

## **Research on Recognition Technology for Weak Explosion Signals**

The waveforms of 50t explosion occurred on Dec. 11, in 2007 and the nuclear explosion occurred on Oct. 9, in 2006 recorded by HIA (belong to Global Seismic Network) and PS12 (belong to International Monitoring System) had been analyzed. The distances between the two events to HIA and PS12 are over 1000km, and the distance between HIA and PS12 is about 30km, the PS12 is farer than HIA. Analyst results explicated that a borehole station can raised the SNR of P waves 4.7 times compared to the common station (for example, the nuclear explosion occurred in Oct. 9 in 2006), and the PS12 borehole array can depress noise 2.5 times (6 stations work normally) by the using of beamforming technique, and then raised the SNR of a weak signal about 11.4 times compare to common stations. As to some events (50t explosion occurred on Dec.11 in 2007), HIA hasn't any signal, PS12 can recorded located and analyzed, which tell us the strong detection capability of a borehole array.

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