

Monitoring Method to Prevent Rail Defects due to Water Drips in Tunnel from Occurring

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There have been cases where rail defects due to water dripping in tunnels occur. This paper proposes a monitoring method to prevent this kind of rail defects from occurring. Firstly the authors investigate the cause of broken rails in tunnels, and it is revealed that rail-head irregularities and hanging sleepers cause significant bending stresses at rail foot. Field tests and numerical simulations were used to derive relationship between rail-foot stresses, rail-head irregularities and hanging sleepers. Finally, we developed a method for evaluating soundness of rails based on rail-foot stresses using data acquired by track inspection cars.