



*Renland*



*Greenland's  
forgotten  
mountains*

A  
**Lost  
Worlds**  
project

by





## AN OUTSTANDING PROJECT

Enthralled by stories of polar exploration pioneers, a team of adventurers set themselves on a trans-disciplinary expedition **across the Renland**, Greenland's last unexplored mountain range.

With deep valleys set between towering virgin walls, a vast icecap, gigantic glaciers and breathtaking landscapes, along with annual gatherings of narwhals and other cetaceans, the Renland - located in the Scoresby Sund, the world's largest fjord - is the ideal place for an extraordinary expedition, combining climbing, ice diving, scientific surveys and human adventure.



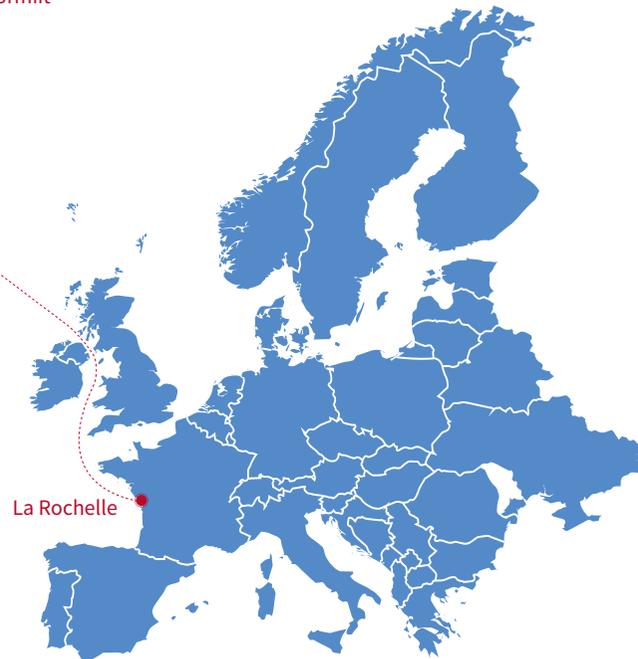
# ROADMAP TO RENLAND



**RENLAND**  
Ittoqortoormiit



Reykjavik



La Rochelle

## FALL 2015

- First spark of the project with the encounter of Evrard and Benoît, two enthusiasts. Evrard is a confirmed explorer, filmmaker, and founder of an environmental NGO, while Benoît is a young entrepreneur, climber and skipper.

## DECEMBER 2015 - JANUARY 2016

- Search for the best boat
- Identifying the targets of the expedition
- Selection of the team members

## FEBRUARY - APRIL 2016

- Search for partners

## JUNE - JULY 2016

- Sailing starts from France, then on from Iceland to Greenland

## JULY - AUGUST 2016

- Exploration of the Renland : on the glaciers and within their depths, around icebergs in the fjords and under water, on top of the ice cap and up to the north of Jameson Land tundra

## SEPTEMBER 2016

- Return to France

## DECEMBER 2016



## SCIENTIFIC OBJECTIVES



## BIODIVERSITY & EVOLUTION

### Density of marine mammals populations

Hunting and climate change could cause a decline of narwhal populations up to 10% each year. There are only rough estimations of the world population of this mammal, because no extensive study have been conducted to this day. We plan to establish the repartition and size of the groups of marine mammals in the fjord using underwater hydrophones and aerial observations by drones.

### Study the colonization of recently deglaciated environments by living forms

The retreat of Greenland's glaciers reproduces what happened with glaciers in the European Alps 12,000-13,000 years ago. The recently developed method of Environmental DNA ("Metabarcoding") gives access to an identification of all living organisms present in a given location with just a soil sample. This will give us the key to understand the sedimentation process as well as the colonisation of these recently deglaciated environments by pionner organisms.

### The role of the Arctic in the propagation of Influenza A virus

The Influenza A virus ("bird flu") can survive for years in cold waters and ice. Migratory birds, principal vector of this virus among poultry and men, fly back to arctic regions for reproduction. This study aims at evaluating the potential of the Arctic as a long-term storage of this virus and as a factor of its propagation.

### Determine the geographical distribution of the Arctic Wolf

Wiped out of Greenland in 1939, the Arctic Wolf reestablished itself there as far south as the Scoresby Sund in the 1980s-90s, but populations appear to be again declining. However, the very small density of populations combined with a lack of effort put into survey make these information unreliable. We plan to carry out observations on a large piece of tundra, Jameson Land, by using delta wind drones that have a wide action range. We will also study populations of muskoxen, its favourite prey.

## Gurreholm and shores of the Scoresby Sund

Search of migratory birds to study the role of Arctic regions in the propagation of «bird flu» viruses.

## Moraines

Study of the colonisation by living organisms of areas that were still covered by glaciers no more than a few decades ago.

