WEEK 2 (JUNE 10-16, 2018)

Prepared By: Ms. Lorena Ramirez

International Research Experience for Students (IRES) first week in China consisted of adjusting to the environment, culture, and settling in. This included making friendships with Tianjin Chengjian University (天津城建大学) students, exploring the Tianjin community, and enjoying the authentic food China had to offer.

DAY 8

(Monday, June 11th, 2018)

2018 IRES students arrived in Tianjin, China and were given a free day. Students went to the university coffee shop to ask locals where they could sightsee. There students met Wang Yi Jie, a current junior in the civil engineering department at Tianjin Chengjian University. Mr. Jie offered to show students around their first day in Tianjin. First stop was Yangliuqing（杨柳青）, a famous historical and cultural market town in China. Students walked through ancient hutongs (alley ways), admired the architecture of the market, and ate lunch at a local noodle house. After lunch, students returned to their dorms due to jet lag, and finished the night eating dinner with hosts Dr. Joe, Dr. Leo, and Dr. Sun. The highlight of the dinner was the "Tianjin Duck," (天津烤鸭) which subsequently led to full bellies.

(Figure 1) Students exploring Yangliuqing market street. Names from left to right; Anika Huq, Matthew Law, & Margarita M. Solares Colón.

(Figure 3) Students exploring Yangliuqing market street. Names from left to right; Matthew Law, Daniel Rusinek, Margarita M. Solares Colón, & Zachary Parra.

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DAY 9

(Tuesday, June 12th, 2018)

(Figure 5) Students looking at survey equipment.
Names from left to right; Zacharry Parra, Anika Huq, Dr. Guoquan "Bob" Wang, Matthew Law.

(Figure 4) IRES Students taking a group picture in front of the Geology and Geomatics building.
Names from left to right; Dr. Guoquan "Bob" Wang, Margarita M. Solares Colón, Zachary Parra, Bhavya Merchant, Matthew Law, Daniel Rusinek, Anika Huq, & Lorena Ramirez.

On this day, students toured the civil engineering and geo-engineering department at Tianjin Chengjian University. Students learned how the soil at Tianjin is similar to the soil in Houston, based on how they are both unconsolidated and high in clay. TCU civil department focuses on soft soil, blast testing on buildings, and engineering a vacuuming method to compact the soil. The TCU civil engineering department also has a lab that focuses on the effect of temperature on soil. Currently they are studying the response of soil under permafrost temperatures. UH IRES students learned about micro-structure and material labs, where TCU grad students use erosion techniques on the soil and then study the effects of erosion on the soft soil in Tianjin. This research is not only government-funded but the university also has a long-term relationship. Since the soil is so soft in Tianjin, civil engineers must look at strain and stress parameters during development. Tianjin Chengjian University have come up with a complex stress path laboratory, in which researchers take out the soil from underneath the groundwater to study how the impact of stress, strain, volume and force correlate. Students were also able to visit the three dimensional mechanical properties laboratory at which they observed the TCU graduate students control x,y, and z coordinates and apply it to a foundation. This has a real-world application that can aid in further understanding in landslide exploration and deep foundation exploration. University of Houston students visited the large deformation lab, which focuses on large forces that cause sheer force. Lastly students learned about land surveying equipment the civil department used (Figure 5), including a top of the line M33 ore professional drone, which was presented as the future of surveying.

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(Figure 6) Students riding bikes through Tianjin.
Above; Names from left to right; Margarita M. Solares Colón, Matthew Low, & Bhavya Merchant.

After students finished touring the civil engineering and geology departments at Tianjin Chengjian University, their friend Wang Yi Jie took them to downtown Tianjin to look for a phone for one of the students. It was the first bicycle riding and subway experience University of Houston students had in China. They finished their day eating at a local noodle house and observing a Tianjin graduation celebration organized by Tianjin students.

