

Peter Gutteridge, PhD, FGS

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Career Outline

- Employment:**
- 1990 – present: Cambridge Carbonates Ltd., UK:** Consultant sedimentologist and director, working on proprietary and multi-client projects.
 - 1985 – 1990: Thames Polytechnic:** Senior lecturer.
 - 1983 – 1985: Britoil, UK:** Production geologist; wellsite geologist; regional exploration.
- Core skills:**
- Carbonate sedimentology, sequence stratigraphic and diagenetic expertise.
 - Regional knowledge of Mediterranean, Middle East, Mexican and SE Asia carbonate reservoirs.
 - Key experience in Palaeozoic carbonates and evaporite systems.
 - Skilled interpreter of karst, breccia and fracture systems in carbonates.
- Education:**
- 1979 – 1983:** Ph.D.: Sedimentology of the Eyam Limestone Formation (Dinantian), Derbyshire and the origin of carbonate mud mounds. (*Manchester University*).
 - 1976 – 1979:** B.Sc. (Hons.) Geological Sciences (*Leeds University*)

Professional Experience

1990 – present: Geologist and Director, Cambridge Carbonates Ltd., UK.

- Director responsible for carbonate studies mainly applied to exploration programs involving sequence stratigraphy, core logging, microfacies and diagenetic studies and internal and external training.
- Carbonate exploration studies: Exploration experience covers the whole range of Palaeozoic, Mesozoic and Tertiary carbonate systems using thin section, core, wireline log, outcrop, to seismic-scale data. These studies have been aimed at assessing new venture opportunities, the assessment of acreage using outcrop and sub-surface data and the study of outcrops as play analogues to analyse different elements of geological risk in play types. Experience includes:
 - Re-evaluation of the Cretaceous sequence stratigraphy of NE Syria leading to the development of new exploration plays.
 - Routine description of data from exploration wells including core logging and microfacies studies of cuttings and SWCs. Integration of this data with log, biostratigraphic and seismic data to incorporate new data into regional geological models. Studies include Mesozoic and Palaeozoic carbonates from the Middle East, UKCS and onshore Netherlands.
 - Studies of a wide variety of karst plays and reservoirs using core, log response, drilling data and outcrop. These are aimed at recognising karst reservoirs and plays in carbonates. Karst systems studied include Dinantian carbonates of the UKCS and Netherlands. Cretaceous karst systems in Syria, Mesozoic carbonates in Mexico. Also quantitative studies on outcropping Cretaceous karst systems in Italy and sub-surface Palaeozoic karst in the Ukraine.
 - Assessment of exploration in the central and offshore Sirte Basin identifying late Cretaceous, Palaeocene and Eocene carbonate plays.

