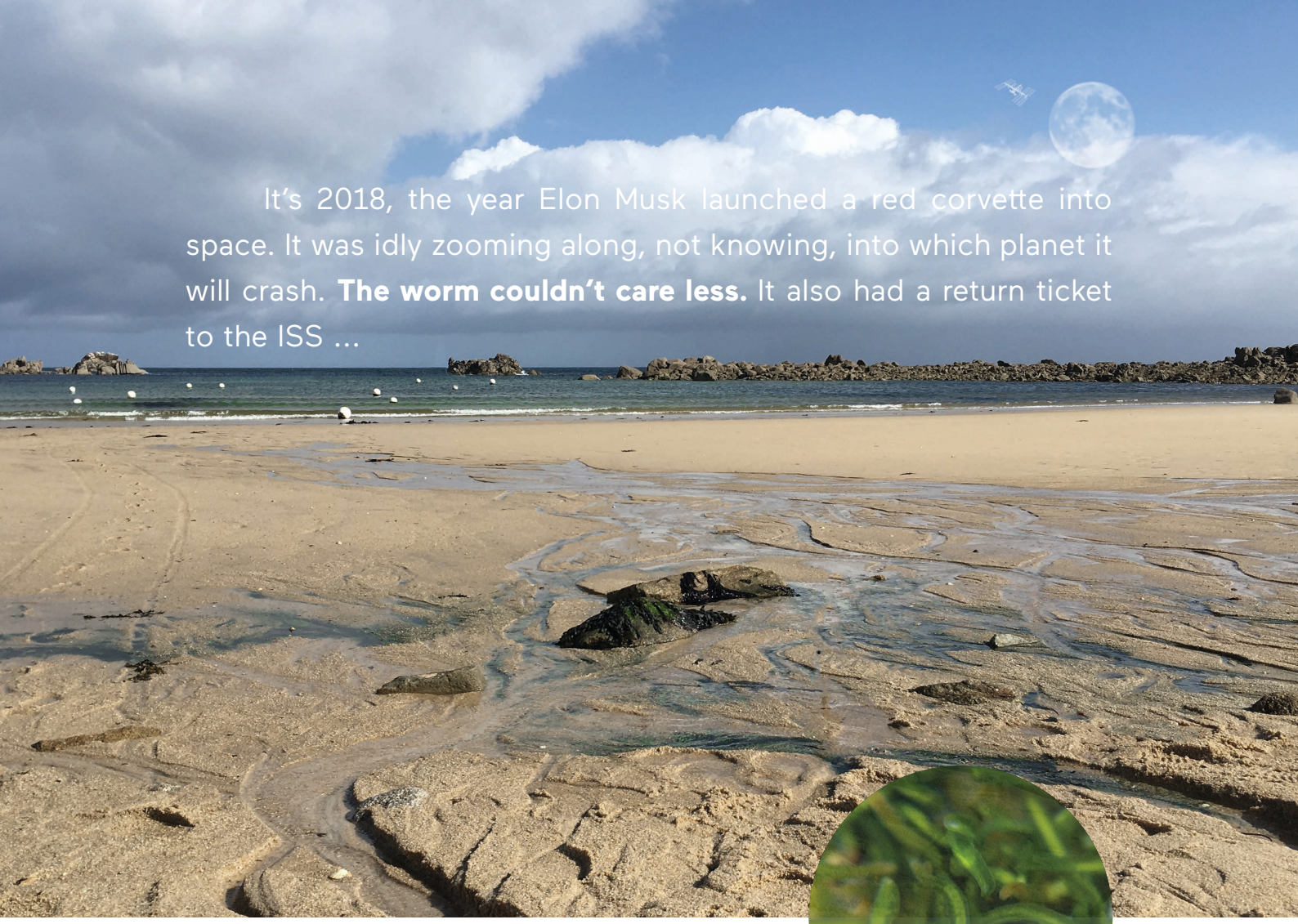

It's 2018, the year Elon Musk launched a red corvette into space. It was idly zooming along, not knowing, into which planet it will crash. **The worm couldn't care less.** It also had a return ticket to the ISS ...

Mission statement

Roscosmoe

Why did the sea worm want to go to space?

Roscosmoe aims to develop a series of experiments and habitat designs to examine the behaviour of the sea acoela flatworm Symsagittifera roscoffensis in various gravitational environments including the outer space. By combining science, arts, humanities and design, the project Roscosmoe presents a societally integrated approach to space exploration (Space 4.0) that has the capacity to challenge existing attitude towards space habitation, planetary protection and extraterrestrial bioeconomy. Specifically it connects the fields of marine biology, design, outer space conditions (microgravity), intermedia art, eco-feminism, cosmism and the xenochthonic paradigm (becoming alien). The plant-animal has been the subject of study in fields such as regeneration, neurogenesis, circadian rhythms as well as an inspiration for both natural scientists and humanities scholars who investigated biological and cultural sympoiesis.

Roscosmoe methodology is based on frugal science, open source design and put in motion by a multidisciplinary team composed by scientists, artists, makers and humanities researchers.

