



AEROCENE

Aerocene is an artistic project, an invitation to shape different futures, a new era.

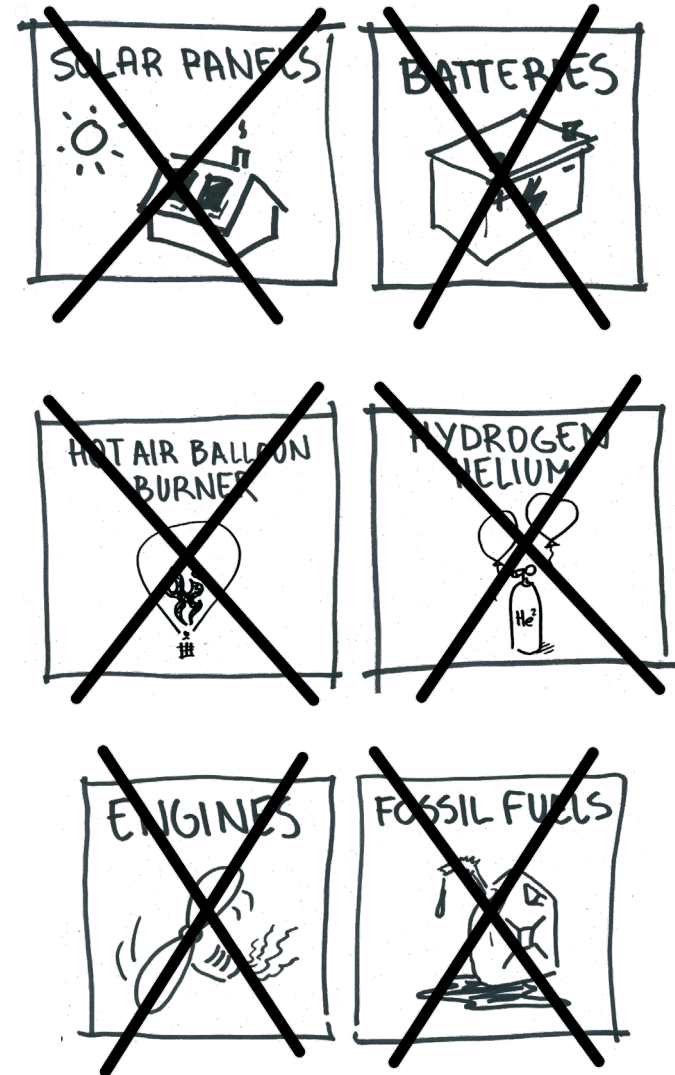


Aerocene is an interdisciplinary artistic community that seeks to devise new modes of ecological sensitivity, reactivating a common imaginary towards an ethical collaboration with the atmosphere and the environment, in an era free from borders, free from fossil fuels.

Aerocene's activities manifest in the testing and circulation of aerosolar sculptures that become buoyant only by the heat of the Sun and infrared radiation from the surface of Earth. As an ever growing research and experimental practice, Aerocene is open-source and collaborative.

It consists of a dedicated and diverse global community of practitioners who collaborate to promote environmental awareness and preserve the air we all breathe.

Aerocene aims to build a new ecology of practice with a DIT (Do-It-Together) spirit, attempting to overcome the extractive approach certain humans have developed towards planetary landscapes, ecosystems and other species. These aims are encouraged through the international community-building carried out by the Aerocene Foundation, initiated by artist Tomás Saraceno in 2015.

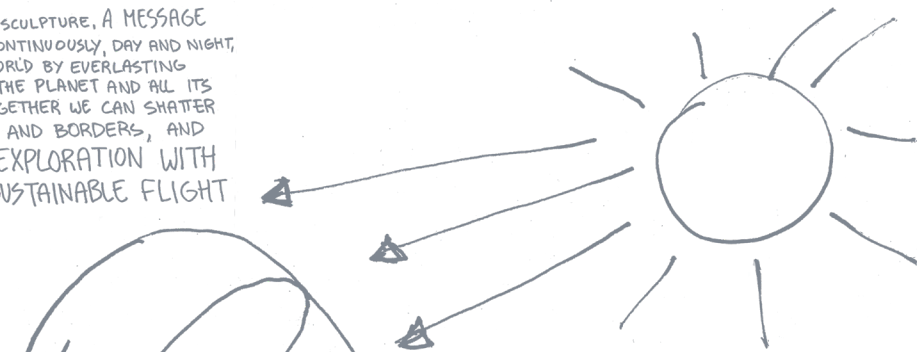




Aerocene sculptures become bouyant only with the heat of
the Sun and the Air we all breathe

Free from borders. Free from fossil fuels
Towards sustainable futures

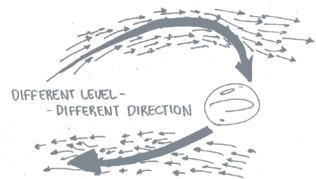
AEROCENE IS A SCULPTURE, A MESSAGE
THAT FLOATS CONTINUOUSLY, DAY AND NIGHT,
AROUND THE WORLD BY EVERLASTING
ENERGIES OF THE PLANET AND ALL ITS
Dwellers. TOGETHER WE CAN SHATTER
ALL RECORDS AND BORDERS, AND
REINVENT EXPLORATION WITH
THE MOST SUSTAINABLE FLIGHT



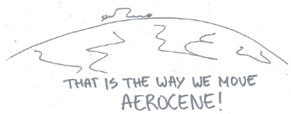
DURING THE DAY
WARM AIR HEATED BY
THE SUN KEEPS IT UP

CHOREOGRAPHY

IT NAVIGATES BY
CHANGING THE ALTITUDE
AND FLOATS WITH
DIFFERENT JET STREAMS

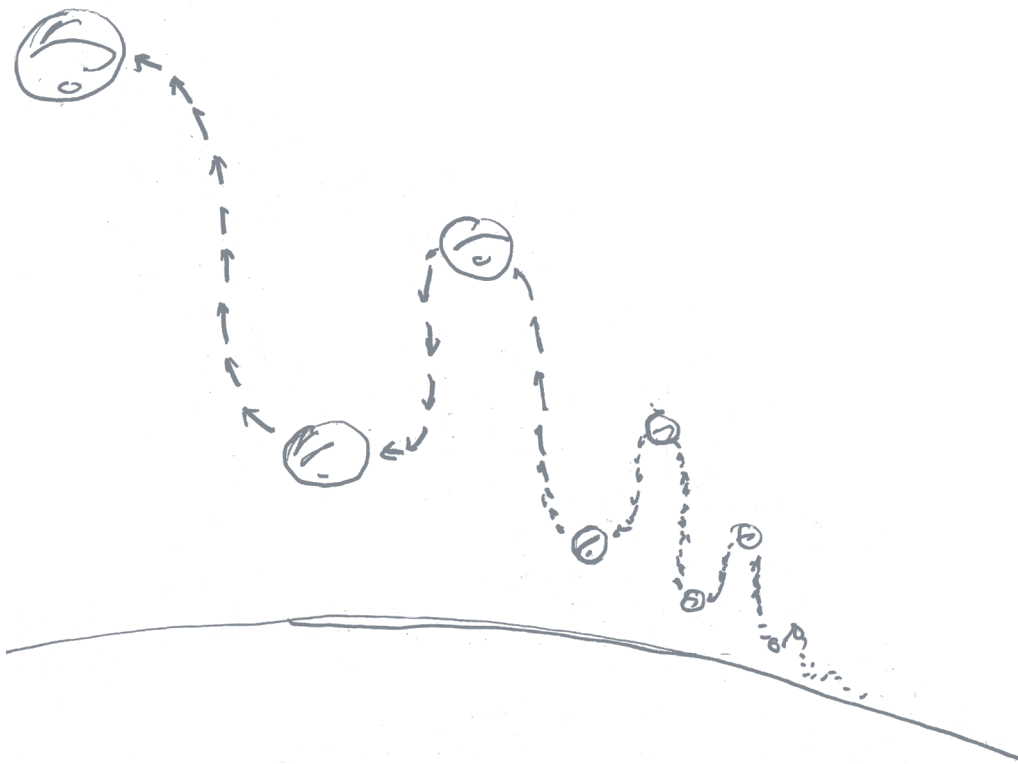


DIFFERENT LEVEL -
DIFFERENT DIRECTION



THAT IS THE WAY WE MOVE
AEROCENE!

