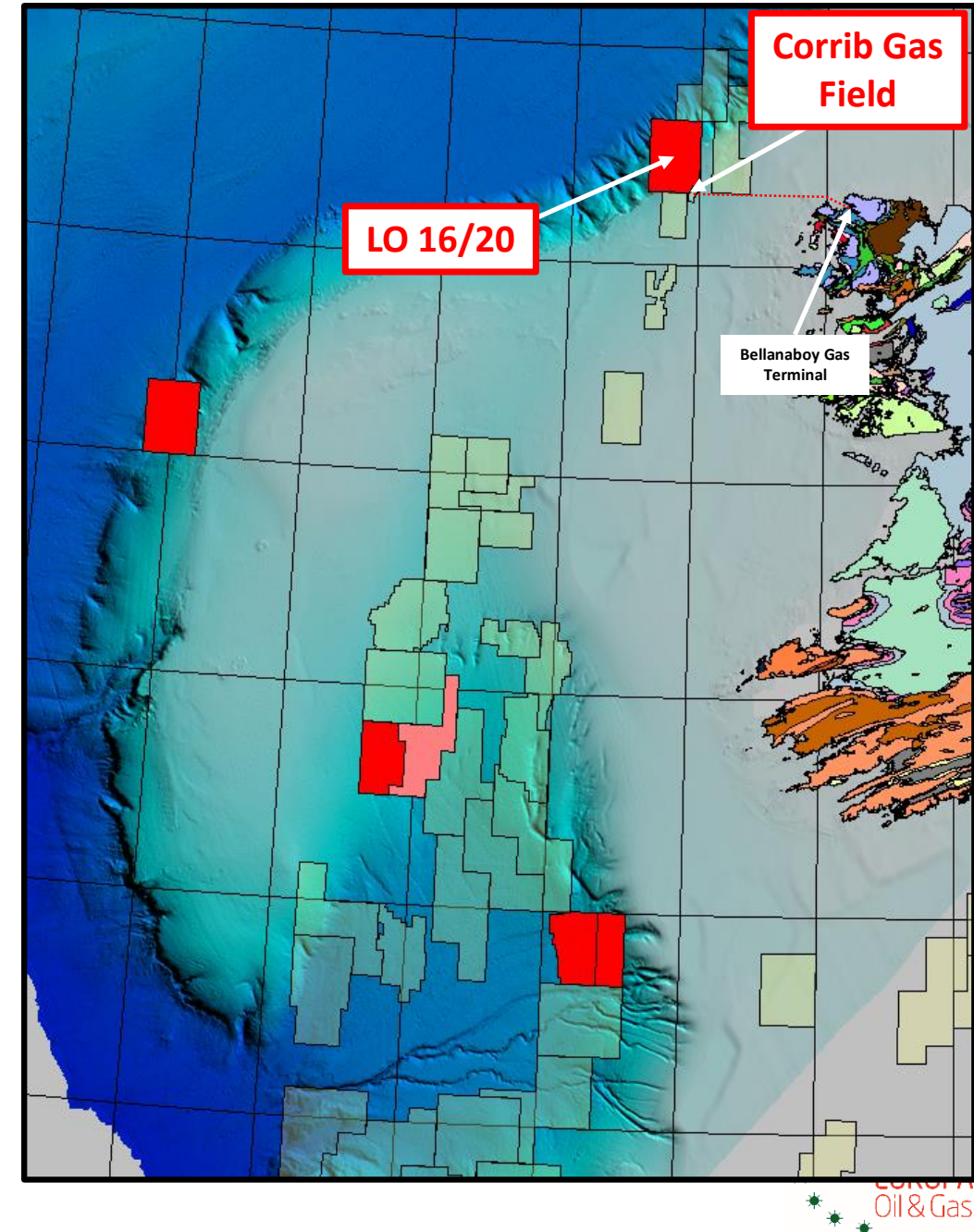


Europa LO 16/20 Inishkea Gas Prospect RNS slidepack

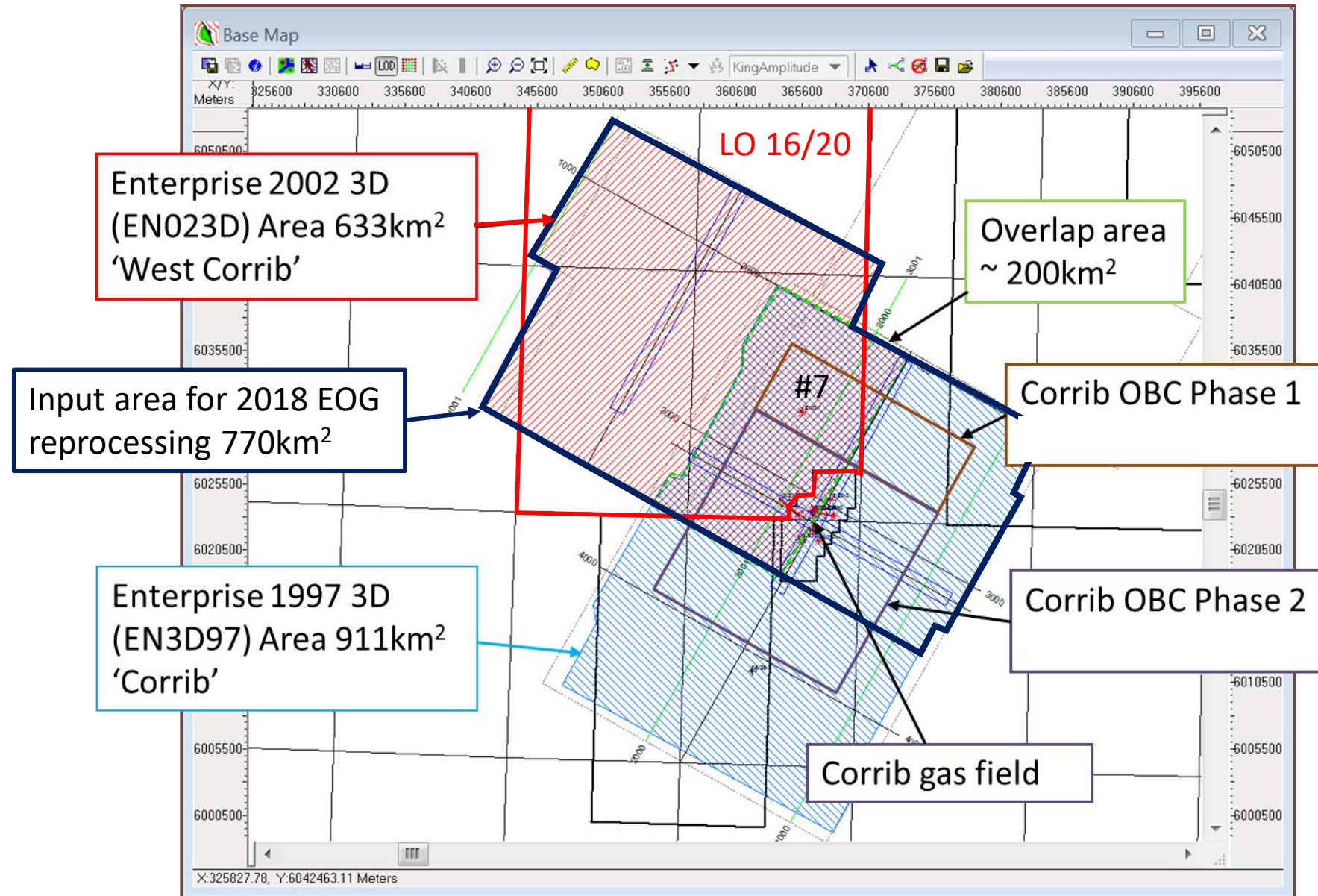
26 February 2019

Summary

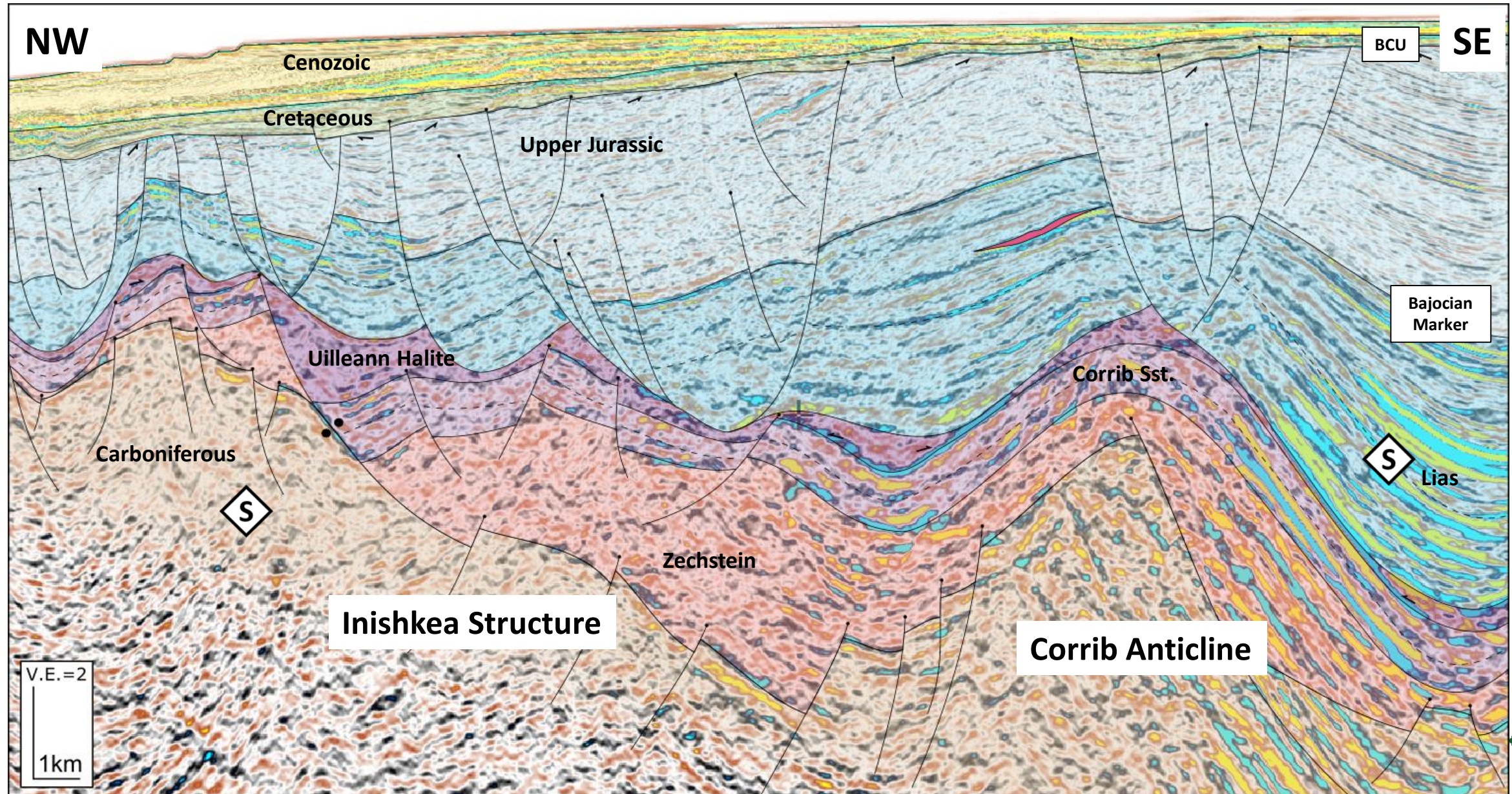
- 945km² Licensing Option (LO) – four North Sea blocks - immediately NW of the producing Corrib Gas Field. 70km offshore NW Ireland.
- New PSDM interpretation confirms prospective resources of 0.24/0.97/3.6/1.5 tcf (P90/50/10/mean) .
- Corrib (~1tcf) supplied 66% of Irish gas demand in 2017 but is now in decline with a predicted 15 year field life. Subsea wells with gas processing onshore at Bellanaboy.
- Europa is preparing to drill in 2020. Level 2 well cost estimate £30-35MM dry hole (Zenith).
- Site survey Spring-Summer 2019.



