



Dr. AN is currently an Associate Professor at Zhejiang University, Hangzhou, China. Working on geotechnical and geo-environmental engineering, she is interested in soil-atmosphere-plant interaction using both experimental and modelling approaches.

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Salle 201, Bâtiment PS2, CIRAD-UMR AMAP

[\[Link TEAMS\]](#)

The response of soil to extreme climatic conditions

presented by

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ABSTRACT

The interaction between the atmosphere and soil is of great importance in investigating the soil T-H-M behaviour in geotechnical and geo-environmental constructions undergoing climate change. In this talk, the soil evaporation-shrinkage-cracking response to the droughts is presented. A numerical approach is developed by combining the hydro-thermal model and soil-atmosphere interaction model, aiming to study the coupled hydro-thermal soil behaviour under varying climatic effects. It could decrease the uneconomic expense due to the unpredictable problems of direct monitoring during sensors' operation in the long term. Moreover, the difficulties in the measurement of volumetric water content and especially suction near soil surface region could be avoided. After its verification and validation, this approach is further applied to study the interaction between atmosphere and treated-soil embankment.

In recent years, Dr. An has been working on the soil-atmosphere-plant interaction, focusing on the initiation mechanism of shallow landslides, the prediction of the slope moisture distribution considering vegetation effects, and the development of a physical-data-driven method for slope susceptibility analysis. The outcomes of this work can help the local community to build the ability to prevent and adapt to geo-hazards in hilly regions.

KEY WORDS Soil-atmosphere-plant interaction; soil response; coupled modelling; shallow landslides

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