

The Chalk: towards a better tectono-stratigraphic framework

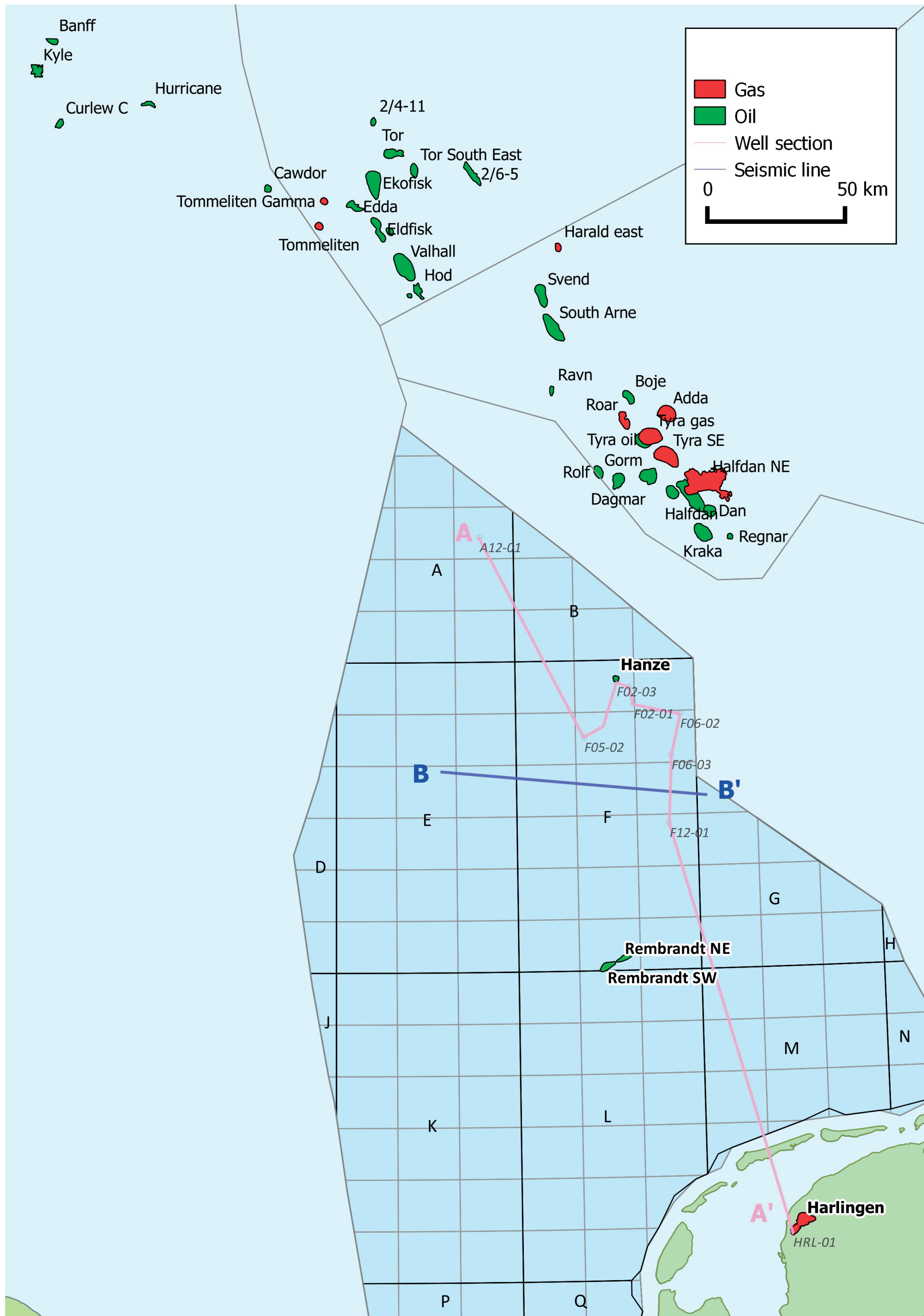
A proven yet underexplored play

- Oil production since 2001 (F2-Hanze field), recent discovery (F17-10)
- Many diapir traps undrilled
- Potential for intra-Chalk structural or stratigraphic traps (Halfdan analogue)
- > 55 untested closures, > 30 in open acreage
- STOIIP from 10 – 300 MMbbls each

