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THE USE OF IMAGE ANALYSIS TECHNIQUES WITH GEOPHYSICAL DATA

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Great emphasis has been placed on the development of sophisticated interpretation techniques for gravity and magnetic data. Such techniques could be better utilized if the input data were more completely understood by the interpreter. Geophysical survey data are usually represented as black-and-white or color contoured maps, and as such are only one biased representation of the information. The interpreter's perspective of the data is influenced by his perception of such maps. Image analysis equipment and techniques, designed primarily for use in the analysis of Landsat data, can be effectively used to overcome this problem.

The results of several investigations indicate that the use of image analysis computers, developed for the analysis of Landsat data, in the analysis of geophysical data makes interpretation of such contoured maps less subjective. Systems of this type permit rapid alteration of the contoured data, which can enhance various aspects of the data, and permit greater insight into the information content. In addition, data on topography, geology, Landsat imagery, and from other geophysical surveys can be intercompared with the primary geophysical data as aids in the selection of boundary values for interpretive models. The capability also exists to use standard interpretation techniques in an interactive or batch computer mode. Finally, reconstructions of the input data, derived from the resultant models, can be compared with the primary and correlative data.