

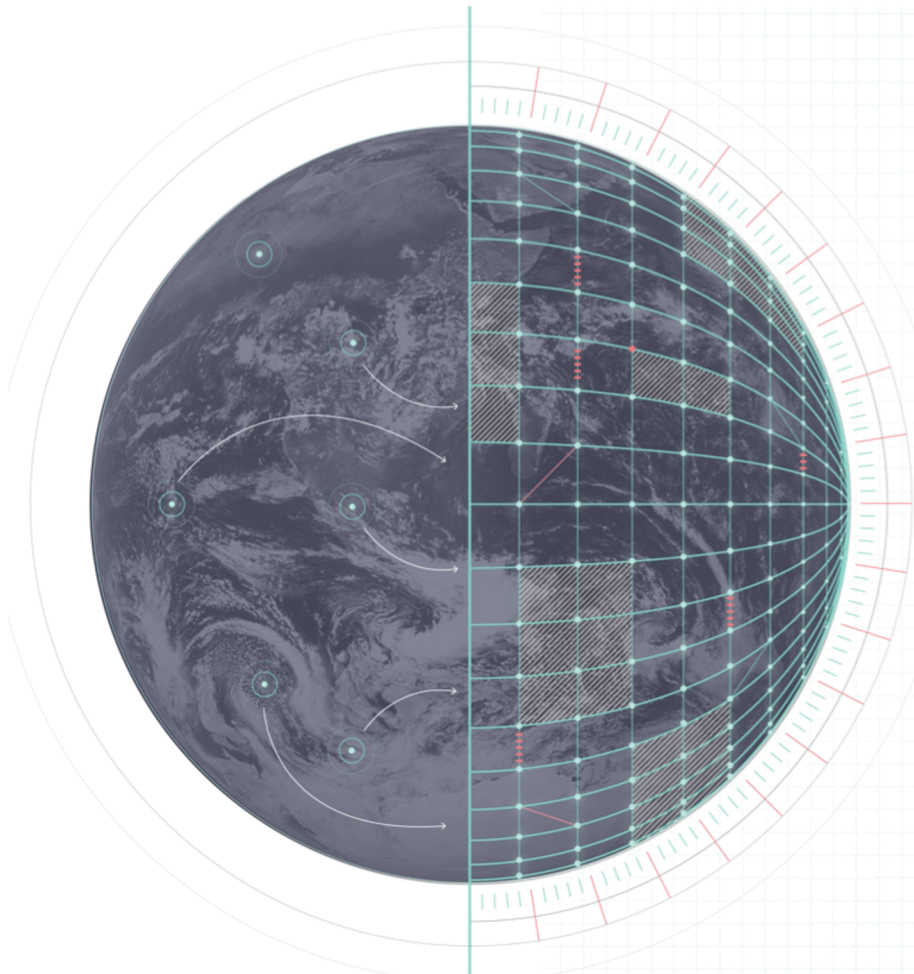
## 3rd Destination Earth User eXchange

# A new tool to obtain relevant indicators for the energy sector

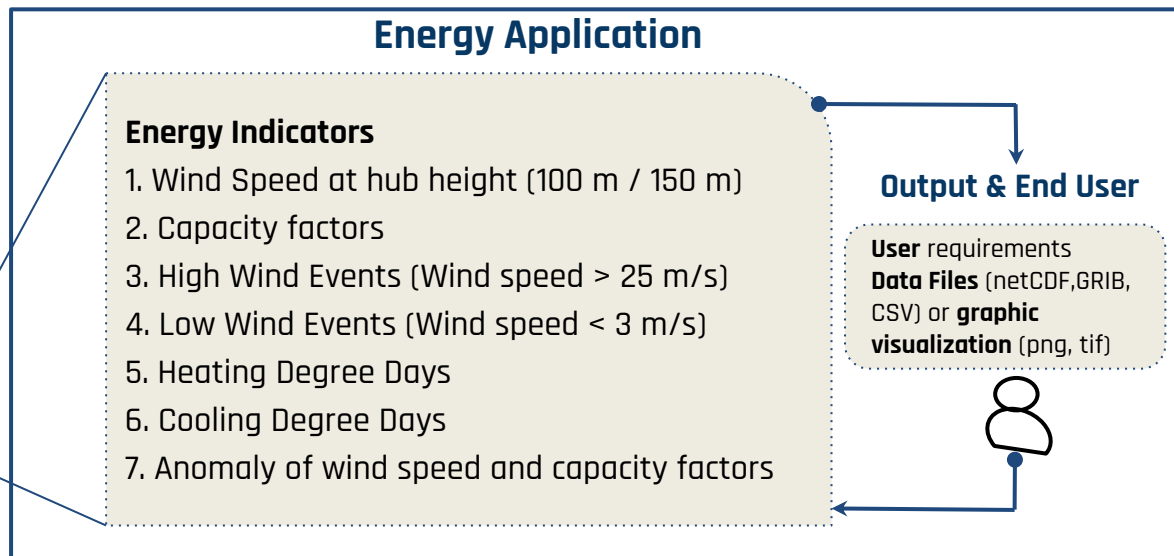
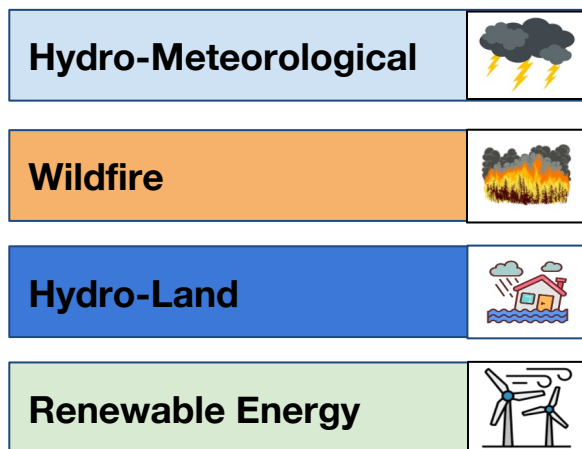
**Sushovan Ghosh**, Francesc Roura Adserias,  
Katherine Grayson, Aleksander Lacima-Nadolnik,  
Albert Soret, Oriol Tinto and Lorena Gallardo

