DETERIORATION OF TRACK GEOMETRIC QUALITY ON HIGH SPEED LINES: 
THE EXPERIENCE OF THE MADRID-SEVILLE LINE

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ABSTRACT

This paper analyses the deterioration process in track geometric quality on the Madrid-Seville high speed line, during its first ten years of commercial operation. Both the maintenance operations carried out in this period, as well as all the dynamic inspection records available have been analyzed. In the latter case, vertical and transversal accelerations measured on axle boxes, bogies and vehicle bodies of Spanish high speed trains (AVE) have been considered. The discretization of the line throughout its total extension (471 km) into 10 m long sections has made it possible to find out and quantify the relative influence of track infrastructure (tunnels, viaducts, natural subgrade, embankments, etc) on geometric track quality deterioration. The effect of switches and expansion devices in this deterioration process has also been studied.