DURING THE NIGHT
WARM AIR HEATED BY THE
INFRARED RADIATION
KEEPS IT IN THE AIR



AEROCENE MANIFESTO. AERONAUTS, UNITE!

While fossil fuel enterprises to colonize other planets are put in place, this very same interface between us and the Sun and the atmosphere, the air continues to be compromised: carbon emissions fill the air, invisible radio waves develop in a hegemonic algorithm of finance, particulate matter floats inside our lungs. How would breathing feel in a post fossil fuel economy, and what is our response-ability? How do we challenge geopolitical borders in an age of climate inequality?

Aerocene imagines space as commons, a physical and imaginative place to be subtracted from corporate control and government surveillance, through de-securitized, free access to the interface between us and the rest of the cosmos, namely the atmosphere, the last earthly layer created as a result of the interplay of sun, gravity and the earth mass. The launch pad becomes an aerosolar balloon, a Do It Together (DIT) entrance to the aerial, whose engine is the life-giving star that the extraction of fossil fuels has turned into a threat at a planetary scale. Becoming buoyant and learning how to float over land and territories, compel us to reconsider the ways in which borders are set up by humans, the power of national institutions to decide who can transit, policies that dramatically affect vulnerable subjects, humans as well as other nonhuman animals. Aerocene calls for an interspecies right to mobility, a new interplanetary ecology of practice which could reconnect with elemental sources of energy and with the strata borne from the sun and other planets, breaking the boundaries of the sublunary and expanding the critical zone of all-life dependent air.

We suggest a model for a landscape that balances our relationship with, and harnesses the unlimited potential of the Sun. This realization requires a thermodynamic leap of imagination, just like during an eclipse, when only in the absence of light we become aware of our scale in the shadow of the cosmos. In that moment of alignment between Sun, Moon and Earth, we understand that we rely on a reciprocal alliance between the elements and effects, the shifting winds, the exchange of heat and momentum, and the diffusing reflection of solar radiation towards the cosmic extent.

Researchers in industrial and social ecology refer to 'socio-metabolic regimes' to define the epochal shifts in energetic relationships between humans and their environment, establishing a strict correlation between it and specific sets of social values. They have also argued that two of the main kind of metabolic regimes have been solar based, the ones of hunter-gatherer societies and agrarian societies. Despite the existence of societies that still rely on such relationships with the sun—together with all the other species that populate the earth—these are threatened by the domination of the current metabolic regime, the one based on fossil fuels and which marks the Anthropocene. Increasing globalization is nearing this regime towards its end caused by the disappearance of the very same energy supplies and their environmental costs, raising the urgency to rethink how we can coexist with the planet and its resources. What could be the fourth metabolic regime for the population and who is taking part in the Anthropocene? What would be the new set of values necessary to overcome the extracting economy of fossil fuel regime? What would the stratigraphy of the future look like? It might it be through a rearticulation of our relationship with the sun and the cosmos, that we open the boundaries of the Earth.

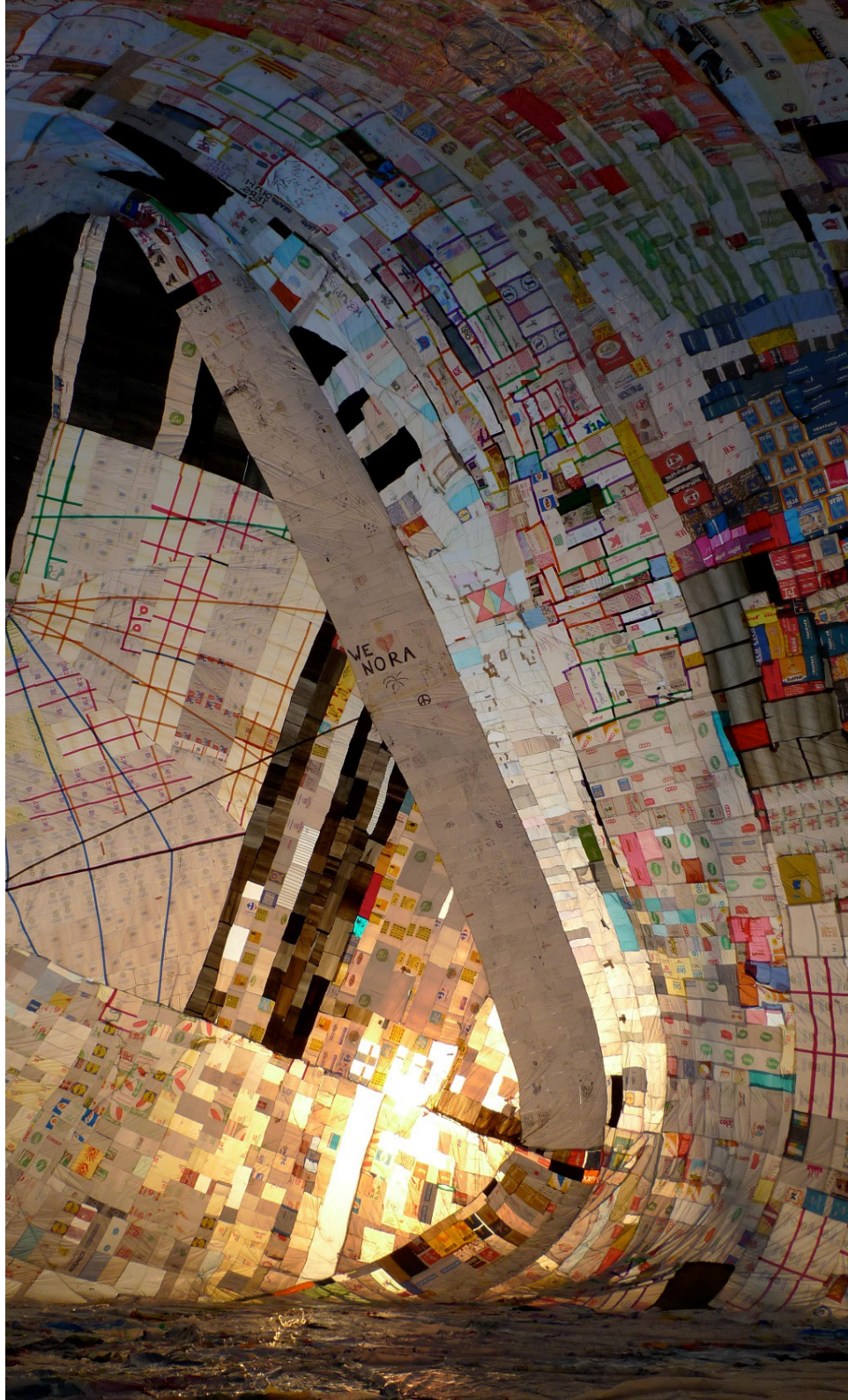


Aerocene community works as a displaced endeavour developing research, sensors, applications related to the use of aerosolar sculptures, in the DIT (Do-It-Together) spirit which aims to build a new ecology of practice to reconnect with the atmosphere, upturning gravity and the fossil fuel mentality. We are very honoured to work with many brilliant people around the world. Aerocene is comprised of a dedicated and diverse global community of artists, geographers, philosophers, thinkers, speculative scientists, explorers, balloonists, technologists, and dreamers.

