

# HOMOGENITUS

*Generation of fake clouds*

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Marie.julie BOURGEOIS 2021-2022

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Dear Sir or Madam

Homogenitus is a climate experimentation project supported by the Paris-Saclay diagonal, the Scène Recherche of the ENS, the University of Evry and the CNC-Di-créam. This multidisciplinary project questions the perceptive and ideological stakes of climate: when fine particles opacify and obscure the atmosphere, how can we project ourselves towards new horizons?

The narrative principle of the project is to bring together actors and divergent points of view around climate innovation, by questioning the notions of light and darkness in relation to science. The solutions proposed by solar geo-engineering open up the debate, and for this purpose different entities are produced:

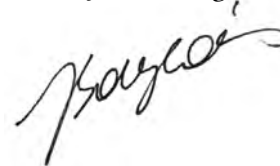
- *Nubus* is a (fictitious) geoengineering start-up that manufactures artificial clouds to mitigate the effects of global warming. This proposal is based on solar geoengineering techniques, including SRM (mainly by the Harvard SCOPEX Laboratory), which - theoretically - increases albedo. This imposture hijacks the codes of innovation and marketing, and underlines the contradiction that these technological solutions bring while bio-ethical issues emerge and spectators are taken to task. Scientific research is nowadays shaken by the conspiracy theories and post-truths, while ambitious and experimental solutions exist and remain confidential.
- *FakeCloud* is a collective of activists who denounce climate manipulation, including solar geo-engineering projects.
- *The weather game* brings together actors around a collective connected performance, a climate game where spectators generate their own clouds from their smartphones during a musical evening.

The project brings together different partners; artists and designers, previously gathered around speculative research projects and scientific actors (ENSCI, ESP-CI, CNRS...). Their interest in the imaginary linked to quantum physics, scientific issues, fiction and ecology converge around this research project. A team of research consultants in climatology and reviewers of IPCC reports (UVSQ-LSCE-INREA-CREAC, RAC) will help refine the state of the art of solar geo-engineering techniques. These interlocutors bring to light hidden interests, inconsistencies, dangers or undesirable and secondary effects. This team will contribute to the discussion of ethical and scientific issues - the manipulation of the climate and the misuse of science. A production team gathered around Julien Taïb / Crossed lab, as well as a residency and dissemination framework within the Scène Recherche de l'ENS will allow the development of the final performance which will bring together the different actors around a residency and then an evening of cloudy performances at the end of 2022.

The relationship between art, science and society is at the heart of Homogenitus, and its critical, poetic and ideological dimensions are a continuation of previous research in the same multidisciplinary perspective. Homogenitus offers exhibitions, performances, research and creation workshops in collaboration with students from the ENS and the University of Evry, as well as meetings, study days and conferences (*Meteorological post-realism: anthropogenic clouds and opaque cities Archifiction*).

I remain at your entire disposal to present the project or to give you more or to provide you with further details. Please accept, Madam, Sir, the expression of my sincere greetings.

Marie-julie Bourgeois



# overview

*Homogenitus* are artificial clouds generated by human activities, classified in the International Cloud Atlas in 2017 by the WMO. In the face of global warming, solar geoengineering techniques, such as solar radiation management (SRM) propose to produce artificial clouds to increase - theoretically - the albedo, these controversial technologies bring hope and fear with irony: producing clouds to reduce the greenhouse effect...

Between art, speculative design and the science of climate manipulation, the project proposes different productions that fuel the debate:

- **Nubus** is a fake start-up of solar geo-engineering (SGE), a promotional video presents the benefits of these techniques, composed of bluish particles as well as the *HomeCloudIA* program which anticipates the modalities of cloud generation: quantity of particles, composition and distribution. Nubus develops various modules for the diffusion of blue clouds: thermal devices, means of transport in the stratosphere, air evacuation system...
- **Fake clouds** is a collective of environmental activists protesting against these experimental and dangerous practices.
- **The Big Chill: The Origins of Global Warming** is a conspiracy documentary that explains the impact of agricultural and military activities on climate change, as well as the role of the Earth's volcanic activity in finding solutions...
- **The weather game** is a live cloud generation application playable on a smartphone. Viewers participate in a collective cloud generation performance based on weather data and the *HomeCloudIA*. Cloud computing takes the form of clouds that are beyond our control.

