

Monday, November 11, 2019

HGS General and North American Dinner Meeting

Live Oak Room • Norris Conference Center • 816 Town and Country Blvd #210
Social Hour 5:30–6:30 p.m.
Dinner 6:30–7:30 p.m.

Cost: \$40 Preregistered members; \$45 non-members/walk-ups

To guarantee a seat, pre-register on the HGS website & pre-pay by credit card.

Pre-registration without payment will not be accepted.

Walk-ups may pay at the door if extra seats are available.

If you are an Active or Associate Member who is unemployed and would like to attend this meeting, please call the HGS office for a discounted registration cost. We are also seeking members to volunteer at the registration desk for this and other events.

Dr. Julia Wellner

University of Houston

HGS Joint General and North American Dinner Meeting

The Robert E. Sheriff Lecture Series

**Sponsored by the Department of Earth and Atmospheric Sciences
at University of Houston and the U.H. Geoscience Alumni Association**

In addition to the presentation by the guest speaker, Dr. Hua-wei Zhou, Chair of the Department of Earth and Atmospheric Sciences, will present an update of activities at U.H. as well as the departmental Outstanding Alumni Award. There will be a poster session on current thesis and dissertation research of U.H. students.

Come and meet the next generation of geoscientists from the University of Houston!

The Robert E. Sheriff Lecture Series was initiated in 1999 by the University of Houston Geoscience Alumni Association to honor Dr. Sheriff as an educator, scholar, and proponent for the geosciences. The series has recently been co-sponsored by the Houston Geological Society.

The Sheriff Lecture mission is to

bring some of the best known geologists and geophysicists in the world to the Houston community to share ideas relevant to exploration geology and geophysics, and to showcase geoscience activity at the University of Houston.

A full list of the Student Posters will be available on the HGS Website.

R.E. Sheriff Lecture:

The Sedimentary Record of Antarctica's Contribution to Sea-Level Changes

Today, Antarctica is covered by an ice sheet that, if it were to melt, has the capacity to contribute on the order of nearly 60 meters to global sea-level rise. Most of that ice is stable and is expected to be so long into the future, but parts of the West Antarctic Ice Sheet, particularly Thwaites and Pine Island glaciers, are susceptible to sudden retreat, or even “collapse.” In the past, the ice was significantly expanded, reaching the continental shelf break around most of the margin. As the ice sheet retreated to its modern extent, the shrinking ice left behind a sedimentary

signature of deglacial history. Over repeated cycles of glacial advance and retreat, in some places at least since the latest Eocene, sedimentary deposits of alternating glacial and interglacial periods have built up on the continental shelf and slope. Because the stability of the Antarctic Ice Sheet is strongly influenced by the ocean, the sedimentary deposits from the ice-ocean margin are the ideal place to study the controls on stability or instability of the ice.

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Drill rig on RV/IB Nathaniel B. Palmer, while surrounded by sea ice.

This talk will focus on using the sedimentary record from the West Antarctic margin, by combining geophysical survey data, including 3.5 kHz profiles, seismic data, and multibeam swath bathymetry, with both gravity and drill cores, to map the past extent of the ice, determine the chronology of glacial cycles, and estimate the controls on glacial stability. Data will be presented from three different time periods. First, we will review data from deep-water sites, beyond the glacial limit and thus not susceptible to erosion, where drill cores have recovered continuous records of glacial cyclicity since the Neogene, allowing correlation to global sea-level records. Next, we will examine records of retreat since the last glacial maximum, at the end of the Pleistocene, where the difference in timing of retreat in individual drainage basins can be determined. Finally, we will look at the sedimentary records from where Thwaites Glacier has retreated over just recent decades, allowing an examination the factors influencing the ice today and how they differ from past periods. ■

Biographical Sketch

JULIA WELLNER is a marine geologist who works primarily offshore Antarctica on questions related to the sedimentary record of glacial variability, climate history, and sea-level change. Wellner has completed over a dozen ocean-going cruises collecting geophysical data, surface samples, and drill cores, including ten seasons in Antarctica. Most recently, she served as the Co-Chief of International Ocean Discovery Program (IODP) Expedition 379, Amundsen Sea West Antarctic Ice Sheet History. Next season she will be back in Antarctica as part of the International Thwaites Glacier Collaboration.



She and her students also work in the Gulf of Mexico, examining details of recent stratigraphic units as analogs for petroleum reservoirs and on coastal response to sea-level rise. They use donated data as well as collect new data in shallow water using their own boat, the R/V *Mishipeshu*.

Julia completed a tour as an American Association of Petroleum Geologists (AAPG) Distinguished Lecturer in 2016 and now serves on several AAPG committees. She volunteers to lead coastal field trips for many local meetings, including the upcoming 2020 AAPG meeting.

She earned her PhD in 2001 in geology & geophysics from Rice University, where she also completed a post-doctoral fellowship. She has been at the University of Houston since 2006 where she teaches stratigraphy, sequence stratigraphy, marine geology, oceanography and field courses in facies interpretation. She received the Outstanding Faculty Award from the UH Alumni Association in 2015 and served as a UH Energy Fellow in 2016-2017.