

## Certified PMP

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## Sharon Cornelius, PhD Sr. Geoscientist Advisor or Manager

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### SUMMARY OF QUALIFICATIONS

- Over twenty years' experience as Geophysicist and Geologist in a mix of E&P projects directing the combined interpretation of seismic and well data simultaneously for basin analysis down to drilling location sites. Successfully manage projects, budgets and people. Enjoy training or mentoring geoscientists, managing technical teams, handling negotiations, doing risk analysis and economic evaluations, and giving presentations. Expert at creating 3D velocity models and 3D earth models.
- Guided E&P projects extensively in the Gulf of Mexico including the deepwater areas of Keathley Canyon and Walker Ridge using sequence stratigraphy as a geologist and seismic interpretation as a geophysicist. Other areas worked are offshore Brazil, offshore Nova Scotia, the Gulf of Suez (discovered the Zaafarana Oil Field for BG Group), offshore Argentina, Venezuela, China, coastal Peru, Salina del Istmo Basin in Mexico, the Getic Basin in Romania, onshore South Texas and onshore Louisiana.
- Experienced with Petrel, IHS Kingdom (2015) and (2017), Neuralog, Vel Pro 3D velocity modeling software (CGG), Microsoft Office, and adjust to new software quickly. Created efficient workflows for 2D/3D modeling, structural delineation, fracture detection/analysis, using seismic attributes to match rock properties for reservoir evaluation, all depending on the quality and quantity of data available. Perform AVO analysis, spectral decomposition, well log analysis, pore pressure prediction; and geostatistics.
- Twelve years' experience in management, including six years managing my own business and managing projects on a global basis.

### AREAS OF EXPERTISE

- Geophysics/Geology
- Project Management
- Consulting (International and Domestic)
- Instruction/ Corporate Trainer
- Executive-level Presentations
- Exploration & Production
- Seismic Interpreter
- Sequence Stratigraphy

### WORK HISTORY

**Schlumberger**, Houston, Texas Beginning Dec 2019  
*Exploration Consultant/Instructor, part-time*

**University of Houston, Dept. of Earth and Atmospheric Sciences**, Houston, Texas Beginning Sept 2018  
*Research Scientist, part-time in the CBTH industry consortium*

- Continue research in the deepwater Gulf of Mexico and publish results
- Act as an advisor to graduate students who wish to work in the same area

**University of Houston** 2014- 2017

**Doctoral research was experimenting with 3D velocity modeling and the effects from salt composition in the deepwater Gulf of Mexico.** Discovered that allochthonous Louann Salt in the deepwater area is compositionally complex due to presence of other evaporites (gypsum, anhydrite, or sylvite) and/or sediment inclusions acquired through salt movement basinward. Created a geological 3D velocity model from 300+ well logs and stacking velocities from high resolution seismic data that covers all of Keathley Canyon and Walker Ridge areas in the Gulf of Mexico. As part of research, negotiated a software license donation from Schlumberger to the University for the OMEGA seismic processing application. Four publications in 2018 derived from this research. Dissertation title: Velocity Studies in the Deepwater Gulf of Mexico: Keathley Canyon and Walker Ridge areas. Research advisor was Dr. John Castagna with Dr. Fred Hiltebert, Dr. Pete Emmet, Dr. Paul Mann and Dr. Hua-wei Zhou on the advisory committee.

**University of Houston**, Houston, Texas  
*Teaching Assistant in Geophysics*

Spring 2017

**University of Houston**, Houston, Texas  
*Teaching Assistant in Physical Geology*

Spring/Fall 2016

**YPF, Argentina**, Houston, Texas

Nov. 2013

*Senior Consulting Advisor in Geophysics and Geology (Contract)*

- Contracted to be primary seismic interpreter on new 3D seismic survey being acquired in the deepwater offshore Argentina during November and December, 2013

**Tiandi Energy**, Houston, Texas, and Beijing, China

April – September 2013

(company offers strategic consulting for up- stream oil & gas projects, employing Geologists, Geophysicists, Petrophysicists and Reservoir Engineers)

