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, south Atlantic margins 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 external training.
- Experience in software includes Petrel, CoreCAD, Petrog and ArcGIS.
- 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:
  - Evaluation of exploration wells worldwide including core logging and microfacies studies of cuttings, SWCs and integration of log and FMI data.
  - Regional studies using sedimentological data, log-based sequence stratigraphy, biostratigraphic and seismic data to incorporate new data into regional geological models. Studies include Mesozoic and Palaeozoic carbonates from Kuwait, Norwegian and Russian Barents Shelf, NW Syria, UKCS, the and an assessment of the hydrocarbon potential from the Pre-Cambrian to Tertiary of NE Libya.
  - 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 late Palaeozoic carbonates of the UKCS, Netherlands and the Barents Shelf. 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.

  - 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.
  - Carbonate – salt systems: including a regional study of well and seismic data from SE Mexico to evaluate the interaction between mobile salt systems and carbonate reservoirs in Jurassic dolomite and Cretaceous carbonate breccias and platform carbonates. Controls on sedimentology, cyclicity and reservoir development by syn-depositional salt movement and mixed clastic-carbonate systems, offshore Congo. Distribution and controls on the reservoir quality of carbonates associated with salt withdrawal and rafted carbonates from Poland, Oman and the North Sea.
  - Lacustrine carbonate systems: extensive microfacies analysis of pre-salt carbonates from both sides of the south Atlantic margins including the development of sedimentary facies and diagenetic models and review of lake sedimentology.

- 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:
  - 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.
  - 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.
  - Description 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, 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 including fluid inclusions, isotopic studies e.g. gas flow rates in Zechstein dolomites in the Dutch North Sea are related to burial dissolution.
  - 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 and stratigraphy.
- Research on Dinantian carbonate platforms their sequence stratigraphy and carbonate facies.

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

Other relevant skills

Basic Spanish.