SYSTEM	STAGES	LITHOSTRATIGRAPHIC UNITS																			
	(Hardenbol et al., 1998)	Netherlands (van Adrichem Boogaert & Kouwe, 1994)	Southern Norway (Oakman & Partington, 1998)	Offshore Denmark (Oakman & Partington, 1998)																	
Late Cretaceous	60.9 Ma.	Chalk Group	Ekofisk Fm.	Shetland (Chalk) Group	Ekofisk Fm.	Chalk-6															
	Danian						Ommelanden Fm.	Tor Fm.	Chalk-5												
	65									Maastrichtian	Chalk-4										
	71.3											Campanian	Chalk-3								
	83.5													Santonian	Chalk-2						
																85.8	Coniacian	Turonian Shale			
																			89	Turonian	Chalk-1
	98.9																				

Stratigraphic subdivision of the Chalk Group in UK, Norway and the Netherlands (Van der Molen (2004)

Chalk fields



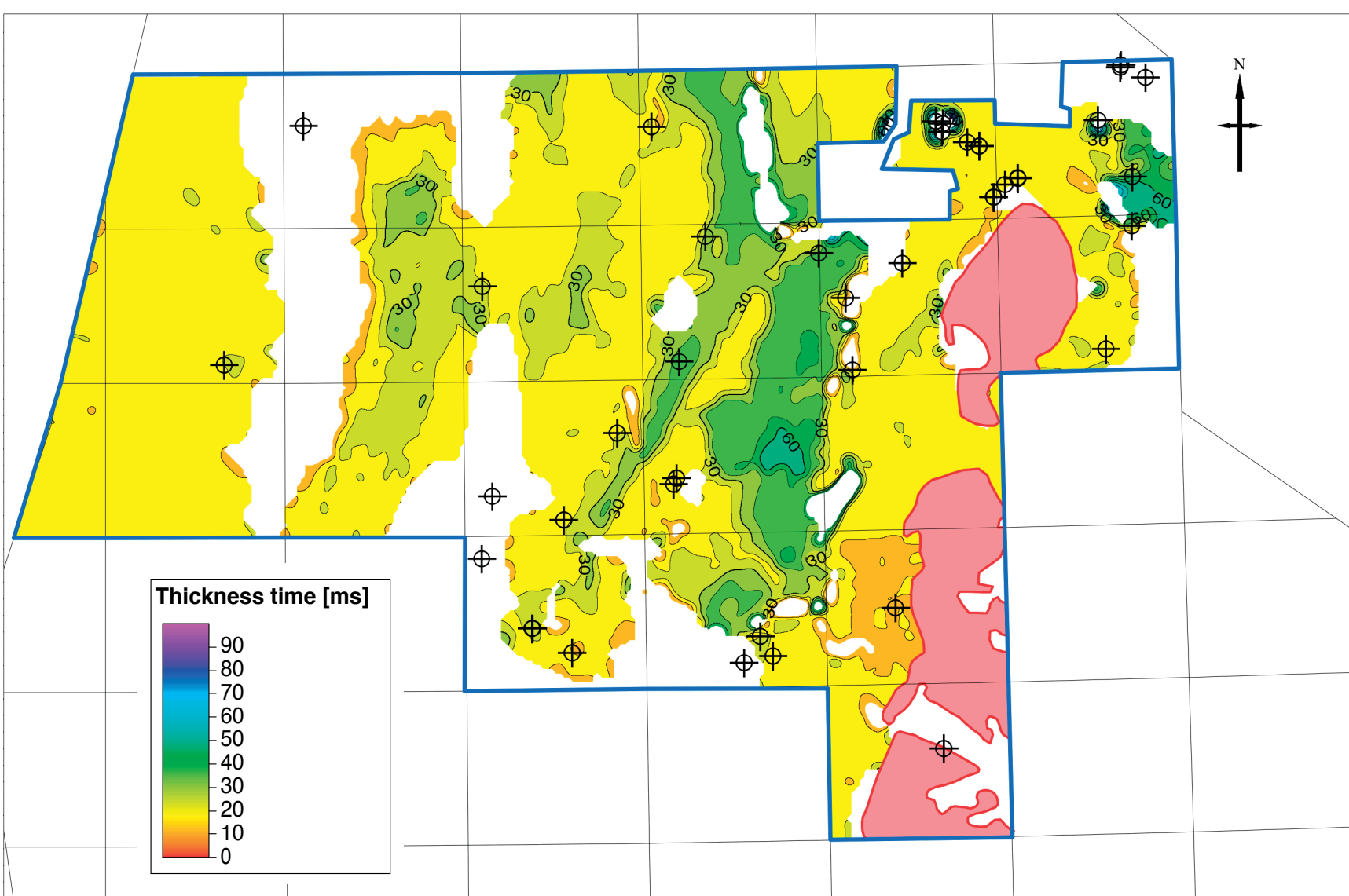
Planned studies/ research initiatives

- Identifying and mapping intra-chalk units and unconformities
 - Mapping time units in the Chalk (MSc Van der Voet, 2015)
 - Further mapping planned in A&B and G&M quadrants
- Reconstructing halokinetic development of salt structures (MSc Van Winden et al. 2015, additional work currently ongoing)
- Study extent of Chalk gas play (with the Harlingen Chalk gasfield as only analogue or test)
- Comparing Dutch Chalk data to analogues: identifying similarities, understanding differences
- Seismic geomorphology of the Chalk in the Netherlands
- Geochemical, sedimentological, geomorphological features of a sealing or non-sealing unit
 - Possible (PhD) study at DTU, Copenhagen, building on Danish Chalk analogues
- EBN plans to organize a Chalk workshop or course in 2016 open to industry

