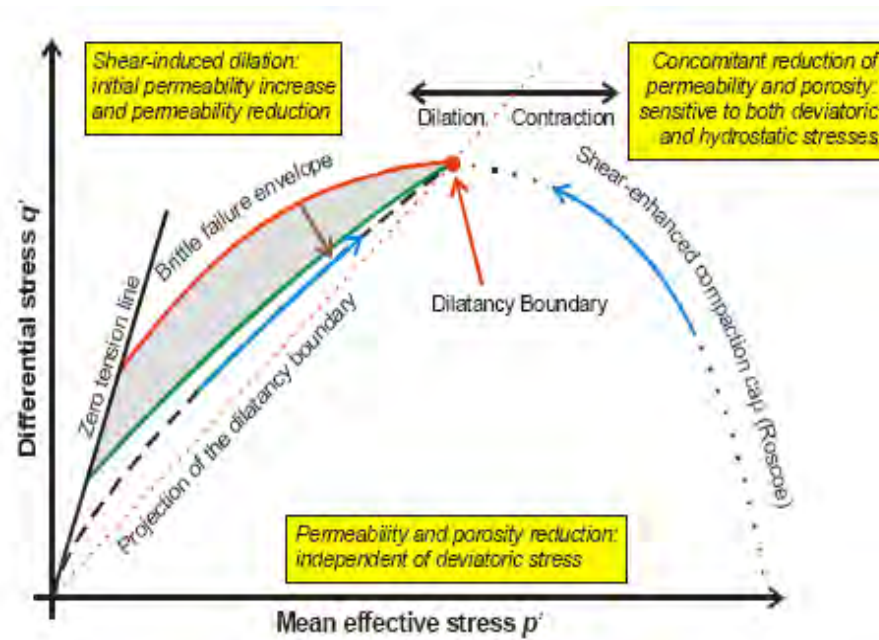


CONTAIN

The impact of hydrocarbon depletion on the Treatment of cAprocks within performance assessment for CO₂ Injection schemes

