大発破に関する研究(Ⅱ)

—爆破点近傍の振動測定—

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INVESTIGATION ON QUARRY BLAST (II)

VIBRATION MEASUREMENT NEAR SHOT POINT

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Synopsis

The ground motions near shot point are measured at various places, that is, in the quarry and on the ground surface of each different geological structure. The weights of charge are in the range of 0.1～1 tons and the distances from shot point and measure points are 20～120 m.

It is confirmed that the displacement, particle velocity and acceleration of the ground motion caused by explosion are largely related to the blasting conditions, geological structure of the measure point and the path through which the waves passes. Especially, the tamping of the charge and the shape of the free surface before the blast are mainly concerned with the emission of elastic waves from the shot point. The size of rock fragments after the blast is found to be a function of C which is expressed by $C=a/W^{3/4}d^{-2}$. (a: amplitude, W: weight of charge, d: distance between shot point and measure point.)