These fictions question scientific codes and raise ethical questions:

***If fine particles opacify and obscure the atmosphere, how can we project ourselves towards new horizons?***

Confronted with agnotology<sup>1</sup>, post-truths that threaten our democracies (fake news, conspiracy theories, misleading advertising, erroneous scientific publications...) our critical spirit is engaged. Media credibility, evaluation tools and sourcing allow us to refine our opinions with difficulty in the face of the power of self-media. In the current ecological context, SGE/SRM laboratories are proposing rapid and radical solutions such as the generation of particles to cool down the earth's temperatures. They propose to load the atmosphere with particles, which may have consequences for its quality and transparency, but they also cast doubt on our ecological responsibilities by proposing a miraculous solution, which may have the effect of slowing down our efforts to reduce greenhouse gases. These technologies also have side effects and threaten thermal catch-up if they are stopped. The homogenitus research project proposes to create realistic speculative fictions by playing on the codes of innovation and on our desire to find solutions to 'save' the planet (and our species). It questions the way we innovate in order to anticipate the upstream consequences of technocratic solutions.

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1 Agnotology is the study of deliberate, culturally-induced ignorance or doubt.





Start-up NUBUS : <https://www.nubus.fr/>

Pilote promotional : <https://vimeo.com/605773468>

Using SRM techniques and copying data, numbers and technologies from competing laboratories<sup>1</sup>, *Nubus* proposed innovation is a mixture of awe and fascination. The promotional film explains how the generation of «naturally bluish» particles composed of sulphur<sup>2</sup> and dispersed in the stratosphere by weather balloons will create a protective cloud cover from the sun's rays, thus increasing the Albedo and thus - theoretically - preventing a rise in temperatures.

The chemical composition of the dispersed particles as well as their bluish hue progressively warns of their potential harmfulness. Presented as discreet, these bluish clouds are camouflaged in the sky as they are produced and blend into the landscape...

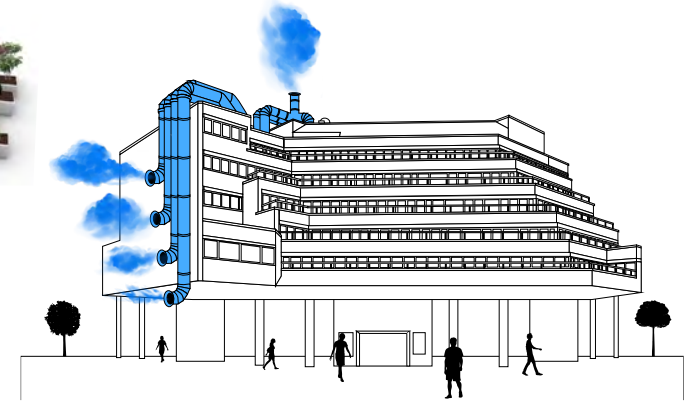
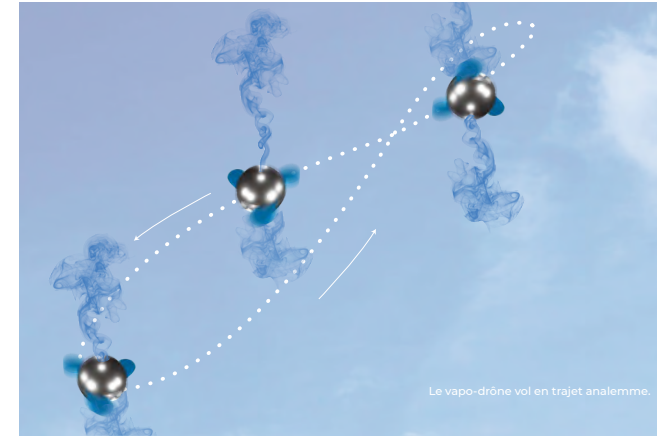
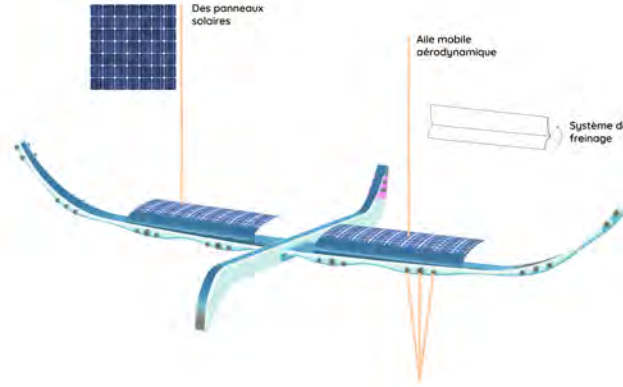


1 [SCoPEX Stratospheric Controlled Perturbation Experiment](#)

2 Different types of particles are being studied:  
Sea salt crystals, calcium carbonate, iron sulphate, vegetable clay..