3D database & Europa 2018 Reprocessing

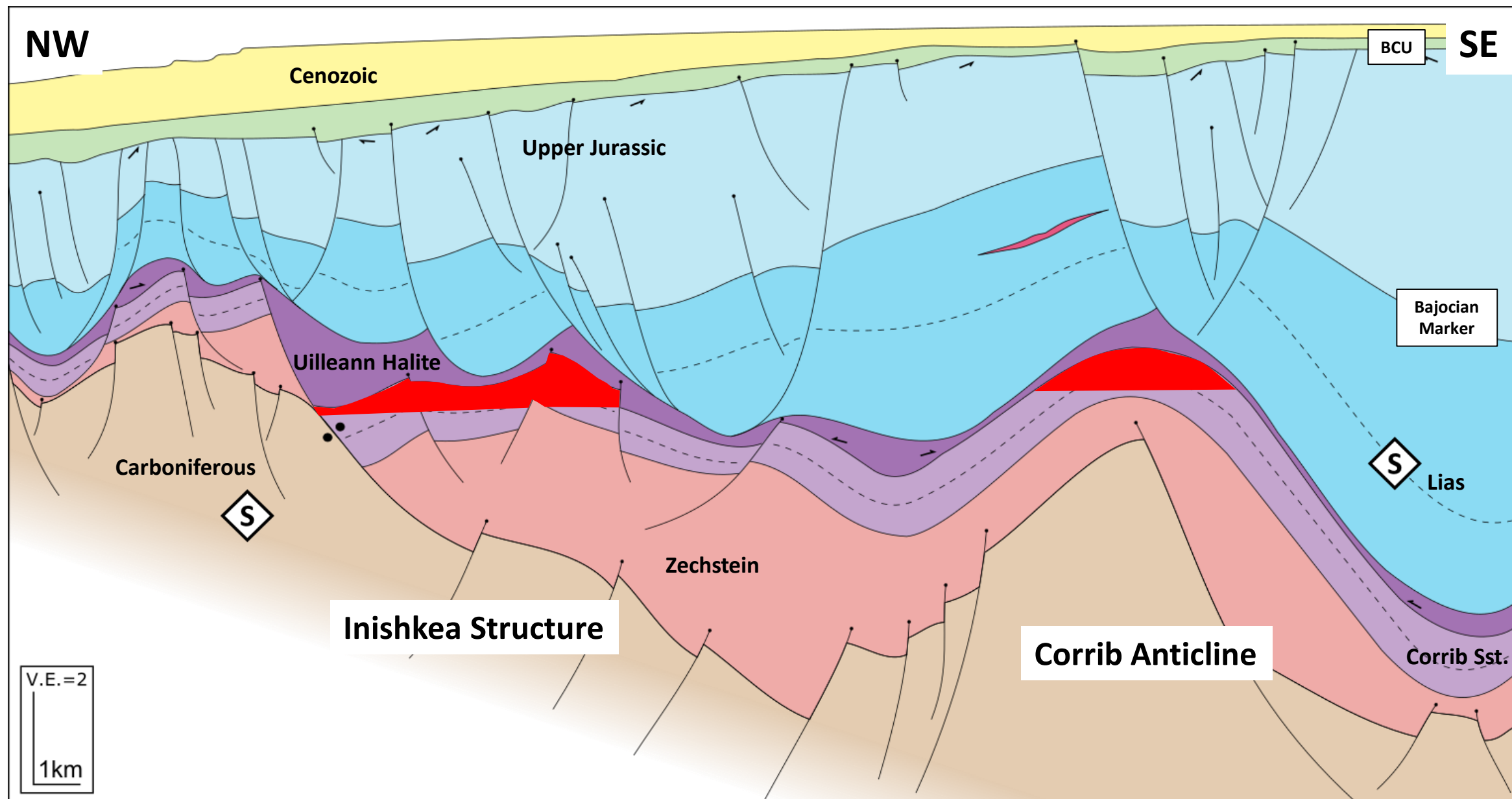


Europa 2018 PSDM – IL 1450 interpreted

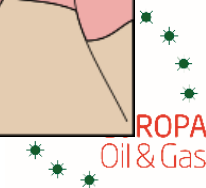


With thanks to Conor O'Sullivan iCrag/University College, Dublin

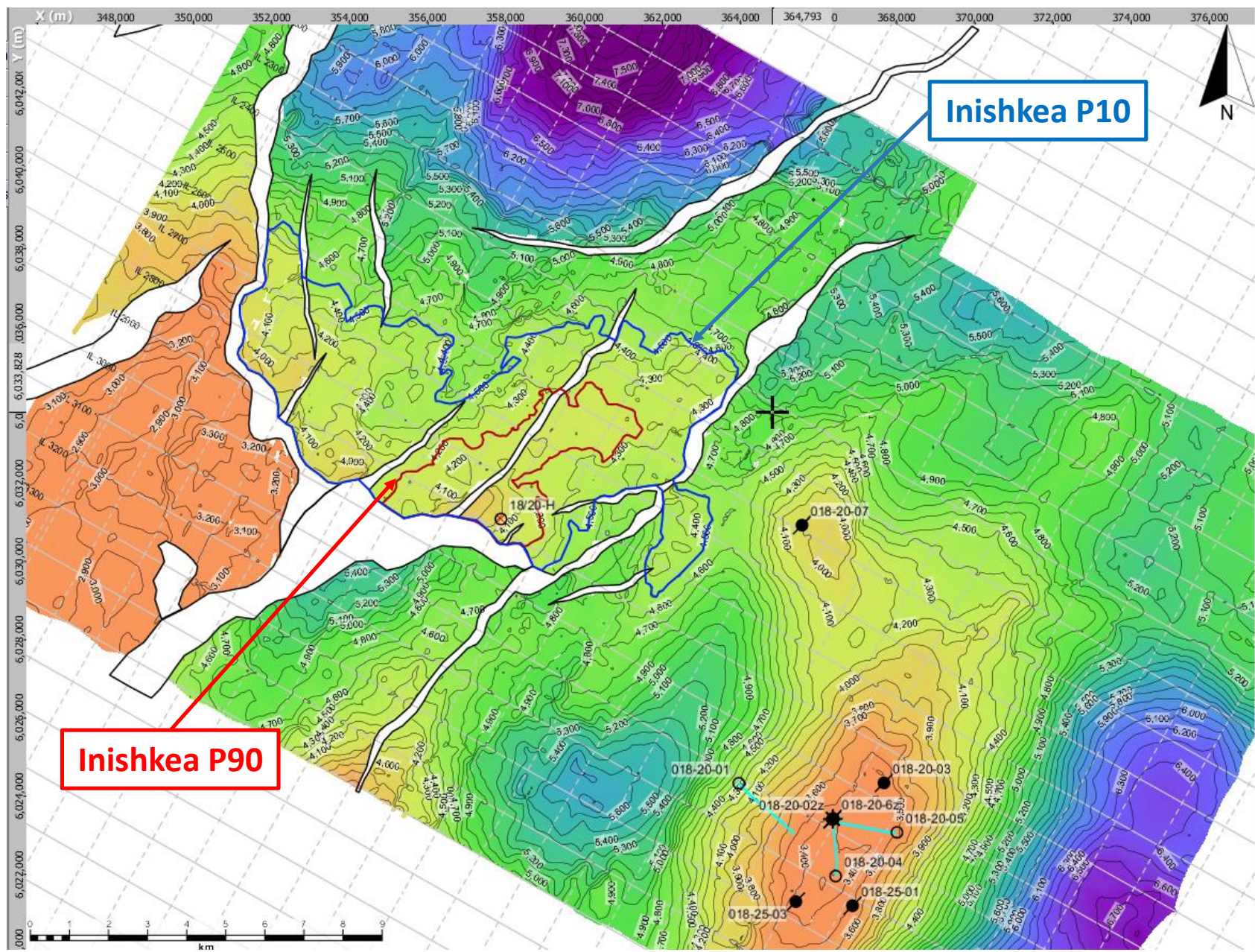
Europa 2018 PSDM – IL 1450 geoseismic



