

## PARTNERING FOR IMPACT

Everyone has a role to play in achieving net zero, but it is only by working together that we can achieve timely and effective mitigation measures. To translate cooperation into action, the accelerator provides flexible mechanisms for partners to facilitate, stimulate and maximise the use of space in support of their green policies and initiatives.

Partners can engage through:

- Strategy - Partners ensure the accelerator is aligned with their own green transition strategies and priorities at global, regional and national levels.
- Synergy - Partners build synergies to maximise the impact of collective efforts.
- Pathfinder - Partners help to identify exactly what people need and how space can help, as well as analysing areas of mutual interest and opportunities for development.
- Seed - Partners develop new space solutions right up to operational demonstrations.
- Scale - Partners boost the impact of proven space-based solutions and create or support new opportunities for commercial ventures.



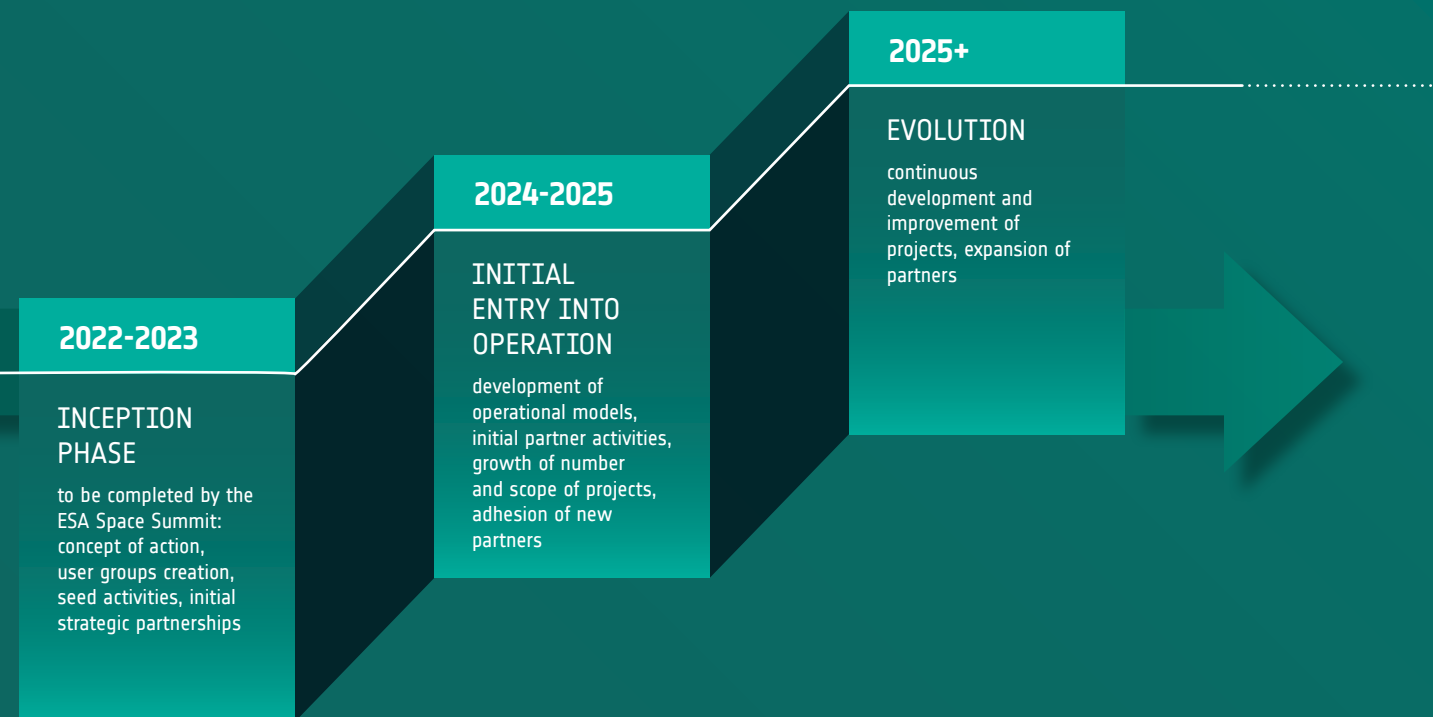
Act with urgency -- and hope. The door is open; the solutions are there.

*UN Secretary General  
Antonio Guterres*



# ACCELERATE SPACE FOR A GREEN FUTURE

## A CLEAR TIMELINE TO MAKE THE ACCELERATOR FULLY OPERATIONAL BY 2025 INCLUDES:



## DRIVEN BY THE GREEN TRANSITION

To reach carbon neutrality by 2050, we must accelerate the use of space for a green future. As world leaders and nations race to accelerate climate action, ESA seeks to work with partners to deliver tangible and measurable contributions to society's decarbonisation journey.

This decade will be critical for the pace and severity of climate change – and for climate action, mitigation, and adaptation. Momentum is building for effective and targeted action to keep the goal of 1.5°C within reach, but action to cut emissions will require new monitoring capabilities and applications to enable this. Space can and must play a stronger role in leveraging existing solutions as well as delivering these new capabilities and applications.

