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ILLINOIS GEO-INSTITUTE – FEBRUARY 2024 DINNER MEETING

2023 Kahramanmaras, Türkiye Earthquake Sequence: An Overview of the Ground Reconnaissance, Evaluation of Seismic Building Settlements, and Large-scale Landslide near Türkiye – Syria Border

PLACE:	Pazzo's • 311 S Wacker Dr., Chicago, IL 60606 • (312) 913-1600 (Parking is located south of the 311 building - \$13.00 after 5:00PM)		
DATE & TIME:	February 13, 2024 Cocktails 5:15 pm, Dinner 6:15 pm, Presentation to follow		
SPEAKERS:	Dr. Tugce Baser, University of Illinois Urbana-Champaign Dr. Ozgun Numanoglu, Schnabel Engineering		
COST:	\$65 General (Contractor, Consultant with reservation) \$55 Education/Government Employees (with reservation) \$20 Students (with reservation) (if paying with check, make checks payable to ASCE IL Geo-Institute)		
ONLINE REGISTRATION:	To be provided (1.0 PDH will be provided to all attendees)		
CONTACT:	Email:	Institute	asceilgeotech@gmail.com
		Jason Buenker	jason.buenker@shanwil.com
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Abstract

On February 6th, 2023, the Kahramanmaras earthquake sequence induced significant damages in the southern and southeastern part of Türkiye. Two subsequent reconnaissance campaigns, conducted by the presenters, revealed various engineering problems, and documented the seismic performance of several systems, including earthquake-triggered large-scale landslide near Türkiye – Syria border, site effects, seismic-induced liquefaction and foundation damages, and localized deformations on dams. The presentation will include brief description of the tectonic settings of Türkiye and the area of interest, reconnaissance observations, seismic settlements observed at several buildings located on the reclaimed areas of the City of Iskenderun, the results of in-situ investigation campaign and large-scale landslide triggered near the Türkiye-Syria border at Tepehan, Altinozu Village.

Comparison of the measured and estimated seismic settlements will be presented for the City of Iskenderun. The results show that the simplified methods used together with the cone penetration test results provide first order estimate for several different mechanisms that contributed to the total seismic settlement of the buildings documented in the City of Iskenderun. However, large-scale soil – multi-structure interaction observations indicate a need for improvement in empirical correlations and consideration of advanced dynamic soil-structure interaction analyses.

The Altinozu landslide has induced ground cracks reaching up to 500x300x30 m and led to significant displacements of local village structures. The massive dimensions of the landslide and its implication on the residential structures nearby, this landslide requires comprehensive investigation to reveal the triggering physical processes. This talk will present the satellite images collected from Sentinel-1 (C-band) and ALOS-2 (L-band) to backtrack the slope movement and local weather events collected from the Turkish State Meteorological Services.

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About the Speakers

Dr. Tugce Baser is an Assistant Professor in the Department of Civil and Environmental Engineering at the University of Illinois Urbana-Champaign, specializing in Geotechnical Engineering and Geomechanics. Her research interests include unsaturated soil mechanics, energy geotechnics, and climate change related geotechnics especially in cold regions. Over the years, Dr. Baser has been awarded honors by international institutions and invited as a keynote speaker. She is the recipient of ISSMGE Bright Spark Lecturer Award in 2019; AFOSR Young Investigator and Department of Defense Instrumentation awards in 2021; and Department of Defense Instrumentation award in 2023. She received her PhD degree from University of California San Diego in 2017. Dr. Baser is a member of ISSMGE and ASCE, where she is actively engaged with the student, professional, and diversity development.



Dr. Ozgun Numanoglu is a Project Engineer with Schnabel's Seattle Geotechnical Team. He has three years of consulting experience in geotechnical and earthquake engineering. Ozgun specializes in dynamic characterization and constitutive modeling of soils, and numerical modeling and analysis of seismic ground response and soil-structure interaction. He has worked on a variety of large infrastructure and land development projects across USA and the world including New Zealand, Philippines, and Australia. Ozgun holds a Bachelor of Science and Bachelor of Arts degrees from Civil Engineering and Business Administration departments of Middle East Technical University, Turkey. He also holds M.Sc. and PhD degrees in Civil and Environmental Engineering obtained from the University of Illinois at Urbana Champaign.



Both Dr. Baser and Dr. Numanoglu are originally from Adana which was one of the eleven cities impacted by the recent series of earthquakes that struck Southern Türkiye.