

GEOLOGIST, HELP YOUR GEOPHYSICIST

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ABSTRACT

We are an industry of trends. We look for trends, we think in trends, and we act in trends. Some are good and some are not. One of the more rewarding trends in which we are now participating is the trend toward increased geological — geophysical communication and cooperation. Some companies have altered the structure of their districts and divisions to insure communication between their geologists and geophysicists.

Almost everyone will agree that geophysical programs must be coordinated with geology for best results. Regrettably, both the seismograph and the gravity meter are ultra sensitive to the surface geologic conditions. In fact, the majority of the problems in obtaining geophysical information are surface associated. Supplying detailed surface geologic information is a method by which geologists can materially assist their exploration teammates, the geophysicists. Using every available source of geologic information and greater geologic — geophysical coordination is a way to improve overall exploratory efficiency.

There are five ways in which seismologists can use aerial photos and photogeology to benefit; and four ways in which gravity can be improved by photogeologic coordination. Illustrations are shown to demonstrate the need and merits of integrating geophysics with photogeology.

There are a number of reasons why in the past geologists and geophysicists have not used photogeology. One is a general reluctance to use it except in "Rocky Mountain" type surface geology. Relatively little photogeologic work has been accomplished in most of the plains type oil provinces. To demonstrate what can be expected from photogeology in the plains type terrain examples are shown from Canada, South Texas, Rio Grande Embayment, Up-dip Texas Gulf, Down-dip Gulf Coast, Yegua-Cockfield trend, East Texas, West Texas, the Eastern Shelf, Kansas and Mississippi.

The general lack of photogeologic mapping is particularly hard to understand when the cost is compared to those of geophysics. On an area basis the relative costs of seismic, gravity and photogeology are approximately a dollar, to a nickel, to a penny for photogeology respectively.

Because of the importance of surface geology in geophysics, and because in the past it has been so little used by geophysicists, this is an area in which geologists can help their geophysicists and themselves.

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