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Forum for Promotion of Soil Dynamics in India

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FORUM FOR PROMOTION OF SOIL DYNAMICS IN INDIA

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- Carbondale is about 120 miles S-E of Saint Louis
- Close to New Madrid EQ Zone

Soil Dynamics

Education

Research,

Continued Research leads to Better and more Rational solutions

Transmission of knowledge to field

- SOIL DYNAMICS RELATED COURSE AT SIUC

  Fundamental of EQ Engineering

  Soil Dynamics

  Foundations For Dynamic Loads

Education

- Mostly graduate level courses
- Some schools also offer introductory courses at under-graduate level
- Short courses

- Case histories and back analysis need to be emphasized adequately

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Case studies have made a Huge contribution in our understanding of Geotechnical Earthquake Engineering.

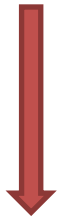
- Based on:
- Observed Damage
- Monitored Performance, Experimentation, Analysis and Prediction
- Objective is to “Develop Tools to “Avoid Failure, Improve Performance and Make Better Predictions”.

Based on Observed damage

Tilting of apartment buildings at Kawagishi-Cho, Niigata, produced by liquefaction of the soil during the 1964 Niigata Earthquake.
“Niigata Earthquake, 1964,” Japan National Committee on Earthquake Engineering, Proceedings of the 3rd World Conference in Earthquake Engineering, Volume III, pp s.78-s.105.

Displacement and tilting of ouses due to soil liquefaction in the Turnagain Height area of Anchorage during the 1964 Alaska Earthquake

“The Great Alaska Earthquake of 1964,” Engineering Committee on the Alaska Earthquake, Division of Earth Sciences, National Research Council, National Academy of Sciences, Washington, D.C., 1973.



- Liquefaction, laboratory tests on sands, field investigations, analysis

Shallow Foundations-Seismic Case

Examples of bearing capacity failures of shallow foundations in Adapazari (Yilmaz et. al. 2004)

- Analysis, Tests on Shake Table and Centrifuge Tests, Back Analysis of Observed Settle Due to Earthquakes.
- Better Understanding Significant Parameters Affecting Foundation Behavior and Role Of Soil-Structure interaction(Not Always Conservative)

Monitored Performance, Experimentation, Analysis and Prediction

One example is Analysis and Design of Piles Under Dynamic Loads

Research

- Several important topics have been researched extensively using Experimental , analytical and centrifuge modeling .

- Large amount of information on all significant topics on SOIL DYNAMICS is available in Literature.
- However, most such published studies are yet to enter the design office.

- Performance Based Design
- Need to Integrate
- Teaching
- Research
- Design

Thank You

and

Wish You the Best