## Renland icecap

80km. First full crossing and estimation of the thickness of the icecap.

## Catalinadal, Apusinikajik & Edward Bailey

90km of glaciers interrupted by large splendid lakes. Glaciologists will look for answers to a 'flow anomaly' of this large glacier. Moulins will be explored and their seismicity studied.

## Skillebugt fjord

Maritime access to the glaciers of the Renland peninsula.



# FOCUS ON RENLAND

## Ørsted Dal, Jameson Land

Jameson Land is a 150km stretch of tundra, home to a large population of muskoxen.

Search for the Arctic wolf on foot, in hides and using a delta wing drone equipped with thermal camera.

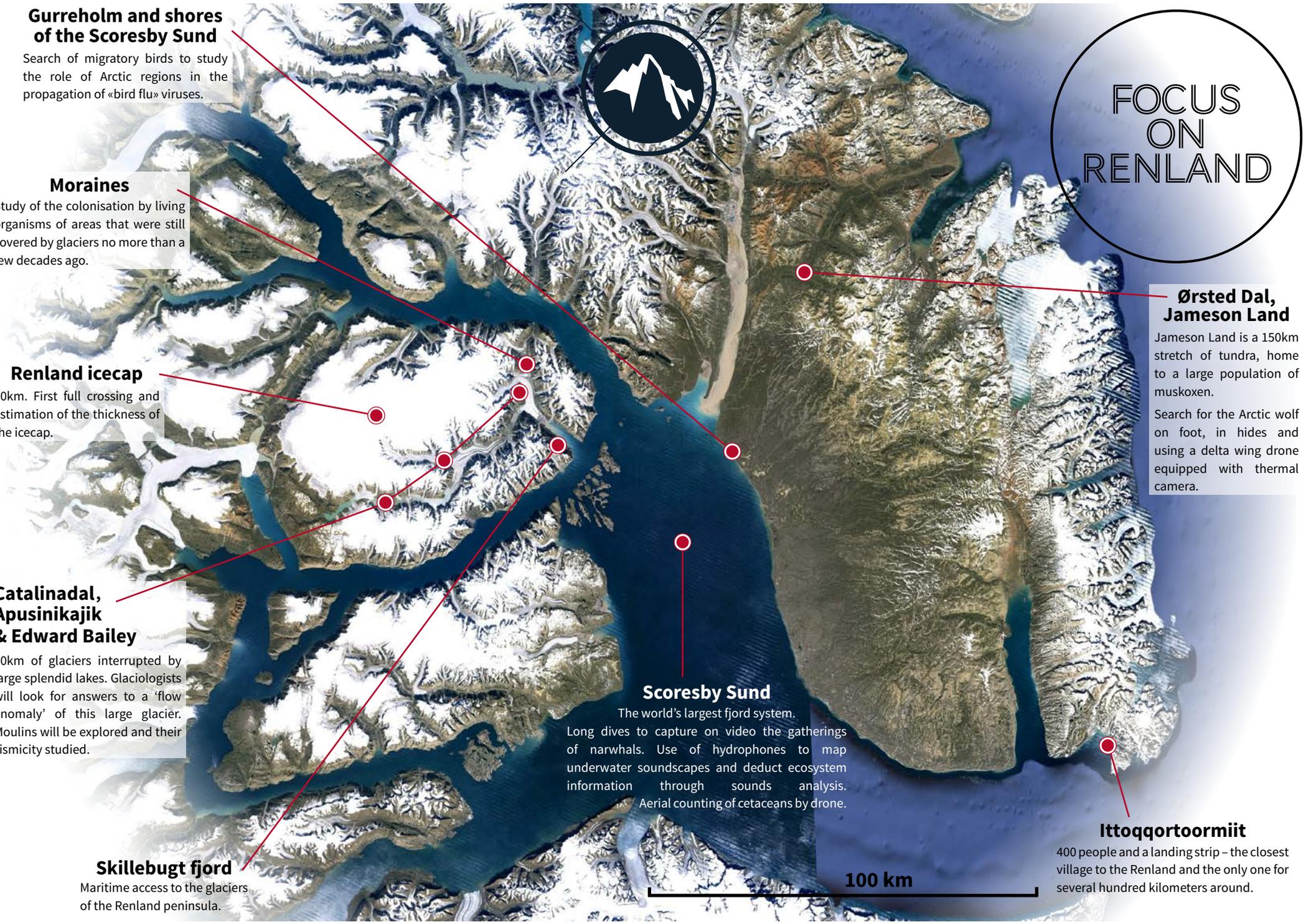
## Scoresby Sund

The world's largest fjord system. Long dives to capture on video the gatherings of narwhals. Use of hydrophones to map underwater soundscapes and deduct ecosystem information through sounds analysis. Aerial counting of cetaceans by drone.

