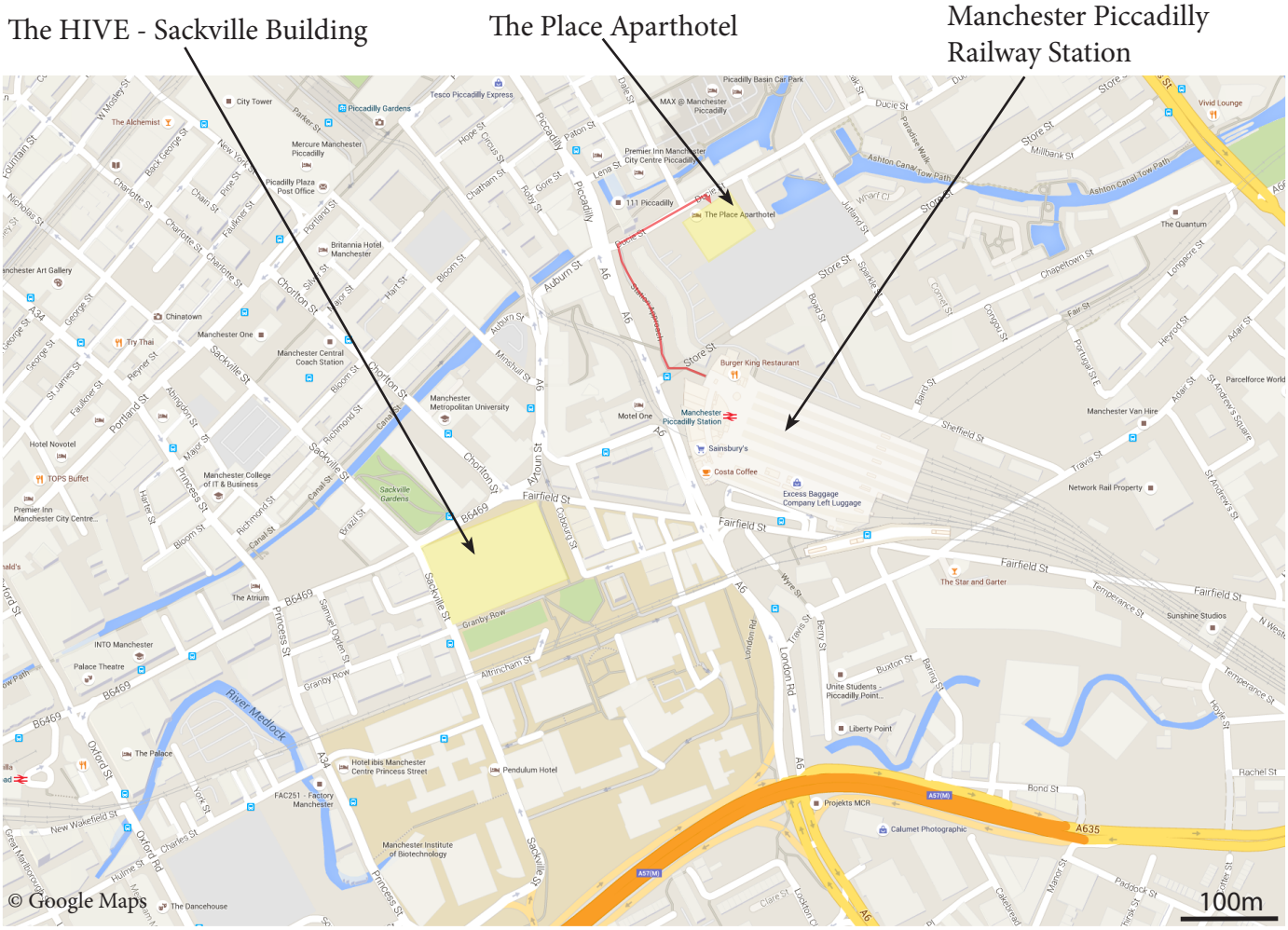
NERC CDT in Oil and Gas
Course Information