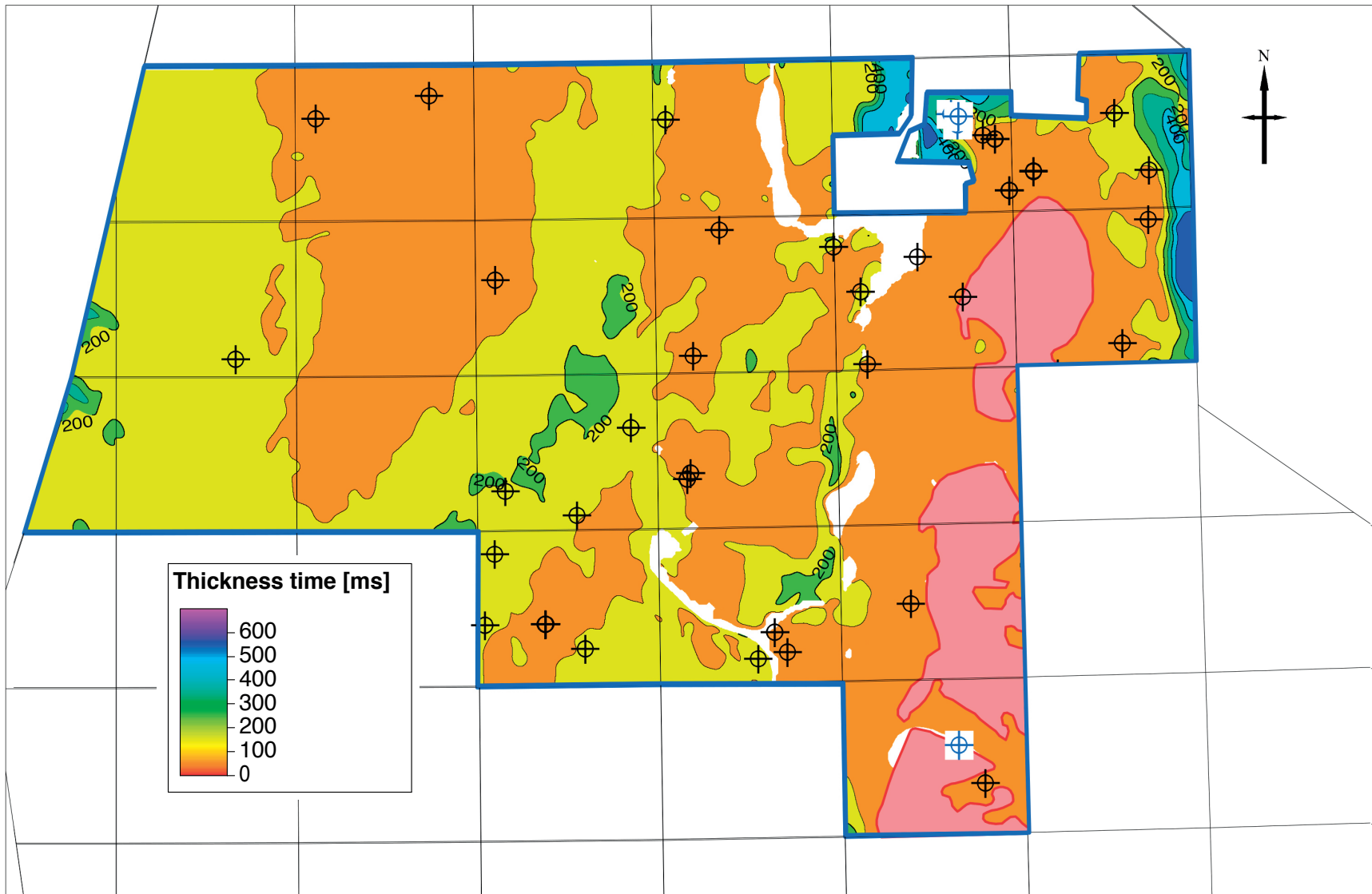
Preliminary results

Thickness