



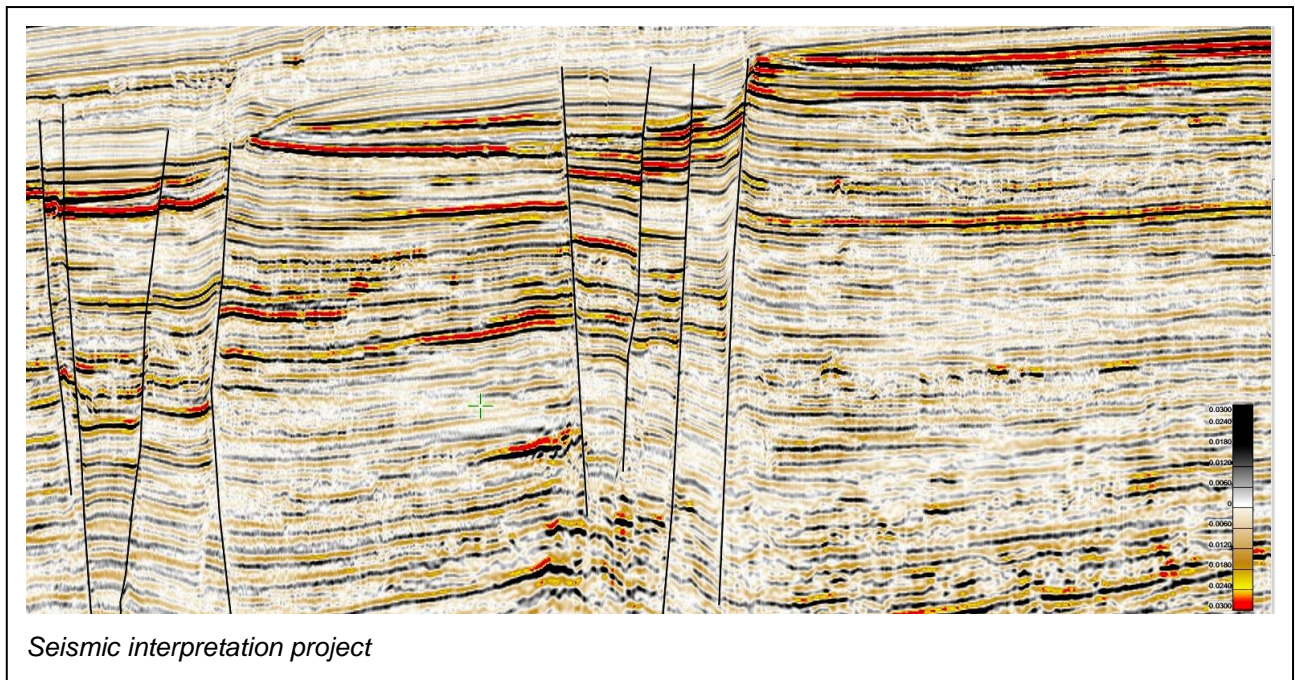
**Nubian Consulting Ltd.**  
Geoscience Consultancy