EPSRC

Pioneering research
and skills



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Partners and contributors



Transport
Properties
Research
Laboratory



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for Climate Change Research

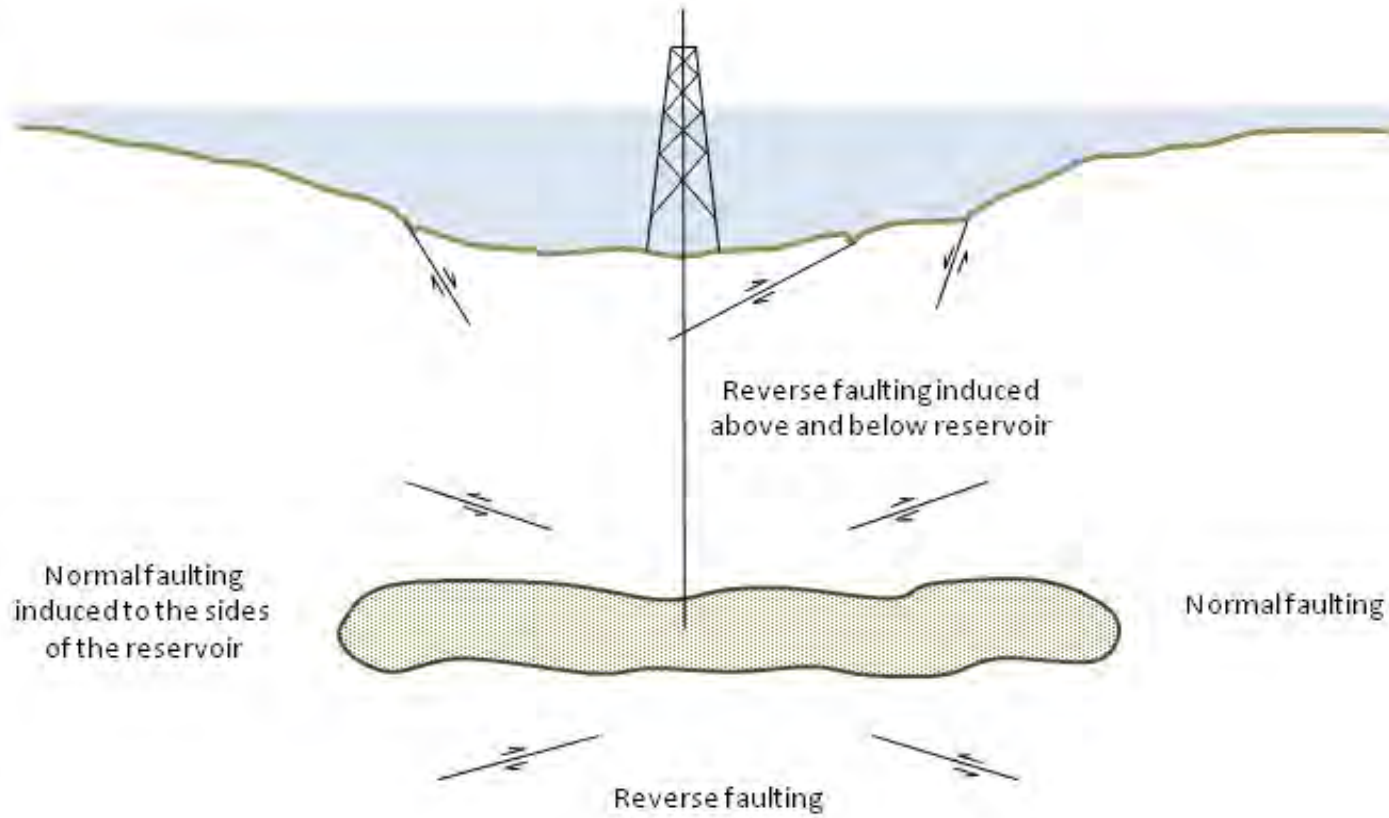
Dr. Lorraine Whitmarsh



Dr. Andreas Busch



Context

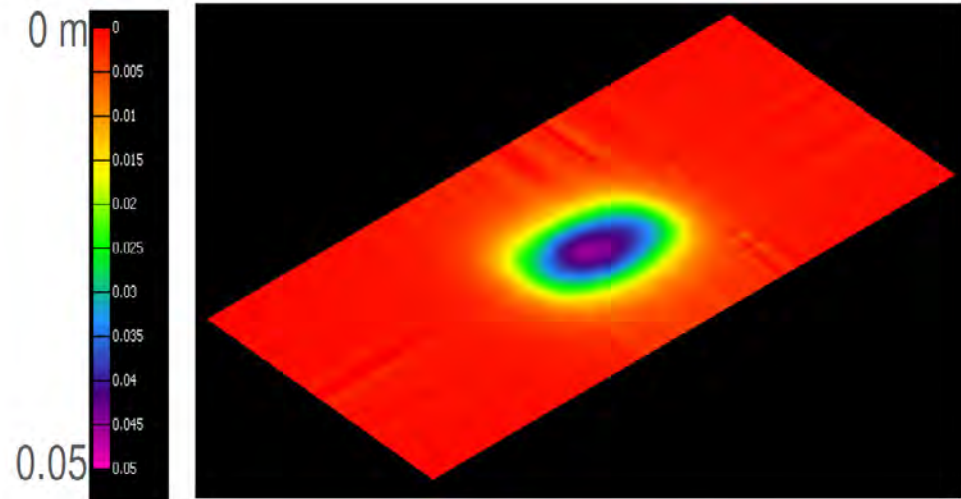


After Segall 1989

- Potential **UK storage capacity in depleted reservoirs** ~ 9 billion tonnes (UKSAP)
- **Long-term impact of depletion** and 're-inflation' are not well understood
- **Paucity of data including:** reservoir stress-path during inflation and long-term response of faults, wellbores and mechanical stability of caprock
- Improved understanding of effects on **reservoir behaviour** and **seal integrity**
- **Supporting future field development** by helping to address **regulatory and operational uncertainties**

