MAPPING INDUCED POLARIZATION WITH NATURAL ELECTROMAGNETIC FIELDS FOR EXPLORATION AND RESOURCES CHARACTERIZATION BY THE MINING INDUSTRY

Quarterly Technical Progress Report
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Abstract

In this quarter we completed the manufacturing of seven MT24/LF systems to be used in the final field survey in Arizona.
In October we also performed a full survey in the Stafford prospect in Arizona in collaboration with Kennecott.
We have started data processing and interpretation.

Table of Contents

1. Objective

2. Project description

3. Summary of Progress

    3.1 Manufacturing of seven MT24/LF systems

    3.2 Survey in Stafford Arizona

    3.3 Data Processsing

Mapping induced polarization with natural electromagnetic fields for exploration and resources characterization by the mining industry

1. Objective

The objectives of this project is to demonstrate the use of a new geophysical system to collect economically competitive induced polarization (IP) data using natural electromagnetic (EM) field as a source.

The proposed technology uses naturally-existing EM fields, which provides greater depth of exploration and significant economic, energy, environmental and safety benefits.

2. Project Description

The purpose of this project is to use a new geophysical field system, designed to efficiently collect EM data along a profile line, to obtain IP data using natural EM fields as the source. The technique is non-invasive, eliminates the need for current electrodes and motor generator sets, and provides greater depth of exploration than controlled-source IP surveys. During the course of the project we will complete the adaption of a new field system for natural IP data collection, determine the procedures for its efficient deployment, and demonstrate the usefulness of natural IP.

3. Summary of Progress

In this quarter we completed the manufacturing of seven MT24/LF systems to be used in the final field survey in Arizona.
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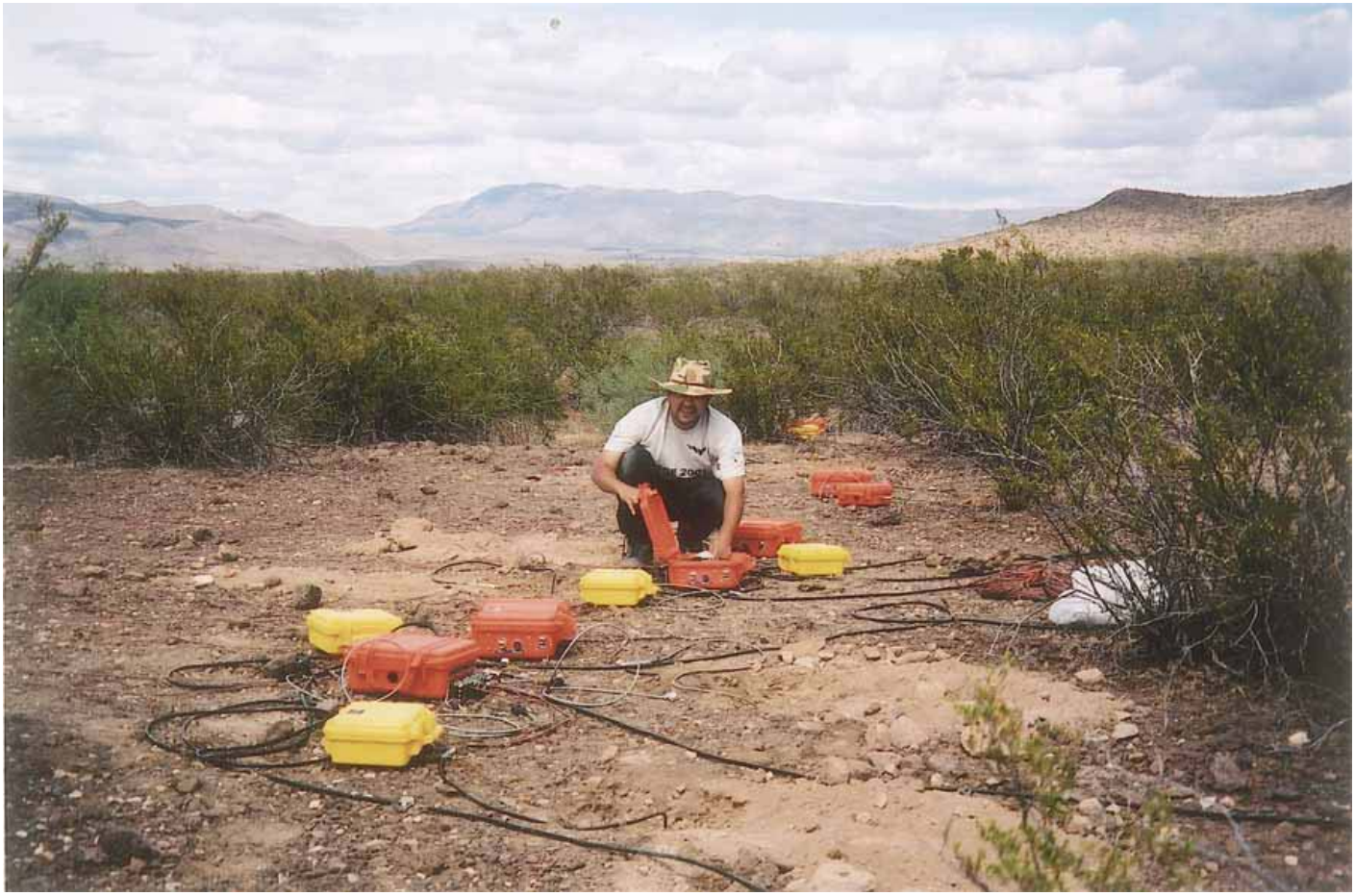
We have started data processing and interpretation.

3.1 Manufacturing of seven MT24/LF systems

During the month of September we have completed the manufacturing of seven MT-24/LF systems. Each system has six acquisition channels: 3 electrics and three magnetics. We have also manufactured the sensor components and performed complete bench and parallel test of the seven systems.



3.2 Survey in Stafford (Arizona)

A survey on Sol deposit in Stafford, Arizona was done in October 2001. The profile was 6.2km long and we acquired measurements every 200m. Field setup consisted of two remote stations with orthogonal electric and magnetic sensors, and data along the profile were measured with L-shape configuration, two electric dipoles along the profile and one electric dipole perpendicular to the line.
The measured profile was along the line from IP survey performed in 1975.

In general we recorded data for at least 20 hours. Most of the time we had 4 systems acquiring data simultaneously, one day we had 5 systems running simultaneously, and one day all 7 systems.

3.3 Data Processing

We have started processing of all data both with EMI cross-power calculation program and Egbert's multi-station robust processing program. We expect to complete data processing by February 2002 and complete final interpretation by June 2002.