

Since the velocity is known to vary with depth, this cannot be done directly. However, the variation with depth can be predicted, at least approximately, and can be allowed for by subtracting from the velocity value for each reflection given by the velocity analysis, the velocity value from a "standard" velocity function (in this case, an arbitrary function which is close to an average of velocity data from the middle area of the prospect, extrapolated to 7 sec.) to give a residual referred to as a "velocity anomaly" (This is done in terms of R.M.S. velocity). The velocity anomaly may then be smoothed and this was done using a modified inverse square weighting which uses all values within a given maximum radius.

This gave a smoothed velocity anomaly, which was then added to the velocity from the standard function to give a smoothed R.M.S. velocity. Sufficient horizons were picked above those mapped to give a reasonable approximation to average velocity by calculating interval velocities and thicknesses, which were summed to give depth.

The average velocity for each horizon was then mapped, both to give a picture of velocity variations over the area and to show which velocities were used for the interpretation.

No correction to R.M.S. velocity was made for dip. No "on set" correction was made, so that reflection horizon depths will be deeper than the corresponding geological horizons.

(2) Refraction

Refraction interpretation was carried out for the profile on Line H03-20.

The delay time method was used (refer Gardner, L.W., Seismic Refraction Prospecting, S.E.G., 1967) with modifications to use data from the reflection shooting on the same line. The velocity distribution of the overburden was derived from the reflection velocity analyses. Depths and offsets were calculated using an assumed refractor velocity of 15,000 ft/sec, and then this velocity was corrected using the dip shown from the reflection profile, and recalculated after correcting the delay times for the difference in velocity. Delay times were partitioned between shot and detector using the reflection record dip.

The results are presented in tabular form and as a plotted profile.