Chongqing is a city of China, it is located on the east side of the middle part of the north-south seismic belt, which is an area that earthquakes occurred frequently. It is listed as one of the key cities for monitoring and defending the earthquakes by State Council in 1996, so the detection work for the seismic active faults is very urgent. In order to detect and appraise the active faults in Chongqing, the precise location, occurrence and thickness of the overburden of the faults in this area should be found out. There are very strong electromagnetic interference in the survey area, some natural source electromagnetic method don’t work, so the CSAMT (Controlled Source Audio-frequency Magnetotellurics) method is applied. With the strong controlled source signal, some credible geoelectric data have been obtained. After some pre-processing, the authors use the full data inversion program to inverse the data, and then got the actual geoelectric information of the survey area. By analysing the inversion results combining with the known geological data, some faults have been detected, and some conclusions have been made: (1) The active faults studying are very important when someone want to study the earthquake, and the electromagnetic method is an useful method in the active faults studying. (2) In some areas which strong noise, the natural source electromagnetic method is not applicable, the CSAMT method is useful, and which the full field data inversion method, we can get very good geoelectric results of the earth.