predicted from dispersion curves derived from the modal waveguide equation. In one case the Airy phase of wave-packet propagation occurred. The best measure of the dielectric constant of the layer was the frequency of the air wave.

F. F. Morrison and B. C. Douglas. *A comparison of gravity prediction methods on actual and simulated data*

A comparison was made between Shepard's method (inverse-distance weighting) and collocation (linear filtering) for the purpose of predicting gravity anomalies. Tests were made with actual data from southern California and with simulated data created from buried point masses generated by a random number generator. The autocorrelation functions of the simulated and actual gravity data behaved very much alike. In general, the sophisticated collocation method did produce better results and very good variance estimates, compared with Shepard's method, for simulated data. The advantage was less for actual data. The cost of the better results is the use of more computer time. The most important scientific conclusion of this study is that careful trend removal must be done and an adequate data sample obtained to produce truly optimal results from collocation. The variance estimates are much more sensitive to the form and calibration of the model autocorrelation function than are the prediction results.

V. Richard, R. Bayer and M. Cuer. *An attempt to formulate well-posed questions in gravity: application of linear inverse techniques to mining exploration*

The aim of this paper is to use linear inverse theory to interpret gravity surveys in mining exploration by incorporating a priori information on the densities and data in terms of Gaussian or uniform probability laws. The Bayesian approach and linear programming techniques lead to the solution of well-posed questions resulting from the exploration process. In particular, we develop a method of measuring the possible heterogeneity within a given domain by using linear programming. These techniques are applied to gravity data taken over the massive sulfide deposit of Neves Corvo (Portugal). We show how crude constraints on the densities lead to a first estimation of the location of sources, while further geologic constraints allow us to estimate the heterogeneity and to put definite bounds on the ore masses.