AEROSOLAR ACTIVITIES



> MUSEO AERO SOLAR



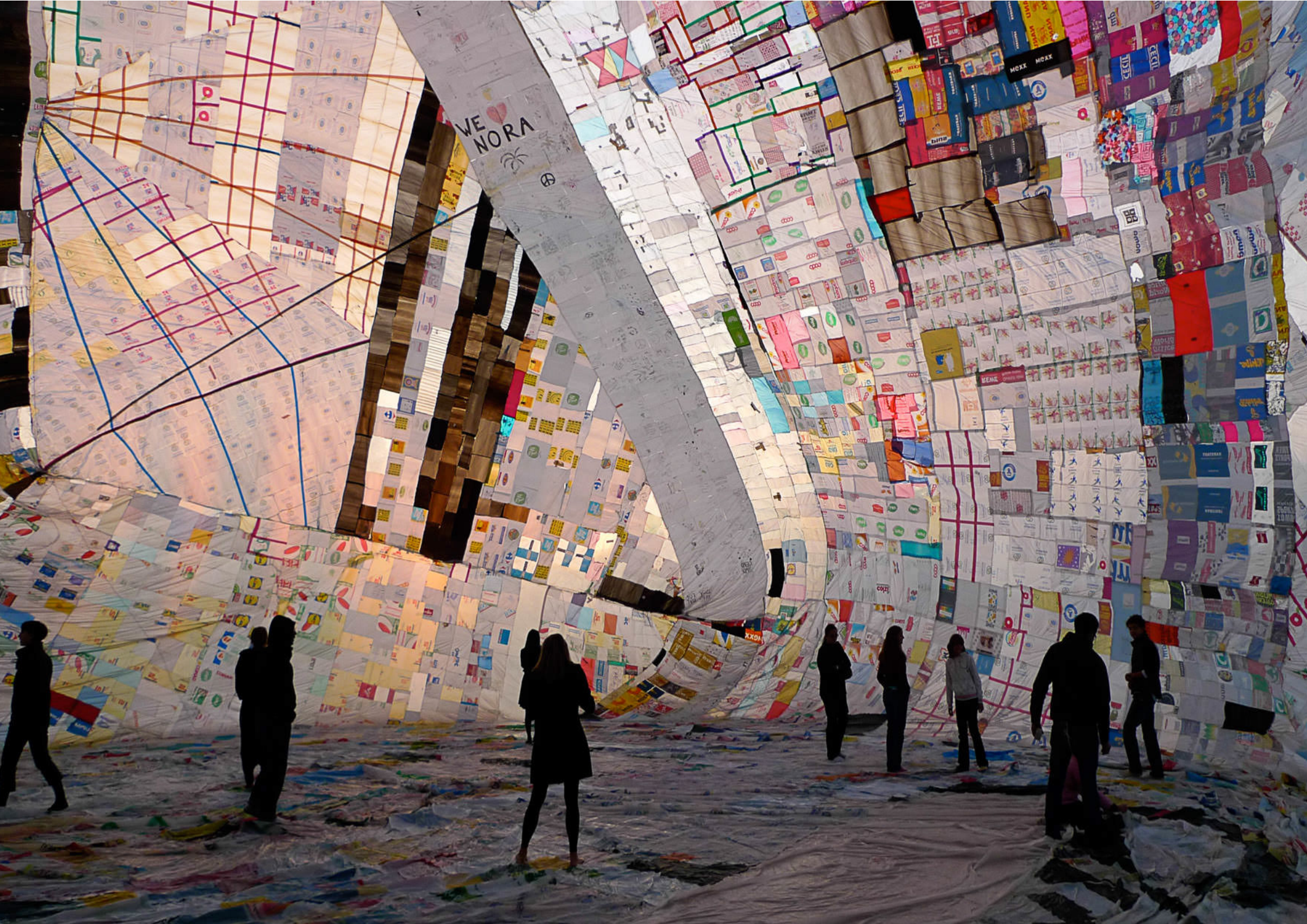
Initiated in conversation with Tomás Saraceno and Alberto Pesavento in 2007, Museo Aero Solar is an ongoing collective project and worldwide community. It is an open source invitation for everyone to turn used plastic bags into a lighter-than-air balloon that floats free from fossil fuels. It is both a flying museum and an aerosolar sculpture, unfolding from simple acts of reusing and cooperation. It is sent aloft as a signal calling for the deconstruction of aerial borders and the preservation of the air.

Embodying a vision of fossil and emissions-free travelling in the atmosphere and growing a participatory community of self-assembling groups working in different parts of the world to create novel instantiations, Museo Aero Solar can be seen as marking the beginning of the genealogy of Aerocene. In the past 13 years, the Museo Aero Solar has already landed in more than 50 sites. Among them Colombia, Italy, France, United Arab Mirates, United States, Swtizerland, Albania, Isreal-Palestina, Germany, United Kingdom, Copenhagen, Finland, Argentina, Bulgaria, Kosovo and Peru.



Museo Aero Solor, Milan, Italy 2007
museoaerosolar.wordpress.com







> TETHERED FLIGHT



The Aerocene Backpack is a portable flight starter kit enclosing an aerosolar sculpture, that elevates itself free from fossil fuels. Just with heat provided directly by the sun, without the use of fossil fuels, helium, hydrogen, solar panels, batteries or burners, it lifts several sensors that capture atmospheric data such as temperature, humidity, pressure and air quality. Fully open-source, its users are invited to appropriate and improve its functionalities of mechanical, digital and electronic technologies, strengthening a DIT (Do-It-Together) ethos fostered by the Aerocene Community.

Providing a message of simplicity, the Aerocene Backpack is a sculpture that is always evolving through an ongoing, collective and open process of construction; a poetic tool for imagining a new era without fossil fuels and new ways of decarbonizing the atmosphere from particulate matter.

