

2016年熊本地震震源域における地震波減衰構造

The seismic attenuation structure in the focal area of the 2016 Kumamoto earthquake

*神薊 めぐみ¹、松本 聡²、志藤 あずさ²、山下 裕亮³、中元 真美⁴、宮崎 真大³、酒井 慎一⁵、飯尾 能久³、2016年熊本地震 合同地震観測グループ

*Megumi Kamizono¹, Satoshi Matsumoto², Azusa Shito², Yusuke Yamashita³, Manami Nakamoto⁴, Masahiro Miyazaki³, Shin'ichi Sakai⁵, Yoshihisa Iio³, Group for urgent joint seismic observation of the 2016 Kumamoto earthquake

1. 九州大学大学院理学府地球惑星科学専攻、2. 九州大学大学院理学研究院附属地震火山観測研究センター、3. 京都大学防災研究所、4. 国立極地研究所、5. 東京大学地震研究所

1. Department of Earth and Planetary Sciences, Graduate School of Science, Kyushu University, 2. Institute of Seismology and Volcanology, Faculty of Science, Kyushu University, 3. Disaster Prevention Research Institute, Kyoto University, 4. National Institute of Polar Research, 5. Earthquake Research Institute, University of Tokyo

The 2016 Kumamoto earthquake occurred in April 2016. The first earthquake (M6.5) occurred at 21:26 (JST) on April 14th. The main shock (M7.3) occurred at 1:25 (JST) on April 16th. The aftershock activity is high and the active area covers entire Hinagu and Futagawa fault zones. The velocity structure by travel time tomography method in this area suggested that the heterogeneous feature controlled the seismic activity. In this study, we investigate relationship between the activity and heterogeneous structure with shorter wavelength.

Small scale heterogeneity in the earth is evaluated from attenuation factors of seismic waves as Q^{-1} value. We analyzed data before and after the 2016 Kumamoto earthquake and estimated the Q^{-1} values for both intrinsic and scattering attenuation. To estimate spatial distribution of the attenuation factors, Del Pezzo et al. (2016) had proposed a method in which the spatial weighting functions for estimated Q^{-1} values of many source-receiver pairs was adopted. However, the weighting function was not applicable to our data because of various hypocentral distance until several tens kilometers. Therefore, in this study, we consider the appropriate weighting function by Monte-Carlo simulation and estimate the Q^{-1} structure in the hypocentral area of the 2016 Kumamoto earthquake.

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