

利用相关检测进行地震波速变化精确测量研究进展

罗桂纯¹, 葛洪魁², 王宝善², 胡平¹, 陈颀²

(1. 北京市地震局, 北京 100080; 2. 中国地震局地球物理研究所, 北京 100081)

收稿日期 2007-2-10 修回日期 2007-6-20 网络版发布日期 2008-2-20 接受日期

摘要 通过地震波速度变化的精确测量, 来监测地下应力随时间的变化, 是进行地震物理预报的有效途径. 介绍国内外关于地震波速变化精确测量所取得的各项结果和在地学中的应用, 讨论了相关检测法的原理和应用. 利用人工震源激发地震波, 布设测线接收地震信号, 将地震学和信息科学相结合, 利用相关检测法, 能有效排除干扰和不确定因素, 进行地震波速度变化的精确测量, 解决地震学一直以来面临的难题. 本小组利用电落锤人工震源激发地震信号, 以布设在同一条射线路径方向上的仪器接收, 进行了30天连续观测直达波速度变化的实验研究, 速度变化达到 $1.00E-05$ 的精度.

关键词 [速度变化, 地下应力, 地震物理预报, 相关检测](#)

分类号 [P631](#)

DOI:

Process in precise measurement of seismic velocity variation by correlated detection

LUO Gui-chun¹, GE Hong-kui², WANG Bao-shan², HU Ping¹, CHEN Yong²

(1. Earthquake Administration of Beijing Municipality, Beijing 100080, China; 2. Institute of Geophysics, China Earthquake Administration, Beijing 100081, China)

Received 2007-2-10 Revised 2007-6-20 Online 2008-2-20 Accepted

Abstract To monitor interior stress' s variation which is variety by time is an effective approach of seismic physical forecast. This paper reviewed the results concerning the precise measurement of seismic velocity variation and application, discussed the principle and application of the correlated detection. Making use of active seismic source, recording seismic signal by survey disposal, and combining the seismology with communication science, using correlated detection can get rid of disturb and uncertainty factor. The approach can resolve the problem about precise measurement of seismic velocity, and offer method for seismic physical forecast. Our group carried out a field experiment to attain seismic signal by active source, and we received seismic wave by instruments on the same ray. This field experiment lasted on 30 days to detect the velocity variation of p wave, the precision of the velocity variation achieved to $1.00E-05$.

Key words [P631](#)

通讯作者:

gchluo@163.com

作者个人主页: [罗桂纯¹](#); [葛洪魁²](#); [王宝善²](#); [胡平¹](#); [陈颀²](#)

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF \(496KB\)](#)

▶ [\[HTML全文\] \(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [引用本文](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“速度变化, 地下应力, 地震物理预报, 相关检测” 的相关文章](#)

▶ 本文作者相关文章

- [罗桂纯](#)
- [葛洪魁](#)
- [王宝善](#)
- [胡平](#)
- [陈颀](#)