## Ittoqqortoormiit

400 people and a landing strip – the closest village to the Renland and the only one for several hundred kilometers around.

100 km





## SCIENTIFIC OBJECTIVES



## GLACIOLOGY & GEOPHYSICS

### Understand the flow ‘anomaly’ of a large Greenland glacier

The gigantic Edward Bailey glacier drains most of the Renland icecap, and one of its arms flows into a recently deglaciated lake. In turn, the water drains from this lake, but it does so apparently at the bottom of the lake and by working its way upward under the glacier that lines its shores. Is this possible under the pressure of the glacier, or is it instead the ice that is moving down? A network of GPS and seismic sensors, along with timelapses of the glacier, samples, radar measurements and satellite images will help us solve this mystery.

### Measure the thickness of the Renland icecap

We will estimate the thickness of the Renland icecap.

### Analyze the impact of global warming on the stability of rock faces

Rock faces in the Alps are more and more unstable, and collapses are usually attributed to global warming yet without solid proofs. To clarify this hypothesis, seismic sensors will be set on the 1200-meter face of the Mirror Wall giving us information about the thickness of the affected part, micro-cracking, temperature variations, micro-seismicity due to the glacier located at the bottom, etc. Knowledge of these erosion dynamics will allow us to project on the natural risks on rock faces in France.

### How do icebergs break free from glaciers?

Analysis of factors (temperature, swell, tide, etc.) triggering on one hand dislocations on the glacier's front, on the other hand icebergs reversal – with the help of seismic sensors, networks of GPS and cameras, and hydrophones.



## SPORTING OBJECTIVES



### SAILING

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**Sail for the time to Iceland  
on a Mini class boat**

• 1 400 NM • A 6.50 m boat



### CLIMBING & MOUNTAINEERING

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**Achieve the first full crossing  
of the Renland ice cap**

• 80 km



### DIVING

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**Dive into a subglacial lake  
for the first time**

• 100m + of ice above the head

**Capture the first ever underwater  
videos of narwhals**

• long dives of min. 4h • Water temperature 0 ° C



AN EXPEDITION

# Lost Worlds

EXPLORE | SHARE | PRESERVE

Launched by Evrard Wendenbaum after the success of the Makay expeditions and the protection of the eponymous massif,

« **Lost Worlds** »

is an **expedition series**  
to explore the **last terrae incognitae**  
of our planet.

to unravel their mysteries,  
showcase the wonders of the living world,  
and protect these world heritage sites

before it's too late.

From the Makay in Madagascar to the karstic massif of Matarombeo on Sulawesi island in Indonesia, from the Renland peninsula to Congo's inselbergs and most isolated forests, from the Tepuys of Colombia and Venezuela to the forgotten reefs of the Coral Triangle, the 'Lost Worlds' are unique natural environments, unexplored, difficult to access, spectacular and often inhospitable. Being out of reach has kept them free of degradation and ensure an outstanding potential of discoveries, but also calls for urgent protection.



nature**volution**

# A TEAM OF CLIMBERS, SAILORS, DIVERS AND SCIENTISTS



**Evrard WENDENBAUM** (EXPEDITION LEADER)

Founder and president of the NGO  
*Naturevolution* • Explorer •  
Photographer, Author and Film director

With a scientific background, passionate about nature and exploration, Evrard made a few premieres around the world, skiing, canyoning, climbing, sea kayaking and mountaineering. At 36, he's been to some of the most inaccessible corners of the planet from where he always brings back wonderful pictures and amazing adventure stories.

He now leads the environmental NGO Naturevolution and put his experience and skills in the service of scientific research and preservation of nature.

He has already organized the first scientific explorations and studies of some of the last terrae incognitae of the planet in Madagascar and Indonesia.

[evrardwendenbaum.com](http://evrardwendenbaum.com)



**Ghislain BARDOUT**

Skipper • Expert in deep polar diving  
• Author, Filmmaker and underwater  
cameraman

With a degree in electrical engineering from the École Polytechnique Fédérale de Lausanne (EPFL), Ghislain Bardout is an expert in polar diving and an underwater cameraman. He has been organizing underwater expeditions in the Arctic for 10 years.

He worked first as a logistician and technical manager for Jean-Louis Étienne, then led in 2010 the Deepsea under the pole expedition, whose images have been seen the world over.

With his wife Emmanuelle, they purchased the WHY, a polar schooner built for exploration. He launched and led the Under The Pole II expedition in Greenland.

[underthepole.com](http://underthepole.com)



**Nina CAPREZ**

Professional  
climber

A Swiss epicurean, Nina has above all a love for life, combined with a desire to share her experiences and passion.

She discovered mountaineering at the age of 13, then climbing at 17, and made the decision to excel in this discipline.

She played in competition for several years, and achieved excellent results in the Boulder World Cup by finishing regularly in the top ten.