**Capabilities in Seismic Interpretation, Stratigraphic and  
Well Correlations Studies**

Nubian Consulting Limited  
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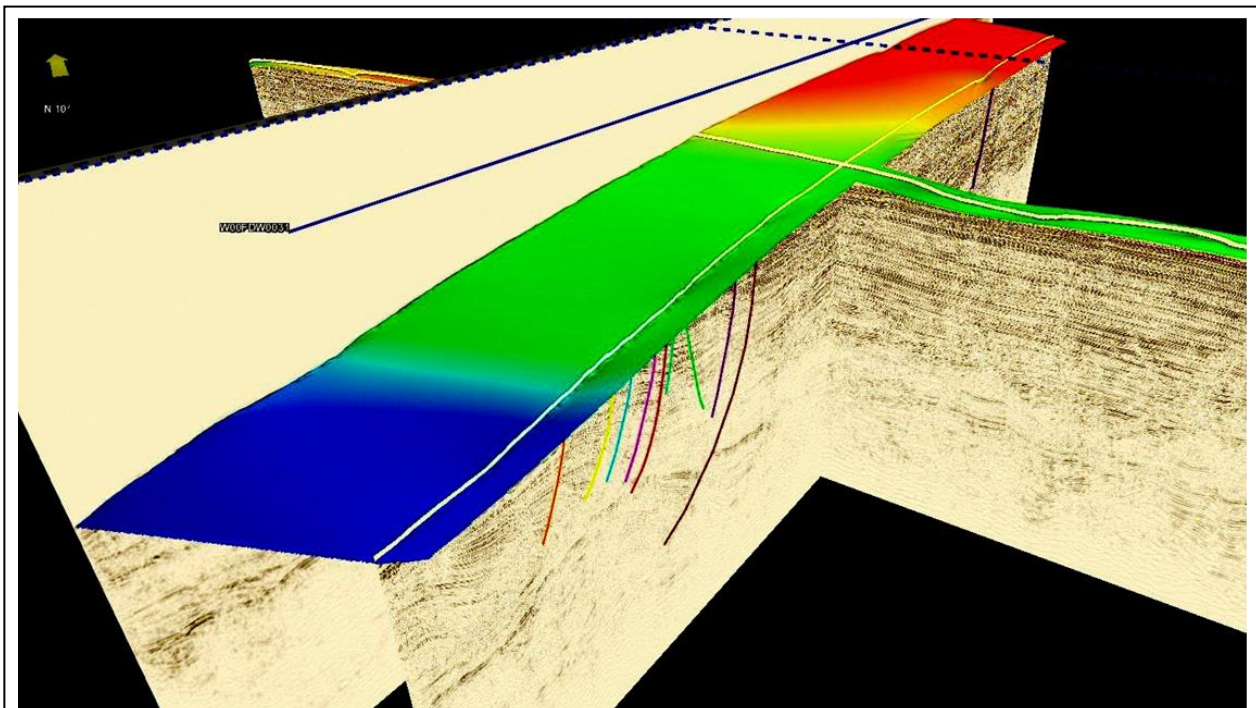
## The Staff and Associates of Nubian Consulting

The Staff and Associates of Nubian Consulting bring together a formidable range of expertise and skills in different aspects of geoscience, all thoroughly rooted in sound geological knowledge. In particular we are equipped to undertake well correlation and seismic interpretation and mapping projects on data anywhere in the world. Through our Associates we are also in a position to provide well log interpretation amongst other skills. Our projects may be working with data provided by the client or, occasionally, on data researched and sourced by us for the client. The wide range of disciplines of our dynamic team of Consultants and Associates includes significant experience in training, something we have put to good use in assisting clients build expertise amongst their own staff.



Services and competencies of the company:

- o **Petroleum System analysis**
- o **Play Fairway analysis**
- o **Facies and palaeogeographic analysis**
- o **Sedimentological studies of reservoirs**
- o **Stratigraphic analysis**
- o **Seismic interpretation**
- o **Well correlations**
- o **Integrated well and seismic correlations**
- o **Volumetric and probabilistic reserves estimation**
- o **Integrated field studies**
- o **EOR potential studies**
- o **Prospect Appraisal**
- o **Acreage assessments for licence rounds**
- o **Outcrop field mapping**
- o **Unconventional resources; shale gas, shale oil potential**
- o **Training courses**



*Seismic interpretation 3D view*

Principal staff of Nubian Consulting include:

**Danny Clark-Lowes (Principal Consultant)**

- Cambridge and London Universities; Ph D geologist
- founder of Nubian Consulting
- editor of 'Petroleum Geology of North Africa (1998), Geol Soc Sp Pub 132'
- author of numerous academic publications on petroleum geology
- tutor on the much-acclaimed PESGB training course on the petroleum geology of North Africa, 2010 and 2013, planned to be biennial; also HOT and Nautilus training courses on Play Fairway Analysis, Petroleum Systems and Prospect Evaluation
- previously with Anglo Siberian (Technical Director), Shell, Charterhouse Petroleum, Scott Pickford and BGS

