

New Geochemical Method

A Synopsis

The Method

Based on 30 years of research, and the cumulative experience of thousands of hours, Chinese scientists have developed a unique method using Helium, Argon, and hydrocarbon geochemistry for oil and gas exploration. This method serves as an excellent compliment to conventional oil and gas exploration methods.

INTRODUCTION TO THE NEW GEOCHEMICAL METHOD

The method used by the Chinese scientists relies on the analysis of the relative abundance of Helium and Argon gases that emanate from rock formations associated with oil fields. These gases are produced by the radioactive decays of Uranium and Thorium in rocks and accumulate in oil gas pools. By comparing the relative amounts of Helium and Argon isotopes, as well as hydrocarbon concentrations, scientists have developed several profiles that can help identify and evaluate the prospective oil-gas pools.

THE RELATIONSHIP BETWEEN HELIUM AND ARGON

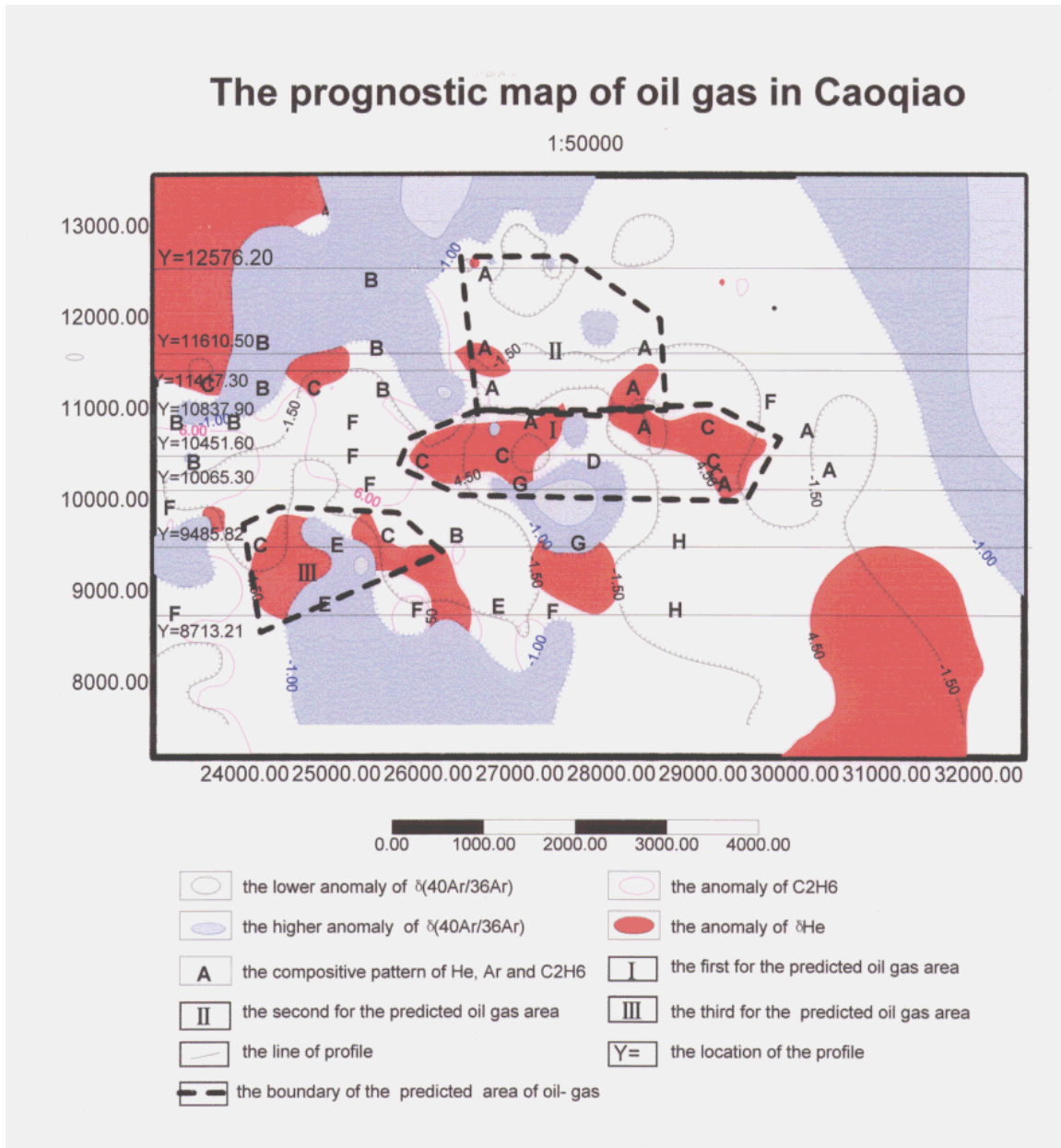
Helium in soil gas has been used for over 20 years as a geochemical exploration tool. Excess amounts of Helium gas in soil samples, indicate the chance that an oil pool exists below the surface. However, it is not sufficient by itself to determine accurately the oil content in the given area. The application of Argon isotope analysis is new and not so widely known. The relative abundance of Helium and the ratio of the Argon-40 isotope to the Argon-36 isotope are excellent predictors of hydrocarbons at depth.

