

ECO56 - UTOPIA: Development of a multimedia unit world Open-source model for microplastic

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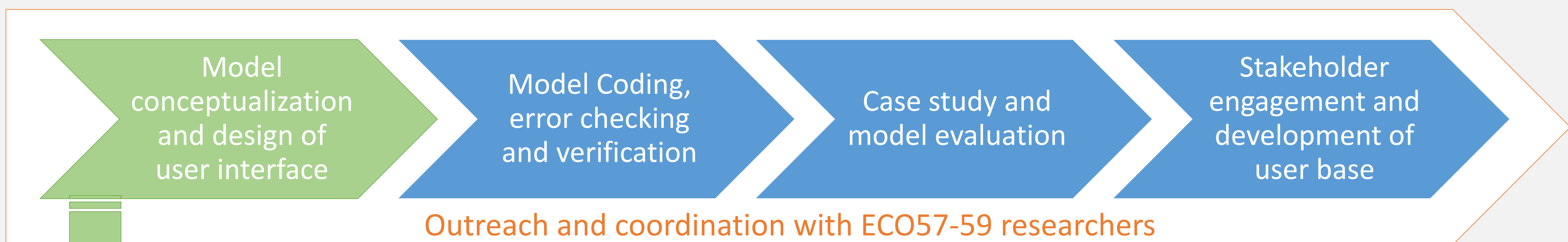
Motivation

- Newly obtained data on microplastics (MPs) fate and hazard need integration in the risk assessment context
- Relevant exposure indicators for MPs are needed
- Unit world models provide evaluative environments to explore the behaviour of pollutants, derive exposure indicators and to predict environmental concentrations for screening-level risk assessment

Objectives

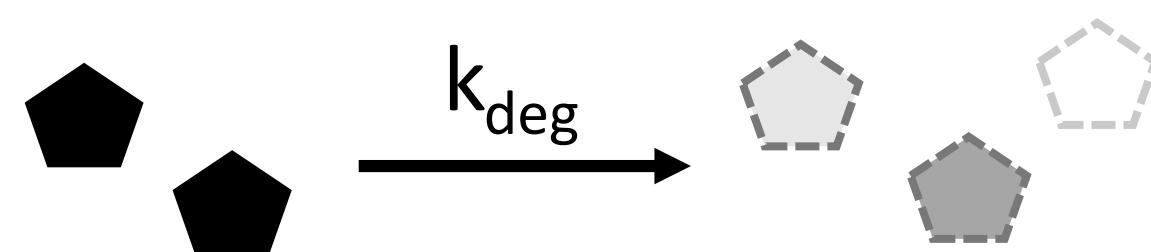
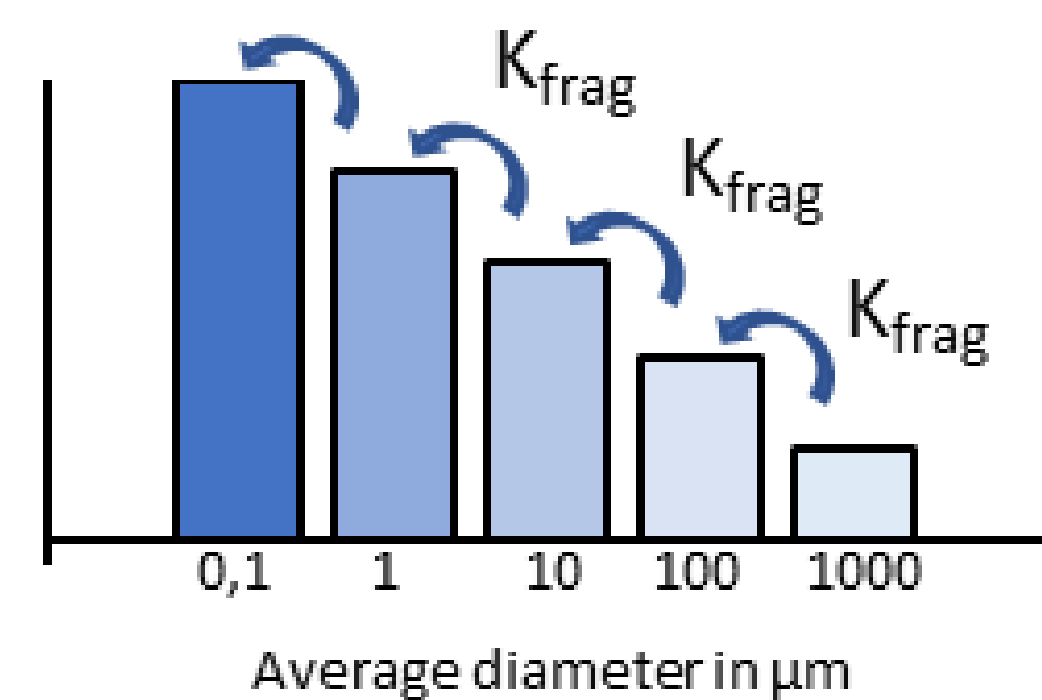
- To develop an **open-source unit world multimedia modelling platform** to synthesize knowledge and understanding about the fate of microplastic in the environment.
- To provide an interactive and flexible **user friendly interface**