**Johannes Sobotzki (Geoscience Interpreter)**

- Aberdeen University - BSc and MSc
- completed BSc (class 2-1) and MSc (Integrated Petroleum Geosciences); was awarded the BP prize in Excellence in Geology in his 2nd year and the Mitchell Prize in Geology in his 3rd year
- joined Nubian Consulting in 2012 as a Staff Geoscientist experienced in workstation seismic interpretation

**Simon Adams (Geoscience Interpreter)**

- Leeds University - BSc (Hons)
- completed Bachelor's degree with distinction
- working as Staff Geoscientist with Nubian Consulting since 2012, primarily on ArcGIS

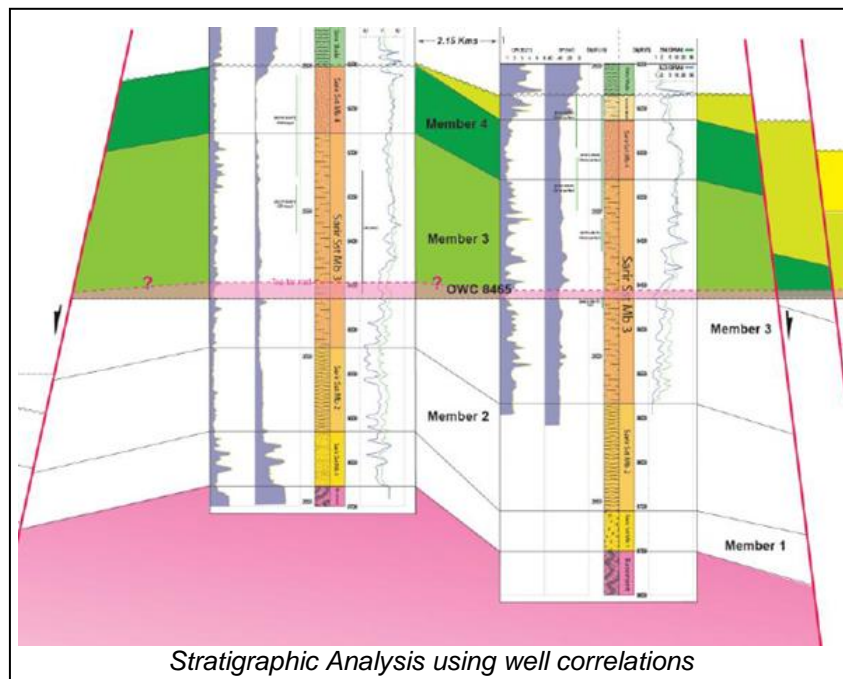
**Naveen Anandakumar (Researcher and Geoscience Interpreter)**

- Cambridge University, London Metropolitan University and Cardiff University (MSc)
- Completed MSc in Engineering Geology / Civil Engineering, with a Distinction in Environmental Hydraulics, Water Quality Control and Advanced Engineering Management, and was given the RIBA/WCCA Research Scholarship in 2011 for his research into groundwater behaviour in rapidly urbanising coastal regions.
- Joined Nubian Consulting in 2012 as a researcher and technical expert experienced in ESRI’s ArcGIS Online.
- Trained in seismic interpretation using DUG software.

**Julie Richardson (Associate Project Geoscientist)**

- Edinburgh and Oxford Universities; D Phil geoscientist previously with BP in UK and China (1980-1987)
- Earth Sciences tutor with the Open University (1990-1994)
- With Nubian Consulting since 2009

Detailed CVs are given in the following pages.



## **Daniel Clark-Lowes**

### **Degrees:**

- B.A. Natural Sciences (Geology), Cambridge University, 1974.
- M.A. awarded in 1977.
- Ph.D. and D.I.C. in Geology, Imperial College, London University, 1985.  
Thesis Title: "Aspects of Palaeozoic Cratonic Sedimentation in Southwest Libya and Saudi Arabia".

