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Title: *“The European Space Agency and the contribution of space activities to the climate crisis and environmental sustainability”*

Abstract. The European Space Agency (ESA) is Europe’s gateway to Space. Its mission is to forge the development of European space capabilities in collaboration with national space agencies and international partners. Its activities are at the forefront of innovation, scientific excellence and benefits for citizens and the space economy.

ESA’s Earth Observation missions and available data contribute to supporting the climate crisis and environmental sustainability challenges. The scientific, meteorological satellites with EUMETSAT, and Copernicus with the European Union provide essential data and information to monitor climate variables in the context of the United Nations, to support the Global Stocktake and monitoring of climate and environmental legislation such as the implementation of the United Nations Conventions on the Environment (Convention on Climate Change), the European Green Agenda, and decarbonisation for 2050 . The data obtained and the scientific models help us to better understand the state of health of the planet on issues such as sea rise, ice melting, deforestation and greenhouse gases. The integration of available digital technologies, such as artificial intelligence, also allow us to develop evolutionary models of the Earth and facilitate the development of solutions for climate action.

The European Space Agency hosts its Earth Observation Centre ESRIN, a European and global reference on climate and sustainability issues in Italy in Frascati, near Rome.