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# Laser Scanning Applications For The Oil Exploration Industry

Airborne Laserscanner's are excellent tools for obtaining highly accurate digital elevation and terrain models (DEM's & DTM's). Infoterra has been one of the pioneers in successfully applying this technology for a wide variety of non oil exploration applications ranging from floodplain mapping, flood risk assessment, civil engineering, forestry, mining, transmission line surveys and coastal zone monitoring, etc.

Over the last couple of years Infoterra has been looking at using the Laser scanning technology for several applications in the oil industry.

These applications include:

Very accurate DEMs and DTM's combined with geological or photo data Optimising geological and geophysical survey layouts Well site locations Pipeline and infrastructure purposes.

In Autumn of 2000, Infoterra was working in the North African Sahara desert with WesternGeco (on behalf of several oil companies) acquiring laserscanner data in areas of difficult sand dune terrain. for detailed engineering development planning, well site locations and general infrastructure design. The data is also ideal for pre-planning and execution of 2D and 3D seismic surveys.

The initial objectives of the survey were to test the method and technology under desert conditions, and if successful to use the results to survey the entire area. A secondary application of the data was for access planning and identification of problematic high gradient regions which would be inaccessible for source vehicles. The survey turned out to be a great success, providing the customers with an enormously rich and powerful data set useful for several purposes

This paper will summarise the laser scanning technique, some applications of laserscanner data to the oil exploration industry and outline the project in North Africa. The paper will then conclude by showing some early results of Infoterra's new and latest state-of-the-art laserscanner. This instrument is capable of measuring an incredible 33,000 individually heighted points per second.