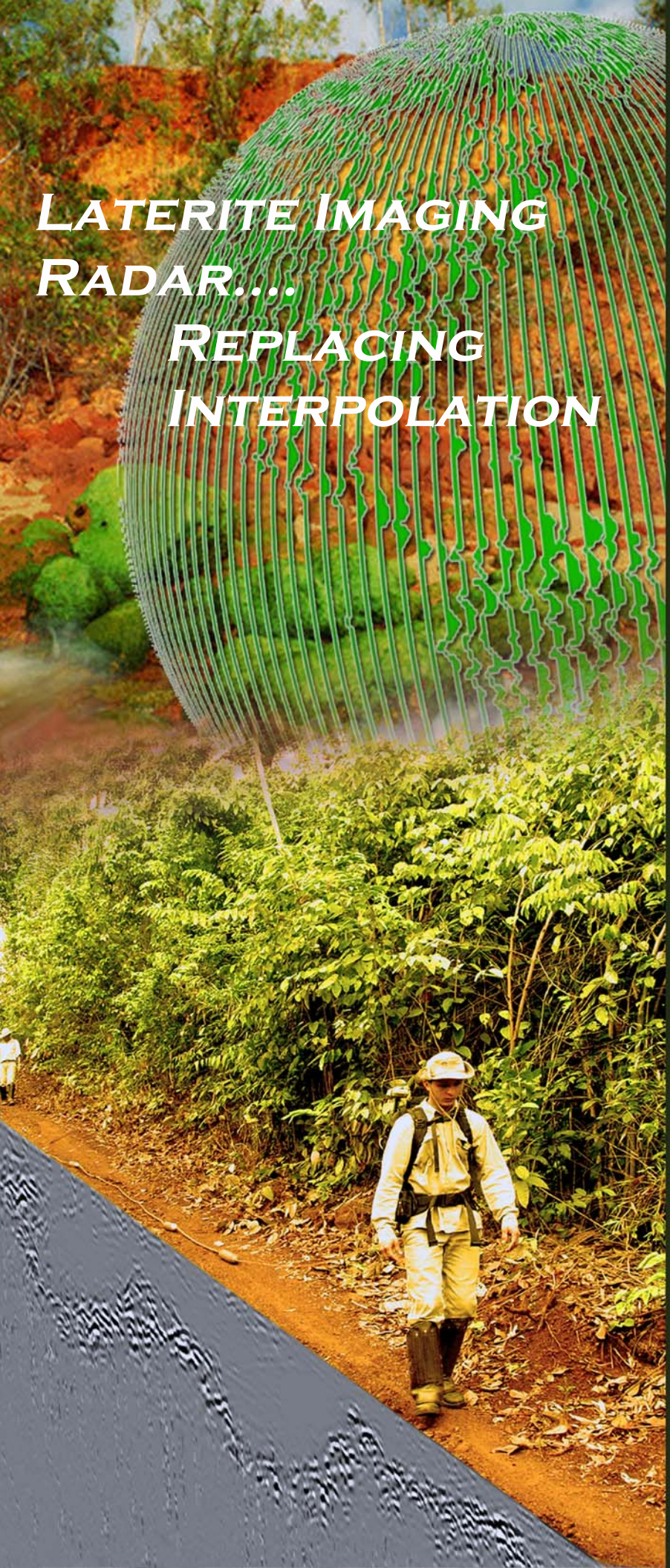


Laterite Imaging Radar.... Replacing Interpolation

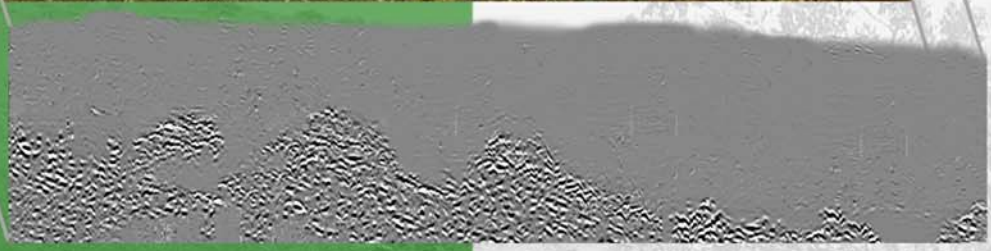
Global Experience

Groundradar is the world leader in ground penetrating radar applications to nickel laterite exploration and resource definition. Staff have conducted large-scale radar projects on over 60 deposits on six continents, in environments ranging from the Amazon jungle to the mountains of Madagascar.

