

# A NEW BASE-LINE CORRECTION FOR BLAST-RECORDS

by

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In order to eliminate any errors arising out of the presence of low-frequencies in ground-motion data of the man-made blast records, the base-line of the observed data is adjusted by fitting a straight-line to the digitized raw information. This is, however, far from satisfactory and is even inaccurate specially for the blasts. Berg's (1) second degree parabolic correction, considered as a standard technique, appears to have no rigorous justification although it is implicit that some of the unwanted low-frequencies are filtered out. On the other hand Poppitz's (2) cubic parabola gives excessively high displacements. Trifunac's (3) iterative procedure, involving filtering out the low-frequencies, is tedious for practical work. In the present study a new method involving direct filtration of the low-frequencies and resulting in an automatic base-line correction, especially suitable to blast-data, is presented. For defining the criteria for filtering out the unwanted frequencies, the Fourier-amplitude spectrum, based on the raw digitized data, is derived where some erratic undulations in the initial portion of the plot are observed. To filter out the frequency-band corresponding to these erratic undulations, the discrete Fourier-transform, used for mapping out from time-domain to frequency-domain and vice versa, is applied as a digital filter. The final data thus obtained is automatically corrected with respect to a base-line. This procedure is followed in detail and applied to five blast-data drawn from the field. The validity of the procedure is evaluated by comparing the same with the other known methods used for base-line corrections and it is shown in Fig.1 that the results obtained are very encouraging.

## BIBLIOGRAPHY

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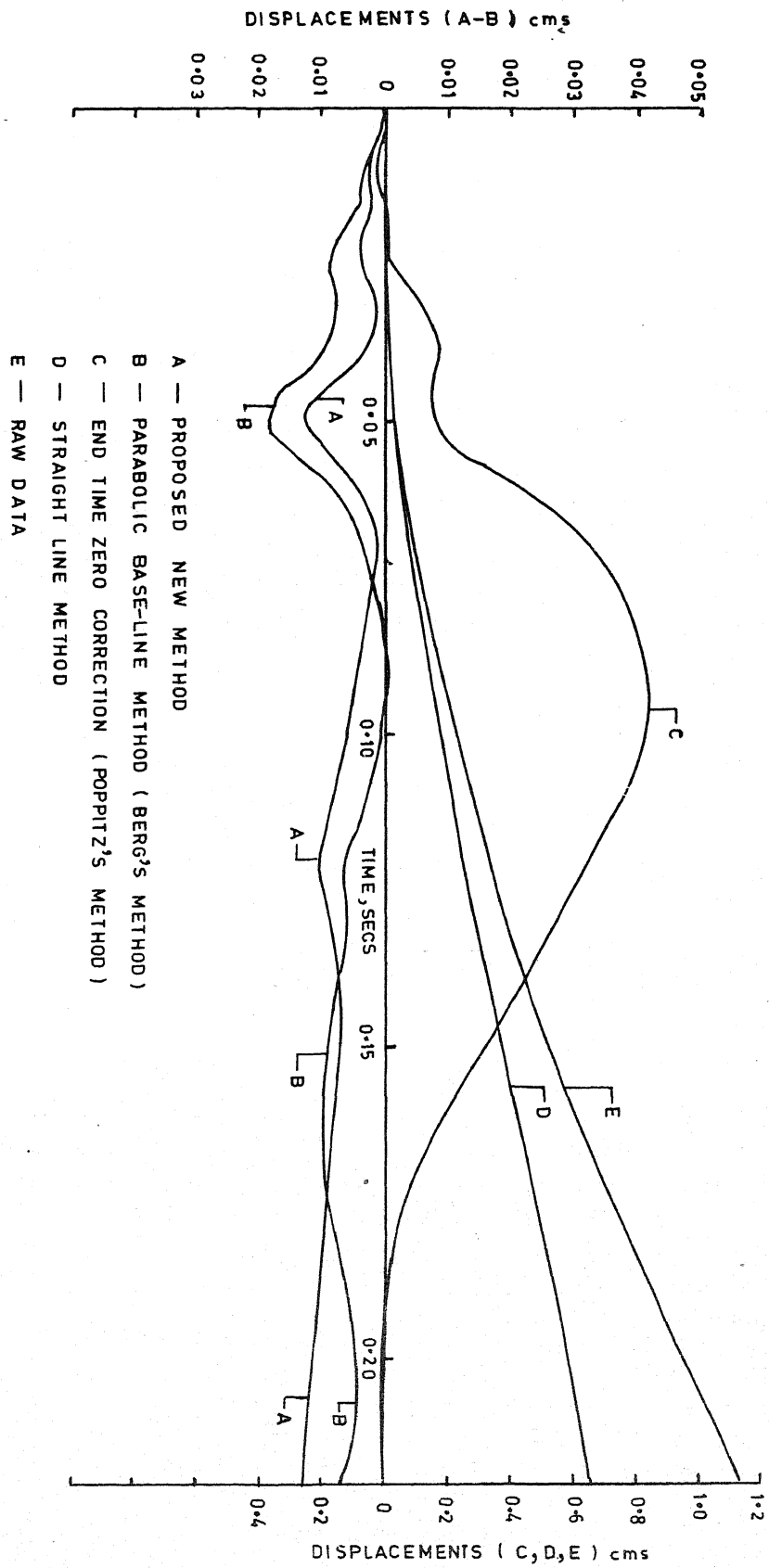


FIG.1 — GROUND DISPLACEMENTS FOR BLAST RECORD NO. 5 PROCESSED BY VARIOUS METHODS OF BASE-LINE CORRECTIONS