Event: **Extending the Life of Mature Basins: University of Manchester**

Date: **Tuesday May 3rd - Wednesday May 11th 2016**

Event Logistics

Please make your way to The Place Aparthotel (not Sackville Street, as initially advertised) for 1pm on Tuesday May 3rd, where you will be met in the hotel reception by Anna Clark. This is a short walk from the main entrance of Manchester Piccadilly Railway Station, shown on the map below.
The Classroom sessions will be held in The HIVE, which is in room C24 of the Sackville Building, Sackville Street. This too is a short walk from the hotel and the train station.



On Friday May 6th you will check out from The Place Aparthotel (although bags can be left in storage at the hotel) and will transfer to The Palace Hotel in Buxton, where you will be based for a 2 day field trip to the Derbyshire Peak District. You will return to Manchester on the evening of Monday May 9th, having been on a day trip to the BGS Core Store in Keyworth, Nottinghamshire.

Please check out of The Place Aparthotel on Wednesday May 11th. The course will finish in The HIVE at 1pm, after which you will be free to depart. Packed lunches will be available.

Accommodation

Tuesday May 3rd - Friday May 6th and Monday May 9th - Wednesday May 11th

The Place Aparthotel
Ducie Street, Manchester
M1 2TP

Tel: 0161 778 7500

(Please see map on previous page for hotel location)