Aerocene Backpack







Geometry:

Dimension:

Volume:

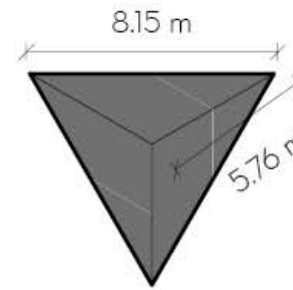
Envelope weight:

Tetrahedron

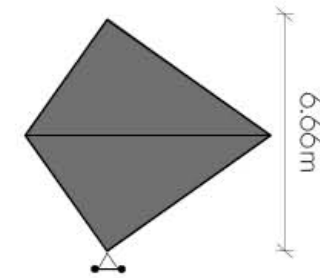
W x L x H

64 m³

2.76 Kg



Top view



Side view

Materials:

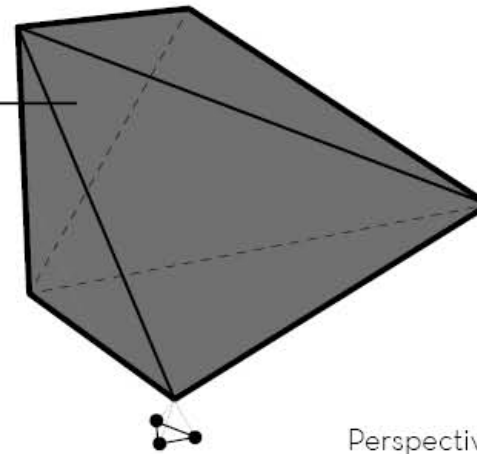
Material A)

Black ripstop 7D:

23 g/m²

Material amount(120%):

120 m²



Perspective view

LIFT CALCULATION

Launch Altitude:

32 m

Outer temperature:

26.0 °C

Delta t:

20.0 °C

Lift:

72.47 g/m³

Balloon Lift:

4.64 Kg

AVAILABLE PAYLOAD :

1.88 Kg

FLIGHT OPTIONS:

Tethered

☐

Free flight

☐

Human flight

☐

Around the world

☐

SENSING DEVICES PACK

Measuring Devices

☐

(VDO, Temperature, Air pressure)

Free flight + Tracking GPS

☐

Free flight + Tracking radio

☐

Go pro

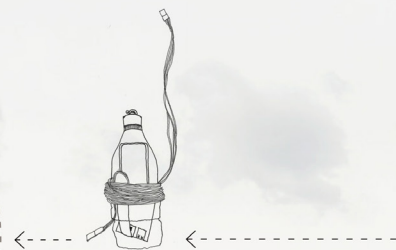
☐

Gyroscope + Controller

☐

Each Backpack comes with a floating sculpture, a photo/video camera, and a pack of sensors that measure air temperature, humidity, and pressure. This configuration of elements is a powerful springboard for countless creative and scientific endeavors in the Aerocene.



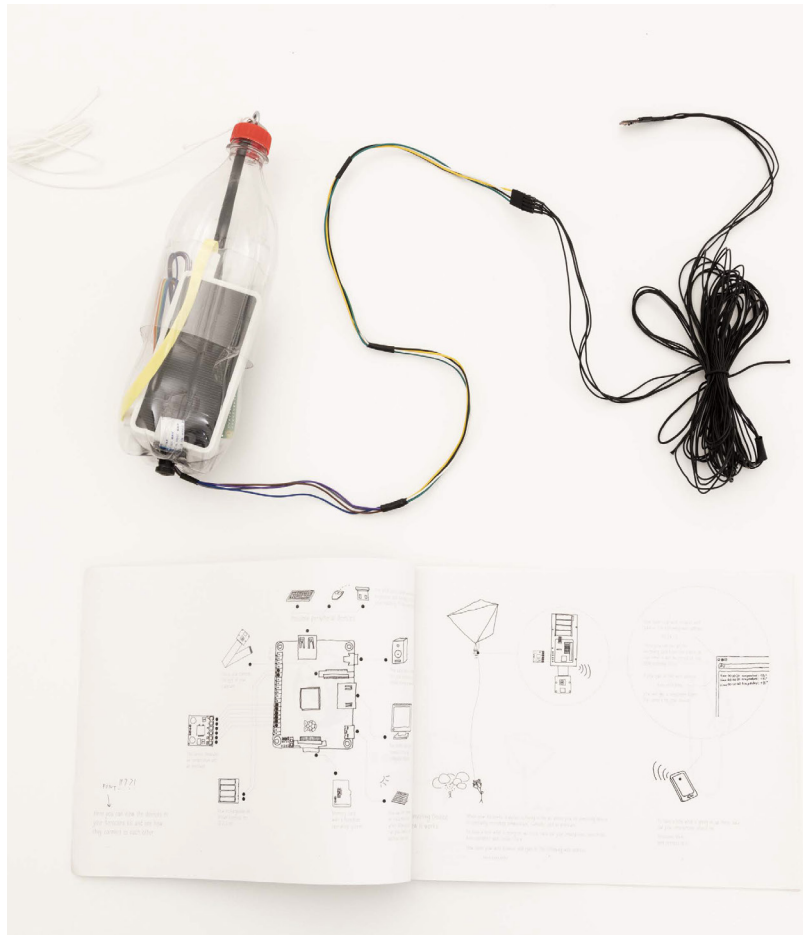


The camera and sensors to measure atmospheric data are placed in the recycled-plastic bottle provided, and then attached to the Explorer sculpture, ready for lift off!



SensAIR

SensAIR is the sensing kit enclosed in the Aerocene Backpack, developed collaboratively with diverse community members and open to all for further hacking in response to localised atmospheric needs. Contained within a reused plastic bottle, a Raspberry Pi single-board computer connects to a Raspberry Pi camera, a BME280 pressure/humidity/temperature sensor, a solar battery pack, an SD card, and a WLAN stick (USB 2.0). Prior to take off, the device is attached to the sculpture allowing for non-intrusive, emissions-free scientific study of airborne matter, and enables the gathering of aerial pictures, atmospheric data, and air pollutant measurements, along with temperature, humidity and pressure.



> AEROCENE BORROWING STATION



With several Borrowing Stations around the world, Aerocene can be seen as a nomadic hub for its community to dive in the ocean of air that envelops us all, inviting people to shape performances of their ethical commitment to fossil free futures

The Stations are ready to lend the backpacks using a safety pilot course. Decentralizing the foundation for the worldwide population, the Borrowing Stations are self-defined and collectively activated spaces for becoming aerosolar, where the local communities finds a place for exploring life in and with the air.



Tethered Flights in AUSTRALIA - Lucky Bay, AUSTRIA - Sankt Ulrich, ITALY - Lago ExSnia - Rome, ARGENTINA - San Louis, UK - Lancaster, AUSTRALIA - Fremantle, ARGENTINA - Buenos Aires, SPAIN - Barcelona, GERMANY - Berlin



Every part of the Aerocene Backpack kit is open source, inviting people to build it themselves. As part of Aerocene, students, researchers and enthusiasts have been coming together to participate in so called “hackathons” to learn about the scientific, as well as, imaginative and sociological elements of the project. Thinking about new sculpture designs or sensors, or augmenting the Aerosolar software with new capabilities, to hack in Aerocene is to overcome the limitations of a given methodology, and to creatively engage with one’s imagination.

Aerocene performances are weather dependent, a sign of Aerocene's attempt to rebuild a less anthropocentric relationship with the environment. In the age of the Anthropocene, it has become possible to ignore the tumultuous variation of the natural world, to usurp its control by jet plane and rail road, cutting through wind and storm with petrol, riding floods with motorised engines, ironically contributing, in the propulsion of greenhouse gases, to the increasing unpredictability of the weather phenomenon.

To be deprived from the possibility to schedule or plan something in this fast paced contemporaneity, because of the unpredictability of a natural phenomenon, could be a way to exit from our epistemic isolation and re/entangle ourselves with our surroundings. In this case, the weather becomes a co-determining force, deciding what we are and what we can do, instead of being seen merely as an envelope, a wallpaper or scenography of our lives. Here, the event depends on a much more complex series of factors, those constituting a certain weather condition. Aerosolar sculptures can fly only if the elemental dialogue establishes a certain thermodynamic balance allowed by natural forces.



