

**67ma sessione plenaria del Comitato delle Nazioni Unite per gli usi pacifici dello spazio extra
terrestre (UNCOPUOS)**

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Statement Item 12: Space and climate change

Honourable Chair, Distinguished Delegates,

Space plays a critical role in enabling sustainable development through the innovative use of space technology, data and its applications.

Space technologies are indispensable for monitoring climate change by providing global coverage, precise data, and long-term observations. Collaboration is crucial to enhance data quality, share resources, and develop unified responses to mitigate and adapt to climate impacts worldwide. Together, we can leverage satellite capabilities to foster a more sustainable future for our planet.

Climate change is a global issue that transcends national boundaries. Collaborative efforts ensure that all regions of the world are monitored, facilitating a comprehensive understanding of climate dynamics. Developing countries and spacefaring nations often benefit from Italian collaboration by gaining access to satellite data and technologies they might not afford independently. This supports their ability to monitor and respond to climate change impacts effectively.

Italy has made significant contributions to space technology and climate change research, leveraging on its rich history in scientific exploration and its strategic partnerships with global space actors. These efforts span from satellite technology and space exploration missions to climate monitoring aimed at mitigating the effects of climate change.

Italy has been a pioneer in the development of satellite technology. I would like to mention here **COSMO-SkyMed**, one of the Italy's flagship space Earth Observation satellite system programme. It employs radar technology to monitor the Earth's surface, providing crucial data for environmental monitoring, disaster management, and national security. More recently, in 2019, Italy launched **PRISMA satellite**. PRISMA contribution is crucial to monitoring pollution and environmental changes, while supporting natural resources and emergency management.

A practical example of how space technology reveals to be crucial to monitor climate change indicators and mitigate its effects is represented by Urban Heat Islands (UHIs) in cities. The existence of these areas with very high temperature pose significant challenges to the inhabitants, impacting on their daily routine. In this case, satellite technology is fundamental to monitor these areas as demonstrated by the project Local Climate Zones-Open Data Cube (LCZ-ODC). An innovative satellite-based approach has been developed under this project, in collaboration with the Politecnico di Milano and funded by the Italian Space Agency (ASI) through the "Innovation for Downstream Preparation for Science" programme. This approach leverages hyperspectral satellite observations from ASI's PRISMA mission to enhance the characterization of Local Climate Zones (LCZs) – specific urban areas defined by their unique structures and morphologies that influence local temperature variations. The resulting Local Climate Zones mapping products are highly accurate and can be updated regularly, providing a robust tool for monitoring urbanization's impact on UHI effects.

Italy, Item 12

By operating these advanced satellite products, city managers can better understand and mitigate the effects of urban heat islands, planning a more effective and sustainable urban planning and climate resilience in cities. This project demonstrates the practical application of satellite technologies in addressing the challenges posed by the Sustainable Development Goals (SDGs), particularly SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action). Through continued innovation and application, space technology remains at the forefront of efforts to create sustainable, climate-resilient urban environments. A dedicated technical presentation will present this project and approach more in details.

Thank you for your attention.