

# Journey to Destination Earth begins

March 31 2022



**DESTINATION EARTH**

**SHAPING EUROPE'S GREEN AND DIGITAL FUTURE**

Destination Earth (**DestinE**) will support the European Union's Green Deal and Digital Strategy and will enable policymakers and users to reach the next step in informed decision-making.

**EVIDENCE-BASED POLICY DEVELOPMENT**

**ACTIONABLE PREDICTIONS**

**APPLICATION DEVELOPMENT**

**esa**



The poster features a central graphic of a globe with a blue and green wireframe overlay, set against a dark blue background with stars. Three callout boxes point to different parts of the globe: 'EVIDENCE-BASED POLICY DEVELOPMENT' at the top, 'ACTIONABLE PREDICTIONS' in the middle, and 'APPLICATION DEVELOPMENT' at the bottom. The ESA logo is in the top right corner, and logos for the European Union, ECMWF, esa, and EUMETSAT are at the bottom left.

Destination Earth will help scientists and policymakers to understand the complex interactions that the environment and humans will play in shaping Earth's future. Destination Earth will also form the baseline for effective European adaptation strategies in support of the green transition, helping the EU reach its goal of becoming carbon neutral by 2050, and the implementation of the European Commission's Green Deal and Digital Strategy. Credit: ESA

Today, the European Commission, ESA, the European Centre for Medium-Range Weather Forecasts (ECMWF) and the European Organisation for the Exploitation of Meteorological Satellites (Eumetsat)

celebrated the official launch of the Destination Earth initiative: an ambitious project that involves creating a digital replica of Earth to help us move towards a sustainable future.

Destination Earth (DestinE), led by the European Commission's DG Connect, aims to develop a highly accurate digital model of Earth that will monitor and predict [environmental change](#) and human impact. Using innovative Earth system models, cutting-edge computing, [satellite data](#) and [machine learning](#), DestinE will allow its users to explore the effects of climate change on the different components of the Earth system, together with possible adaptation and mitigation strategies.

The project will contribute to achieving the objectives of the green transition and support the European Commission's Green Deal and Digital Strategy actions on climate change, biodiversity and deforestation. It will also aid in monitoring food security, changes in the polar regions and sea level rise.

Simonetta Cheli, Director of Earth Observation Programmes at ESA, comments, "Destination Earth is a key initiative for Europe that will form the baseline for effective European adaptation strategies and support the green transition. ESA and all involved partners will work hard to bring their own expertise, Earth observation data and excellence to help Europe achieve the next step in informed decision-making."

ESA will be responsible for the DestinE Open Core Service Platform, a user-friendly platform that will rely on the most comprehensive and sophisticated space-based observation data, including data from ESA's Earth Explorers, the Copernicus Sentinel series, data from ECMWF and, over time, other major data holdings in Europe.

