IN MINING, THE LOCATION OF ADITS OR PARTS THEREOF, BY RADIO IMAGE AND BY FIXING THEIR INCLINATION FROM THE DAY SURFACE BY GEORADAR

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The GPR method allows to determine the location of the adit or its parts from the day surface or other horizontal planes in non-visual and non-mechanical, non- invasive contact conditions. To solve these types of direct problems by the method of physical modeling [1], parallel GPR profiles were obtained from the horizontal surface of the modeling unit [2], radio images of inclined pipes [3] of adit models were investigated. Depending on the depth of the radio image and their horizontal displacement the inclination angle of the adit model can be determined. The mo- dels of adits complicated by different designs were considered. The GPR image of the physical model of the adit recorded from the day surface was processed using the "Zond 12-e" GPR software the "Prizm 2.5". The simulation results are appli- cable to the natural environment on the basis of the similarity theory of GPR phy- sical modeling, which was developed and implemented at the Institute of Geophy- sics, in the sector of Applied and Experimental Geophysics, in the laboratory of Physical Modeling of GPR and Electrometry. To illustrate this, we present two GPR profiles for the adit model shown in Fig. 1 and Fig. 2.

Between prof-1 and prof-7 of the adit model, a shift of radio images was recorded at a distance of 35 cm. In accordance with the principles of physical modeling of the similarity of GPR fields [4], the same result extends to the nature and location of a real pit.

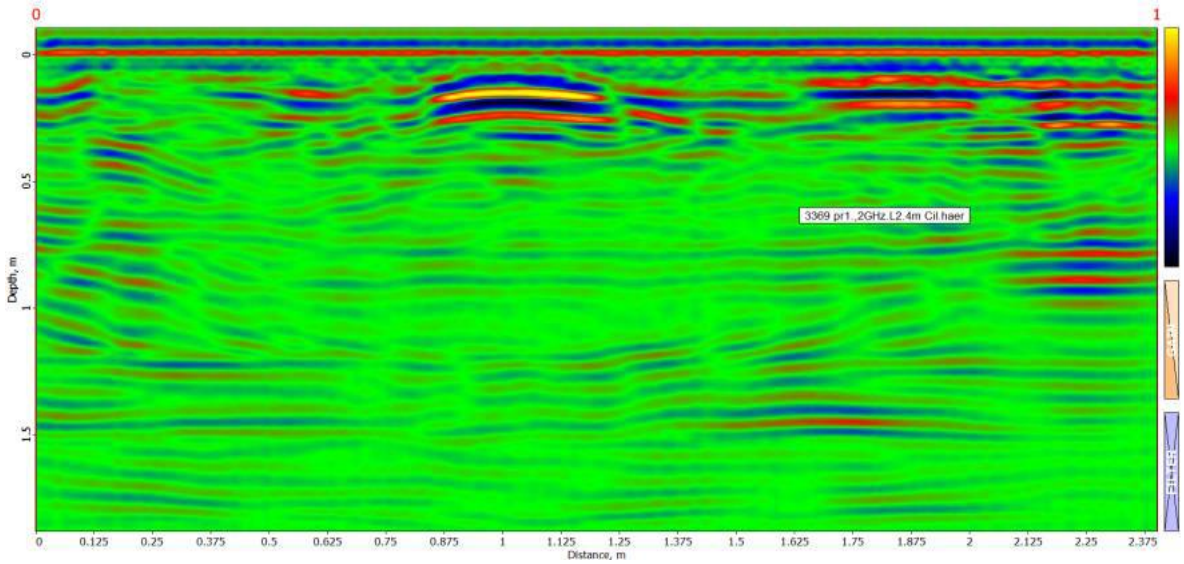

Fig 1. The radarogram is made by GPR" Zond 12-e" with its standard antenna at a frequency of 2 GHz for a distance of 2.4 m, prof-1.

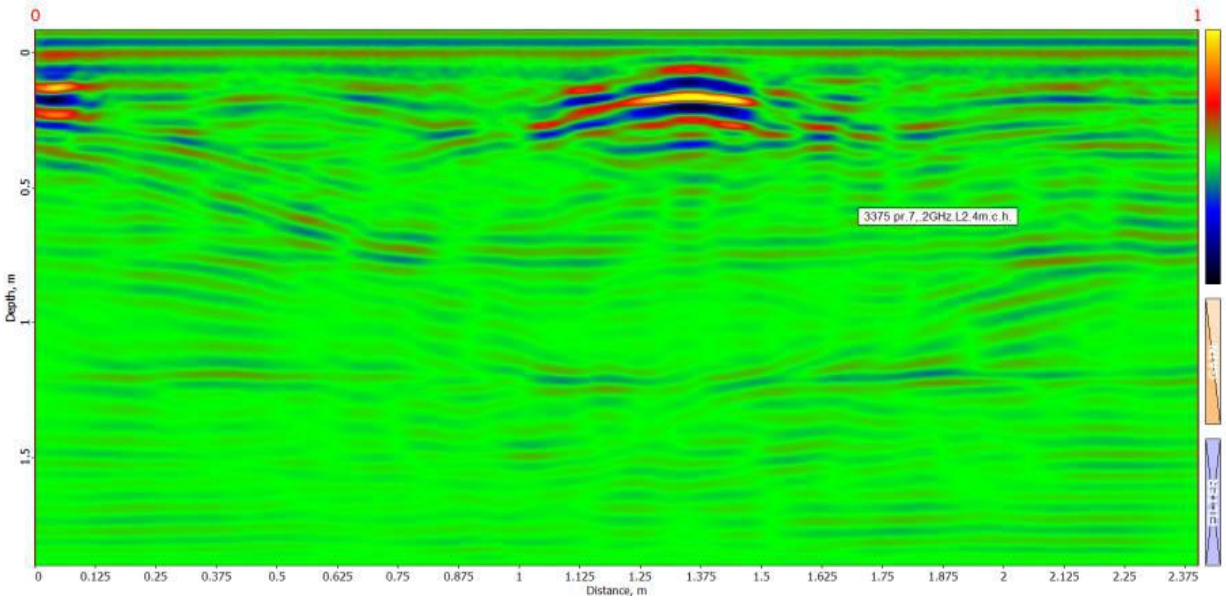

Fig. 2 The radarogram was done using the GPR ,"Zond 12-e" and its antenna at the center frequency of 2 GHz. The distance is 2.4 m, prof-7.

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