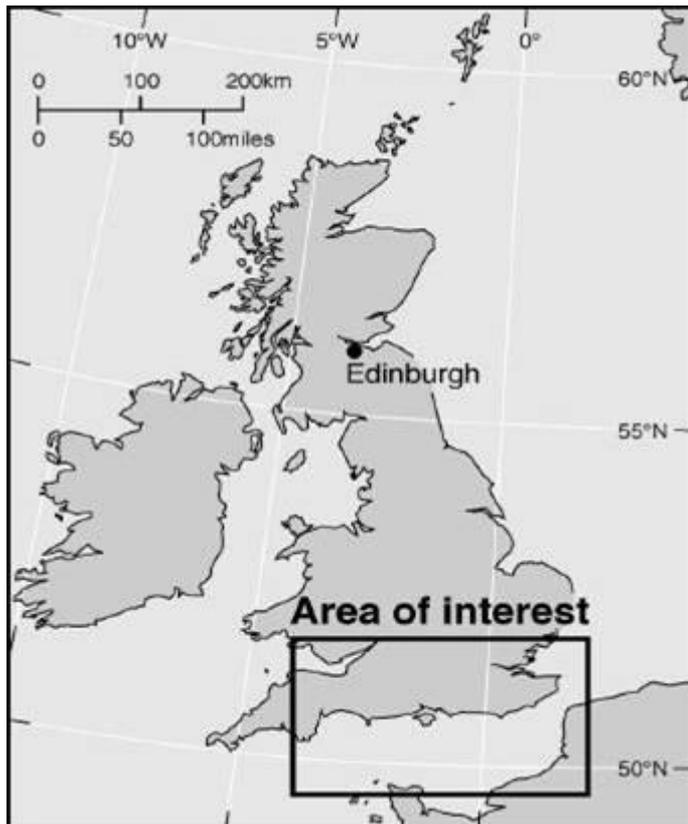


Petrox 2019



Reservoir and source rock characteristics of formations in the Wessex Basin, Southern England

Ole Torsæter



Petrox 2019

This interdisciplinary course is based on lectures and field work and group project work in reservoir and source rock characterization.

1. Examine Jurassic source rocks
2. Characterize important reservoir units
3. Understand hydrocarbon migration history in the Wessex Basin.
4. Visit the Wytch Farm reservoir area to get understanding and knowledge about how evolving technology has contributed to exploration of and production from the field, and how conservation is a priority in this environmentally sensitive region



Program - Petrox 2019

- **Monday Sept. 23.**
Trondheim - London.
Coach to Sidmouth
Stay in **Riviera Hotel, Sidmouth.**

- **Tuesday Sept. 24.**
Morning: Study of the reservoir rock Sherwood Sandstone at Sidmouth.
Afternoon: Study of the source rock Blue Lias at Lyme Regis.
Stay at **Riviera Hotel, Sidmouth.**

- **Wednesday Sept. 25.**
Morning: Study of the reservoir rock Bridport sand at West Bay.
Afternoon: Study the ancient reservoir in Osmington and structural geology in Lulworth Cove.
Stay at **Harbour Heights Hotel, Poole.**
Adress: 73 Haven Road , Poole BH13 7LW, Dorset
Webpage: www.fjbhotels.co.uk/our-hotels/harbour-heights/

- **Thursday Sept. 26.**
Morning: Study the Kimmeridge source rock and the Kimmeridge well at Kimmeridge Bay
Afternoon: Study the chalk formations at Ballard Head.
Stay at **Harbour Heights Hotel, Poole**

- **Friday Sept. 27.**
Back to London and flight: London-Trondheim





Participants:

Teachers

Ole Torsæter

Maarten Felix

Andy Gale

Map of study area.



Safety:

We will be working mostly beneath high cliffs on a coast to which access is tidally controlled. There are therefore a number of major things to keep an eye on.