With thanks to Conor O'Sullivan iCrag/University College, Dublin



Top Corrib Sandstone (m) tvdss

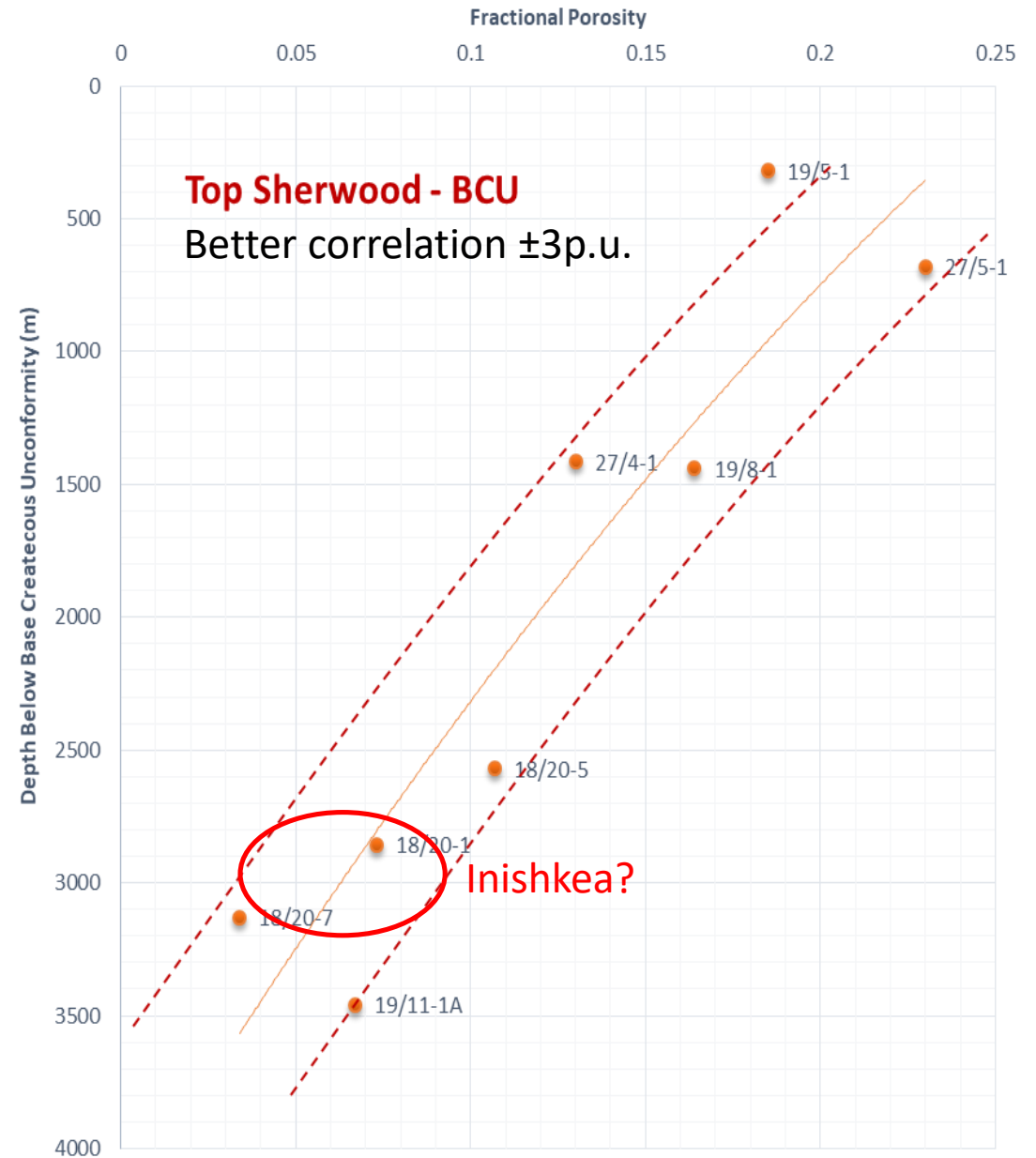


Reservoir Quality

Porosity prediction is complex in detail: e.g. 3 “good” (60-70bcf/d) and 3 “poor” (20-30bcf/d) wells on Corrib. This is apparently due to diagenesis. But the primary control is depth.