chronostratigraphic units

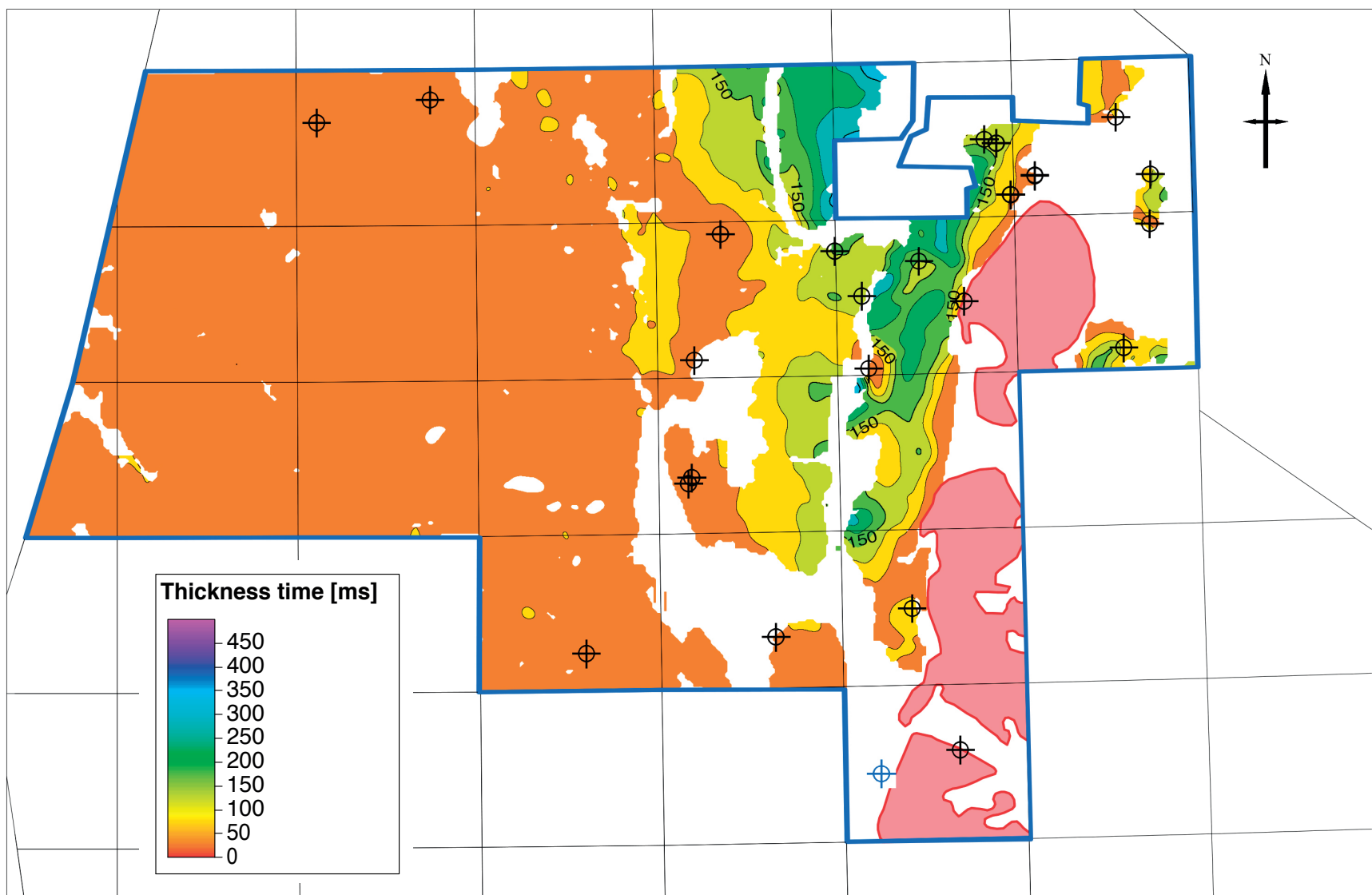
Van der Voet (2015)



