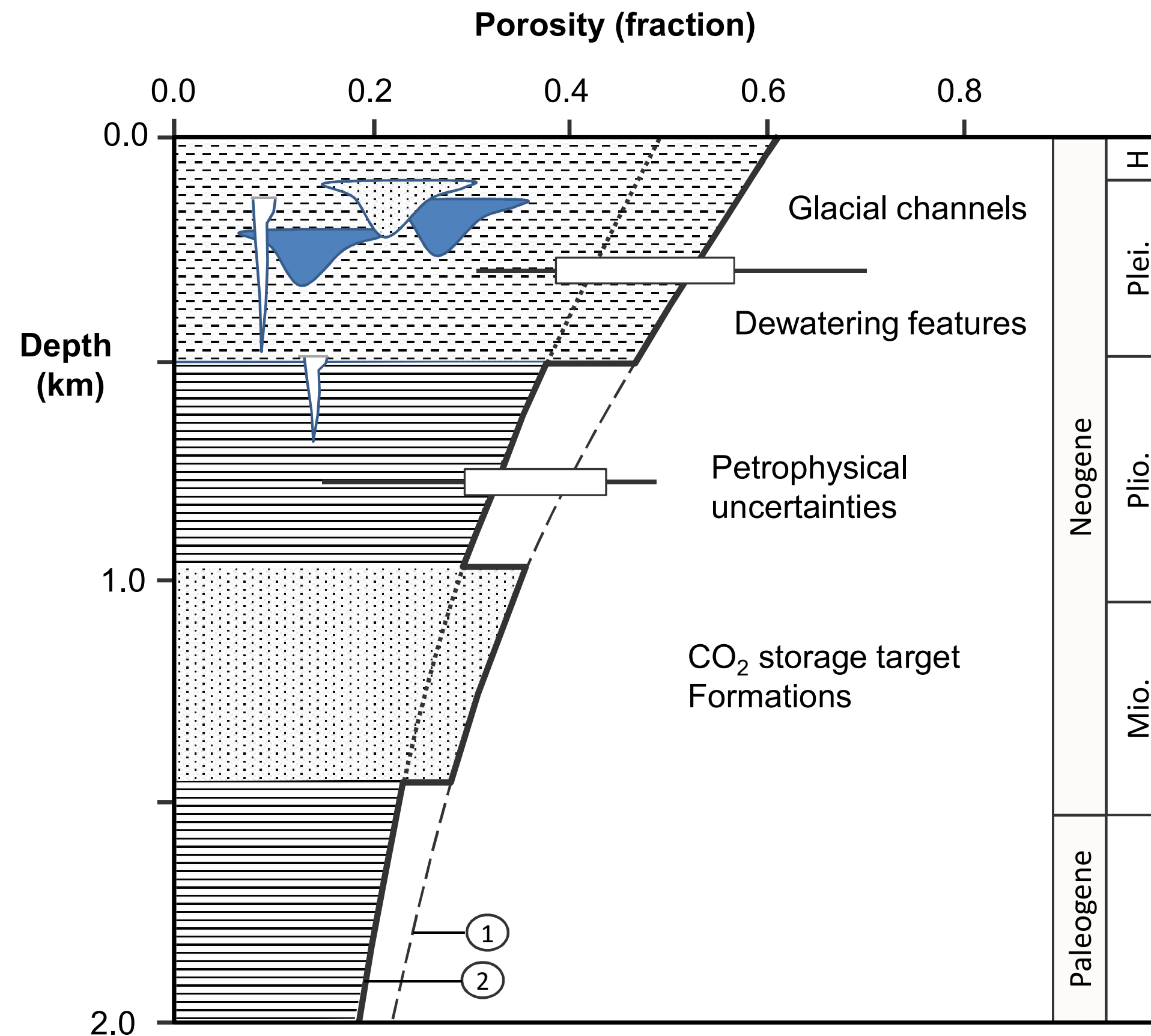


# Rock properties versus depth

- Conceptual sketch showing a shallow stratigraphic sequence representative of the North Sea basin.
- Typically a Miocene CO<sub>2</sub> storage target formations could be capped by a Pliocene mudstone sequences forming the main containment system.
- The role of shallow glacial channel and dewatering features in the Pleistocene may be a key issue for assuring storage containment.
- Reference porosity curves are shown based on (1) Sclater & Christie, 1980, and (2) Marcussen et al., 2010.
- The actual porosity and permeability of the shallow basin sequence is variable and uncertain and needs to be determined via site investigation



# Containment

Trapping mechanisms involve both physical and geochemical factors:

- Physical trapping mechanisms related to basin-scale processes:

- regional structure, basin history and pressure regimes

- Physical trapping mechanisms related to geometry of traps:

- controlled by rock architecture of the storage complex

- Physical trapping mechanisms related to fluid flow processes:

- Capillary interfaces between fluids


- Retention of CO<sub>2</sub> as a residual phase

- Geochemical trapping mechanisms:

- CO<sub>2</sub> dissolution in brine

- CO<sub>2</sub> precipitation as mineral phases

- CO<sub>2</sub> sorption/absorption (e.g. on clay minerals)



Structural and  
Stratigraphic  
trapping