SALT TECTONICS

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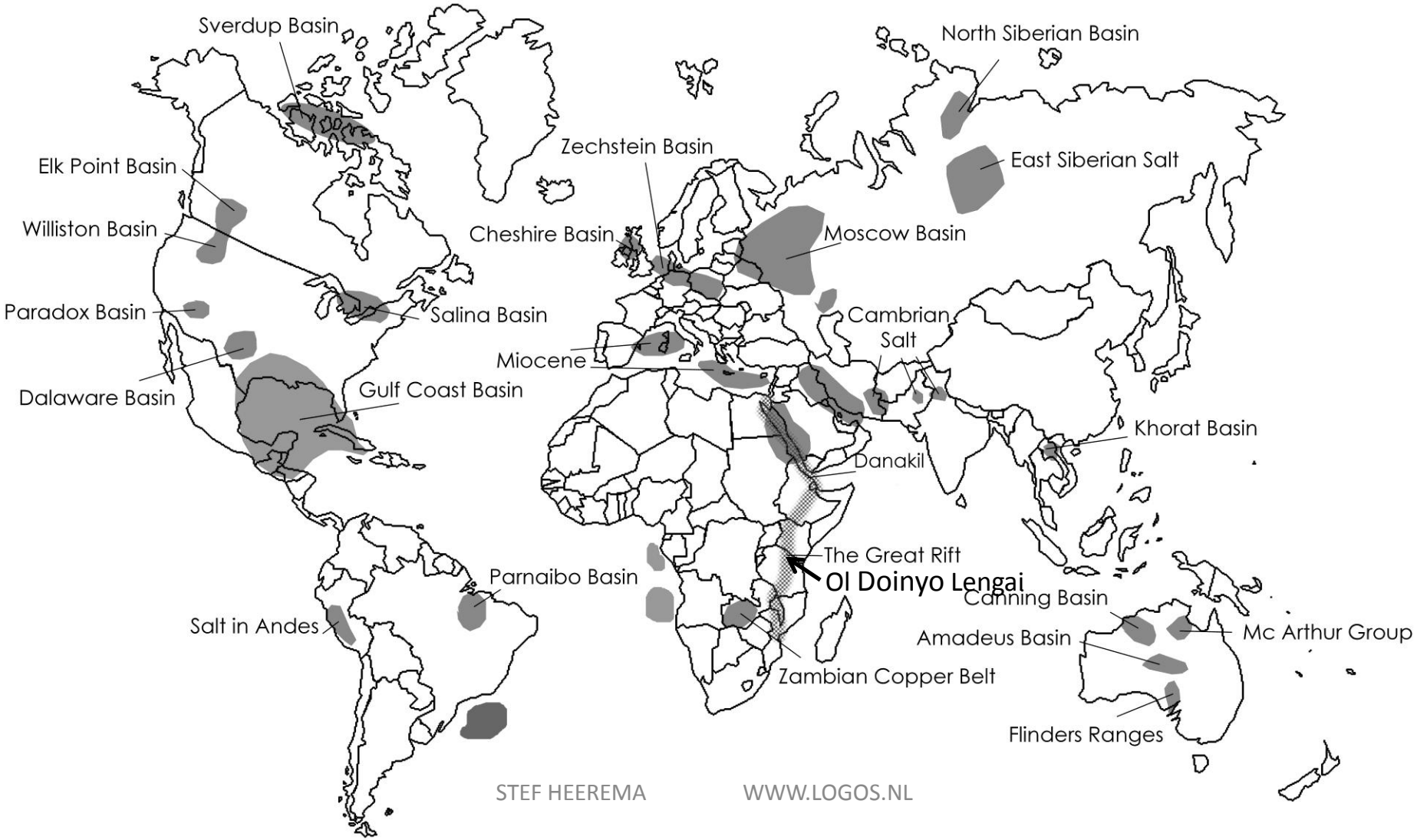
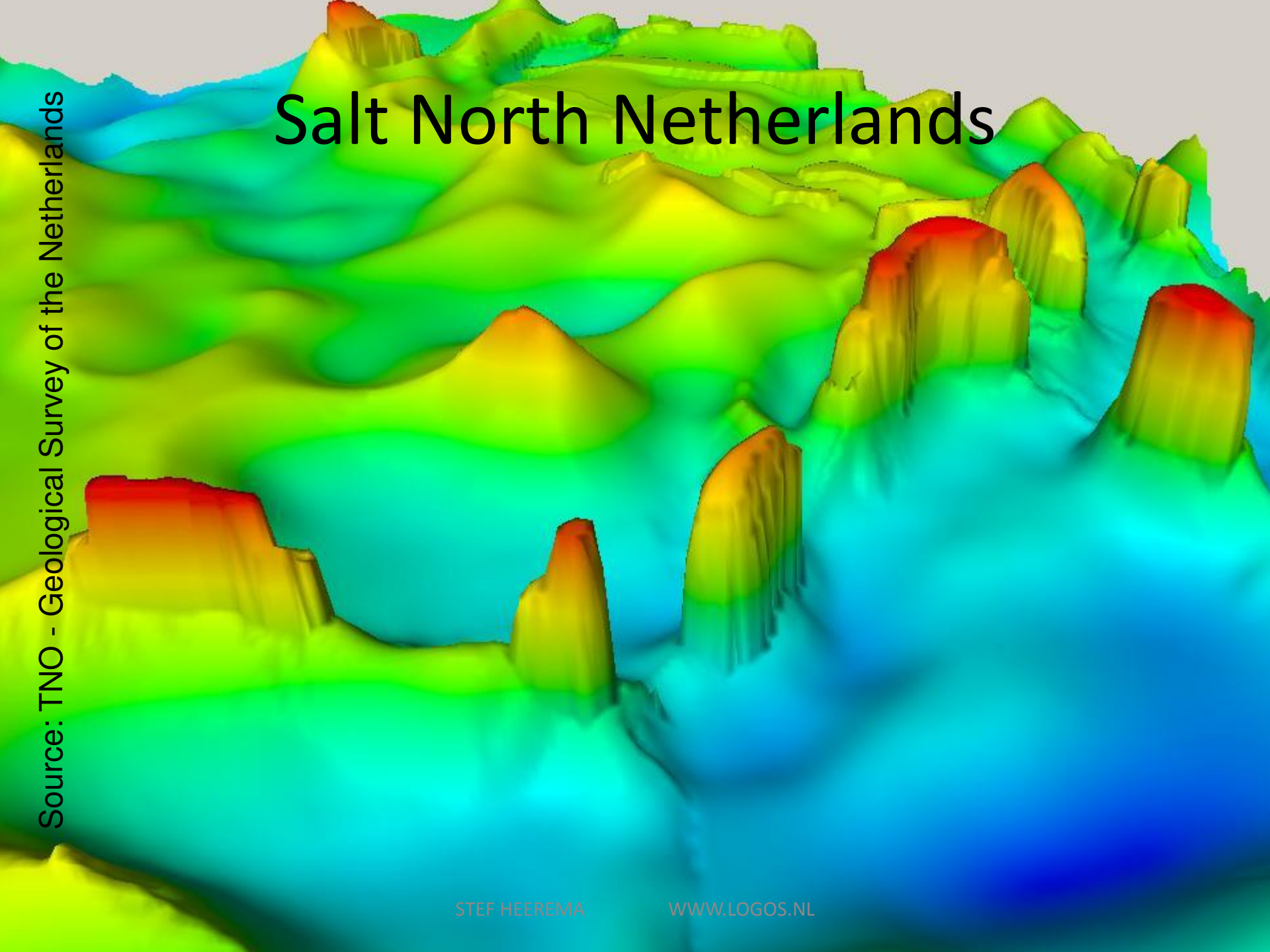
Achievements