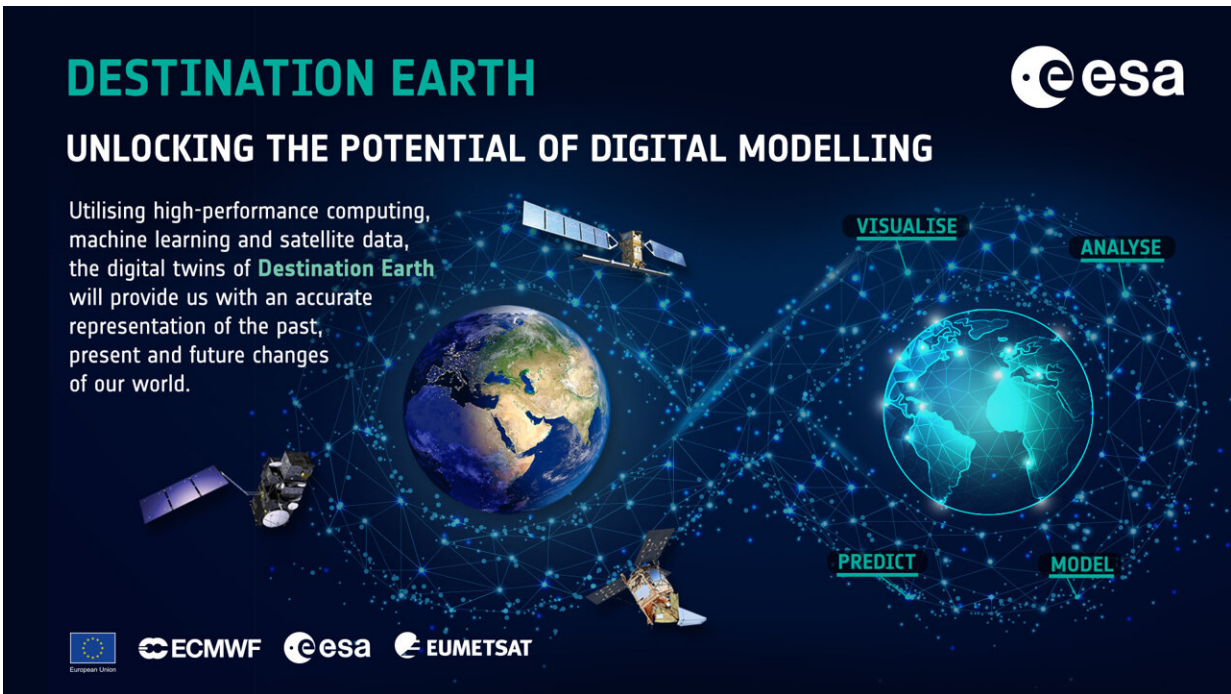
ESA's Destination Earth Project Manager, Eric Monjoux, says, "The DestinE Core Service Platform is a place of European industry

excellence. It is designed, procured and overseen by ESA and ready to evolve to encompass the challenges of the Green Deal and climate change adaptation."



Destination Earth (DestinE), is an initiative of the European Union, that aims to develop a digital twin, or replica, of our planet. This twin will be used to monitor the effects of natural and human activity on our planet, anticipate extreme events and adapt policies to climate-related issues. Credit: ESA

Eumetsat will be responsible for the multi-cloud data lake underpinning DestinE, including its design, establishment and testing, as well as its operations of the online inventory, while ECMWF will be responsible for the Digital Twin Engine, including the development of the two initial Digital Twins: Digital Twin on Weather-Induced and Geophysical Extremes and the Climate Change Adaptation Digital Twin.



**DESTINATION EARTH**

**UNLOCKING THE POTENTIAL OF DIGITAL MODELLING**

Utilising high-performance computing, machine learning and satellite data, the digital twins of **Destination Earth** will provide us with an accurate representation of the past, present and future changes of our world.

The diagram illustrates a digital modelling process. It features a central Earth globe surrounded by satellite imagery. To the right, a circular flow of four steps is shown: VISUALISE, ANALYSE, MODEL, and PREDICT, each with a corresponding globe icon. The background is a dark blue space with a network of glowing blue dots and lines.

Logos at the bottom include the European Union flag, ECMWF, ESA, and EUMETSAT.

Destination Earth’s digital twins are digital replicas of our planet’s complex Earth system. They will be built under thematic categorisations from the different domains of Earth science, such as extreme natural disasters, climate change adaptation, oceans and biodiversity. The aim is to integrate these digital replicas to form one comprehensive digital twin of the complete Earth system. Credit: ESA

DestinE will be developed gradually through the following key milestones: the development of the open core [digital platform](#) and the first two digital twins by 2024, and by 2030 a "full" digital replica of Earth through the convergence of the digital twins available through the platform.

Provided by European Space Agency

Citation: Journey to Destination Earth begins (2022, March 31) retrieved 26 June 2024 from <https://phys.org/news/2022-03-journey-destination-earth.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.