

## CRATER MODELLING

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This paper deals with a new crater edge curve based on a model as follows:

The explosion radius, i.e. the distance from the burst point to the crater edge, is proportional to a soil parameter and to a root function of the effective charge, whereby the effective charge is the actual charge reduced by a stemming factor. The stemming factor depends on the depth of burst. With large depth of burst, where no open void forms, it has the value one. It decreases with the lessening of the depth of burst when the explosion energy is no longer transferred entirely to the soil, as a part of it is released into the venting gases.

While being of a simple theoretic structure, the crater edge curve is rather complicated in numerical evaluation. Therefore, this has to be done by means of a computer or at least a programmable desk calculator.

We have established a FORTRAN code for computing and plotting the crater edge curve. Choosing the power of the above mentioned root function near the value of one third, yields good agreement of the theoretical curve and the apparent radius in most of the cratering events examined. These events range from less than one kilogram TNT to the near 100 kT nuclear. This wide range shows that scaling techniques and the theory the new curve is based on, relate closely.