

**TITLE:**

Critical analyses of the available methods to assess soil liquefaction potential

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**SUMMARY:**

The evidence left by recent large earthquakes clearly shows that failures induced by soil liquefaction are among the most important seismic ground instabilities. Accordingly, efforts to improve, or reduce uncertainties, of the existing methodologies to predict the liquefaction potential are needed. The most popular procedures for liquefaction analyses are based on field testing, where the penetration resistances of SPT and CPT are the two most widely used indices for evaluating the onset of liquefaction. Also, the normalized shear wave velocity has been proposed as a field parameter to be used as a liquefaction predictor. The limitations of these tests to estimate the liquefaction potential are presented and analysed from a theoretical point of view. Then, an alternative procedure to assess the potential of liquefaction of sandy soils is proposed.