Radar Applications to Laterites

Radar technology has the ability to continuously image the details of the weathering profile. An intrinsic characteristic of lateritic environments is their extreme lateral variability in depth. These abrupt changes in horizon elevations are commonly undetectable by drilling at any economic grid spacing. Overcoming this limitation of drill-based laterite exploration requires an inferential statistical approach to mineral resource estimation. By using radar technology to accurately map the volume of the deposit, coupled with a fewer number of strategically-positioned boreholes to confirm the layer identification and grade, a geoscientifically sound and measured resource estimate can be made quickly and economically.

Groundradar
Measured resources



Laterite Imaging Radar

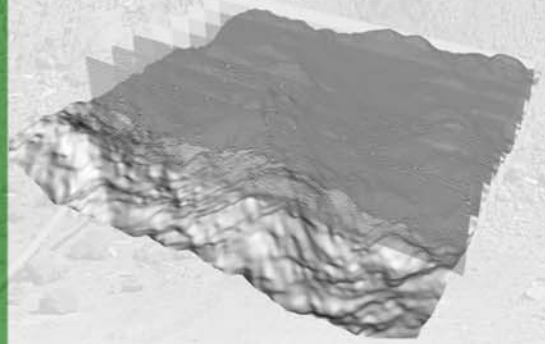
LIR has been designed specifically for lateritic environments, employing the leading edge in radar technology. Compared to commercial GPR instruments, LIR offers increased penetration, accuracy, ease of use, speed of surveying, and reliability.

Real-time sampling technology has enabled the imaging of deeper reflections than ever before possible. Depths of up to 75 m have been achieved in lateritic weathering profiles with LIR, whilst maintaining excellent profile resolution.

By eliminating all wires and fiber optic cables, as well as cumbersome control units and batteries, the LIR has been reduced to a single 9 m long tube. The traditional laptop computer used on commercial GPR systems has been superseded by the use of a mobile phone or PocketPC to control acquisition parameters and store data. Communication between components employs Bluetooth technology. The unit is completely waterproof and can be deployed over the most challenging of terrains.

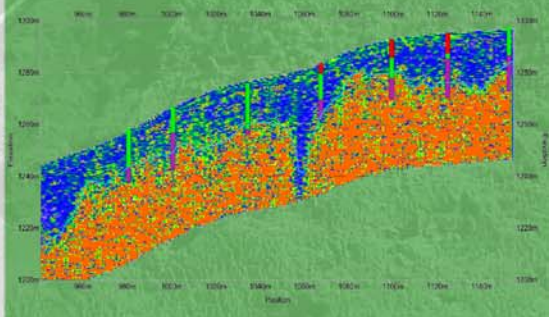
Positioning is accomplished using both a built-in GPS receiver capable of SBAS or RTK differential corrections, which is supplemented by a highly-accurate distance measuring device. These complementary methods preclude the need for fiducial markers.

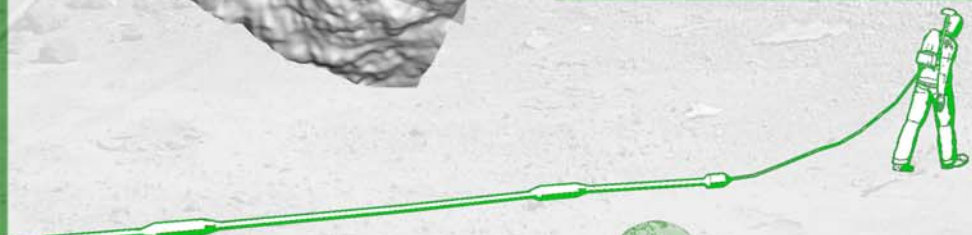
The LIR requires a narrow cut line or trail, rather than the 5 m wide smooth roads necessitated by commercial GPR systems. Not only does this dramatically reduce the environmental impact of surveying, but site preparation logistics and costs are minimized by commonly employing existing drill paths. In addition, the speed of surveying has increased to average over 5 km/day, thereby reducing the overall cost of acquisition.



LIR technology provides the depths of limonite, saprolite, rocky saprolite and bedrock every 50 cm along each profile. Three-dimensional models and volume estimates may be derived by combining data from multiple LIR profiles along with information from strategically-placed drilling. The richness of the LIR data is exploited using the latest in image processing technology, which enhances the interpretability of the radar profiles, as well as provides information on the distribution of rocks and boulders in the transitional zone.

Radar technology has been employed during all stages of laterite project developments, from greenfields exploration through resource evaluation to near-term mine planning in predicting plant feeds. To date, over 60 nickel laterite projects have been surveyed using radar technology.





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