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Phoenix V8 – Twenty Systems Delivered

The multi-function, multi-channel V8 receiver is a true success story. The V8 was introduced in 2004; see Issues 31, 32 and 33.

The Phoenix production department has expanded and is working hard to keep up with demand, and the Phoenix engineering department is fully occupied with firmware and software tasks for the system.

The combination of high productivity and high data quality has made the V8 very popular. Twenty V8 systems have been delivered to clients in China, Indonesia, Japan, Ukraine, Russia and Canada. Clients use the V8 to explore for oil, gas, coal, base and precious metals, and geothermal resources; as well they use the V8 for engineering studies and research.



V8 used in China for high-density, high-productivity 3-D TDEM surveys



In China, the three most popular V8 functions are TDEM (Time Domain ElectroMagnetics, also called Transient EM); CSAMT (Controlled Source Audiomagnetotellurics); and SIP (Spectral Induced Polarization).

China's Xian Coal, a branch of China Central Coal Mining Research Institute, has been a Phoenix client for more than 20 years. Xian Coal uses the V8 system in an innovative way for high-productivity



A V8 TDEM geothermal survey was conducted in the jungle of Sumatra, Indonesia; Lucki Junursyah (centre) of the Geological R&D Center, Bandung; Mr. Imam of Pertamina; and Riki and Endra of Elnusa Geosains. We thank Lucki for sending the photo.

tion 3-D TDEM surveys. The surveys are carried out on the surface, before the survey area is mined underground. The surveys are mainly used to identify potential mining hazards associated with faults and other water-saturated zones.

Xian Coal uses twin V8 receivers in the field; each V8 acquires three TDEM soundings simultaneously. The soundings are distributed on a regular grid at

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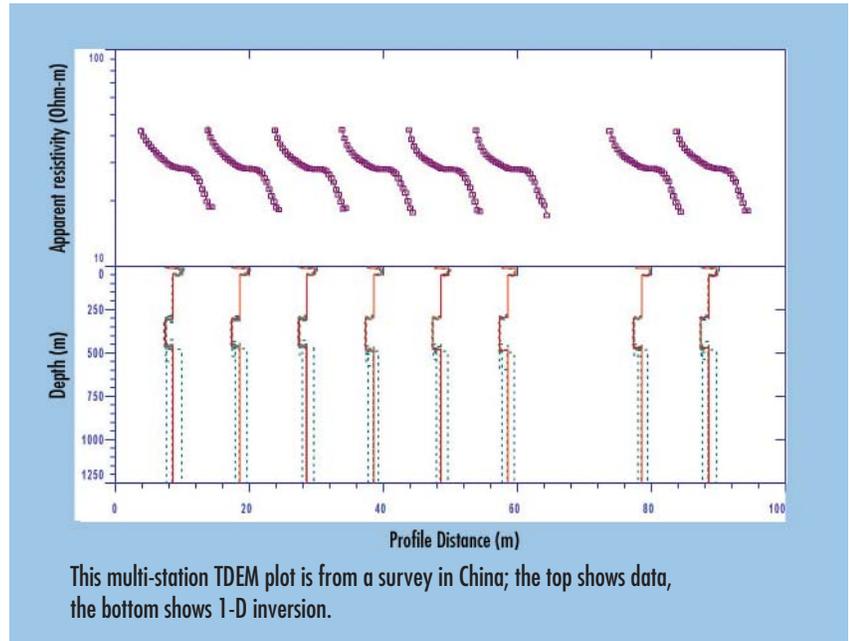
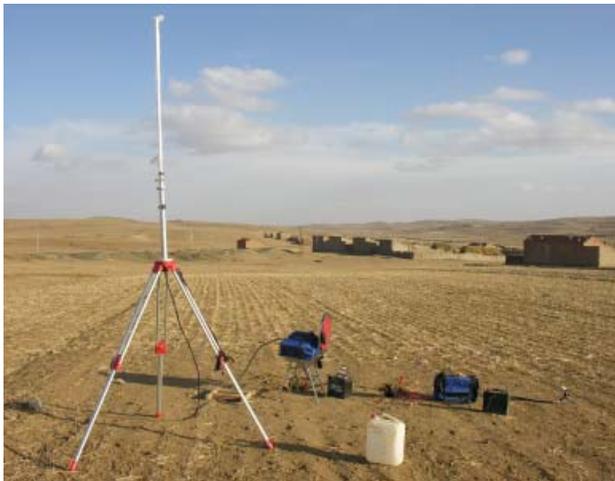
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Twenty V8s Delivered, *continued from front page*

