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# GPS-based Analysis of the Crustal Deformation of the Korean Peninsula due to the Tohoku-Oki Earthquake

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Geographically located in between Japan and China, the crustal movement of the Korean Peninsula is important in understanding the mechanism of earthquakes and plate tectonics in the Northeast Asian region. The Tohoku-oki earthquake which occurred on March 11, 2011 has caused crustal movements in both Korea and Japan. This study attempts to calculate the amount of crustal movement on the Korean Peninsula as a result of the Tohoku-oki earthquake and to compare the calculation with previous crustal movements of the Korean Peninsula, thereby analyzing the Tohoku-oki earthquake's impact on the Korean Peninsula. We found that the crust of South Korea instantly moved 2.8 cm eastward on average due to the Tohoku-oki earthquake; when this figure is compared with the past crustal movements on the Korean Peninsula, the instant shift is equivalent to the peninsula's annual shift of coordinates. In terms of the change in stress, it was analyzed that the Korean Peninsula compressed in the south-north direction while expanding in the east-west direction by the Tohoku-oki earthquake, which is opposite to the directions of crustal movements in the past.