Tides

Tides on this coast have a large range (up to 8 meters) and come up very fast. It is therefore preferable to work on a falling tide, unless the point of escape is visible or you know from experience precisely how long you can safely stay on the section.

Falling rocks

Rock cliffs are continually shedding debris (after all, that is why they are forming cliffs and providing us with nice exposures), fortunately, mostly in small bits and only in some places. Danger can be minimized by:

- always wearing a helmet when working under cliffs
- avoiding completely any locality where pieces of rock are falling

Slippery shores

The intertidal zone is covered with algae, which when wet are as slippery as ice. The only solution is to move slowly and very carefully.

Practical things:

Remember your Passport.

It is recommended that you bring along a small knapsack to contain trip necessities (camera, trip guide, notebook, extra clothes, raincoat etc.).

Always return to the coach on the announced time for departure.

Locality 1: Sidmouth- The Sherwood Sandstone Group

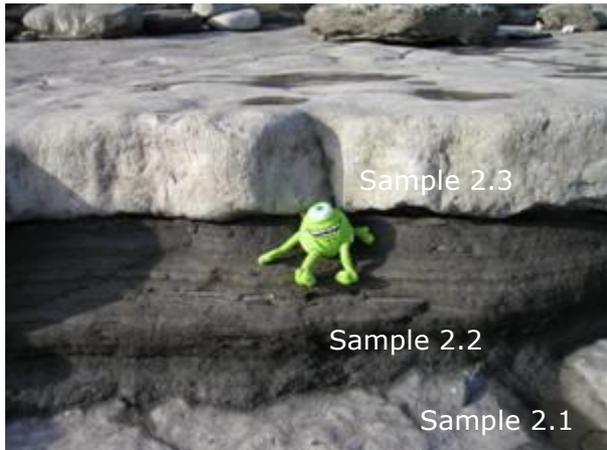
Sample nr.	Porosity ϕ	Permeability (mD)
1.1	36.20%	100 - 140
1.2	10.60%	1 - 2
1.3	8.70%	0.00254



Sample 1.1: Fine sand, crossbedded
Sample 1.2: Coarse sandstone, base channel
Sample 1.3: Silty sand, top channel



Locality 2: Lyme Regis, Early Jurassic Blue Lias (source)



Locality 3: The Bridport Sands reservoir at Burton Bradstock



Locality 4: Oil seeps; Osmington Mills

- Sample 4.1: Hard layer seeping oil
- Sample 4.2: Soft cross-bedded fine sand
- Sample 4.3: Fine sand smelling oil



Location 5: Lulworth Cove



Locality 6: The Kimmeridge clay and the Kimmeridge oilfield

The Kimmeridge oil well:

Present production: 65 barrels per day

Start of production: 1960.

Reservoir: Cornbrash, fossiliferous limestone (500-750 m deep)

Source: Lower Lias, Blue Lias
A faulting has caused a remigration from the Bridport Sands to the Cornbrash Formation

Transport: road
road

The oil is transported by road tankers



Locality 7: Wytch Farm

Wytch Farm Oil Field:

Source rock: Blue Lias at 2.5km depth

• Reservoir rock: Bridport sandstone
Sherwood sandstone

• Reservoir depth: 900 m below sea level.

• Number of wells: 110



Locality 8: Chalk at Lymington



Back in Trondheim

When you are back in Trondheim each group should prepare a report. Regarding the report format I suggest the following:

1. Introduction
 2. Literature review
 3. Your own observations
 4. Discussion
 5. Conclusion
- References

The report should be 5-10 pages including figures.

The groups will be given presentation tasks and the subject of reporting during the trip.



All groups should include in their report an introduction to the geology of the Wessex basin where observations related to the other locations (discussed by other groups) are included.

- The deadline for the Petrox group-reports are Monday October 21, 2019. Individual oral exam will be held within early November. The grading will be based on the following: Report counts 70% and oral exam counts 30% of the Petrox grade.

The Petrox-grade will be 50% of the "Specialization Course".

- Please contact me if anything is unclear or you have comments.