

# Digital Twin Co-design Hackathon

Nov 5-7, 2025

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*Programme, version October 29<sup>th</sup>, 2025*

## Introduction and Objectives

ECMWF is organizing a DestinE Co-design Hackathon on Nov 5-7, 2025 at the ECMWF Bonn site. This aims to

- **Develop** and implement specific applications, components of Pilot Services or Demonstrators interfacing to the DestinE Digital Twins (Climate DT, Extremes DT).
- **Co-design solutions** benefitting from the capabilities provided by the Digital Twin Engine, Digital Twins, and the wider DestinE System.
- **Support ECMWF contractors and partners** implementing DestinE Pilot Services, Applications, or Machine Learning Demonstrators.
- **Improve** ECMWF's understanding of user needs to define future evolutions, user support or training.

Target participants are application developers from our partners implementing DestinE Pilot Services and Machine-Learning Demonstrators and within the DT contracts (i.e., DE374, DE330, DE340), as well as ECMWF staff involved in those contracts or developing the ECMWF Digital Twin Engine (DTE) services and software potentially relevant for contractors solutions.

## Leading up to the hackathon (preparatory activities)

We want this event to be useful to you. To help us prepare, we'd like to understand the topics you want to work on during the hackathon. For this purpose, please fill the [pre-event survey](#) by **Oct 26**.

## Programme

05 Nov 2025	what	who	
9:00 20'	<b>Introduction</b> <ul style="list-style-type: none"><li>- Welcome and Introduction</li><li>- Tour de table</li></ul>	<b>Jörn &amp; Nils All</b>	
9:20 3-5' per presentation	<b>Resources</b> <ul style="list-style-type: none"><li>- Climate DT data</li><li>- Extremes DT data</li><li>- DTE: Polytope, Aviso, Earthkit, MultiIO, Plume, ...</li><li>- Platform resources</li></ul>	<b>Sebastian Benoît <u>James</u> + colleagues  Serco/ESA</b>	
10:00 20'	<b>break</b>		

10:20 60'	Project presentations	<b>All</b>	<b>Participants</b> explain the topic they want to work on
11:20 20'	Group formation	<b>Nils</b>	<ul style="list-style-type: none"> <li>▪ Access to Extremes DT (incl. understanding the data, addressing uncertainty, comparing with other data)</li> <li>▪ Access to Climate DT (incl. understanding the data, addressing uncertainty, comparing with other data)</li> </ul>
11:40 60'	Coding block 1		
12:40 60'	<b>Lunch break</b>		
13:40 140'	Coding block 2		Side-tracks on <ul style="list-style-type: none"> <li>▪ Jupyter notebook examples (also covered in groups above, more detail): how to, subsetting, regridding, selecting, visualisation, fusing</li> <li>▪ Plume data use (Antonino, Benoît)</li> </ul>
17:00	Shared session (deep dive on 1-2 topics for interested participants)	<b>All</b>	<ul style="list-style-type: none"> <li>▪ using ML/AI with DestinE data (Christoph, Nina)</li> <li>▪ UrbanAir (Natalie)</li> </ul>
From ~18:00	Coding / discussion		<i>(food+drinks served)</i>
<b>21:30</b>	<b>End of day 1</b>		

<b>06 Nov 2025</b>	<b>what</b>	<b>who</b>	
9:00 30'	Sharing session	<b>All</b>	Participants share where they are and what issues they encountered
9:30	Coding block 3		Side-tracks on <ul style="list-style-type: none"> <li>▪ Drop-in: Serco on DESP onboarding (~10:30)</li> <li>▪ working with services (DTE data notification &amp; availability) (Samet)</li> <li>▪ working with edge services (<i>tbd</i>)</li> </ul>
12:30	<b>Lunch break</b>		

13:30	<b>Group photo</b>		
13:45	Coding block 4		
17:00 30'	Shared session	<b>All</b>	Participants share where they are and what issues they encountered
17:30	<b>End of day 2</b>		
19:30	Joint dinner at <a href="#">Tuscolo Münsterblick</a> , Gerhard-von-Are-Str. 8 (Bonn city center). Start is 19:30.		

<b>07 Nov 2025</b>	<b>what</b>	<b>who</b>	
9:00	Coding block 5		
10:00 30'	<b>break</b>		
10:30	Presentation of results	<b>all</b>	
11:45	Wrap-up	<b>Nils, Jörn</b>	
<b>12:00</b>	<b>End of hackathon</b>		