Neutral Temperature Characteristics of Continuous Welded Rail Based on Rail Creeping Surveys and Long-Term Axial Force Measurements

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Continuous welded rail management controls rail axial force using its equivalent temperature, taking into account rail creeping and maintenance work. Furthermore, changes in neutral temperature are appropriately updated after resetting. However, track buckling has still occurred, even under such management, suggesting that unexpected rail axial forces may be generated by temporal changes in neutral temperature after resetting. This study analyzed changes in the amount of rail creeping, focusing on the track structures, and measured the axial force and temperature over a long term from the time of long-welded rail installation to understand the variations in neutral temperature characteristics. As a result, the authors confirmed the quantitative impact of the factors contributing to rail creeping and found that the possibility of a large rail axial force occurring due to temporal changes in the neutral temperature after resetting is low.