### **Skills:**

- Project management
- Regional geological synthesis
- Petroleum System Analysis
- The 'Geology of the Oil and Gas Field'
- Play Fairway Analysis
- Prospect Appraisal and Reserves Estimation
- Well correlations
- Training

### ***2003 to present* Nubian Consulting – Principal Consultant and Founder**

Managing all aspects of the business of Nubian Consulting Limited.

Since 2006 prepared and marketed non-exclusive Oil and Gas Fields Atlas of Libya; completed first edition in 2008 with a GIS version completed in 2010. A completely new online atlas completed in 2013.

Undertook numerous contracts mainly focussed on North Africa and the Mediterranean for large and small IOCs.

During 2003-6, when Libya announced its First and Second EPSA IV licence rounds, prepared a highly successful non-exclusive prospectivity report on the Murzuq basin, Libya ('Petroleum System and Play Fairway Analysis of the Murzuq Basin, Southwest Libya'), a joint project with David Boote Consulting.

During 2009/10 participated in a training programme in Libya, giving various courses including the very popular 'Petroleum Systems of Libya and North Africa'. Also delivered 'Play Fairway Analysis and Prospect Appraisal' (using Wessex Basin example) to petroleum geologists in Algeria, Libya, Argentina and Abu Dhabi. In 2010 and again in 2013 was one of the group of tutors giving the much-acclaimed PESGB training course on the petroleum geology of North Africa, after 2013 planned to be biennial.

### **1993 – 2003 Freelance Consultancy / Technical Director ASOC**

Consultancy advice was provided to **Anglo Siberian Oil Company plc** (ASOC) on a regular basis from 1993 to 2003 covering exploration, appraisal and field development geology of Russia. **Technical Director from 1998 to 2003.**

In addition, contracts were undertaken for PA Resources on the company's assets in Tunisia, Svalbard and Texas; with Occidental, Hunt Oil and with Diamond Oil on Afghanistan.

Course Director on MSc Course in Stratigraphy at Birkbeck College Geology Department, London University (1993/4). Focused on sequence stratigraphy and its application in industry. Field Trip Leader Southern Pyrenees.

Research Fellow and part-time lecturer on the Petroleum Geology MSc class at Imperial College Geology Department, London University (1993 - 1996). In 1995 organised a Geological Society conference on the "Petroleum Geology of North Africa", the proceedings of which were subsequently published as Geological Society Special Publication No. 132 (Eds. D. S. Macgregor, R. T. J. Moody and D. D. Clark-Lowes) in 1998. Published, with David Boote, a major review of the Palaeozoic basins of North Africa in this volume (see below).

### **1985 – 1993 Scott Pickford plc - Director New Ventures**

Director responsible for production of regional prospectivity reports including four non-exclusive reports on petroleum exploration potential of Tunisia, Libya, Egypt and Pakistan; also production of three large-scale non-exclusive reports and atlases on the petroleum geology of regions on a part-continent scale, including North Africa, the Indian sub-continent, and the Southern CIS (Former Soviet Union). Bid preparation, negotiation and project management of a contract with the Tunisian government, supported by a World Bank loan, to assist the national oil enterprise to evaluate and promote the petroleum potential of its acreage onshore and offshore - two year contract worth £1 million. Consultancy advice to Sonatrach, Algeria.

From 1987 to 1993, lectured each year to the MSc course at Royal Holloway and Bedford New College on "Basin Evolution and Dynamics", main contribution being case studies of basin analysis/petroleum evaluation and prospect risk analysis.

### **1982 – 1985 Charterhouse Petroleum plc – Chief Geologist**

Chief Geologist, responsible for the company's geological work and for geological contracts throughout the UKCS, Ireland and Netherlands. Undertook regional hydrocarbon studies of a number of areas, generally in the context of licence round acreage evaluations. Supervised seismic and drilling exploration in three operated blocks.

**1981 – 1982 Institute of Geological Sciences (now British Geological Survey), Hydrocarbons Unit (Continental Shelf Division) - Senior Scientific Officer**

Project manager of team responsible for seismic mapping and geological appraisal of North Sea petroleum provinces.

