

物探仪器

无线扩频技术在地震勘探数据采集系统中的应用

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摘要 地震数据采集要求在有限时间内收集所有地震道数据。接收道数的增加使瞬间传输的数据量巨大, 超出了常规通信方式的能力范围。同时在野外生产时要求通讯部分具备较少的电缆, 较低的功耗, 较高的可靠性能等特点。常规数据传输方法不易解决数据传输的通道数和距离不易确定问题。采用有线与无线结合数据采集与传输机制的实验系统, 解决了采集站定位问题, 保证了每个数字检波器的采集信号同步, 提供了一种无线地震数据传输的新方法。实验系统中无线扩频技术的应用使无线通讯方法在地震勘探中更趋于实用。

关键词 [地震数据采集](#); [无线扩频技术](#); [GPS授时同步](#)

Application of wireless spread spectrum communication in seismic data acquisition system

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Abstract It is required to collect all of the data in a limited time in seismic data acquisition. With the increasing of recording channels, huge amount of seismic data should be transferred instantly, which is beyond the capacity of conventional communications. In addition, lower power consuming, higher reliability and lesser cable are essential for the communication parts used in field. Conventional data transmission methods have difficulties in determination of channel number and transmission distance. An experimental system, which combines wire and wireless data transmissions, has been established. It has been verified that this system is able to solve the problem of positioning of acquisition stations while guarantees the synchronization of acquisition signals.

Key words [seismic data acquisition](#); [wireless spread spectrum Communication](#); [GPS timing and synchronization](#)

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