We present the current status of our efforts to produce a global catalog of instrumentally recorded earthquakes with homogeneous locations and complete down to a common magnitude threshold globally. This project is currently being carried out under the auspices of GEM (Global Earthquake Model).

Temporal variations in the detection threshold, the quality of the seismic instrumentation, and the availability of arrival time data in digital form, entails that two different approaches in the data acquisition and processing, and two different magnitude thresholds are established for the early instrumental period (1900-1963) and the modern period (1964-present).

Phase arrival-time data for earthquakes before the first bulletin of the International Seismological Centre (ISC) in 1964 are not readily available in digital form. The main source of arrival-time data for the pre-ISC period are the printed bulletins of the International Seismological Summary (ISS) for 1918-1963. We have scanned the ISS bulletins and we apply optical character recognition to convert the scanned images to text files with arrival-time data in a standard format. For instrumental earthquakes prior to the ISS (1900-1917) we compile the phase data from individual station bulletins.

The magnitude thresholds established for the early instrumental period are Ms >= 6.25 from 1918 onwards, and M >= 7.5 before that date. In addition, selected shallow events occurring before 1918 in stable continental areas or located outside of main seismic boundaries will also be relocated. We will illustrate some of the most significant results of this relocation effort for this time period.