**1980 – 1981 Imperial College, London – Research Fellow**

Field study of the Palaeozoic succession of Buraydah, Saudi Arabia, with the 'Imperial College Saudi Arabian Cover Rock Project; results presented at a Penrose Research Conference of SEPM in the USA (Dott & Byers, 1981); a NERC grant funded this Ph.D. write-up period.

**1978 – 1979 Occidental Oil Company of Libya – Consultant Geologist**

Prepared a report "Hydrocarbon Potential of the Murzuq Basin (SW Libya)"; included subsurface geology and petrographic / SEM study.

**1977 – 1978 Libyan National Oil Corporation (NOC) – Research Geologist and Lecturer**

Oil industry supported Ph.D. research project at Imperial College working in Libya with NOC. Undertook field work in southwest Libya's Palaeozoic Murzuq Basin and subsurface geology in Tripoli. Also part-time geology lecturer at the University of Al Fateh, Tripoli.

**1974 – 1977 Shell International Petroleum Company – Exploration Geologist**

Three months training in petroleum geology in Holland. Exploration geologist in Botswana, Southern Africa. Responsible for field geology, core description, photogeology, correlation of wire-line logs and facies analysis in Botswana Karoo basin.

**Relevant past position:**

Member of the committee of the Petroleum Group of the Geological Society of London (1991 – 1996).

**Professional affiliations:**

Fellow/member of AAPG, EAGE, PESGB, Geol.Soc.London, Geol.Assoc., RGS and Soc.Libyan Studies.



## Johannes Sobotzki

### **Work experience as Geoscientist at Nubian Consulting 2012 – 2013**

#### **Projects:**

- Worked on Messlah Field study on behalf of a major Japanese oil company (2012 / 2013)
- Worked on a review of Lebanon offshore licence round acreage for IOC
- Involved in setup and marketing of Nubian Consulting's Online Atlas of Libya on ArcGIS

Work involved creating cross sections, structure maps, well correlation panels, facies and paleogeographic maps, reserves estimates for fields in Libya. Gained experience with the following software: Adobe Illustrator, ArcGIS, Opendtect and DUG Insight.

#### **Education:**

2011 – 2012

#### **University of Aberdeen, MSc Integrated Petroleum Geoscience**

Curriculum included: Petrophysics, Geophysics, Petroleum Sedimentology, Sedimentology Core Workshop, Production Geology, Regional Exploration, Case studies, Structural Geology, Operations Geology, Frontier Basins & Prospecting, Schlumberger Petrel Course, Professional Skills and International Field trips: Utah, Sicily; **3 month Individual Project with CNR International:** A probabilistic STOIP analysis of the Kossipo Discovery, Cote D'Ivoire

2008 – 2011

#### **University of Aberdeen, BSc (Hons) Geology and Petroleum Geology**

Degree classification: 2 (1)  
Curriculum included: Applied Sedimentology, Petroleum Geology, Structural Geology, Basin Analysis, Field Work, **Geological Map project:** Geological Field Study of Central Raasay, **Geological Research project:** Interpretation of sedimentary structures from 3-D seismic on the lower Niger Delta slope

2007 – 2008

**Universität Bremen, Bremen Germany**, one year study of BSc Geosciences; modules included: Maths, Physics, Chemistry, Sedimentology, Palaeontology, Crystallography, Data processing (GIS) and Technical English, fieldwork was also a compulsory part

