Space Sustainability Rating to launch in June 2022

The Space Sustainability Rating will allow space operators to improve the sustainability of their missions by obtaining a rating informed by transparent, data-based assessments and actionable guidance to support their space debris mitigation efforts.

Lausanne, Switzerland, 20 April 2022: The Space Sustainability Rating (SSR), an initiative hosted by the eSpace – EPFL Space Center seeking to promote sustainable behaviour in outer space, will go live in June 2022.

The SSR is a voluntary rating system that provides space actors with a transparent rating and certification system to assess the level of sustainability of their missions. It also offers practical guidance on how to improve missions' sustainability performance, with the goal of helping to address the challenges raised by the proliferation of space debris.

Reducing the risk of space debris, on-orbit collisions, and unsustainable space operations

Decades of space exploration have led to tremendous technological progress, bringing crucial services, such as weather forecasting, climate monitoring, global positioning and communications, contributing to economic and social development globally. However, the surge in satellite launches presents a growing risk to the capacity of the Earth's orbits to accommodate such a large set of new space objects safely.

Space debris pose significant challenges to the safety of current and future operations in space. In 2022, around 5400 active satellites are sharing orbits around Earth with more than one million objects larger than 1cm, increasing the risk of collisions and the loss or disruption of space-based infrastructures.

As thousands of spacecrafts are planned to be launched in the coming decade, and without internationally binding guidelines, implementing tools to incentivize space actors and foster responsible behaviour will be key to ensure long-term sustainability of the space environment.

Rewarding sustainable design and behaviour in the space sector

Developed in the last three years by a consortium including the World Economic Forum, the European Space Agency, the Massachusetts Institute of Technology, BryceTech and the University of Texas at Austin, the rating provides an innovative solution for space operators to support their debris mitigation efforts and increase the sustainability of their missions.

Through a transdisciplinary and inclusive approach, the SSR aims to encourage mission designs that are compatible with sustainable and responsible operations, as well as on-orbit operations that reduce potential damage to the orbital environment and impact on other operators. Leading space actors, including Stellar, and the Nihon University, Japan (founding members), as well as the Secure World Foundation (SWF) (association member), have joined the SSR to support this ambition and contribute to the growth of the rating globally.

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The SSR offers a transparent and data-based assessment of the level of sustainability of space missions. Participating space operators will be rewarded a recognised “bronze”, “silver”, “gold”, or “platinum” rating badge based on the outcome of the assessment. This will aim to serve in the future as an independent certification, increasing transparency on their debris mitigation efforts without disclosing sensitive mission data or proprietary information.

These ratings can be publicly shared by operators to let stakeholders know how sustainable their missions are, paving the way towards a more sustainable space environment through transparency and accountability.

The SSR comprises six modules encompassing the various aspects of the mission design, including:

1. **Mission index**: quantifying the level of harmful physical interference based on the mission design and planned operations, including post mission disposal.
2. **Collision avoidance process**: reviewing the collision avoidance capabilities with debris and with active spacecraft, as well as the ability of the team to coordinate on collision avoidance.
3. **Data sharing**: assessing the amount of relevant information an operator shares and how these help in space flight safety.
4. **Detectability, identification and trackability**: quantifying how spacecrafts’ physical structure and design, as well as their mission operations, support ground-based observers to detect, identify and track the object.
5. **Standards and regulations**: assessing the compliance with applicable international standards.
6. **External services**: recognising a range of activities and actions space operators can take to make their mission more amenable to receive external services or to increase the probability of successful external services.

After completing the rating, the SSR will develop tailored and actionable advice to enable space operators to enhance the missions’ sustainability level and maximise their potential for positive impact in the long term.

The SSR is currently finalising the beta-testing phase, as the methodology has been reviewed and tested with the participation of leading space operators, including SpaceX, Planet, CHESS, and Astrocast.

The SSR will be fully operational in June 2022 and will be featured at the 4th Space Sustainability Summit on 22-23 June organised by the Secure World Foundation (SWF) and the UK Space Agency in London, UK.

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All space actors are welcomed to join the SSR. If you wish to learn more about the rating and explore opportunities for engagement please visit our website. Please visit the eSpace website to learn more about the center's activities.

About eSpace – EPFL Space Center

The EPFL Space Center (eSpace) is an interdisciplinary hub, working with students, academic institutions, international space agencies and industry partners, with an overall mission to promote space related research and education at EPFL. Its three-fold mission is to inspire the new generation of students in space-related projects and activities, develop novel space science and technology research topics in partnership with EPFL labs and beyond, and foster innovative space initiatives. eSpace achieves its mission through three key areas: education; fundamental research; and innovative development projects. Please visit the eSpace website to learn more about the center's activities.

About the Space Sustainability Rating (SSR)

The Space Sustainability Rating (SSR) is an initiative that seeks to foster voluntary action by satellite operators to reduce the risk of space debris, on-orbit collisions, and unsustainable space operations. The ambition of the SSR is to push forward sustainability in the space sector and reward operators whose missions comply with the sustainability norms, guidelines, and best practices, by providing a rating system evaluate the sustainability level of space missions informed by transparent, data-based assessments.

The SSR has been designed by a consortium including the World Economic Forum, the European Space Agency, the Massachusetts Institute of Technology, the University of Texas at Austin, BryceTech, and is hosted by the EPFL Space Center (eSpace).

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