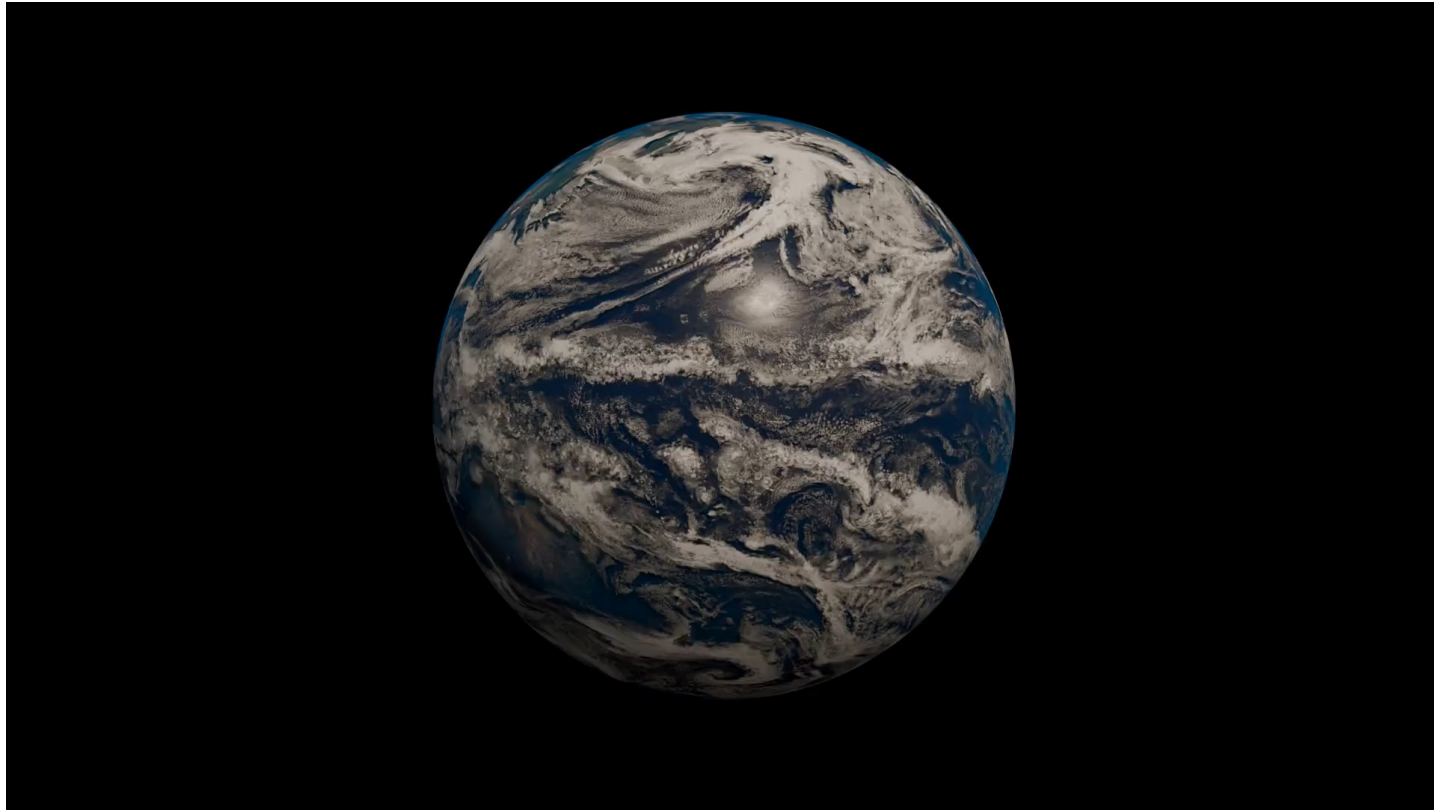
15th October 2024, Darmstadt

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presentation



- **CLIMATE ADAPTATION DIGITAL TWIN (CLIMATE DT): Assess the impacts of climate change and different adaptation strategies at unprecedented horizontal resolution at hourly scale, globally over multiple decades.**
- **Use-cases:** demonstrate the fidelity of the climate information provided by **ESMs** within **CLIMATE DT** (expand its user community and addresses their needs).





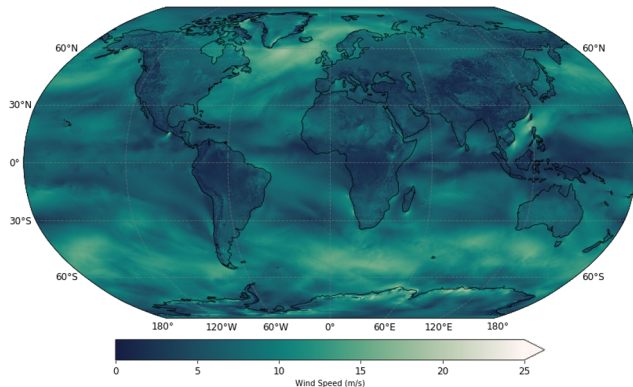
Funded by  
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**Destination Earth**

