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A Unified Seismic Bulletin of Central Asia Using Legacy Data

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We have created a unified seismic bulletin of Central Asia to improve event locations and knowledge of seismic hazards. The national data centers and seismic networks of Kazakhstan, Kyrgyzstan, and Tajikistan have digitized paper historic bulletins of earthquakes with mb3.0 and greater from this region of Eurasia for 1949-2009. Soviet-era data covering portions of Uzbekistan, Turkmenistan, and Russia are included for completeness. Data from the International Seismological Centre (ISC) for all years, and local digital seismic bulletins since 1993, were collected and merged with the digitized bulletins. The unified bulletin contains over 10 million arrivals. To obtain regional magnitude conversion relationships from small events with traditional magnitudes (ML, mb, and Ms), we use a coda calibration technique that allows direct calculation of Mw from source spectra obtained using the Coda Calibration Tool (CCT), which was developed at Lawrence Livermore National Laboratory (LLNL). After merging all available information and relocations, the unified seismic bulletin was created. This is the first comprehensive bulletin developed for this region.

This project fills in a considerable portion of a gap for the region, increases the accuracy of event parameters, preserves unique, perishable archival data, and supplements ISC bulletins with new data for the region.

Promotional text

Strengthen the engagement of the scientific communities working in test ban monitoring. As a result of exchange of data from multi-country institutions we improve the earthquake source parameters and locations and earth models in Central Asia.

Primary author: Ms BEREZINA, Anna (Institute of Seismology, National Academy of Science, Bishkek, Kyrgyzstan)

Co-authors: Ms MIKHAILOVA, Natalya (National Nuclear Center of the Republic of Kazakhstan); Mr MACKEY, Kevin (Michigan State University (MSU), East Lansing, MI, USA); Ms SOKOLOVA, Inna (Institute of Geophysical Research, Almaty, Kazakhstan); Ms BEKTURGANOVA, Bayan (Seismological Experimental and Methodological Expedition, Almaty, Kazakhstan); Mr MURODKULOV, Shohrukh (Institute of Geology, Earthquake Engineering and Seismology of NAS, Dushanbe, Tajikistan); Ms PERSHINA, Elena (Institute of Seismology, National Academy of Science (IS NAS KR), Bishkek, Kyrgyzstan); Mr ABRAMS, Kenneth (Michigan State University (MSU)); Ms GOK, Rengin (Lawrence Livermore National Laboratory (LLNL), Livermore, CA, USA)

Presenter: Ms BEREZINA, Anna (Institute of Seismology, National Academy of Science, Bishkek, Kyrgyzstan)

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