CNES EDUCATION & ESERO FRANCE

2022-2023

JC1 DAYS

20 March 2023

CNES Education

CNES-Government contract 2016-2020

To encourage youngsters to pursue scientific careers by educating students and educational relays (teachers, associations) on the stakes and applications of space…

Target : from 6 to 25 years old

Main lines

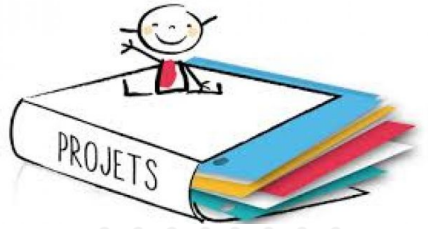
1 Raising awareness

Organization of events (technical events, educational workshops, conferences, meetings, exhibitions, etc.)

2 Experimentation - Projects

Propose educational projects to schools or clubs and organise wind-up get-togethers

- Environnement (climate, atmosphere, oceans…)
- Access to space, microgravity
- Sciences, exploration…



Wind-up get-togethers organisation

- Argonautica, Météo-Espace, Balloons, Mission X
- Specific campaigns : C'Space (rockets), Zero-G flights (microgravity)

3 Teachers and mediators **Training**

- Summer University on Space and Education, specific courses, seminars

4 Resources production

Provision of resources for a wide audience (website, documentation, educationa technical entertainment, games, quizzes, exhibitions)

Partners

- **Ministry of National Education, Youth and Sports**

  An agreement between CNES and the Ministry for 25 years (renewed in June 2019)

- **Regional academies**

  Privileged relations with the rectorates close to the CNES sites

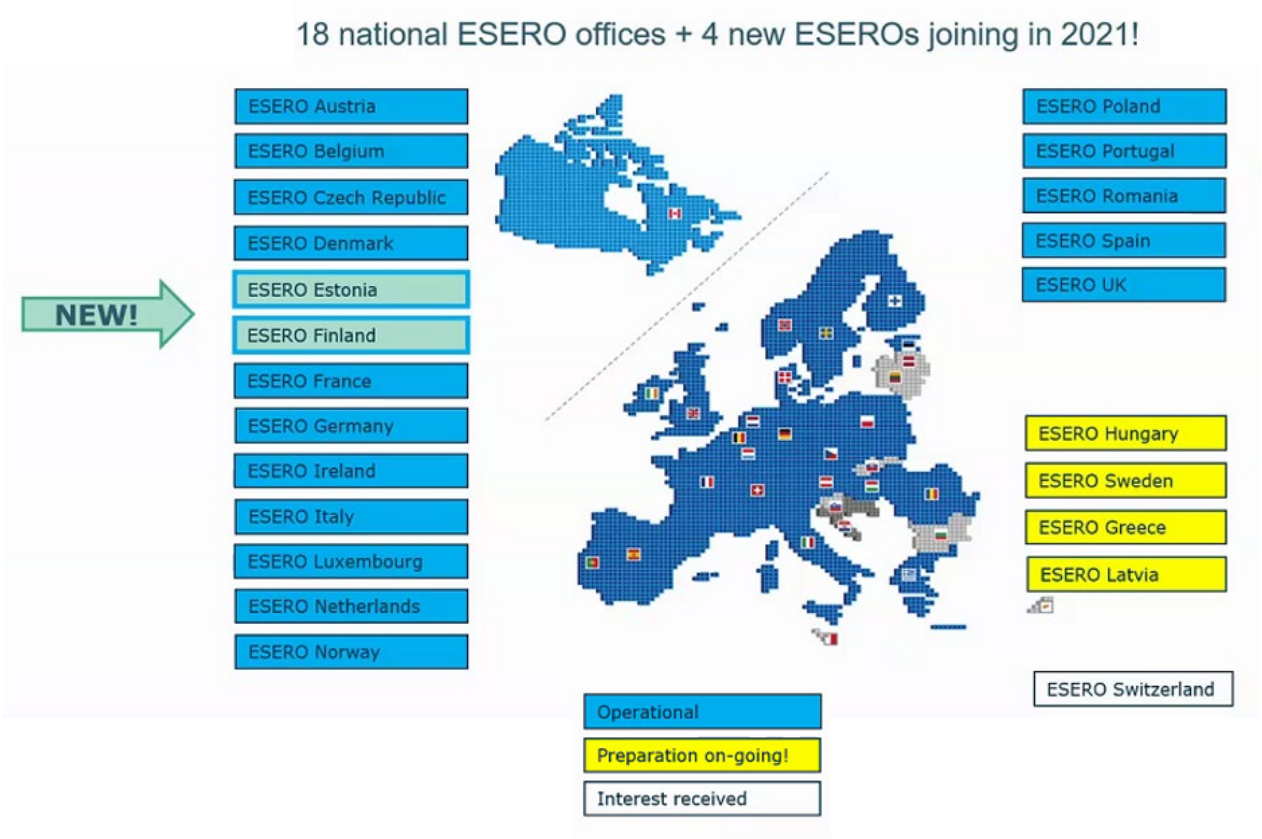
- **ESA (ESERO –France office)**
- **Cultural partners**
- **Youth pres**
- **Research laboratories**
- **Museums**
- **Scientific mediation associations and foundations**
- **Others…**

