

Keynote presentation: the Destination Earth initiative

The Destination Earth (DestinE) initiative underpins two major priorities of the European Commission: the European Green Deal and the Digital Transformation and will demonstrate the important role of digital technologies and digital infrastructures for the green ambitions of the EU.

DestinE will build on Copernicus and our European Earth Observation capacity is an area where Europe is truly a global leader. It will use the wealth of available data to serve as the platform providing public authorities with evidence based policy and decision-making, expanding our capacity to understand and tackle environmental challenges; for example, DestinE will provide the ability to predict and manage environmental disasters and support Green Deal priority actions on climate change, biodiversity, deforestation, and many others.

The distinguishing features of DestinE are:

- Fusion of advanced modelling/simulation capabilities driven by (pre)exascale computing power with Earth observation data analytics (machine learning, “AI”), resulting in a number of thematically different digital twins of the Earth (natural disasters, climate change, environment, biodiversity…), and, ultimately, an integrated Digital Twin of the Earth.
- The integration of numerous different types of data sources from Earth system data (land-cover, ocean, atmosphere) to socio-economic ones as well as those from new sources of information, such as IoT-devices and smart sensor technologies deployed on satellites, aircraft, drones, and in farms, cities and cars.
- The requirement to accompany each scenario prediction with a quality assessment label indicating the maturity of the underlying models/data and thus the usability of the integrated result for decision support purposes (building trust in “science for policy”).

The resulting very high precision digital model of the Earth will enable users not only to understand better the interplay of climate, environment and human activities but to unlock the full potential of modelling and prediction capabilities to support trusted evidence-based decision-making in Europe and beyond. We will have at our disposal “the health monitor of the planet” to understand better how to predict socio-economic effects of climate change or natural emergencies with higher accuracy and transparency.

By mid-to-end 2022, we strive to have in place an operational cloud platform with two first Digital Twins offering concrete services, further extendable with more models and data. The operational part will be realised from the Digital Europe Programme. In parallel, we will continue to support the linked continuous research efforts through the EU’s Horizon Europe programme and improve state-of-the-art towards more precise and comprehensive models/data.

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