(Figure 7) Right; Tianjin Chenjian University graduation celebration

DAY 10

(Wednesday, June 13th, 2018)

Students visited Tianjin University and were first shown the coastal structure main building. Here students could observe an underwater shake table that is used to stimulate coastal waves to tsunamis. The shake table is first in the world, and this new technology is currently being funded by the government. The reaction wall that encircles the shake table helps redirect waves and is the second highest reaction wall in china, the tallest coming at 90 x 70 meters, and is 3 meters thick. Dr. Bo Zhao and graduate students are also studying the force and pressure of waves in propagating materials. Designing their own machine, graduate students launched a blast upward to meet a fixed

(Figure 8) IRES students touring Tianjin University coastal engineering department.
Right to left; Chen "Andrew" Shen, Xueqian Wu, Ruiyuan Li, Matthew Law, Daniel Rusinek, Zachary Parra, Anika Huq, Bhavya Merchant, Dr. Guoquan "Bob" Wang,

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sample (cement, wood, etc.), and then study the 3-dimensional force and waves that propagate through the materials. Graduate students also studied fatigue of machines with alternating materials and the effects of shock waves within materials. The civil engineering department is undergoing soil testing to see which soil works best for foundation. With steel and concrete samples, they are observing the effects of nitrogen on the samples and see how the samples perform under low temperatures. Undergraduates were taught their basics; focusing on structures that simulate the roof of houses to study the effects of stress, and strain. Students ended the day by going to the local restaurant for dinner outside of campus, while others decided to rest in their rooms.

DAY 11

(Thursday, June 14th, 2018)

(Figure 9) Students eating Chinese hot pot. Right to left; Bhavya Merchant, Anika Huq, Chen "Andrew" Shen, Zachary Parra, Margarita M. Solares Colón, Daniel Rusinek, & Matthew Law.

IRES students were given a tour of Tianjin, with the help of Chen "Andrew" Shen (沈忱), who is currently a civil engineer graduate student at Tianjin Chengjian University. University of Houston students were first shown around Nankai University. When walking through campus, students visited the university library, checked out the campus lake, and lastly, stopped by the campus gift shop. When the tour concluded, they headed to a local huoguo 火锅 (hot pot) restaurant (Figure 9), which featured duck eggs preserved in clay called Pidan 皮蛋. After eating a feast, IRES students headed to Tianjin Ancient Cultural Street (Figure 10), where the students tried authentic Chinese desserts, chocolates, and admired the architecture. To walk off the large lunch and sweets, everyone headed to an Italian style town in Tianjin where students could browse through the local art, and finished their day shopping at downtown Tianjin (Figure 11).

Top (Figure 10); Picture of Tianjin Ancient Cultural Street

Right (Figure 11); Downtown Tianjin

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DAY 12

(Friday, June 15th, 2018)

Students traveled to Tianjin country side to look at extensometers researchers have placed to study subsidence rates in surrounding soil. These extensometers were designed to see where within the first 600 meters of surface ground subsidence is taking place. Made with a fixed inner pipe and outer pipe that connects to the ground, both run 560 meters down. Focusing on the inner pipe, researchers can observe movement in the ground. Pressure of inner pipe is correlated with ground water that is kept in a reservoir above ground (Figure 12) where elevation is monitored. Along with sensors to help collect accurate data, these pipes can encounter 7 layers of reservoirs, and data is collected to see how subsidence is effected when it's taken from one or the other by re-injecting water. Along with studying subsidence, they also take groundwater for thermal purposes and have sensors to measure pore pressure beneath. While new technology is helping gather new subsidence data in this region, the traditional way (with tape) to take measurements is still considered the most reliable. Local experts have found that the top 5 meters can rebound, but continues to subsidize in country side Tianjin.

After students finished observing extensometers during the first half of the day, they went back to the dorms. During the evening, everyone regrouped, played a game of basketball with students in the university and prepared to leave to the next destination for the next morning.

Top (Figure 12); Picture of IRES Students observing extensometers.
Left to right; Anika Huq, Margarita M. Solares Colón, Daniel Rusinek, Zachary Parra, Dr. Guoquan "Bob" Wang, Dr. XXX, Dr. YYY

DAY 13

(Saturday, June 16th, 2018)

(Figure 13); Shasta waiting for subway from Tianjin to Beijing.

Students departed to Beijing from Tianjin, which took approximately 30 minutes. When arriving in Beijing, students checked in at Beijing University of Technology, where they were shown the campus cafeteria and rested for the remainder of the day.

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DAY 14

(Sunday, June 17th, 2018)

Students split into two groups to site see around Beijing. Half of the group went to the forbidden city, surrounding market where they stumbled upon a labradoodle (Figure 14). They also went to the temple of the sun to dance with locals in the evening, and finished out their day watching the World Cup at a local German bar. The other half of the group went to the Silk Market to get tailored suits.

(Figure 14) Lucky cats at Beijing Silk Market.

(Figure 14) Ms. Solares new friend near the forbidden city.