



# **ESA Academy - Earth Observation Remote Sensing Workshop 2023**

## **ESA Network of Resources Initiative – Project Report**

Presented by

**ELEFThERIOS KARAGIANNIS**

Space Application Services NV/SA for ESA Education Office



education



# Objectives

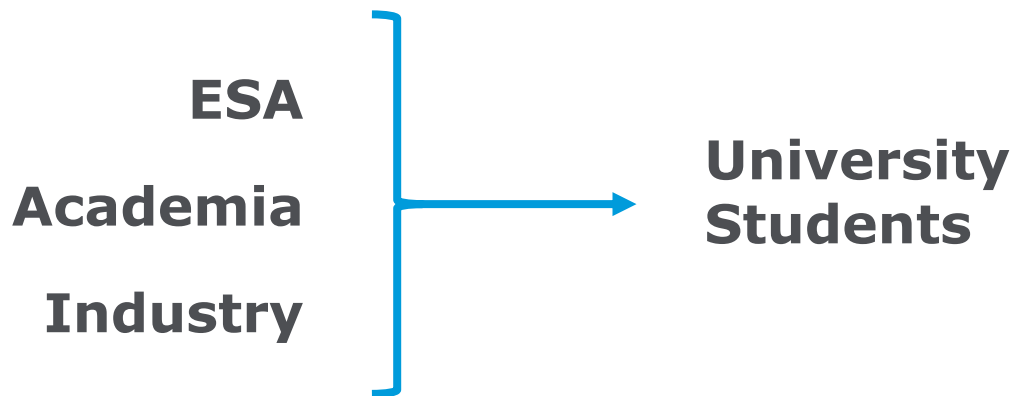
1. Motivate and enable young people to enhance their **literacy & competence** in sciences and technology (STEM disciplines).
2. Inspire and enable young people to consider pursuing a **career** in the STEM field, in the space domain in particular.
3. Contribute to increase youngsters' **awareness** of the importance of space research, exploration and applications in modern society and economy.

## Opportunities & activities for university students

from ESA Member States, Latvia, Lithuania, , Slovakia\*, Slovenia, Canada and Malta\*

\*newly added

Transfer of  
**expertise, know-how and standard professional practice**  
in the space activities domain



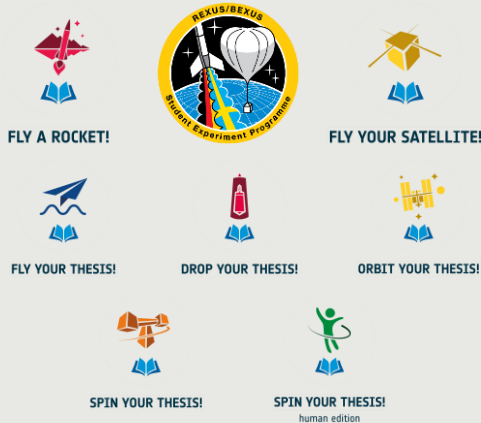
## The three main pillars of ESA Academy

### Space to Mind

### Training & Learning Programme

A big and diverse portfolio of training activities to individual students

### Mind to Matter



Rocket, CubeSat and Gravity-related programmes for university student teams

### Matter to Engage

Space conferences

### Student Sponsorships



Organise Space Conferences and support students to participate in conferences

## Educational Facilities

### Training & Learning Facility



### CubeSat Support Facility



### Concurrent Design Facility

## Student Sponsorships (e.g. 4<sup>th</sup> SSEA)

# Training & Learning Programme



## Why

- **complement the standard academic knowledge** in space-related disciplines
- **attract** future scientists and engineers to the space sector
- better prepare the future workforce

# Training & Learning Programme

## Facility

[Training and Learning Facility](#), ESA/ESEC-Galaxia (BE)

## What

1–2-week intensive training sessions

## When

Continuous, 1-2 sessions per month

## Target audience

**Engineering & Science** university students, from **BSc to PhD**

- Participating to ESA hands-on projects
- Preparing for a space related career
- Never involved in the space domain
  - Each training session has a specific target audience

## Who

Individual; Bachelor/Master/PhD

## Opportunity

[Regular calls for applications](#)

## Typical training

Minimum **32 training hours**

- 30 - 60 University students
- 1-6 Trainers/day: ESA experts, active and retired, as well as space industry and academia experts
- Group projects & exercises
- Student presentations & evaluations
- Certification and Training transcript



# Earth Observation Remote Sensing Workshop 2022

- The **Earth Observation Remote Sensing Workshop 2022** is the 97<sup>th</sup> training session of the Training and Learning Programme and for first time supported and sponsored by ESA Network of Resources Initiative (NoR)
- It is the **2<sup>nd</sup> edition** of the **Earth Observation Remote Sensing Workshop**, first-time use of **Virtual Machines sponsored by the NoR initiative and provided by CS Group**
- Developed by ESA Education Office with the support of the **Science, Applications & Climate Department** in ESRIN
- Delivered by **ESA retirees** and **experts from academic institutions & industry**
- The goal of this workshop will be to introduce students to the various types of **Remote Sensing** images, how they can be used and analysed with the help of dedicated tools





**The Earth Observation Remote Sensing Workshop 2022** is using plenty of different tools/software and data packages from different missions. Using those tools and data packages in a cloud environment benefited in multiple ways the coordinators, experts and most importantly the students.

