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of the Central Asia Comprehensive Seismic Bulletin

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The Lawrence Livermore National Laboratory, Michigan State University, and NDCs in Central Asia (Kazakhstan, Kyrgyzstan and Tajikistan) digitized seismic bulletins of analog stations between 1951 and 1992. The metadata of all seismic stations of that period were also collected. The national network bulletin data were then combined with the International Seismological Centre bulletin to form the comprehensive bulletin for Central Asia between 1951 and 2017. The bulletin consists of ~400,000 events and will serve the basis of the new probabilistic seismic hazard analysis for the region.

We present the relocation results of the comprehensive Central Asia bulletin. We selected events with less than 355° secondary azimuthal gap, and using the MSU High Performance Computing facilities, we relocated ~250,000 events with iLoc, a single event location algorithm using regional seismic travel time predictions to improve locations. We developed a hierarchical review strategy to perform a thorough manual review with strict quality control. We show that each stage of the manual review brings incremental improvements. We also identified new Ground Truth and anthropogenic events in the region.

The results show significant improvements in the view of seismicity, providing reliable input for the PSHA and allowing for a more accurate determination of active seismic zone boundaries.

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Promotional text

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

Oral preference format

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