

## Seismic refraction investigation at Ain Al Faras of Gadames city, Libya

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Seismic reflection method applied to investigate the shallow strata around Ain Al-Faras spring area (AAF), as a part of UNDP Sustainable Human Development for Rehabilitation of the Old City of Gadames, Libya. The old city of Gadames is located in the Western Libya about 600Km southwest of Tripoli at a major cross-roads of trade routes linking sub-Sahara Africa with the Mediterranean. Gadames is an outstanding example of historic human settlement in a desert oasis. Its architecture and social organization are adapted to the arid climate, water supply, and agricultural activities. The aim of the seismic refraction survey was to investigate the possible presence of cavities or any other geologic features that might caused what is believed to be fracture zones in subsurface strata underneath the spring sites. In order to reach such objectives; eight refraction profiles were conducted across the study area in different lengths and directions. Sixteen spreads were conducted at the site location, eight spreads in forward directions and another eight spreads in reverse directions. The thickening and dipping of the fracturing zone is clearly recognized towards the west direction. This indicated that the water flow is higher westward than the other directions.

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