# Stratosphere / city / housing



# Artiviste group



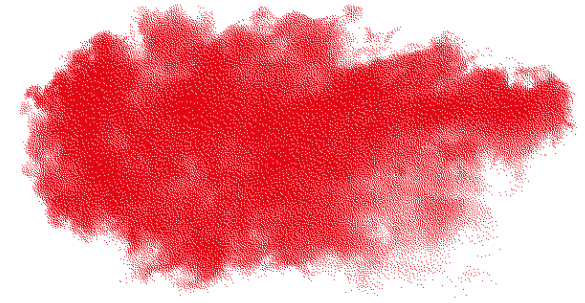
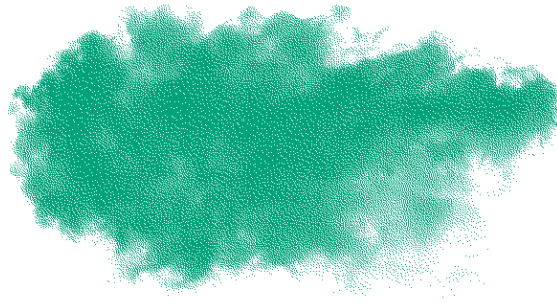
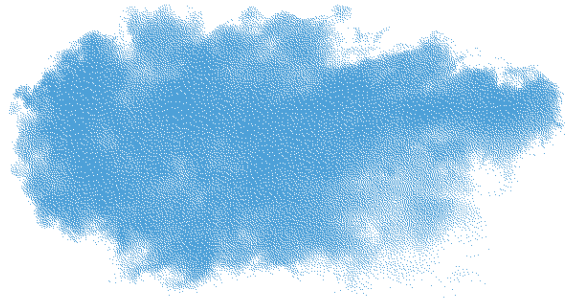
An opposition campaign engages citizens and artists to demystify the fantasies of this industry and alert to the dangers of climate manipulation. Posters will be wildly plastered as part of the launch event by the *fakeCloud* collective.



The game design will be prototyped in a VR headset as a restitutive experience of the overall narrative. An Alpha version will be developed in Phase 2.



# The weather game



A writing residency at the ENS will articulate the dialogues in the final performance. This meeting with the public reveals the interactions between the different parties around the SIG. It is a question of weaving the interplay of relationships and tensions, contradictions, inconsistencies within interests, ideologies and ecological values. Or how green washing, good intentions and innovations can lead to a potential ecological disaster.

This writing task will bring together all the points of view on the subject. To this end, audio-visual elements will serve the purpose, through illusions as well as disillusion:

- the scenography
- the artistic performance
- the meteorological sequence of the cloud machine
- the mobile cloud control interface made available to the public

