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# A digital twin engine for extreme weather events analysis on climate projections in the interTwin project

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Climate Change has been leading to an exacerbation of Extreme Weather Events (EWEs), such as storms and wildfires, raising major concerns in terms of their increase of their intensity, frequency and duration. Detecting and predicting extreme events is challenging due to the rare occurrence of these events and consequently the lack of related historical data.
Machine Learning (ML) approaches represent emerging solutions for dealing with extreme events analysis, providing cost-effective and fast-computing methods that can complement or replace traditional methodologies. Such solutions require huge amounts of heterogeneous data for properly training and running the models, which in turn pose big challenges in terms of data management, computing/memory resource requirements, workflow orchestration and software infrastructure needs. A Digital Twin for EWEs integrating data and models could provide scientists and policy makers with a system for conducting prompt analysis and evaluating what-if scenarios.
In the context of the EU-funded interTwin project, a Digital Twin for the analysis of extreme events, targeting tropical cyclones and wildfires, on future climate projections following a data-driven approach is being developed. The interTwin project aims at defining a Digital Twin Engine for supporting scientific Digital Twins applications from different fields. This contribution will present the initial work behind the design of this machine learning-powered Digital Twin for extreme events studies as well as some preliminary results.

## Other key topic

## Key Topic

Digital Twins

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