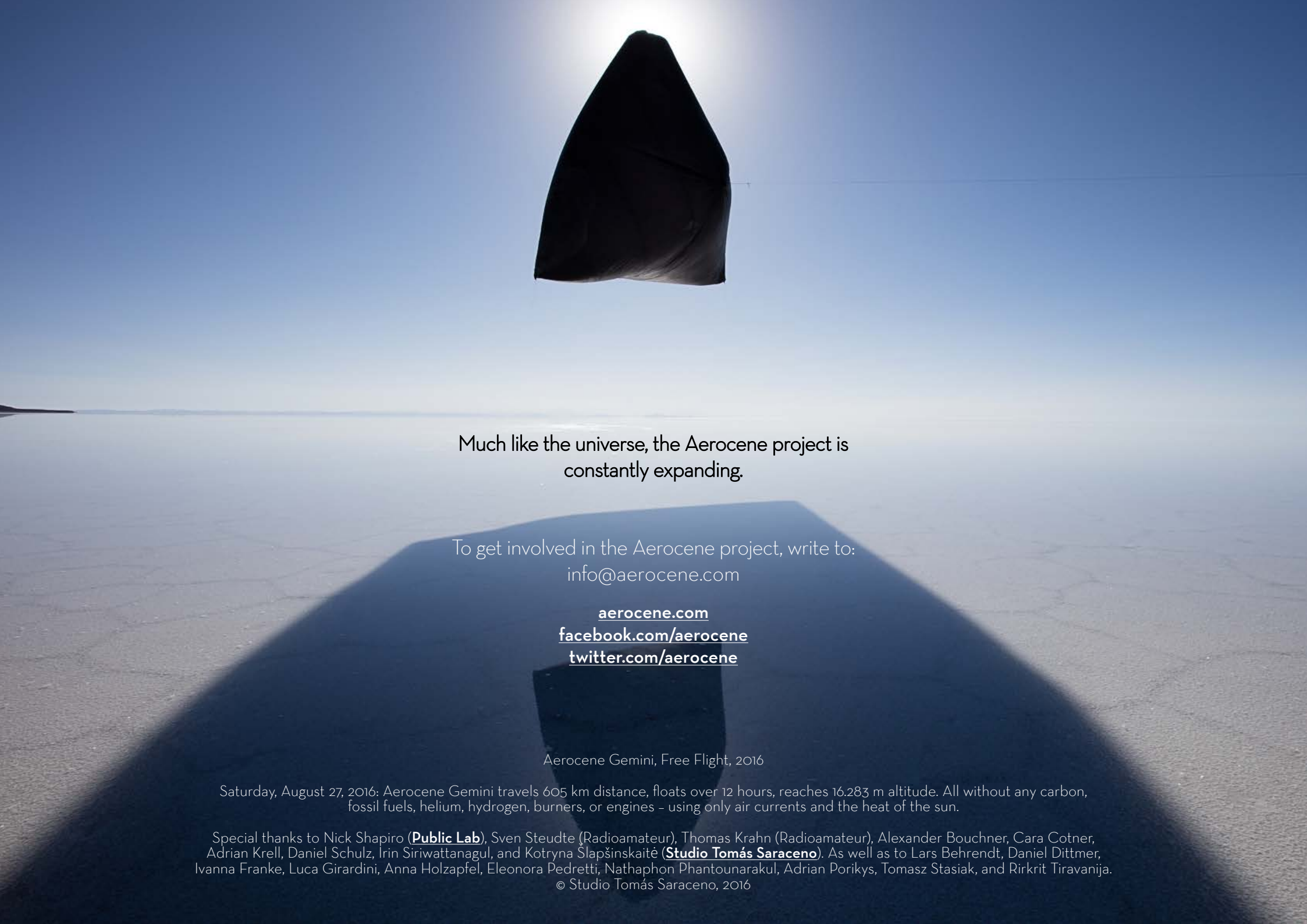


As for the landing point forecasting challenge, unfortunately there were no winners this time, as no one's prediction fell within 20 km of the actual landing point.

Special mention goes to the 3 people who guessed the closest: Claudia Melendez, Maria Cohen, and yes, Tomás Saraceno! There will be further chances to win coming soon – we are already planning our next launch as our global circumnavigation continues, step by step!

Thanks to everyone who made the Aerocene Gemini launch such a success. We eagerly await the next leg of the Aerocene “Around the World” solar journey!


54.00425, 22.75923
Poland
52°27'32.4"N 14°03'15.3"E
Schönfelde 15518
Steinhöfel, Germany



Much like the universe, the Aerocene project is constantly expanding.

To get involved in the Aerocene project, write to:
info@aerocene.com

aerocene.com
facebook.com/aerocene
twitter.com/aerocene

Aerocene Gemini, Free Flight, 2016

Saturday, August 27, 2016: Aerocene Gemini travels 605 km distance, floats over 12 hours, reaches 16.283 m altitude. All without any carbon, fossil fuels, helium, hydrogen, burners, or engines – using only air currents and the heat of the sun.

Special thanks to Nick Shapiro (**Public Lab**), Sven Steudte (Radioamateur), Thomas Krahn (Radioamateur), Alexander Bouchner, Cara Cotner, Adrian Krell, Daniel Schulz, Irin Siriwattanagul, and Kotryna Šlapšinskaitė (**Studio Tomás Saraceno**). As well as to Lars Behrendt, Daniel Dittmer, Ivanna Franke, Luca Girardini, Anna Holzapfel, Eleonora Pedretti, Nathaphon Phantounarakul, Adrian Porikys, Tomasz Stasiak, and Rirkrit Tiravanija.