Asclepios

"A student-led space analog mission, simulating a mission on another celestial body, for educational and research purposes."

About Asclepios

The Asclepios project is a program of analogue missions designed by students for students, under the mentorship of trained professionals. These missions are simulations of actual space missions and are prepared using a "do-it-yourself" approach. As such, every member of the project isn't a professional but an enthusiastic student willing to learn and adapt to make each mission a reality. However, the project collaborates with scientists, laboratories as well as the industry to benefit from their experience and offer in return a testbed for them. As a matter of fact, analogue missions are performed yearly under the supervision of space agencies. Asclepios is different in that it is the first program of student supervised missions.

Space@yourService (S@yS) is an EPFL recognized non-profit organization which aims at promoting and popularizing space sciences (astrophysics, space engineering, astronomy, etc.). S@yS, in collaboration with national and international institutions from science and industry is working at the cutting edge of space promotion with the development of innovative means of communication (outreach events, SciComm escape game, school programs).

Analogue Mission

The Asclepios missions are human-sized analogue missions which can be performed only by students with the goal of training them for their future space endeavors as astronauts, space engineers or members of the Mission Control Center.

It is for this reason that one of its main objectives is **Education**, which is carried out in collaboration with official educational institutions and takes the form of academic work, workshops and analogue missions training.

By reproducing the conditions of space, the goal of analogue mission is to test every component of future missions to another celestial body, such as the Moon or Mars, thus paving the way to the future space exploration of our solar system. This is why offering partners the possibility to do **Scientific Research** is the second objective of Asclepios. Finally, as part of S@yS commitments, **Communication**, i.e., educating and inspiring young generations, through engaging media appearances, remains one of the key aspects of the mission.

Interest of the project

The Asclepios mission has a multi-scientific scope. It serves as a platform for laboratories and start-ups, offering them a framework that allows them to carry out tests with precision.
Furthermore, the Asclepios mission aims to provide a first experience and training to those who will be the astronauts of tomorrow. In the eyes of the teams of the project, it is about students of today.

Asclepios I

Dates: 03/02/2021-12/02/2021

Focus: *Exploration (Moon analogue)*

Location: *Grimsel Test Site, Switzerland*

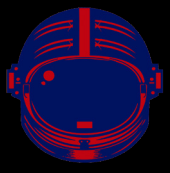
Asclepios II

Dates: April 2022 (subject to change)

Focus: *Sustainability*

Location: *Switzerland*

Asclepios in Figures



Astronauts

6 analogue astronauts

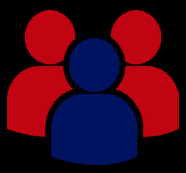
+

2 backup astronauts

International

4 Continents

16 countries



Members

From **High School** to **PhD**

15+ fields of studies

Scientific Research

Presented here is a curated selection of some Asclepios I experiments

Psychology Project by NASA

University of Manchester

Help validate the health standards of NASA and explore the premises that might influence the responses of individuals in stressful and demanding environments.

GeoReMap

University of Basel

Create a topographic chart of the area based on the height of objects, GPS data and the perception of astronauts to whom the terrain will be completely unknown.

Perchlorate

Gustavo Jamanca Lino

Devolpment of a method to reduce the amount of perchlorate found in soil by at least a 90%, in order to be able to grow food on martial soil.

Hydration

MIT

Collect data from a solar panel able to produce carburant from solar energy and air from the ambiance.

Chatbot

Christopher O'Hara

AIFAA = Artificial Intelligence for Analogue Astronauts. Create a chatbot in order to reduce the amount of memory, work and cognitive load of astronauts.

The Teams

Science:
This team contacts laboratories and start-ups to set up new experiments, write protocols for each experiment and analyse the data collected after the mission. They also handle the search for space relevant industrial products and their usage during the missions.
The team is divided into three different subgroups: Life aboard, Operations and Systems.
Some members of the team are students doing a Semester project as part of their Bachelor or Master studies.

Logistics:
The logistics team has the critical role of providing the rest of the project with the tools needed to perform its mission. It ranges from finding locations or booking meeting rooms to looking for and purchasing consumable items.
They are also in charge of an important part of the project's coordination by ensuring inter-team communication, managing the work communication tools and the administrative work.

Astronauts:
The astronauts team handles everything related to the astronaut crew of the Asclepios missions. They are responsible for every step of the recruitment and selection of the crew. Once the crew is selected, its training is their responsibility. This duty puts them in charge of searching for ways to ensure that the astronauts receive teachings on a level required guarantee the realism and the success of an analogue mission.