- 2007 Visit Asse II
- 2009 Publication JoC / Presentation NedMag
- 2010 Presentation Frisia/NedMag/Akzo
- 2012 Prof dr Harry Oonk UU Earth Science
  - Solidification process molten NaCl/CaSO4
  - Gypsum into anhydrite
- 2014/2015 Two times presentations TNO
- 2015 Secular Journal Grondboor&Hamer
- 2015 Origins2015 in Amerika
- 2017 Solidification tests plus publication(s)

Salt on all continents



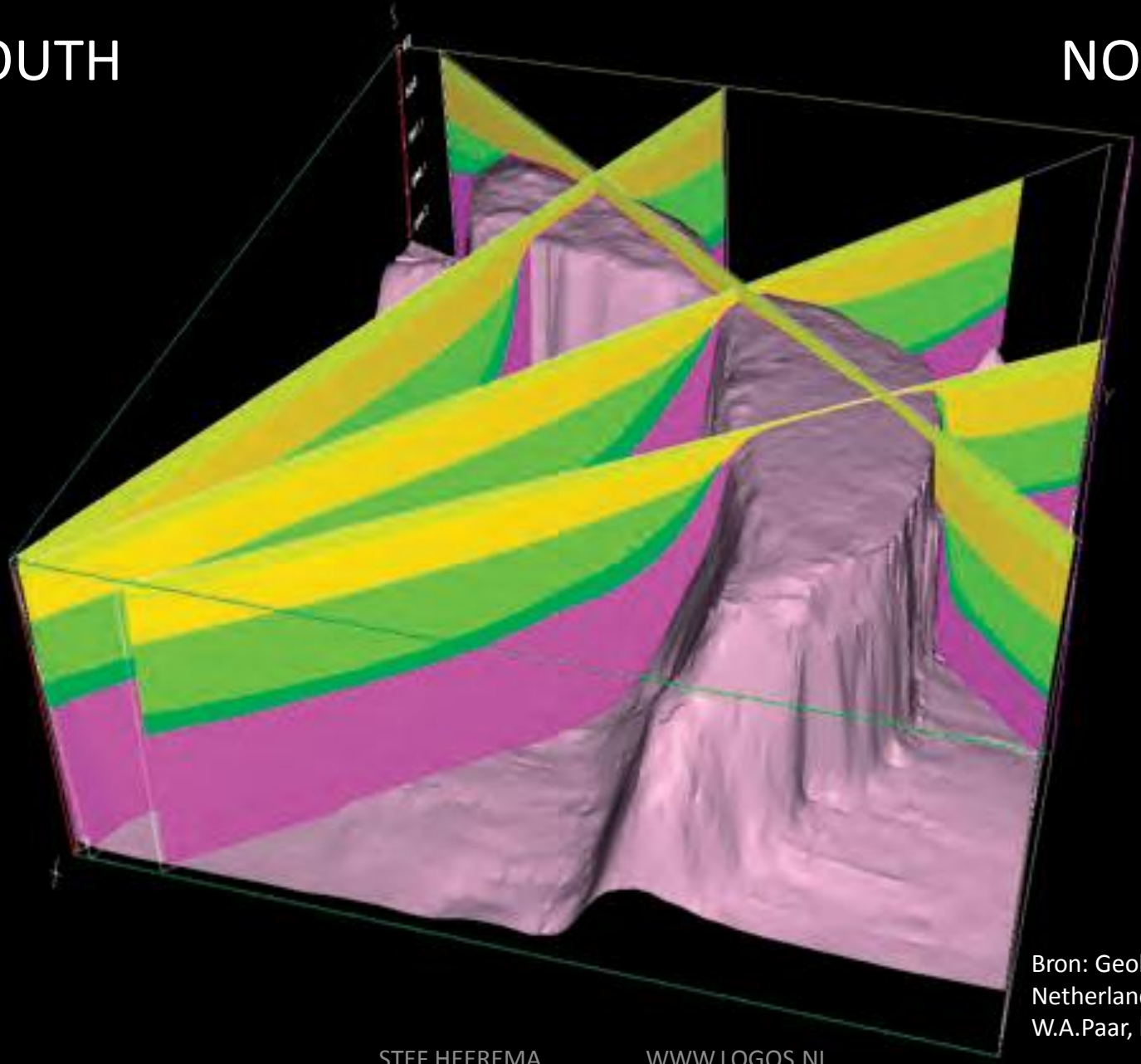
Salt North Netherlands



Source: TNO - Geological Survey of the Netherlands

SALT PILLAR ZUIDWENDING

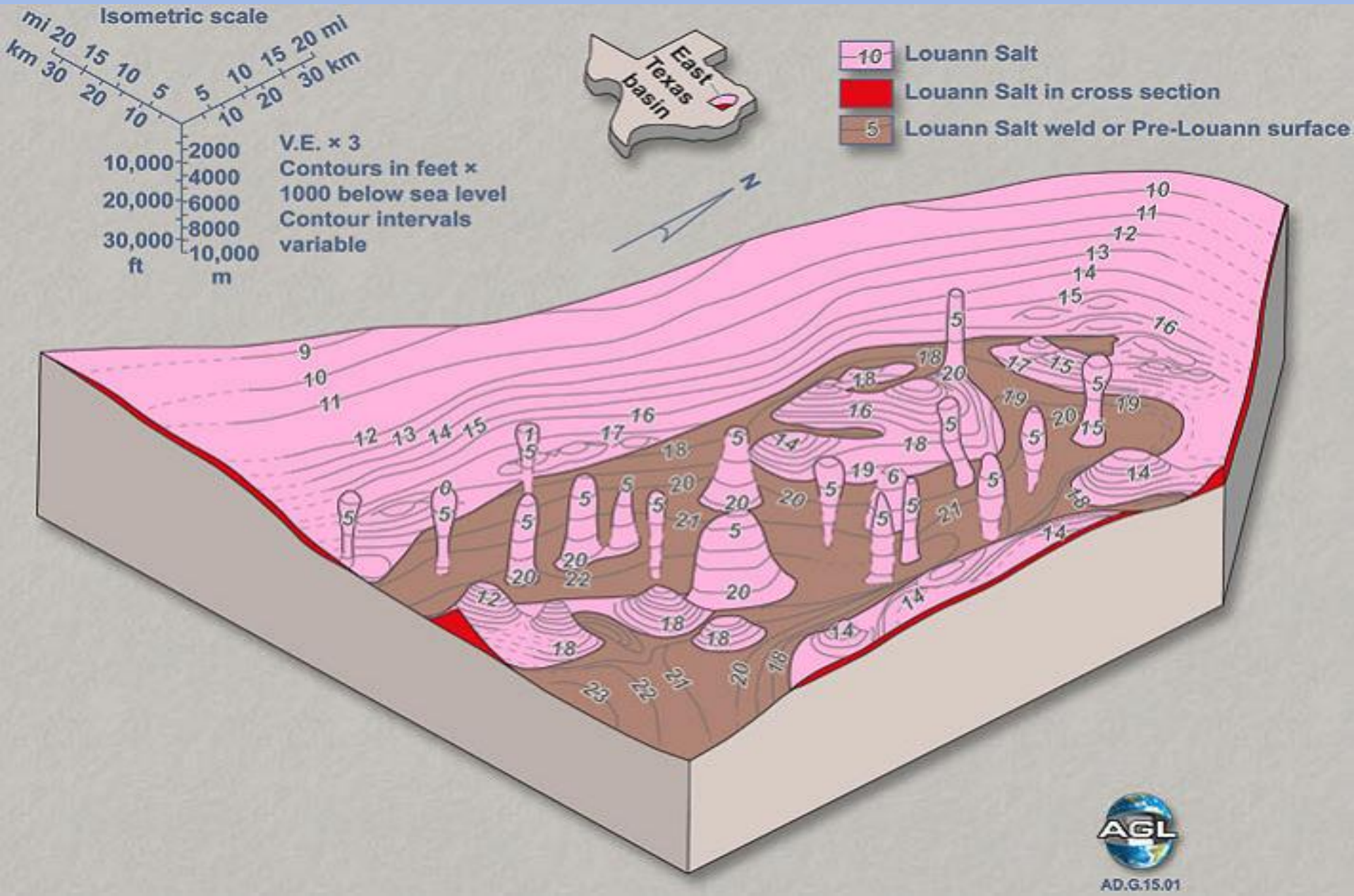
SOUTH NORTH



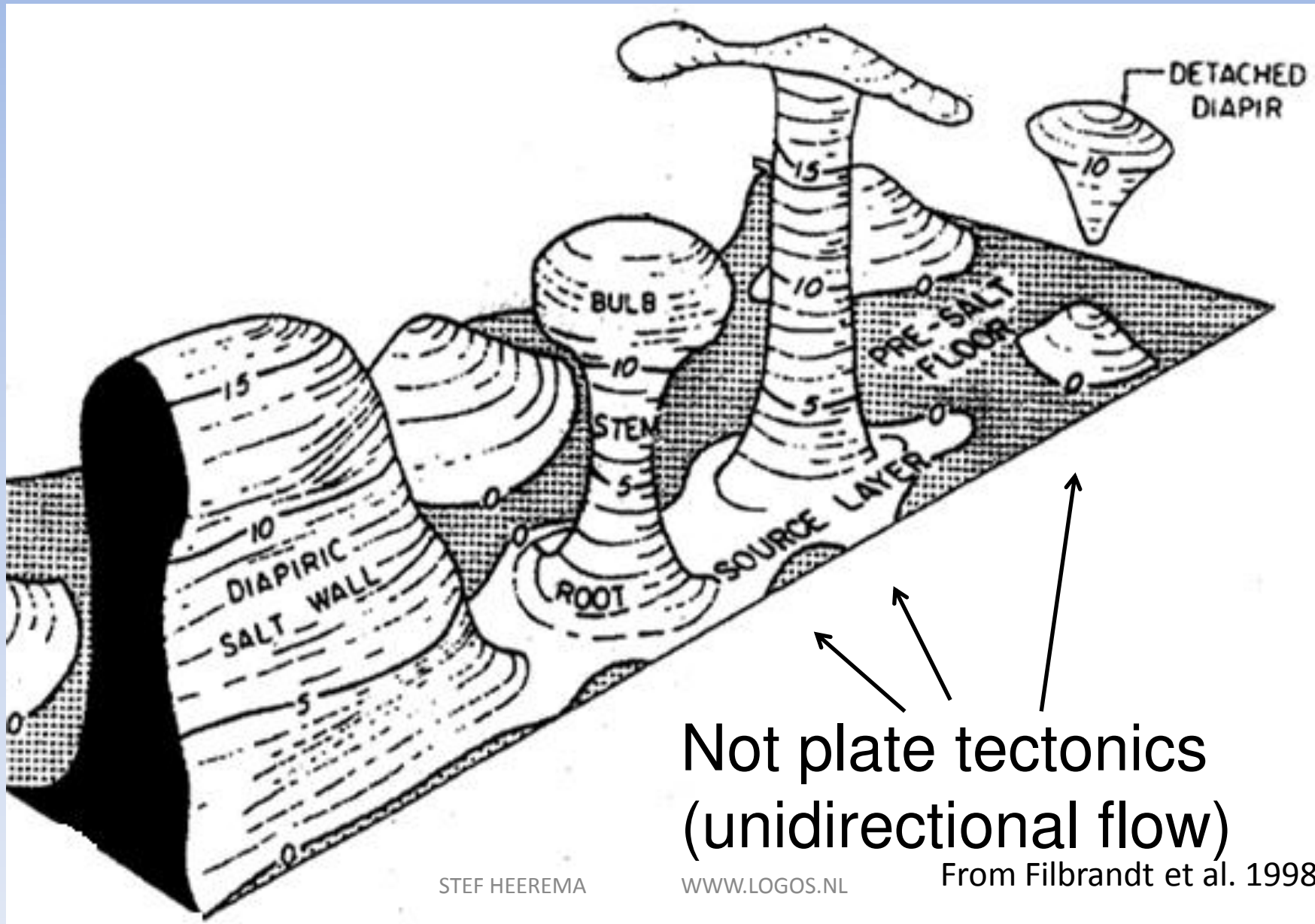
Bron: Geology of the Netherlands, M.C.Geluk, W.A.Paar, P.A.Fokker

