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on infrasound location method based on wide area monitoring network

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The international monitoring system (IMS) of the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO) has basically completed the planned construction of 60 infrasound stations in the world. The general infrasound signal processing technology of IMS is the progressive multi-channel correlation (PMCC) method, which includes TDOA algorithm. The common limitation of location algorithm based on time delay estimation is that its basic model only considers one sound source. Under the condition of multiple sound sources, the estimation result is not very ideal, and it is a suboptimal estimation. The accuracy of time delay directly affects the positioning accuracy. The beamforming algorithm can be used to orient the position of multiple sound sources, which has good directional effect, good stability and strong anti-interference. The IMS infrasound monitoring station can be formed according to the principle of triangle positioning calculation. For multiple positioning groups, each positioning group is regarded as a subarray. The subarray adopts beamforming for orientation, and the large array adopts time delay estimation to determine the distance. Using the data monitored by the wide area infrasound monitoring network arranged by the IMS, the infrasound source is located by combining multi array and multi algorithm, so as to further improve the positioning accuracy.

Promotional text

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