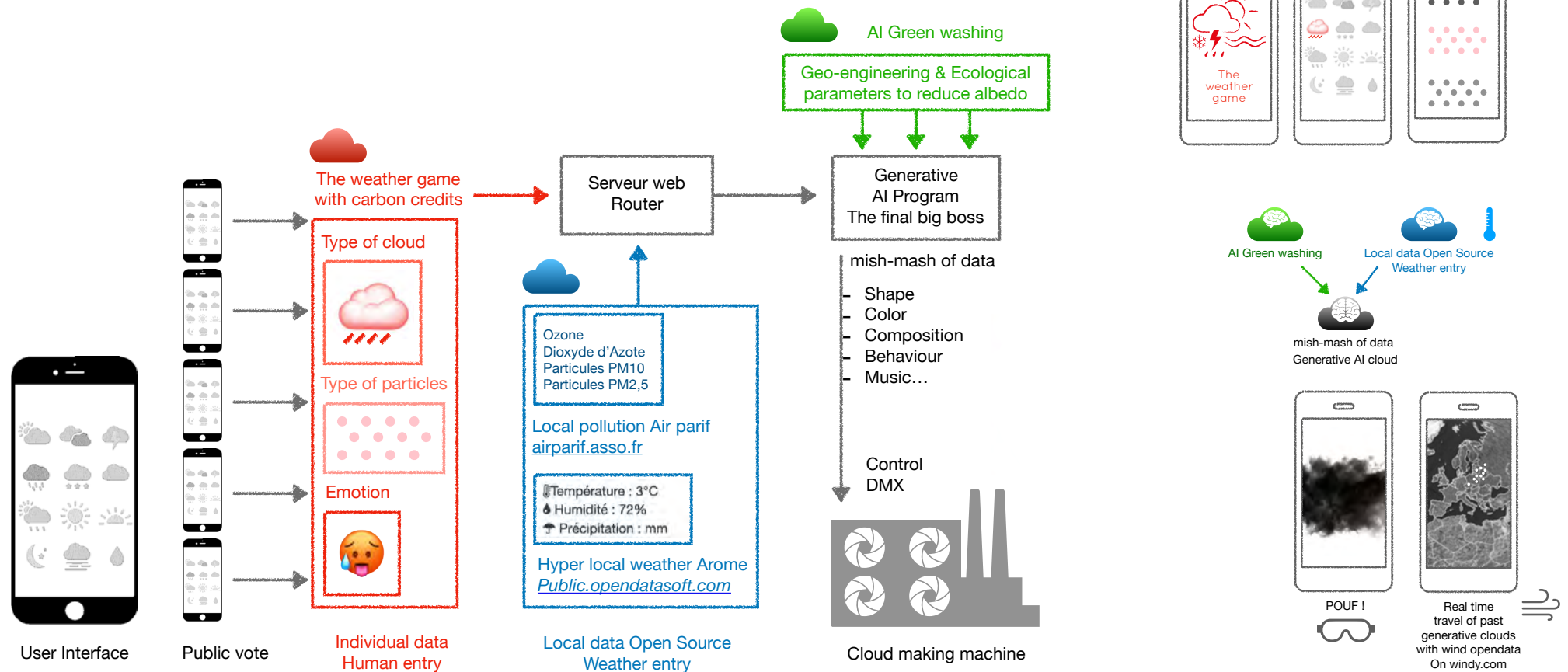
*Nubus* is organising a launch event during which the public is invited to generate **nocturnal clouds**<sup>1</sup> from their smartphones: The weather game, a potentially disturbing game of life. The optimisation of cloud production from a meteorological perspective is based on local weather data and an AI program *HomeCloud*. Climatologists are invited to this performance, as well as committed activists who are opposed to this project. Subtle irony, these clouds, at first elusive, elegant, majestic, will progressively escape the control of the geo-engineers, threatening the public with their capricious and uncontrollable behaviour...

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1 Noctulescent clouds - which glow at night - located at high altitudes, they are illuminated by the sun and from below.

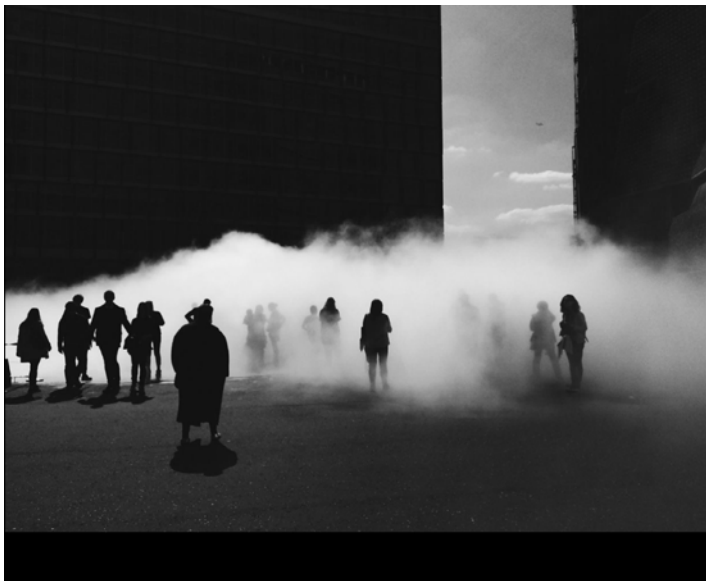


# IA HomeCloud



To discuss these issues and to confront the two sides, a performance will be organised, mixing demonstration, protest, demonstration to start the public debate. For this event, a game design application will be developed for a public performance to generate artificial night clouds and change the weather in real time. During the performance and exhibition, a live show will demonstrate the paradox of weather control: clouds will be generated from humidity, pressure and temperature data. Participants will be able to

generate clouds in real time directly from their phones, which will be sent to the cloud creation device. The artificial clouds will be created according to the chemical composition of the particles chosen by the audience (iron sulphate, silver iodide, clay, salt crystals, bacteria, pollen...) The influence of these changes on a local scale will be visible directly on the mobile application through a modification of the local weather parameters...