East Texas Basin

Salt Tectonics © Cambridge University Press 2011



Kinds of Pillars



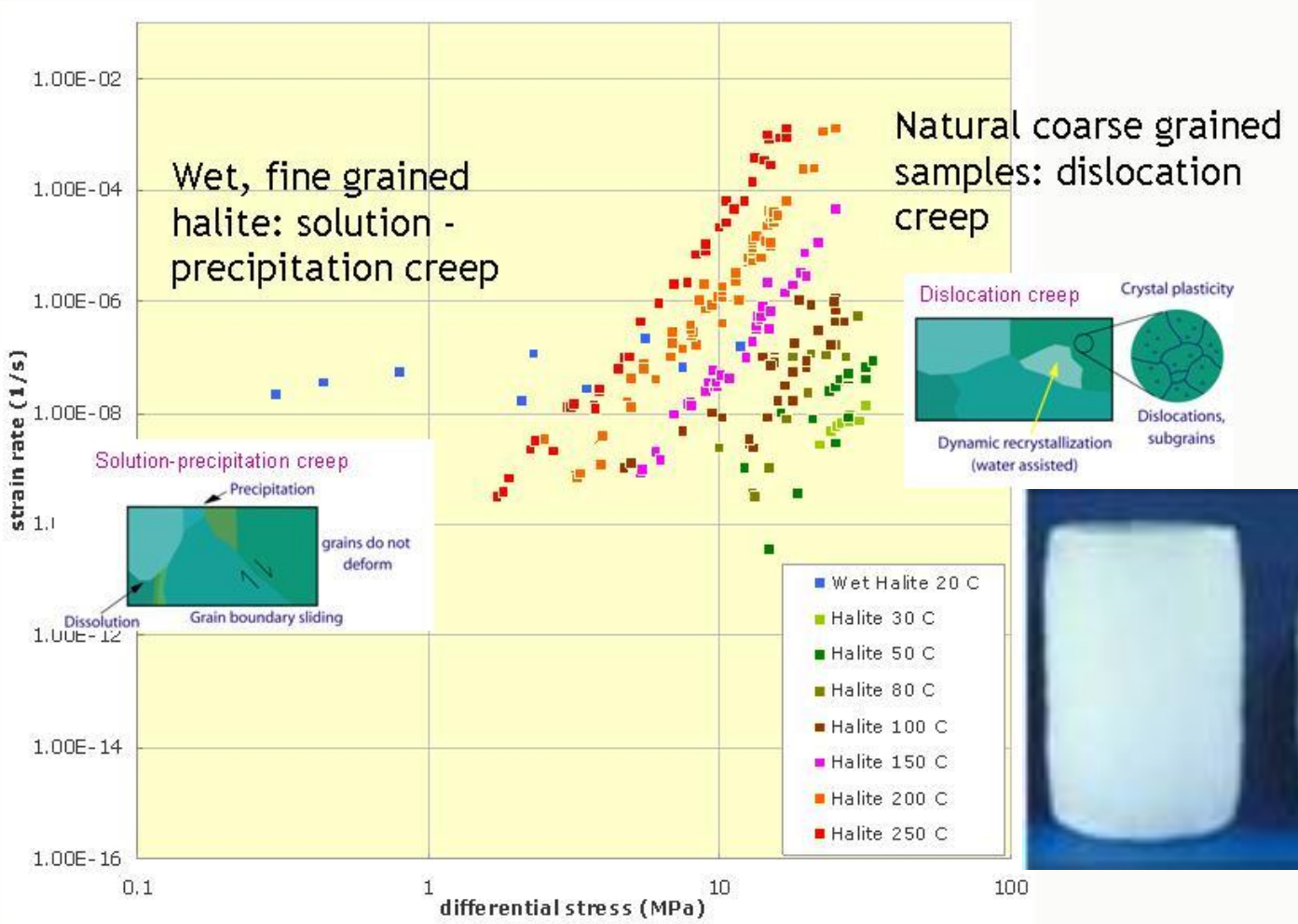
Not plate tectonics (unidirectional flow)

