

# Sheriff Lecture Focuses on Technology and Networking with the Next Generation of Geoscientists from the University of Houston

By Linda Sternbach

The 25th annual Sheriff Lecture was held on Monday, November 13 at the Norris Center. This year's event exceeded expectations for student participation and faculty support. It attracted approximately 150 attendees, the largest number of attendees in years.

The Sheriff Lecture is a joint venture between HGS and the University of Houston (UH) Earth and Atmospheric Sciences Department (EAS). The Lecture was created in 1999 by the UH Geosciences Alumni Association. The partnership with HGS was initiated by UH Alumni and HGS then Board Member David Meaux in 1999. This year's event commemorated the 50th anniversary of Dr. Robert E. Sheriff's 1973 landmark book: *Encyclopedic Dictionary of Applied Geophysics*.

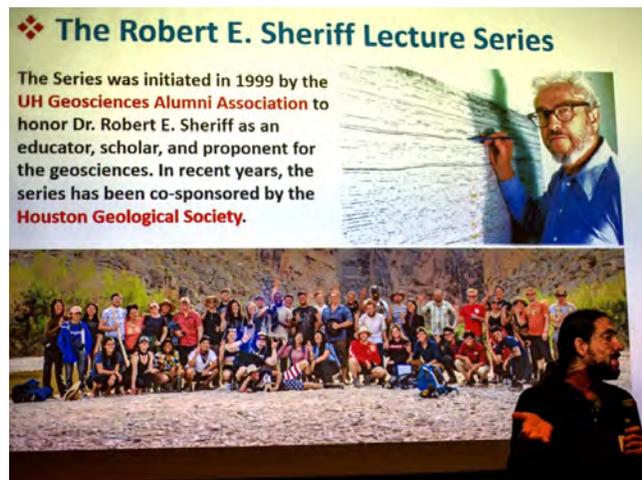
Planning for the 2023 Lecture started this past summer and involved contributors from UH EAS department and volunteers of the HGS. Dr. Robert Stewart, Dr. Paul Mann, and Dr. Jia Sun motivated students at the MS and PhD levels to submit abstracts for posters, resulting in 45 poster proposals.

The HGS provided two Judging Co-Chairs: Sandy Rushworth and David Risch, who are long time HGS and GeoGulf volunteers. Thirty-four professional and academic judges volunteered to assess and rank the student posters. Judges awarded first, second, and third place in three categories (Geology, Geophysics and Atmospheric Science) and at three experience levels. Mann, who is the Robert E Sheriff Endowed Chair at UH, announced the

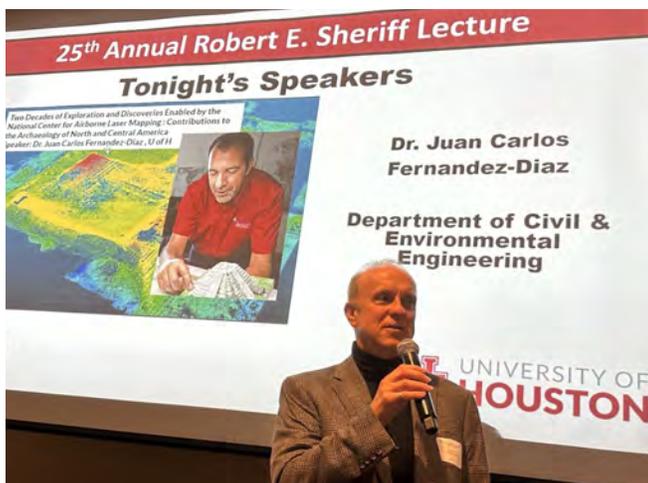
winning students at the end of the night. Videos are online on the HGS GeoEducation YouTube Channel.

Stewart did a great job as master of ceremonies. He introduced Dr. Tom Lapen, UH EAS Associate Chair and Professor of Geology, who reported on the number of graduates from UH. Lapen highlighted that EAS currently has 186 undergraduates and 155 graduate students. There are five undergraduate degree options and eight MS and PHD degree options. Recent UH graduates from the department have found employment at NASA, Shell, ExxonMobil, MIT, BP, and Stanford University among others. Lapen noted that most

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Dr Tom Lapen, Department Earth Sciences Chair



Dr Robert Stewart announced speakers at Sheriff lecture



Dr William Sager's Geology Students, attending Sheriff Lecture

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Geology and Geophysics PhD students are hired in the energy industry or academia. Atmospheric PhD and MS graduates are teaching or employed by government agencies.

