

Proposal of Evaluation Method for Anti-catastrophe for Railway Structures

Kohei TANAKA Yoshitaka MURONO Kimitoshi SAKAI

After the occurrence of 2011 Tohoku Earthquake, how to deal with the “unexpected large earthquake” in the seismic design has been actively debated. In the seismic design standard of the railway facilities revised in 2012, the concept of “Anti-catastrophe” was first introduced. However, at the time a method to evaluate the degree of “Anti-catastrophe” for structures was not proposed it was supposed to correspond to this concept at the structure planning stage. Therefore, a method to evaluate “Anti-catastrophe” was developed in this study. First, we identify the crisis situations which should be avoided in the railway system. Next, the avoidance ability and the impact of each crisis situation are quantitatively evaluated. Finally, how much the crisis situations can be avoided is evaluated based on the product of the avoidance ability and the impact, and the product is adopted as the value of “Anti-catastrophe”.