From Filbrandt et al. 1998

Differential stress - strain rate

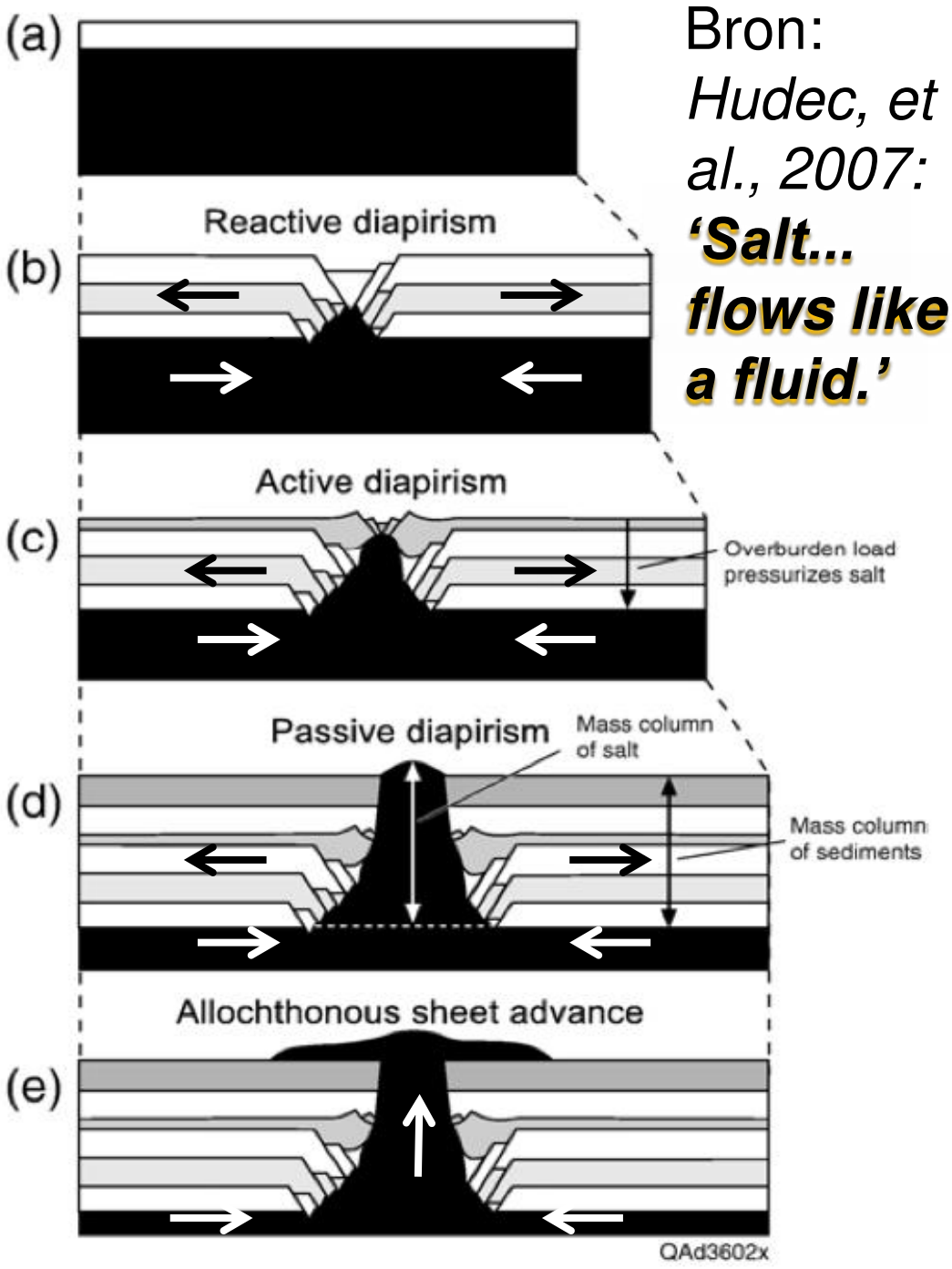
Urai et al, 2008

Experimental data



Spiers *et al.*, 1986; Urai *et al.*, 1986, Hunsche *et al.*, 2003, Horseman & Handin, 1990; Horseman *et al.*, 1992, Senseny, 1988, Hansen & Mellegard, 1980; Hansen & Carter, 1984, Handin *et al.*, 1986

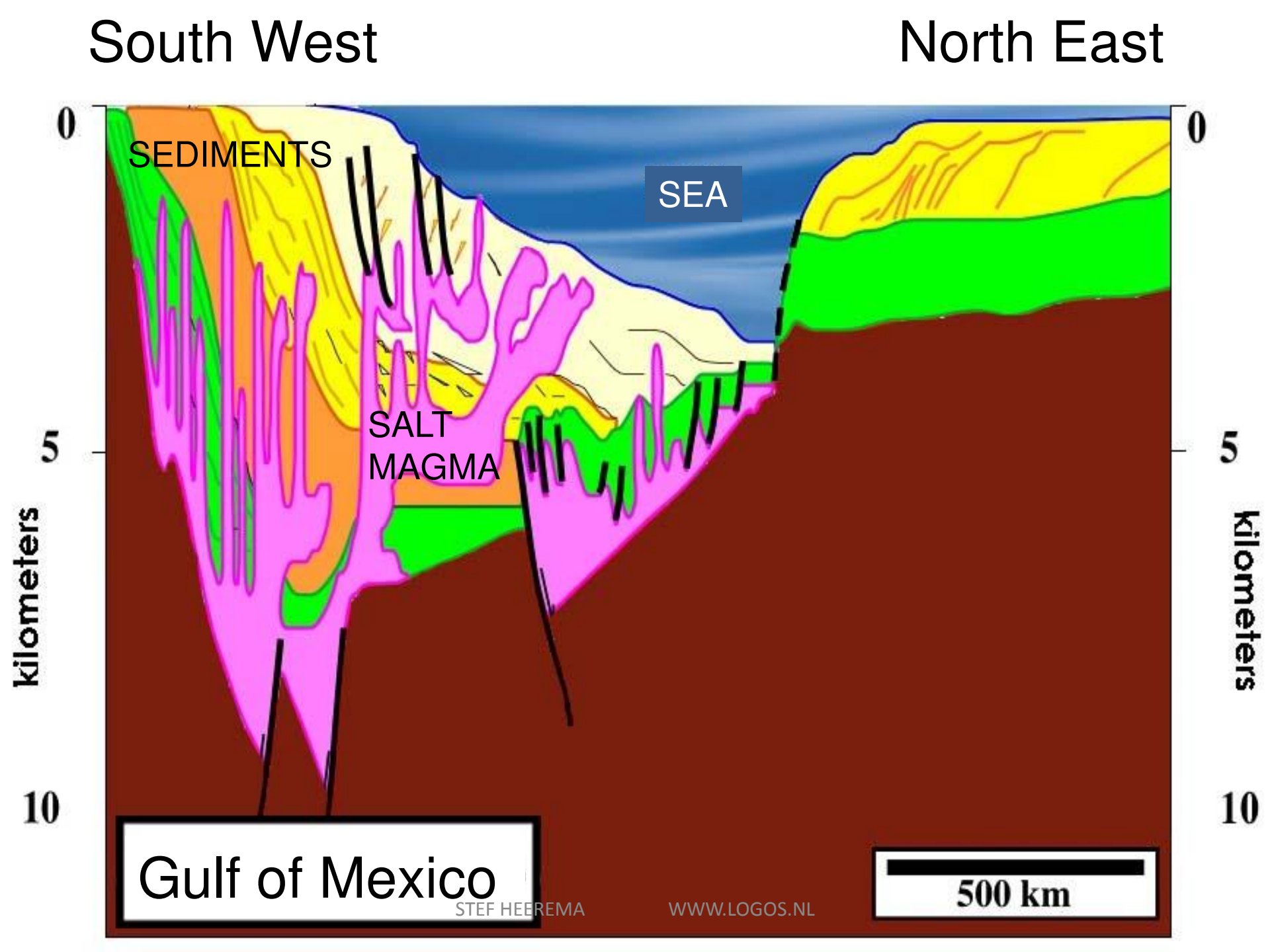
Evolution (±300 Ma):
a) salt underneath growing sedimentary overburden
b) overburden pulled apart
c) differential loading and buoyancy
d) salt pillar forms isle
e) salt flow continues after sedimentation stopped