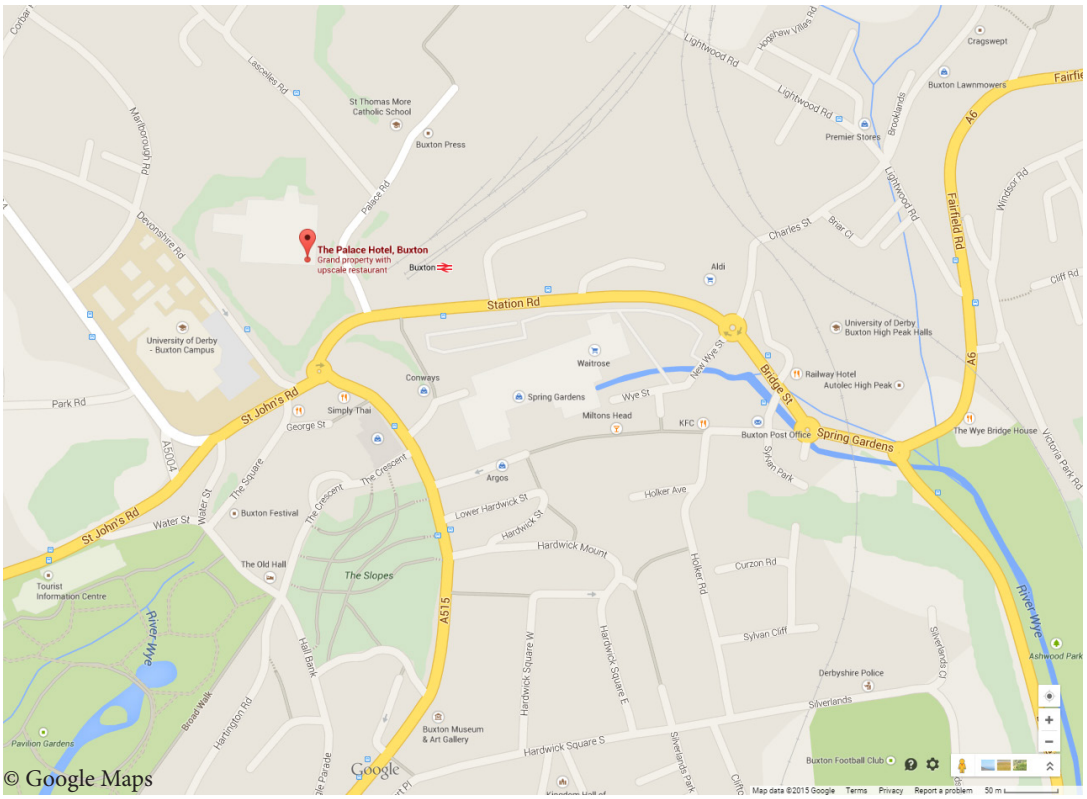
Friday May 6th - Monday May 9th

The Palace Hotel
Palace Road, Buxton
Derbyshire
SK17 6AG

Tel: 01298 22001

(For location, please see map below)

Accomodation will be in shared twin rooms.



For those after a good route to walk or run in Manchester. the Castlefield area, west of Oxford Road and Deansgate Railway Stations, has many waterside pedestrian areas. In Buxton you have the lovely Pavilion Gardens, South-West of the Palace Hotel.

Field Safety Information

It is assumed that you are fit and able to carry out fieldwork in this location. Please be aware of your limits and notify the field safety officer (Anna Clark) or the course tutors if you have any concerns about your personal abilities or wellbeing.

The fieldwork will be **moderately physically demanding**, requiring a basic-good level of fitness. Field locations are fairly easily accessible along rough but established paths, with some steep, lengthy ascents in places.

The longest hike will be approximately 8km in length, with an elevation gain of approximately 225m.

Equipment Required:

Footwear: To be properly equipped for geological fieldwork you need the correct type of footwear,
You are strongly recommended to purchase lightweight hiking boots with appropriate ankle and foot support, protection and grip.
Training/running shoes are not suitable for fieldwork, but of course can be worn during non-fieldwork activity.
It is highly advisable to wear your boots in prior to attending the field course in order to avoid developing blisters, and to purchase good quality socks.

Please be aware that you may be denied access to certain areas if you are not wearing appropriate footwear.

Clothing: It is recommended that you bring a range of clothing, which will allow for layered dressing, adaptable to all potential weather conditions. Please bring extra layers and full waterproofs in your backpack each day, in anticipation of cold/wet weather.

Other Equipment:

- A backpack/daypack for carrying spare clothes, field guide/notebook, camera, water bottle, lunch etc.
- Sunscreen (SPF 30+ is recommended) & lip balm with sunscreen is recommended.
- Sunglasses with 100% UVA protection are strongly advised
- A camera and binoculars may be useful
- A personal first aid kit and personal medication and painkillers e.g. plasters, rehydration salts, bandages.
- Walking poles (particularly if you suffer from joint pain in your legs or struggle with balance on steep sections)

Rock helmets and high-visibility jackets will be provided by the CDT.

Itinerary

	Tue May 3rd	Wed May 4th	Thu May 5th	Fri May 6th	Sat May 7th	Sun May 8th	Mon May 9th	Tue May 10th	Wed May 11th
08:00					Derbyshire Peak District Fieldtrip	Derbyshire Peak District Fieldtrip	Travel to Keyworht		
09:00		The Hive - Sackville Building	The Hive - Sackville Building	The Hive - Sackville Building				The Hive - Sackville Building	The Hive - Sackville Building
10:00							BGS Core Facility - Keyworth		
11:00									
12:00									
13:00	The Place Aparthotel								
14:00				Travel to Buxton					
15:00							Travel to Manchester		
16:00									
17:00									
18:00									
19:00	Bowling - All Star Lanes			Group Dinner - The Palace Hotel	Group Dinner - The Palace Hotel	Group Dinner - The Palace Hotel		Group Dinner - Urban Cookhouse	
20:00									

1. Summary

A 9 day course, delivered at the University of Manchester, designed to build core competency in understanding global energy challenges, industry context, the exploration and development of hydrocarbons and the role of research, and key drivers that effect the development of mature basins. The course will also build important transferable skills and allow the CDT group to become better integrated as a cohort. Delivery: 50% group work, discussions and workgroups. 20% field course and visit to core store. 30% specialist lectures (given by academics and industry experts).

