

Earthquake Magnitude Determination Method Considering the Time Dependence of P-Wave Growth
— Its Applicability to the Algorithm of the Railway Earthquake Early Warning System

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To further improve the safety of running trains using earthquake early warning (EEW), we test an earthquake magnitude (M) determination method recently proposed. The proposed method sets a coefficient in the relation between M and ground displacement as a function of time from the P-wave onset while it is conventionally constant. Our analysis demonstrates that M can be determined from the proposed method faster than from the conventional one without loss of estimation accuracy. An advantage of using the method is that it can be easily installed to the Shinkansen EEW system.