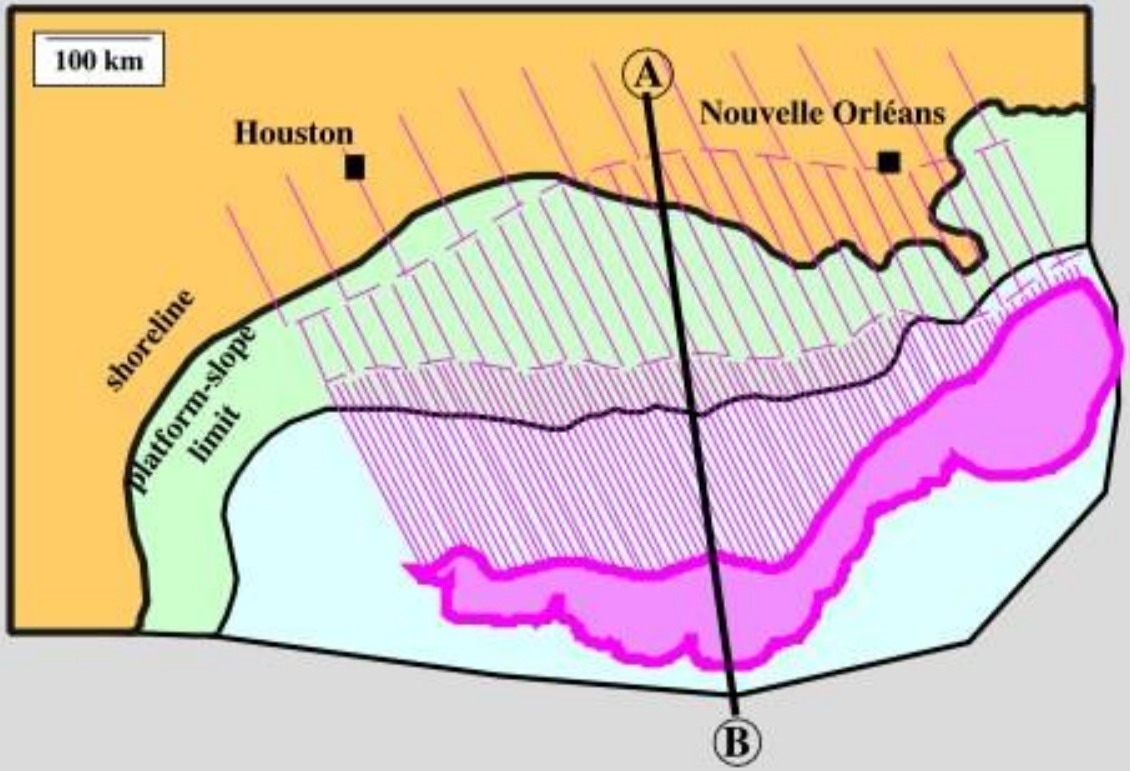
Bron: *Hudec, et al., 2007:* ***'Salt... flows like a fluid.'***

Salt magma and watery mud interfingered like the process in a lavalamp. The one fluid rises up while the other fluid gives way.

A synsedimentary process.


South West
North East
0
SEDIMENTS
SEA
SALT
MAGMA
5
10
kilometers
0
5
10
kilometers
Gulf of Mexico
500 km
STEF HEEREMA
WWW.LOGOS.NL

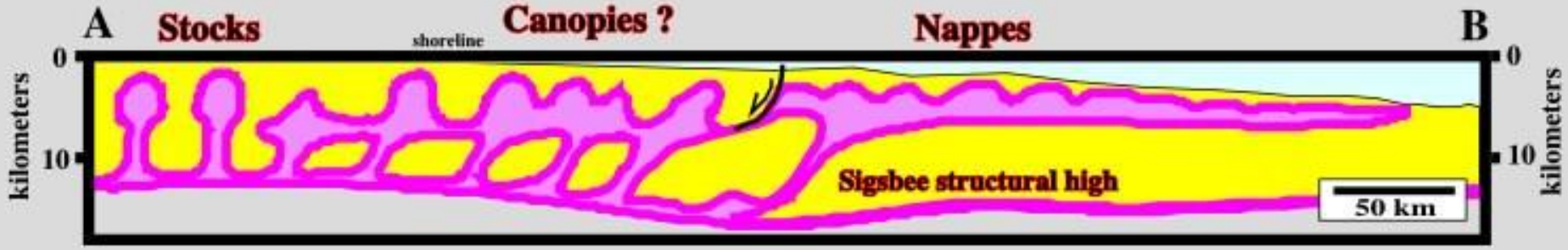
Overturning in GOM



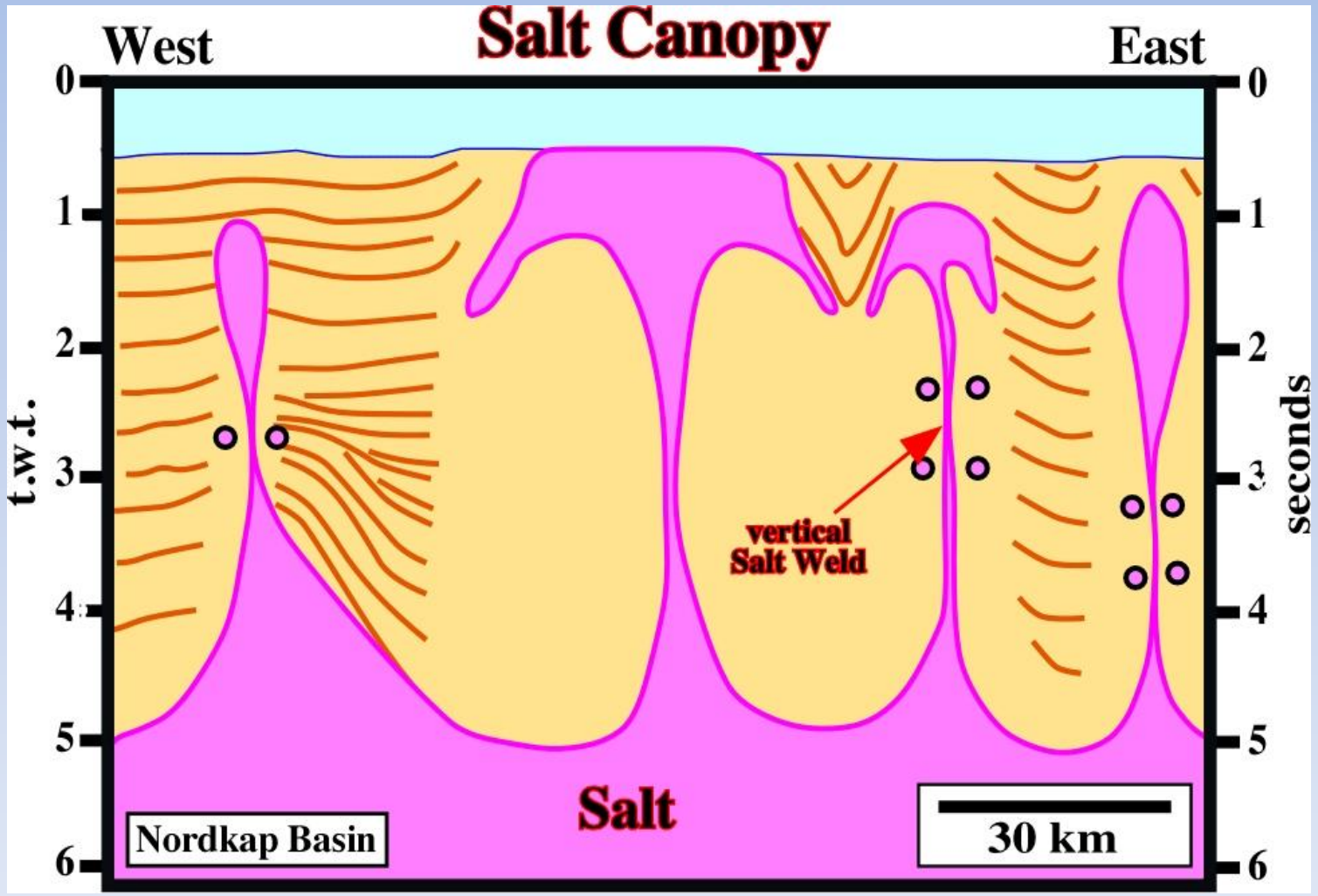
Displacement over 200 km

±10 cm/jaar

=> 2Ma (nuts)