*Senior Consulting Advisor in Geophysics and Geology (Contract)*

- Taught the importance of utilizing all geophysical and geological data available for analyzing both actual and potential reservoirs in an integrated approach, something not done generally in China. Emphasized importance of determining the resolution of the data before analyses. Emphasized the quality of your analysis is only as good as the quality of your data.
- Supervised geoscientists in Beijing, China while they worked on various field development/re-development projects in other countries; built 3D earth models combining seismic data and well logs using Kingdom and Petrel. These old fields were created before sequence stratigraphy so that the producing zones were mislabeled and miscorrelated, meaning the production histories were meaningless.
- These new 3D earth models created infill drilling sites, evaluated fringe areas of lease blocks, studied deeper formations for potential hydrocarbons and determined feasibility of secondary recovery by water flood, thus giving new economic life to old-depleting fields.
- Revised subsurface geological models on field re-development projects in Mexico (for Pemex) and in Romania (for OMV Petrom)

**Lumina Geophysical**, Houston, Texas

Feb 2011 - April 2013

(company specializing in seismic attributes, spectral decomposition and specialty seismic processing using in-house proprietary software developed by Founder Dr. John Castagna)

*Exploration & Production Technical Advisor (contract)*

- Evaluated various clients' drilling prospects and/or development plans in unconventional, deep-water plays (including offshore Angola, Santos and Campos Basins offshore Brazil and offshore Vietnam), and conventional drilling in coastal Peru, Venezuela and Mexico. Made recommendations on how to proceed.
- Lectured visiting scientists from SINOPEC on all the seismic and borehole techniques used to explore/produce shale gas/oil resource plays
- Presented to clients which proprietary software could help them accomplish in terms of seismic reservoir evaluation, especially in restoring frequency content to seismic data for extracting seismic attributes and doing FWI.

**Korea National Oil Company (KNOC)**, Calgary, Alberta, Canada (Contract)

May –July 2012

*Exploration Consultant and supervising the International Ventures Team for offshore northern Brazil project*

- Contracted to teach deepwater exploration techniques and workflows for 5 northern offshore Brazilian basins with only one deepwater well
- Developed regional geology, determined source & reservoir rocks, and maturation history with minimal well control from shallow water wells using sequence stratigraphy and 2D seismic data of different vintages.
- Demonstrated what these types of potential reservoirs look like on seismic (turbidite mounds, channel fills and contourites) by interpreting the seismic data within geological constraints of sequence boundaries and flooding surfaces, consequently developing 15 potential prospects for bidding purposes in Brazil Round 11 in only 3 months' time. There was no time to acquire 3D seismic or to reprocess the existing 2D seismic.
- Demonstrated how to use seismic sequence stratigraphy for relative age indicators and explained direct hydrocarbon indicators (DHIs). Seismic inversion and seismic attributes were not possible due to lack of velocity info/well data in the deepwater basins.
- Compared prospects with analogs offshore west Africa

**Crescent Geo**, Houston, Texas (geophysical processing company) 2009 - March 2011  
*Business Development Manager, part-time*

- Developed analyses of all onshore E&P companies involved in shale gas plays in the Marcellus, Haynesville, Eagle Ford, Fayetteville and those involved in the Bakken oil shale in order to determine client potential.
- Encouraged technical diversifications to process RTM, VSP, WAZ and multicomponent seismic in addition to the usual Kirchhoff time and depth migrations for 2D and 3D. Software used: Paradigm's *Echos* processing package.

