报告题目： 全自动钻孔过程监测技术（DPM）在工程勘察中的发展应用研究

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摘要： 在岩土勘察工作中，通过钻机进行钻孔钻进从而获得对于地层情况的了解是普遍使用的一种勘察方式。这种钻进过程可以通过自动化的数字监测，将钻头移动、钻杆旋转、油压、扭矩以及水压等按照时间时序记录下来。通过研制和发展全自动钻孔过程监测系统（DPM），实现了对整个地质钻探过程中重要钻进参数的自动化监测和实时记录。DPM技术的发展和在多种场合下的应用，可以实现对原始数据的快速筛选与分析，提高钻进效率，并且在对岩土地层判别和深入了解方面提供了一种可靠科学的手段和途径。

Development and Application of Drilling Process Monitoring Methodology for Hydraulic Rotary Drilling in Ground Investigation

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Abstract: Drilling a hole in the ground using a machine provides the basic factual data for geotechnical design and construction. The process can be recorded by digitally measuring and monitoring the downward and upward movements of swivel drill head, the rotation of the drill rod, as well as the pressures of hydraulic fluid feeds etc in real-time. A digital drilling process monitor (DPM) is developed and used to automatically and continuously monitor and record the operational process while a hole is being drilled in different materials using a hydraulic rotary machine. The DPM data are examined in detail for an enhanced recording and understanding of the rock/soil geometrical and mechanical profile while drilling. The extra information from the DPM are validated and correlated with obtained information from conventional manual drillhole logging and in-situ testing. The DPM results can improve geotechnical knowledge and engineering practice in many regions.