## SPACE FOR CLIMATE ACTION AND DECARBONISATION

With the window of opportunity closing, only fast action can still avert the worst damage. Doing so requires a quantum leap in our capacity to observe, understand and predict complex and inter-connected natural and human-made processes.

Space data has already proved instrumental in policy formulation and implementation, but space assets and technologies must be fully integrated into operational services to achieve their full socio-economic and strategic potential.

The rapidly falling cost of launch and of satellite construction, and the development of novel sensing technologies together with the rapid growth in processing power means there is no better time for space to play a bigger role.

## SPACE SOLUTIONS FOR A NET-ZERO WORLD

Accelerating the use of space for a green future will create a myriad of sustainable and commercial solutions for a decarbonised, green economy. The "Space for a Green Future" accelerator will help greenhouse gas-generating industries – from energy and transport to smart cities and agriculture – to complete the green transition and put space at the heart of climate action.

## LOOKING AHEAD

- Four decades of high-quality Earth data give us confidence in our observations, while our space solutions provide the tools with which to act on them.
- We live in an era of fully mature space technologies, yet their widest adoption in non-space industries remains in its infancy.



Plan, operate and maintain renewables, forecast energy yields and monitor infrastructure.



Support sustainable urban mobility, and monitor and forecast pollution evolution dynamics.



Build green roofs and photovoltaic systems, plan and optimise urban greening, mitigate urban heat islands, and create new insights.



Ensure quality, transparency and trust in carbon markets, land use and cover mapping, and deforestation and forest degradation detection.

### BUILDING ON SUCCESS

ESA's Green Transition Information Factory uses Earth observation data, cloud computing and cutting-edge analytics to help policymakers and industries to navigate the transition to carbon neutrality by 2050. The platform enables decision-makers to assess and monitor the effectiveness of policies, evaluate political objectives and outcomes; assists industrial leaders to develop novel space solutions to foster the green economy, and connect to relevant national and international stakeholders; and helps citizens to engage and understand the needs for their actions through interactive exploration tools and compelling scientific narratives.

### GREENER SKIES FOR A BRIGHTER FUTURE

The ESA-backed Iris for aviation system connects pilots digitally to air traffic controllers via satellites so that flight routes can be optimised, cutting carbon emissions. The European Organisation for the Safety of Air Navigation (Eurocontrol) has identified that improved air traffic management could cut emissions of carbon dioxide by up to 10%. easyJet, ITA Airways, Jet2, Transavia Airlines and Virgin Atlantic will soon benefit from Iris technology, with more airlines expected to join as part of a full global rollout.

## OUR FUTURE CLIMATE: SIX SCENARIOS



**+1.1°C** WHERE WE ARE NOW  
Global warming due to increased human-driven greenhouse gases in the atmosphere

**+1.4°C** TAKING THE GREEN ROAD  
If net zero emissions are achieved by 2050 (SSP1-1.9)

**+1.5°C**  
**PARIS AGREEMENT GOAL**

**+1.8°C** LIMITING GLOBAL WARMING  
If net zero emissions are achieved in second half of 21st century (SSP1-2.6)

**+2.7°C** NO EXTRA CLIMATE POLICIES  
If current greenhouse gas emissions persist until mid-21st century (SSP2-4.5)

**+4.4°C** FOSSIL-FUELLED DEVELOPMENT  
An energy and resource intensive scenario for the 21st century (SSP5-8.5)

GLOBAL MEAN TEMPERATURE INCREASE BY 2100 (RELATIVE TO 1850-1900)  
Source: IPCC Assessment report Working Group 1, Table SPM.1

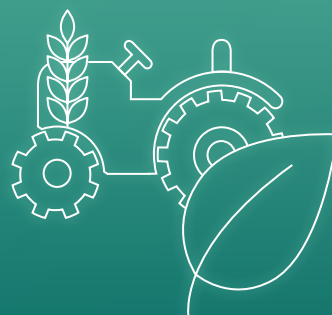
Cities host 75% of Europe's population and produce more than 70% of global carbon dioxide; high-resolution space data can map and plan smarter, greener cities.



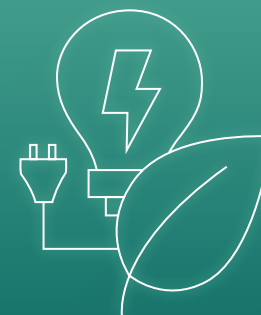
Space can help reduce emissions from transport by between 15% and 25% through smart traffic management solutions relying on connected vehicles and real-time information.



Agriculture is vulnerable to climate change while also being a major emitter of greenhouse gases; space-enabled precision farming can help cope with changed growing conditions while reducing carbon emissions.



Between 2010 and 2023, ESA and its industrial partners invested €150 million on developing more than 200 space-enabled applications for sustainable mobility, protecting ecosystems, farm-to-fork solutions and clean energy.



Space offers a vast untapped potential to ramp up the fight for a green future and tackle global climate change

ESA Director General  
Josef Aschbacher