**Paradigm Geophysical**, Corporate Headquarters in Houston, Texas Aug. 2007- June 2008  
*Operations Manager-USA, Strategic Consulting*

- Supervised US team of geophysicists, geologists, petrophysicists, and IT technicians on consulting services projects, responsible for generating revenue to meet annual budget requirements, roughly \$500,000 per team member at that time
- Devised business development strategy and case studies for marketing
- Acted as project manager on client projects, determining best practice techniques and maintaining schedules
- Originated client proposals/legal contracts for the requested services, which first required proper workflow determination, then Gantt charting to determine cost.
- Planned career path opportunities and provided training classes for employees
- Networked with R&D to implement existing software to meet client's specific needs
- Communicated with Customer Support to ensure client receives onsite training in software application

**Integranet, Inc**, Houston, Texas June 2004 – July 2007  
*Senior Project Manager*

- Corporate project manager for company with five subsidiary corporations
- Interfaced with shareholders, investors, accountants, company lawyers, and employees
- Acted as Director of Accounts Payable for five corporations with 23 different bank accounts

**Halliburton Energy Services**, Houston, Texas Jan. 1999- June 2002  
*Principal Technical Administrator in Global Well Construction*

## EDUCATION

### **Ph.D. in Geophysics (GPA: 3.87) (May, 2017)**

University of Houston

Dissertation topic: "Velocity Studies in the Deepwater Gulf of Mexico: Keathley Canyon and Walker Ridge areas", development of a regional geological 3D velocity from high resolution 2D seismic data and extensive well control, which led to discovery of the variability of salt interval velocities due to unexpected variations in salt mineralogy.

### **Ph.D. in Geology (ABD) (GPA: 3.22) (1992)**

Rice University

Dissertation topic: "Exploration Potential in the Deepwater Gulf of Mexico", using sequence stratigraphy to predict areas of potential hydrocarbons with Dr. Peter Vail as graduate advisor

### **Master of Science in Physics/Geophysics (1971)**

Rice University (National Science Foundation fellowship recipient)

### **Bachelor of Science in Chemistry (1967)**

University of Houston (Honors College)

**LANGUAGES:** Native language English, read/write French and German; able to read technical Spanish.

**CERTIFICATION:** Certified as Project Management Professional by ESI International in Paris, France on October 7, 2007.

**PROFESSIONAL ORGANIZATIONS:** AAPG, SEG, GSA, AGU, GSH (Geophysical Society of Houston), HGS (Houston Geological Society), GCSSEPM, GCAGS (Gulf Coast Assoc. of Geological Societies), and Research Gate.

NOTE: Gave oral presentations at the 2015, 2016 and 2019 GCAGS Annual Meetings. Gave two poster presentations at the Fall 2016 AGU Meeting in San Francisco. Poster Chairman and Session Chair for Gulf of Mexico at 2019 GCAGS Annual Meeting.

**PUBLICATIONS:** “Variation in salt-body interval velocities in the deep-water Gulf of Mexico: Keathley Canyon and Walker Ridge areas”, 2018, Sharon Cornelius and John Castagna, SEG Interpretation, v.6, no.1, pp.T15-T27.

“Geological 3D velocity model in Keathley Canyon and Walker Ridge, Gulf of Mexico”, 2018, Sharon Cornelius and Peter A. Emmet, SEG The Leading Edge, digital publication in April, 2018.

“Volume fractions of lithologic units per geologic era in the Cenozoic, Keathley Canyon and Walker Ridge, Gulf of Mexico Part 1: Sand, shale and siltstone” This portion covers how sand, shale and siltstone depositions within the study area have changed over geologic time. Part 2: Limestone and Marl. Cenozoic micritic limestone has been documented in 66 area wells. Both papers published in the September issue of the 2018 GCAGS Journal.

“Relationship between geothermal and geopressure gradients in Garden Banks, Green Canyon, Keathley Canyon and Walker Ridge, deepwater Gulf of Mexico”, in final review for publication March, 2020. Presented orally at the 2019 SEG Annual Meeting, the 2019 University of Houston CBTH Consortium Annual Meeting, the 2019 GCAGS Annual Convention, and twice for the Geophysical Society of Houston in October, 2019. An updated version of this research will be presented at the 2020 AAPG Annual Convention to be held in Houston, TX in June.

**CURRENT RESEACH:** Geothermal and Geopressure studies for the western Gulf of Mexico, including the protraction areas of Corpus Christi, Mustang Island, Port Isabel, North and South Padre Island, East Breaks, and Alaminos Canyon utilizing over 1000 well log files from BSEE.gov.