# IAVCEI Commission on Tephra Hazard Modelling

## DEFINITION OF MAXIMUM CLAST

> Characterization of the population of the largest clasts that fell at a given distance from the vent

## IMPORTANCE OF THE DETERMINATION OF MAXIMUM CLAST

> The determination of the largest clasts is necessary for the compilation of isopleth maps that are important for: i) assessment of column height when no direct observations are available (e.g. Carey and Sparks 1986 and Pyle 1989), ii) definition of eruptive style (e.g. Pyle 1989) and iii) vent identification. In particular, the assessment of column height is extremely valuable because it represents a critical input for tephra models and it is used to derive information on the mass discharge rate and the duration of eruptions

## RECOMMENDATIONS

**SELECTION OF SAMPLING AREA**
> Flat paleotopography should be preferred because is less affected by reworking, slumping and secondary displacement of clasts

**COLLECTING STRATEGIES**
> Specified-area sections should be preferred to unspecified-area sections when possible. In case specified-area sections cannot be excavated, unspecified-area sections should be sampled for at least 15 minutes on relatively long sections. In this case, the resulting assessment of the largest clasts has to be considered as a minimum estimate

**SAMPLING AREA**
> A depositional area of 0.5 m² is the best compromise between data quality and sampling time

**JUVENILE OR LITHIC?**
> When good lithics are present (i.e., lithics that are not altered and therefore are not likely to break), the collection of pumice clasts for the application of the method by Carey and Sparks (1986) is not necessary. In case of lithic-poor deposits (e.g., basaltic tephra), the densest juveniles should be used

**CLAST MEASUREMENT**
> In order to avoid large discrepancies from the assumptions of sphere considered in most empirical models, a clast should be characterized based on the geometric mean of its three axis taken perpendicularly between each other with the approximation of the minimum ellipsoid

**CHOICE OF CLAST POPULATION**
> The method of the 50th percentile of a 20-clast population is considered as the best way to assess the largest clasts because has the advantage of: i) eliminating the problem of outlier identification, ii) offering a more reliable reproducibility of the results, iii) reducing analysis time in the field by requiring the measurement of only one clast (i.e., the smallest of the 10 largest clasts)