

An Integrated and Comprehensive Tool to Assess Urban Mobility Strategies

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Abstract

Transport planning is a challenging topic to be addressed in urban areas in order to create sustainable cities, due to the adverse health effects, noise and congestions generated by the transport sector. Therefore, policymakers require technical tools that allow to take regulatory transport decisions, considering environmental and health impacts. This work presents the development of an integrated and comprehensive tool to assess urban mobility strategies called MAITec. The methodology includes the implementation and application of specialized software to estimate health impact by transport emissions. The tool was implemented in a university district in Mexico. Results indicate that in the base scenario, people are exposed to high pollutant concentrations in some sectors of the district, where traffic pollution claims approximately 9 lives every two years. MAITec was implemented in a free online platform and shared with local governments for its application.

Keywords

Sustainable mobility, Health impact, Air pollution, Emissions and Microsimulation.

Biographies

Jose I. Huertas is a full professor and researcher in the Energy and Climate Change research group at the Tecnológico de Monterrey, Campus Monterrey, Mexico. He is part of the National System of Researchers, level 2, in Mexico, and senior researcher in Colombia. In addition, he is member of the Mexican Academy of Science. He has published 3 books, 6-chapter books, and more than 65 papers in Q1 and Q2 journals related to energy and air pollution. He has concluded more than 90 research projects financing by companies and governmental institutions in Colombia, Mexico, Spain, France and United States.

Maria E. Huertas is a researcher in the Energy and Climate Change research group at Tecnológico de Monterrey, campus Monterrey, Mexico. She earned B.S. in Environmental Engineering from Andes University, Colombia, and PhD in Engineering Science from Tecnológico de Monterrey. She is member of the National System in Researchers, level candidate, in Mexico. She has been professor at Universidad Tecnológica de Bolívar, Colombia and Tecnológico de Monterrey, Mexico. Her research interest includes energy and air pollution. Dr Maria has completed research projects with the Environmental Ministry of Colombia, Ecopetrol (Colombia), Fraunhofer Institute (Germany), National Institute of Ecology and Climate Change (Mexico), among other companies and governmental institutions.