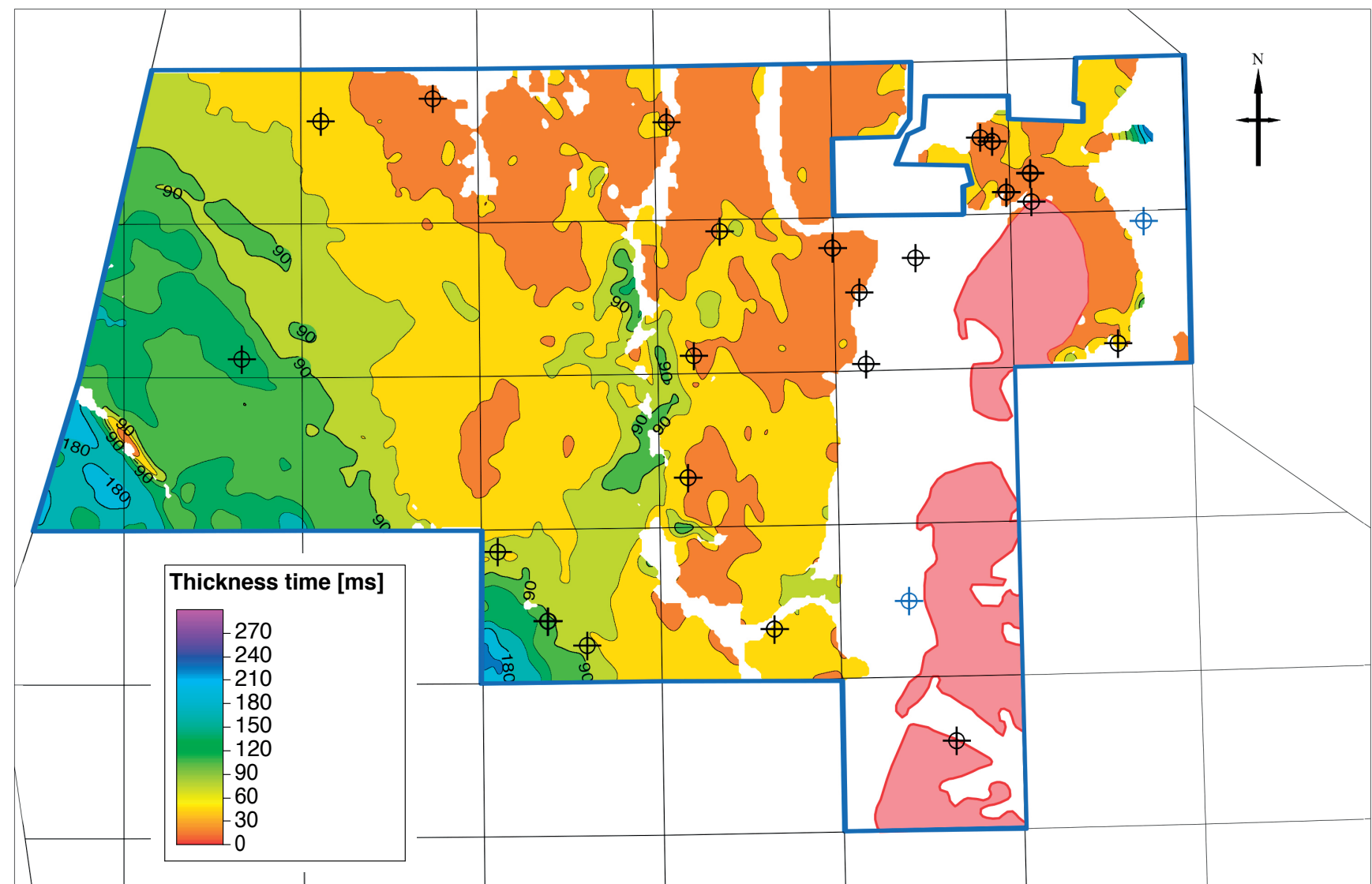
Thickness Danian (unit a)