Oil/gas captured under rapid formed *Canopies*

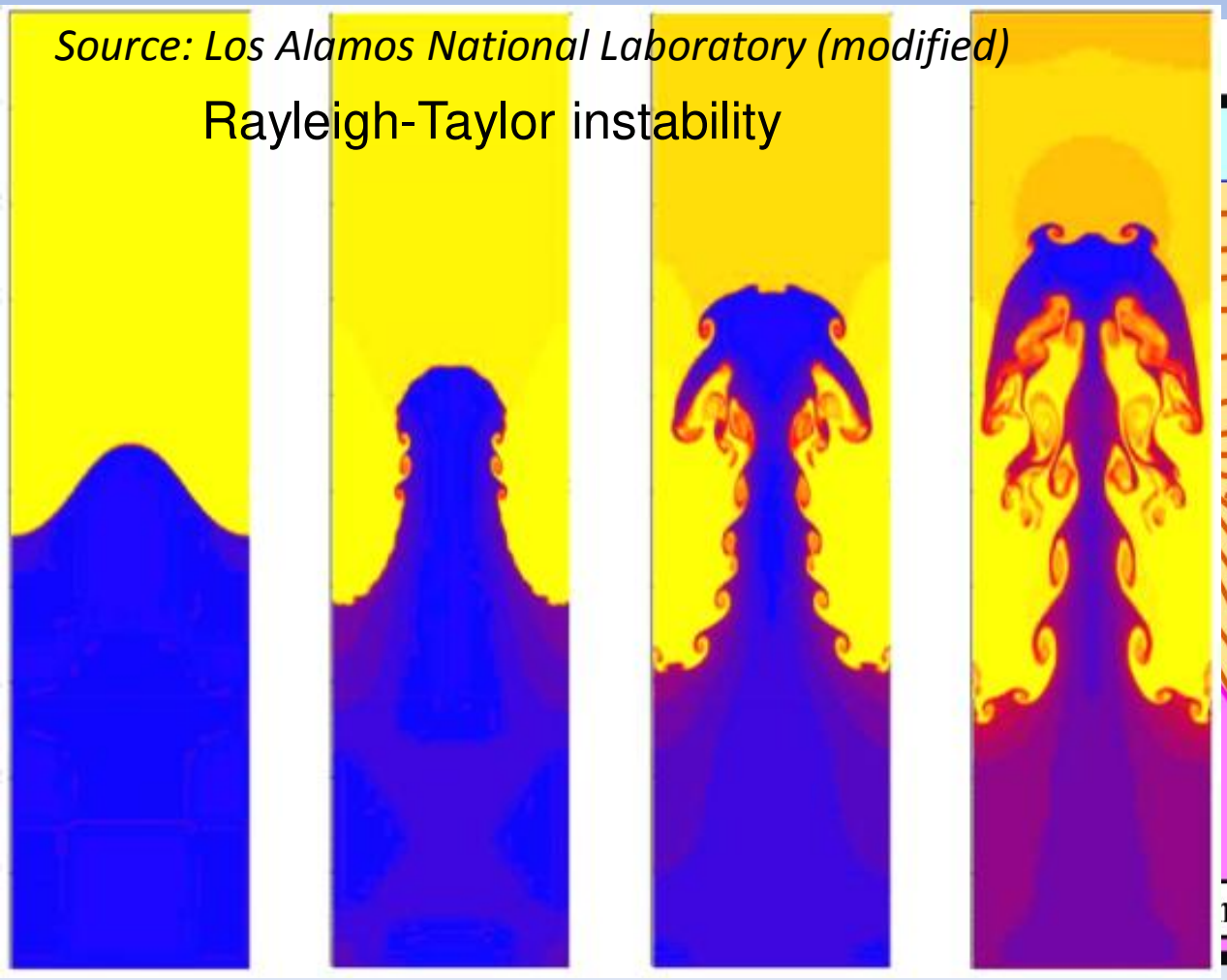


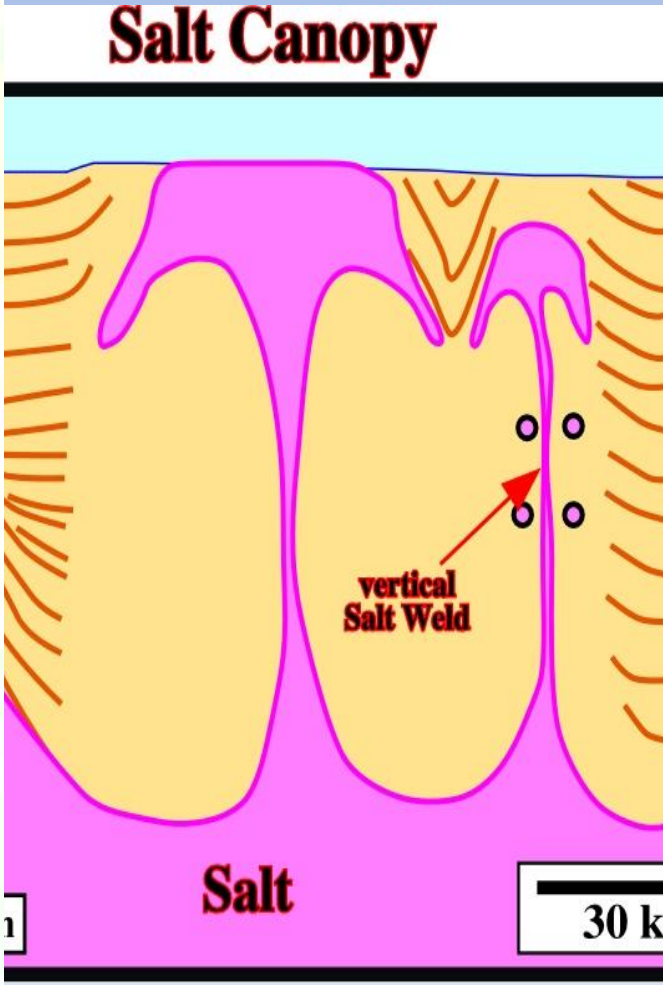
Bron: *Universidade Fernando Pessoa*

Hydrodynamics of two non-miscible fluids

Source: Los Alamos National Laboratory (modified)

