



SMALL
SATELLITES
& SERVICES
INTERNATIONAL
FORUM

#SSSIF2024
keynote speaker

INTERVIEW

LUCA
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ESA/ESTEC



SSSIF INTERVIEWER

We are with Luca Maresi, Lead Optical Engineer of the European Space Agency (ESA). Welcome. Thank you for being with us.

LUCA MARESI

Thank you. A pleasure as always.

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Luca will be the keynote speaker at the Small Satellites and Services International Forum in Malaga in February. What do you expect from this year's congress, which has as its main theme "Lunar and Cislunar Missions: Exploration and Business"?

LUCA

I look forward to gaining a lot of knowledge, since this is not a topic with which I'm very familiar. I see more and more small missions going on, but these are far away from Earth, so the very next opportunity is lunar missions or new objects. I have seen a few missions, but I think this year holds a very interesting topic about which you expect to learn as much as possible.

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Last November, ESA's Space Summit was held in Seville, where it was affirmed that the European Space Agency wants to use space to create a greener and more sustainable future. How can climate change be confronted from space?

LUCA

Space plays a fundamental role not only in addressing climate change but also in monitoring air quality and promoting sustainability. Satellites, a significant portion of which we deploy, are instrumental in observing Earth and assessing the environment. For instance, Sentinel-5 Precursor, launched several years ago, is dedicated to monitoring air quality. Additionally, we are preparing to launch another satellite focused on this aspect. Another mission is geared towards vegetation analysis, allowing us to assess the status of crops and predict events such as famines resulting from adverse conditions like droughts.

Furthermore, missions related to ocean circulation are crucial in the context of climate change. The melting of ice caps alters ocean circulation, making it a vital aspect to monitor. Our approach involves a combination of small satellites and larger backbone satellites like Copernicus, forming the European satellite infrastructure. Raising awareness about environmental issues gives us the leverage to take meaningful actions. To achieve this, we rely on scientific data, a significant portion of which is collected by our satellites. These datasets are essential in providing irrefutable evidence and fostering a deeper understanding of our impact on the environment.



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Now I wanted to ask you about ESA's role in the global space landscape. In recent years, the landscape has changed dramatically and will evolve even more rapidly in the coming years: a new economy is developing in low-Earth orbit that will transform space exploration in the years following the retirement of the International Space Station; and private companies are revolutionizing the landscape, from launchers to exploration.

What is the current situation in Europe compared to the most powerful space powers to date, such as the United States or Russia? What are ESA's objectives for the coming years?

LUCA

Let me begin with a fundamental shift that has occurred over the past two decades: the lowering of barriers to access space. The increased number of satellites has made space exploration more affordable, opening it up to a broader range of nations and private enterprises. This paradigm shift is evident when we compare the past, where missions were primarily institutional, to the present, characterized by a mix of institutional and private initiatives. This evolution, commonly referred to as 'new space,' involves entrepreneurs investing in space assets with the aim of generating returns. Unlike the past, where space missions were predominantly institutional, the landscape has changed, especially in areas like remote sensing. The European Space Agency (ESA) is adapting to these external forces through a transformation initiative. The objective is to make the agency more modern, agile, and responsive to emerging challenges. While ESA's budget has significantly increased in recent years, it remains a fraction of what entities like the United States invest in space.

Despite this, ESA continues to deliver world-class missions, showcasing significant success when compared to the budgetary constraints. In recognition of the changing dynamics in the space sector, ESA has established a new department called the Department of Commercialization. This department actively engages with entrepreneurs, viewing space as a business opportunity rather than just a platform for world-class science or services such as weather forecasting, GPS, and air quality monitoring. This approach signals a shift in how the agency collaborates with external bodies, fostering a more business-oriented perspective.

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How does ESA see the creation of the Spanish Space Agency? Do you think the Spanish Space Agency can help ESA to achieve its objectives?



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LUCA

The establishment of a national space agency is perceived as a positive asset by entities involved in decision-making related to space endeavors. While the specific terms governing the operations of the space agency may not be fully known, having a dedicated body focused on space activities is considered a positive indication of a nation's commitment to and recognition of the importance of space exploration. This recognition sets the stage for discussions, debates, and decisions regarding the most suitable missions for national programs and those better suited for international cooperation. Even in cases where missions fall under national programs, there remains an opportunity for the agency to contribute by providing technical expertise, advice, and support – a role it has fulfilled in other situations and in the past.

From my perspective, I see only positive outcomes emerging from this move. It not only underscores the importance of space exploration for the nation but also facilitates strategic deliberations on the most effective allocation of resources for both national and international space initiatives.

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Thank you so much for giving us these few minutes with you. What will be the main lines we will hear from you at the event?

LUCA

I'd like to keep my plans a surprise for now. During my Christmas vacation, I've decided to take a break, allowing myself time for introspection. This break provides me with the opportunity to shift from a 'to-do' mode to a more relaxed 'to-be' mode, giving me the mental space to consider my next steps.

As I mentioned earlier, there's a clear problem I aim to tackle - understanding the challenges of probing Titan. In the realm of new space, engineers typically approach problem-solving differently. They possess technology and financial resources and seek problems to solve. In my case, the challenge lies in utilizing technology to provide enhanced information on traffic, weather, pollution, maritime traffic security, among other services. It's about finding creative applications for existing technology rather than developing new technology for a specific problem. When it comes to learning about Titan, the mindset required is that of a problem solver. On the other hand, being an innovator and creator is essential when exploring new space opportunities. This demands a high level of creativity, as exemplified by inventions like the laser. Initially considered an academic exercise, the laser has become indispensable in our daily lives. Perhaps this will be the focal point of my endeavors during this period of reflection: "Newspace require new minds. New minds means creativity."



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So interesting. As said before, Luca Maresi will be the Keynote speaker during the congress of the Small Satellites & Services International Forum in Malaga. We are very excited and look forward to meeting you personally in Malaga.

LUCA

It will be a pleasure as always. Thank you so much.