Impacts of depletion

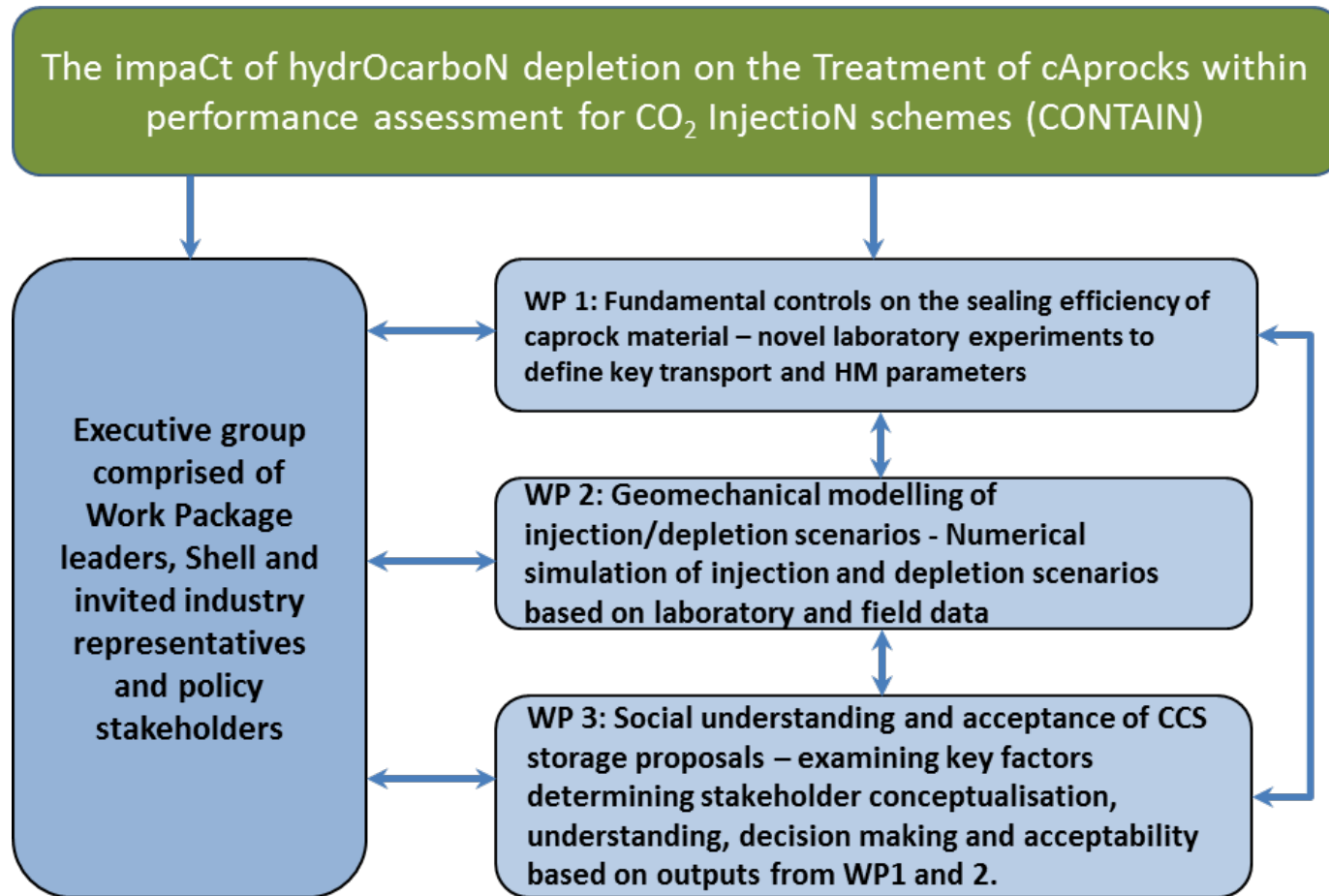
- Focus on **geomechanical** and **fluid transport processes** in response to depletion and re-inflation
- Combined **numerical modelling** and **experimental testing**
- **Laboratory data** to **validate models**
- **Upscaling** in space and time e.g. Peterhead - Goldeneye
- Outputs will impact on designing **injection strategies**, **bore-hole stability** and **long-term forecasting** of field-behaviour
- Aid **effective communication** with the public