From 2009, she invested herself on the rock and into the great outdoors where her passion has grown further.

She climbed several extreme multi-pitch routes : Ultime Démence (150 m - 8a+), Hotel Supramonte (250 m - 8b), Delicatessen (150 m - 8b), Silbergeier (250 m - 8b+); or Unendliche Geschichte (420m, 8b+).

[ninacaprez.com](http://ninacaprez.com)



**Éric LAROSE**

Seismologist •  
CNRS Researcher

Éric is a geophysicist and CNRS researcher. He manages the team « Risks and Environmental Geophysics » in the Earth Sciences Institute in Grenoble.

He studies seismic waves.

Listening to our planet's most intimate whispers that he tries to decipher, he draws new information to better understand volcanoes, earthquakes, rockfalls and landslides, as well as glaciers.

Occasional alpinist and cross-country skiing enthusiast, Éric is also mountain accompanist, driven in this by his two passions : mountains and sciences.

In 2014, this desire to share his passions led him to launch the festival Rencontres Montagnes et Sciences.



**Benoit LACROIX**

Climber • Skipper •  
Events organizer

Benoit has always preferred to learn through experience.

What drives him ? To explore a nature impressive, demanding and unknown, get to know new abilities and discover new techniques.

Benoit is a true jack-of-all-trades with a passion for entrepreneurship. In the various projects he has led so far, he was always thrilled by challenges and human adventures alike.

After passing by La Rochelle in 2011, he decided to open a boulder climbing spot, « The Roof », which will soon become a franchise giving birth to other spots across France. No older than 28, he is on all the fronts and with success !

Since his arrival to La Rochelle, he started sailing and aims at no less than the solo Mini Transat race in 2017 on his 6.5m sailboat.

[theroof.fr](http://theroof.fr) / [vertical-ocean-camp.fr](http://vertical-ocean-camp.fr)

# GEOPHYSICISTS, BIOLOGISTS, PHOTOGRAPHERS, CAMERAMEN, ILLUSTRATORS AND LOGISTICIANS



**Agnès HELMSTETTER**

Geophysicist •  
CNRS Researcher

Attracted by Earth sciences, Agnès completed a thesis in geophysics, followed by a post-doctorate in the USA. She joined the Earth Sciences Institute of the CNRS (French National Center for Scientific Research) in 2005.

This young seismologist studies earthquake trigger mechanisms and uncertainties. She uses sensors to detect landslides, snow avalanches, and underground collapses. The map then produced help to determine the motion a building has to withstand.

For some areas of the world, this innovative research that combines complex systems theory, seismological data analysis and social reflexion on seismic risks, is of vital necessity.



**Tanguy DAUFRESNE**

Doctor in ecology • Engineer in ichthyology  
• INRA Researcher

Tanguy is ecologist and ichthyology engineer, at the National Institute for Agricultural Research (INRA) in Toulouse. He worked in the last 15 years on the functioning of ecosystems at the Laboratory for wildlife behavior and ecology (UMR CEFS), where he notably studied the interactions between large herbivores, vegetation and soil processes.

An active member of the Brown Bear and Wolf Networks, he regularly assists with wolf and bear surveys in France.

Tanguy is an old-timer of Naturevolution expeditions. He probed the Makay canyons in Madagascar in search for fishes and, two years ago, he set camera traps in the jungle of the Matarombeo massif in Indonesia to capture the first video images of the Anoa, the small bovine endemic to Sulawesi island.



**Nicolas GAIDET-DRAPIER**

Wildlife Ecologist  
• CIRAD Researcher

Nicolas is a researcher at the Centre for International Cooperation in Agronomic Research for Development (CIRAD), in the Animal and Integrated Risk Management department. His recent works involve the transmission of bird viruses among wild bird communities.

He has worked on community-based conservation programs in Africa, developing participatory monitoring methods for the empowerment of rural communities in the management of wildlife.

He is also currently working on the political and economic dimensions of wildlife conservation and management through a political ecology perspective.

He is a member of the world scientific network against the avian influenza (OFFLU) from the FAO and the OIE (World Organisation for Animal Health).



**Cédric LACHAT**

Professional climber •  
Speleologist

Nicknamed «Little Swiss» in the climbing world, Cédric is a climbing genius. Climbing from the age of 10, he is already winning many competitions at 14. When he reaches 16, he wins all European championships, and becomes World Champion at 17. He goes from victories to titles, both in the Boulder, Lead and combined categories. Stopping competitions in 2012, he dedicates himself to climbing cliffs and big walls.

Animated by a climbing frenzy, his personal hit list holds several routes in the 9a and 9a+ levels, along with some famous big walls like Ballade au clair de lune on the Aiguille du Fou, Orbayu in the Narajo de Bulnes, Golden Gate in the Yosemite, and Silbergeier in Switzerland.

