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A first step toward a close proximity noise map

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In recent years, environmental noise has become a serious issue for civil infrastructure and environmental administration due to public concern over the subject of noise pollution. The most significant deterioration of environmental acoustics conditions comes from road traffic transportation. The predominant noise source is the combination of the tire/pavement interaction and the propulsion systems of the vehicles. Generally, tire/pavement interaction is the principal source of noise for speeds above 40 km/h in the case of most modern cars. In this research, geo-referenced close proximity rolling noise is used for acoustical characterization of asphalt concrete surfaces in an urban environment. A close proximity noise map of streets with low speed limits is presented for a reference speed of 50 km/h. Different pavements and pavement conditions, common in urban streets, are analyzed: dense and semidense asphalt concrete, with Spanish denomination D-8 and S-12, respectively, and on the other hand, dense pavement at the end of its service life (D-8*). Noise levels from dense surfaces (D-8) increase significantly over time, principally due to the appearance of surface defects such as cracks and ruts.