

# Caroline Burke

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## PROFILE

Highly skilled Petroleum Geoscientist, with 18 years Oil & Gas experience. Expert in integration of diverse data sets. Broad experience in deep water and fold belt exploration. Strong seismic interpretation skills, applied with a clear structural and tectonic understanding, focused on extracting key information to de-risk petroleum systems and reduce uncertainty. Experience with a variety of deep-water depositional models and innovative approaches to better describe them. Deep water operations and project management experience. Extensive global exploration experience in Conventional & Unconventional space & New Venture evaluations. Regional play and prospect analysis towards evaluating, ranking & risking opportunities. Deep expertise in petroleum systems analysis, geochemistry & integration of geodynamics, tectonics and complex structural geology. Highly productive team player & mentor, thriving on diverse cross-functional projects as a strong, innovative & enthusiastic technical leader.

## PROFESSIONAL EXPERIENCES

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2020-2021 **CONSULTANT GEOLOGIST – Bain Geophysical Services Inc, Houston, TX, USA.**

Developing new workflows to better integrate regional petroleum systems modelling with BainGeo proprietary crust and lithosphere models.

2018-2020 **SENIOR STAFF GEOLOGIST – Hunt Oil Company, Dallas, TX, USA.**

**South America & North Africa Exploration & International New Ventures.** Lead Technical Contributor, Geological Advisor & Assurance to Tunisia & Morocco Exploration license teams & Evaluation teams in Peru & Colombia. New Ventures for S America, N Africa & Middle East. Excellent mentor & developer of internal training material. Strong interpretation & integration role for diverse geoscience data to carry out innovative & insightful play and prospect analysis; focused support for the license management priorities and goals of the exploration organization from small, highly efficient teams.

2014- 2017 **STAFF GEOLOGIST – BHP Billiton Petroleum, Houston, TX, USA.**

**Trinidad Deepwater Exploration.** Key technical player in evaluating 17,000km<sup>2</sup> of frontier deep water exploration acreage to unlock a new petroleum province in complex fold & thrust belt. Regional play analysis of Caribbean. Petroleum systems analysis, tectonic & structural interpretation. Built & interpreted regional Geochemistry database. Integrated GDE mapping for source and reservoir, focusing on deep water environments. Prospect maturation & evaluation. Basin Modeling. Operations Geoscientist on 3 frontier exploration wells (2 deep water wild cats). Designed and managed seabed seep & heat flow Study. Recognized data integration specialist. Technical mentor & developed internal training material. Supported management of the exploration licenses including reporting to Ministry and partners, opportunity farm-down and technical mentoring of local content.

2011- 2014 **GEOLOGICAL ADVISOR - Hess Corporation, Houston, TX, USA.**

**Global Basins Capture Team & West Africa New Ventures (2013-2014):** Key member of newly formed Global Basins team. Helped define team strategy leveraging learnings from former Global Basins team; Evaluating & ranking new basins & focus areas & presenting to Exploration Leadership Team. West Africa New Ventures, Technical evaluation of many exploration opportunities, outlining value, risk and volume. Working to tight deadlines. Served as advisor on opportunity-ranking and selection of best-fit opportunities for portfolio. Technical mentor.

**Unconventional Capture Team (2011- 2013):** Geological lead for many screening evaluations for unconventional & hybrid plays. Instrumental in prioritizing opportunities incorporating integrated subsurface, surface, economic, and commercial risk factors into all evaluations. Monitored competitor activity & achieved a good level of basin mastery within several evaluated basins in order to react to incoming opportunities & seek out more “frontier” opportunities. Developed novel approach to petroleum systems modeling & CRS mapping specific to these plays. Technical mentor.

2010- 2011 **SENIOR EXPLORATION GEOLOGIST – Addax Petroleum, Geneva, Switzerland.**

**Gabon Exploration Team:** Play and prospect analysis of Gryphon Marin, Kiarsseny & several onshore blocks in the Topo graben. Regional & prospect scale seismic interpretation, Well correlations, GDE mapping, Geochemistry & Basin modeling to generate CRS maps for pre and post-salt plays. Portfolio risking & ranking. Built geochemical database.

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Involved in well planning, operations & well results integration. Presented results to the ministry, partners, at farm-in meetings and to SIPC management. Lead role in guiding technical content & direction of a mega-regional project carried out by a contractor.

**Exploration New Ventures:** Crucial member of a 3-man team in visiting data rooms and carrying out New venture evaluations for various opportunities along the West African margin.

