



 3-DAY COURSE

Space Sustainability

How to measure, analyse and act towards more sustainable space missions

TARGET AUDIENCE

Space stakeholders (engineers, scientists, non technical managers, policy practitioners, etc.) active in space agencies, aerospace industries or related fields and concerned about preserving the sustainability and safety of the space environment in the long-term

Participants should bring their own laptop (for hands-on experience).

ORGANIZATION

- EPFL Space Center (eSpace), EPFL (Swiss Federal Institute of Technology in Lausanne), Switzerland

In collaboration with :

- International Space University (ISU)
- European Space Agency (ESA)
- Massachusetts Institute of Technology (MIT)

OVERVIEW

In recent years, the exponential growth of spatial activities, driven in part by the expanding commercial use of space, has yielded promising business opportunities. However, this expansion has also left behind a significant challenge – an ever-increasing population of space debris, with over 28,000 objects currently observable in Earth's orbit. With the number of satellite launches continuing to increase, ensuring the enduring viability of this vital frontier for future generations is critical.

As active participants in space agencies and aerospace industries, how can we secure the long-term usability of space? And, how can we design and operate missions and space businesses with a keen focus on sustainability?

OBJECTIVES

- Understand what space sustainability means (history, geopolitical challenges, latest research updates) and how to measure it from economic, societal and environmental perspectives
- Acquire tools and methodologies to develop more sustainable missions (ESA's MASTER and DRAMA suite, Space Sustainability Rating, Life Cycle Assessment & Environmental Impact Assessment, etc.)
- Grasp how the space sector can benefit from the adoption of Environmental Social Governance (ESG) and Corporate Social Responsibility (CSR) approaches
- Engage with space sustainability researchers, industry experts, and fellow members of the space community



Tue. March 19, 2024
9am to 6.30pm

Wed. March 20, 2024
9am to 6.30pm

Thur. March 21, 2024
9.30 am to 5.30pm



Certificate of attendance



CHF 2400.–

10% special discount for contributing members of EPFL Alumni



On-line registration

Registration deadline :
January 12, 2024

Number of participants is limited



EPFL, Lausanne, Switzerland

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TOPICS COVERED

DAY 1 : INTRODUCTION TO SPACE SUSTAINABILITY

- Introduction to Space Sustainability
Emmanuelle David, EPFL
- Space Sustainability History & Geopolitics Challenges
- The metrics of space sustainability and how to measure sustainability in the economic, societal, and environmental perspective
Emmanuelle David, EPFL
- Life Cycle Assessment (LCA) & Environmental Impact Assessment (EIA) from an eco-design perspective during mission development
Mathieu Udriot, EPFL
- Practitioner's testimony : Quantis

DAY 2 : TECHNOLOGIES INCORPORATED IN SPACE SUSTAINABILITY

- ESA's tools to develop more sustainable missions : MASTER (Meteoroid and Space Debris Terrestrial Environment Reference) & DRAMA suite (Debris Risk Assessment and Mitigation Analysis)
Vitali Braun, IMS Space Consultancy
- Group work : Practical experimentation of tools and methods
- Space Sustainability Rating (SSR) to support sustainable space missions and operations
Adrien Saada, SSR
- Space sustainability research : introduction to the latest updates
Prof. Jean-Paul Kneib, EPFL Space Center
- Practitioner's testimony : Clearspace

DAY 3 : ESG / CSR AND ECONOMICS OF SPACE SUSTAINABILITY

- Environmental, Social, and Governance (ESG) and Corporate Social Responsibility (CSR) approaches – new frameworks for the economics of space sustainability
Prof. Nicolas Peter, ISU
- Practitioner's testimony : BDO Luxembourg
- Group work : Practical experimentation of tools and methods
- Earth-Space Sustainability: A broadened policy agenda for satellite infrastructure systems
Dr. Xiao-Shan Yap, EPFL
- Presentation of group work

STEERING COMMITTEE

- **Emmanuelle David**,
Executive Director, EPFL Space Center (eSpace)
- **Prof. Jean-Paul Kneib**,
Academic Director, EPFL Space Center (eSpace) ; Director of the Laboratory of Astrophysics (LASTRO), School of Basic Sciences (SB), EPFL

INSTRUCTORS

- **Vitali Braun**,
Space Debris Engineer, IMS Space Consultancy
- **Prof. Nicolas Peter**,
Space Policy and International Affairs, International Space University (ISU)
- **Adrien Saada**,
Aerospace and Space Systems Engineer & Space Sustainability Rating (SSR) Operation Officer
- **Mathieu Udriot**,
Engineer, EPFL Space Center (eSpace)
- **Dr. Xiao-Shan Yap**,
Lead Senior Researcher, EPFL Space Center (eSpace)