> FREE FLIGHT

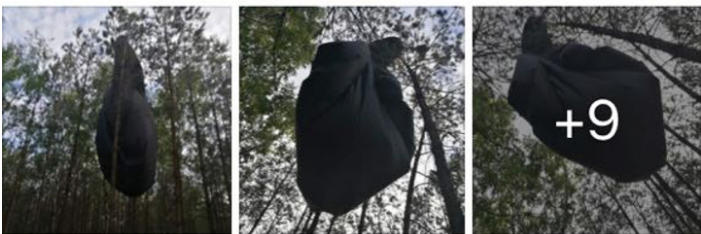


Aerocene Free Flight journeys represent the long term common imaginary of the Aerocene community in concrete terms, going beyond symbolic and political borders, re-examining freedom of movement between countries, continents, planets and universes.

An Aerocene Free Flight is an untethered, zero emissions, solar powered flight challenging the limits imposed by the Anthropocene. In summer of 2018, two Aerocene sculptures made more than 500 kilometer journey following thermodynamic currents from Germany to Poland over a period of 5 hours. In the capacity of becoming buoyant and learning to float over land and territories, what is implied is a criticism of the way in which borders are set up by humans, the power of national institutions to decide who can transit, policies that dramatically affect vulnerable subjects, humans as well as other animals.







aprs.fi
Login

Map

DL7AD-15 · center · zoom · info

2018-06-09 18:17:51
19 km/h alt 744 m
Telemetry 2018-06-09 18:17:51: [show telemetry](#)
Vbat: 4.450 V, Vsol: 0 V, Pbat: 2.660 W, Temperature: 22.600 degC, Airpressure: 91462.500 Pa
[AAzPCA@Q,t7DAAAAQAXEVzvtD2j_ar@rh\)h\]bAAAAAAAABtUGAAAADHAAXL/D023AO2AA*hE~X](#)
[APECAN via WIDE1-1,qAR,SR3NDG]
being tracked · [stop tracking](#) · [track in Street View](#)

Google Maps

Search Clear

info



Since the dawn of Aerocene, various sculptures and tools have been invented and world records broken.

For the Air. For the Climate.

For the first time in human history, humans fly free into the air.

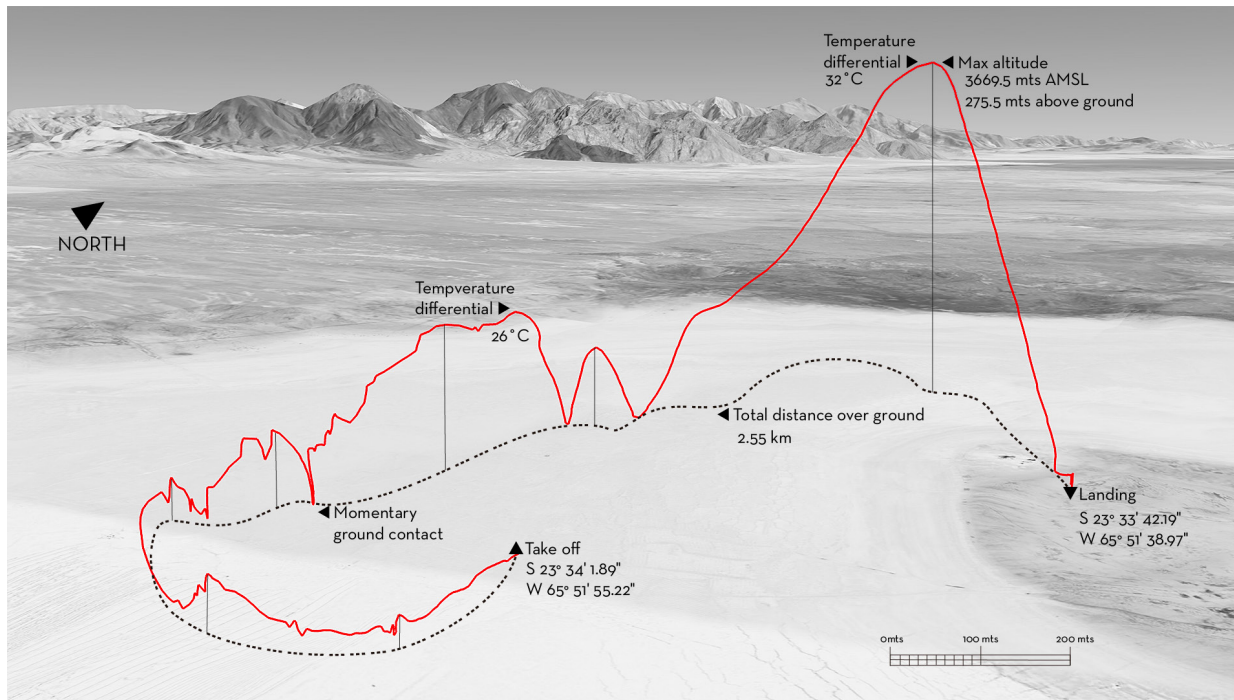
On the 25th of January 2020, Aerocene Pacha — a fuel-free hot air balloon — lifted a person into the sky, landing safely back on earth using only sun and air we all breathe, setting 32 unprecedented world records.

Aerocene flies without fossil fuels, batteries, lithium, solar panels, helium, hydrogen and carbon emissions. This marks the most sustainable human flight in the history of aviation, being certified by the Fédération Aéronautique Internationale (FAI).

Fly with Aerocene Pacha was presented as part of CONNECT, BTS project, curated by Daehyung Lee.



WORLD RECORDS



Altitude: 275.5 mts AGL
Distance: 1.73 km
Duration: 1 h 14 min*

**Certified by the FAI (Fédération Aéronautique Internationale);
A safe & certified vehicle;
For the female and general categories.*



On November 8 2015, the an Aerocene sculpture lifted up 7 passengers without any propane, hovering for about 2 hours and 55 minutes achieving the first certified tethered aerosolar flight.

