GeoWell - Development of a Fiber Optic System for Real-Time Monitoring of dynamic strains

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A Distributed fiber optic sensing system has been developed and tested that measures dynamic strain signals at acoustic frequencies at any point along the fiber, as well as the means to process and archive the interrogation information. Common abbreviations used for such a system include DAS ‘Distributed Acoustic Sensing’ or DVS ‘Distributed Vibration Sensing’. Testing has been performed to verify if the requirements of such a system for the GeoWell project are passed. It is concluded that the breadboard system is ready to use in a Geothermal well to study the cement placement and the behavior of casing and cement during varying load conditions. Test results will be shared based on system tests performed at the TNO laboratory in the Netherlands and a low temperature well in Berlin. This research was performed within the EC Horizon 2020 project GeoWell “Innovative materials and designs for long-life high-temperature geothermal wells“ under the grant agreement No. 654497.