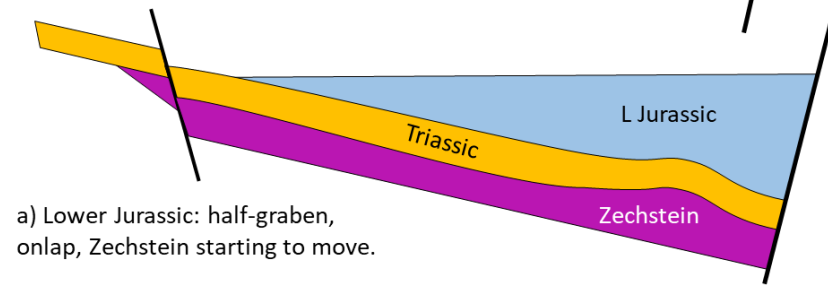
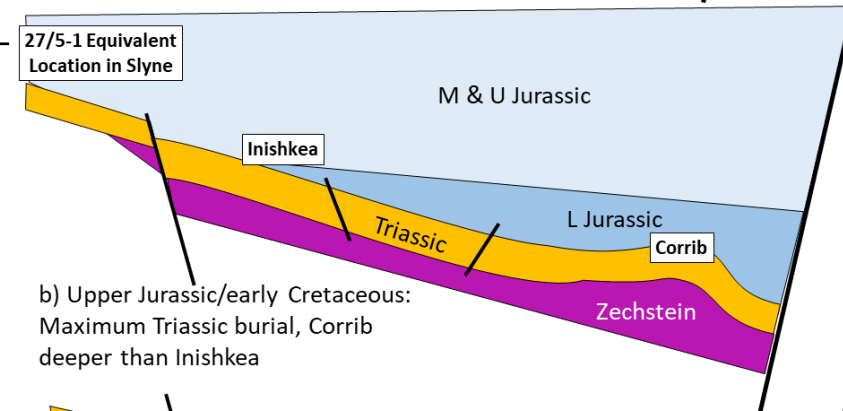
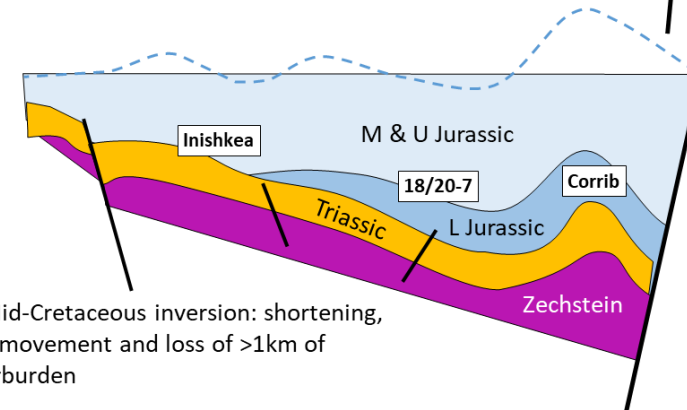
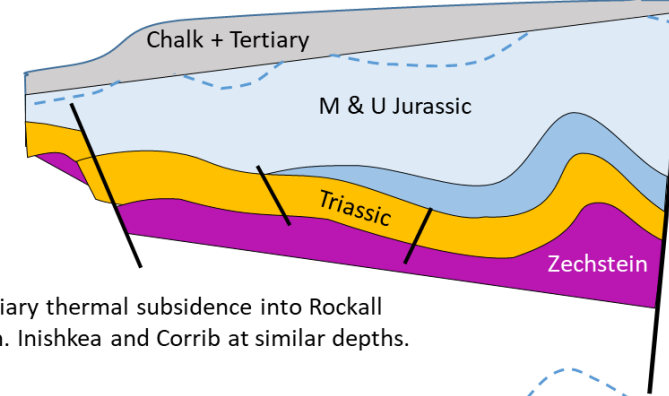
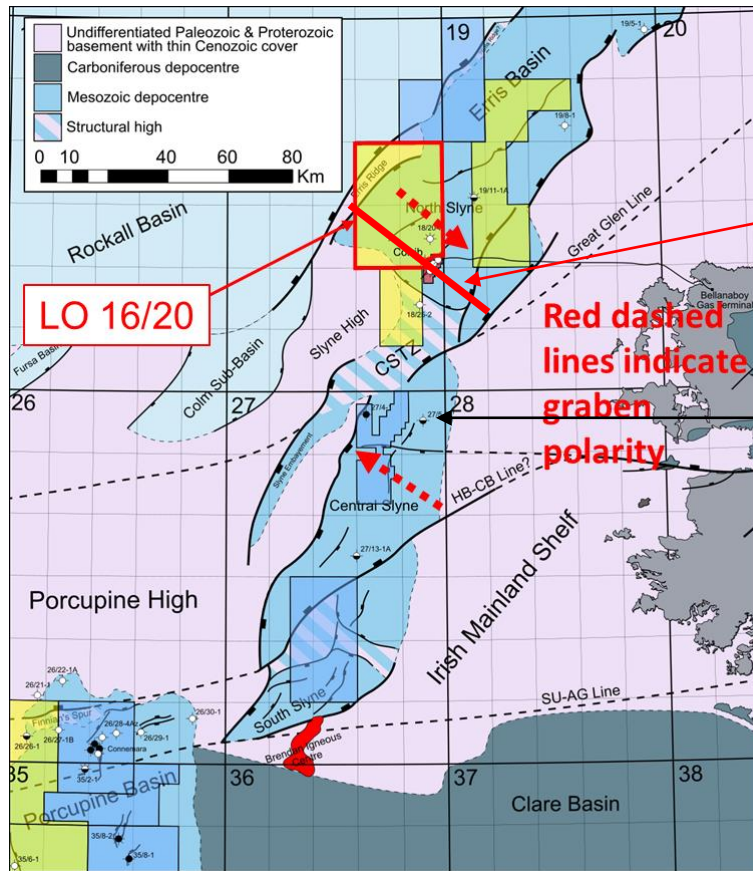
There has been significant Early Cretaceous uplift – so depth below BCU is best first-order predictor (see graph).

There is no reason to suppose that there is a systematic decrease in reservoir quality towards the NW. Location in the half graben may be more important (next slide).