close spacing (30m) to permit the detailed interpretation required for this type of work. Such high-density 3D TDEM surveys are economically feasible only with a high-production, multi-channel system.

Xian Coal has acquired many thousands of TDEM soundings with its V8 system since mid-2005.

The figure at right shows typical Time Domain EM data acquired by a V8 in China. ■



Left: A V8 system with an antenna for wireless communication is shown in the Mongolian desert during an acceptance test of a new system by the Mineral Research Institute of Inner Mongolia.

■ FOR MORE DETAILS about how the V8 is used in different applications, please contact Phoenix.

V8 CSAMT Function Used to Survey Railway Tunnel Route

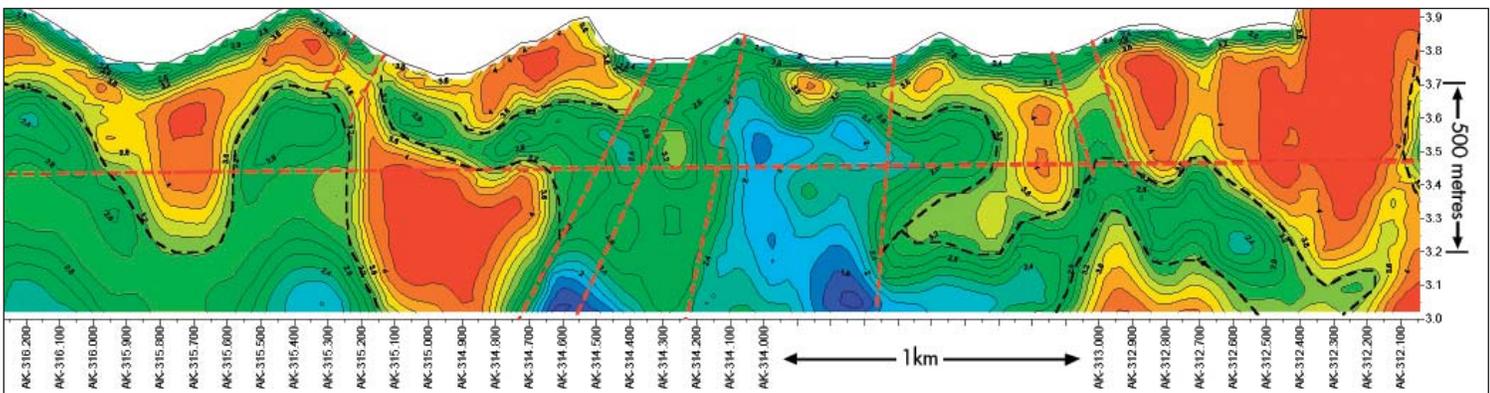
Another longtime Phoenix client, The First Railways Survey and Design Institute of Lanzhou, PRC, has developed an advanced survey methodology and proprietary interpretation techniques for the very challenging geotechnical task of studying the planned routes for underground railway tunnels.

The main objective is to detect potentially hazardous water-charged fault zones; if the tunnel bores into such a zone, water

can flood the tunnel, causing great damage and sometimes loss of life. Hence it is extremely important to know the location of faults when planning the tunnel.

It is very difficult to locate such hazardous zones deep underground in mountainous terrain, but the Institute has developed the necessary expertise over more than 20 years, and their geophysical interpretations have been confirmed by drilling and tunneling.