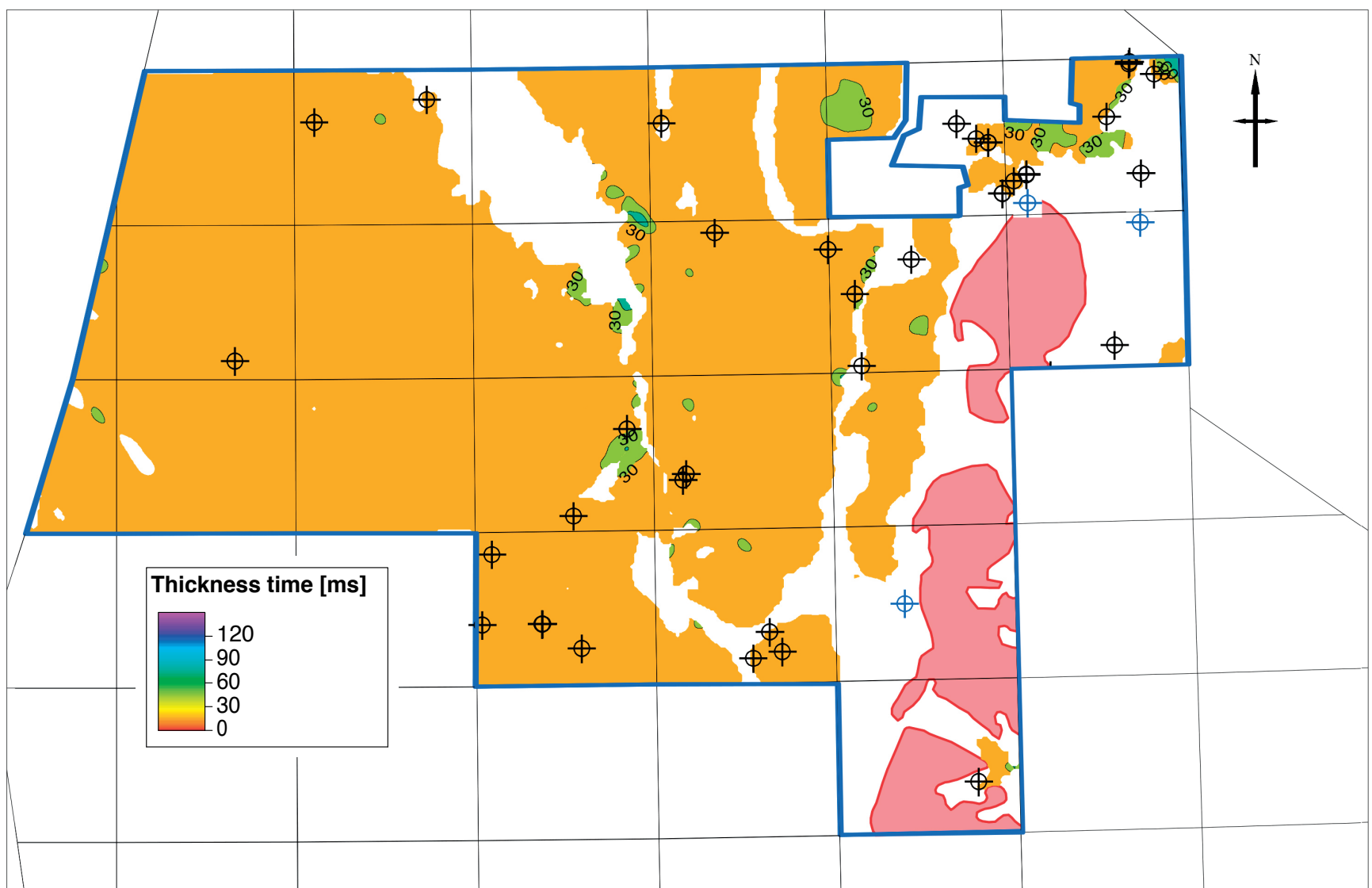
Thickness Maastrichtian (unit b)



Thickness Coniacian to Campanian (unit c, d and e)



