Contribution ID: **435** Type: **Poster**

THE EFFECT OF GRANULAR MATERIAL ON STRESS STATE TRANSDUCER

Tuesday 22 May 2018 15:00 (1 hour)

Soil compaction is one of the serious problems in crop production. It has occurred under stress in the soil, which induced by agricultural machines. Therefore, it is necessary to characterize stress in the soil so as to predict soil compaction. The stress state transducer is a device to derive the stresses in the soil. The purpose of this laboratory work is to study the effect of granular material as a medium on statically stress that occurs on each plane of the stress state transducer (σ_x, σ_y, σ_z, σ_{n1}, σ_{n2} and σ_{n3}). In the experimental test, the stress state transducer was placed inside dry sand with different granular sizes, then vertical pressure loading and unloading processes were applied to a range of 0 –200 kPa. The z-direction stress was compared with the reference pressure and the results found that grade I sand gave the quiet linear relationship between applied load as this equation σ_z = 0.747P_{ref} + 16.5249, R^2 = 0.9866 and corresponding stress on loading process. In unloaded case, the pressure was higher than load testing and the hysteresis of 15.7305 %. Including to the relationship of stresses on other planes were similar too. A similar tendency was observed in the larger granular size of sand, but with less linearity.

Author: Mr THUNGSOTANON, Dithaporn (Department of Engineering, King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus)

Co-author: Ms KULKETWONG, Chompoonud (Department of Engineering, King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus)

Presenter: Mr THUNGSOTANON, Dithaporn (Department of Engineering, King Mongkut's Institute of Technology Ladkrabang, Prince of Chumphon Campus)

Session Classification: A014: Environment (Poster)

Track Classification: Environmental Physics, Atmospheric Physics, Geophysics and Renewable Energy