

2022 RCRL Core Workshop – Oct. 24-25, 2022

BEG Core Facility, 10100 Burnet Road
J. J. Pickle Research Campus, Building 131
Austin, Texas 78758

The 2022 RCRL Core Workshop will be held Oct. 24-25 at the BEG Austin Core Research Center. This year we are examining cores related to ongoing characterization efforts. A brief description and context for each core is provided.

Monday AM, Oct. 24, 2022

Ellenburger Facies Characterization – Gulf No. 1 McElroy Ranch Field, Upton Co., Permian Basin (Loucks)

This is a long core through a nearly complete Ordovician Ellenburger section. It captures a lower section dominated by a microbial thrombolite facies complex containing a vuggy pore network. The middle section contains a peritidal complex with karst-related fracture and vuggy pores. The top section is a thick cave-sediment fill interpreted as a sinkhole fill that appears tight. Overall, the pore network for either hydrocarbon production or waste-water disposal is depended on a complex pore system comprised of vuggy matrix pores, karst-related fractures and vugs, and tectonic fractures.

Preliminary Presentation of San Andres-Grayburg as related to Seismic Characterization – North Monument Field, Delaware Basin (Janson)

A collaboration with Apache Corp enables observing core from the North Monument field which is within the large 3D SE Lea Co seismic survey from Schlumberger. This core will display a carbonate-dominated San Andres and Grayburg section through the North Monument field. The scope of this initial work is to tie the facies and facies succession observed in core to the regional stratigraphic architecture with the 3D seismic data. Further work on this core will be conducted in future workshops.

Monday PM, Oct. 24, 2022

East Texas Lower Cretaceous Shelf Margin Characterization - Humble #1 Howell, Tyler Co., TX (Hattori)

The Humble #1 Howell core preserves a unique, rarely-seen record of the Lower Cretaceous shelf margin in East Texas. Although there are a fair number of long cores recovered from the margin in South Texas, the #1 Howell is the most complete core from equivalent strata in East Texas that the BEG Core Facility possesses. The central core captures the lower portion of the Stuart City reef margin in a primarily backreef environment that includes oncolitic packstones, rudist floatstones, transported reefal grainstones, and tidal flats. We will examine these facies and make interpretations about oceanic conditions and patterns of cyclicity at the shelf margin, and then compare to what is known from other reef margin cores to make observations about key differences.



Core-constrained cross section of the Albian, Maverick Basin – ID-1, ID-22 and Rachal Foundation #1, Maverick Basin, TX (Zheng and Kerans)

The Maverick Basin of Southwest Texas is an excellent and data-rich example of a Cretaceous (Aptian-Albian) intrashelf basin that developed above a deep-seated early Mesozoic rift. The main period of intrashelf basin growth and facies differentiation was in the late Albian. Units that record the development of the intrashelf basin include, on the shelf, the uppermost Fredericksburg (Fort Terrett) and Georgetown (Fort Lancaster) formations, and the McKnight and Salmon Peak units representing the basin-fill.

A core-constrained cross section including the ID-1 core on the northern portion of the basin, the ID-22 core from the basin center, and the Rachal Foundation #1 core from the seaward reef-rimming margin will be utilized to illustrate the differential growth and infill of the basin, including basin-centered evaporites and organic-rich mudstones. The Rachal Foundation #1 reef-rim core is an excellent example of the well-developed open-ocean-facing Stuart City margin. A detailed wireline log profile will accompany the core material to better illustrate depositional patterns for the basin.

Tuesday AM, Oct. 25, 2022

OAE 1a Selected Cores to Bridge Outcrop and Subsurface Datasets, Central Texas (Kerans, Loucks)

One of the strong attributes of the OAE 1a system in Central Texas is the ability to study the impact of the OAE from a distal outer shelf setting all the way to its onlap point against the Precambrian and Paleozoic strata of the Llano Uplift. Outcrops at Pedernales Falls, Reimer's Ranch (this trip), Lake Travis (this trip), Guadalupe State Park, and a range of other settings provide a three-dimensional view of the system. Fortunately for us, the Shell Oil Company in the 1960's had a very active research program studying fundamentals of carbonate stratigraphy. As part of that program, they took a number of cores along the outcrop that preserve the fine-grained facies of the OAE 1a in the Hammett Shale in a way that the outcrop does not.

In order to take advantage of these data and to build a more complete picture of the Cow Creek-Hammett-Pine Island-Pearsall system, before heading to the field we will examine the Hamilton Pool #1 core (Shell) as well as hopefully one or two of the new water monitor wells from the Reimers area. Together with the Ney core presented in the morning, and the Mercer and Dix cores, a sense of the facies complexity of the 1a system from the shoreline (i.e., Hamilton Pool, Reimers) through offshore (i.e., Dix, Mercer) and intrashelf basin margin (Ney) can be considered.