His target : to open and free a route in the Mirror Wall.



**Fabien DUGIT**

Mountain guide •  
Mountain rescuer

With roots in the mountains of Savoie, Fabien, 31, is one of the best climbers in the world. Son of a mountain guide, he grew up doing mountain sports and never stopped. First attracted by competition, he became France Champion in 2007 in the Boulder category and in 2008 in the Lead category. It was during the World Cups that he met Cedric !

But the call of the wild mountains was eventually stronger than competition. He climbed several times El Capitan in the Yosemite, and free climbed with Cedric one of the most impressive climbing routes : Ballade au clair de lune on the Aiguille du Fou in the Mont Blanc massif.

Today, he is inspired by exploring remote cliffs. To open and free a route in the Mirror Wall would be achieving one of his dreams.



+10

More sailors, climbers, scientists, divers, along with a filmmaker, a drone operator, a photographer and students, will also take part to this adventure.

Without forgetting the support team that will stay on the land, and contribute to the success of the expedition.



**Emmanuelle BARDOUT**

Skipper • Instructor and expert in polar diving • Author and Filmmaker

Former crew member of Jean-Louis Étienne, Emmanuelle Périé-Bardout has been passionate about polar regions and underwater exploration for more than 10 years.

Skipper with a degree from the French National School of Sailing and holding a diving state certification, she is with Ghislain behind the Under The Pole project, that they now lead together with their 3-year old son, Robin.

Emmanuelle likes to document, notably through writing, this little known world, which is yet already undergoing strong mutations.

[underthepole.com](http://underthepole.com)



**Paul TIXIER**

Wildlife photographer • Diver • Doctor in marine ecology

It was during an expedition along the coast of Britannic Columbia that Paul find itself for the first time in front of a killer whale while diving. The fascination inspired by this encounter led him to pursue a thesis on killer whale populations in the Crozet islands of the Southern Ocean.

His research focus today on the feeding ecology and conservation of marine mammals, and bring him to develop a wide array of approach techniques, especially underwater.

Passionate about high latitudes and remote environments, Paul is also a skilled wildlife photographer and his images conjure up the precious atmosphere of these wild encounters.

[paul-tixier.com](http://paul-tixier.com)



**Aurélie CALMET**

Naturalistic illustrator • Painter

With a background in animation and environmental studies, Aurélie only came a bit late to dedicate herself fully to drawing and painting, techniques she always liked and that she masters perfectly.

A naturalistic artist, and a sketchbook travel writer, she strives to cultivate the links that bond us with each other and with our environment. Because of this, she likes to draw in the field as much as possible – and notably during the 2014 Lost Worlds expedition in the Matarombeo massif from where she brought magnificent drawings of emblematic animals such as the Anoa, the Sulawesi Bear Cuscus, the Sailfin Lizard and the Hornbill.

Her drawings appeared in magazines, festivals and Natural History Museums.

[aukaleblog.tumblr.com](http://aukaleblog.tumblr.com)



**Philippe MISTRAL**

Logistician • Diver

After 3 years spent developing tourism and organising missions in the TAAF sub-antarctic islands (French southern and antarctic territories), Philippe joined Naturevolution to develop and manage our ecovolunteer missions in the Makay massif. He further ensures logistics and team coordination on the Lost Worlds scientific expeditions.

A volunteer firefighter for 12 years, spirited and convivial, Philippe also enjoys sport parachuting and scuba diving. His constant good moods and southern French accent make him the key member to a successful atmosphere on such an arctic expedition.



**Yann BIGANT**

Photographer • General engineer

With a degree in general engineering from the Ecole Centrale de Lyon, Yann is a long-timer of China where he studied architecture 12 years ago and has kept living there on and off ever since. A research memoir on the fate of traditional houses in Chinese cities made him paradoxically fascinated by the evolution of large Asian metropolis, whose nightscapes he finds enthralling.

Both a city and a wide landscape photographer, captivated by Tibet and its vast areas, he keeps going there slowly on foot to better transcribe in images the encounter with these locations.

Involved in Naturevolution for a few years, he is notably in charge of communication, partnership and translations.

[yannbigant.fr](http://yannbigant.fr)



## OUR VALUES

### Curiosity & Open-mindedness

Cast multiple outlooks on a natural and remote environment, virgin of human observation

### Respect & Ethics

Limit our impact on the environment by using the wind, as well as our own physical means

### Innovation & Creativity

Develop and use innovative scientific tools and new displacement means

### Team spirit & Conviviality

Share tasks, respect others and pool skills towards a common goal

### Communication & Sharing

Bring back a maximum of images and stories to raise awareness among the general public through films, scientific reports, conferences, school-based interventions, a website, web-series, etc.