Learning Outcomes:

- Developing understanding of role of research in exploration and production
- Assess challenges in unlocking resources from mature basins
- Global Demand & Supply (Conventional & Unconventional)
- Climate Challenge & the Environmental Challenges
- The Energy Balance
- Politics and International Working Challenges
- Economics Challenges for Developing Mature Basins
- Technology Drivers: including forward looking a role of Universities
- Case studies of mature fields and development scenarios

Transferable Skills:

- Build teamwork and management skills
- Improve research and data analysis skills
- Enhance and develop presentation skills
- Fieldwork will enhance observational and analytical skills in geoscience.
- Highlight importance of HSE assessment.
- Develop key analytical skills (analysis of subsurface data - core and well data
- Observational and documentation skills (fieldwork and core study)

Location and Facilities:

Accommodation is provided at the Place Hotel. All students travelling to Manchester have been booked rooms with breakfast provided from Day 1 of the course. Anyone wishing to arrive early will need to make their own arrangements. Dedicated check in for students 12-1pm at the Place Hotel on 3rd May (if rooms are not ready there will be a secure luggage store exclusive for O&G CDT use).

Lunch will be provided each day in the HIVE training facility at the CDT Centre in the Sackville Street Building, University of Manchester. Evening meals are at student's own cost.

Facilities are located on the University of Manchester's North campus and close to Manchester Piccadilly train station (which has direct services to Manchester airport), and is in central Manchester, and so is close to all transport routes, plus restaurants and refreshments. A large dedicated teaching suite will be utilised in this facility. Other University facilities adjacent to this will be utilised for breakout rooms and computing access as required.

On the field trip, bed, breakfast, a packed lunch and evening meals costs are covered. For the BGS core store visit, lunches are at student own costs, and can be obtained from the BGS cafeteria at a reduced rate (cash only).

Free Internet access will be available for all participants.

2. Agenda

Day 1 (Tuesday 3rd May)

1300 Arrive and lunch at The Place Aparthotel
1400 Welcome & Introduction to University of Manchester (JR/KT)
Logistics and safety (JS/JR/IK)
CDT Mature Basin Module Programme overview & expectations (JR)
(A welcome pack will be distributed and a brief logistics announcement)
14.30 Application of Petroleum Geoscience and Engineering Research to exploration and production. Dealing with geological uncertainty. Examples from ongoing research (20 minute keynote presentations followed by 5 minutes questions, led by a senior postgrad/postdoc)

- Improving sed/strat models for better reservoir characterisation
- Regional petroleum systems and source to sink analysis:
- Reservoir characterisation in carbonates: unlocking reserves with EOR
- Basin scale reservoir and source: advances in imaging and understanding fluid flow
- Outcrop analogues for reservoir studies: Use of 3D Visualisation & Modelling
- Geomechanics research: meeting the challenge of tight reservoirs and shale gas / oil

19.00 Student Icebreaker Event – Bowling and a Beer, All Star Lanes, Northern Quarter

Day 2 (Wednesday 4th May)

09. 00 CDT Student Research Forum
3 mins ppt overview by each CDT student on their research project; topic, aims, application, methods and status. Max 5 ppt slides
10.30 - 10.45 Coffee

10.45 Presentations continued
12.00 Group Review: round table discussion.
1230 Lunch

13.30 Global Energy Challenges & Unlocking Future Hydrocarbon Resources

Group Exercise

The aim of the exercise is to address key issues that effect access to resources, energy usage, and developments in technology. All are critical for mature basin exploitation and exploration. Students will be asked to develop their ideas, and to search for available resources on a specific topic. Mentors will guide this at the outset. Teams will be formed to research one topic, and each team will make a presentation to the whole group, followed by further discussion and debate.
13.30 Introduction (JR),
Short 15 minute summaries from academics defining the key issues and sources of information etc, followed by time for questions. Setting the scene for the project / task.
Global Demand & Supply (Conventional & Unconventional): JR
Climate Challenge & the Environmental Challenges: JB
The Energy Balance: JB