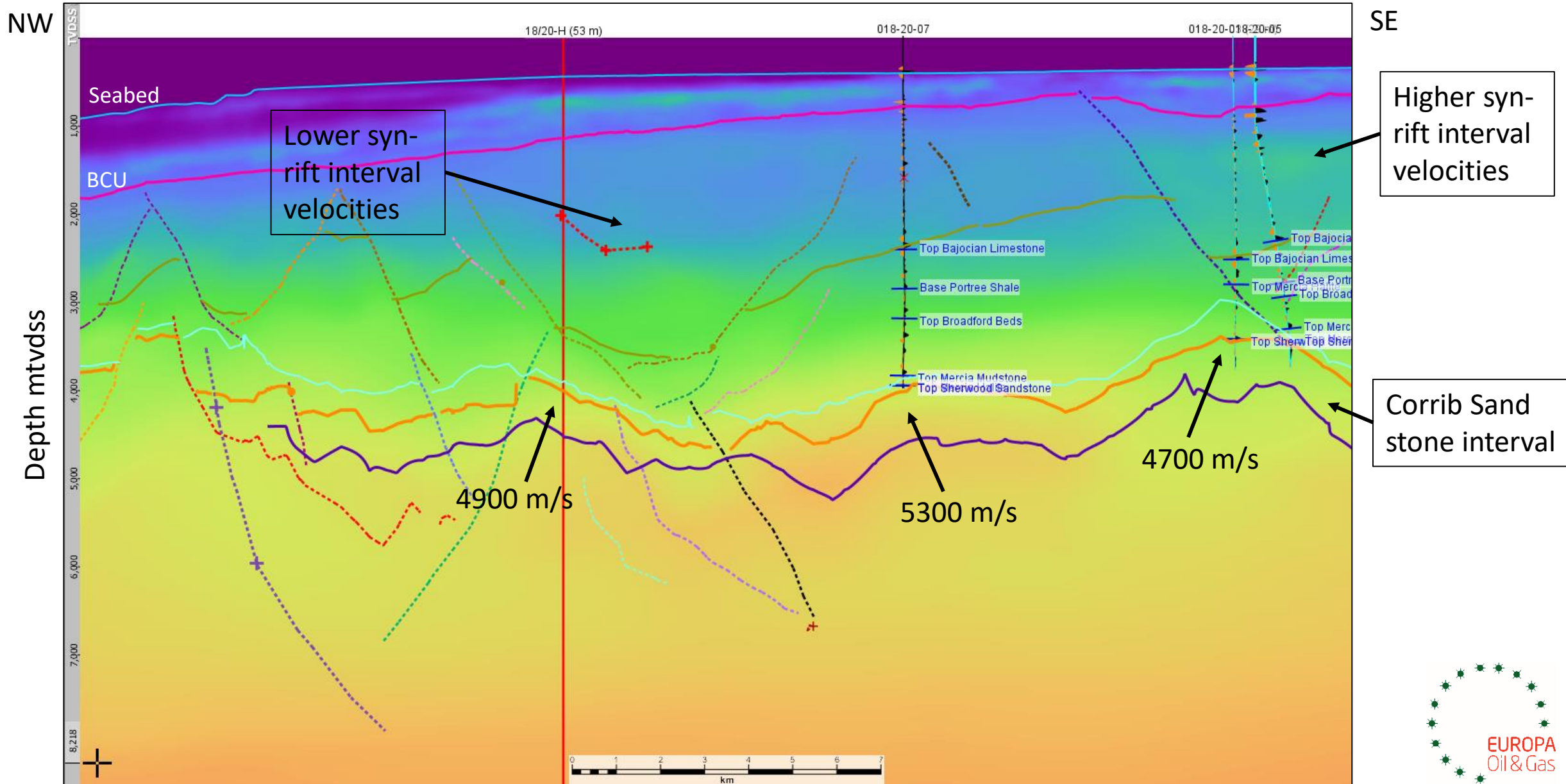
Structural evolution of the Corrib half-graben

Inishkea was further up the Erris footwall and may never have been as deeply buried as Corrib (or 18/20-7): porosity upside.



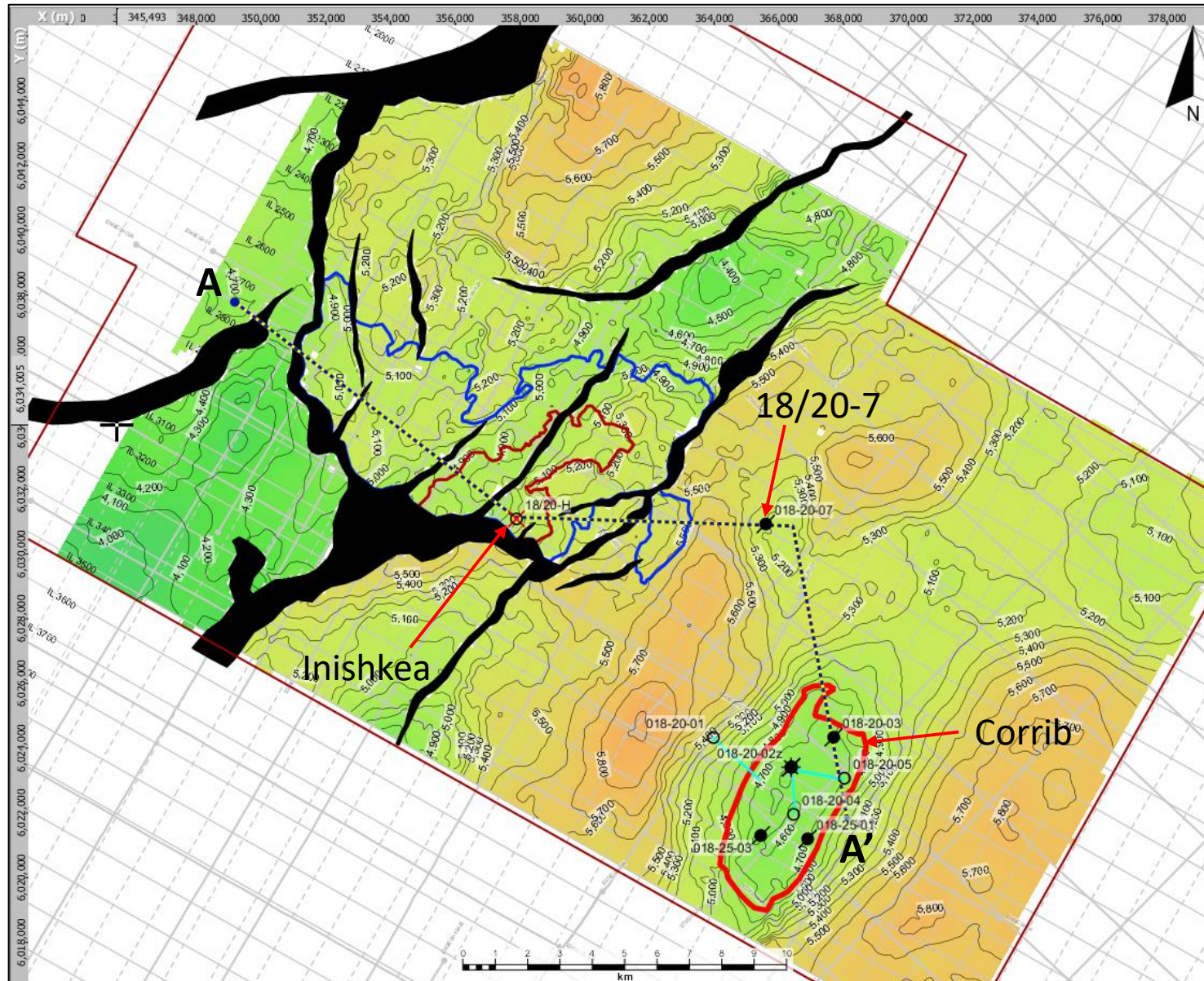
PSDM Interval Velocity Field Arbitrary line A-A'