### Excellence & Performance

Push further one's own physical and mental limits in order to achieve world premieres while permanently ensuring the safety of the team

### Passion & Commitment

Take risks to reach a set of goals both ambitious and useful for nature and mankind



# COMMUNICATION PLAN

To ensure the coverage of all scientific projects and sporting attempts of this adventure, a camera crew will join us on the boat, as well as a photographer, a journalist, a community manager and an illustrator.



## TV

- A documentary will be broadcast **in primetime on a major French TV channel and internationally.**
- Two other documentaries (respectively adventure/sport and science) will be directed and broadcast on thematic channels.
- **TV appearances** will be scheduled starting from the return of the expedition up to the release of the film.

## RADIO

- **Radio interviews** will take place before the start and after the return of the expedition, but also **during the expedition via radio sessions.**

→ **Impact** : several million people



## WEB

- **Daily news** will be posted by our community manager during the whole duration of the expedition on **the expedition's website** as well as on its **Facebook** page.
- **A web series about a dozen episodes** will be aired on a **Youtube** channel between the expedition's return and the launch of the movies and books.
- **A website and a phone app** fully dedicated to the expedition will be put online to allow an immersive follow-up in realtime.

→ **Impact** : several hundreds of thousands of people



## PRESSE RELATIONS

- **Press conferences** will be organized before and at the return of the expedition.
- **Press releases** will be sent out before, during and at the return of the expedition, as well as for the release of our communication media.

## PRESSE

- **Many news articles** will be published in **travel, sport, science and nature magazines** (*National Geographic Magazine, Alpinist, Geo ...*) but also in the **mainstream press** (*Paris Match, etc.*)

→ **Impact** : several million people



## FESTIVALS & CONFÉRENCES

- The films will be shown in **international film festivals** about mountain, sea, nature, adventure and science.
- They will also be screened at **numerous conferences and public screenings.**
- **Videoconferences** will also be held during the expedition with organisations for science popularization (*Museums, Cité des sciences, etc.*)

→ **Impact** : tens of thousands of people



## PEDAGOGICAL PROJECT

- Exhibitions, educational tools and school-based interventions will be offered in partnership with educational institutions, notably the French Ministry of Education.

## EXHIBITIONS

- **Various pedagogical and photography exhibitions** will be presented in festivals, in popular science institutions as well as in schools.

## BOOKS

- **A photographic and illustrated book** will be published as well as **a children's book.**