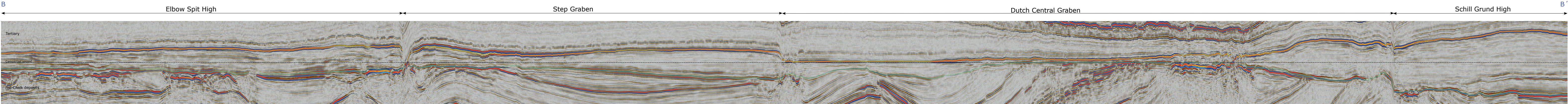
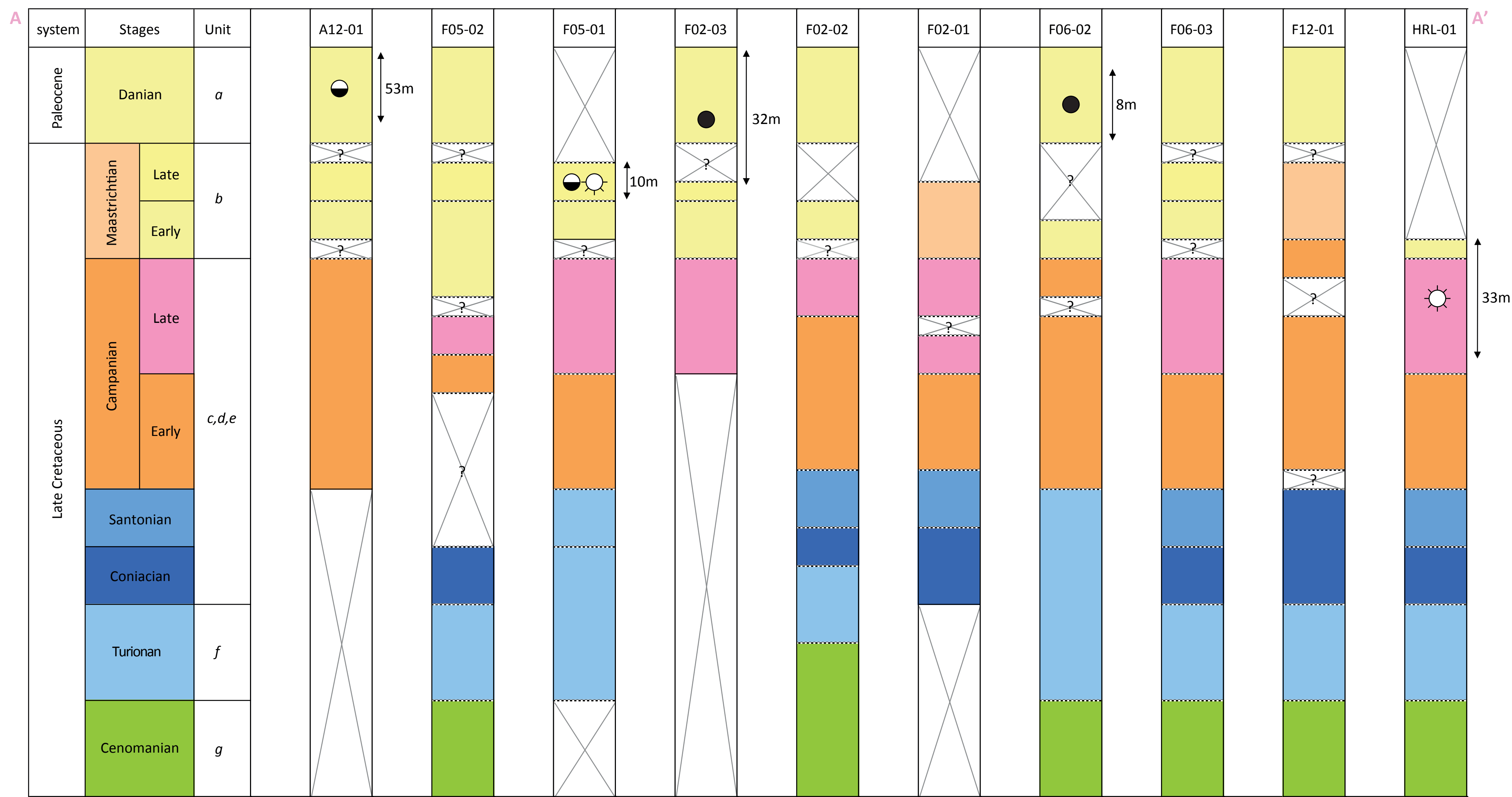
Thickness Turonian (unit f)



Thickness Cenomanian (unit g)

Chronostratigraphic units

Based on biostratigraphic data and seismic unconformities



Seismic characteristics of the Chalk, flattened on the Campanian unconformity

(DATA COURTESY SPECTRUM ASA)