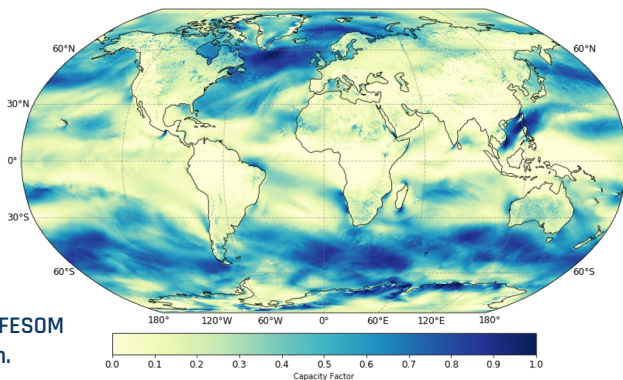
implemented by



### Weekly mean Wind Speed (m/s)



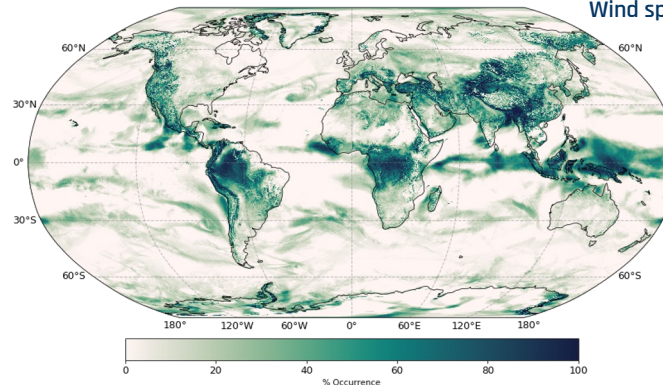
### Weekly mean Capacity Factors



Data: ClimateDT IFS-FESOM projection simulation.

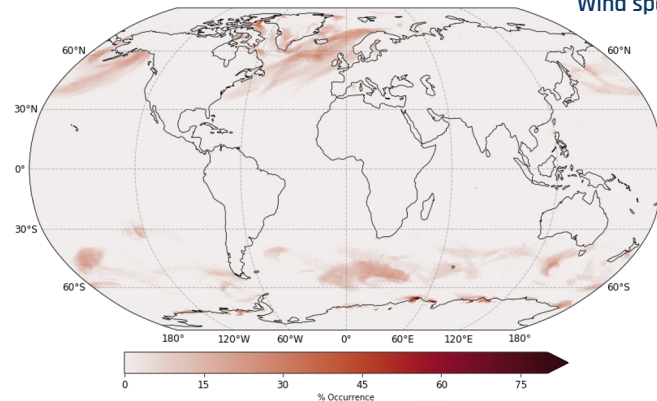
### Weekly accumulated Low Wind Events (%) Occurrence

Wind speed < 3 m/s



### Weekly accumulated High Wind Events (%) Occurrence

Wind speed > 25 m/s



Funded by the European Union

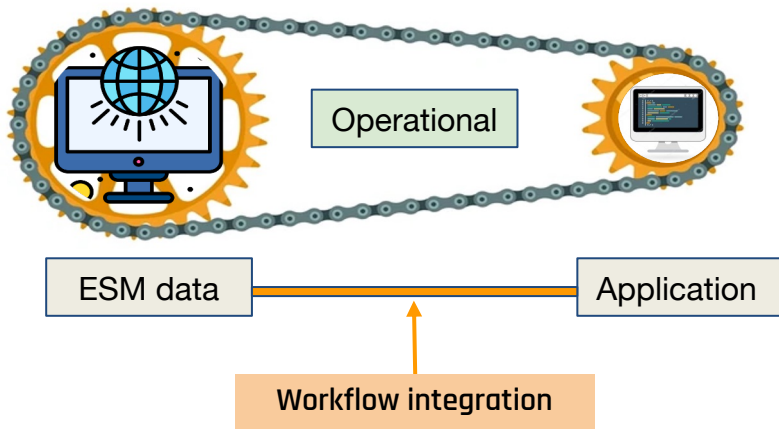
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CLIMATE DT : "Streaming of climate model data to various Applications" (Operational)



**Energy Session: (16th Oct, 9 am -10.15 am)**  
 Climate Adaptation Digital Twin: the energy use case.

**More info:** <https://destination-earth.eu/use-cases/onshore-and-offshore-wind-energy-information/>

Workflow: Roura Adserias et al.,

Application: Ghosh et al.,

**Take home messages**

- High spatio-temporal resolution **climate projections** are **operationally transformed into regional actionable climate information** tailored towards the needs of the different key users.
- Fast steps towards the **operationalization of climate projections**, a significant development to inform near- to long-term adaptation in climate-dependent impact sectors.
- Data streaming is the solution** to deal with vast amount of data that is produced from the high-resolution simulations.

**RESULTS**

Figure 2: Analysis of the Energy Climate Application and its representation in the Digital Twin (DT).

Figure 3: Analysis of the Energy Climate Application and its representation in the Digital Twin (DT).

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