

Project Information Form

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| Project Title | Evaluating Environmental Impact of Traffic Congestion In Real Time Based on Sparse Mobile Crowd-Sourced Data |
| University | University of California, Riverside |
| Principal Investigator | Peng Hao |
| PI Contact Information | Phone: 951-781-5777 Email: haop@cert.ucr.edu |
| Funding Source(s) and Amounts Provided (by each agency or organization) | California Department of Transportation (Caltrans) - \$83,910.00 |
| Total Project Cost | \$83,910.00 |
| Agency ID or Contract Number | UCR-CT-TO-032.1 Caltrans 65A0527 Task Order 032.1 |
| Start and End Dates | November 21, 2016 through September 30, 2017 |
| Brief Description of Research Project | <p>Traffic congestion degrades the air quality and threatens public health, especially for people living and working near major roadways. Sparse mobile crowd-sourced data, such as cellular network data and Global Positioning System (GPS) data, contain large amounts of traffic data, and provide a supplement or alternative approach to evaluate the environmental impact of traffic congestion.</p> <p>This research establishes a framework for traffic-related air pollution evaluation using sparse mobile data and traffic volume data from California Performance Measurement System (PeMS) and the Los Angeles Department of Transportation (LADOT). It develops an effective tool to evaluate the environmental impact of traffic congestion in an accurate, timely and economic way. The proposed methods have good performance in estimating monthly peak hour fine particulate matter (PM 2.5) concentration, with error of 2 ug/m³ from the measurement from monitor sites. The estimated spatial distribution of annual PM 2.5 concentration also matches well with the concentration map from California Communities Environmental Health Screening Tool (CalEnviroScreen), but with higher resolution. The proposed system will help transportation operators and public health officials alleviate the risk of air pollution, and can serve as a platform for the development of other potential applications.</p> |
| Describe Implementation of Research Outcomes (or why not implemented) | |



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| (Attach Any Photos) | |
| Impacts/Benefits of Implementation (actual, not anticipated) | |
| Web Links <ul style="list-style-type: none">• Reports• Project website | http://ncst.ucdavis.edu/project/evaluating-environmental-impact-of-traffic-congestion-in-real-time-based-on-sparse-mobile-crowd-sourced-data/ |