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Study of the Temperature Distribution in a Road Tunnel Under the Effect of Two Ventilation Systems

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ABSTRACT

This paper proposes numerical investigations carried out on a small scale tunnel model airing to study the fire-induced smoke control by longitudinal and longitudinal-natural ventilation systems. We studied the effect of two ventilation systems on the temperature distribution and stratification of the pollutant to estimate the efficiency of ventilation systems. The flow is characterized by the temperature fields, temperature profiles and the Froude number. The numerical tool used is FDS (version 4.0). This numerical study requires validation with an experience of literature. Good agreement with experimental results confirms the possibility of using this code in the problem.

KEYWORDS

Tunnel Fire, Ventilation, FDS, Stratified Flow, Temperature

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