A NW decrease in syn-rift velocity supports model of less overburden the NW.



PSDM Interval Velocity Field RMS in Top 100m of Corrib S.St.

Supports the idea that Inishkea porosity might be comparable to Corrib and noticeably better than 18/20-7



Inishkea MCS Unrisked Prospective Resources

Ireland LO 16/20		Inishkea						
		Probabilistic (MCS)						
	Units	Distribution	Lo Trunc	Hi Trunc	P90	P50	P10	Mean
Gross Rock Volume	x10 ⁶ m ³	Lognormal	0	25000	872	3360	12948	4835
Net/Gross	frac	Normal	0.00	1.00	0.750	0.850	0.950	0.845
Porosity	frac	Normal	0.05	0.16	0.035	0.065	0.095	0.075
Gas Saturation	frac	Triangular			0.650	0.750	0.850	0.750
Bg	SCF/ft ³	Triangular			280.000	290.000	300.000	290.000
Gas Initially In Place	bscf				397.57	1523.04	5495.42	2362.83
Recovery Factor	frac	Normal	0.30	0.90	0.500	0.65	0.80	0.65
Prospective Gas Resources	bscf				244.48	967.72	3606.32	1527.65

Note following reservoir engineering studies, porosity is truncated at 5% and lower values incorporated into risk.

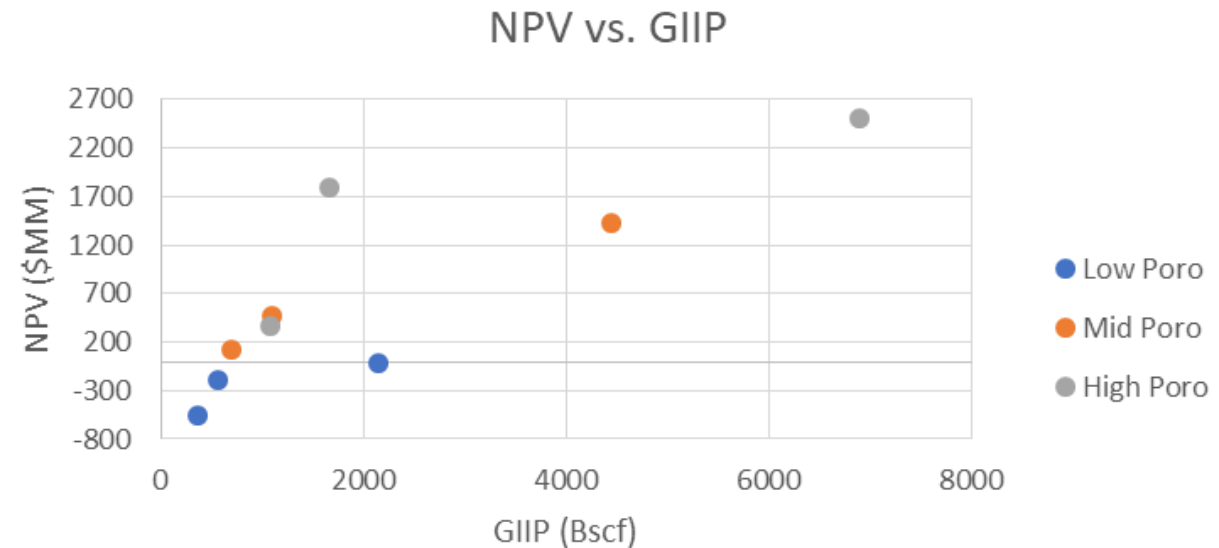
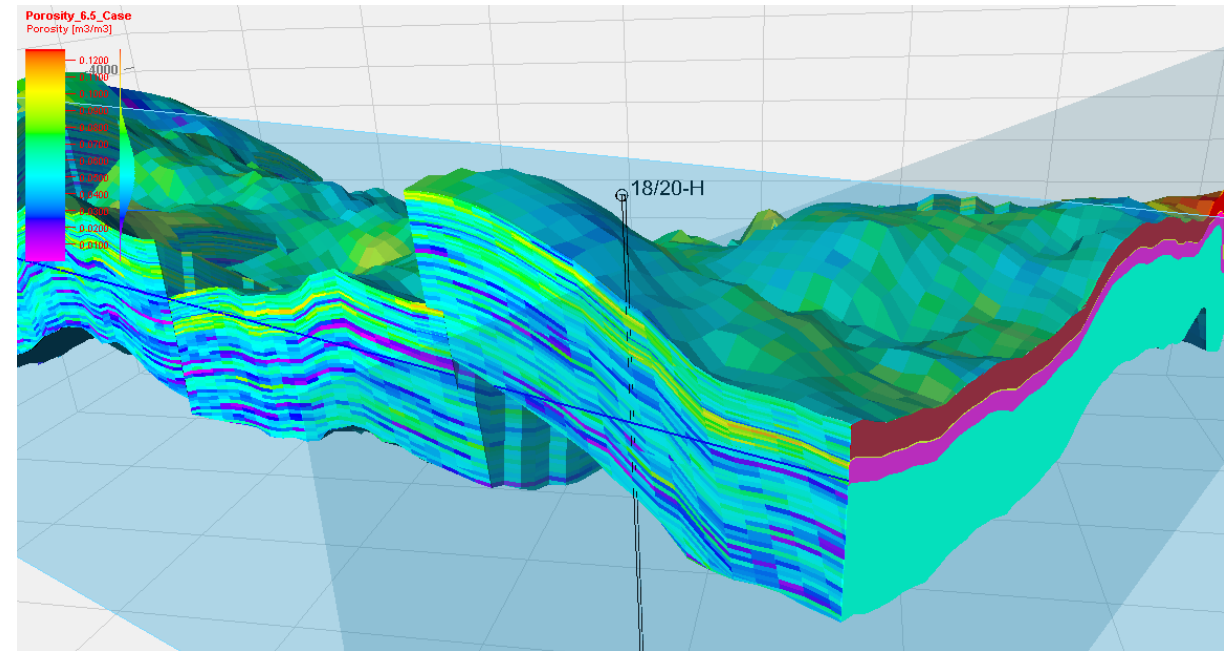
Deterministic Modelling

