

Prospective Geographies

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The landscape is a complex system characterized by multiple layers of interrelationships. Anthropogenic intervention, defined as deliberate actions to alter natural environments, is inherently tied to understanding the contextual state of the territory. In landscape projects, the soil acts as a fundamental interface, possessing specific spatial and environmental dimensions where interactions between different ecosystems occur.

Recognizing soil design as crucial for large-scale territorial management, this study explores the concept of “Prospective Geographies,” which aims to outline preparatory information scenarios for planning and design interventions. The methodology involves reading and digitizing landscapes through the integration of Earth Observation (EO) data, Geographic Information Systems (GIS), Building Information Modelling (BIM), and computational tools. The primary objective is to develop a site-specific multi-criteria assessment model capable of mapping and classifying soil based on its potential for adaptation and change.

The resulting potential transformation scenarios serve several purposes: 1) supporting planning processes while respecting soil characteristics, 2) promoting effective soil management strategies to optimize available resources, and 3) guiding integrated, multidisciplinary landscape design efforts.

In the face of increasingly urgent environmental challenges due to climate change, adopting multidisciplinary approaches to generate Digital Twin models is essential. This ensures effective resource management and spatial planning based on the soil’s transformative potential.

Topic

Needs and solutions in scientific computing: Digital Twins

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