- Hydrocarbon assessment of the Pre-Cambrian to Tertiary of NE Libya; regional review of sedimentology, biostratigraphy and sequence stratigraphy of the Jabal al Ahkdar and adjacent areas of the Sirte Basin. A seismic stratigraphic study integrated with well and outcrop microfacies data was carried out on the Upper Cretaceous to Eocene carbonates of the offshore Benghazi area as part of a licence bid.
- Exploration potential of carbonate systems in the Middle East including Pre-Cambrian dolomites and Cretaceous carbonates in Oman, upper Palaeozoic of Syria and Cretaceous carbonates of UAE. These studies involved various approaches such as studies of microfacies and well log data, diagenetic studies to determine migration and structuring histories and sequence stratigraphy.
- Identifying karst, dolomite and matrix porosity plays in Dinantian carbonates of the onshore UK, southern North Sea and onshore Netherlands areas.
- A regional study of core data from wells in offshore SE Mexico to identify exploration leads in Cretaceous carbonate breccias and platform carbonates and the interaction between mobile salt systems and carbonate reservoir development.
- Carbonate reservoir studies: Projects undertaken range from advising on production-sharing and farm-in opportunities to fully integrated reservoir studies that produce static and dynamic models and to solve production problems including:
 - Microfacies analysis of pre-salt carbonates offshore Brazil.
 - Description of Cretaceous and Palaeogene carbonate reservoirs (Kotla, Gialo, Intisar fields) from the Sirte Basin, Libya, this involved describing and integrating core, cuttings and log data to produce static reservoir models for dynamic modelling.
 - Carbonate fields associated with growing salt structures including the Bermudez complex, Iris, Giraldas and Puerto Ceiba. This required the development of new sedimentological models to take account of the sedimentological and structural effects of syn-sedimentary and post-depositional movement of salt.
 - Detailed core and microfacies study to interpret the distribution and controls on the reservoir quality of Zechstein platform carbonates and carbonates associated with salt withdrawal structures, Poland.
 - Jurassic oolitic fields of the Mexican Gulf coast including studies of the Sihil, San Andres and Taumalipas-Constituciones fields, by integrating sedimentological interpretation of core and with log-based sequence stratigraphy to build static models for field re-activation, placement of development wells and water injection.
 - Modelling of carbonate breccia reservoirs including Zechstein collapse breccias in the Argyll field (North Sea) for the Ardmore re-development using core, thin section and wireline log data and information on drilling behaviour, mud losses and production data. Description of karst and brecciated Cretaceous carbonate reservoirs of the Cantarell field, offshore and onshore SE Mexico. In these studies, fluid inclusions were used to determine conditions of porosity preservation and oil migration within the reservoir. Macro- and matrix pore systems were characterised by image analysis and rock properties were mapped to produce unit cell data for modelling.
 - Solving production problems by using diagenetic studies; e.g. gas flow rates in Zechstein dolomites in the Dutch North Sea are related to burial dissolution.
 - On-going appraisal of Ukraine gas field by logging of carbonate and siliciclastic reservoirs in appraisal wells and up-dating sedimentological and stratigraphic model of the reservoir.
 - Defining matrix and macropore systems and reservoir flow unit architecture in collapse, karst breccia and fractured carbonate systems by studying outcrop, core, logs and production behaviour. E.g. Mesozoic carbonate breccias and hydrothermally fractured Jurassic dolomite of SE Mexico, Zechstein collapse breccia reservoirs, karstic reservoirs in southern Italy, karst and

hydrothermal fracture systems from the Dinantian of Holland and fractured carbonate – evaporite gas reservoirs in the Middle East.

- Farm-in assessment and reservoir description of fractured cyclic Triassic carbonate-evaporites and Cretaceous carbonates of Syria, UAE and Kuwait. This was based on core description integrated with log-based high resolution sequence stratigraphy. A detailed study of porosity and permeability linked with microfacies and diagenetic studies of the reservoir to understand fluid contacts and production behaviour of the reservoirs. Farm-in assessment and reservoir description of fractured cyclic Triassic carbonate-evaporites and Cretaceous carbonates of Syria, UAE and Kuwait. This was based on core description integrated with log-based high resolution sequence stratigraphy. A detailed study of porosity and permeability linked with microfacies and diagenetic studies of the reservoir to understand fluid contacts and production behaviour of the reservoirs.

1985 – 1990 Senior Lecturer, Thames Polytechnic

- Taught first degree and MSc courses on sedimentology, petroleum geology, petrophysics, basin development and stratigraphy.
- Research on Dinantian carbonate platform evolution, sequence stratigraphy and carbonate facies in the UK.

1983 – 1985 Geologist and Sedimentologist Britoil

- Undertook various projects on the UKCS. These included production geology of the middle Jurassic Thistle Field, reservoir description of the Upper Jurassic Ettrick field.
- Well site geologist of exploration and appraisal wells.

Professional Affiliations

Active member of:

- Geological Society of London
- American Association of Petroleum Geologists
- Society of Petroleum Engineers
- International Association of Sedimentologists

Other relevant skills

Basic Spanish.