

and studying of local infrasound coupled by seismic wave on wide spread infrasound network

A kind of least-squared-error localization algorithm applied on wide spread infrasound network is proposed in this article. Model of cross correlation between distant sensors and atmosphere infrasound propagation are analyzed. The localization error caused by quantity and distribution structure of network and ray tracing of local infrasound in real atmosphere are also calculated. Infrasound coupled by local seismic Rayleigh wave of Lushan (Ya'an) Earthquake on April 20th 2013 is detected by infrasound network and could prove the algorithm and analysis above. Comparing infrasound signals with seismic recording of IRIS global network, we found that they were well correlated for the corresponding time period in signal travel time, signal correlation (0.6-0.9), particle motion trajectory analysis, etc. the zone of infrasound source calculated by the least-squared-error localizing algorithm is not compact but its center (minimum value determined by least-squared-error method) is less than 150km distant from the epicenter. Due to the less absorption and refraction in atmosphere propagation, local infrasound is easily detected and recognized and could be a possible and feasible way to monitor earthquake.

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