

Jon Bouch Ph.D.

Consultant Geologist

March 2007 - Present



Jon is an experienced fracture and diagenetic mineralogist and petrologist with experience in reservoir geology, mineral deposit geology, palaeohydrogeological studies and mudrock fabric evaluation. He has a wide range of analytical experience that can be brought to bear on your diagenetic problems including SEM analysis, fluid inclusion microthermometric analysis, image analysis (including automation of image acquisition and processing), electron microprobe analysis and cathodoluminescence microscopy. He also has experience interpreting and integrating QEMSCAN data with other more traditional petrographical and reservoir quality data. Finally, Jon has wide experience in assimilating and re-interpreting "legacy" petrographical and reservoir quality datasets from diverse sources.

Petrographical and reservoir quality experience includes:

Western Europe

- Forties Sandstone Member (Paleocene), Nelson Field
- Paleocene of the NCS (Voring Basin)
- Lower Cretaceous of the Victory Field
- "Deep" Brent, CNS
- Jurassic of Bruce, Magnus, Jordbaer (Knarr) and Buzzard Fields
- Skaggerack Formation, CNS
- Carboniferous and Rotliegend sediments, Southern North Sea
- Upper Carboniferous of the Emsland Area, north western Germany
- Devonian and Cretaceous sediments, Clair Field
- Devonian sediments, Buchan Field
- Caprocks from St Georges Channel Basin, Irish Sea

Eastern Europe

- Shah Deniz Field and Greater ACG region, Caspian Sea
- Burun Field, Turkmenistan

Africa

- Cambrian, Ordovician and Devonian of Algeria (various Fields)
- Oligocene intervals of Angola (various Fields)
- Oligocene sediments, offshore Egypt
- Cretaceous of the Ombena Field, Gabon

Middle-East

- Shiranish, Kometan and Sarmord Limestones from Kurdistan (pore image analysis of very fine grained limestones)
- Jauf Formation sandstones from Hawiyah, Shedgum and Uthmaniyah Fields, Saudi Arabia
- Gharif Formation Clays, Sultanate of Oman
- Miqrat, Barik and Amin Formations (various fields), Sultanate of Oman
- Mahwis Formation of the Marmul Field, Sultanate of Oman

Other

- Badin and Mirpur Khas area, Pakistan

Other experience includes:

- Numerous "small" fluid inclusion microthermometric projects (various field / wells / regions)
- Characterisation of modern sediments from the English Channel
- Fluid inclusion and stable isotope analysis of matrix and fracture calcite in the Clair Field
- Fluid inclusion and compaction analysis of quartz cemented sandstones from Algeria
- Fluid inclusions in quartz cements from the Ghadames Basin, Libya
- Fluid inclusions in basement fractures in the Luno Area, CNS
- Fluid inclusions in cements in the Lunde Formation, block 6201, NCS
- Permo-Triassic sandstones of the UK West Midlands
- Mineral cements in fractures as indicators of palaeohydrogeological conditions (Dounreay, Sellafeld (UK), Laxemar (Sweden), Horonobe and Mizunami (Japan))
- Rare earth element geochemistry and behaviour heavy minerals during diagenesis
- Unconformity-related gold mineralisation in SW England
- Stratabound mineralisation in the Pennines
- Alkali-groundwater - rock interactions
- Caithness Flagstone petrography, northern Scotland
- Petrography of the Lias Group, the London Clay Formation and the Weald Clay Formation, onshore UK from an engineering geology perspective
- Development of methodologies for automated quantitative analysis of mudstone fabrics, and anthropogenic dusts using scanning electron microscopy and image analysis

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Previous professional experience and education

Dec 00 – March 07: Senior Scientific Officer at British Geological Survey. Diagenetic and fracture petrologist with experience of petrographic, diagenetic and pore system analysis. Work focussed upon the application of petrographical data to determine fluid and pore-system evolution during clastic and carbonate sediment diagenesis and the impact of fractures on these processes, within the context of hydrocarbon reservoir studies, palaeohydrogeology (safety assessment of potential deep nuclear waste repositories), engineering geology, aquifer protection and metalliferous mineral deposits. Led the development of image analysis techniques to quantify mudrock fabrics. Manager of petrographical and electron beam laboratories.

Feb 97 – Dec 00: Reservoir Geologist at Badley Ashton and Associates Limited. Primarily working on clastic diagenesis, authigenic mineral chemistry, and reservoir quality evaluation and prediction projects. This included work on a wide range of reservoirs including various stratigraphies within the UK, Oman, Algeria and the Caspian regions. Responsible for development of in-house software, databases and digital atlases, and the day to day running of scanning electron microscope facilities.