The figure below illustrates a portion of long CSAMT profile in a mountainous area of China. Topographic relief is nearly 900m along the profile, with many steep slopes. The planned tunnel route is the horizontal dashed red line. Resistivity is colour-coded, with warm colours (red, orange) signifying high resistivity, and cool colours (blue) signifying lower resistivity. Interpreted fault zones are shown by the nearly vertical red dashed lines. ■



NEWS FROM AROUND THE WORLD

China:

In late 2005 personnel from Phoenix visited several clients in China conducting acceptance tests and giving technical training.

Right: Prof. Cui Xianwen, well-known SIP expert, assisted with the acceptance of the V8 system purchased by the Mineral Research Institute of Inner Mongolia (MRIIM).

Below: Chief Engineer Ge Chang Bao of MRIIM deploys cables.



Right: Primary school students and passersby show interest in the V8 tests being conducted by Yangtze University.



Above: Personnel of Yangtze University conduct an acceptance test of their new V8 System; Xie Xingbing operates the V8.

Right: Between visits to clients, Wang Fei visited the Three Gorges Dam, the world's largest hydroelectricity project. By completion, its generators will have a combined capacity of 18.2 million kilowatts.



NEWS FROM AROUND THE WORLD

Indonesia:

Phoenix geophysicist Yann Avram travelled to Indonesia in November 2005 to conduct MT training for members of the Research Center for Geotechnology at the Indonesian Institute of Sciences (LIPI), Bandung, Indonesia.

Above right: LIPI's geophysicists and technicians who took part in the MT training gather outside LIPI's office; standing, third from left, is Dr. Hery Harjono, seismologist and Director of the Research Centre for Geotechnology-LIPI.

Lower right: The MT training included field set-up of an MTU system and data acquisition; Yann Avram, Dr. Djedi S.Widarto (LIPI) and Dr. Hendra Grandis of the Bandung Institute of Technology (ITB) are in the center of the group.

Below: Yann Avram and Dr. Grandis, Associate Professor of Geophysics at ITB, enjoy the view from the summit of the Tangkubanparahu volcano near Bandung, Indonesia. We thank Dr. Widarto of LIPI for the photo.



United States:

Phoenix carried out a geothermal survey in south western USA in January 2006.

Right: Geophysicist Caroline Finateu carries coils across a dry lake bed; the white ground cover is salt.

UZBEKISTAN

In October 2005 Leo Fox and Olex Ingerov travelled to Uzbekistan to visit clients Uzbekneftegaz and Navoi Mining Combinat, as well as oil companies operating in Uzbekistan.

Navoi Mining escorted Leo and Olex on a sightseeing trip to Bukhara, described as “the most complete example of a medieval city in Central Asia”. Leo also visited Samarkand, Central Asia’s oldest city, and once the meeting point for merchants’ caravans from India, Persia, and China.



Above: Olex Ingerov, Leo Fox and Alexander Antonov, Canada’s Honourary Consul in Uzbekistan, propose a toast in front of an Uzbek weaving.



Left: Anton Petukhov, of the Canadian Consulate in Tashkent, poses with a statue of Tamerlane (or Timur), the great Mongol conqueror.



Right: Leo Fox and Alexander Antonov visited Navoi’s head office complex in Navoi City; behind them is an experimental crusher unit.

President’s Message

In November 2005 a delegation from Phoenix Geophysics visited St. Petersburg State Mining Institute (SPMI) in Russia and had fruitful negotiations with Rector Vladimir Litvinenko and the top staff of SPMI.

Cooperation between SPMI and Phoenix has expanded rapidly since SPMI and Phoenix signed a comprehensive scientific and technical agreement during the “Team Canada” trade mission led by the Prime Minister of Canada in February 2002. (For more details see Issues 24 and 30). During our meetings, SPMI and Phoenix agreed on further collaboration.

SPMI is now the second largest owner of Phoenix equipment in Russia, and has energetically expanded its field activity, particularly in oil and gas exploration. SPMI has achieved great success in the application of MT to oil and gas prospecting. SPMI scientists showed very promising exploration results from their recent oil and gas MT surveys in northern European Russia; these feature a new and interesting integration of MT and seismic, with MT providing additional very useful information. This work could be a model for similar efforts elsewhere.