Communication:
The communication team is responsible for the project's public image. It uses social media, external events, website development tools to ensure that the project reaches space enthusiasts or newcomers alike as well as allow the project to meet new partners to work with.
It is also the press organ of the project, acting as an intermediary between journalists and any component of Asclepios.

Astronauts of Asclepios I

Willem Suter, Master degree

Born in Switzerland in 1996 as a Swiss, Belgian and American national. Currently studying Mechanical Engineering in Automation and Control with a specialization in Space Technologies at EPFL in Lausanne. He is currently finishing his studies working for ClearSpace on the Relative Navigation system as well as for the Geneva Observatory on a near-field cosmology research project. Along with his studies, Willem works part time as a project manager for SORA Consulting and spends his free time doing mountaineering in the Alps. He is fluent in English and French, and speaks German and Dutch.

Eleonore Poli, PhD candidate

Born in 1995 in Lausanne, Switzerland, she studied Materials Science in Engineering at EPFL, Lausanne and then Mechanical Engineering at ZHAW, Winterthur, Switzerland. She completed a Master's in Materials Science and Metallurgy at the University of Cambridge where she is currently working on her PhD, on the subject of Mechanical Damages in Coatings for Superalloys in Hot Corrosion Environments for Turbines. In her free time she plays handball, competes in long distance triathlon and running races, plays piano and does photography. She speaks French, English and German fluently and has bases of Italian and Russian. She taught robotics for children and worked 6 months at Pilatus Aircraft Ltd., after promoting space activities at EPFL.

Sebasthian Ogalde Castro,
Master degree

Born in 1994 in Antofagasta, Chile. He is a graduate in Microelectronics and Telecommunications Engineering at Universidad Católica de Chile. Afterwards, he studied a MSc. in Mechatronics Engineering at Politecnico di Torino, Italy. Currently, he works as an AOCS Engineer on ESA's satellite EUCLID, aimed to study dark matter and dark energy. Sebasthian is also a private pilot student and scuba diver. He speaks Spanish, English, Italian and Russian fluently.

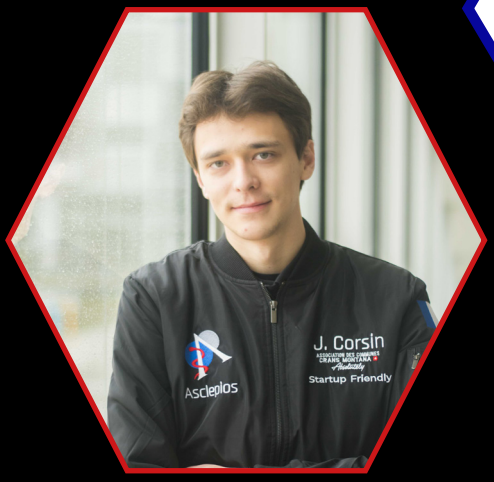
Astronauts of Asclepios I

Manuela Raimbault, PhD

Born in Laval, France, she studied maths and physics. After an engineering school in Nantes, she specialised in astrophysics pursuing her studies at Observatoire de Paris and completing a PhD at Geneva observatory. She is keen on mountaineering which she practices regularly in the Alps. She also plays the violin, piano and guitar and likes photography and astrophotography. She speaks French, English and a little bit of Spanish, Italian, Portuguese and german.

Julien Corsin, Master Degree

Born in France near the swiss border next to Geneva, he graduated from high school with a one-year lead, and after getting his Baccalaureate in sciences (Mathematics specialty), he moved to Lausanne where he is currently studying computer and communication sciences studies at EPFL. In possession of a Bsc in Communication Systems, he is now pursuing an Msc in the same domain, with a specialty in spatial technologies. He is fluent in french and english, and also knows german.



Sophie Lismore,
Bachelor degree

Born in 1999 in St-Julien-en-Genevois, France, as a Swiss and British national she earned a bilingual baccalaureate in 2017 and is now studying Physics at EPFL in Lausanne, Switzerland. She was a competitive alpine skier and now fences and is an avid reader and traveller. She speaks fluent English, French and German.

For more information on the astronaut crew visit the mission's website: *https://asclepios.ch/asclepios-en/the-astronauts/*

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Academic Institutions

Due to its international dimension, the Asclepios mission is a collaboration of numerous students and professors from multiple academic institutions.

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