

## DETECTION OF THE HUANGZHUANG-GAOLIYING FAULT ZONE USING SHALLOW GEOPHYSICAL METHODS IN BEIJING, CHINA

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We present the results from two shallow geophysical detection profiles conducted in 2016 across Huangzhuang-Gaoliying fault zone which located at Huangzhuang-Gaoliying town, Beijing. We use Multi-Channel Analysis of Surface Waves (MASW) method and high-density resistivity method to create S-wave velocity model and apparent resistivity section. The S-wave velocity model represents layered structure of S-wave velocity. Lateral heterogeneity and discontinuity of the S-wave velocities contours can be observed at approximate 97m and 110m distance along the profile. The apparent resistivity section, distributed along the S-wave velocity profile, also represents anomaly electrical region at the approximate 100m distance along the section. Combined with the features of electrical discontinuity, we speculate a vertical section with 70°-80° dip. Based on the S-wave discontinuity and the density variation of electrical resistivity contours and previous geology survey, we infer the approximate 97m-110m distance along the profiles can be closely correlated to a fault zone. We adopt the trenching in the inferred fault zone and discover a 77° dip normal fault at 0.5m depth beneath the surface. The location and feature of the fault coincide with the shallow geophysical detection results. Our results not only provide reliable geophysics evidence to the near-surface activity of Huangzhuang-Gaoliying fault, but also offer guidance to urban earthquake prevention and disaster mitigation planning and site selection for engineering.