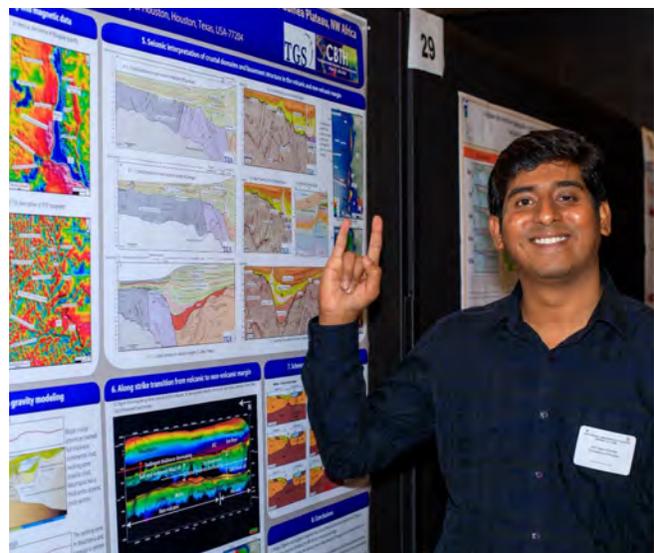
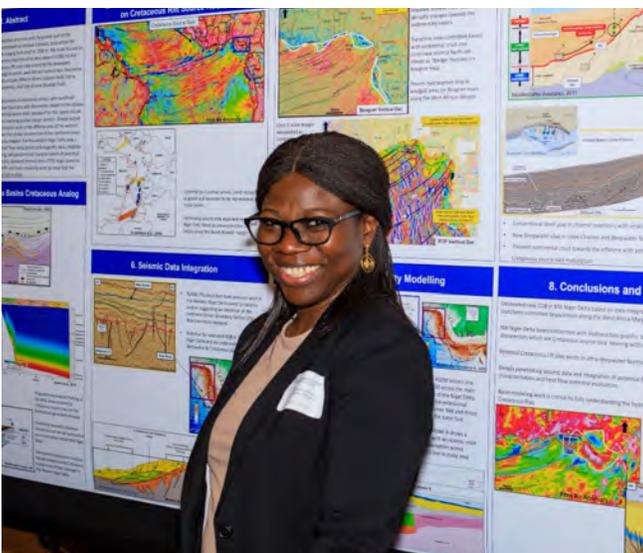
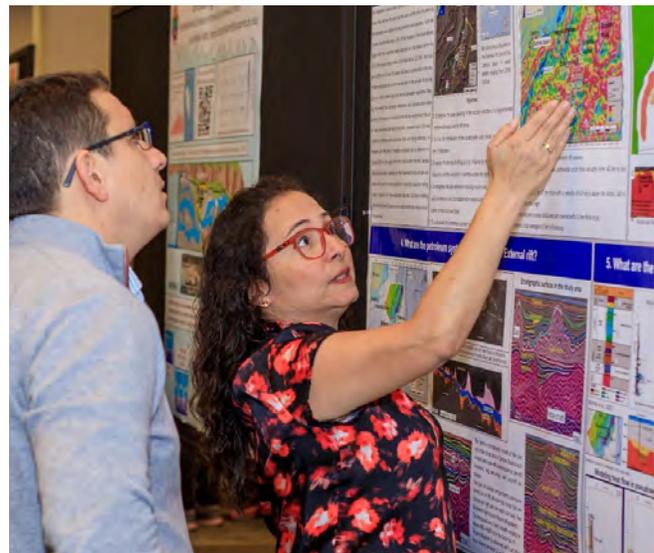
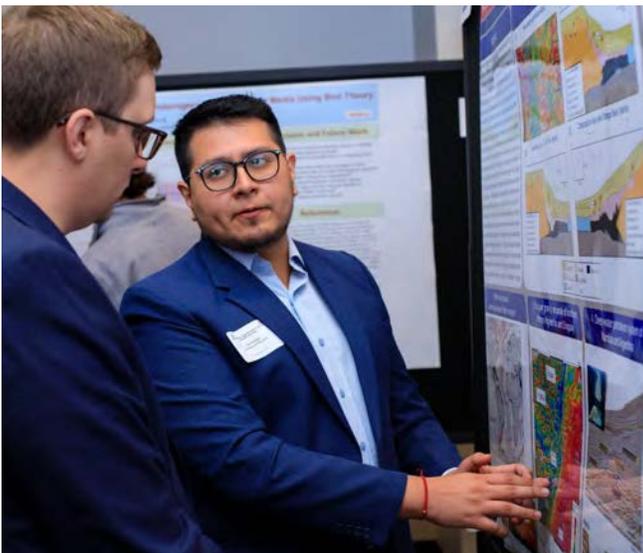
Dr. Juan Carlos Fernandez-Diaz, of the UH Engineering Department, spoke about the University's contribution to Airborne Laser Mapping (LIDAR) Technology, including over twenty years of mapping in Central and South America. LIDAR has enabled discovery of Mayan structures in the jungles of Central America hidden since 800 AD. His team has acquired 20,000 km<sup>2</sup> of LIDAR data in Mexico, Guatemala, Belize, and Honduras and discovered 60 Mayan cities and ceremonial sites.