→ **Impact** : tens of thousands of people

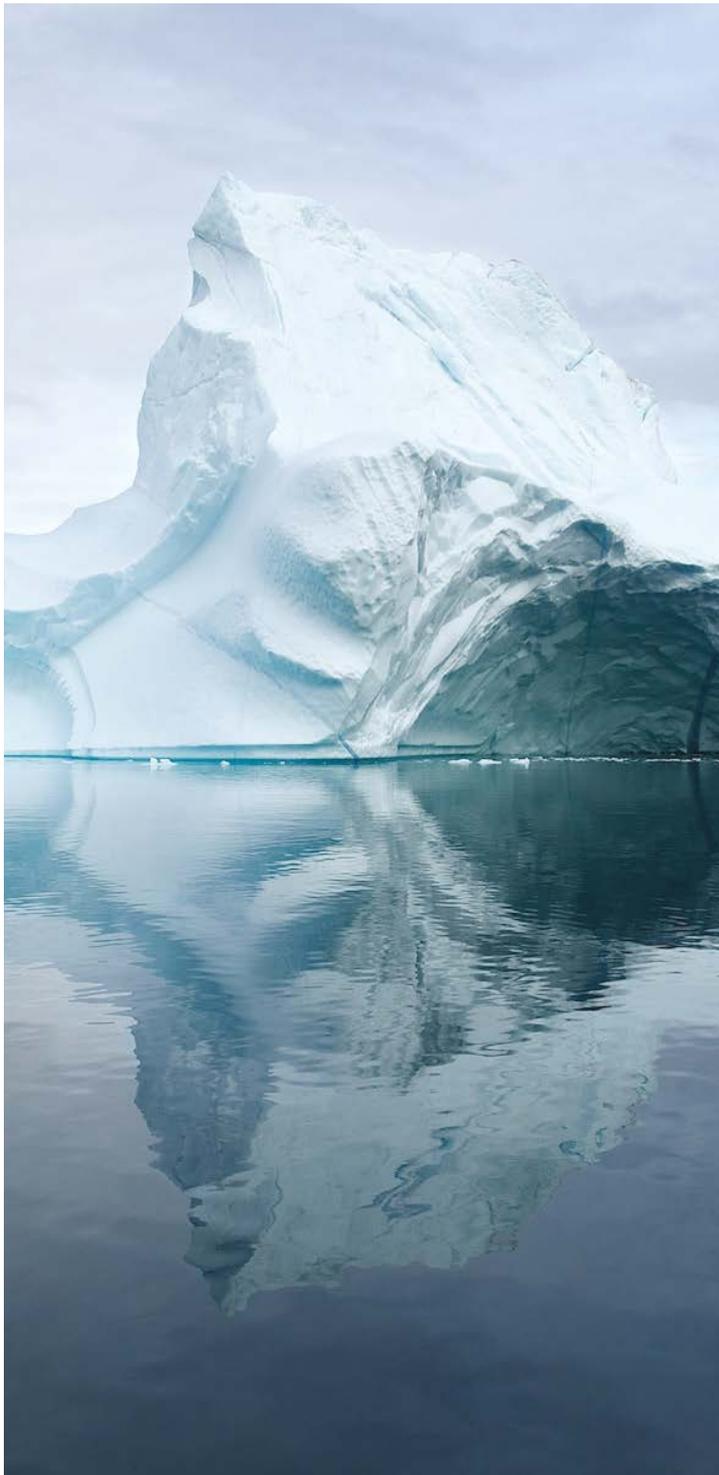




# PARTNERS

THEY TRUST US AND ALREADY JOINED THE ADVENTURE...

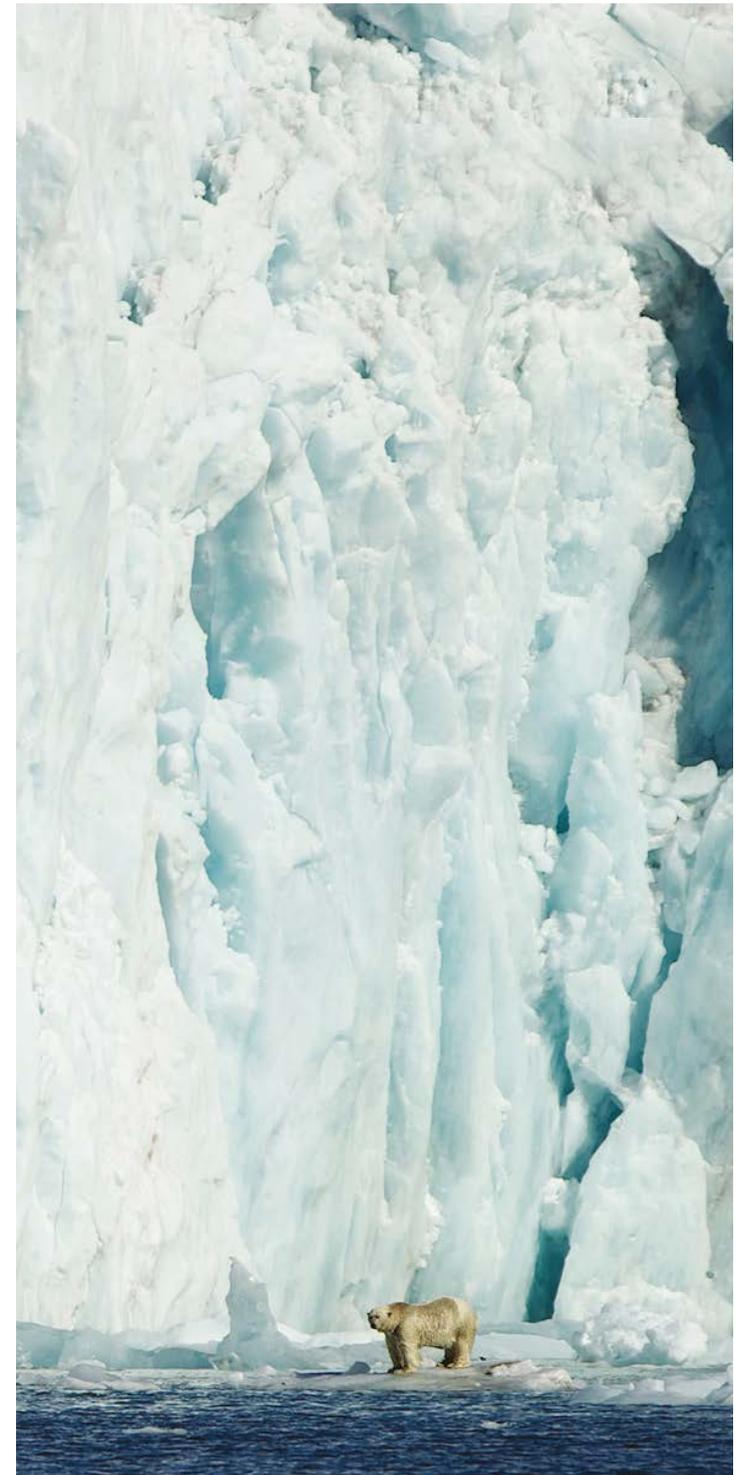
INSTITUTIONAL PARTNERS	FINANCIAL PARTNERS	TECHNICAL & EQUIPMENT PARTNERS	MEDIA PARTNERS
 <p>OSUG</p>  <p>ISTerre Institut des Sciences de la Terre</p>  <p>LECA Laboratoire d'Ecologie Alpine</p> 	  	           <p>and the Google Earth Outreach team.</p>	    