The mission Roscosmoe outlines 4 overlapping chapters necessary to prepare and send the candidate cosmonaut Roscoff worm to outer space, as a representative of the liminality of animal and plant, sea and land, Sun, Earth and Moon, towards the intertwining of technology with biology, biotic with azoic environment.

Milestones:

- *Un ver et une algue: l'acœle Symsagittifera roscoffensis*, X. Bailly, Biofutur 299, May 2009
- *Humalga*, Spela Petric & Robertina Sebjanic, 2012
- *The chimerical and multifaceted marine acoel Symsagittifera roscoffensis: from photosymbiosis to brain regeneration*, X. Bailly et al, Frontiers of Microbiology, 2014 Oct 2;5:498.
- Roscoffensis kit for education - TP Baccalauréat
- Xavier Bailly introducing Roscoffensis at ArtLabo conference, Lieu Unique, Nantes, Apr. 2015
- Xavier Bailly introducing Roscoffensis at Black Market conference at Musée de l'Homme, Dec. 2015, Paris - COP21 parallel event
- ArtLabo artist residency at Xavier Bailly's lab (Modèles Marins Multicellulaires, M3), Station Biologique de Roscoff (CNRS-UPMC), Apr. 2016
- *Becoming Autotroph*, Ewen Chardronnet, in Let's Talk about the Weather, Art and Ecology in a Time of Crisis, Sursock Museum, 2016
- Roscosmoe art&science&space project gets its name, Dec. 2017
- Roscoffensis' Wikipedia page in french, Jan. 2018
- *Roscosmoe* presentation at *Nous ne sommes pas le nombre que nous croyons être*, Carasso Fondation, Cité Internationale des Arts, Paris, Jan. 2018
- Roscoffensis' Wikipedia page in english, May 2018

Fields on expertise:

- Marine biology research: Life cycle of the worm, Reproduction, Regeneration capacity, Chronobiology, Symbiotic relations to ocean ecology (and climate change), Endosymbiotic theory of evolution and Biotechnological applications.
- Engineering and design
- Space practice: Space policy, Space history, Space culturalisation and Microgravity in parabolic flights.
- SHS: Historical narrative, Biosphere biophilic narratives, Frugal science, Anthropocentrism, Speculative fiction methodologies (String Figures), Ecological/Economical rapport, Scientific narratives, Failed care experiments, Observational affects, Gift economy
- Artistic practice: Postgravityart, Autonomous astronautics, Embodied narratives, Performativity, Critical making, Spela Petric and Robertina Sebjanic *Humalga* project's narrative & experience.

Team:

- Xavier Bailly
- Ewen Chardronnet
- Špela Petrič
- Miha Turšič

Partners

- PiNG, France
- Postgravityart, Slovenia
- Station Biologique de Roscoff (CNRS / Sorbonne Universités), France
- Waag Society, Netherlands

Short term	Mid term	Long term
Research:		
• **Biochemical Economy** • **Modes of equilibrium, rythms and cycles** • **Space Biodiversity** • **Space 4.0** • **Open Space** • **Queer Space**	• **Micro-Ecological Life Support System** • **Gravitational modification & adaptation, Cosmoc radiation. Influence on algae inside the worm, Sea water in space** • **Biological and ecological dependances** • **Planetary Protection Policy and transition to Gaïa Theory** • **Space Ecology and Space Economy**	• **Ontological perspectives** • **Regeneration** • **Genetic modification** • **Impact of zero gravity**
Experiments:		
• **Life Support Habitat** • **Observational Habitat** • **Environmental journeys in multiple comperative conditions**	• **Isolated Habitat** • **Umbot integration** • **Critical Container** • **Environmental journeys at space facilities** • **Tales / books/ speculative fictions**	• **Experiments on ISS** • **Critical container performativity**
Activities:		
• **Scientific paper (BioEssays journal)** • **Speculative scenarios workshops** • **Open source documentation** • **Exhibitions** • **Frugality framework** • **Holobionts and endosymbiotic theory of evolution in humanities and social sciences.**	• **Policy paper (regarding 50th anniversary of man on the Moon and PPP)** • **Care policy versus protection policy** • **Simposium, discussions**	• **Speculative and critical considering of policy paper**

2018 Agenda

- ArtLabo *Roscosmoe* artist residency at Xavier Bailly's lab (Modèles Marins Multicellulaires, M3), Station Biologique de Roscoff (CNRS-UPMC), apr. 2018
- Xavier Bailly at ESA AgroSpace-MELISSA workshop, Rome, May 2018
- Scientific paper in BioEssays, May 2018
- *Roscosmoe* at *Life at the Edges* exhibition, Science Gallery Dublin, Jun. - Aug. 2018
- *Roscosmoe* workshop, speculative scenarios and fabulations, Summer Lab, Ping, Saint-Nazaire, Jul. 2018
- *Roscosmoe* at Chroniques biennale, Marseille, Oct. 2018
- *Roscosmoe* at IAC, Bremen, Oct. 2018