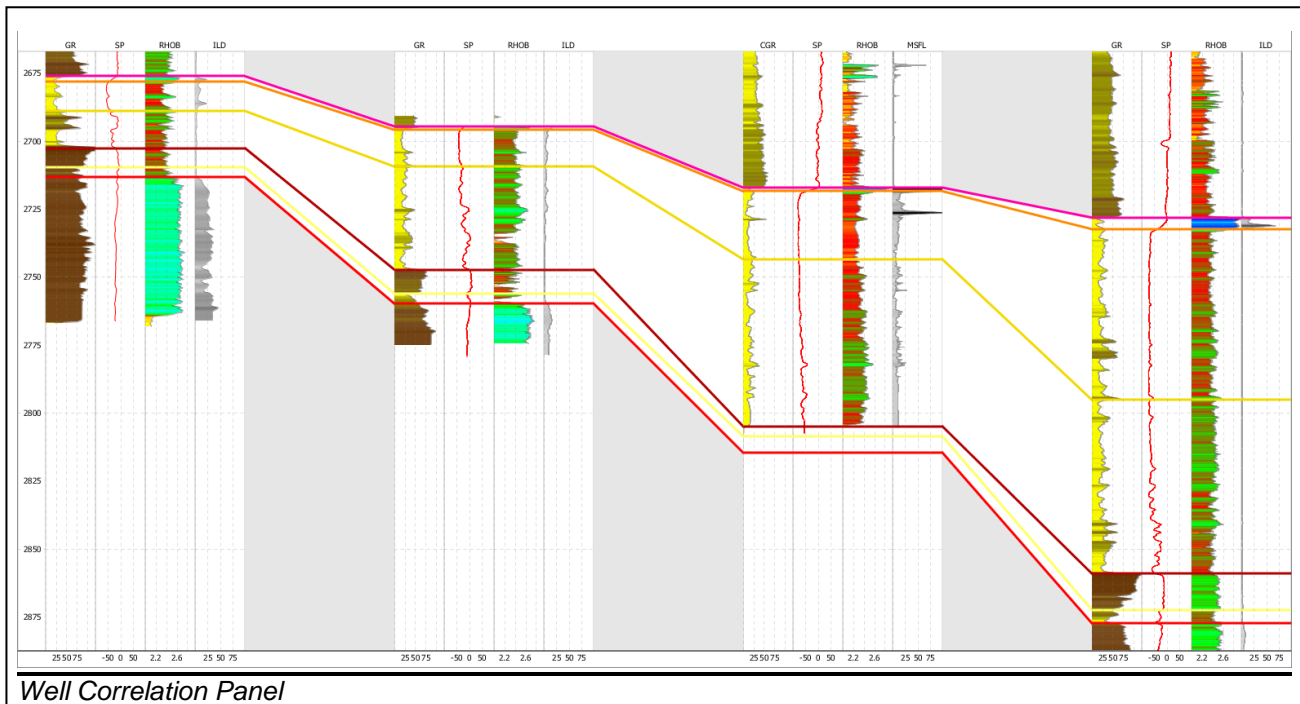
**Interests, skills & awards:**

IT: Seismic interpretation and well correlation software - Down Under Geosolutions (DUG Insight), Kingdom Suite, Opendtect and SVIPro. Also Microsoft Office programs, Corel, various GIS software products (including ArcGIS), Adobe Illustrator and Schlumberger's Petrel software.

Awards: At undergraduate level Johannes was awarded the **BP Prize** in Excellence in Geology in 2nd year and the **Mitchell Prize** in Geology in 3rd year based on his academic performance. At MSc level, his team was the recipient of the "**Chevron Exercise Best Team Prize**". As part of a team, he represented the University of Aberdeen at the 2012 **AAPG Imperial Barrel Award regional final** in Prague.

Professional Memberships: Johannes is a member of the Aberdeen Geological Society, the American Association of Petroleum Geologists as well as the Petroleum Exploration Society of Great Britain and attends and participates in lectures and courses offered.

Languages: Johannes is a native speaker of German and speaks and writes English fluently. He has some ability in Spanish and in Hungarian.



## **Simon Adams**

### **Work experience as Geoscientist at Nubian Consulting 2012 – 2013**

#### **Projects:**

Input to large projects for several IOCs, including correlation panels, structure maps, facies maps, reserves estimates etc.

