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Toward Unifying Available Earthquake Catalogs for the Tokyo Metropolitan Area: Preliminary report

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Under the "Special Project for Earthquake Disaster Mitigation in the Tokyo Metropolitan Area", an investigation of the detailed structure of plates converging beneath the Tokyo Metropolitan area is underway. This investigation will improve information needed for seismic hazards from inter-plate mega-thrust earthquakes and intra-slab earthquakes for the Kanto region. Unification of earthquake datasets, if available, would contribute to creating a database that is devoted to in-depth research on the regional plate structure. Currently available datasets for the Kanto region are three regional and nationwide catalogs: (a) NIED catalog: earthquake catalog based on the Kanto-Tokai Observational Network maintained by National Research Institute for Earth Science and Disaster Prevention; (b) ERI catalog: catalog including micro-earthquakes detected mainly by the seismic network maintained by Earthquake Research Institute, University of Tokyo with special focus on the Kanto area; (c) JMA catalog: catalog including nationwide seismicity monitored by Japan Meteorological Agency. Before starting to unify the catalogs it is necessary to get a better understanding of the statistical properties of earthquakes for each catalog. Here, we first give a brief report about the results of statistical analyses to characterize data quality for individual catalogs. We then introduce our ongoing research in order to show some prospects for moving toward unifying earthquake catalogs.

Keywords: earthquake, seismicity, statistics, Tokyo metropolitan area, earthquake catalog