Dr. Charles Sternbach, adjunct professor at UH, described how to find Giant Oil Fields in the Gulf of Mexico by looking at their unique characteristics and tectonic/structural/source rock setting. He showed where Super Giant fields are located, based

on research and databases created by John Dolson and Richard S. Bishop that were published in AAPG Memoir 125, *Giant Fields of the Decade 2010-2020*. Sternbach concluded that giant field are limited by trap elements, that most are Cretaceous and Miocene in age, and are often found on basement uplifts. Seismic imaging improvement over the last 25 years has resulted in the discovery of new Giant Oil fields.

Linda Sternbach, HGS Vice President, and Andrea Peoples, HGS Office Manager, coordinated the advertising and on-site logistics of the event at the Norris Center. Thanks also to UH secretary Sarai Hernandez, the UH Alumni Association, and Julian Chenin, for expanding the advertising. Lapen said after the event, "This was one of the best Sheriff lectures in years!"

People are already asking about Sheriff Lecture 2024, scheduled for next November! ■



# Sheriff Lecture Student Winners, November 13

## University of Houston, Earth and Atmospheric Science Department

### GROUP 1: ADVANCED SECOND YEAR PHD IN ATMOSPHERIC SCIENCE



*1st Place Deveshwar Singh and Dr Tom Lapen, Department Chair*

#### **1st Place Deveshwar Singh**

Deep-BCSI: A Deep Learning-Based Framework for Bias Correction and Spatial Imputation of PM<sub>2.5</sub> Concentrations in South Korea

#### **2nd Place Mahsa Payami**

A 1D CNN-based Digital Twin of CMAQ: Predicting NO<sub>2</sub> concentration over the most populated urban regions in Texas

#### **3rd Place Thishan Dharshana Karandana Gamalathge**

Influences of California Wildfires on CO<sub>2</sub>, CO, and CH<sub>4</sub>

### GROUP 2: ADVANCED SECOND YEAR PHD IN GEOLOGY



*1st Place Juan Pablo Ramos Vargas and Dr Tom Lapen, Department Chair*

#### **1st Place Juan Pablo Ramos Vargas**

How oceanic and oceanic plateau crustal structure controls deep water, hydrocarbon plays in the Colombian Basin, Caribbean Sea

#### **2nd Place Olajumoke Akinpelu**

Proposed Cretaceous hydrocarbon play based on syn-rift Cretaceous source rocks, deepwater area of the western Niger Delta, Nigeria

#### **3rd Place Md Upal Shahriar**

Along-strike crustal transition from the rifted volcanic margin of the Guinea Plateau in Senegal to the non-volcanic rifted margin of Mauritania, Northwestern Africa

### GROUP 3: ADVANCED SECOND YEAR PHD IN GEOPHYSICS



*1st Place Jennifer Welch and Dr Tom Lapen, Department Chair*

#### **1st Place Jennifer Welch**

Unveiling the Hidden Threat: Drought-Induced Inelastic Subsidence in Expansive Soils

#### **2nd Place Yin-Kai Wang**

Processing and interpretation of elastic waves from a 3D fiber-optic VSP in the Permian Basin, West Texas

#### **3rd Place Boming Wu**

Convolutional Neural Network-Assisted Least-Squares Migration

**Sheriff Lecture Student Winners** *continued on page 41*

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### GROUP 4: MS/1ST YEAR PHD IN GEOLOGY/GEOPHYSICS

**1st Place Samantha Baker**

Temporary Sediment Storage in Proglacial Lakes Near Kangerlussuaq, Greenland

**2nd Place Joseph McNease**

Modeling Pore Pressure Amplification in Heterogeneous Poroelastic Media using Biot Theory

**3rd Place Gabriel Lopez**

Calibration of Stalagmite  $\delta^{18}O$  for Paleoclimatic Interpretations in Cueva Ensueño, Hatillo, Puerto Rico



*Student Award winners Sheriff lecture group photo*



*Judging Co Chairs: Sandy Rushworth and David Risch (Center) with Robert Stewart and Paul Mann*