2006- 2010                    **SENIOR GEOLOGIST – Hess Corporation, Houston, TX, USA.**

**Global Basins:** Petroleum Systems Analyst & Geochemist in the Global Basins Team, Global source rock mapping, incorporating paleogeographic reconstructions & basin evolution; Thermal modeling, integrating seismic interpretations, gravity & magnetic data; Migration modeling & predicting fluid quality. This analysis was critical for screening & assigning geological risk, yet-to-find & pool size to all basins (both Conventional & Unconventional plays considered), providing the subsurface component for our corporate basin ranking. Also carried out more detailed play analysis within selected basins/regions. Supported generation of a portfolio of high-graded new opportunities for the company. Provided technical guidance & peer review to New Ventures, Regional Groups & Unconventional Resources.

This position afforded me the opportunity to work with a highly experienced team of Geologists, Engineers and Value Integrators and build a solid & broad global geological knowledge, especially an understanding of plate models, paleo-geographies, basin evolution, source rock events & their contribution to petroleum systems around the world.

**Gulf of Mexico:** Petroleum Systems Analyst for the regional team (Miocene & Paleogene). Regional Petroleum Systems Play mapping (Source Potential, Thermal Maps for Migration models, GOR prediction, Reservoir Quality Prediction & Deliverability maps) & CRS Mapping. Supported lease sales & Farm-in Opportunities. Key influencer in technical & strategic decision-making process and resulted in maturing 3 prospects to drillable (deepwater wildcats) and capturing 43 GOM leases, growing the companies' Reserves/Production. Developed innovative workflows to generate basin-wide Thermal Stress Maps & predict Fluid Quality.

**Producing Assets:** Reservoir geologist on both JDA (Malay Basin) & S. Arne (Danish North Sea). Accurately calculation of reserves and uncertainty, based on detailed Reservoir characterization, identifying both primary sedimentary & diagenetic components through core-calibrated electro-facies modeling. During my time at Hess I have had many opportunities to present my work to Senior Management and on occasion to Mr. Hess.

2003-2006                    **PROJECT GEOLOGIST– Geomodeling Services Ltd, Den Haag, Holland.**

Reservoir Modeling & Mapping, Data Integration, Geostatistics, Uncertainty Analysis, Petrophysics, Facies Modeling. Responsible for Project & Client management on the following projects:

- Shell (SEPCO), New Orleans & Houston: Various GOM Miocene fields
- BP, Sunbury, U.K. Azerbaijan BU: Integrated 3D Overburden Pore pressure and rock property modeling for well planning for ACG, Caspian.
- Shell International Exploration & Production, The Hague: North Sea and Niger Delta fields.

2003                            **INTERN GEOLOGIST (MSc Thesis) – BP, Aberdeen, Scotland.**

Reservoir Quality Study of the Magnus field, northern North Sea. A core-based study to understand reservoir quality controls in a multivariate system and development of a log facies scheme for data conditioning.

## EDUCATION

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2002 – 2003                    **M.Sc.** – MSc Petroleum Geology (BP sponsored) – University of Aberdeen, Scotland.

1998 – 2002                    **B.Sc.** – BSc (Hons) Geology – UCD, Dublin, Ireland.    2H1 (2<sup>nd</sup> in class)  
Geological Mapping thesis: "*Independent mapping of Structurally complex geology of Rodiezmo, Cantabrians, Spain.*"

## TECHNICAL SOFTWARE

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**GIS:** ArcGis; PaleoGIS, ARC Play Fairway Analysis Tools, ArcPro, QGIS  
**SEISMIC INTERPRETATION:** Kingdom Suite, Petrel, Paradigm, DSG

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**BASIN MODELING:** Trinity, Genesis, Temis Suite

**STRUCTURAL MODELING:** 2D Move

**RESERVOIR MODELING:** Petrel, Gocad; Geocellular modelling, Geostatistics & Simulation, Scripting

**PETROPHISICS:** Geolog (incl. Facimage), Petra, Petrel, Techlog

**VOLUMETIC UNCERTAINTY:** Geox Prospect, Geox Play Analysis, Rose & Associates.

**DATA INTERROGATION:** Spotfire (including links to Kingdom & ArcGIS), SAS-JMP

**MICROSOFT:** Excel, Word, PowerPoint, Access, VBA for Excel macros.

## PUBLICATIONS

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C. BURKE, A. PEPPER. Discovered and potential future petroleum systems of the US Atlantic Margin. *AAPG, ACE, 2017.*

A. PEPPER, N. J. MCCORMACK, E. HEYDWEILLER, J. WOLTERS, C. BURKE. Porosity prediction using a simple Mechanical/Chemical Compaction Calculator for Clastic Reservoir. *International AAPG, 2008.*

J. MCDONOUGH, R.T. MURPHY, R.S. PILCHER, C. BURKE. A Deepwater Frontier in the North-Eastern Gulf of Mexico: The Jurassic Norphlet Sandstone Oil Play. *International AAPG, 2008.* .

## LANGUAGE SKILLS

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German, French, Spanish (Intermediate level)

Farsi (Beginner)