Sept 93 – Sept 96: Ph.D. “Trace Element Geochemistry of Authigenic Heavy Minerals in Sandstone Reservoirs”: University of Aberdeen. Microbeam analysis of diagenetic titanite and apatite revealed trace element variations at several scales. As well as testing assumptions of absolute REE immobility during diagenesis, this work increased the understanding of kinetic controls on trace element partitioning and advanced a tool for geochemical correlation.

1990-1993 B.Sc. (1st Class Hons): Geochemistry, University of Manchester

Publications:

WELLS M, HIRST P, **BOUCH J**, and WHEAR E. *in press* Reservoir Quality controls in Ordovician Glacial deposits, Illizi Basin, Algeria. *Geological Society, London, Special Publication*.

LUSTY PAJ, NADEN J, **BOUCH JE**, MCKERVEY JA, and MCFARLANE JAS 2011 Atypical gold mineralization in an orogenic setting : the Bohau Deposit, western Irish Caledonides. *Economic Geology*, 106 (3). 359-380.

LUSTY PAJ, NADEN J, **BOUCH JE**, MCKERVEY JA, and MCFARLANE JAS 2007 Gold mineralization associated with low temperature basinal brines in Connemara, western Ireland. In: Andrew, C.J., (ed.) Digging deeper: proceedings of the ninth biennial Meeting of the Society for Geology Applied to Mineral Deposits, Dublin, Ireland 20th-23rd August 2007. *Dublin, Ireland, Irish Association for Economic Geology*, 613-616.

CLARKE ML, MILODOWSKI AE, **BOUCH JE**, LENG MJ and NORTHMORE K 2007 Pulsed Late Glacial dust accretion in SE England: OSL dating of Kentish brickearth and climate implications. *Journal of Quaternary Science*. 22:361-371.

BOUCH JE, NADEN J, SHEPHERD TJ, MCKERVEY JA, YOUNG B, BENHAM AJ and SLOANE HJ 2006 Direct evidence of fluid mixing in the formation of stratabound Pb-Zn-Ba-F mineralisation in the Alston Block, North Pennine Orefield (England). *Mineralium Deposita*. 41:821-835.

BOUCH JE HOUGH E, KEMP SJ, MCKERVEY JA, WILLIAMS GM and GRESWELL RB 2006 Sedimentary and diagenetic environments of the Wildmoor Sandstone Formation (United Kingdom): implications for groundwater and contaminant transport and sand production. In: TELLAM, J.H. and BARKER, R.D. (eds) Fluid flow and solvent transport in Sandstones: the Onshore UK Permo-Triassic Red Bed Sequence. *Geological Society, London, Special Publications*, 263:129-153.

SHEPHERD TJ, **BOUCH JE**, GUNN AG, MCKERVEY JA, NADEN J, SCRIVENER RC, STYLES MR, and LARGE DE 2005 Permo-Triassic unconformity-related gold-palladium mineralization, South Devon, UK : new insights and the European perspective. *Mineralium Deposita*, 40:24-44.

KEMP SJ, MERRIMAN R and **BOUCH JE** 2005 The mineralogy and maturity of Lias Group mudstones from England and Wales. *Clay Minerals*, 40:43-61.

BOUCH JE, 2005 2DTraC: An Excel Add-In for 2D spatial transformations with applications in microscopy and microanalysis. *Computers and Geosciences*, 31:277-281.

BOUCH JE, MILODOWSKI A.E. and AMBROSE K. 2004 Dolomitisation, Fracturing and Pore-Systems in Dinantian Carbonates from Leicestershire, South Derbyshire and West Cumbria, UK. In BRAITHWAITE, C.J.R., RIZZI, G. and DARKE, G. (eds). *The Geometry and Petrogenesis of Dolomite Hydrocarbon Reservoirs*. *Geological Society of London, Special Publication*, 235:325-348.

BOUCH JE, HOLE MJ, TREWIN NH, CHENERY S and MORTON AC 2002 Authigenic apatite in a fluvial sandstone sequence: evidence for rare-earth element mobility during diagenesis and a tool for diagenetic correlation. *Journal of Sedimentary Research*, 72:63-71.

PRESTON J, HOLE MJ, **BOUCH JE**, and STILL J 1998 The occurrence of zirconian aegirine and calcic catapleiite (CaZrSi₃O₉.2H₂O) within a nepheline syenite, British Tertiary Igneous Province. *Scottish Journal of Geology*, 34:173-180.

BOUCH JE, HOLE MJ and TREWIN NH 1997 Rare earth and high field strength element partitioning behaviour in diagenetically precipitated titanites. *Neues Jahrbuch fur Mineralogie Abhandlungen*, 172:3-21.

BOUCH JE, HOLE MJ, TREWIN NH and MORTON A 1995 Low temperature aqueous mobility of the rare earth elements during sandstone diagenesis. *Journal of the Geological Society of London*, 152:895-898.