ESERO-France Office

- **Opening of the European office ESERO France in June 2020**
- **Managed by the CNES Education Department.**
- **Partners : *La main à la pâte*, Cité de l'espace and Planète Sciences.**
- **Complementary educational program : training, projects, resources.**

(https://esero.fr)

European Space Education Resource Office



What is ESERO?

- ESA Flagship Educational Project
- Started in 2006 with a pilot office in the Netherlands
- A **network** of Space Education Offices in most ESA **Member States** active in **STEM** (Science, Technology, Engineering and Mathematics) education
- **Adapted** to the needs of different national school systems, curricula, priorities and languages
- Based on **synergies** with existing national education actors and partners and the space sector
- **Co-funded** by ESA and national partners
- Benefits from the European ESERO network for the **exchange** of best practices and the development of resources

European Space Education Resource Office

One of the objectives is **to strengthen links with the world of scientific research and students** in order to bridge the gap between school programs and the space industry and academia

That's the reason why CNES education would like to **involve PhD and post-doctorate** students in some ESERO France projects.

Those who are interested will act as **"mentors" for young people** and/or give a **"technical support" to teachers** involved in the following projects:

- **Mission X**: Physical and scientific activities (8-12 years old)
- **Astro PI**: coding challenge (up to 19 years old)
- **Moon Camp challenge**: 3D Lunar base design (up to 19 years old)

MISSION X

Mission X : Walk to the Moon – Train like an astronaut

Who for?

Young people from **8 to 12 years old**

Content

Mission X is an **international challenge** proposed by ESA, ESERO UK & UK Space Agency.
Focus on **health and nutrition** to train like an astronaut, Mission X challenges pupils to complete a series of **physical and scientific challenges** and track their scores through the logbook

At the end of the mission, all of the submitted points help the Mission X mascots, Luna and Leo, to walk to the Moon!

MOON CAMP

Moon Camp Challenge

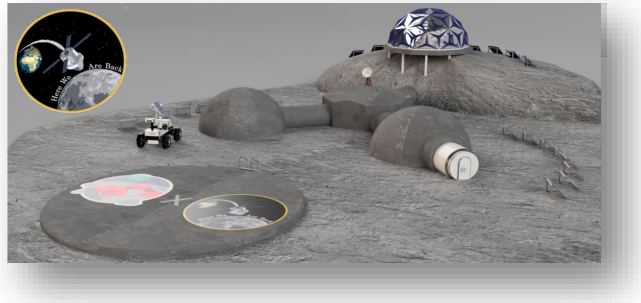
The Moon Camp Challenge is a proposal from ESA and Airbus Foundation in partnership with AutoDesk.
The objective is to design a **3D-vision of a Lunar station**, taking into account several constraints such as protection against radiation or meteorites, food and energy production, extraction or recycling of water.
This project has to comply with all needs in life, work, travel using on-site resources and innovative technological solutions.

MOON CAMP DISCOVERY

Discovery (Beginner) : Young people from **6 up to 14 years old**
3D design tool : **Tinkercad**
Objective : Design of **only one Lunar base element** together with description

MOON CAMP EXPLORERS

Explorer (Intermediary) : Young people **up to 14 years of age**
3D design tool : **Tinkercad**
Objective : Design of a **complete Lunar base** plus written report



MOON CAMP PIONEERS

Pioneers (Advanced) : Students from **13** to **19 years old**
3D design tool : Free choice (even if Fusion 360 recommanded)
Objective : Design of a **complete Lunar base** plus written report

ASTRO PI

ASTRO PI

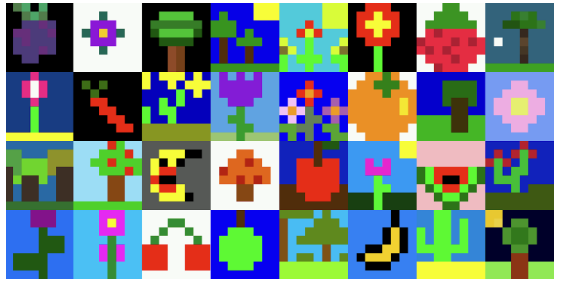
Astro Pi : Mission Zero

Content

To code a simple computer program in order to read **a measurement from an Astro Pi sensor** aboard the International Space Station and **display a custom image** for astronauts to see as they perform their daily tasks.
2022/2023 theme: Fauna and Flora

Who for?