Workflow

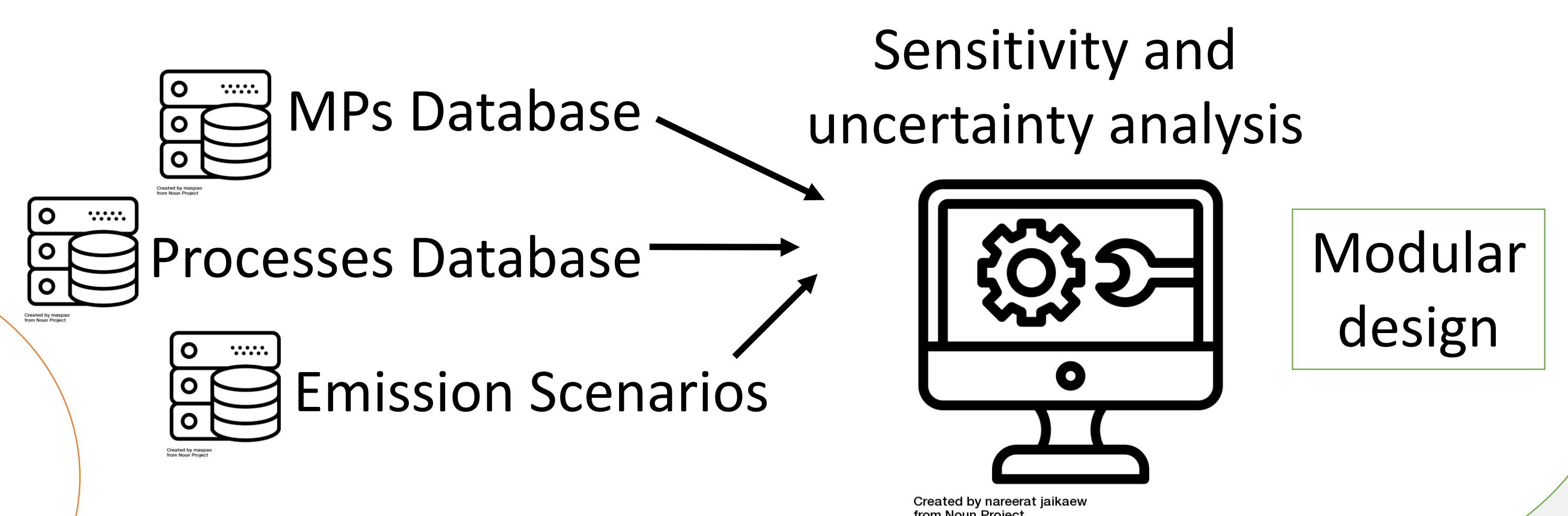