15.00 – 15.15 Coffee

Politics and International Working Challenges: GS
Economics and Challenges for Developing Mature Basins: TBC
Technology Drivers: forward looking role of Universities: IK

General Discussion and assign groups
17.00 Finish

Day 3 Thursday 5th May

0900 Independent research time for each group.
(Access will be provided to computer cluster, and work rooms. Students can use own laptops or University PC facilities.)
1230 – 13.30 Lunch
PM Group Presentations and Discussion (6 Groups of 5: 15 minute presentations with time for discussion)

- Global Demand & Supply (Conventional & Unconventional)
- Climate Challenge & the Environmental Challenges
- The Energy Balance

15.00 – 15.15 Coffee

- Politics and International Working Challenges
- Economics and Challenges for Developing Mature Basins
- Technology Drivers: forward looking a role of Universities

Day 4 Friday 6th May

Check-out of hotel. Students can leave bags at hotel in the luggage store. Packed and ready for field trip Fri – Mon.
10.00 UK Carboniferous Petroleum System Overview (JR, CH, IK)
11.00-11.15 Coffee
11.15 UK Carboniferous Petroleum System Overview (JR, CH, IK)
12.30 – 1.30 Lunch
1.30 Field Trip Review (JR)
14.00 Depart for Buxton from Sackville Street Gatehouse
19.00 Dinner – Buxton Hotel

Days 5 & 6 – Derbyshire Field Trip (7th & 8th May) (JR, IK, CH)

3 or 4 localities to be visited each day in the Greater Castleton area:

- Examining an exhumed petroleum system including carbonate, and clastic reservoir analogues including unconventional shale reservoirs and source rocks.
- Assessing Basin evolution and development and links to petroleum system and charge.
- Link to east Midlands Mature Hydrocarbon Province & current Shale Gas Exploration

Day 7 Monday 9th May – BGS Core Store Keyworth

09.00 Depart Buxton drive to BGS Keyworth
BGS Core Store – Core Description linked to field work analogues (MB, JR)
Return to Manchester by 17.00

Day 8 Tuesday 10th May

Production & Mature Basin Examples / Challenges
(45 minute talks with 15 mins for discussion and Q&A)
0930 Introduction & Context (IK/JR)
0945 North Sea Challenges ?Gunther Newcombe or Nick Richardson (OGA)
1030-1045 Coffee Break

1045 Accessing and developing a mature field (Fairfield Energy)
1145 Extending a mature play fairway – Tolmount Field, Southern North Sea, Matthew Allen (Dana Petroleum)
12.45 – 13.30 Lunch
1330 Small Pool Development Challenges and Technology Opportunities North Sea & Wider
Alan Minty/Martin Wallwork (Enegi Oil)
1430 New Frontiers & Moving Back to mature Basins (Liz Jolley BP or equiv.)
1530 - 1600 Coffee Break
1600 Mature basins and their Future Energy Challenges (Jon Gluyas)

19.00 End Training Module Dinner – Urban Cookhouse, Princess Street Manchester

Day 9 Wednesday 11th May

Check-out of hotel
Overview of the Module & Linkages to Mature Basins and E&P Business Challenges (IK/JR)
09.00

- Group time to finalise short presentations

10.00 – 10.15 Coffee
10.15 Field work review and farm-out presentations
Each group will make short 10-minute verbal presentation. Reflection on learnings and new insights – with feedback
12.30 Wrap-up and Prize Giving (JR/IK)

13.00 Lunch and Depart (packed lunches will be available)

IK: Ian Kane, JR: Jonathan Redfern, JS: Julie Sansom,
JG: J Gluyas, JB: J Broderick, GS: G Scotton,