In Japan, a dense seismograph network and developments of data analysis and inversion theory of strong ground motion reproduce strong motion records with high precision. Government and municipalities require estimation of strong ground motion for disaster prevention planning. The estimation of strong ground motion requires to be assumed subjacent source fault with high precision. Active fault information play important role for assuming the source fault. However, recent earthquakes occurred in Japan, such as 2000 Tottori earthquake, did not accompany earthquake faults on the surface. These earthquakes were difficult to estimate subjacent source fault from active fault information. Thus, other information also needs to be assumed subjacent source fault of earthquake without surface rupture. The geological survey of Japan has published gravity database. The database includes the Bouguer anomaly data covering over Japan with 1km grid. Many previous studies discussed the relationship between the Bouguer anomaly and active faults. According to the previous studies, major active faults were along steep gradient zones of gravity anomaly. In the poster, we will present characteristics of the Bouguer anomaly around subjacent source faults in Japan. Subjacent source faults without surface ruptures were surrounded by steep zones of gravity anomaly. Thus, there is a possibility to determinate length of the subjacent source fault from the gravity anomaly. The Bouger anomaly consists of various depth density sources. In order to analyze subsurface structure, such as surface fault structure, long wavelength of the gravity anomaly is removed as regional trend. We will also discuss the frequency characteristics of the gravity anomaly around subjacent source faults.