

Magnitudes of the Caucasus earthquakes 1903 – 1908

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In the Caucasus instrumental observation began in the beginning of this century. In 1899 the Tiflis (now Tbilisi 41.7 44.8) seismic station was founded in the former Caucasian district of the Russian Empire. The horizontal Rebert-Ellert pendulum was installed on the station. The first seismogram was recorded on December 6, 1899. After the well-known Shemacha earthquakes, seven seismic stations installed in the Caucasus region. The horizontal Omori-Boshi pendulum with mechanical registration was installed in Batumi(41.7 41.6), Shemakha(40.6 48.6), Akhalkalaki(41.4 43.5), Borgomi (41.8 43.4), Derbent (42.0 48.3), Zurnabad (40.5 46.3) in 1903–1908. The Bulletins of the PCCS also were published. The following moments of phases were indicated for each earthquakes (mean European time): the beginning of weak oscillations (flicker) of the pendulum T; the beginning of the oscillations C; the beginning of the strong oscillations R; amplification (minimum) of the oscillations M; the end of the oscillation F; and the double-trace amplitude (peak-to-peak) in millimeters A. About 3971 earthquakes had been recorded during this period. Most of them were recorded only at one station. The bad quality of the recording instruments, low velocity of the registration and old identification of the phase could not allow estimation of the earthquakes' parameters. So these instrumental observations did not take very important part in the investigation of the seismicity .

Revision of the old records and their comparison with readings in Bulletins of PCCS helped us to interpret the old identification for the Bosh instrument. Some events 32 are identified for which magnitudes can be calculated with the Bosh instruments, which had been used early. Locations of the events were determined by using a combination of the Bosh magnitude instrumental readings.