

Author: Keyword:

Search

[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1881-4824

PRINT ISSN : 0912-7984

BUTSURI-TANSA(Geophysical Exploration)

Vol. 58 (2005) , No. 5 pp.475-490

[\[Image PDF \(2739K\)\]](#) [\[References\]](#)**Development of the Real-time Radar Image Processing for a Horizontal Drilling Machine**Takaharu Nakauchi¹⁾, Toshimitsu Nozu²⁾, Morio Suzuki²⁾, Shin'ichi Uesaka²⁾ and Ikuo Arai³⁾

1) The Japan Gas Association.

2) Kodan Electronics Co., Ltd.

3) The University of Electro-Communication

(Manuscript received August 11, 2004)

(Accepted September 26, 2005)

ABSTRACT In order to identify the underground objects, we often use a Ground Penetrating Radar (GPR) from the point of reducing cost and time. But it is not a few cases that the pavement situation prevents from underground prospecting.

From such background, we produced the prototype of the small GPR system to set into the drill head of the horizontal boring machine. And we are sure that it is highly possible to realize improving the limitation of exploration distance and resolution.

In this report, we described the goal specification required to such a small GPR, basic design of system and its performance. And we introduce the technical details concerned to the real time image processing algorithm for radar system which is mounted in the jacking drill head of a horizontal boring system.

The main functions of the image processing to use for a horizontal boring system are the followings.

- 1) Distance presumption : Presumes the distance between a drill head and pipe.
- 2) The piping direction distinction : Distinguishes the constructed direction of crossing pipe or parallel one.
- 3) Azimuth presumption : Presumes the azimuth of pipe against the moving axis.

As a result of experiments, it turned out that this algorithm was effective for the radar system of horizontal boring machine.

Key words: Other utilities detection, Radar, Penetrating distance, Pulse wave

To cite this article:

Takaharu Nakauchi, Toshimitsu Nozu, Morio Suzuki, Shin'ichi Uesaka and Ikuo Arai (2005):
Development of the Real-time Radar Image Processing for a Horizontal Drilling Machine ,
BUTSURI-TANSA(Geophysical Exploration), **58**, 475-490 .

doi:10.3124/segj.58.475

JOI JST.JSTAGE/segj/58.475

Copyright (c) 2007 The Society of Exploration Geophysicists of Japan



[Japan Science and Technology Information Aggregator, Electronic](#)

