岩手・宮城内陸地震震源域ごく近傍南側の比抵抗構造

坂中 伸也 [1]
[1] 秋田大・工学資源・地球資源

2D resistivty strcture just south of the focal area of Iwate-Miyagi inland earthquake, north-east of Japan

Shinya Sakanaka[1]
[1] Earth Science and Technology, Akita Univ.

The damaged earthquake named Iwate-Miyagi inland earthquake (M7.2) was occurred in the area of northeast of Japan on 14th June, 2008. Just after the earthquake we planned campaigns of MT (magneto-telluric soundings) survey around the focal area. Firstly we set the east-west line (line 2008) just above the hypocenter and installed 14 MT sites along it. We managed to construct a 2D resistivity model along the line 2008 but so far we cannot get reasonable 2D structure model unfortunately. One reason for unsuccessful model construction is due to the three dimensionality around the focal area. In fact, we observed the anomalous phase difference between electric and magnetic fields at a couple of sites just east of the epicenter. This kind of anomaly reveals the phase values beyond the range of 90 degrees especially at low frequencies. The anomalous phase can be only explained in 3D resistivity models but won't be explained in 2D models. 3D model structure along the line 2008 will be presented other time by our colleague. In this presentation we introduce the southern part of the focal area by using the 2D resistivity model.

Prior to the earthquake Mishina (2006) carried out the MT survey along three lines in this region. One of his survey line (Kurikoma line) was just south of the epicenter only apart several kilometers. Just after the earthquake, we collected the data at the three same sites consisted of the Mishina's Kurikoma line. And we newly set a couple of sites interpolating the Kurikoma line. As mentioned, the electrical structure around the focal area is somewhat complicated and partly shows not 2D structure. The surface geology and the result of seismic wave velocity structure also seem to reveal non 2D. Although the location of the Kurikoma line is not so far from the epicenter, we can present the reasonable 2D resistivity model with electrical parameters including the phase difference or the skewness. The Kurikoma line still line in the south part of the focal area, so before presenting the full resistivity structure in this area it is meaningful to show the 2D structure along the Kurikoma line. In addition now we have the data not only before earthquake but also data just after the earthquake. It is a little difficult to show clear difference between the data before and after the earthquake mainly due to unknown electric noise. We check again and discuss the possible detection of resistivity changes.