In oil-gas pools the effective radius for argon is smaller than that of hydrocarbon, so that it is possible for Argon to leak from oil-gas pools to the surface in the same way as Helium and hydrocarbons do. CAS scientists have extensively studied the accumulation, migration, and fractionation of Helium and Argon isotopes. They have developed profiles that accurately determine the location of oil fields.

EIGHT PROFILES FOR OIL CONTENT

Chinese scientists have identified 8 separate profiles, which indicate the likelihood of oil being located in any given area. Because these gas isotopes percolate to the surface it is not necessary to drill to the oil pool to take readings of the argon gases. Soil samples taken within only 2 meters of the surface can

measure the concentration of excess gases to determine if an oil pool exists and its size. These profiles are the key to predicting oil pools in this new geochemical method.



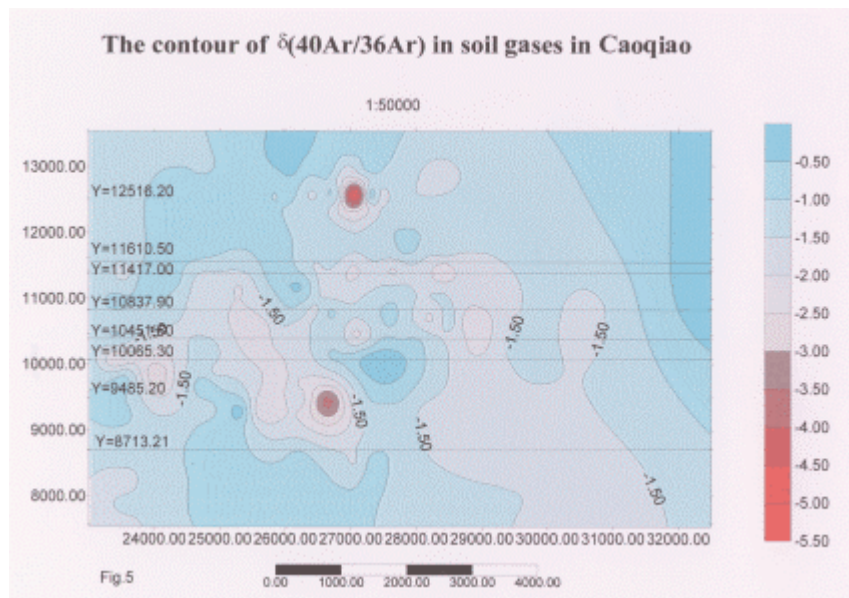
The preceding map demonstrates how the Chinese scientists can narrow a search area significantly with their technique. I - indicates the area on the map most likely to contain oil pools. II - indicates the second most likely area to have oil pools, and III - indicates the third most likely choice for oil to be.

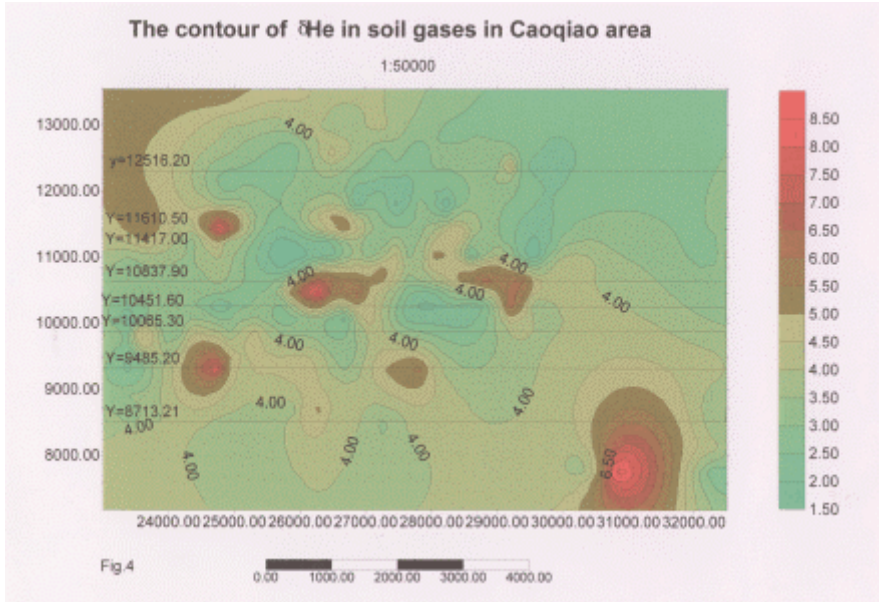
POSITIVE RESULTS

This new technological method for the exploration of oil and gas, when combined with the traditional seismic data, has a success rate of 70%. Two new oil fields in China were discovered by this technique. Two existing oil fields in the regions of Le-An and Jin-jia were also enlarged. The newly discovered oil field reserves were put at 27 million tons, with yearly production estimated at 500,000 tons. Caoqiao is just one example of an oil field that was discovered by the new geochemical method.

A COMPLIMENTARY METHOD

This new geochemical exploration method would be an excellent compliment to any of the current exploration methods. When performed with other methods, the margin of error is significantly reduced. It allows for near perfect results in oil discovery. The maps on the following pages demonstrate the criteria used by our scientists to come up with their profiles.





This paper is graciously provided by the China-America Technology Corporation. For additional information contact the CTC by fax at (212) 650-5608, or email at ctc@chinatech.com.