

Atmos, a professional tool for real-time atmospheres simulation

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ABSTRACT

Atmos is a digital tool for decision support in the field of artificial lighting developed by the French consultancy L'Observatoire de la nuit, as an extension of a PhD thesis entitled *Pédagogie de la sobriété lumineuse* [1]. It is an immersive interface that simulates outdoor lighting environments in real time, based on real geographical, environmental and material data. It allows to reconstitute specific geographical, urban, and interior environments and to simulate, analyse and improve artificial lighting practices.

Atmos tries to answer to a simple question: in view of the changes in practices linked to energy, environmental and social issues [2], how can we design, share, and decide on tomorrow's lighting ambiances [3]? It addresses the fundamental characteristic that links human beings, light and night: perception. It is entirely dedicated to the qualification of artificial lighting [4] and offers a unique representation of how luminous ambiances can affect nocturnal landscapes.

It is a unique interface for demonstrating and promoting the technical and technological innovations developed by manufacturers, who can, in real time, present the lighting ambiances accessible thanks to their solutions, directly applied to monuments, public spaces, landscapes and interior designs that are the subject of a lighting study. It is designed as a BIM interface dedicated to artificial lighting, where all the actors of a project can collaborate around the cultures, practices, and techniques of illumination.

Atmos is also involved with the actors of the environmental and astronomical preservation of the night, as well as for architects, lighting designers, landscapes architects, urban planners and engineers who want to access with ease and professionalism the lighting studies of their projects and their impacts on the natural nocturnal environments. It provides real-time simulations of domestic, professional, landscape or urban environments, from volume modelling to the measurement of lighting levels on surfaces.

In addition, Atmos integrates modules for measuring illumination levels in order to address local policy issues related to standards and regulations associated with lighting for traffic and work environments.

Atmos is dedicated to the democratization of moderate and high-quality lighting, to the search for an opening to the restitution of natural night atmospheres and the benefits of darkness for all living beings. It accompanies the evolution of practices towards a reasoned and adapted integration of digital tools and encourages the rise in requirements of lighting projects through interactive and collaborative simulations. The interface, with its unique ergonomics, allows to simulate, calculate, and realize quality night-time atmospheres, where the use of lighting is primarily designed to protect the natural environment.

During the presentation, participants will attend a real-time demonstration of Atmos. They will discover how easy it is to use and the quality of its simulation. Three types of case studies will be presented: urban lighting, architectural enhancement, and rural environments.

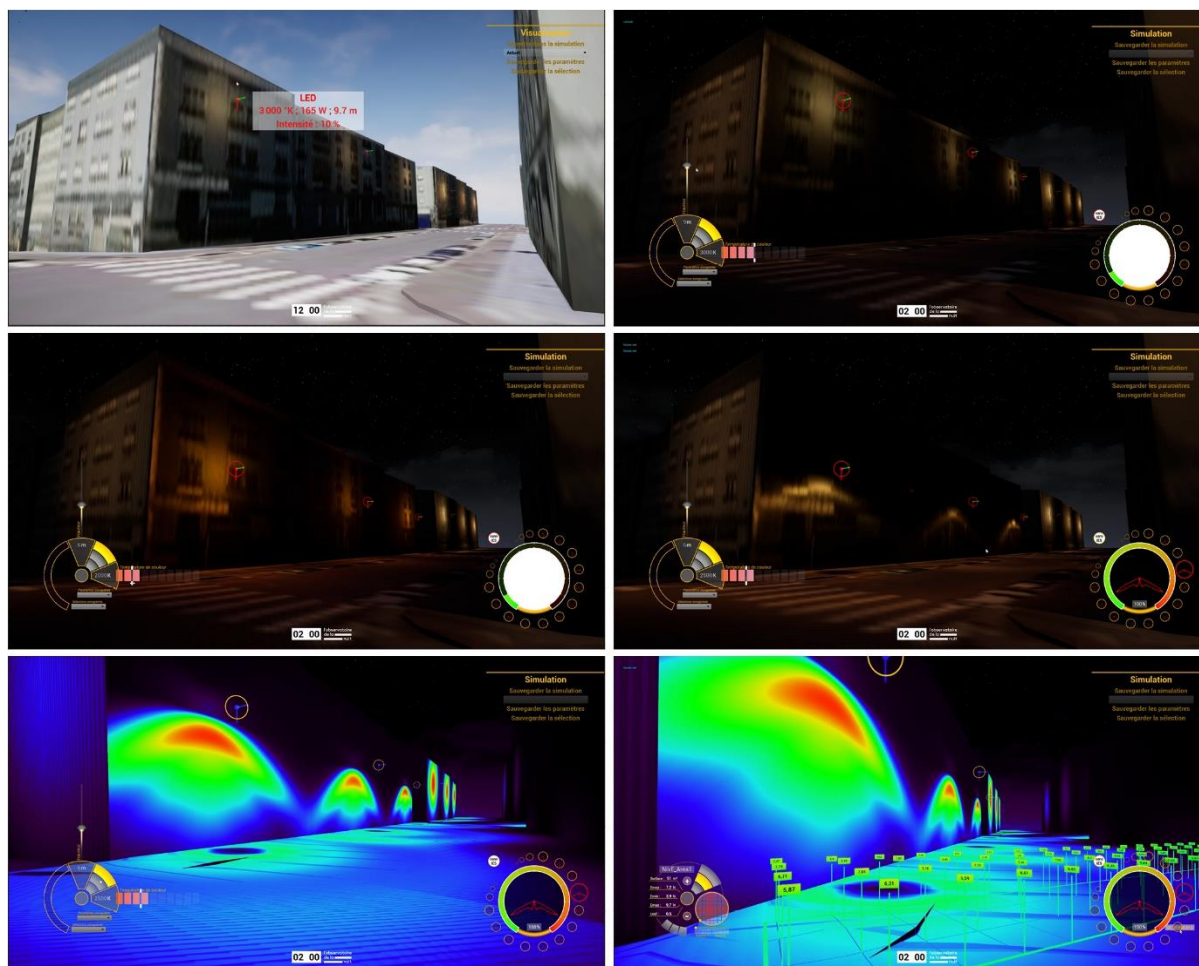


Figure 1 Atmos interface, reading direction from left to right and from top to bottom: integration of street lighting data (1); night situation (2); real time color temperature variation (3); real time photometric profile change (4); false color representation (5); real time illuminance levels (6).

References

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