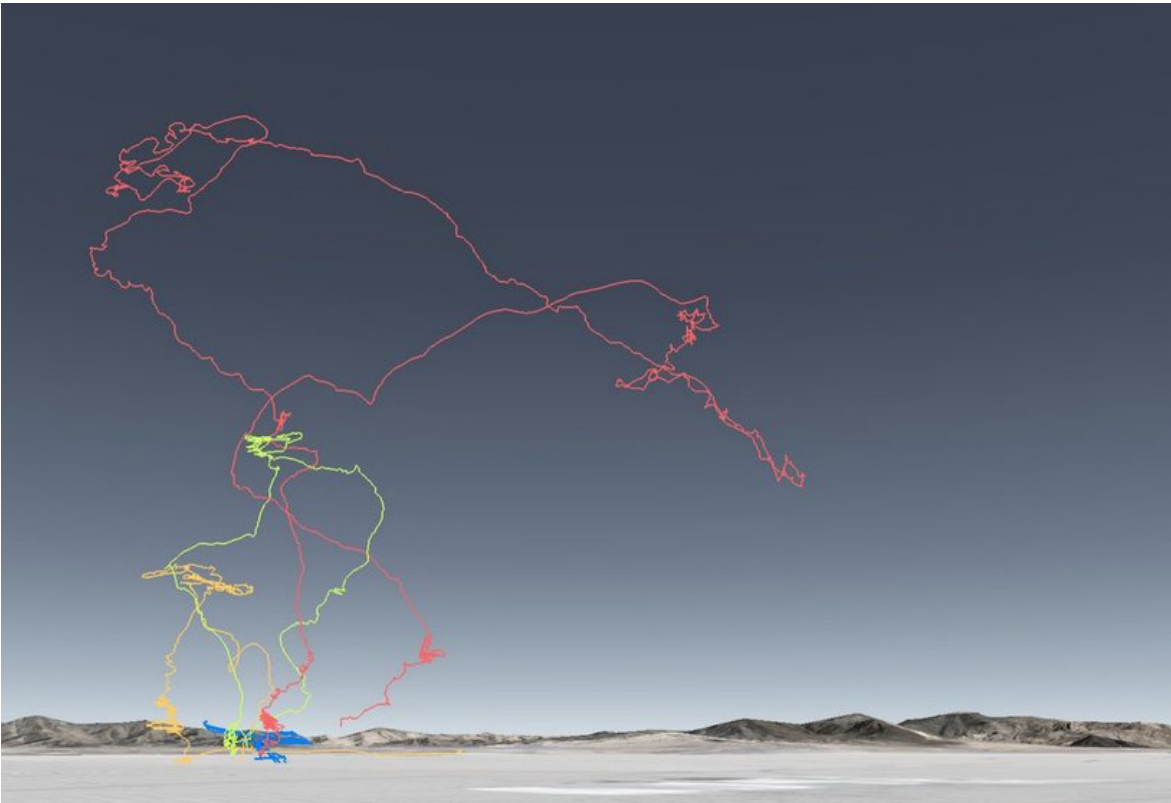
Normally, a hot-air balloon flight with a pilot and a passenger would need 324 liters of fuel to make the same journey. The launch was part of the symposium "Space without Rockets" in the context of the exhibition "Territory of the Imagination" at the Rubin Center for the Visual Arts in El Paso, Texas. White Sands as a site carries significance as it is the place where the first nuclear weapon tests were carried out, events that have been claimed to signify the beginning of the Anthropocene.



> AEROGLYPHS

We are used to fuel-powered flights, which leave behind visible condensation trails, straight lines in the sky. In contrast, the trajectories of Aerocene are invisible. They follow the rivers of the wind and the weather conditions. Like handwriting or fingerprints, the traces of Aerocene flights are unique. And we think that the lines we draw with the wind can become signatures for a declaration of independence from fossil fuels.

Aerocene sculptures can be equipped with a motion GPS tracker that records its movements as it floats with the air. By converting the position data into digital visualizations, air-drawn signatures, aeroglyphs, take shape. Complex data visualization is bursting with activity, interweaving the worlds of arts, science and graphic design. Creating aeroglyphs makes evident the unique qualities of the air and interactivity with the environment at large. From Handheld GPS to Google Earth, Aeroglyphs exist in several forms, depending on the origin of the data: Tethered, Free and Simulated flights around the world within The Aerocene Float Predictor.





03.06.2018

52°23'18"N 13°30'17"E, Schönefelde, Germany

Alice Lamperti, Anna Drewes, Aurelien Calpas, Aysegul Seyhan, Banu Çiçek Tülü, Camilla Berggren, Claudia Melendez, Dario Iannone, Dario J Lagana, Denis Maksimov, Devrim Yasar, Erik Vogler, Gwilym Faulkner, Hannah Turner, Ilka Tödt, Joshua Depaiva, Kimberly Bradley, Leopold Schulenburg, Mariia Dubrovskaya, Martina Pelacchi, Matthias Böttger, Moonsung Cho, Roland Mühlethaler, Roxanne Mackie, Sara Ferrer, Sophie Rzepecky, Sven Steudte, Thomas Heidtmann, Timo Tuominen, Yelta Köm, Zaida Violan, Marcin Pindor, Włodek Tarnowski and all members from the Radiosondy Polska community



01.08.2018

52.2692° N, 14.4877° E, Helenesee, Frankfurt Am Oder, Germany

Sven Steudte, Thomas Krahn, Zaida Violan, Stefan Mueller, Tomás Saraceno, Yoon Cha, Adam Hudec, Fiorella, Joaquín Ezcurra, Sofia Lemos, Camilla Berggren Lundell, Alice Lamperti, Erik Vogler, Gwilym Faulkner, Anna Guðný Jónsdóttir Þór, Aysegul Seyhan, Dario J. Laganá, Saverio Cantoni, Ada Hennel, Marina Hoxter and Roxanne Mackie.



04.08.2018

48.8676° N, 2.3633° E, République, Paris, France

Ewen Chardronnet, Philippe Lemaire, Frédéric Deslias, Nicolas Maigret, Francois Ronsiaux, Noura Elouardi, Camilla Berggren Lundell, Alice Lamperti, Erik Vogler, Gwilym Faulkner + 2 milion people all over the world during 350org Rise For Climate March



22.02.2018

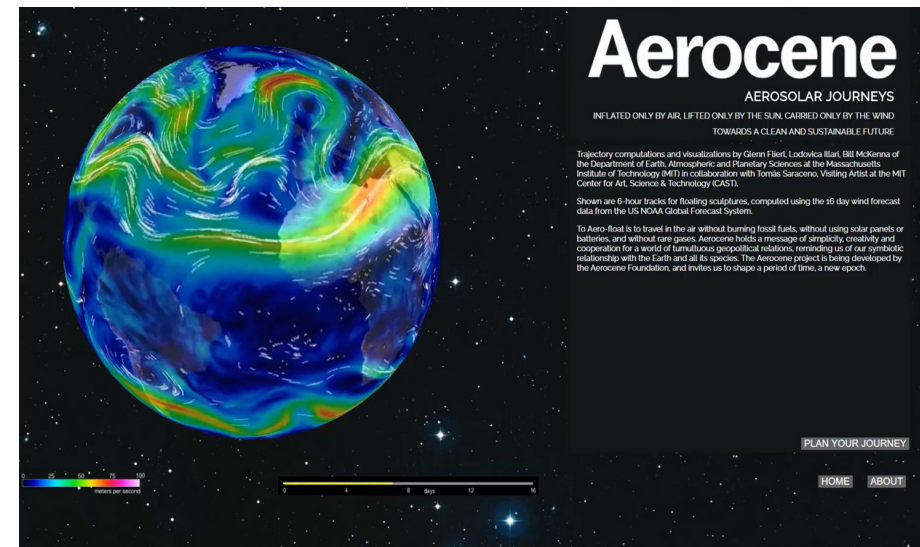
24.1858° S, 65.2995° W, Jujuy, Argentina

Alicia de Arteaga, Maxi Bellman, Martín Bonadeo, Joaquín Ezcurra, Agustina de Ganay, Guido Ignatti, Maximiliano Laina, Pablo Lapadula, Inés Leyba, Eduardo Marengo, Ana Martínez Quijano, Tomás Saraceno, Sven Steudte, Pio Torroja, Gabriela Urtiaga

In 2016, together with MIT Department of Earth, Atmospheric and Planetary Sciences (EAPS), the Aerocene Float Predictor was developed, a global forecasting system utilising meteorological data to predict flight paths of aerosolar sculptures as they drift with the winds, challenging geopolitical borders and weaving trajectories that become signatures petitioning for the de-carbonisation of the air, and towards independence from fossil fuels.