Fujiko NAKAYA, *Fog sculpture at Tate* 2017



Hicham Berrada *Celeste*, 2014



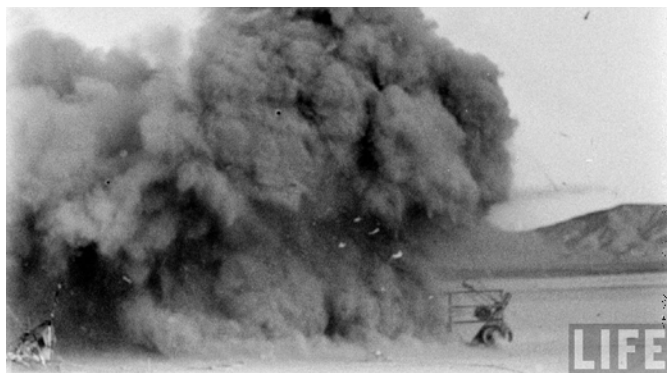
Gaines d'aération et climatisation



Test de nuage sur la Scène de recherche Novembre 2021



Rolling coal



TINGUELY Jean 21 mars 1962. Study for *End of the World n° 2*, Opéra-Burlesque-Dramatique-Big-Thing-Sculpture-Boum



Explosion de nitrate d'ammonium  
Beyrouth août 2020

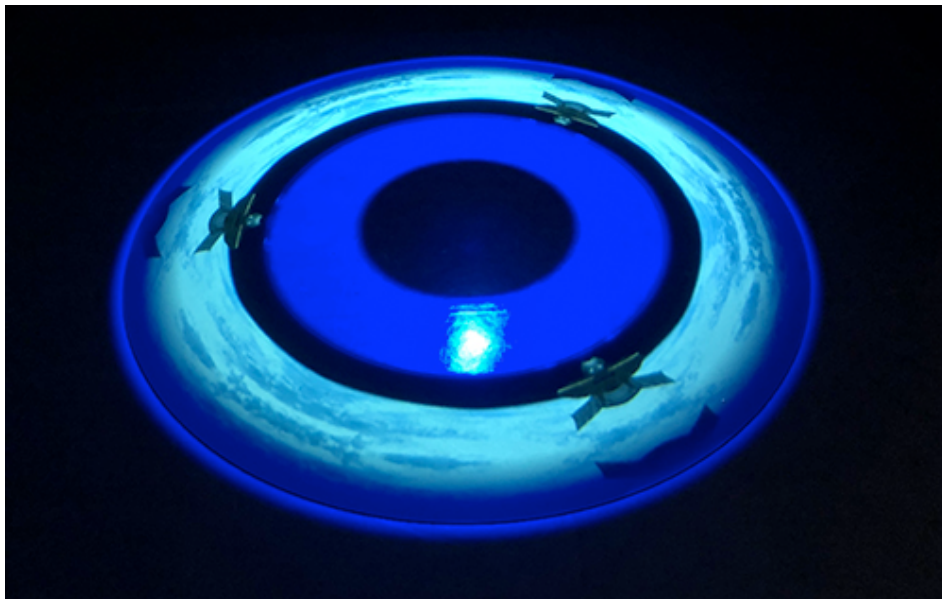


# Mariejulie Bourgeois

<http://mariejuliebourgeois.fr/>

Mariejulie Bourgeois is a digital artist, doctor in Aesthetics Science and Technology of the Arts and teacher.