- Sarir Field reservoir and EOR study on behalf of a major Japanese oil company (2012)
- Study of the Sarir Sandstone stratigraphic trap play on behalf of a major Chinese oil company (2012)
- Messlah Field study on behalf of a major Japanese oil company (2012 / 2013)
- Review Antelat and four other Libyan Oil Fields on behalf of a UK investment bank (2012)

Work included: attending presentations of projects to clients and attending exhibitions and conferences; editing and updating large map packages and placing projects into Esri's ArcGIS online platform; marketing activities

#### **Education:**

2013	<b>PESGB North Africa Training Course</b>
2009 – 2012	<b>University of Leeds, BSc in Geology 2 (1) with distinction.</b>
2008 – 2009	<b>Gap year:</b> Full time work as a warehouse manager and travelling abroad.
2006 – 2008	<b>Richard Huish College, Somerset</b> A levels: Geology, Physics, Business Studies

#### **IT Skills:**

Experienced in use of Arc GIS mapping software, Adobe Illustrator and DUG Insight. Also Microsoft Word, Excel, PowerPoint, Publisher and CorelDraw.

## **Naveen Anandakumar**

### **Work experience as Researcher and Technical Expert at Nubian Consulting 2012-2013:**

Technical development of Oil and Gas Atlas of Libya on ArcGIS Online, developing geoscience technical skills including cross section construction and seismic interpretation capabilities.

### **Education:**

2012 – 2013

#### **Cardiff University, MSc Civil Engineering**

Distinction in Environmental Hydraulics, Water Quality Control and Advanced Engineering Management. Other Modules included: Engineering Geology, Numerical Techniques in Civil Engineering, Steel Structures, Fundamentals of Nanomechanics, Advanced Structural Mechanics, Advanced Concrete Materials and Structures.

Dissertation title – ‘Coastal Groundwater Modelling: A case study of Kattankudy in Eastern Sri Lanka’: The analysis sought to analyse traditional and recent techniques in modelling and understanding tidal behaviour, and how these methods of analysis result in variations in calculated safe-bearing capacity of the soil - a critical parameter in assessing a region's capability for construction development in rapidly urbanizing coastal regions. Results were validated using 'Visual MODFLOW', where a 2D section was used to test scenarios which included domestic well usage, industrial well usage, with the modelling of saltwater intrusion and seepage face behaviour.

2010 – 2012

#### **London Metropolitan University, Professional Diploma Architecture**

2006 – 2009

#### **University of Cambridge, BA (Hons) Architecture**

### **Interests, skills & awards:**

IT: Visual MODFLOW. Also Microsoft Office programmes, various GIS software products (including ArcGIS), Adobe Creative Suite, AutoCAD and DUG Insight.

Awards: RIBA (Royal Institute of British Architects)/ WCCA (Worshipful Company of Chartered Architects) Research Scholarship in 2011.

## **Julie Richardson (nee Bloomer)**

### **Degrees:**

- **Edinburgh University** 1971 – 1975 BSc (2:1) Geophysics
- **Oxford University** 1976 – 1980 D.Phil. (Earth Sciences)

### **Skills**

- Mathematical geology
- Geophysics
- Basin modelling.

**2009 - Present** Nubian Consulting Associate working on regional prospectivity, analysing data from Libyan oil fields and unconventional potential of Libya

**1995 - 1998** Computer Consultant

**1990 - 1994** Open University 1st, 2nd, 3rd year Earth Sciences Tutor

**1984 - 1987** BP Exploration Guangzhou, People's Republic of China; Senior Geologist working on South China Sea and Hainan exploration prospects: basin modelling, seismic interpretation, prospect development

**1980 - 1985** BP Exploration London; Research Geophysicist: headed group developing basin modelling techniques, in particular the use of temperature histories and structural and depositional backstripping to identify timing of oil and gas generation

**Jan - Apr 1980** Geoffrey Walton Consultants, Charlbury; Geologist

### **Publications**

- Bloomer, J. R., Richardson, S.W. and Oxburgh, E.R., 1979 Heat Flow in Britain: an assessment of the values and their reliability. In 'Terrestrial Heat Flow in Europe', ed. V. Germak and L. Rybach. Springer-Verlag, 293-300
- Bloomer, J.R. and Ward, J. 1979. A semi-automatic field apparatus for the measurement of thermal conductivities of sedimentary rocks. J. hys. E. Sci.