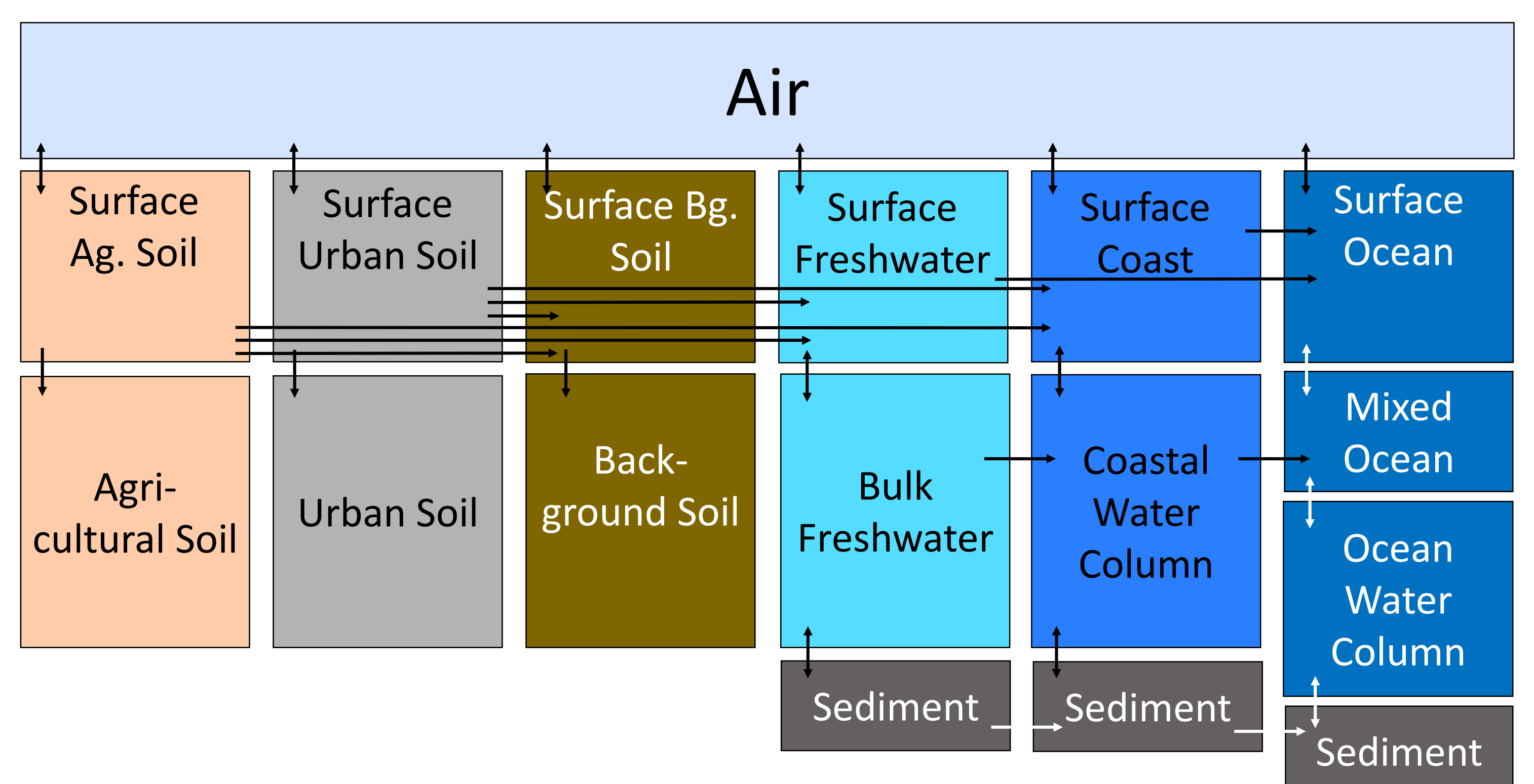