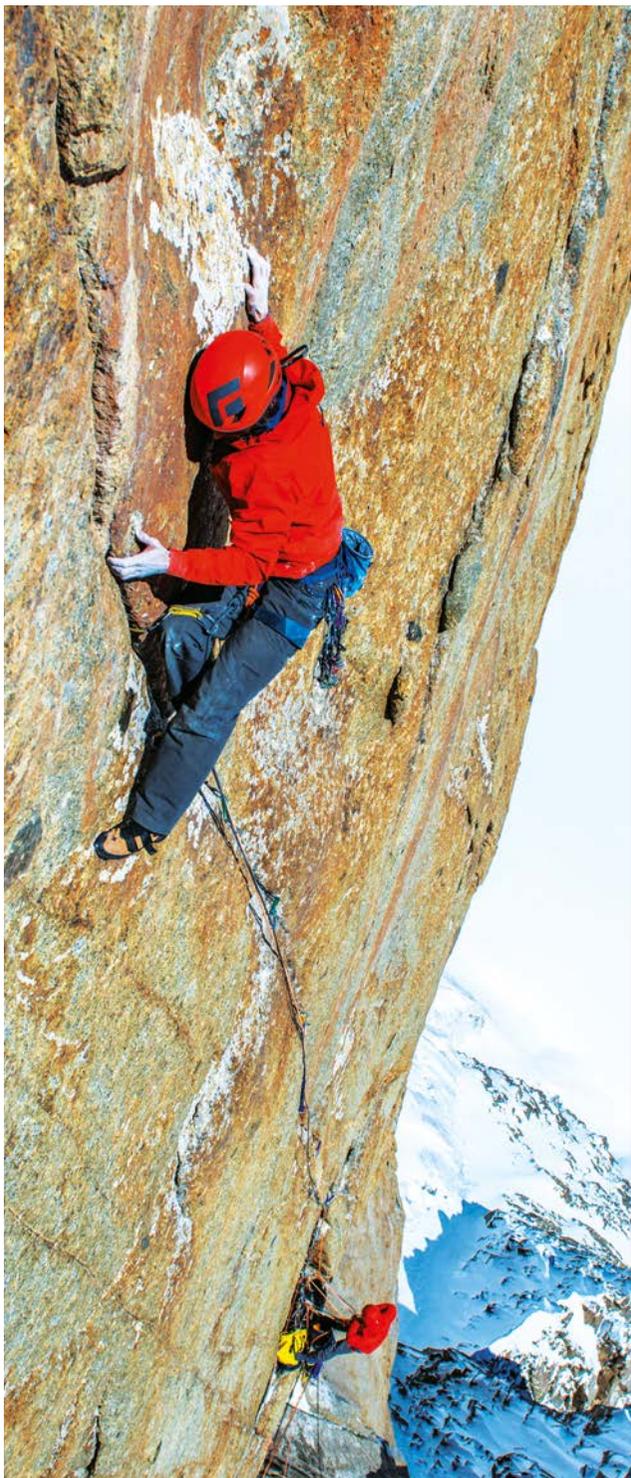


## BUDGET

<b>Transportation</b> .....	<b>140 000 €</b>
Boats (Charter, preparation, fuel, harbor), Plane tickets, Helicopter flights, Freight	
<b>Wages</b> .....	<b>100 000 €</b>
Skippers, Mechanic, Logistician, Doctor, Community manager, Webdesigner, Press and partners relations	
<b>Equipment</b> .....	<b>75 000 €</b>
Sea (Diving, Sailing, Sea-Kayaking), Mountain (Climbing, Mountaineering), Science	
<b>Food &amp; accomodation</b> .....	<b>20 000 €</b>
<b>Special expenses</b> .....	<b>30 000 €</b>
Insurances, Iridium packages, Press conferences, Local guides and fishermen, etc.	
<b>Unexpected expenses</b> .....	<b>35 000 €</b>
(around 10%)	

TOTAL : **400 000 €**





In a world that needs to rediscover optimism, hope et meaning, we invite you to join us in this fabulous adventure, and associate your company to our values of performance, commitment, innovation and respect for nature.

We offer a complete range of partnership benefits, such as :

**Visibility of your logo across all our communication media, and also on the boat**

•  
**Products placements**

•  
**Production of personalized content**

•  
**Company events**

(conferences, photo exhibitions, team-building)

•  
and much more...



## CONTACTS

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