A key feature of the Inishkea project is the ability to exploit synergies with existing Corrib infrastructure, and strong Irish gas demand, to deliver strong near-term cash flow.

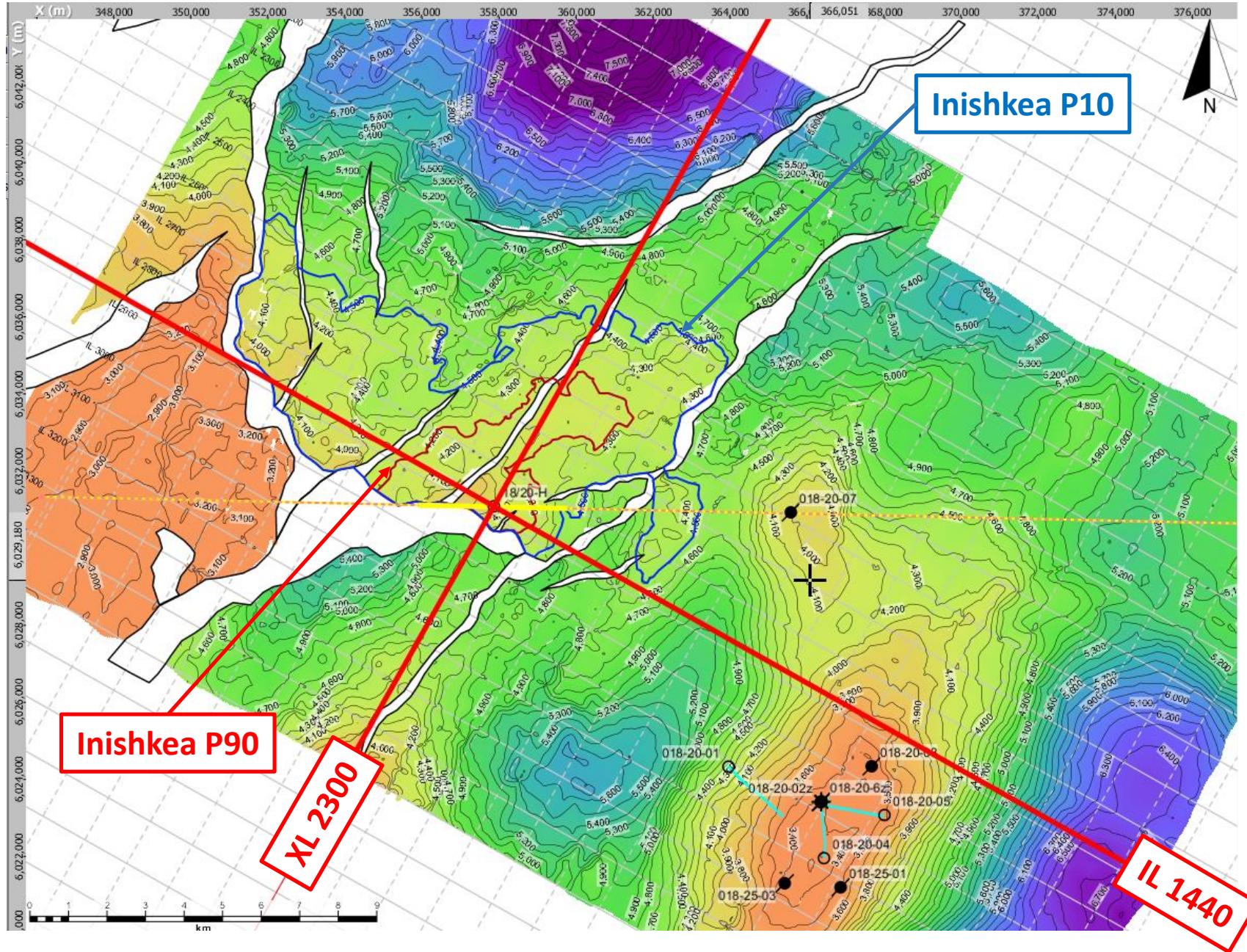
We wanted to understand the reality of this by engineering and costing some “real” cases using a Petrel model of Inishkea (based on Corrib reservoir information in the public domain, but with porosity and permeability modified).

The 6.5% porosity (“base”) case has good economics, even at P90 volumes (i.e. just the segment to be tested by the proposed exploration well), and even when constrained to avoid Corrib back-out. We can fall significantly short of Corrib reservoir properties and still have a very profitable project.

Corrib and better cases (8.5%+) are highly profitable.



Top Corrib Sandstone (m) tvdss



Proposed Location
Inline 1440, Xline 2300
(Europa 2018 Repro)
XUTM=357860 YUTM=6031085
(ED50 UTM Zone 29)

- Near crest of structure.
- Robust compartment.
- Modest step-out: confident correlation of Corrib sandstone from the east.
- Well should see full column height -> maximum information.
- Broadford beds thin or absent.
- Proof of this compartment -> early development, tie back and cash flow.

Inishkea Preliminary Well Plan 18/20-H

