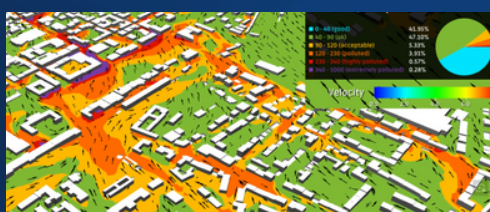


## GOALS

**Tackling Global challenges by means of High-Performance Computing, Big Data Analytics, Artificial Intelligence and Immersive Visualization**

- Advancing application scalability towards Exascale systems and novelty technology
- Enriching model capabilities models by amplifying processing patterns and results accuracy
- Provisioning of platform for processing advanced environmental- and societal-oriented simulations
- Enabling collaboration with communities focused on similar scientific domains
- Developing functionalities and good practice guidelines for decision-makers enabling limiting the negative impact of environmental and social phenomena

## USE CASES



### URBAN AIR PROJECT

Evolution of the air in the urban areas considering pollution, wind, comfort, and planning taking into account the source terms from the Urban Buildings use case.



### URBAN BUILDINGS

Advanced energy and indoor air quality building models (using algorithms and high-performance computing) to simulate the contribution of urban buildings in terms of heat CO<sub>2</sub>, and NO<sub>x</sub> emissions.



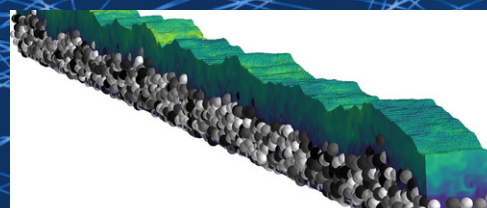
### RENEWABLE ENERGY SOURCES

Prediction of energy production from renewable sources like wind and solar panels. Solution accustomed to urban and rural areas.



### WILDFIRES

Simulation of wildfire atmosphere interactions and smoke dispersion in forest and urban areas.



### MATERIAL TRANSPORT IN WATER

Advanced numerical simulations for a better understanding of the complex process of pollution transport in rivers, offering a means to enhance control and prevention strategies.

## MILESTONES

- Deployment of use case codes on EuroHPC JU supercomputers and execution of first benchmark tests.
- Setting up of software stack for HiDALGO2 environment composed of workflow orchestration, Big Data Management, data analytics and AI frameworks, authentication, monitoring and prototyping server.



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