WHY CPT IS THE "BEST" GEOTECHNICAL TOOL





CPT VS OTHER IN SITU TESTS









Standard Penetration Test (SPT) Scala Penetrometer Test Hand-held Shear Vane Test



EVOLUTION OF IN SITU TESTING /////// //// 111/11/1 7777 1111 AV. 2.8m years ago "Homo Incorrectus"







Energy ratio:

$$E_R = E_{meas}/E_{theor}$$

$$N_{60} = N^*(E_R/60)$$

(dispute: 55%, 60%, 70% ?)





AGS Seminar 2020

 E_R Ranging from 40% to 90% $E_R = 30\%$ to 96% (US study)

N = 20, gives N_{60} = 10 to 32 ($\approx \pm 50\%$)





AGS Seminar 2020

Ranging from 58% to 89% N = 20, $N_{60} = 19$ to 30



Energy ratio:

		Year	2012	2013	2013	2014	2015	2016	2017	2018	2019
-	Hammer				Re-test						3
Test house A	А	Er %		65		64			70	54	
Test house B	В	Er %				69	66				59
Test house C	Ac	Er %		75	65	59	70		72	47	56
Test house D	D	Er %	66	65		66	70	72	77	75	74
Test house E	E	Er %	70	70		68	73	66	75	73	79

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Energy ratio for any hammer varies:

Could be between 47% and 75%

$$N = 20, N_{60} = 16 \text{ to } 25$$
 ($\approx \pm 25\%$)













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WHY CPT IS THE "BEST" GEOTECHNICAL TOOL

In comparison to other conventional in situ tests, CPT:

- Provides continuous information with depth
- Provides a huge amount of valuable data
- Is a rapid test
- Presents excellent value for money
- Has <u>much</u> lower level of uncertainty



Surely, we have evolved and should stop hitting things with hammers!