### ➤ Coordinators at ESA Academy

- **Easy to deploy** – previously, coordinators had to manually install all software and data packages in all 31 PCs (30 student PCs + 1 Trainer's PC).
- **Easy to monitor changes** – in the past, experts had to ask the coordinators to install a new version of the tools or a new data package. Now trainers were independent to make changes and then to be tested by the coordinator
- **Easy to test** – In the past the coordinator had to assess each one of the PCs separately. Now is easy to test the performance of certain tools and software and flag any delays or problems.

### ➤ Experts

- **Easy to deploy the exercise in the virtual environment** – In the past the experts had to rely on the coordinator to deploy the exercise in the room and support it virtually
- **Easy to make adaptations** – Experts now had access at any time (certain periods) in their virtual machine and they were able to make changes/adaptations. In the past, once everything was deployed in the room it was hard to make changes
- **Get professional support from the company responsible for the VMs** on the details of the tools and data packages – Prior, it was the role of the coordinator to partially support if something was not deployed properly in the room.
- **Support during delivery** – An IT support from CS Group, followed the whole duration of the Workshop. Expert got real-time support when needed as well as an adaptation on the allocation of resources (increased processing power in some VMs, real-time updates and changes on the data packages etc. )

### ➤ Students

- **Better performance** – In the past there were a lot of problems with certain tools that needed a lot of processing power
- **Easy access to the different data packages** – In the past it was hard to access certain data packages and in the case of last minutes updates, students had to manually go and download the data packages from the website.
- **Real-time support** – Using a cloud environment was easy to increase the performance when needed as well as to work on issues in the background



# Earth Observation Remote Sensing Workshop 2022

Highlights and benefits for the society

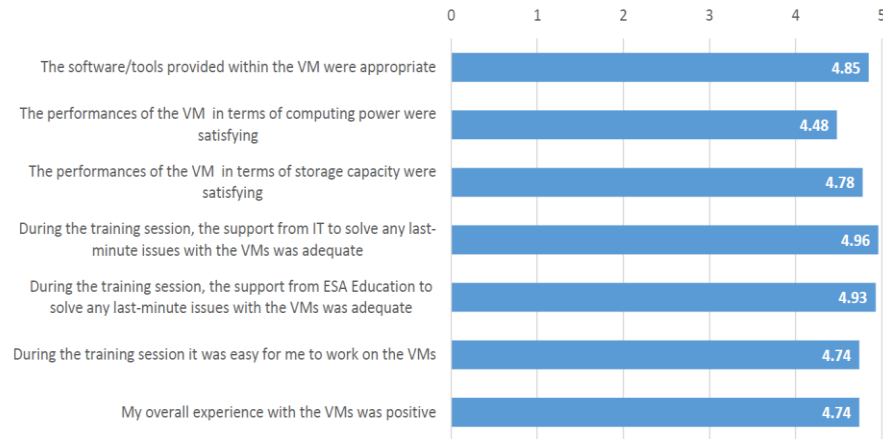
- A [Web article](#) prepared from ESA Academy about this Workshop mentioning the main benefits as well as the scope and the results of this training activity
- One of the highlights was the virtual environment that help the experts to deliver the exercises flawless
- 30 university students got exposed to different tools and data packages from different missions getting enough experience that will help them to boost their careers in the space sector.

# Earth Observation Remote Sensing Workshop 2022

## Feedback Collected from Students and Experts about the Virtual Machines

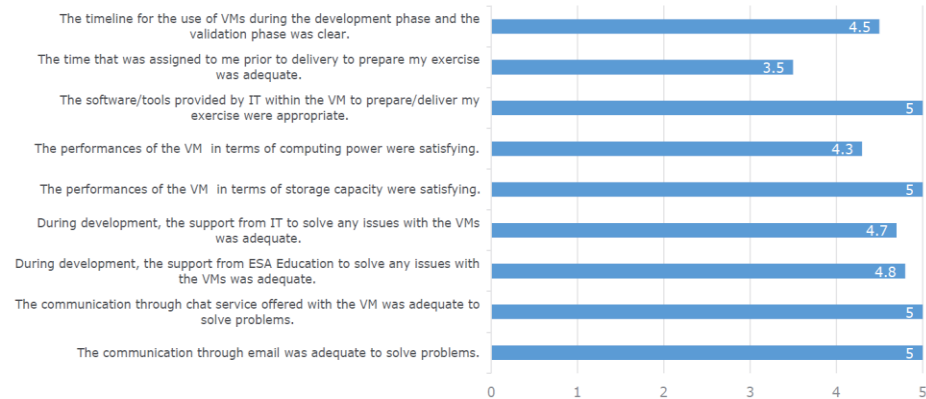
### Students

#### Impression on the Virtual Machines (VMs)



### Experts

#### Impression of working with Virtual Machines



# Thank you for your support!!!



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