Some results of SPMI’s work will be presented at the annual joint SPMI-Phoenix spring seminar in St. Petersburg (see page 6 for details of the seminar).

Thanks to Rector Litvinenko and SPMI staff for a well-organized and extremely interesting visit.



Rector Litvinenko, Leo Fox and Olex Ingerov at SPMI

IN MEMORIAM

We were saddened to hear of the sudden death in January of Ray Whitton, President of Integrated Geoscience Inc., and formerly a vice-president of High Sense Geophysics. For many years Ray was involved in exploration geophysics in Canada. He was one of the innovators in our field, known for his data processing skills and the creativity he showed developing airborne systems. Ray will be missed by his many friends and colleagues.

~ Leo Fox

ON THE ROAD

Houston, USA:

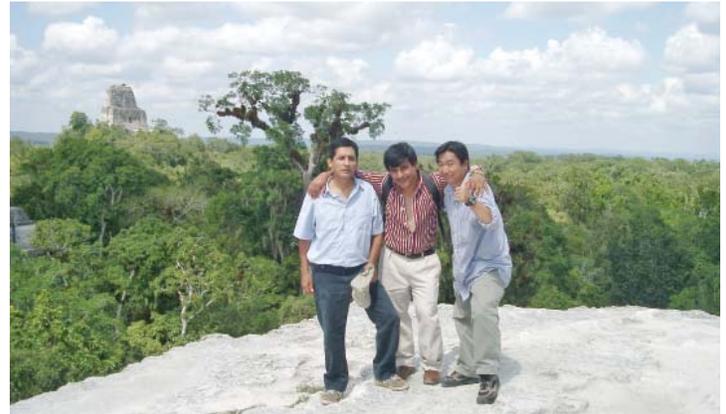
There was a steady stream of traffic to our booth during the SEG last November. We extend special thanks to Alberto Martinez for his excellent work on our behalf.

Right: Alberto with Carlos Guerrero of Phoenix



Toronto, Canada: During the Canadian Exploration Geophysical Society (KEGS) Christmas party, members and guests celebrated Dr. Norman Paterson's upcoming 80th birthday as well as his many contributions to mineral exploration geophysics.

Left: Celebrants at the University of Toronto Faculty Club included, left to right, Ivan Hrvoic (GEM Systems), Leo Fox (Phoenix), Norm and Sally Paterson, Stephen Reford (Paterson, Grant and Watson) and Ian MacLeod (Geosoft) and, front, Elizabeth Baranyi (Geosoft).



Vancouver, Canada:

Karen Christopherson, president of Chinook Geoconsulting, presented a two-day MT seminar in January attended by more than 30 geophysicists from several mining companies. Karen invited Leo Fox to provide an overview of Phoenix MT/AMT equipment during the seminar.

Guatemala:

In October 2005, working with personnel from Guatemala's National Institute of Electricity (INDE) and Genetec, and West JEC of Japan, Phoenix's George Elliott, Chris Thompson, Gregoria Torrico and Gord Thompson conducted a magnetotelluric survey, part of a feasibility study for the construction of the Tecuamburro Geothermal Power Plant, Guatemala.

Above: Sergio Garcia (INDE), Eric Figueroa (Genetec) and Mitsuru Honda (West JEC) stand atop a temple in Tikal National Park, site of ancient Mayan ruins; in the background, another temple looms from the rain forest canopy.

COMING UP

- March 21-22, 2006: Fourth International Seminar of Research and Applied Geophysics, at St. Petersburg State Mining Institute, St. Petersburg, Russia. The main focus will be on applying EM techniques to hydrocarbon exploration.
- June 12-15, 2006: the 68th EAGE conference and exhibition (held jointly with SPE EUROPEC), Vienna, Austria: Phoenix will have a booth, so plan to stop by. All year there are special events celebrating the 250th anniversary of Mozart's birth – another reason to visit!

Updated Phoenix Website

We have implemented the first phase of the redesigned Phoenix website. Check it out:

www.phoenix-geophysics.com



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