Rayleigh-Taylor instability



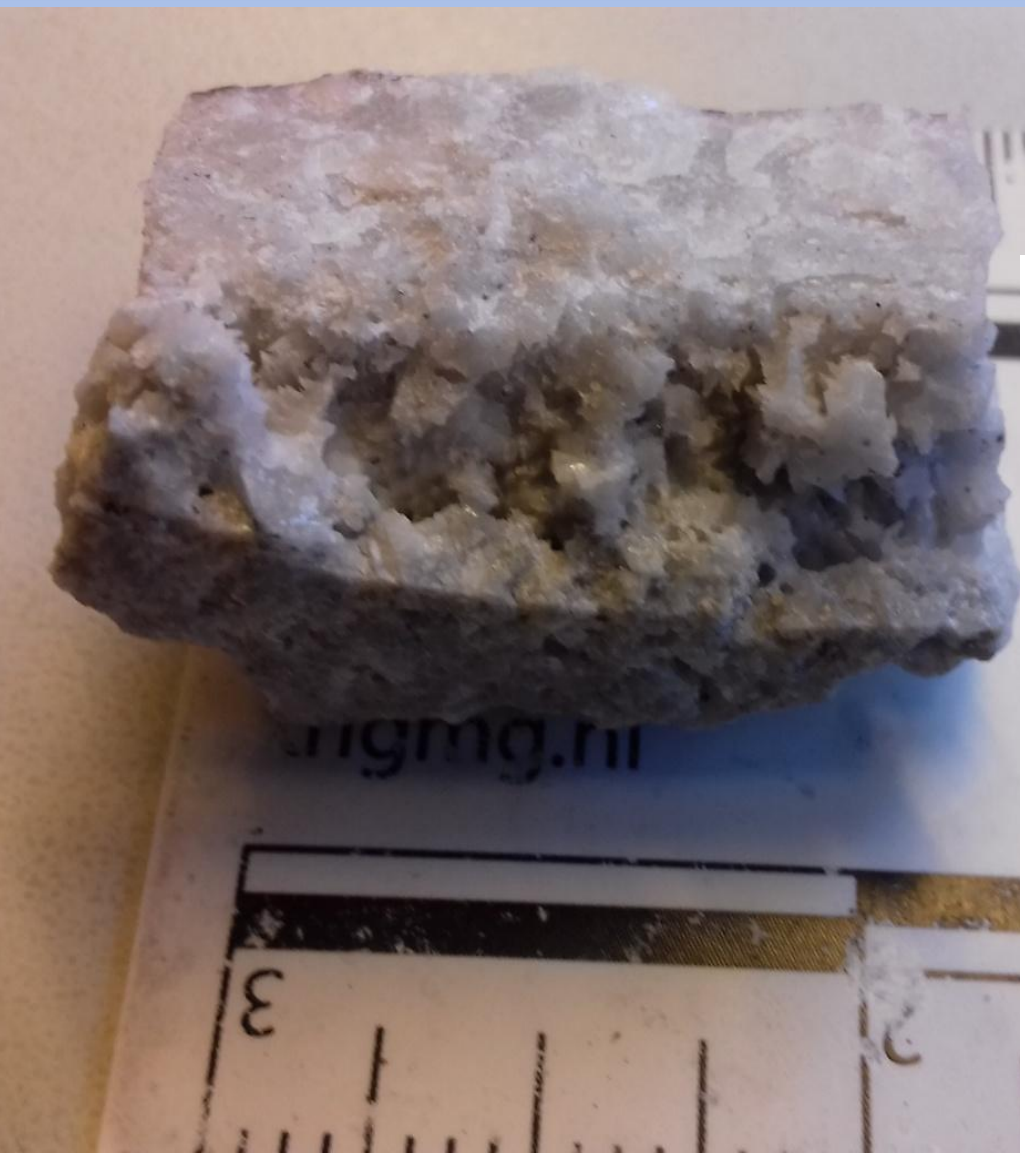


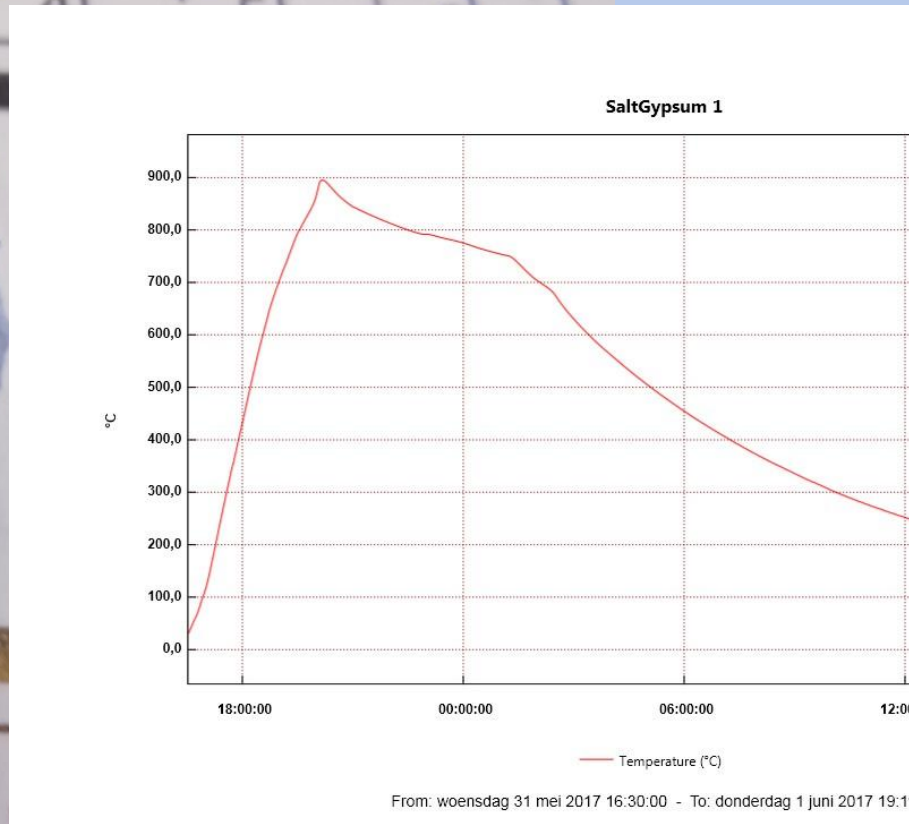
Hydrothermal Models do not fit

- Salts probably are the driest rock on earth (eg Anhydrite)
- Hot water flowing underneath wet sediments would mix
- What mechanism would freeze a hot water flow to a Salt Canopy in the middle of watery mud?

Producing ionic liquid: 100% NaCl

76 wt% NaCl / 24 wt% $CaSO_4$





Samenvatting

- Zout heeft vulkanische oorsprong; vermeende indampingsgeschiedenis is onjuist
- Pijlervorming alleen mogelijk in vloeibare vorm: zoutmagma stollend in modder
- Reguliere geologie is gefalsificeerd
- Reguliere geologie gaat onwetenschappelijk om met tegengeluid en verspilt belastinggeld
- De Bijbelse zondvloed is aantoonbaar.