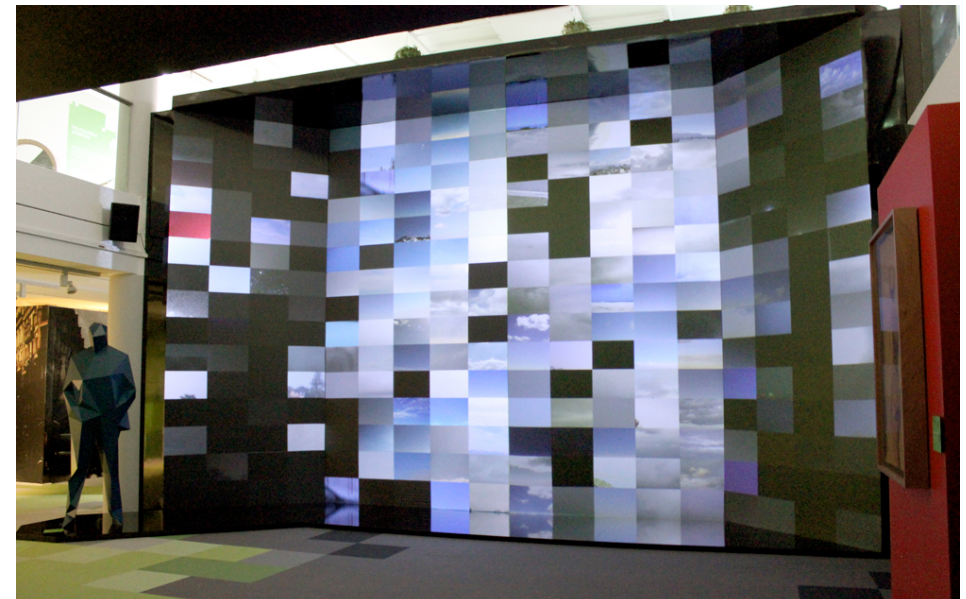
She creates in situ installations on the issues of the (tele)present body in space and questions the presence of the spectator ex situ through connected works. She develops devices that question our relationship to technology and circadian rhythms. Her installations reveal the poetry of our proliferating technological environments, engaging new uses and artificially extending the duration of daylight. She uses light as a mobile narrative material, as a vital entity as a continuum. She questions our possible futures through solar and meteorological fictions, a diversion of geo-engineering, for a new ecology and new climatic fictions.



*Oculus* 2019



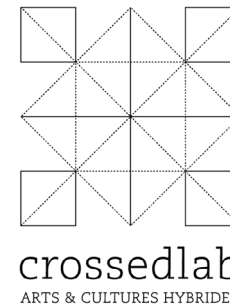
*Silence* 2019



*Tempo II* 2017



# partners / production



Laurent Milon,  
Projet USE (Universal Space Explorer)



The financial partners are the [ENS Research Scene](#) represented by Carine Le Malet and Marc Dondey, the [Diagonale Paris-Saclay](#) represented by Oliver Kahn and Marjorie Trajon, the [University of Evry](#), the Pôle Culture et Campus represented by Stephanie Cardon and Martin Guerpin and the [CNC-Dicréam](#) represented by Olivier Fontenay.

The project is followed and supported by research laboratories: the [Centre de Recherche en Design](#) (ENS-ENSCI) represented by James Auger, Armand Béhar and Roland Cahen (Research in Sound Design), as well as scientific laboratories involved in these issues through Pascal Maugis LSCE - UVSQ, Fabienne Trolard INRAE, Jean-Paul Vanderlinden CEARC-UVSQ

The creative and filming team is composed of Laurent Milon, Designer, Pierre Raimond Director and Chief Operator.

The project will be produced by [Crossed Lab](#) represented by Julien Taïb. Hybrid and transversal in nature, the projects supported evolve at the intersection of art, technology and science. Crossed Lab accompanies artists in their digital creations between contemporary music, visual, kinetic or plastic art. Beyond the genre, it is the question of the relevance of the use of technologies that is important to us. Crossed Lab is involved in and contributes to bringing contemporary digital art into an age of maturity: beyond group exhibitions conducive to discovery, critical themes on our technological era combining thought and aesthetics, the last twenty years have seen the emergence of talents who now gather a demanding body of work. It is through monographs, which could appropriately be described as immersive or experiential, that we wish to unravel the thread of an artist's thought, to confirm a vision, to affirm a paradigm specific to a signature, and not to remain at the level of an «eternal emergence».

The experiments will be carried out on the ENS research stage in residence in 2022. The mobile experience will be developed by ORBE on the [Nodal.studio](#) platform with Xavier Boissarie and Tomek Jarolim.