The Float Predictor computes and visualises the trajectories of floating solar balloons based on real-time forecasts of global wind patterns. Atmospheric data is gathered from NOAA's Global Forecast System (GFS), a numerical weather prediction system containing a global computer model and variational analysis run by the US National Weather Service (NWS).

The 3D visualisation presents accurate wind parameters (speed and direction at specified height) in three hourly intervals, at different altitude levels that can be explored through the Float Predictor's user interface. The mathematical model is run four times a day, and outputs a forecast for up to 16 days in the future. The simulation uses the most recent midnight or noon UTC data. The complete dataset includes many other meteorological variables (including atmospheric, oceanic, land/soil and sea ice models) that are distributed through different product types and can be accessed from the GFS homepage.

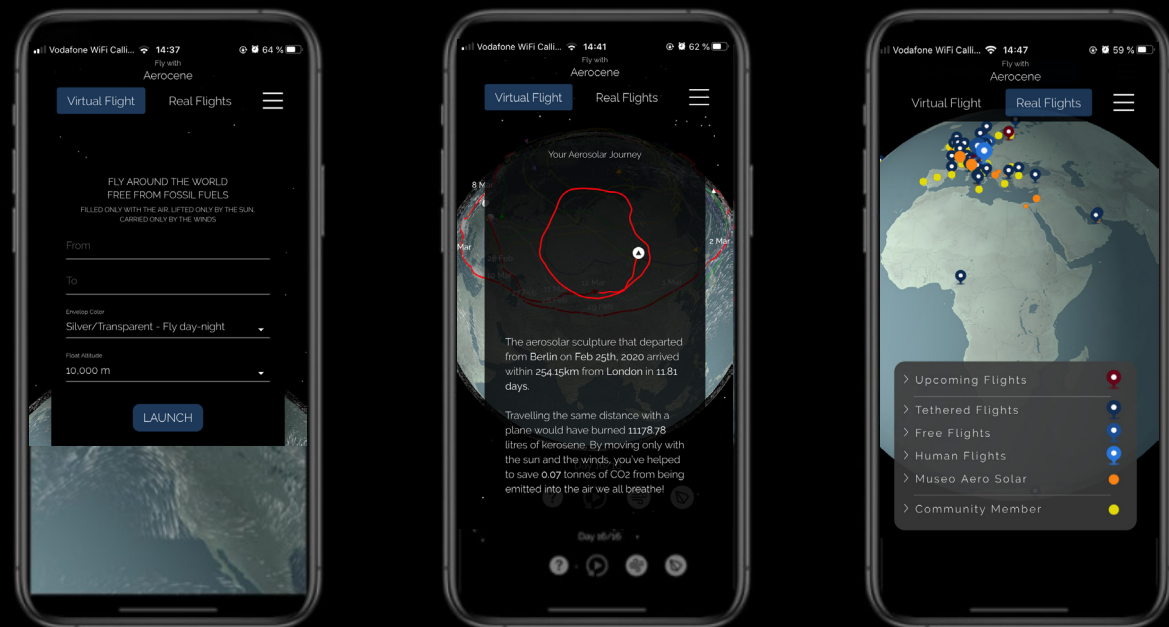


Aerocene - Float Predictor App

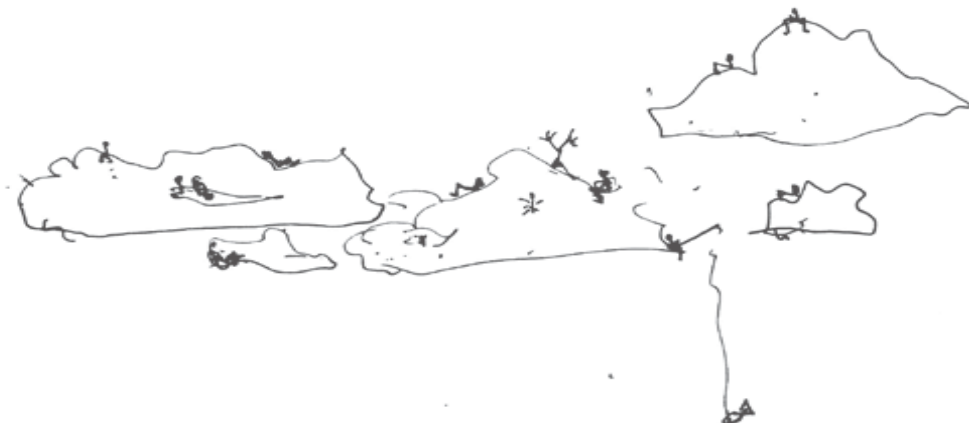
Where will you float?

The Aerocene – Float Predictor App is a global forecasting system using open meteorological data to predict flight paths of aerosolar sculptures circling around the globe without CO2 emissions.

**DOWNLOAD THE APP
FOR FREE**



The Aerocene App (2020) is developed by the Aerocene Foundation in collaboration with Studio Tomás Saraceno