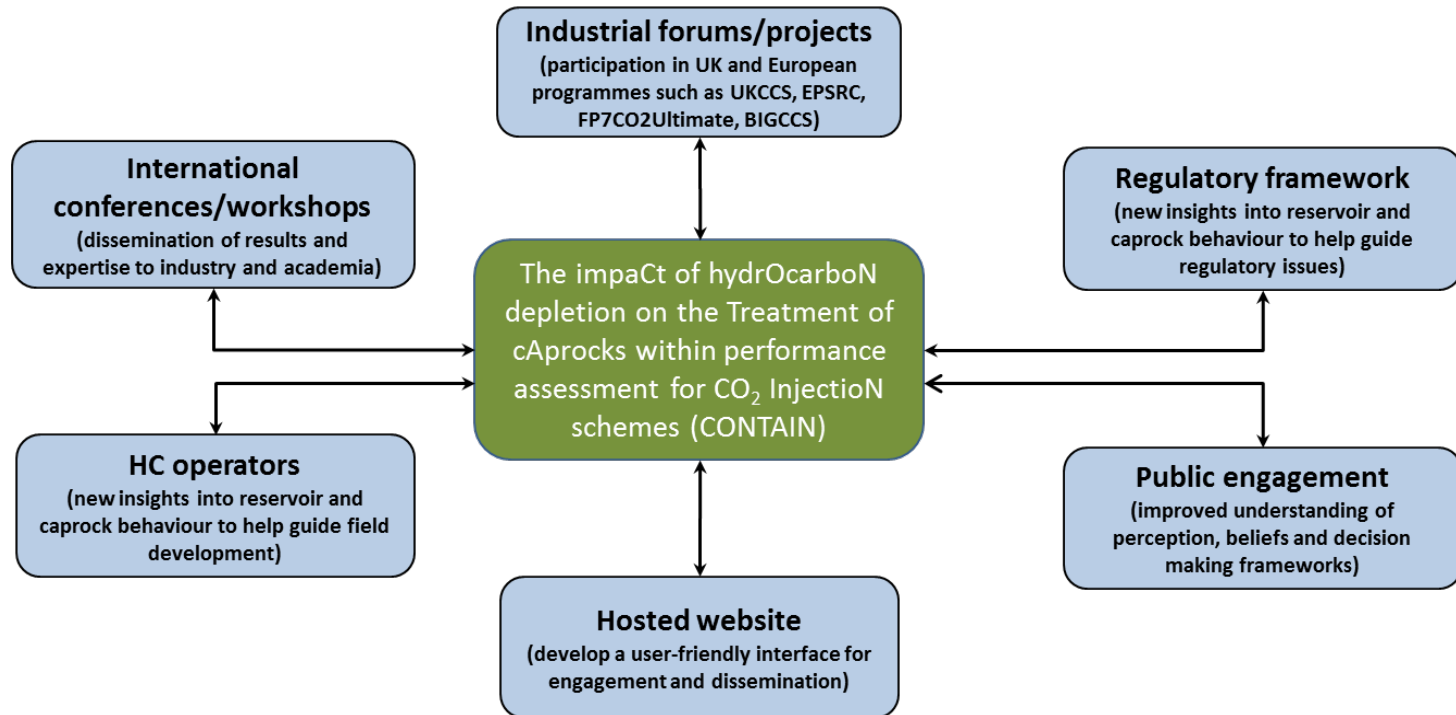
Subsidence	Seafloor	Top reservoir
After gas depletion	4.6 cm	8.9 cm
After CO ₂ injection	3.6 cm	5.6 cm

de Vries, Shell Global Ltd., (2011)

Project structure



Dissemination and engagement



Including:

- Project **reporting**
- Peer review **publication**
- Bi-annual **electronic stakeholder briefings**
- **Public dissemination event at the British Science Festival, September 2016**
- Project **internet portal**
- Final **stakeholder dissemination workshop**
- A toolkit of tested **engagement methods and communication recommendations**

Timeline

Duration: 48 months duration

Start date: 1st October

Contact: Caro5@bgs.ac.uk

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