



MISSION

HiDALGO2 mission is to provide solutions effective enough to cover research-relevant measurement areas with satisfactory accuracy. The information will be provided quickly, considering changing conditions like the current weather and traffic.



VISION

HiDALGO2 vision is to extend the possibilities of the world's leading scientific applications in environmental protection to effectively analyze large-scale and high-precision phenomena that threaten human life and health.



TECHNOLOGY

HiDALGO2 brings together advanced solutions, including HPC, HPDA, and AI, to provide stakeholders and decision-makers tools to mitigate the tragic consequences of climate and civilization by delivering necessary knowledge.



H L R I S

Atos



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EuroHPC
Joint Undertaking

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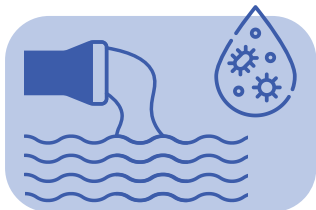
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HiDALGO2
CENTRE OF EXCELLENCE

**HPC & BIG DATA
TECHNOLOGIES FOR
GLOBAL CHALLENGES**

USE CASES

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. Coupling the High-Performance Computing multiphysics framework waLBerla with the C++ framework for large-scale, high-performance finite element simulations, HyTeG.

URBAN AIR PROJECT



In this use case we work around the evolution of air in urban areas considering pollution, wind, comfort and planning. The core of our work here is the Urban Air Flow computational model that is massively based on modern HPC, mathematical, and AI technologies.

RENEWABLE ENERGY SOURCES



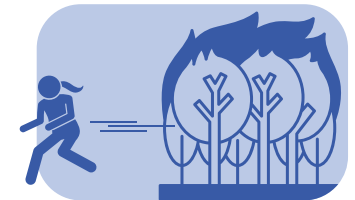
We aim to advance energy production estimation from renewable energy sources, such as wind farms and solar panels, and also predict damages to the RES infrastructure. We will achieve this by applying uncertainty quantification study to the simulation models and by running the ensembles on a larger scale.

URBAN BUILDING



Here we focus on advanced building models for better integration with urban architecture. We aim to provide a source term for heat and air pollutants (CO_2 and NO_x) to the urban air pollution model. We will use a simplified monozone model to keep the problem size reasonable.

WILDFIRES



To simulate wildfire-atmosphere interactions and smoke dispersion at various scales, we will implement the computational environment necessary in order to assess the risk and potential impacts induced by mesoscale and microscale fire behaviour in the vicinity of and within WUI zones.