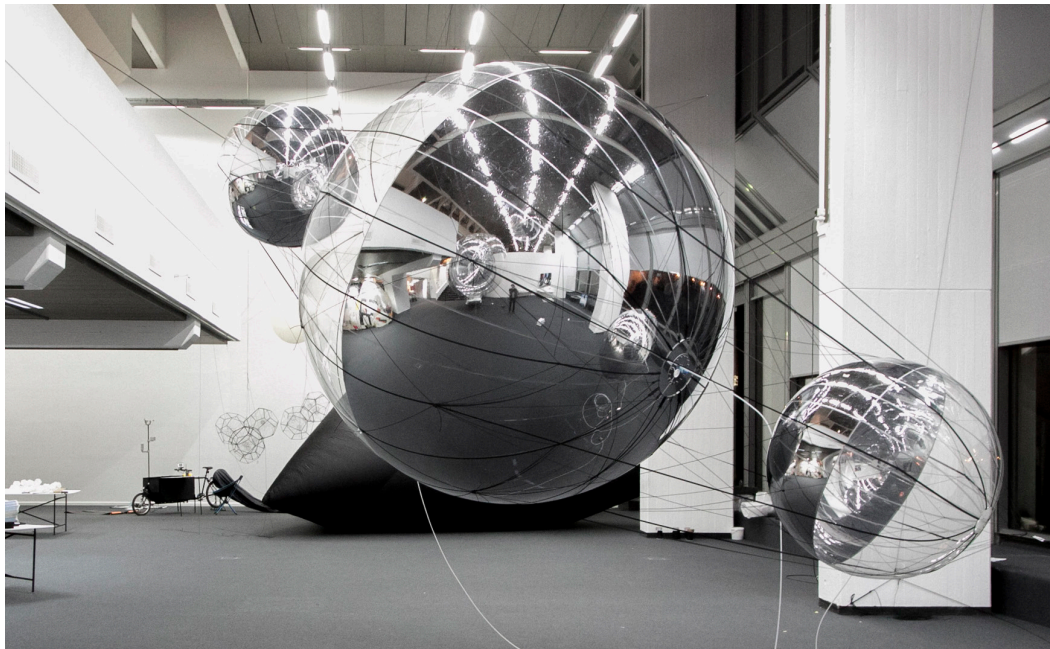
AEROCENE EXHIBITIONS









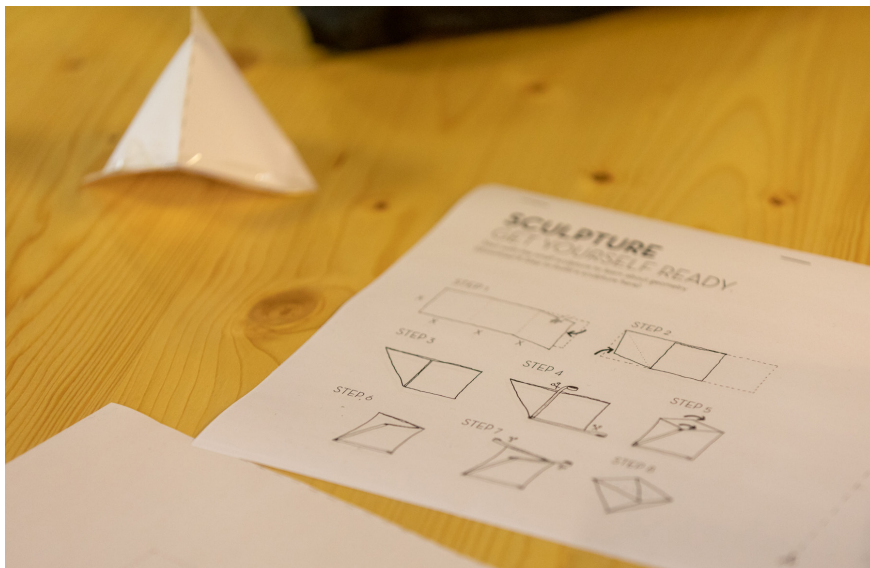


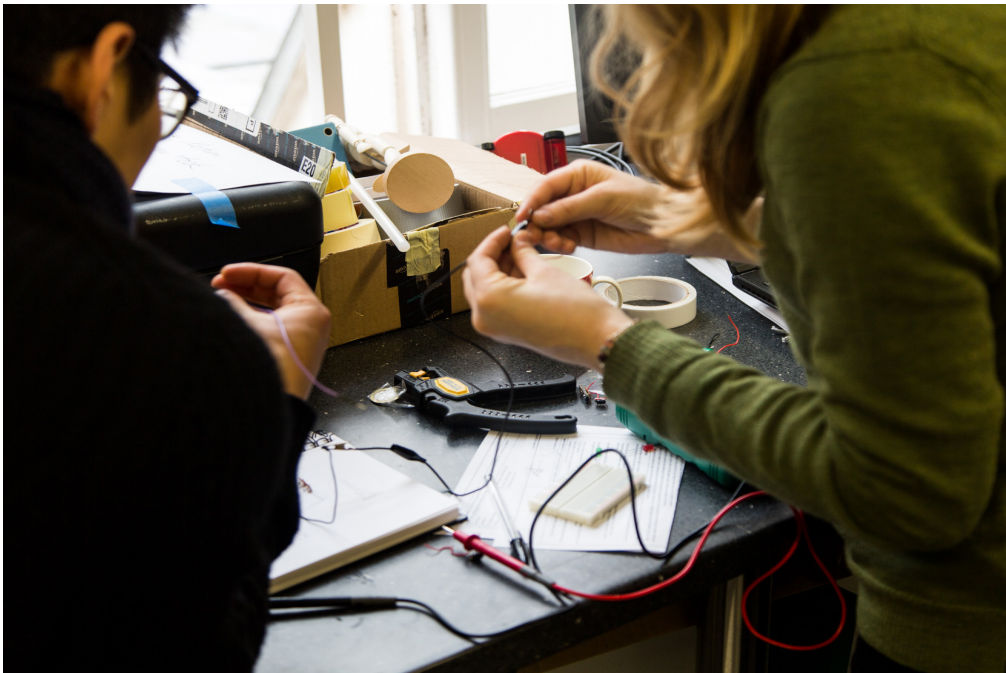
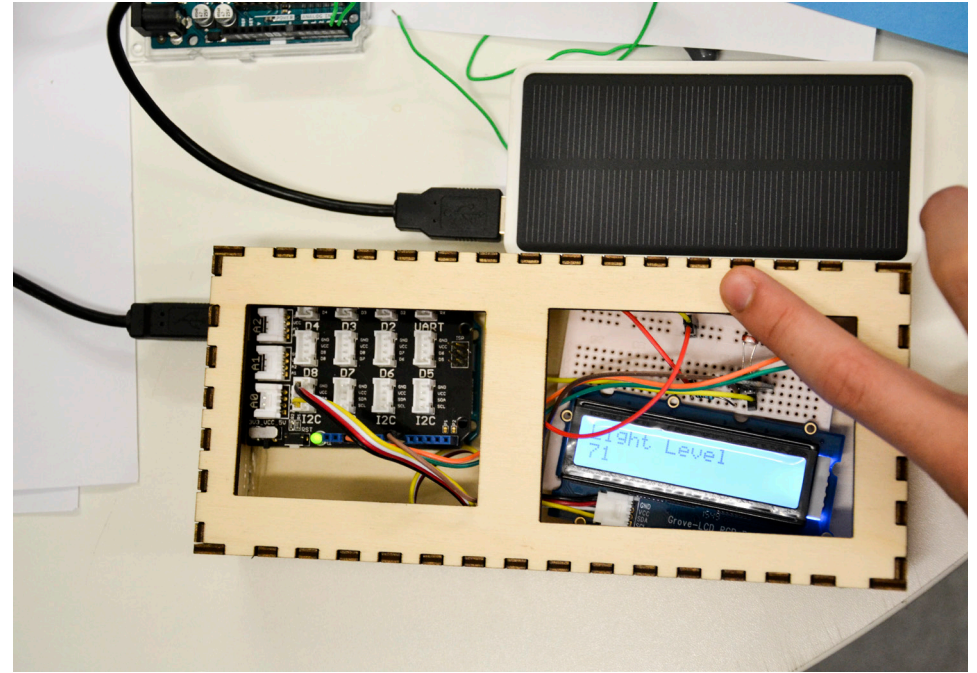
SYMPOSIA and WORKSHOPS

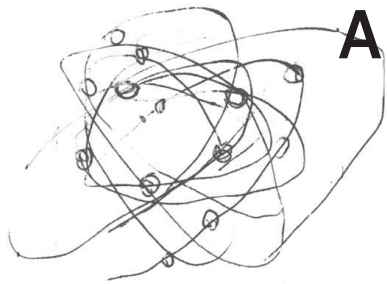












AEROCENE PUBLICATIONS



> COLLABORATORS

- Public Lab
- CCK Argentina
- CNES (Centre National D'Études Spatiales)
- Department of Earth, Atmospheric and Planetary Sciences at MIT (Massachusetts Institute of Technology)
- Grand Palais
- Palais de Tokyo
- Solutions COP21
- Museo Aero Solar
- Red Cross/Red Crescent Climate Centre
- Artists 4 Paris Climate 2015
- IAK Institute at Technische Universität Braunschweig
- TBA21 Academy
- Transsolar
- Parley for the Oceans
- Natural History Museum (London)
- Imperial College London's Advanced Hack Space
- The Goethe Institute
- Royal College of Art
- Exhibition Road, London
- Radioamateur
- Freifunk





AEROCENE
2020