Mission Zero is a challenge for beginners in computer coding and/or young people **up to 19 years**



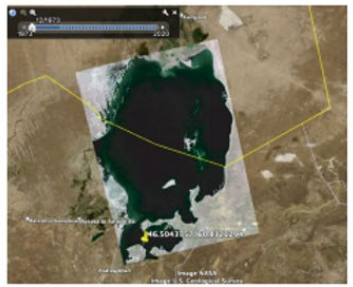
Astro Pi : Mission Mission Space Lab

Content

The Mission Space Lab challenge takes place in **4 phases over a period of 8 months**. The goal: **to invent and code a computer program as part of a science experiment** to improve our understanding of "Life on Earth" or "Life in Space". The **best experiment will be deployed on the ISS** and the teams will have to analyze their results.

Who for ?

Mission Space Lab is for more experienced and/or older participant **(up to 19 years old).**



Google Earth Pro: 1973

Google Earth Pro: 2020

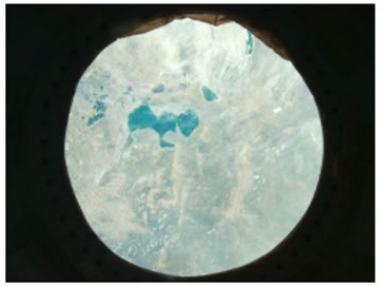
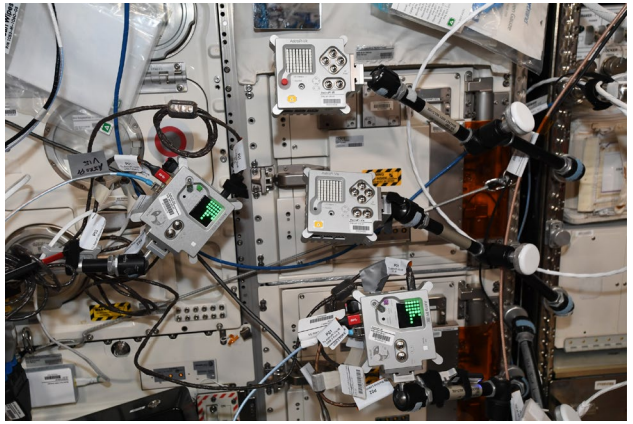


Image 442 taken by the Astro Pi

The Aral Sea, located between Kazakhstan and Uzbekistan, photographed by team **Adastra**.



Parler aux jeunes dans leurs classes

Objectifs

- **Promouvoir la culture spatiale auprès des jeunes**
- **Attirer les jeunes vers des filières techniques et scientifiques**

Principe

- **Période nominale pour 2023 sur les académies de Toulouse et Paris : du 6 mars au 21 avril 2023**
- **Durée : 1h à 1h30 en classe (plus rarement en amphi ou forum)**
- **Périmètre : Académies de Toulouse (8 départements) et de Paris (20 arrondissements), sauf dérogation exceptionnelle**
- **Niveaux scolaires : du CM1 à la terminale pour l'académie de Toulouse, CM1/CM2 pour Paris**
- **Thèmes :**
  - A « Ariane » : lanceurs , ballons
  - B « Sciences » : sciences de l'Univers, micropesanteur (expériences dans l'ISS)
  - C « Observation » (de la Terre) : atmosphère, océans, surfaces continentales
  - D « Télécommunications » : y compris navigation, localisation, collecte de données
  - E « Métiers du spatial » : architecte spatial, ingénieur optique…
- **Inscrivez-vous** et **Préparez** vos présentations, allez sur (**Attention, passer par Microsoft Edge!)** :
  - Wiki ECC Toulouse
  - Wiki ECC Paris

espace-classe@cnes.fr

- Dès que possible, **prenez contact avec les enseignants** concernés et mettez au point ensemble le sujet, la date et l'angle à adopter, les moyens dont vous disposez. Incitez l'enseignant à sensibiliser au préalable la classe.
- Emporter le **kit de documentation** selon le **niveau** et le **nombre de classes** ainsi que votre **T-shirt CNES** :
  - Pour **Toulouse**: au service Edition bâtiment Champollion du lundi au vendredi (sauf JARTT) de 8h à 12h ou de 13h30 à 16h45
  - Pour **Paris Siège**: contacter Pascale Correia ou Myriana Lozach
  - Pour **Paris Daumesnil** : contacter Emline Deseez ou Léa Sebaoun

ESERO FRANCE 2022-2023

CNES video library : Projets ESERO Projects

INFORMATION AND CONTACTS

esero.france@cnes.fr

https://www.esero.fr