Model processes

- Movement between environmental compartments
- Fragmentation into smaller plastic particles
- Association with organic matter through biofouling and aggregation
- Degradation into small organic molecules

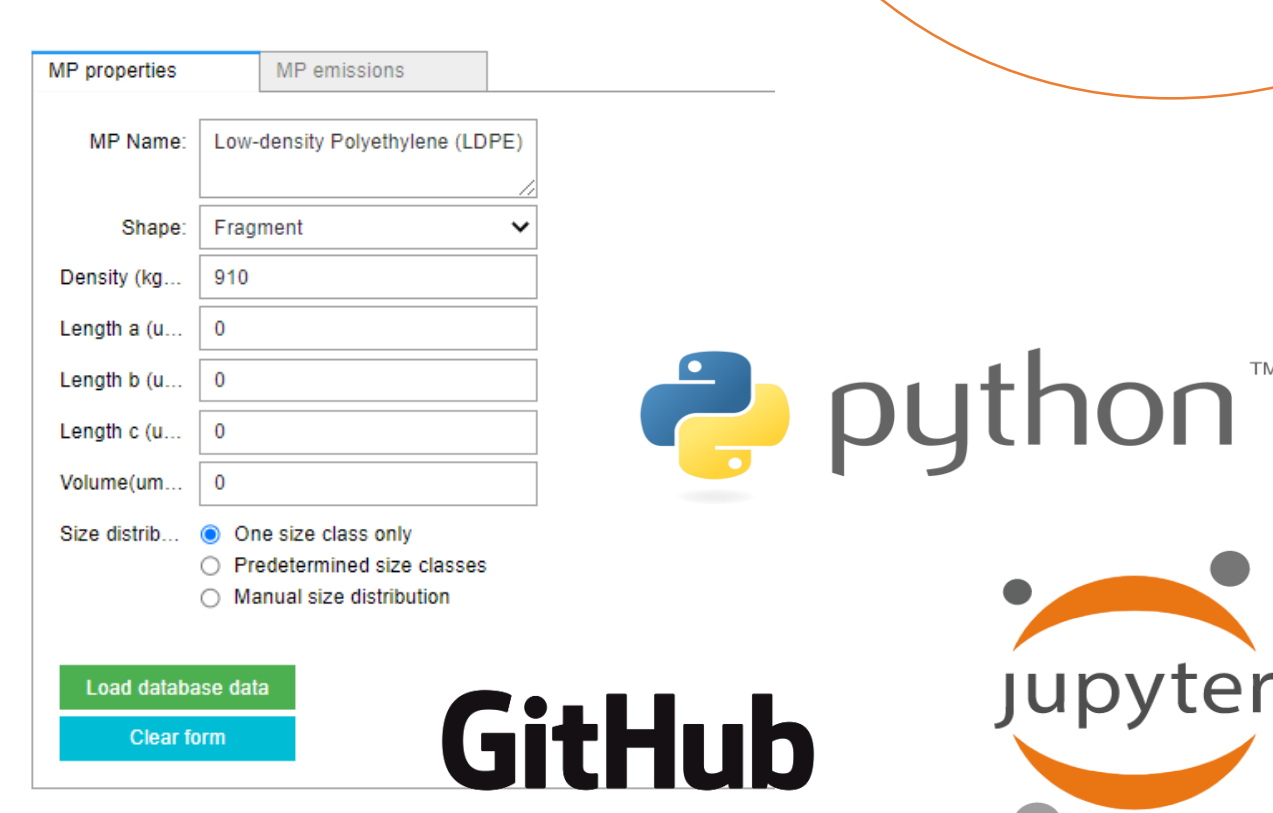


Model Structure



User Interface

- Code development in Python with user interface in a Jupyter Notebook
- Code openly available via GitHub



Expert
consultation
upcoming in
January 2022

Expected applications

- Calculation of exposure indicators
- Screening level risk assessment
- Identification of knowledge gaps and key drivers of uncertainty
- Hypothesis generation

